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Selling Point

New Developments

in PoS

The Latest & Greatest
in Digital Signage

Q&A Session with
AT&T's Mike Troiano

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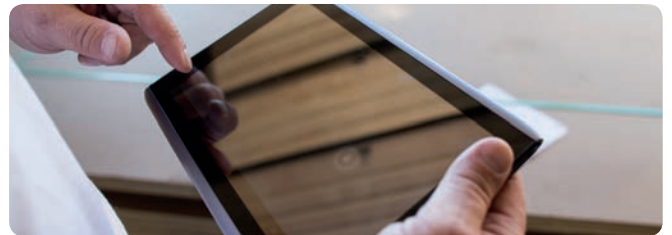


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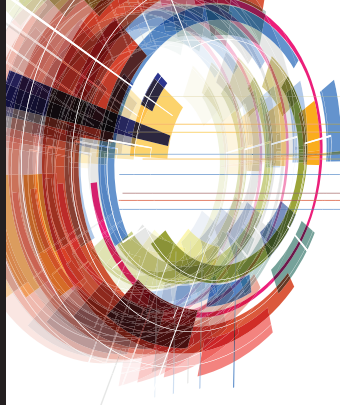
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THE INTERNET OF THINGS

by Paula Bernier



Adds, Moves & Changes

My kid is going to a new school across town this fall, so we too are working to make a move.

Speaking of big moves, TMC's own Wearable Tech Conference & Expo III is making one as well. The event will be relocating to the Javits Convention Center in New York City. In this case, the move is an expansion due to attendee and vendor growth.

We look forward to seeing you at Wearable Tech Conference & Expo III July 23 and 24. The Fitness & Sports (FAST) Wearable Technology Expo II, which is scheduled for July 22, will also be there.

"Wearable Tech Expo and FAST have both proven to be the go-to events for the wearables market," said Rich Tehrani, TMC CEO and conference chairman. "Changing venues due to growing participation from attendees and exhibitors is an issue we welcome and we look forward to taking both of these shows to the Javits Convention Center and providing a great experience for our attendees."

The fact that Wearable Tech needs to move to a larger venue is just another indication of the growing importance of the Internet of Things, which networking leader Cisco recently said will have 10 times greater impact on society than the Internet.

Another arena within the Internet of Things space that I've always found intriguing is the smart home. New technology is making it possible for us to live better and more efficiently, whether we reside out in the country, have a nice spread in the suburbs, or (like me and the family in the very near future) opt for the city life.

For example, a company called Eco-Factor recently introduced an M2M-

enabled HVAC Performance Monitoring service that does thermal modeling of a home - taking into consideration such factors as the outside weather, the inside temperature, and how the two are impacting one another, and then assesses how the home's climate control systems are responding to both. This can enable residents to get better performance out of their HVAC systems and understand when maintenance is required, so they can take care of it before a whole system change out is required, explains Scott Hublou, the company's founder and senior vice president of product operations.

Cisco says the Internet of Things will have 10 times greater impact on society than the Internet.

Meanwhile, a company called Fly-over Innovations is making life more entertaining. It sounds more like a drone outfit than a provider of connected home solutions, by Flyover offers the Blumoo audio controller and downloadable app so people can leverage Bluetooth to stream and control music from their mobile devices to their existing home stereo equipment.

It's amazing how even the smallest things can enhance our lives in entirely new ways. To learn more about what's possible with IoT, M2M, and wearable technology, join us at Wearable Tech Expo in July and at the M2M Evolution Conference & Expo Aug. 11 through 14 at The Rio in Las Vegas. **M2M**



Term Limits

Crossfire Media's parent company, Crossfire Consulting, does staff augmentation, which is IT terminology for gap analysis. A lot of the time, that has led to trend awareness, where companies need to rapidly adopt and adapt to changes in the development of software.

Sometimes the augmentation is pervasive, like the adoption of scrum and agile on project management. Sometimes it's tactical, like the delivery of experts of Oracle's e-commerce solutions.

The point of bringing this up is to discuss the problem in the market place when it comes to the gap between IT and M2M deployments.

Regardless of how popular the competing terms of M2M, IoT, IoE and Web of Things are in the general population, little of it is transferring to an awareness of how to augment staff with expertise. The problem here is that the pervasive trend is very subservient to the tactical implementation.

Business Intelligence Lingo

From the IT side, nothing about M2M lends itself to an agile-like discussion.

While at the core, the sensors, networking, monitoring, and analytics are common to implementations, the decisions get specialized rapidly. Analyst and M2M Evolution columnist James Brehm talks about the fact that M2M is a market of markets and not a market to itself. That shows up in the lack of a common lexicon when it comes to business intelligence.

It would nice if the business intelligence enabled by M2M lent itself to the same kind of general process as an agile/scrum. Right now that isn't the case.

While I would like to predict a common lexicon, in my humble opinion it will require more commonality than currently exists.

Carrier-Grade Communication

Carriers are probably not the path to a common lingo. While we talk about the end of the PSTN, the language has not changed with the times. When it comes to the Internet, the term carrier grade should be outlawed. Given the fact that the law still refers to telegraphic circuits, my guess is that the lingo will not change at the carriers' hands.

However, the carrier is probably going to be the point where the common lexicon will form.

Applying a Common Lexicon

The sign of hope is in the transition to enabling new services. The carriers have actively sought to develop a relationship with the smartphone and possibilities of the cloud.

I have come to the conclusion that very few network APIs can survive the transition, probably the few that are useful involve traffic bursts and disaster recovery.

However, the carriers are the place where the appetite is greatest for displaying a common prowess and developing a common lexicon.

The Gap that Needs Augmentation

We are in a situation where we don't know what we don't know in terms of finding common ground. My sense is we have too many nebulous terms about the cloud services. (Does the pun cumulus nebulous work?)

I am looking for volunteers to join me in working on an M2M dictionary to help us move to a common lexicon, and more importantly, to expand the skill set and best practices associated with M2M.

Feel free to augment me. **M2M**

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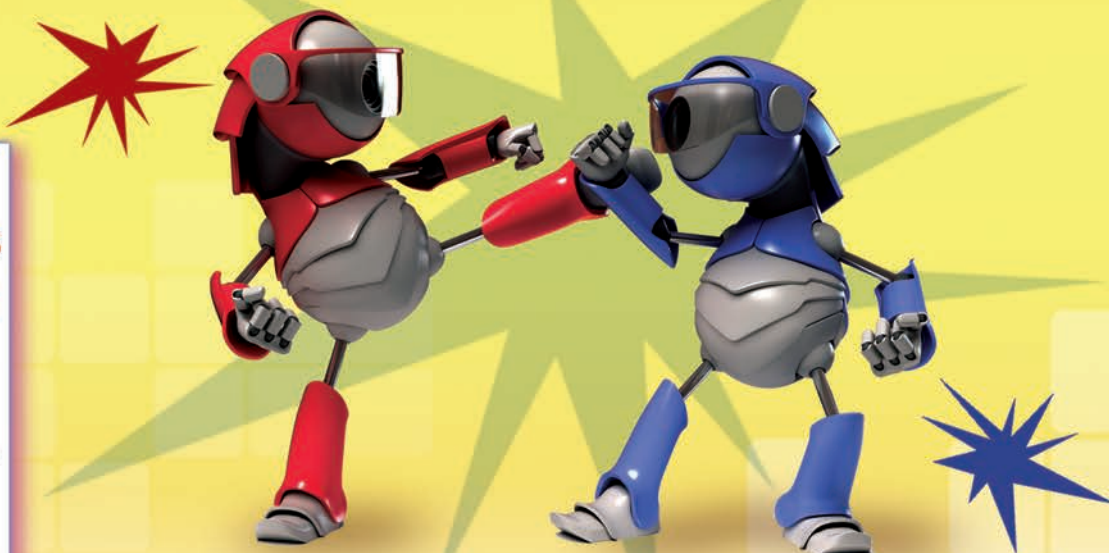
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- Independent M2M application developers
- Service providers looking to support wholesale services
- Enterprise managers looking to understand what solutions to deploy internally
- Technology buyers
- Product & program managers
- IT executives
- Anyone interested in finding out what the M2M/IoT platform market has to offer

Judging Panel

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Crossfire Media

James Brehm
James Brehm & Associates LLC

Andy Castonguay
Machina Research



by James Brehm



M2M in Retail

A View from One Marketplace

As I sat at the airport two weeks ago, waiting for my flight, I received a notice on my phone that my plane had been delayed by an hour. So I decided to go on a scavenger hunt of sorts. What better place than the airport to see M2M in action?

The airport terminal has become a virtual shopping mall, lined with book stores, clothiers, kiosks, bars, vending machines, ATM machines, jewelry stores, food courts, all using M2M. I then thought of ways retail M2M is happening outside the terminal, but still on airport property. Payment systems for parking services and taxi and limo services are almost an economy unto themselves.

It's clear to see why growth of M2M in retail is surging – the reasons for proliferation become perfectly clear. Everyone wins.

Traditional retailers and services organizations are winning through the use of M2M connectivity and mobile payment technology while consumers get the flexibility to purchase using their preferred method, often times a credit or debit card, while merchants receive immediate payment for services with little potential for theft or fraud. Employees don't have to worry about handling large sums of cash, merchants don't have to worry about revenue leakage from employee theft of cash, and opex from cash handling and distribution are greatly reduced or eliminated for the merchants.

For the retailer, additional benefits of M2M include lower transaction costs (real-time transactions incur a much smaller processing fee than transactions that occur if a system is offline), improved uptime and availability, near real-time reporting on status and inventory levels, minimal deployment costs (as compared with a hardline data connection), integration with other back-end office systems, and faster deployment times when adding new solutions or replacing existing PoS solutions.

It just so happened that I was able to see the importance of M2M in retail first hand at the airport recently. The corridors of the airport were packed with travelers experiencing flight delays. Many decided to shop. I noticed one airport store with virtually no customers. I then noticed a handwritten sign on the door that said "Cash Only, our credit card machine is down. Thank you."

Lost opportunity costs are as real a factor as actual revenue to a retail store. Ensuring the connectivity of PoS systems is criti-

cal. Merchants need solutions that will keep the cash registers ringing during a network outage. Many of the more forward looking retailers are requiring that their wired solutions have built-in wireless capability so that if the main Internet connection goes down, the backup system senses the problem and fails over automatically to ensure continuous transmission of PoS data. And since today's wireless networks provide always-on connectivity, selecting a solution with failover capability has become as important to retailers as staffing correctly.

But I noticed that a competing retailer had taken just the opposite approach. Its store was packed, and while the checkout area was packed, the store had multiple sales people assisting customers on the sales floor with tablets connected wirelessly to its PoS system. By using a tablet-based, cloud-connected PoS system, the store was able to take the device to customers and process sales more efficiently and not have customers have to wait in a checkout line. This allowed it to scale the number of employees handling transactions beyond the amount of fixed infrastructure. Brilliant.

The next example of M2M in retail that I noticed was around the idea of self-service. And at the airport, multiple electronics manufacturers and one prominent big-box retailer have taken a page from their soft drink and junk food brethren with vending solutions and have moved to self-service kiosks using M2M.

Why kiosks? M2M-enabled ATMs and kiosks can be placed anywhere a power outlet exists. Through the use of ubiquitous wireless (cellular) connectivity, what was once a hard-wired fixed asset becomes an always-on portable wireless device. Moves, adds, and changes become easier and less costly, allowing the merchant to be more flexible in placement. Additionally, staffing expenses are virtually eliminated.

Like traditional vending machines, kiosk operators have more control of wirelessly-enabled machines. They have visibility of connectivity (is the machine there and is it working), control of inventory levels, lighting, on-screen advertising, bill changers, transaction terminals, energy settings and other environmental controls. They can even optimize replenishing service delivery routes according to projected and historical usage patterns. **M2M**

James Brehm is technology evangelist and founder of James Brehm & Associates LLC (james@jbrehm.com).



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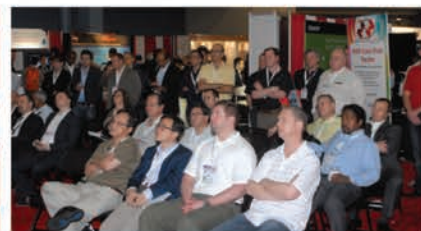
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Selling Point

New Developments in PoS

New trends in networking are proving to be both a blessing and a curse for retail point of sale.

On the up side, mobile point-of-sale solutions like the one popularized by Square are giving businesses the ability to do transactions pretty much wherever they are – whether a sales person is on the floor, a cab driver wants to accept a payment within his vehicle, or a rep is otherwise on the move. And the rise of the smartphone means consumers are always connected, which provides great new customer service and promotional opportunities for storeowners and brands, and the possibility that these consumers can leverage their wireless devices to purchase goods or services.

On the other hand, new technologies present new challenges. At the same time, cyber crime in the retail sector is becoming more widespread, as we increasingly hear about how thieves have remotely dipped into the till to steal shoppers' financial information.

The retail industry is a key vertical for players in machine-to-machine communications. That includes nearly 90 million ATMs, fare collection devices, parking meters, point-of-sale terminals, and vending machines. This vertical represents 18.4 million cellular connections today, says Berg Insight, and is poised to reach 33.3 million connections worldwide by 2018.

Keeping Current

Apriva, a leader in the point-of-sale gateway space, is working to enable its partners to outfit retailers with solutions that address security and compliance issues, and give them the efficiency and flexibility to support new capabilities. The company, whose point-of-sale gateways processed transactions in excess of \$9.55 billion in 2013, sells white-label solutions for both attended and unattended point-of-sale applications. Two of the top five banks, among other partners, sell Apriva's products.

Brian Sadowski, senior vice president for information technology, says Apriva has a unique approach to address one

of the challenges that point-of-sale terminals have faced for several years – the problem of providing them with application downloads to ensure they comply with regulatory requirements. Apriva's POS Universal Application enables merchant services providers to automatically deliver compliance and feature updates to their dial, IP, and wireless point-of-sale terminals.

"The process of keeping merchant terminals compliant and up-to-date has long been a thorn in the side of most merchant services providers," David Fish, senior analyst with market research firm Mercator Advisory Group, said at the time the Apriva solution debuted last spring. "Not only is it expensive, but the process is cumbersome for the provider, and painful for the merchant, who must often take the terminal offline in order to receive the software update. The Apriva POS Universal Application has the potential to be the game changer that processors and ISOs are looking for. It substantially simplifies and shortens a complex process, and its ability to support all types of endpoints, including legacy dial terminals, makes it even more compelling."

The company also offers a solution called AprivaTalk, which manages unreliable networks, leveraging a protocol that ensures the success and security of each transaction. AprivaTalk is particularly good for vending applications, which frequently have small data loads and use wireless connectivity.

One of the biggest challenges in unattended payments, adds Sadowski, is managing cashless payments for low-ticket-price items. Credit and debit card fees, he explains, can make it difficult to justify a cashless model in situations in which traditional fees are in place. The good news is that some of the leading credit card companies have instituted programs – such as the VISA Preferred Partner program – that offer preferable rates to low-ticket-price merchants, he says.

Contactless Payments

Whether you're talking about traditional point-of-sale or unattended payment situations, however, one of the big new trends we're hearing a lot about these days is contactless

PoS. That means shoppers no longer need to hand over or swipe a card, but instead can use their payment credential-loaded smartphones to make a payment. One of Apriva's largest vending partners, a major consumer brand, is doing pilots on this kind of thing this year and could do rollouts as early as next year.

Google Wallet and Isis, a partnership of tier 1 telcos, are two other well-known efforts on the mobile wallet front. Isis has been heavily promoting the fact that Jamba Juice is leveraging its mobile wallet app. In fact, the smoothie seller has been running a giveaway promotion to encourage folks to download and use the Isis Mobile Wallet app, by offering free drinks to those who do so.

"Jamba Juice is committed to encouraging Americans to live a healthy lifestyle," said Julie S. Washington, senior vice president and chief brand officer at Jamba Juice Co. "Through this partnership with Isis, we are offering new and existing customers an easy way to enjoy more fruits and vegetables in their diets with just one tap on their smartphone."

Mobile PoS

Speaking of fruit, another company working to advance mobile PoS is Orange. SIA and Orange Business Series in March announced they are collaborating to enable European and extra-EU banks and merchants to manage payments via mobile PoS terminals. (Note: In this case, it's the PoS termi-



nal that's mobile, so this is not a mobile wallet application.) Orange is providing a managed M2M solution with global roaming so terminals can transmit data to SIA, which by the end of this year expects to reach 60,000 terminals.

"Thanks to the Orange Business Services solution, from today we are able to simplify further the communications

between merchants and banks by offering payments also via mobile PoS terminals at the continental level. This re-confirms SIA's role as a single partner in Europe, managing the last mile of payments regardless of the type of connectivity employed and the country where the transaction is originated," said Andrea Galeazzi, network services division director at SIA.

PayPal Gives Mobile Payments a Hand

PayPal is reportedly at work on a new mobile payments app designed for smartwatches. The initial platforms for this app, according to reports, are the Gear 2 and the Gear 2 Neo smartwatches made from Samsung. The new devices will run open source operating system Tizen as opposed to Android. The PayPal app on the devices will allow users to make mobile payments, store and redeem rewards, and send and receive money to and from other users of the app. In other news involving PayPal and Samsung, the companies are introducing a biometric feature that will allow Galaxy S5 smartphone users to leverage fingerprint authentication for mobile payments with PayPal merchants. Ovum reports that this feature was expected to go live in April.

Big Boys Back HCE

Visa and MasterCard have officially endorsed the digital wallet and mobile payment technology known as Hosted Card Emulation, a cloud-based solution. HCE is an alternative to the option known as Secure Element. "The backing of Visa and MasterCard is a significant endorsement for HCE that without the support of the major card schemes would not be able to flourish," comments Eden Zoller, principal analyst at Ovum. "The technology received another major boost last November when Google revealed that HCE had been baked into the latest version of the Android OS (Android 4.4, or KitKat). This is highly significant for the future of cloud-based digital payment implementations enabled by HCE, as Android-based devices now dominate smartphone shipments. Both Visa and MasterCard have readily acknowledged that support integration of HCE into Android was a key motivation in their decision to embrace the technology. However, even the rise of HCE does not necessarily mean that the future of NFC is guaranteed, as there are wider issues for NFC related to consumer and merchant acceptance."

CradlePoint Rocks New Retail Solution

Ken Hosac, vice president of business development,

explains that CradlePoint decided to design the CradlePoint AER 2100, Advanced Edge Router after noticing that retailers were buying the bridge, router, and Wi-Fi solutions from three separate vendors. So CradlePoint has brought together those capabilities in a single box. CradlePoint recently was recognized by Compass Intelligence, which named CradlePoint to its A-List in M2M for Retail Point-of-Sale Networking and Networking for Retail, Branch Office and Fast Food/Casual Dining. The Compass Intelligence A-List in M2M awards are given annually to the best mobile computing, wireless data communications, and M2M products and services offered in the market during the past year. This is the second time CradlePoint made the Compass Intelligence A-List.

Pepsi Cola Hudson Valley Picks Cantaloupe

Pepsi Cola Hudson Valley and River Vending will use Cantaloupe Systems' Seed Cloud Platform to implement in its vending business cashless payments, dynamic scheduling, pre-kitting, merchandising, and traditional route accounting solutions on a single platform. That is expected to enable the customer to gain greater route efficiencies, automate its back office, and drive incremental sales. The deployment is expected to be complete by the end of this year.

Index, Revel Partnership Is Icing on the Cake

Revel Systems, an iPad point-of-sale company, has partnered with retail software company Index to enable retailers to leverage the PoS experience to build strong customer relationships. The San Francisco-based Cako Bakery chain is already using the solution. "Our customers are the most important part of our business, and with Index, we can now provide them with a personalized experience," says Albert Chen, owner of Cako Bakery. "When customers arrive at Cako, Index helps us to greet them and provide relevant recommendations through the Cako App. That, combined with Revel's powerful point of sale, allows us to nurture customer relationships, increase sales, and optimize the ROI of our marketing efforts."



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Big Data

Another area in which brands, retailers, and their partners are testing the waters is by leveraging customer information to better target consumers with special offers. Sadowski says he doesn't think that will be widely adopted this year, but that there is good interest in pilots on this kind of thing, and companies like Apple and PayPal are already working on it.

One of the challenges, he adds, is the fact there are so very many different PoS solutions out there today. There are thousands of different kinds of PoS terminals, many of them vertically focused, he says, which he notes only adds to the complexity of realizing contactless payments (which itself is a fragmented market) and targeted promotions. Apriva doesn't want to place bets on the winners and losers in these areas, he adds, it aims to facilitate integration between the PoS terminals and anything with which they need to connect to make good things happen.

All retailers are desperately trying to transform PoS from a cash-based to a cashless experience, says Steve Shoaff, CEO of UnboundID, which sells software to large consumer brands, large telcos and cablecos, banks, high-tech company, and any other entity that wants to acquire, monetize, reach through multiple channels, and maintain the loyalty of a large group of users.

Typically, when thinking about upgrading their PoS terminals, businesses are focused primarily on the ability to accept different types of payment, including credit cards, debit cards, gift cards, and contactless/smartphone-based transactions, he says. But rather than thinking just about payment types, he says, they should consider an upgrade in how they do business, so they can better track customer buy-

ing history and other details to build a relationship with those consumers.

The entire M2M industry, he says, forgets it's a person that is getting the value from the IoT solution. M2M tends to be focused on technology, he adds, and not on the person.

Early Adopters

That's starting to change with trials from entities like Disney and Great Wolf Lodge, he adds. Disney provides MagicBand bracelets with embedded RFID chips to theme park visitors, and those armbands serve

solutions powered by a company called Ziosk. The company offers a specialized 7-inch Android tablet for use at tables in such casual dining establishments. The Ziosk tablet is the perfect form factor for this application, given that 43 percent of American households now have tablets, so there's a high consumer comfort level with such devices, says John Regal, CMO of Ziosk, which as of the end of the first half of 2014 expects to have 65,000 of its tablets in use.

Customers can use these tablets to review the menu, order food, play games, watch videos, enroll in the restaurant's

There are thousands of different kinds of PoS terminals, which only adds to the complexity of realizing contactless payments and targeted promotions.

as that guest's room key, park ticket, PhotoPass card, payment account, and FastPass+ selection. Great Wolf Lodge is doing something similar; for example, it can enable a parent to enable his or her child to use the armband to purchase snacks.

Those moves are a step in the right direction, says Shoaff, but they lack the ability to push real-time offers to end users based on their behaviors.

Chilis, Uno Pizzeria & Grill, and 20 Red Robin stores in Pennsylvania are also early adopters of innovative new PoS-related

loyalty program, and even to swipe their credit cards to pay their bills and print receipts. Paying bills from the table may seem a small feature, but it can be pretty important to a customer who's sitting in a busy restaurant and wants to pay for his food to get to a movie on time, for example, Regal says. For servers, Ziosk tablets can alleviate a busy workload and result in better tips. And for restaurants, the Ziosk solution can result in higher customer satisfaction, and generate incremental revenue through the sale of on-screen sponsorships and/or a cut of any customized content diners purchase on the tablets. **M2M**

Strategic Solutions

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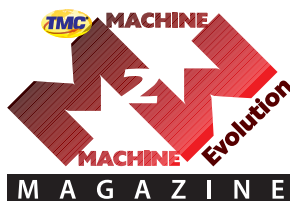
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Q&A Session with AT&T's Mike Troiano

There are more than 16 million – and growing – wirelessly connected machines on the AT&T network. That's more than any other U.S. carrier. Over the past few years, AT&T has been the U.S. cellular M2M market share leader with nearly half of all connected devices, according to Berg Insight's October 2013 study "The Global Wireless M2M Market 2013". M2M Evolution magazine recently spoke to Mike Troiano, vice president of advanced mobility solutions at AT&T Business Solutions, to learn more.

Nearly every business can benefit from the Internet of Things and machine-to-machine solutions. What is AT&T's methodology for helping businesses realize a competitive advantage by leveraging such solutions?

At AT&T, our philosophy is around providing much more than basic M2M connectivity. We bring all of the components of an M2M solution together for our customers including global connectivity, service management, application platforms, application development and solution management services, and expert collaboration to create scalable solutions.

Tell us about the AT&T network assets that are being used to enable M2M.

The network is the foundation of our M2M solutions. It all begins with high-speed wireless connectivity and our industry-acclaimed mobile network. The AT&T Global SIM allows a manufacturer to insert a SIM at the time of manufacturing. No matter where the SIM is activated, the asset can wirelessly transmit data as long as there is GSM coverage. Manufacturers can then rely on AT&T without needing to build relationships with other wireless carriers around the globe. In addition, AT&T security, cloud infrastructure, application platforms and services are AT&T components that customers can use to build M2M solutions.

What is the AT&T M2M Application Platform, and why is it important?

Whether you are building a monitoring application for a dog collar, tractor or a locomotive, the M2M applications are very similar in terms of connectivity management, authoring rules, data storage, security implementation, and device interaction. Rather than create applications from scratch, it is more efficient for developers to build applications on an M2M platform that allows them to leverage tools and best practices when building a new solution. The M2M Application Platform also allows the customers to scale the solution to hundreds of thousands and millions of devices.

Tell us about the AT&T Control Center.

The AT&T Control Center powered by Jasper helps companies manage large-scale SIM deployments globally by delivering real-time access and leading-edge development, management and diagnostic tools to reduce costs, increase revenue and improve time to market. The platform provides customers with a single view of their connections to help them monitor, understand, and control their wireless network. The M2M Application Platform and the AT&T Control Center are fully integrated so customers can easily manage their entire solution.



Tell us about AT&T's work relative to the Industrial Internet.

The Industrial Internet builds upon AT&T's vision of enabling people to operate anything remotely, virtually anytime, anywhere. AT&T, Cisco, GE, IBM and Intel recently formed the Industrial Internet Consortium. The IIC is a reaction to the fact that the Industrial Internet is a vastly complex space that requires interactions between a number of different disciplines. The IIC will help innovators identify requirements for open interoperability standards and create common architectures to connect smart devices, machines, people processes, and data.

What does big data have to do with M2M?

In the business context, a lot of the value in large data collection and analytics is in predictive and proactive maintenance and providing intelligent feedback for next generation product planning. For example, the system can use analytics to better predict that a jet engine needs repairs while on the ground rather than finding that a part failed when the aircraft is in flight. Data over several years can then be used to define better parts and systems in that aircraft. Companies are considering how to incorporate such data from different vendors/suppliers to gain more insight on making predictions.

How is AT&T working to deliver solutions that enable customers to benefit from M2M and big data?

Through our network, platforms, devices and services, AT&T has been focused on providing M2M technology to increase productivity for mobile workers. We have also invested in a solutions team that interfaces with customers at design time to help architect solutions.

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*In here, meters keep in touch,
so your crews don't have to.*



In the network of possibilities, meters report usage in real time. The power grid monitors itself to identify problems before they become outages. And utilities put resources where they're needed most. As the only communications provider offering complete smart grid solutions, AT&T is a partner you can rely on to manage your data, so you can focus on managing your power grid.

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by Paula Bernier

Retail Solutions

Retail solutions that leverage M2M technology is the focus of this issue's roundup.

(Each issue we invite companies in a given M2M space to submit short summaries about their offerings. To see what product categories are slated for future issues of M2M Evolution magazine, see the last page of this roundup or visit our editorial calendar at http://images.tmcnet.com/mkt/media-kit/M2M_Ed_Cal.pdf.)

Aeris Communications



www.aeris.com

Aeris offers a complete set of products and services for the M2M industry, including GSM and CDMA wireless technologies for 2G, 3G, and full support for 4G LTE. The Santa Clara, Calif.-based company can customize an M2M deployment to fit the needs of customers, small or large. It can deploy these technologies with the Aeris Enterprise Edition – a full stack of M2M/IOT solutions, including cellular connectivity (AerConnect), a connectivity enablement platform (AerPort), and an application enablement platform (AerCloud). These components allow users to implement, manage, troubleshoot, and scale M2M solutions. The result is a service offering optimized for the unique requirements of machines for global connectivity, certification, troubleshooting, billing, and more. Aeris' OEM partners are finding increasing demand for its services in the retail industry. Aeris partner Skoop! of Long Island, N.Y., is using Aeris M2M services to connect its

GPRS printers for online ordering in stores. With an Aeris SIM card and data services, the Aeris GSM offering is an affective longer-term solution for Skoop! Another Aeris partner, DSmart, of Memphis, Tenn., which sells point-of-sale registers for stores, worked with Aeris to develop a cellular backup solution to Wi-Fi in the event of a technical problem.

Axeda

www.axeda.com

Axeda provides the most advanced cloud-based service and software for managing connected products and machines and implementing innovative machine-to-machine and Internet of Things applications. Our customers use the Axeda Machine Cloud to turn machine data into useful information, build and run innovative IoT applications, and optimize business processes by integrating machine data. The Axeda Platform is a complete M2M and IoT data integration and application development platform with infrastructure delivered as a cloud-based service. With the highest levels of scalability and security as well as powerful development tools and flexible APIs, customers can quickly build and deliver custom IoT applications for the most demanding requirements and integrate M2M data into key enterprise applications and systems. For partners, the company offers the Axeda Ready program, a technical approval program for hardware and module manufacturers to ensure device compatibility with the Axeda Platform. The program speeds time-to-market for multiple devices that can communicate with the Axeda Platform, ensures accurate and secure data communication, and sets technical support expectations based on Axeda Ready classification (either Supported or Certified).

Contour Networks

www.contournetworks.com

Contour Networks is a communications and security company focused on the need for secure and reliable wireless data services to financial institutions, system integrators, and retailers. The Contour Secure product line is designed to allow the flexibility and reach of wireless with the security and reliability of a terrestrial solution. Contour's solutions are used globally in retail kiosks, point of sale systems, quick start solutions, and data back-up to assure business continuity. Contour Secure features global, multi-carrier network coverage on PCI-certified, private connections delivered via hardware designed specifically to support the security demands of the retail industry. Contour's network design incorporates direct connectivity to predominant payment processors and financial platforms. Customized net-

work solutions allow Contour to seamlessly integrate wireless connectivity options into the existing infrastructure, providing an easily managed extension of networks without compromising security requirements. To further protect critical data, Contour's solution features a patented intrusion prevention and anomaly detection technology that further protect the network from devastating cyber attacks. Contour's ongoing managed services include 24/7 customer support by device and network experts, inventory services, configuration, and same day shipping. Contour Networks is a subsidiary of JCI Group Companies listed in the Tokyo Stock Exchange (9424.T).

CradlePoint
www.cradlepoint.com



Designed for the M2M market, the CradlePoint COR Series (IBR600 and IBR650) is an affordable, highly-featured compact router designed for critical business and enterprise applications that require 24x7 connectivity. With its compact size, sleek hardened metal case, mounting bracket, and external mobile broadband antennas, COR is deployed throughout high-availability retail M2M applications including ATMs, kiosks, surveillance, digital signage and even transportation applications. CradlePoint COR's built-in modem provides instant network connectivity that allows for wireless connection and support for traditional wired data networks like DSL or cable for maximum network flexibility. CradlePoint extended the value of the COR series with its introduction of the CradlePoint Enterprise Cloud Manager. ECM allows network managers to intelligently manage and extend applications and services to remote locations through the real-time deployment of cloud-enabled services, applications, and analytics. The combination of both solutions simplifies the customer experience and reduces related IT costs for the M2M market.

Cryptanium
www.cryptanium.com

The whiteCryption offers the ultimate software self-defense and tamper resistance solution for the protection of mobile

applications, IP, proprietary data and secrets. Cryptanium Code Protection and Secure Key Box enable retail chains globally to roll out secure mobile applications to their customers. The mission of these mobile apps running on customers' smartphones is to improve in-store experiences, give access to relevant advertisements, manage exclusive coupons, and allow mobile payments. All these features require strong tamper resistance and fraud detection to fully ensure the customer's and retailer's data are secure and safe while using the mobile app. Cryptanium Code Protection, a code integrity protection tool that protects apps against unwanted alteration and intellectual property theft, in combination with Cryptanium Secure Key Box, a state-of-the-art white-box cryptography library that keeps secret cryptographic keys extremely well hidden within app code, avoid theft of intellectual property and personal data; reverse engineering of proprietary algorithms; intrusion of malware into firmware or application; exposure of cryptographic keys (required for authentication); code lifting of and tampering with authentication modules; and unauthorized use of app on jail-broken or rooted devices.

iSIGN Media
www.isignmedia.com



Understanding the need for retailers to better target mobile customers with offers that are timely, relevant and personalized, iSIGN Media, a global provider of interactive mobile advertising solutions, has developed the Smart Player. A form of advertising technology that combines digital signage with mobile messaging, the Smart Player enables retailers to go beyond in-store interactions and send real-time discounts and offers to customers' mobile phones while they are in close proximity and primed to make a purchase. iSIGN's technologies are convenient for consumers as they do not require customers to download an app to access deals and information. Instead, retailers can connect with customers who have opted to do so via Wi-Fi or Bluetooth, in a privacy-conscious way that does not require customers to share their personal information. iSIGN's location-aware and instantly accountable mobile advertising technologies are helping retailers convert passersby into loyal purchasers, changing the ways retailers interact with and attract customers on the go.





KORE

www.koretelematics.com



The KORE M2M network provides cellular and satellite connectivity for solutions in the retail and connected home industries. The KORE network powers wireless vending, parking and transaction-based applications in the retail industry, and security and

control applications for the connected home. KORE Global Connect provides worldwide GSM, CDMA cellular, and low-latency satellite services. The global connectivity services offer ubiquitous and affordable M2M coverage, powering cross-border, regional or even global M2M solutions. KORE Global Connect services and devices on the KORE network are centrally managed through one, cloud-based platform, improving efficiency and reducing costs. KORE's PRISMPro is a robust, user-friendly M2M business management solution. PRISMPro allows customers to order services, easily activate and deactivate devices, and change billing and usage information seamlessly. Real-time information is available to enable M2M application providers to control their costs, optimize M2M services delivery, and provide the best experience for their own customers. A high-capacity API provides full integration support into M2M applications with enterprise IT and backend systems.

PayPal

www.paypal.com/us/webapps/mpp/beacon

PayPal Beacon is making the mobile payment experience as streamlined as possible. It is allowing marketers and merchants to be more targeted than ever when reaching consumers relevant to their business. The vision is for PayPal Beacon to enable more than just payment – for example, offers, maps, reminders, self-checkout, etc. Eventually, the PoS should be able to store information such as what was a consumer's last drink order. So when consumers walk in to their favorite store, a merchant will automatically see how they like their coffee, then they can push an offer specific to those consumers that gives them \$1 off the drink they like if they order in the next 15 minutes. In other words, mar-



keters are going to be able to reach consumers in a much more meaningful way, and a way that will probably bring the customer back over and over again. **M2M**

Join the Roundup!

Would you like your company to be part of the roundup in a future issue of M2M Evolution magazine? If so, let us know.

Roundups in the next issues of M2M Evolution magazine will be on:

- Industrial Internet solutions, including platforms related to business intelligence, health care applications, and social machines (3rd quarter issue; deadline June 12); and
- Internet of Things solutions, including connected vehicle apps and platforms, GPS solutions, and telematics (4th quarter issue; deadline Sept. 25).

If you'd like to be included, please email Paula Bernier at pbernier@tmcnet.com by the above-noted deadline(s): 150-200 words about your company's M2M offering in this category, including your full company name and url; the name(s) of the product(s); a description of those products; and product photo(s) – NOT LOGOS – sent as a separate jpg 300dpi attachment(s).

The copy can talk about multiple products, but each company is limited to a total of 200 words. Please provide those words as a single paragraph and do not use bulleted lists. Keep descriptions factual, leaving out promotional terms, and removing product registration and trademark symbols.

Thanks!

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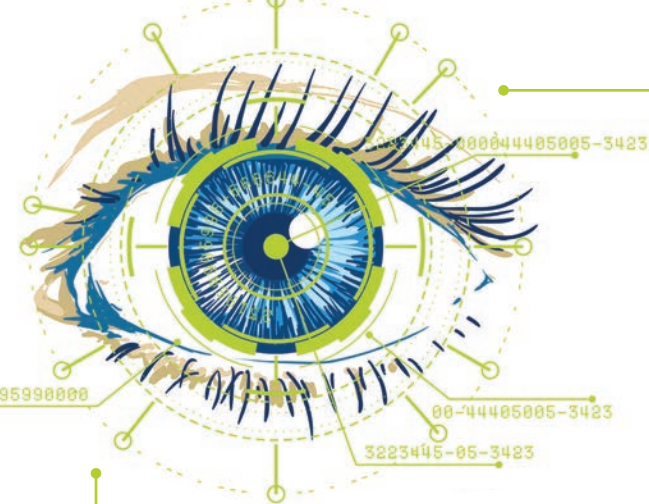
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by Paula Bernier



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The value of digital signage is large and growing. In terms of market size, digital signage is worth between \$4 billion and \$5 billion globally, and \$1.6 billion and \$1.8 billion in the U.S., says Chris Riegel, CEO of Stratacache.

And analysts expect the digital signage space in North America and Western Europe – which currently ship in the low tens of millions of units per year – to double annually in each of the next three years, he says. From an individual business perspective, a digital sign's value lies in its ability to drive a sale.

Digital signage can play an important role in visual ID and conversion in such environments as banks and retail stores, as just two examples, says Riegel of Stratacache, which has 425 major digital signage accounts globally, including deals with H&M, Home Depot, Kroeger, Lowe's, McDonalds, Safeway, and Walmart.

In a banking environment, digital signage can be used to deliver customized messages to visitors nearby, triggered by the bank app on those users' mobile phones. This can enable a bank to drive a research point, such as how to enable bank customers to enhance their credit scores, and then offer the option to download a video that those individuals can view right then or on the bus ride home, Riegel says.

One bank took digital signage a step further, using a floor-based platform to promote a new credit card offering, and enabling bank visitors to play a game in which they could jump on different options to score points and compete. This not only advertises the program, Riegel notes, it creates an immersive experience for individuals.

Digital signage can, of course, be used in a similar way in retail environments. For example, a high end store like Nike could offer shoppers the ability to download the Nike

mobile app, and to get free Wi-Fi service while they're in a store, and that provides the platform through which the brand can target shoppers with customized digital signage content, and can share with shoppers videos and other content demonstrating the features of its products.

In an especially interesting application of digital signage, Pizza Hut is reportedly looking at using interactive table-top displays – which picture a pizza surrounded by various toppings that they can move onto it – to enable diners to create their pizza orders via digital technology. The same platforms can be leveraged to place and pay for the orders.

While the companies listed above are some of the world's largest and well-known businesses, Riegel says that even small and medium companies are now starting to use digital signage as a conversion tool. Driving interest in digital signage are studies like a recent one in which a Midwest bank saw uplift of 25 to 35 percent as a result of using the displays, he says.

Games are a particularly uplifting opportunity for businesses using digital signage, according to interactive and creative advertising technology provider Aarki.

"By working with some of the biggest game makers in the world and delivering mini-game ad units with our creative advertising platform Aarki Studio, we've uncovered that interactive mini games – especially as part of native units – outperform static ads by up to 22.5x," says Sid Bhatt, CEO and co-founder of Aarki. "This confirms what others in the industry have called for recently, and that's to adopt an advertising funnel that captures engagement."

The company reports that users who engage with mini-game ad units spend up to 65 seconds with the ad, highly engaged users replay a mini game ad unit two to three times, such games can lead to increases in social sharing by up to 16 percent, and when a game is combined with unique features of an app or well-known gaming title overall ad performance increases up to eight times that of full screen interstitials. **M2M**

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by Paula Bernier

Takin' It to The Streets

YESCO Brings Digital Signage to the World's Largest Venues

Think about big impact signs, and places like the Las Vegas Strip, Times Square, and Piccadilly Circus come to mind. YESCO is the company responsible for the digital signage in a couple of these iconic locations. Considering the size of these venues, two out of three ain't bad.

Nick Lee, manager of automated systems, research and development at YESCO, tells M2M Evolution magazine that the company does all digital signage on the Vegas Strip. That includes tons of LED boards, which need to be monitored so the company and its customers know what content is playing where at any given time, how much power the signs are drawing, and other details.

YESCO, aka the Young Electric Sign Company, is also now introducing interactive consumer signs through which people can play games that promote a particular dining spot or other retail location. Caesars and MGM are among the properties

leveraging such solutions. The LINQ hotel and casino, a Caesars Entertainment property, has a kiosk sign that includes two cameras, which visitors can use to take a photo, add a background, and share that photo via e-mail or Facebook.

Digital signage leveraging Intel's AIM software and cameras can be set to live feed to capture images of passersby and analyze that data. That can enable the system to assess the sex, race, and age of pedestrians, so the system can present the most appropriate advertisement to those individuals, explains Lee. He adds that there's also the potential to send promotions to people's cell phones.

In addition to the Las Vegas Strip, YESCO provides digital signage solutions for Piccadilly Circus in the heart of London; for various sports venues, including EnergySolutions Arena, where the Utah Jazz plays basketball; and, increasingly, in transportation hubs.

Indeed, bus and train stations are expected to be the next big opportunity for digital signage, according to Lee, among others. It's no mystery as to why. Advertisers have a captive audience at such venues, where would-be riders are often looking for something to do to kill time while they're waiting for the next train to arrive. **M2M**





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Bots in Motion

Bots will play a central role in the Internet of Things, and not just for pedestrian applications such as vacuuming the floor. In her recent ITEXPO keynote address, the magnetic Satwant Kaur explained that bots can be used for a wide variety of important uses related to the body and human health. For example, Google recently created a contact lens designed for diabetic individuals. The contact lens leverages wireless chip and sensor technology to measure glucose and blood sugar levels in real time. If the reading is found to be of concern, an alarm will sound through small LED lights, explained Kaur, chief technologist of innovation for HLS in the office of the CTO at HP. Meanwhile, Medtronic has designed a miniature pacemaker the size of a vitamin capsule. Chonnam National University of South Korea has created a bacteriobot that can detect and treat cancer cells without the side effects of chemotherapy. It attacks cancer by moving toward the tumor region with its flagella. The Dresden Institute for Integrative Nanosciences in Germany is using spermbots to fertilize eggs. And the University of Illinois is using a 3D printer to make miniature biobots that walk the insides of the human body to do chemical analysis to identify specific toxins.

Counting Carts

Despite improved surveillance systems and security technology, retail theft is still a big issue across the world. Shoplifting, employee or supplier fraud, organized retail crime and administrative errors cost the retail industry more than \$112 billion globally in 2012, according to the Global Retail Theft Barometer. One factor retailers can control to reduce this number is the shopping cart. Shopping carts make thieves look less noticeable – more like regular shoppers – and enable them to walk right out the front door of stores with stolen products, especially large or bulky items. They also cost retailers more money than necessary; carts are sometimes stolen and sold to other stores, and some retailers have to replace more than 300 carts every few months – something that can cost a retailer \$60,000 (carts can cost about \$150-\$200 each). Gatekeeper Systems, which leverages cellular modems from RACO Wireless, is a provider of intelligent cart management solutions that work as cart containment, loss prevention and cart management solutions. Eighteen of the top 20 global retailers with carts rely on Gatekeeper's solutions to manage, protect and maximize their business.

The Eyes Have It

If you thought Microsoft's Kinect was cool, you ain't seen nothing yet. A company called Tobii now offers the ability to use the eyes to play video games. Meanwhile, a company called Emotiv sells a headband that captures brainwave activity to enable people to maneuver their wheelchairs with their minds. This solution can be paired with eye-scanning technology to allow for greater control.

Intel Keeps Watch


The company that created the Basis Health Tracker Watch has been purchased by Intel for somewhere in the range of \$100 million to \$150 million following plenty of interest from a number of big names in tech, including Apple, Google, Samsung, and Microsoft. Intel at CES had a number of reference designs on display, including a Bluetooth headset named Jarvis and the Edison smart chip, which is apparently suitable for a range of unique wearable device uses.

KORE Buys Jazz

Machine-to-machine network specialist KORE has purchased Jazz Wireless Data, which also sells M2M networking services. The dollar value of the all-cash deal was not disclosed. Raleigh, N.C.-based Jazz Wireless Data gives KORE access to additional network management and technical M2M experts, and expands KORE's presence in North America and abroad. Its T-Mobile relationship provides KORE and its customers with a wider array of connectivity options on the 2G GSM, 3G and 4G fronts. That will help KORE and its customers continue offering 2G services at a time in which AT&T is moving to shut down its 2G network.

The Apple of M2M's Eye?

The machine-to-machine communications space is following a trajectory similar to the one the smartphone traveled in years past, says Multi-Tech Systems CEO Rod Landers, who sees his company as the Apple of the M2M industry. To realize this vision Multi-Tech Systems is helping the industry move beyond M2M point solutions and toward platforms like its MTR routers and Open Communications Gateways, which can bring together the



disparate pieces of the M2M ecosystem and are easy to use for the customer. The company's new strategy also entails enabling developers to more easily create and make money from their applications. In this case, the customer is the IT administrator who ultimately takes ownership of the M2M solution. Helping these individuals implement and manage their machine-to-machine solutions in an efficient way is an important area of emphasis for Multi-Tech Systems.

Mobile Payments Climb

Mobile payments accounted for 19.5 percent of all transactions worldwide in December, a growth of 55 percent year-over-year, up from 12.6 percent the previous December, according to Adyen, a global provider of international and omni-channel payment solutions. Data shows that tablets are the preferred device for higher value transactions over smartphones and even PCs in some cases.

Qliktag Enhances On-Site Mobile Experience

Qliktag Software Inc.'s new in-store mobile merchandising platform allows businesses to create unique mobile experiences and promotions for each individual product or SKU. Consumers access these promotions and product information by using their smartphones to connect using standard barcodes, QR code labels, NFC, Bluetooth or iBeacons. Since its beta release at the end of 2013, a number of customers have leveraged Qliktag. Surf City Nissan in Huntington Beach, Calif., used Qliktag to create an interactive sales experience within its showroom and offer specific car details and information on a QR code placed on each car. This enabled dealers to pull up additional details on the car they were standing in front of with the buyer using their smartphones. Butcher's Beer, a craft beer brewery, recently implemented a mobile activation for its patrons using Qliktag, which resulted in customers being able to learn more about the brews they were sampling.

Sears, Kmart Sign with Pikato

Pikato recently launched its retail mobile marketing solution, which allows its customers to easily launch a turnkey mobile branded campaign in less than an hour and with minimal internal company resources. Sears and Kmart are

the first companies to leverage the Pikato platform and have already seen mobile engagement rates increase 1100 percent. The platform gathers real-time customer feedback combined with hyperlocal and transactional data to determine the best offers and messages to be delivered. This allows retailers to get immediate feedback from users as they respond to offers and messages to influence Pikato's recommendation engine for future decisions and behavior.

Spireon Revs Up

Spireon's Automotive Solutions Group has reached \$102 million in revenue and is actively deployed in 1.5 million vehicles within the automotive finance industry. The company also announced that it has deployed more than 800,000 units of its Talon GPS tracking device since its introduction a little over a year ago with record-breaking units shipped in January 2014. The Talon deploys Spireon's patented automotive asset recovery process that underpins all the company's information platforms.

Survey Reveals Shopper Preferences

A new survey by advertising and technology company Local indicates that 27 percent of consumers have used their smartphones to pay for a purchase in-store. Top influencers of these purchases are search results listings (50 percent), peer ratings and reviews (42 percent), mobile search results showing local availability (31 percent), and opt-in e-mails from retailers (30 percent), according to the survey. When asked to rank which brands shoppers would be most comfortable using in-store for mobile wallet or payments via their smartphones, Visa ranked first at 24 percent. The following five were PayPal, at 21 percent; Apple, at 15 percent; Amazon, at 13 percent; and American Express, at 7 percent.

TE2 Raises \$3.5M

TE2, The Experience Engine, has closed its initial funding round of \$3.5 million. Founded in January 2013, TE2 offers a platform that provides marketers a real-time conduit to engage their consumers at physical locations and venues in ways that increase convenience, drive engagement, and boost monetization. TE2 expects to turn up its first production customers early this year. The solution leverages such technologies as big data, SOA, and wearables.



Hot Companies & Trends in the Point of Sale Arena

When I research The Hot List, the goal is always to give a sampling for readers to get a head start on their research about something that is not being covered in the press. In this case the problems with point of sale terminals being infected at Target and Niemen Marcus has made for a lot of press coverage.

For the purpose of this article, we are going to leave alone the discussion of what has gone wrong with those implementations. For interested parties, I am going to suggest reading Brian Krebb's blog <http://krebsonsecurity.com>. I also want to point out that Microsoft has been mentioned as part of the problem, but I think poor implementation is the larger contributor.

Ken Hosac at CradlePoint and I have talked about the ability to VPN the traffic to the right location and to monitor traffic breaches and redirections. It's clear that IT did not focus on monitoring the problem and worse yet thought that secrecy was a replacement for strategy. The reality is that public discussion of security is always more of a benefit than a harm, so being part of public forums (and being willing to participate) should be encouraged.

The Point of Sale Hot List has a number of devices, suppliers, and solutions listed in this mix. The numeric order associated with the participants is not an indication of value. I should also point out that point of sale solutions are further specialized based on services offered.

Like most of the stories we cover in M2M Evolution magazine, the impact of massive mobility is manifesting itself in a variety of ways.

Point of Sale Terminals

You can think of a point of sale terminal as having four components: a monitor computer, a cash register, a printer, and a network connection. As you should expect, many of the companies in this space have a long history in providing these kind of solutions.

1. Panasonic is a leader in PoS terminals associated with fast food services, including the headsets

and touch screens. Its touch screens have been built to address environmental issues associated with restaurants such as heat and grease. <http://www.panasonic.com/business/psna/products-retail-information-systems/index.aspx>

2. NCR, <http://www.ncr.com/products/gm/pos-terminals> which last year finished its acquisition of Retalix, holds a large market share. The NCR systems' flexibility can be utilized to match to corporate goals in rollouts and reporting from retail locations. NCR makes the point that rather than Amazon and the rest of the Internet retailers killing the brick-and-mortar retail, the reality is that mobile is now augmenting the brick-and-mortar retailer. The Internet now extends the channel with customer-centric promotions that utilize loyalty programs and digital signage. However, while mobility helps the buyer make the decision, in the end 95 percent of the brick-and-mortar stores process their transactions through a traditional PoS terminal. However the traditional PoS is being challenged by mobile PoS solutions. Walk into any Apple store, and you will have the experience of life without cashiers.

3. Verifone <http://www.verifone.com> delivers systems for retail payment acceptance using devices integrated with enterprise-wide mobile retail systems to enhance efficiency and customer experience. Much of Verifone's website has security resources providing insight into weaknesses that need hardening and strategies that should be integrated into your architecture. The site integrates the PCI Security Standards Council's documentation <https://www.pcisecuritystandards.org/>

4. Micros <http://www.micros.com/Solutions/> offers its solutions in everything from buy-as-you-go piece parts to the cloud, and it supports a variety of terminals. The company's point of sale systems extend to casinos, stadiums, and government service solutions.

From Simple to Complex



5. Casio <http://www.casio.com> was one of the first players in the PoS realm to adopt tablets. The Casio V-R100 is an Android-based terminal designed specifically for the PoS industry that offers both an embedded application and an open platform – and no hard drive or fan. The open platform allows the option for software companies to develop and run their software.

6. ShopKeep POS <http://www.shopkeep.com> runs well on Apple, which is a nice way of saying its software was the focus. It delivers a robust suite of easy-to-understand ClearInsight Reports. In this case the bundle of ShopKeep PoS runs the gamut of managing expenses and revenues.

7. Intuit, <http://intuitpayments.com/> of course, has all of these aspects of business in modules, which depending on the level of detail may be the best choice for those already familiar with the products. Intuit offers a peripheral card reader like its competitor...

8. Square <https://squareup.com>, which delivers great software combined with a peripheral card reader and a disruptive business plan that focuses on reducing the cost of transactions. As mobile transactions go, you cannot fathom the flexibility of carrying around the app and the reader wherever you go. This flexibility makes credit card transactions affordable even for the smallest flea market transaction.

9. Speaking of mobile point of sale, Gemalto <http://www.gemalto.com> joins this hotlist because of its support of mobile PoS with near-field communications. If a mobile PoS gets the sale closer to the customer, NFC brings the PoS to the

impulse – the tap on the vending machine, the loyalty card, or a coupon pushed into the transaction.

10. Numoni's <http://www.numoni.com/numoni/> clever name begs the question of what money is today and what it is going to be in the future. As a bitcoin vending machine, it represents a point of sale strategy that is less than universal, but it may be a sign of things to come.

11. Visa <https://www.visaprocessing.com/acquirer/acp.jsp> has delivered a platform that allows companies to reduce the delay in processing and accruing the revenue of their transactions.

12. MasterCard www.mastercard.com and its European Maestro card have enabled amazing prepaid transaction strategies that take advantage of the smart card chip sets.

All of these solutions point to the trend of greater flexibility for smaller transactions, and the issuance of prepaid solutions makes it so that MaestroCard and Visa should be added to the mix of The Hot List.

The use of smartcards around the world enables a layer of encryption that the United States has not yet come to support.

It has been suggested that somewhere in the implementation of cryptocurrencies like bitcoin is the future of financial transactions. The IRS's recent declaration that cryptocurrencies are property and not currency does not solve the issues of how they impact bartering. And the important point is that within these currencies are opportunities to develop some real transactional security. Already embedded in these currencies is an auditable trail and non-repudiation.

The use of mobile phones to do transactions, act as wallets, and support multiple solutions suggests that cryptocurrencies could be in our future. The company Numoni has created the first bitcoin point of sale terminal, but it is hard to understand how these systems will impact our daily lives. On the other hand, if you think about it we have loyalty bucks already in existence with the use of Disney Dollars and prepaid gift cards that add a bit of anonymity to mix.

Jason Oxman of the Electronic Transaction Association <http://www.electran.org> points out that 88 percent of the people who don't have bank accounts have cell phones, which indicates an opportunity for banking to occur in a different method than we have today.

At the end of the day the key takeaway is that point of sale transactions are going through an evolution, and the transactions we do in the future are probably going to be even harder to manage. **M2M**

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



The State of M2M Investment

California is a venture market unto itself. It takes a special logic to invest billions for software like Facebook's WhatsApp and millions for hardware like Facebook's Titan Aerospace.

Google's acquisition of Nest for \$3.2 billion is breathing new life into M2M investments in and around the valley. Rob Coneybeer of Shasta Ventures and one of the early investors in Nest sees the opportunity of sensors being used by consumers as a key driver for his investments.

While it would be nice to consider their investments as part of the mainstream of M2M, the reality is that a lot of the focus they have is on what they call collaborative consumption. This allows software that you and I would see as good for fleet management be applied to renting personal cars (RelayRides) and hailing cabs (Flywheel).

For me, I recognize that these are real markets, but they don't strike me as investments I can manage. Coneybeer's 280.vc blog says it well.

If You Think Consumers are Irrational, Don't Run or Invest in a Consumer Startup

As a mechanical engineer, I believe in first principles.

The first principle of building a consumer-facing startup is to recognize that consumers are rational. They may deny it to themselves, but people always look out for their self-interests. Their self-interests may be driven by helping others, or driven by vanity and selfish goals, but people always seek to feel better about themselves. That satisfaction can be realized in many ways – some of which are self-serving; some of which are selfless.

When I think about consumers, I seek understanding and counsel startups to do the same. Suspend judgment. Seek understanding. Think about the state of mind of your end-users. Did they just wake up? Are they driving home? Did they just get bad news? Did someone in their family just die? Did they just get great news? Did they get a haircut they really like? Did they just get a nice note from a friend? Did a cute person just randomly smile at them? On and on and on and on, our daily consciousness is overwhelmed with emotional interactions and feelings.

Every consumer in the world is flooded with messages that compete for their attention. How do you differentiate and get above that noise? How do you convey your value proposition in less than a minute? In less than 10 seconds? Don't judge consumers for their short attention spans – accept it – and figure out how to make their lives better with a product or service, and then message that efficiently and effectively.

That's the "mystery of life" in consumer-facing startups. If this bothers you, don't bother building or investing in a consumer company. But if you love this challenge, and accept people as they are, jump into consumer-facing businesses.

Probably the most interesting aspect of what I think California VCs can deliver to our M2M effort is in the analytics. As I wrote in my column this month, we need to get a common lexicon. John Dvorak has recently pointed out that the dream of big data has provided very little meaning-

ful information and can in fact be a deterrent to relevance. He points out tracking the noise level about information is not the same as evaluating the value of information. Parsing big data into something that proves what data is relevant data is what we need to see in the market.

Right now, the VC sees disintermediation as the first fruit with IoT/M2M.

I look forward to finding common ground for investments in the future. **M2M**

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

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Systech Reduces Costs, Enhances Services with M2M

by Paula Bernier

M2M Evolution magazine recently caught up with Robert Lutz, director of product management and business development at Systech Corp., who provided an update on the company and his thoughts on the machine-to-machine space.

For those not familiar with Systech, what does the company do?

For over 30 years, Systech has designed and manufactured communication gateways that connect 'things' to a network or to the Internet. This started with large scale multi-serial port solutions for minicomputers. This has now evolved to include the entire scope of connecting the Internet of Things to the cloud for remote access and intelligent control.

Who are Systech's target customers?

The majority of Systech's customers are OEMs, VARS, and integrators with well-established brands. For example, in the payment transaction and financial market side of the business, you will find a Systech gateway in a majority of ATM cash machines that have converted to cellular technology. But financial and point-of-sale are only a small part of the total machine-to-machine market. Our latest M2M gateways address the needs for a variety of markets including building automation, energy management, security/surveillance, and even mobile health.

Systech offers the SysLINK M2M Gateway. What kind of functionality does this product deliver?

The primary function of the SysLINK M2M Gateway is remote access for monitoring and control. At its core is a Linux operating system and processor

that can handle a wide range of applications. It is a robust enterprise router designed for business applications. In addition, the SysLINK Gateway provides connectivity to a wide range of M2M communication technologies such as cellular, Wi-Fi, low-energy Bluetooth, ZigBee, and Z-Wave.

What makes it unique in the marketplace?

Modularity, security, and reliability. The IoT market includes a wide variety of communication protocols required to talk to the billions of 'things'. To help bring these solutions to market quickly, the SysLINK M2M Gateway provides a flexible, modular approach. The SysLINK gateway contains open option slots that can accept a wide variety of interface option cards. This allows for creation of an off-the-shelf solution with the exact communication interface features that are desired. These option cards can even be added or swapped out in the field. For example, if a Z-Wave-based application requires the addition of a ZigBee energy meter, that can be accomplished by simply plugging in a new option card into the SysLINK gateway. Also unique to Systech is our manufacturing reliability that allows us to offer a standard 5-year warranty. Many M2M applications are in unattended environments. You do not want to send somebody out to maintain or manage a remote



Robert Lutz

device. Systech's reliability can provide that level of confidence.

In what kinds of applications is the SysLINK solution used?

The SysLINK M2M Gateway is designed to be adaptable to just about any M2M application. The modular interface option cards allow units to be configured to meet just about any need. For example, imagine a remote building or asset. The local processing power of the gateway can perform immediate decision making, such as adjusting the speed of a fan to react to a specific temperature threshold. In addition, the environment can be remotely monitored and controlled from any location.

Tell us about Systech's other products and services.

Systech makes great hardware, but software is also a key component. Our SysMAP software can reside on the customer's server or be hosted on our servers to run the remote monitoring

and scripting control anywhere in the world. VARs may use our off-the-shelf software with their own branding for fast to market solutions. We also supply an SDK to allow VARs to create customized solutions via our API, or simply overlay their own software on our embedded Linux operating system.

Can you give us a sense of what's in the pipeline from Systech in terms of products and initiatives?

Ever since the introduction of the core gateways last year, the focus of our development effort has been to address customer needs with new, and interesting option cards and software modules. For example, some of our customers are transitioning from Z-Wave to Z-Wave Plus. So we updated our hardware and software to accommodate this. Another customer recently encountered a need for an isolated RS-485 serial interface. We can support new interfaces easily by creating new option cards that plug into our gateway.

What is Systech's go-to-market strategy?

Each individual M2M market has specific needs, and requirements. Our VARs specialize in these various markets, and are equipped to provide solutions in each of these areas. They require a complete M2M solution that can communicate with a wide range of devices and technologies. Our goal is to develop gateways ahead of the curve so they will have the tools to provide best-in-class solutions. Most of our gateways are white-labeled, and sold to VARs as part of a total product solution.

There's been a fair amount of discussion in the M2M space about how the shutdown of 2G networks will impact machine-to-machine applications. Over what period of time is 2G sunset expected to happen, and how will that affect M2M users and ecosystem players?

Technologies come and go. This is a particular issue for M2M applications where deployed solutions are expected to last for 5 to 10 years, or more. And many applications are unattended, and would require a truck roll to access. Ideally, an M2M solution is architected to mitigate potential technology changes. Since it is difficult to predict the longevity of technology, you simply need to design for change. For example, regarding 2G cellular, solution providers have had three primary options. One, deploy a fixed 2G option, and simply replace the entire solution when required. Two, deploy a 4G LTE solution, knowing that it is more expensive upfront, but eliminating future replacement costs. Or, three, select a modular solution (such as Systech), and simply replace the low-cost 2G cellular option card with another cellular option card when it becomes necessary. Usually, a modular solution makes the most business sense, as it minimizes upfront costs, and provides flexibility for future changes.

What are some of the most important and innovative things happening with M2M on the retail front?

The bridge between the customer, the product shelf, and the warehouse is increasingly being occupied by wireless technology. Point-of-sale equipment, couponing, digital displays, electronic price tags, price check scanners, customer behavior technology, and location-based services are constantly communicating. As manufacturers push their brands outward, self-serve kiosks and intelligent vending machines provide enhanced shopping experiences. In addition, retail is especially sensitive to payment transaction security. Ideally, the communication gateway used in this harsh environment would be flexible enough to handle all these various needs over independent, isolated networks.

What is the most important lesson M2M users and ecosystem players have learned in the past year about what it takes to make a successful M2M deployment?

We have learned that a successful deployment requires more than solving a single problem. Single-point solutions are simple to define and deploy, but often quickly become obsolete. Most M2M solutions begin with a basic goal of reduction in cost – for example, reducing truck rolls, or identifying failing equipment prior to failure, etc. What we have found, however, is unexpected upsides due to improved customer service, better response time, and new opportunities to develop recurring revenue streams. The projects that extend beyond the initial scope are the ones that truly bring value to multiple touch-points of a solution. And implementing a flexible solution, one that can morph with these changing needs, has proven to be the most successful in projects.

What needs to happen in 2014 to keep M2M moving forward?

Several things could accelerate the adoption of M2M. One of the most significant will be the enhanced education of potential stakeholders regarding the benefits of M2M. Working with individuals who understand the value proposition has proven to be much quicker to move forward with implementation. Fortunately, the growing consumer awareness of home automation with marketing from AT&T and Lowes is proving effective. Also, the growing use of standards-based or defacto-standard technologies helps streamline the development, and reduce the cost, of M2M solutions.

If there's just one thing you want people to know about Systech, what is that one thing?

We are in the business of reducing costs and enhancing services with M2M solutions. Due to our 30-plus years of experience, we are able to provide modular, secure, and robust gateways and software that can truly connect just about anything. **M2M**





by Rich Tehrani

Beware the Impending Drone Wars

Picture a speeding criminal on the run who discovers a police cruiser behind him with its lights flashing. The driver rolls down the window and gently lets go of a handheld drone capable of going quite fast and firing a gun. While driving, he uses a smartphone to maneuver the camera-equipped drone next to the tire of the police cruiser where it fires a single shot, which incapacitates the vehicle.

After dealing with this incident, the police department is forced to develop a policy that entails the deployment of drones that can't fire weapons but are capable of interfering with other drones by knocking into them. After all, few municipalities will be like the one in Montgomery County, Texas, a 500,000-population city neighboring the Houston metropolitan area, which is OK arming its drones. I predict most police departments will be concerned about lawsuits resulting from drones killing someone inadvertently.

Meanwhile, criminals will soon realize a single flying gadget won't help them so much and will be drawn into a drone arms race, requiring each side to ramp up their drone numbers to win any encounter. Expect drone-based murders to likely take place in the dark, as these devices have night-vision and humans do not. Once criminals discover the drone is a near-perfect murder weapon, they will start to invest in these devices and subsequently pull off murders without getting caught. Gang and mob warfare will be taken to the next level as drone hits on one group will be retaliated with counter drone attacks, and we'll potentially see drone wars in the streets between sparring groups.

In turn, police will have to counter with more drones to constantly handle surveillance from the air.

This future may seem farfetched, but it is not. It is possible to develop drones with virtually all of these capabilities today. As

battery and drone technology gets better, I am 100 percent certain that virtually all of these scenarios will take place around the world.

Politicians will likely move to outlaw such devices, but society will soon realize getting a small lightweight plastic 3D printed gun onto a drone won't be that difficult to do. In fact, you will likely be able to print out the entire device on your 3D printer. Once you add a battery, some electric motors and bullets or explosives, you're good to go.

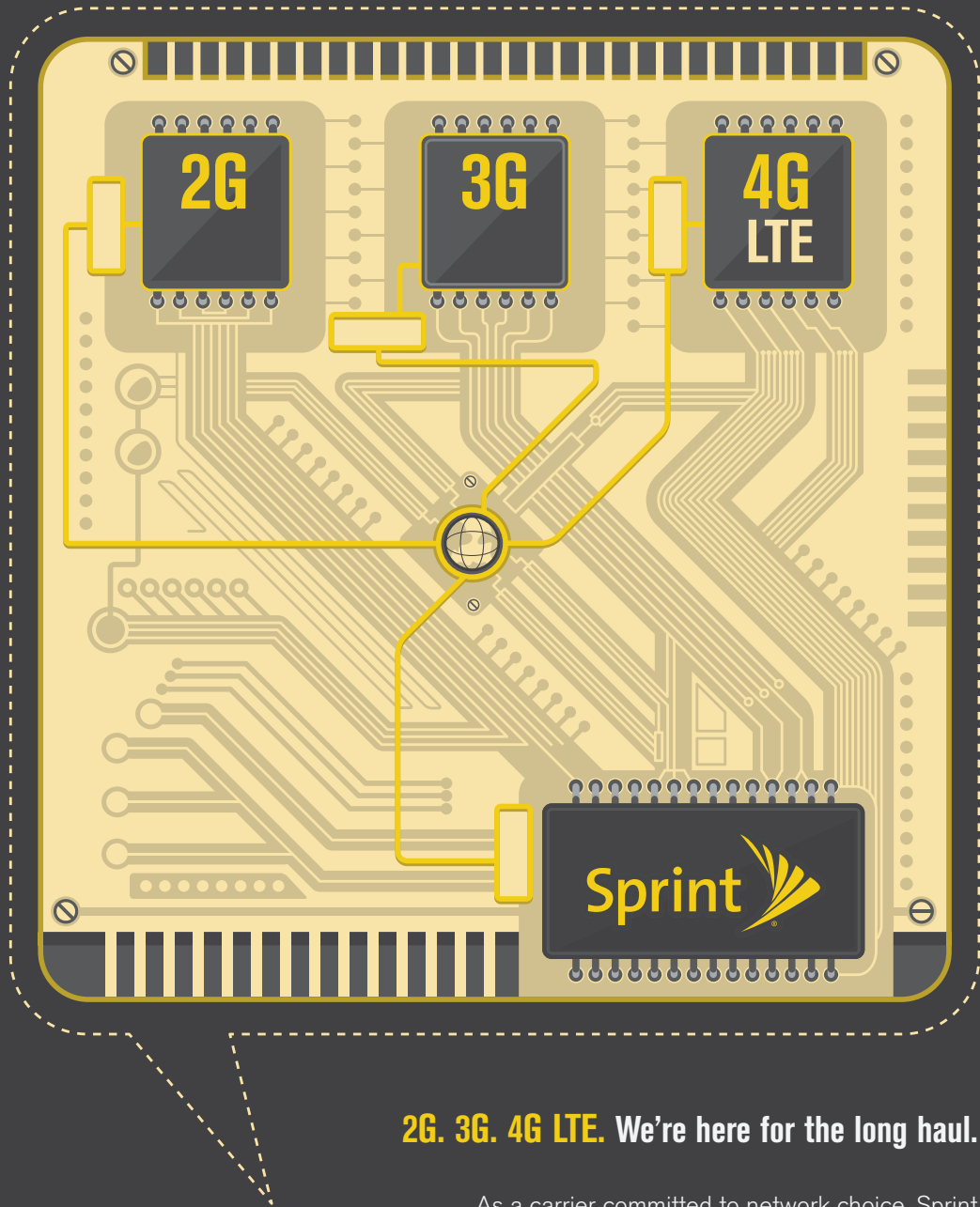
Assuming these drones have cellular connections on them, they could beam back everything they see to their owner who could pull the trigger at the right time. Alternatively, face recognition could be used to zone in on the target. Even scarier, once a drone believes it is near its target, it could initiate a cell phone call and zone in on the ringer before delivering its payload. Suicide drones, which explode on impact, already have been used in war by the U.S. Army. Adapting them to civilian use is quite easy.

The drone threat may soon be coming to a neighborhood near you. It just came to one near me. Just 20 miles or so from TMC's Norwalk, Conn., headquarters the other day someone was arrested for trying to fly a drone with a bomb on it into a school and federal building. The implications are massive. Policing in two dimensions with metal detectors doesn't help when we live in a world with three-dimensional threats!

Nonetheless, excitement and activities around drones continue to build.

The recent NAB event in Las Vegas was awash in cameras, lenses, mounts and talk of 4K but what I found most fascinating were the hundred-plus drones on display. They also seemed to capture much of the attention from attendees at the show. Of special note was the fact that drones were being sold by companies with huge booths as well as the smallest of the small.

The point is the cost to make a drone is fairly low and reselling OEM drones is also fairly easy to do. This market will soon be highly commoditized. That, of course, ties into my ongoing concern regarding drones being used as weapons. **M2M**



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