Telit Communications PLC I telit2market international I Issue 09 I February 2014 I www.telit.com

ISSUE 09|14

telit 2market

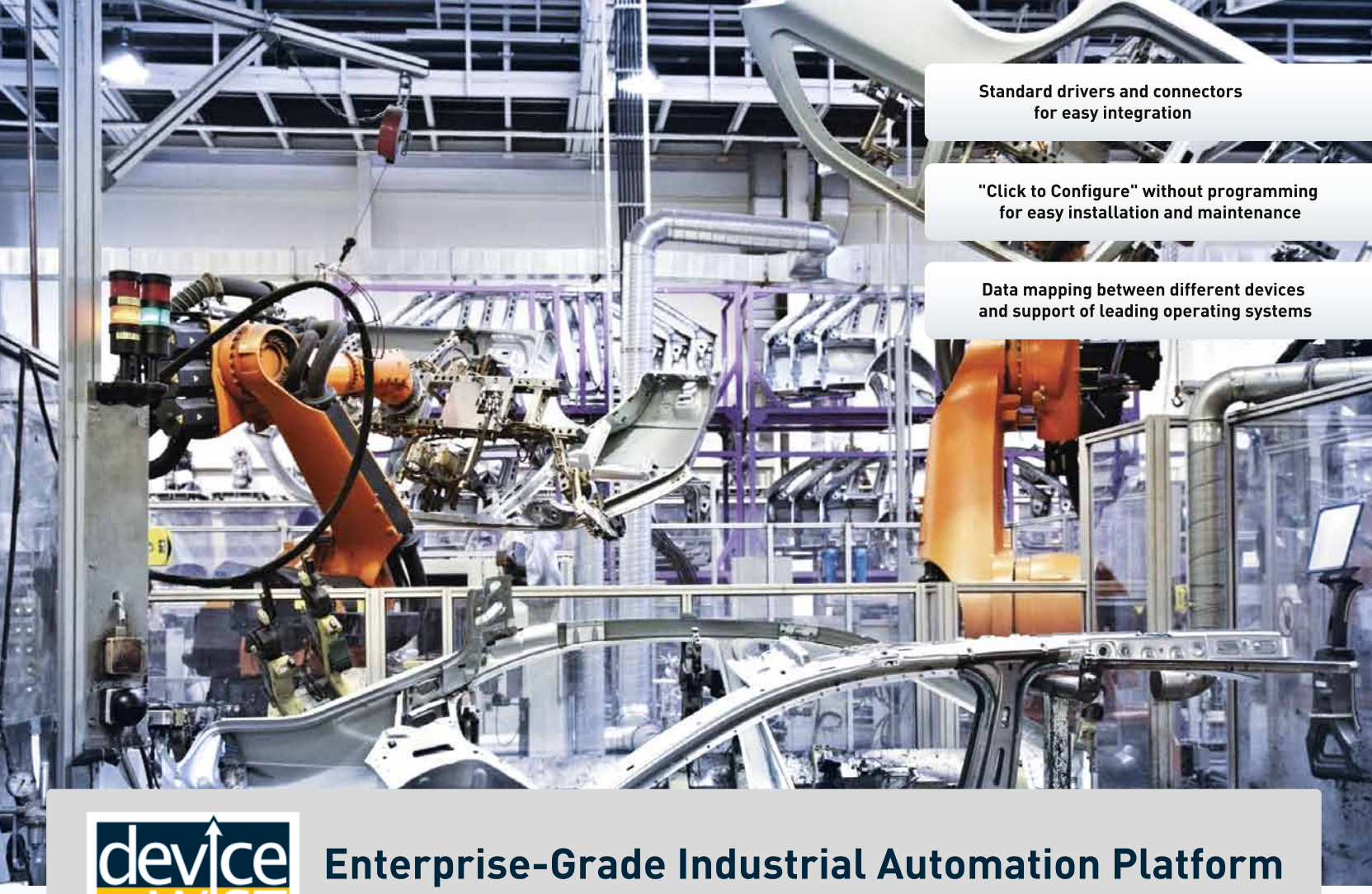
The Telit m2m Magazine

The INTERNET of THINGS made Plug&Play

Case studies from vertical segments:

Telit® wireless solutions

Making machines talk.®



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Oracle MOC	IBM DB2/400	Microsoft MSMQ
Web Services	PostgreeSQL	JMS IBM WAS SIB
SAP NetWeaver	MSSQL / MySQL	IBM JMS WebSphere MQ

IN SERVER

ON RACK

ON EDGE

LEGACY PLCS
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SIEMENS
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ROBOTS

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ils technology
a Telit company

Enrico Testa, *Chairman of the Board*, *Telit*

DEAR READER,

>> The world of interconnected devices is becoming increasingly more pervasive and widespread. It is a silent world we are barely aware of, but one that goes on carrying out its tasks at the service of people and businesses. It spares precious resources where there is still a broad margin for improvement by increasing the effectiveness of organizational processes and the speed with which information is made available. For businesses and individuals who know and will know how to use its full potential, it offers a considerable competitive advantage. It improves daily through the development of technology and communication networks. And the best is yet to come.

Telit is one of the key players in this major shift. We've had a positive year and we have in store a number of projects and achievements from recent years that are just now beginning to bear fruit. Our aim is to provide our customers with goods and services: goods that, from a technological point of view, provide increasingly high performance and services that allow them to reach their full potential. Not only do we want to provide the m2m communication tool, but also the method for verifying its performance and for fully exploring the information which, as a result, can be gathered, processed and improved.

We are evolving together with our customers; we anticipate their needs and help them in the process. The results speak for themselves. We are growing and will continue to grow. We are encouraged by the positive signs shown by the global economy and we feel perfectly capable of taking part in this growth.

Our shareholders are no doubt satisfied with a year which, to a certain degree, has proven to be exceptional. And so too is our workforce, which is constantly growing around the globe.

We have both the financial and, above all, the human resources for sustained growth. In short, we are in excellent health and we are ready to take on the leading role.

Chicco Testa

09|14 CONTENT

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TECHNOLOGY'S LEADING ENABLER OF ECONOMIC SCALE WEALTH CREATION – M2M

Oozi Cats, *CEO*, *Telit*

>> Now that most of the world's leading technology companies and **celebrity CEOs have gone public announcing bold strategies for the new era of the rise of connected "things",** with a number of them even taking stabs at coining new names for this fascinating convergent space of IT, Telecom, and a number of other technology areas that we call simply m2m, I wanted to preface this fantastic new issue of telit2market with a bit more of the Telit perspective on the matter.

Whether you believe one analyst's 50 billion or another's 30 billion connected device forecast for 2020, **the fact remains that we likely all believe in a very healthy figure.** But let me propose that the significance of this number pales in comparison to the real game changing power of some key facts backing these happy predictions. **Whether we care to admit this or not our evolution as a society has already become completely dependent on the progress of m2m and its wealth creation power.** What and where we need to be as a civilization in 2020 and beyond is not achievable without it. **We simply cannot get there from here without m2m** rising to the level of ubiquity that we see now, for instance in the absolute penetration of the smartphone and other personal communication devices.

When you look at the opportunities created by the challenges facing us globally – caring for and improving quality of life of our aging population, reversing the trend of increasing lifestyle diseases like obesity now affecting over one billion people, **needing to feed, house, educate and empower another few billion inhabitants** mostly in less developed regions, our commitment to reducing emissions and pollutants, being smarter and reducing waste in use of resources like fresh water and energy, to list but a few – **it is clear that technology is in the critical path of a way forward and it is equally clear that this technology must be applied in ways we never imagined before** representing a whole new universe of opportunities for new and established businesses.

TECHNOLOGY INGREDIENTS FOR THE COMING WAVE OF CONNECTED ASSETS

What is different about the technology recipe for these opportunities is that we are not talking about local and disconnected nodes performing static algorithmic processes based on historical statistics any more. The inefficiencies inherent to this model are no longer acceptable. **We are now going to be looking for those few percentage points in productivity and efficiency gains that we had been leaving on the table up until now.** What is more – our new technology recipe must be such that it can support continued efficiency improvement without the need for re-deployment.

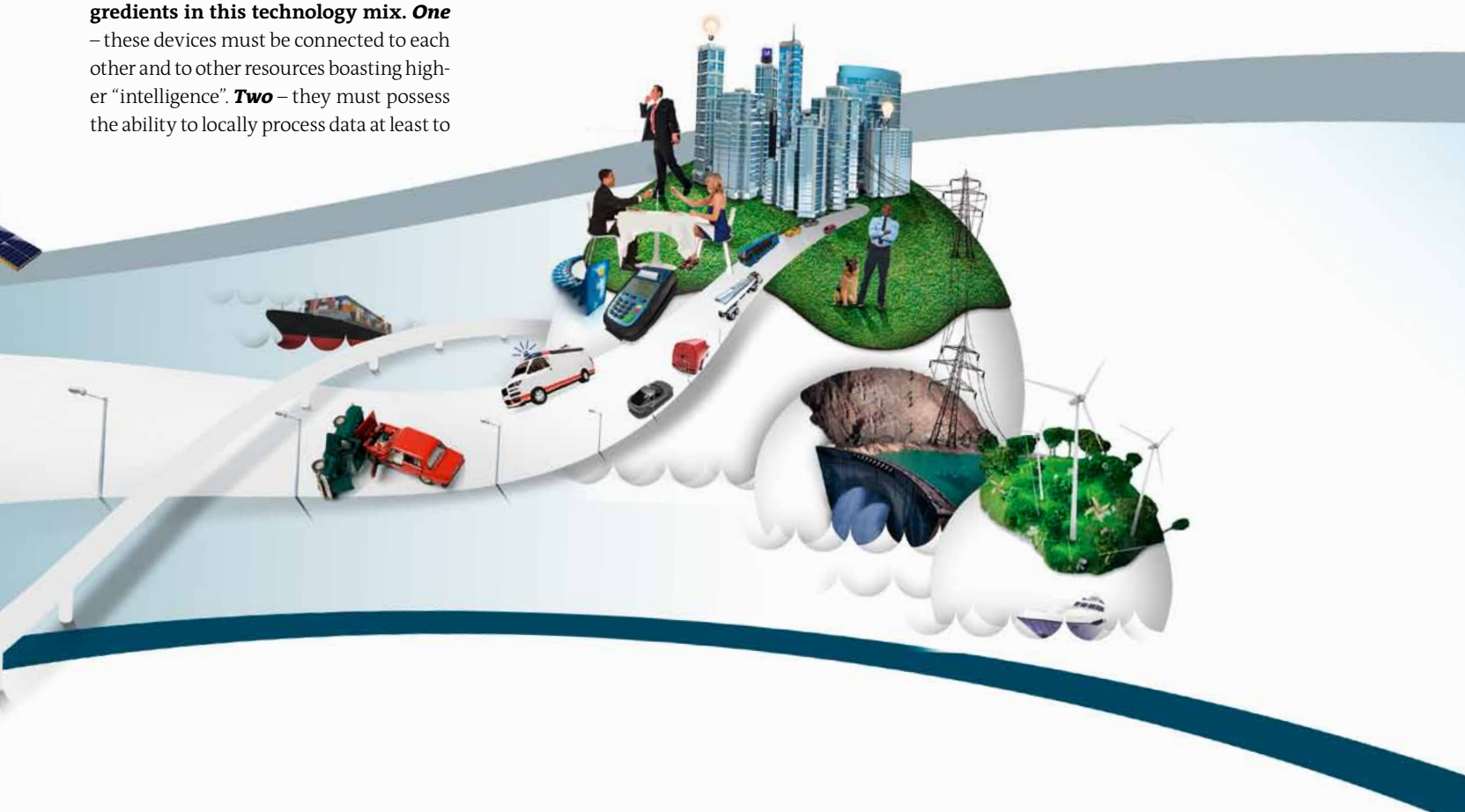
So when you tally up these requirements **a picture emerges showing a few key ingredients in this technology mix. *One*** – these devices must be connected to each other and to other resources boasting higher "intelligence". ***Two*** – they must possess the ability to locally process data at least to a reasonable degree. ***Three*** – they must be individually addressable. ***Four*** – they need to be position aware irrespective of device location with respect to view of the open sky. And five – they need to be extensively programmable, i.e. all critical functional engines implemented in software rather than hard coded or hard wired.

TWELVE YEARS CRAFTING THE ONE STOP. ONE SHOP. STRATEGY

Now looking at the strategy we have been implementing here at Telit – the ONE STOP. ONE SHOP. – on the networking hardware side, we have not only expanded the portfolio of wireless technology products in all generations of cellular in service today, but also in the most popular short range protocols like ZigBee and Wireless M-Bus. And since we understand that these are the network adapters for these new connected assets, we have ensured our IP and Short range network stacks are fully capable of two-way, one-to-one communication throughout the portfolio. In fact, we have endeavored to keep as much of the intellectual property on this critical component of connectivity in-house for **total flexibility and to keep pace with needs and trends as new adopters enter the space with different requirements and constraints.**

THE TELIT CELLULAR MODULE YEAR IN REVIEW

2013 was a rich year for our cellular module group. In January we introduced two Qualcomm Technologies, Inc. based modules – the UE910 V2 HSDPA and HE910 V2 HSPA+ modules each to be banded for European and North American markets. Both products feature dual-



band 3G and GSM/GPRS/EDGE support. Not long after we announced the GE910-QUAD V3 GSM/GPRS module, our top-recommended quad-band GSM/GPRS product for integrators and OEMs starting or upgrading designs dealing with significant cost pressures.

In March we unveiled the market's smallest COMBO 2G cellular module with an embedded multi-constellation satellite positioning receiver, the GE910-GNSS. April saw the introduction of two CDMA Modules for the Chinese market. **Both CE910-SC and DE910-SC modules were specifically designed for the Chinese CDMA m2m markets requiring R-UIM card technology.**

The second half of 2013 started with **introduction of another powerful product primarily targeted at the European and North American markets, the UL865.** This module series remains one of the market's smallest 3G modules and was designed to provide a quick migration from GSM/GPRS for applications based on the popular GL865 series. It was also designed to address the rising demand for different 3G form factors for the North American market as U.S. operators continued accelerating their plans to sunset GSM/GPRS.

Then in October we announced another market first. **Measuring in at 13 x 17 mm the GE866-QUAD became the world's smallest cellular module delivering GSM/GPRS connectivity** from its conformal coating encased LGA package. In sequence we announced the start of commercial deliveries for the first series of LTE modules in our flagship xE910 form factor family. Several LE910 variants for North America and Europe were to start at that time, followed by Korean, Japanese and Australian regional models.

And before the year drew to a close we brought to market two new products for the North American market. **The CL865-DUAL, our smallest CDMA product,** arrived to deliver m2m connectivity compliant with the top U.S. CDMA network operators; and the UL865 3G, an HSDPA-only mobile-data module leveraging a small VQFN form-factor to enable migration from 2G in North America.

SHORT RANGE TECHNOLOGY THAT GOES LONG RANGE

In our recipe for what is next in the connected device space we identified Short Range as a necessary complementary connection technology to enable highly **capillary deployments such as those in smart metering.** In January we expanded our Short Range product line with a high power variant of our 868 MHz modules. The LE70-868 point-to-point, star-topology wireless module for the European multi-kilometer range wired-to-wireless network migration market was designed for application areas such as solar/wind farms and agricultural automation.

In October we introduced another two new Short Range, high-power data communication products also in our star-topology line. The LT70-868 terminal and LE70-915 module arrived to deliver wireless data communication with multi-kilometer-range performance for the wired-to-wireless migration market.

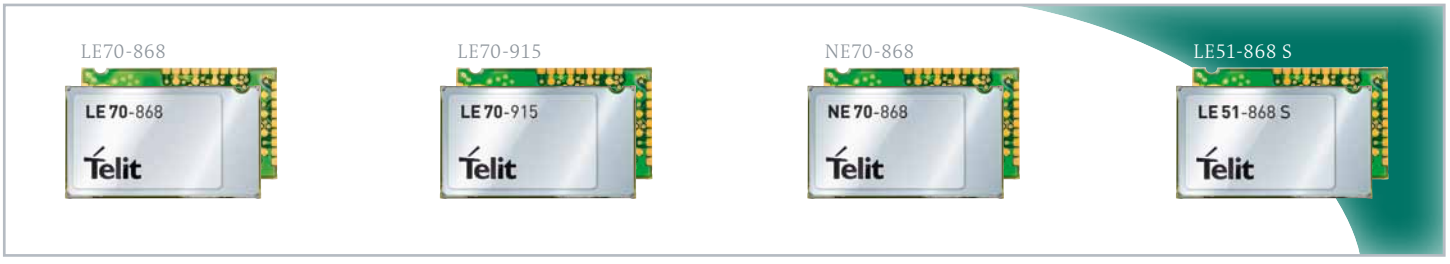
And before the year ended, along with the NE70-868, a new member of the Telit NE mesh network module family tuned for operation in the license-free 868 MHz ISM band, we also announced the LE51-868 S. The latter was **Telit's first SIGFOX compliant module. SIGFOX is the world's first 'Internet of Things'-dedicated cellular network operator.** This new module was engineered to support the IoT-only network's Ultra Narrow Band (UNB), License-free Radio Technology.

WHERE IS MY ASSET? – AND HOW WE ARE ANSWERING THIS QUESTION

As a key ingredient from our technology mix above, **geolocation awareness is also a strategic component of ONE STOP. ONE SHOP.** In fact, we view this as so fundamental to the evolution of connected assets that we implement a multi technology approach to deliver the functionality: with

CELLULAR PRODUCTS

2013 THE TELIT PRODUCT YEAR IN REVIEW



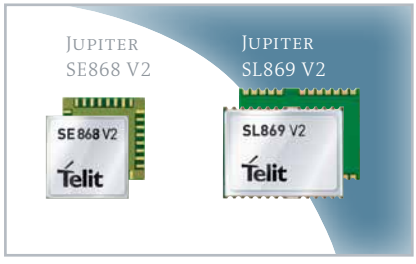
SHORT TO LONG RANGE RF PRODUCTS

satellite positioning products (GNSS) and with cognitive radio base station reference triangulation service – m2mLOCATE. With m2mLOCATE, Telit modules are able to retrieve their position using cellular network information in urban and rural areas, identifying their signals to obtain Cell-ID-based positioning under any condition.

In GNSS the goal we have set for R&D is to maintain **best in class products for all constellations in service,** including Galileo where Telit is to play a pivotal role in the system's rollout with our company **selected in July last year among various applicant members of the Italian Technology Industry as one of the country's key representatives in the global roll-out of the ultra-accurate satellite positioning system.**

Our award winning **Jupiter SE880** named Hot 100 Product in 2012 by U.S.-based EDN Network, **made news again in 2013 when it raised the bar for products in its class** with new GPS precision and accuracy measurements taken utilizing a surveyed roof antenna showing significant decrease in the critical performance of Circular Error Probable – CEP-50 and CEP-98.

In 2013 we introduced two new products in this critical technology area, the Jupiter SE868 V2 compact multi-constellation receiver and the SL869 V2 supporting GPS, QZSS and GLONASS and Ready for Galileo and Compass/Beidou. The Jupiter SE868 V2 is a compact multi-constellation receiver based on CSR's SiRFstarV™ 5e supporting GPS, GLONASS and the Japanese Quasi-Zenith Satellite

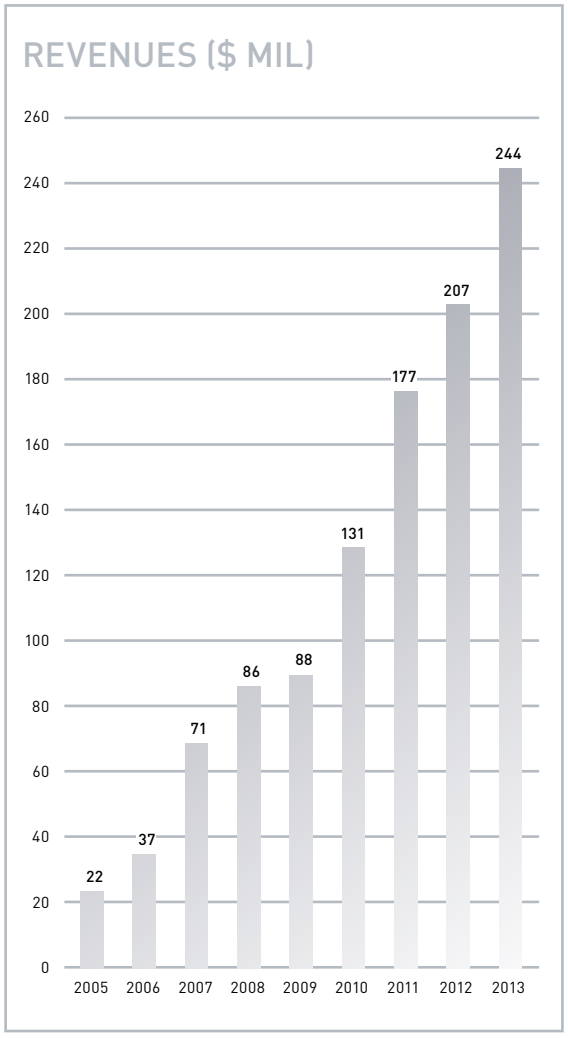


GNSS PRODUCTS

System (QZSS). The SL869 V2 is a member of the SL869 family and Telit's first product based on Mediatek technology integrating the low-power MT3333 and featuring superior battery-life performance.

TELIT'S AUTOMOTIVE EXPANSION

Just before 2013 ended we announced the signing of a document of **intention to acquire the Automotive Telematics Onboardunit Platform (ATOP) business from Netherlands-based NXP B.V.,** a fully owned subsidiary of NXP Semiconductors N.V. (Nasdaq NXPI). ATOP is an automotive grade solution for vehicle manufacturers looking to implement telematics services like eCall in a single compact and cost efficient package. **ATOP enables customers to reduce complexity and minimize costs in vehicle designs,** customer data as well as regulatory compliance. The multi-service capable ATOP boasts a range of features in its rugged enclosure including vehicle location & tracking, remote starting and diagnostics as well as business applications such as fleet management.



With the acquisition, **we will integrate the ATOP business including sales, engineering and support staff into Telit's global automotive organization,** expanding our market reach with solutions leveraging the expanded engineering and sales expertise particularly in software-centric RFIs from Automotive and Telematics OEMs. **We achieved automotive-required global ISO/TS16949 certification in July 2012** and have maintained for quite some time one of the industry's largest product portfolios for the automotive sector with particular **emphasis on advanced technologies such as LTE and HSPA+**. Integration of ATOP into our Automotive division will provide us not only with additional **expertise in automotive platforms which are becoming increasingly more dependent on advanced software engineering,** but also a significant customer base which has already designed systems with ATOP.

Along with the ATOP acquisition we also continued our expansion in this vertical with the introduction of **two new automotive modules. In November** we extend the reach of our xE910 Family into OEMs and Telematics System Integrators announcing the GE910-QUAD AUTO and UE910-EU V2 AUTO. Both products are part of our widely successful xE910 product family and come to deliver GSM/GPRS and HSDPA connectivity options for the OEM automotive and telematics markets.

MOBILE COMPUTING GROWS IN 2013

In March we announced the expansion of our **datacard product range leveraging collaboration with Intel®.** The new xN930 family of M.2 data cards in the new, Next Generation Form Factor (NGFF) augment our mobile computing line of mPCIe datacards in HSPA+ and 1xEvDO cellular technologies. The M.2 data card family includes LTE/DC-HSPA+ and HSPA+ models target not only new always-connected consumer and leading edge adopter applications such as Ultrabook™, laptops, tablets, and netbooks, but also commercial and industrial devices.

FROM A WELL-EXECUTED STRATEGY COME SOLID RESULTS

With seven acquisitions successfully concluded in as many years, our results confirm that the ONE STOP. ONE SHOP. strategy is working well. This strategy, which tightly integrates Value Added Services into our hardware offering, has started to materialize and has enabled us to utilize our unique position in the m2m industry to offer a full range of products and "out-of-the-box" services as end-to-end solutions. We expect that unaudited revenues for the year ended 31 December 2013 will be approximately $243.5 million, representing an increase of 17.4% compared to revenues for 2012 ($207.4m), and 1.4% above market expectations. This strategy will continue adding significant streams of recurring revenue to Telit's current business model.

GLOBAL HIGHLIGHTS

Our September 2013 **acquisition of U.S.-based ILS Technology marked the start of Telit's expansion into m2m application enablement,** platform and cloud services. ILS Technology, now a Telit company, is a leading provider of ready-to-use, off-the-shelf cloud platform services connecting enterprise IT systems to m2m-enabled devices as well as machines for businesses-critical use. The acquisition was a critical step we took to continue building up our ability to offer **unmatched end-to-end solutions to m2m adopters.** In 2012 we added the value added and connectivity services to deliver essential connectivity solutions on the mobile network domain of connected devices. Now with the addition of cloud-based services and enterprise integration **we extend this set of solutions with a comprehensive Internet-domain services offering including application enablement and integration to enterprise systems.** The ILS Technology Platform as a Service (PaaS), secure, end-to-end platform enables configuration and deployment of enterprise-grade m2m applications without

any programming – enabling intelligence for business with minimal effort and time. This is just the kind of **value proposition we look for when considering acquisition candidates.** It is a set of values well aligned with Telit's own objectives of **streamlining all aspects of deploying m2m connected assets** anywhere and in any scale.

ils technology
a Telit company

And just as we were announcing the acquisition, **ABI Research was publishing results of its machine-to-machine security market assessment naming ILS Technology the top vendor in the assessment.** Please read more about ILS Technology and what is in store for Telit customers as a result of the acquisition in the article by **Fred Yentz**, CEO ILS Technology, on page 28.

Our 2013 performance in **EMEA** was very good considering the growth targets were very hard to achieve in light of large projects concluded in 2012. Still good numbers were achieved thanks in part, to our good standing in **Telematics and to new markets that we were cultivating during 2012. In Telematics, an increase in demand by customers like insurance companies** have contributed solid sales as outlined in the article by **Carlos Perez**, VP Sales EMEA on page 46.

North America is performing very well not only because the region's economic recovery is providing a strong boost to the **IoT movement but also because of accelerated migration of m2m programs from 2G to 3 and 4G technologies.**

Demand continues shifting from GPRS to 3G and CDMA modules motivating our introduction of a number of new products in these technologies exclusively for the North American market. **Mike Ueland**, SVP and General Manager of Telit North America details the region's performance in his article on page 47. In his article Ueland also describes how the m2m market in **Latin America remains in steady growth, especially in Brazil.** Telit has an expanded role in the region which is more than that of a simple module or service provider. We are helping customers from all over the world better understand and navigate those regional markets and be more competitive in more aspects of their LATAM ambitions, including lowering manufacturing costs, education on regulations and market trends.

The m2m market in **APAC** continues to be among the fastest-growing. In response **we have opened new operations in Japan completed NTT DOCOMO Inter-Operability (IOT) testing** for six variants of the HE910 module series. We also announced the introduction of our two new xE910 automotive modules to China in December. More insights into APAC's performance can be found in the article on page 49 by **Derick Tsang** Telit APAC president.

Globally our **management personnel roster grew with the addition of some rather impressive talent.** In 2013 Telit welcomed **Fred Yentz**, who joined my senior management team as CEO of ILS Technology, a Telit Company. He joined ILS Technology as senior vice president and chief operating officer in 2007. Prior to that, Mr. Yentz served as Vice President and General Manager of RadiSys Corporation and before that at IBM he held various positions with responsibility for Engineering, New Business Development and Management.

To lead our positioning technology group, **Taneli Tuurnala** joined us in July 2013 as Vice President, Head of the GNSS Division. Prior to joining Telit Mr. Tuurnala served as President and CEO of Fastrax Ltd., a Finnish GNSS technology company. During his tenure, Fastrax went from a start-up to one of the key players in the global GPS/GNSS stage.

In November, **Sander Mulder** joined Telit's m2mAIR business unit to drive global growth of value added services (VAS), including mobile connectivity and application enablement as its Global Sales Director. Prior to his arrival at m2mAIR Mr. Mulder held several senior management positions at Dutch telecom leader, KPN. His most recent role with KPN was Global Sales and Marketing Director for the operator's m2m department.

WHAT IS UP NEXT

Telit is **embarking now in a second cycle of business expansion.** In this cycle we are starting to integrate various hardware, software and services into solutions. We understand very well that the design of a solution-as-a-component model bears much scrutiny. This is an undertaking that can make companies appear to compete with some of the value add from their own customers. However there are areas of value-add that are natural for a one-stop-shop to aggregate. What the market has frequently witnessed is that, solution providers are sometimes "forced" into delivering certain value-add not because it is rich for them but instead because there is a gap without which the solution cannot happen.

With that said, it is clear that **Telit's ONE STOP. ONE SHOP. will continue to expand,** not only with more "ingredients" but also with semi-ready solution bundles and platforms based on these ingredients which can **further accelerate the exponential connection of devices to the Internet of Things.**

We wish you all the best,

Oozi Cats
Chief Executive Officer
Telit Communications PLC

ACQUISITIONS AND RAPID GROWTH – TAKING TELIT TO THE NEXT LEVEL

Yosi Fait, *Deputy CEO and Finance Director*

>> Telit's strategic acquisitions have taken the company to a commanding position in today's competitive market place. It's a position that's backed by a robust financial strategy that ensures on-going double-digit growth.

Telit's acquisitions of ILS Technology, CrossBridge Solutions, Navman and GlobalConnect were financed through the company's healthy cash flow, which is an indication of our financial stability and strength. These companies were selected because their technology and the expertise of their staff would enable Telit to realize its strategic marketing objective, which was a move to the top of the value chain via the creation of an unmatched ONE STOP. ONE SHOP. offer that can be delivered worldwide to m2m service providers.

The offer is the delivery of end-to-end solutions that go from the sensors through to the cloud and on to the enterprise environment. There is nothing comparable in today's market. Details can be found elsewhere in the magazine.

The financial consequences of this innovative development are profound. The transition from revenues that are primarily based on hardware sales to those of recurring nature of connectivity and value-added services requires careful, day-to-day management and planning of the group's cash flow. While services generate recurring revenue streams, the tap cannot be turned on overnight. This strategic development is very positive in the medium term, but it has to be financed until the corner is turned in mid to end 2014.

However, in five years time our goal is that the major part of our revenues will come from services or hardware & services bundles and we shall be known as a service and wireless solutions provider. Services represent the long-term future for our industry and Telit is well placed to realize that marketing objective.

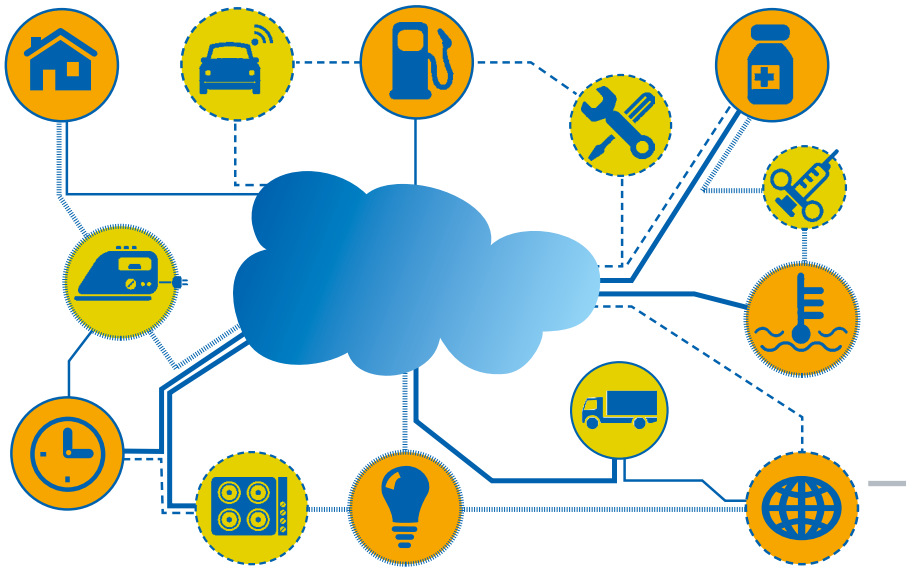
OUR ACQUISITION STRATEGY

As indicated earlier, our acquisition strategy was based on the technologies and core competences that would mesh with those of Telit. In other words, the key objective was to leverage our position in the marketplace and enable the company to profit from the many new opportunities that are emerging via our enhanced ONE STOP. ONE SHOP. offer. In this way we have raised our performance bar as well as that of the industry. Moreover, we will be well placed to meet the new, demanding expectations of our customers.

CONCLUSIONS

We should not lose sight of the fact that our comprehensive portfolio of cellular, GNSS and RF products will continue to be the foundation on which that future is built. They are the beating heart of our clients connected devices and they will continue to beat 24/7 for many, many years. <<

M2M
TOWARDS IOT



Yossi Moscovitz, *President*, *Telit Wireless Solutions*

>> Everybody is talking about the "Internet of things" (IoT) or the "Internet of Everything" (IoE), so let's take a moment to clarify few questions related to IoT.

First, the definition: The Internet of Things is the network formed by objects with defined identities, connected via smart interfaces and exchanging data with other objects or users. In the IoT, "things" are expected to become active participants in business, information and social processes where they are enabled to interact and communicate among themselves and with the environment by exchanging data and information "sensed" about the environment, while reacting autonomously to "real/physical world" events and influencing it by running processes that trigger actions and create services with or without direct human intervention.

The IoT was formally "born" between 2008/9 when the number of connected devices exceeded the number of humans on the planet. Since then, the number of connected devices has tripled. We are actually living the era of the creation of the IoT.

WHAT IS THE DIFFERENCE BETWEEN M2M AND IOT?

m2m refers to technology for connecting machines to machines (wireless or wired) enabling them to communicate with each other. m2m does not specify the underlying technology used to connect the devices or the protocols used for communications. The term m2m predates cellular communication and was first used to define industrial automation and telemetry.

A classical m2m implementation connects a remote device to a backend server over a communication network. This implementation is in most cases based on proprietary hardware and software over specific communication protocols. As such, most m2m implementations are for a specific function and use, not interoperable with other m2m devices.

m2m technology sets the foundation for the IoT. m2m systems and services are an integral part of the IoT, however the definition of IoT is much broader and includes additional technologies.

Analysts forecast that 50B devices will be connected by 2020. What are the enabling technologies supporting the evolution of the IoT?

Wireless technologies: connection of billions of devices requires use of different technologies for short and long range. Cellular technology (GSM, WCDMA, LTE) provides an excellent solution for mobile and stationary devices. Within a home, buildings, cars and other "local/proximal" environments, short range technologies like Wi-Fi, Bluetooth, ZigBee and wired provide cost effective solutions.

Cloud Computing: cloud computing refers to distributed computing system shared between different users. The concept of cloud computing focuses on maximizing the effectiveness of shared resources by allocating them dynamically based on demand. The computing power required to process the data generated by the IoT can only be provided through the cloud computing implementation.

"Big Data" Analytics: Big Data is the term for a collection of data sets so large and complex that it becomes difficult to process using traditional data processing applications. The challenges include capture, curation, storage, search, sharing, transfer, analysis and visualization. The real value of the IoT will come from the analysis of Big Data coming from multiple sensors.

Standards and Consumer experience: the connection of billions of devices requires standardization of protocols and interoperability. The other aspect of standardization relates to the user experience and the open architecture of software development to encourage developer communities to develop IoT "Apps".

There is no doubt that the evolution of the IoT will affect the m2m world and will result in a shift from the classical m2m implementation towards the IoT through adoption of standards and cloud computing.

As a leader in m2m technology Telit is well positioned to become a provider of IoT technology enablement. Telit offering has expanded recently to include:

- Communication modules covering all relevant air interfaces
- Connectivity plans based on multiple carriers
- Positioning solutions (HW and SW)
- Device management tools
- PaaS and Cloud based solutions

All tightly integrated, pretested and ready to use. <<

LEADERSHIP IN A FAST-CHANGING ENVIRONMENT

Dominikus Hierl, *CMO, Telit Communications PLC*

>> Last year I indicated that Telit had the right products at the right time as well as the right people in the right places. A comprehensive portfolio and skilled staff operating in over 80 countries and seven R&D centers, together with matchless support services and a major move up the value chain established our leadership position in the m2m marketplace. However, the environment in which the company and our competitors operate is changing at an unprecedented pace and it is simply not enough to react to new market requirements.

In 2013 Telit made a groundbreaking move to the top of the value chain via the acquisition of ILS Technology. This development extended our end-to-end solutions capability, which now goes all the way from the sensors through to enterprise databases and back-office systems. It also allows MNOs to implement an m2m application enablement platform and for companies to employ a cloud-based m2m Platform-as-a-Service (PaaS).

Acquisitions, five in total, are taking Telit to the next level. They were financed through the company's healthy cash flow, which is an indication of our financial stability and the ability to sustain double-digit growth.

We also extended our product portfolio: modules were and will continue to be the foundation on which we built our reputation. Telit's strategy is based on the continuous development of more modules, the goal being a best-in-class offer in all sectors. And in 2013 we entered the mobile computing market, e.g. the M.2 (xN930 family) employs Intel's M.2 LTE and HSPA+ reference designs. Mobile computing is booming and convergence with cloud computing is a significant synergistic development.

Add it all up and it becomes clear that the company is ideally placed to meet the many challenges and opportunities of the dynamic m2m marketplace, but only if we continue to have the right people in the right place.

The goal to have the best-in-class offer in all technology sectors also includes best-in-class support services. We are therefore making a significant increase in human resources. The importance of APAC is growing and that is reflected in the fact that there will be an additional five engineers in Seoul who will support the Korean, Japanese and Australian markets plus another five engineers in Shenzhen for China, Taiwan and other Asian countries.

I'll conclude this short article by looking ahead. In five years the major part of our revenues will come from services or hardware & services bundles and we shall be known as a service and solution provider. Services represent the long-term future for our industry and Telit is well placed to realize that marketing objective. But we should not lose sight of the fact that our product portfolio will continue to be the foundation on which that future is built. <<

SIMPLICITY – A TELIT VISION

Joe Braga, *Global Head of Brand & Marcom*, *Telit Wireless Solutions*

>> "Simplicity in it: The Power of Less" reads the headline of IEEE's Computer Magazine. Guest editors Tiziana Margaria of the Universitat Potsdam, Germany, and Mike Hinchey from Lero, the Irish Software Engineering Research Center, introduce the central topic of the magazine's November 2013 issue with a foreword that encapsulates a vision shared by many of us in the technology solution space. "Simplicity is a mindset, a way of looking at solutions, an extremely wide-ranging philosophical stance on the world, and thus a deeply rooted cultural paradigm. The culture of 'less' can be profoundly disruptive, cutting out existing 'standard' elements from products and business models thereby revolutionizing entire markets", they state.

The Computer Magazine issue mentioned here is, of course, referring to the broader subject of complexity in IT. More specifically in the less headline-making technology areas which they call "deep IT", the lower layers of the monumental information systems bringing us daily-life conveniences such as online banking, social media, ecommerce, to name a few. It is apropos to see one of IT's most prestigious publications dedicate an issue entirely to Simplicity at the same time Telit prepares to premiere "ONE STOP. ONE SHOP. 2020", an experience centric vision of how we see us delivering m2m as a "drop-in" solution element to adopters in a few years.

THE FUTURE IS A SOCIAL GAME

Telit's vision trivializes m2m integration. ONE STOP. ONE SHOP. is but version 1.0 of a delivery model which we continue building upon to achieve the ultimate panacea that is this final "m2m as drop-in" experience. On the way there we will add new technologies, service areas, and landed footprint. We will challenge every single accepted 'standard' we use or our industry uses. Disruption is a necessity and you already see us fully engaged in disruptive behavior. We are flipping the delivery model from technology centrism to adopter experience – socializing and "gamefying" m2m.

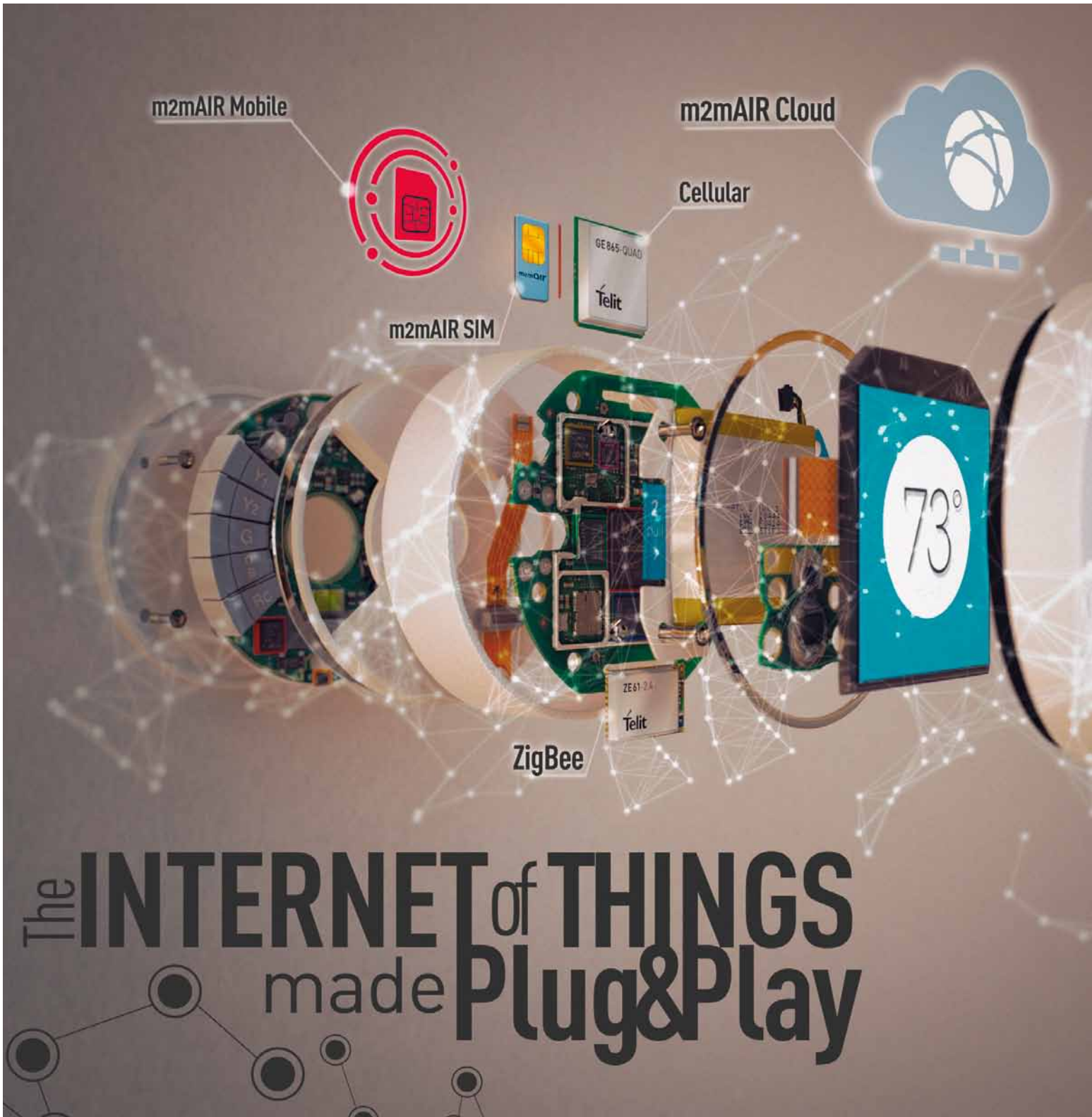
Simple is not easy. The Economist Magazine's Schumpeter says in the November 23rd 2013 issue, "the biggest threat to business always comes from too much complexity rather than too much simplicity". But he adds that "the pursuit of simplicity can certainly be taken too far if it is applied in a simple minded way". The evolution of ONE STOP. ONE SHOP. makes the m2m adoption experience simpler and accessible to any vertical whether we even know them or not – today and in the future. But the easier we make it for our adopters the more complex Telit becomes in terms of the technologies, services and the way these are applied together.

Connected gateway thermostat

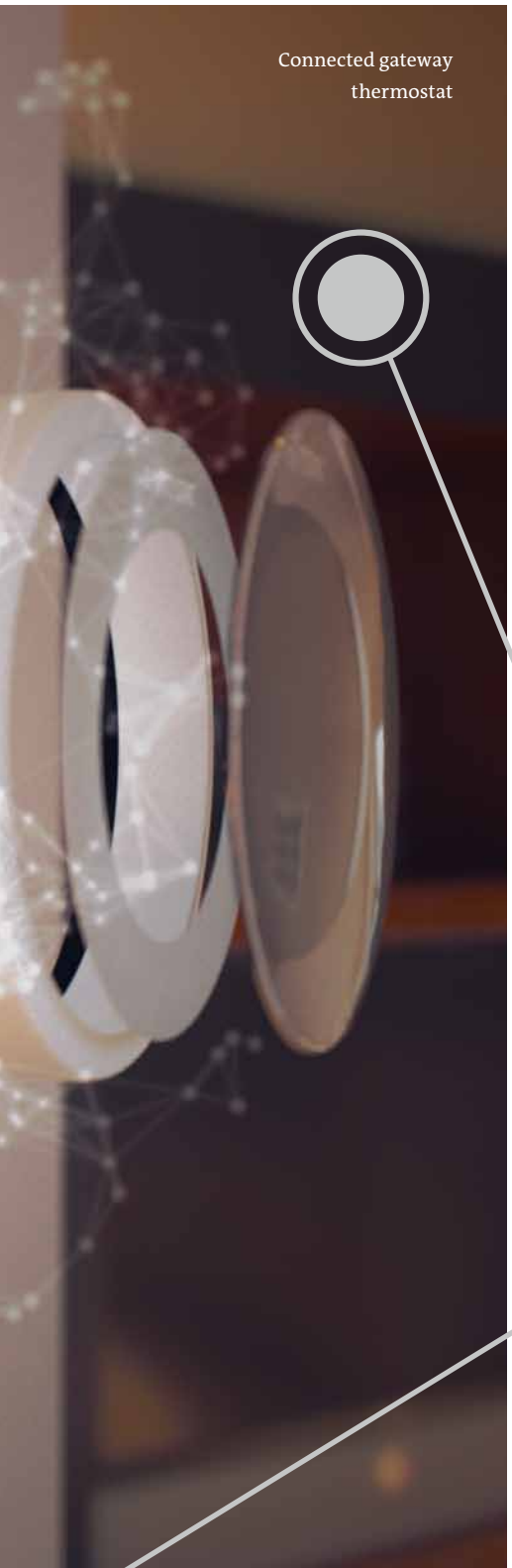
IT IS TECHNOLOGY – BUT WITH BUSINESS EXPERTS IN THE DRIVER'S SEAT

The experience delivered by ONE STOP. ONE SHOP. 2020 is our industry's equivalent of "concept cars" seen in the global auto shows. The look and feel of this drop-in way of getting Telit m2m integrated into devices in a few years is for now – a vision. As with the concept cars we see today on lavish show floors, neither the technology nor the services exist now in enough maturity to implement it, or at all. Neither do the business models necessary to make this possible. But if we believe – and at Telit we do – in the potential of the IoT as envisioned by people like Qualcomm's CEO Paul Jacobs who told Barron's he sees the average home having 22 connected devices by 2020 up from seven now, we must reinvent ourselves and these models.

Today's engineering approach to m2m integration starts with requirement specifications, technology selections, followed



by hard structured efforts in design, compliance and certifications. These elements are certainly likely to remain pillars of integration in 2020 but the Telit vision overlays this with a gamefied approach that puts the conceptualization of the IoT device in the hands of the business and strategy managers at the adopting company directly. The connected product idea may start there today. But from there it goes to engineering, R&D, and other functions, each step of the way suffering the effects of information degradation and re-interpretation.



Connected gateway thermostat

THE END GAME

The Telit vision of the future m2m adoption process starts with a short sharing of the lenses through which the adopter sees the world, market, and the idea. Once that context is established, we move on to capture the idea itself. The interactive process plays out like a game where each definition element specified causes the system to pose applicable branches of possibilities the adopter must consider next.

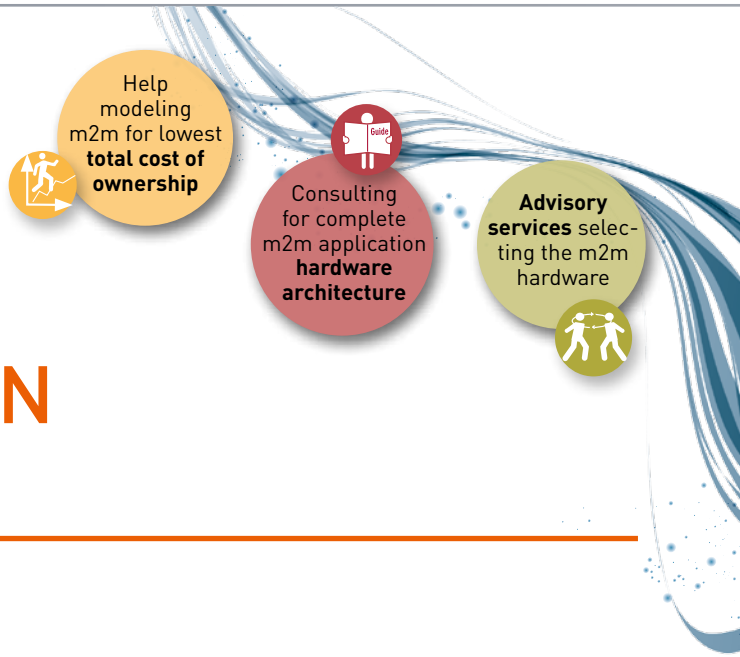
The process is social rather than technical. Every step of the way, the definition game reaches out and includes different players whose contributions are likely to enrich the end product. If the lead player needs to consider financial ramifications, for example, the system engages the finance manager of the project. Players collaborate and exercise possibilities with the Telit system constantly updating the artificial reality rendering of the end result.

In the end, the product and all of its real-world engineering specifications, regulatory compliance plans, supply chain and logistics documents are delivered looking very similar to today's counterparts. The difference being that the people who engaged the process started out not knowing anything about cellular modules, m2m, Application Enablement, Platform as a Service, or any of our incredibly complex cast of solution making characters.

THE ENABLING TECHNOLOGY OF THE CENTURY – M2M

If we start with the humble view that as m2m providers, we are enablers and as such we should never assume we know who or what will apply our technology. As an industry, our inability to embrace this vagueness has delivered a reactive and slow process for our adopters. We start out with our own bias towards a list of possible adopters, focusing on providing ready-to-go solutions for them, all the while neglecting our richest source of critical mass – the adopters we don't know. <<

WELL – THAT IS ABOUT TO CHANGE. WELCOME TO OUR VISION!



NAVIGATING THE M2M INTEGRATION

Joe Braga, *Global Head of Brand & Marcom,* *Telit Wireless Solutions*

>> Adopters of m2m come largely from outside the telecommunications or positioning industries; and from outside of m2m. In this article we discuss the effort of integrating and deploying m2m devices starting from the very first adoption questions to the planning of your next generation project.

WHAT YOU NEED TO KNOW TO ADOPT M2M

Integrating cellular technologies such as LTE, UMTS-HSPA, CDMA-1xRTT or EV-DO, and GSM-GPRS/EDGE into electronic devices, making them communicate in the mobile network environment and connect to the back-end systems is a complex and daunting task. A value chain of at least four major elements has to come together for a successful deployment (see figure 1). However, Telit's comprehensive range of support services and our experience can be applied to this task.

BUSINESS PLANNING TO BE BASED ON TOTAL COST OF OWNERSHIP (TCO) –NOT "PURCHASE PRICE ONLY"

Business case development for adoption of m2m has traditionally been done with an adaptation of traditional "bill-of-materials (BOM) plus refinement cost" estimation employed in electronic component selection processes. Considering the long lifecycles of m2m-connected devices, it is clear that downstream costs can easily surmount the impact of acquisition costs.

VENDOR SELECTION IN THE MATURE M2M VALUE CHAIN

Critical actions in vendor selection must include a review of the likelihood that the module vendor will remain viable for the life of your product; market research into the competitive position of the different suppliers; vendor transparency – how visible is the information about your potential supplier; financial stability; vendor company size; amount of R&D spending; and the local presence. In addition we recommend visiting your m2m module supplier in order to be able to assess the breadth as well as depth of their offers and thereby verify quality and strength of partnership agreements.

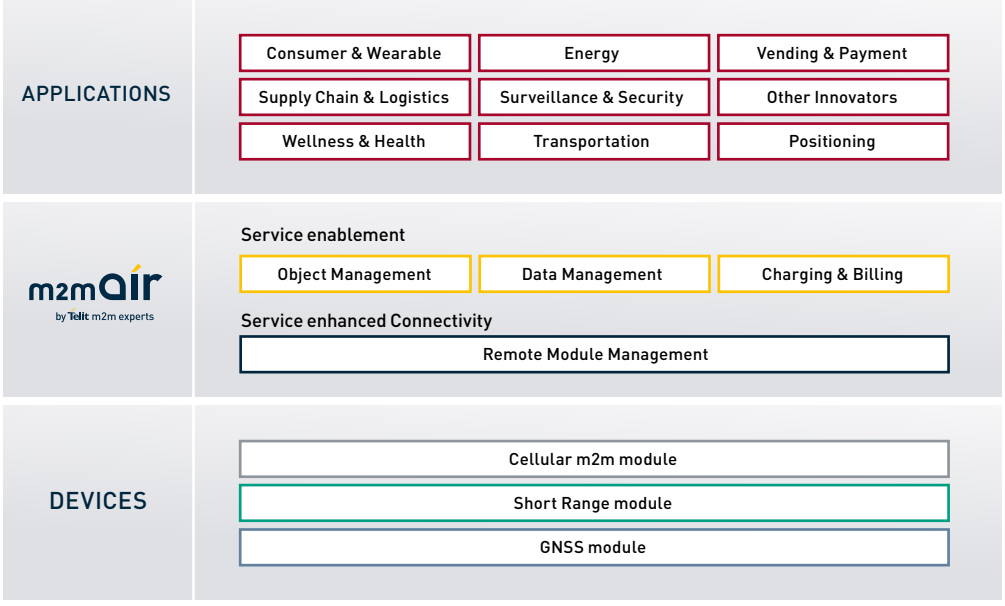


Figure 1

SELECTING CELLULAR MODULES

The cellular module is a difficult component selection to make in the process of integrating m2m into an electronic device, closely followed by antennae. These are key considerations in module selection.

- Data Speed – The higher the connection speed you require, the higher the price of the module and associated connectivity data plans. Decisions need to be made also on speed vs. power and antenna complexity.
- Service and Connectivity Coverage – There are five types of cellular services GSM/GPRS/EDGE, WCDMA (UMTS)/HSPA, CDMA/1xRTT/EV-DO, TD-SCDMA (Asia only), and LTE.

- Physical Dimensions – Very compact electronics are less able to dissipate the heat they generate in operation and therefore may require additional engineering around heat dissipation strategies.
- Power Consumption – If your design is to be powered by battery, the critical dimension of the module power specification is its standby or sleep mode current.
- Environmental Operating Conditions – For high vibration environments, the smaller – the better for the module: the smaller mass of the module places less acceleration stress on its mounting points.
- Embedded GNSS – Besides saving PCB space in your device, a cellular + GPS module allows your application to manage the cellular and GNSS modules as a single entity through a simple and unified AT command set.
- Manufacturing Constraints – If your device is intended for large scale manufacturing, you must consider modules that are available for automated manufacturing and compatible with pick-and-place lines.

SELECTING SHORT RANGE MODULES

Short-range communication modules allow you to replace the wired connection of peripheral devices and buses (such as sensors and actuators) with wireless; and create hierarchical network topology replacing high-cost nodes (such as cellular) with short range ones.

SELECTING POSITIONING MODULES

There are a number of real advantages to using the newer multi-constellation Global Navigation Satellite System (GNSS) incorporating GPS, GLONASS, Galileo and Beidou/Compass receiver modules. Your resulting design will be substantially more robust and perform better in situations that typically challenge GPS-only designs such as urban canyons.

SELECTING A VALUE ADDED SERVICES AND CONNECTIVITY PROVIDER

Despite the impact of the cost of hardware and the engineering services and processes required for the integration of the m2m enabled device, these are all ONE-TIME charges. The cost of data/voice subscription has to be scrutinized carefully since it is a recurring cost, which can easily tip the scale from the profitable to loss making for your deployment.

CONNECTING YOUR M2M DEVICES TO CLOUD AND BACK/END SYSTEMS

Securely connecting devices to cloud and enterprise systems and enabling applications with care to eliminate unnecessary layers in the information chain is critical for a successful deployment. m2mAIR's deviceWISE is hardware agnostic and can link all relevant devices and applications, thereby enabling real-time information transfer, transaction logging and bi-directional control.

CERTIFYING YOUR DEVICE

Certification can be the highest cost item in an m2m integration project. Depending on your target region(s) you will be required to engage more or fewer of these certification processes, but there will always be some.

THE TELIT UNIFIED FORM FACTOR FAMILY CONCEPT

Telit offers customers not simply a form factor but a family concept. Modules belonging to a family have the same form factor and functionalities – the same size and shape, same pin-outs, and same AT command set.

- Maximizes reach of application development expenses such as NRE (non recurring engineering)
- Protects Investments in core designs; extends the viable life of every generation of device design
- Allows development of one application for different markets – "Design once, deploy globally"
- Decouples device design cycles from cellular air interface changes by mobile network operators
- Allows precise positioning of end-devices within target markets via selection of modules from the same family with more or less features, functionality, and speed. <<

ONE STOP. ONE SHOP.

TELIT'S INSIGHTFUL DELIVERY MODEL – TEN YEARS IN THE MAKING

Alexander Bufalino, *SEVP Global Marketing*, *Telit Wireless Solutions*

>> 40 TRILLION GIGABYTES – That is how large the IDC/EMC estimates the digital civilized universe to be in 2020. A very large number indeed, but to put it in perspective, perhaps it helps to understand that this number in 2005 was a mere 130 billion – it's an increase of over 300 times in 15 years!

So where does this data come from? An equally large number of sources to be sure. And whereas a number of them already exist and are well-understood, new machines, sensors, smart systems and intelligent connected devices are coming online in dramatic numbers. According to Cisco's Visual Networking Index, by 2017 there will be more than 19 billion global network connections, up from about 12 billion in 2012. That represents an average of about 4 million new connections every day.

In order to make this possible it is absolutely necessary that the process of connecting these devices to each other and to the Internet of Things, which is currently disruptive, moves to the point where it makes the effort as trivial as the proverbial change of a light bulb. All ingredients are in place for that to happen. But, as is always the case with disruptive technologies, market timing and the business and delivery models are actually the triggers.

FIRST – CONNECT EVERYTHING

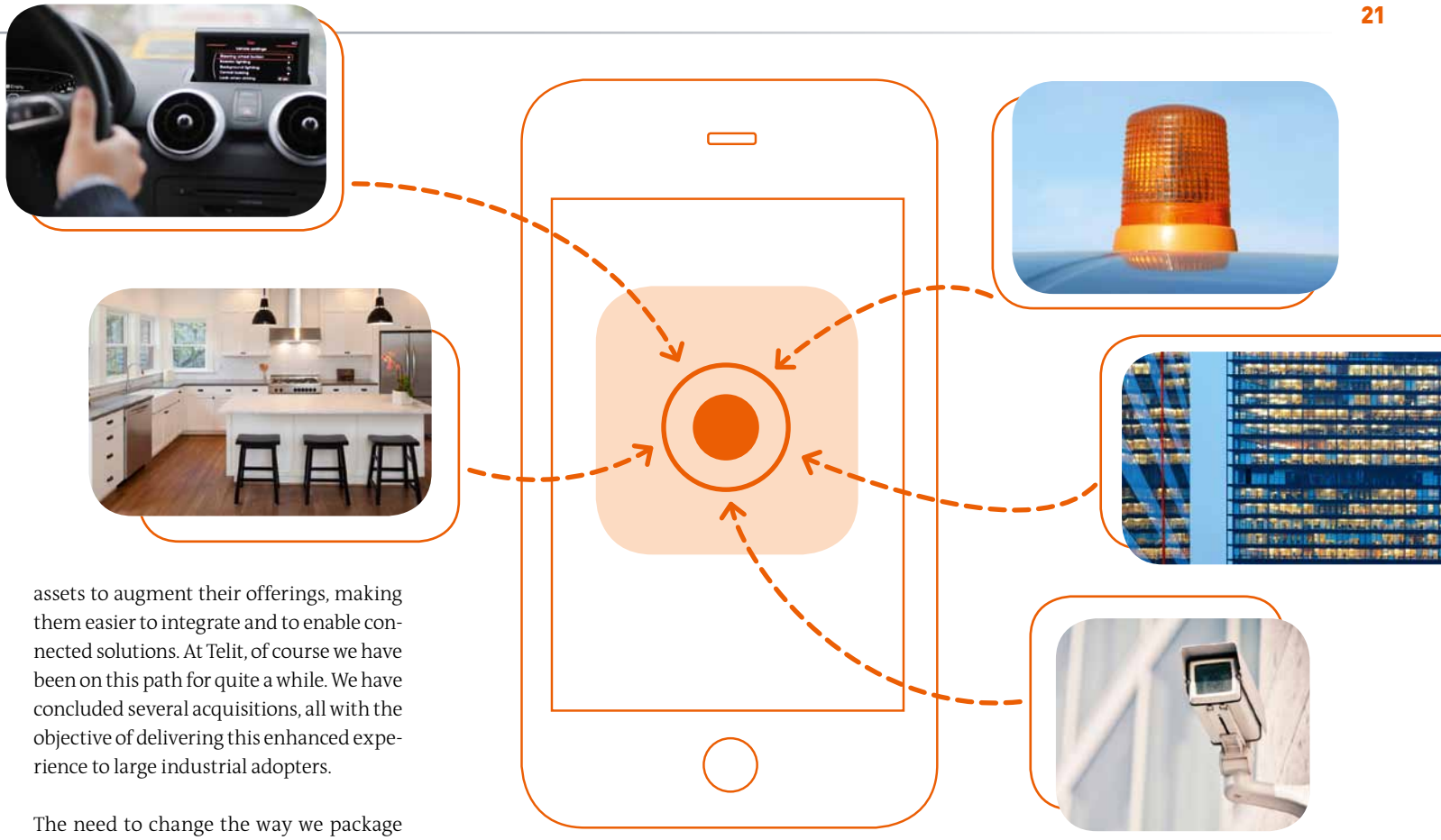
From the numbers above you can clearly glean the potential for this to happen with m2m. Our industry has been parading the technology and its capabilities in one way or another for over 12 years and that has provided the broader tech industry with ample opportunity to begin resonating with the value proposition of connected devices. But m2m remains one of high-tech's most fragmented value chains. It needs to surface and help identify ever more effective ways that make the effort easier to handle by large industrial adopters.

Looking at GE, for example, its many divisions have for a while now been adding numerous sensors to most everything they design, from hospital imaging equipment to locomotives, wind turbines, and hydroelectric power generation components. The flexible extent to which they are able to make full use of those sensors and of the massive amounts of data they generate is irrelevant right now, but GE, like many industrial giants, is getting their machines ready to communicate in what they call the Industrial Internet.

We are seeing more large economic movers like GE, IBM and Google starting to use a different vocabulary, signaling a shift to an embrace from the reluctance of a few years ago regarding the Internet of Things. We are also starting to see the technology sections of mainstream media outlets like the New York Times and the Wall Street Journal carry more content on the Industrial Internet, m2m and the IoT. And when you read these articles, one common thread is the need for m2m to finally reinvent itself, to take on all the traits of an enabling technology, which is what the PC, RFID, Flash Memory and a number of others did. m2m must provide the tech industry with the complete, "ready-to-use" approach they are asking for. In a white paper published by Vodafone in 2013, Steve Hilton of Analysys Mason is quoted as saying "Putting together complete m2m solutions can be challenging. Integration between equipment, connectivity, applications and back-office systems requires careful planning and consultancy services. The expected integration costs of m2m components can often scuttle m2m projects."

THE TRANSFORMATION

Nevertheless we are seeing this transformation take place. Recent M&A activity involving m2m players seems to points to a trend with companies, particularly in hardware, acquiring software and services



assets to augment their offerings, making them easier to integrate and to enable connected solutions. At Telit, of course we have been on this path for quite a while. We have concluded several acquisitions, all with the objective of delivering this enhanced experience to large industrial adopters.

The need to change the way we package and deliver m2m in the form of products and services from dozens of different vendors into manageable solutions from the perspective of the adopter is clear and tangible. It comes not only from the ground swell created by the bold statements from these large industrial players, but also from the shift in expectations from the technology industry. The "App" effect premiered with the smartphone has impacted m2m adopters. It has brought the need for m2m and the Industrial Internet to look and feel much more like installing an app on a smartphone. That is what the market expects.

THE NEW M2M INTEGRATION EXPERIENCE

When the smartphone revolution started a few years ago, none of us in the m2m industry could have imagined that something so distant in consumer electronics could possibly impact on the dynamics of the largely B2B-based value chain that makes up our space. But the impact was profound. Connected products like building controls, security alarm panels, car infotainment and navigation systems now have to be as easy to use as a mobile app and similarly, they need to pack ever increasing functionality. The pressure this places on integrators and developers is passed down to us in the m2m value chain.

BUILD THE ONE STOP SHOP AND THEY WILL COME

Our industry's component-centric delivery models have become disconnected with the mass-market adoption. Adopters are no longer willing or able to take products and services this way. The way forward has to go through partnering and collaboration. Mobile operators and the rest of the m2m value chain players have to come together and work to deliver these solutions while looking to improve the total customer experience at the level of sophistication they require. Anything less than that will no longer do.

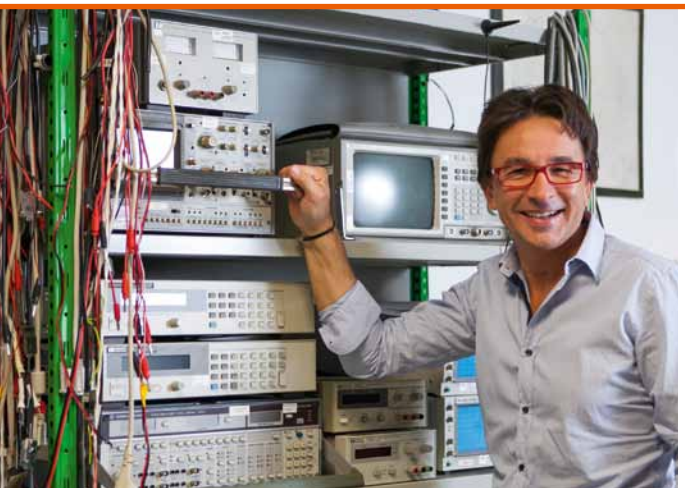
Telit is an active partner to a number of operators around the world, some global, some regional, just as these operators are in partnerships with other m2m providers. It is the norm for our industry. This kind of cooperative-competition helps us all surface delivery models that work, as well as determine those which do not. Currently, there are several one-stop shop models coming together – and that is a good thing. It validates what we have been building at Telit for a decade now. The models we believe are more likely to succeed are those really focusing on and delivering improved adopter experience. Many will claim they are doing that but will under-deliver since what they call a one-stop shops is nothing more than bundles of regular products from themselves and partners. This model has been tried and has not shown enough value aggregation to be rewarded with longevity.

THE RIGHT MODEL CHANGES EVERYTHING

The community of developers and integrators is working under tremendous pressure from their own customers. As "The M2M adoption barometer 2013" white paper from Vodafone clearly concludes, they are ready to embrace m2m but need us to help relieve that pressure. In the end, those models factoring these experience-excellence requirements into their solutions will surface as having delivered on the one-stop shop promise. <<

OFFERS BUILT ON ROBUST FOUNDATIONS
FULLY CONNECTED MODULES ARE THE BEATING HEART OF EVERY SOLUTION.

Felix Marchal, *Chief Product Office*, *Telit*



>> This issue of telit2market focuses on our extended ONE STOP. ONE SHOP. offer. Extended because it now goes all the way to the cloud and enterprise environments. And like all our offers, it's built on a comprehensive, multi-technology product portfolio that we're constantly expanding and making easier to use.

Modules are the foundation on which we built our reputation. They are the 24/7 beating heart of every solution and our unmatched portfolio is the foundation onto which we have built the industry's benchmark one-stop shop*) – Telit's ONE STOP. ONE SHOP. We cover all the bases: Cellular, GNSS and short-range/long-range RF as well as combo modules. Moreover Telit has pioneered a number of leading-edge developments, e.g. enabling modules to function as programmable operational environments. In addition we have implemented key features such as backwards compatibility and unified form factors.

The expansion into more software and value-added services received a major boost in 2013 with our acquisition of ILS Technology. However this forward-looking development should be seen as a continuation of that early hardware strategy. Modules underpin all our operations, in vertical markets such as telematics, energy and automotive as well as the new cloud-centric, end-to-end solutions.

OUR HARDWARE STRATEGY

In the case of cellular we have a best-in-class offer and our excellent products in the other technology sectors like GNSS and Short Range are making strides with the Jupiter SE880 miniature GPS receiver module, for example, being named by U.S. publication EDN Network a "2012 HOT 100 product", that said the company's portfolio is unrivalled.

Telit's strategy is based on the continuous development of more products, the goal being a best-in-class offer in all sectors. We are on schedule with our short-range/long-range module roadmap and the expanded range will ensure and enhance our competitive position in the energy, gas and water consumption market. New products include two short-range/long-range, high-power data communications modules.

There is an accelerating demand for location-based services products such as smart watches, personally connected healthcare devices and other wearable products. Our GNSS operation started in 2011 with the acquisition of Navman, and Telit realized significant sales revenues in 2012/13. Innovative new modules will start to appear in Q1 2014, which is probably the time at which you are reading this article.

HARDWARE HIGHLIGHTS

In 2013 we also expanded the mobile computing market offering from only mini-PCIe devices to include M.2 LTE and HSPA+ products leveraging our partnership with Intel. Mobile computing is booming and convergence with cloud computing is a significant synergistic development that will result in the creation of innovative, near-real-time applications.

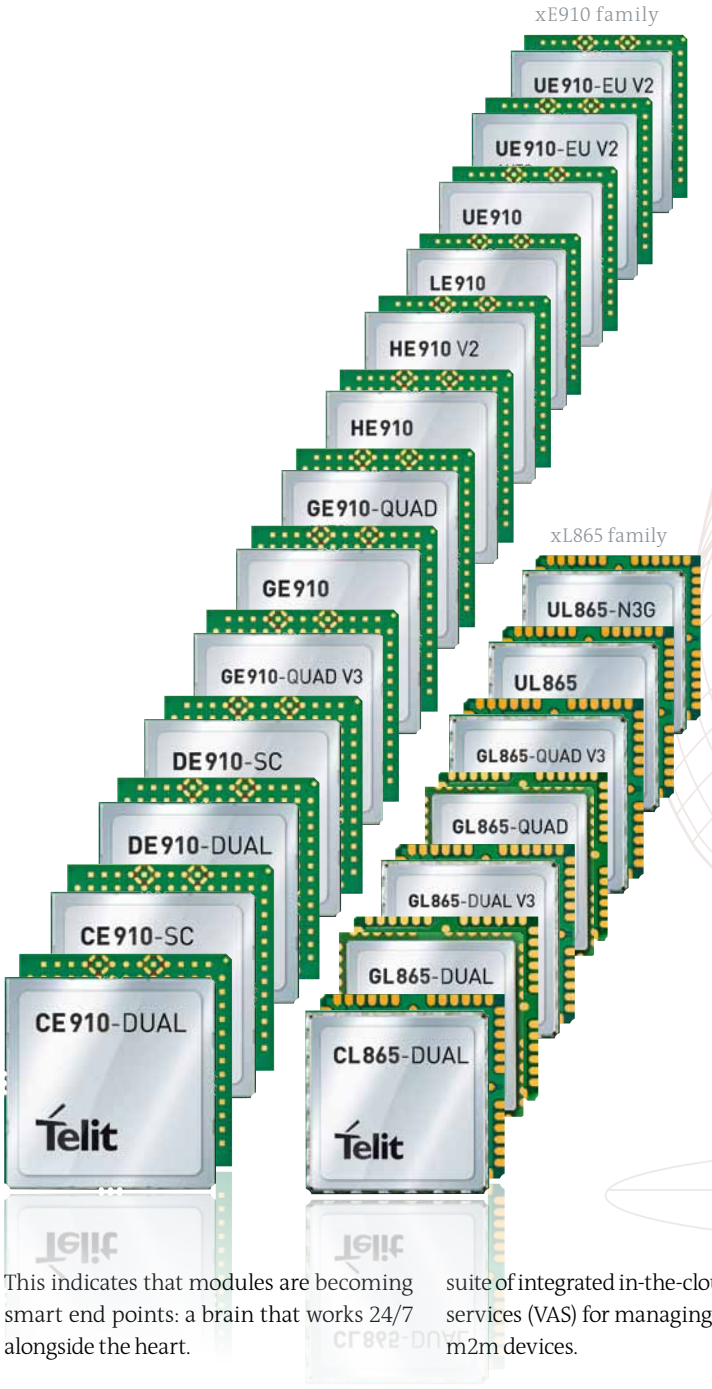
We've completed the unified form factor program for the xE910 family, which has a footprint of just 795 mm^2 and an overall size of 28.2 x 28.2 x 2.2mm. Recent additions include 2G and 3G automotive grade modules for global and European applications respectively.

The xL865 family (UL, CL and GL) is another addition to the cellular program. They are Telit's first cellular module to employ the small VQFN form-factor. This family is ideal for the battery-powered wearable technology segment because of low-power consumption and ultra-small 24.4 x 24.4 mm dimensions.

These products, which incorporate a Python Script Language interpreter, can run customer applications internally without the need for additional electronics.

SYNERGISTIC RELATIONSHIPS

The ability to employ data processing at the module level will become increasingly important in future. A regular m2m application sends sensor data at regular intervals and solutions can employ tens or even hundreds of thousands of modules. Therefore a lot of data has to be transmitted, so being able to process locally instead of at a central facility is a more efficient way of working.



This indicates that modules are becoming smart end points: a brain that works 24/7 alongside the heart.

SERVICES HIGHLIGHTS

The breadth and depth of our product portfolio will ensure our ability to continue delivering optimum industrial m2m solutions across all major sectors. But when you consider that the largest users of m2m globally only deliver a few million units of their top-selling solutions per year, it is a foregone conclusion that the tipping point for the space is still ahead. Mass adoption of m2m requires an end-to-end solution strategy like our ONE STOP. ONE SHOP. with its suite of integrated in-the-cloud value-added services (VAS) for managing and deploying m2m devices.

With our 2012 launch of the m2mAIR value-added services unit, which represents a unique selling point for us, Telit embarked on the development of the most complete m2m solution offering in the industry. m2mAIR provides global mobile network connectivity and associated value added services, and optionally IoT application development and object cloud-based internetworking AEP services powered by deviceWISE.

Because we employ our own protocol stack we were able to create services based on knowing better than most our competitors what is going on inside the module, which enabled the development of a cloud-centric module management system.

Companies both large and small appreciate the benefits of working with our ONE STOP. ONE SHOP, which aims to create and implement the industry's best end-to-end solutions. Key components of these solutions are the unique m2mAIR services which span the mobile network domain (m2mAir Mobile) as well as the internet and cloud domain (m2mAIR Cloud).

These m2mAIR's Cloud, Internet & Cloud domain services powered by industry's top ranking cyber-secure deviceWISE* which include a PaaS application enablement platform specifically designed for the needs of m2m, augment m2mAIR's mobile network domain portfolio letting businesses seamlessly connect and integrate remote assets with existing enterprise systems and databases in their back office all-in-the-cloud. The secure and do-it-yourself deviceWISE powered Platform is easy to configure and deploy, reducing risk, time-to-market, complexity and cost of commercializing complete m2m solutions for remote monitoring and control, industrial automation, asset tracking and field service operations across virtually all industries and market segments.

m2mAIR's Cloud services are also growing in functionality and reach as we develop new elements like a deviceWISE-based agent for Telit modules for 2014.

The mobile network domain services called m2mAIR Mobile is also growing dramatically. After starting out in 2012 with a few services in Europe, our 2013 acquisition of CrossBridge Solutions in the U.S. not only expanded the offer in regional coverage but also in content and functionality. m2mAIR's Mobile all-inclusive suite includes delivery-model combinations to suit every need like: SIM-only, SIM+module, and module-only services. Core, the basic mobile connectivity offering consists of SIM cards with standard and tailored global communication and rate plans and access to our ePortal for convenience in managing your account down to individual SIMs. Access to the ePortal is part of Core and is available at no additional cost.

Beyond these standard services m2mAIR's Cloud service area further empowers your m2m deployment with innovative cloud-based value added services (VAS) including competitiveness-boosting offerings developed in full integration with the Telit module which are network provider agnostic. These services deliver value given their in-depth reach into the module, providing you benefits to differentiate your offerings, capitalize on new revenue opportunities and fundamentally change the way you troubleshoot, control, monitor and manage m2m assets within the mobile network domain. <<

*) Source: 2013 ABI Research: Research Analysis: Application – m2m Application Enablement Platforms

GNSS: WHAT A DIFFERENCE ANOTHER YEAR MAKES

NEW MARKETS EMERGE – LOCATION IS SET TO BECOME A UTILITY

Taneli Tuurnala, *Vice President*, *Head of GNSS Division*, *Telit*

>> A year on from the GNSS article in telit2market 08/13 we see sales success continuing, but we are also witnessing the emergence of new market sectors such as smart watches and other wearable products.

GNSS encapsulates some spectacular technologies that the average consumer takes for granted. Satellites that orbit at an altitude of 20,200 km send information on their position and time. The time information has to be extremely accurate. It's generated by million-dollar on-board atomic clocks. The GPS receivers down on earth measure the time the signals travel from the satellites. The position can then be calculated from the time differences of the various signals. This ensures that back on Earth the various GPS-enabled client devices receive very precise location data.

Hybrid positioning is the next generation way to obtain location data. Sources will typically include GNSS, cellular and Wi-Fi positioning. In addition motion sensors (accelerometers, gyros, and magnetometers) are being employed to provide accurate indoor navigation.

The increased functionality of GPS-enabled devices means that we are entering an era in which easy access to information on the position of people and services will be something we take for granted. In the consumer sector, location services based on a user's geographic location will answer three questions: "where am I?", "what's around me?", and "how do I get to where I need to be?" Or in the case of some emergency services, "how do others get to me?"

Regular GPS is already providing answers to those questions in most cases, but the introduction of hybrid positioning and a multi-GNSS service will enable the creation of an entirely new breed of applications.

This will allow GPS to function in shopping malls, convention centers and underground garages. The user experience will therefore be the same in both indoor and outdoor locations. And "always on" services could be developed to help stranded cave divers, rock climbers or even victims of landslides and earthquakes.

Augmented reality, the "what's around me?" question, would also see performance improvement coming from increased accuracy and the "always on" feature. This would enable applications that give precise directions, e.g. the way to the nearest ATM. That's the "how do I get to where I need to be?" question.

Right now there are applications that cover: public transport, public works and civil engineering, immigration and border control, police, monitoring of prisoners, biomass production and feedstock management, environmental management, medical applications and people with disabilities, hunting, sports, tourism, waste disposal, etc.

However, it's clear that we are going to witness an even wider range of applications and many will be tailored to meet the needs of specific market niches and individuals. This is a challenge that Telit can accommodate. Not only are we are adding more modules to our portfolio, but the company's unique ONE STOP. ONE SHOP. offer enables fast, cost-effective deployment of customer solutions.

RELATED DEVELOPMENTS

Geo-fences are virtual perimeters for real-world geographic areas. These imaginary boundaries can be set up in location-aware applications, allowing users to trigger notifications or other actions when someone with a location-aware device that is being tracked, enters or leaves the predetermined area. A geo-fence can be a predefined set of boundaries, like school attendance zones or neighborhood boundaries.

PRECISE TIME DATA

In addition to longitude, latitude, and altitude, the onboard atomic clocks provide very precise time data. GPS receivers decode these signals, effectively synchronizing each receiver to the clocks. The resulting time data, which is accurate to a few nanoseconds, can therefore be obtained without the cost of owning and operating atomic clocks.

This allows low-cost, highly accurate and reliable receivers to provide precise timing and synchronization into locations where cost or size is a limitation. For example, instead of sharing data from a central resource, the cell towers of cellular networks can have an individual receiver. This allows GPS time to keep all the base stations in perfect synchronization.

THE LATEST PRODUCTS

There is an accelerating demand for location-based services products such as smart watches, personally connected healthcare devices and other wearable products. These modules, which will augment our 2013 GNSS portfolio, will enhance our competitive offer and also meet Telit's product strategy, which is to have a best-in-class offer in every technology sector.

The Jupiter SL871 Family supports GPS, Glonass, Galileo and Beidou constellations. Its features include: compact 10.1 x 9.7 mm LCC package; UART and I2C com ports; Assisted GPS and Differential GPS positioning.

The Jupiter SL869 V2 module has the same features as the SL871 but a different form factor: It has compact 16 x 12.2 mm LCC package and is pin-to-pin compatible with the JN3/SL869.

Jupiter SE868-A is an 11x11 mm SMT antenna module and features 9 x 9 mm GPS + GLO antenna; UART and I2C com ports; AGPS positioning. <<

Jupiter SL871

Jupiter SL869 V2

Jupiter SE868-A

MOBILE VALUE ADDED SERVICES
GENERATING NEW SERVICE OPPORTUNITIES AND REVENUE STREAMS

Dan Amir, *Telit m2mAIR – mobile*

>> As m2m becomes more mainstream with adoption rates increasing across all verticals, it is interesting to realize just how frequently adopters identify different ways to create new revenue streams from new and legacy deployments, in many cases from business opportunities that present themselves a fair distance away from the original ideas. This characteristic is in the very nature of m2m.

In the case of m2mAIR, our value added services and mobile connectivity contribute to this in primarily two ways. One way is when our customers differentiate themselves in their markets by integrating m2mAIR Value Added Service (VAS) into their products to give them extended new lucrative functionalities and a special – different – reach, look and feel in the marketplace. Differentiating is a great business strategy. It lowers customer acquisition costs, reduces churn, and drives up brand awareness and recognition. The second way is when customers deploy value added services to create new revenue streams for themselves and their customers.

NEW REVENUES FROM LEGACY M2M DEPLOYMENTS

Let us look at the case of a service provider with a large installed base of legacy m2m systems not equipped with GPS. When these devices are managed through m2mAIR, the provider could consider creating new location based services without touching a single deployed device. Our Service Delivery Platform is capable of delivering approximate global geo-location based only on cellular signal triangulation. The provider may easily obtain the location of each and every unit in his deployment regardless of its location via a Web service API. Access to this information can allow the provider to generate new revenues from "selling" that information to customers, or by allowing customers to render services like geo-fencing and others based on geo-location. The service provider in this case would not have to upgrade hardware, update software in units that are in the field, or reinstall or recall deployed units. These new revenue-generating services can be created simply by enabling functionality from m2mAIR value added services.

SERVICES FOR MARKET DIFFERENTIATION

There are instances where differentiation is even more important than direct revenue generation. Take the example of a healthcare services provider utilizing m2m-connected wellness monitoring units. In this case the provider could differentiate by guaranteeing connectivity of its devices anywhere, anytime. Here the provider could deliver this guarantee using m2mAIR's customized Communication Plans and verify this using the device management service to query the network's Quality of Service (QoS) received by each individual device in the field and if required enforce registration to a different available network with better performance. This process is easily programmable through m2mAIR's cloud Web service API.

In this particular case, the service provider created a differentiator of very high value, regardless if its competitors are running systems based on registration with a single network operator (MNO) or multiple MNOs per country. With this service feature, the provider is able to set itself apart from the competition given its ability to offer enhanced serviceability and availability of service, which is inherent to m2m services tied to mission critical or stationary and network sensitive services. In this case, the ability of m2m devices to maintain connection while at the fringe of network coverage from one or another operator can change the game in application verticals such as healthcare patient home monitoring, where the requirement for guaranteed service availability is very high.

SERVICES THAT CAN SAVE YOUR BUSINESS

m2mAIR's analytics & business intelligence service allows our customers to create services of their own, leveraging business-critical information and the analysis we provide about their customers' deployment behavior and SIM card health. Typical information and reporting dimensions include time, location, MNO, bearer service (data, SMS, voice), subscription state, price zone, etc. Telit's customers can in turn use this information to generate revenues directly or again to differentiate themselves.

Our risk management service delivers critical and catastrophic risk mitigation and management for m2m deployments. In the dynamic world of application development, it is not uncommon for integrators to perform prolific updates to firmware and applications over the air. If a bug in an updated application causes systems to increase data traffic by a factor of ten in wire-connected devices, the consequences are barely noticeable. If that happens in m2m-connected devices operating under byte-billed rate plans, you could be looking at a total financial disaster. For our customers, knowing that the application update has caused a major deviation in the level of data consumption is very valuable. It can be something application service provider customers sell as an extra feature in the service to their own customers, or again that they provide free of charge to create a closer relationship with them.

The same service is also helpful protecting our customers' relationships with carriers. Consider a hypothetical situation where the customer's new firmware update causes a deployment of several thousand units to err in the network connection application flow with the units trying to connect and reconnect in an endless loop. That can truly bring down the mobile network particularly the cells servicing the areas where devices are more densely installed. The mobile network operator will detect and stop the threat safeguarding its operation. But the event may cause damage to the relationship with the operator or even an automatic blacklisting of all of the customer's devices. The MNO may provide an alert to its customers a couple of days after but that may be too late to handle this event from an operational perspective. The ability to be alerted about such accidents as soon as devices start misbehaving can again be a high value service feature that our customers' customer would be willing to pay as an insurance policy against accidents from buggy updates or similar scenarios. <<

UNLOCKING THE REAL VALUE OF M2M

Fred Yentz, *President and CEO,* *ILS Technology*

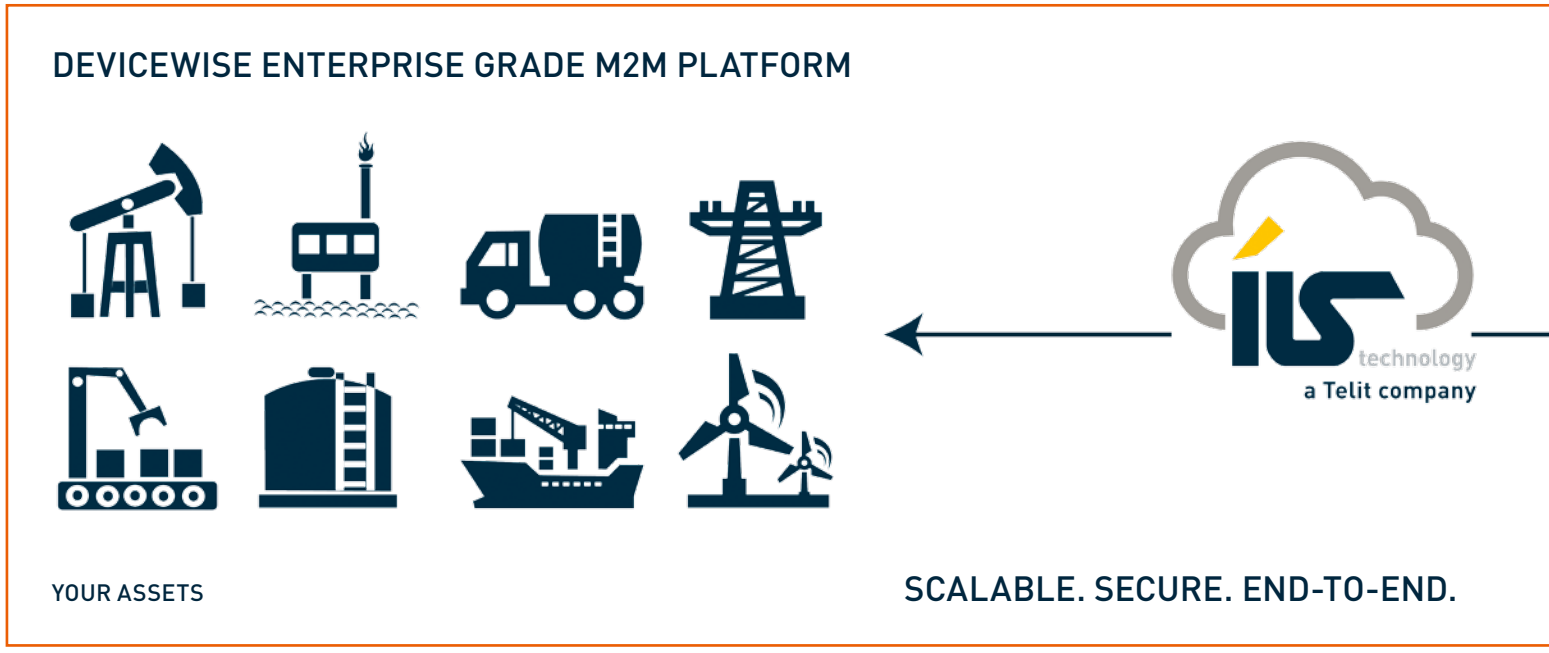
>> Do you ever wonder why people and organizations invest in m2m and the Internet-of-Things? Reasons may differ somewhat across industry segments but in most cases they fall in one or more of three categories: to make money, to save money or to be compliant. ILS Technology is squarely focused on helping companies achieve these goals, unlocking the real value of m2m.

ILS Technology is a pioneer in the development and deployment of products and services for seamless and secure connectivity and integration between machines and enterprise IT systems. You can imagine why we are very excited about being the newest addition to the ever-growing global Telit family as we bring valuable, additional services to our one stop one shop offer. Elsewhere in this edition of telit2market you can read more about Telit's ONE STOP. ONE SHOP. experience offering unique synergies and integration of modules with connectivity and application services. This article will give you a brief introduction to ILS Technology, our products, services and our history.

INDUSTRY LEADING M2M APPLICATION ENABLEMENT PLATFORM

ILS Technology was among the visionaries to recognize early on that emerging wireless technologies could do more than simply connect people, but also machines to other machines. We started using LANs and WANs, then quickly cellular and satellite to seamlessly integrate remote machines with enterprise systems and databases – unlocking a new wave of real-time, actionable business intelligence and operational efficiencies. Our deviceWISE m2m Application Enablement Platform was the industry's first complete end-to-end m2m platform to provide seamless connectivity and integration across any remote device, any network and any enterprise application in the back office – enabling intelligence in no time.

The secure and scalable platform lets you configure and deploy enterprise-grade remote monitoring and control applications without any programming. For example, using do-it-yourself tools, you



can easily determine what devices and functions to monitor and control; when and how frequently to collect information; how often to report data and to whom; what enterprise applications to integrate and what behaviors to ignore or flag and under what conditions to take action, to name a few.

The deviceWISE m2m Platform reduces risk, time-to-market, complexity and cost of deploying solutions for remote monitoring and control, industrial automation, asset tracking and field service operations across virtually all industries and market segments around the world.

DEVICEWISE IS OFFERED IN THREE CONFIGURATIONS

1. **Cloud-based m2m Platform-as-a-Service (PaaS)**
   Popular with companies and enterprise customers – large and small – as well as application service providers and system integrators for enabling quick and simple connectivity and integration between their remote devices and back office applications – this usage-based service lets you "pay as you grow".

2. **Mobile Network Operator m2m application enablement platform**
   Licensed by carriers and large IT outsourcing and SI companies preferring a turnkey secure and scalable technology platform. ILS Technology provides upfront customization, integration services, lifecycle technical maintenance and support – letting forward-thinking operators focus on marketing and operating innovative revenue-generating m2m services under their own brand.

3. **Enterprise LAN Software**
   Installed and maintained on-site for leading industrial automation companies which depend on mission-critical connectivity and operational efficiencies. Developed to operate within the "four walls" of the enterprise, the software connects and integrates production machines and processes with existing enterprise resource planning (ERP) and manufacturing resource planning (MRP) systems.

OPEN ECOSYSTEM

Our m2m platform is designed to work with the majority of devices and software in the market, including Telit modules and m2mAir Mobile & Cloud service groups. ILS Technology collaborates closely with an ever-expanding network of recognized m2m experts and innovators around the world. Our business partners include leading technology and product developers, system integrators and telecom carriers – offering customers hardware and software, integration services and support, wireless network services, custom point solutions and applications, or turnkey commercial deployments, as needed.

Our device and software partners are encouraged to join the deviceWISE Ready program – a comprehensive certification process that ensures interoperability and simple integration.

ILS TECHNOLOGY: A 13-YEAR OLD COMPANY WITH 30 YEARS OF M2M EXPERIENCE

ILS Technology was established around the successful and proven production automation software it had obtained as a spin-off from IBM's e-Production Solutions line of business in 2000. Having been key contributors to the original software development at IBM, our founders further evolved the production automation software into a market-leading device driver portfolio, scalable server and embedded software offering for the global factory automation market. The company went on to develop eCenter, the forerunner of the secureWISE suite of products and services. Recognized for enabling secure and controlled remote connectivity and collaboration, secureWISE today continues to be the de-facto trusted third party service platform for the semiconductor, solar and cleantech industries. More on page 150.

Leveraging our strong market position in device management, secure remote connectivity and collaboration, ILS Technology created the deviceWISE Platform to provide intelligent and secure connectivity for industrial automation "within the four walls" of manufacturing facilities around the world. deviceWISE seamlessly connects and integrates production equipment on a factory floor with the enterprise resource planning systems and back office. The vendor neutral solution can be easily integrated with industry-standard production equipment, making deviceWISE the industrial automation platform of choice. The mature deviceWISE platform was then naturally extended over cellular and satellite, immediately becoming recognized as the industry's leading secure m2m Application Enablement Platform and today a key and integral part of Telit's ONE STOP. ONE SHOP. offering, powering the Cloud services group from m2mAIR. More on page 151. <<

EMEA APPLICATION ENGINEERING

Paolomaria Schiratti, *EMEA Application Engineering Manager*

>> Telit has focused 100% on the development and marketing of cellular modules for more than 10 years, but in the last two years we have expanded our offer, adding GNSS products, connectivity, value added services, and the more recent cloud platform service. As well as extending the company's portfolio, these developments have generated many new m2m opportunities and Telit's Technical Support has grown in order to support the new technologies.

EMEA Application Engineering today is an international team of more than 30 engineers located in three different R&D centers: Trieste (Italy), Cagliari (Italy) and Tel Aviv (Israel). The EMEA team represents the core competence of Telit's global Technical Support. The customer can count on this team: we provide complete support, starting with product selection, followed by integration and design support, then RF/EMC pre-certification tests of the application in our laboratories, which are equipped with an anechoic chamber. The process continues with pre-manufacturing support and ends with application approval guidelines. In addition, support continues during the deployment phases and throughout the subscription lifecycle. Our application engineering competence is guaranteed by the fact that the engineering teams are located in the same buildings where hardware and software development work is conducted. This is a big benefit for our customers as it ensures that they receive authoritative, up-to-date answers and support.

Customers usually contact us by email: TS-EMEA@telit.com. Emails are analyzed first by the technical support manager, then they are assigned to the relevant engineer for resolution, using powerful Web-based customer support software. 2G and 3G cellular hardware and software support, design review service, and pre-certification and RF debug service are performed in Trieste; GNSS and Short Range products in Cagliari; and 4G cellular and legacy Motorola product support in Tel Aviv. The EMEA support team is equipped with management tools that provide a complete overview of the customer design phase. These tools ensure that customers are supported from the first schematic until the RF debug in the anechoic chamber.

The EMEA Application Engineering team shares the same customer management tools with the America's and APAC support teams. EMEA customers can therefore obtain global support, for example, when they decide to market in U.S.A. where the AT&T certification is key, or in Brazil where Anatel is a mandatory certification and homologation process.

Finally the ONE STOP. ONE SHOP. concept is backed by the Telit Technical Forum, a community of more than 3,500 users who use Telit's products and exchange technical information, solutions, tips and tricks, etc. In addition there are the m2mAir and ILS Cloud support teams, which are part of the dedicated VAS Business Unit, but still members of the big, global Telit support family. <<

NORTH AMERICA
APPLICATION ENGINEERING

Ken Bednasz, *VP Application Engineering*, *North America*

>> Application engineering is more than technical support, completing designs reviews and answering software questions. Applications engineering is an essential part of the customer interaction to ensure proper technology selection, appropriate feature use, and a design that is certifiable.

Telit's North American application engineering (AE) team is setup as an extension of the customer's project team, known as a go-to-team providing easy access to answers and resolutions. The AE team consists of experienced engineers across a wide range of disciplines including hardware, software, test, certification and system architecture. Our AE team is located across the USA with locations on the east coast (Raleigh), central (Chicago), and the west coast (Los Angeles).

North America has unique cellular technology dynamics with mobile network operators (MNOs) supporting 3GPP (GSM) and 3GPP2 (CDMA) standards and transitioning to the next generation technologies like UMTS (3G) and LTE (4G). Telit has taken significant steps to simplify technology and operator decisions with our xE910 family, which supports multiple technologies, as well as our Telit m2mAIR connectivity platform, which enables access to the three largest MNOs in the USA.

One of the most frequently asked questions is "which location/positioning technology should I use". Telit's AE team can help customers understand all the available options and the tradeoffs. Telit offers a wide range of solutions to choose from including GPS, GNSS, m2mLocate, A-GPS with SUPL and gpsOne.

Our goal is to reduce customer design risk and reduce time to market. Beyond the technology/product/feature selection is implementation. Our AE team excels in collaborating with customers to ensure key hardware areas like radiated emissions and antenna efficiency are considered. On the software side, selecting the best data bearer protocols and data retry strategy are key areas we focus on with customers.

The goal of an m2m design is to have a certified product where certification may include regulatory, industry, and MNO approvals. Navigating these processes is challenging with a new focus on application software, data retry and device aggression testing. AE team follows operator certification requirements and participates in industry working groups like PTCRB, the industry approval group for GSM/3GPP in North America, in order to stay up-to-date on latest changes and make sure customers stay informed.

The concept of applications engineering support at Telit is a core value across all regions. Telit has deployed an advanced support tool that allows seamless interaction between application engineering teams in Americas, EMEA and APAC. This has increased efficiency and allows for ticket tracking, reporting and the ability to provide multi-regional support.

North America applications engineering team can be contacted via TS-NorthAmerica@telit.com. Please contact our team to see how we can help your ideas become a success. <<

APAC APPLICATION ENGINEERING

Jinkyu Kim, *APAC Application Engineering Manager*

>> Telit has a comprehensive support portfolio that operates both globally and regionally. This combination ensures that customers are given the very best advice and assistance, from product design through to deployment.

Telit operates technical support centers in EMEA, North and Latin America and APAC. The APAC center provides regional support mainly for Asian countries including Korea, China, Japan and Australia. In addition, global support is provided for products that were researched and developed locally, well as the Qualcomm based CDMA, EVDO, WCDMA and LTE cellular modules and the GNSS modules that were developed in the Seoul R&D center.

The company's stated goal is to have best-in-class offer in all technology sectors and that includes best-in-class support services. We are therefore making a significant increase in human resources. By the time telit2market 09/14 appears there will be an additional five engineers in Seoul who will support the Korean, Japanese and Australian markets. Plus another five engineers in Shenzhen for China, Taiwan and other Asian countries.

SUPPORT SERVICES

Support starts on the drawing board, with design review of the customer's application. This is an important first step since it prevents issues that might arrive at a later stage. Subsequent technical assistance includes: integration support of the module with the application; requesting customer specific features and new AT commands; and enabling direct R&D support for key customers. In addition we do pre-certification tests of radio performance using EMEA facilities and finally we provide detailed documentation. Software tools are used to track all the information that is exchanged with the customers.

Our APAC center's mission, in line with that of Telit's ONE STOP. ONE SHOP, is to provide our customers with everything they might need: from design through to deployment. This unique delivery concept includes a comprehensive portfolio of managed and value-added services from m2mAIR which seamlessly connect m2m assets end-to-end from the field to enterprise systems they integrate.

SUPPORTED PRODUCTS

CDMA/EVDO

- CE910-DUAL, DE910-DUAL, CC864-DUAL, C24, CL865-DUAL for North American
- CE910-SC, DE910-SC, CC864-SR for China
- CC864-SINGLE, CC864-K for Korea

WCDMA

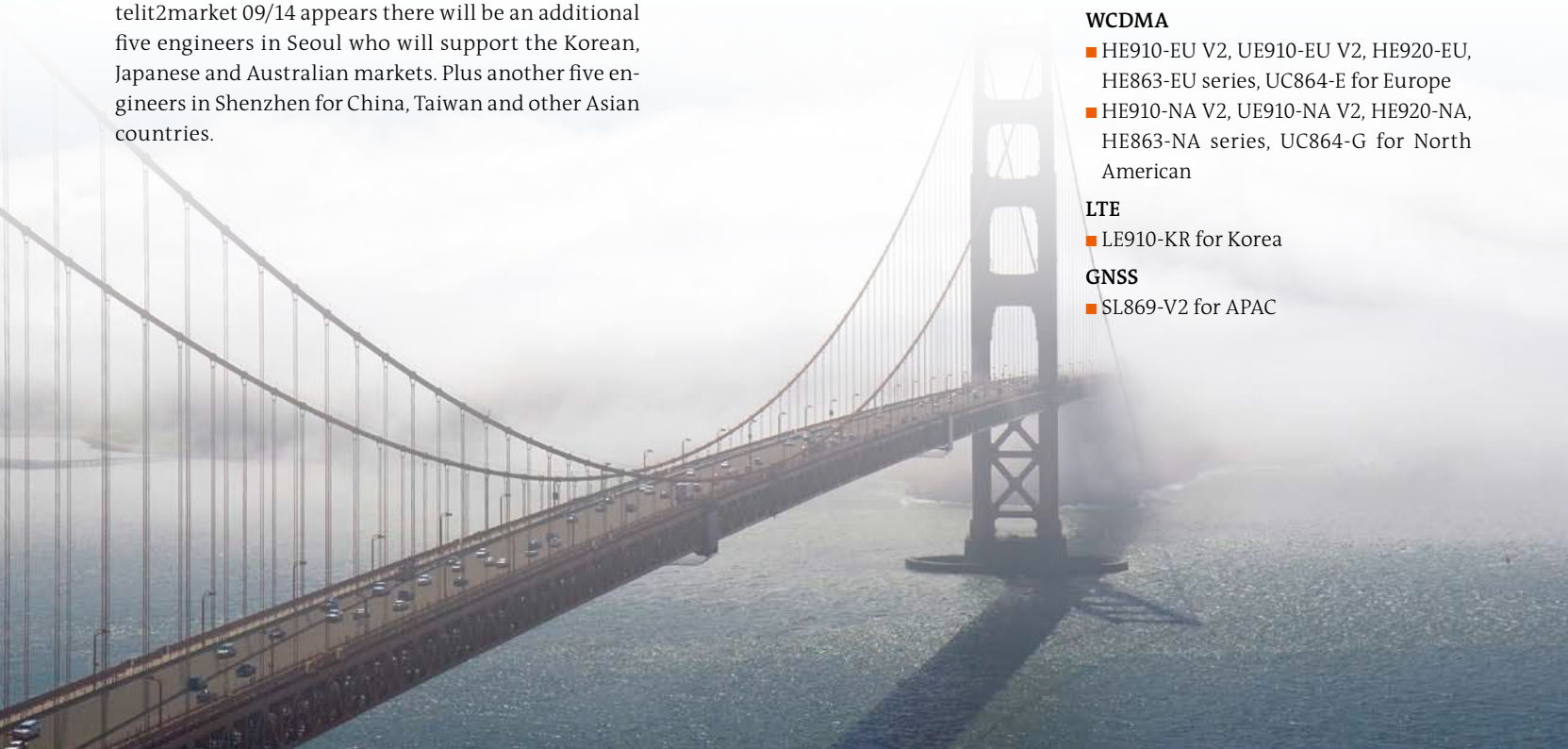
- HE910-EU V2, UE910-EU V2, HE920-EU, HE863-EU series, UC864-E for Europe
- HE910-NA V2, UE910-NA V2, HE920-NA, HE863-NA series, UC864-G for North American

LTE

- LE910-KR for Korea

GNSS

- SL869-V2 for APAC



TELIT TECHNICAL FORUM – THE THREE YEAR REPORT

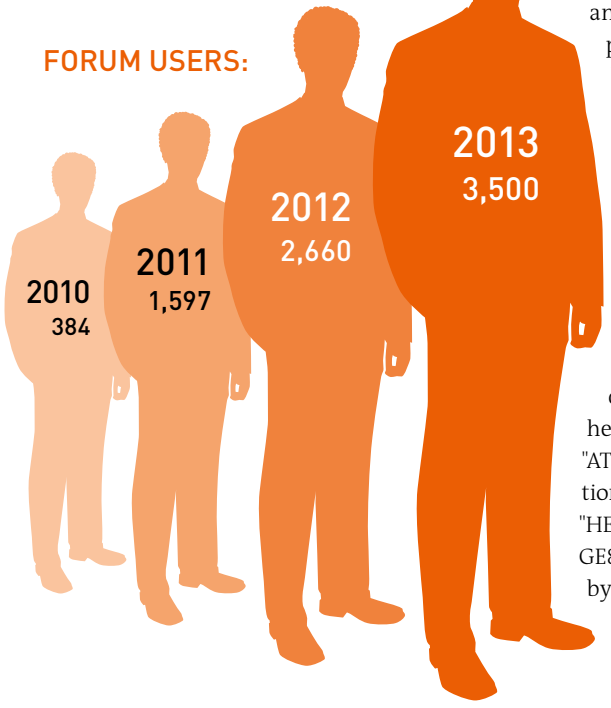
Cosmin Buhu, *Telit Technical Support Forum Manager*

www.telit.com/techforum

>> We had a Telit Technical Forum activity report in the 8th issue of telit2market, February 2013, and with another half a year we completed the third year of this wide-ranging, easy-to-use technical support tool. Telit maintains it for our customers, so let's take a look at the anniversary numbers.

The number of users has grown steadily and is currently just over 3,500, with a delta of 870 new users last year. The number of the threads reached 1,117 and there were 4,275 posts, averaging three posts a day throughout the year. The average number of posts per thread was three, which might look low, but this varies very much from a one shot question-answer that solved a problem quickly to hot discussions spread over three pages and having 20 to 30 posts.

FORUM USERS:



The growth over the last three years has slowed slightly. The forum has a wide reach and covers the global market, which results in a sizeable knowledge base containing the ideas and work of all users, both Telit customers and members of the technical support teams. Moreover, the quality of questions, answers, proposed subjects and depth of reasoning shows a mature and professional forum.

Numbers again: there were 238 new threads in the last year, logging one thousand posts.

As to the content of the discussions, they reflect the general trends of the market and the industry. The focus this year was on: the new UMTS modules, the more recent GPRS products, IP networking technologies, and HTTP services. The discussion on FTP and messaging examined the partial replacement of established GSM techniques while leaving them in place for cost sensitive applications. GPS/GLONASS technologies kept their pace.

Let's look at a few of the many subjects that were covered this past year. "DVI on GL865", "Direct SMTP connection", "GC864 UDP help", "HTTP PUT command", "AT#SSEND +CME ERROR: activation failed", "GE910 CPUMODE", "HE910 usif0 vs ttyACM0", "Using GE864-GPS (GPS controlled by external host) Help", "SL869 current".

Application programming with Python, and the arrival of version 2.7 in the new modules with improved speed and new features like threading, floating point arithmetic, native sockets were also covered: "Performance of Python scripts", "CRC16 calculations", "DTMF Detection with Python script", "HE910 Python performance".

Short-range product discussions included: "RF thresholds for association of NE50-868" and "ZigBee Config".

The forum software worked flawlessly, and involvement of the technical support teams assured timely responses with high-quality information. And of course there are independent, active users who help other members, for which we are grateful. We thank them and encourage more and more interaction. Flawless operation can be attributed to the work and fine tuning that went into the creation of the forum in the first year.

Striving for the best technical support in the m2m industry, we'll be here for the fourth year and beyond. We're now looking forward to seeing new posts relating to m2mAir, VAS, PaaS, and the ever growing number of products, services and elements that make up Telit's ONE STOP. ONE SHOP. <<

EXPANDING
INTO DIFFERENT MARKETS AND PLANNING YOUR NEXT GENERATION PRODUCTS

Sybille Stegmair, *Marketing Director EMEA*

>> Telit can help grow and expand markets for your products anywhere you may see an opportunity. We do this through a number of global resources that you can employ in areas such as delivery logistics and products that are certified in most major markets.

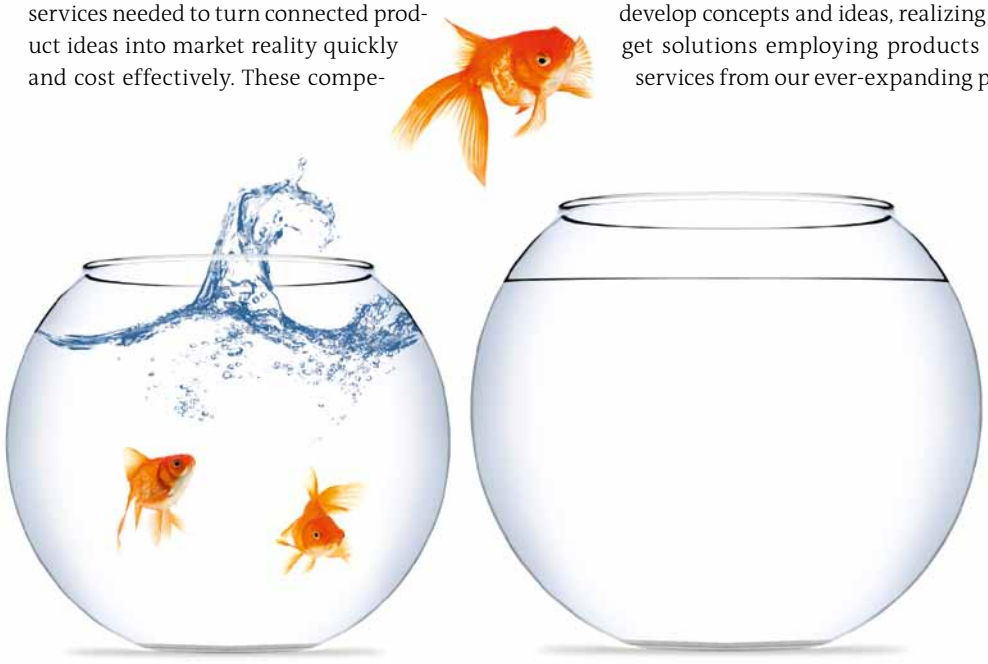
One pivotal component of this expansion enabling machinery are Telit competence centers: hand-picked partner companies with considerable experience designing cellular and RF solutions along with proven skills in hardware, software, and mechanical component development, including end-device design and development effort plus regional market adaptations to your original products when entering new markets.

COMPETENCE CENTERS AS INTEGRAL PARTS OF ONE STOP. ONE SHOP.

To strengthen our ONE STOP. ONE SHOP. customer-experience focus, we select partners having the specialized services needed to turn connected product ideas into market reality quickly and cost effectively. These competence center partners add business value by offering design, development and integration assistance to m2m adopters engaged in developing their ideas based on Telit hardware and/or services. They are carefully selected for their special skills in engineering design and other key experiences as well as their geographic reach. They complement our distributor network and sales channels, helping remove complexity, making a real contribution particularly to those customers looking to take an idea into new regional markets and who require specific certification and compliance: tasks that they cannot easily handle themselves. The added assistance from the centers broadens Telit's landed footprint in various regions and generates new business for all our customers with border-crossing ambitions.

In conjunction with our distribution network, they work with m2m adopters to develop concepts and ideas, realizing target solutions employing products and services from our ever-expanding portfolio. Competence centers vary in skill set and experience, but they all share a common set of qualifications:

- Maintain well established design departments with successful track record in mobile technology design and engineering
- Have proven experience in hardware, software and mechanical design
- Demonstrate that they can comfortably navigate approval and certification processes, in one or more countries
- Have knowledge and proven experience with top electronic engineering practices associated with connected device design, prototyping and manufacturing
- Are capable of designing cost-effective and reliable end solutions
- Have a portfolio of exclusive and non-exclusive designs based on Telit wireless modules
- Can leverage contacts with manufacturing and other value-chain partners in local and overseas markets. <<



JOIN THE COMMUNITY OF TELIT COMPETENCE CENTERS

We are always looking for synergistic partners that can help our customers expand and explore new markets. If you are interested in joining the select group of Telit competence centers, visit telit.com and send us an application.

ACCOUNT MANAGEMENT
IN KEY VERTICALS

Dominikus Hierl, *CMO*, *Telit Communications PLC*

>> Telit decided to create a Key Account Management Initiative back in 2009 and a year later it resulted in the implementation of vertical organization units that serve some of the most demanding market sectors. That structure has been retained and refined and in the case of the three largest sectors – transportation, energy and location-based services – and each activity is managed and directed by a specialist who is aware of the issues and concerns of the industry they serve. This process also helps ensure that products designed for a particular vertical meet current needs and anticipate future requirements, e.g. the transition to LTE in the transportation sector.

The specialist in charge of the automotive sector in the Americas is Mike Coletta and in EMEA it's Ulrich Habich-Bremer. In 2012 over 60 million passenger cars were produced: 165,000 a day. Therefore it is hard to overstate the importance and potential of the automotive market to Telit and the m2m industry and this is reflected by the formation of a key sub-sector – after-market Telematics. Cyril Zeller is the specialist in charge of this high-growth activity, which includes usage-based insurance and fleet management. Numerous developments are taking place. In addition to embedded telematics/entertainment systems and security services such as eCall 112, we now have smartphone apps that retrieve data from the in-car system, send it to a cloud-based service platform for processing, and then send the results back to the vehicle's display. Our position as a global vendor of advanced wireless technologies will cement our long-term relationship with this expanding market.

Emmanuel Maçon-Dauxerre manages the Global Energy Segment. This is another market with huge potential. Smart meters in homes are being deployed along with in-home displays so that consumers can monitor and manage energy consumption. However, these displays represent an extra cost and, as in transportation, we are starting to see smartphone apps that provide an alternative, convenient way of accessing and processing this information. These devices are going to generate increased awareness about the need to minimize energy consumption.

Taneli Tuurnala handles our GNSS products. New market segments are emerging in this vertical and location is set to become a utility: something that we take for granted. For consumers services based on a user's geographic location will answer three questions: where am I, what's around me, and how do I get to where I need to be? Or in the case of some emergency services, how do others get to me? Augmented reality is an interesting development. This service will enable applications to give precise location directions, e.g. the way to the nearest ATM. That's the "how do I get to where I need to be" question. It's clear that we are going to witness a very wide range of applications and many will be tailored to meet the needs of specific market niches and individuals. <<

TELEMATICS

THE WAY AHEAD THE DIRECTION IS CLEAR – THE TIMING UNCERTAIN

Cyril Zeller, *VP Global Telematics*, *Telit*

>> Uncertain timing because telematics comprises a mix of hardware vendors, insurance companies, vehicle manufacturers and regulatory authorities whose mandated timelines are different in different countries. Clear direction because there is a compelling need for an open platforms running on a robust hardware that will enable the development of consolidated solutions. Smartphones cannot meet the requirements of most telematics verticals.

The market is fragmented but it's growing and significant benefits are being realized for telematics solutions such as fleet management, usage-based insurance, emergency calls, stolen vehicle recovery, diagnostics and toll payments. However, these are fixed, point solutions that perform a single function.

If we look outside the telematics sector we see multifunctional platforms like PCs and smartphones to which new functionality can be added over the air as and when it's needed. The telematics industry, which is still broadly based on firmware (as opposed to OS + APIs and Apps), cannot meet this market expectation.

SMARTPHONES FOR FLEET MANAGEMENT

Smartphone apps are being used for fleet management. They provide real-time safety and performance data to drivers and fleet managers. For example, drivers are notified when they are speeding and managers are informed on the location of their vehicles. In August 2013 Nissan introduced a system for light commercial vehicles and this indicates that smartphones can provide an acceptable solution. But – and it's a very big but – despite a lot of media hype, the smartphone cannot provide the robust functionality needed for usage-based insurance, stolen vehicle recovery or eCalls.

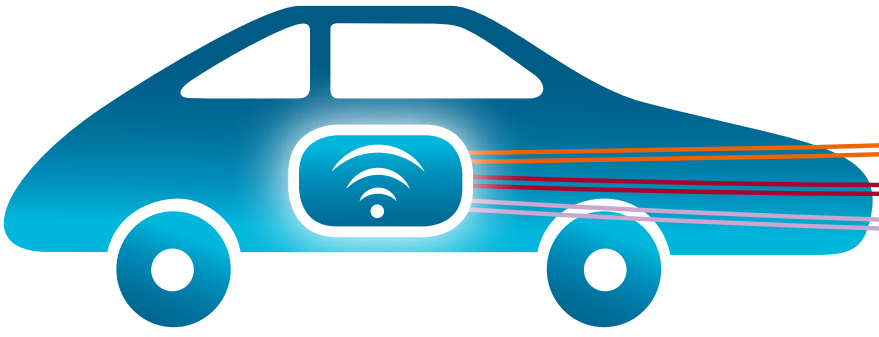
CONFUSION IN THE MARKET

For insurers, smartphone apps are a tool to collect data that can be used for risk assessment. Free UBI trials allow smartphone services to be employed as a "teaser' that: (a) introduces the concept; (b) allows drivers to see their driving behavior at the end of the trial; and (c) inform them about the potential reduction in their premium if they drive carefully.

Seen in this context smartphones provide a valuable service. However, smartphones should only provide feedback to the driver, not information to the server. This is where the confusion starts.

There are vocal advocates for smartphone-based UBI, but the insurance industry and regulators – the organizations that matter – have a number of valid concerns. They are highly critical of the reliability and accuracy of the data that is delivered. Phones can be removed accidentally or run out of battery. Users would need to start the UBI app manually. Phones could be dropped or become airborne during an impact. Driving behavioral data such as braking, turning, accelerating is likely to be inaccurate and unreliable. And there are even more issues.

In a nutshell, the great majority of the insurance industry is only offering premium reductions based on dedicated in-vehicle devices. In the U.S. solutions



based on OBD dongles have become the preferred option for eight out of the top ten personal motor insurers. These robust devices are unobtrusive and because they have a semi-permanent wired interface to the vehicle's electronic system, they provide the precise driving data that is needed for a UBI policy.

It is worth noting that drivers can use smartphones in conjunction with a dedicated in-vehicle device in order to get real-time feedback on their driving behavior. For example, if they are driving too fast a warning could be given about a potential rise in their premium.

THE ROAD AHEAD

What we will see in the near future is the emergence of low-cost, but more sophisticated platforms that allow the hardware and the related data plans to be shared with the various telematics solutions. This will allow solutions having low price points to be marketed together with incremental functionality upgrades and charges.

These platforms will have an operating system, but the development of an open, global standard is challenging, and needs a fair degree of adoption to be successful. Various governmental regulations are being proposed, e.g. the eCall emergency response system in Europe, ERA GLONASS in Russia; and the Denatran anti-theft recovery system in Brazil. However, apart from ERA GLONASS that will aggregate location-based services in the basic solution, these regulations only address a single vertical issue. As such, they perpetuate a market that is very fragmented.

If we look at Brazil's Contran 245 project, which should see its first deployment early 2014, then it is clear that it represents a fantastic opportunity – on paper. Brazilian law has mandated a device that is very simple and the result is a "solution" that is limited to Stolen Vehicle Recovery (SVR). However, the module's protocol allows car manufacturers to add their own protocols, which opens the device up to proprietary apps that can be employed by service providers.

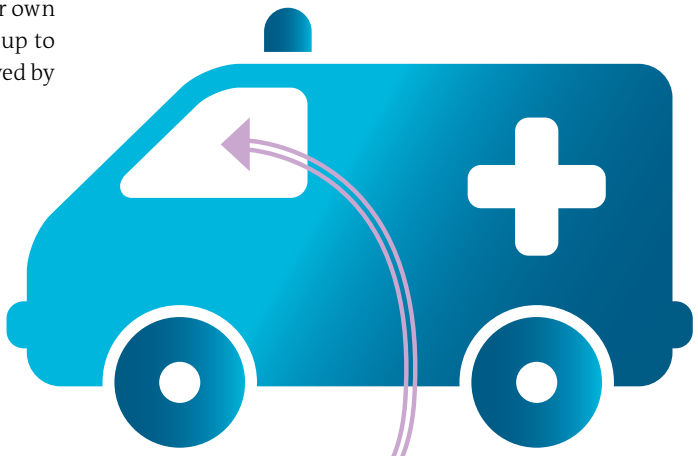
The Brazilian regulation enforces the installation of a tracking unit in all vehicles, not its activation, the risk being a low level of adoption, where people may prefer traditional players with turnkey solutions. This is in contrast to South Africa. In that country the incentive given by insurance companies to have all cars equipped with a stolen vehicle recovery solution has resulted in a penetration rate of telematics that is unrivalled anywhere else in the world. Most South African Telematics Services Providers (TSPs) already offer solutions that bundle different verticals like SVR, fleet management and now UBI because they reached the critical mass.

It will be interesting to see how Brazil and other regions will duplicate this development.

The Telit Telematics Partner Program (TTPP) aims at exchanging market information, with global players in order to get a deeper understanding on market needs, trends, and technologies already available. Through this program, we can introduce the most relevant box vendors to companies that are looking for a hardware platform or a turnkey solution.

On the other hand, we can provide numerous leads and valuable information about desired features to customers who are designing OBD dongles. Last but not least, this program has helped us deliver Telematics dedicated platforms like the xL865 that combine 2G, 3G and 1x CDMA technologies in the same ultra-small form factor.

TTPP is another way Telit's ONE STOP. ONE SHOP. accelerates adoption and long-term partnerships! Interested companies can contact me for further information: **cyril.zeller@telit.com** <<



SMART METERING

MIGRATES INTO THE SMARTPHONE ERA: NEW BUSINESS MODELS ENGAGE CONSUMERS

Emmanuel Maçon-Dauxerre, *VP Global Energy Segment*, *Telit*

>> Significant changes are needed in order to engage the market and enable smart meters to deliver their full potential. Consumers must be motivated and new business models implemented so that we can protect the environment against increased usage of a precious commodity.

Smart meters monitor energy consumption at regular intervals and transmit that information to the utility companies. The first key consumer benefit is the provision of accurate, up-to date billing information, which allows the utilities to introduce more flexible payment methods. Smart meters also eliminate the need for periodic trips to each physical location to read a meter.

The introduction of an advanced metering infrastructure (AMI) enables two-way communication between the consumers and the utilities. This allows additional services like remote connect / disconnect and a reduction in the amount of energy that subscribers can employ in case of non-payment of their bill.

The addition of in-home displays (IHDs) allows consumers to monitor and better control their usage of electricity. However, these displays represented an extra cost that consumers were reluctant to pay, therefore mass adoption would require a subsidy from the utility or the government. So far that hasn't happened, so the energy-saving features were not realized and even today the public has a limited understanding of the benefits of smart meters.

SMARTPHONE APPS

IHDs are the preferred solution for some utilities and they form part of the ambitious GB Smart Metering Implementation Program. But today smartphone apps represent an alternative, convenient way of giving consumers information on their energy consumption.

More and more individuals have smartphones and tablets, so there is no subsidy issue. This means that these devices are going to generate increased awareness about the need to minimize energy consumption. All the consumer has to do is download an app.

These apps also allow consumers to share their carbon footprint in a competitive and entertaining way on Facebook and other social networks. And utilities can encourage and even initiate this kind of customer engagement activity and the resulting information can be used to develop behavioral energy efficient solutions. This illustrates how the industry can and should employ a new mind-set in order to leverage their pivotal position in the home environment. Utilities have a physical presence as well as an established business relationship with the public.

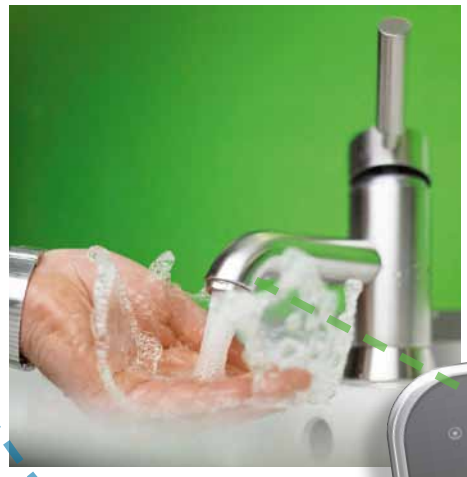
CONNECTED METERS

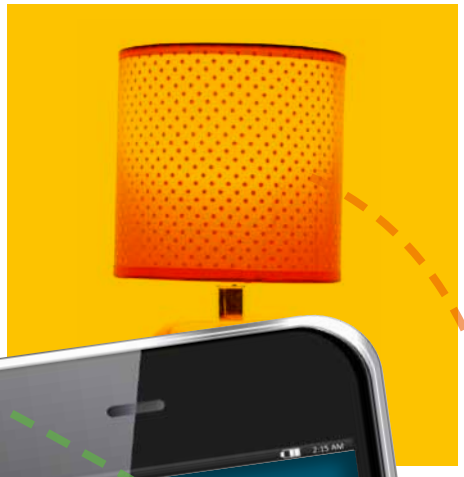
The use of standard-based, home area networking (HAN) communication technologies such as ZigBee, M-Bus and Broadband PLC, as well as Smart Plugs, allows smart meters to function as "home connected meters". This is a relatively new term, one that indicates the emerging role of meters as the communications hub in HANs.

There is nothing new about HANs: the concept has been debated and discussed for several years, but it hasn't taken off. One reason is probably the fact that consumers have to purchase a residential gateway and install it themselves. However, the emerging role of meters as communications hubs means that in future homes will have a product that enables a remote connection to the WAN as well as a local connection to the HAN.

HANs support home automation connectivity with appliances, lighting, security systems and health monitoring devices. When those communications hubs are in place in millions of homes we can expect standards to emerge, device and sensor prices to fall, and kits to be marketed that enable everything to be connected into a home network.

We are therefore going to see the development of holistic solutions within the home and they will form a key component of the smart grid.





That was a very quick take on an important development, a development that underlines the pivotal role of smart meters and the huge opportunity that it is creating for the vendors of these products.

THE GB SMIP PROJECT

The GB SMIP (Smart Metering Implementation Program) is an ambitious project, a smart metering system that includes the key smart metering components of meters, a communications hub and an IHD. The smart metering HAN interconnects everything.

The UK Government has stated that it is committed to having smart energy meters in every home, thereby empowering people to manage their energy consumption and reduce their carbon emissions. Businesses will also have smart or advanced energy metering suited to their needs.

This massive rollout of smart meters is set to play an important role in the country's transition to a low-carbon economy, and to help meet some of the long-term challenges of ensuring an affordable, secure and sustainable energy supply.

The program involved the creation of a Central Data and Communications Company (DCC) that manages the data that smart meters send and receive. The DCC employs services from IT as well as communications service providers. It will provide a two-way communications channel between smart meters and a central communications hub, to which smart meter data users (suppliers, network companies and other authorized third parties) will have access.

LOOKING AHEAD

We can safely assume that in future a communications hub will be present in every household. These hubs will provide wide area connectivity outside the home as well as HAN connectivity inside.

Different technologies are being developed and deployed in order to create next-generation hubs and there is no obvious "winner". The most likely result is that different technologies will be employed, which is already the case today in smart energy.

We can make a parallel between smart homes as outlined in this article and smart cities. This indicates that there is a clear need to aggregate the various needs and to have a common network that links the many different applications. This will lead to a harmonious, smarter and more efficient way of working in future. In a few decades this will be a development that we take for granted. <<

When completed end 2020 it will comprise approximately 28.000.000 homes and 2.000.000 smaller businesses. Around 53.000.000 gas and electricity meters will be replaced at a cost estimated of $17.8B.

THE CONNECTED CAR – IT'S PANNING OUT IN DIFFERENT DIRECTIONS

Ulrich Habich-Bremer, *Sales Director Automotive EMEA*

>> The automotive market requires continuous vehicle connectivity and the private use of smartphone apps is setting a high expectation bar. At the same time usage must not impact on the ability to drive safely.

The term "connected car" embraces a wide range of entertainment, traffic and navigation information as well as car maintenance and safety features such as the European eCall 112. Therefore care is needed in defining what we mean when employing terms like embedded solutions and tethered solutions.

Embedded telematics / entertainment in car systems are almost a standard feature on up-market brands like Audi, BMW and Mercedes Benz, but in recent years they are increasingly found on mid-range cars. The various services, in particular security services such as the European eCall 112, are normally accessed via a communication module that is embedded in the vehicle.

This is in stark contrast to the functionality of smartphones, which have become an indispensible part of our business and personal lives. The ability to employ additional functionality via an app that can be downloaded has become a key component of today's mobility paradigm. Therefore consumers are expecting a similar experience when they are in the car.

TETHERED SOLUTIONS

Tethered solutions are something of a misnomer since they refer to a wireless connection, Bluetooth or WiFi, between the smartphone and the head unit. If we keep things simple, but not too simple, this enables smartphone apps to retrieve data from the in-car system, send it to a cloud-based service platform to have it processed in any way that makes sense, and then send the results back to the vehicle's display. In addition, a touch screen and the switches on the steering wheel can be used to control the apps remotely.

There are numerous innovative apps, but car manufacturers have valid concerns about security and reliability. And for safety reasons, they want to maintain some control over developers and may also limit the number of apps that can be used.

In car system data is used for mission-critical services like eCall, diagnostics and usage-based insurance. The eCall system automatically contacts emergency services and directs them to the vehicle location in the event of a serious crash. Therefore the information must be precise and available whenever the vehicle is in use. Tethered systems are not reliable enough to meet this criterion.

Electric cars rely on the in-car systems. Reliable data is obviously needed in order to check on the status of the batteries and when on a journey, to indicate when and were they should be recharged. This is a good example of the combination of vehicular data with information retrieved from a cloud-based service platform.

LOOKING DOWN THE ROAD

Probably, by 2015, all new cars in Europe must be equipped with eCall, a system that automatically contacts emergency services and directs them to the vehicle

location in the event of a serious crash. Car manufacturers therefore need to consider how they will comply. SIM cards are needed, so there is an on-going cost and zero or minimal revenue. Therefore instead of a low-cost, 2/3G eCall only system, they might elect to go for a higher priced 3/4G system that provides broadband connectivity and access to other telematics services.

Looking further down the connected car road we have two key developments: V2X and ADAS. V2X comprises communications between vehicles (V2V) and vehicle to infrastructure services (V2I). Basically V2X creates an awareness zone around the driver's vehicle: you can think of it as a wireless LAN. This development is being researched by the German and French governments as well as the European Commission, mainly because of the environmental and safety benefits.

ADAS (advanced driver assistance systems) takes in various road safety applications, many of which are on the cutting edge of emerging automotive technologies. Adaptive light control systems, for example, are designed to help drivers see better and further in the darkness. The service retrieves route information and allows the headlights to swivel and rotate to better illuminate bends just before they arrive.

Features like adapted speed and braking technologies are also emerging, along with controlled steering and autonomous driving. Longer-term, the technological advances behind the connected car will eventually lead to self-driving vehicles.

CONCLUSIONS

In 2012 over 60 million passenger cars were produced: 165,000 a day. Therefore it is hard to overstate the importance and potential of the automotive market to Telit and the Internet of Things. Our position as a global vendor of advanced wireless technologies will cement our long-term relationship with this expanding market. <<

Automotive modules

Telit provides two module families that are designed in accordance to the Automotive Quality standard TS16949.

The xE910 family starts with the GE910-Quad-Auto, with GNSS included as a dedicated low-cost eCall device that supports GSM globally. The next derivative UE910 Auto V2 targets the higher bandwidth UMTS market.

The HE920 Series is part of the xE920 form factor family, which is compatible with an LTE companion product. This module ensures an easy and cost minimized migration from 3,75 G to 4G LTE. An integrated but optional GNSS receiver is available for applications requiring fast and accurate fixes in any environment.

The LE920, a flagship module, is part of Telit's xE920 family. The series combines two high-speed cellular modes: LTE delivering 100Mbps downlink and 50Mbps uplink data rates and full fallback compatibility with DC-HSPA+ delivering up to 42Mbs downlink and 5.76Mbps uplink rates. The integrated Application processor enables embedded Linux-based customer applications.

NORTH AMERICAN AUTOMOTIVE MARKET SUMMARY

Mike Coletta, *Sr. Director Automotive Sales*, *Telit*

>> The Automotive Telematics market in North America has undergone significant advancement over the past year. We are seeing more global platform thinking among vehicle OEMs, as well as migration toward "hybrid" Telematics solutions. The race is on for full LTE deployment and in no other vertical market is this playing out more prominently than in Automotive. Telit's mission is to support these trends and to streamline adoption by vehicle OEMs and their Tier 1 suppliers.

Global legislative initiatives such as eCall in Europe, ERA/GLONASS in Russia and Contran-245 in Brazil impact Telematics solutions in North America. Most OEMs operate globally or have partnerships that bridge regions. Thus, if a vehicle OEM is developing a Telematics solution for one market, chances are the OEM will be bringing a similar solution to another market on a common platform. The primary difference between market-specific solutions becomes the cellular technology and respective carrier network access. This makes a modular approach to connectivity even more attractive and underscores Telit's value-added proposition. Our common module form-factors and carrier certification services are significant benefits for OEMs and Tier 1s who need a global platform approach.

Many OEMs have launched or plan to launch hybrid Telematics solutions that encompass both embedded (i.e., car electronics-based) and tethered (i.e. smartphone-based) approaches to connectivity. Thus, momentum has shifted to the support of both approaches. OEMs have embraced the fact that core safety features are best served with embedded solutions. These include: Automatic Crash Notification, Theft Recovery and Utility features such as over-the-air software upgrades

for devices on the vehicle network. Tethered solutions allow a myriad of consumer applications and content to be piped to the vehicle, with an OEM developed HMI that improves the in-vehicle experience and makes it safer.

Migration to 4G is happening quickly in North America. The push in Automotive is being driven mainly from a "future-proofing" standpoint and less so (for now) from the added data throughput that LTE offers. With long product cycles and vehicle life extending 10 years or more, OEMs want to launch with the best technology possible, knowing that upgrading later will be difficult or impossible. Voice over LTE (VoLTE) is a major enabler in the migration to 4G, and carriers are working on this aggressively. For Europe and South America, 3G and sometimes even 2G solutions remain viable for launching new Telematics solutions, primarily because these regions are not seeing the same "sun setting" and spectrum issues that we face here in North America.

If you are working with Telit already, we sincerely thank you for your business and will look to strengthen our relationship as this vertical grows in North America. Telit minimizes the burden of bringing connectivity solutions to market. Our manufacturing and quality teams achieve single-digit ppm delivery, or better, to your factories. We enable ease-of-integration into your platform of choice with our strong chipset and carrier partnerships. And lastly, we simplify the task of designing for different regions with our common form-factors and sustained support for the life of your program. Now, innovate with Telit's ONE STOP. ONE SHOP! <<

MOBILE COMPUTING – THE MARKET IS BOOMING AND EXPANDING

Vincent Hsu, *Senior Sales Director (Consumer Electronics)*, *Telit*

>> In numerical terms the market is booming. But as the capabilities of smart mobile devices continue to grow, their role is also expanding. For example, mobile and cloud computing will converge, thereby removing the computational constraints that are intrinsic to mobility.

Telit has introduced two new products for deployment in tablet computers; see sidebar "New Products, New Functionality", but rather than simply talk about product details, I also want to indicate the leading role that the company is set to play in this exciting and innovative marketplace.

Products are, of course, our entry point and their advanced functionality allows the company to take a leading role in the mobile computing's expanded role. Multi-band LTE is enabling professional users to run business applications simultaneously with Voice over IP (VoIP). And GPS functionality is being incorporated in order to locate end users and to provide the optimum routes for service technicians.

EXPANDED ROLES

The established role of tablets as devices for messaging and obtaining information is changing. Video streaming is becoming a key medium for use in enterprises and for telehealth it could provide clinicians with supplementary, real-time visual images.

The convergence of mobile and cloud computing referred to earlier will result in the creation of innovative, near-real-time applications. In a nutshell, this development combines the massive computing and storage facilities of the cloud with the convenience of a mobile device. There are no technical constraints: if there is a need for an app then it can be created. There will be challenges, but there will also be numerous business opportunities.

TELIT IN THE CLOUD

At the time of writing, Q3 2013, Telit is the only m2m company that can deliver end-to-end solutions: from the modules right through to the integration of m2m data with mainstream business processes like EDP and CRM – we call it the ONE STOP. ONE SHOP. It is hard to overstate the importance of this unique delivery model for the enterprise sector.

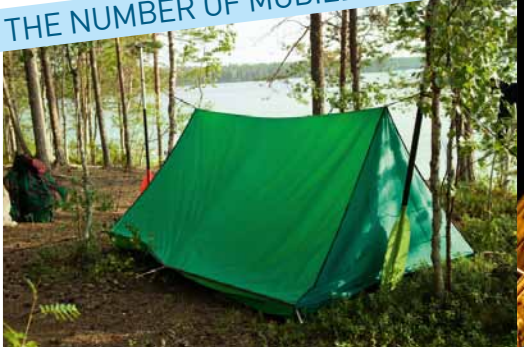
Workforces have become increasingly mobile and the percentage continues to rise: the number of mobile employees is set to reach 1.3 billion worldwide by 2015 (source IDC). Today we therefore talk about the mobile enterprise and a mobility paradigm that involves a seamless flow of information to and from data centers to the company's mobile devices.

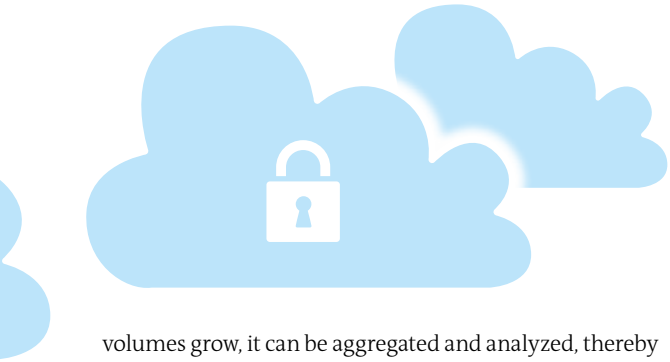
Mobile employees capture information manually, e.g. sales orders when in meetings with customers. A Telit solution captures data automatically and transmits it to corporate data centers, which may or may not be based on the cloud. This extends the enterprise's ability to make informed decisions based on up-to-date information.

ADOPTING THE CLOUD COMPUTING MODEL

Adopting the cloud-computing model is taking the m2m industry to the next level. Solutions will be able to share data and employ it in different ways. And as data

THE NUMBER OF MOBILE EMPLOYEES IS SET TO REACH 1.3 BILLION WORLDWIDE BY 2015 (SOURCE IDC)





volumes grow, it can be aggregated and analyzed, thereby providing more insightful information.

However, as workforces become increasingly mobile the data that is generated is becoming more vulnerable to being compromised, whether it is in the transmission from one location to another, or in the memory of a mobile device. More advanced authentication solutions will therefore be needed for accessing networks and protecting devices from security breaches. The IDC foresees that cloud and mobile security will be a $6 billion market by 2015.

SUPPORT SERVICES

Booming markets attract the attention of new vendors, who will typically be bringing a core competence to the environment. This is particularly true for the application development community. And as indicated earlier, the convergence of mobile and cloud computing is going to open up a new market sector for innovative apps.

There will be numerous opportunities for developers who have specialized knowhow and experience but who do not have the time and the resources to get up to speed. This is where Telit's support services come into play.

We welcome these new entrants and they can benefit not only from our comprehensive support portfolio, but also from an offer that contains innovative value-added services, which remove the need to look under the hood to find out how m2m technology works. <<

NEW PRODUCTS: NEW FUNCTIONALITY

The M.2 (xN930 family) employs Intel's M.2 LTE and HSPA+ reference designs. The fact that they were licensed from Intel indicates the company's ability to meet the strict specifications of Intel's UltrabookTM, which is a combination of a laptop and a tablet.

Main characteristics:
- Supported frequencies: LTE FDD; - UMTS/DC-HSPA+; - GSM/GPRS/EDGE
- 3GPP protocol stack release 9
- Maximum data throughput: LTE: Cat 3, DL 100 Mbps, UL 50 Mbps

The 3.75G HE910 mini PCIe data-card is fully compatible with its EV-DO counterpart the DE910 mini PCIe, thereby providing connected device manufacturers maximum range of options for North American cellular operator support.

Main characteristics:
- 21/5.7 Mbps UL/DL data rates
- Interchangeable with EV-DO counterpart the DE910 mini PCIe

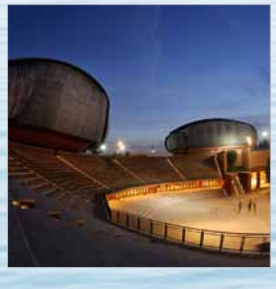
The DE910 Mini PCIe data-card is fully compatible with its HSPA+ counterpart the HE910 mini PCIe. Features include a high performance multi-constellation GPS plus GLONASS receiver, which provides superior positioning fixes even in harsh environments and challenging urban canyons.

Main characteristics:
- 800/1900 MHz 1xRTT and EV-DO Rev. A support
- 1.8/3.1 Mbps UL/DL data rates

THE IDC FORESEES THAT CLOUD AND MOBILE SECURITY WILL BE A $6 BILLION MARKET BY 2015

TELIT'S GLOBAL PRESENCE

Over 5,000 customers in 80 countries around the world • 32 sales offices & 60 exclusive distributors, covering 80 countries • Headquarters in Rome (Italy), regional headquarters in Raleigh (NC, USA), São Paulo (Brazil), Seoul (Korea) • 650 employees in 5 continents • Over 420 engineers in 7 R&D centers in Trieste & Cagliari (Italy), Tel Aviv (Israel), Seoul (Korea), Foothill Ranch (CA, USA), Chicago (IL, USA), Boca Raton (FL, USA)



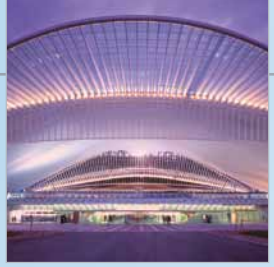
EUROPE: STRONG LEADERSHIP POSITION

Carlos Pérez Negrete,
Senior Vice President Sales EMEA

We started 2013 with the challenging task of keeping our growth higher than the market and also increasing our market share. This was not easy, particularly when considering that the deployment of modules for the Ecotax project was completed in 2012 and that the deployment was close to 800 thousand pieces.

Towards the course of the year we witnessed more delays in the big national AMR/M projects and that contributed to an increase in the difficulty of realizing our goal given our high penetration in the energy market. However the U.K. government made a significant step with the launch of the SMIP project, which backed cellular connectivity and resulted in Telefonica being awarded a contract to cover two thirds of the country. The remaining went to an alternative custom RF technology. We will not see mass deployments until 2015. Italy is still not making the final push in their AMM project for gas meters and the Netherlands did not start significant deployments, so all and all these delays did not help us achieve the desired growth.

Nevertheless, when I look into our results I see that we have achieved moderate growth while our competitors are report-



Telit Wireless Solutions EMEA
Corporate Global HQ in Rome, Italy
Coordination of all disciplines Trieste, Italy

- Product Development LTE (Trieste & Tel Aviv)
- Product Development HSPA
- Product Development GSM/GPRS
- Product Development Short Range
- Product Management
- Operations
- Technical Support
- Sales & Marketing for EMEA
- Regulatory Compliance

ing flat results, which means that again we have gained market share in EMEA and have strengthen our leadership position. We achieved this result thanks to our good position in the Telematics market, together with ramping up some new markets that we were following closely during 2012.

Regarding Telematics there's an increase of acceptance of m2m applications among different sub-segments, especially by insurance companies, and this has contributed to the creation of a big market push. With respect to new markets, it is worth looking into the "old-new" idea of different governments in order to get a real time report on all the sales done in different kinds of shops, restaurants, etc. and thereby be able to control the taxes generated by those sales. Last year brought back into this kind of projects in countries where we expect very important results in future.

Looking beyond cellular I would like to emphasize our progress in GNSS. We finished 2013 as clear number two in EMEA and we are on track to achieve leadership in this market in few years. The introduction of several new products based on different chipset vendors will enable us to offer state-of-the art modules to the different segments using GNSS products. In turn it will allow us to more than double the number of units shipped from 2013 to 2015, putting us in a perfect position to realize market leadership during 2016/17.

In order to help our customers to face the challenging scenario we have in the cellular world, with the coexistence of 2G, 3G and 4G. We have completed the introduction of our xE910 family, which covers all cellular technologies, GSM/GPRS, CDMA/EVDO, UMTS/HSDPA/HSPA+ and LTE. This means that customers can move from one technology to another using the same design, thereby protecting their investment due to hardware and software compatibility among different modules of the same family. We have also introduced a second family having a smaller form factor, the xL865, and can now increase our focus on low-cost markets. Customers who employ these modules are ready for the next 5 to 10 years and will therefore be able to focus on their core business and thereby increase their value proposition in their markets.

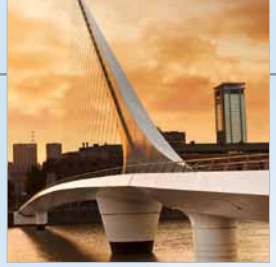
Aligned to this idea of facilitating go-to-market strategies for our customers, we have completed the portfolio of our services business unit by adding application enablement and cloud services, bringing to the market the first real One Stop. One Shop. offer.

AMERICAS: IOT IS ON ITS WAY

Michael A. Ueland, *Senior Vice President & General Manager*

2013 can be described as the year of the Internet of Things (IoT) in the Americas region. Although it is a term that was created by Kevin Ashton back in 1999, working as an Assistant Brand Manager at Proctor & Gamble to illustrate the potential for using RFID to track inventory, 2013 was its "coming out party", as Cisco, Intel, Qualcomm, GE and others made significant announcements related to their strategy to take advantage of the opportunities that IoT is creating.

In a recent interview with USA Today, John Chambers, CEO of Cisco, said that IoT is going to dominate the IT industry over the next decade. Citing Metcalfe's Law, Chambers is expecting the same exponential growth that we saw in the early days of the World Wide Web. The expected numbers of connected devices are staggering. Cisco is predicting 19 billion networked devices by 2017 up from 12 billion in 2012. Morgan Stanley has recently come out with research to suggest that the number could actually hit 75 billion by 2020. Jeff Immelt, CEO of GE, expects the "Industrial Internet" to create a service transformation by reducing unplanned downtime and increasing worker productivity. The company's ultimate goal is both modest and massive: a 1 percent efficiency



Telit Wireless Solutions
North America, Raleigh (NC), USA

- Regional Headquarters
- Regional Product Certification
- Regional Product Marketing
- Regional Technical Support
- Sales & Marketing for North America
- Product Development GNSS
- Regulatory Compliance

gain across global industries. (For energy, 1 percent fuel savings translates to $66 billion. For aviation, 1 percent fuel savings translates to $30 billion. For healthcare, 1 percent operational savings translates to $63 billion. And so on.) As Jeff Immelt states: "The Internet has changed the way we consume information and talk with each other, but now it can do more," CEO Jeff Immelt said. "By connecting intelligent machines to each other and ultimately to people, and by combining software and big data analytics, we can push the boundaries of physical and material sciences to change the way the world works."

What's driving the IoT trend is the combination of several important developments: continued improvements in price/performance of computing, advances in wireless networks and the pervasiveness of the Cloud. Verizon has already covered 95% of the population and 500 cities in the United States with 4G LTE network connectivity that has a theoretical download speed of 100MB/second and routinely delivers 20MB/second on today's networks. Developments in RESTful APIs and other Service Oriented Architectures (SOAs) have helped to enable the development of service delivery platforms (SDPs) and application enablement platforms (AEPs) that can help reduce the complexity of developing m2m solutions.

To support this trend toward IoT among enterprise customers, Telit recently acquired two companies in North America to support customers that are deploying IoT and m2m solutions – Crossbridge Solutions and ILS Technologies. Crossbridge provides mobile data connectivity services to developers across a number of network providers, including AT&T, Verizon, Sprint, Rogers, among others. Combined with ILS's AEP, Telit is now in a position to provide bundled solutions to our customers who are looking for embedded modules (cellular/GNSS/short range), data connectivity and an intelligent backend host system that provides rapid integration into existing enterprise systems.

In April 2013, we re-united the Telit North America and Latin America organizations to create a single organization that is looking after our customers in the region. The two organizations will allow our North American customers to benefit from the strong relationships we have in Brazil and other countries to facilitate their own expansion into the region. In addition, our LATAM customers will benefit from the experience and capabilities of a strong North America operation. In Brazil, we continue to see solid growth and will continue to monitor the CONTRAN 245 telematics law to see if it will be implemented according to the current schedule or if we will have further delays.

In North America, the transition from 2G to 3G technology continued at a very rapid pace in 2013. The trend away from GPRS has been dramatic within North America, with Telit sales of GPRS products going from 50% to <20% of sales in one year's time. Although we don't advise customers to start new designs on GPRS due to the re-farming of spectrum from 2G to 3G that is going on at AT&T and others, CDMA 1xRTT does remain a viable and affordable solution for most new designs as both Verizon and Sprint have committed to maintaining their CDMA networks until at least 2019.

As we enter 2014, we expect another strong year of growth in the Americas region as we continue to see strong growth in many of the traditional m2m vertical markets as well as opportunity for growth in broader horizontal market applications.

LATIN AMERICA FACES CHALLENGES AND OPPORTUNITIES

The LATAM region including Mexico has 569 million people spread in an area of 21 million square kilometers. The largest economies in the region, with a few exceptions have seen a period of relative political and economic stability recently.

Unwelcome security issues, stable economies, large populations and continental distances are a combination of ingredients backing our optimistic view of the growth LATAM is likely to experience over the coming years in m2m.

If on one hand we see a great potential, on the other hand, we must still acknowledge the challenges that complex tax systems, specific regulations, protective

TELIT APAC UPDATE

Telit Wireless Solutions Latin America, São Paulo, Brazil

- Regional Headquarters
- Regulatory Compliance
- Regional Technical Support
- Manufacturing, Logistics
- Sales & Marketing for Latin America

Telit Wireless Solutions APAC

- Regional Headquarters, Seoul, Korea
- Product Development CDMA & HSPA
- Regional Product Marketing
- Manufacturing, Logistics
- Regional Technical Support
- Sales & Marketing for APAC
- Regulatory Compliance

importation policies and special technical requirements represent which demand deep local know-how if companies are to succeed in this market.

To service our local and global customers, we employ a full corporate team in the region. In 2013, we successfully introduced our new GNSS and short range portfolio and today we leverage the benefits of a state of the art manufacturing facility in Brazil for 3GPP modules with installed capacity of a couple of million units per year for 2G and 3G products.

Ricardo Buranello, Telit's Managing Director for Latin America states, "We understand that our role in the region is more than that of a simple module or service provider. We are helping customers from all over the world to better understand and navigate the local market and be more competitive in every aspect of their LATAM ambitions, including lowering manufacturing costs, education on regulations and market trends. We are absolutely confident that the continent is indeed packed with opportunities if you are only willing to understand the rules of the region."

Derick Tsang, *President APAC*

Last year I indicated that Telit remained the market leader in APAC and that we had demonstrated an impressive growth rate of over 220%. Also, that in 2012 the company made additional investments in Japan and Australia to further increase our presence. That development is reflected by the inclusion of dedicated articles on Japan, page 50, and Australia, page 51. This year I can report that APAC's growth has continued and region is Telit's fastest growing market. Government legislation is key to on-going success and there has been a lot of legislative developments, particularly in Telematics, including eCall, and Smart Energy.

China and Taiwan: There is a fierce competition in the market for modules; nevertheless Telit realized a sales gain of more than 50% in South China. We have been benefiting from the launch of the CE910-SC and DE910-SC, products that were designed for the Chinese market. We deployed the CE910-SC to gain a significant share of the largest Chinese POS terminal providers CDMA based platform. In Taiwan and South East Asia the growth rate was even more impressive at 145%.

Korea: With our strong R&D presence in Korea, Telit Korea continues to stay at the leading edge of technology development. In 2013, the team made significant advancement in DR technology and added various GPS/GNSS integrated antenna module with new chipset platform to the offering. And in the important automotive sector Telit is responding to an increasing demand for connected cars as well as multi-functional recorders of driving data. We are leveraging our partnerships with design houses, suppliers, and automotive makers to expand on our presence in this fast growing sector. Several projects were initiated and position to go into mass production in 2015.

India: In May 2013 Telit-India witnessed a major project announcement from the Andhra Pradesh police's "e-challan" application. We are proud to report that the company's modules were selected by "Analogics Tech India", a leading developer & manufacturer of handheld computers that will be employed in this project. With Telit's broad m2m product portfolio, coupled with Analogics' in-depth design expertise, the two companies are set to cooperate in many such projects in the near future. The company has also successfully engaged with one of the key government-driven handheld projects for mobile computing application. Once implemented, this project should pave a long way for Telit in the government run projects in the Indian market. Key verticals include: Energy (Smart Meter, AMR), Telematics (Vehicle Tracking) and Mobile Computing (POS, Electronic Ticketing machine).





JAPAN'S MOVE TOWARDS M2M

KyungJun Lee,
Marketing Director APAC

m2m solutions provide convenience and they also enable new business opportunities. For example, by applying m2m communications between soda vending machines and mobile devices the machines can sell mobile content in addition to drinks. The ISP in this case would provide network access and expand its business into the wireless Internet sector. The soda providers would be able to manage product inventory online and at the same time attract more vending machine users with mobile content. The creation of this type of ecosystem would provide an economic incentive and the technology guarantees economic profitability.

The Japanese m2m market is showing signs that this type of economic incentive is coming to the Internet. TSR, a market research firm in Japan, has released a forecast showing that the number of m2m subscribers in Japan will surpass 27.9 million by 2017. Also, according to the Networked Readiness Index published by the Nomura Research Institute, the m2m market is set to reach around 890 Billion Yen by 2017.

While preparing to enter the Japanese m2m market, Telit Tokyo office is being established, initially hiring a field application engineer and sales personnel. The company also completed testing for compatibility of network interworking (IoT) for the HE910 module series with NTT DOCOMO Inc., which is the country's largest mobile telecommunications provider. The products reached IoT completion after passing the mobile network operator's rigorous m2m module testing program. Completing IoT testing denotes a confidence level by the operator in the reliability and quality of the modules for activation and use on NTT DOCOMO's mobile networks.

The m2m module IOT program by the operator is the final step required for modules to be integrated into customer devices for use on the network. IoT programs are adopted by most mobile operators to address the increasing complexity of protocols involved in the interaction between m2m devices and mobile networks. It also ensures that module vendors are capable of providing adequate technical support for customer application development based on the tested modules.

The HE910 series is a bridgehead that marked the start of our expansion into the Japanese m2m market. As a result, the company was able to leverage the product part approval process and broad TS16494 certifications, both of which are strict quality management systems for supplying automotive parts. Telit plans to create collaborative relationships with the leading part providers and OEM companies in the Japanese automotive market. Telit is also making progress toward IOT with KDDI and Soft Bank.

HE 910

Telit was one of the leading companies to offer the 1st generation of M.2 form factor LTE modules under LN930 product lines. Beside collaboration projects with mobile computing suppliers, Telit is offering the

latest LTE/HSPA+ M.2 data cards globally for high data rate m2m applications.

As a global trend, m2m has been flourishing with policy support and government-led investments. In the case of Japan, demand for m2m has been increasing especially as it relates to those factors having major impact on economy and society, such as the realization of low carbon footprint, remote diagnosis and earthquake monitoring. Telit, which remains the only one of the industry's top players specializing 100% in m2m, plans to lead a strong market vitalization with our ONE STOP. ONE SHOP. which provides the proverbial A-to-Z of successful m2m integration.

REGIONAL UPDATE APAC – AUSTRALIA

Marcos Kinzkowski,
VP Sales Oceania

Telit established the Australian office in 2012: a year later we are opening up the market, enabling new designs daily and our market share is set to triple in 2013. And growing.

Before moving to Australia I was managing the company's operations in Brazil and the two environments are very different. The geographical differences are well known: less obvious is the fact that unlike Brazil, Australia is a m2m export-led economy, as is New Zealand. Europe and the U.S. are the main markets.

Another big difference is the fact that there is virtually no large market for telematics track and trace solutions, nor is there an eCall initiative. Robust cellular coverage is only found in the coastal cities and the highways in between. In the outback coverage is poor, moreover there are very few users. However, nature preservation is an interesting sector (see page 75 and page 76) for which we've developed a special solution. Nevertheless, LTE is becoming reality in big cities.

AMR (Automatic Meter Reading) represents a huge opportunity for Telit but to date this sector has not taken off. There is a value chain with the utilities, generating the energy at the top, followed by distributors and retailers. The government has promoted the benefits of smart meters, but currently, consumer has yet to fully understand the advantages. The key issue is who is going to pay for the meters, but deployment is coming.

Smart meters transmit accurate, up-to-the-minute information to the utilities and this eliminates the need for periodic trips to each physical location to read a meter, which is a significant benefit in Australia's Outback. On the other hand, developers and integrators are deploying great solutions for m2m verticals such as medical, security and industrial gateways.

Opening up the market

We came to Australia at the right time. The market is taking off and Telit is a new entrant that has a unique, complete offer in its ONE STOP. ONE SHOP. That's why we're winning three out of every five bids: like Kangaroos we're progressing in leaps and bounds.

Telit's ONE STOP. ONE SHOP. delivery model remains the only real one-stop shop. We're delivering end-to-end solutions that go all the way from the sensors through to the cloud and enterprise environments. In addition, Telit has a comprehensive, end-to-end support portfolio. And all these qualifications are necessary for companies who want to enter the booming m2m market here. They let customers bypass the regular learning curve and focus on the functionality of their concepts.

Cabcharge and Telit

SL869

Cabcharge was a particularly important partner. The company's Fareway Plus platform, which employs Telit's HE910 3G module and the SL869 GNSS receiver, is used for metering and fare payments in Australian taxis and the platform has several other features. They are an important reference case. Read more on page 84.

Telit is the new breeze that is blowing over the m2m market in Australia. And customers are seeing the value of our ONE STOP. ONE SHOP.

Build Your Dreams

BYD
Telit Best Strategic EMS Partner

Stanley Liu
General Manager
BYD Division 9

Overview Introduction

>>Established in 2006, BYD EMS Service (hereinafter "Div 9") is taking the advantage of its strong vertical integrated capability on consumer electronic, home syncretic, and automotive device. Its vertical integrated service for customers to provide complete design, manufacturing and logistics throughout the product's whole cycle life help its OEM customers acquire the ultimate solution. It is specialized in SMT, Assembly, Testing, Package, Shipping and Customer service, and earns lots of big and stable customers, like SUMSUNG, HP, DELL, INTEL, NVIDIA, HUAWEI, LENOVO, TELIT owing to its reliable quality and flexible delivery. It also owns many world-class SMT equipments with high density and speed, shipped 48 million devices in 2012 and about 55 million in 2013 with 8 million-12 million monthly capacities.

Telit & BYD Cooperation

Telit and BYD started business from 2009 with CDMA,GSM modules, and achieved 0.5M shipment at that year.

Due to BYD's good quality and service, Telit award "The Best Supplier" to BYD at the end of 2010, and achieve 4.5M shipment. BYD got TS16949 certification in 2011.

During 2012, BYD configured dedicated factory and source to Telit and endeavor its best to help Telit to achieve 7.3M shipment the whole year; The shipment target in 2013 is 9.5M, including 2G/3G/GNSS/Short range/LTE series.

BYD got the production certification from Continental, Panasonic, BOSH, TOMTOM, MAGNETI MARELLI during the past 3 years.

Div 9 Development Roadmap

Enterprise Honor

Quality Assurance

Manufacture Technology And Capability

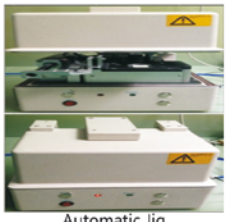
40 SMT lines（High-speed）,Fuji NXT /Siemens D/ Panasonic （N2 Reflow）
Capacity:8-12M/month SMT 8-12M/month Assembly

Stage	Type Of Machine	Process Capacity
SMT	-Printer: MPM/DEK/Panasonic -Mounter: Fuji NXT /Siemens D/Panasonic -Reflow: ERSA 2-20 -AOI: VI 3K2/Agilent SJ-50 -X-Ray: Phoenix 3D/	-PCB Size: Max:450*328 Min.50*50 -PCB Height: Max:4.5mm Min:0.8mm -Chip Size: Min:01005 -Connector: Min:0.4mm Pitch -BGA/CSP/ Min:0.3mm -X-Ray: 2D/3D -ROHS: Available
Testing	-CMW500/280 -CMU200/Agilent 8960 -Anritsu MT8852B/MT8860A -R&S CBT Blue Tooth -Star Point TD Sp6010 -Willtek4400 Network Analyzer	-GSM/WCDMA -CDMA2000 -TD-SCDMA/LTE -Wi-Fi/Blue Tooth -video/audio/TP/RF/System/ HDD Testing

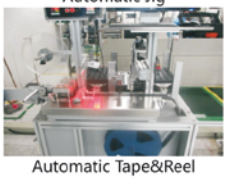

GSM/CDMA Test


CDMA Test


LTE Test


Automatic Jig


Automatic Feeding


Automatic Tape&Reel

BYD MES Manufacturer Execution System

Traceability
- Key Components (Lot Number, Supplier Etc.)
- Operator ID, Line#, Shift #, Date
- Rework Information
- Shipping

Process Controlling
- Avoid Material Missing
- Avoid To Skip Material And Testing
- Record Testing And Repair Data

On Line Reporting
On Line Monitor
WIP Management

BYD develop MES (manufacturer execution system) for customer, have the 100% intellectual property rights. We can modify the system base on customer requirement.

EMS Product


Data Card


Mobile Phone


Smart Phone


3-proof Phone


Modules


Modules


Tablet


Industry Computer


MYI


Viewpoint

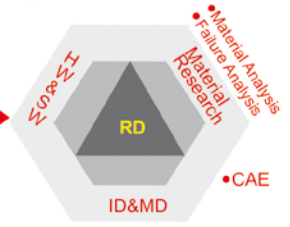

Slding Door

Div.9 of BYD provides data card、mobile phone and M2M module and M2M application devicrs EMS Service.
Total sales volume reached 200 million Unites.
In the future Div.9 of BYD will focus on smart mobile devices, wireless communication devices Medical devices and Industrial devieces.

R&D Capability

Team R&D Capability

System Software Development
System Hardware Development
System Software Development
Application Software Development
Driver Development



ID Flow

JDM&ODM Product


STB OTT


STB OTT


KaraOKe OTT


CMD


Cow Tag


Keyboard Dock


Electro Sphygmomahometer


Smart Watch


Accessory

Multi-Screen

Transfer resources from smart phone to PAD, or drive resources from PAD to TV for watching.

HDMI Dock can connect pad with TV

Address & Contact

Address: Xiang shui River Daya Bay Economic Development Zone Huizhou Guangdong P.R China 516083
Contact: Fax: +86-752-5181617
Telephone: +86-752-5118888-68184
E-mail: Vincent.zhu@byd.com; zhang.linbao@byd.com

ONE STOP.

PRODUCTS & SERVICES

>> The INTERNET of THINGS made Plug&Play with Telit's ONE STOP. ONE SHOP. for Cellular, GNSS and Short-range modules enhanced with Value-added Services including Connectivity, Cloud and PaaS-based Application Enablement.

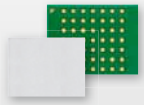
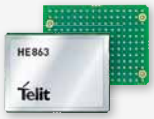
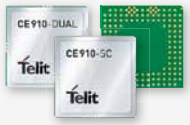
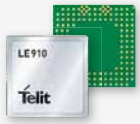
The Telit portfolio of products, value added services including connectivity, cloud and application enablement platform, delivered with full project assistance, is designed to provide the building blocks you need to implement your connected device and run your application in the cloud, easily and from a single world-class supplier. <<

The INTERNET of THINGS

ONE SHOP.

made Plug&Play

CELLULAR PRODUCT RANGE

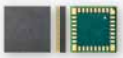
	Terminal	Embedded			
		BGA			LGA
GSM | GPRS	 GT863  GT864	 GE864 Series	 GE865-QUAD	 GE866-QUAD	 GE910 Series GE910-QUAD AUTO
UMTS | HSxPA	 GT863-3EU		 HE863 Series NOT RECOMMENDED FOR NEW DESIGN		 UE910 Series UE910-EU V2 AUTO
UMTS | HSPA+					 HE910 Series
CDMA | 1xRTT					 CE910 Series
CDMA | 1x EV-DO Rev.A					 DE910 Series
LTE | HSPA+					 LE910 Series
	xT863 xT864	xE864 Form Factor	xE865	xE863	xE866 Form Factor xE910 Form Factor

	LCC / QFN	Data Cards	Compact
	 **GL865** Series		 **GC864**-QUAD V2
	 **UL865** Series		
 **HE920** Series AUTO		 **HE910** Mini PCIe  **HN930** Series	
	 **CL865**-DUAL		 **CC864** Series
		 **DE910** Mini PCIe	
 **LE920** Series AUTO		 **LE910** Mini PCIe  **LN930** Series	
xE920 Form Factor	**xL865** Form Factor	**xE910 Mini PCIe** **xN930**	**xC864** Form Factor **Unified Form Factor** – same connector

GNSS PRODUCT RANGE

Embedded

GPS



JUPITER **SE880**

JUPITER **JF2**

JUPITER **JN3**

GNSS

JUPITER **SE868** Series

JUPITER **SL869** Series

JUPITER **SL871**

JUPITER SE880 | **xE868** Form Factor | **xL869** Form Factor | **JUPITER SL871**

SHORT to LONG RANGE RF PRODUCT RANGE

Terminal | **Embedded**

License-Free System for Frequencies <1 GHz

LT70-868

Star Network

LE50-433
LE50-868
LE70-868
LE70-915

Mesh Low Power

NE50-433
NE50-868
NE70-868

Wireless M-Bus EN13757

ME50-169
ME50-868
ME70-169

SIGFOX

Star Network

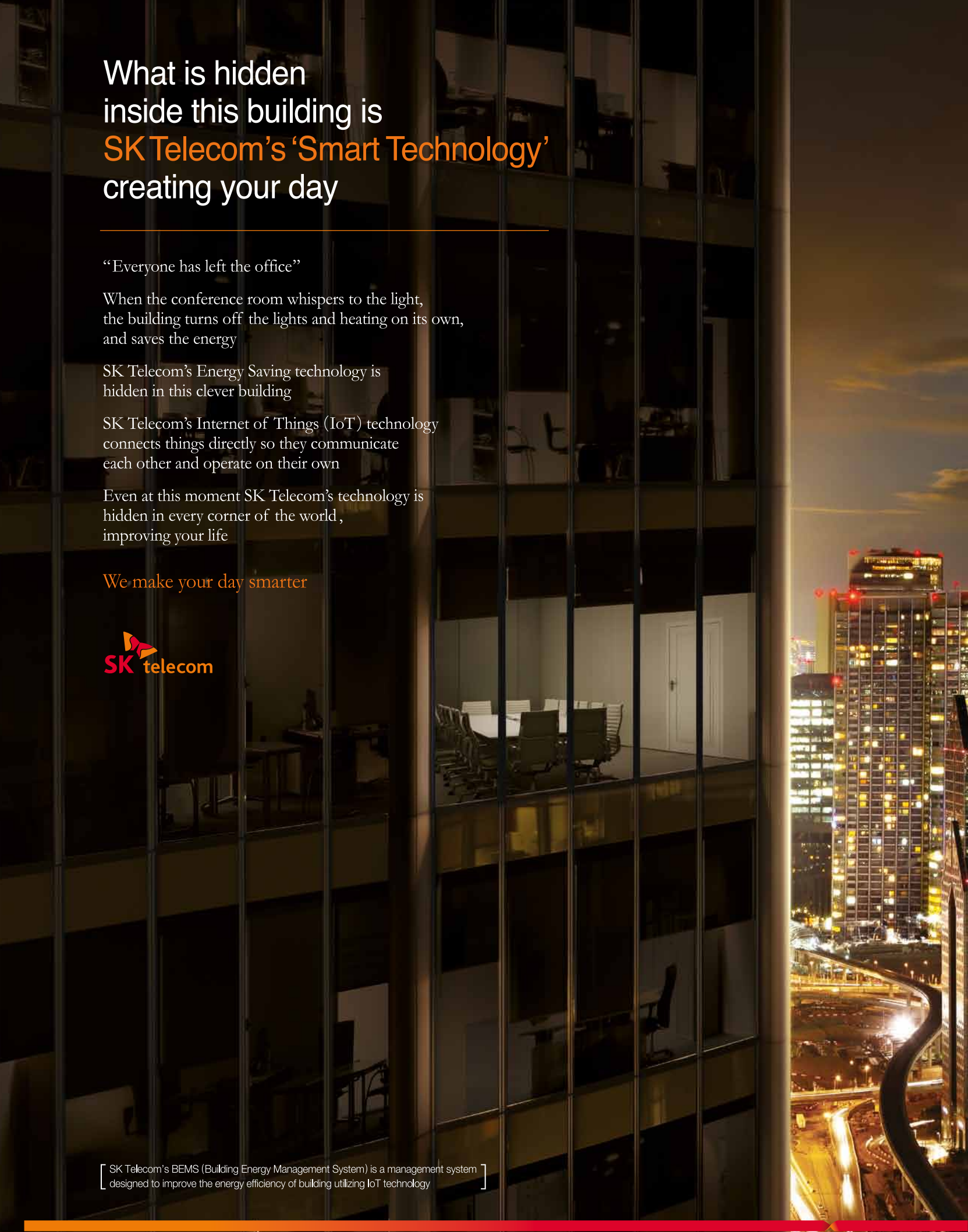
LE51-868 S
SIGFOX™ certified

IEEE 802.15.4 | ZigBee®

ZE51-2.4
ZE61-2.4

xE RF modules Form Factor – same shape – pin2pin compatible

QUICK PRODUCT OVERVIEW



What is hidden inside this building is SK Telecom's 'Smart Technology' creating your day

"Everyone has left the office"

When the conference room whispers to the light,
the building turns off the lights and heating on its own,
and saves the energy

SK Telecom's Energy Saving technology is
hidden in this clever building

SK Telecom's Internet of Things (IoT) technology
connects things directly so they communicate
each other and operate on their own

Even at this moment SK Telecom's technology is
hidden in every corner of the world,
improving your life

We make your day smarter

SK telecom

[SK Telecom's BEMS (Building Energy Management System) is a management system designed to improve the energy efficiency of building utilizing IoT technology]

CELLULAR PRODUCT RANGE

CELLULAR PRODUCT

PRODUCT FAMILY	GENERATION	TECHNOLOGY	FORM FACTOR	PRODUCT	R&TTE	CE	GCF	PTCRB	FCC	IC	KCC	CDG1 & 2	EMEA	LATIN AMERICA	NORTH AMERICA	APAC	AUSTRALIA	AFRICA	RUSSIA	KOREA	Cellular Technology
xE910 Family	4G	LTE	Embedded	**LE910** Series	●	●	●	●	●	●	●		●		●	●		●	●		4G (LTE) 3.75G (HSPA+) 3G (UMTS) 2G (GSM | GPRS | EDGE)
	3G	UMTS | HSPA+		**HE910** Series	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	3.75G (HSPA+) 3G (UMTS) 2G (GSM | GPRS | EDGE)
				HE910 V2 Series	●	●	●	●	●	●			●		●	●		●	●		
	3G	UMTS | HSPA		**UE910** Series	●	●	●	●	●	●			●		●	●		●	●		3.5G (HSPA) 3G (UMTS) 2G (GSM | GPRS | EDGE)
				UE910 V2 Series	●	●	●	●	●	●			●		●	●		●	●		3.5G (HSDPA) 3G (UMTS) 2G (GSM | GPRS | EDGE)
	3G	CDMA | 1x EV-DO Rev.A		**DE910** Series					●	●		●			●	●					2G (CDMA | 1xRTT) 3G (CDMA | EVDO)
	2G	CDMA | 1xRTT		**CE910** Series					●	●		●			●	●					2G (CDMA | 1xRTT)
	2G	GSM | GPRS		**GE910** Series	●	●	●	●	●	●			●	●	●	●	●	●	●		2G (GSM | GPRS)
				GE910-QUAD V3	●	●	●	●	●	●			●	●	●	●	●	●	●		
xL865 Family	3G	UMTS | HSPA	Embedded	**UL865** Series	●	●	●	●	●	●			●		●	●		●	●		3.5G (HSPA) 3G (UMTS) 2G (GSM | GPRS | EDGE)
				UL865-N3G				●	●	●					●						3.5G (HSPA) 3G (UMTS)
	2G	CDMA | 1xRTT		**CL865**-DUAL					●	●		●			●						2G (CDMA | 1xRTT)
	2G	GSM | GPRS		**GL865** Series	●	●	●	●	●	●			●	●	●	●	●	●	●		2G (GSM | GPRS)
				GL865 V3 Series	●	●	●	●	●	●			●	●	●	●	●	●	●		
AUTOMOTIVE xE910 Family / xE920 Family	4G	LTE	Embedded	**LE920** Series AUTO	●	●	●	●	●	●			●	●	●	●	●	●	●	●	4G (LTE) 3.75G (HSPA+) 3G (UMTS) 2G (GSM | GPRS | EDGE)
	3G	UMTS | HSPA+		**HE920** Series AUTO	●	●	●	●	●	●			●	●	●	●	●	●	●	●	3.75G (HSPA+) 3G (UMTS) 2G (GSM | GPRS | EDGE)
	2G	GSM | GPRS		**GE910-QUAD** AUTO	●	●							●								2G (GSM | GPRS)
	3G	UMTS | HSPA		**UE910-EU V2** AUTO	●	●	●						●			●				●	3.5G (HSPA) 3G (UMTS) 2G (GSM | GPRS | EDGE)
xE864 Family	2G	GSM | GPRS		**GE864-QUAD** AUTO V2	●	●	●	●	●	●			●	●	●	●	●	●	●		2G (GSM | GPRS)

BANDS	DATA SPEED (UL/DL)	INTERFACES						FEATURES																		
Bands	2 G (GSM	GPRS) Kbps 2.75 G (EDGE) Kbps 3 G (UMTS) Kbps 3.5 G (HSDPA) Mbps 3.5 G (HSPA) Mbps 3.75 G (HSPA+) Mbps CDMA (1xRTT) Kbps 4 G (LTE) Mbps	USB type	AAI (analog audio interface)	DVI (digital voice interface)	DAC (digital to analog converter)	ADC (analog to digital converter)	GPIO (general purpose input/output)	Size (mm)	Surface mounting	Antenna connector	Temperature Range	GNSS channels	Embedded TCP/IP Stack	SIM Access Profile	Python® Script Interpreter	Designed for Automotive Applications	Ready for e-Call	Run AT Commands Remotely	Jamming Detection	Remote Module Management (RMM)	Embedded Usage Monitor	SIM on CHIP	m2mLOCATE
UMTS 850/1900 (NA) UMTS 900/2100 (EU) LTE FDD (2, 4, 5, 17) (NA - AT&T) LTE FDD (4, 13) (NA - Verizon) LTE FDD (3, 7, 20) (EU)	4G 50/100 3.75G 5.76/42.0 3G 384/384 2G 236/236	2.0 HS		●		●	●	28.2 x 28.2 x 2.2	LGA	RF PAD	-40°C to +85°C	32	●	●			●	●					
UMTS 800/850/900/AWS/ 1900/2100 (Global) UMTS 800/850/900/2100 (EU) UMTS 800/850/AWS/1900 (NA) GSM 800/900/1800/1900	3.75G 5.76/21.0 3.5G 5.76/7.2 3G 384/384 2G 118.4/236.8			●	●	●	●					28	●	●	●		●	●	●	●	●		●
UMTS 900/2100 (EU) UMTS 850/1900 (NA) GSM 800/850/1800/1900	3.75G 5.76/14.4 3G 384/384 2G 118.4/236.8			●	●	●	●					30	●	●			●				●		
UMTS 850/1900 (NA) UMTS 900/2100 (EU)	3.5G 5.76/7.2 3G 384/384 2G 118.4/236.8		●	●	●	●	●						●	●	●		●	●	●	●		●	●
GSM 850/1900 (NA) GSM 900/1800 (EU)	3.5G 0.384/3.6 3G 384/384 2G 118.4/236.8		●	●	●	●	●						●	●			●	●					
CDMA 800/1900 (DUAL) CDMA 800 (SC)	CDMA 153.6k bps (full-duplex) CDMA (EVDO) 1.8/3.1				●	●	●	●	28.2 x 28.2 x 2.05				32	●										●
CDMA 800/1900 (DUAL) CDMA 800 (SC)	CDMA 153.6k bps (full-duplex)	2.0-FS	●	●			●	●						●		●								●
GSM 850/900/1800/1900	2G 40/80	2.0-FS	●	●			●	●	28.2 x 28.2 x 2.25				32	●	●	●		●	●	●	●	●	●	●
			●	●			●	●						●	●	●		●	●	●	●	●	●	●
UMTS 850/1900 (NA) UMTS 900/2100 (EU) GSM 850/1900 (NA) GSM 800/1800 (EU)	3.5G 5.76/7.2 3G 384/384 2G 118.4/236.8	2.0-HS		●	●	●	●	24.4 x 24.4 x 2.6	QFN	RF PAD	-40°C to +85°C		●	●	●		●	●	●	●	●		●
UMTS 850/1900 (NA)	3.5G 5.76/7.2 3G 384/384	2.0-HS		●	●	●	●	24.4 x 24.4 x 2.6	QFN				●	●	●		●	●	●	●	●		●
CDMA 800/1900 (DUAL)	CDMA 153.6 kbps (full duplex)	2.0-FS	●	●	●	●	●	24.4 x 24.4 x 2.45	QFN				●		●								●
GSM 850/900/1800/1900	2G 40/80			●	●	●	●	●	24.4 x 24.4 x 2.7	LCC			●	●	●		●	●	●	●	●		●
GSM 850/900/1800/1900				●	●	●	●	●	24.4 x 24.4 x 2.6	QFN			●	●	●		●	●	●	●	●	●	●
LTE FDD (1, 3, 7, 8,20) (EU) LTE FDD (1 ,2, 4, 5, 17) (NA) UMTS 900/1800/2100 (EU) UMTS 800/850/1900/2100 (NA) GSM 850/900/1800/1900	4G 50/100 3.75G 5.76/42.0 3G 384/384 2G 236/236	2.0-HS	●	●	●	●	●	34 x 40 x 2.8	LGA	RF PAD	-40°C to +85°C	32	●	●		●	●						
UMTS 850/900/2100 (EU) UMTS 850/1700/1900 (NA) GSM 800/850/1800/1900	3.75G 5.76/14.4 3G 384/384 2G 236.8/236.8											30	●			●	●	●	●				
GSM 850/900/1800/1900	2G 40/80	2.0-FS	●	●		●	●	28.2 x 28.2 x 2.25					●	●	●	●	●	●	●	●	●	●	●
UMTS 900/2100 GSM 900/1800	3.5G 0.384/3.6 3G 384/384 2G 118.4/236.8	2.0-HS	●	●	●	●	●	28.2 x 28.2 x 2.2					●	●			●						
GSM 850/900/1800/1900	2G 40/80		●	●	●	●	●	30 x 30 x 2.8	BGA				●	●	●	●	●	●	●	●	●		●

DETAILED PRODUCT OVERVIEW

CELLULAR PRODUCT RANGE

CELLULAR PRODUCT

PRODUCT FAMILY	GENERATION	TECHNOLOGY	FORM FACTOR	PRODUCT	APPROVALS: R&TTE	CE	GCF	PTCRB	FCC	IC	KCC	CDG1 & 2	AVAILABLE FOR: EMEA	LATIN AMERICA	NORTH AMERICA	APAC	AUSTRALIA	AFRICA	RUSSIA	KOREA	TECHNOLOGY: Cellular Technology
xN930 Family	4G	LTE	Data Card	**LN930** Series – **LN930**	●	●	●	●	●	●			●	●	●	●					4G (LTE) 3.75G (HSPA+) 3G (UMTS) 2G (GSM | GPRS | EDGE)
				LN930-AP	●	●	●									●	●				
	3G	UMTS | HSPA+		**HN930**	●	●	●	●	●	●			●	●	●	●	●	●	●	●	3.5G (HSPA) 3G (UMTS) 2G (GSM | GPRS | EDGE)
xE910 Mini PCIe Family	4G	LTE	Mini PCIe	**LE910** Mini PCIe	●	●	●	●	●	●	●		●		●	●		●	●		4G (LTE) 3.75G (HSPA+) 3G (UMTS) 2G (GSM | GPRS | EDGE)
	3G	UMTS | HSPA+		**HE910** Mini PCIe	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	3.75G (HSPA+) 3G (UMTS) 2G (GSM | GPRS | EDGE)
	3G	CDMA | 1x EV-DO RevA		**DE910** Mini PCIe					●	●		●			●						2G (CDMA | 1xRTT) 3G (CDMA | EVDO)
xC864 Family	2G	CDMA | 1xRTT	Compact	**CC864** Series					●	●	●	●			●	●				●	2G (CDMA | 1xRTT)
	2G	GSM | GPRS		**GC864**-QUAD V2	●	●	●	●	●	●			●	●	●	●	●	●	●		2G (GSM | GPRS)
xE864 Family	2G	GSM | GPRS	Embedded	**GE864** Series	●	●	●	●	●	●			●	●	●	●	●	●	●		2G (GSM | GPRS)
xE865 Family	2G	GSM | GPRS	Embedded	**GE865**-QUAD	●	●	●	●	●	●			●	●	●	●	●	●	●		2G (GSM | GPRS)
xE866 Family	2G	GSM | GPRS	Embedded	**GE866**-QUAD	●	●	●	●	●	●			●	●	●	●	●	●	●		2G (GSM | GPRS)
Terminal Family	2G	GSM | GPRS	Terminal	**GT863**-PY	●	●							●								2G (GSM | GPRS)
	3G	UMTS | HSPA		**GT863**-3EU		●							●								3.5G (HSDPA) 3G (UMTS) 2G (GSM | GPRS | EDGE)
	2G	GSM | GPRS		**GT864**-QUAD / PY	●	●							●								2G (GSM | GPRS)

BANDS	DATA SPEED (UL/DL)	INTERFACES						FEATURES																
Bands	2 G (GSM | GPRS) Kbps 2.75 G (EDGE) Kbps 3 G (UMTS) Kbps 3.5 G (HSDPA) Mbps 3.5 G (HSPA) Mbps 3.75 G (HSPA+) Mbps CDMA (1xRTT) Kbps 4 G (LTE) Mbps	USB type	AAI (analog audio interface)	DVI (digital voice interface)	DAC (digital to analog converter)	ADC (analog to digital converter)	GPIO (general purpose input/output)	Size (mm)	Surface mounting	Antenna connector	Temperature Range	GNSS channels	Embedded TCP/IP Stack	SIM Access Profile	Python® Script Interpreter	Designed for Automotive Applications	Ready for e-Call	Run AT Commands Remotely	Jamming Detection	Remote Module Management (RMM)	Embedded Usage Monitor	SIM on CHIP	m2mLOCATE
LTE FDD (bands 1-5, 7, 8, 13, 17, 18, 19, 20) UMTS | DC-HSPA+ (bands 1, 2, 4, 5, 8) GSM | GPRS (bands 2, 3, 5, 8)	4G 50/100 3.75G 11.5/42.0 3G 384/384 2G 236/236	2.0 HS						30 x 42 x 2.3	NGFF WWAN Card Type 3042	U.FL	-10°C to +70°C	17											
LTE FDD (bands 1, 3, 8, 9, 11, 18, 19, 21, 26) UMTS | DC-HSPA+ (bands 1, 6, 8, 9, 11)																							
UMTS | HSPA+ (bands 1, 2, 4, 5, 8) GSM | GPRS | EDGE (bands 2, 3, 5, 8)	3.75G 5.76/21.0 3G 384/384 2G 236/236																						
UMTS 850/1900 (NA) UMTS 900/2100 (EU) LTE FDD (2, 4, 5, 17) (NA - AT&T) LTE FDD (4, 13) (NA - Verizon) LTE FDD (3, 7, 20) (EU)	4G 50/100 3.75G 5.76/42.0 3G 384/384 2G 236/236	2.0 HS		●	●	●	●	51 x 30 x 3.2	Data Cards	U.FL	-40°C to +85°C	32	●	●			●	●					
UMTS 800/850/900/ AWS/1900/2100 GSM 850/900/1800/1900	3.75G 5.76/21.0 3.5G 5.76/7.2 3G 384/384 2G 118.4/236.8			●			●	51 x 30 x 3.2				28	●	●	●		●	●	●	●	●		●
CDMA 800/1900	CDMA 153.6k bps (full-duplex) CDMA (EVDO) 1.8/3.1			●			●	51 x 30 x 3.06				32	●										●
CDMA 800/1900	CDMA 153.6k bps (full-duplex)	2.0-FS | 1.1	●	●	●	●	●	30 x 36.2 x 4.8	Board 2Board	GSC	-30°C to +80°C	12	●										
GSM 850/900/1800/1900	2G 40/80		●	●	●	●	●	30 x 36.2 x 3.2			-40°C to +85°C		●	●	●		●	●	●	●	●		●
GSM 850/900/1800/1900	2G 40/80		●	●	●	●	●	30 x 30 x 2.8	BGA	RF PAD	-40°C to +85°C	48	●	●	●		●	●	●	●	●		●
GSM 850/900/1800/1900	2G 40/80		●	●	●	●	●	22 x 22 x 3	BGA	RF PAD	-40°C to +85°C		●	●	●		●	●	●	●	●		●
GSM 850/900/1800/1900	2G 40/80		●	●	●	●	●	17.2 x 13.2 x 2	LGA	RF PAD	-40°C to +85°C		●	●	●		●	●	●	●	●		●
GSM 850/900/1800/1900	2G 40/80						●	107 x 64 x 33		SMA	-30°C to +75°C		●	●	●			●	●				
UMTS (850/900/2100) GSM (850/900/1800/1900)	3.5G 5.76/7.2 3G 384/384 2G 236.8/296	2.0						83 x 64 x 33					●	●	●			●	●				
GSM 850/900/1800/1900	2G 40/80		●			●	●	77 x 67 x 26		FME			●	●	●			●	●				

EVALUATION KIT

EVALUATION KIT

TECHNOLOGY	FORM FACTOR		Designed to
Evaluation Kits	Embedded / Compact	**EVK** 2	• Develop and test applications via AT commands through serial ports or USB • Program and/or update any Telit module • Debug and/or improve applications based on Telit modules • Implement simple applications with Python interpreter-equipped module w/o external microprocessor

GNSS PRODUCT RANGE

GNSS PRODUCT

TECHNOLOGY			PRODUCT		POWER SUPPLY				
RADIO TECHNOLOGY	TECHNOLOGY	FORM FACTOR		FAMILY FORM FACTOR	Supply range (Volt)	Acquisition Mode (mA)	Navigation Mode (mA)	Low Power Navigation Mode (mA)	Hibernate mode (µA)
GNSS	GPS	Embedded	JUPITER **JF 2**	xE868	1.79 - 1.9	46	37	10	14
			JUPITER **JN 3**	xL869	2.85 - 3.6	41	32	10	40
			JUPITER **SE 880**	xE880	1.75 - 1.9	47	28	10	14
	GNSS		JUPITER **SE 868** V2	xE868	1.75 - 1.9	54	46	9.5	53
			JUPITER **SL 869** Series	xL869	3 - 3.6	71	45	29	75
			JUPITER **SL 869** V2 Series	xL869	3 - 3.6	30	25	10	10
			JUPITER **SL 871**	xL871	3 - 3.6	30	25	10	10

SHORT to LONG RANGE RF PRODUCT RANGE

SHORT to LONG RANGE RF PRODUCT

TECHNOLOGY			PRODUCT	FAMILY FORM FACTOR	FREQUENCY	RANGE
RADIO TECHNOLOGY	TECHNOLOGY Short Range	FORM FACTOR		FAMILY FORM FACTOR	Frequency	Range
Short to Long Range RF	Star Network	Terminal	**LT 70**-868	xT70	865 MHz - 870 MHz	up to 10 km
		Embedded	**LE 50**-433 / 868	xE RF modules	433 MHz / 868 MHz	up to 2000 m
	SIGFOX Star Network		**LE 51**-868 S		863 MHz - 870 MHz / 868.2 MHz	up to 2000 m up to 40 km
	Star Network		**LE 70**-868 / 915		868 MHz / 915 MHz	up to 10 km
	Mesh Low Power	Embedded	**NE 50**-433 / 868		433 MHz / 868 MHz	1500 m
			NE 70-868		865 MHz - 870 MHz	up to 5000 m
	Wireless M-Bus EN13757		**ME 50**-169 / 868		169 MHz / 868 MHz	5000 / 2000 m
			ME 70-169		169 MHz	20 km
	IEEE 802.15.4 / Zigbee®		**ZE 51 / ZE 61**-2.4		2400 MHz	1000 m / 4000 m

Power Supply Automotive Setup	Power Supply Laboratory Setup	Power Supply Portable Setup	OV protection/ Reverse polarity protection	LED Indicator	SIM Card Holder	GPIO (on Interface board)	Interface	Speaker Output		Microphone lines (INT/EXT)	Earpiece Output
5 - 40 Volt supply	+ 3.8 Volt fixed supply	rechargeable Li-Ion battery pack	On all Input DC lines	2	●	●	2 x RS-232 2 x USB	max 10 mW / 16 W	max 675 mW / 8 W	1 x Single-Ended	1 x Single-Ended max 10 mW / 16 W

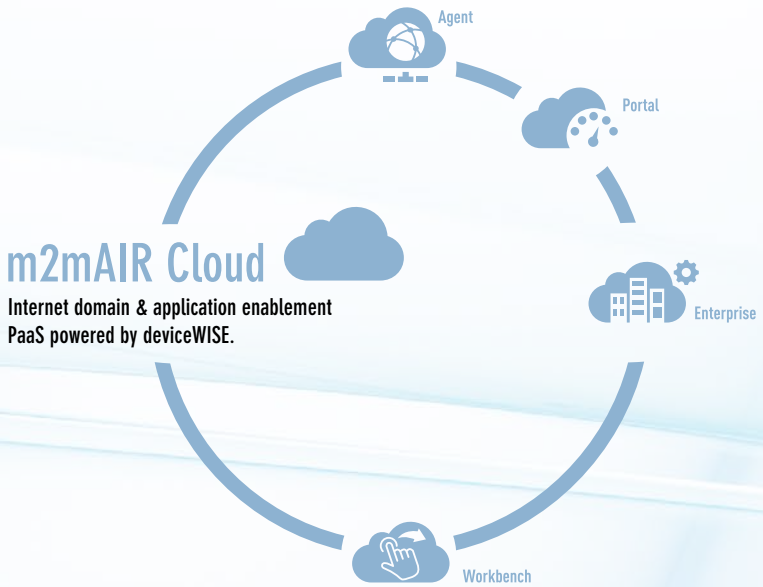
ENVIRONMENTAL					POSITIONING												SENSITIVITY			INTERFACES						APPROVALS	
Size (mm)	Surface mounting	# Pin, Balls, Pads	Antenna con-nector	Temperature Range	GPS	QZSS	Glonass	Galileo	Beidou	SBAS	RTCM	A-GPS	Jammer Rejection	Flash Memory (For full FW upgrades)	Patch and AGPS Storage Memory	Dead Reckoning	TRAIM	Acquisition (dBm)	Navigation (dBm)	Tracking (dBm)	UART	USB	SPI	I2C	CAN Bus	GPIO	R&TTE	CE
11 x 11 x 2.4	LGA	32	RF PAD	-40°C to +85°C	●	●				●		●	●	○	○			-147	-160	-163	●	●	●	●		●	●	●
16 x 12.2 x 2.4	LCC	24	RF PAD		●	●				●		●	●	○	○			-147	-160	-163	●	●					●	●
4.7 x 4.7 x 1.4	LGA	34	RF PAD		●	●				●		●	●		○			-148	-163	-165	●	●	●	●		●	●	●
11 x 11 x 2.4	LGA	32	RF PAD		●	●	●			●		●	●	●	●			-148	-163	-165	●		●				●	●
16 x 12.2 x 2.4	LCC	24	RF PAD		●	●	●	●		●	●	●	●	●	●	●	●	-146	-160	-162	●	●	●		●		●	●
16 x 12.2 x 2.4	LCC	24	RF PAD		●	●	●	●	●	●	●	●	●	●	●			-148	-162	-165	●		●	●			●	●
10.1 x 9.7 x 2.4	LCC	18	RF PAD		●	●	●	●	●	●	●	●	●	●	●			-148	-162	-165	●		●	●			●	●

● = Yes ○ = Optional

EMBEDDED STACK	DATASPEED	POWER SUPPLY		ENVIRONMENTAL	
Embedded Stack Option	Radio Data Rate	Idle power saving	Output Power	Size (mm)	Antenna connector
Star + repeater mode	4.8 Kbps to 57.6 Kbps	1 µA	50 mW to 500 mW	100 x 66 x 46	TNC female
Star	9.6 to 115.2 Kbps / 4.8 to 115.2 Kbps	1µA	25 mW	26 x 15 x 3	RF pad
Star + repeater mode SIGFOX gateway	2.4 Kbps to 115.2 Kbps 100 bps	1.5 µA	35 mW		
Star	4.8 to 57.6 Kbps / 9.6 to 57.6 Kbps	1µA	500 mW		
Mesh	38.4 Kbps	1µA	25 mW		
Mesh	38.4 Kbps	1.5 µA	5 mW to 500 mW		
Wireless M-Bus	2.4 to 19. Kpbs / 4.8 to 100 Kbps	1µA	35 mW / 25 mW		
Wireless M-Bus	2.4 to 19.2 Kbps	1.5 µA	up to 1 W		
Zigbee® Pro	250 Kbps	1µA	2.5 mW / 100 mW		Integrated - RF pad

SERVICES –
GLOBALLY COORDINATED, LOCALLY AVAILABLE

m2mAIR is a suite of integrated in-the-cloud value-added services (VAS) for managing and deploying m2m devices. m2mAIR provides global mobile network connectivity and associated value added services, and IoT application development and object cloud-based internetworking AEP services powered by deviceWISE.



Portal
Services and data management.

Agent
Gateway embedding technology.

Enterprise
Rapid data integration.

Workbench
Rapid application prototyping.

CLOUD

Cloud, Internet & cloud domain services powered by industry's top ranking cyber-secure deviceWISE*) include a PaaS application enablement platform specifically designed for the needs of m2m, augmenting m2mAIR's mobile network domain portfolio, letting businesses seamlessly connect and integrate remote assets with existing enterprise systems and databases in their back office all-in-the-cloud. The secure and do-it-yourself Cloud platform is easy to configure and deploy, reducing risk, time-to-market, complexity and cost of commercializing complete m2m solutions for remote monitoring and control, industrial automation, asset tracking and field service operations across virtually all industries and market segments. m2mAIR Cloud includes:

Portal – provides data management and analytics functionality for m2m applications. Portal's data-centric architecture simplifies data collection and storage, providing a rich set of features including transparent data-acquisition, distributed real-time analytics, limitless scalability, back-end connectivity and rapid prototyping of vertical applications.

Agent – a deviceWISE powered agent technology turns any gateway or router into a full edge micro analytics engine enabling rapid development of custom applications depending on the customer's needs.

Enterprise – a deviceWISE-powered enterprise-grade SaaS that enables rapid integration of data from services powered by deviceWISE to the enterprise application installed in the customer's own data centers.

Workbench – a powerful application designed with drag-and-drop simplicity to provide speed and flexibility in building gateway and enterprise transaction logic, enabling end-to-end application design with minimal time and effort.

*) Source: 2013 ABI Research • Research Analysis: Application – M2M Application Enablement Platforms

>> Our globally coordinated and locally available services take you from the very start of your design-in process through certifications and all the way to deployment. Next, our m2mAIR value-added mobile network domain global cloud-based value added services and connectivity let you seamlessly integrate every Telit module with internet domain services powered by deviceWISE – connecting your m2m empowered assets to your revenue generating and expense reducing business processes quickly and without programming.

MOBILE

m2mAIR Mobile services are dedicated to mobile network connectivity, business and operations support of m2m applications deployment in the mobile network environment. This all-inclusive service suite includes a broad product and service matrix to suit every need including: pure connectivity (Subscription/SIM-only), bundled connectivity (Subscription/SIM + module), and module-only services (only the Value Added Services component). These services deliver value given their in-depth reach into the module, providing benefits to differentiate your offerings, capitalize on new revenue opportunities and fundamentally change the way you troubleshoot, control, monitor and manage connected m2m assets within the mobile network domain.

Core, the basic mobile connectivity offering consists of: Subscriptions/SIM cards with standard and tailored global communication plans and associated rate plans, access to our Connected Device Platform (CDP) web portal.

ePortal for convenience in managing your account down to the individual Subscription/SIM level. Access to ePortal is part of the Core offering and is available at no additional cost.

Module Management is the market's first industrial scale Mobile Device Management (MDM) service based on the communication module. Module Management allows customers to gain remote access to a set of diagnostics and troubleshooting capabilities generally unavailable today to most m2m adopters.

Intelligence is a web-based service designed to provide m2mAIR customers a quick and easy way to analyze the business performance of their m2m deployments. It can organize and plot vast amounts of data on status and usage, providing helpful graphical "Dashboard" representations of active, activated, and inactive SIMs. Activity can be viewed and analyzed by customer, by country, by MNO, as well as other sorting schemes and data dimensions.

Aware is an advanced and customizable monitoring and risk management service that provides a constant view of the behavior of an entire m2m deployment according to KPIs & rules that can be easily configured to your specific needs.

Shield is an end point security service where a Telit module detects cyber-attacks, putting the device on lockdown. It records the attack information and as soon as it can re-establish a clean connection, reports back to the m2mAIR Shield administrator and end customers, alerting them of the attack and the action taken. m2mAIR Shield also documents valuable data that can help guard against future Cyber-attack attempts.

Core
Entry level service. For any module brand.

ePortal
Services and subscription management. For any module brand

Module Management
Module-based industrial scale Mobile Device Management (MDM) service. Telit modules only.

Intelligence
m2m deployment business performance analyzer. For any module brand.

Aware
Customizable monitoring and risk management service. For any module brand.

Shield
End device security and protection. Telit modules only.

Boost
Service to manage multi-network support mitigating roaming steering. For any module brand.

Here
Mobile-network-based positioning service. Telit modules only.

Boost is a critical service necessary to ensure adequate coverage and quick registration times for sensitive unattended m2m device deployments. Most single-network providers apply roaming steering to preferred networks.

Here is a mobile based positioning service that enables on-demand per-unit OTA approximate geo-location globally in home or roaming conditions. It allows a customer's server application to retrieve a Telit wireless device's approximate geo-location on the WGS84 World Geodetic System grid, using a standard SOAP Web Service API.

M2M AS A CUSTOMIZED SERVICE & END-TO-END SOLUTION:

FROM SENSORS THROUGH TO THE CLOUD

Giuseppe Surace, *Director m2m Cloud Solutions*, *Telit*

>> The acquisition of ILS Technology in September 2013 enabled Telit to set a new performance bar for the industry and the market. The company's offer now comprises seamless, customized connectivity, from sensors though to the cloud and enterprise environments.

Modules represent Telit's historic core competence and we market a comprehensive hardware portfolio that covers all mainstream wireless technologies. From this pivotal position in the value chain we created a unique connectivity solution and a portfolio of value-added services. The combination, which is known as m2mAIR, has gained significant traction in the market.

m2mAIR is based on tight integration between Telit's cloud-centric remote module management system and Telefónica's service delivery platform. This enabled out-of-the box connectivity and the development of a value-added service that is used to remotely and proactively diagnose and troubleshoot network performance and other service metrics. This unique capability was facilitated by the fact that Telit employs its own GSM software stack and a development that effectively fuses the first two links in the regular value chain. Therefore the modems and the connectivity service function as a single entity, which in turn enables performance issues to be pinpointed and addressed.

The development of m2mAIR moved the company up the value chain and Telit became a de facto service provider. Note that unlike most MNOs, Telefónica has implemented a separate core network dedicated to m2m and connectivity is end-to-end: from the module through to the network's CGSN (Combined GPRS Service Node).

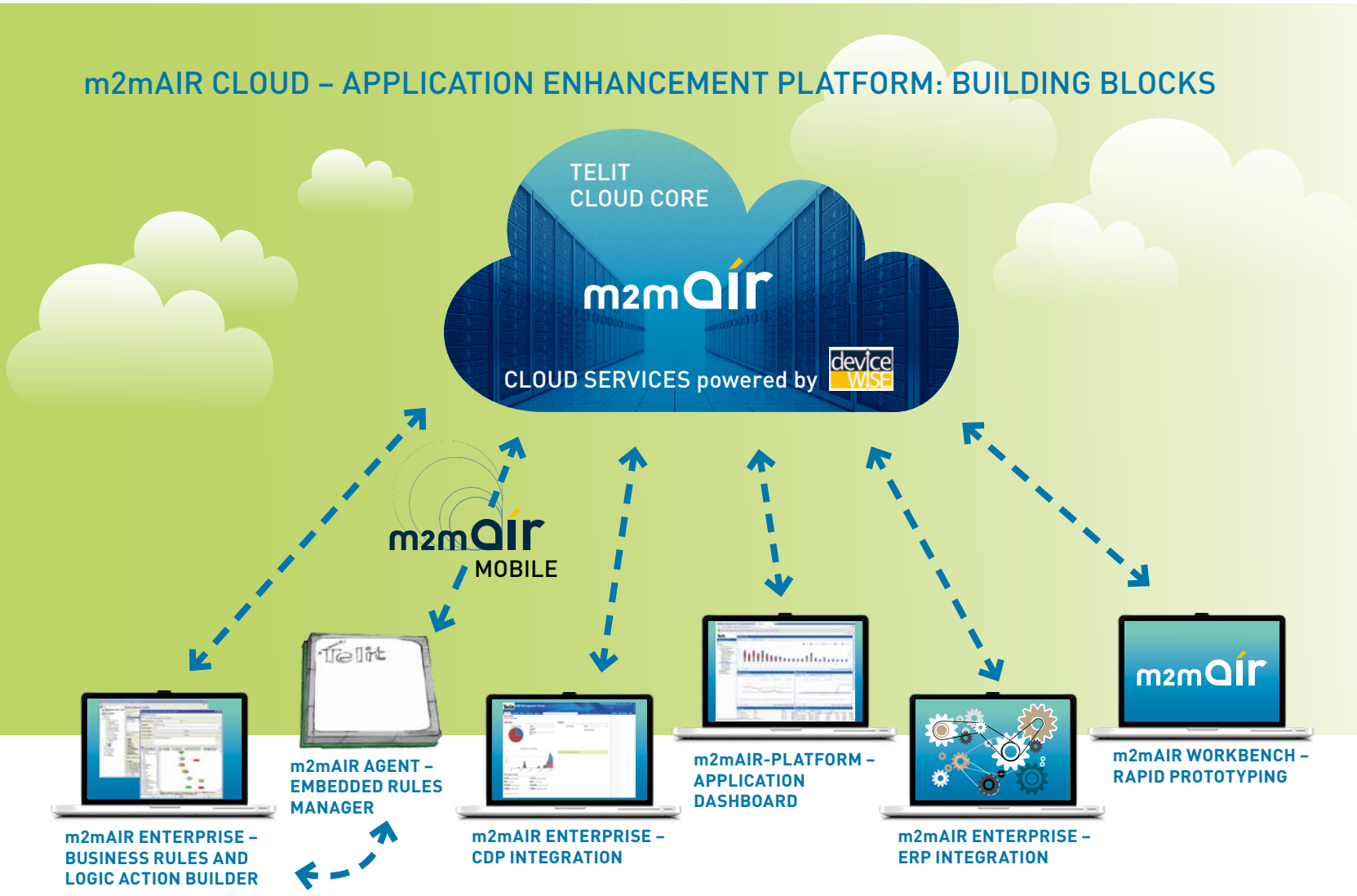
THE SECOND MOVE UP THE VALUE CHAIN

The first move was realized via acquisitions that covered network layer services associated with connectivity management. ILS Technology provides a complementary acquisition for application enablement layers. The development platform, which is located in the cloud, enables direct links to be established from the source of the data, through the modules up to the enterprise applications/presentations environment.

This development means that Telit's one-stop shop offer (see pages 15 and 20) goes all the way from the sensors though to enterprise databases and back-office systems such as CRM and ERP. The link can be direct, in which case the customer owns the data, or it can go via the cloud, and the data is delivered by Telit as a service.

It is worth noting that adding an application layer would normally make it even harder to pinpoint and fix issues, but with Telit's solution there is no finger pointing. We are responsible for every performance issue.

There is no comparable end-to-end solution in today's market. It also means that Telit has become a solution provider, a position that sits at the top of the value chain.



BUSINESS RULES AND LOGICS

Business rules and logic determine how data is presented. The rule could be "send data at pre-set intervals" or "in batches"; exception data could be sent immediately and used to initiate an action. In addition rules can involve some logic, e.g. calculations such as send the average value over pre-determined time.

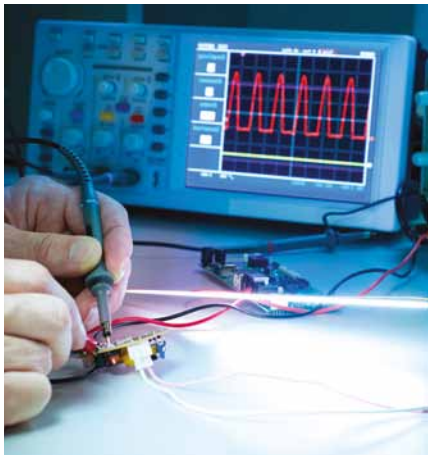
Customers can create these rules using a logic action graphical builder, which is based on the WYSIWYG paradigm, so no programming skills are needed. The same set of tools can be used to distribute and deploy rules at any layer. It can be in the module, in the cloud or it can be at the application level, e.g. the customer's dashboard. If the modules do not have the requisite processing power then the rule can be located in a gateway, which links to numerous modules. This is also an efficient, cost-effective way of transmitting data.

RAPID APPLICATION DEVELOPMENT

Another significant architectural building brick is the ability to develop and deploy the final "presentation" application using the same paradigms. A Rapid Prototyping environment can be used to build the application using graphical objects, also known as widgets. The combination of a graphical interface and a flow chart allows app creation to be done by dragging and dropping these objects. No programming skills are needed.

Customers who do have programming resources can take advantage of the large set of APIs that allows them to build, customize and manage applications in their own vertical portal. <<

taoglas
antenna solutions



TAOGLAS PROVIDE **ANTENNAS** AND **RF DESIGN SERVICES** THAT ENABLE WIRELESS DEVICES TO BE THE BEST.

Design your hardware to win.
Achieve maximum performance.
Go to market without delay.
Pass first time.

This is the Taoglas philosophy.
We live it every day. We apply
it to all our products, services,
partners and customers.

Allow us to apply it to yours.
Learn how you can
succeed in wireless.
Talk to Taoglas...

NEW PRODUCTS LAUNCHED

Atom
FXP75
Embedded 2.4GHz Series
Ultra-Miniaturized 2dBi
Ideal for Bluetooth earphones

Stream 3in1
MA230
GNSS-Cellular-WiFi
Adhesive Mount
Telematics & Transportation

Pantheon 5in1
MA750
Cellular 2G/3G/4G MIMO-
GPS/GLONASS-2.4/5GHz MIMO
Transportation & Remote Monitoring

BEST RF PRACTICES
IN M2M HARDWARE DESIGN

Dermot O'Shea, *Joint Managing Director*, *Taoglas Ltd*

www.taoglas.com

>> It has been said by USA based network providers that over 60% of m2m devices fail certification due to antenna and/or RF related issues. This is a very short summary of this topic, which we discussed in detail at Telit's DevCon.

Firstly we design for overall product performance (transmit and receive sensitivity) by targeting good Total Radiated Power (TRP) and Total Isotropic Sensitivity (TIS). We also need to understand the end use application, how the device is used and potential installation scenarios. Also it is important not to design just to pass certification, but to design for efficient and cost effective production. Following this design methodology from the beginning greatly increases the success rate.

Antenna selection and layout should be discussed and decided from the very beginning of the design. With multiple antenna requirements in most wireless devices now, antennas can be the biggest demand on real estate. With embedded antennas they need a huge percentage of that board space and a combination of external antennas can be larger than the device to which they are connected.

Once the design has begun the next step should be to do some passive device antenna testing on prototype hardware. This allows us to select the right antennas and enables the device designers to continue with confidence. More importantly, it allows designers to start testing radio and antenna performance on early prototypes.

Dermot O'Shea in Taoglas 12M 400-6000MHz ETS Lindgren 3D Tapered Anechoic Chamber

Problems and challenges invariably come up in all designs, particularly those incorporating cellular radios. It is not an easy task to get everything working in harmony and to have a quiet board, with RF performance optimized at the same time. Any problems need to be reproduced in a controlled and quantified environment, meaning specifically an Over the Air 3D anechoic test chamber. Taoglas has such chambers with supporting labs in three global locations – Ireland, USA and Taiwan.

Taoglas 12M 400-6000MHz ETS Lindgren 3D Tapered Anechoic Chamber

The way to approach problems is to:

- Fix the antenna first using TRP as the key measurement parameter
- If it is not the antenna, then check RSE (Radiated Spurious Emissions) and eliminate unwanted noise.
- Improve receiver sensitivity (TIS): in band noise and/or conducted electrical noise can greatly decrease receiver sensitivity.

Taoglas has design assistance services that can help customers overcome these issues and get to market on time every time. With LTE MIMO now here, the complexity has increased. At Taoglas we are very excited about this and we relish the challenges that are already here. It only makes us stronger and gives us even more of an understanding on how to design your hardware for success. <<

THE FACES BEHIND TELIT

There are about 700 of us now. The Telit family keeps growing to fulfill the promise of providing you an ever better experience integrating m2m technology into devices and connecting them to the Internet of Things. This is all we do – and we are happy to help!


Télit
Communications S.p.A.

TELIT DISTRIBUTORS
AND THE ONE STOP. ONE SHOP.

Dominikus Hierl, *CMO, Telit Communications PLC*

>> As we rollout ONE STOP. ONE SHOP. offer we want to ensure that we provide the best possible buying experience – the first and most important step of which is total customer satisfaction. However, providing a quality customer experience is no easy task in highly fragmented markets like m2m, hence the need for our offer, which has been designed to attract new adopters and enable the conditions for innovation to proceed at a faster pace.

In order to address this high degree of market fragmentation across all vertical markets, we must constantly improve and retool our sales channels, both direct and indirect. Today, our indirect sales network plays a major role in our success. We regard our distributor network as partners in this journey. Telit's value-added distributors provide national geographic coverage, possess detailed local knowledge and expertise, and allow maximum customer reach at reasonable cost. Additionally, these partners provide technical expertise on our products, thereby further streamlining logistics and enhancing the operation of our supply chain. As we grow, we must ensure we continue wielding our indirect sales network and the competencies they bring as valuable competitive weapons they have been for over ten years.

Customers count on Telit to provide value through quality, continuity of supply, flexibility, extended support, total cost of ownership, customization, and scalability of m2m designs. With ONE STOP. ONE SHOP. we take a holistic view of the m2m integration process and calibrate our portfolio of products and services to deliver all of our customers' needs. Our goal is to be viewed as our customers' single partner and trusted advisor in the m2m adoption journey. And to do that we focus on and look for channel partners who share our values with respect to customer satisfaction and innovative leadership.

To drive up customer satisfaction and become our customers' preferred supplier we listen carefully to them and our partners with a dedicated team of experts and seasoned professionals. By being close to our customers and directly engaged at each stage of the design-in cycle, we are able to understand what is important to them and us.

We reward our distributors' loyalty and hard work with innovative leadership achieved through high standards in manufacturing and R&D. Telit is the only solution provider in the space to offer products covering all relevant wireless hardware and service technologies necessary to connect any device to any service platform they need to integrate.

As a result of being the most focused m2m player, of understanding our customers' business models, of being able to successfully support our customers' business cases, of having our core values in investment protection, business scalability, ease of integration, and quality, Telit will continue creating the blueprint of the ideal customer experience. ONE STOP. ONE SHOP. can provide our customers and channel partners with the competitive edge they need to succeed in sales performance and market leadership. <<

Find out more about our distribution partners here:
www.telit.com → Where to buy

SatTrack

DESIGNING WILDLIFE TRACKING SOLUTIONS

Gian F. Badraun, *Micro Systems Research Ltd.* www.microsystemsresearch.com

>> My involvement with wildlife tracking equipment happened by accident after meeting Dr. Todd Dennis of Auckland University, New Zealand on Great Barrier Island where he was attaching Argos satellite trackers to some KaKa. This resulted in the design of a Wi-Fi tracking solution for the KaKa and more recently a GSM based tracker for the Kea and a range of NZ native birds.

These birds are parrots, they are related and both are endangered and protected. The traditional ARGOS satellite tracking relies on triangulation and has an accuracy of a few hundred meters. The more recent tracking solution I designed and developed will allow Dr. Dennis to conduct spatial research on NZ native Kea parrots with data sets that are accurate to 1.5 meters in three dimensions at intervals of 15 seconds.

I live on a remote island off the east coast of New Zealand, called Great Barrier Island. There are a mere 700 residents who rely solely on solar and wind power. My house and laboratory are in a remote valley, accessible only by boat. It's deep in native bush and surrounded by native Kauri trees and Kaka parrots. My hermit-type lifestyle allows me to work on a variety of innovative research projects.

Early on it was clear that the design of a very small, lightweight, self-powered solution for the Kea and other birds weighing less than 1 kg could only be realized using state-of-the art m2m technology.

I selected Telit's GL865-DUAL modem as it is easy to solder manually and it weighs less than 1 gram. The device performs like a nano satellite. The heart of the device is a motherboard that is only 26 mm x 40 mm and 0.4 mm thick! It has the Telit module on one side and on the other side is the energy harvesting circuit that recharges the lithium-polymer battery from whatever energy the solar cell provides. The device also incorporates a tilt switch/mortality sensor, and the wake up circuit. The complete board only weighs 6.94 grams!

The rest of the solution comprises a small, high efficiency solar cell and another PCB which contains the miniature GPS module. A PCB based dual band GSM antenna provides for RF network connection and everything resides in a custom designed 3D printed enclosure. Total weight is 25 grams.

The GSM chip gets a wake-up call at the light to dark transition, then logs into my FTP server and downloads the location log file from the GPS module, which contains positions for the last 16 hours in 15-second intervals.

At the time of writing, Q4 2013, I am assembling the first 16 units by hand for the Kea project, which should be ready for deployment in December. <<

Gian can be contacted at:
gian@microsystemsresearch.com

Tracking device with GSM module

GSM antenna

M2M KOALAS

Simon Blyth, *Managing Director,* *LX GROUP* www.lx-group.com.au

>> "Telit simply have it all when it comes to any IoT and M2M solution – we didn't need to look any further." Simon Blyth, Managing Director

Koalas: "as if teddy bears were real, and surprisingly aggressive" John Oliver (British Comedian). These cute, iconic, furry little Australian natives are now listed as a threatened species due to the destruction of their habitat from land clearing. Although not endangered, they have come under the spotlight for a number of monitoring and re-location programs. Enter project Caramello, a new product development project at LX Design House (an Australian IoT and m2m contract electronics design house). The team at LX has been working with a local conservation program to develop "the ultimate Koala tracking collar" using Telit technologies.

While wildlife telemetry is not new and there are many animal-tracking solutions on the market, none fit the bill perfectly for Koalas. Unlike most animals, Koalas tuck their chin into their chest to rest making it unfeasible to have bulky electronics under the chin or to attach a wide collar. For some programs there are also challenging requirements such as close to real-time tracking, activity monitoring, quick release mechanism, high-G detection, size, weight, battery life, long-range operation through thick forest and location accuracy.

Armed with a list of conflicting requirements the team at LX investigated a number of solution architectures and key technologies. Having previously worked with many different long range RF, mesh and 2G/3G technologies, the team knew the challenges associated with the various options and purchased a number of different development kits to conduct field trials. It was found that solutions with 40Km line of sight range had a range of around 0.5K – 1K in the thick forest of the target application area. The Telit gear came out on top in this genuinely unbiased investigation (although Telit is LX's preferred supplier for m2m applications). A mesh network approach with ultra-low power GPS collars, routers and base stations was selected. The Telit GSM HE910 was chosen for the array of base stations needed for the data backhaul and the LE70-915 for the commercial version of the collar solution.

The collar has recently been trialed successfully and rollout has commenced. The key features are ultra-low power consumption/long battery life (> 1year and longer with the solar panel version) and a low profile form factor (up to 20% smaller than existing solutions). The design of the first version was completed within 8 weeks from commencement with prototypes available within 6 weeks. The final software back-end has an easy to use Web based management GUI using a Google Earth plug-in.

The LX team are specialists in the custom design of IoT and m2m solutions (including animal telemetry). Contact us at **info@lx-group.com.au** if you have an application or new product design you need delivered quickly. <<

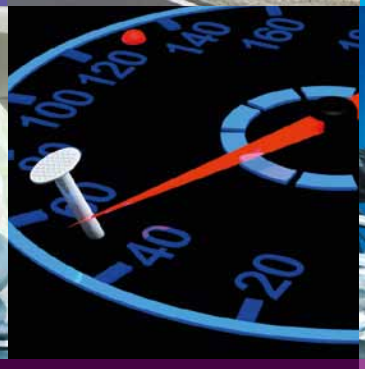
The K-Tracker is the only animal tracker designed specifically for Koalas. It aggregates telemetry and Koala activity via a mesh network and provides a simple cloud based Google Earth interface to veterinary staff. The base stations have both 3G and satellite data backhaul capability so coverage is never a problem.

It is a low power wireless mesh network animal telemetry system, targeted initially at monitoring Koalas. The K-Tracker is incredibly light (<80Grams), very physically robust and the size of a box of matches. In addition to GPS co-ordinates the tracker provides veterinary staff with analytics such as activity levels, orientation, high G detect, free fall detect and other key data.

We used the GE864-GPS due to primarily because of the combined GSM/GPRS and A-GPS functionality. In addition to this, we wanted a solution that had a small physical profile and very low power consumption.

TRANSPORTATION

>> As the leading m2m adopting vertical, Transportation is re-shaping itself with innovation, improvements and additional efficiencies brought about by connected vehicles, smarter fleets, rider experience focused public transport and others. A greener, safer and friendlier world on the roads and in the car will continue emerging from a whole new wave of solutions.



At the top of every customer application page, you will see a 4-quadrant Icon letting you know at-a-glance how much of Telit's ONE STOP. ONE SHOP. is in use by the featured application.

Telit hardware used: this quadrant shows the module(s) embedded in the customer application

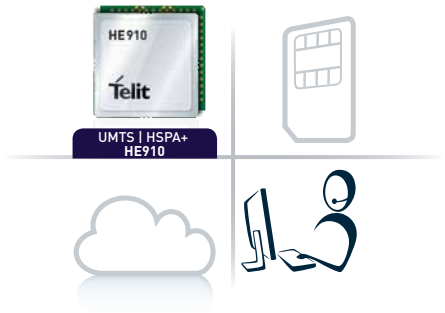
m2mAIR Mobile Services: If the icon here is bolded and not greyed-out, the application in employing m2mAIR Mobile services in the application deployment.

m2mAIR Cloud Services: If the cloud icon is bolded, the application is employing services powered by deviceWISE.

Telit Support and Project Assistance Services: When bolded, the integration of the featured customer application was streamlined by Telit technical and certification support services.

CASE STUDY

ADVANCING THE SAFETY, EFFICIENCY, AND PROFITABILITY AND FLEET MANAGEMENT



”We chose Telit because they can provide us quality products that meet our needs.“
Silvia Huang, Product Marketing

>> When it comes to fleet management, Advantech-DLoG is proud to play a role in advancing safety, efficiency, and profitability. For example, the Mobile Data Terminal (MDT), which helps manage mobile fleet assets, employs GPS, WLAN/BT, and CDMA/HSPA+ communications to keep drivers and dispatchers in close contact. And depending on sensors that are employed, the Advantech-DLoG MDT can track mileage, routing, speed, acceleration, braking, oil pressure, and fuel consumption.

An important additional function is the logging of driver duty and rest hours, which helps maintain compliance with safety and hours-of-service regulations. The TREK-520 can incorporate a software solution that takes virtually all the drudgery out of tedious logging and tracking, thereby keeping management well informed about fleet operations, however complex. This is a RISC based box MDT and the radio frequency options make it ideal for local fleet management, especially small trucks, local delivery services as well as government fleets and taxis.

We chose Telit HE910 for vehicle tracking because of its diverse frequency bands, carrier certification in many countries and stable performance over a wide temperature range. It is designed to be power compliant with ISO7637-2 & SAE J1113 standards, which ensures stable performance in a dirty power system.

In refrigeration applications it is important to monitor temperature while food is being transported. When the driver is out of the vehicle or off-duty, a fleet owner doesn't normally have access to the status of its fleet assets and vehicles. But the suspend/wakeup feature of TREK-520 enables 24/7 monitoring mechanisms that support periodic, digital input or WWAN wakeup. The fleet owner can monitor vehicle and cargo on a daily, weekly, or specific time basis. If the driver or a thief opens a door when the vehicle is left unattended, the door sensor triggers an event in order to inform a central operator. Furthermore, the operators can remotely wakeup the TREK-520 via SMS in order to have access to vehicle data.

The company's TREK series is an example of a comprehensive, advanced technology, application-ready platform that is ideal for system integrators. <<

FACTS

Advantech DLoG
www.advantech.com

System

TREK-520: a RISC based box MDT.

Which Telit module do you use and why?

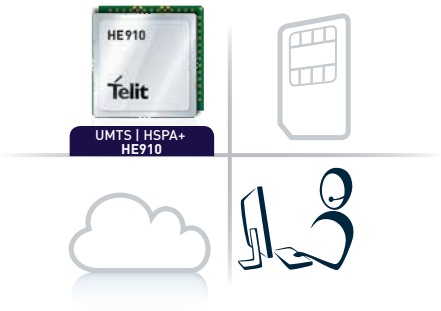
HE910 family. We chose it because it's suited in vehicle application by diversified frequency bands support, carrier approval in many countries.

Benefits

TREK-520 MDTs are backed by the expert knowledge of our team of engineers, manufacturing, distribution, service and sales personnel. The result is a complete, application-ready package, ready for local fleets and short-haul applications, as well as being easy for system integrators to install and maintain.

CASE STUDY

allion
주식회사 알리온



WORLD'S FIRST WCDMA BLACK BOX IS SERIOUSLY INNOVATIVE

FACTS

Allion
www.allion.kr

System

AJ-7000: the world's first WCDMA black box

Which Telit module do you use and why?

HE910. Its compact size makes it easy built into our box and it's ideal when we upgrade to an LTE module in the next model.

Benefits

- SMS text and video transferring
- Car registration number tracing feature
- Auto flash (GPS)
- Motion detection
- Extensive video analysis
- Digital Camera function:
- Front and rearview HD (1280x720p)
- Protection from battery discharge:
- Audio guidance
- 800MHz CPU

"Black Box, embraces m2m" **Changhyun Baek,** CEO

>> AJ-7000, the world's first WCDMA telecommunications black box, is a smart device that not only transmits the video information recorded by the AJ-7000, but also information on car location, driver, speed, breaking, abnormal driving pattern, GPS and fuel consumption through OBDII and GPS connections.

When an emergency occurs, the device transmits accident video clips and damage condition to the control system of insurance companies in real-time. It is impossible to counterfeit black box video clips; therefore, it is easier to accurately identify the perpetrator and the victim. Also, based on the video clip, compensation can be paid more accurately, and therefore unnecessary disputes may be avoided.

It is also possible to report an accident immediately and, when relevant, shorten the departure time of emergency vehicles. Swift rescue can be done even during nighttime accidents or accidents that happen in isolated areas. In addition, a sensor is attached to the device, and therefore an alarm rings when an accident occurs while the driver is away (e.g. in a parking lot, during overseas business trip and at night. The control center receives alarms immediately when an accident occurs, therefore, damage is minimized.

We use Telit's HE910 m2m platform, which facilitates the realization of safe driving by analyzing and processing data related to the vehicle's operation. By leveraging the location control feature and employing the vehicle checkup feature, it helps minimize carbon emission.

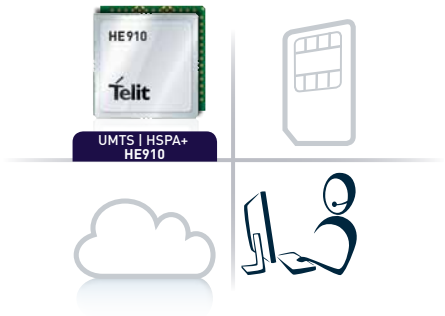
The combination of a black box and telecommunication equals driving innovation. It will minimize damages from accidents and optimize driving habits, and therefore will help realize safe driving behavior. The company has been leading the black box industry with ongoing research and development, and it aims to continue in future. <<

AJ-7000

CASE STUDY

ATrack

ADVANCED MULTI-NETWORK TELEMATICS DEVICES



"Telit has always been and will continue to be ATrack's trusted cellular module partner because of their high quality products."
Frank Tang, CEO

>> ATrack specializes in Telematics hardware design and manufacture and our core R&D team has over a decade of experience. With Telit's quality modules and professional support we have been able to design highly stable products and win recognition and appreciation from our global customer base.

In Q1 2013 ATrack launched the AX7 OBDII Telematics device, which employs Telit's HE910 module, thereby enabling global deployment on GPRS, HSPA, and CDMA networks at various frequencies. AX7 employs patented short-range wireless/RF communication technology that provides support for wireless peripherals such as a wireless relay, wireless tag, or panic button. It also features Bluetooth a connectivity option that provides communication with mobile device applications. AX7 is ideal for verticals such as: usage based insurance, car rental, teenage driver monitoring, and fleet management.

AU7 is another newly launched product that also utilizes Telit's HE910 to ensure stable GPRS, HSPA, and CDMA cellular communications. It is our most advanced Telematics device, having multiple I/Os to accommodate various sensors for complex applications, as well as a custom reporting mechanism to meet the dynamic user-specific requirements of the market.

ATrack's product development and the patent we were awarded demonstrate the company's ability to innovate and provide us with an important competitive advantage in the global Telematics industry. ATrack continues to work with Telit to provide stable, cost effective and robust products that distinguish us as a reliable hardware partner. <<

FACTS

ATrack Technology Inc.
www.atrack.com.tw

System

AX7 and AU7

Which Telit module do you use and why?

ATrack believes that the HE910's compact form factor along with its consistently high quality is the smart decision among all other selections.

Benefits

AK7 is a Telematics device/GPS tracker with GPS and UMTS/HSPA/CDMA communication, which enables monitoring of vehicle location and remote control via UMTS/HSPA/CDMA networks. With its intelligent event control engine, users can define various combinations of vehicle conditions and generate various actions to meet their specific requirements.

AU7

AX7

CASE STUDY

OPEN TELEMATICS PLATFORM ADDRESSES PARENTAL TEEN DRIVING CONCERNS

FACTS

Autonet Mobile
www.autonetmobile.com

System

Parental Controls by Autonet Mobile

Which Telit module do you use and why?

We use the LE910 series of modules for Parental Controls and the LE920 series for OEM TCU platforms.

Benefits

Parental Controls by Autonet Mobile satisfies parents most concerned about teen driving behaviors. Set up call and text blocking, curfew times, and speed alerts from a smartphone or computer, and monitor teen driving habits from anywhere.

Parental Controls

"With Parental Controls by Autonet Mobile, parents are always in the know about their teens driving habits and helps them drive safer."
Doug Moeller, Chief Technology Officer

>> Autonet Mobile is a provider of telematics solutions to the automotive industry. The company's proprietary TRU Technology ensures seamless and reliable IP connectivity to vehicles. We were the first to deliver a fully managed IP platform to vehicles, and this open platform offers new services and applications to the marketplace. One of the newest applications is the Parental Controls system.

Teen driving causes great concern among parents, and for good reason: Traffic fatalities are the leading cause of death among teenagers in the United States. Well over 50% of new teen drivers have an accident in the first 2 years of operating a vehicle!

Parental Controls is a small, self-installed, cost effective, OBD2 connected platform that allows parents to easily monitor their teen drivers. The Parental Controls application works from any Web browser or Smartphone and allows parents to set up rules such as:

- Safety Belt Monitoring
- Unauthorized passengers Alerts
- Call/Text blocking
- Speeding Alerts
- Curfew Alerts
- Allowed Location Monitoring
- Arrival Notifications
- Current/Historical Locations
- Tamper Alerts

The Telit module allowed Autonet to leverage the IP developed for the OE solutions into a quick turnaround aftermarket product. The configuration command set, the footprint, the RF and the power management design are all the same across Telit modules. Development time was dramatically reduced and Autonet had confidence that multiple spins of the platform would not be required.

Autonet provides the full solution, so consumers need only plug in the device and then start setting up rules. This solution allows parents, insurance companies and fleet managers to reliably monitor their drivers and vehicles. <<

CASE STUDY

AXENTIA

MAKING PUBLIC TRANSPORTATION MORE ATTRACTIVE AND EASIER

”With Telit's products we can offer customers the best products with the feature set required for their operations.“
Frithjof Qvigstad, CTO

>> The new innovative iBus display from Axentia brings a new dimension to public transport information. Real-time information services are now affordable over larger areas, bringing up-to-date information to places where it had previously not been economically viable.

There is a global trend towards finding ways to reduce car usage and encourage the use of public transportation. In addition to less congestion on the roads there are significant environmental benefits. Providing travelers with accurate and relevant information has been shown to make public transportation more attractive and easier to use.

Axentia provides systems for the presentation of real-time information to places where travelers are waiting for a transportation service. The iBus system collects prognosis and timetable data and distributes it via radio broadcasting to any number of displays, which are equipped with Telit modems that are used for maintenance and status reports. With m2mAIR we can offer this service to all customers with unbeatable simplicity.

iBus displays use low-power technologies to provide at least three years of autonomous operation. They show planned departures from the place where they are mounted. For visually impaired travellers, they can read out the same information using high quality text-to-speech technology.

The Telit HE910 family of modems provide a cost-efficient solution by providing different traffic operators with the requisite features; GSM, 3G and GPS. This makes product management much easier. The fact that there is no need for external power makes installation easier to administrate and complete at a much lower cost compared to the installation of traditional displays. <<

FACTS

Axentia Technologies AB
www.axentia.se

System

iBus – displays for public transport

Which Telit module do you use and why?

Telit HE910-EUD provides good data performance in a compact footprint and there are GPS enabled versions.

m2mair

m2mAIR offers data services in all markets with a single point of contact. It also gives a powerful tool of handling devices in the field. In addition m2mAIR makes it easier for us to provide service to customers, thereby making it easier for them to purchase and use the iBus system.

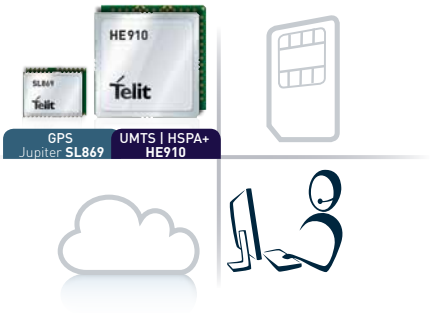
Benefits

The innovative iBus display system combines the flexibility of cellular data with the reliability and multicasting power of data broadcasting. This combination enables battery-powered displays to be employed: key user benefits are cost efficiency and easy mass deployment.

iBus

CASE STUDY

Cabcharge



ADVANCED ELECTRONIC PAYMENT SYSTEM

FACTS

Cabcharge Australia Ltd.
www.cabcharge.com.au

System

Fareway Plus, the taxi fare payment platform.

Which Telit module do you use and why?

Cabcharge chose the HE910 cellular module, and SL869 GPS due to Telit's supporting roadmap with footprint, and outstanding performance.

Benefits

The Fareway Plus platform allows taxi drivers and passengers to complete fare payment quickly and easily, ensuring that passengers catch their flight, and the drivers catch that next job. Fareway Plus also allows taxi operators to provide rich services and features to their drivers as well as the passengers.

Fareway Plus

"Cabcharge values the strong relationship it has with Telit and the attentive technical support given by them." **Peter Kelly,** Engineering Manager

>> Cabcharge Australia was established in 1976 as a financial services provider for the Taxi industry. Its first priority was to improve convenience and security for passengers and drivers through providing a national alternative payment system to cash. Today the Cabcharge electronic payment system is found in approximately 97% of Australian taxis as well as limousines and water taxis.

Cabcharge's Fareway Plus platform is an innovative and powerful payment and application platform. Designed and developed by Cabcharge to meet the unique requirements and rigors of the Taxi industry both in Australia and abroad.

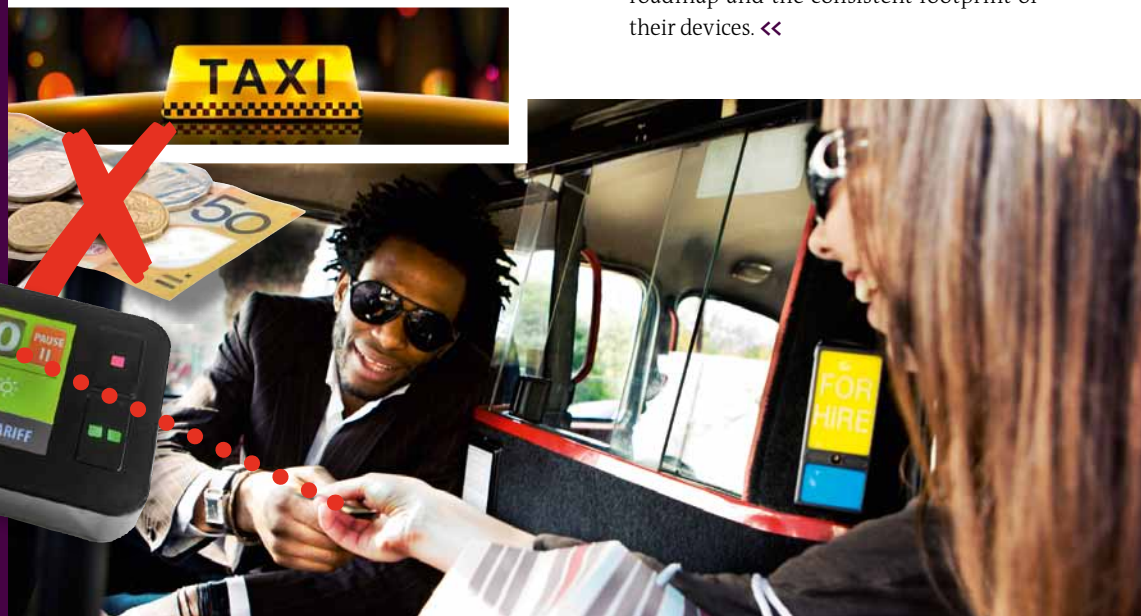
Fareway Plus is built on an ARM Cortex – A8 processor. Linux or Android can be hosted as the Operating System. Fareway Plus is also a multiple application hosting system with or without the Android Operating System.

Cabcharge uses the platform for Taxi metering and fare payments in Australian taxis. Features such as automatic toll calculation, online payment processing, NFC card processing, receipt printing, etc. make it a world-leading device in its sector.

Leveraging Cabcharge's long experience and knowledge of secure payments processing, Fareway Plus provides passengers with detailed information about the fare including travel routes, automated toll calculation and addition to meter fare, plus online and offline processing of payments. Fareway Plus also provides the ability to download operating systems, applications, configuration, and debugging services over the air, which is a valuable asset for the Taxi industry, as operators want their vehicles on the road, not coming back to the service depot.

Cabcharge relies on Telit to provide reliable communications and positioning for their Fareway Plus platform, ensuring maximum up time and performance for the vast geographic and demographic environment within Australia. Fareway Plus is the second generation of Cabcharge products that rely on Telit devices.

Cabcharge chose Telit's HE910 cellular module, and the SL869 GPS receiver. Telit's devices allow us to move with market trends without falling behind thanks to the Telit roadmap and the consistent footprint of their devices. <<



CASE STUDY

HORIZONTAL INTEGRATION OF VERTICAL SOLUTIONS

”Field service systems like SpeedyCraft integrated with ViaTracks electronic travel log makes a major difference both for people working inside and outside the office.“ **Ole Jørgen Ørsnes,** Product Manager

>> Devinco started developing SpeedyCraft, its mobile assignment system in 2002 and the result was an innovative solution that met the needs of mobile work forces and their employer. The functionality was continuously extended and today's solution matches a very demanding set of work and office procedures. It includes everything from the registration of working hours, use of materials, ordering of materials, various monitoring forms, inspection reports, etc., etc. In a nutshell, SpeedyCraft simplifies everyday tasks, both in the office and out in the field, while enabling more efficient ways of working.

The company has been very successful with this product in Norway, Sweden and the UK. Devinco's focus is on the development side; partners handle marketing and sales.

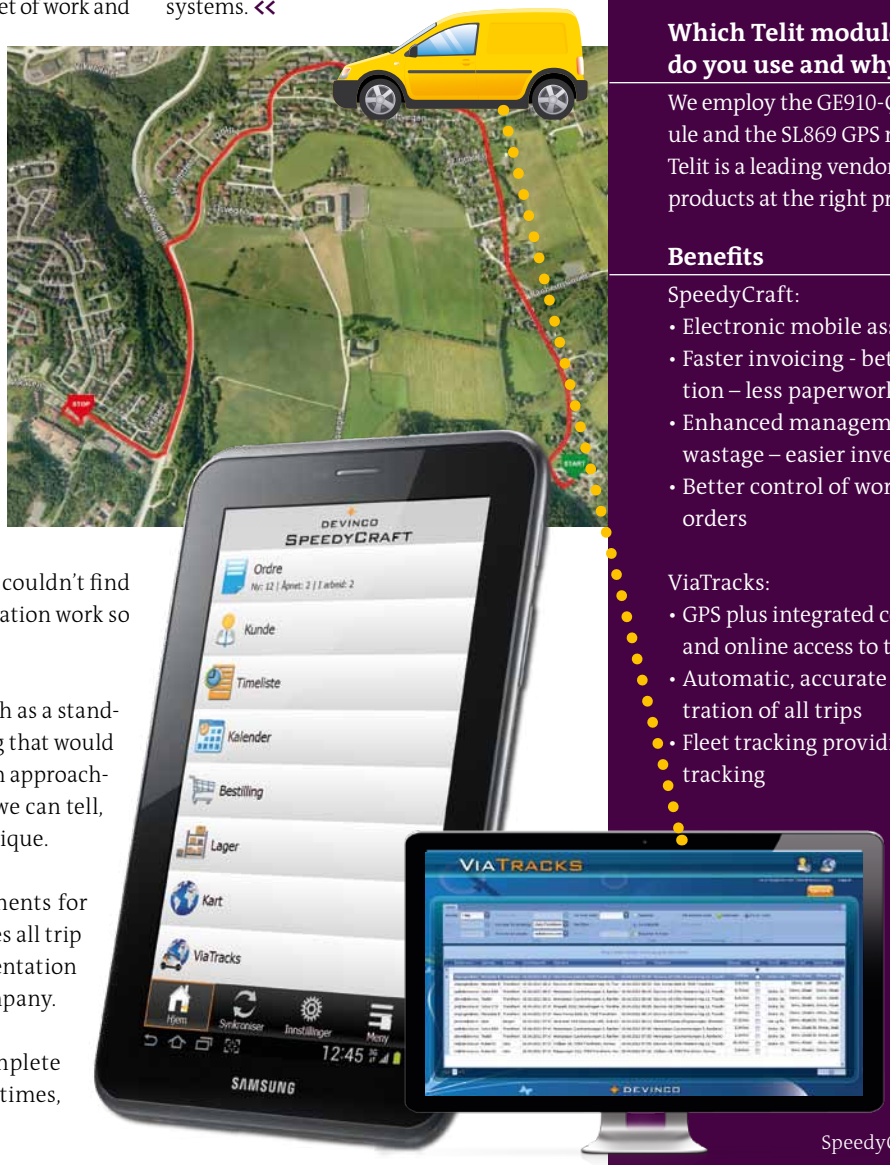
Around 2009 we started getting requests from customers who wanted to integrate SpeedyCraft with existing electronic travel log solutions. We looked around and couldn't find a vendor that was prepared to do the integration work so we decided to design our own solution.

In 2010 we started marketing ViaTracks, both as a standalone solution and as an electronic travel log that would seamlessly integrate with SpeedyCraft. Both approaches have been very successful and as far as we can tell, the functionality of the combination is unique.

ViaTracks meets all government requirements for documenting travel by company car. It saves all trip data automatically and makes all documentation easily accessible to both users and the company.

Companies are also provided with a complete overview of where all cars are located at all times, visualized in an online map interface. This makes it possible to assign tasks quickly and easily to the closest vehicle in the event of, for example, a rush job.

The location functionality is enabled by Telit's SL869 GPS module and the GE910-QUAD GSM module provides communications with a company's back-office systems. <<



SpeedyCraft / ViaTracks

FACTS

Devinco AS
www.devinco.com

System

SpeedyCraft / ViaTracks

Which Telit module do you use and why?

We employ the GE910-QUAD GSM module and the SL869 GPS module because Telit is a leading vendor having stable products at the right price points.

Benefits

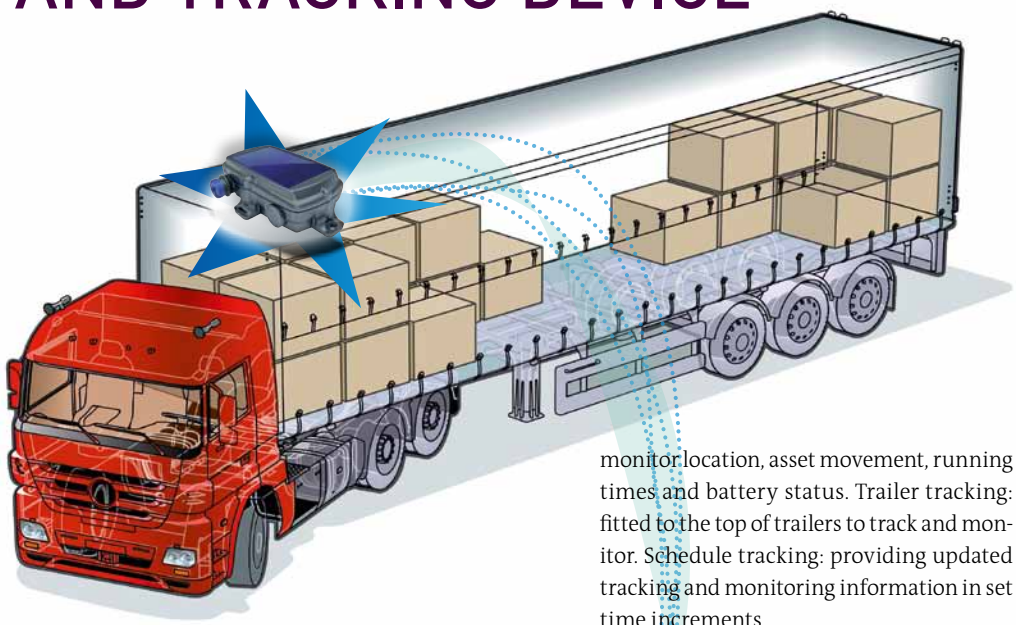
SpeedyCraft:
- Electronic mobile assignments
- Faster invoicing - better documentation – less paperwork
- Enhanced management - reduced wastage – easier inventory
- Better control of work and service orders

ViaTracks:
- GPS plus integrated communication and online access to the travel log
- Automatic, accurate and fast registration of all trips
- Fleet tracking providing live vehicle tracking

CASE STUDY

digital MATTER TELEMATICS

SOLAR POWERED MONITORING AND TRACKING DEVICE



FACTS

Digital Matter Telematics
www.dmtelematics.com

System

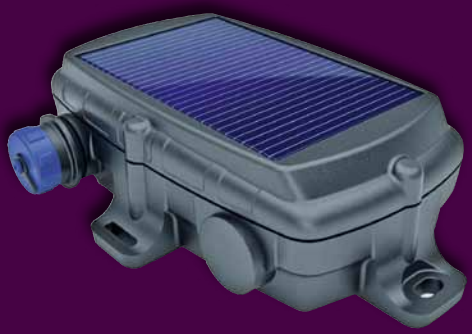
Solar-powered device "G52 Solar"

Which Telit module do you use and why?

The G52 Solar uses either the HE910 Series for 3G or the GE910-QUAD V3 for 2G mobile data connectivity.

Benefits

The G52 Solar was engineered to automotive specification in order to accomplish much more than just track assets. With the added functionality of various peripherals it comprises a total package solution, which can be tailor made to suit the agriculture industry and other logistic intensive industries.



G52 Solar

"The xE910 family allows the G52 Solar to be offered in 2G and 3G versions from single hardware design. And, as demand grows, the application of this module family will continue providing us the opportunity to expand the reach of the product into additional regional market over most cellular technologies and speeds." **Alex Soldatos,** Managing Director

>> Digital Matter Telematics is a South African-based provider of innovative technology used in the design, development and deployment of embedded electronic devices and software. The self-powered G52 Solar monitoring & tracking device, and the company's OEM Server Platform, provide effective, easy-to-deploy-and-use solutions for remote mobile asset monitoring plus tracking and management over a broad range of environmental conditions without the need for an external power supply.

With its built-in solar panel, the unit is a versatile renewable energy device. It is ideal for tracking and monitoring assets as well as other applications requiring reliable performance in harsh environments, rural areas and even urban areas with low GSM signal. Multi-purpose tracking: low cost tracking and monitoring using a rugged, weather-proof device that can be attached to any asset in most environments. Asset tracking: fitted to rental equipment, used to monitor location, asset movement, running times and battery status. Trailer tracking: fitted to the top of trailers to track and monitor. Schedule tracking: providing updated tracking and monitoring information in set time increments.

The G52 Solar has an internal battery that is used to power the unit and is recharged through the solar panel when exposed to sunlight. Battery life in cloud-covered conditions is about 8 hours at full use, or many months in standby depending on frequency of GPS updates and peripheral additions. A solar panel is used to maintain the charge and keep the unit operational, thereby allowing regular updates from the unit even when monitoring non-powered assets, such as trailers and containers. The unit's multi-axis accelerometer allows it to monitor asset movement and status, generating alerts and performing live tracking. The internal battery enables the unit to send a distress/alarm signal when power is low or when movement of the asset is detected. The G52 Solar also employs an SDI-12 interface, which facilitates communication with intelligent sensory instruments that typically monitor environmental data, e.g. in agricultural, meteorological and hydrological solutions. It is offered in 2G and 3G mobile data variants. <<

CASE STUDY

HIGH-PERFORMANCE AUTOMOTIVE DEVICE FOR HARSH ENVIRONMENTS

FACTS

Digitax Automotive Electronics
www.digitax.com

System

X-ONE Plus MDT

Which Telit module do you use and why?

We use the xE910 family, which scales up easily from 2G/3G/4G on the same footprint. This allows us to future proof our devices.

Benefits

Digitax X-ONE Plus MDT is the ideal platform for fleet management and job dispatch. It employs feature-rich software kits for rapid application development and maintenance. For example, the Digitax Framework Library SDK, and the Over-The-Air/On-Field-Test management tools.

X-ONE Plus MDT

”With our products system integrators can easily bring their knowledge into the embedded space and realize effective solutions for their customers very quickly.“ **Sauro Pigini,** R&D Manager

>> When you have high performance requirements together with very demanding I/O needs, you can employ the X-ONE Plus MDT. This Digitax product, which is a rugged, 8-32V automotive device that features an IP67 design, is built to survive in harsh environments, including extreme temperatures.

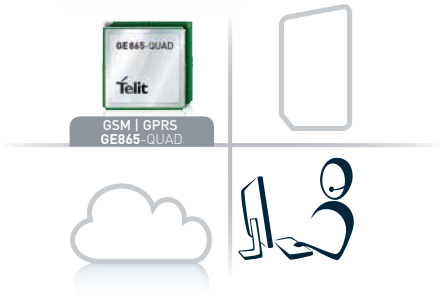
X-ONE Plus is driven by a fan-less, dual-boot Cortex A8 1,2GHz CPU core running the Windows Embedded Compact 7 operating system. Wireless communication is enabled by the embedded Telit 2G/3G/4G Modem, Wi-Fi, Bluetooth and an RF-ID Reader. The modem circuit is a double SIM switch. The on board microphone and speaker enables hands-free operation.

The location subsystem employs a leading edge GPS receiver that features dead reckoning, plus a 9-axis inertial platform with accelerometer, gyro and compass. In addition there is a high frequency odometer input and two independent CANBUS interfaces.

The user interface is a bright 7" WVGA TFT display on a rugged touch screen. Video input is provided for two RGB video cameras, while the VGA output enables multiple display control with independent graphics/video contents.

Thanks to its 10 digital/analog Inputs, 8 power outputs, 3 USB interfaces, up to 11 serial ports and a LAN interface, the Digitax X-ONE Plus MDT is ideal for real world deployment. <<

drive profiler



USAGE-BASED INSURANCE IS THE IDEAL SHOWCASE FOR M2M

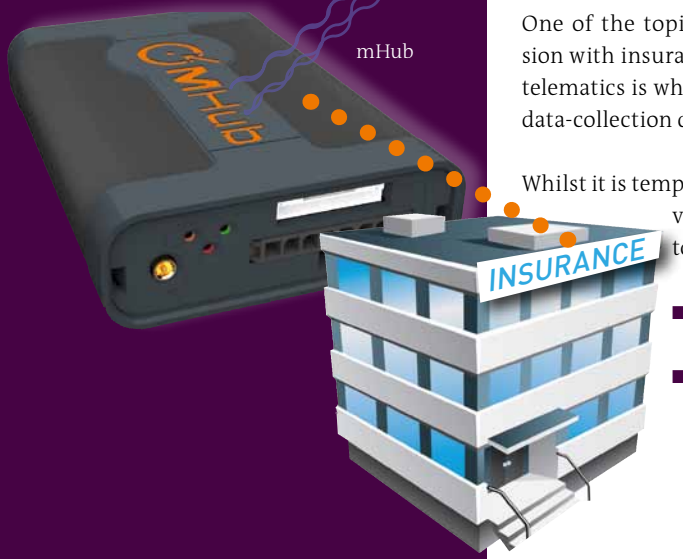
FACTS

DriveProfiler
www.driveprofiler.com

System
mHub – collects driver-behavior data

Which Telit module do you use and why?
We use a Telit GE865, which we chose because it was a good compromise between functionality, size and cost.

Benefits
DriveProfiler is a comprehensive offering of hardware, software and services that allows an insurance company to accurately gauge the risk an insured's driving actually represents. By leveraging over six years of UBI experience with real insurers selling real UBI insurance policies, DriveProfiler's insurance customers can reduce fraud and accurately price their customers' driving behavior.



> Usage-Based Insurance is a truly disruptive change for the motor insurance industry – and one that can only be delivered by m2m" **David Levine,** Director DriveProfiler

>> m2m is a truly revolutionary and disruptive technology – impacting a whole number of different industries; driving efficiencies, reducing costs and increasing profits.

One of the use-cases starting to emerge with real potential for M2M is Usage-Based Insurance. Motor insurers have long suffered from very high claim ratios, low profits and an inability to sift out high-risk drivers from low-risk ones. An M2M-powered insurance telematics device automatically sends driver-behavior data from the installed unit to an insurance company delivering immense value for the insurer and insured alike.

One of the topics that typically comes up in discussion with insurance companies investigating insurance telematics is whether a smartphone can be an effective data-collection device.

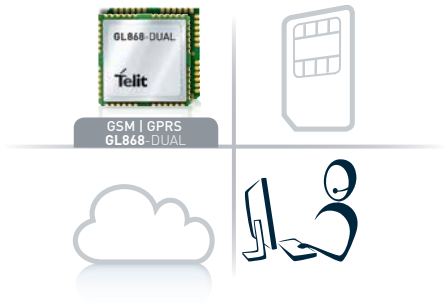
Whilst it is tempting to look at the ubiquity of such a device, there are major drawbacks to using it to collect driver-behavior data including:

- Does the driver have the Smartphone with them today?
- Is the smartphone taken on all journeys, or just those where the driver knows he/she has to 'behave'?
- Is the Smartphone charged?
- Are the sensors on the smartphone accurate enough to ensure accurate data collection?
- How do we know the smartphone belongs to the driver and not a passenger?
- Can we ensure we are tracking the driver only when he is driving and not at other times?
- Who owns the data collected by the smartphone?
- How safe is the driver-behavior data on the smartphone? Can it accessed by any other – perhaps unauthorized – apps?
- Is there any specific hardware on the smartphone to ensure?

In summary the smartphone may at first appear to have some advantages to a motor insurer looking to deploy Usage-Based Insurance. However, only a dedicated telematics device with embedded m2m can really deliver the reliability, accuracy and privacy controls insurers and their customers demand. <<

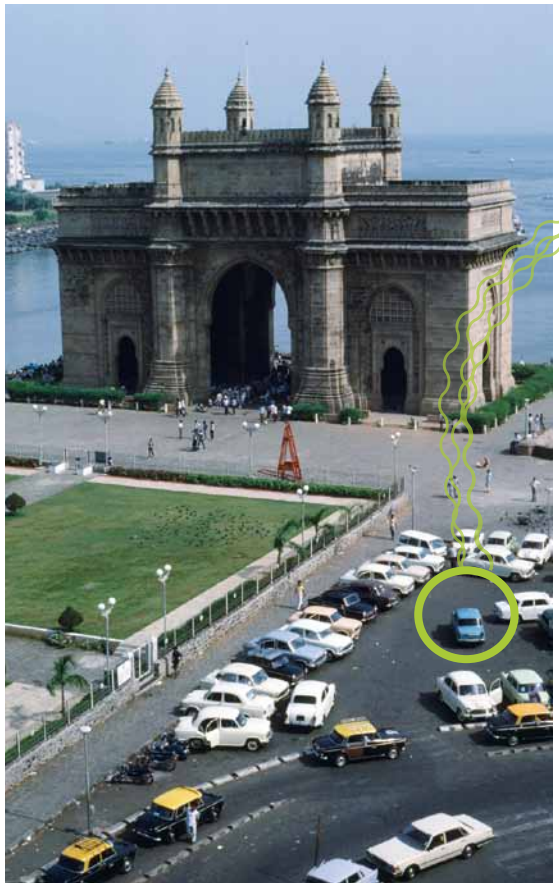
CASE STUDY

MULTI-FUNCTIONAL VEHICLE TRACKING DEVICE



”Our Vehicle Tracking System, BALIN, uses the Telit GL868 GSM module. I'd like to thank Telit's technical team for their cooperation and support.“
Mohit Chaudhary, Director

>> Galvanic Infotech specializes in microcontroller chip-based solutions for homes and businesses. The company's main objective is to provide solutions in the system utilities field to end-user customers, small/ mid-sized companies and large enterprises. Software development to meet specific customer requirement is the main business concern. We have in-house R&D teams for hardware and software solutions and the company provides customized solutions for embedded and computer-based software.



Galvanic has developed a range of security products, e.g. the 'BALIN' vehicle tracking device, which has been installed in more than one thousand vehicles. The GSM module used in this device is Telit GL868. Power consumption is low and it supports AT commands, making it ideal for this vehicle tracking application. We use its GSM/ GPRS functionality for SMS and data communication.

Our device collects information on latitude, longitude, direction, speed, date and time from satellites. This data is interpreted by the microcontroller and then uploaded to our server. BALIN enables a very convenient way to track and control one's vehicle. After installation in the vehicle, the user can easily track the vehicle, check travel history, immobilize the vehicle etc. <<

FACTS

Galvanic Infotech Pvt. Ltd
www.galvanic-infotech.com

System

GPS & GSM based Vehicle Tracking System

Which Telit module do you use and why?

We chose GL868 because of its low power consumption, plus support for Python programming direct and over the air.

Benefits

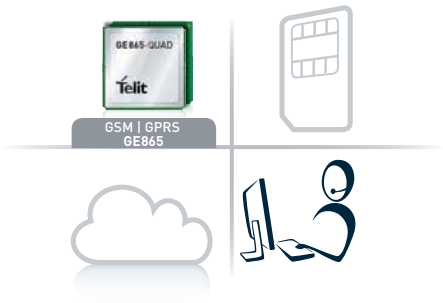
The BALIN GPS & GSM based tracking system protects your vehicle from unauthorized tampering/ access and can also track the vehicle online.

- Operates from 10-24 Volt DC voltage
- Two way communication via SMS/ data, supports both GSM & GPRS
- Compatible with any existing Alarm system and keyless entry system
- Supports programming by SMS
- Vehicle Immobilization
- Antitheft SMS to programmed numbers
- Provision to check Location and Status of vehicle by SMS
- Over Speed alert to programmed numbers
- Tow Away alert to programmed numbers

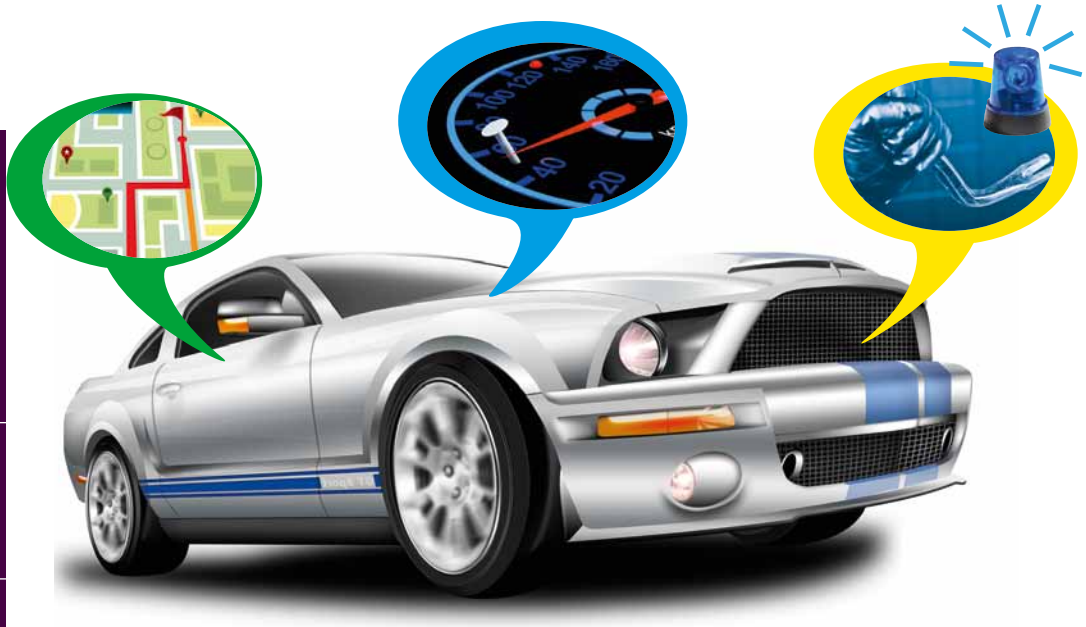
Balin

CASE STUDY

POSITRON



COMPACT, INTEGRATED AUTOMOTIVE TRACKING DEVICE



FACTS

PST Electronics
www.pst.com.br
www.positron.com.br

System

RT300 – Highly integrated automotive Tracking Device

Which Telit module do you use and why?

We chose the GE865 because of its small size, extended temperature range and excellent RF performance on all frequency bands.

Benefits

RT300-Highly integrated automotive Tracking Device
- Quad Band GSM/GPRS Modem
- High Sensitivity GPS receiver
- Assisted and Autonomous GPS modes
- Jamming Detection for GPS and GSM
- GSM Network Trilateration location
- 1Watt ISM Band RF Transceiver – Jamming resistant
- Compact Dimensions
- Ease of installation, 2 wires required
- Water resistant: IP67
- Lithium-ion batteries

RT300

”Telit´s support and willingness to help proved fundamental to overcome the technical and cost challenges in the RT300 project, thereby contributing to its success.“ **Fabio B. Nista,** Technical Director

>> PST Electronics, owner of the Pósitron brand, has been a world-class leader in automotive security solutions on the Brazilian market for over 15 years. The company has also developed technology solutions for tracking and home security. The company is part of the Stoneridge Group, which is present in Asia, Europe and the Americas. PST designs and manufactures a wide range of products such as tracking systems, car alarms, car audio, parking sensors, power windows lifters and door locks, instrument clusters and home alarms. It has two plants in Brazil and one in Argentina.

PST is the only company in Brazil that supplies end-to-end tracking solutions, from the design of the device to tracking services. They are available through the Pósitron Rastreadores branches. Being vertical allows us to fulfill our customers' needs in a very flexible and fast way. From the experience and data gathered from the field the company has designed its sixth generation tracking device, the RT300.

RT300 is a compact, integrated automotive tracking device designed to be used by insurance companies, tracking service providers, fleet managers and end users. It was engineered to improve the recovery rates of stolen vehicles in real world conditions, including the use of jammers, less than ideal GPS and GSM conditions and tampering and fraud attempts. The development of this device was a challenge to PST´s development team due to the strict size and functionality demands. The module integrates GPS, GPRS, an ISM RF Transceiver and a 433MHz ASK receiver into a very small package.

Because of the reduced size, the device can be easily fitted and concealed almost anywhere in the car. In turn this means that the module must operate reliably in harsh environments, with high temperatures and less than ideal RF conditions. Telit´s local and international support proved essential during the development, from the module selection, through RF Integration to the final antenna tuning and validation. The GE865 module was an ideal solution, being small, robust and having great performance. With the RT300, PST expects to be on the forefront of automotive tracking systems, offering its customers and partners superior performance, ease of installation and excellent affordability. <<

CASE STUDY

QUALNETICS
Connected Vehicle Solutions

ADVANCED TELEMATICS PLATFORMS ENABLE RAPID CUSTOMIZATION

”Qualnetics Road-iQ telematics platforms are designed for rapid customization to meet our customers' unique needs from sophisticated commercial vehicle applications to simple hours-of-service monitoring.“ **Paul Grey,** CEO

>> Qualnetics has been pioneering vehicle connectivity solutions since 2003. Our platforms employ a modular design, which enables solutions to be configured for specific customer applications. The building blocks make up the hardware, firmware and application software components. And, our engineering team understands the harsh operating environments in which automobiles and trucks operate and reliability is incorporated in all our designs.

The company's Road-iQ platforms offer a cost-effective path to developing next generation telematics devices while reducing time-to-market. The result is a faster payback on our customers' development investment. Unlike most off-the-shelf telematics devices, the Road-iQ family enables the opportunity to choose the specific configuration of hardware components and firmware capabilities that best fits their intended usage.

The Telematics Gateway (TG) functions as a communication hub between the vehicle data bus, head unit, smartphone or tablet and the Internet. It is a versatile, cost-effective platform for sharing vehicle and driver data inside and outside the vehicle.

The OBD Dongle (DX) works as a low-cost data collection and communications interface for automotive onboard diagnostics data. Applications for the DX include usage based insurance, fleet management and vehicle performance management. The TG and DX are flexible platforms for enabling next generation telematics products tailored to customers' specific use cases.

The Telit xE910 family was selected for its reliable 2G/3G cellular communications nationwide from the vehicle through to back office servers. In addition, the module enables us to incorporate Python based applications, thereby eliminating the need for a separate application processor and consequently reducing the device's footprint, complexity and cost. Python scripting has been valuable in reducing the development time by more than half and minimizing the engineering efforts of our customers.

In addition to the Road-iQ platforms, Qualnetics also provides customized software applications, support for certification testing, and management of manufacturing supply chains to customers seeking a turnkey product development approach based on proven platform technology. <<

FACTS

Qualnetics
www.qualnetics.com

System

Road-iQ Family of Telematics Platforms

Which Telit module do you use and why?

The Telit xE910 family was chosen because it provides reliable cellular communications nationwide from the vehicle to back office servers.

Benefits

Both platforms leverage the processing power of Telit's xE910 wireless modules, which enable broad Telematics feature sets while maintaining a compact product design. The customization process of TG or DX starts with a target form factor, feature set, interface and BOM. The development process is fast, resulting in a fully functional new telematics product with minimal development effort.

Road-iQ

CASE STUDY

DEVICEWISE PLATFORM UPDATES TELEMETRY DEVICES ACROSS THE U.S.

FACTS

Restaurant Technologies, Inc.
www.rti-inc.com

Benefits

RTI oil management solution can measurably improve:

- Food Quality + Consistency
- Operational Efficiency
- Safety
- Cleanliness
- Sustainability

„The deviceWISE m2m Application Enablement Platform allows us to remotely troubleshoot and update telemetry devices, thereby lowering IT costs, saving costly truck rolls, and ultimately driving greater benefits for our customers.“ **Jason Cocco,** VP of Business and Product Development

>> Minneapolis-based Restaurant Technologies, Inc. (RTI) provides complete oil management solutions to more than 20,000 foodservice locations in 41 metropolitan markets across the U.S., including restaurants chains like KFC, McDonald's and Burger King. RTI has helped the foodservice industry improve food quality and consistency, operational efficiency, safety, cleanliness and sustainability through the automated delivery, storage, handling and disposal of fryer oil. RTI also provides an oil management software platform that helps restaurant managers improve oil usage and efficiency through simple-to-understand data analytics.

RTI has deployed a wireless telemetry system that combines the ILS Technology deviceWise m2m Application Enablement Platform with a gateway from CalAmp and cellular conductivity from AT&T. DeviceWise securely connects and integrates RTI equipment at its customer sites with the company's headquarters, delivering real-time updates from the bulk cooking oil tanks in order to streamline routing and scheduling of its drivers and field technicians. In addition, RTI's customer portal provides restaurant managers insights on cooking oil usage trends and filtration practices.

In order to understand the impact of the new wireless telemetry system, RTI began tracking the duration and quality of new installations, the accuracy of the data received from the devices, the frequency of configuration changes, and the ongoing service costs. During the initial test periods, the metrics indicated the investment in m2m hardware and software, and the recurring cost of the cellular service, pays for itself in less than two years through reduced service costs and improved sales of oil and filtration monitoring services. M2m has reduced the time and effort needed to install the remote monitoring equipment and eliminated the need to tie into the customer's network. Additionally, sales costs are reduced by cutting the time required to engage with the customer's IT group in order to capture the appropriate network settings.

RTI has realized the potential of m2m in field service operations and has opened the opportunity to expand from "total oil management" to "total operations management" (TOM), leveraging m2m technology to not only monitor its own equipment but also fryers, as well as other smart equipment in the kitchen. This added intelligence will be fed into RTI's customer portal enabling new insights for restaurant owners and equipment suppliers which will improve quality control, compliance and ultimately drive cost savings. <<

CASE STUDY

COMPACT TRACKING DEVICE FOR HARSH ENVIRONMENTS

> Telit has been the supplier of choice for Telic's tracking units for several years. The high level of reliability of Telit's modules, even when employed in adverse environmental conditions, e.g. at very low temperatures, has been demonstrated once again in real-life deployments of the new Picotrack IP69K."
> **Frank Heineck,** General Manager

>> Telic, a German manufacturer of telematics devices has been marketing robust products for asset tracking applications for a number of years. Recently the matchbox sized "Picotrack" device has been deployed by Telematics Service Providers for a wide range of applications in order to improve the security and visibility of the transfer of valuable goods.

However, later applications placed requirements that went beyond the design of the original Picotrack device. One requirement was for the device to remain operational in a potentially very humid environment with widely varying temperature ranges, e.g. as found inside tree trunks.

Forest administrations in Central Europe are struggling with an increase in theft of logs stored in their forests, which can incur annual financial losses of several hundred thousands of Euros. These administrations would benefit from a GPS tracking device that could be concealed inside a log and that would send tracking messages as soon as a movement (i.e. potential theft) occurred.

Telic decided to launch the Picotrack IP69K, a very robust version of the Picotrack device in order to address this issue. The IP69K grade housing provides the sensitive circuitry with the best possible protection against dust and water. Telit's GE865 Quad module was chosen as it provided the high level of reliability required for this type of application.

A forest administration in Germany deployed this product and was able to track down log-theft culprits. Thus, the combination of an advanced housing concept with robust modules is helping improve security, which is a key driver behind the increasing adoption of asset tracking devices in Europe. Telic expects the size of this market to amount to several hundred thousand units in 2014.

The Picotrack IP69K has therefore successfully passed the ultimate field test for advanced asset tracking applications, where reliability and robustness are the key selection criteria. <<

Telic
Telematics & Telemetry

FACTS

Telic GmbH
http://en.telic.de/

System

Picotrack IP69K

Which Telit module do you use and why?

Picotrack IP69K uses the GE865-QUAD module because of its proven reliability in the field and its wide operating temperature range.

Benefits

The Picotrack IP69K is a small device designed to track the movement of a wide variety of valuable assets even under challenging environmental conditions. The high capacity rechargeable battery allows shipments to be tracked over a period of several months. The device facilitates key applications such as improving the security and visibility of the movement of valuable assets and shipments.

Picotrack IP69K

ENERGY

>> With stricter regulations coming online worldwide on emissions and land-usage for power generation and distribution, m2m rises as a powerful enabler of revolutionizing approaches to tackling the challenges of rising demand, unpredictability of peaks and integration of the increasingly popular co-generation from solar and wind.

At the top of every customer application page, you will see a 4-quadrant Icon letting you know at-a-glance how much of Telit's ONE STOP. ONE SHOP. is in use by the featured application.

Telit hardware used: this quadrant shows the module(s) embedded in the customer application

m2mAIR Mobile Services: If the icon here is bolded and not greyed-out, the application in employing m2mAIR Mobile services in the application deployment.

m2mAIR Cloud Services: If the cloud icon is bolded, the application is employing services powered by deviceWISE.

Telit Support and Project Assistance Services: When bolded, the integration of the featured customer application was streamlined by Telit technical and certification support services.

CASE STUDY

REAL-TIME CONSUMPTION DATA ACROSS ENTIRE POWER GRIDS

"Texas is blessed to have a free-standing and independent power grid, as well as rich natural resources. Unfortunately, even these are not enough to keep up with the increased demand for electric generation. Thankfully, with the help of ILS Technology, we can monitor usage and proactively balance the load to avoid service interruption and damage to mission-critical equipment." **John Elder,** President and CEO

>> Acclaim Energy Dynamic Load Optimization 365 (DLO365) leverages smart grid technologies to optimize multiple energy curtailment programs, reduce the forward risk premiums of energy supplies and improve power reliability for enterprise and local grid. It's a low-cost, intelligent power metering and control system that allows organizations to remotely monitor and switch loads from the grid to standby generators or simply move you off the grid within seconds. It is the world's only horizontal Machine-to-Machine (m2m) platform with extensive remote device management and native enterprise application integration capabilities.

The ILS Technology deviceWISE m2m Application Platform – using MultiTech Gateways that are powered by Telit Modules – extract data from customer devices and equipment and provide real-time information about power consumption at multiple sites across the entire power grid. Together, the companies enable customers to optimize their power consumption while simultaneously providing the data needed by electricity providers to balance the load and avoid brownouts, blackouts and related damage to customer equipment.

DLO365 can be up and running within a matter of weeks. ILS Technology and AT&T provide the hardware, software, integration services and the communication system that powers the technology – Acclaim takes care of the rest as the single point of contact throughout the entire engagement.

Upon realizing that m2m technology does more than just turning generators on and off, Acclaim started measuring and analyzing the performance of the actual generators, measuring fuel levels and tracking maintenance records. Think "big data", since the manufacturers of the generators are now paying Acclaim for this valuable newly found intelligence. Furthermore, m2m data also revealed that most back-up generators have excess capacity beyond their own needs. So, Acclaim is now also selling the excess power from its customers' generators back to the power company that is already paying them to get off in the first place – a nice case of double dipping. <<

FACTS

Acclaim Energy Advisors
www.AcclaimEnergy.com

System

deviceWISE m2m Application Enablement Platform

Benefits

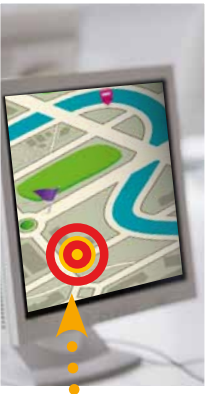
DLO365 benefits include:

- Substantial annual savings from curtailment programs and avoids forward risk premiums
- Protects equipment against power surges
- Integrates with most devices in the field
- Provides a secure web interface
- Operates multiple units with a single command
- Offers quick response time – less than 10 seconds
- Upgrades software on devices in the field remotely

CASE STUDY

Aquarius Spectrum

WATER LEAK DETECTION SYSTEM THAT PROVIDES NEAR REAL-TIME ALERTS



„Working closely with Telit allowed us to be ahead of other competitive solutions.“ **Zeev Efrat,** CEO

>> Aquarius Spectrum is a start-up company providing services to urban water management departments in the area of leak detection. This paradigm-breaking system, which is based on acoustic sensors and proprietary logarithms, provides significant savings of water loss at low cost by implementing the new concept of Water Lifecycle Monitoring (WLM).

The network of wireless sensors (GSM) works in combination with unique multi-sensor algorithms. With operation based on distributed signal processing, small data packets for communication, and statistical analysis, the algorithms receive data input from sensors to provide near real-time leak detection alerts in complex networks.

Operation of the Aquarius Spectrum System requires a precise clock with an accuracy of 1-2 msec. Most similar systems employ a special on-site RF network to achieve accurate measurements. We realized our solution using a Telit GSM Modem and GPS to achieve three goals:

❶ To be network independent (GSM networks are already available in major cities). The sensors are battery operated. The HE910 has been selected because it provides the most power efficient solution for the transmission of 200KB of measurement data, which comes from fast network acquisition and data transfer.

❷ To provide self-timing synchronization via GPS. The sensor operation requires synchronous recording of vibration signals and transmission to a data analysis server. GPS 1pps pulses achieve the sub-millisecond time synchronization. The SL869 was selected because it provides very fast time synchronization from a cold start.

❸ To enable easy and fast installation. Systems such as the Aquarius Spectrum are becoming increasingly viable due to the reduced cost of sensors and cloud based intelligent systems. The use of GSM for this solution removes the communication barrier and makes it easy to use, easy for installation and cost effective.

The system provides many benefits including: fully automated automatic analysis; data mining to aid in decision making; low cost per sensor; and online SaaS (Software as a Service to provide expert input. The market for the Aquarius Spectrum system is cities that seek to minimize their water and maintenance loss. <<

Aquarius Spectrum: Water leak detection system

FACTS

Aquarius Spectrum Ltd.
www.aquarius-spectrum.com

System

Aquarius Spectrum:
Water leak detection system

Which Telit module do you use and why?

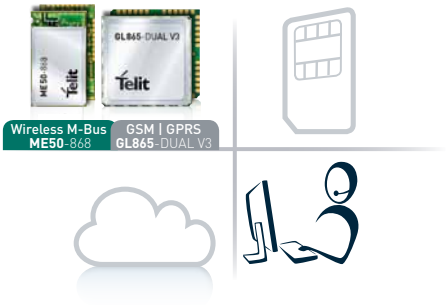
HE910: used to transfer sensor measurement data. Selected because of its low power consumption. SL869: used for sub-millisecond synchronization.

Benefits

Aquarius Spectrum has developed a unique, multi-layer approach to leak detection. The groundbreaking technology incorporates advanced acoustic vibration sensors, a GSM wireless sensor network and multi-sensor algorithms. The system provides an online, expert managed system, which introduces new levels of savings in NRW (Non-Revenue Water) and pipe network maintenance.

CASE STUDY

ELEKTROMED
EXCELLENCE IN METERING



AMI SYSTEM FOR BATTERY-OPERATED WATER METERS

FACTS

Elektromed
www.elektromed.com.tr

System
Albatros RF Water Meter and RSC RF Gateway

Which Telit module do you use and why?
ME50-868 RF Module and GL865-DUAL V3. We selected these products for their low power consumption, excellent price and compliance with European standards.

Benefits
AMI systems are only possible if the meters are controlled remotely. The battery operated meters can only be integrated into the system via RF modules. Albatros RF water meters employ a short range, internal RF module and they support the wireless MBUS standard. RSC RF gateways employ short range RF communication for meters and IP-uplink capability via GPRS for WAN communication.

”Elektromed offers complete AMI system solutions that feature Telit Short Range RF and GPRS Modules.“ **Yakup Uslu,** R&D Manager

>> Elektromed is a market leader in Turkey, designing and producing utility meters – water, gas, heat and electricity – as well as meter communication technologies.

The company has also completed some AMI projects last year. AMI investments will increase in the near future, one driver being the fact that natural resources are decreasing with every passing day. Elektromed decided that the most efficient investment would be critical. AMI systems must be inter-operable, future-proof, and be based on international standards. Elektromed has introduced a new system for water meters that meets these requirements and it forms the basis of RF LAN and GPRS WAN communication.

AMI will only be possible if the meters are controlled remotely. The meters of customers whose consumption is high can be connected directly to WAN, but this is not cost-effective for residential meters. In this case the optimum solution is to enable communication over a LAN communication, using many meters, and to connect them to the WAN communication using a single gateway. The best way to enable a LAN solution for battery operated meters is to use short range RF communication. Mesh topology is not suitable for battery-operated meters, so we chose a star topology as well as the wireless MBus protocol. The 868 MHz frequency is an ideal band when one considers the size of the antenna and the required communication distance. Telit's ME50-868 module was selected because of the time-to-market, reasonable cost and good technical support.

Elektromed has many projects that employ RSC (Remote System Communicator) GPRS gateways. RSC is widely used for AMR/AMI for electricity meter, irrigation and tap water consumption control systems. They can communicate via one of the RS232, RS485 and PLC modules in LAN systems. Different GPRS module suppliers were tested and used. However, Telit supplied new products according to new market requirements. The GL865 V3 features: multi-socket capability on command mode, ftp configuration, small dimensions, low cost, easy development and good performance. <<

CASE STUDY

INTRINSICALLY SAFE DATA LOGGER FOR HAZARDOUS ENVIRONMENTS

"Telit's GE864-QUAD ATEX enabled us to make an intrinsically solution for 'on-line' or 'on-demand' communication." **Norberto Rozas,** CEO, Syspro Quality S.A.

>> For the past 10 years Syspro has specialized in developing telemetry for hazardous areas, i.e. potentially explosive environments. In order to create, install and operate an electronic device that will be energized in critical zones specialist knowhow is needed, which we found by partnering with Telit.

Syspro not only develops and produces intrinsically safe equipment, but we also install, integrate and maintain telemetry systems for critical use all over the world.

TDLX-G2000 is an intrinsically safe (Ex-ib) telemetry data logger designed to monitor LPG or natural gas consumption. Internal batteries, that lasts 5 years, supply energy for data logging and more than 1800 GPRS transmissions that can be scheduled, either by configuration or triggered by alarm programming (i.e. low power, analog, digital or overflow gas consumption). All data is collected by Modbus, Enron or AT commands.

FC3X-GE24 is an Ex-ib Remote Terminal Unit provided with analog and digital I/Os, 4Mb logger memory, Modbus RCU/TCP/Enron, GPRS, Ethernet, RS232, RS485, USB, and 25 indicators LEDs mounted into an anodized aluminum case fixed by DIN rail.

Both the FC3X and TDLX are monitored by SCADAFlex®, a cloud based portal, licensed as a service (SAAS) or installed on client site. TDL, FC3 and Portal provide complete solutions for remote "on-demand" or "on-line" Zone 1 monitoring. <<

FACTS

Syspro Quality S.A.
www.syspro.com.br

System

Intrinsically Safe Communications Platform

Which Telit module do you use and why?

GE864-QUAD ATEX: a GSM/GPRS module compliant to IEC60079-11 for potentially explosive zones. Its ATEX certification simplifies the modem's approval process.

m2mAIR

We expect to start using m2mAIR in 2014

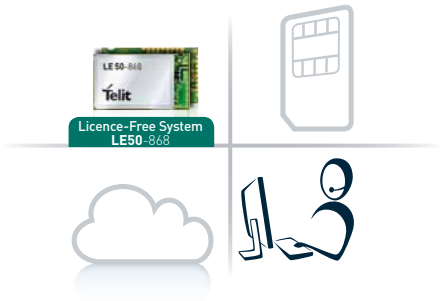
Benefits

TDLX-G2000 can be installed in less than 10 minutes, there is no need for external electric sources. There is a daily transmission of the hour-by-hour data log. FC3X-GE24 can reduce costs by up to 80%. The dimensions of the automation panel are reduced by up to 94%. Integrating the RTU + modem + IS Barriers + 8 I/O channels + converters = an all-in-one complete product!

FC3X-GE24

TDLX-G2000

TELEOFIS



MODEMS DETERMINE DATA ROUTING IN SELF-ORGANIZING NETWORKS

FACTS

TELEOFIS
www.teleofis.ru

System

Smart Voyager FX868 wireless modem.

Which Telit module do you use and why?

Why we chose Telit because: LE50 is ready for use in our device; has complete mesh protocol; small size of unit; good technical support; and full compliance with the requirements for unlicensed equipment.

Benefits

The Smart Voyager FX868 enables:
• Automated metering of electricity, heat, water and gas
• Visualization of data in a webpage or text report
• The export of collected data to automated data processing systems: accounting systems, AMR, and Scada systems.

Smart Voyager FX868

"Telit is a reliable and trusted supplier of leading-edge modems." **Andrey Kolesnikov,** President of TELEOFIS

>> TELEOFIS supplies wireless systems for data transfer in radio and GSM networks. Our product range includes industrial GSM modems with interfaces for connecting to meters and control equipment.

The basic resources consumed by apartment buildings are electricity, hot and cold water and heat. The fundamental difference in connecting metering devices for these resources is the interface. For electricity and heat metering devices the RS485 connection is the preferred option; for water meters the normal procedure to read information from the output pulse of the metering device.

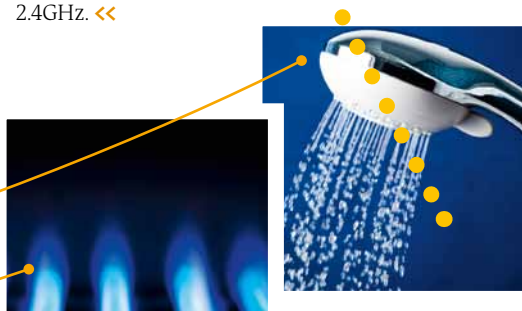
To connect to water meters we need a battery-operated wireless modem. In the company's Smart Voyager product line it's Telit's FX868-B1. This modem has interfaces for up to 4 pulse signals, has a built-in battery with a lifetime of up to 6 years, and it can keep records up to 8 years.

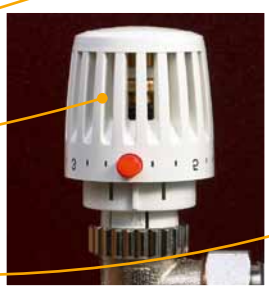
The FX868-M2 modems are used for metering of electricity and heat. Not only do they collect, store and transfer data to the database, but they also work as a re-transmitter for other wireless modems in the network. The RS485 interface enables connectivity for up to 32 metering devices.

The network is self-organizing, which means that the modems determine the routing of data packets through the re-transmitter to the controller. This reduces the time required for startup and configuration.

Thanks to the principles of self-organizing networks, wireless modems independently determine the routing of data packets from the retransmitter to the coordinator, which significantly reduces the time required for start-up and configuration. The modems connected to electricity meters are powered by 220V line supply and are always turned on. In addition to metering functions, they also perform as retransmitters for battery-powered wireless modems. A battery-powered modem starts up, restores routing, sends data to the coordinator, which in turn sends it to the database.

The modems employ unlicensed 869 MHz spectrum. The power output is 25mW, which means that the equipment doesn't need to register in order to use this frequency. And it is worth noting that wireless signals in the sub-gigahertz range can pass through concrete much more effectively than signals operating at 2.4GHz. In addition, the 869MHz range is less loaded and therefore has less interference than 433MHz and 2.4GHz. <<





CASE STUDY

VERSATILE MULTICHANNEL DATA LOGGER FOR GRID OPERATORS AND END-USERS

”Reliability is key parameter for metering, which is why we selected Telit for our ReMI product.“
Sonny Van Dessel, COO

>> The multichannel data logger, ReMI, is the latest addition to our line of data communication modules. The unit is extremely versatile and has been designed for both grid operators and end-users.

ReMI unit can either be battery or mains powered. It has a maintenance port that may be used by the operator for application software loading or maintenance data retrieval. In addition there is a customer data port that allows end-users to access their energy consumption data.

A remote update interface tool enables the operator to remotely change the unit's settings and to make firmware updates. Status indicators on the front panel provide users with visual indication of the data logger operation.

The unit supports the industry-standard protocols DLMS-COSEM and MBus EN 13757 1-4 which are widely accepted by the utility companies. Data exchange with the acquisition system is realized via GSM /2G-3G, PSTN. Data collection from energy meters can employ bus wired / wireless and pulse.

The data logger includes a configuration tool that provides useful features such as real-time readout, measurement and data transfer interval selection, meter index setting, and meter pairing. Access to the data logger is user name and password protected; different authorization levels are available. <<

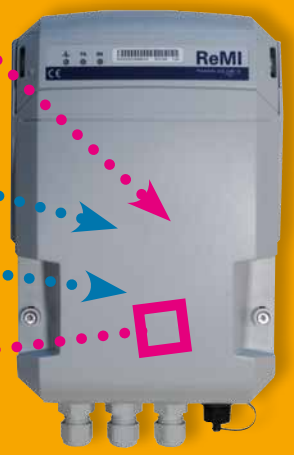
FACTS

Xemex
www.xemex.eu

System
ReMI : Multi-channel datalogger

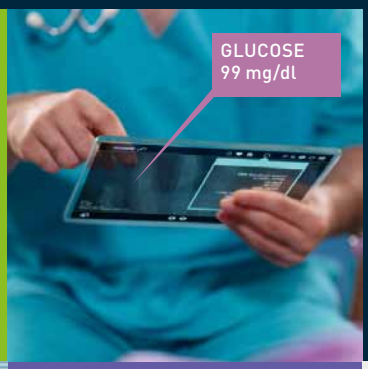
Which Telit module do you use and why?
The HE910-EUD was selected for its 2G/3G capabilities.

Benefits
- Data logger and communication module based on open standards, e.g. DLMS-COSEM and M-Bus EN13757 1-4
- 2G / 3G and PSTN to haul data stored in the module to central servers
- M-bus wired and wireless, and pulse input to exchange data locally between meters
- Unit can be mains and / or battery powered
- ReMI housing guarantees IP65 sealing for industrial usage

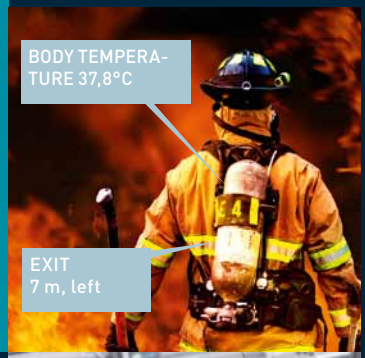


ReMI : Multi-channel datalogger

CONSUMER PROFESSIONAL



>> With wearable devices leading the charge in a revolution redefining personal safety, premise access control, corporate information security, to name few, the value add from consumer and professional segment will continue to be felt in ever increasing number of application areas we cannot yet foresee. Substantial evolution will also be observed in this segment in handheld and portable devices.



At the top of every customer application page, you will see a 4-quadrant Icon letting you know at-a-glance how much of Telit's ONE STOP. ONE SHOP. is in use by the featured application.

Telit hardware used: this quadrant shows the module(s) embedded in the customer application

m2mAIR Mobile Services: If the icon here is bolded and not greyed-out, the application in employing m2mAIR Mobile services in the application deployment.

m2mAIR Cloud Services: If the cloud icon is bolded, the application is employing services powered by deviceWISE.

Telit Support and Project Assistance Services: When bolded, the integration of the featured customer application was streamlined by Telit technical and certification support services.

CASE STUDY

MODULAR SOLUTION ENABLES CENTRALIZED CONTROL OF ENDPOINT DEVICES

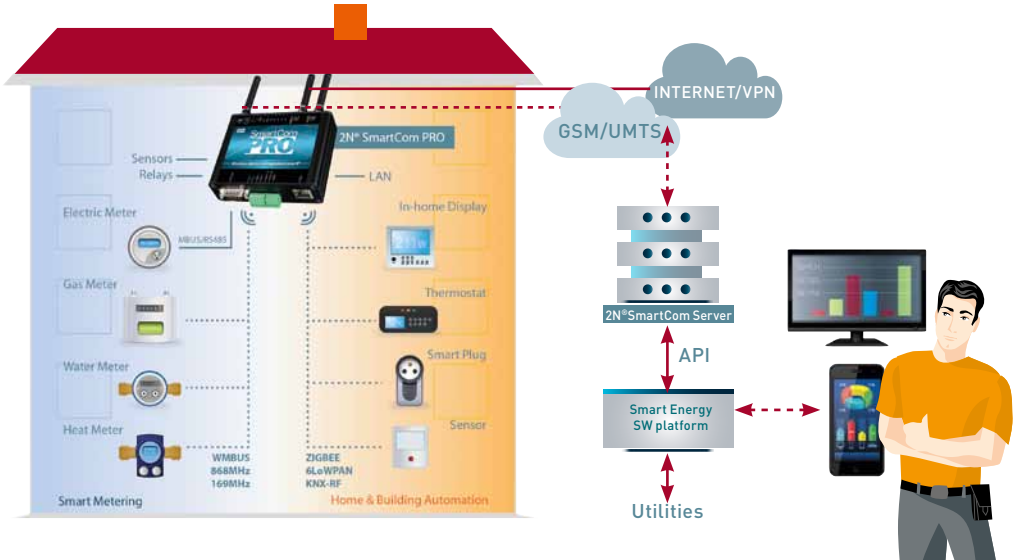
"Our mission is to provide reliable and cost effective solutions with excellent support using a state-of-art technology. To achieve that we need strong partners sharing the same values. That is why we work with Telit."
Petr Holy, M2M Business Development Manager

>> Scalable solution for multi-utility deployment
When developing m2m products our goal was to bring to the market a modular, user-friendly solution covering the most important customer needs. The 2N® SmartCom PRO is a scalable solution for centralized management of endpoint devices, specifically designed for multi-utility energy management and smart metering purposes, such as energy meters (electricity, gas, water, heat), environmental sensors, switches, smart plugs, energy consumption displays, etc. In addition, the system enables secure storage of data acquired from endpoint devices and the ability to act autonomously according to predefined scenarios.

The 2N® SmartCom PRO supports a comprehensive range of cable and wireless communication interfaces and standards for endpoint devices. Remote control of integrated switching relays, reading digital/analog input values, and the management of external rechargeable battery backup are standard features. The solution also enables complete central management of all devices via 2N® SmartCom Server software platforms.

Compared to other m2m products on the market, our solution has a modular design. Customers can therefore choose specific interfaces in order to meet their individual needs. For example: they can employ the 2N® SmartCom PRO as a simple configuration such as a R485 bridge to Ethernet; configure it as a UMTS/Ethernet router with the capability to connect power switches and environmental sensors; or configure the solution as a fully equipped, multi-utility controller with ZigBee, wireless 169 MHz or 868 MHz M-Bus, S0 or analog inputs, RS485 or M-Bus and enable encrypted data logging and communicating via GPRS, UMTS, CDMA or Ethernet.

In addition, the 2N® SmartCom PRO can be integrated with third party energy management software solutions or platforms. No matter how large your project, we provide free technical support and professional assistance for integrating non-standard endpoints. <<



FACTS

2N TELEKOMUNIKACE a.s.
www.2n.cz

System

2N® SmartCom PRO – Scalable Multi-Utility Solution

Which Telit module do you use and why?

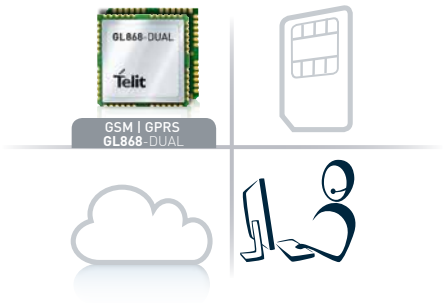
We use Telit xE910 family of modules that enable us to offer a variety of mobile data communication standards easily.

Benefits

- Complex and scalable solution for centralized management of endpoint devices
- Specifically designed for multi-utility energy management and smart metering projects
- Broad range of interfaces: GPRS, UMTS, CDMA, Ethernet, RS232, RS485, M-Bus, S0/Digital/Analog Inputs, Inbuilt Relays, Wireless M-Bus 169MHz, Wireless M-Bus 868MHz, ZigBee, KNX-RF, Tiny Mesh, 6LoWPAN

2N® SmartCom PRO

ANALOGICS
Redefining Technologies...
ISO 9001: 2008 COMPANY



REAL-TIME MANAGEMENT OF ANALOG/DIGITAL INPUTS

FACTS

Analogics Tech India Ltd.
www.analogicgroup.com

System

GPRS based Remote Terminal Unit (RTU)

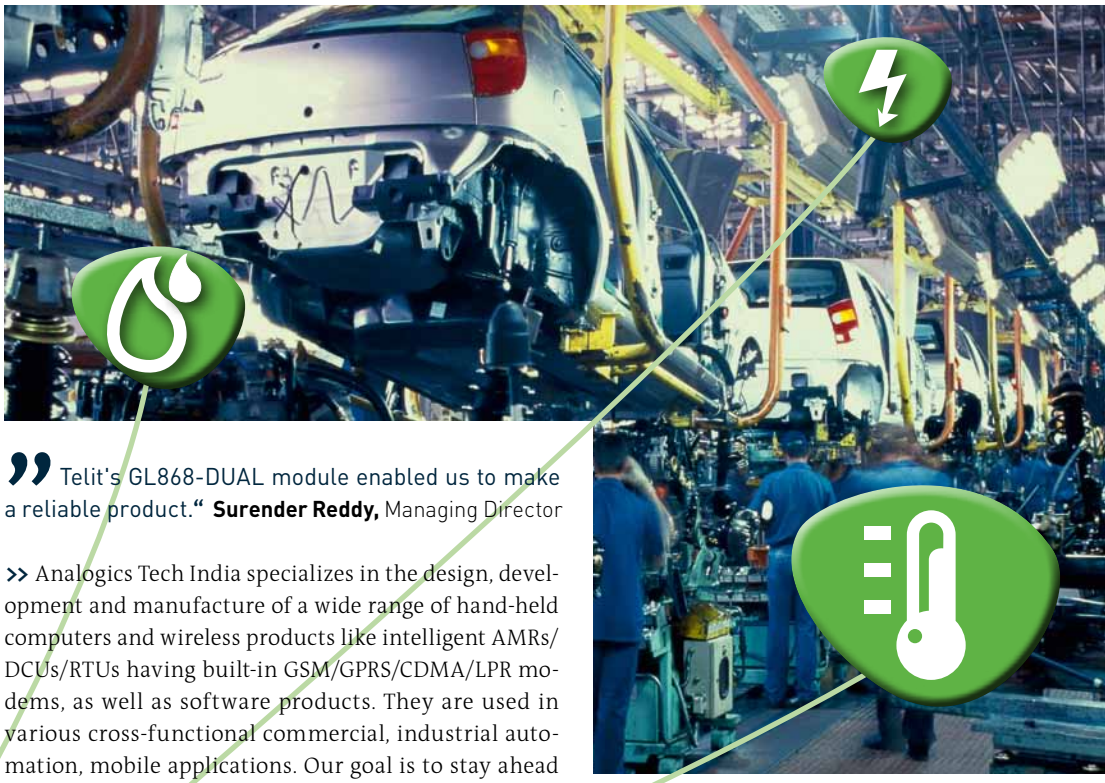
Which Telit module do you use and why?

Telit's GL868-DUAL band module is reliable with a small footprint enabling our product, RTU (Remote Terminal Unit), to maintain quality at low cost

Benefits

- Large installation base, field proven module
- Easy to install
- Remotely configurable/programmable
- Multifunctional Unit
- Expandable Digital/Analog I/Os

Remote Terminal Unit (RTU)



„Telit's GL868-DUAL module enabled us to make a reliable product." **Surender Reddy,** Managing Director

>> Analogics Tech India specializes in the design, development and manufacture of a wide range of hand-held computers and wireless products like intelligent AMRs/DCUs/RTUs having built-in GSM/GPRS/CDMA/LPR modems, as well as software products. They are used in various cross-functional commercial, industrial automation, mobile applications. Our goal is to stay ahead of the competition in the innovative race to integrate advanced technologies.

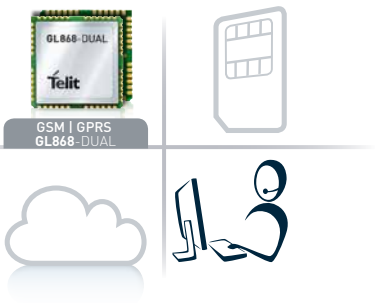
The RTU is a Linux based industrial/field control and monitoring unit that has a built-in GSM/GPRS communication module. This product enables real-time management of analog/digital inputs and it uses control outputs for switching devices like breakers/isolators, switches, relays etc. The hardware is compact and is ready to install on to a pole or wall.

This is an intelligent device having built-in RS 232 & RS 485 ports that connect to meters through an optical port/serial communications cable. RS 485 daisy chaining is used to collect data at regular intervals and it is subsequently transmitted to the central control station/server.

A typical RTU installed in a sub-station records real-time analog data such as transformer oil temperature, station battery voltage, either voltage or 4-20mA. The optically isolated, potential-free contacts of the digital inputs acquire the breaker on/off status. The digital outputs control the breakers. Configuration such as changing meter type, configuring and setting RS 485 compliant meter/device ID is done via the browser interface. The acquired data is stored and sent to the remote monitoring station using a GPRS network. The HMI and software is built on the Linux OS and is executed on the RTU. <<

CASE STUDY

REAL-TIME TRACKING OF VEHICLES AND CONTAINERS: AN ASIAN SUCCESS STORY



”With our newest innovation, it is next to impossible to make our tacking device out of owner's sight.“ **Thotspol Kunapermsiri,** Managing Director

>> As a pioneer in vehicle's data logging and the deployment of real-time tracking devices in South East Asia, DTC has been dedicated to researching and producing GPS Tracking devices and monitoring systems to match all types of customers' requirements for nearly two decades. A team of medical doctors and engineers established the company in 1996. In the first year, the company opened a Psychophysical Testing Center in order to set high standards for the transportation business through testing the physical abilities of the driver.

In the intervening 18 years we hired over 100 hardware, software and related areas experts to expand our business through the design and production of electronic equipment, especially targeting fleet tracking and management systems. We currently have more than 300 employees working in hardware, software and map-development departments as well as equipment installation and service departments.

In order to ensure customer satisfaction, we have been continuously researching and developing our product. By Q1 2014 we produced systems that serve more than 8,000 local organizations in Thailand. The Vehicle Tracking System (black box) is also being exported to ten other Asian countries.

Telit's GL-868 DUAL module makes the system even more powerful and we are proud to introduce our elegant SW-I tracking device, which is water and dust proof. In addition, the device is deployed with the "Location Based System" (LBS), which provides current locations via a cellular site network in areas where there is no GPS signal.

The SW-I's architecture is also designed for further expansion, e.g. the expandable battery slot. The SW-C employs the larger battery slot and in normal conditions this device will transmit data at one-minute data transmission for a week without charging. This is particularly useful for tracking trailers. <<

FACTS

D.T.C. Enterprise Co,Ltd.

www.dtc.co.th

System

"Silent Witness" (SW) I and C – GPS Tracking

Which Telit module do you use and why?

GL868-DUAL: low power consumption; integrated TCP/IP protocol stack to connect server; able to run application to manage signal and data

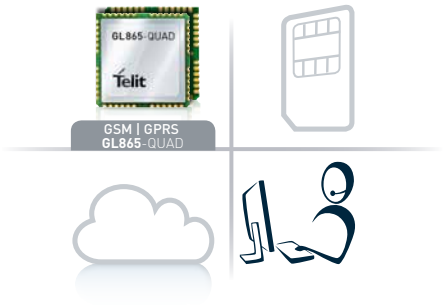
Benefits

- Waterproof
- Dust resistant
- Drop test certified
- Built-in "Location Base Service" to locate the vehicle when there is no GPS signal
- Compact size
- Expandable battery slot, ideal for tracking trailers and containers

Silent Witness

CASE STUDY

intelbras



END-TO-END SOLUTIONS: ALL INTEGRATED, INTERACTING AND CONVERGING

FACTS

Intelbras
www.intelbras.com.br

System

PBX Impacta Line: a Hybrid PBX system.

Which Telit module do you use and why?

GL865-QUAD. This module has the best value for money on today's market; it stands out because of its reliability and performance.

Benefits

- Hybrid PBX system that delivers different types of IP, digital, analog and GSM technologies
- Calls via GSM trunks reduce phone costs when making them from a mobile
- Up to 8 GSM trunks

PBX Impacta Line

"Intelbras innovates by integrating GSM technology into a single phone platform that combines both digital and IP technologies." **Aluísio Maykot Serafim,** Micro and Small PBX Segment Manager

>> Intelbras, a Brazilian based company, is a leader in PBX telephones and condominium intercom systems. Founded in 1976, Intelbras focus on the telecommunications, networking and electronic security markets and has a wide presence throughout Brazil and several countries in Latin America and Africa.

The company maintains one of the largest private research and development centers in Latin America as well as one of the largest technical assistance networks in Brazil. ISO 9001 certifies all our factories. In addition, the headquarters is certified by ISO 14001. Always attentive to the needs of the market, and more specifically to the needs of clients and partners, Intelbras offers end-to-end solutions in telecommunications, networks and electronic security systems, all integrated, interacting and converging, using the same technology platform.

A close partnership with Telit facilitated the development of a board having GSM trunks for the PBX Impacta Line. This board enables calls to be made via these trunks, thereby reducing mobile phone charges.

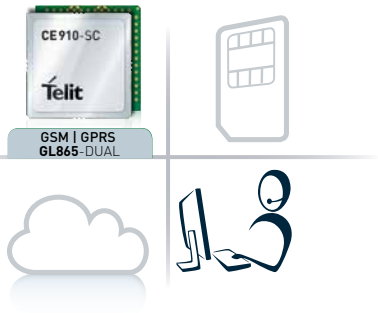
This solution had been realized using analog mobile interfaces or gateways, but this way delivered lower audio quality and there were connection delays. The new solution that uses Telit's GL865-QUAD provides high-quality audio and allows control of all kinds of phone calls.

The board can have up to 8 GSM trunks, so it is possible to send SMS through the PBX extensions. It can also manage incoming and outgoing call routing and direct calls correctly, which reduces telephone costs.

Using Telit's m2m technology our solution not only delivers performance improvements, but it was also more cost effective than buying analog trunk boards and mobile interfaces or gateways. We therefore delivered a product having a significant technological advantage to the Brazilian market. <<

CASE STUDY

CERTIFIED POS TERMINAL EMPLOYS UNIFIED PAYMENT PLATFORM



”We appreciated Telit's full-featured and cost saving platform.“ **Shiying Liu,** Vice President

>> LANDI launched E550 in 2013 and as member of E5 series of POS terminals it is designed on the basis of the new-generation unified payment platform: UNIMARS II. In line with other family members, E550 uses the identical software, hardware as well as the ID with its sleek appearance. Ample memory and a large display, high-speed printer and multiple connectivity options enable multi-application management. The fully certified terminal also enhances transaction security for customers covering bank branches, supermarkets, hotels and other locations that employ electronic transactions.

By providing secure E-payments via the E550 we can offer broken-point continuously transferring functionality based on Telit's CE910-SC. This gives owners and operators the ability to remotely monitor and manage machine performance online, thereby realizing maximum efficiency and effectiveness, while offering consumers greater cashless payment ease and convenience.

Product features:

- High performance 32-bit ARM9 CPU, main frequency 400MHz
- High Security: Design based on PCI PED 2.0
- Versatile Expansion: Ethernet, Cellular, WIFI, expandable
- Large Memory: 48M memory enables multiple applications and supports TMS management requirements
- USB Interface: high-speed download; data transfer; USB card
- Multi-tasking operation support: support for concurrent software shortens transaction times
- High-speed modem, TMS remote download: broken-point continuity; software rejuvenation
- Power saving plus high capacity battery: long standby life and working time

LANDI is a leading secure electronic payments system provider. The company's products mainly cover POS terminals, IC card readers, financial unattended terminals and payment-related software. Starting from the first independently developed POS terminal in 1992, we have delivered hundreds of thousands of terminals that use Telit's high quality modules. LANDI has built its reputation on the delivery of secure, innovative terminals and solutions to its customers. <<

FACTS

Landi Commercial Equipment Co.
www.landicorp.com

System

E550, a family member of E5 series POS terminal.

Which Telit module do you use and why?

CE910-SC – LANDI trusts Telit's CE910-SC; it can help to fulfill greater achievement than before.

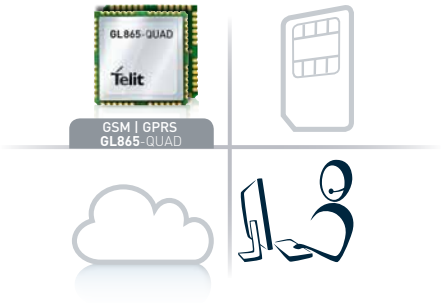
Benefits

The E550's large memory and display, high-speed printer and multiple connectivity options enable multi-application management. The fully certified device also enhances the transaction security for customers covering bank branches, supermarkets, hotels and other locations that employ electronic transactions.

E550

CASE STUDY

Nastek Making life better



BICYCLE BACKLIGHT HAS FITNESS AND ANTI-THEFT APPS

FACTS

Nastek
www.nastek.com.br

System

Yon Bike Lamp, bicycle lamp with a hidden tracker.

Which Telit module do you use and why?

GL865-QUAD. Telit's modules are reliable, have an outstanding performance, low-power consumption, and low noise.

Benefits

- Backlight bicycle lamp with a hidden GSM/GPS tracker
- Built-in accelerometer that realizes when the user is not riding and turns off its circuit to save energy
- Bike position tracking through SMS.
- Ultra low-power consumption developed to save battery.
- Bike's performance management functionality that can also share data on social media.
- Backlight with three blinking speeds.

yon bike-lamp

"Telit is more than our module supplier; it is a partner that gives all the support for the success of the Yon Bike Lamp, our bicycle backlight lamp with a hidden tracker." **Lauro Cruz,** Director of Technology

>> Yon Bike Lamp is a hi-tech GSM/GPS tracker hidden inside a bicycle's backlight. It works as a regular light, is waterproof, and can be used both in vertical or horizontal orientations. It has a built-in accelerometer that recognizes when the user is not riding and turns itself off to save energy.

The shift towards sustainability of the past few years made a lot of people choose bicycles as a transport alternative. According to the U.S. Census Bureau's American Community Survey, an estimated 864,883 people commuted by bicycle in 2012, a 10 percent increase from 2011. In Brazil it's a market worth around US$1 billion according to some estimates. However, as bicycles rise in popularity, so does theft. The need for solutions that recognize bicycles users' demands led us to develop a product that is a security tracking device having added value such as a backlight and fitness function.

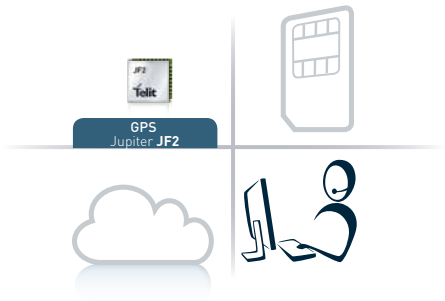
Enabled by Telit's GL865-QUAD, Yon Bike Lamp works using GSM/GPRS and SMS. This allows the device to log in on a website (Android or IPhone apps) and check information about the bike, including its riding statistics. At the same time, it is possible to send an SMS to Yon Bike Lamp and, as soon as it wakes up from idle mode, it will answer with a Web link to its location.

The company has also included internal fitness functions that help manage exercises. By combining accelerometer and GPS, Yon Bike Lamp is able to determine the riding time and distance; instantaneous speed and average speed; and calories burned. All this data can be shared on social media and in real time.

Nastek Tecnologia is a Brazilian company, founded in 2004 by microelectronics, telecommunication and automation scientists with the objective of manufacturing leading edge devices and systems to serve large and mid-size companies and fill technological gaps in the market. Telit not only supplies the best modules in today's market, but they provided a team dedicated to understanding our demands and to give all the support we needed to be successful. We look forward for more amazing solutions from this partnership. <<

CASE STUDY

MULTI-FUNCTIONAL SMART WATCH



”Telit has been giving us strong technical support. Our goal is to make this world more innovative and smart. We believe Telit can help us achieve it.“
Alfred Ma, General Manager

>> The National Electronics & Watch Co, NEWCO, was founded in 1975 as the subsidiary of National Electronics Holding Limited, a publicly listed company in Hong Kong. Leading in microstructure digital electronics and timing industry, our vertical integration capability provides high-quality, turnkey services and products that include concept inception, development, design, prototyping, manufacturing and distribution. NEWCO's vision is to introduce innovative, user-oriented products by leveraging our experience and diversity with skills that seamlessly integrate technologies and enable connectivity to global consumer lifestyles. In addition Telit, a global, leading provider of m2m products and services, can help to develop quality products. Our goal is to make this world more innovative and smart. We believe Telit can help us realize that objective.

Consumer/GM-1000 features:

- GPS Time
- GPS World Time
- Pace (Current/Average in Min/Km or MPM)
- Distance (Current/Total in Km or M) Speed (Current/Average in Km/h or MPH) Auto Lap (e.g. @1 Km or Mile)
- Auto Night Light Mode
- Running Chronometer 1/100 Sec
- Calories Burned Kcal
- Data Storage 100 Run/3,000 Lap
- Customizable Screens
- Alerts (Sound/Visual)
- USB Charger
- USB Data Transfer
- PC Software Sport+
- GPS Track/Route with Google Earth
- Connect to online community where you analyze, categorize and share data<<

FACTS

National Electronics & Watch Co., Ltd.
www.national.com.hk

System

GM-1000, a GPS smart watch.

Which Telit module do you use and why?

Jupiter JF2, which is inside the GM-1000, provides an excellent GPS tracking function.

Benefits

NEWCO launched a new smart GPS watch, GM-1000 in 2013 year using Telit's Jupiter JF2 module. GM-1000 features GPS time and GPS world time, it can count not only runners' current and average pace in Min/km or MPM, but also current or total distance. Runners' speed can also be monitored.

GM-1000

CASE STUDY

NimbeLink

WORLD'S SMALLEST EMBEDDED CELLULAR MODEM

FACTS

NimbeLink
www.NimbeLink.com

System

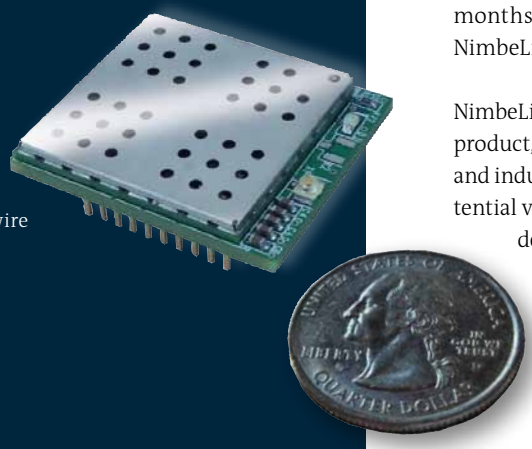
Skywire Plug-in Cellular Modem with data plan

Which Telit module do you use and why?

CE910-DUAL. It is the smallest chip available that supports 1xRTT with an upgrade path to LTE and the lowest cost approach to connecting CDMA technology.

Benefits

- FCC and Verizon OD Certified
- Industry smallest certified modem
- Lowest cost 2G CDMA 1xRTT
- U.FL port for antenna flexibility
- XBEE Form Factor
- Migration path to GSM and LTE
- Bundled data plans available



Skywire

"Telit's xE910 form factor helps our company stay nimble and adapt the Skywire product to our customers' requirements without having to change our underlying design." **Kurt Larson,** Chief Technology Officer

>> As the m2m market grows, developers need to add compliant cellular connectivity to their devices. Chip-centric solutions can cost millions, require extensive testing and certification, and take up to a year to complete. External modems are easy to deploy but cumbersome and costly. Solder-in modules require certification and can take months to integrate into a device. The alternative is NimbeLink's Skywire plug-in cellular modem.

NimbeLink developed Skywire for use in our own TextAlert product, a multi-function cellular gateway for commercial and industrial applications. We quickly recognized the potential value of a fully compliant plug-in modem to other developers in m2m markets.

Skywire is the smallest embedded cellular modem on the market. Its XBEE form factor and 1xRTT CDMA operating mode help developers minimize hardware and network costs, and a U.FL port ensures antenna flexibility. It is available with bundled CDMA 1xRTT data plans from leading carriers, allowing developers to add compliant cellular connectivity without having to apply for certification. It is available with a complete development kit that includes the cellular modem, baseboard, antenna, power supply, debug cables, and cellular service plan. The baseboard is an Arduino shield, allowing direct connection to an Arduino microcontroller. GSM- and LTE-compatible versions will be available early 2014.

One Skywire user is an m2m cloud data service provider. The company was developing a modular hardware system to allow customers to upload data to a cloud-based portal and needed cellular connectivity. Skywire provided that connectivity without the need for certification, enabling them to meet commitments to their clients quickly and cost-effectively. They are now looking at adding similar capability over GSM networks using a new version of Skywire that incorporates Telit's GE910 chip. <<

CASE STUDY

WIRELESS CONTROLLER MONITORS BILLBOARD LIGHTING

”The potential for direct utility savings as well as indirect business cost savings from using SmartLink™ are both proven and substantial. SmartLink™ represents the future in energy conservation for outdoor advertising.“
Dwight Jennings, President, OutdoorLink, Inc.

>> For years, the outdoor advertising industry has struggled to ensure that billboards are well lit. Electrical issues occur such as bulb or utility outages can occur. This resulted in the industry spending a lot of unnecessary time and money in order to fulfill customers' expectations.

SmartLink was specifically designed to address this issue. It's a wireless m2m lighting controller designed to remotely monitor and control the lighting at billboard locations. Users can simply login to their Web-based SmartLink account and validate what is actually happening with their billboard structures. The system was designed with a Web-based application that provides the outdoor advertising industry with integration capabilities while merging with existing charting platforms SmartLink therefore enables complete transparency between the end user and the structure.

Operating solely from a cellular interface, the SmartLink™ utilizes Telit's GE864-QUADV2 and HE910-NAD for 2G and 3G communication capabilities. Currently over 55,000 systems have been deployed both in the U.S. and other countries. SmartLink™ has many other features that compliment its core functionality such as: remote reboot, measure utility consumption and production (solar applications). <<

SmartLink™

FACTS

OutdoorLink, Inc.
www.outdoorlinkinc.com/base

System

SmartLink™ is a wireless m2m lighting controller.

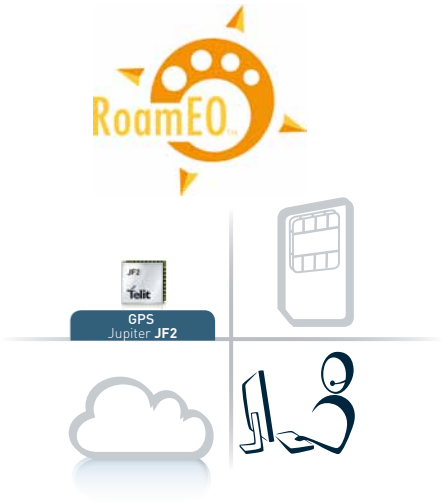
Which Telit module do you use and why?

SmartLink™ systems utilize Telit's GE864-QUAD V2 and HE910-NAD because of their 2G & 3G capability. The future of SmartLink™ will be CE910-DUAL.

Benefits

- Hard Utility Savings
- Exact Sunset/Sunrise Turn-on/off
- Automatic Network Time
- Web-Based Interface
- Fewer Illumination Credits
- Reduce Unnecessary Service Calls
- Remotely Turn Off Unsold Panels
- Provide Daily Proof-of-Performance
- Monitoring Alerts in Real Time
- Various Alarm Notifications
- Detailed Maintenance Reports

CASE STUDY



REAL-TIME LOCATION DATA OF PET DOGS

FACTS

PetTronix
www.PetTronix.com

System

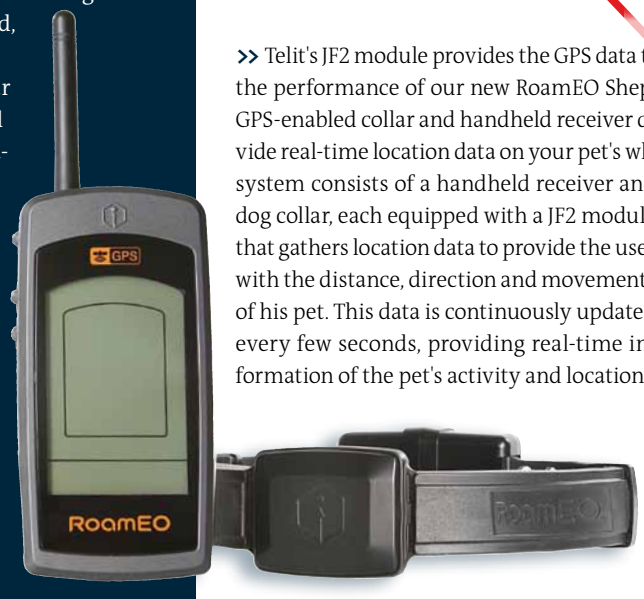
RoamEO Shepherd. A GPS-based pet location system

Which Telit module do you use and why?

We selected the JF2 module for our new RoamEO Shepherd system because it provided the best combination of features for our demanding application.

Benefits

The RoamEO Shepherd is a GPS-enabled system that allows the user to easily monitor or locate his pet. The system will have three, user selectable tracking modes: a Tracking Screen for continuously monitoring your pet's activity, a GPS Virtual Fence that provides a warning if the perimeter is breached, and a Locate Screen that wakes up a Collar from sleep mode and provides instant location data.



RoamEO Shepherd

"Telit worked closely with our engineers to optimize our design for the best performance possible."
Mark Mitchell, President

>> Telit's JF2 module provides the GPS data that is critical to the performance of our new RoamEO Shepherd system, a GPS-enabled collar and handheld receiver designed to provide real-time location data on your pet's whereabouts. The system consists of a handheld receiver and dog collar, each equipped with a JF2 module that gathers location data to provide the user with the distance, direction and movements of his pet. This data is continuously updated every few seconds, providing real-time information of the pet's activity and location.

The RoamEO family of pet location systems were developed to address the desire of tens of millions of pet owners who want products that help them keep their pets safe. It is a low cost, simple to use product that provides the peace of mind of being able to find your pet in those instances when a little more security is beneficial.

The RoamEO Shepherd is our second-generation location product. Anybody with a pet knows that dogs can often go to places that are not always GPS friendly. One of the primary design objectives for our new system was to provide the best GPS performance possible no matter what the environment, from the streets and parks in large cities to heavily forested or large expanses of rural acreage. We identified three critical design elements for our GPS selection: a very small form factor to allow us to design the smallest collar possible, low power consumption for extended battery life and extraordinary sensitivity for GPS performance in the most challenging conditions. Our engineers worked with Telit, identifying the JF2 as an excellent solution for our requirements, assisting in our layout process and providing a detailed design review. Telit also helped us optimize our LNA circuit and provided firmware guidance. Their support was instrumental in keeping our project on schedule.

The RoamEO Shepherd is currently under going final hardware and firmware testing. The system is targeted for a wide scale retail launch in the US in late Q1, 2014 with an EU version ready shortly thereafter. <<

CASE STUDY

SensorCLIP

CLIP-ON POWER ALARM IS SIMPLE TO INSTALL

> We appreciated Telit's global product which is key for our upcoming exports." **Lasse Øst,** CEO

>> SensorCLIP, which is the first alarm of its kind, is a clip-on device that is mounted on the outside of cables. Initially we identified a need in the reefer industry to have an alarm that needed no installation and no engineering background. However, this has evolved and now we cover a wide variation of industries, ranging from sludge pumps to cooling compressors.

SensorCLIP SC100 is a standalone product that employs an imbedded SIM. We chose Telit and m2mAIR Air because it made sense to us to employ the hardware supplier for our software/GSM connectivity. In this way we strengthen our relationship, which has made it possible for us to roam with our devices in our home market at a highly competitive price. At the same time we can roll out exports without making deals with other telecommunications companies. The growing need for power dependent equipment has made our market for alarm solutions grow significantly and this is why it is important that we have roaming flexibility. <<

FACTS

SensorCLIP
www.sensorclip.com

System

SensorCLIP SC100, is a clip-on wire power alarm

Which Telit module do you use and why?

GL865 DUAL. We chose this GSM modem because it fulfilled the needs we had at the time.

m2mair

The willingness to adapt to prices so we can compete plus the flexible roaming. In addition there is a very effective support team and any problems are taken seriously.

Benefits

SensorCLIP is a mobile clip-on device that can be installed on the outside of power cables without breaking the insulation. This makes it possible for non-certified people to install the alarm in a way that is 100 % legal and 100 % safe. When you remove the need for an expensive technician the price of alarm systems are substantially reduced.

SensorCLIP SC100

SECURITY

>>With the global rollout of LTE and trials of LTE Advanced just around the corner, the Security segment starts to benefit from the robust upload bandwidth supporting surveillance applications requiring video up-streaming from smart remote cameras. Smart sensor technology and other developments will also accelerate innovation in this rich segment.

Police

At the top of every customer application page, you will see a 4-quadrant Icon letting you know at-a-glance how much of Telit's ONE STOP. ONE SHOP. is in use by the featured application.

Telit hardware used: this quadrant shows the module(s) embedded in the customer application

m2mAIR Mobile Services: If the icon here is bolded and not greyed-out, the application in employing m2mAIR Mobile services in the application deployment.

m2mAIR Cloud Services: If the cloud icon is bolded, the application is employing services powered by deviceWISE.

Telit Support and Project Assistance Services: When bolded, the integration of the featured customer application was streamlined by Telit technical and certification support services.

CASE STUDY

DRIVERS FEEL SAFE IN EMERGENCY SITUATIONS

"Our system represents an impressive combination of high-tech and high-touch technology: one that provides a very high level of car protection."
Andrey Petrunin

>> An up-to-date car should not only be fast, comfortable and efficient. These days it should also take care of its owner. Car owners should have permanent, remote control of the car's features and the car should be able to notify the owner's relatives and the special services in the event of an emergency event. The solution that addresses these issues can be found in the Pandora telemetry system that was designed and developed by Russian engineers. Pandora 5000 is an impressive combination of high-tech and high-touch as well as a very high level of car protection.

Personal security: The remote control unit of the system is equipped with a SOS alarm button that makes drivers feel safe in emergency situations. In case you are threatened by something or someone, just press the SOS button and all relevant measures will be taken: the system will call your relatives and the special services and will send them the car's coordinates.

Take control of the system from anywhere in the world: You are always able to control and set-up the parameters of the telemetry system over the Internet or via your cell phone using a voice interface. You can change the sensors' sensitivity at any time, enable or disable the control over various protection areas, and start or stop the engine.

Made in Russia: The telemetry alarm system Pandora was designed, developed and manufactured in Russia. Pandora is a product of skilled, qualified Russian engineers of the "Experimental Engineering Factory". It includes numerous innovative approaches, brand-new scientific and technical achievements and unique engineering.

Pandora 5000 employs Telit's leading edge GL865-DUAL modem, which handles all communications between owner and car. It keeps the system online via a GPRS-connection, enables alarm and emergency voice calls to be made and SMS messages to be sent. A DTMF-decoder and digital audio-interface are used to control the system in a voice on-link mode. <<

FACTS

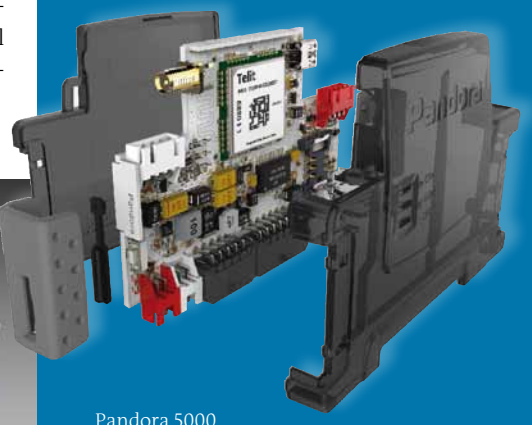
Alarmtrade
www.alarmtrade.ru

System

Pandora 5000: an advanced telemetry alarm system. Features include: DTMF-decoder and a digital audio-interface, as well as numerous innovative concepts.

Which Telit module do you use and why?

We chose Telit's GL 865-DUAL modem. It handles all communications between owner and car and delivers the demanding performance functionality requirements that our engineers required.



Pandora 5000

INTERACTIVE SERVICES: A NEW STANDARD FOR THE SECURITY INDUSTRY

FACTS

ipDatatel, LLC
www.ipdatatel.com

System

IPD-BAT-CDMA Dual-path Broadband & Cellular Alarm

Which Telit module do you use and why?

We use the CE910-DUAL because it is pin for pin compatible with other 910 series modules and that creates a natural future path for new communications functionality.

Benefits

The main benefits are price and flexibility of the 910 platform.

IPD-BAT-CDMA Dual-path Broadband & Cellular Alarm

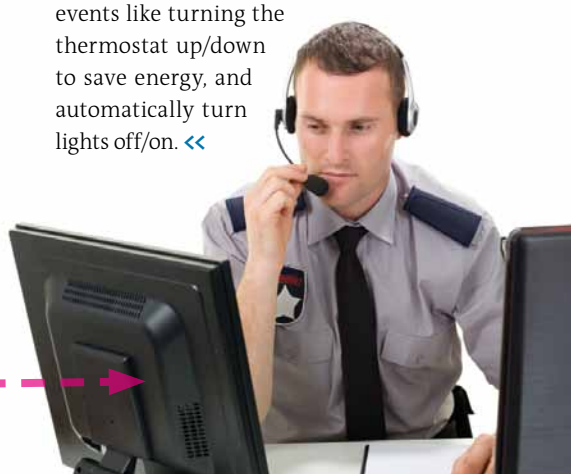
„Telit adds flexibility with pin for pin 910 series modules.“ **Russell Vail,** President CEO

>> Nowadays it is common practice to employ interactive services and the Internet of Things (IoT) to conduct daily tasks. Consumers can stay connected by remotely maintaining and controlling their business, personal devices and home systems using a smart device. Devices are getting smarter and more discreet, and networks are getting more intelligent. Interactive services are taken for granted while the IoT offers numerous possibilities for the future products and services.

The security industry adopted this new interactive way of working when researching and developing new products. ipDatatel has specific devices and solutions that permit remote monitoring capabilities. With these connected products, consumers can control their home or business alarm system as well as view live video. These remote capabilities also reduce maintenance costs and truck rolls. Incident reporting is what the security industry is about: being able to warn a business/homeowner about conditions that could affect the integrity of their security.

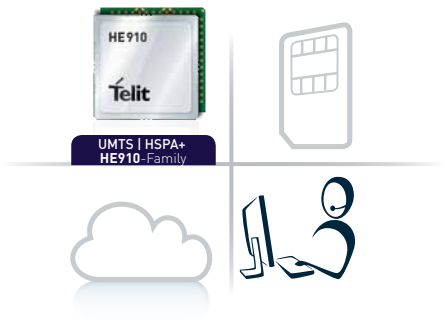
ipDatatel's Cellular and Broadband Alarm Transceiver (IPD-BAT-CDMA) works with all alarm control panels, providing both IP and cellular transmissions. Consumers have access to a fully featured virtual keypad via a free downloadable application that allows consumers to turn their system off/on and verify alarm triggers. A text and/or email is sent to the consumer's smart device within five seconds of any security alarm trigger. It is also routed directly to their alarm company's central station. In addition, the company offers notifications via computerized voice for customers who wish to receive a phone call. Thus, consumers have instant access to any alarm notifications.

ipDatatel's Wireless Gateway provides communication between the Internet, alarm systems and devices. Alarm systems are the best type of occupancy sensor you can have. Generally, systems can determine if you are home or away and automatically trigger home automation events like turning the thermostat up/down to save energy, and automatically turn lights off/on. <<



CASE STUDY

FUTURE-PROOF WIRELESS SECURITY/HOME AUTOMATION PANEL



”Partnering with Telit gives Linear's 2GIG GoControl! Panel alarm systems the ability to communicate with monitoring services without the use of a traditional telephone line creating a more secure and reliable option for residential security.“

Duane Paulson, Senior Vice President of Product and Market Development

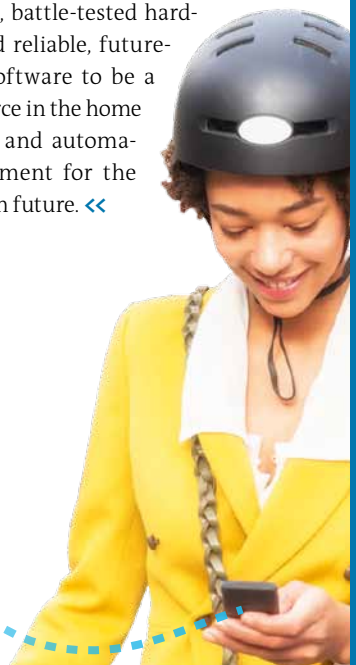
>> From early on, Linear recognized the benefit of making a control panel that could communicate with an alarm reporting service wirelessly. In seeking a partner to facilitate this functionality, Linear also demanded scalability for future technology upgrades, compactness and lightness to complement a handheld control device, and powerful, high-data throughput to allow instant control of home systems and easy connection to alarm companies in the case of an emergency.

As Linear continues to expand into international markets such as Latin America and Europe, it will continue to rely on Telit technology to leverage the seven-band HSPA for worldwide coverage and a unified form factor, which allows a single design to be deployed globally.

Today, the 2GIG by Linear Go!Control panel is one of the most widely used residential security and home automation systems. With over one million panels in operation and leveraging the ever-expanding Z-Wave family of products, the Go!Control panel is now controlling a variety of systems in a home or office, including lighting, thermostats, and of course security and surveillance, in every U.S. state, Canada and now in Mexico. Linear will soon add energy management and other new functionality, which enhances the value and functionality users can enjoy.

From a security perspective, with the use of Telit technology, Linear is able to remove the dependency on an external line outside the house, which can be cut and disabled, by allowing the panel to communicate with monitoring services via cellular technology. Furthermore, Linear is bringing convenient and efficient management of home systems by enabling control via interactive mobile apps on smartphones, tablets and other mobile devices.

With the use of Telit's module and its own product development and engineering expertise, Linear has the intuitive, battle-tested hardware and reliable, future-facing software to be a major force in the home security and automation segment for the long-term future. <<



FACTS

Linear LLC
www.linearcorp.com
www.2gig.com

System

Linear 2GIG Go!Control Panel

Which Telit module do you use and why?

Linear uses the Telit HE910 family of modules because they are an ideal match for the security, ergonomic, and connectivity needs of the panel.

Benefits

Linear's vision of the connected home starts with the security panel and branches out to every room in the home. Whether providing notifications when the kids are home from school, turning an HVAC system off remotely based on the weather or alerting a monitoring station like Alarm.com during an emergency, 2GIG wants to be the technology that runs your home more efficiently.

Linear 2GIG Go!Control Panel

CASE STUDY

..TRAJET.

VERSATILE TELEMATIC SYSTEM DOES VIDEO

FACTS

Trajet GmbH
www.trajet.de

System

Everec 340 – combined video telematic device

Which Telit module do you use and why?

UE910, DE910-DUAL: chosen because of their high quality, identical form factor for different models and a prepared migration path to 4G

Benefits

- Patented combination of video, telematics and 3G in one compact device
- All data available on centralized server (Web-based)
- All data accessible via API
- Real time FNOL (first notification of loss)
- Pre and post alarm video to provide evidence
- High precision measurements (speed, location, g-force)
- High video quality

Everec 340

> "The high quality of our products combined with superior support from TELIT enabled an easy design-in and a smooth worldwide roll-out."
> **Patrick Wulff,** Head of Sales and Marketing

>> An emerging trend in the worldwide vehicle insurance industry is that more and more insurance companies are offering steep discounts to drivers who use GPS based technology. They also are beginning to implement programs that measure clients' driving. If we look at fraud or accidents that are available on video, then there is evidence that can lead to high savings by preventing the processing of possible fraudulent claims.

For fleets this technology provides all necessary data to drive costs down (e.g. fuel consumption). It also allows monitoring of individual driver behavior and this increases the driver's safety. 3G connectivity is beneficial for both parties. After receiving a real-time alarm in case of an accident the insurance company can start the transaction of the case immediately and so control and keep costs down.

The Everec 340 video telematic system is an on board GPS/3G HD camera that can be fitted to any vehicle and it offers full telemetry data over the mobile phone network. As it is hard wired to the vehicles and cannot be removed, the information is always available. The unit transmits its speed, GPS position and shock axis sensor data at regular intervals to a designated server. In the event of a collision the unit automatically transmits all data for that event. The video footage is remotely downloaded to a server where it will stay should the client request the video file following a collision. The video provides evidence about what was happening a few seconds before, while and after an accident.

Serial production started in November 2013 and the worldwide roll-out is ongoing.

A sensitive point in all discussions about this technology is the data security measures. The data transmission to the central servers occurs through VPN-tunnels and so can be considered to be secure. Access to the stored data is only permitted to authorized persons and videos are only stored in the event of an accident.

Beside the unit itself, Trajet provides a "backbone" server platform where all the data are stored. A Web-based interface allows the data to be viewed and managed. An API enables easy access to the data from other software platforms such as fleet management or FNOL (first notification of loss). <<

CASE STUDY

PRIVATE SECURITY GUARDS MONITORED IN REAL TIME

„A portable device with GPRS conectivity. Rugged design to be used by patrol guards during shifts. The device keeps tracking of guards activity and provides real time information to the control center.“ **Luis Fernandez Cormenzana,** Technical Director

>> Time & Attendance control of patrol guards is a key factor for private security companies. Knowing the status of a shift at a customer's location in real time and being able to react and fix a problem before customer gets notice is the way forward for private security companies. Vigilant m2m enables frequent monitoring of the guards' activity without disturbing their operational tasks. Any incidents are reported immediately to the security chief.

We are also using Telit Locate service to get an approximate position of the device. This gives us valuable location data at no extra cost even when working indoors. Adding GPS capabilities to our device would be costly in terms of energy, size and bill of materials; moreover it would not be usable most of the time, i.e. when the device was indoors.

Using m2mAir we broke the last barrier we had to the adoption of m2m technology, as we're a small company and the m2m rates for GPRS were a key issue. In the previous years it was not possible for us to access a low-cost, GPRS only data SIM: it was not available from the leading mobile network operators. Now we can offer the system in most countries at a fixed, low-cost rate.

Unlike other competitive systems we integrate and seal the SIM card inside the equipment. This prevents access to SIM cards by users and connectivity, which we control, is guaranteed. This reduces operation problems in the field and makes the product ready for worldwide deployment.

Our main markets are Spain and Portugal, where we have been operational since 1994 with our own designed and produced software and hardware. Sales are also growing in Mexico and Colombia where we have distributors.

As a small company designing and building our own systems we are focused on customer service and the supply of long-life, reliable products. Our customers do not only have a serious service provider, but also a partner who can deliver new projects whenever needed. <<

FACTS

RadioBit Sistemas S.L.
www.vigilant.es

System

Vigilant m2m, Time & Attendance patrol control system

Which Telit module do you use and why?

We are using GL865-DUAL and GL865-QUAD modules in our system. The LCC package is small, which lets us run short production batches or even conduct repairs.

m2mAir

One of the advantages of m2mAir is the portal. We have worked before with other network providers and there is no comparison with the features we get from m2mAir. When the number of SIM cards grows so does the need for control and it is important to have the requisite tools to manage the stock. The ability to deactivate unused SIM cards in the field is also very important.

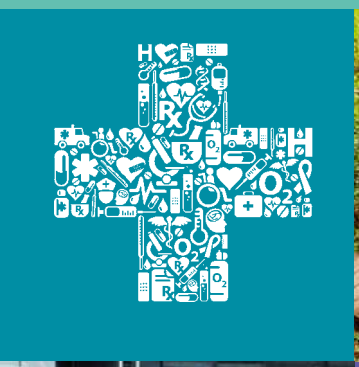
Benefits

Traditional patrol control systems are only loggers of guard activity. They only monitor on a "forensic" basis when a problem has taken place.

Vigilant m2m is a Time & Attendance system for guards and lone workers. User activity data is sent to our server in real time and Web based tools let management take action when needed. Incidents can therefore be solved before they became real issues.

Vigilant m2m

HEALTHCARE & WELLBEING



>> Opportunities in this m2m vertical are likely to be multiplied by factors such as ageing populations in developed countries, insurance and government driven reforms in regulatory environments expanding innovation-supporting programs and streamlining of certification processes. Adoption is also likely to get a boost from the rising number of people comfortable with the use of technology.

At the top of every customer application page, you will see a 4-quadrant Icon letting you know at-a-glance how much of Telit's ONE STOP. ONE SHOP. is in use by the featured application.

Telit hardware used: this quadrant shows the module(s) embedded in the customer application

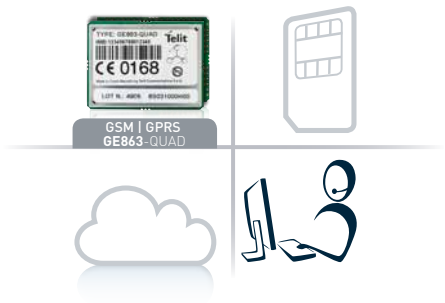
m2mAIR Mobile Services: If the icon here is bolded and not greyed-out, the application in employing m2mAIR Mobile services in the application deployment.

m2mAIR Cloud Services: If the cloud icon is bolded, the application is employing services powered by deviceWISE.

Telit Support and Project Assistance Services: When bolded, the integration of the featured customer application was streamlined by Telit technical and certification support services.

CASE STUDY

A NEW WAY TO MONITOR AND MANAGE DIABETES



"EosHealth®, with the support of Telit, is focused on empowering health consumers with chronic diseases to live better, starting with diabetes. We do this by giving them the personalized tools and support they need to effectively manage their condition in real-time." **Kimon Angelides,** Chief Executive Officer

>> With the launch of our In Touch program and device we are taking a radically different approach to the way people with diabetes manage their condition. We are rewriting the definition of a wellness program and dramatically increasing the capabilities of the traditional glucometer. People with today's glucometers need to write their values in a logbook. With In Touch for Diabetes there is no logbook. The values are transmitted wirelessly and directly into their secure health record.

The In Touch program is built on progressive personalization that enables action at the moment when help or information is needed, and it provides teaching rather than telling.

In Touch will be the first two-way wireless device of its kind on the market. It sends biometric data like blood glucose levels to the cloud (our Care Engine™) in real time. The Care Engine uses a rules engine to convert all the data it captures into actions that are shared with both the user and the user's care team. This can take the form of alerts for low/high blood sugar, which are reported back to the individual, the care team, or family members.

Our collaboration with Telit has allowed EosHealth to transmit these vital data safely and securely through the In Touch platform.

Today's devices are focused on one-way communication. Traditional disease management programs are one-size-fits-all, one-way and static, and they're based on "after the fact" information. In Touch is different than competitors' products.

With progressive personalization, immediate feedback, 24/7 support and the Care Engine In Touch for Diabetes offers the total package. It is a complete platform based on unique personal attributes instead of group characteristics. The data the user provides drives the creation and on-going personalization of the program. And it can be accessed "anywhere-anytime" using the In Touch device, mobile phone, or Web.

The platform improves coordination of care among users, their doctors, and their health plan. It ensures meaningful interventions driven from the Care Engine that create opportunities to engage users. These all serve to reduce short- and long-term healthcare costs, and enable users to effectively manage their condition. <<

FACTS

EosHealth®
www.eoshealth.com

System

In Touch™ is a new global wireless blood glucose monitoring system.

Which Telit module do you use and why?

EosHealth is the first in healthcare to use Telit GE863-QUAD modules. It works worldwide so people are covered wherever they are when they need it.

Benefits

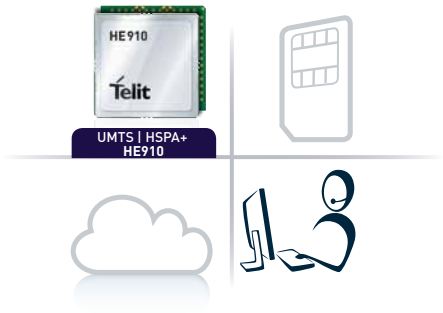
Smaller than an iPhone, In Touch is a revolutionary new platform that captures blood glucose and other information and automatically transmits it wirelessly into a secure personal health record and health account available to the EosHealth healthcare team. In Touch is Internet-ready to view trends, highs and lows, messages, and steps taken with the built-in pedometer.

In Touch™

pending FDA approval

CASE STUDY

Fio Corporation



CONNECTING PATIENT CARE AND DATA

FACTS

Fio Corporation
www.fio.com

System

Fionet™ – Diagnostics and cloud information services

Which Telit module do you use and why?

The HE910 module was chosen for supporting 5-band 3G connectivity, which enables universal scalability and inter-country operability.

Benefits

- Penta Band HSPA+
- Low power consumption
- Low weight of about 9 grams
- Footprint of only 795 mm²
- Accelerated certification using pre-tested module

Deki Reader

„With Telit we can count on universal connectivity in our mission to advance accuracy, oversight and accountability in infectious disease management.“
Ian Fine, VP, Research and Development

>> The emergence of rapid diagnostic tests (RDTs) over the last two decades has revolutionized the role of point-of-care settings in the management of infectious diseases. Rather than having to wait hours or even days for lab results, frontline health workers can diagnose patients on the spot and prescribe immediate treatment.

However, RDTs are read by eye and this can result in field accuracy far below the manufacturer's performance rating.

At the same time, health workers are often too busy delivering essential care to patients and therefore they are less able to focus on data capture. As a result, data from the point of care – where planning and trends must begin and where spending outcomes have their end – can be largely inaccessible.

Fionet™ solves this problem by uniquely integrating mobile diagnostics with cloud information services to improve diagnosis and patient care, while capturing clinical data to track quality of care and deliver high-definition monitoring and evaluation.

By automatically uploading data associated with point-of-care activities to a secure, cloud-based web portal, Fionet gives managers and other stakeholders access to a suite of information services for improving health worker performance and making timely, data-driven resource allocation decisions.

Wireless m2m connectivity is pivotal to what we do. That's why we chose to work with Telit as we upgrade Fionet's frontline mobile smart device: the Deki Reader. With the HE910 we will have a reliable, standalone module to satisfy our connectivity needs in the many markets we serve.

The 5-band HSPA+ feature was a major draw. From a hardware perspective, this will allow us to market Fionet worldwide with a single product. This will also give Fionet users the ability to travel within their countries without worrying about regionally differing frequency bands. The module is also pre-tested, which should help cut down the regulatory approval process so that we can get the new and improved Deki Reader into health workers' hands as soon as possible. <<

CASE STUDY

AWARD WINNING DEVICE ADDRESSES LONG-STANDING HEALTH ISSUES

"A stable, reliable, forward-looking wireless chip provider was a must and Telit exceeded our requirements." **Mat Johnson,** Founder/CEO

>> GeaCom makes Phrazer, the Edison Award winning medical device that helps caregivers work with patients despite language, literacy, gender, race, religion, culture or background. Phrazer is revolutionizing healthcare by employing the sciences of communication and information theory to reduce errors, dramatically improve efficiency and make valid care more portable. It's a hand-held medical device that can gather vital patient information while interacting with them to register, triage, treat and educate. Phrazer automatically populates the digital chart and keeps caregivers informed of the patient's issues and progress through a private audio channel.

In the U.S., Phrazer has taken on several challenges involved with the new Affordable Care Act, as well as long-standing issues such as error and throughput. Federal research shows one in three patients experience a form of medical error and as many as 100,000 die annually as a result. Efforts are made to address these issues, but costs are still alarmingly high: around $1 trillion annually. Phrazer leverages breakthrough methodologies and technology such as the Telit LE910 module to provide the first significantly viable solution. In many cases, the device improves accuracy by more than 40% and speed by factors greater than three – while improving patient and caregiver satisfaction.

Phrazer has been deployed for disaster relief efforts in some of the most remote locations around the globe and seen use in military and security efforts including in theatre use in Kuwait, Iraq and Afghanistan. The ability to stay connected, provide real-time video conferencing and positively influence medical outcomes in such a diverse set of environments is testimony to the design and the global market potential of this important medical solution.

The technology includes up to a terabyte of memory, a fully antimicrobial system, hot swappable batteries, multi-audio pathway channels, GPS tracking, a high-speed processor, and the ability to run any medical protocol in any language.

The device is going to save millions of lives, soften the pain of natural disaster and give equal treatment despite differences in language, literacy, gender, race, religion, culture or background. With Phrazer, quality medical care can be provided anywhere around the world. <<

FACTS

GeaCom, Inc.
www.myphrazer.com

System

Phrazer is a handheld medical device.

Which Telit module do you use and why?

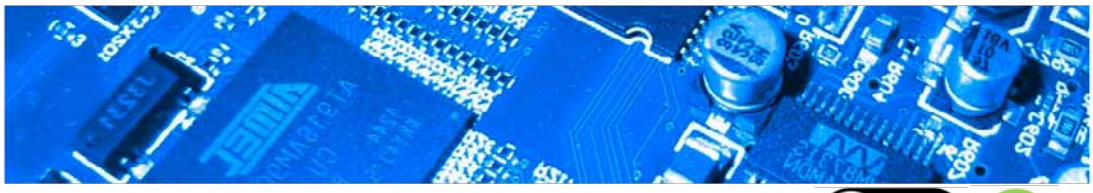
Currently the HE910; in future the LE910. The need for HIPAA compliant wireless communication as well as the ability to work with multiple carriers was essential.

Benefits

Phrazer helps caregivers connect with any patient regardless of language, literacy, gender, race, religion, culture or background. The device's unique CITE Technology allows you to instantly decrease wait times, see three times more patients while increasing accuracy of information by 40%. Phrazer is revolutionizing healthcare giving you the power to treat anyone ... anywhere.

Phrazer showing American Sign Language

SCEN
Electronic Manufacturing Services



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LET US REALIZE YOUR IDEAS

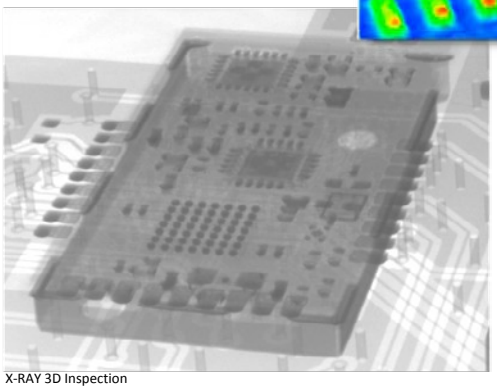
CORE BUSINESS

SCEN SRL is specialized in the assembly of electronic circuit boards with high technological content; this experience, combined with continuous investment in equipment of diagnosis and control of the productive process, has enabled the achievement of a high level of quality.
The service provided to the customer is complete:

■ Realization of a sample within a short time (even a single piece) with production equipment: so an immediate feedback on the need for any improvements of the industrialization of the product is achieved.

■ Reworking of any type of component or module: in case of need it is possible to intervene to solve any problems of the prototype.

■ Pre-series and production: from the completion of the first samples, already produced with industrial methods, to mass production with us or with other manufacturers, it's a short step.

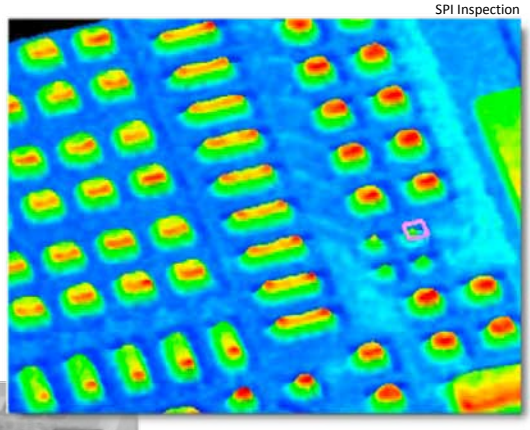


X-RAY 3D Inspection

TECHNOLOGIES (OPERATING CAPACITIES)

We have the most advanced production technologies, and we can offer the assembly of any type of electronic component, and of any technology available on the market. (eg. SMD **01005**, **µBGA** 0.2mm fine pitch, **BGA POP** - Package-On-Package, as well as PIN IN PASTE PTH and 3D SMD). Realization of soldering process in air or Vapor Phase.
Use of 3D scanner for pasta, **AOI** and **X-ray 3D** for quality control.
We realize any type of wiring and functional test on customer's specifications, with every kind of existing connector, both on copper and optical fibre.

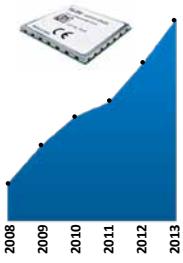
SPI Inspection



On 2100 items produced, **472** refers to the **M2M**.

In 2014 a further expansion of the company is planned, by the acquisition of new production machines of the latest generation, with the aim of a greater reduction in prototyping time.

YEAR	M2M PRODUCT
2008	**23**
2009	**47**
2010	**65**
2011	**74**
2012	**98**
2013	**126**



HISTORY

SCEN SRL was founded in 2006 in Trieste. Trieste is called "*The City of Science*" for the large number of research and development laboratories. In this area our synergic spirit has found the ideal environment to offer and find innovative solutions to production and project problems. **SCEN** started bringing together in a single working team an extraordinary know-how coming from other production and project groups.
The staff has a twenty-year experience in **EMS**, **ODM** and project sectors.

In 2011, the plant has been doubled, expanding initially marginal sectors, already present in the company, such as wiring prototyping, functional test benches, finished devices assembly, and packaging. This has allowed us to enrich the offer of a complete service from concept to the finished product.
In November 2013 the code n.2100 was reached. Such a large number of different products in various sectors such as automotive, military, medical, security, energy, telecommunications, led lighting, M2M and professional consumer, has allowed us to gain a lot of experience.

SCEN S.r.l.
Via Colombara di Vignano, 13
34015 Muggia (TS) ITALY

www.scen.it
info-t2m@scen.it

CASE STUDY

Pentavox
innovation and technology

HOME MONITORING DEVICE ENABLES EARLY DETECTION OF FETAL RISKS

"We appreciated Telit's flexibility in supporting us on the hardware side."
Tamás Ragyelik, Project Manager

>> Fetaphon Home Monitor is an innovative telemedicine cardiotocography (CTG) device, employing revolutionary new technology to establish a new obstetric care telemedicine system. In 2007 when Fetaphon was developed Pentavox decided to use the Telit modem because it was smart and the pin compatibility with other Telit modems (3G) was high. We also value the high level of support that Telit was and is giving.

What Fetaphon makes possible: Fetaphon provides new ways of diagnostics for future mothers to monitor the fetuses at home. Using the Fetaphon devices rented from the practice, pregnant women can perform the non-stress test, the CTG recording in their home without professional assistance, even on a daily basis. The physician is not required to be present during the test as Fetaphon transfers the results automatically, through the mobile phone network to the appropriate server. The obstetrician evaluates the results on the Internet, using a special website. When the registered data are evaluated, the outcome is displayed on the Fetaphon device held at the home of the future mother.

Home monitoring provided by Fetaphon allows the early detection of fetal risks as the higher frequency of tests provide better recognition of differences that are otherwise hard to identify. The objective with the use of Fetaphon is to reduce prenatal deaths in the last trimester. The source of impetus for the development of Fetaphon was from several earlier clinical studies and professional reports which, independently of each other, indicated that most of congenital brain damage (90%) takes place not during birth but the weeks prior to birth, in intrauterine life, and that the diagnostic efficiency of non-stress cardiotocography can be significantly improved by extending the observation period.

Currently two-thirds of fetal and newborn deaths are represented by children dying in the womb. Most of these tragedies happen in the homes of expectant women. If the monitoring of the fetal state can be extended to their homes by using Fetaphon, one can expect that some of the unexpected intrauterine demise cases could be prevented and more healthy babies will be born in the future. <<

FACTS

Pentavox Kft.
www.pentavox.hu

System

Fetaphon Home Monitoring System
Cardiotocograph

Which Telit module do you use and why?

In our Fetaphon device we use the GC864-QUAD modem from Telit. We chose this modem because it is smart and it has a high pin compatibility.

Benefits

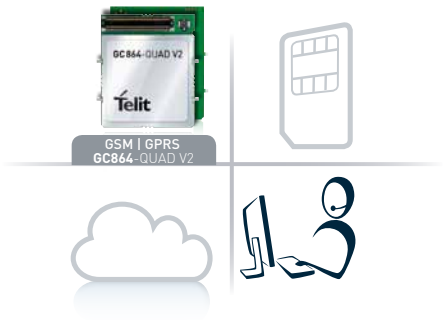
Fetaphon works efficiently through a unique passive measurement technology. The measurement results are medically reliable and easy to understand.

· Absolutely safe and protects the baby
· Measurements can be taken at home
· Recommended for daily use
· Tests results are highly reliable
· Easy and comfortable to use

Fetaphon Home Monitoring System
Cardiotocograph

CASE STUDY

vaica



ADDRESSING THE MEDICATION NON-COMPLIANCE ISSUE

FACTS

Vaica
www.vaica.com

System
SimpleMed+

Which Telit module do you use and why?
Vaica uses the quad-band 850/900/1800/1900 MHz GSM/GPRS GC864-QUAD V2 because SimpleMed+ requires a compact package and a board-to-board connector.

Benefits
A weekly medication organizer designed for home use, with GSM connectivity and optional built-in hub for telehealth devices. It works with pre-filled multi-medication blister packs, for easy and error-free loading into the device.

SimpleMed+

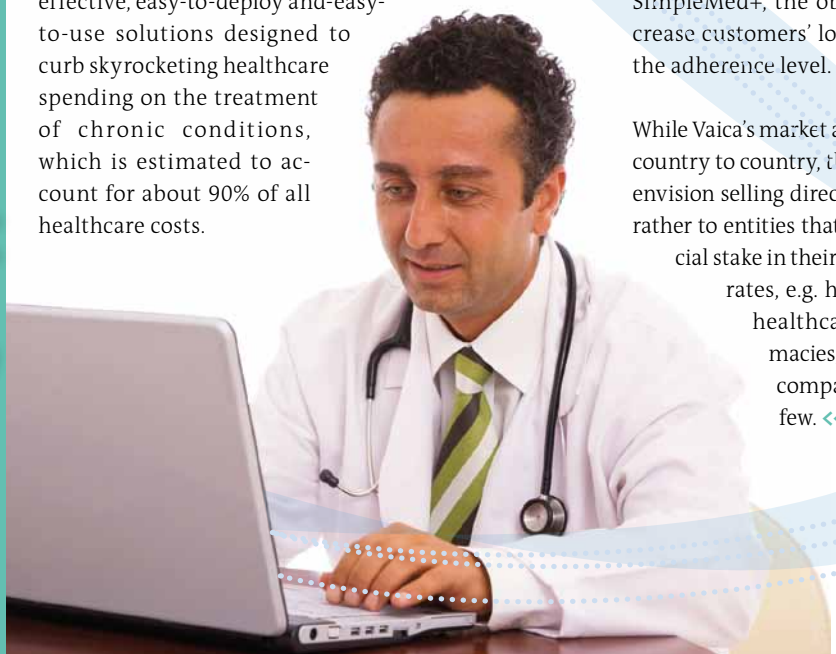
"Medication non-compliance is a major threat to the viability of healthcare systems, worldwide. In the US alone, it takes the lives of about 125,000 people and costs the US economy $290B every year, with similar figures in the rest of the world. For Vaica, as a global company, it is great working with Telit because with their global footprint and support our products are immediately ready to use in all our major markets."
Tomer Gofer, VP R&D at Vaica

>> Vaica's flagship product, SimpleMed+ and the company's cloud-based service portal provide effective, easy-to-deploy and-easy-to-use solutions designed to curb skyrocketing healthcare spending on the treatment of chronic conditions, which is estimated to account for about 90% of all healthcare costs.

Targeted at hospitals, health management organizations, assisted living facilities, and other care organizations, SimpleMed+ addresses the real need these organizations have for improving care outcomes while reducing costs and lowering the high 11% hospital readmission rates attributed to medication non-compliance. The product will be available first in the United States, Canada, Brazil, New Zealand and Australia, with other markets to follow. World Health Organization statistics indicate that medication adherence of chronically ill patients declines to 50% after six months, and to the low rate of 33% in five years, which translates into hundreds of billions of dollars of revenue loss to the pharmaceutical industry.

This is why solutions like SimpleMed+ appeal to pharmacy chains and big pharmas. It's an important way to increase revenues and retain customers, and a number of pharmacy chains in the U.S., Canada and the UK are already designing some patient adherence programs around the SimpleMed+, the objective being to increase customers' loyalty, retention, and the adherence level.

While Vaica's market approach differs from country to country, the company does not envision selling directly to customers, but rather to entities that have a strong financial stake in their patients' compliance rates, e.g. health insurance and healthcare providers, pharmacies, and pharmaceutical companies, to name just a few. <<



CASE STUDY

wisepill

PILL DISPENSER PROVIDES INSTANT FEEDBACK

”We appreciated Telit's assistance and support in the certification of our product for a global market.“
Ricci Marshall, Owner and Director

>> Wisepill Technologies was founded in 2007 by Lloyd and Ricci Marshall, a husband and wife team, to tackle the challenging problem of medication non-adherence, in both developed and developing countries.

Research has shown that between 43% and 78% of patients are non-adherent (New England Journal of Medicine 2005). Furthermore, of all medication-related hospital admissions in the USA, 33% to 69% were due to poor medication adherence, with a resultant cost of approximately $100 billion a year (Osterberg and Blaschke 2005).

The Wisepill electronic pillbox was designed to monitor patient adherence and to provide instant feedback via cellular and Internet technologies. Unlike the many reminder systems on the market that nag users to remember to take their medicine, a system was created to remind users only when they forget. By applying this innovative methodology, Wisepill was able to demonstrate a significant improvement in adherence.

In 2010 Family Health International chose Wisepill for their Truvada Clinical Trials. This was the first time that anti-retroviral drugs were used as a pre-exposure prophylaxis treatment for high-risk HIV patients. Wisepill later went on to win the South African Department of Trade and Industries Technology Award for small businesses in 2011.

To date, Wisepill has been used in many countries by patients with Tuberculosis, HIV, Epilepsy, Osteoporosis, Chronic Heart conditions, Diabetes, Leukemia, Asthma, ADHD and Hepatitis C.

The system has also been used by research organizations and universities to monitor adherence for research purposes. In addition Wisepill has partnered with Massachusetts General Hospital and the Harvard Initiative for Global Health to adapt the technology for rural environments where cellular coverage is not always reliable.

The dispenser was designed so that it would be compelling and easy to use. A number of independent user surveys have shown that people enjoy using the product and appreciate the support that they receive via the services and reminders.

The Wisepill device and services are available to pharmaceutical businesses and health care organizations, providing an effective tool for patients to improve their adherence and consequently their health. <<

FACTS

Wisepill Technologies
www.wisepill.com

System

Wisepill Dispenser for Adherence Management

Which Telit module do you use and why?

The Wisepill dispenser was designed to be wireless, portable, affordable and international. The GE864-QUAD allowed us to achieve all these goals.

Benefits

The Wisepill dispenser is a pillbox with a GSM communication chip at its heart. Wisepill Technologies makes use of cellular phone and Internet technologies to provide real-time medication management. Performance can be monitored on the Wisepill website using a standard Internet browser. Email or SMS reminders can be sent to patients and to caregivers if doses are missed.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POLICE

MORPHING TECHNOLOGY
AND AESTHETICS FOR THE FUTURE OF WEARABLE DEVICES

Saverio Romeo, *Principal Analyst*, *Beecham Research*

www.beechamresearch.com

>> Wearable Devices – From Science Fiction Stories to the Internet of Things Vision

Wearable devices, implanted objects, and body extensions have been part of the imagery of the finest science fiction literature, including works by Philip K. Dick and, more recently, William Gibson. This creative enthusiasm has been accompanied by more than 20 years of intense research in different academic and business environments. During those years, wearable devices have also been used in sectors such as security and medicine. The evolution of defibrillators from non-connected implanted machines to connected implanted devices is an example of this development. However, the technologies that enabled the enabled the development of wearable devices tended to be expensive and difficult to use.

Today, many technologies – such as user interfaces, smart materials, energy solutions, sensors and communications technologies – are well developed and widely available for making real the visions of scientists, engineers, writers and futurologists. The tremendous pace of technological innovation we are witnessing can only make that transformation process faster and unpredictable. We will increasingly live in environments where technology, in the form of intelligent sensors and objects, disappears around us. Wearable technologies will become the interface between us and those environments.

WEARABLE DEVICES – CURRENT MARKET STATUS

The vision is emerging as reality, but it has yet to be clearly defined. In 2013, several wearable devices have entered the market. In its latest report on the topic, Beecham Research has identified seven sectors in which wearable technologies can create dramatic business opportunities. The security and the medical sectors are the segments that are pushing the B2B wearable device market. In the security

sector, there are applications of wearable devices in public security such as policing and surveillance and remote working such as lone workers in distant locations. In the medical sector, several applications have emerged in the areas of implanted objects. Defibrillators are one such example.

New kinds of smart glasses now assist people with eye problems and wearable body structures help people with motion problems. On the B2C side, the current market situation focuses mainly on the wellness and fitness sectors. There are several smart wristbands and smart watches with vital data monitoring functionalities in the market. They are targeted at consumers interested in sporting activities who want to monitor their performance and their health. However, smart watches are also aiming at the more general consumer. In fact, there are quite a few new products in the other three sectors identified by Beecham Research: communications, lifestyle and glamour. A similar trend can be seen with smart glasses. There are smart glasses supporting wellness and fitness. But, there are also others which tap into lifestyle, communications, and glamour. According to Beecham Research Wearable Device Tracker, smart glasses, smart watches, and smart wristbands are the three most common products in today's market. At the end of October 2013, there were 11 smart wristbands, 15 smart glasses and 15 smart watches available for sale or for pre-ordering. Smart clothing is also another emerging segment. Around those devices, communities of developers are also emerging. Wearable device companies often offer SDKs (Software Development Kits) to their community of testers and pre-users. These are usually developers that contribute to the device with new applications.

THE CONVERGENCE OF TECHNOLOGY AND AESTHETICS

Despite the number of products available in the market, the wearable device market for consumers is still nascent. It can develop in a range of possible directions. Its main focus is around wellness and fitness, but that is a serious limitation. Beecham Research believes that the successful zone for the wearable device market is in the other three consumer sectors: lifestyle, communications and glamour. Current products do not have the right kind of appeal. This is because wearable devices have until now been designed mainly from the perspective of technologists. But technology is not enough. Technology solves problems, improves our daily lives, and allows us to explore new possibilities. But technology does not tap into emotions or spark feelings. Only a sense of beauty can do that. And only aesthetics can resonate with that sense in order to make an object desirable.

Wearable devices will be part of our persona. But only if they both do something useful for us and inspire us. The role of creative design and arts has become crucial for the future of wearable devices. The artistic contribution of fashion designers and creative individuals will move devices like smart

glasses and smart watches from objects for technology lovers to objects of desire for most of us. It is time for completely new engagements. It is time to bring together engineers and fashion stylists, watch designers and software developers, finest craftsmen and nanotechnologists. It is time for a technological-aesthetical melting pot. This is not just because of wearable devices, though. This is because technologies will shape our lives as individuals, consumers, and citizens in profound ways. The spaces in which we will move will be different and will be perceived differently. It is time for the fashion and creative industries to emerge from the isolation of their exclusive labs and openly engage with technology and technologists. Technology companies should do the same. 2014 will be the moment of wearable devices only if these two worlds come together. <<

Vita

Saverio conducts research in the areas of M2M, the Internet of Things, wearable technologies and smart solutions for vertical sectors. During last six years, Saverio has focused his technology and market research on the evolution of the mobile industry, primarily looking at European mobile network operators. He has done extensive research and published in areas such as mobile healthcare, smart cities, mobile and wireless innovative services, data analytics in the mobile industry, ubiquitous computing and M2M/IoT.

He has more than 12 years experience in telecoms as market analyst at Frost & Sullivan, telecommunications and innovation policy analyst at Technopolis Group and the European Commission DG Connect, as a software developer at Vodafone Italia and as an academic researcher in "Politecnico di Milano" University.

THE RISE AND RISE OF TELEMATICS IN INSURANCE

PTOLEMUS Consulting Group

Thomas Hallauer, *Director of Research & Marketing*, *PTOLEMUS Consulting Group* www.ptolemus.com

>> Usage Based Insurance (UBI) allows insurers to price premiums based on dynamic risk criteria such as miles driven (PAYD) or driving style (PHYD). Since Progressive (US) and Unipol (Italy) started to push the concept to the masses, the use of telematics in insurance has been spreading globally. Today, we estimate the number of vehicles insured under UBI policies at 5 million globally, 2,5 million of which are in the US.

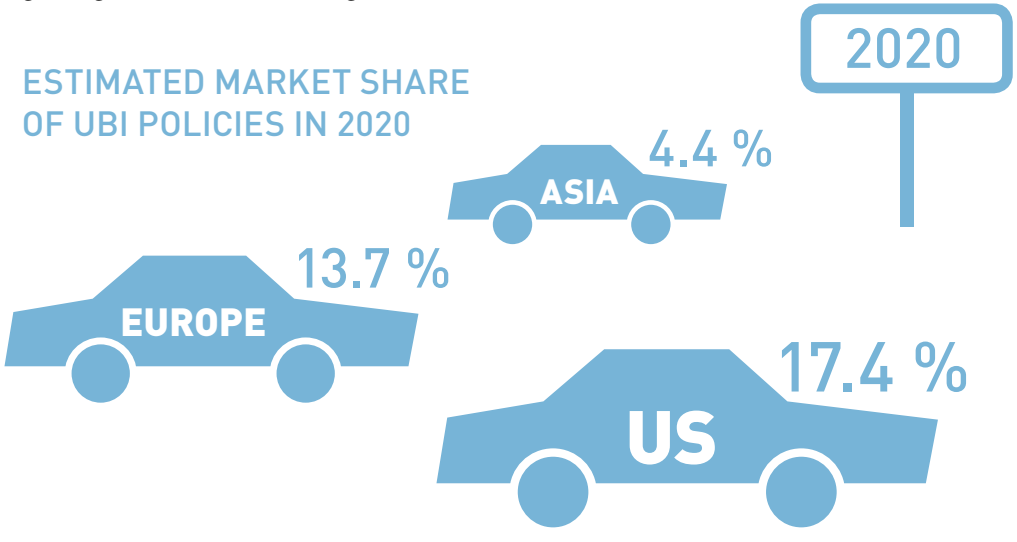
For the motor insurance sector, the €3.6 billion in premiums generated by UBI policies in 2013 is only a drop in the pool. This drop is, however, creating very big waves in the insurance world.

In order to compete, actuaries are having to quickly learn how to use new, varied, multi-source risk criteria. Car insurance price setting is becoming fairer and more personal. The segments are becoming smaller and the premium calculation models are changing from yearly to monthly – and also trending rapidly towards daily discount processing.

In turn, this is radically transforming the relationship between motor insurers and their drivers. Smartphone apps, direct online sales, social networks and more targeted agent networks are creating constant contact with the brands. New service, relationship and 2-way communications management skills and strategies are being learned.

The competition around the use of new telematics based insurance models is accelerating and diversifying. UBI is an extremely potent sales tool used to acquire new, safe drivers in a given segment. Insurers unable to offer such products will lose out immediately and – worse – will be left with the riskier drivers in these segments.

For most countries, UBI will become a formidable tool to impact on established insurers and acquire new profitable customers. By 2020, PTOLEMUS estimates the market share of UBI policies at 13.7% in Europe and 17.4% in the US, but the real story comes from the growth in Asia where the penetration is expected to reach 4.4% or 17.3 million policies despite the markets being notorious for their lower premium.



The sales strategies have taken various directions, but most insurers have decided to hide the device from their communications and websites. The assumption is always that the mention of tracking should be avoided at all cost. Yet two very successful models have done just the opposite, basing their entire communications on the device; one with the angle that the device is there to prove the driver's worth, the other with a communication line around the box being there to protect the driver in case of an accident.

For better or worse, the device has been at the center of the insurers' preoccupations when analyzing the opportunities and barriers to UBI entry. PTOLEMUS has analyzed the device strategy in detail in the UBI Global study. It is essential to base a UBI service strategy on the offer and communications angle first. Yet at the same time, the business model will depend entirely on the device type. For example, the biggest financial win for insurers in selling telematics insurance is in claims reduction and better management of the cost of these claims. Nevertheless half the policies in place at the moment do not allow for such gains because the device does not support the necessary requirement or does not always stay in the vehicle.

We expect OBD Dongles will remain the dominant devices in the US and emerge rapidly in Europe from 2014. Overall the mix of devices in use is expected to widen

to include not only black boxes but also a variety of OBD devices with different footprint and function, as well as self installed devices (cockpit or engine) and even cigarette lighter devices. Revenues for the technology providers are estimated at €1,4 billion and for the service providers at €4,5 billion globally by 2020.

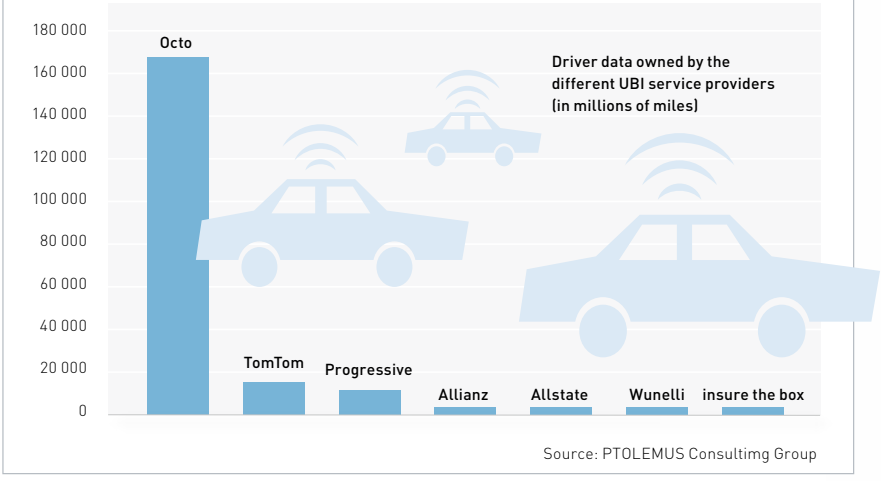
Today, the conversation about the device is shifting towards the smartphone. We expect the smartphone to become a predominant feature in the vast majority of programs, first as a communication tool and driver feedback platform, then as a service platform for third party location based applications, and third as a data probe used alone or in conjunction with a low cost device in the vehicle.

This last solution has the potential to create a wave of new UBI service models with the flexibility to use various types of driver data during the policy period and to incrementally promote the use of a more permanent device in the vehicle once the benefits are demonstrated and accepted. For these reasons, we believe there is a strong business case for usage-based insurance to spread globally, even in countries where premiums are comparatively low. After Australia, Canada and more recently, India, a number of new markets will experience telematics in the coming months, notably in Latin America and Russia.

More information on the Usage Based Insurance market can be found in the free 100-abstract of the UBI Global Study. It can be downloaded here: www.ptolemus.com/ubi. The complete study is an 800-pages reference book covering all aspects of UBI and telematics technology in depth. Contact thomas@ptolemus.com for more information. <<

Vita

Thomas Hallauer has gained 10 years of marketing experience in the domain of telematics and location-based services. He is an expert in new products and services notably in the automotive, motor insurance, navigation & location industries. Before PTOLEMUS, Thomas held management responsibilities with Mobile Devices, a leading provider of telematic technology platform and devices; and for FC Business Intelligence (Telematics Update).



THE INTERNATIONAL M2M COUNCIL

Alexander Bufalino, *SEVP Global Marketing*, *Telit Wireless Solutions*

>> The International M2M Council (IMC) is a new non-profit trade organization for the m2m space. It was launched in May 2013 at the U.S. mobile communication industry flagship event, CTIA, which took place in Las Vegas. As the organization's founding members, a stellar roster of companies and individuals including Deutsche Telekom, Digi, Huawei, KORE, Oracle, ORBCOMM and Telit pledged allegiance to the cause of promoting m2m to the broader technology industry. IMC's charter is to promote the business and disruptive value of m2m across the spectrum of potential adopters, particularly those vibrant key vertical markets that are already embracing the enabling technology, including but not limited to, automotive, logistics, energy, health care and public infrastructure. The membership has grown since then with names such as AT&T and others joining the IMC in 2013.

STRONG BUSINESS ARGUMENTS TO ACCELERATE ADOPTION

The council's market education efforts should make the benefits of applying m2m not only more visible to users and new adopters, but also to technology and mainstream media and analysts still reluctant to dedicate prime column space to the success stories, models and potential of the space. IMC member companies also pledge to develop and bring to market programs dedicated to easing integration, reducing total cost of ownership and raising speed-to-market for m2m. By leveraging the market-making power of its membership, the IMC aims to promote benchmark studies, deployment case studies, focus groups and standards building efforts, all with the objective of delivering strong arguments that project managers across the verticals can use in their companies' go/no-go decision processes.

A NEW TRADE ORGANIZATION FOR M2M – THE EMERGING INDUSTRY

The council views and projects m2m as its own global industry, not as a product category or a vertical. It aims to support industry efforts strategically selected by its board of governors in agreement with the membership to increase deployment volumes by offering member services connecting m2m providers with adopters of the technology and also to support the lifecycle needs resulting from the adoption of m2m.

FOUR LEVERAGE POINTS TO ADVANCE THE SPACE

The IMC sees four elements as fundamental to its adoption acceleration strategy.

- **Awareness** – achieved through the promotion of m2m applications and success stories in automotive, logistics, energy, healthcare, public infrastructure and other relevant verticals, thereby increasing visibility of the technology to adopters.

Because it is practically impossible for even for the largest companies to cast an image across the wide variety of vertical markets and geographies that can potentially embrace m2m applications, the IMC provides a platform for solution providers to pool resources and send their message much more efficiently. As deployments become more widespread, it is imperative to bring clarity the broader market on just how mature and proven the m2m technology is. The council will also develop publications, drive readership for those publications and encourage participation in the organization with special membership levels and benefits for adopters. The IMC will also offer other trade bodies an authoritative voice on subjects like m2m technical standards, security & privacy issues, and regulatory concerns. An awards program is under development at the time of writing of this article that will be sanctioned by vertical-market organizations further improving engagement with adopter communities.

- **Research & Metrics** – establishing benchmarks, disseminating best practices learned from case studies and focus groups, creating best-practice certifications and business level standards.

The objective here again is to provide adopters content to enable meaningful

assessment of deployment performance, reducing risks and managing expectations associated with m2m adoption decision-making. Quantitative aggregate data research is planned to include data on capex, opex, total cost of ownership, internal rate of return, and time to market for m2m deployments, organized and tabulated in terms of vertical markets and geographies. A key project to be undertaken by the IMC is the adopter benchmark index, which hopes to capture this aggregate data beginning in Q3 2013.

- **Advocacy & Policy** – to ensure solution providers and adopters share a common view of the future as well as to present unified objectives to standards and regulatory bodies on issues such as security and privacy.

- **Training & Education** – achieved by the creation of professional curricula and programs delivered to educate the industry, and encourage engagement amongst m2m industry sectors.

The IMC also intends to establish peer-reviewed publications and events. The IMC will also track the development of new regulations and government incentive programs worldwide on an ongoing basis.

TELIT AND THE ICM

Telit was one of the companies selected to help found the IMC. After collaborating and contributing to hone the concept for over one year, I joined the new organization's Board of Governors comprised of six governors today as I write. Having helped shape Telit's ONE STOP. ONE SHOP. delivery model strategy, I wanted to bring the council's steering team, insights and experience from the company's decade long trek through m2m and only m2m. <<

YOU ARE INVITED TO PARTICIPATE IN THE IMC'S CASE STUDY PILOT PROJECT

The International M2M Council seeks applicants for its Profiles in Excellence Case Study series. The objective of the study is to illustrate innovative business models, data analytic techniques, and business process integration via use-cases, highlighting the value proposition of m2m applications. It is a qualitative, primary research and aggregation of unstructured data will allow IMC to identify benchmarks, best practices, and to conduct further quantitative research and track industry trends in aggregated, structured data surveys.

Study participants will contribute stories from transportation, energy, medical, logistics, professional services, and innovators of emerging IoT and connected device applications to demonstrate: creativity in business models, operational efficiency & revenue streams; innovations in device design, data analysis, and service integration; successful strategies in project leadership and team building.

For more information, please visit www.im2mc.org

BETWEEN CHAOS AND CLOUD
BRIDGING SENSORS AND APPLICATIONS

Richard Brennan, *MARCOM Chair, oneM2M Global Partnership*

www.onem2m.org

>> The Internet of Things (IoT) has evolved far beyond its roots in building control and industrial automation. What lies ahead is the promise of a connected set of m2m communications that take us far beyond dedicated sensors and single-task applications, into an environment where sensor networks and applications are used and shared by many, benefitting individuals, businesses, and communities.

THE THERMOSTAT

Consider an intelligent room thermostat: A first use is to simply report temperature in the room to an application for display; the next step is often to supplement the room control system with a more interactive and accessible user interface. At this point, the thermostat and room system configuration are primarily under user control.

Inter-connecting into a Smart Energy / Smart City environment adds multiple layers of complexity; community-wide applications are often cloud-based, and access from the room system into the cloud requires interconnection and coordination of several wireless / wired networks that are beyond the user's control. The application may no longer reside in, and data is no longer stored within the user's equipment. The need to support the many dissimilar devices that users have installed creates a need for the use of common information models and terminologies, so that the cloud-based systems can accurately interpret inputs, and provide accurate and understandable messages in return.

In order to assure the widest possible adoption of IoT / m2m solutions, security and privacy requirements for the user's environment and data have to be taken into account, spanning the entire connected chain of sensors, devices, networks, data stores, and applications. There will be both user preferences and regulatory requirements covering the extent to which external systems are authorized to access and interact with specific sensor nodes, gateways, and systems. The tools to meet these needs must be provided across multiple implementations.

Interesting use cases are often the less obvious. Consider the potential interaction between the user's thermostat and an e-Health m2m medical monitoring system. At first glance there would appear to be little commonality, but some patients' medicines (e.g. those with diuretic effects) benefit from dosage adjustment based on average ambient room temperature. In order to avoid installing a redundant set of temperature monitors dedicated to e-Health, the user will explicitly authorize access by their health-care provider to the thermostat and room control system, independent of the Smart Energy application. As both healthcare and energy have existing industry-specific profiles for their representation of user data, common ground must be found in creating interoperable information models.

GLOBAL STANDARDS – ONEM2M

The Internet of Things is not local, regional, or national; it is Global. Given the ability of m2m communications to transit the world, and to invoke cloud-based applications that transcend any one location instance, the communications industry came together in 2012 to address the issues of global connectivity and the interaction between sensor environments and multiple application instances.

The oneM2M Partnership Project was founded by the leading telecommunications Standards Development Organizations representing regions around the world: ARIB-Association of Radio Industries and Businesses (Japan), ATIS-Alliance for Telecommunications Industry Solutions (US), CCSA-China Communications Standards Association (China), ETSI-European Telecommunications Standards Institute (EU), TIA-Telecommunications Industry Association (US), TTA-Telecommunications Technology Association (Korea), and TTC-Telecommunication Technology Committee of Japan (Japan).

oneM2M is unifying the global m2m community by developing specifications for a Service Layer that meets many needs: users who want a broad set of coordinated capabilities; communications networks on which m2m communications are carried; and industries whose applications span geographies and topologies. Approved oneM2M specs will be published in each region by the partners.

Companies such as Telit Communications, a oneM2M member through both ETSI and TIA, work within the oneM2M Technical Plenary and Working groups,

in which hundreds of technical contributions from member companies have been discussed, modified and agreed. The result is the creation of oneM2M Service Layer requirements, architectural vision, and work on selected protocols.

The service layer approach enables management of m2m network effects, including the aggregate impact of myriad sensors and devices all communicating different amounts of data at different times: A billion devices each with a trickle of data is a huge aggregate volume; a hundred thousand devices trying to simultaneously reconnect to their application resources can congest even robust intermediate networks.

The oneM2M Service Layer also enhances the interoperability and interworking aspects of an IoT. It is unreasonable to expect that a single sensor topology will suit all user requirements. oneM2M is network agnostic, and the service layer facilitates both interworking with multiple sensor networks, and interoperability with non-oneM2M systems. As part of the oneM2M process, best current practices in security, device management and the ability to normalize communication semantics are also addressed.

SUMMARY

The needs of a global IoT demand a global effort in response, and the formation of the oneM2M partnership is a major step in that direction. oneM2M is committed to an open and ongoing process of engagement and cooperation with all stakeholders within the global m2m community. <<

Vita

Richard Brennan has participated in oneM2M since its inception, as a Founder's Delegate, and currently as the oneM2M MARCOM Chair, through membership in TIA (Telecommunications Industry Association).
Richard has over 40 years' experience in telecommunications, and has spent the last 15 years promoting interoperability and global standards, with assignments in Europe, Asia and America. He is a past recipient of the AT&T President's award.

SURVIVAL OF THE SMARTEST
WHICH COMPANIES WILL SURVIVE THE DIGITAL REVOLUTION?

Steffen Chalupny, *Director Education Unit*, *KPMG AG Wirtschaftsprüfungsgesellschaft*, *Germany*

www.kpmg.com

>> The global economy is currently undergoing a period of transformation into a fully networked world: Outernet, Industry 4.0, Smart Cities, eHealth and 3D-Printing are some of the revolutionary changes that are coming. The question is: Which companies will survive this bright revolution?

To answer this vital question, KPMG AG in Germany, together with TNS Emnid, interviewed 350 managers from seven branches of industry as well as over 1.000 consumers.*) The resulting study enabled us to provide for the first time empirical evidence of the enormous pressure to change that companies are confronting. The study's most important findings are summarized in five theses for surviving in the networked world of the 21st century: Companies that will survive the digital revolution are those willing and able to:

1. **Replace**; shed traditional business models and will clean up and develop their existing product and service portfolios
2. **Expand**; i.e. think beyond their own sector and exploit growth opportunities on new ground
3. **Re-Shape**; i.e. raise sufficient resources to create a dynamic innovation and investment culture while at the same time optimizing costs
4. **Align** products and services to an increasingly digital, personalized and independent customer
5. **Exploit**; "survivors" will properly identify future success factors and remove their own weaknesses in the short term.

*) Survival of the smartest – Welche Unternehmen überleben die digitale Revolution?; Hrsg. KPMG AG Wirtschaftsprüfungsgesellschaft AG, Germany (2013)

REPLACE!

Even now traditional business models are coming under massive pressure. To resist or even ignore this pressure means putting the company at risk. The study shows that most of the participating telecommunications and media companies as well as energy suppliers acknowledge this risk already. Over fifty percent anticipate a fundamental or at least a considerable change up to the year 2020.

EXPAND!

Intersectoral thinking will make the difference. While digitalization and networking increase competitive risk, at the same time they open up opportunities for growth in other markets. About 70 percent of all the companies surveyed see sales potential in at least one of the other six sectors. Telecommunications and media companies reach comparatively high indicator scores, meaning that these companies will further expand into other sectors in the future.

RE-SHAPE!

Eighty-five percent of the companies surveyed anticipate that the pressure to innovate in their line of business will increase from year to year up to 2020. The same applies to the cost situation: nine out of ten companies foresee increasing cost pressure. For this reason, it will be even more crucial in the future to provide cost transparency on the process and product level, make organizations and processes leaner, more flexible and more efficient or to enter into alliances and joint ventures to reach reduced cost or increased innovation.

ALIGN!

The companies that consistently align their products and marketing strategy to increasingly digitalized, personalized and independent customers will survive.

EXPLOIT!

We asked managers to estimate which aspects they deem as particularly important for the future success of the business: Customer loyalty has top priority across all sectors ahead of all future success factors. Nine out of ten companies consider it important or even very important. In the entire study, flexibility, innovation capacity and brand strength are also considered key to success. In addition, technological competence, the intelligent use of data and flexible personnel management are identified by over 60 percent of all those surveyed as being important or very important factors.

STRENGTHS AND WEAKNESSES

The results of our strengths-weaknesses analysis form a sharp contrast to the optimistic self-assessment of many companies:

- There is still an immediate need for action in many companies with respect to their flexibility, strategic cooperation and intelligent use of data.
- The customer loyalty aspect has to be analyzed by each company individually. Has sustainability already been achieved here? Have the changed preferences, demands and consumption patterns of their customers (in particular of the younger target groups) been fully identified and are measures being taken to adequately react? Or is the strengths assessment based on the analogous world?
- Companies are running the risk of investing in the wrong strengths and thus neglecting success factors that would be considered more important by consumers.
- The design of products, for example, seems relatively unimportant for the participating companies. And yet more than half of customers (and even two thirds of the under-30s) want to contribute to the design process.
- On the other hand, there is the question as to whether brand strength is still really as significant a success factor for the future as is claimed by many companies. Because the results also show: the younger the survey population, the lower the loyalty and attachment to certain brands.

CONCLUSION

Excellence under pressure, high pressure to change, flexibility, dynamic innovation culture and replacing whole business models pose extreme antecedents to surviving the coming revolution. How fast, smooth and cost-friendly these antecedents can be met will depend to considerable extent on the competence of the managers and staff who will have to achieve the change. To assume that they already exhibit this competence would be risky business. <<

Download the complete study "Survival of the Smartest": **www.kpmg.com/DE/de/Bibliothek/2013/Seiten/survival-of-the-smartest.aspx**

Vita

Steffen Chalupny is Director and Head of international sales of KPMG Education. Steffen has been a senior advisor to companies in Energy, Oil & Gas, Chemicals, Pharmaceuticals, Technology, Utilities, Food and numerous others. He has consulted corporations across the world: Middle East, Europe, Latin America, Americas and Africa.

M2M CELLULAR DEVICE CERTIFICATION: A NOVEL PROPOSAL TO BREAK THE BOTTLENECK

Dan Shey, *Practice Director, M2M, Enterprise and Verticals, ABI Research*

www.abiresearch.com

>> OEMs are still complaining about the cellular m2m device certification process. I attended the m2m Evolution Conference in Las Vegas in August 2013 and the topic of m2m device certifications for cellular networks was, to say the least, a "hot" topic, particularly for devices wishing to connect on North American cellular networks. One OEM stated that it took one year for its device, already certified on Western European networks, to be certified on North American cellular networks. This article will summarize discussions on cellular m2m device certifications and highlight an approach suggested by one OEM to simplify cellular network certification and speed time to market.

THE OEM VIEW VERSUS THE OPERATOR VIEW

Device OEMs:

- The certification process is complex. On top of standard government and industry regulations, each operator has their own requirements. There are four major m2m operators in the United States and three in Canada.
- The certification process is costly. The main costs are engineer salaries, as personnel have to be assigned full-time to manage the entire process. Medium and small business OEMs cite costs of $40K to $100K. To cover these costs out of the device profit margin requires selling a lot of devices.
- Previously certified devices that change in even the slightest manner, such as a different housing color, currently require a waiver and then reapplication for certification, which brings about additional costs and delays.
- Device vendors such as Apple are given preferred access. m2m device certification before the holiday season can be especially long.

Vita

Dan Shey has authored reports and insights that extend across the consumer and enterprise segments and across the core elements of the mobile ecosystem including devices, applications, M2M, networks and services. He has 20+ years of industry and analyst experience including product management, product development and marketing at Qwest Wireless, as a project engineer at The Boeing Company, and as an independent technology business consultant. Dan holds a BS in Physics from Loras College, an MS in Metallurgy from Iowa State University, and an MBA from the University of Michigan where he is also a Fellow of the school's Tauber Manufacturing Institute.

Operators:

- m2m devices pinging the network excessively increases the dropped call rate for all cellular customers.
- Operators use pre-certified modules. Device OEMs can re-use 90% of the test results from the module itself.
- m2m devices can be unpredictable unlike humans whose app behavior is well understood. m2m devices do not use common device components – no on/off switch, display, keypad – creating uncertainty in m2m device operation.
- The m2m device ecosystem is diverse and fragmented, unlike the handset and network device ecosystem that operators work with constantly and which is relatively consolidated.
- Many m2m device designers (typically electrical engineers) have had little if any interaction with the operators and cellular network requirements.

B&B ELECTRONICS'S PROPOSAL TO BREAK THE BOTTLENECK

Bill Conley from B&B Electronics has lived through the cellular device certification process and was the recipient of the year long process to certify a device from a Czech company it bought: a device that was previously certified on several networks of Western European operators. He proposes the following plan to simplify the device certification process:

- A central, industry-supported collaboration center with one certification process for all carriers
- No charge for testing. Funding and access to the collaboration center could come from joining one of the North American standards bodies, such as the TIA and onem2m.
- An industry collaboration database and web portal that makes it easier to submit waivers for already certified products when a manufacturer re-brands them for third-party companies.

Bill believes manufacturers that could design to a single standard could pass preliminary and final tests and go to market in only 4 to 6 weeks. One of the biggest challenges of such a plan will be operator agreement to a single certification process, as different operators may not agree to every requirement. In addition, a single standard raises the question: could some requirements reveal operator network IP or shortcomings? Creating a database accessible online seems like an obvious activity that should be pursued with the important requirement that it be secure. Depending on the data in the database, any OEM would likely want its test results or other network operating data kept private.

Other industry collaboration efforts such as the Connected Device Forum and onem2m are meant to reduce some of the friction in the certification process and simply better educate OEMs about cellular requirements. However, as was repeated several times at the event, OEMs that involve carriers early in the design process will be most successful. Overall I think that smaller m2m device companies will continue to be the most disadvantaged from current certification requirements, which raises the prospect that innovation will be stifled and cellular will become less desired as an m2m connection medium. <<

SDN MEETS M2M IN THE CLOUD
NETWORKS ON THE MOVE

Bob Emmerson, *Freelance Writer & Industry Observer* www.electric-words.org

>> SDN (Software Defined Networking) is a game-changing development. The game it's set to change is the closed, proprietary world of networking with its vertically integrated hardware, slow innovation and high margins: a world that hasn't changed much for decades. The real innovation that drove the Internet boom took place at the edges, e.g. subscriber ID and service differentiation.

Before considering how companies might slice one or more parts of their SDN in order to provide robust, secure control of their m2m traffic in a much more flexible and efficient manner, we should take a shallow dive into the technology. Because networking has been stuck in a proprietary rut for forty years it isn't easy to appreciate the groundbreaking benefits that SDN technology enables for wide area communications.

SDN's OpenFlow protocol enables third-party control by IT management of Internet routing by providing access to the forwarding plane of a network switch or router, i.e. control is separated from forwarding. This is a groundbreaking development: the key that unlocks the potential of software-defined networking.

In future network functionality will be determined by users and managed by the IT department. SDN enables enterprises to create their own private, virtual, software-defined network instead of being constrained by the limitations of expensive hardware boxes. In turn this will bring networking closer to the computing environment and eventually it will become an integral part of corporate ICT infrastructures. However, it will not be a smooth transition: already there is resistance from entrenched switch and routing companies because SDN allows network engineers to handle and support a switching fabric across multi-vendor hardware.

CLOUD COMPUTING

Cloud computing virtualizes applications and network functions and runs them on low-cost commodity servers: it moves them out of the local area enterprise network into a wide area network of one or more data centers. Clouds are a virtual, pooled resource that operates very efficiently. IT is in control of these resources, but when it comes to the Net they "get what they get" and that is the issue that SDN addresses. It is set to make high-capacity networks cheaper, faster and more efficient.

The ideal cloud model has all major computing and data storage resources being safely sited in a few secure and well maintained, energy-efficient datacenters. m2m is one of those computing resources, see article on page 20. Telit's ONE STOP. ONE SHOP. offer starts with the module and ends with the cloud and mainstream enterprise applications like ERP and CRM. A closely related development is the convergence of mobile and cloud computing, which removes the computational constraints that are intrinsic to mobility. This topic was covered on page 44. SDN's primary role in cloud computing is to provide robust, flexible, secure wide area connectivity, and for cloud service providers it's the ability to guarantee a service that can monitor the cloud infrastructure at all levels while preemptively managing subscriber experience at the application level.

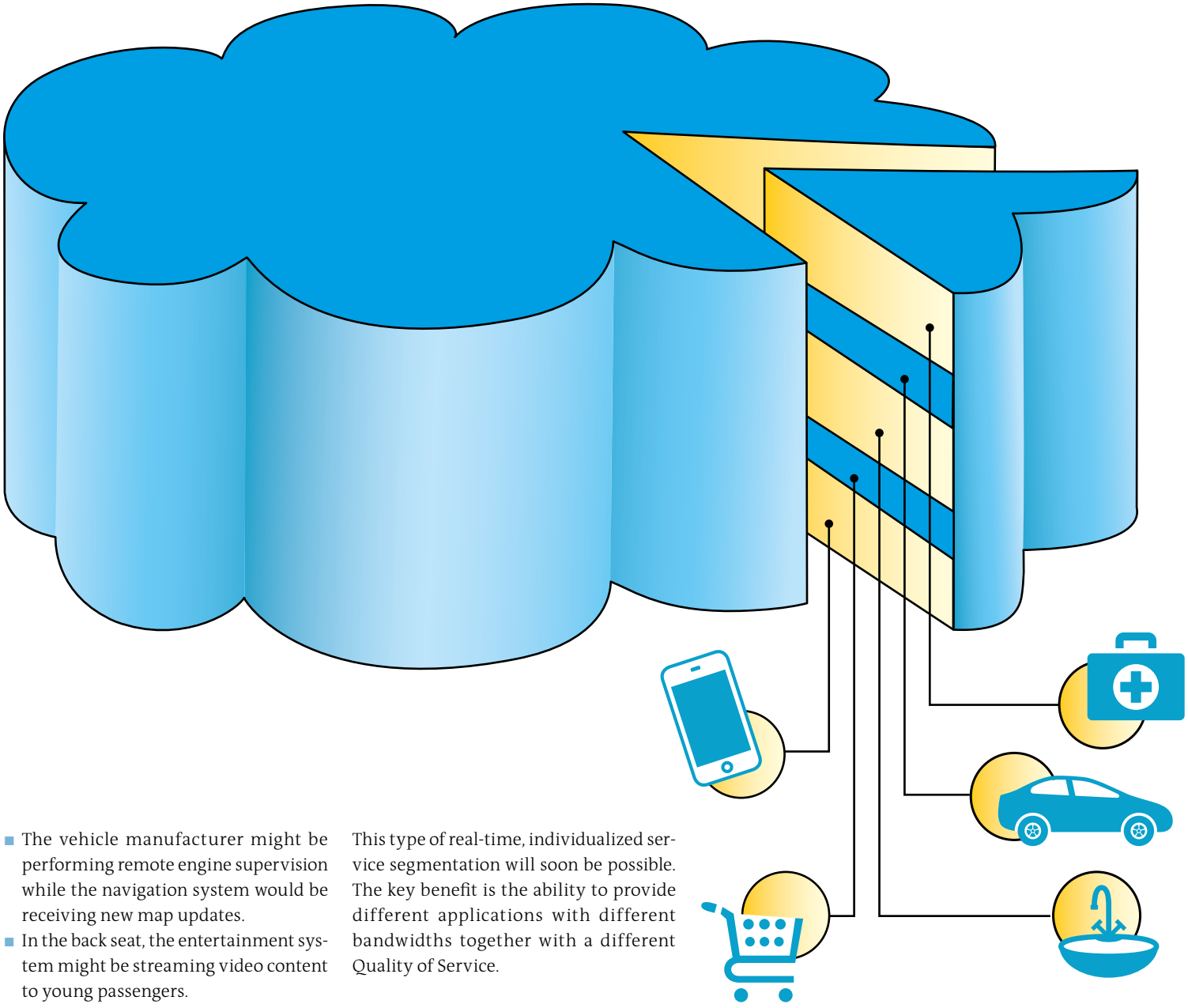
NETWORK SLICING

SDN has become a somewhat contentious issue, which is understandable given the disruptive nature of this development. However, the benefits it can bring to networking are so powerful that it is a question of when, not if, it goes mainstream. That said the recent backing that Ericsson is giving to an SDN architectural framework and their Cloud System indicates that we won't have long to wait.

The Cloud System provides a common delivery platform that gives the flexibility and elasticity to deploy software applications and customized network functions wherever they are needed in the network. The inclusion of service provider SDN architecture enables network resources to be allocated and controlled dynamically in real time.

This combination enables network slicing, a new network and business model that will accommodate the individual service requirements of consumers and enterprises. In the case of m2m this can involve slicing the network so as to accommodate the individual needs of different data streams down to a very granular level of control.

Ericsson considers the needs of drivers of connected cars in order to illustrate how different slices could be employed. For example:



- The vehicle manufacturer might be performing remote engine supervision while the navigation system would be receiving new map updates.
- In the back seat, the entertainment system might be streaming video content to young passengers.
- In the event of an accident the emergency road assistance would send an emergency call.

This type of real-time, individualized service segmentation will soon be possible. The key benefit is the ability to provide different applications with different bandwidths together with a different Quality of Service.

CONCLUSIONS

As indicated earlier SDN brings networking closer to the computing environment and eventually it will become an integral part of corporate ICT infrastructures. Telit's end-to-end solutions allow m2m applications to be integrated with mainstream business processes like ERP and CRM and in future we will see companies leveraging more and more applications in this way. This indicates that there is a synergistic relationship between these two developments. <<

Vita

Bob Emmerson is an English national living in the Netherlands. He holds a degree in electronic engineering and mathematics from London University and now works as a freelance writer and industry observer. Bob writes about ICT for various technical and business publications. He has produced market reports for the Financial Times, numerous white papers and three books.

COMMERCIALIZING THE INTERNET OF THINGS

Ken Figueredo www.more-with-mobile.com

>> The IoT phenomenon has superseded the traditional market for m2m applications, primarily by embracing a wide variety of Internet- and consumer-connected devices. This is what accounts for long-range market forecasts of billions of connected devices.

Early experiences with IoT applications have focused on novelty – such as connected household appliances – rather than long-term commercial prospects. Many of these implementations simply involve the application of silo-like, m2m concepts to new types of devices and sensors. For companies that aim to develop an IoT strategy, however, failure to distinguish between m2m and IoT is a risk to long-term business strategy.

By convention, an m2m service is based on one or more related devices – such as fleet vehicles, point-of-sale terminals and container level-sensors – operating within a narrow industry vertical. This 'vertical' emphasis has tended to restrain the m2m market's rate of growth. This is because each vertical application necessitated a new and/or tailored IT development effort, which had an adverse impact on solution deployment costs.

The reality of IoT applications is that they will enable a much more inter-linked use of data from connected devices and sensors. An example scenario is the array of devices in a transport hub, such as an airport or train station. A given location houses multiple m2m applications such as digital display advertising, point of sale terminals, security cameras etc. This territory is ripe for IoT applications that leverage data across verticals. For example, retail outlets in an airport concourse could link their operations to digital advertising panels to launch promotional offers. If security cameras are added to the mix then it becomes possible to monitor for a build-up of queues in one location and then to prompt travellers to use other, less crowded, food outlets.

Practically speaking, such an outcome is possible if all connected devices in a particular location use a common data transmission network or platform. Alternatively, devices could run on different connectivity platforms but employ standards for data exchange across information silos through techniques such as APIs and standardized data models.

Without this kind of cross-silo vision, companies that re-badge m2m applications as IoT ones are likely to waste at least one product development cycle by not focusing on the longer term potential of their devices. This is akin to Google providing a search engine and failing to analyze search queries to deliver targeted advertising.

Connectivity can improve most devices but the effort to create a first-generation, connected device is not to be underestimated. Nevertheless, this should not stop companies from thinking beyond connectivity in planning their IoT strategies. They need to envision second- and third-generation offerings involving a higher degree of cross application interaction. This has profound implications for the IoT platform capabilities to manage these applications and also their business models.

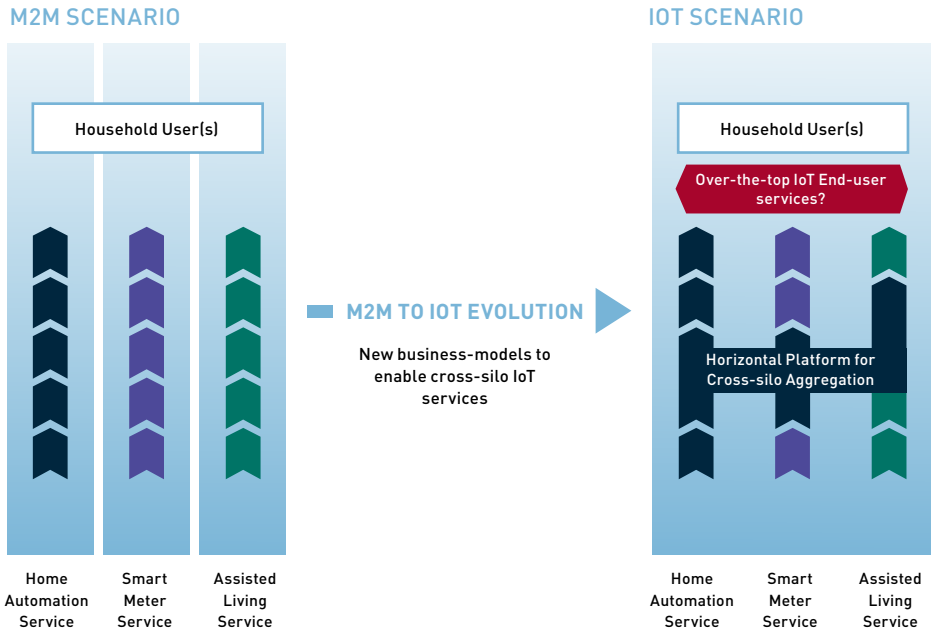
This point is illustrated in the context of a set of in-home services under a typical m2m scenario and also for a more integrated IoT scenario. Each of the initial set of services – home automation, smart metering and assisted living – is designed on a standalone basis. And, each service would have its own value chain comprising: module- and device-technologies; network connectivity; service enablement; application-delivery; and, user-interface elements. The ability to combine data across service silos could lead to higher quality

services (through improved information integrity) as well as new service opportunities (e.g. home security, wellness monitoring). One way to achieve this is by linking the individual vertical value chains horizontally. An alternative approach would be to intervene over the top of individual services.

Several companies are already targeting the business opportunity for these types of application.

- The shared or horizontal platform strategy allows several connected device providers to manage their devices remotely and also to deliver connected services to end-users. A shared platform should appeal to small and medium-sized companies that cannot justify investing in their own platform capabilities. AT&T (Digital Life), Deutsche Telekom (Qivicon) as well as niche platform providers such as Arrayent and Zonoff in the USA are already experimenting in this arena.

NEW SERVICE OPPORTUNITIES ARE DRIVING IOT VALUE-CHAIN INNOVATION



Source: more-with-mobile.com (2013)

- The OTT strategy relies on information being available to end users, via the Internet, from connected devices and sensors. This can be conceptualized as a database for machine and sensor data (e.g. environmental sensors in public spaces), which can be accessed by applications. This is not a far-fetched idea as more and more devices are equipped for Internet connectivity. Some of the early developments in this arena come from companies such as IFTTT and Xively.

Decisions about inter-operability will have a major bearing on the success of these two approaches. Put differently, there has to be a way to share data across application silos and devices from different suppliers.

Many IoT enthusiasts would argue for an open platform into which any manner of device can connect while also having its data available to any and all applications. In practice, a structured approach to inter-operability will be more beneficial in the short term. This is because cross-device interactions will benefit from some degree of orchestration regarding permissible device and application-level behaviors. In particular, connected device providers will seek guidance on how to design for IoT services. Applications developers will want service quality assurances about the devices they are relying on to deliver end-user services.

The IoT market has massive promise in terms of economic impact. IoT companies need to look beyond connectivity and consider how they position themselves with partners and also in the overall value chain. They also need to conceptualize their next-generation products to capitalize on new business models based on the cooperative use of data from a variety of connected devices. <<

Vita

Ken Figueredo consults with companies on business strategy and new market offerings in the connected devices arena. He advised the GSM Association on its Connected Living market development strategy. He now focuses on corporate, IoT strategy. Ken has worked with major mobile operators, institutional investors and equipment vendors from China, Europe and North America.

ONEM2M INTRODUCTION AND STANDARDIZATION STATUS

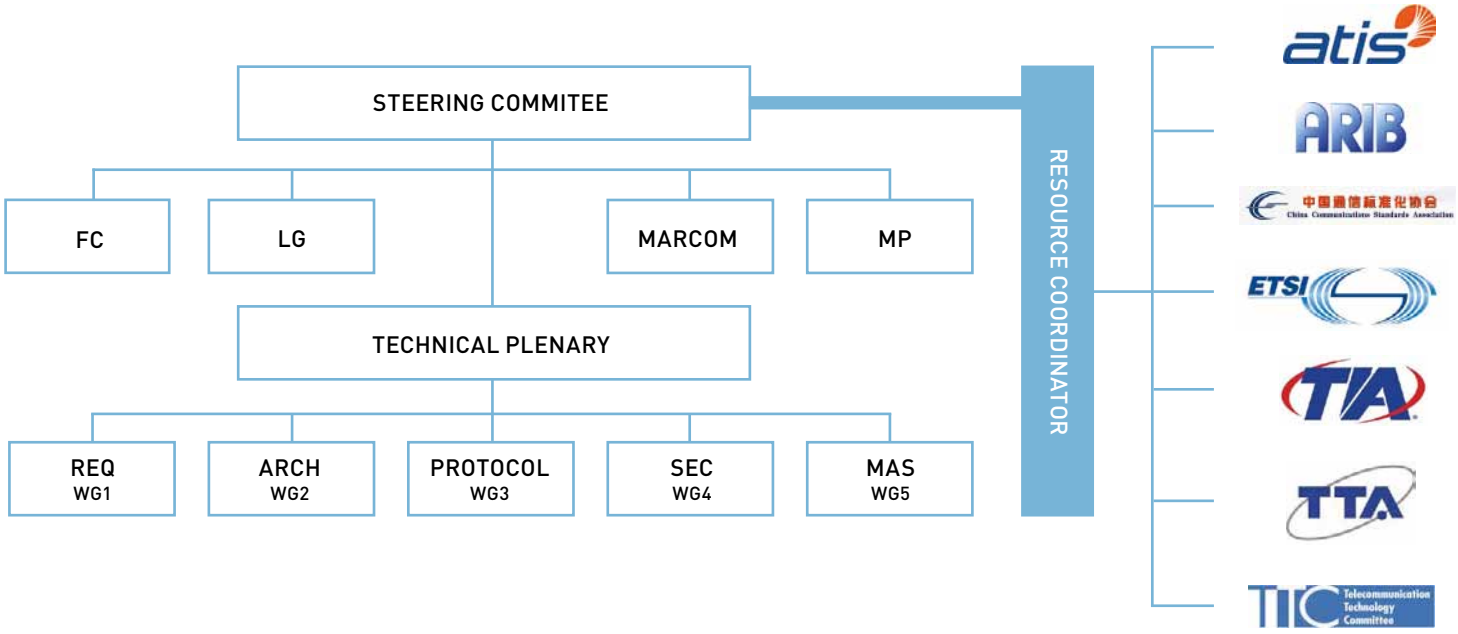
HyungJun Kim, *Chief of ETRI Standard Research* www.etri.re.kr

>> oneM2M is a de-facto standardization organization dedicated to the Internet-Of-Things service platform development. This organization was co-established by TTA and seven global standardization institutions (TTA(Korea), ESTI(Europe), ARIB/TTC(Japan), CCSA(China), ATIS/TIA(US)).

Since 2011, oneM2M has held discussions for collaboration to develop a global m2m service standardization model, and an official MoU ceremony announcing the official launch of oneM2M was held among the representatives of the seven institutions during the first oneM2M Committee Meeting. More than 200 major global companies, such as AT&T, Sprint, Ericsson, Cisco, Qualcomm, Alcatel-Lucent, Intel and Telecom Italia are participating in this organization. From Korea, KCA, ETRI, KETI, KWISA, Samsung Electronics, LG Electronics, SKT, KT, LGU+, Samsung SDS, Moda Information Technology, Websync and Ntels are involved. In addition, standardization organizations such as the OMA and the IEEE are participating as collaboration partners.

oneM2M is composed of five work groups: WG1 (requirements), WG2 (structure), WG3 (protocol), WG4 (security) and WG 5

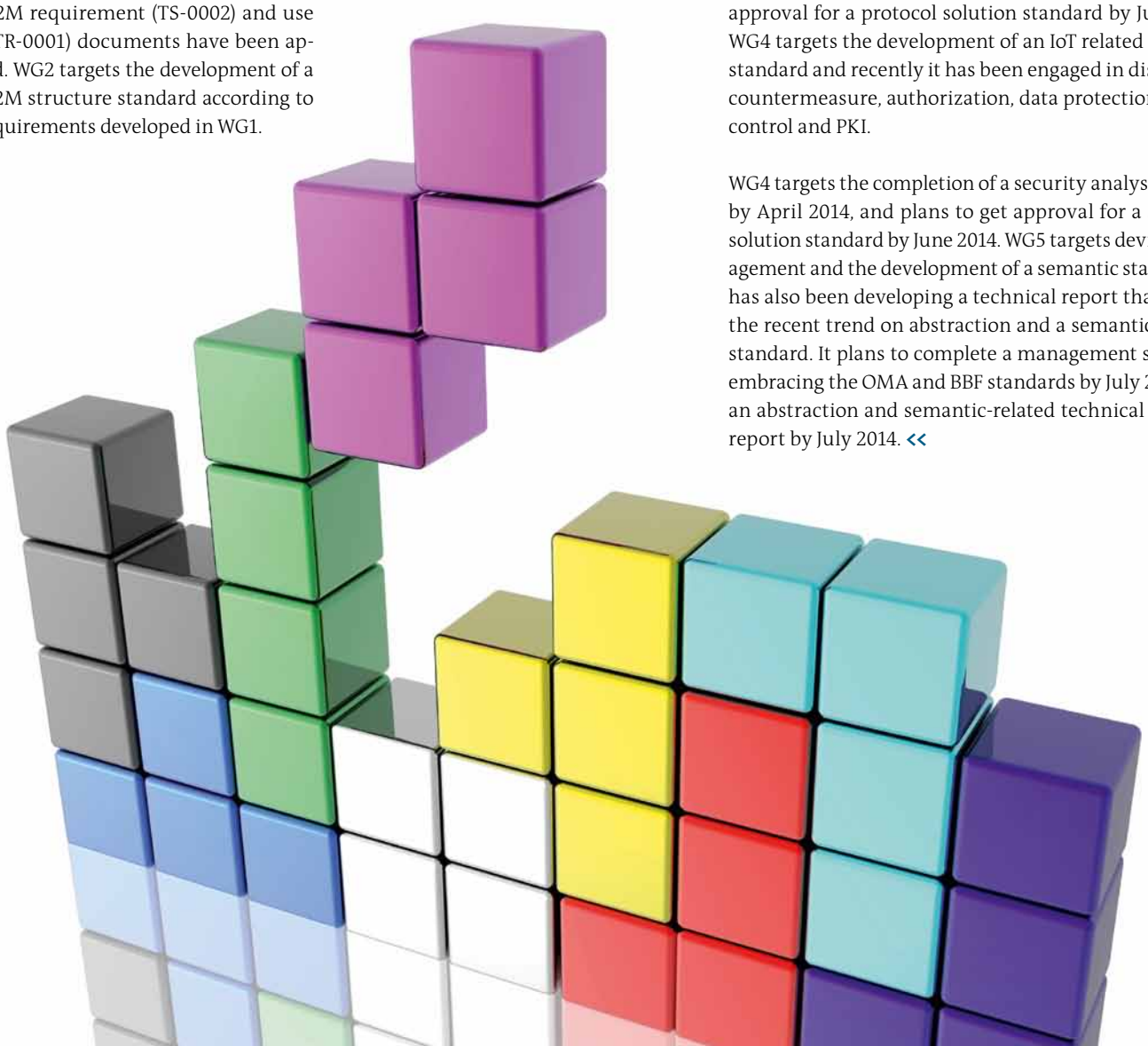
WG	Doc Type	Object	Plan			
			Start	CC	Frozen	Approval
Requirement (WG1)	TR - 0001	oneM2M Use cases collection	TP#1	TP#4	TP#6	TP#8
	TS - 0002	M2M Requirements	TP#2	TP#6	TP#6	TP#8
	TR - 0000	Benefits of oneM2M technology	TP#1	TP#2	TP#2	N/A
	TR - 0004	Definitions and Acronyms	TP#2	TP#3	TP#11	TP#12
	TR - 0005	Roles and Focus Areas	TP#2	TP#3	TP#11	TP#12
Architecture (WG2)	TR - 0002	Part 1: Analysis of the architectures proposed for consideration by oneM2M	TP#1	TP#4	TP#4	TP#6
	TR - 0002	Part 2: Study for the merging of architectures proposed for consideration by oneM2M	TP#3	TP#5	TP#5	TP#6
	TS - 0001	oneM2M Functional Architecture	TP#3	TP#8	TP#8	TP#10
	TR - 0010	oneM2M Device/Gateway Classification	TP#8	TP#10	TP#11	TP#12
Protocol (WG3)	TR - 0009	Protocol Analysis	TP#5	TP#9	TP#9	TP#10
	TS - 0004	oneM2M Service Layer Protocol and API Specification	TP#5	TP#7	TP#11	TP#12
Security (WG4)	TR - 0008	Analysis of security solutions for oneM2M system	TP#5	TP#9	TP#9	TP#10
	TS - 0003	oneM2M Security solutions	TP#6	TP#10	TP#10	TP#11
MAS (WG5)	TR - 0006	Study of Management Capability Enablement Technologies for Consideration by oneM2M	TP#3	TP#7	TP#7	TP#8
	TR - 0007	Study of Existing Abstraction & Semantics Capability Enablement Technologies for consideration by oneM2M	TP#3	TP#11	TP#11	TP#12
	TS - 0005	Management enablement (OMA)	TP#8	TP#11	TP#11	TP#12
	TS - 0006	Management enablement (BBF)	TP#8	TP#11	TP#11	TP#12



(management, abstraction and semantic). WG1 develops use cases and requirement standardization in various sectors such as automotive, remote monitoring, home/appliance and medical services. oneM2M requirement (TS-0002) and use case (TR-0001) documents have been approved. WG2 targets the development of a oneM2M structure standard according to the requirements developed in WG1.

The current oneM2M structure is developed using the RoA (Resource of Architecture) method, and the SoA (Service of Architecture). Release 1 should be announced during the 12th Technical General Assembly in July 2014. WG3, whose first meeting was held in August 2013, targets the development of a protocol according to the oneM2M structure. It plans to develop a protocol analysis technical report by April 2014, and to get approval for a protocol solution standard by July 2014. WG4 targets the development of an IoT related security standard and recently it has been engaged in discussing countermeasure, authorization, data protection, access control and PKI.

WG4 targets the completion of a security analysis report by April 2014, and plans to get approval for a security solution standard by June 2014. WG5 targets device management and the development of a semantic standard. It has also been developing a technical report that covers the recent trend on abstraction and a semantic-related standard. It plans to complete a management standard embracing the OMA and BBF standards by July 2014 and an abstraction and semantic-related technical analysis report by July 2014. <<



CONNECTIVITY – THE KEY TO THE INDUSTRIAL INTERNET

Carl Ford, *CEO, Crossfire Media* www.crossfiremedia.com

>> To date in the US our biggest implementations have been associated with automotive, and while they have been substantive in quantity, the benefits have been relatively soft.

General Electric [GE] has put the push on the cost savings that can be found in production and prediction. GE has promoted the term "industrial Internet' to represent the revolution we are going through. GE expects this revolution to deliver annual savings in the range of $320 to $640 B, with a great deal of it coming from the ability to change the way we operate machines today.

Our current methodology is still very much like that of the early industrial era. Our machines are isolated and have a relatively long life cycle. Production is measured on cost of production, with outages and repair representing a loss. The intelligence to make decisions is driven by collective historical data.

The industrial Internet represents an opportunity to take advantage of machines gaining computing power and network connectivity to support real-time data gathering, production adjustments and predictive maintenance.

Like many other industries the impact of computing and software development will mean a new age of machine production, where the hardware will need to change less as software in the machines will be upgradeable. This has implications for both capital expenditures and also the expense of managing the systems.

Predictive capabilities will also mean the maintenance strategies can become more efficient. Take for example air and rail transport. Today we plan maintenance based on mileage and hours of use. While these averages are based on experience, the use of real-time data changes the rules. In the future the predictive nature will allow for the engines to self-monitor and enable better maintenance strategies.

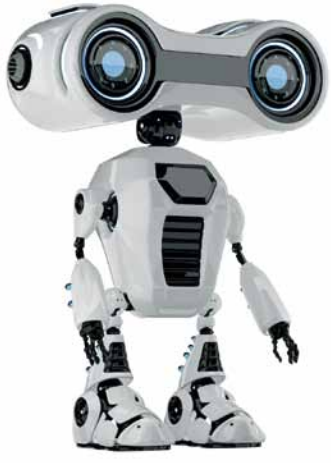
Machines in the future are going to perform diagnostic and schedule their own maintenance. Taken to a logical conclusion, machines will share workloads much the way Cloud Services from the likes of Amazon and Joyent work today.

Having the vision does not mean we are there today. The short-term goals are associated with data gathering and advances in remote monitoring and control. m2m is at the stage of gathering data rather than distributing intelligence. While the machines will become brilliant, people are going to have to adapt the processes to match this new age real time production control.

The bottom line is m2m is on the brink of a new era. <<

Vita

Carl Ford is the CEO of Crossfire Media, the Co-Owners of M2M Evolution. Carl has become known throughout the IP Communications community for his ability to connect people (and, thus, businesses). Carl can be reached at **carl@crossfiremedia.com**



ils technology
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M2M
ENABLES SECURE AND CONTROLLED REMOTE SERVICE FOR SEMICONDUCTOR AND CLEANTECH INDUSTRIES

Stuart Perry, *General Manager and VP of secureWISE*, *ILS Technology*

>> Security is a concern for any m2m deployment, but when accessing semiconductor or cleantech fabrications, uncompromising security is paramount. Once the expensive chip fabrication starts, fab owners are reluctant to give clean room access to their providers of manufacturing equipment, tools and software. That's where secureWISE comes in as a neutral third party solution for secure and controlled end-to-end, remote service enablement.

Without the risk of compromising on-going production, security, critical intellectual property or privacy, fab owners can provide role-based access in real-time to tool owners, operators, internal support organizations and external suppliers and business partners. In parallel, suppliers have virtual 24/7 remote access to their equipment – allowing them to perform trouble shooting, routine maintenance, software upgrades, predictive maintenance, and diagnostics from anywhere.

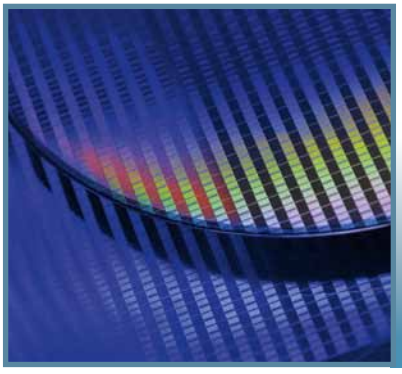
secureWISE is offered as a Platform-as-a-Service (PaaS) managed by ILS Technology, and offered as a subscription-based service. It takes role-based access control to the application layer assuring protection of confidential data. With commercial installations in over 90% of 300mm wafer fabs around the world, the award-winning secureWISE has been accepted as the de-facto standard in secure remote connectivity and control for the semiconductor industry, which represents the ultimate secure vertical-market m2m use case.

REDEFINING SERVICE

For many fab owners it has become a prerequisite that OEMs must use secureWISE to access and control equipment in the fab to prevent any compromising, tampering, data leakage, or interruption of the proprietary and expensive semiconductor operations. At the same time, forward-thinking OEMs, such as Applied Materials, ASML and Cymer are now focused on predictive maintenance models that prevent and predict failures, offer continuous improvement and end-to-end services to improve overall output of the fab. By being constantly connected and performing sophisticated data analysis, their global experts can remotely support (or even replace) personnel at fabs anywhere when issues arise – avoiding expensive downtime and reducing travel time and cost. They can view all equipment in real-time, as if they were there, while taking advantage of company-wide resources, databases and diagnostics capabilities to analyze the root cause, share best practices and implement a solution.

SOLID PATH FORWARD

Following Telit's acquisition of ILS, secureWISE continues to be an important area of focus and investment as we prepare to help the industry transition to the next generation of highly complex processes and larger wafer sizes. ILS' Project 450 is aimed at accelerating the introduction of 450mm wafer sizes, offering both fabs and OEMs a chance to securely collaborate on R&D, troubleshooting and pilot runs from anywhere – both during pre-production and full commercialization. <<



secure WISE

M2M WITHIN "FOUR WALLS":
MISSION-CRITICAL CONNECTIVITY AND OPERATIONAL EFFICIENCIES FOR INDUSTRIAL AUTOMATION

David De La Rosa, *Director,* *ILS Technology*

ILS technology
a Telit company

>> While remote m2m communications using wireless are growing quickly, there are still more wired m2m connections inside buildings around the world today. Both solutions are conceptually the same, fully complementary and often used together.

With Telit's acquisition of ILS Technology, we continue to grow and invest in the industry-leading deviceWISE Enterprise LAN Software that lets companies connect and integrate industrial production equipment and processes with existing enterprise resources planning (ERP), manufacturing resource planning (MRP) systems, Business Analytics Applications and SCADA applications.

The deviceWISE Enterprise LAN Software from ILS can be installed and maintained on-site and is preferred among industrial companies that rely on mission-critical connectivity, security, scalability and enterprise-grade performance.

deviceWISE supports "Device to Device" peer communications between intelligent assets, "Device to Database" for information collection and collaboration, or "Device to Business Application" for centralized asset management and business processing. This enables real-time information transfer, transaction logging, and bi-directional control. deviceWISE software is already pre-integrated with Mitsubishi and Siemens. The scalable architecture is configurable to any manufacturing environment in any industry. This is realized by leveraging the vast library of built-in standardized drivers and connectors.

Forward-thinking organizations have chosen deviceWISE software to improve and streamline their manufacturing and industrial operations. Here are a few real-world use cases:

AUTOMOTIVE MANUFACTURING

Plant floor IT managers across Honda automotive facilities in North America were challenged with integrating disparate PLCs from Omron, Rockwell, Mitsubishi and others with proprietary manufacturing execution systems. They were tasked with improving IT resource utilization using simple common tools across different plants and increasing product quality. After evaluating custom solutions and OPC drivers, deviceWISE was deployed since it runs on multiple platforms (Windows, Linux, AIX, etc.), uses simple configuration logic and is fully featured for advanced automation. Honda has been able to support a growth in business and equipment data, while maintaining IT staff size, improve ease and speed of upgrades, reduce PLC configuration complexity and get improved data quality.

NUCLEAR PARTICLE RESEARCH

At CERN, the European Organization for Nuclear Research, physicists and engineers are probing the fundamental structure of the universe. Founded for nuclear research, CERN is known today for its super collider, where scientists use a wide variety of large and complex purpose-built instruments to study the basic constituents of matter. This work is confidential and potentially dangerous, therefore access to specialty labs is highly restricted and closely monitored.

When legacy access systems needing gradual replacement, deviceWISE allowed the removal of hardware and software layers and provided an easy integration and co-existence with the current disparate environment. deviceWISE also plays a key role in connecting and integrating radiation metering equipment across many areas with a centralized radioprotection system. The ability to trace and link radiation exposure specific to daily activities of each employee over time assures compliance with health rules and provides a safer environment. <<

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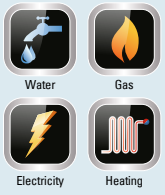

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M2M CHALLENGE – FIND THE MOST INNOVATIVE M2M SOLUTIONS

www.m2m-challenge.com

Guido Walcher, *Director, Quality and Intellectual Property, Telit*

© M2M Challenge

>> We've arrived at the second edition of m2m-challenge, a competition created with the aim to encourage developers of M2M solutions technologies to produce innovative projects and facilitate their realization.

In May 2013 participants started uploading short descriptions of their concepts, categorized in five segments: Mobility, Healthcare, Security, Energy and Consumer Electronics & Other. They were evaluated in December 2013 by a special jury of different experts. There is a winner for each of the m2m verticals, then an overall winner. All winners are entered in the "Hall of Fame" and via networking they will receive strategic contacts. The overall winner, "The M2M Innovator of the year" receives a cash prize of USD 5,000.

Telit supports the initiative as sponsor with Swisscom, Ericsson, Varta Microbattery. Several reasons propelled Telit to join the initiative. The principal one is innovation: it's the essence of m2m-challenge and part of Telit's mission.

The ability to innovate products, services and processes through the R&D activities of its own laboratories, is one of the keys to Telit's success in telecommunication and location technologies. These activities, stimulated by internal procedures, converge in major medium/long term research projects. This way of operating in Telit's laboratories is a continuous challenge that identifies innovative solutions in the same way as the m2m-challenge.

The evaluation phase is very exciting for Telit: the company is on the examining committee, where the exchange of opinions by representatives of the various companies takes place. Their different missions generate a wide vision because everyone appreciates different aspects of the concepts presented. This scenario enables a critical evaluation of the submitted m2m solutions, thereby increasing the knowledge of the m2m world. It reflects the views of the different players, which cross all the segments.

The m2m-challenge breaks down consolidated knowledge in order to reformulate new strategies and set new goals. It is undeniable that the challenge promotes innovative solutions and accelerates its realization as demonstrated by the 2012 challenge: many of the projects have been a great marketing success during 2013.

Telit also supports the m2m-challenge at its the official events: starting from Milano and moving worldwide through many cities such as Nice, San Francisco, London, Berne, Munich, and Taipei. After closing the challenge database at the end of November 2013, the competition had its final event at the Awards Ceremony at Mobile World Congress 2014, Barcelona, Spain. <<

COFFEE'S RICH HERITAGE

Massimo Saggese, *General Manager illycaffé Espresso Ibèrica*

www.illy.com

>> Coffee is the most popular drink worldwide, with around two billion cups consumed every day. Coffee comes from the Italian word caffè, which derives from kahve, the Ottoman Turkish word for coffee, which in turn comes from the Arabic qahwah. Cultivation first took place in southern Arabia; the earliest credible evidence of coffee drinking appears in the middle of the 15th century in the Sufi shrines of Yemen. Today it's cultivated in over 70 countries, primarily in equatorial Latin America, Southeast Asia, Maldives, and Africa.

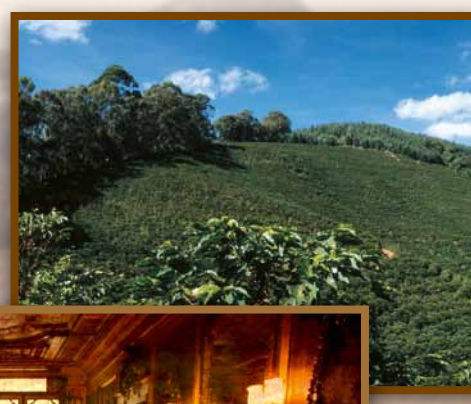
The first European coffeehouses opened in Venice in 1683, with the most famous, Caffe Florian in Piazza San Marco, opening in 1720. It is still open for business today. The largest insurance market in the world, Lloyd's of London, began life as a coffeehouse. Edward Lloyd, who prepared lists of the ships that his customers had insured, started it in 1688.

In 1730 the British introduced coffee to Jamaica, where today the most famous and expensive coffee in the world is grown in the Blue Mountains. Luwak Coffee, also commonly referred to as civet coffee, is the most expensive: it costs $160 per pound.

Arabica coffee seeds are cultivated in Latin America, eastern Africa, Arabia, or Asia. Robusta coffee seeds are grown in western and central Africa, throughout Southeast Asia, and to some extent in Brazil. The company I work for, illycaffè, produces and markets worldwide only one blend of high-quality coffee, made from nine kinds of pure Arabica. The unmistakable taste and aroma is the result of a balance of these ingredients, which come from South America, Central America, India, Africa, and China. Taste and aroma are always the same in each cup.

ECONOMICALLY IMPORTANT

Coffee has become a vital cash crop for many developing countries. Over one hundred million people in developing countries have become dependent on coffee as their primary source of income. It has become the primary export and backbone for African countries like Uganda, Burundi, Rwanda, and Ethiopia, as well as many Central American countries. In 2010 total coffee sector employment was estimated at about 26 million people in 52 producing countries and in 2011 Brazil was the world leader in production of green coffee, with around 30% of the total.



Coffee beans are grown in more than 50 countries and they represent the second largest export in the world after oil. It was the top agricultural export for twelve countries in 2004, and it was the world's seventh-largest legal agricultural export by value in 2005. Green (unroasted) coffee is one of the most traded agricultural commodities in the world. Some controversy is associated with coffee cultivation and its impact on the environment. Consequently, organic coffee is an expanding market.

SUSTAINABLE QUALITY

In order to obtain the best beans that nature can provide illycaffè sources its coffee beans direct from the growers. This results in two significant benefits. One, the producers get a higher price then the one set by the market, because there's no middleman taking a non-productive cut. And two, direct contact allows us to show the growers how to produce high-quality coffee while at the same time respecting the environment. That is why we initiated an incentive program in 1991 that brought the Brazilian coffee bean to a much higher quality that is recognized and appreciated around the world. This program is called the "Premio Ernesto Illy para Qualidade do Café Para Espresso" and the awards given to different parts of the country – such as the Cerrado and the Da Mata regions – have made a name for themselves. It is very emotional every year when we meet in Brazil for this ceremony and we see how all the coffee growers who were invited are proud to attend and present their products to illycaffè.

The sustainability certification standard developed by DNV Business Assurance – the first of its kind – has cited the illycaffè supply chain as a reference model and compared it with the current guidelines and the emerging criteria of business sustainability and responsibility. Today we hear a lot of talk about bio and organic products, but less is said about the importance of sustaining high standards.

PERFECT PREPARATION

At first sight it looks very simple: there are only two ingredients: water at 90°C and 50 beans of ground coffee, but there are various complexities and interpretations. So, how is it possible to obtain the perfect espresso? How to recognize it? Which is the best water to use? How to distinguish its aromas? What is the perfect ground level for coffee beans? In illycaffè's opinion, in order to make an excellent coffee, the "barista" – the specialist who prepares the coffee, normally an espresso – has to know all the basic rules and tricks. And when one discovers and understands the value of quality, then he or she cannot go back and be satisfied with anything less.

The illycaffè taste is a balance between sourness and bitterness. Its sweetness is immediately perceived. Its full-body is rich and has fruity and flowery notes, joined by scents of caramel, toasted bread, chocolate, almond and honey that merge harmoniously.

In Spain and Italy, we organize a contest with all the Hospitality and Truism Schools to find the Maestro del Espresso Junior of the year. This means that we instruct all the students in the art of making the perfect espresso and cappuccino. More than 1000 students a year are informed about coffee culture and coffee preparation. This is a sustainable way to keep the barista profession alive and guarantee the perfect espresso to the consumer. <<

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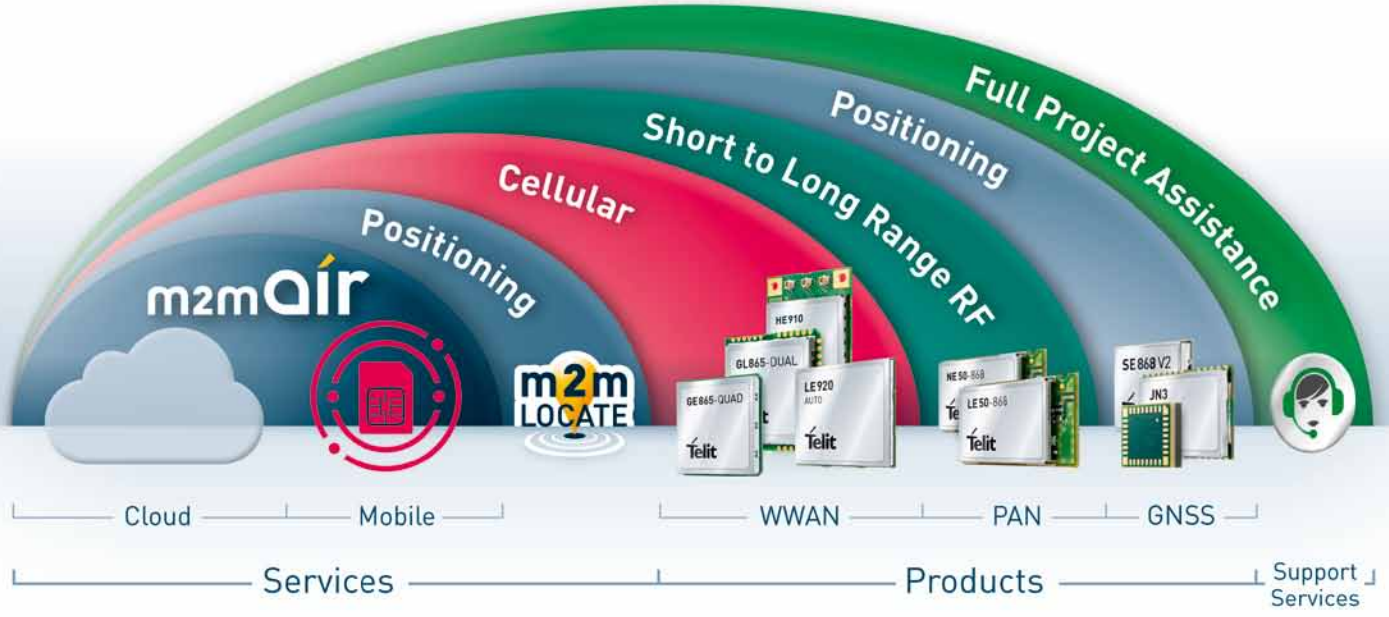

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