[A Special Report]

Field Technologies

OPTIMIZE FIELD WORKERS, SERVICE & ASSETS

How The INTERNET OF THINGS Is Changing FIELD SERVICE

[Premier Sponsors]

IFS

ServicePower
Innovating Field Service

Spireon
Guiding Business Intelligence

The IoT Is Changing The Future Of Field Service Forever — Get On Board Now

Sarah Nicastro
Publisher/
Editor In Chief
Field Technologies
sarah.nicastro@
fieldtechinfo.com

The buzz about the IoT (Internet of Things) is everywhere you turn these days, and the topic is certainly making a splash in the field service industry. We've been covering M2M (machine-to-machine) technology for a number of years. But it's interesting to look at where the two terms — M2M and IoT — intersect and to think about why and how the technologies are really taking off in the field service and related industries right now.

So, how are M2M and IoT related? According to M2M solutions provider Axeda in a blog titled *IoT vs. M2M... There's a Difference*, "Axeda defines M2M as the communication between a machine or device and a remote computer. M2M is about connecting a device to the cloud, managing that device, and collecting machine and sensor data. In essence, M2M is about connecting and communicating with a 'thing' where a thing can be a machine, device, or sensor — basically anything that can send data. IoT goes beyond M2M — beyond computers connecting to things. IoT represents things connecting with systems (including business applications, ERP/CRM/PLM [product lifecycle management] systems, analytics systems, data warehouses, and control systems), people (including workers, consumers, employees, partners, and customers), and other things (including machines, devices, sensors, consumer products, vehicles, etc.)."

Gartner reports that by 2020, there will be 26 billion connected devices in the world. And in a report WBR Field Service released recently, 42 percent of the field service respondents that participated identified remote diagnostics as the number one area of spend over the next six to 12 months. With M2M and IoT taking off in field service, we thought it'd be a good idea to explore here the value the technologies can bring to your organization, some of the challenges you might run into along the way, and what the future holds for the IoT in field service.

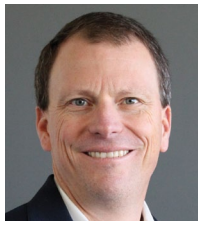
To help me provide insight on this topic, I've asked for some input from the folks you see below — research firm Aberdeen Group as well as some of the industry's leading M2M and IoT solution providers. I hope you find this report to be helpful as you research how M2M and IoT can impact your organization and, as always, I welcome your feedback.

Sarah Nicastro

Our Contributors:

Tom DeVroy
sr. product evangelist, enterprise service management, IFS

Mark Homer
COO, EMEA, ServicePower



Brad Jarvis
CMO, Spireon

Broc Jenkins
national account manager, Wilson Electronics

Lee Lanucha
sr. director of product management, Numerex

Robert Metzler
EVP, sales and marketing, KORE Telematics

Aly Pinder
sr. research analyst, service management, Aberdeen Group

Understanding The Many Uses Of M2M In Field Service

While M2M technology has been around and in use for quite some time, we're now moving past the point of innovators and early adopters to the early majority. As that happens, and more and more people become comfortable with the technology, the buzz grows. "I believe the recent buzz is a result of a convergence of factors: Field service companies have the knowledge management capabilities to turn data points into insight, many organizations are making or thinking about the transition from a reactive, break-fix service model to a proactive or preventive model, and the volume of machines and assets that are connected has reached a number which can drive value," says Aly Pinder, senior research analyst, service management at Aberdeen Group.

If you have an asset in the field that you could benefit from knowing the status of from a distance, M2M can help you do that and transform your business accordingly.

It's often helpful for companies to see specific examples of how a technology is being used so they can deduce how it'd be applied in their organizations, so let's take a look at some of the use cases here. One way M2M and IoT can be leveraged is to optimize your fleet of vehicles or assets. For instance, in addition to capturing location information, companies can gather data on vehicles such as speed, hard braking, and engine diagnostics to enable driver safety and preventive maintenance programs. Data on assets can be communicated as well, such as temperature and inventory levels. "Distributors of lubes and fuels can monitor tank levels and plan the routes of their accounts to increase the efficiency of deliveries and customer satisfaction by minimizing emergency trips and outages," says Lee Lanucha, senior director of product management at Numerex.

Companies can also leverage M2M for asset utilization intelligence and optimization. "Companies can use M2M to optimize their trailer pools. Predictive analytics that look at trending information over time can determine when and how many trailers are needed at each location so that you can do more with your existing trailers, eliminate any unnecessary trailers, and increase customer satisfaction," says Brad Jarvis, CMO of Spireon.

Remote Monitoring Can Transform A Field Service Organization

For field service, much of the IoT buzz is related to the ability to remotely monitor field-based products or equipment and leverage the data you receive from those products to transform your service processes. The examples of this are vast, but here are a few to consider:

- "Managed print services companies can use M2M to determine overall usage that drives service billings on machines under contract. The technology can raise alerts in the call center of product errors generated during usage, and excessive usage can be used as a justification of product replacement by the sales department," says Tom DeVroy, senior product evangelist, enterprise service management at IFS. "Medical device companies also leverage M2M to measure product performance as an indicator of required maintenance and to predict product failures before they occur."
- "We've seen M2M rolled out on ATMs in many locations to monitor use and determine optimal time for retrieval and service," says Mark Homer, COO, EMEA at ServicePower.
- "For utilities, M2M can be used to remotely monitor and communicate usage data from smart meters. This is more cost-effective than sending a technician, and utilities can use this data to troubleshoot equipment and even offer new services," says Robert Metzler, EVP of sales and marketing at KORE Telematics.
- "A vending company can use M2M to monitor their machines so they're only sending someone on-site when an item is low. It also enables electronic payment on machines for faster revenue collection," says Broc Jenkins, national account manager at Wilson Electronics.

These examples are just the beginning of ways M2M and IoT can be used in field service. There are far too many to list here, but the idea is that if you have a product, vehicle, piece of equipment, or other asset in the field that you could benefit from knowing the status of from a distance, M2M can help you do that and transform your business accordingly. •

The Vast Benefits M2M And IoT Can Provide

As you can imagine, having real-time visibility of the status of an asset in the field where no visibility existed before is a powerful thing. The benefits of M2M and IoT can impact a number of aspects of your business, so it's important to take the time to understand the various ways the technologies can add value to your organization.

Improve Efficiency & Productivity. Think of some of the examples we just covered — rather than sending a driver to vending machine locations to fill them on a set schedule, you only send someone when inventory gets low. Instead of having a utility worker doing rounds reading meters, you can receive that data remotely. The efficiency and productivity gains that M2M can provide are incredible. "Overall, M2M enables a field service organization to evolve from reactive work to preventative maintenance. By leveraging M2M, companies can conduct remote monitoring and diagnostics, initiate automated intelligent dispatch events, provide faster response times, and reduce asset downtime," says Homer. A big aspect of increased efficiency comes from reducing unnecessary truck rolls and improving first-time fix rates (or better yet, fixing remotely). "With remote monitoring, it becomes easier for field technicians to troubleshoot from anywhere in the world," says Metzler. "This allows them to not only remotely fix issues, but also prioritize sites that need in-person maintenance. Rather than sending out a technician at the first sign of trouble, companies are able to take a deeper look at the asset prior to deploying a technician — leading to improved efficiency and reduced costs."

> **"Overall, M2M enables a field service organization to evolve from reactive work to preventative maintenance."**
>
> **Mark Homer, ServicePower**

Provide Better Customer Service & Master SLA Compliance. As an organization shifts from being a reactive business to a proactive and preventative one, improved customer service is a clear benefit. M2M and IoT enable you to provide far more informed and faster service than you can otherwise. "With M2M, organizations can provide superior customer service," says Jarvis. "You become able to notify customers in advance of any issues, estimated arrivals, or delays." Further, M2M enables you to provide real-time information to your customers — which is becoming an expectation many customers have. If you have service level agreements (SLAs) to meet, M2M is a sure way to make sure you're consistently exceeding expectations. "SLA compliance becomes pretty easy if you can diagnose a problem on the machine before the customer is even aware of an issue," says DeVroy. "With M2M, you essentially migrate to scheduling maintenance instead of servicing a break-fix call."

Outpace Your Competition. Until M2M adoption reaches the maturity phase, leveraging the technology in your organization is a sure way to set yourself apart from your competition. And even once M2M is widely adopted within your industry (some are further along than others), there are constant innovations with the technology that can enable you to stay one step ahead. "M2M provides a huge opportunity for field service organizations to set themselves apart from their competition. Many companies are not leveraging options like customization and data analytics, and the first to capitalize on these innovations will set themselves apart," says Lanucha.

Grow Your Revenue. At a minimum, M2M will enable you to maximize profits by reducing costs. But in some industries, M2M and IoT can serve as tools to help you identify new revenue streams and proactively grow your top-line revenue. The more you know about your machines and how they're used by your customer base, the easier you can identify new product features or adjustments and provide information to your sales force on upsell and cross-sell opportunities. "IoT can provide business leaders with insight into which products work better for which customers," says Pinder. "That data can help business leaders tailor marketing and sales activities, and a targeted sale can lead to higher close rates and increased revenues."

Use Business Insight To Make Process & Product Improvements. The data you gather from your M2M-enabled assets can provide very valuable insight into what's working — and not working — when it comes to your products and processes. "Organizations can leverage M2M to improve the design of future products for better serviceability or performance," says Pinder. Seeing how your customers use your products provides visibility into adjustments that you wouldn't have known needed to be made before. "M2M data can provide insight into the minds of your customers," says Jenkins. "You can see how your product is received and used and determine what changes to make." ●

Tips For Managing And Maximizing The Value Of M2M Data

The data that M2M and IoT can bring in to your organization has incredible value — but it can also be very overwhelming. For companies that are accustomed to very little to no visibility into the assets they're now connecting with and receiving data on in real time, the data can seem like more trouble than it's worth. That's not the case at all, but you do need to have a strategy in place for how you're going to manage that data and put it to work for your business.

> **"It's important for companies to understand how much data they should be receiving from their M2M solution. In most cases, less is more."**
>
> **Robert Metzler, KORE Telematics**

M2M Data: Less Is More

"The most successful M2M/IoT deployments have been with enterprises that start out with a very clear goal of what they're hoping to achieve," says Lanucha. "The data should be studied and presented based on that goal. When selecting an M2M or IoT solution, it's important to choose one that will make sense of your data and remove guesswork from the equation." Once you have a good grasp on what you're trying to accomplish by deploying your M2M/IoT solution and the type of data required to accomplish that goal, it's important to understand the volume of data that you should be receiving from your M2M/IoT solution. "It's important for companies to understand how much data they should be receiving from their M2M solution. In most cases, less is more. If you're monitoring something that doesn't require constant updates, then you should only be receiving data reports when an issue or exception event arises, in order to reduce the chance of receiving a constant influx of unnecessary data," says Metzler. "With that being said, it's important to incorporate this data into the same business systems and operations you use for all other business activities, rather than allow the M2M data to be siloed off."

As you're evaluating M2M and IoT solutions, it's important to know what to look for as it relates to the display and use of the data they'll be gathering. All the data in the world isn't going to provide value to your organization if it isn't displayed and analyzed effectively. First, look for a solution that provides a user-friendly dashboard view of your connected assets where you can easily find any information you'd want to see at a glance. "Having data displayed in convenient views using dashboards and available on mobile devices is key to fully utilizing M2M and IoT," says Jarvis. From there you want to look for a solution that will do the heavy lifting for you when it comes to analytics. Your solution should have a variety of reporting tools to enable you to pull reports based on your objectives and to review historical data to uncover trends and glean business insight. You'll also want to make sure the solution provides alerts when any issues arise that need immediate attention.

Integrating M2M Data With Other Business Tools To Derive Greater Value

If you're a field service organization looking to deploy a remote monitoring solution, it's important to consider in advance what other business systems and applications you might want to tie the M2M data in to. For instance, alerts that require an on-site visit can automatically be fed into your scheduling or workforce management application. "As a service event is generated by your remote monitoring solution, the job can automatically be fed into your scheduling system," says DeVroy. M2M and IoT solutions are often integrated with ERP and CRM solutions as well. The idea is that you don't want to add another disparate solution to the mix; you want to be able to leverage the data you're gathering from your M2M or IoT solution with the other systems you have in place to derive even greater value from them. ●

Challenges To Evaluating And Deploying M2M And IoT Solutions

While the barriers of M2M and IoT adoption are certainly breaking down, there are still some very real challenges you may face as you begin researching, evaluating, and deploying the technology. The first is that the technology is complex, and understanding how it all works can be overwhelming. That said, unless you're developing your own solution (which only a small portion of companies have the internal resources, skill, and bandwidth to do), the good news is that you don't have to understand every detail and intricacy — you just need to understand the capabilities of the technology, and what problems you're looking for it to solve. "There is certainly a lot to understand and think about around IoT and M2M, but like most things, if you understand the value proposition and the business processes you're looking to improve, you're 50 percent of the way there," says Homer. "If you can describe the improvement and change you're looking to make, working with the right partner will build all the expertise you need."

> **"Standardization is required in order to deliver cost-effective M2M solutions and allow this market to truly take off."**
>
> **Brad Jarvis, Spireon**

Once you have a baseline understanding of the capabilities of M2M and IoT, the next challenge you may face is building a successful business case to get other stakeholders in your organization on board. "Decision makers at every company are concerned with optimizing efficiency and saving money, and M2M impacts both of those objectives in a big way," explains Lanucha. "You don't want to approach it as a business case for M2M or IoT, but rather how those solutions fit into and enable a larger business objective, such as reducing shipping costs or truck rolls." So the best starting point is to identify your business challenges and opportunities and then think about how M2M or IoT can help you address them. "Look for maintenance and service issues that cost you money in overtime, failed SLAs, or customer complaints," adds Homer. "These are your first potential M2M projects."

Until recently, the M2M space was very segmented, which was a big barrier to not only adoption, but understanding. Luckily, at this point, there are a number of end-to-end solutions providers that can help you embrace the technology. "M2M is being consolidated and companies are working together to make M2M much easier to adopt," says Jenkins. "There are a number of companies out there that can be a 'one-stop-shop' for everything M2M to get companies up and running." In choosing a partner, you want to seek one that has experience in your industry and can provide use case examples and references. And, in most cases, it's best to leverage this outside expertise rather than trying to tackle the development process internally. "Even if a company plans to have an internal task force focused solely on the deployment and maintenance of its solution, outsourcing to a well-referenced partner is the best bet for a streamlined M2M deployment and can ultimately lead to much lower TCO [total cost of ownership]," says Metzler.

With the industry being as young as it is, though, there is a lack of industry standards that can make deployments a bit more complex. There has been a lot of progress made on this, though, and standards are a goal the industry is working toward. "M2M technology has the potential to revolutionize the way certain businesses leverage their data," explains Jarvis. "But standardization is required in order to deliver cost-effective M2M solutions and allow this market to truly take off."

Future-Proofing Your M2M Solution In Preparation For 4G

With many M2M solutions enabled by cellular communication, another challenge is how rapidly the technology is advancing and the need for future-proofing when it comes to developing your solution — without overinvesting. "With the looming migration to 4G and also the emergence of satellite networks as another source of seamless connectivity, it's an increasingly important consideration when developing an M2M strategy," says Metzler. "You'll want to consider a solution that can handle 2G, 3G, and pending 4G technology, as well as one that can bridge cellular and satellite when applicable. While the solution may be pricier up front, it will save money down the line when you don't need to rebuild your solution to comply with the newer technologies."

While these challenges may seem daunting, here's a bit of valuable advice. "M2M and IoT aren't any different from any other technology projects you've had before — you just need to know what you're trying to achieve, what the business return will be, and what your project requirements are, and then you research potential partners until you find the right solution for your business," says DeVroy. ●

The Future Of The IoT In Field Service

There's no doubt that the IoT buzz is just getting started: IDC predicts that the worldwide market for IoT solutions will grow from $1.9 trillion in 2013 to $7.1 trillion in 2020. What does the future of the IoT in field service hold? I posed that question to our experts, and there were a few common themes to consider.

First, the experts feel security will become an important topic over the coming months. "I think the M2M industry will see a lot of changes in the coming months in terms of increased analytics and security. It's becoming more important for M2M network providers to harden their networks against hackers and denial-of-service attacks," says Metzler. "While not all data sent over M2M networks requires the utmost in protection, all data should be secure and protected against breach attempts." This topic is related to the standards issue, and work will need to continue to be done to set parameters for security. "Security is a topic in all industries, and M2M and IoT are no exception, given the vast number of sensors expected to be deployed," adds Lanucha. "The industry will need to continue to enhance security from sensors all the way to the back-end systems."

> **"The future of M2M communication in field service is going to be simple, embedded, and invisible."**
>
> Lee Lanucha, Numerex

M2M And IoT Data Enable Advanced Business Intelligence

According to the experts, as M2M and IoT become more widely adopted, you'll see the ways in which companies are leveraging the data from these solutions advance exponentially. "M2M and IoT are true game changers," says Homer. "Innovative industries recognize this and will use the data not only for operational improvements, but to transform their entire businesses." The transition from reactive to proactive service will continue. "We will continue to see organizations leverage the insights from M2M and IoT solutions to remotely deliver service resolution," says Pinder. "Machines talking to machines is a great advancement; however, true value will be achieved when organizations use the data to resolve issues more efficiently and, moreover, avoid failures in the first place." While the visibility is valuable in terms of the day-to-day operations, stepping back and consuming the data at a higher level can provide greater insights on organizational changes or product improvements that you would never be aware are necessary without M2M or IoT. "We'll see a greater focus on leveraging this data for business intelligence and actionable insights," says Jarvis. According to Lanucha, "As connections increase and additional data points become available, decision-making patterns will change in ways that could not have even been imagined 10 years ago."

IoT Solutions Will Get Faster, Further Integrated

Network advancements are a trend you should be paying attention to if you're considering M2M. "Companies should be prepared for the sunset of 2G," says Jarvis. For companies already leveraging M2M solutions, this could mean having to update their solutions to work with faster-speed networks. But if you're in the research phase, you can plan now to stay ahead of this trend. "I see the continuing phaseout of slower legacy networks that passed very small data payloads, reporting only exception events," says Metzler. "This will lead to an increase in more devices moving to higher speed, and better performing networks that can handle larger amounts of data to provide the increased analytics and real-time feedback today's organizations are seeking."

In no time at all, you'll be looking at M2M and IoT as an integrated part of your business and wondering how you ever lived without it. "The future of M2M communication in field service is going to be simple, embedded, and invisible," says Lanucha. "A solution that combines scale, resiliency, and security will set apart the true pioneers in field service." •

SPONSORS

Premier Sponsor:

IFS is a globally recognized leader in developing and delivering business software for enterprise resource planning (ERP), enterprise asset management (EAM), and enterprise service management (ESM). IFS brings customers in targeted sectors closer to their business, helps them be more agile, and enables them to profit from change. IFS is a public company (XSTO: IFS) that was founded in 1983 and currently has over 2,600 employees. IFS supports more than 2,200 customers worldwide from local offices and through partners in more than 60 countries. For more information, visit www.ifsworld.com.

Premier Sponsor:

ServicePower provides connected field services solutions that bring together the customer and the dispatch center, technician, claims and warranty processes, parts, the contracted workforce, assets, mobility, business intelligence, and social collaboration. ServicePower connects all aspects of the field service value chain through the use of innovative technology that accelerates business efficiency gains and customer satisfaction while reducing costs. ServicePower is uniquely positioned to offer connected field services solutions on one underlying and consistent platform. This is the ServicePower difference. For more information, visit www.servicepower.com.

Premier Sponsor:

Spireon specializes in developing strong business relationships with leading companies worldwide, enabling it to offer affordable world-class risk mitigation, mobile resource management, and location-based services. Spireon's solutions are built on our award-winning NSpire M2M Business Intelligence Platform. A highly scalable SaaS environment that supports over 1.7 million subscribers, NSpire delivers reliability, high service availability, data speeds, and robust security. NSpire collects rich data from its patented array of GPS products and delivers actionable business intelligence. Spireon is delivering the promise of M2M to revolutionize the ways companies leverage their mobile assets and workforces to make better, faster, smarter business decisions. For more information, visit www.spireon.com.

KORE is the world's largest wireless network provider specializing exclusively on the rapidly expanding M2M communications market. Providing unified control and management for cellular network service delivery in more than 180 countries worldwide, KORE empowers its application, hardware, and wireless operator partners to efficiently deliver M2M solutions. M2M applications in industries as diverse as healthcare, utilities, enterprise IT, transaction processing, and fleet management rely on the KORE network to deliver operational efficiencies and cost savings. KORE offers a range of technologies — including LTE, GSM, HSPA, CDMA, and satellite services — that ensure the greatest possible reliability and coverage. For more information, visit www.koretelematics.com.

Numerex (NMRX) is a leading provider of interactive and on-demand M2M enterprise solutions enabling the Internet of Things (IoT). The company provides its technology and services through its integrated M2M horizontal platforms, which are generally sold on a subscription basis. The company offers Numerex DNA® that may include hardware and smart devices, cellular and satellite network services, and software applications that are delivered through Numerex FAST® (Foundation Application Software Technology). The company also provides business services to enable the development of efficient, reliable, and secure solutions while accelerating deployment. For more information, visit www.numerex.com.

Wilson Electronics, LLC, a leader in the wireless communications industry for more than 40 years, designs and manufactures the industry's broadest product portfolio of cellular signal boosters, antennas, and related components that significantly improve fixed and mobile cellular communication for use in consumer, enterprise, and industrial applications worldwide. All Wilson products are designed, manufactured, and tested at the company's U.S. headquarters. Wilson signal booster product solutions fully comply with FCC regulations and are FCC type-accepted and Industry Canada (IC)-certificated. For more information, visit www.wilsonelectronics.com.