SIERRA WIRELESS

# What You Need to Know To Capitalize on the **Internet of Things (IoT) Transformation**

A SIERRA WIRELESS WHITEPAPER

## You are ready for the Internet of Things (IoT).

You recognize how data from the field can deliver new value to your business and your customers, and you want to start capitalizing on it. But where do you begin? Below are some technology considerations of which you need to be aware.

## Addressing IoT Challenges: Security, Scalability, and Time-to-Market

### SECURITY

In a world where new cyber threats emerge every day, protecting communications and data confidentiality can't be an afterthought. Nor is security just an additional feature in your requirements. The safety and security of your data is only as strong as the weakest link in the chain. You need to be thinking about security holistically: from the device, through the network connection, to the cloud, and through to the end-user applications and enterprise systems.

### SCALABILITY

It can be tempting in the early design stages to leave scalability considerations for later and just focus on building a proof-of-concept. However, that can be a big mistake. Many companies have found themselves spending months prototyping, only to realize they have to restart the design process from scratch to meet the requirements of a larger-scale deployment. You should be thinking about scalability from the outset, and making choices that will allow you to move from design to prototype to wide-scale deployment fast.

### TIME-TO-MARKET

Before embarking on your IoT journey, know what existing or new applications you'll need to plug data into, what infrastructure you'll have to add, and what skillsets you'll need to manage the deployment. Adding wireless connectivity, integrating different systems, and developing new applications can all be complex and expensive if you choose to do everything yourself. Historically this has taken years.

Fortunately, the IoT world is more mature than it was a few years ago and you no longer have to develop expertise in all of these areas on your own. In fact, the key is to leverage IoT partners to take on most of the integration and connectivity efforts, while you focus on building a great application or solution.

## Understanding IoT Building Blocks

Any IoT solution consists of the same basic building blocks.

- **Applications, Analytics & Systems** that provide the user experience for the connected products
- **Operational Applications** to remotely monitor, maintain and update deployed products
- **Cloud Data Platform** to securely collect, store, organize and analyze the data making it easy to build value added applications
- **Connectivity** allowing the deployed products secure, global network access so data can be transmitted and the product can be remotely managed
- **Connected Device** to collect that data from attached or nearby sensors, or other connected elements

## Key IoT Technology Considerations

Before you begin designing and prototyping, you will need to answer some questions to support your deployment size and time-to-market requirements.

### CHOOSING THE RIGHT DEVICE

Do you need to develop your own hardware or use an out-of-the box gateway to deploy and collect data? Building from scratch gives you the most flexibility to customize your solution the way you want it, but can take a long time to develop with large up-front costs. Ready to deploy gateway solutions on the other hand can get you to market quickly but may need to be retrofitted into existing equipment and may not be cost-effective for larger deployment sizes. In either case, whether you decide to build or buy a device, make sure that your hardware meets all necessary industrial and environmental conditions for where it will operate.

### CHOOSING THE RIGHT FEATURES

How "smart" should your device be? Consider whether the device should be making decisions to optimize system processes, improve security, and deliver a faster service, or whether most of the intelligence should reside in the cloud. Keep in mind, the less intelligence you deploy in the field, the more data traffic the device will generate as it communicates with the cloud. Cost is an important factor, but you should consider the total cost of operating the solution—including airtime charges and ongoing device management—not just the bill of materials or cost of the device itself.

### CHOOSING THE RIGHT CONNECTIVITY

Choosing the right connectivity partner can be one of the more complex decisions. Connectivity drivers are broad and include network speed (4G LTE vs 3G vs 2G), monthly data volume requirements, regional support requirements (i.e. global, North America or European as examples) and SIM form factors (plug-in vs embedded). This often leads to multiple mobile network operator (MNO) relationships and multiple physical SIM suppliers further complicating both the hardware SKU management and the operational management of the service.

When considering service providers, look for connectivity partners that:

- Can support your rollout footprint with as few SIM SKUs as possible
- Have access to the markets you require today and can support your future expansion
- Have the flexibility to expand their networks in the future
- Offer advanced network services specific to IoT use cases such as IP management, secure private access point name (APN) networks and virtual private network (VPN) connectivity to your data center or cloud infrastructure

### CHOOSING THE RIGHT CLOUD DATA PLATFORM

Often referred to as Application Enablement Platforms, the cloud data platform will handle essential IoT infrastructure functions including data acquisition from the devices at the edge, data storage, and advanced services such as aggregation and analytics.

The cloud platform you select is critical as it affects your time-to-market. To get maximum benefit you want a platform that is well integrated with the hardware you choose so less time is spent on communication infrastructure and more time is spent building your user experience. Well integrated hardware also comes with security benefits ensuring that data is secure from its collection point through to the customer.

You will depend on your data platform choice to support your growth from a few prototype deployments through to potentially millions of deployed products. Look for vendors with mature, field-proven platforms that not only support the features you need but can also keep up with your growth.

**Do not underestimate the operational aspect of your IoT deployment**

Getting to market quickly only matters if you can deliver an amazing, always-on user experience to your customers. When moving from a product centric to a service centric model you need to put in place operational tools to ensure you can keep your service running.

Choose vendors that can provide management capabilities or tools that make it easy to manage:

- **The deployment lifecycle of your connected product**: This includes managing the staging, deployment and maintenance phases as you roll out additional units.
- **Connected device management**: Ensure you have tools in place to update your remote devices including firmware updates as well as applications on the edge. This is critical to future proofing your service as networks change and you want to layer on value added services.

# Why Choose Cellular for Your IoT Product?

You have plenty of options for connecting your smart IoT device: WiFi, proprietary RF mesh networks, and many more. But more and more organizations are finding that wireless wide-area networks (WWAN) deliver the best combination of security, scalability, and reliability for their critical IoT initiatives.

Cellular networks are:

- **Ubiquitous**, making it easy to connect your IoT device virtually anywhere in the world.
- **Standardized**, based on the well-understood and globally deployed 3GPP standard.
- **Secure and reliable**, since mobile network operators have made huge investments in their networks to assure signal quality, security, and availability.
- **Cost-effective**, because MNOs take on all the effort to deploy, operate, and manage wireless communications, instead of you having to take that on yourself.

When data from a connected device is merely a "nice-to-have" option, it may make sense to consider other wireless solutions. But if the data you're collecting is critical to your business strategy and bottom line, cellular is the smartest choice.

## Accelerating the IoT Development Journey

Sierra Wireless can help you accelerate the entire IoT journey, including:

- **Embedded solutions** to help you build your IoT device from scratch or integrate wireless into an existing product design -pending what makes the most sense for your business application. We offer open hardware and software platforms with embedded modules that include an application processor to run your entire device and reduce overall system complexity getting you from prototype to market faster.

- **Gateway solutions** to help you keep your remote workers and assets connected to the enterprise for mission-critical applications. From infrastructure along oil and gas pipelines to remote branch offices and vehicle-based mobile workforces, our rugged gateways and management services, enable customers to easily deploy new applications with secure connectivity, location-based services, and remote management.

- **Cloud and connectivity services** that are pre-integrated with hardware devices and connected to wireless networks globally to help accelerate your time-to-market for new services.

The IoT journey from proof of concept to deployment, from the device to the cloud, can be daunting, but it does not have to take years or require massive new investments. Sierra Wireless can help you build smart solutions that are simple, secure, and scalable from the earliest design stages through mass deployment so you can accelerate the IoT development journey from years to months, and focus your internal efforts on what matters most: capitalizing on IoT data in your business.