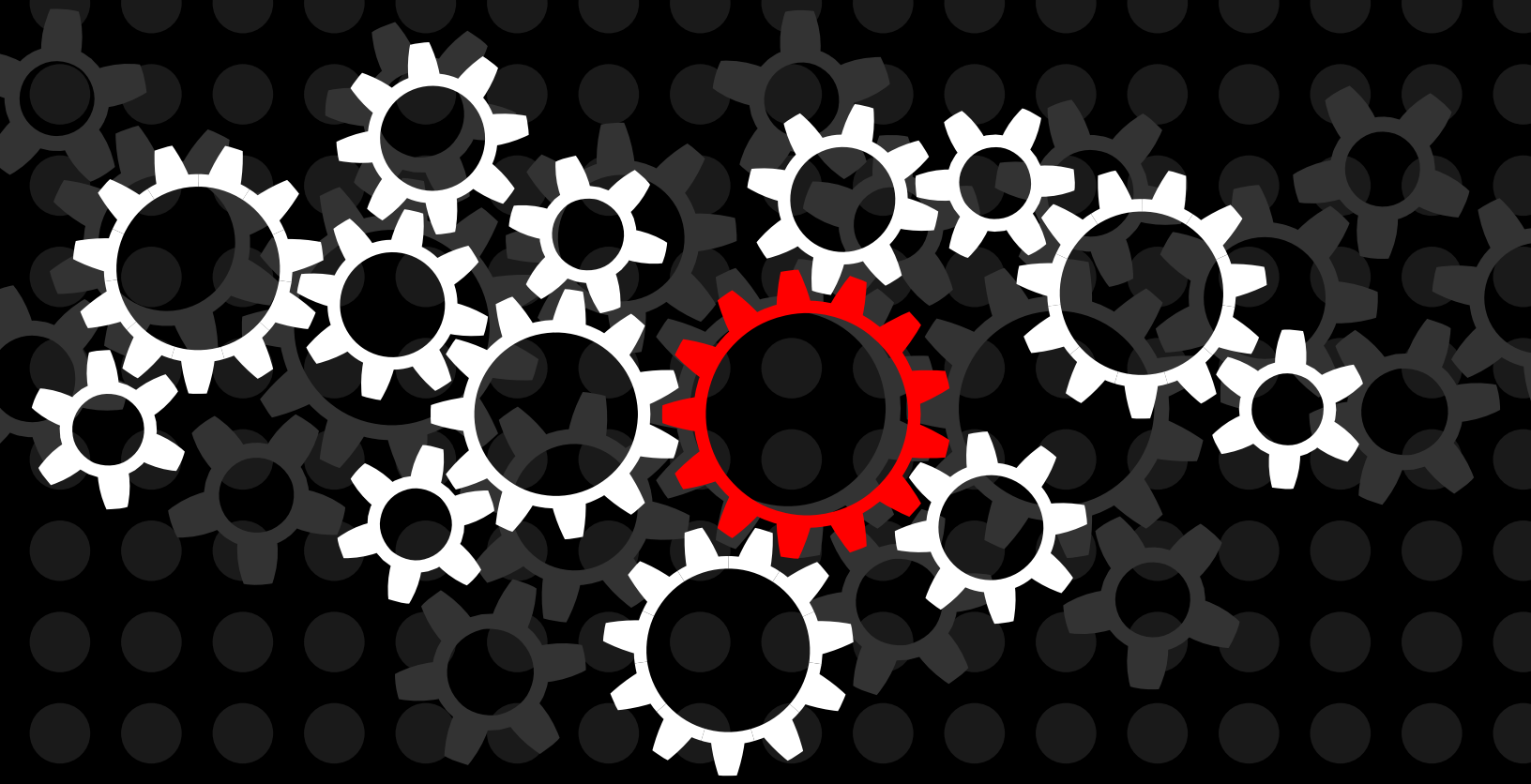
TMC MACHINE M2M MACHINE Evolution

eBOOK



How the Evolution of M2M Technology Can Benefit Your Business

An in-depth look at how M2M technology is changing the way businesses communicate and monitor processes with the help of intelligent devices.

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Overview

Machine-to-machine or M2M technology refers to the communication between wired and wireless devices to capture and analyze data that is relayed through a network to an application, which then translates the data into meaningful information.

By harnessing the power of intelligent endpoints to act upon that data, time becomes an immeasurable and valuable byproduct. Whether these solutions are tracking people, automobiles, high value cargo, pets, energy usage, or inventory, the objectives remain the same. As M2M technology has evolved, integration with mobile devices has further allowed SMS messaging to become an important vehicle for the transmission of M2M communication.

This ebook will explore how the evolution of M2M technology is changing the way the enterprise monitors and analyzes important data. Here you will find a compilation of the top news features, videos and whitepapers to demonstrate the depth of M2M and the benefits that M2M devices can provide for your business.

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M2M: Platform or Proprietary?

By: Carl Ford, Crossfire Media

My network of geeks helped me to pause and consider the situation we are in this week. When I started working in the Internet business back in the 90s, I was living in my three tone slope DTMF world. Back then, the Inter-network of machines would whistle right by me and I was proud that my copper could even carry the thing.

I was no Dagny Taggart, but I saw the carrier network as Atlas holding things together. So the Internet then started to be the choice for connectivity over my network. It was not that we had shrugged, but the Internet hovered above our world and found alternatives.

So I joined this hovering world and saw how the Inter-network delivered on the promise of any to any. Now comes the realities of this interoperability, which is that the world uses it to be exclusive.

Skype, Facebook, iChat, everywhere I turn the Internet of things is proprietary. So, is M2M going to follow suit? Should we be thinking that the platform players are looking to be the M2M Skype or the Facebook of machines?

I am not sure I like this future. Last week I wrote about the concept of HTML5 and the Web being the universal API. Part of the reason for this rant is that I stated an implementation of a wheel chair service at Kennedy Airport in NYC (on the way to DevCon5). The service included a dispatcher monitoring and in contact with all the chair attendants that had touch screens on a post on the cart.

Searching on the Web I found a company called PrimeFlight that has implemented such a solution (I do not know if this is the one that was in Kennedy). You can look at their implementation here. What struck me is that the platform was closed and it could have been so much better if it was open for a mobile application implementation.

The attendants had to walk back to a central place to talk to the dispatcher (sad isn't it).

This could have had a cool app for people to call for assistance or enable a tracker for all sorts of add-ons. But undoubtedly the over thinking came in and said do we really think handicap people have access to these devices, as opposed to if they do what would they want?

So here is my challenge to the challenged. Give me a specification to what you want and I will push for an implementation that is open.

Until then, I will watch with wonder as the proprietary systems continue to grow.

Security and M2M: Can We Trust the Machines?

By: Carl Ford, Crossfire Media

We can title this one "How the Terminator got the Go Ahead." It starts off with this story about people making poor monitors and talks about AirFrance flight 447 that crashed in the Atlantic Ocean and features a co-pilot responding incorrectly to the stall warnings from the device.

If you follow this thread, by the time you are done, you will be ready to let the machines run the world. Adding to this is the latest Tim Maitlin book on the Titanic which suggests that the problem for the lookouts was an optical illusion common to the seas with arctic air.

So seeing is not believing.

Now comes some candid conversations amongst my cyber friends about how lax humans are with their passwords. Children's names, birthdates, addresses, etc.

Clearly we have an issue about how we work with our systems. The more we can lock them down the better off we are, but the reality is that humans are by their nature untrusting and want to be able to see that things are working properly. When we do so, we add vulnerability in the backend of the systems as well.

So what is the right answer to make M2M security systems? I am starting to buy into the notion that doing security in the cloud may have an advantage.

If I can't trust my employees to use a hard password, or if saddled with one keeping in a notepad file or a piece of paper on their desk, it is probably better for monitoring to be done in a more removed manner.

Locking down the sensor, the wireless all strike me as table stakes. My sense is that security is more likely to be compromised in the analytics than in the gathering.

A key question I am pursuing now is whether the cloud brings a best practice to security you can rely upon. I say this because a friend had a breach thanks to his "partners'" storage method of shared data.

IMHO, at the end of the day the cloud may be the outsource strategy to implement for security and if that's the case it's a great place for our platform M2M friends to shine.

As more and more of the world moves to the Bring Your Own Device [BYOD] model, the lock down has to become more virtual.

Global M2M Subscriber Base Exceeds 100 Million

By: Bob Emmerson, TMC European Editor

According to new a research report from Berg Insight, the global number of mobile network connections used for M2M communication increased by 37 percent in 2011 to reach 108.0 million. Asia-Pacific was the strongest regional market, recording a year-on-year growth rate of 64 percent.

Europe and North America grew by around 27 percent each to 32.3 million. In the next five years, the global number of wireless M2M connections is forecasted to grow at a compound annual growth rate of 27.2 percent to reach 359.3 million in 2016.

Tobias Ryberg, senior analyst at Berg Insight said, "2011 was the year when M2M communication really took off in China. The number of wireless M2M subscribers in the country nearly doubled and is now estimated to exceed 20 million. We believe that China Mobile became the world's largest M2M connectivity provider at the end of 2011 with around 14 million subscribers. If the trend continues, the Chinese market will surpass the US in absolute terms within two to three years."

Berg Insight expects that 2012 will be another positive year for the wireless M2M industry. A renewed interest in telematics technology from the global automotive industry has already had a positive effect on demand and promises to generate very significant additional volumes over the next years.

Overall, the enterp rise M2M market will benefit from increasingly advanced service enablement platforms that facilitate the integration of enterprise applications and networked remote devices.

In the Navy: Integrating Spidey Senses into our Machine World

By: Carl Ford, Crossfire Media

Big Data is a term becoming more apparent now as the language of the Internet moves from queries to "probabilistic reasoning." The impact on the Web is several-fold as HTML5 is changing the need for middleware by adding power to the client side for aggregation and analysis. It is also important because the data itself is no longer being managed in a structured manner. All of this points to a next generation looming of processing.

But, as the structure is removed, what benefits are we looking to find? Well, the Navy may be on the case to finding the answer as it does research on what the soldiers have been calling their sixth or 'spidey sense.'

It is the contention of the research that somewhere in the brain the sixth spidey sense is recognizing patterns (or perhaps anomalies in the patterns that triggered defensive moves just before being attacked). The danger is that some will call this out as more paranormal psychology (like George Clooney in The Men Who Stare at Goats). However, the goal is to use cognitive psychology to look for the sixth sense pattern recognition and see if this skill can be trained and learned.

However, the implications come to M2M as well since the ability to manage systems with increasing amounts of data suggests that more holistic approaches of analysis are possible to improve intuition.

Before there was a Google, there was a Gopher.

I am not always sure that writing about solutions that are three to five years out is good for the readership. In doing research for the article I read about David Waltz's passing.

In the course of his lifetime David Waltz impacted us in many ways and it's clear that his basic research is part of our daily lives today. His insight has enabled early warning systems and better queries.

The impact then of the Navy's search for cognitive intuition may take a while to come of age, but the concepts are probably going to show up in data management soon. It's not clear if we have a collective conscience, but it is clear that invention often has a pattern called "multiples" where the invention happens in several spots almost simultaneously and often focused on different problems.

My spidey sense tells me that the research is going to impact our experience before the end of this decade.

Amazon Robots in the Cloud

By: Carl Ford, Crossfire Media

Guess who jumped to number 1 in Cloud M2M Supply Chain? I will give you a hint. It's a jungle out there...

Yes, Amazon.

Well let's be a little careful about putting the cart before the horse, or in this case the factory automation into the Amazon Web Services.

However, let's follow the news of Kiva Systems being bought by Amazon for $775 million cash to its logical conclusion one step at a time.

The New York Times has the reason for the acquisition correct. It makes the supplier focus on its primary customers' needs, and it has a positive impact on margins.

All well and good and you see those benefits in the near term depending on accounting of the three quarters of a billion being paid. Of course, that is less than one third of the cash on hand, so maybe it won't be that hard on the books.

But Amazon has peaks and valleys in its customer base. The company built its Web services based on the issues it saw where all Amazon's assets were being wasted but needed for future demand.

The delivery of services in the cloud was a great leap forward and it already includes an order fulfillment strategy.

Is Kiva Systems going to be behind the scenes or another line of business? The Zappos of warehousing?

According to the press release both sides see Kiva Systems being on a standalone path. So lets make the leap of faith that there are some synergies to be had in order for fulfillment with Kiva and AWS.

Putting the Kiva Robots into an AWS motif would enable third parties to start providing applications for the warehouse like never before.

To be candid, I am not sure the market is ready for this kind of capability. However, I am sure that there are more AWS experienced developers than Kiva Systems developers. By bringing Kiva Systems' Warehouse Control System (WCS) into the AWS mix the company can start to enable a more dynamic marketplace for the Kiva product line and also for AWS inventory systems.

I am always impressed when an acquisition has more potential than the immediate need and in this case I see a huge upside.

Congrats to all.

Turkey's First Machine-to-Machine Platform

By: Bob Emmerson, TMC European Editor

Turkcell introduced the country's first M2M platform in order to unite all the M2M solutions provided to its corporate customers under the "M2M Umbrella". Having contributed TRY318 million (US$15 M) to the Turkish economy through savings by M2M solutions for public and private sector companies in 2011, the company plans to double this amount in 2012 through Turkey's first and only M2M platform.

Chief Corporate Business Officer Selen Kocabas said, "The devices interacting with each other are reshaping competition in today's world. Currently, there are 750,000 Turkcell SIM Cards on the M2M platform. We provide solutions to the companies we work with that result in savings for the public, positively affect environmental health and ensure security, while increasing the quality of life."

He added, "Up to 150 million devices can be connected to the wireless platform and the savings that can be made are enormous. We believe that M2M is poised to increase companies' competitive edge and contribute to our country's economy through the effective use of public resources."

In other news, Turkcell , in conjunction with Bank Asya, has launched the very first SIM-based Near Field Technology road toll payment application on T11, the company's own branded smartphone.

With this application, there is no need for plastic transmission cards (KGS) on freeway turnpikes or even while crossing bridges. Subscribers of T11 smartphone can access Bank Asya's KGS application and upload cash through the Cep-T Cüzdan (mobile wallet) app on their mobile phones without the need to visit a bank or a payment outlet at the turnpikes.

Here in Israel Telematics Need a Tablet More than a Platform

By: Carl Ford, Crossfire Media

I have been on vacation in Jerusalem, traveling everywhere via taxis. Part of my amusement is to guess how many devices are in the taxi with me before I get in.

A safe guess is normally four, but so far I have counted as many as six and as few as one. However, the cab with one included a center console screen, which I will come back to in a moment.

The people with as many as six had a shortwave radio, an a adjunct XFM-like radio, a dispatch system, a navigation system, the meter, and the credit card machine leading me to wonder if this guy had any line of sight for the road. A few also had a booster signal device like a mobile repeater.

Now let's go back to the plus 1 taxi with the console. The console actually added the backup screen and a TV, but they are not all the adjunct equipment. Like so much of M2M, the systems are standalone vertical implementations; worse yet they are radio specific implementations.

Which begs the question how to migrate these systems to an all IP platform.

Right now the consoles are more TV set-like, the obvious choice is to use the smart phone, but if you are nervous about texting and driving I am not sure using the phone is going to make things easier.

Additionally, the logic to me is to have the entire system use WiFi in the car and IP on the Evolved Packet Core for the outside world. However, these systems are not mass market, so its probably easier to build them as applications.

Which presents the next logical step of using a tablet model for the platform.

Currently Microsoft's SYNC platform is capable of supporting a lot of adjunct solutions, but the system is looking for mass appeal and here is a news flash, there were not many Fords being used as taxis here. (In fact, I think my wife and I were the only Fords in the taxi industry in all of Jerusalem.)

So rather than looking for a common platform, why not punt and build for the app world? In the long run this should make telematics more universal.

The Singularity is There

By: Carl Ford, Crossfire Media

Last week, while many of us were returning from the near future shown at Mobile World Congress, the future was made more present in Los Angeles at an event held by the Singularity University. Ray Kurzweil's book the Singularity is Near was the focal point of the activity at the university, but the gathering of genius around this group was astounding.

Based on the view that computing will be truly human-like by 2029 provides a background for the overall objective of seeing how far they can advance the devices. Markets that are not known for great rate of returns are tackled because the overall view is moving toward going beyond the limits of what we know today. As the laws of Cooper, Metcalfe and Moore continue to expand our communication, networking and processing reach, what can be done is beyond the near term experience.

David S. Rose, spoke of the Singularity at our first DevCon5 event in NYC and reminded us of how computer development costs had reduced by orders of magnitude.

The Singularity event was very much connected to M2M and specifically to the medical aspects. Dean Kamen, inventor of the Segway and many medical solutions discussed his prosthetic limb built by his team at Deka Research and Development. The artificial arm is brain controlled and gives the user the ability to control the grasp of a glass and event a grape.

Beyond that discussion was the ability to purify water with Kamen's Slingshot. Access to clean water is essential to reduce health risks and this system was made with that in mind.

Seeing the future is often more about looking further on the horizon and there is amazing technology ahead.

M2M Goes Plug and Play

By: Bob Emmerson, TMC European Editor

A partnership deal between Monnit and iMetrik M2M is enabling a comprehensive range of innovative, plug and play solutions that deliver the requisite functionality in a matter of minutes.

Most M2M solutions are predicated on the ability to monitor and measure parameter data. Soil contains data on moisture, salinity, pH value and density. There's pollution data on the air we breathe. It's literally all around us. But in many cases, there's no mains electricity in the vicinity. Therefore, unless energy-harvesting technology can be employed, batteries must be used and in that case, sensor's power consumption should be ultra-low.

Today we take that scenario for granted, but go back five years and the requisite sensor modules weren't available. The founder of Monnit, Brad Walters, and his business partner Nick Mecham had sold an earlier M2M venture to Digi International™ but they continued to watch the industry. When TI™ came out with a low-cost, low-power RF/microprocessor system on a chip (SoC) in 2008 they reasoned that what had been a gaping hole in the market could now be filled. The technology that would enable battery-powered, wireless sensors to transmit at line of sight distances of up to 900 feet (300 meters), and indoors up to 300 feet (90 meters), could be developed and that is exactly what they did. Visit the site and you will see a comprehensive, unrivaled range of RF wireless sensors.

Monnit's industrial wireless temperature sensor probes measure temperatures up to three feet or more away from the radio link. Modules are available for use in 900MHz, 868MHz and 433MHz.

THE WIRELESS SENSOR SYSTEM

Monnit's wireless sensor system employs a regular M2M value chain. (1) Sensors are triggered or activated at set intervals. (2) Sensor information is received instantly by the gateway and sent to an online system. (3) The online system receives sensor information then checks against pre-set thresholds and if needed it sends an alert. (4) Users receive email and/or text alerts if thresholds are met and are able to respond to incident immediately. They can also set the thresholds via Web-based application.

The wireless gateways were, and still are, an Ethernet, and PC USB device, but this approach has obvious physical limitations. Nevertheless Monnit has been very successful with their sensor systems. Back in 2008, the same RF hole in the market applied to wireless gateways, i.e. products that had RF inputs, a cellular output interface with low price points were not available.

NOW IT GETS INTERESTING

Continued ...

M2M Goes Plug and Play

By: Bob Emmerson, TMC European Editor

Around 2010/11 it became apparent that a wireless gateway having the right functionality and price would allow the company to address a wide range of new market segments: scenarios where it would not make sense to deploy a PC. To take a simple example, monitor water levels in household basements and start the sump pump when there is a potential problem and stop the pump when it has been resolved. In addition, the solution makes periodic checks to make sure that the pump is functioning correctly, e.g. ensure that the backup battery is charged and that there is power from the grid. If there is an issue then both the homeowner and the installer are informed, which allows the latter to react promptly and avert a potential flooding problem.

The company's principals looked around and didn't find what they wanted so they asked iMetrik M2M to develop a cellular gateway. At first sight this might appear to be a somewhat curious decision, as the company didn't market any M2M hardware at the time. But what they did have was a contractual agreement with iMetrik Global, whose network provides instant access in over 120 countries through 170 GSM operators. Both companies use the same NOC (Network Operating Center) for connectivity.

The cellular gateway also acts as a concentrator. Depending on the frequency of check-in it can accommodate up to 100 sensors. In addition there is a software-based location position service.

iMetrik M2M was therefore able to design a quad-band GSM 2.5G gateway that not only met Monnit's specification, but also could be shipped pre-activated on the network, thereby enabling solutions to be used right out of the box. There is no need to negotiate mobile operator connectivity contracts.

Terms like "plug and play" and "out of the box" have become over-used, OTT marketing clichés that didn't deliver an immediate, end-user experience. The Monnit/iMetrik M2M solution, which both companies market and support, kicks in as soon as the sensor module's RF signal is received by the gateway. The application starts and is up and running when the user sets the alarm limits. It really is that simple.

THE BUSINESS MODEL

These low-cost, easy-to-implement solutions combine local area RF technology with wide area cellular, making them ideal for numerous industrial and personal applications: too numerous to list. The wireless sensor kits and monitoring software can be ordered on line, as can the cellular gateway. There is a low monthly connectivity charge: no hidden fees; no activations fee; no roaming charges and no MVNO contract is required. This unique feature that comes from the fact that the iMetrik Global network uses its own SIM cards and has its own HLR (Home Locations Register).

Continued ...

By: Bob Emmerson, TMC European Editor

CONCLUSIONS

The combination of local area network RF technology and wide area cellular is enabling a comprehensive range of pragmatic, no-brainer solutions. Monnit is the market leader in low-cost, low-energy wireless sensors and iMetrik M2M has developed a gateway that leverages the functionality of those devices. For example, solutions can be deployed around the world in a matter of minutes. The gateway comes pre-activated on the iMetrik global network and there is no need to negotiate mobile operator connectivity contracts. In a nutshell, it's a one-stop shop, out-of-the-box monitoring offer.

Near Field Communication: Is it as Close as They Say?

By: Carl Ford, Crossfire Media

As Mobile World Congress continues in Barcelona this week, Near Field Communication (NFC) has emerged as the most talked about technology by vendors, services providers and commerce partners.

It makes for a pretty good discussion, but I am not sure the story is played out yet. So many of the discussions include demos of being able to make the transaction, but I question is this where the pain point is in the world?

I am not trying to be a nay sayer, but as I try to imagine the use of an M-Wallet cradle to grave I get stuck after the early adopter phase.

To be clear, early adopters are always willing to try new things. They make great technical market trial participants and even help with marketing trials if you compensate for the skew they represent.

However, when I think of my wallet and I think of my phone, even though they are both with me most of the time, my wallet has some aspects that I am not sure we are emulating with NFC.

For example, my wallet and specifically the currency in my wallet is a great dispatch tool. I hand my kids money for the them to do what they want. Is there an equivalent demo going on with this regarding NFC? I have not seen it in the white papers and press releases.

As I read about the Samsung/Visa Deal at the Olympics this summer, it sounds really cool, but I am confused as to how the phone gets distributed to the fans? Strikes me that wallets are more interoperable at the present time.

Finally, there is the power issue. Personally, I am beginning to wonder if my phone can be called a wireless device at all since I am constantly plugging it in. Often a powerline, magic jack-like device with a dect phone would give me more portability; but my wallet never has to be plugged in and works under the most extreme circumstances.

So I am excited about the field of Near Field Communication but think the hype is ahead of itself again. I would say lets bet on it, but my I am not sure where I put my wallet right now.

Pandora's Box of Hope Had 3G

By: Carl Ford, Crossfire Media

It's amazing sometimes how myopic we can all be. Our last session at the 4GWE Conference in Miami was scary as all get out. Anton Wahlman pointed out that the move to 4G/LTE was full of pitfalls that made the choice of carriers more like a marriage than a date.

That made me realize that the 3G system is going to stay in place particularly for M2M. I particularly think that way about GSM and the benefit that it represents to everywhere but here (the U.S.). In a piece on the Future of Communication newsletter Martin Geddes wrote:

"**We come to celebrate GSM...**In a mere two decades GSM has created a connected planetary populace. The spread and impact of even the printing press cannot compare. The core offer is a perfect packaging of human voice and simple text into GSM's mobile telephony and SMS standards. ...This achievement cannot be understated, and should not be diminished. Too many Web-heads dismiss the benefits that GSM has brought. It wasn't the Internet that connected billions, it was GSM...

Whilst the marketing people would like us to treat UMTS (aka 3G) and LTE (aka 4G) as something different from GSM, these are really just iterations of the same basic pattern of voice, messaging and data, delivered by broadly the same players. Whilst there is lots of good work on radio standards and interoperability going on via the GSMA and 3GPP standards bodies, it is the ecosystem as a whole that is under threat."

I recommend reading the Future of Communication Newsletter since it's clearly an insight into the perils facing GSM's migration. The carriers desire to break out into differentiated services is being undermined by their internal management problems. Or more specifically, over the top is innovating to something superior to the technology the carriers are chasing.

For M2M this is critical because a lot of the deployments are global. Some people have predicted that 4G will be the shortest lived upgrade in history, while some friends are telling me that WiFi will become the 5G of our future.

Ironically, the effort to differentiate between each other just adds to the use of the carrier's network as a dumb pipe.

In the last few weeks ETSI has announced efforts amongst the standards bodies to get its M2M act together. It may be that we see a strategy that makes the value of carrier services clearer.

When it comes to M2M, people represent two horizontals in telecom and IT that are making it possible to provide an API to various verticals. As the carriers woo the platform folks it will be interesting to see if they can deliver solutions that differentiate services. If not we could see M2M slamming like we saw with cellular in the 90s.

Bottom line is the platforms have the benefit of all the economies of scale that IT and wireless now have. But the key benefit they bring is that they support universal service better than the carriers.

And that strikes me as ironic, but I have hope.

M2M: 42 Percent Growth in Users, 86 Percent Growth in Traffic

By: Carl Ford, Crossfire Media

According to the Cisco VNI report on mobile growth, the trends in M2M are just part of the overall trend contributing to 4.7 percent in the overall market.

However, the trends seem to indicate anomalies in opportunity. With the growth in video it seems to indicate that surveillance, visual monitoring and telemedicine should be the more heated opportunities for future growth.

Additionally, with the need for WiFi to offload and the tendency to stay wireless in the home, it suggests that remote patient care and smart home solutions should trend faster.

This helps me answer a question I have been asking myself, "Does the M2M market need 4G technology to evolve?"

I have come away from this query with three 'yes' answers.

1) Yes, because it shows stability. The trend for years in M2M was for wireless to be a solution of last resort. The reason was concern about coverage and network deployments. The embracing of 4G and all the map commercials have shown that fear as being no longer relevant.

2) Yes, because it is visual. In dealing with the remote locations the need often is for "hands and eyes" to eventually be deployed to support the troubles. The benefit of M2M for Web and video is that systems are becoming more visual. This also trends to retail and marketing M2M solutions such as digital signs; however, even the simplest application can be blended with big data to deliver business intelligence to evaluate the sensors results.

3) Yes, because there is an app for that. As the user becomes more mobile the integration of M2M to smartphones becomes more appealing. Self-managed alarms bring back the days when we all had beepers receiving alarms from our network. Now M2M can be deployed in ways that make it accessible to everyone.

If you build it they will come. According to the report while 4G represents only 2 percent of the deployments, it represents 6 percent of the data. As the report says "there is anecdotal evidence to support the idea that usage increases when speed increases, although there is often a delay between the increase in speed and the increased usage, which can range from a few months to several years."

M2M innovation continues to take advantage of the speed and growth. If you have an M2M application that is data intensive (requiring speed and bandwidth), I would love to feature it at our M2M Evolution Conference in Austin. Drop me a line.

Verizon Wireless Talks SMB M2M

By: Carl Ford, Crossfire Media

Sometimes when a concept is shared with me for the first time, it feels like a universal truth. When Steve Barna spoke at the M2M Evolution Conference last week, the discussion about the SMB's need for M2M solutions was one concept that had not been on my mind previously. However, as Steve continued to tell the story it became clear to me that M2M as an application component is just as viable for SMBs as it is for the big enterprises.

That made particular sense to me when I spoke to Glenn Eggert of Verizon later that day about the integration of Verizon Wireless' business services and mobile groups and how they were merged to form an organization focused on six verticals including healthcare. Included in this Verizon group is the nPhase platform the company built with Qualcomm and now owns outright.

nPhase had a focus on healthcare and healthcare is a market that lends itself to smaller implementations as doctors and hospitals affiliate and collaborate on patient care.

In general, the realignment of resources at Verizon shows a commitment to the marketplace that should be applauded. For the SMB marketplace even the simple solutions that tracked exercise and diet were compelling and almost universal.

Sprint's Paget Alves and Wayne Ward talked about the work Sprint has done, and I have reported often at their shows and on webinars with them about solutions for the medical community.

While there are a lot of opportunities, healthcare has the added feature of the intangible price.

If you don't have health, you don't have anything. And if you are not sure if you are healthy M2M can help.

Insight for M2M from Military Mobile

By: Carl Ford, Crossfire Media

It's official. The Army is scrapping the development of the Joint Tactical Radio System (JTRS).

JTRS had all the makings of a dream come true in design. Its goal was to make a single radio system that would work and be compatible throughout all operations.

However, they rapidly found that they were unable to overcome some stumbling blocks.

I am going to walk us through some of the issues and also talk through the implications for our more modest commercial strategies.

Processing and Power. Encrypting Voice is a delicate balance of speed and security. You want to encrypt as strongly as possible and at the same time not delay the communication experience. By in large, this does not really have an implication for M2M. However, the battery to support the processing is a case in point. If the battery life is a problem for people that are used to carrying a backpack, clearly we need to make sure our systems stay close to power sources and probably back up systems.

Technology and Spectrum. The use of cognitive radio has been part of JTRS and it will be interesting to see if the military continues any work here. Much of the early proof that TV white space could be a viable market was based on the combination of cognitive radio and the use of the database. In the end, the database became the tool and cognitive radio was looked at as a future use. For M2M, this is significant, as it means that the use of a gateway between the sensors and cellular network is still the safest method for deployment. Cognitive radio also had the implication that TDD LTE was a smart strategy. Again, I would say that it's clear that FDD LTE is going to be the norm, which means that the military is going to guard its spectrum now more than ever.

Commercial Markets. The scrapping of JTRS also means that the military sees the existing consumer market to be the best place to source. This means we should probably follow suit and accept that the market of devices is strongest with the army of ARMs. Bluetooth, WiFi and Zigbee all have their spots, but we should look to have a starting point with what is available with the wireless industry.

The Internet was a military vision. I know it comes as a shock to you that the military, through DARPA, is the friend to the Internet. However, we would not be on it if they had not wanted it, so accept that fact. Having said that much, the true indication of the death of JTRS is that radio is going to stay focused on layer 2 for the near future. We can talk about LTE and a single evolved packet core. We can say all we want about it just being transport, but radio frequency and spectrum are going to be a continued problem for us in the near future.

For more information click here.

Crowdsourcing WikiPedia's M2M Article

By: Carl Ford, Crossfire Media

I have one New Year's resolution and that is to help Wikipedia in any way I can. I asked friends to participate in the fund drive, and I started to read the discussions in the articles on topics that I have a personal knowledge of.

However, I am a better interviewer than an interviewee, and I need the M2M community's help in upgrading this M2M article.

Here are some obvious places that need fixing:

History – The connecting of machines and sensors has been going on for ages and we can make a case that all those pagers receiving alarms could be considered. I need people to share their view point not about when M2M comes of age, but its precedents.

Applications – The article has a bunch of articles that show a range but does not link to the basics such as telematics, smart grid, zigbee, and other hot points. Particularly embarrassing is the lack of knowledge of the movement to horizontal platforms.

Open M2M Initiatives - In my opinion this does not deserve its own category. I chased the protocols for a while and this article is focused only on the xml side and not on the work of CDG, TIA, ATIS, etc. I think I would call this "Standards at Work".

To help you can go about it one of two ways. Get involved on the Wikipedia site yourself, or send me your thoughts.

I will keep you updated on my progress every week.

Of course you can also help with your donations. And if you donate any amount, send me a note and I will give you a 10 percent discount to our M2M Evolution Conference in Miami in February.

IT is More Than M2M

By: Carl Ford, Crossfire Media

Having finished reading Walter Isaacson's Steve Jobs biography, one place where Steve looks sentimental is regarding Hewlett Packard. When Steve came back to Apple one of the things he tried to do was make sure the company could keep its edge. In trying to incorporate the innovation into the culture, often the discussion turned to HP and "what's gone wrong".

I mention this because I was looking at HP's Instant On campaign for discussing M2M in the Enterprise. If you never heard of it, I think that's understandable.

You can find all the materials here.

In it, you will see the effort taken about the sheer volume of data and what is truly processed and what is lost.

IMHO (in my honest opinion), the problem is that it provides forest view without any insight into the trees.

IT works best when the value can be seen in the impact of ROI. Saying that 85 percent of the data is lost forgets the most important question. Does the Pareto Principal apply to M2M? If so than the 85 percent of the data lost may be a model for efficiency.

If 20 percent of the information gives you 80 percent of the insight the question is not how to capture the 85 percent but do we have the right 15 percent and what would be gained if we captured 5 percent more.

Actually, even that reasoning is bogus. Instead, let's ask the question the right way. What can IT measure with M2M that will impact the bottom line?

For most business this starts with Remote Access Management. We all know distribution and the proper analysis of logistics has direct impact on the bottom line. Steve Jobs implemented Just in Time manufacturing at Apple; if the machines are connected to visualize workflow that has a direct impact. If the system then has a connection to distribution that has a direct impact. If Retail reports inventory that also has a direct impact.

Three different places modifying the same data and having direct impact.

HP features a graphic with the word 'Intuition" circling 'Better Enterprise Decisions".

It feels like a very indirect impact.

HP has a history of measurement and testing and high end processing. It would be nice to see some M2M for the Enterprise case studies.

The problem as I see "IT" is that HP wants to really talk about big data and pattern recognition and not about M2M.

M2M is a logical place to want to apply these points, but you have to provide some case studies.

My intuition tells me that BigData that is Instant On has to have a purpose for people to capture it, otherwise 85 percent is useless.

Is Your Phone the Platform for M2M?

By: Carl Ford, Crossfire Media

I enjoyed the Sprint Open Solutions Conference very much last week and had several interviews with companies that will appear on the M2M Evolution site in the near future.

As always, when I get talk to many people in the industry, I get to hear the trends, the group think and the opportunities. Here are my thoughts for what they are worth.

First of all, Silicon Valley is definitely going to have a great impact on M2M. The Plug and Play Tech Center struck me as typical of the value of being at the Silicon Valley.

We may be past the age when Steve Jobs and Steve Wozniak can hang out in neighborhood garages, but the community spirit is there. The apps community sees M2M as just another application with a few extra items to control. This means that a lot of the group - think about how HTML5 and device specific OSs are embedded in the conversations- however, most of the time the issues about this just gets pushed as "the cloud". My friends at Google remind me that the Cloud is the Internet and what the cloud folks talk about are their aggregation servers on the Internet which is "their platform."

Removing the rhetoric, what we have is the Internet connecting machines to good Web interfaces. The value of a platform has to be in the applicability of the system for multiple uses.

The beer tap M2M system (known as Sprint's Kegerator) may have some fun social networking aspects, but if the platform manages to show how gas and liquid tanks can be managed remotely, then the platform has a purpose. In this case, using Bug Lab's platform to add a series of components to show that rapid prototyping can be done with hardware and software.

Which brings up the next question: if the systems are masking the machine / sensor issues, what makes the OS of a device important? It seems to me that HTML5 is going to be a clear winner in the development backend systems in HTML5 particularly where the systems involved media.

M2M solutions involving media are probably going to be a great growth spot.

- Monitoring tanks with the sensors does a lot but a picture tells another aspect of the story.
- Remote Access that monitors goods in transport is good for tracking the movement, but knowing that the driver is still awake is probably also a good idea.
- Tracking Alzheimer's patients movement is okay, but if you see what they see you may be in a better position to help them.

The point is that the platform that wins is probably going to have to be more about the integration with the human experience than the sensors. About a year ago, Mary Cronin and I were speculating on whether Apple could jump ahead of everyone and be the platform for the future.

I think the answer is that it was not on their radar as much as we thought it was at the time. The platform players should, however, look at their phones and know where and when the Web will keep them ahead of the devices.

Wanted: M2M Fat Pipe Apps

By: Carl Ford, Crossfire Media

Here is an interesting question? Can you think of an M2M application that could use a fat pipe? Verizon Wireless can.

At the Real Time Communications show at the Illinois Institute of Technology last week, Chris Mayer, VP of Verizon Wireless, spoke of an application that allowed TV stations to send HD Video back to the studio over VZW's LTE network. Mayer suggested that HD cameras could include the radio in the future making this more common.

This application is probably not the only one, which is why Verizon has the Venture Capital group looking for applications that they can invest in. A key goal is to find the differentiators in the market of M2M verticals.

Personally, video seems to be a key ingredient to using the bandwidth that comes to my mind. I have a friend who works with the world's fastest speed cameras. Most of his applications have been in military use, but he has often felt that medical was a logical market.

Given the ubiquity of Verizon's 4G LTE network, could the deployment of high-speed cameras become more commonplace for surveillance?

Perhaps there are some speed solutions that could also apply? High speed transactions, for example, or new releases of files or programs.

Verizon has been leading the pack of LTE deployers and is looking to gather the devices onto their network. At the core they are close to having their third interoperable LTE vendor and on the edge they have numerous devices.

If you have an idea and want to get some feedback from Verizon here is the site to do it.

And as a word of warning, you may want to see what they have already done.

It's pretty impressive and they are moving pretty fast.

Taking the OAuth: Facebook and Digital Signage

By: Carl Ford, Crossfire Media

The day my Wall Street Journal home page offered me the chance to sign in via Facebook, I was mortified. I complained bitterly to my security friends, who shrugged me off. While I hear from the advocates in Washington about concern of abuse by various carriers, Facebook, the true deep packet inspector, is offering to connect me to the outside world. In other words, Facebook has become an augmented reality.

For many people, Facebook is the way they want the Web delivered, as was pointed out in a conversation with Bill Volk of Playscreen. And as HTML5 gets deployed, the experience is going to grow. The reason is the ability to offer mass customization from the experience. Right now we go to Facebook and we all see our wall of friends and our interests. In the future, the context will be refined and our location will be apparent.

In the M2M space, this shows up in the use of digital signage. The use of "Bump" will not be necessary. It will be possible for the signage to be made aware of your browsing and sync with your browsing locally. The smartphone and digital signage will complement each other with messaging.

One company touching this reality now is Insteo, which can use a company's Facebook page to update the digital signage.

That's nice, but we will end up going a lot further. I sat in my HTML5 class last night and built a page that was tracking my whereabouts, as were the rest of the class. I put the information on the display but I could have used the information to suggest something in common to talk about with the classmate next to me. It pointed out something they had just bought and suggested I consider the same purchase.

If I were in a store, the digital sign and my browser could have tag-teamed me with the deals on the signs and recommendations from friends (like Amazon's recommendations).

I find this stuff pretty creepy, but the reality is I am the minority. My wife and her friends post all sorts of stuff. I find it invasive, but it is obviously persuasive.

Facebook has a more direct relationship with the customer, and retailers are looking for ways to catch our attention. So expect to see the Facebook login ability to start appearing on your retail websites. And when you login that way and visit the retailer, don't be surprised when the signs all seem to be made just for you.

They probably are.

Planting the Seeds to Enable the Underserved with M2M

By: Carl Ford, Crossfire Media

On some of the message groups I monitor, the noise level is deafening. The FCC's recent inquiry on USF reform has generated a broad spectrum of reactions by my friends who are Internet Service Providers. From don't tax the Internet, to lets form our own version of the National Exchange Carrier Association [NECA] that will reject government funds and run our own deployment strategy.

Like I said my life is orthogonal, so it's perfect for this generation of technology and discussion.

In the latest inquiry the discussion about the digital divide is focused on the rural areas. The focus is on a general discussion of the need for broadband. The debate about the digital divide is often too focused on a static idea of service. Today I want to point out a way to think "outside the box" and get "in the field."

"If you build it they will come," should be if they need it, they will pay the price. At our last M2M conference the discussion turned to M2M for agriculture. Lew Roth spoke of an implementation they have facilitated with the company ClimateMinder.

ClimateMinder uses sensors that track weather, water, pests, soil, sun, etc. The sensors are linked together in a box that is networked to other boxes and a gateway to a backend system that allows the farmer to evaluate his field. Would a pun about the fact that this is a continuous feedback system allow me to call it a field of streams?

The application can be monitored at a computer but the solution also appears as an application on the customers smartphone. Indeed there is an App for that.

Lew gave us the value proposition of the cost of water rights and added costs of pesticides and weather monitoring. For the customers with berry crops (i.e., strawberries, raspberries, etc.) the increased yield of 5% was enough to give a payback in the first year.

I do not want you to think that the USF should include farming in the mix of schools and libraries (associated with the E-rate program). What I do want to suggest is the following.

1) This system pays for itself on the farm and would justify some funding from RUS and the Department of Agriculture independent of BTOP and USF.

2) Alternative Wireless strategies need to be encouraged. This solution should not be used to justify a traditional carrier's role. It should be used to support local solutions like WISPs and cooperatives.

3) The last mile arguments about voice services are being misapplied to the Internet of things and we should refrain from migrating the old rules to the new opportunities.

I am sure that the ends can justify the means. I would love to hear of other such solutions. I am sure there are a lot more dreams of fields to be dicussed.

How the Evolution of M2M Technology Can Benefit Your Business

- Interview with Paula Bernier and Clear2There, ITEXPO East 2012
- Interview with Paula Bernier and OnAsset Intelligence, ITEXPO West, 2011
- Interview with Carl Ford and Sprint, Sprint Open Solutions 2011
- Interview with Carl Ford and Intel, Sprint Open Solutions