BUSTING THE MYTHS OF
OEM IoT APPLICATION DEVELOPMENT

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LANTRONIX

INTRODUCTION

"WHAT'S YOUR IoT PRODUCT STRATEGY?"

If you're an OEM, chances are you've heard or discussed the above question at least once in the past several years – whether it was with an end-user, a solutions partner or even your own sales team.

While much of the discussion on the whys and hows of adopting an IoT or connected device strategy has been centered on the end-user perspective, reality is that the burden of developing these solutions often lands squarely in the lap of the OEM. In this white paper, our objective is to debunk some of the common myths regarding IoT application development for OEMs.

MYTH 1
OEMS CAN'T (REALLY) MAKE MONEY ON IOT

"The business model of a connected machine may not always be obvious. Can the extra cost generate enough benefit for the supplier, the OEM, the user? It's an equation that doesn't always have an obvious answer."
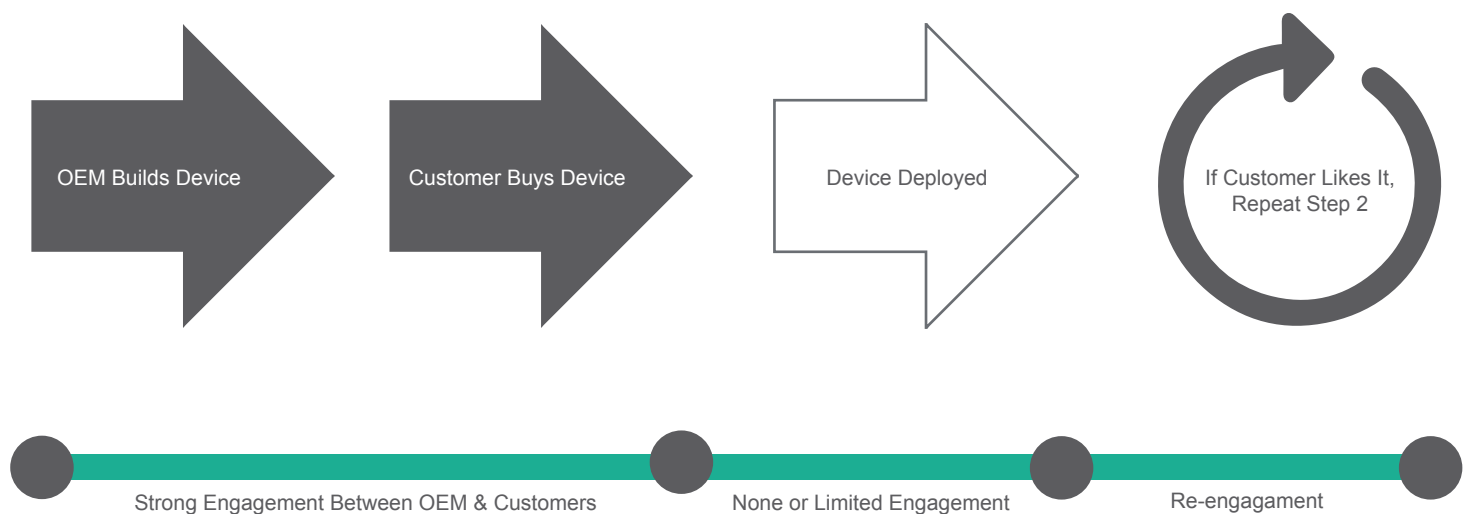
- Dan Ricklefs, Vice President of Global Marketing for Danfoss Power Solution

Source: OEM Off-Highway State of the Industry 2016: The Industrial Internet of Things

Many OEM visionaries struggle communicating the business benefits of IoT to internal stakeholders who believe that there is no money to be made in IoT. While having some connected device solution may be seen as a necessary evil to staying relevant in the marketplace ("keeping my customer happy" or "keeping up with my competitor"), the answer to how OEMs can create sustainable value from having an IoT product strategy requires moving away from the traditional OEM product model.

FIGURE 1: OEM TRADITIONAL PRODUCT MODEL

In the OEM traditional product model, once a product feature set is built and then sold, there is a gap in communication and engagement between the OEM, customers and the device after deployment.
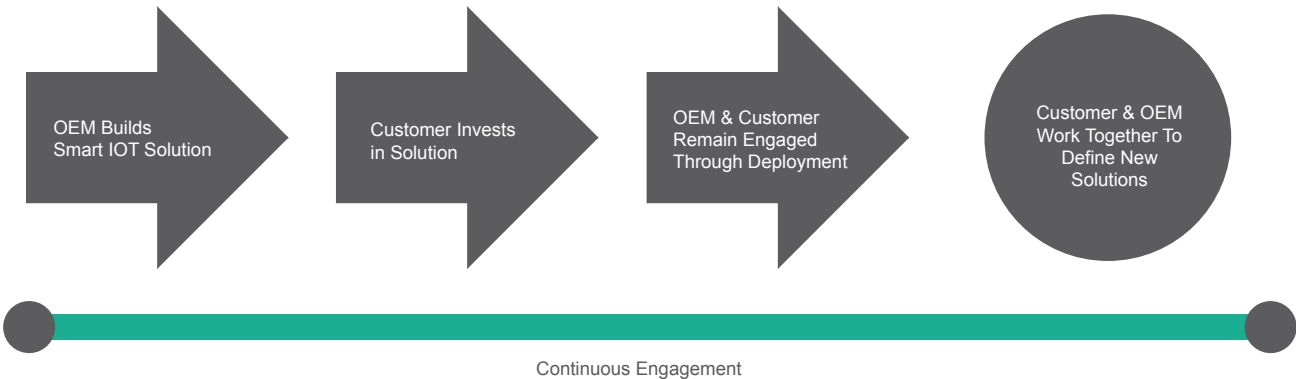
OEM Builds Device → Customer Buys Device → Device Deployed → If Customer Likes It, Repeat Step 2

Strong Engagement Between OEM & Customers — None or Limited Engagement — Re-engagament

Making money from IoT requires a shift in the OEM's view of a device's lifecycle. This new perspective must embrace the real possibility of staying connected to devices even after the sale. Device connectivity doesn't have to be just a product feature but can be a stepping stone to a new type of OEM business model…the OEM smarter connected device business model.

In the "smarter" business model (Figure 2), the OEM stays engaged with the customer throughout the device's lifecycle. This "always connected" link enables you to continually enhance your customer's product experience…whether that customer is a solutions partner or the end-user.

FIGURE 2: OEM SMARTER BUSINESS MODEL
In the OEM "smarter" connected device business model, OEMs stay engaged to key stakeholders throughout the device's lifecycle and leverage its data to create relevant new products and services.

OEM Builds Smart IOT Solution → Customer Invests in Solution → OEM & Customer Remain Engaged Through Deployment → Customer & OEM Work Together To Define New Solutions

Continuous Engagement

Given industry trends, it's clear that almost every device in the not-so-distant future will be connected. Connectivity will become the standard and not a premium feature – so OEMs must think about how to exploit this capability beyond today…or risk becoming irrelevant and obsolete in the marketplace, much like how very few people would buy a Blackberry today as the preferred choice for a smartphone.

FIGURE 3: THE ADOPTION & IMPACT PATH OF THE INDUSTRIAL INTERNET

While many OEMs are still struggling to move from phase 1 to phase 2 in the smarter connected device roadmap, the good news is that those who invest today are on the trajectory to creating additional value and sustain a competitive lead.

LONG TERM

NEAR TERM

4. Autonomous, Pull Economy
- Continuous demand-sensing
- End-to-end automation
- Resource optimization &
  waste reduction

3. Outcome Economy
- Pay-per-outcome
- New connected ecosystems
- Platform-enabled marketplace

2. New Products & Services
- Pay-per-use
- Software based services
- Data monetization

1. Operational Efficiency
- Asset utilization
- Operational cost reduction
- Worker productivity

Source: World Economic Forum & Accenture, 2015

Goodyear, one of the world's iconic tire brands, is an example of a company that is implementing a "smarter" device strategy and has put itself on a path towards differentiating itself from its competition. In one scenario, by leveraging tire pressure data collected from connected telematics sensors built into their commercial tires, Goodyear is delivering critical alerts via a mobile app to truck drivers and fleet managers in Europe on potential maintenance and wear issues that could result in breakdowns on the road.

By offering a secondary service-based application that improves the quality of their tires, Goodyear enjoys repeat business and customer satisfaction. This in turn has helped Goodyear maintain and achieve its rank as one of the leading tire brands in the world.

For companies that don't have the hundreds of millions of dollars to invest in R&D that Goodyear does, or much less the time and resources, building a smarter connected device solution requires the ability to:

- Establish smart connectivity
- Build and quickly deploy software applications to support multiple stakeholders
- Host your solution on a cloud
- Incorporate an IoT platform that engages multiple stakeholders

In the following sections, we examine the common myths that many OEMs face when trying to address the above issues.

MYTH 2
ALL YOU NEED IS
CONNECTIVITY TO HAVE
A SMART IoT SOLUTION

Let's face it – the majority of IoT products being built today use connectivity technologies that have been around for more than 10 years. Figure 4 illustrates that the top connectivity technology desired in microcontrollers by industrial IoT decision makers surveyed in 2016 was Wi-Fi…a technology that has been around since the mid-90s!

This might lead some audiences to believe that the only things necessary to build a "connected machine" is to deploy some form of networking and firmware.

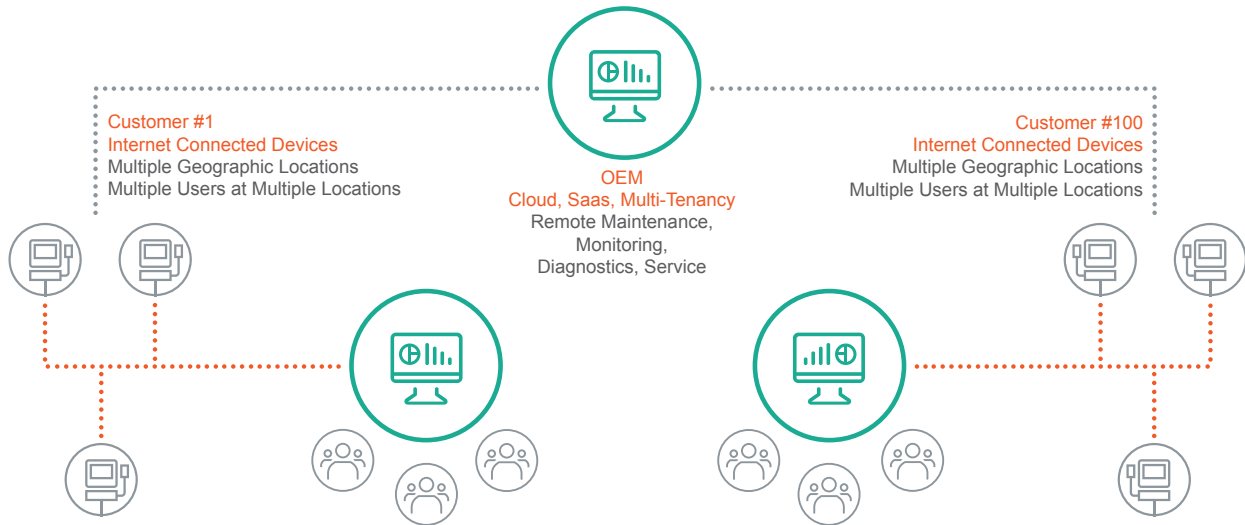FIGURE 4: WIRELESS TECHNOLOGIES PREFERRED BY INDUSTRIAL OEM DECISION MAKERS
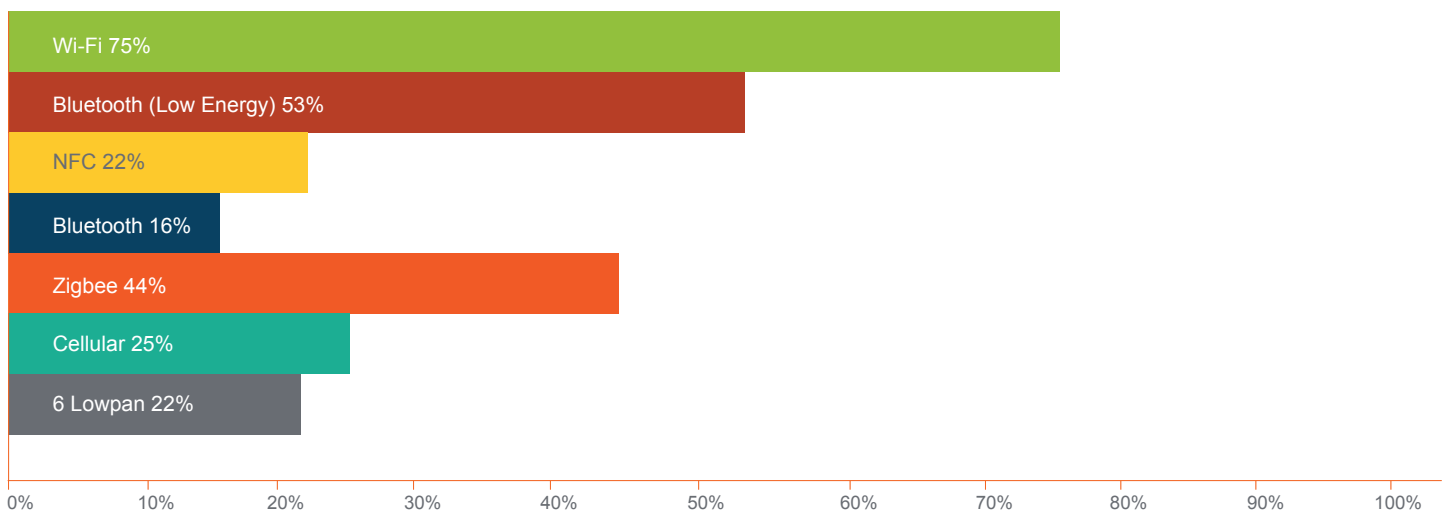
Source: Alphawise, Morgan Stanley Research, 2016

But to realize the potential of the IoT, OEMs need to go beyond mere connectivity. Just as a cell-phone manufacturer today would be unlikely to realize much value from delivering a device that only allowed users to make a phone call with no other enhanced smart features, the "smarter" connected device should include software capabilities that:

1)   Simplify and enhance the customer experience; and
2)   Generate savings for the OEM or their partners in supporting the device through out its complete lifecycle from deployment to end of life.

FIGURE 5: CHALLENGES FOR OEMs AND IoT SOLUTION PROVIDERS

OEMs need to deal with multiple customers, users, devices across multiple sites.

Customer #1
Internet Connected Devices
Multiple Geographic Locations
Multiple Users at Multiple Locations

OEM
Cloud, Saas, Multi-Tenancy
Remote Maintenance,
Monitoring,
Diagnostics, Service

Customer #100
Internet Connected Devices
Multiple Geographic Locations
Multiple Users at Multiple Locations

So what are the key software applications that OEMs should consider building to create a smarter connected device (Figure 5)? Key needs to address are ones involving device management, support and maintenance…not just from the demands of your end-user customer, but also meeting the needs of your solutions partner or system integrator. Not surprisingly, product support, product interoperability and integration and management are cited as the top three product design challenges for most OEMs in the early phases of planning and development (Harbor Research, 2016).

MYTH 3
ALL SOFTWARE APPLICATIONS MUST BE DEVELOPED FROM SCRATCH

Once the commitment is made to building a smarter connected device, the challenge many OEMs face is figuring out how to do it cost-effectively and quickly.

A common myth is that all software applications must be developed from scratch. After all, as a leader in your industry you already know what your users want and need and this should make it easy for an OEM to define the necessary applications for your smart device to operate successfully in the field.

But building a smarter connected device requires more than an end-user facing application. The smarter connected device also enables multiple stakeholders and a variety of users with different authority levels – from the OEM to the systems integrator to the end-user– to experience secure, custom interactions that ultimately lead to improved outcomes, such as reduced device maintenance and support costs, faster and more customized deployments, real-time intelligent asset tracking, etc. In addition to device applications, OEMs need to also build in core services that help to make the smarter connected device operation scalable and secure. These include the ability to define and manage user profiles, projects and what data or applications can be accessed by whom.

FIGURE 6: YOUR SMARTER CONNECTED DEVICE BECOMES
THE GATEWAY BETWEEN YOU AND YOUR CUSTOMERS

OEM

SYSTEM INTEGRATORS

END USER
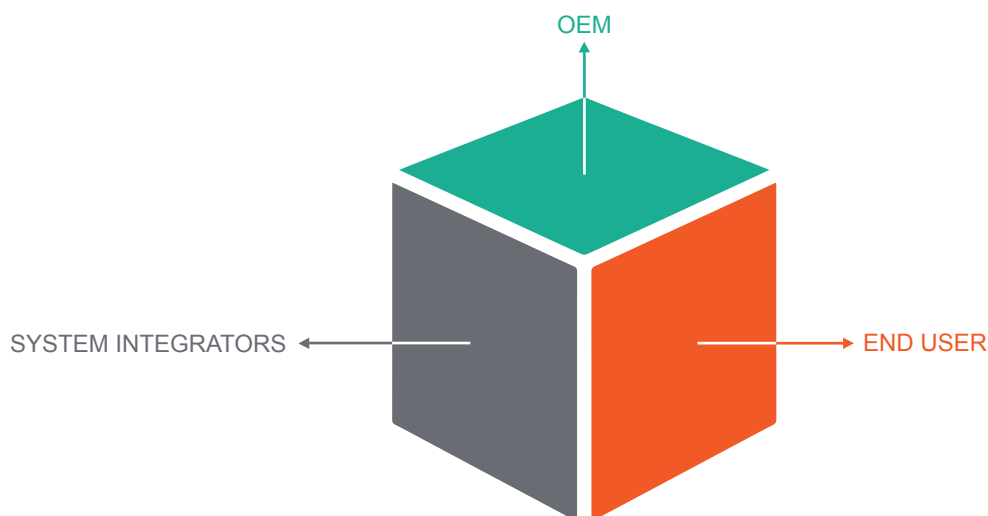
All those apps and layers can add up to a lot more software engineers, many requiring specialized skills – not to mention the never-ending development headache of staying updated on platform technology.

But there's no need to re-invent the wheel or break the bank to build your killer app. There are now a variety of IoT Platforms on the market to choose from but be assured they are all not created equal. Selecting a modular platform that delivers essential apps and functions that co-exist with an OEM's existing software can eliminate the need for costly rip and replacement or having to invest in significant re-education of support teams or end-users.

**Here are some things you should consider when selecting an IoT platform:**

- Do the apps and functions allow me to fill gaps within my own platform without throwing away what has already been developed?
- Can they be customized or personalized to support my unique needs and do I have the flexibility to mix and match depending on my customer or partner's needs?
- Is it built on an open platform or is the system proprietary?
- Is the platform one that is scalable enough to support web-scale or enterprise deployments?
- How easily can it be integrated with my software?
- Can I use my cloud service provider of choice?

MYTH 4
DEPLOYING IoT APPS MEANS YOU HAVE TO USE A PUBLIC CLOUD MODEL

Just as your software should be modular and adaptable, so should your cloud options. There's a common misperception out there that the only way to deploy IoT is if you have your whole system on a public cloud. While there are a lot of choices for public cloud service providers, the reality is that your customers may not be comfortable with having all their data in an environment that is not fully under their control. While public cloud adoption continues to grow and awareness of cloud capabilities and benefits increase, it's clear that the usage of private and hybrid clouds is expanding at a faster rate (Figure 7)—even as IT and enterprise concerns about security, data accessibility, and costs increase.

FIGURE 7: CLOUD ADOPTION RATES BY TYPE 2015 vs. 2016

Respondents Adopting Cloud 2015 vs. 2016
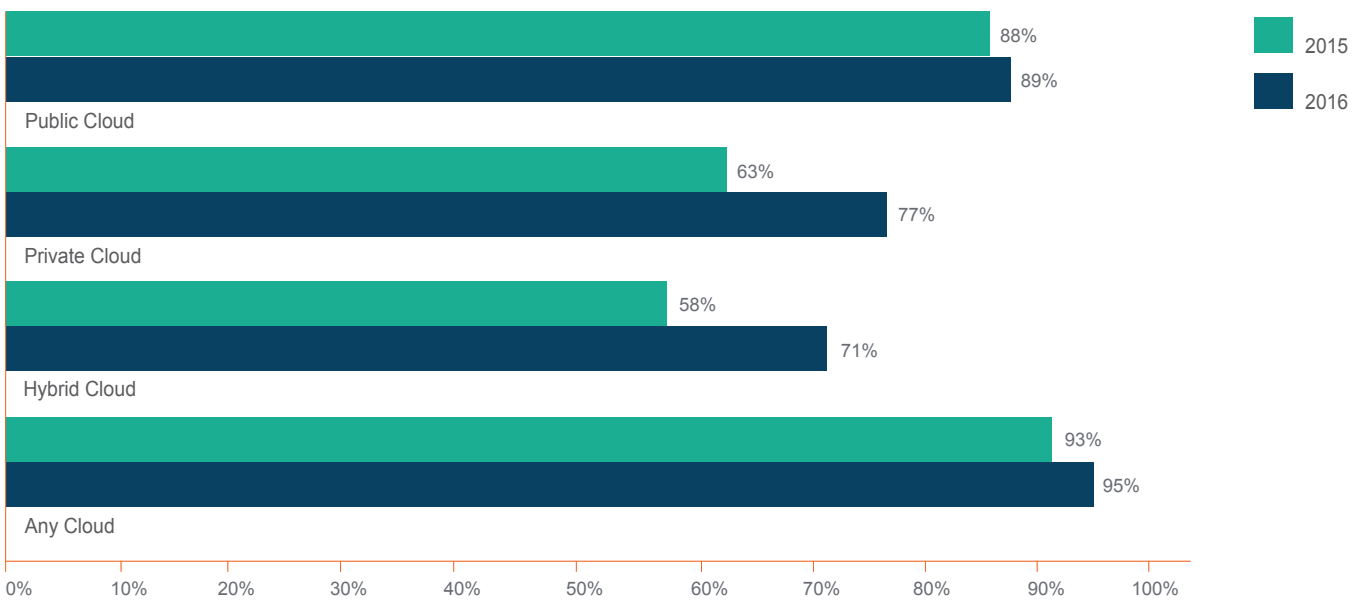
Source: RightScale 2016 State of the Cloud Report

The smarter connected device solution strategy takes into account that not all clouds are created equal and that not all customers want the same thing.

OEMs that seek solutions that can be hosted in a variety of cloud environments – public, private/on premise or hybrid – greatly increase the likelihood that their solution will be deployed confidently by their end users.

MYTH 5
IT DOESN'T MATTER WHO YOU PARTNER WITH AS ALL IoT PLATFORMS ARE THE SAME

Today, the marketplace is crowded with a multitude of IoT platforms. For an OEM trying to figure out which platform to use, it can be confusing as many of these solutions look identical. This makes it even more important to dig deep enough to answer some key questions when determining suitability of an IoT platform partner.

- Is the platform one that is created by an OEM? Let's face it, OEMs are the best at understanding OEM challenges. It boils down to one simple thing – do you want to partner with someone who might view your connectivity needs as their experiment versus someone that has already experienced and solved the same issues you need to solve?
- Does this platform require that you only use their equipment? Or can it be used on equipment you are already using or prefer?
- Is the platform cloud service provider agnostic?
- Does the platform support a multi-tenancy environment and can it be adapted for enterprise deployments involving multiple stakeholders?
- How long has the platform provider been around and do they have any other business to sustain a long-term software investment?
- How much are you going to have to invest to adapt your own software to operate with this platform? Or will you be required to rip and replace your existing software?

CONCLUSION

It's no surprise that building a smarter connected device is not for the faint of heart. But the reality is that the connected world is here to stay…and smarter connected machines and devices will become the way of the future.

For OEMs the challenges and complexities can be great but those that adapt the "smarter" services-centric product development mindset can achieve significant value, including:

• Increasing customer intimacy and partner engagement;

• Minimizing product lifecycle and support costs;

• Realizing the potential of new IoT-based revenue and new business models; and

• Increasing your strategic relevance to the end users deploying your solution.

Lastly, OEMs that approach the development of their solutions as a partner-driven endeavor can greatly reduce their time-to-market and get ahead of the competition. For those that have yet to deploy an IoT solution, the right platform partner can make sure that you position yourself to leapfrog ahead (versus playing catch-up or worse, falling behind).

ABOUT LANTRONIX INC.

Lantronix Inc. (NASDAQ:LTRX) is a global provider of secure data access and management solutions for Internet of Things (IoT) and information technology (IT) assets. With more than two decades of experience in creating robust machine to machine (M2M) technologies, Lantronix is an innovator in enabling our customers to build new business models and realize the possibilities of the Internet of Things. Our connectivity solutions are deployed inside millions of machines serving a wide range of industries, including data center, medical, security, industrial, transportation, retail, financial, environmental and government.

Lantronix is also the developer of MACH10™, a multi-dimensional management software platform designed specifically to enable OEMs to quickly and profitably deliver web-scale IoT applications and services. Featuring extensible, ready-to-use management applications and a suite of essential micro-services available through industry-standard APIs, MACH10 is a cloud agnostic, hybrid platform that allows OEMs and their partners to deliver secure data access and management software and services to support their connected machines and their customers.

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www.lantronix.com

Corporate Headquarters
Lantronix, Inc.
7535 Irvine Center Drive
Suite 100
Irvine, CA 92618
Tel. 949.453.3990