

Homegrown M2M Platform Enables Vodafone to Be More Responsive

4th Quarter 2014 Vol.2/Number 4



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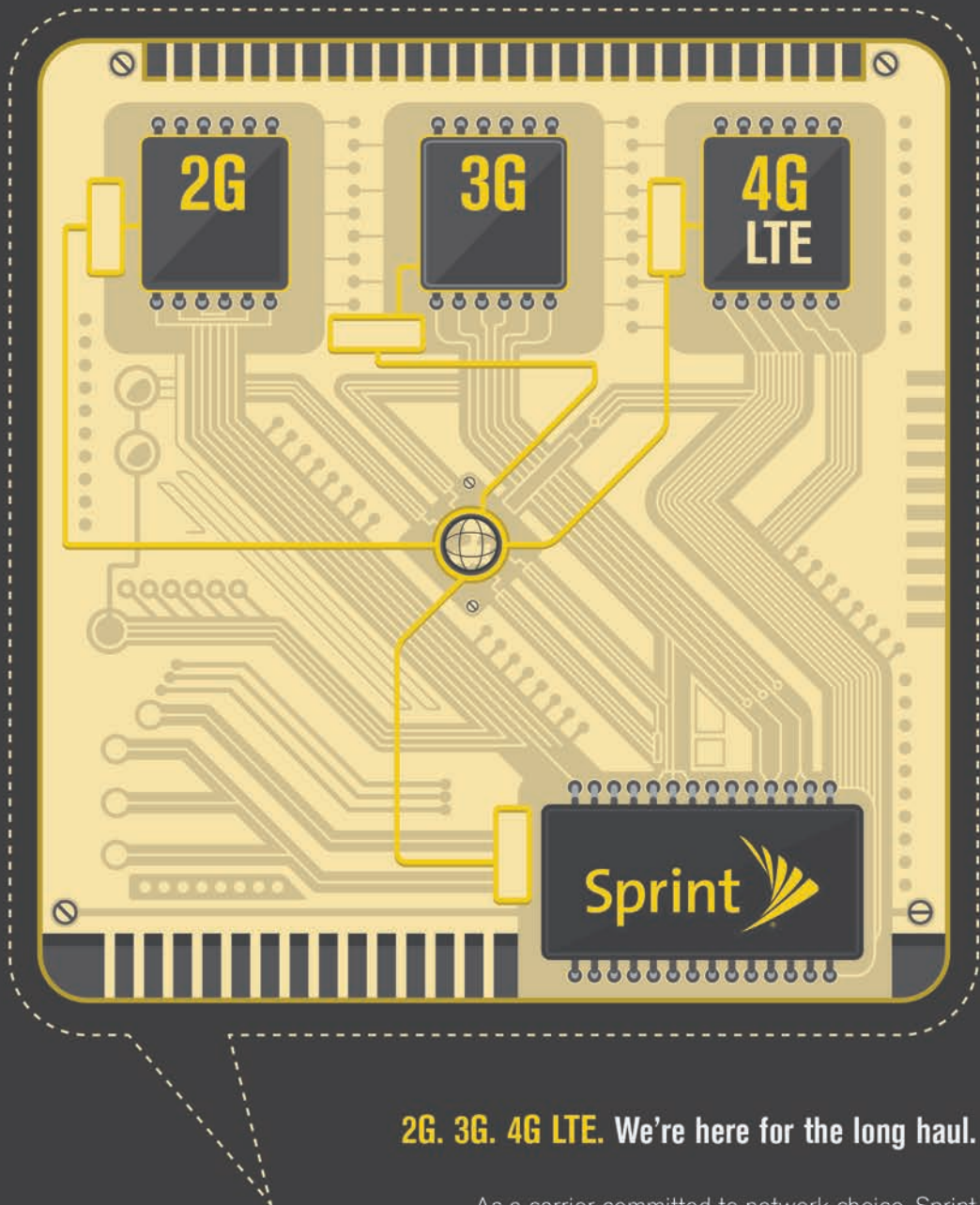
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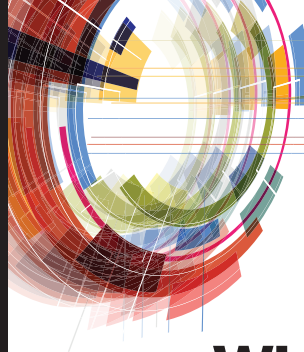


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by Paula Bernier



When It Rains It Pours

The Internet of Things continues to pick up speed. In just the past couple months, and since we came out with our last issue of this magazine, such top-notch communications players as Cisco, GE, Microsoft, and Verizon have revealed interesting details about their work on, and some new collaborations around, IoT.

The Internet of Things was one of the key phrases uttered by Microsoft CEO Satya Nadella in describing the functionality of Windows 10. This release, he said while speaking at the Gartner Symposium ITxpo, represents the first iteration of a platform that can run on multiple screens and addresses the Internet of Things.

"Windows 10 will run across an incredibly broad set of devices – from the Internet of Things, to servers in enterprise data centers worldwide," Terry Myerson, executive vice president of Microsoft's operating systems group, recently blogged. "Some of these devices have 4-inch screens – some have 80-inch screens – and some don't have screens at all.... We're not talking about one UI to rule them all – we're talking about one product family, with a tailored experience for each device. And across this breadth of devices, we are delivering one application platform for our developers."

Elsewhere on the IoT frontier, Cisco said it will leverage and resell Sensity's Light Sensory Network platform as a foundation for its City Infrastructure Management solution. As a result, Cisco has a common set of sensors, embedded analytics and back-end data structure from which to enable parking applications, traffic

management, retail analytics, and security.

And General Electric has joined forces with Verizon to expand the reach and strength of the Industrial Internet. As a result, GE's machines and devices will connect to Verizon's machine-to-machine connectivity and cloud platforms to create a secure wireless communications system for the Industrial Internet. This relates to GE's Predix value-added services, which include remote monitoring, diagnostics and the ability to resolve maintenance issues virtually anywhere in the world.

"The potential for transforming industries, including rail, aviation, energy and health care – as well as society as we know it – is tremendous, and yet the Internet of Things (IoT) is a nascent, complex and fragmented market," said Mark Bartolomeo, head of IoT Connected Solutions at Verizon. "Driving adoption requires broadening alliances across the ecosystem. We look forward to using the power of our network and cloud platforms to enhance our long-standing relationship with GE so that together we can create new business models across the Industrial Internet to meet the increasingly complex demands of customers."

The fact that so many of the world's leading companies continue to move forward with the Internet of Things is testament of the staying power and broad applications for M2M technology. And the more I read and watch the mainstream news, the more I think now could not be a better time for M2M.

Just the other week NBC Nightly News ran a piece about the danger of underground gas pipes that carry natural gas to homes. Some of these pipes, particularly in the Northeast and Midwest, are around 100 years old, according to the report, and at rate of several times a week they begin to leak, sometimes with tragic results.

At least 135 people have died in gas line explosions in this country. Explosions have happened in Allentown, Penn., Brentwood, Long Island, New York City, and even in California. Replacing these pipes could take up to 50 years to replace, according to the report. In the meantime, if this hasn't already happened, it would seem that these pipes could be fitted with sensors to send alerts when leakage occurs.

Terry O'Sullivan, general president of the Laborers' International Union of North America, recently commented: "It has been 21 years since the last significant boost was made to the nation's transportation infrastructure. The last investment hike – a 4.3 cent per gallon increase to the gas tax – went into effect Oct. 1, 1993. In the 21 years since the gas tax was last raised, bridges have continued to collapse and numerous roads have crumbled. The American Society of Engineers has ranked the U.S. transportation system at nearly failing. Thirty percent of America's bridges have exceeded their 50-year design life, and bad roads contribute to a third of all traffic fatalities."

With so much of our nation's infrastructure now nearing end of life, M2M solutions could potentially help avoid disasters on a number of fronts. **M2M**

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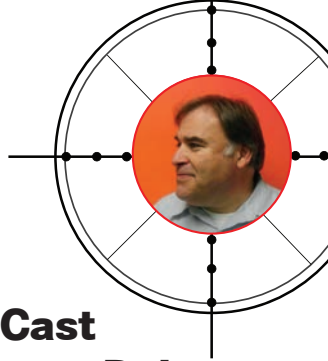
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Management Reorg May Cast Ellison in an Even More Important Role

The phrase "Shadow of the Leader" has been used to describe the personality impact of the leadership of a company on the products, style, etc. When Walter Isaacson did his biography of Steve Jobs, he showed Steve's focus on design. By in large we can see that Tim Cook has been following that drive for great design, even if the iPhone6 resembles the Samsung Note.

In stark contrast, when Henry Ford, who thought that all cars should be black and one model, passed away, Ford became colorful and expanded the model line.

Larry Ellison, the CEO of Oracle, recently announced his migration to CTO and chairman of the board and named Safra Catz and Mark Hurd to be the new CEOs. Now comes the question of what happens when Larry Ellison retires from Oracle. Larry's history was to have an appetite for acquisitions. Unlike John Chambers, who would find a way to acquire and assimilate, Larry was fine with gaining the revenue, expanding the marketing budget, and putting a little red logo on whatever he bought. Sometimes the mix seemed absurd. However, at the end of the day, the company managed the inconsistencies and overlaps by calling attention to where the differences were obvious either in market or application.

Safra Catz and Mark Hurd being named co-CEOs suggests that change is coming. The exact nature of the

change is very fuzzy, but with the company being divided as follows. Safra Catz is overseeing all manufacturing, finance, and legal functions. Mark Hurd will attend to all sales, service, and vertical industry global business units. Larry Ellison will preside over all software and hardware engineering functions.

Now it may be that Larry still intends to be his carnivorous self, but the reporting structure seems to indicate otherwise. It seems like we are at an end of an era.

To me, Oracle looks like it is moving to regroup and rethink the red label on certain products or is about to consolidate some products.

It also strikes me that innovation is going to be looked for internally. Each CEO's LOB does not look like a clean area for growth. Mark Hurd has a history of finding a path to performance. The responsibilities he has to manage as CEO strike me as not where the changes need to take place.

Larry looks like he still holds the cards for the delivery of anything new. While he looks like he has given Ms. Catz and Mr. Hurd more of the limelight, his shadow still is overshadowing.

Not only that, but the move comes at a time when technology has changed tremendously. Raj Kanaya, CMO of Aeris, was pointing out to me their migration to open source platforms. (Cassandra for distributed structure and Hadoop for joins and queries) com-

bined with their use of Amazon Web Services had given them economies of scale that they could not achieve in the traditional IT way.

And make no mistake: Massive scalability is being used and achieved by rethinking processing.

This in part, is part of the rationale of fog computing, which looks to apply the scale of the cloud to internal local services. Cisco, IBM, and Red Hat have all indicated an awareness that IT is going through a major rethink in the design of data management and delivery. Autonomic computing is taking virtualization to a new level of self management.

Larry Ellison has on occasion shared visions that were ahead of their time. His Internet Toaster has grandchildren in game consoles and carrier home gateways.

Ironically, this could all very well be in Larry's wheelhouse. Cassandra is a Java implementation, and Oracle leads the Java community.

I'm speculating it could be that Larry shed the operational work to focus on where to take Oracle next. Having Cassandra and Hadoop being open source is probably frustrating to Larry's normal method of acquisition. On the other hand, it could be exactly the shadow he wants to cast. **M2M**

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by James Brehm



Is M2M Important to the Carrier? A Rant of Sorts

Earlier this week, I was asked by someone if I would comment on “if M2M is important to carriers”. This question comes up more often than I would expect. Oftentimes in meetings with hardware companies, they ask me if carriers are serious about M2M. In discussions with carriers, they themselves talk about the differences in ARPU between smartphone and M2M pricing. Distributors and systems integrators find themselves vexed by the question. And I don’t even want to get into the discussions with software guys.

And this has spawned many a debate. Yes, I know it seems weird that I would find myself in a debate with a customer. All the while I asked myself, “Are you kidding me?”

Not only is M2M important to carriers, it is critical that carriers understand the magnitude of its importance.

Let me start with a brief history lesson. Companies like AT&T, Verizon and Sprint began their lives as telecommunication service providers. It was a time when voice was king. People wanted to talk to people, no matter where they were. InterLATA and intraLATA tariffs were common terms. Long-distance companies would send customers checks in the mail just to switch service providers. And people would pay a premium for quality of service.

But there was a massive paradigm shift.

It started with the Internet. People started browsing, then chatting, in user groups, and then through e-mail. About the same time, mobility came into being. People would instant message from a computer, or hold a Skype call if they could. This would save them money on long distance. Then they began to text from mobile phones. And BlackBerry enabled mobile e-mail. Then we got smartphones, touch screens, speech-to-text, OnStar, Sync, and the list goes on.

All the while, data usage increased and voice usage declined, all to the point of where voice doesn’t matter much anymore. Meanwhile, companies like Apple and Google went over the top, moving up the food chain to capture high margin services.

Companies like Verizon, Sprint, and T-Mobile cannot sustain themselves as legacy voice services companies.

Do you hear that? (It’s the sound of a pin dropping.)

Sorry, I had to use an old Sprint line to get your attention, but voice is dead. Internet 1.0 is dying.

People now use the tablet, smartphone, or phablet as a consumption device. And at first there was a one-to-one ratio of devices to people. But as tablets became more affordable, the number gets closer to two to one.

As cars become more connected, the grid becomes smart, and home automation becomes a reality, will the handheld tablet of today remain as relevant? Or will people consume data differently...in connected cars, as digital signage, at a kiosk, etc.?

How will connected devices and sensor information be used?

Right now, you might have a smartphone, a tablet, a connected car, a connected home, a Fitbit, and 20 other connected items. But those devices added together and usage patterns from them become your own unique identity.

When sensors and devices merge with identity and contextuality, relevance becomes a reality.

Telcos now are not the telcos of old; they are now the onramp to the cloud. And we’ve entered an era where every device that can be connected to the Internet and other devices will be connected to the Internet. We are in transition, from a world where

the phone number was a physical location and you dialed a rotary phone literally making sparks (much the same way early cavemen made fire) to complete a call to a hyper-connected world where sensors talk to sensors, machines talk to machines, and more important than voice quality is data – big data – relevant and contextualized data that flows across the network.

The Internet of Things and M2M are for real. Connected devices and connected data are the new kings.

Moore’s Law has met Metcalfe’s Law. And they liked it!

Devices are smaller and smarter now than ever before. The ability to gather data from every thing that contains a microprocessor and connectivity is the Internet of Things, or IoT.

Telcos are not moving fast enough to help their customers realize the opportunity.

The reason you should care, Mr. Carrier, is that the only reason customers are deploying devices and sensors is to get to the data.

It isn’t the network.

And for most customers today, this is not easy.

And while it isn’t easy, it is an opportunity for telcos (who have been using big data for years) to transform, to not be seen as dumb pipes, to not be displaced by the Apples and Googles of the world for a position on the value chain.

By anyone’s measure, IoT is a massive opportunity. In fact, it is the biggest opportunity in the history of technology. **M2M**

James Brehm is founder and chief technology evangelist at James Brehm & Associates.

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Get into the M2M Mentality

Machine-to-machine communications and technologies have pushed businesses to examine their processes, look for ways to increase efficiency, reduce costs, and to increase profits through innovation and collaboration. But, in an age of increasing entrepreneurship and diversity, many small businesses and start ups struggle with staying focused.

I recently spoke with a manager at a small security firm that primarily provides home alarm systems and wants to expand from small-time residential clients to commercial ones. We discussed its products and services, where the company is headed, and what roadblocks exist for the company. I realized the root of the company's problems was its lack of focus. The company also offers other security services such as providing security officers, personal bodyguards, and private investigators, but it currently doesn't have enough manpower or systems in place to actually deliver on services offered. It's trying to be a one-stop-shop for security needs, but has become a master of none.

Trying to do too much before your company has the ability to support and manage its services creates roadblocks in operations, impedes planning, and damages your brand's reputation. Having a focused, proactive mentality, as a company, is crucial to providing quality products and services, thus guaranteeing customer satisfaction, and solidifying a reputation of excellence, independent of your company's industry.

Many companies try to do too much too soon, resulting in confusion and poor customer service. There are four ways a small business can stay on track, becoming more deliberate in its decisions and maintaining an M2M mentality: find your roots, team up with reliable partners/vendors, look ahead, and listen to your customers.

Find Your Roots

Remember why you created your company in the first place. What problem(s) were you trying to solve? Who would benefit from your solution? What services did you find most important? After asking questions like these, examine your current products and services and the problems they are attempting to solve. How far have you deviated from your original intentions? Did you move at all? If not, why? Too much deviation can cause problems, but so can not moving at all – you don't want to stagnate.

Team up with Reliable Partners and Vendors

Whether you are looking for your first job or you're the CEO of a Fortune 500 company, you need reliable people around you to help you achieve your goals. Finding a reliable partner or vendor for your company is key to your success. If your partners continually miss deadlines or are unable to deliver the goods and services you need, it may be time to reevaluate that partnership. If you don't currently have a partner, start looking at companies that have goals similar to you and see if there are ways you can grow your businesses together. However, be careful about which companies you choose to partner with. Make sure that your partner is reliable and provides quality products and services; you don't want to tie yourself to a sinking ship.

Look Ahead

Using the security firm as an example, the technology works, but the devices that are used have limited capabilities. As the connected home technologies increase in popularity and quality, customers will want the option of connecting their

Stay Focused and Informed, and Collaborate to Push Innovation





home security systems with the rest of their lives. By not providing a gateway with at least the capability to connect the firm risks losing customers to its competitors, or will have to face additional installations, the purchasing of new technologies later on, and potentially charge customers for upgrades. All of this can be avoided.

Though customer interest in the connected home only comprises 2 to 3 percent of the market, customer demand of new technologies and security features are rapidly progressing.

The security firm does a disservice to its customers by limiting connected capabilities for its target market. By looking ahead and anticipating this change in the market, the firm could capture additional benefits for its customers, as well as its own business. Perceiving future demands of its customers and implementing a gateway capable of connecting allows the company to market itself to a broader audience. Ultimately this will help combat customer loss, reduce installation costs, and platform changes. By simply selecting a gateway that can connect, the firm can offer a one-stop alarm service, no matter where its customers' interests lie.

You want to select devices that will work for your services and your company's budgets, but don't seal yourself off from technologies that could grow your business at a later date. Find scalable devices that will grow with you, so you don't have to back track later. Communicating with your partners and vendors will help you avoid this, as well as staying on top of current market trends, and what your customers actually need.

Listen to Your Customers

Most importantly, you want to stay current on customer interests by conducting market surveys and feedback sheets after services are provided. Listening to what your customers want and what their perceptions of your company are will provide the best direction for your company. This will help you separate tech fads and the latest marketing must haves from what you actually need.

Ultimately, you're the only one who can decide what is best for your company, but through collaboration and foresight, you can make informed decisions about what your next moves should be. That's what the M2M mentality is all about – remaining focused, informed, and collaborating with partners and vendors to push innovation and services, ensuring your company stays proactive rather than reacting to customer needs after its too late. **M2M**

Joyce Deuley is an M2M analyst and writer at James Brehm & Associates.





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MOBILIZING
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And the Winner is...AT&T Fast Pitch 2014

As the Internet of Things continues to grow, reinventing and connecting the world like never before, businesses have adopted more flexible platforms for sharing ideas with entrepreneurs, developers, and enthusiasts. Collaboration and an open venue for makers and idea-driven catalysts are critical for fostering new ideas and forging new solutions. AT&T has taken the lead on this approach to new technology development. It has focused on maximizing opportunities for innovations by launching a number of initiatives including hackathons, fast pitch competitions, and creating Foundry Innovation Centers.

Recently, AT&T held the 2014 M2M and IoT Fast Pitch in Las Vegas, during ITEXPO and M2M Evolution, from Aug. 11 through 14. More than 7,000 people attended ITEXPO, and with roughly 35 applicants in the Fast Pitch competition, energy from presenters made the AT&T booth the epicenter of activity at the conference.

AT&T invited several industry leaders to participate in judging and sponsoring the event. Sponsors provided more than \$10,000 in prize money and winners received new tablets, plus the opportunity to pursue discussions with AT&T about joining the Foundry Innovation Centers.

AT&T's Push for Innovation

The AT&T Fast Pitch event served as an opportunity for developers and designers of all kinds, IT consultants, machine-to-machine and IoT enthusiasts to demonstrate innovative ideas to a wide audience. A fast pitch is a high-paced, fast-moving presentation that requires entrepreneurs to share their ideas via PowerPoint in less than three minutes. AT&T's Fast Pitch 2014 had each participant discuss what role his or her company's solution plays within the IoT, what problems it solves, provide at least

one use case for the solution, how the application can leverage AT&T developer tools, and why it is unique. AT&T Fast Pitch is an open platform for those who can effectively communicate problem-solving applications within the IoT space that are scalable, original, and impactful.

Over the years, AT&T has sponsored several hackathons looking for new ideas or improved M2M solutions. Unlike a fast pitch, a hackathon is an event where programmers and other developers intensely collaborate on software projects, usually within just a couple of days. These hackathons produce quality solutions, powered by passionate programmers and innovators, to solve issues or to improve a solution's capabilities. Hackathons are about building ideas and fast pitches are about sharing ideas. So at 2014 M2M Evolution, AT&T opted for the fast pitch format to gather more ideas in a compressed timeframe.

Regarding the Fast Pitch competition, Mike Troiano, vice president of AT&T Business Solutions, stated, "Nearly every business today can benefit from the Internet of Things and machine-to-machine solutions, yet the biggest

challenges in implementation are not technology at all. [It is] how they must rethink their processes to truly capitalize on the multitude of benefits that a connected business offers."

Fast Pitch Innovators

Kyle Smith, 13, won this year's AT&T Fast Pitch. He developed a fire tracking system application, Fire-Fly. Fire-Fly sensors are deployed in forests to detect smoke, monitor temperature, wind speed, humidity, and lightning. These devices rely on Wi-Fi and cellular communication between sensors and a field-hub, relaying information to a hosted fire management system. Kyle's application will help to minimize damage and water usage, decreasing the amount of time it takes to control fires.

He initially became interested in M2M and IoT after entering a robotics competition in Dallas. Kyle hopes to use AT&T's M2X Data Service, utilizing its libraries and runtime environment tools as a sandbox to further develop and test his sensors.

Kyle's father, Dr. Jeff Smith, is CTO of Numerex, a leader in M2M. Jeff was on vacation in Europe this summer when Kyle called him and let him know that he wanted to enter the Fast Pitch competition. When Jeff asked if he needed any help, Kyle replied, "Nope. I got this dad." I guess he did "get it", as all judges agreed he had a terrific solution and the only demonstrable ROI in the competition.

Zachary Stovall and Kyle Cornelius represented Storific, a smart ordering companion application, and won the AT&T Fast Pitch People's Choice Award. Storific is an application that can be used on iPhone and Android mobile devices, and allows customers to cut out the middlemen, increasing customer

satisfaction through customization, and improving a company's ability to meet customers' needs where they are. The application will enable companies to maximize opportunities and customer experience, while reducing human errors and wait times. Storific competed in the AT&T Fast Pitch because it was a unique opportunity for the company to display its contribution to IoT.

When asked about what initially drew Storific to the Fast Pitch competition, co-founder Zachary Stovall said it was "because of the exposure it would generate and for the opportunity to possibly partner with a company like AT&T.... We want to build the ultimate customer solution, the ultimate team in customer experience, and we knew this was the perfect platform for us."

As winners of the People's Choice Award, Storific will be considered for the AT&T Foundry. Kyle Cornelius, co-founder of Storific, explained, that the Foundry provides "the infrastructure and network capabilities for us to roll out Storific on a grand scale. It's the perfect marriage between our initiatives and what we can provide to our customers."

In response to the winning teams, Troiano said, "We put together the Fast Pitch competition with the idea to bring together the makers and developers of the world with AT&T staffers and partners to see what kind of ideas it would spark. I really liked the winning solution from Kyle Smith, it showed great vision of what the connected world will look like in a couple of years. And the Storific guys brought in a great entrepreneurial energy to the event."

AT&T is Innovation

Through the Foundry program, AT&T maximizes collaborative projects by providing developers, designers, and engineers with industry-leading experts, providing access to the latest



AT&T Fast Pitch winner Kyle Smith, 13, accepts the prize from Mike Troiano.

development tools, and deep pools of information to produce faster solution development, collaboration, and get those solutions to market faster.

AT&T has invested millions in accelerating the creation and development of innovative M2M and IoT solutions, manifested in the several hackathon and fast pitch competitions, in addition to the establishment of several Foundry innovation centers. AT&T's efforts to use crowdsourced, collaborative platforms to find new solutions propel the market forward, driving innovation by expanding the talent pool and by providing a space

for entrepreneurs and enthusiasts to collaborate on new ideas with industry leading experts.

"We are only limited by our imaginations as to what M2M and the IoT can enable," continued Troiano. "The Fast Pitch competition served as a demonstration of the art of the possible."

Look for more events like this from AT&T in the coming years as it continues to advance its leadership position in M2M.

*James Brehm is founder and chief technology evangelist at James Brehm & Associates. **M2M***

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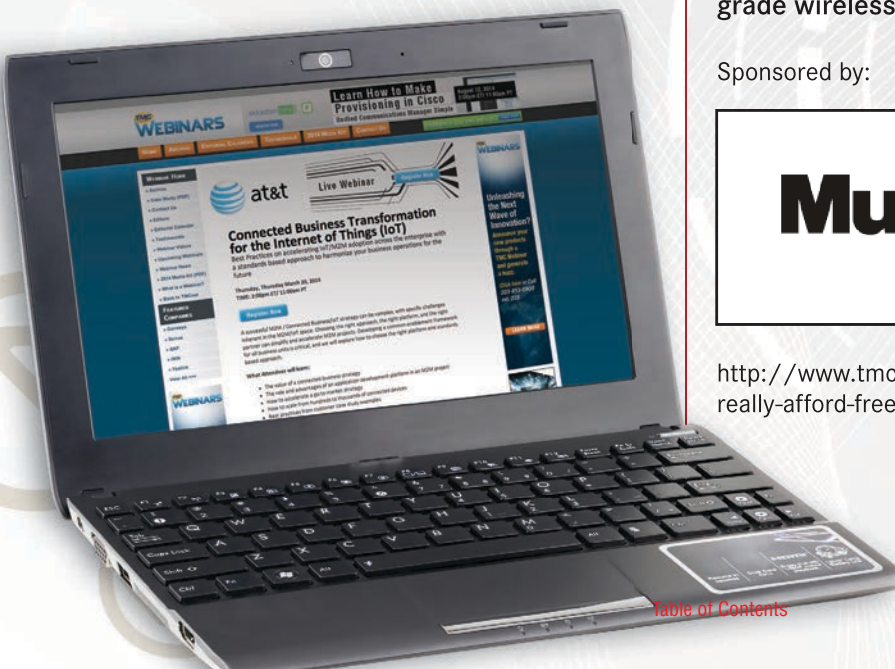
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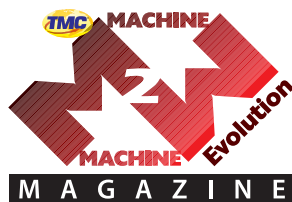
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Homegrown M2M Platform

Enables Vodafone to Be More Responsive

BY PAULA BERNIER

Vodafone is the leading player in the M2M space. Vodafone shipped 17.5 million SIMs for M2M customers globally in total. At the heart of every M2M solution it offers is the Vodafone Global M2M Platform, which is a powerful self-service delivery and management tool based on patented technology.

The Vodafone Global M2M Platform enables users to quickly and efficiently change rate plans, provision SIMs, run reports, change settings, perform diagnostic queries, and more. It includes such features as location-based services, device management and a business rules engine, and Vodafone continues to add new features to expand on the platform's core premise.

M2M Evolution magazine recently interviewed Jim Cavanaugh, Head of M2M Technical Sales at Vodafone Global Enterprise, to learn more about the platform and its central role in the valuable M2M solutions Vodafone delivers.

How did Vodafone go about designing the platform, and how has the platform evolved over time?

The M2M platform genesis was based on customer demand, and it continues to evolve based on that demand. We are constantly evaluating the wants and desires of the customers, and since we own the platform and develop it in-house, we can add the functionality that makes sense for the broader community. We deploy several major updates each year with constant incremental improvements to performance, functionality or ease of use. Every enhancement is based on customer feedback.

The platform has a real-time alerting capability. How does that come into play?

The M2M platform has alerting on several levels. At the most basic level, we can send e-mails and create reports if a SIM card has exceeded specific, multi-tier thresholds of data, SMS, or voice usage. The use case for this is simply to say 'Your device is using more service than you had anticipated, give it a look.' This has been in the platform since its inception.

Vodafone recently introduced the Business Rules Engine feature. Tell us about it.

This is a logic-based system where a matrix of event triggers can be set, and then aligned with a variety of actions. The event triggers can be associated with a single SIM, a group of SIMs, or a whole account. They can be measured in varying time spans, such as hourly, daily, monthly, and measure different aspects such as usage, lack of usage, time in a specific provisioning state, and so forth. The actions can be as simple as alerts and reporting, or more tactical with rate plan

changes or SIM suspension. Using the business rules, a customer could set a very simple rule that when a SIM has its usage measured, if it exceeds a specified threshold, it's moved to a new more cost-efficient rate plan, and if it exceeds another threshold, it is suspended with notification.

The platform's diagnostic tools allow users to diagnose SIM problems such as misconfiguration, RADIUS proxy issues, and sudden spikes in data transmissions. How can this enable your customers to save money and realize ROI on their M2M implementations?

The key benefit to our tool sets is operational efficiency. Because we provide a global roaming SIM, with a single contract, single help desk, single network interface and single Web Interface and API set, we can allow a very small organization to operationally manage deploying devices to over 190 countries and provinces. It's the build-once, deploy-anywhere model. Now extend that to providing training on a single platform, the fixed skill set required for a small group of support and operational personnel, as well as enabling a high level of automation through our APIs and rules engine, and you can run a vast M2M deployment on a very small budget. So, yes, we can easily allow a company to never have bill shock due to excessive usage from a runaway device, but that is not where the real money is saved. It's being able to operate a vast, global network solution with minimal opex costs and overhead. That's money in the bank every day.



Vodafone Global M2M

Remote monitoring and control
service solutions for our global
customers

m2m.vodafone.com/home/americas/

Vodafone
Power to you



Telematics

Most car manufacturers now offer telematics in at least their high-end models, and there are 15 million to 16 million connected cars on the road in the U.S. today, says Dominique Bonte of ABI Research, as discussed in the last issue of this magazine. That's not even 10 percent penetration, he adds, which means telematics has a good long runway ahead of it.

Telematics is expected to race down that runway in the next few years, during which time Bonte says all the major vehicle manufacturers are likely to expand connected car features across their product lines. In five years, he predicts, almost every vehicle shipping in the U.S. will be a connected car.

Here's a rundown of some of the telematics connectivity, device, and platform providers that are helping make that happen.

AT&T ► www.att.com

Telematics is transforming the way companies manage their businesses. For example, transportation and logistics companies use telematics not only to track the location of their vehicles, but also to identify ways to improve maintenance costs, fuel efficiency, and performance. Similarly, shipping companies can use telematics to pinpoint the location and condition of containers carrying expensive cargo from one port to another. Either way, decision-makers are turning to telematics to help determine how to adequately manage assets and deliver the best customer service possible. AT&T delivers solutions to meet the specific needs of enterprises in a variety of industries. For example, AT&T Fleet Management Solutions help long-haul, private, and commercial trucking companies identify quicker

routes for drivers, track hours of service, pinpoint unnecessary idle times, inform the customer of a vehicle's location, and monitor driver behavior and vehicle conditions to help improve safety. Similarly, AT&T offers M2M solutions for freight companies to help them track expensive cargo and monitor its condition from departure to arrival. Shipping operators can use AT&T M2M technology to determine that each container is where it is supposed to be and trigger an alert when it is not.



CradlePoint ▲ www.cradlepoint.com

The CradlePoint COR Integrated Broadband Router Series is ideal for use within the digital signage market. An affordable, highly-featured compact router designed for critical business and enterprise applications that require 24x7 connectivity, the CradlePoint COR IBR series harnesses affordable, high-bandwidth 4G LTE to allow digital signage manufacturers greater control. CradlePoint COR IBR series can support a diverse set of applications (digital signage, HVAC, security, content delivery, etc.) that rely on wireless connectivity with a zero-touch management. Deployed within the world's largest digital signs, CradlePoint COR's compact size, sleek metal case, mounting bracket, and external mobile broadband antennas provide a distinct advantage in monitoring, updating, and managing the remotely based signage. Using the CradlePoint COR and Enterprise Cloud Manager, CradlePoint's cloud-based management platform, network administrators can deploy network-ready digital signs for placement virtually anywhere. Enterprise Cloud Manager in conjunction with CradlePoint COR allows them to activate, configure, deploy, and manage the connectivity of signs from a central location, simplifying the customer experience and reducing IT costs.

Elektrobit www.automotive.elektrobit.com

Elektrobit is a supplier of automotive software whose track record in automotive software development spans more than two decades. Based in Finland with offices around the world, its automotive business is headquartered in Erlangen, Germany. Elektrobit is a dedicated partner to the automotive industry, providing technologies and flexible software platforms, tools and services to help automotive manufacturers such as Ford,



Audi, BMW, Daimler and Volkswagen deliver the best products and services to meet the needs of drivers today and in the future. Elektrobit also works with a community of industry-leading partners including dSPACE, IBM, Infineon, Microsoft, and QNX to build the next generation of smart, flexible, and cost efficient automotive software solutions. Elektrobit is putting carmakers in the fast lane with its EB GUIDE tools for Human-Machine Interface development; EB street director for smart, connected navigation; EB Assist, which is a driver-assistance technology; EB tresos tools for ECU development; and global engineering teams for software integration.

KORE

www.koretelematics.com

KORE is the world's largest wireless services provider specializing in machine-to-machine connectivity for application solution providers and enterprise customers. KORE maintains a fully redundant, self-healing network and offers 99.999 percent availability. Through its data centers in North America and Asia and a web-based service delivery platform called PRiSMPro, KORE delivers GSM, (SMS, GPRS, EDGE, and HSPA), CDMA (1xRTT and EV-DO), and satellite connectivity. In partnership with multi-national cellular and satellite operator partners, KORE offers Global Connect for cross-border M2M solution deployments. Global Connect features in-country network connectivity across more than 180 countries, as well as low-Earth satellite services for 100 percent global coverage. KORE IntelliRate is a self-adjusting pricing model that accommodates severe usage variability and seasonal usage, and ultra-low cost tariff models for exception-based applications where the tariff is spread across the data used by all of a customer's remote devices. The company also offers ultra-high use 3G/4G/LTE offerings for bandwidth-intensive services like video surveillance and digital signage. In addition, the company manages certification processes for both CDMA and GSM networks on behalf of its clients, coupling this with specialized design and engineering partner programs. KORE serves the key M2M segments of telematics, security, asset tracking, EPOS, vending and AML, with special expertise developed in the vertical markets of health care, government, supply chain, logistics, and utilities.

Magellan GPS

www.MagellanGPS.com

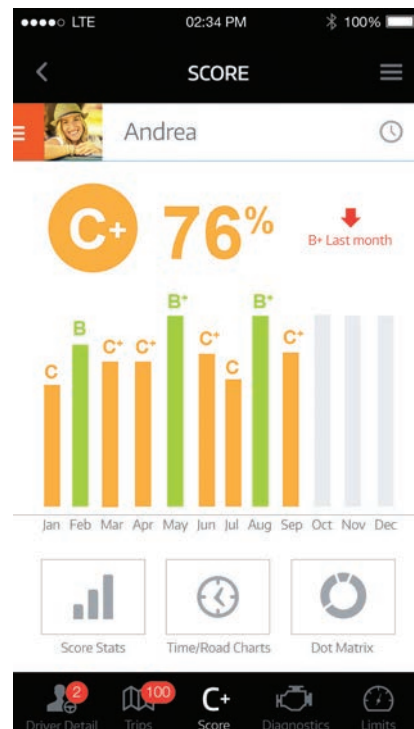
The Magellan RoadMate RC9496T-LMB is a 7-inch Android GPS truck navigation device with comprehensive fleet protocols including text messaging, hours of service, IFTA fuel logging, and automatic on-board recording. The RoadMate RC9496T-LMB features a 7-inch glass multi-touch screen, serial port, A/V input, Bluetooth, free lifetime map updates, customizable truck routes, multi-stop routing, truck and highway stop POI's, onboard itinerary planning, multi-driver log-in, and vehicle

profile inputs. The RoadMate RC9496T-LMB has a dedicated information dashboard that displays direction, next two turns, elevation, grade change, driving speed, truck speed limit, free lifetime traffic alerts, mile marker, yellow sign warnings, sunrise/sunset, total trip time, ETA, and remaining trip time and distance. Magellan's Android Fleet application (included on the RoadMate RC9496T-LMB) is available separately for any fleet-ready Android device. Magellan's Fleet Manager desktop tool enables central office management of device software and map updates, routes and POI's, and SmartGPS Eco cloud content. SmartGPS Eco cloud delivers time and money saving content for truck/fleet, including IP traffic, fuel stations, weather, and location reminders.

Modus ▶

www.modusgo.com

Modus is at the forefront of the insurance telematics industry, helping to shape an automobile insurance market where safety and service, not price, drive consumer consideration and purchase. More than a decade ago, Modus built the first UBI product offering on CDMA networks. Today Modus is one of the only companies with a global network of partners, commercial deployments across all the major U.S. cellular carriers, ongoing programs with major insurance carriers in the United States and Canada and currently expanding into Europe, Australia and Asia. The ModusGo open insurance telematics platform allows customers to work with any data collection or driver scoring model, third-party application or service vendor, or in-house solution. ModusGo features fully integrated driver scoring and reporting capabilities, with logged driving data available to both the user and to the insurer as a deliverable data set. The Modus Distracted Driving Application logs distracted driving events and triggers immediate driver behavior feedback messages via e-mail or app push notifications. This post-trip feedback creates an instant closed loop, helping drivers understand the risks of their distracted driving behavior/smartphone use based on the events that just took place.





MultiTech

www.multitech.com

MultiTech has the products and partnerships to help create, connect, and communicate with telematics applications. Most of the company's external and embedded cellular modems feature the option of GPS and two of its recently released products, the MultiConnect rCell and the MultiConnect Dragonfly, offer enhanced features to support deployed assets. The MultiConnect rCell includes complimentary cloud-based device management allowing customers to remotely monitor, upgrade, and configure their entire device population, resulting in substantially reduced operating costs over time. The MultiConnect Dragonfly is a compact, ready-to-integrate cellular System-on-Module with an onboard processor, allowing developers to host their application and have access to a full suite of interfaces for connecting sensors or other remote assets. Dragonfly comes with an ARM mbed compatible software library to accelerate development, and will feature pre-designed applications on MultiTech's recently introduced application store. To simplify deployment, MultiTech also offers custom manufacturing options including kitting, provisioning, and activation.



OBDSolutions ▲

www.obdsol.com

OBDSolutions is a provider of vehicle on-board diagnostics solutions for businesses, project engineers, and DIY hobbyists. It specializes in the design, engineering, and manufacturing of OBD adapters, cables, software, and development tools. OBD Solutions' family of OBD adapters, OBDLink, features fast data refresh rates, automatic sleep/wakeup modes minimizing vehicle battery drain, access to single-wire CAN and medium-speed CAN networks in addition to the five standard OBD-II protocols, and strong security. Customers can choose between Bluetooth adapters compatible with Android and Windows PC, or a Wi-Fi adapter compatible with iOS, Android, and Windows PC. Each adapter is powered by a variant of the STN1170 OBD Interpreter IC, which has full support for the ELM327 command set, allowing OBDLink to connect with more OBD-II compliant vehicles compared to generic ELM327-based scan tools. The OBDLink app, which works exclusively with OBDLink adapters, will turn a smartphone or tablet into a sophisticated diagnostic scan tool. OBDLink app allows customers to access, graph, log, and export real-time engine data. Also, the check engine light can be cleared, all diagnostic trouble codes can be read and researched online, and instantaneous and average MPG can be calculated.

OriginGPS

www.origingps.com

OriginGPS is a designer, manufacturer and supplier of miniaturized GNSS modules, antenna modules, and antenna solutions. OriginGPS' technology improves automotive telematics by enabling automotive OEMs and suppliers to include best-in-class navigation functionality with lower profile components. OriginGPS manufactures two product lines – Hornet and Spider. While both lines feature GPS modules at a micro size, Hornet includes an integrated antenna. Its newest product, Nano Hornet, claims the title of world's smallest GPS module with an integrated antenna at just 10x10mm and record-breaking height of 3.8mm. Its products feature unparalleled sensitivity and noise immunity by incorporating its proprietary Noise Free Zone technology for faster position fix and navigation stability even under challenging satellite signal conditions. Its products support multi-constellations, which further improve location accuracy, especially when driving through urban canyons. Its optimized receiver and antenna combination decreases the footprint, but also minimizes design risks and reduces time to market.

RacoWireless

www.racowireless.com ▼



Offering multiple products that provide turnkey tools and support for building and launching telematics solutions, RacoWireless has made it easy for hundreds of companies to successfully launch telematics products all over the world. Whether starting with application development and connectivity, or managing a robust global fleet, RacoWireless has the tools and expertise needed for telematics success. The company's Omega Management Suite provides connectivity and data management tools through one easy-to-use platform. With OMS users from all over the world can stay in control of their connected solutions with multiple data providers. Position Logic is integrated with more than 400 different devices; the Position Logic platform allows solution providers to build and offer location-based services in a cloud-based, on-demand environment. Omega DevCloud offers a standardized and secure platform for IoT development. Using the intuitive Omega DevCloud, web developers are able to cut down development time of IoT applications to as little as a few minutes.

Splunk

www.splunk.com

Splunk Enterprise is a platform for operational intelligence. By monitoring and analyzing everything from customer clickstreams and transactions to network activity and call records, Splunk Enterprise turns machine data into valuable insights. Like many other types of sensor data, telematics data is often hard to process and analyze using traditional technologies. With Splunk Enterprise, users can collect and index telematics data or any other machine-generated data from virtually any source or location in real time. This includes data streaming from packaged and custom applications, application servers, web servers, databases, wire data from networks, virtual machines, telecoms equipment, operating systems, sensors and much more. Splunk Enterprise has allowed companies such as Ford and Volkswagen to harness telematics data for connected car projects. Volkswagen Data Lab connected Volkswagen e-Up cars to Splunk Enterprise to analyze and visualize data in real time. Volkswagen was able to see a real-time map of driving patterns to discern anomalies to improve the driving experience for auto owners. In addition, Ford used Splunk Enterprise for a collaborative Connected Car Dashboards project that collected and analyzed data from vehicles to gain insight into driving patterns and vehicle performance.

Sprint

www.sprint.com/m2m

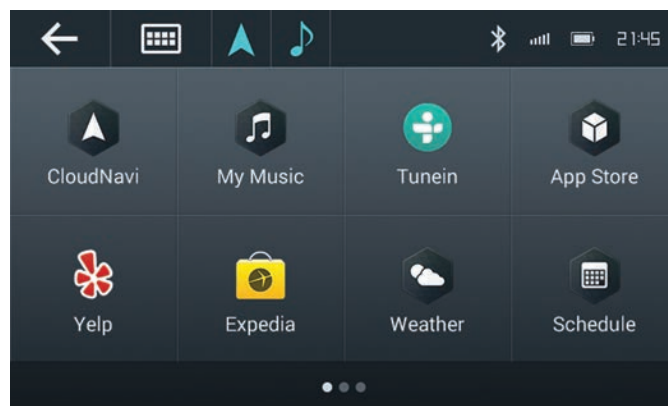
Sprint is a leader in M2M technology, offering a wide range of solutions to the transportation, retail and insurance industries, to name a few. Sprint features a robust portfolio of fleet, trailer, and asset management solutions that help businesses improve safety, do more with less, and provide real-time information with a birds-eye view of where their valuable assets are and how they are performing. The M2M portfolio includes applications created for retailers to increase basket spend, engage shoppers with self-service options, and reward loyal shoppers. These include wireless point-of-sale systems used to collect money; back up networks; automated teller machines; vending solutions; and data analytics tied to digital signage, video walls and kiosks. Sprint is also recognized for developing, engineering and deploying innovative capabilities, including the comprehensive Sprint Driver Development Solutions suite for insurance companies. Whether using the cloud or a server-based application, insurance providers can generate driver risk profiles, enabling deeper relationships with their consumer customers through interactive driver feedback and coaching portals. Sprint supports customized M2M solutions with CDMA technology spanning its 2G, 3G and 4G networks, specialized engineering teams, an open and collaborative approach, with an ever expanding M2M ecosystem.

The Symphony Teleca

www.symphonyteleca.com

The Symphony Teleca InSight Connect Over-The-Air solution provides automakers and Tier 1 suppliers with a secure, robust

and highly efficient platform for performing software updates independent of network type, hardware, OS, software and applications. The rising software complexity in modern cars poses a new challenge to automotive companies – fixing software issues and deploying new functionality in a safe and cost effective manner. Smart tools and systems to manage software configurations and updates are getting more important with quality control and security integrity of the software being key. The Symphony Teleca InSight Connect OTA is a comprehensive end-to-end management solution that provides automotive grade, reliable, cost effective, application and software provisioning and maintenance, integrated with the OEM's existing systems throughout the connected car lifecycle.

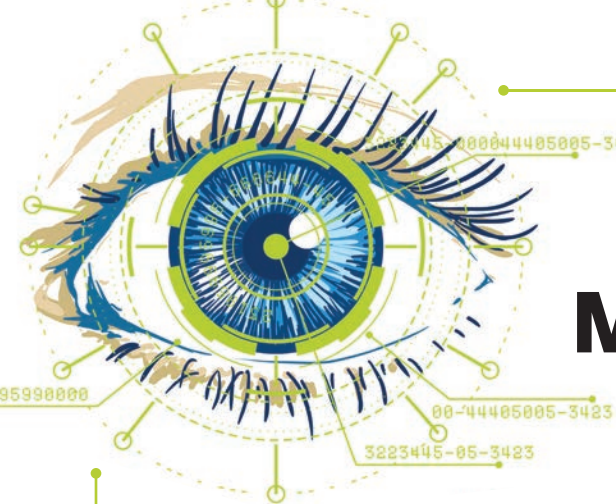


UIEvolution ▲

www.uevolution.com

UIE CloudConnect is a comprehensive in-vehicle infotainment platform that can seamlessly link and deliver content and services to the vehicle. The cloud-based solution and enabling connectivity technologies seek to establish an emerging IVI standard to manage content and provide vehicle owners safe and secure access to third-party applications. The UIE CloudConnect platform is certified at the world's highest safety and security levels, providing third-party developers a way to develop and deploy with confidence. The platform includes service middleware, smartphone applications, and a content aggregation framework. UIEvolution's solution provides streamlined multimodal connectivity options that enable OEMs to create a personalized experience and direct relationship with the customer. UIE CloudConnect leverages the best capabilities of embedded telematics with specific features that include content aggregation service and developer support programs, multimodal connectivity options for real-time content, in-vehicle HMI technology and application policy management software, an out of the box suite of white-label applications, remote management of vehicle features (location, door unlock, diagnostics and more), customizable B2B and B2C responsively designed portal sites, a custom-branded application storefront with developer publishing tools, and a branded HMI design for both mobile and in-vehicle applications. **M2M**





Mixed Fleet Telematics More Connections

The Association of Equipment Management Professionals and Association of Equipment Manufacturers recently collaborated to produce a new industry-wide standard to provide end users with more OEM equipment data and easier access. This telematics standard is targeted to end users, including contractors, fleet managers, rental managers, and dealers/distributors, as well as OEMs focused on construction and industrial heavy equipment.

The AEM/AEMP Telematics API Standard expands the original AEMP Telematics Standard to include 19 data fields and 42 fault codes. The goal of the standard is to allow end user owners of mixed fleets to better manage and analyze information across their fleets regardless of manufacturer.

The new standard allows owners to remotely monitor conditions such as fuel level, machine hours, and a number of other variables. That data can automatically be fed into enterprise management

systems to make sure mission-critical equipment is operational when users are absolutely depending on it to be up and running. Visibility as a result of remote connectivity gives owners insight into issues like how to minimize inefficient and costly idle time. It gives maintenance personnel advance warning so they can prevent problems before they occur.

Managing warranty terms and adhering to service contracts are a major concern for fleet owners. Owners need to extend the life of assets as long as

possible while minimizing operating and repair costs. These new telematics standards give fleet owners a comprehensive way to ensure their entire fleet is in compliance with all warranties and service contract terms.

The API standard gives equipment owners the ability to take advantage of fleet-wide, cross-manufacturer data integration capabilities to their existing business systems. This allows the fleet owner to eliminate swivel-chair operations – constantly pivoting between equipment management and tracking platforms – and provides one, fully integrated platform that seamlessly connects their assets to their enterprise. This makes it possible to implement user-friendly dashboards to track all connected fleet assets in real time, regardless of brand or type. Real-time data acquisition capabilities can be fully integrated, allowing seamless feeding of previously data-starved backend systems. Additionally, outside factors, like weather and traffic conditions, can be combined to offer fleet owners more information to make better planning and deployment decisions.

This new telematics standard is of critical importance to heavy equipment rental companies. Being able to accurately track, bill, and manage equipment and contracts is the difference between making a profit or going broke. Being able to manage the entire fleet regardless of manufacturer is mandatory. A major equipment rental company based in the U.S. Southwest has increased fuel billing more than \$1.3 million over the last year since implementing cross-fleet fuel monitoring. Now it can accurately capture fuel costs that previously had been going unbilled. Likewise, contracts that call for

AEP/AEMP Telematics Standard Data Fields

- | | |
|--|--|
| • Equipment information | • Air temperature |
| ○ Equipment make | • Cumulative idle hours |
| ○ Equipment model | • Percent of fuel remaining |
| ○ Equipment ID | • Is engine running |
| ○ Serial number | • Is switch on |
| • Location | • Cumulative power take off hours |
| • Cumulative operating hours | • Average daily load factor |
| • Amount of fuel used | • Maximum daily speed |
| • Amount of fuel used in the last 24 hours | • Cumulative load count |
| • Distance traveled | • Cumulative payload totals |
| • Description of fault | • Cumulative active regeneration hours |

Standard to Drive in Heavy Equipment

By James Brehm



billing based on usage can automatically and accurately be captured and billed. The new standard supports location-based services. Location-enabled geo-fencing allows rental fleet owners to track their equipment to reduce theft and to disable equipment that is outside approved contract parameters. Now the entire fleet can be accurately tracked.

But it's not just end users that are impacted. OEMs and solution providers will also benefit from this standard. Currently, heavy equipment manufac-

turers have made significant investments in telematics solutions focused on their own equipment. However, most of their customers operate mixed-manufacturer fleets. So their solution has had limited value. As a result of the standard, now OEMs can offer support for other manufacturers and equipment types, offering greater extensibility of their current solutions. Likewise, it makes it easier for telematics solution providers to add additional equipment types, significantly increasing market opportunities.

Fleet and asset tracking solutions are one of the hot areas in M2M, with significant traction and escalating connection rates. The heavy equipment vertical market just got a major boost from AEP and AEMP. This is an example of two standards organizations working together to create a standard that will drive significant value for constituents and the M2M telematics industry. **M2M**

James Brehm is founder and chief technology evangelist at James Brehm & Associates.





stream

(M2M) 3G

Stream Shakes Things Up

WITH ITS

Subscriber Management Platform

Stream Technologies is a privately owned company, headquartered in Canary Wharf, London, with regional offices in San Jose, Singapore and Vancouver, as well as an M2M Tech Lab and in-house technical developer, support and infrastructure design team based in Glasgow, Scotland. The company is a leading innovator in the IoT space, operating as a specialist cellular and satellite MVNO, but is also fast gaining recognition for IoT-X, its platform as a service for wireless carriers and operators of low power radio, cellular, and satellite services. IoT-X is a connectivity enablement management and billing platform designed from the ground up for the M2M and IoT sectors.

M2M Evolution magazine recently spoke with Nigel Chadwick, CEO of Stream Technologies, to learn more.

Tell us about how and when Stream came about.

The company was founded by two entrepreneurs back at the turn of the millennium, who to this day remain the major shareholders, and continue to drive the company forward from strategic and operational perspectives, pursuing a global strategy in M2M and IoT.

How has the company moved forward since then? And what are your plans for growth from here on out?

Ask around with those in the know and you will quickly find that Stream's technical capability is very highly respected. Through continuous technical innovations and M2M sector firsts since its start up, Stream has evolved a unique and compelling set of services, underpinned by superlative technical expertise and experience born through 14 years of

The IoT market is in hyper-growth mode, with larger enterprise customers seeking global deployments.

delivering M2M and IoT wireless services worldwide. I believe Stream is now poised to undergo exponential growth over the next 24 months and beyond.

The IoT market is in hyper-growth mode, with larger enterprise customers seeking

global deployments. MNOs and satellite operators are increasingly pushing to take a slice of the market, and entrants such as Google (via the Nest acquisition), PTC, Cisco, and many others too, all now seek to play in the IoT space. New companies currently in stealth mode will also help drive expansion of the sector. Stream's IoT-X platform and our backhaul infrastructure is brilliantly poised to become the glue, if you like, of the wireless connectivity layer required by pretty much every organization playing in the IoT space.

Many companies sell IoT platforms. What makes your unique?

There are many platforms either already in the IoT sector, or in stealth and beta modes awaiting full release. The \$112 million sale of ThingWorx to PTC, followed by their purchase of Axeda for \$270 million, highlights the value of the platform play.

Unfortunately, there has been little recognition of the significant difference in platforms. I tend to generally categorise platforms into three types: device management, application layer, and wireless (e.g., cellular) connectivity enablement/management – although how many categories exist is, in my opinion, much less important than the rarity of the last category.

The number of available wireless connectivity enablement platforms out there when one takes a close look is extremely limited. This is somewhat ironic, given that wireless connectivity is so pervasive. I do think that there has been a widespread misguided belief that cellular connectivity is a commodity – that any single mobile network operator can service the entire needs of all its IoT customers. However, this, I feel, is now beginning to change as IoT enterprise clients and many

MNOs themselves realize that enterprise clients demand a choice of cellular services both regionally and internationally, coupled with a single connectivity enablement, management and billing platform, integrated with a single private APN and resilient backhaul infrastructure. All this, as well as having the ability to offer customers options of low power radio network and satellite services alongside 2G, 3G, 4G/LTE on a global basis, adds up to a very valuable proposition.

This integrated infrastructure, designed from the ground up for IoT and M2M, together with global and regional diversity in choice of network services, supported on our IoT-X platform is what sets Stream apart in the IoT space. Furthermore, our platform adopts an off-network virtual state of a network approach, meaning it can be integrated into MNO infrastructures within weeks via APIs, at very minimal cost and zero technical investment by the MNO. This virtual state of network approach truly sets Stream apart from all other players in the platform space and is resulting in MNOs looking to adopt the platform for their own use to manage IoT connections in their own country,

as well as to enable collaboration with other network operators regionally or worldwide. It is particularly appealing to smaller MNOs around the world and those operators without any IoT/M2M enablement platform/capability, or other operators seeking a platform layer that can provide a single viewpoint across multiple platforms that might already be in use by different MNOs.

In addition, we have been evolving and innovating the IOTx platform for over 9 years, automating all new features and updates, which has created the industry's most proven, flexible and robust platform. With over 500 enterprise customers and growing, Stream has the deep experience to be the connectivity platform of choice for IoT.

What does the overlay concept mean for MNOs? How can Stream stand alone, or act as a unification platform, meaning IoT-X can manage not only Stream connections, but other connectivity platforms such as Jasper, Kore, Vodafone, Wyless, etc.?

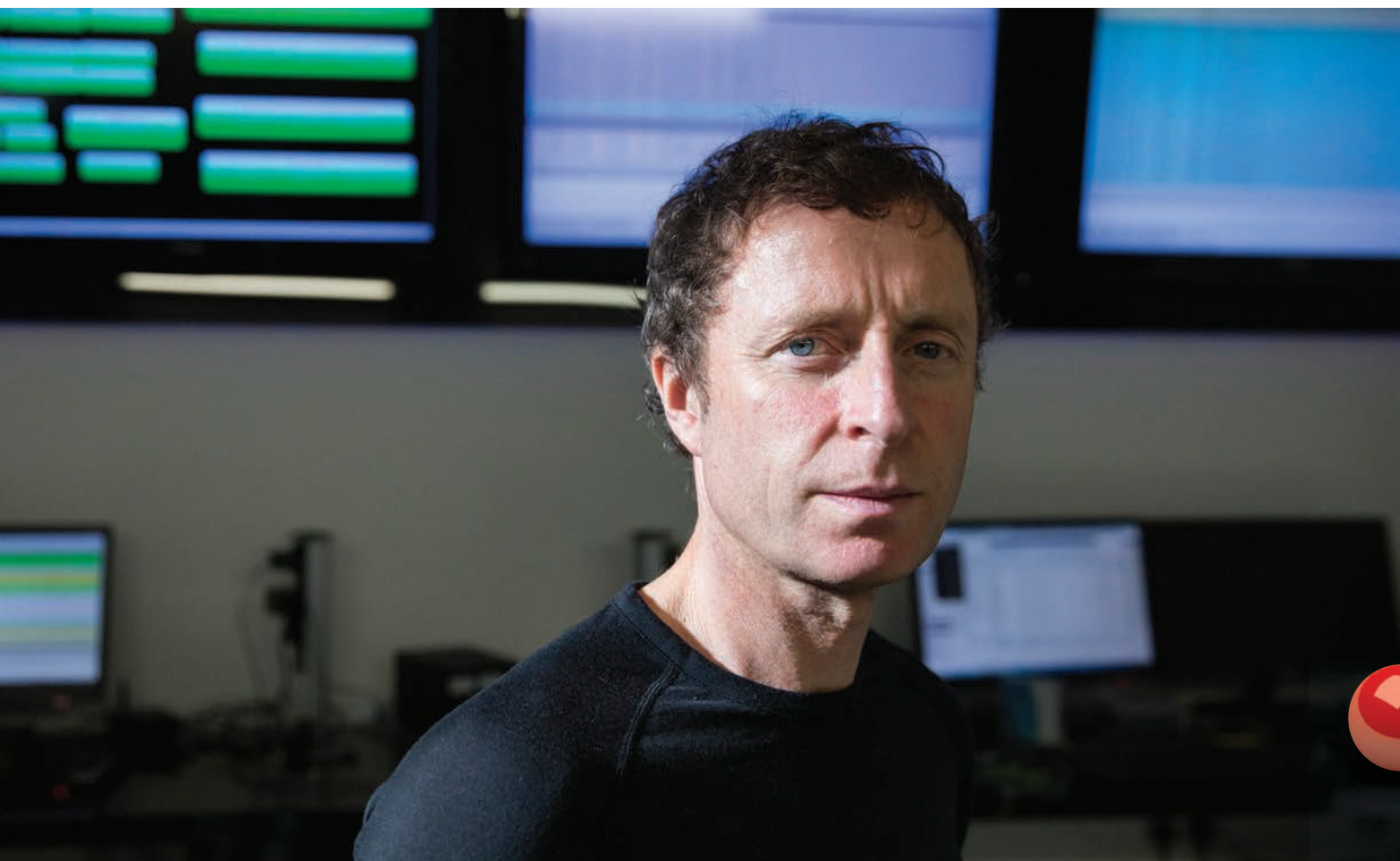
This is an incredibly important feature: The ability to provide a single viewpoint and management layer across multiple

platforms alongside operators, which currently have no platform capability in IoT/M2M and wish to compete effectively and efficiently in this fast growth sector.

Our IoT-X platform effectively presents a virtual state off-network via basic APIs, so it is a technically non-intrusive approach to MNO network infrastructure. If Stream's backhaul infrastructure is also replicated with the host MNO (the platform can be taken independently of replicated backhaul infrastructure), then a whole additional set of functionality can also be provided on top of fundamental SIM management and billing.

A private APN approach, together with other technologies we have evolved, combine to provide an outstanding feature set, all designed for IoT and M2M. This includes giving the MNO the ability to monitor data usage, to set limits and alerts, as well as pre-pay, which we believe will become increasingly prevalent within the sector as IoT wireless-enabled devices permeate the consumer market.

So, Stream's IoT-X platform can either stand alone as a connectivity platform for



use by an MNO, it can overlay multiple platforms across a number of operators which seek to collaborate across on a regional or global basis, or it can be utilized by different wireless operator types to provide diversity of choice (i.e., cellular, satellite), all managed via a single virtual platform. As far as our own use of the platform is concerned, we will not use it to compete with our MNO customers who adopt the IoT-X platform, but will adopt a collaborative approach to optimize the services to the end customer.

When it comes to IP networking, what is Stream's competitive differentiator?

Stream's expertise in IP networking has been founded on 14 years of experience at designing backhaul infrastructures for IoT – a private Internet for Things, if you like. We seek to ensure, as far as possible within the realms of current available technologies, that data will get to where it needs to be and when it is meant to be there, without compromise.

By adopting a holistic approach to treatment of IP-related data trafficking... we have evolved a wireless media-agnostic set of technologies ideal for providing monitoring, measuring, managing and monetizing IP-related data communications from any endpoint. We refer to these as the four M's.

This gets pretty powerful in terms of the end-to-end data transiting from connected things within the Internet of Things. IoT-X is the only platform that enables the four M's across LPRN, cellular and satellite. Irrespective of wireless transit type or carrier, it facilitates also new types of what we call drop-in networks – private wireless networks for IoT and M2M, whereby an LPRN enables localized endpoint devices to send and receive data anywhere in the world via 3G/4G/LTE or satellite gateways. Drop-in networks [allow for] fully managed data transit paths from source to destination, which can either be temporary network infrastructures or permanent. This enables rapid networking capability of smart cities or elements thereof, for example. Or it may create a network infrastructure for use in emergencies,

in areas where a cellular signal isn't available or is patchy, or where a temporary event or situation requires a short-term, private wireless Internet for things to be set up.

What beyond technology is a Stream differentiator?

Given that Stream has been focused exclusively on providing the highest quality wireless network services to the IoT space since 2000, we have created a company with substantial technical expertise, born from experience across multiple wireless technologies. This has resulted in quality enterprise customers worldwide, some of the largest brand names around, looking to Stream for not only services but honest, experience-based advice.

Everything we do technically is quality driven – relentlessly so. For example, our super resilient backhaul infrastructure is built to an N+1 standard and ran with 99.9999 percent uptime last year, while the packet loss mitigation technology we integrate ensures network optimization, resulting in superior data transit speeds and signal attachment. These innovations, design philosophies, and technical support services all combine for an exceptional customer experience in terms of enabling IoT deployment. Furthermore, because we do everything in-house, we can adopt a very flexible approach when engaging with network operators that seek adoption of our IoT-X platform.

The fact [that] we are privately owned, and without external investment, means we are free to be technically innovative around the future development of IoT-X, the pricing structures relating to capex and opex around IoT-X, as well as other services; and to engage with like-minded and dynamic technically innovative companies globally, with which we can collaborate to add value to our proposition. A lot of this is about integration of services and removing what I call friction across all aspects of the business model. These attributes seem to be attractive to organizations, which seek collaboration at a technical and

commercial level. They appeal to customers which include enterprise clients seeking services direct, as well as MNOs which will benefit from IoT-X and the global connectivity, the platform can open up to their own end customers.

In recent years, as commercial rollouts have gathered pace and have started to internationalize, it has become very clear that even the smallest of issues with network quality become unmanageable when scaling of deployment of devices happens. This is magnified further when deployment extends regionally and globally.

Our experience has taught us that backhaul infrastructure and platform design absolutely need to keep scalability and resilience the top priorities. We have effectively re-invested profits over many years, innovating, developing, and building what we have today. Customers recognize this; they want to deal with a single company with the requisite expertise and experience. High growth IoT customers don't want to deal with multiple platforms, billing systems, or technical teams across different geographies – it's just too much friction and risk. IoT-X certainly seems to be creating customers that are sticky, long term, and which have a loyalty – they understand the value we help drive within their organizations. Our IoT-X platform lets enterprise end customers focus on their core business by taking care of their IoT wireless network services in the most efficient and effective way. MNOs are now fast recognizing this too, in particular tier 2 and 3s or the smaller ones around the world as the Stream platform enables them for the first time to effectively begin servicing their home country IoT sector to the highest quality at an optimal price point. **M2M**

Nigel Chadwick, CEO of Stream Technologies, is pictured at left.





Apple Unveils Watch

September saw Apple publicly introduce its long-awaited Apple Watch, which will be available in early 2015 starting at \$349. Tools and APIs that developers can use to create “unique experiences” for the Apple Watch will also be available starting next year. The wearable device is based on technology called Digital Crown to allow users to easily navigate, scroll, and zoom. The watch enables users to send and receive messages, answer calls to their iPhones, leverage the Digital Touch to send others their own heartbeat, and use a health and fitness app. Apple Watch is available in three models.

SIGFOX, Securitas Go Big in Spain

Securitas Direct, a security systems provider in Spain and Europe, will connect and monitor millions of devices in customers’ homes and businesses via SIGFOX’s dedicated IoT network, which Abertis is deploying throughout Spain. The news was announced in September. Jaap Groot, SIGFOX vice president of global sales, says: “The network deployment in Spain by Abertis Telecom is a major step towards our goal of 1 billion connections.” The SIGFOX IoT network is operating in several European countries and will be deployed on the West and East Coasts of the U.S. this year.

Ericsson Buys Smart Grid Outfit

Wireless infrastructure giant Ericsson has completed the acquisition of Ambient Corp., which filed for bankruptcy this summer, for a reported \$7.5 million. Ambient sells smart grid communications technology, and implementation and maintenance services, to the utilities. Ambient will be integrated into Ericsson’s Global Services organization, which employs 64,000 people in 180 countries. The Ambient platform supports multiple communications technologies in parallel, including cellular, power line communications, radio frequency, and Wi-Fi, and also provides serial and Ethernet connections.

Boston Gets Smart City Funding

The National Science Foundation and industry partners have awarded more than \$1 million in funding to Boston University’s Rafik B. Hariri Institute for Computing and Computational Science & Engineering to create a smart city cloud platform. The effort aims to improve asset management, energy, public safety, social services, and transportation in the city and state. Stakeholders in the effort include Connected Bits, CrowdComfort, International Data Corp., Integrated Technical Systems Inc., and Schneider Electric; and MassIT, the Commonwealth of Massachusetts’ lead state agency for technology led by the Commonwealth CIO, the MassTech Collaborative, the City of Boston, the Metropolitan Area Planning Council, and the Boston Region Metropolitan Planning Organization. A new public cloud effort

called Massachusetts Open Cloud will offer the services once they are developed. A timeline for the effort was not detailed.

GridComm Enlightens Street Lights

Power line communications solutions provider gridComm now offers Intelligent Street Lighting Solution based on its GC2200 orthogonal frequency division multiple access transceiver. “Our Intelligent PLC Street Lighting Solution enables users to manually or automatically switch lights on or off, and set dimming levels remotely from the control office,” explains Mike Holt, CEO of gridComm. “This gives the user the ability to efficiently deliver the appropriate lighting level based on predetermined schedules required by time of day, season, weather conditions, or in response to emergencies. It also conveniently presents critical street light information via the Internet, placing details such as power consumption (eg. kWh, input/output voltage and current), map location and operational status (on, off, dimming levels, failures, downtime, etc.) right at a user’s fingertips.” That’s important since cities spend as much as 40 percent of their energy budgets on street lighting, according to gridComm, and lighting accounts for almost 6 percent of global carbon dioxide greenhouse gas emissions.

M2M Plays Shell Game

A Nerds-Without-Borders project called Turtle Sense uses machine-to-machine communications to predict when sea turtles will hatch and emerge from their nests. That helps minimize the number of days when large portions of the beach are blocked to tourists. Non-profit Hatteras Island Ocean Center came up with the idea and is using the solution, which uses Janus plug-in Terminus modems leveraging Telit’s HE910 modules to communicate sensor data.

Koalas Need IoT Too

LX Design House has developed a tracking collar for koalas, which need a special streamlined solution for this purpose due to their practice of tucking chin to chest. A local conservation program is using the collars to keep tabs on koalas in the wild, where they perch high in gum trees and may be hard to spot. Koalas, according to those involved in this effort, are facing unprecedented pressure as their trees are cleared, existing habitat becomes more vulnerable, and isolated and more roads bisect their territories resulting in more koalas being run over.

Google Licenses Ocular Technology

Alcon, the eye care division of Novartis AG, has forged an agreement with a division of Google Inc. to in-license its smart lens technology for all ocular medical uses. The smart lens technology involves non-invasive sensors, microchips, and other miniaturized electronics that are embedded within con-



tact lenses, according to Morrison & Foerster, which negotiated and drafted the agreement. This technology can be used to help diabetic patients manage their disease via a continuous, minimally invasive measurement of the body's glucose level, and to help people living with presbyopia (blurred vision).

Dubai Through the Looking Glass

Detectives of Dubai's Gulf Force police effort plan to use Google Glass and related facial recognition software to more easily identify criminals. The shades should nicely complement the Bugati Veyrons and Lamborghini Aventadors police in Dubai reportedly already use on the job.

Connected Fleet Grows, Draws New Players

The number of active fleet management systems deployed commercially in North America was 4 million in the fourth quarter of last year, and is expected to reach 8.1 million by 2018, according to Berg Insight. Leading solution providers in this space, Berg says, include Fleetmatics, Trimble, Zonar Systems, and Telogis, which now have more than 300,000 active units in this market combined. Berg goes on to note that there's been a fair amount of consolidation of fleet players to date, noting FleetCor has acquired NexTraq and Michelin has bought Sascar. "These two deals are particularly interesting due to the fact that the well-known acquirers are newcomers to the fleet management space," says Rickard Andersson, senior analyst.

Nokia, T-Mobile Stage Connected Car Demo

Nokia Networks and HERE recently collaborated with T-Mobile US to demonstrate a proof of concept of the connected car involving digital short-range communications and LTE with edge computing capabilities. It enables cars to recognize road hazards and deliver warnings to nearby cars with extremely low latency.

Fiat-Chrysler, Accenture Partner on Transportation

Accenture is working with the Fiat-Chrysler Group to develop connected services for its Uconnect systems in Europe, the Middle East and Africa. This will involve the use of the Accenture Connected Vehicle Business Service, which can help automakers deliver on-board and back-end systems to create connected vehicles, as well as provide the integration with content providers, real-time vehicle diagnostic data, and overall program management.

Satellite Company Intros New Fleet Solution

ORBCOMM Inc. now offers the GT 1100 Chassis Tracking Solution for fleet management. It provides accurate chassis location and timely load status information, including the

ability to determine if the associated container is mounted or unmounted on the chassis. In related news, Swing Transport Inc. recently selected ORBCOMM to deliver a trailer tracking solution for its fleet of more than 1,000 dry van trailers.

Ovum: Telcos Need to Step It Up

The telcos should be doing more to promote themselves in an effort to grab a bigger piece of the M2M pie, says research and consulting firm Ovum, which forecasts the cellular M2M market will be worth \$252 billion in the 2015 to 2019 time frame. "Over the past few years, as the hype around Internet of Things has taken off – driven by some wildly exaggerated forecasts – we've seen operators take a gentle approach to M2M," says Jamie Moss, senior analyst at Ovum. "Staying within their main expertise, most have taken on management of the connectivity layer, yet as conventional wisdom tells us, only minor returns will be made here. Instead, operators need to leverage their other capabilities, namely their ability to aggregate large amounts of data around their customers. We're seeing device and application management become the new focus in M2M, and the ability to collect vast amounts of data will be of considerable value. Data itself has intrinsic worth, but it is the business decisions made based on the aggregation and analysis of that data that are the greatest source of value for enterprises and their connected service provider partners."

Bard Targets Drones

Want to learn more about the hot new arena of drones? Bard College has written a book about it. The Drone Primer: A Compendium of the Key Issues, available online and in print, presents basic facts, issues, questions, and patterns related to unmanned systems in military, civilian, and commercial contexts. Free downloads of the publication are available at <http://dronecenter.bard.edu/publication/the-drone-primer/>.

Wi-SUN Alliance Grows

The Graduate School of Informatics, Kyoto University, and Purdue University are among the latest organizations to join the Wi-SUN Alliance. Wi-SUN works on interoperability and standardization for smart city and utility network applications. Douglas Comer, distinguished professor of computer science at Purdue, comments: "We at Purdue expect the Internet of Things to be widely adopted over the coming years and are excited to have the opportunity to contribute to the creation of protocol standards and reference implementations. Closer involvement with Wi-SUN and protocol development along with the ability to expose our students to this new and fast growing area of networking is a vital part of our educational mission here at Purdue University." **M2M**



THE HOT LIST

Remote Monitoring and Management

It's always helpful and cumbersome to categorize "things" in broad categories. On the one hand, it helps to compare and contrast features. On the other hand, it has a tendency to lose details and mask individual features. The next M2M Evolution will be broken down into two tracks addressing things that are in motion and things that are at rest. However, the category of remote monitoring and management points out that all the things at rest are normally there to track flow (a.k.a. motion). Worse yet, we have degrees of at rest. For example, remote patient monitoring is generally for patients to return home; however, it depends on the level of severity of the illness and the amount of rest involved.

In doing the research for this article I was shocked about the amount of remote patient care companies I found in the mix. I also had to filter out all the remote monitoring and management systems focused on desktops and servers. For this Hot List we are focused on sensors, not people or computers.

However, even with this filter we still have a wide spectrum of things being monitored by sensors. From automation in the home to oil and gas, the range is wide. James Brehm of Brehm and Associates pointed out to me that segmenting out remote monitoring from device management distinguishes the companies that focus on version control and configuration as opposed to the companies that focus on network management and fault isolation.

So what do remote monitoring and management systems have in common (besides the obvious in the name)? The answer is in the remote aspect of these solutions. All of them are aimed at reducing truck rolls, distributed personnel, and delivering information to the best resource. While the systems monitor and manage different things, the requirements for the results are tied to the requirements of the specific verticals in which they are employed.

For example, remote monitoring and management solutions that deal with oil and gas have the goal of tracking leaks, then isolating the problem for correction. As the industry has matured, the opportunity has risen to the point where illegal taps by pirate tankers can be more easily spotted and foiled.

In some cases, like smart grid and energy production, the data is used to optimize performance and minimize downtime of systems that may be showing wear and tear.

Often in the industrial environment the people running production are not the ones best suited for root cause analysis. The collection of the data in a manner that allows more effective analysis is crucial. Traditionally RMM systems are focused on security and management, but thanks to the age of cloud and big data, we are expanding into better real-time analytic forecasting and predictive systems.

Remote monitoring and management takes advantage of the mobile data solutions and uses the throughput to deliver more information to the analytics and predictive nature of these systems.



With all this said and done, it occurs to me that while this Hot List will be a bigger mixed bag than usual we are probably going to go through the platform phenomena again where a company's skill in monitoring one set of solutions adds more vertical to its portfolio. Included in this list are some of the biggest names and some of the most interesting sensor companies.

ABB

<http://new.abb.com>

ABB is a global leader in power and automation technologies. Its solutions promise to improve the efficiency, productivity, and quality of customers' operations while minimizing environmental impact. They say innovation is at the forefront of what they do and that many of the technologies that drive modern society were pioneered by ABB.

Aeris

www.aeris.com

Aeris Communications says it is the only cellular network designed and built exclusively for machines. Since its founding, Aeris says, it has been a leader and pioneer, shaping and driving

industry innovation and standards in machine-to-machine communications.

Asset Link Global

www.assetlinkglobal.com

With satellite, wireless and TCP/IP M2M solutions, AssetLink is in the business of connecting people with their stuff. From container tracking to agricultural monitoring to military applications, it helps customers keep track of their business assets in ways they never could before: because they were distant, hard to get to, or moving.

Axeda

www.axeda.com

For product manufacturers, remote service is essential to improving uptime, reducing costs through fewer field service visits, and increasing service contract sales with new managed service offerings, according to Axeda. To realize these benefits, it says, manufacturers require a proven remote service solution that offers field-proven scalability and security with a set of out-of-the-box applications that support and service teams can use to remotely identify, diagnose, and resolve issues with their products in the field.



Bosch

www.bosch.com

The Bosch Group is a leading global supplier of technology and services. In 2013, its roughly 281,000 associates generated sales of 46.1 billion euros. (NB: Due to a change in accounting policies, the 2013 figures can only be compared to a limited extent with the 2012 figures). Its operations are divided into four business sectors: automotive technology, industrial technology, consumer goods, and energy and building technology.



the globe: generating clean, healthy energy – and using it more efficiently. Benefits include increasing safety and security; enabling people around the world to connect, communicate, and collaborate; and equipping customers to be even more productive. The company has approximately 132,000 employees worldwide, including more than 22,000 engineers and scientists.

Emerson

www.emerson.com

Emerson is a diversified global manufacturing and technology company. It offers a wide range of products and services in the industrial, commercial, and consumer markets through its process management, industrial automation, network power, climate technologies, and commercial and residential solutions businesses. The company, which says it's recognized for its engineering capabilities and management excellence, has approximately 132,000 employees and 230 manufacturing locations worldwide.

Exosite

<http://exosite.com/about/>

This company says it's on a mission of zero barrier, infinite access, and immediate value. It wants to help create a world in which information is the new currency. Minneapolis-based Exosite, a private company, offers both visualization and analytics. The company hung up its shingle in 2007 with the goal of enabling companies to wirelessly enable their products and connect to their stakeholders. While the company says its nearest competitors are cloud enablement platform providers, Exosite says it is unique in that it offers expertise across the full product lifecycle – from deployment and beyond. Exosite says it also has better data analytics because of its ability to filter and post process, which means bringing in additional sets of data (from publicly available, private or government sources) for more in-depth analytics possibilities.

Honeywell

<http://honeywell.com/pages/home.aspx>

Honeywell invents and manufactures technologies to address some of the world's toughest challenges initiated by revolutionary macro-trends in science, technology, and society. A Fortune 100 company, it creates solutions to improve the quality of life of people around

ILS Technologies, a Telit Company

www.ilstechnology.com

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

MOXA

<http://us-mkt.moxa.com/>

Moxa's compact remote I/O combines a fixed number of I/O points in a single space-saving package. Combined with Moxa's patented Active OPC Server, network traffic is reduced with a communication structure that actively updates I/O status to the host. For expanded networks, Moxa offers modular I/O solutions that allow almost any number and type of I/O devices, providing users with great flexibility.

Nighthawk Systems

www.nighthawksystems.com/m2m/

Nighthawk says it's a mobility leader in M2M connected devices and cloud-based control solutions. For more than two decades, the company says, it has pioneered intelligent devices and systems that allow for the centralized on-demand management of assets and processes. Nighthawk manages M2M communications on more than 20 networks worldwide.

Opto22

www.opto22.com

Opto 22 manufactures controllers, I/O, solid-state relays, and software products that link electrical, mechanical, and electronic devices

A hand is shown pointing at a digital interface. The background is dark blue with a pattern of glowing, semi-transparent squares. Overlaid on this are several company logos in white text: Parker, Rockwell Automation, SeeControl, Skywave, Stream Technologies, and Tyco. The hand is in the foreground, with the index finger pointing towards the Skywave logo.

Parker

**Rockwell
Automation**

SeeControl

Skywave

**Stream
Technologies**

Tyco

to networks and computers. Customers use Opto22 products to monitor, control, and get data from all the machines and devices that are essential to their businesses.

Parker

<http://solutions.parker.com/>

With annual sales exceeding \$13 billion in fiscal year 2014, Parker Hannifin is a diversified manufacturer of motion and control technologies and systems, providing precision-engineered solutions for a wide variety of mobile, industrial, and aerospace markets. The company employs approximately 57,500 people in 50 countries around the world.

Rockwell Automation

www.rockwellautomation.com/

Rockwell Automation, the world's largest company dedicated to industrial automation, aims to make its customers more productive and the world more sustainable. Throughout the world, the company says, its flagship Allen-Bradley and Rockwell Software product brands are recognized for innovation and excellence.

SeeControl

www.seecontrol.com

SeeControl arms product makers and service providers with what it calls one of a kind cloud applications for the industrial Internet age. The IoT platform organizes and makes sense of data from the Internet of Things with no coding skills required. Customers ranging from ABB, HP and Fujitsu to next generation IoT innovators entrust SeeControl with new services that control, analyze and manage hundreds of thousands of things around the world. SeeControl's team consists of a combination of web development, device engineering, and telecommunications experts, with more than 75 years of practical IoT experience.

Skywave

www.skywave.com

SkyWave Mobile Communications is a global provider of satellite and satellite-cellular terminals, applications, network and professional services for mobile and fixed remote industrial tracking, monitoring, control, and management.

Stream Technologies

www.stream-technologies.com/

Privately owned, and founded in 2000, Stream has offices in London, Glasgow and Vancouver. The company says it provides exceptional quality of wireless connectivity over GSM and satellite. It says it partners with only tier 1 on-mast mobile network operators and the very best in satellite, with whom it deeply integrates and interconnects with high capacity-low contention links, which results in the most comprehensive and cost-effective network services available. Enterprise-grade hosting centers house Stream's network servers and fiber suppliers. Stream's mission is to consistently and technically innovate to deliver a state-of-the-art, end-to-end wireless network service for connected devices, worldwide.

Tyco

www.tyco.com/

Tyco, which lays claim to the title the world's largest pure-play fire protection and security company, provides more than 3 million customers around the globe with the latest fire protection and security products and services. With more than \$10 billion in annual revenue, Tyco has more than 57,000 employees in more than 1,000 locations across 50 countries serving various end markets, including commercial, institutional, governmental, retail, industrial, energy, residential and small business. **M2M**

Carl Ford is CEO and executive vice president of content development at Crossfire Media (www.xfiremedia.com).



Big Things Are Brewing, Stay

This is one of those rare moments when I am under an embargo on a number of activities going on in the market. So without revealing what I know, let me tell you what you need to discuss in your own boardrooms.

We have several well-funded new entrants about to come on the scene. We also have a consolidation going on in the market. In addition to these two trends, we have a statement made by a member of the community that he is now competing with large government systems integrators.

In other words, everyone is upgrading their game.

Now assuming you are not involved in one of these three trends yet, let me share with you some questions you would be wise to consider. Let's use more brilliant minds than mine to guide you.

"Businesses fail either because they leave their customers or because their customer leave them!"

– Andrew S. Grove, "Only the Paranoid Survive"

This quote from Andy is like a Buddhist koan. On the one hand, you have to innovate; on the other, you have to keep your customer satisfied. What would change the game and bypass your solutions? Many companies in the market have alliances with sensor manufacturers. Is there some alliance that would make your solution more accessible? When was the last time you had a user group meeting or conducted market research? Are you the essential element in your customer's thinking or a piece that is replaceable? Who else in the food chain of your solution

could provide your portion of the solution? Should you acquire them?

"If the rate of change on the outside exceeds the rate of change on the inside, the end is near."

– Jack Welch

The most educated man from the Renaissance has the equivalent of a fourth grader's education today. Therefore, it's nearly impossible to be a Renaissance man today. You are far better off bringing smart people in to gain from their perception as well as their experience. Is your team and product complacent? Are you keeping up with the changes? For me, I find that often the new terms have equivalent old terms and little has changed but the customer's perception. How do you distinguish marketing hype from actual movement? Can your solution be outflanked simply by not being part of the latest trend? Is your channel capable of being bypassed? What made it so that Blockbuster, Tower Records, and Border book stores could not respond to the market change? How much of your customer interaction can you achieve virtually, and does that change the relationship?

"Details matter, it's worth waiting to get it right." – Steve Jobs

It's amazing to me to look at the original iPod and see where it came from and where it went. However, fundamentally the design was tested and trusted. Too many times companies feel a need to respond to the market and put the quality assurance aspects of the solution into an impossibly short window. Even today with lean development, the opportunity exists for some of the features and workflow to turn into painful experiences for the customers. Are you willing and capable of reiterating until you get it right? Will

Thirsty My Friends

your customer feel like lab rats after looking at all the changes made and not seeing a direct connection to the product they are used to?

"I have had all the disadvantages required for success."

– Larry Ellison

No one has enough resources to assure success, and likewise failure cannot be specifically blamed on the lack of resources. However, it may be time to ask yourself the most important question. Does it make sense to merge with others?

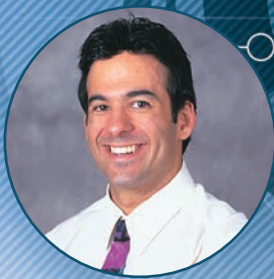
We have some companies that are clearly going to be providing fully integrated services. Some companies expect to stay horizontal. But everyone is going to be expected to support full-blown vertical solutions one way or another.

In some circumstances, that represents opportunity because the acquisition will make divesting opportunities a necessity. When your board gets together, will you be prepared to answer the questions?

If Andy Grove is right that only the paranoid survive, then you have my sympathies. However, I can tell you the announcements being made in the near future are going to be pretty astounding. **M2M**

Carl Ford is CEO and executive vice president of content development at Crossfire Media (www.xfiremedia.com).





by Rich Tehrani

OmegaDevCloud from RacoWireless to Simplify IoT and M2M Development

The Internet of Things is transforming the world before our very eyes as the infusion of connectivity allows objects to capture enormous amounts of intelligence and subsequently use this information to drive businesses to run more efficiently and allow consumers to have better lives. Today, applications like smart thermostats save consumers money while ensuring their comfort thanks to motion sensing and intelligence related to user preferences.

One of the challenges the industry faces, though, is how to rapidly roll out new applications. Perhaps just as important is how to get developers to develop without first training them on every type of wireless network. This is where OmegaDevCloud from RacoWireless comes in. Developers now don't need to start from scratch when developing new M2M and IoT applications, as they can utilize the standardization engine the company provides, which interfaces with multiple wireless ecosystems.

In fact, in a conversation with company president John Horn and Landon Garner, director of marketing, I got to hear how RacoWireless wants to be known as the company that allows this transformation to happen by making it easy for companies to build, deploy, and manage M2M solutions.

The benefit for developers is obvious. They can get to market much more quickly. How much faster? Well John tells me that it could take five minutes instead of two to three days thanks to the drag-and-drop interface the system employs.

Regardless of what network you're looking to connect to – whether it's cellular, ZigBee or Bluetooth – they're all included; so once again, no need to know the actual wireless network protocols. Just develop and get to market quickly, and hopefully start making money.

According to Carl Ford at CrossFire Media: "The significance of the Omega DevCloud announcement is that the telecom standards and the platform limitations are bypassed in favor of

giving the developer direct access to the sensors via their specific RESTFUL APIs and the JSON framework. Thus, direct app development to the sensors can be put in place that keeps the developer in [its] own sandbox rather than suffering telecom java (not script) and platform APIs."

Going forward, John tells me there are a couple things the company wants to do. It's going to add to the ecosystem while simultaneously simplifying it.

With ultimately billions of the devices out there that have to be managed, programmed and connected, it makes sense to use the easiest interface you can possibly find, one which allows you to speak to as many of these different devices and wireless networks as possible.

As M2M Evolution magazine Executive Editor Paula Bernier wrote for TMCnet in a posting last year, Horn has been promoting RACO's "teams, tools, and transport", which was its theme at last year's CTIA event.

"We try to do everything we can to provide additional support behind the curtain," he told her in a conversation in May of 2013, adding that RACO doesn't want to compete with its customers, but it does want to make M2M easier for them.

Indeed, RACO Wireless last year was recognized for its "comprehensive product portfolio, strong focus on new product development, and exceptional speed of execution.

"With the addition of Sprint, Rogers Communications, and Telefonica to its list of support carriers, RACO Wireless has expanded the number of services available to customers and partners through its Web-based Omega Management Suite," according to a press release announcing the award.

RACO's Omega Management Suite expedites the delivery of M2M solutions. Developers can even add their own applications by leveraging Omega Ricochet APIs.

The RACO Wireless "relationships with Sprint, Rogers Communications, and Telefonica are unique, and allow it to continue providing the simplified value that it is known for," Frost & Sullivan Principal Analyst Vikrant Gandhi said at the time. "Additionally, RACO Wireless commits to high service-level agreements in all its M2M deployments." **M2M**



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