

TALKING HEADS

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+

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8 TALKING HEADS



14 TRANSPORT & TELEMATICS



EXPERT OPINION: CONNECTIVITY

20



22 SMART GRIDS

CONTENTS 3

COMMENT 4

by the Editor, Jeremy Cowan.
If it's going on, it's going into M2M Now

MARKET NEWS 5

Worldwide revenues, Deutsche Telekom, and Mexico

CONTRACT NEWS 6

Singapore's NFC roll-out, and Inmarsat terminals.

THE CONTRACT HOT LIST 6

Our unique New Column listing recent major contract announcements

PRODUCT NEWS 7

Vodafone and partners go a bundle, Telit's 169MHz wireless M-Bus module, & 'Smart Skin'

TALKING HEADS 8

Numerex's CEO says Standardisation is imperative for M2M's growth in 2012

EXPERT OPINION: FRAUD & SECURITY MANAGEMENT 11

Growth in fraud could match M2M's growth if we're not careful, says Rui Paiva

EXPERT OPINION: TRANSPORT & TELEMATICS 12

'Auto-Cloud' is the future of Vehicle Telematics, argues Dale Calder

TRANSPORT & TELEMATICS 14

Steve Rogerson finds that, here too, progress is hampered by a lack of standardisation

CTIA REVIEW 17

M2M Now reports on CTIA Enterprise & Applications from San Diego's show floor

EXPERT OPINION: CONNECTIVITY 20

Is M2M Connectivity undervalued? asks Gwenn Larsson

SMART GRIDS 22

Cable & Wireless Worldwide has faced challenges in developing a UK Smart Grid

VIDEO REVIEW 25

M2M Now talks Exclusively to Baard Eilertsen, CEO of Swedish MVNO Maingate

CASE STUDY: TELEMEDICINE 26

Massimo Marcotulli on health care and monitoring trials in Italy and Afghanistan

M2M CONSUMERS RESEARCH 28

New US research points out the consumer M2M applications with most appeal

THE BACK PAGE 30

M2M by Numbers? Find out about the News you may be missing online!



Cover Photo: Stratton J Nicolaides, Chairman & CEO, Numerex

Numerex Corp (NASDAQ: NMRX) is a leading provider of machine-to-machine business services, technology, and products used in the development and support of M2M solutions for the enterprise and government markets worldwide. The company offers Numerex DNA® that includes hardware and smart Devices, cellular and satellite Network services, and software Applications that are delivered through Numerex FAST® (Foundation Application Software Technology). Customers typically subscribe to device management, network, and application services through hosted platforms. Business services enable the development of efficient, reliable, and secure solutions while simplifying and speeding up deployment through streamlined processes and comprehensive integration services. Numerex is ISO 27001 information security-certified. "Machines Trust Us®" represents the Company's focus on M2M data security, service reliability, and round-the-clock support of its customers' M2M solutions. www.numerex.com



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If it's going on, it's going into *M2M Now*

It seems ages since we spoke and a lot has happened in M2M lately, with more growth to look forward to in 2012. How many markets can say that?



Jeremy Cowan

Over the last few months *M2M Now* has been to San Diego, California appearing at one of the world's largest wireless events, *CTIA Enterprise & Applications™* (our 3-page report starts on page 17). And a few weeks later we were in Orlando, Florida where the **TM Forum** was holding its annual *Management World Americas* bash. And *M2M* had a prominent role at both these shows, like never before. Pause for a second and consider that both events are broad-scale communications conferences and expos; this is further evidence of growing end user demand for M2M services, and of changes in the scale, range and quality of M2M offerings.

If you doubt me, take a look at our News (pages 5-8) which opens with an upbeat report from **Machina Research**, *M2M Global Forecast & Analysis 2010-2020*.

Down and dirty in the detail

Encouraging as this is, we find that *M2M Now* readers want to know the detail. So, turn to pages 28-29 to understand the M2M consumer opportunity. Research by **Market Strategies International** will guide you on the relative strengths of M2M prospects in Health Monitoring, Home Energy Management, Property Security & Tracking, People & Pet Security, and Mobile Banking. And the results may just surprise you. Of course, there's nothing better to guide you than the voice of experience, and on pages 26-27 we have a report from Massimo Marcotulli of **Hughes Europe** on satellite-based telemedicine and health monitoring trials in Italy and Afghanistan.

In this issue there are also reports from **Cable & Wireless Worldwide** on Smart Utilities, news of our latest M2M video interviews, 'Auto-Cloud' opinion from **Axeda's** irrepressible founder, Dale Calder, and an independent report into the challenges facing Transport & Telematics. Like I said, there's a lot going on, so it's going into *M2M Now* (www.m2mnow.biz). ↻

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Jim Morrish,
Machina
Research: MNOs
have to engage
with others in the
value chain

M2M connections to hit 12bn worldwide in 2020, generating €714bn revenue

Machina Research, global advisers on M2M and mobile broadband, have published a report, *M2M Global Forecast & Analysis 2010-20*, analysing the global

opportunity for machine-to-machine (M2M) communications. The key findings are:

- Global M2M connections will increase from one billion at the end of 2010 to 12 billion at the end of 2020, accounting for half of all global data connections. Connections will be dominated by two sectors: consumer electronics (including cameras, music players and TVs) and intelligent buildings (e.g. security and heating/ventilation/aircon systems). Between them they will account for over 60% of the total. By 2020 Europe will be the biggest region for M2M, accounting for 28% of connections. The biggest single

markets will be in China and the US with 21% and 20% respectively.

- Over 70% of M2M devices will be connected by short-range technologies, mostly WiFi. Of the remainder, wireless cellular technologies dominate. When considering solely cellular connections, the most important applications sectors are utilities (principally smart metering) and automotive (including pay-as-you-drive insurance, emergency/eCall, and security & tracking). At the end of 2010 M2M accounted for 2% of cellular connections. By 2020 this will reach 19%, or 2.3 billion connections.
- In terms of revenue, M2M will grow from €91 billion in 2010 to €714 billion in 2020, a compound annual growth rate (CAGR) of 22.9%. Europe is again forecast to be the dominant region, generating revenue of over €200 billion in 2020. The US is the largest individual country with

over €150 billion revenue, followed by China with over €110 billion.

- The addressable revenue opportunity for mobile network operators (MNOs) will be €210 billion in 2020, of which Machina Research expects MNOs to take €40 billion if they have an effective M2M strategy. The revenue generated from playing the role of bit-pipe will be €4 billion, reflecting small M2M traffic levels.

Jim Morrish, the report's author noted: "Much of the value of M2M lies in the products and services that are wrapped around a connection, and in the value of that connection (rather than simply the traffic). This is clearly a new business model for MNOs. Beyond that, in many verticals there are incumbent service providers, or others with specific sector, or application specific, expertise – the trick for MNOs will be to partner with the right companies in a way that brings value to both parties."

Deutsche Telekom adds SAP for Utilities to SaaS

Deutsche Telekom has extended its Software as a Service (SaaS) portfolio to include the SAP for Utilities system. Energy providers, the housing sector, and meter operators can now lease hardware and software for all processes at a fixed monthly price per meter. So for the first time Deutsche Telekom is offering this comprehensive range of services, from reading consumption data through to billing, from a single source. The offering also includes the SAP licence for the first time.

"We have now opened up our entire

process chain to energy providers under the SaaS model," explained Gabriele Riedmann de Trinidad, responsible for energy business at Deutsche Telekom. "Our customers get all their IT and communications technology from a single source at transparent prices and without the need to invest."

The SAP for utilities solution can, it is said, perform all key tasks, from energy data management and billing, to market communication when a customer decides to swap providers, through to six-monthly

updates in line with the requirements of Germany's Federal Network Agency.



Deutsche Telekom extends its SaaS portfolio to include SAP for Utilities

NEWS IN BRIEF | NEWS IN BRIEF



Mexico's smart grid market 'to reach US\$8.3bn by 2020'

Mexico is poised to become a major smart grid market over the course of the next decade. So says a new report from northeast group IIC, *Mexico Smart Grid: Market Forecast (2011-2020)*. While deployments are still in the early and pilot stages, Mexico is said to have the core conditions and government backing to create a significant smart grid market in the latter half of this decade.

With high non-technical distribution losses, unreliable grid infrastructure, and rapidly growing electricity demand — especially from an emerging middle class — Mexico faces many of the same conditions driving smart grid development throughout Latin America.

Mexico has been in close co-ordination with the US on smart grid co-operation and is a

natural market for US vendors to enter. The country has the potential to become a key market for wireless mesh communication technologies popular in the US. There is also strong potential for powerline communication (PLC) technologies common in European and other countries.

AT&T opens up to application developers

AT&T is taking down the protective walls it has built over the years around its applications infrastructure, and the operator is inviting app developers to play with its Application Program Interfaces (APIs). While not a first — BT offered its own software development kit (SDK) several years ago, and Vodafone opened up its APIs with Vodafone 360 — the scale of the carrier's initiative is unusual.

AT&T recently opened its network to developers from around the world with new

tools and services, establishing a collaborative infrastructure in which dedicated project teams have direct access to decision makers who can quickly make the right connections. It is now setting up a new Silicon Valley facility (sponsored by Ericsson) and has released a wireless app developer's tool kit in beta.

While app developers may be expected to concentrate initially on apps for smartphones and other wireless consumer devices, AT&T will be aware that this openness may also bring new possibilities for app developers in M2M communications.



Singapore selects Gemalto's Trusted Services Manager for nationwide NFC roll-out



Tan Teck Lee, Gemalto Asia

Gemalto, a leading provider of digital security services, has been selected by IDA to deploy mobile NFC contactless services across Singapore. The company will develop and operate its Trusted Services Manager (TSM) system to securely deploy and manage mobile NFC

services such as payment, ticketing, loyalty and other wireless services like the smart poster which allows consumers to interact with advertisements.

With Singapore's three mobile operators all connected to this interoperable NFC infrastructure, banks, payment and service providers will be able to deploy innovative mobile NFC services to all mobile subscribers. This open, secure platform will also encourage widespread participation by

businesses and service providers from wide-ranging industries to join the ecosystem to offer more consumer services, including mobile coupons, mobile tickets and product information.

The complete TSM operation will take place in a secure environment in Singapore, whereby end users' data is provisioned confidentially over-the-air to their devices. The project is expected to launch commercially to consumers from the middle of 2012.

Inmarsat asks Hughes for BGAN M2M terminal

Inmarsat, the provider of global mobile satellite communications services, has selected Hughes Network Systems to develop a new machine-to-machine (M2M) terminal for its BGAN service.

Hughes will develop the new 9502 BGAN M2M terminal by building on its 9201-M2M platform. The BGAN M2M service will offer an end-to-end IP data capability for real-time applications including smart

metering, SCADA, monitoring and other infrastructure telemetry solutions. Planned for launch in Q1 2012, Inmarsat will target the low-cost M2M service at the utilities, oil & gas, and retail banking markets.

"We believe there is significant appetite in a number of markets globally for a low-cost stable platform to support short-burst data and the increased connectivity needed in fixed monitoring applications," said Drew

Brandy, Director of Land Services at Inmarsat.

"A specific opportunity we will target is the smart grid initiative in the energy sector, with its requirement for data connectivity and information sharing across widely dispersed infrastructures. But there are a number of other markets with a similar need for IP-based real-time cost-effective visibility across their operations."

THE CONTRACT HOT LIST:

M2M Now Oct-Dec 2011

It's free to be included in The Contract Hot List (below), which shows the companies announcing recent contract wins or product deployments. If your contract is not listed here just email the details to us now marked "Hot List" <j.cowan@m2mnow.biz>

Vendor/Partners	Client, Country	Product / Service (Duration & Value)	Awarded
Convergys	Telekom Deutschland, Germany	Ends Phase 2, migration to Smart Revenue Solution with rating & billing manager	9.2011
Cryptography Research	Trident Microsystems, Inc., USA	Integrates CryptoFirewall security technology into Trident's TSC 100 STB SoCs	9.2011
Cryptography Research	MStar Semiconductor, Inc., Taiwan	Licenses CryptoFirewall security for its multimedia SoC set-top box chips	9.2011
Entone, Inc	Telekom Srbija, Serbia	Chooses Amulet™ HD IPTV Receiver with digital video recorder (DVR) capabilities	9.2011
Evolving Systems	Unnamed wireless operator, Africa	Upgrade order for DSA, supporting mobile broadband and number selection	9.2011
Evolving Systems	Tier 1 wireless carrier, Russia	Implementing the Dynamic SIM Allocation™ (DSA) system	10.2011
Gemalto	IDA, Singapore	To deploy mobile NFC contactless services across Singapore	10.2011
Great Connection	Etisalat, UAE	Launches service for expecting parents to share ultrasound scans of their foetus	10.2011
Huawei	Wireless City Planning, Inc., Japan	To deploy large scale LTE TDD-compatible AXGP commercial network	9.2011
Hughes Network Systems	Inmarsat, International	New 9502 BGAN terminal for end-to-end IP data capability in real-time applications	10.2011
JSJS	Response Electronics Ltd, UK	Supplier of intruder alarms takes delivery of its first home automation stocking order	10.2011
KiddyTrack Sdn Bhd	Maxis Bhd, Malaysia	Partner to launch a GPS / GSM child locator product	11.2011
Mix Telematics	De Lijn, Belgium	Installs bus and coach fleet management system for more than 1800 buses	10.2011
Newtec	SES, Luxembourg & Belgium	Supplying next generation Ka-band terminals and hubs for satellite communications	8.2011
O2 UK (Telefonica)	Chargemaster, UK	Providing M2M technology to connect UK network of electric vehicle charging stations	10.2011
SCHAD	BAUR, Germany	SCADA system extends automated process control to ordinary mobile devices	11.2011
Sierra Wireless	GÖRLITZ AG, Germany	Provides wireless connectivity for Ethernet / GPRS router connection to energy meters	10.2011
SkyBitz®	GP II Energy, Inc., USA	Selects GLS asset tracking product for over 600 frac tanks and other equipment	11.2011
Subex / Gantek	Avea, Turkey	Revenue Operations Centre (ROC) Partner Settlement solution	10.2011
Telenor Connexion	Amelti Development AS, Norway	Embedded connectivity for manufacturer of fuel and emissions management systems	10.2011
Telenor Connexion	OnStream, UK	2-year collaboration to link mobile communications-based gas and electricity meters	10.2011
Telenor Connexion	Renault, France	Chosen as European connectivity supplier for telematics on electric and fuel vehicles	11.2011
TWSP	ThingWorx, USA	Selected as global reseller of the ThingWorx Connected Application Platform	10.2011

Key:

AXGP = Advanced eXtended Global Platform
GPRS = General Packet Radio Service
GPS = Global Positioning System

GSM = Global System for Mobile communications
NFC = Near Field Communications
OSS = Operations Support System

ROC = Revenue Operation Centre
SoCs = System on Chips
STB = Set Top Box



Vodafone and partners launch global pre-integrated M2M bundles



Marc Sauter, Vodafone M2M: Simplified supply chain

Vodafone M2M is launching a new bundled service with its partners to help businesses take advantage of M2M services. Working with CalAmp Corporation, Digi International, MC Technologies and Sierra Wireless, the multinational wireless network operator will become a one-stop shop for M2M terminals and managed connectivity on a single contract.

Vodafone will provide a single point of contact for customers, from early concept development to support for national and

multinational deployments of connectivity and terminals. By having one delivery of Vodafone's global M2M SIM cards already inserted into M2M terminals, the partners are confident of reducing their customers' integration costs and effort.

With its partners Vodafone offers a broad range of M2M terminals addressing customer needs from market entry GPRS-based terminals with serial interface right up to high end, highly secured 3G-based devices with USB and Ethernet interfaces. One of CalAmp's two business segments is Wireless DataCom, which supports M2M services for utility, government and enterprise customers. Among other services, US-based Digi International provides smart, full-featured UMTS/HSPA gateways and routers.

Germany's MC Technologies GmbH is a supplier of M2M terminals for GPRS and SMS-based applications, such as remote maintenance and industrial controls. And Sierra Wireless of Canada is a leading provider of M2M wireless modules and terminals.

Marc Sauter, Head of Strategy at Vodafone M2M, told *M2M Now*: "This is a simplified supply chain, with one contract for everything globally. Second, we have pre-integrated and pre-tested the SIM card and solution. Third, this partnership offers simplified support and operations, with only one number to call if you need. Finally, Vodafone has a Test & Innovation Centre (to) check that it works seamlessly with Vodafone and partner networks."

Energy-efficient wireless M-Bus module for 169MHz

Telit Wireless Solutions has launched a new module featuring wireless M-Bus transfer technology. Working at 169MHz the ME50-169 module is said to be suited for smart gas, water, heating or electricity meters. These meters automatically transmit consumption data to the utility companies, increasing the accuracy and transparency of bills, offering better customer service and helping to improve energy efficiency.

Wireless M-Bus is a standardised radio transfer technology for the remote reading of meters inside buildings. The data from individual meters is transferred to a concentrator on site, which collates and

transfers it via GSM/GPRS to the supply companies. The ME50-169 modules are fully compatible with Telit's gateway solution, the GG863-SR (Short Range), which integrates Short Range and GSM/GPRS capabilities.

The M-Bus modules with Land Grid Array (LGA) mounting technology are the first product releases in the market with 25mW output power which assure extreme low power consumption, thereby meeting smart metering power consumption requirements. In addition, the ME50-169 is equipped with an embedded low power ATMEL ATX microcontroller.



Telit's ME50-169 modules work in the 169MHz band which offers better range than 868 or 433MHz

NEWS UPDATE | NEWS UPDATE

US Air Force co-sponsors 'smart skin' development for medical monitoring

The development of low power electronics and devices that are wearable, epidermal, edible or even implantable, dubbed 'smart skin', is being promoted by MC10 of Cambridge, Massachusetts. The use of implanted medical devices for long-term monitoring of medical conditions presents a challenge in the search for a renewable power source. Such devices need a self-sufficient power source that does not interact with its surroundings, and batteries are impractical due to their need for replacement.

Smart skin is an "epidermal electronic system" developed with funding by the National Science Foundation and the US Air Force. The device contains micro-circuitry such as transistors, sensors, transmitters and receivers

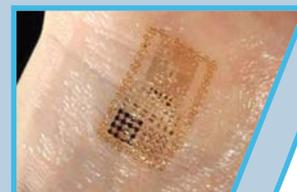
that can get wrinkled, are bendable and stretchable, just like real skin, yet allowing damage-free function of all components.

The technology allows freedom of movement, avoiding the obtrusive, uncomfortable use of adhesive tapes and wires to attach devices to people. Smart skin is only 50 microns thick and light enough to stay attached to real skin without glue or adhesive, through surface forces.

Power consumption is said to be so low that no battery will be needed for most applications. The device can harvest energy from ambient sources, via miniaturised solar cells or the movements of its wearer.

The human body is an excellent source of thermal as well as mechanical energy. Thermal gradients are present on the surface of the skin and may be used for external skin-

mounted sensors. Vibrational energy scavenging is also a viable source of renewable energy and devices powered by the human heartbeat have been created. Electricity to power implanted medical devices can be harvested from the pulse of a blood vessel, a gentle breeze, or the motion from walking.



Smart skin: No battery is needed for most applications



M2M standardisation is of 'utmost importance', says Numerex's CEO

M2M Now asks Stratton J Nicolaides, Chairman of the Board of Directors and Chief Executive Officer of Numerex, about the barriers to growth in M2M services and how services can become more widely usable for enterprise customers. As the CEO says, standardisation will be of 'utmost importance' in 2012.



Stratton J Nicolaides was appointed Chairman of the Board of Numerex in December 1999 and has served as its Chief Executive Officer since 2000, having previously been its Chief Operating Officer.

M2M Now: Are there any significant technological, business model or other barriers preventing an explosion of M2M services?

Stratton J Nicolaides: Four elements have to be in place in order for 'hockey stick' M2M growth possibilities to become reality: technology, awareness, cost and usability. In consumer businesses, it often seems like usability – and specifically user experience – is the gating factor between the general availability of a new technology and its explosive adoption. **Apple**, for example, has been fantastic at making technology both usable and desirable... and increasingly affordable as volumes grow.

Enterprise solutions, however, are different, and M2M is the consummate example. M2M is all about the intelligent delivery of actionable information which results in increased efficiencies, or better responsiveness, or both.

M2M is at a fascinating inflection point today. The technological underpinnings are all in place. The device side of the business has little or no human usability component, and the aggregation point – which happens on an application platform, typically in the cloud somewhere – has well-established dashboard and notification capabilities.

Because M2M deployments are almost always ROI-driven, cost is, of course, a critical factor. That said, hardware and connectivity costs have come down

steeply over the past several years, which is great news for M2M. However, roaming charges for international services remain high and inconsistent, particularly when roaming across various global networks. Regulations and restrictions pertaining to permanent roaming on global carrier networks as well as disparate session rounding conventions contribute to financial risk in global M2M explosion. This bears watching.

This leaves awareness. The biggest hurdle in massive M2M services adoption is customer awareness and education. Customers are not yet fully aware of the complete spectrum of M2M opportunity, the positive impact it can have on a business's core infrastructure, the financial efficiencies it can drive, and the low cost of entry.

The industry needs to make a greater effort to educate companies about how utilising M2M technology can have a positive impact on both financials and customer satisfaction. Working with an experienced partner like Numerex can make all the difference here, as each phase has distinct challenges ranging from code optimisation to device certification. Because Numerex is one of the few companies who can streamline the development process by delivering device management, network, and application services through its horizontal platforms - that can be subscribed to either separately or fully integrated - the product development cycle leading to commercialisation becomes simplified and expedited. →



M2M Now: Technological developments in M2M are accelerating as service providers and equipment vendors invest in the market's growing potential. But how can M2M services be made more widely usable?

SJN: There are at least three levels of segmentation in today's M2M market, and all are important. Like many technologies, in its initial emergence M2M was deployed in a few specific industries to make a vertical market more efficient or to offer specialised features. Wireless backup for the security market is one great example of this.

A broader M2M solutions market is in horizontal solutions. A good example here would be asset tracking. Numerex has a platform which takes location information from both satellite and cellular tracking devices and integrates the results into one user control panel where owners can monitor locations, set up alerts for unexpected movement, define geofences for expected boundaries, and so on. This kind of fully integrated solution works across industries, equally useful for a state or government agency monitoring to ensure that a roadside generator doesn't get stolen and for a rural farmer who is keeping track of where all of his combines are harvesting today.

The third M2M solutions market really underlies everything: an M2M enablement platform. Numerex offers a strong portfolio of fully integrated products, but the real key is in the underlying platform which enables control of the network, management of the remote devices, and a common infrastructure for diverse applications. Ultimately, it is the strength of an M2M platform that enables the creation of easily configurable, rapidly deployable solutions for customers.

M2M Now: Will standardisation be important in 2012?

SJN: Standardisation will be of utmost importance in 2012, and critical to rapid industry growth. There's no question that M2M is becoming the backbone of today's worldwide business and that standards are bound to fuel its growth. Standards equate to interoperability, flexibility and scale, and will, as a result, accelerate M2M adoption.

Many organisations around the world are working on M2M standardisation. The central work done on the Internet of Things (IoT) at the International Telecommunication Union (ITU), a specialised agency of the United Nations, headquartered in Geneva, Switzerland, and the M2M standards being developed at the European Standards Telecommunications Institute (ETSI) and the Telecommunications Industry Association (TIA) are examples of such activity.

However, the Standards Development Organisations (SDOs) also recognise that collaboration is crucial in order to avoid redundant or conflicting standards. M2M systems may differ from country to country in addition to the specificities of the various market verticals where M2M plays a key role. The simple fact is that M2M standards are most conducive to economies of scale if they are compatible worldwide. Several international initiatives are currently underway to promote a global coherent approach to M2M standardisation.

Numerex is very much involved in the development and direction of M2M standards. As a matter of fact, Numerex's CTO, Dr Jeffrey O Smith, is the chair of TIA's TR-50 Smart Device Communications Engineering Committee, and the chair of the Global Standards Collaboration (GSC) M2M Standardisation Task Force (MSTF). This task force <http://bit.ly/ujPbwf> is a forum where information and ideas can be exchanged among traditional and non-traditional standards groups in order to facilitate global coordination and harmonisation in M2M standardisation. GSC includes the major SDOs of the world and supports the ITU.

M2M Now: Analysts are continually predicting a booming market in M2M services. But which industry verticals will see the best results in the short term for corporate end users and M2M providers?

SJN: From our point of view, all of the verticals are interesting... but several are exciting. Healthcare, supply chain, automotive, and home security & automation definitely have strong industry buzz. Healthcare applications are demonstrating growth in remote patient monitoring, pharmaceutical management and device telemetry. Supply chain applications are expanding beyond the factories to include performance monitoring as well as GPS asset tracking. →

"Several (industry verticals) are exciting. Healthcare, supply chain, automotive, and home security & automation have strong industry buzz."





“Standards will help the market assist customers faster by doing things like connecting an increasing variety of sensors into devices quickly, effectively and securely.”

In-vehicle diagnostics, remote maintenance and GPS tracking are making automotive telematics applications increasingly powerful, and they are becoming interoperable with consumer applications as they monitor driver behavior patterns, allow vehicle access from smart devices and support in-vehicle entertainment. Home security & automation will encompass a digital lifestyle well beyond its safety and security heritage with remote management and control of home security, entertainment, energy and appliances as a routine expectation in the near future.

There is always a role for vertical solutions that are tailored specifically for an industry. From healthcare to manufacturing to utilities – including smart grid – M2M solutions can be created to fit a specific niche, accelerating the growth across a variety of specific markets.

M2M Now: Some M2M service providers are building long-term partnerships and wide-ranging ecosystems to integrate disparate skills, technologies and devices. What is Numerex’s view of the best way forward?

SJN: We believe the best way forward includes a robust ecosystem of strong partners around the globe. There is no doubt that mobile network operators, specialised device manufacturers, and application developers are critical parts of the M2M ecosystem. Numerex’s experience, our expertise, and all of our investments in technical infrastructure have been built to complement that ecosystem. We very much view our company and its capabilities as the mortar that helps to bind the individual building blocks together. And – to continue that analogy – we feel like we can either help a customer to create the precise structure that is needed for their unique business need or we can support marketplaces with thoroughly architected solutions that we have already built.

Not even the best technology sells itself, however, and we benefit from a strong and growing network of distribution partners and value-added resellers in addition to our large strategic partners. There is no doubt that successful teaming within the M2M ecosystem is the key to our success.

M2M Now: The integration of devices, platforms and gateways was once the biggest challenge in M2M, but are service providers now paying enough attention to securing, managing and billing for the service data they obtain? How can services to end users be improved?

SJN: The key to improving service to end users is straightforward: deploying, managing and billing M2M services is easiest for the customer when using a single source provider for a complete M2M solution.

Like any new technology, there can be challenges in developing a solution with so many moving parts. After the technical requirements and the business benefits are

well understood, Numerex M2M initiatives generally go through a prototype-pilot-deployment cycle for each project. There are many complexities in both hardware – including selection, customisation, certification, and firmware development – and software that take place. Service to end users is greatly improved when they can focus on deploying the solution and the rest ‘just works’.

One of the biggest challenges for any technology looking to ‘cross the chasm’ is to simplify the underlying complexity and to deliver actionable information – securely and reliably – where it will do the most good. That is the heart of what Numerex is doing and why M2M has such a great future.

M2M Now: Business models in some areas of M2M such as telehealth are evolving rapidly. What changes have Numerex noticed most, and which sectors still need to adapt to new business demands and how?

SJN: The M2M industry is evolving rapidly, so business models are changing fast, too. The economics of connectivity and hardware are in flux, and even the underlying wireless networks themselves are in a state of transformation.

Add to this situation the fact that many of the players are changing, as consolidation takes place and some of the larger players consider expanding their organic market offerings. The uncertainties inherent in this situation could negatively impact the growth of M2M.

The key here is to remove complexity, eliminate uncertainty, and endeavour not to change the fundamental business models of our customers. Our goal must be to make their operations more efficient and structure the business model so that deploying M2M solutions is the easy decision that it should be.

That’s one of the many reasons why Numerex works through different financial models, but we are seeing a significant increase in our managed services (Service Bureau) relationships. We can deliver device, network and application as an integrated solution for a fixed monthly fee. This lets our customers scale seamlessly, avoid large capital start-up costs, and have a predictable cost basis for their business. 



M2M Jargon Buster

ROI = Return on Investment

EXPERT OPINION

Embedded Mobile (M2M): Fraud and security management

The GSMA tells us to expect 500 million new connected devices in three years as the machine-to-machine (M2M) market booms. The growth in fraud could be equally rapid unless all the loopholes are closed.

There are boundless fraud risks associated with Embedded Mobile devices and their relevant applications, processes and different business models.

Communication service providers are finding that traditional security and fraud countermeasures are not practical, because there are too many new devices and configurations used in M2M.

What will be offered and who owns the risk?

In recent years, the telecoms industry has aligned with the financial services sector through to m-banking and m-commerce. Now with M2M extending the range of new markets and business partners to vehicle manufacturers, insurance providers, utility and medical businesses and vending machine suppliers, the opportunity for fraud is widening.

Types of fraud and security attacks

The CSP will need to evaluate the level of risk by initially defining some basic areas to be subjected to a risk assessment. These include the radio interface (communication path), provisioning, authentication (device & customer), actual product security, attended/unattended devices, operational control, device management, privacy and confidentiality of information.

For the core network protection, the security threat could take the form of impersonation of devices, traffic tunneling between impersonated devices, and firewall misconfiguration specific to the modem, router or gateway or attacks against the radio network being committed by rogue devices.

On a more basic level, unattended embedded mobile devices will often have their Universal Integrated Circuit Card (UICC) stolen. In South Africa recently, fraudsters stole more than 400 SIMs and made calls costing thousands of dollars in a systematic and co-ordinated attack.

Application designers must even consider the threat from Denial of Services attacks. A distributed DoS attack on the emergency services, during a major incident, is a high impact attack that would damage any CSP.

EM devices and applications collect masses of information that could be "confidential and private". Any wrongful disclosure will both blight the CSP's brand image and result in legal action.

Meanwhile, the boom in M2M will attract new device makers and app developers to the telecoms industry who may not appreciate procedures or understand the risks – as happened with the new round of mobile providers.

Considerations for a successful risk management strategy

Having considered potential risks, the CSP should consider how to defend itself. Adapting existing Fraud Management Systems (FMS) is an option when there are expected usage profiles.

However, defences need to extend beyond the traditional methods, by factoring in the way the devices and services are provisioned and offered. For example, a CSP needs to detect tampering or physical removal of a device. Location updates will ensure integrity of the device. Which means that if the device is programmed to call in every X hours or the cell ID changes, movement of a fixed device can be indicated.

Summary

CSPs can mitigate against losses and ensure fast detection by continual review of processes. Staff must be educated in new M2M fraud trends, and new products and services assessed for fraud and security weaknesses. In support of this, state of the art technology should be used to quickly raise alerts for suspect activity. \$



Rui Paiva, WeDo
Technologies,
CEO

"In South Africa recently, fraudsters stole more than 400 SIMs and made calls costing thousands of dollars."

EXPERT OPINION

'Auto Cloud'

– The future of Vehicle Telematics

Have you ever considered what is the most complex and powerful computer that you own? Dale Calder may be about to surprise you.



The author is Dale Calder, founder of Axeda Corporation

Is it your iPhone, iPad, Macbook Pro, or Apple TV? Or perhaps it is your PlayStation 3 or Nintendo Wii? While all of these products are good candidates and are, in fact, much more powerful than the computer that put a man on the moon, they pale in comparison to our champion. The most powerful computer that most of us own is sitting in our driveway – it's our automobile.

The amazing car and truck

Vehicles today are amazing pieces of engineering. According to the **IEE spectrum**, the **Lockheed Martin** F-22 Raptor, the top of the line US military aircraft has about 5.7 million lines of software code in it, while the **Boeing** 787 Dreamliner has 6.5 million. A modern vehicle by contrast, has over 100 million lines of code in it and executes on 70 to 100 networked microprocessors.

Microprocessors control automotive subsystems as varied as anti-lock braking systems (ABS), air bags, stability and traction control, mirrors, headlights, seats, climate control, security, entertainment, navigation, and engine performance – just to name a few. With all of this complexity, it is a testament to the auto manufacturers that our vehicles even make it out of the garage.

Internet-enabled

Furthermore, today's vehicles are increasingly being built with GPS and cellular communications inside. According to analyst firm **Berg Insight**, there are over 36 million cellular-enabled vehicles on the road today, with over 113 million expected by 2015 and — as quoted in **Automotive Engineering Online** — Thilo Koslowski, research vice president at **Gartner**, predicts, "By 2016, the majority of users will experience connectivity in their vehicles. For premium vehicles, the tipping point will occur earlier, probably around 2013."

Proprietary and closed

With this explosion of connectivity and computing power, one would think that the automobile would be a hotbed of consumer and business innovation. Unfortunately, this is not the case.

Why? I contend simply that it is because these systems are closed off to developers. Much like the computing systems of the '60s – yes, the 1960s – the entire computing environment of the car is a closed system.

As an individual, I can't go online, sign up for a developer programme, and start innovating. There is no app store. Everything that I want to do for my car, or some would say "to" my car, requires me tinkering with its hardware platform. I would need to go to my local auto aftermarket shop where they could swap out the existing hardware or add new hardware, utilising the secret connectors deep in recesses of my vehicle.

Think about it, what if you had to go to the Genius Bar at the local **Apple** store where they promptly took your iPhone apart to add the latest version of Angry Birds? That would be nuts! It seems, however, that is what happens in the current telematics industry – over and over again.

Telematics today – Powered by the aftermarket

The telematics industry today is a substantial market in its own right. Global industry analysts estimate that the global commercial telematics market alone will reach US\$11.2 billion by 2015. The industry covers an amazingly complex array of solutions, including:

- Vehicle and Trailer Tracking
- Cold Storage Management →



The BMW 645 Ci is beautiful and fast. But its iDrive operating environment and apps are horrible and clunky, with no way of changing them.

- Fleet Management
- Mobile Workforce Management
- Intelligent Vehicle Management Systems
- Car Clubs
- Mobile Entertainment
- Wireless Vehicle Safety Communications
- Emergency Warning System for Vehicles
- Pay-as-you-Drive Insurance

The companies in these areas go through heroic measures to deliver solutions to the market. Take Pay-as-you-Drive insurance. The companies in that industry have had to develop wireless modems that plug into the on-board diagnostic (OBD) port (found under the steering wheel of most cars).

The effort involved in this activity alone is substantial. Since the signals found on the OBD ports are not always consistent, these companies have had to test their hardware with every car where it could potentially be used. Meanwhile, because it represents another channel of communication from the car, the car could now have two separate ways that it communicates with the cloud. Of course, the consumer is the one who ultimately pays for this duplication.

Additionally, once a Pay-as-you-Drive company has a successfully tested device, they now have to build the actual application and cloud infrastructure necessary to make it functional – this is where the real heavy lifting begins!

What's missing?

I recently bought a used **BMW 645 Ci**; it's beautiful, fast, and corners like it's on rails. It is a wonderful piece of German engineering, with one notable exception; its iDrive user interface. BMW nobly attempted to put much of the car's non-driving functions under the iDrive system in order to clean up the dash and simplify the driving experience.

For those of you that are not familiar with iDrive, it is a lot like a tablet computer mounted inside your car. You interact with it by using a small wheel mounted between the driver and passenger. Using this wheel, the driver can scroll through items on the screen and select them by pushing the wheel down.

Unfortunately, the operating environment and applications that you interact with are horrible and clunky, with no way of changing them. It is as if some ancient Greek artist had chiseled it from

marble. I have no hope of improvement, no hope of smoothing out the glitches, no hope of buying a better one from some clever company with great user interface designers. My car is stuck in a tar pit while the state of the art evolves around me.

By contrast, consider an iPhone. The iPhone exposes the core features of the hardware through an application programming interface, or API. If you want to develop a racing game through the API you can access the hardware's accelerometers. If you want to post high scores to the cloud, the iPhone's built in communications enable that. In short, the iPhone contains a software layer that enables third parties to write software that mixes and matches the phone's inherent capabilities with a world of cloud-based services.

Give me something like that for my iDrive unit in my BMW and I'll pay for the airtime and the apps that I consume. Think about how much better the consumer experience would be if our cars actually evolved and became more capable each and every year that we owned them.

Telematics tomorrow - The 'Auto Cloud'

Vehicles are nothing but computer platforms with wheels. While I acknowledge that there are many aspects of a vehicle that should be walled off to external developers (the control system for the ABS falls into this category), all of the entertainment, climate control, location, fault and emergency codes, and navigation should certainly be fair game.

Slowly, but surely, the automobile industry is seeing the light. **Ford** has pioneered remote phone integration with its sync technology, while BMW is following suit with the iPhone. It is even rumoured that **General Motors** is working on embedding an Android computer within the automobile itself.

I am willing to contend that in the next 5 years, the telematics industry will undergo a massive transformation. The future of car telematics will be found in the solutions that leverage the automobile or truck's own computing platform versus the thousands of add-on hardware components and stove pipe solutions that are available today.

This 'Auto Cloud' will transform the whole car environment and provide businesses with a platform that they can utilise to open up a new era of creativity and productivity. 

“What if you had to go to the Genius Bar at the local Apple store where they took your iPhone apart to add the latest version of Angry Birds?”
- Dale Calder, Axeda Corporation



Road handling

Transportation and telematics are seen as major applications for M2M technology, but progress is being hampered by a lack of standardisation. Steve Rogerson reports.



Claus Giebert, Kontron: Big challenge for the industry

One of the biggest challenges facing transportation and telematics operators over the coming years will be in finding some sort of harmonisation for a world that has a surplus of standards both in the devices used and in the networks over which information is carried. On top of that, it has to work with different data formats.

And while ETSI has been working hard to standardise the base for an intelligent transportation system, it has been hampered by a lack of funds and by car manufacturers determined to promote and develop their own proprietary systems.

"It will be a big challenge for the industry," said Claus Giebert, product manager at **Kontron**, "because there are many different standards in

telematics for connectivity, plus there are all the network standards." Though he believes there will be standardisation in the future, the difficulty for companies today is finding harmonisation between the wide variety of short-range standards in a car or lorry – such as Bluetooth, Zigbee and hard wired methods – and the wide-scale wireless networks.

"In the car, you have quality of service requirements in real time," he said. "On the wireless network it is quite different where you have the turnaround time for packets. There might be in the future some standardisation, but you will always have the different protocols on the wired and wireless sides."

For example, he said in the back office of a transportation company they would be able to see →



“There is a need for a worldwide M2M standard, or at least specific standards for each vertical market.”

- Fabrizio Bozzarelli, Advantech

the location of a lorry and information about people on site.

“If you want to see additional devices in the lorry, such as mobile phones, or people working on data or delivery notes in the back office, there is no real open standard, so it all becomes complicated,” he said. “In the future, there will be some kind of standardisation on the types of data to be transferred as well as on how they are transferred.”

Intelligent transportation

One hope to start the standardisation process for all kinds of transportation applications has been the work ETSI has been doing in its CVIS (Cooperative Vehicle Infrastructure Systems) project to establish standards for an intelligent transportation system, including car-to-car and car-to-infrastructure communications. This would allow, for example, a car that encounters, say, black ice to send information automatically about where it is to all the cars around.

There is, however, a classic chicken and egg situation with this in that no driver is going to pay a large amount of money for the technology if others cars have not got the technology, because there would be no point.

Realising this, ETSI has concentrated its trials on using existing cellular technology and looking at a way that information could be sent to the cars straight away, providing an instant benefit for such a system.

Technology, though, will still need to be built into the vehicles so that the ABS and other parts of the car can send and receives messages to the mobile SIM. There is also a security issue here, as guards need to be in place to stop people sending fake messages to the network.

Once running, fleet management and telematics service providers will be able to use the system to improve their services. There is though a snag, and that is money.

“This has been piloted in the last year,” said Holger Lenz, head of business development at **Cinterion**. “The big question is how to deploy it and who will

pay for it. The pilot was supported by the EC (European Commission) and showed it worked but the huge roll out is waiting for the business case.”

Some car manufacturers meanwhile have started to offer their own proprietary systems.

Common system in doubt

“The big goal of the EC was to establish a common system independent of the car manufacturers,” said Lenz. “But because the large deployment costs have delayed this, the car manufacturers are developing their own. It will all end up a mess. The big question is: How will they get out of this? It may have to be pushed by legislation.”

If this is successful, then the goal of an automated transport network, something once only in the realms of science fiction, may be nearer to reality.

“I remember the movie *Minority Report*, almost 10 years ago, where in the future world there will be automatically controlled traffic,” said Fabrizio Bozzarelli, business development manager for **Advantech**.

“Do you remember the controlled vehicles through well-ordered traffic? I think this concept might have looked incredible 10 years ago but now is not so far away from the reality. Today the internet, cloud computing and a plethora of sensors are combining into a popular technology of object management that is more and more familiar because M2M technology is changing the way we experience life,” said Bozzarelli.

Integrating M2M's three layers

An M2M application has three levels: the sensor level for collecting information; the network level containing communications devices such as GPRS units, Wifi access points and networking devices such as switches and routers; and the third level, the service and application layer in charge of data analysis. This layer involves the management of services and applications, and analyses the mass of data, intelligently controlling the objects and applications of transportation systems.

“The services at the third level are very important,” said Bozzarelli. “They could include protocol →



Fabrizio Bozzarelli, Advantech: Millions of new devices, each needing an IP address



David Schmider, LPRS: Challenge of interference and environmental blocking



Holger Lenz,
Cinterion: Who
will pay?

translation, device data storage and management, complex event processing and location-based services with alerts and notification, data warehousing and reporting. Many of these services are and will be cloud-based services." The first challenge, he said, was to integrate the levels together. Then there is a need to move to IPv6 technology to provide an identity for all the devices and sensors.

"IPv4 is going to end because there are not enough addresses for the new devices," he said. "M2M will introduce millions of new devices and each will need an IP address." He too believes there is then a need for a worldwide M2M standard, or at least specific standards for each vertical market. Otherwise, the risk is that progress in M2M will be slowed down.

"We are at the beginning when it comes to standards," he said. "The different companies therefore need to work together in the vertical

fields. There will be cost savings if we can develop real standards."

The other difficulty caused by the different networks is one of interference and picking the right wireless standard for a particular situation. For example, a tracking device that works fine when a trailer is empty may have difficulties when it is full.

"An empty trailer and a loaded trailer are two different things," said David Schmider, technical director with **LPRS**, "and the higher frequencies can suffer greatly. The main challenge that most developing M2M systems face is interference and environmental blocking."

In many ways, the problems M2M faces in transportation and telematics are not that different from any new, growing industry. But with M2M, even the short-term growth looks very lucrative and that could be seriously hampered without much-needed urgency in standardisation. 



A development in existing telematics systems that is being tried out by **MAN Truck & Bus** is giving out instant feedback to help staff improve driving skills. The existing system will provide information about a journey that can be reviewed with the driver at a later date. It may show, say, that on a stretch of road the driver braked heavily, but a few days later when this is pointed out to the driver, he or she might not remember braking heavily or the circumstances that led to that.

"Now we talk to the driver about what they did," said David Lester, department manager of fleet management services at MAN Truck & Bus. "But it could be a week later, and they cannot remember what it was they did."

So the company is testing out a real-time system with a box in the car that uses green, amber and red lights. The green light shines when everything is fine but if it detects inefficient driving it will change to amber or red, so the driver has an instant feedback.

MAN is also planning to install more rear- and forward-facing cameras so that there is a record of the moments leading up to an incident. "The forward facings ones give the driver's view," said Lester, "so if there is an accident, we can see what happened."

MAN is using technology to improve driver behaviour



The low-down on M2M from San Diego

CTIA Enterprise & Applications

A Division of CTIA-The Wireless Association®

San Diego Convention Center played host to the Washington, DC-based CTIA from October 11-13, 2011 as CTIA Enterprise & Applications™ rolled into town. The association chose California for its annual conference and expo focused on the mobile enterprise. And, once inside, no area had more of a buzz about it than we found among the 22 exhibitors in the M2M Zone.

When businesses incorporate mobile platforms, devices and applications into their plans, enterprises across all kinds of verticals find they can boost their competitiveness, enhance productivity, collaborate more effectively, and improve the experience for their customer.

There were Pavilions at CTIA for cloud computing, m-commerce, wireless dealers, and even a Launch Pad, as well as wireless health, and of course, M2M. Partner events also took place throughout the show and included:

- M2M's Integral Role in Enterprise Efficiency
- Optimising M2M Services on CDMA2000 Networks (by the CDMA Development Group)
- Smart Energy – Exploring the Advances Beyond Smart Grid (by Accenture), and
- World Health Care Congress – How to Win Business from the Major Purchasers of Health Care Services.

But with so much to see, **M2M Now** had to focus and did so on news and developments around the Expo.

First multi-technology learning centre in US higher education

The Florida Atlantic University of Columbia, Maryland, unveiled the **Tecore Networks Wireless Laboratory**, its new College of Engineering & Computer Science building. This new 97,000 sq ft (9,000 m²) "living learning laboratory" is said to be the first

academic building in Florida designed and built to LEED (Leadership in Energy and Environmental Design) Platinum level standards.

The Tecore lab includes a live mobile network used for demonstration and testing purposes in the most prevalent standards, including GSM and CDMA. It will enable students, faculty and representatives of major cellular carriers to collaborate on education, research and development of innovative new services, and applications such as machine-to-machine (M2M) and managed access. In total, Tecore Networks donated over US\$1 million in equipment and endowments to fund research & development and general lab operational expenses.

"As the premier showcase in the State of Florida for the latest innovations in sustainability, our 'living- →

"Each problem solved remotely saved an average of US\$2,000 and 8-12 hours of patient treatment time."
- John Keough, Yankee Group





"The worldwide smart grid market will have grown annually from about US\$20bn in 2010 to almost \$100bn by 2030."
- Morgan Stanley

learning laboratory' is the ideal environment for education and research in the technologies which power our economy and society," said Karl K Stevens, Dean of the College of Engineering & Computer Science at FAU.

Founded in 1991 by FAU alumnus, Jay Salkini, Tecore Networks is a global supplier of multi-technology 2G, 3G and 4G mobile network infrastructure. The company provides commercial carriers, government agencies and the armed forces with communications systems based on the GSM, CDMA, UMTS and LTE standards.

Telenor Connexion celebrates expansion

Following the company's recent expansion in the US market, **Telenor Connexion** announced new customer agreements, among them that it has been selected global supplier of embedded connectivity by **Amelti**, a manufacturer of industrial engine and vehicle fuel and emissions monitoring and management systems. The premium M2M solution is intended for Amelti's flagship SmartFeeder product line, an aftermarket product designed to reduce and track fuel consumption, automate additive dispensing, minimise emissions and provide fleet management provisioning.

The SmartFeeder fuel additive injection system is engineered to track diesel fuel usage, vehicle or vessel activity and exhaust emissions – all in real-time! The embedded connectivity and dedicated service portal from Telenor Connexion enables the SmartFeeder systems to be monitored and controlled remotely, allowing for automatic adjustment of fuel additive dosing to optimise engine performance and fuel economy.

Telenor Connexion also emphasised its quality of service. The company works with its customers on coverage planning for cost optimisation. Through its 24/365 global service desk, solution managers and sales force, the provider probes the roaming partners and notifies customers about possible network problems in advance. Its service portal tools allow for full control of connected device status, location and performance. Telenor Connexion also holds methodology and wireless service sessions with its customers to ensure sustainable and reliable M2M solutions.

Alliance for Everything Everywhere

Everything Everywhere, now styled as the UK's biggest communications company, unveiled a partnership with **RACO Wireless**, a leading M2M partner and enabler in the USA. The agreement will provide RACO Wireless' customers with access to Everything Everywhere's network for their international operations, in order to quickly and easily launch M2M applications throughout Europe.

The move is the first of a number of partnerships which underline Everything Everywhere's intention to be the partner of choice for companies looking to

extend their M2M services internationally.

In addition, Everything Everywhere has joined a service alliance with **France Telecom** and **Deutsche Telekom**. The alliance is designed to offer Everything Everywhere's M2M customers, including RACO Wireless customers, network access and high standards of service right across Europe.

Marc Overton, Vice President Wholesale and M2M, Everything Everywhere said: "Our ambition to become the partner of choice in the M2M space is underlined by our international partnership with RACO Wireless and the addition of **T-Mobile** and **France Telecom's** Service Alliance. By working in partnership we are able to provide businesses with a 'one stop shop' for international M2M capabilities."

Everything Everywhere announced in March that its partnership with RACO Wireless will soon allow its own and RACO Wireless' M2M customers to utilise a new multi-IMSI capability designed for cost-effective international M2M deployment. This solution will act as a local SIM when deployed in the US and UK, enabling M2M application providers to avoid high roaming charges and benefit from improved coverage. It has now been confirmed that the solution will be available in early 2012.

This partnership follows the recent launch of the Everything Everywhere M2M Management Platform, as well as the announcement of a partnership with **Redtail Telematics Ltd**, to expand Everything Everywhere's M2M capabilities into new markets.

Quickstart Developer Kit

A trio of companies launched the Quickstart Developer Kit to accelerate the development, testing and deployment of M2M applications. **KORE Telematics**, the world's largest wireless services provider specialising in M2M communications, have partnered with **ClearConnex**, a wireless embedded engineering firm, and **Richardson RFPD**, a global component distributor with expertise serving RF, wireless and M2M markets,

Together, the companies can now deliver the critical components required by M2M application developers to develop and test a complete M2M solution. Developers can purchase a cellular module developer kit enhanced with ClearConnex's ClearComm software agent and direct access to the KORE wireless M2M network, all in one simple, integrated package.

"For the first time, we are making available a comprehensive program that streamlines and expedites the path to market for M2M device and solution providers," said Robert Metzler, EVP, sales and marketing, KORE Telematics. "ClearConnex's engineering solutions and software development platform and Richardson RFPD's OEM distribution channel, together with the KORE network, enables developers to accelerate the move from testing to commercial deployment." →

"By 2015, there will be approximately 212 million smart meter systems and smart grid projects installed worldwide."
- ABI Research



M2M benefits bolster businesses

Early adopters of M2M technology are often said to be surprised by the wide range of benefits they accrue from their connected devices. So says **Yankee Group** analyst, John Keough. By thinking creatively about possible data use cases both internally and externally, M2M development teams can more effectively promote solutions to management and sell services to customers.

In a new report into M2M by Yankee Group, entitled *M2M Benefits Bolster Businesses*, Keough concluded that M2M deployments benefit both deploying enterprises and their customers. With M2M technology, both suppliers and end users

can expect operational improvements, fuel and energy savings, and new products and services.

He also asserted that M2M deployments can enhance service models. For example, a customer who purchased a software contract with its medical imaging equipment found that each problem solved remotely saved an average of US\$2,000 and 8-12 hours of patient treatment time.

In addition, Keough reported that M2M deployments provide speedy returns on investment. More often than not, M2M deployments are proving to be well worth their initial investments, often generating a full ROI within two years.

M2M enables social responsibility

Telit Wireless Solutions, the North American technology arm of Telit Communications PLC, announced that its cellular M2M modules are being incorporated into various applications with benefits for society and the environment. This is being done by New York City engineering, research and development firm **GROUND Lab**.

GROUND Lab is dedicated to creating technological solutions that address environmental and humanitarian challenges worldwide. According to its co-founder Benedetta Piantella, Telit M2M modules are integral to the success of several devices created by the firm. These include open source tracking collars to help conservationists protect the last 2,000 lions living in the wild in Southern Kenya, and a portable networked device created in partnership with UNICEF. The latter collects accurate, high-volume medical data from the field in real time for diagnosis by health facilities in Uganda.

As a prelude to CTIA, **Telit** held its inaugural DevCon event in San Diego, of which **Wyleless** was a gold sponsor. Dan McDuffie, Wyleless's CEO, used CTIA to announce the latest version of Porthos the company's web-based management platform. The global M2M managed services provider launched Porthos™ 2.0. The release reportedly delivers new features, faster performance and a greatly enhanced user experience.

"As the needs of our M2M customers have evolved, so has our management software. Talking to our customers and partners was a crucial part of the design process for Porthos 2.0," said McDuffie. "We have made dramatic improvements across the board, with a focus on usability, speed and complete flexibility and control."

Among Porthos 2.0's new features is a new user interface, redesigned to offer improved navigation and a cleaner, clearer information display. A redesigned activations and provisioning system enables 'self-serve' end user activations across multiple GSM and CDMA operators for enterprise partners.

Porthos' alerting system now includes a geo-fencing feature that can trigger alerts or restrict usage when a wireless device moves between predefined geographical areas. And a new 'auto-

upgrade' feature moves connections onto a higher price plan when usage exceeds preset thresholds.

The platform is available in several licensing models for large enterprises and MNOs, and it is scalable to an unlimited number of devices. The user experience has been improved when accessing Porthos from iPads, Android tablets and other mobile devices. And finally, the API features have been further enhanced for customers who integrate management functionality directly into their M2M applications.

Dan McDuffie said: "At this year's CTIA, though the show was on the smaller side, we experienced one of the most strategic few days in the history of Wyleless. During the lead up to CTIA we had launched our Porthos 2.0 Management Platform and we received some excellent coverage around this, both from analysts and industry press. This culminated at the first annual Telit developers conference, where, in part thanks to *the M2M Now* article, we emerged as the company to do business with. At CTIA itself, the pace of meeting requests with both strategic partners and prospective customers far exceeded our expectations. And just a few weeks after the show, we announced our strategic relationship with **Maingate** in Sweden.

"Wyleless is well positioned towards leading the emerging managed services space and we're very happy about the increased exposure we've been getting these past few months," he added. 



EXPERT OPINION

Is M2M connectivity being undervalued?

It's not 'new' news to anyone in telecom that the market for M2M and telematics communication is growing, and growing quickly. It is hard to start off an article these days, though, without at least acknowledging the fact that we will have more machines communicating with each other than humans in the coming years. This is why we see more and more mobile network operators (MNOs), service providers, and consulting firms waking up to the fact that they need to understand this new industry within telecommunications to take advantage of the growth.



The author is Guenn Larsson of Telenor Connexion

More than 12 years ago **Telenor** started working to create a telematics solution with two Sweden based companies – **Volvo** and **Securitas Direct**. Nobody knew that in 2011, there would be thousands of players in the industry vying for a piece of the M2M pie. This naturally means that competition is growing, and prices are falling. But before I explore the economics of M2M further, I want to take a step back and include a few more paragraphs about M2M in general to set the stage.

When **Telenor Connexion** was formed in 2008, we wanted to be the Nespresso of **Nestlé** and drive our own market segment – and avoid the mistake of building the business based on the way the 'old guys' would do it – that is, with typical telco principles.

Build a platform first

The first thing we did was to build our own connectivity platform. This is pretty intuitive if you have any experience delivering an M2M connectivity service. A good example is that you can no longer have a 01:00 – 05:00 hours maintenance window because your customer base are machines, and those machines will not accept such a long window – nor with the frequency that most MNOs are taking advantage of today.

Without a doubt, the industry needs dedicated M2M connectivity platforms – separate from the infrastructure that is serving consumers. The platform we built from 2008-2009 was sold to **Ericsson** in 2011. I suppose that came as a surprise to the industry as our platform was considered one of the few dedicated to M2M and created a key differentiator for Telenor Connexion.

With more time, however, it became clear that the M2M industry would thrive on economies of scale, and Ericsson was better positioned to get that scale on our platform than we were. Plus we have always known that it's our experience and proactive service awareness that have separated us from the pack – and that we can hold onto that without owning the platform. Just to be clear though, we have always believed that a dedicated connectivity platform is paramount for ensuring a premium M2M service. By selling to Ericsson we have not compromised on that principle.

The economics of M2M

Now I want to get back to the economics of M2M, and put a bit of emphasis on the title of this article. Lately, I have been talking to my analyst friends and getting one question over and over – and the conclusion I draw is that M2M is being viewed as a low revenue business – because it's being looked at for ARPU per Machine/Vertical only. This is a strange and unfair way of looking at the overall value of this service sector, and I can't figure out why some people are doing this.

M2M connectivity and the services that surround it appear to be a new industry sector that is being undervalued – and it's the MNOs that are partially to blame. Some players in the market haven't understood that they are giving away a service based on the Mbytes or even kbytes being consumed, rather than valuing it on the level of service being delivered.

Telenor Connexion sees value pricing for M2M connectivity from a very different angle, which is →

"Telenor Connexion sells on the value of the overall package delivered. We don't even care how much data the application uses."



again why Telenor Group set up an entirely separate company to grow their M2M business. We have all seen that the growth predictions for M2M are huge, but what many don't see is that the service being delivered is something much more complex, service-rich, and business- and life-critical than a standard telco Mbyte or per-minute offering for consumers or for a SIM card placed in a Kindle. What do I mean?

Connectivity service providers like Telenor Connexion sell based on the value of the overall package that we deliver. We don't even care how much data the application uses – as long as it's not over a specified 'extra large' threshold a month in a country where we provide the service in a roaming environment (i.e. outside our own networks). But this has not been a problem, as today 98% of M2M applications use less than 2Mbyte per month!

Different values

Instead we value things such as the complexity of the solution, the type of coverage needed as it relates to geography and reliability, and the technical input we give to ensure cooperation between the module and the SIM. This list can go on and on, and we ensure our customers understand the value behind our offering.

We also put the highest value, first and foremost, on our pre- and post-sales services. Telenor Connexion offers consulting based on more than 12 years of working from start to implementation in various vertical industries – especially automotive, security and smart metering. And in more recent years in asset management, and insurance telematics.

We also offer post sales service support – on a nerd-to-nerd level. Our service guys and gals don't answer phones, they solve problems. They know that many problems that appear to be connectivity issues, are more than likely an incompatibility or flaw in the application – especially in times of network disruption – which unfortunately does happen!

How much is it worth to the industry to ensure that every connectivity service provider has an understanding of the complications associated with M2M comms? If a security alarm doesn't send a signal when it's needed – lives could be lost. Wow, it suddenly seems really critical for an alarm panel development engineer to consider how to best work with the principles of wireless communication to ensure his product works when needed. And this entails much more than achieving 'certification' in a lab.

With communications networks there are never guarantees – but there are differences between communications service delivery MNOs. An end-to-end SLA (service level agreement) isn't going to save a life – but an end-to-end understanding of how to reduce downtime will! This value is something that can't be built into a per Mbyte price model.

Tight industry co-operation

I want to conclude that through work with the world's leading module partners like **Cinterion**, **Sierra Wireless**, and **Telit** we ensure tight co-operation for future M2M growth. On top of that we are part of the **GSMA** initiative for Embedded Mobile Devices.

Our customers value the experience, and the know-how for delivering a future-proof connectivity solution. Place on top of that other Value Added Services (VAS) – such as security checkpoints, and consumer payment solutions – and the overall value continues to add up.

Telenor is ready for the growth of M2M, and we most definitely want to make sure that this important industry sector is not being undervalued. But it's up to us and other service providers to get others to understand that! \$

"We also offer post sales service support – on a nerd-to-nerd level. Our service guys and gals don't answer phones, they solve problems."





Smarter than your average Grid

Network operator, Cable&Wireless Worldwide describes the challenges involved in the development of the UK's smart grid and how Information Communication Technology (ICT) will help.

Whenever the subject of the smart grid comes up, 'don't play with electricity' jumps to the forefront of my mind. Whoever I speak to, we all seem to be talking about – for want of a better engineering term – sticking a rather large screwdriver right into the middle of the power network. And when that particular network happens to be the UK power grid, that's something that shouldn't be taken lightly. One reassurance is that the thinking surrounding the smart grid has long been in the

pipeline, and we are now actually beginning to see things being done about it.

For the past 100 years the UK's electricity supply industry has been operating in much the same way as when it was first created; electricity is generated and supplied to meet the demand on a minute-by-minute basis, but managed to meet peaks in demand rather than tracking actual usage. However, rising energy costs, the need for energy →



users to better manage and reduce their carbon footprint and for renewable energy to take up the slack as fossil fuels are replaced means the grid is not fit for the future in its current state.

Grid and renewable energy

Renewable energies are intermittent in their very nature. Wind farms are dependent on wind, solar panels on sunlight and hydroelectricity on waterflow, so the amount of energy they produce will vary on a daily and even hourly basis. As such, the grid will have to be updated to facilitate the storage of excess electricity generated during off-peak times to meet peak demand. With these changes in mind the grid will have to be integrated with communication systems to combine, co-ordinate and control the myriad of systems that will be attached to it.

Furthermore, there are a number of consumer issues to take into account. Over the last decade

energy consumption, and in particular electricity, has started to occupy a more prominent place in the collective public consciousness. Environmental and economic reasons have joined together to make a potent argument for the adoption of smart technology.

Households all over the UK now see the reduction of their carbon footprint as not only desirable, but a necessary part of everyday life. The fact that it can go hand-in-hand with economic savings – a key driver in these times of austerity – simply adds to the attraction of any technology that can achieve both.

The UK's global commitment to reduce its carbon footprint has also created a whole range of Government and Regulatory agendas. From The Climate Change Act (2008), through the National Strategy for Climate and Energy, to the Carbon Reduction Commitment to the European 20:20:20 →



The author is Amy Cooke, Strategic Business Development Director for smart grid initiatives at Cable & Wireless Worldwide.



Cable&Wireless Worldwide has more than 1,100 operational network sites in the UK, many of them co-located at substations and on the transmission companies' real estate and in excess of 20,000 route kilometres of glass fibre, most of it wrapped around the earth wire of much of the UK's energy transmission networks.

targets, without smart technology the existing grid will not be able to play its role in building sustainable energy use.

In short, the ability to manage fluctuating energy generation, and to give greater power to consumers to manage their energy use, rests on the collation and interpretation of information about electricity generation and use in the grid.

The role of IT

The role of IT – already of critical importance in most industries – is now essential for the development of the grid and can be distilled into three main areas; smart grid, smart generation and smart metering. They all have their own set of output requirements, but critically they will have to work in complete harmony as sub-components of the overall grid.

The grid itself has to be able to store energy surpluses and deploy them as and when they are needed, as well as incorporating the many and varied new types of renewable energy that now feed into it. The generation of electricity is changing; wind turbines adorn the shores and occupy open tracts of land, solar panels are commonplace on the rooves of many suburban homes, and hydroelectricity is becoming increasingly popular – in some cases, 'sustainable' eco-friendly houses are even able to sell back electricity to the grid that they have created themselves.

Smart metering is the link in the chain connecting the smart grid and its smart generation to the end user; allowing real-time data delivery and monitoring, to effectively empower and enable the end user to take more control of his / her energy outputs and have more freedom in a landscape previously ruled by energy giants.

Keep it real

To make the smart grid real, the UK faces a number of challenges, not least of which will be ensuring it, and the range of systems attached to it, are secure. Security must be foremost from the first steps of development. The smart grid is as critical to the smooth operation of the nation and the economy as the road and rail networks, or the internet, and must be considered as such.

The operating models between utilities and ICT

companies will have to be based on broad and deep trusted partnerships involving ICT companies who understand the responsibility involved in transmitting and managing critical data.

Utilities will be focused on harnessing the intelligence the smart grid will give them to analyse what's happening across transmission and distribution networks. That intelligence will allow them to continue to guarantee reliable and high quality energy supply and distribution despite the numerous changes that will be wrought on their business by increasing penetration of renewable generation, electric vehicles, and combined heat & power systems (CHPs). But gathering all of that intelligence without the right network behind it is like giving someone an email account without internet access.

Delivering a unified system demands that utilities and communication partners develop a patchwork of initially independent communications networks focused on the best economics possible. Clean power at a consistent entry cost must remain a touchstone of the infrastructure programmes that will create the smart grid. To maximise business cases, utilities will need communication partners with proven credentials.

The smart grid will require significant investment, one that's worth making to leave a sustainable and technologically rich critical asset as our legacy for future generations. Now is the time for communication providers and technology companies to invest and experiment in durable smart grid technologies that are fast, secure and reliable.

The move towards smarts is an enormous project requiring the support of governments, regulators, utility companies and technology firms, but it's a challenge that we are embracing. It will see the development of many unique partnerships and collaborations, similar to those, which we have already pioneered with the likes of **Silver Spring Networks, Cisco, and IBM**. It will lead to the development of an electricity system that will serve the UK for the next century, and will create new technologies that have the potential to transform other methods of service delivery – changing the provider / customer relationship for water and gas and creating interactive households with smart appliances. And let's not forget the fundamental difference it will make to the environment. 



Glimpse M2M's future on video

The M2M Now video crew recently flew to Stockholm to talk to Maingate, to learn from the experience of this mobile virtual network operator (MVNO) that specialises in machine-to-machine (M2M) communications, and to quiz their longest-serving partners, Convergys, on their role in enabling new business models to be introduced.

According to Maingate's CEO and president, Baard Eilertsen, the MVNO now has more than 3,500 customers ranging from taxi firms to large international utilities. "Over the past few years, we have grown to focus on utility, manufacturing and the security industries. We have a full range of services towards supporting an M2M solution," he says.

Amid such changes, how, we ask, has Convergys helped Maingate to evolve its service offerings?

"I often say that 'Maingate is in the billing industry'," replies Eilertsen. "That proves how important it is to us to have a partner who understands our business to such an extent that they evolve with us to make our processes work flawlessly. This role is something that Convergys has had with Maingate since we started the company in 1998, and we feel comfortable in developing our services knowing that we have a stable and sustainable RBM (Convergys Rating and Billing Manager) platform to support our growth. Without, it would have been very difficult for Maingate to grow so fast as an M2M service provider over the years."

Morag Lucey, global vice president of Marketing & Product Management at Convergys, says that the

vendor can call on 25 years of experience providing its Smart Revenue Solutions to the telecoms, cable, satellite, broadband, and utilities markets. "Convergys Rating and Billing Manager is a highly scalable and reliable convergent charging, rating and balance management system that can support existing and emerging services across multiple vertical markets."

The video goes on to ask Eilertsen about Maingate's drive to change to a value-based charging model, and we ask him how he expects different charging models to evolve in the future.

Register for Free Access to M2M Now videos at: www.m2mnow.biz ★



Baard Eilertsen, Maingate's president and CEO talks to M2M Now

We have a full range of services towards supporting an M2M solution,"

DIARY

Event Diary

Don't forget to add the following events to your organiser. As M2M Now is Official Media Partner for most of these events, we look forward to seeing you there.

Mobile Health Summit

Gaylord National Resort and Convention Centre
Washington DC, USA
5-7 December, 2011
http://mhealthsummit.org/exhibit_list.php

Grid Interop

Phoenix, Arizona, USA
5-8 December, 2011
www.grid-interop.com/2011/

M2M World Europe 2011

Victoria Park Plaza, London, UK
12-14 December, 2011
Terrapinn
www.terrapinn.com/m2m

Connected Vehicles World Europe 2011

Victoria Park Plaza, London, UK
12-14 December, 2011
Terrapinn
www.terrapinn.com/connectedvehicle

Enterprise M2M

Berlin, Germany
23-25 January, 2012
www.enterprise-m2m.com

Mobile Financial Services

Hallam Conference Centre, London, UK
31 January - 1 February, 2012
Informa
www.mobile-financialservices.com

Utilities, Smart Metering & Grids Africa Summit 2012

Cape Town, South Africa
30-31 January, 2012
www.africautilitysummit2012.com

Mobile World Congress

Barcelona, Spain
27 February - 1 March, 2012
GSMA
www.mobileworldcongress.com



Washington DC, USA



Berlin, Germany



Barcelona, Spain



Bringing the hospital to you

As remote monitoring and interactive services involving consultants and their patients increase, today's fast-emerging world of telemedicine is seeing some exciting developments. In particular, as Massimo Marcotulli of Hughes Europe writes, trials underway in Italy show how satellite communications technology is proving key to enabling remote management of chronic or long-term ailments.

The author is Massimo Marcotulli, Business Development Director Southern Europe, Hughes Europe

This builds on pioneering work already undertaken in providing small, lightweight BGAN (broadband global area network) satellite services to enterprises worldwide.

Through the use of small, portable or semi-fixed satellite terminals built by Hughes, BGAN provides a flexible 'mobile office' which can integrate with existing corporate networks to deliver a unique end-to-end satellite broadband solution. Adapted for a medical environment, initial programmes in remote mountainous or island locations have already been successful using satellite where terrestrial communications are either inadequate or non-existent.

Here, patients with heart conditions or pneumonia, for example, have had their blood pressure automatically monitored by feeding back information on a regular basis, with remote interventions by their consultants where required. Early indications are that this is providing the medical information required to manage a patient's condition effectively and at much lower cost.

E-care

As elsewhere in Europe, the need for home care in Italy is expanding fast, with almost one quarter of the 60 million population now over 65 years old. And this is happening at a time when the healthcare industry is under unprecedented pressure, both financially and in terms of the availability of specialist nursing and medical care.

As a result, with fewer resources available to them, healthcare providers are having to do more with less, with an ever-stronger focus on delivery quality and clinical outcomes.

It is in this environment that a number of European Space Agency-funded programmes have been launched, involving medical services provider, **Telbios**, satellite management services operator, **Telespazio**

and partner satellite networks specialist, **Hughes Europe**. These are designed to incorporate satellite communications technologies in delivering the best possible healthcare for the whole population in a geographically diverse country experiencing tough economic times.

There are a number of other drivers impacting on how those involved in healthcare provision are tackling these immense challenges. Though keen to remain independent and live in their homes for as long as possible, increasing numbers of an ageing population are suffering from chronic conditions. Importantly however, in playing their part in managing this they are better educated and more comfortable with technology.

One of the most successful initiatives to-date has been IGEA-SAT (Integrated General E-care Access for home-care via SATellite). This initiative aimed to supplement the existing terrestrial broadband infrastructure and put in place a tele-monitoring system that met the relevant clinical protocols for each disease and targeted improvement in the quality of life for each patient.

Success would be defined in a number of ways. For example, it should meet the differing needs of the patient management community, including the public health authorities and physicians. In addition, it should support patients and their families regarding health management and also keep the general public better informed regarding disease prevention.

Measurable health benefits

It was recognised that the use of satellite was the only effective way to bridge the digital divide in e-healthcare, as extending the existing terrestrial broadband infrastructure was unrealistic. Critically, improvement in the clinical outcomes of IGEA-SAT programmes would be measurable – in the reduction in the number of visits to a doctor or hospital, either on a planned or emergency basis, the daily monitoring of vital signs or ongoing assessment of the broader status of a patient's health.

In order to achieve this, the IGEA-SAT response was to provide the patient with four key services:

- An agenda, or activity list, of daily actions to be performed and drugs to be taken
- Tele-monitoring of physical parameters, through the use of portable medical devices
- Video-assistance for periodic video sessions between patients and the Telemedicine Service Centre, physicians or physiotherapists
- 'Edutainment' – providing treatment-related information via the home TV set

This requires a highly reliable system together with a →



fully integrated quality of service, including physicians' availability. The implemented network had to include high-availability satellite and the solution chosen included VSAT terminals, allowing full-duplex communication.

This was recognised as a proven technology offering a cost-effective way to achieve the deployment of solutions specifically designed to support care management, by ensuring full interoperability with the existing network environment.

In order to achieve this, the solution had to include a central satellite multimedia service centre, with 24/7 technical support, a home terminal and an interactive TV set with an intuitive, simple-to-use remote control.

The trials took place across a number of regions, including Lombardy and the island of Elba. From a technical perspective, the results were successful in providing the network resilience and high quality demanded, in a way that was well-received by patients and healthcare professionals alike. As a result, work is now underway to establish a commercial model that works for both the public sector health providers who are keen to base payment on outcomes, and communications service providers used to charging on bandwidth usage.

As part of a parallel Telemedicine Pilot Project Executive initiative, TELESAL, satellite-based broadband technology has again been used, specifically to monitor and prevent cardiovascular diseases, including Type II diabetes – the leading cause of mortality in Western societies and the largest area of spending in the health budgets of developed economies.

This is designed to roll out across Italy in providing:

Mobile emergency services – in remote areas not covered by terrestrial, maritime and aeronautical mobile telemedicine and screening prevention
Home care services – including tele- and video-

assistance and home care medical information
Communication/information-sharing – including tele-consulting and remote training.

Remote management

The emerging importance of telemedicine can be seen in a number of areas, involving both the public and private sectors. The outcome has been a number of satellite-based working solutions, which have proved effective in allowing the local doctor or hospital to remotely diagnose, monitor and manage individual patient conditions.

In the military arena, for example, trials are underway in providing remote medical monitoring for troops in Afghanistan, controlled from a central hospital base.

Similarly, in specialist commercial operations such as oil and gas exploration, remote diagnosis and management of individual patient conditions can in many cases act as an effective substitute for face-to-face treatment. And, as with public sector-funded programmes, this removes the requirement for costly and time-consuming transportation of either the patient or the specialist to deal with the medical problem.

It is not only those obviously remote land-based or maritime geographies where satellite is proving to be the essential link in enabling remote medical management. Other trials involving individual patient monitoring in parts of Italy where terrestrial communications are either insufficiently robust, or indeed non-existent, are also helping to develop a revolutionary new model in which patient management is transformed – providing superior and more flexible care and at a greatly reduced cost.

Thanks to innovative satellite technologies, bringing the hospital to the patient is now proving to be a practical reality, to the benefit of the individual, the healthcare provider and the national economy. As a result, satellite communications now form an essential part of an emerging model which is set to transform the provision of healthcare across Italy and the rest of Europe. ○

“Military trials are underway providing remote medical monitoring for troops in Afghanistan, controlled from a central hospital base.”



Ready for prime time?

Understanding the M2M consumer opportunity

In the high stakes game of new product development there are high expectations around the emerging consumer markets for machine-to-machine (M2M) solutions. In a February 2011 keynote speech given by Qualcomm CEO Paul Jacobs, he forecast 70% of all consumer electronics devices will be connected to the internet by 2014. Analyst firm ABI projected more than 87% of the data traffic on mobile networks will come from connected devices. Across the wide range of companies who are placing bets on developing M2M consumer solutions, there is an optimistic attitude best characterised as ‘if we build the technology, they will come’.



The author of this summary article is Keri Christensen, VP of Market Strategies International's Communications division. She has a bachelor's degree in cultural geography from the University of Colorado Boulder and a master's in marketing from the University of Colorado Denver

Challenge

As a market research consultancy with Fortune 500 clients in all of the industry sectors where M2M will play out, **Market Strategies International** conducted a study to ‘take the pulse’ of the consumer marketplace. We wanted to know if emerging M2M products and solutions are even on the radar of the average US consumer household and, if they are, which M2M solutions appeal to them most.

We assessed the market appeal of M2M applications in five broad areas:

- Health monitoring
- Home energy management
- Property security/tracking
- People/pet security and tracking
- Mobile banking applications

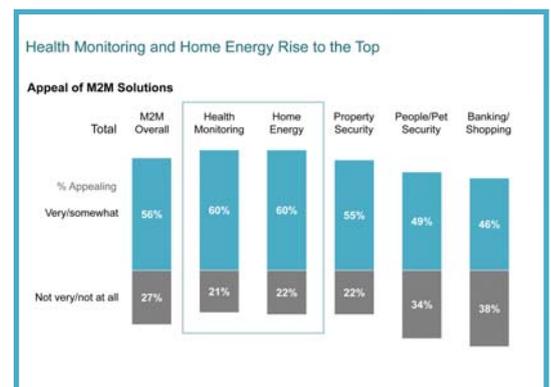
After reviewing descriptions of M2M applications in several sectors, consumers were asked a summary question about their overall interest in solutions in that area. From that data, we determined health monitoring and home energy management as the two areas with the greatest potential to gain consumer traction.

If you are a company looking to develop M2M products or to partner with other companies to deliver solutions, it is likely you will gain first mover advantages by focusing consumer product development in the areas of health monitoring and home energy management. Almost by definition, M2M creates ‘stickiness’ or barriers to switching as consumers go up the learning curve and bundle various M2M applications or integrate M2M across multiple mobile devices, household appliances or other electronics.

Opportunity in M2M health

Companies that want to gain first mover advantage will need to address the potential barriers that we uncovered as well. In particular, there appear to be higher barriers to capitalising on the health monitoring sector compared to the home energy management space.

Chart 1: Summary of Appeal Across M2M Solution Areas



The first issue in driving consumer adoption of M2M health monitoring is a general lack of consumer awareness of terms associated with it. Only one-third of adults were familiar with terminology like “electronic medical record.” Other descriptors like “telemedicine” or “telehealth” had significantly lower awareness levels at around 10% of those surveyed.

Moreover, decision makers may not be the end-users. Six in ten agreed health monitoring concepts would be beneficial. And, 60% of those surveyed said they or someone in their immediate family has a serious health condition (high blood pressure, diabetes, etc.). However, interest in M2M solutions that would actively monitor those conditions and send daily data to a physician was typically around 40%.

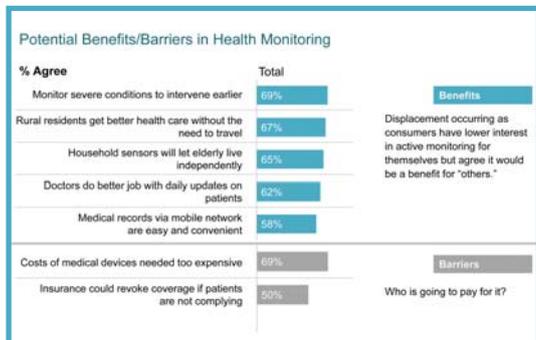
Even more telling was that among those aged 55 and older who are more prone to health problems, interest in M2M-enabled solutions was significantly lower than younger respondents who fall into the early adopter cohort — suggesting it will be their children in the “sandwich generation” that will drive this market as they look for ways to take care of their ageing parents from a distance.

Providers launching M2M products in the health space will need to be cognizant of this dynamic and develop →



messaging and channel placement that reaches multiple target audiences. Messaging to consumers will need to downplay the Big Brother aspect and promote the increased health, independence and peace of mind associated with these solutions.

Chart 2: Health Monitoring Benefits & Barriers Chart



M2M health is also a business in search of a business model. Consumers were concerned about how they were going to pay for any new health monitoring devices or technology, or if it would be covered by their health insurance. Furthermore, the ecosystem around these solutions is more complicated as they may require clinical trials to meet FDA review and approval, physician education, etc. The big money will be made once insurance companies and employers are convinced that M2M health monitoring will significantly reduce cost of care.

Opportunity in M2M home energy management and security

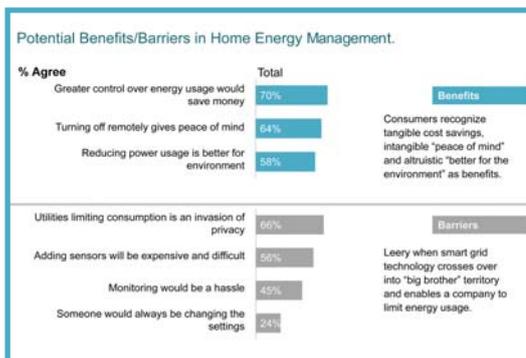
A more immediate opportunity to launch solutions may exist in the home energy and security space. Overall, the energy and utilities industry has generated higher consumer awareness of terminology around smart grid and smart meter technologies than we saw for healthcare. However, awareness of these terms appears to have hit a plateau at around 35% of the US population. An energy tracking study conducted by Market Strategies shows this level of awareness unchanged since late 2009. Given the regional nature of these energy/utility companies, the space seems ripe for a larger national player to move in and drive awareness and adoption.

Almost all of the concepts tested in the home energy management and home security areas generated positive interest among 50% or more of households. Additionally, consumers say the benefits strongly outweigh most of the barriers.

M2M providers have the flexibility to position products as an opportunity to save money, gain peace of mind or preserve the environment. Again, consumers become leery when the messaging or technology crosses over into territory that sounds too invasive, such as the ability of utilities to automatically reduce or limit energy consumption during peak periods for households that have a smart meter installed. Less than two-fifths of consumers were worried about the complexity of the technology or the security of the data being transmitted about their home's environment.

Cost is always an issue, especially in this tough economy, but consumers see M2M solutions in this area as a proactive way to protect their investment in their biggest assets — home, vehicles, and so on.

Chart 3: Home Energy Management Benefits and Barriers

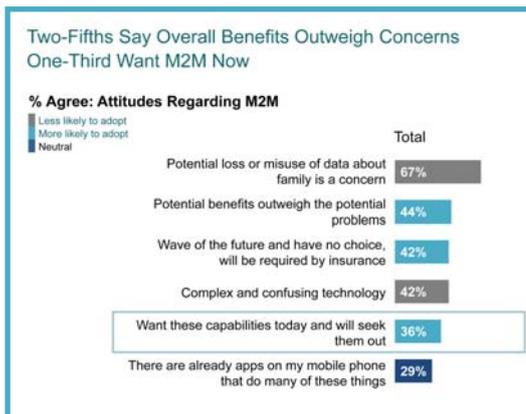


However, compared to the health space, the ecosystem is less complex and individual homeowners have direct control over whether to add and pay for these capabilities. First-to-market movers in home energy and property security can reduce churn and increase their total share of a household's spend as M2M will likely create barriers to switching by integrating a households' internet service, entertainment packages and connected home services.

Bottom line

M2M is a wide open playing field that will require savvy partnering to assemble OEM devices, software, data transport and a billing platform. Market winners will address security concerns, promote simplicity and communicate tangible and intangible benefits without crossing over into Big Brother territory. At this point, two-fifths of US households say the potential benefits of these types of solutions outweigh the potential issues, and about one-third say they are ready to start seeking out more information. Our goal at Market Strategies is to continue to serve our clients as they test their go-to-market strategies in the M2M space. \$

Chart 4: Overall Benefits Chart of M2M



How the study was conducted

Market Strategies International interviewed a national sample of 1,500 consumers aged 18 and older between June 21 and July 1, 2011. Respondents were recruited from an opt-in online panel and completed an online survey. The data were weighted by age, gender and census region to match the demographics of the US population. Note: due to its opt-in nature, the online panel (like most) does not yield a random probability sample of the target population. For more information, contact info@marketstrategies.com or visit www.marketstrategies.com

"We determined health monitoring and home energy management as the two areas with the greatest potential to gain consumer traction."



M2M by Numbers

A spin around the news from the world of machine-to-machine (M2M) communications, connected devices, enterprise mobility and smart services. For more information on these and other stories go to www.m2mnow.biz



China Mobile completes wireless city platforms in 150 Chinese cities

Date by which Asia will become the largest M2M market, says Pyramid Research

CSPs ranked by Analysys Mason in report on M2M performance

North America accounts for US\$350m in advanced water meter shipments in 2010

Vodafone chosen by Sony as preferred partner to connect new PS Vita

New videos at www.M2Mnow.biz describing the connected world in 2012

Make sure you're listed in the 2012 M2M Now Directory www.m2mnow.biz



M2M Now is soon to publish its Online Directory of companies involved in machine-to-machine communication services worldwide. These include: Application Developers, Connectivity Providers, Module & Terminal OEMs, Device & Component Manufacturers, Gateway & Router Suppliers, Platform Providers, System Integrators, Analysts & Consultants. Any organisation directly involved in M2M and connected devices can be listed.

Platinum listings give readers full Contact Information (including Email and URL), and are searchable A-Z, by M2M Market Segment, or Industry Type. This will soon be available to the 'OOOs of visitors worldwide who use M2MNow.biz on a daily basis.

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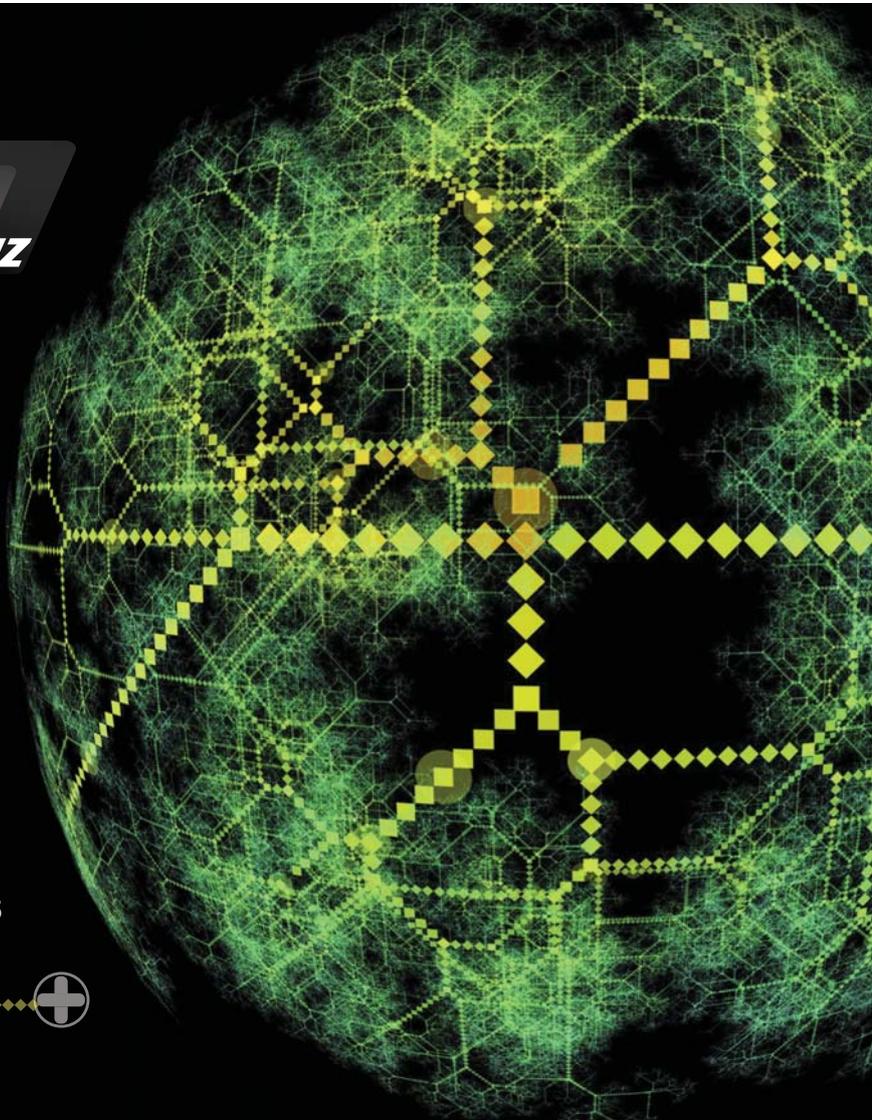


blog-led website and quarterly magazine for machine to machine communications

the latest news, reviews and insights in the world of M2M

M2Mnow.biz

Profit from a world of connected devices





It's good to be well connected.

Your M2M solution is more than just data connectivity. We understand that.

So we not only built the world's most advanced global M2M platform, we also built our business upon the most important connections of all – our relationships with our partners, carriers and customers.

That's why Wyleless is the trusted M2M partner of Fortune 500 companies and startups alike. We're the easiest company to work with. We listen to our customers and take pride in *every* connection.

Wyleless offers truly uncompromising M2M solutions, delivering worldwide wireless connectivity via the most secure and resilient network infrastructure. We provide unrivaled management tools and empower you with end-to-end managed services, technical expertise and dedicated support.

So connect with the experts and together we'll take your applications to the next level. You have found your true M2M partner.

We can't wait to discuss the possibilities.