Getting Started With IoT in the Enterprise

Opportunities, considerations and a proven methodology

A White Paper from Mitel

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IoT drives new efficiencies, better customer experiences

The Internet of Things (IoT) is a hot topic these days. It's in the news, people make vague references to it, and technology experts predict what it might mean in the future. With all of this information, it's easy to get the idea that IoT is going to enable a lot of helpful new capabilities. But, without concrete examples of what those capabilities are, IoT remains an abstract concept.

At its most basic, IoT is a network of connected sensors and devices that provides data that can be used to eliminate waste, increase efficiency, and improve the human experience. The data that is collected and how it is used depends on what the IoT solution aims to achieve.

In some cases, automatically getting sensor information from a source to a destination can eliminate waste and save money. For example, using sensors to locate equipment, monitor temperature/humidity, or detect movement can help a business run more efficiently by eliminating the need for humans to be involved in repetitive, mundane, manual monitoring tasks.

Engine manufacturer detects failure

Proactive notifications can also be used to improve the customer experience. For example, an engine manufacturer can insert sensors into its products that send a notification back to a contact center if an internal malfunction or failure is detected in the unit. The contact center agent can then proactively advise the customer that the manufacturer is aware of the issue, offer support, and potentially gain remote access to the engine to run diagnostics or update software.

Find pests with motion sensors

Any number of business efficiencies are also possible with IoT. For example, a pest control company can insert motion sensors in animal traps so staff are automatically notified when traps need to be cleared. With this insight, the pest control company can eliminate unnecessary trips to check on traps, saving manpower, fuel, and vehicle maintenance costs.

Activate sprinklers automatically

Similarly, a landscaping company can use moisture sensors to automatically activate sprinkler systems rather than traveling to each site to manually check on soil conditions. Or a heating, ventilation, and air conditioning (HVAC) company can automatically receive notifications when systems lose more than 20 percent of their operating capacity. With this information, the HVAC technician can start investigating why efficiency has dropped before there is a complete system failure.

The opportunities to use IoT in the enterprise are boundless. The key is to make sure the information from sensors gets to the right people and the right systems at the right time.

Integrated communications plays a crucial role in enterprise IoT

To get the information from sensors where it needs to go, every enterprise IoT solution needs an integrated communications component. This effectively gives sensors and devices a voice to communicate about actions that have occurred, processes that are underway, current operating conditions, and any number of other states that sensors identify. People and systems can then use that information to make intelligent and informed decisions about the next steps that should be taken.

How sensors solve problems

Ron's story provides a good example of the benefits of informed decision-making. Ron manages an IT server room for a large organization. He had no visibility or insight into what was going on inside the server room when he wasn't in the room himself. He knew that people were regularly going in and out of the room, but he had to constantly run to the room to verify who was in there, what they were doing, and whether any unauthorized activities had occurred.

With three simple sensors and technology that automatically sends data from the sensors to his mobile phone, Ron's visibility challenges were solved:

- *a door monitoring sensor detects when the server room door is opened*
- *a motion sensor triggers based on movements*
- *an emergency help button sensor activates when the help button is pressed.*

When each sensor is activated, Ron receives a message on his mobile phone. He can also choose to escalate the alert to his manager or staff, if required, by requesting the system to call them on their phone (mobile or desk) and play a prerecorded message alerting them of the issue in real time.

Ron is now fully aware of key activities in the server room and can decide when it makes sense to make the trip to check on things. He has more time to focus on his core responsibilities. And he has considerably more peace of mind knowing that he will be automatically notified every time certain actions occur in the server room.

> The key to Ron's solution is the combination of IoT technology — the sensors — and the communications technology that makes sure the information from the sensors gets back to him instantly.

While Ron's example involves sending a message to a mobile phone, integration with more sophisticated communications solutions opens new doors. For example, text-to-speech capabilities can provide voice notifications. Or a mass notification server can simultaneously send notifications to several different people on several different devices. A notification server can also automatically initiate a conference call among principal stakeholders to quickly get the right people talking about the best response to a situation.

Top IoT considerations

When trying to determine the best way to integrate enterprise communications systems with an IoT solution, there are three key aspects to consider:

- ***Detection:*** *What sensors are needed to gather events and data? The sensors could be devices that detect temperature, humidity, GPS location, or that a button has been pushed.*
- ***Analysis:*** *What rules should determine whether any further actions need to occur once the data is received?*
- ***Communication:*** *Who needs to know about the data and how should they be notified?*

It often makes sense to incorporate multiple communications components with an IoT solution. For example, a notification service can be combined with a unified communications and collaboration (UCC) solution that provides instant messaging, conferencing, teamwork applications, and other capabilities. With this approach, IoT-related communications can be integrated directly into the work stream to increase efficiency and accelerate responses.

Similarly, messages can be sent from a notification service to a contact center. Agents can then take the appropriate actions for the data type and content. That may mean proactively contacting customers, dispatching a service technician, or calling first responders. Contact centers can also use the data to analyze behavioral patterns and market trends then apply that insight with customers to provide a more tailored experience and to offer products and services that are likely to be a good fit.

With this approach, IoT-related communications can be integrated into the work stream to increase efficiency and accelerate responses.

6 Six steps to successfully deploy an enterprise IoT solution

Once enterprises recognize the value that communications-enabled IoT solutions can bring to their organization, following a standardized and proven methodology helps to ensure successful deployments.

1 Define the problem to be solved

Clearly defining a single pain point or a single process to address with IoT helps to ensure that the scope of the project does not expand to become unmanageable. For example, the goal may be to accelerate workflow, increase visibility, eliminate waste, enable predictive maintenance, reduce the number of repeat requests, or another business objective.

As part of defining the problem to be solved, it's important to consider:

- How workflows and processes need to evolve to take advantage of the IoT solution once it's deployed.
- How the solution will be funded during the planning and implementation phases and over the long term.
- Who will be responsible for the solution within the organization and whether a system integrator or vendor partner should play a role at any point in the solution life cycle.
- What metrics should be used to identify success at each stage of the implementation.

2 Identify the solution components

Identifying each of the components involved in the IoT solution ensures there is a simple overview of how all of the pieces fit together. Enterprise IoT solutions typically include:

- Sensors that detect conditions and actuators that take an action based on the condition.
- Edge processing platforms that ensure only the relevant data is sent to the next part of the IoT solution.
- Gateways that can transmit and receive data securely from a centralized system or platform.
- Wireless and fixed connectivity options that enable short- and long-distance communications.
- The IoT platform that aggregates data from multiple gateways, provides rules processing, storage, and trend analysis.
- The enterprise communications solution that makes sure the right data gets to the right people and systems at the right time.
- The business applications that apply analytics, business intelligence, visualization, and other business-specific functions to the data so it can be used to drive business decisions.

3 Determine how data is protected

Security must be designed into each element in the IoT solution and applied across the entire solution.

- End-to-end security protects data from the point where it is generated in sensors and actuators all the way to the business applications where it is used.
- Physical security at the device and gateway layers ensures that only people who are allowed to touch the hardware can actually do so.
- Connectivity security protects the data while it is being transmitted over wireless and fixed local and wide area networks.
- Platform security protects the data in the IoT platform and may include public cloud, private cloud, on-premises, or hybrid security depending on how the IoT platform is deployed.
- Application security protects identities and access permissions for business applications based on defined roles.

4 Test early ideas for feasibility

A proof of concept (POC) provides visibility into how the solution elements work together so that assumptions and processes can be validated and refined.

5 Run a pilot project

A pilot project tests the complete IoT solution within well-defined boundaries. For example, a pilot project on a campus may be limited to functions related to air conditioning in a single building or floor. When planning a pilot:

- Include all of the IoT solution elements that will be used in the full deployment.
- Define how communications should flow among team members during the pilot. For example, is there a single point of contact within each company involved in the pilot, or should all information flow through a primary project manager?

6 Launch the full IoT solution across the organization

As mass deployment becomes a reality:

- Use lessons learned from the pilot to refine processes and workflows.
- Scale to full deployment gradually over time
- Inform and train teams, and teach them how to change their processes if necessary.
- Communicate clearly about launch plans, meet transition deadlines, and be ready to answer questions.
- Collect metrics to measure how well the IoT solution is meeting objectives.
- Evaluate solution operation at regular intervals, and evolve technologies to match business growth and changing requirements.

The right partner makes all the difference

As enterprises plan and implement their IoT solution, they still need to remain focused on their core business. Working with a partner who understands how all of the IoT solution components fit together and the vital role that communications plays in the solution helps to relieve the pressure on the enterprise.

Mitel is at the center of communications-enabled IoT solutions. We partner with enterprises to bring them the experience, expertise, and technologies needed to make sure IoT data gets where it needs to go with:

Intelligent mass notification solutions that simultaneously send text, voice, and video data from sensors to any number of people, systems, and devices.

Cloud-based unified communications and collaboration solutions that enable instant messaging, voice and video conferencing, and teamwork on computers, tablets, and mobile phones based on notification type, content, and personnel availability.

Contact center solutions that support any notification type so that agents can intelligently take the optimal action for the notification — whether that means contacting a service technician, making a 911 call, sending a pre-worded message to a customer, or describing the contents of a security video to on-scene response teams.

Telephony solutions that automatically initiate emergency paging activities when activities, such as an unauthorized entry, are detected.

CloudLink-based application development solutions that allow developers to extend and enhance computer-telephony integration (CTI) capabilities to better support IoT applications while leveraging existing investments.

All Mitel communications solutions integrate seamlessly with IoT solutions, from the simplest sensor and notification system for a single organization to cloud-based, multimedia systems that serve multiple organizations spread across different locations. As enterprises recognize the value that IoT can play and the crucial role of communications in IoT, Mitel is ready to help them connect remote data to people and give machines a voice.

Learn more

Find out how the Internet of Things and giving machines a voice can impact customer experience by going to www.mitel.com/giving-machines-a-voice-cx

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