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CISCO JASPER WHITE PAPER

Best Practices for Implementing Global IoT Initiatives

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To learn more about building a successful IoT service business, read our white paper, "Capitalizing on the Internet of Things."

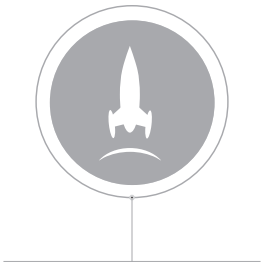
UNDERSTAND CONNECTED IOT SERVICES

Connecting your products to a wireless network enables you to deliver a host of high-value services that create new experiences and grow your bottom line. For vending operators this means lower cost of service and increased margins. For insurance companies this means customized plans based on driver behavior. Sensors in the home connected to a network enable remote management of heating, lighting and security.

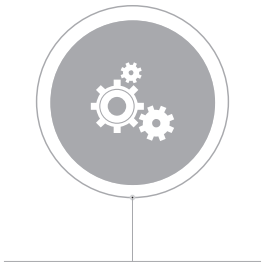
Doing business today requires that you connect with your customers everywhere, on any device, all the time. That's the promise of the Internet of Things (IoT). IoT doesn't change the business you're in, but it does change how you do business.

Evolving into an always-on connected service business enables amazing benefits:

- Continuously introduce new, high-value experiences for your customers.
- Automate manual processes and streamline operations.
- Accelerate time to market by easily and rapidly scaling your IoT services across the globe.
- Ensure higher service reliability with real-time intelligence and monitoring of changing network conditions.
- Unlock new revenue and grow your bottom line.



Launch



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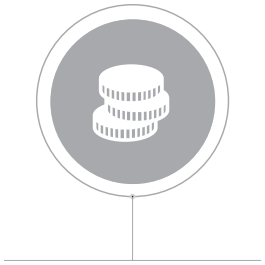

Monetize

OPTIMIZE THE IoT SERVICE LIFECYCLE

Your IoT success is grounded in your ability to rapidly and cost-effectively launch, manage and monetize your connected services. The IoT lifecycle is continuous—you will constantly be introducing new or enhanced services, managing connectivity and costs, and seeking to grow revenue.

Building a successful IoT service—one that truly accelerates and supports your business needs—requires a holistic approach. You must be strategic in planning for all phases of the IoT lifecycle.

Connected service businesses create unlimited business opportunities… and new operational challenges. When offering a connected IoT service, you need to be prepared to address six crucial areas:

1. **Automation** — Automate the day-to-day tasks of maintaining your devices and pulling relevant data to assess IoT service performance.

2. **Real-time visibility** — Monitor your connected devices 24/7 so you can rapidly and remotely respond to any issues.

3. **Actionable insight** — Move beyond raw data collection to accurate, actionable reporting that enables you to make informed decisions and improve performance.

4. **Cost management** — Control your bottom line by leveraging business intelligence to control support and IT costs, and build predicability into expenditures and revenue.

5. **Customer service** — Meet customer expectations in the delivery of always-on, anywhere, every-time IoT services.

6. **Global scale** — Rapidly enter markets to expand your business and capitalize on new revenue opportunities.

To learn more about the total cost of running an IoT service business, read our white paper, "The Hidden Costs of Delivering IoT Services."

MANAGE IoT COMPLEXITY

Capitalizing on your IoT business goes far beyond the initial phase of finding the right device and rate plan, and turning on a modem. It's that … and a thousand layers of complexity.

Consider the recurring operational expenses (OpEx) of managing a connected devices business[1]:

NETWORK COMMUNICATIONS

Expect your monthly/device subscription fee account for **33-50** percent of your operating expenses.

TECHNICAL SUPPORT

10 percent of connected devices require technical support every year.

ADMINISTRATIVE LABOR

Every deployed device will require **15** manual interactions/year, and each interaction will take **5** minutes – automated with an IoT service platform. Without automation, expect **100** interactions/device/year.

These costs can add up quickly. You will need resources to cover recurring operations:

- How will you change policies on devices?
- How will you identify, diagnose and troubleshoot device connectivity issues?
- Who will provide frontline support for your customers if your devices fail in the field?
- Who will provide backend systems support?

Depending on your business model, one operator rate plan for your devices probably won't scale:

- What will be the costs for your devices when they roam in international markets?
- Do you need the same rate plan when you're just in device testing mode?

These considerations and more need to be thought through carefully and aligned around the following six best practices areas.

[1]Based on data analysis of more than 3,500 companies across 20+ different verticals that use Jasper to manage their connected devices.

Ensure that you can automate the day-to-day tasks of maintaining your devices and pull relevant data to assess IoT service performance.

1. Establish automated business processes

Managing the day-to-day tasks of 1,000 or 1,000,000 devices cannot scale without automation. Review the core business processes around maintaining your devices and automate as many of them as possible.

Automating standard business processes ensures that you will be able to maintain high quality service delivery for your customers. It can also potentially increase the margins of running your IoT service by lowering support costs and preventing overage charges.

Here are some standard recurring business operations that are tedious to manage manually:

- When a device exceeds monthly data usage, de-activate it.
- If a device loses its connection, notify a technician.
- If a device's prepaid plan is about to expire, notify the customer and offer a different plan.
- If a device makes too many connections within a 24-hour period, notify a technical service manager.
- If a device exceeds its roaming caps, change the rate plan to one better suited for roaming.

BEST PRACTICE TIP

An average device may have up to 600 different ways it can be configured (SIM state, rate plan options, communication plan options, etc.). At a modest 100,000 deployed devices, that's 10 million actions per year, making manual processes inefficient, costly and simply impractical.

An IoT service platform automates standard workflows around provisioning, testing, launching, bill management and performance monitoring for devices. Automation reduces response times, streamlines operations, enables your business to be more agile and responsive, and allows you to focus on more valuable parts of your operation.

Ensure that you can efficiently and cost-effectively address connected devices when they don't work in the field.

2. Provide real-time device diagnostics and support

Getting your connected devices deployed is only half the battle:

- How do you support devices once they are in the field?
- Do you bear the expense of sending out a service technician?
- Do you offer phone support?
- Are there local personnel with enough training to do remote troubleshooting?

Even if you build diagnostic scripts into your connected device, it doesn't mean your troubles are over. What happens if the device cannot connect to the network? That's one of the most common support issues, and it could be caused by a network connectivity problem, device software or server software problem, or a hardware malfunction. But without a connection, it is impossible to get the diagnostic data you need.

You need the ability to conduct network diagnostics to quickly determine whether network connectivity is at fault. Determining this within a few minutes speeds problem resolution, significantly reducing your customer support costs.

Real-time diagnostics and troubleshooting of devices ultimately ensures optimized field service operations:

- Respond to customers faster and decrease downtime.
- Save operational costs by knowing exactly what to fix and eliminating redundant service trips.
- Extend the useful life of equipment by identifying and repairing small problems before they become big ones.

BEST PRACTICE TIP

When devices cannot connect to your mobile network, it could be a device malfunction, improperly provisioned SIM card, or an improperly set APN within the device. Regardless of cause, network malfunctions are usually blamed because that's where customers have the least visibility. You can cut your technical support costs in half with an IoT service platform that enables you to identify unusual device behavior in real time, quickly diagnose root cause, test connectivity, and resolve issues remotely.

Move beyond raw data collection to accurate, actionable reporting of your IoT business performance.

3. Focus on accurate reporting and analytics

Many IoT initiatives focus on raw data collection around device activity. While useful, raw data alone will not enable you to drive innovation. How can you develop analytics that mine knowledge from your IoT data and extract high business value in real time?

Your focus should be on measuring how well you're meeting your key performance indicators (KPIs) and service level agreements (SLAs). Automated report generation and integration into existing business intelligence or other corporate reporting systems are key to making sure that your IoT initiative is a success.

What are the categories, patterns and rules around your device data that you need to know? Would it be useful to identify security panels from specific device manufacturers that have higher malfunction rates, correlate leaks from a water meter with its network malfunction, or predict potential risks for a patient in an outside care program?

You need analytics related to your deployed devices, network usage, rate plans, and resulting costs. This provides detailed insight into how your devices are using network resources and what it is costing you. Work with your operators to get real-time access to a granular breakdown of your invoices for connectivity services. Doing so means that you won't have to wait until the end of the billing cycle to understand what you will owe.

BEST PRACTICE TIP

Many companies focus efforts on generating reports around device application data:

- Is the firmware on the device up to date?
- What files were downloaded to a device and when?
- Which users have access and permissions to access application downloads?

While device application management is important, you also need a comprehensive view of network data. An IoT service platform gives you actionable insights on both per-device and aggregate device behavior, drawing from real-time and historical data. It provides you with data visualization and reporting to highlight trends and blind spots, and enables you to proactively resolve issues.

Manage costs and build predictability into expenditures and revenue.

4. Control costs and optimize revenue

You need to easily analyze operator charges. Look for ways to automate the management of your network rate plans and the analysis of devices against rate plans to determine the plans that are most cost-effective.

It's not enough to have reports for cost management. You need to enable automated changes against rate plans as well. Make sure you can change a rate plan when a rule is triggered. For example, if a device uses more data than expected, ensure that you can automatically switch it from your standard rate plan to a premium rate plan. The premium plan may have a higher subscription fee, but it could help eliminate even more costly overage charges than if the device were to remain on the standard plan.

When thinking through reports, being able to have at-a-glance comprehension of subscription, overage, and roaming charges for all your devices is vital for cost management and prediction. But be sure you can have granular reporting capabilities for additional costs around activation, one-time charges, subscription commitments, and device usage commitments.

Typically there are a couple different pool plans:

- Fixed pool: The pool has a predefined, fixed usage allotment that can be shared among any number of devices in a rate plan. Fixed pool plans can be either prepaid or monthly, and usage is defined per billing cycle, not per term.
- Flexible pool: Each device has a usage allotment that can be shared with other devices in the pool. There are two common types—a monthly flexible pool and a prepaid flexible pool—and the size of the pool depends on the number of contributing devices.
- Add-on rate plan: This prepaid plan increases the data allotment for the devices in a shared pool (flexible or fixed) during the current billing cycle only. An add-on plan expires when the included usage is consumed or the current billing cycle ends, whichever comes first.

BEST PRACTICE TIP

Wireless spend optimization starts with an analysis of current operator contracts, plans, and usage to determine your baseline network spend. An IoT service platform monitors your device data usage in real time, enabling you to proactively work with your operators to align your usage with the optimal rate plans, and eliminate surprise overage and other fees.

Meet the expectations of always-on, anywhere, every-time service.

5. Optimize the customer experience

Customers value service that goes beyond the standard, and they often remain loyal when businesses provide it. Spend time to ensure that you can reach out to customers for predictive service maintenance before breakdowns panic customers.

Look for ways to offer premium service contracts with a predetermined, proactive response to conditions that indicate declines or failures in device performance.

More service contracts lead to higher profits, so how can you easily add new services without requiring additional resources? What if you could offer premium service contracts that guarantee proactive equipment maintenance?

If you can continuously monitor critical health indicators for all your devices, customers can be sure their services will stay up and running, and they'll be willing to pay a premium for that peace of mind.

BEST PRACTICE TIP

You must continually review, test and fine-tune your devices in the field. Working with the right IoT service platform provider allows you to benchmark your IoT initiative elements against competitors, industry best practices and industry trends.

Scale management for multi-operator and multi-country use.

6. Prepare for global scale and operations

Enterprises with connected services often start with their offering in one or more centralized locations, and then deploy them all over the globe. This business model requires network services in multiple countries with multiple operators.

To scale globally, you must be able to manage a single embedded SIM in each device that can be remotely provisioned. Additionally, you must manage mobile operator profiles and policies for that SIM anywhere in the world. This meets the demand for more efficient and cost-effective global deployment models and enables rapid international distribution and device activation. Connected devices can be transferred seamlessly from one operator to another to take advantage of local operator support, comply with international roaming restrictions, and address cost constraints.

If international reach is a key part of your IoT business, you need to be able to change SIM profiles on-demand or based on predefined rules and trigger events. Reporting and audit controls, automated assignment to proper policies, rate plans and service conditions, with fully managed billing and contractual term compliance, are also essential.

BEST PRACTICE TIP

If you are planning to deploy devices in multiple regions, ask your mobile network operator if they are part of a broader partnership or global alliance that gives you access to local operators outside their market. An IoT service platform provider should have relationships with global operators around the world to enable:

- Single operator management: You only have one vendor to manage even as your devices are using secondary operators in smaller markets.
- Streamlined purchasing: All SIMs come from the same operator, regardless of destination.
- Lower roaming costs: Get a global market at local rates when you bypass the roaming rates associated with the primary operation and take advantage of the local operations' local service rates.

ABOUT CISCO JASPER

Cisco Jasper is a global Internet of Things (IoT) platform leader. Cisco Jasper has designed its industry-leading, cloud-based IoT platform to enable companies of all sizes to rapidly and cost-effectively launch, manage and monetize IoT services on a global scale. When companies do this, they become much more than product businesses. They become service businesses, capable of automatically managing their customers' entire IoT service lifecycle, delivering increased customer value and unlocking new sources of revenue.

Thousands of companies in more than 20 industries, including many of the world's top brands, choose Cisco Jasper to fast-track their IoT services. Cisco Jasper partners with 25+ operators, representing more than 100+ mobile operator networks worldwide.

FIND OUT MORE

Visit www.jasper.com to see the full breadth of how companies are really using IoT to advance their businesses.

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