

AT&T Connected Kitchen with Microsoft Azure Sphere

September 2021



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Business challenges



Productivity pressures

Massive output and the requirement for efficiency gains



Perpetual on-boarding

Average employee turnover of 155% in the food services sector



Customer expectations

High-quality food that is freshly prepared and ready when they are



Energy expenses

Quick-service restaurants may use up to 10x more energy per square foot than other commercial buildings¹

How can IoT transform your business?

The Internet of Things (IoT) holds the promise of creating connected spaces that help you:



Elevate your customer experience

Gain the visibility and insights you need to offer an exceptional customer experience.



Quality control

Monitor food quality, safety, and consistency



Touchless commerce

Offer quicker and safer options that work with your existing infrastructure and loyalty programs

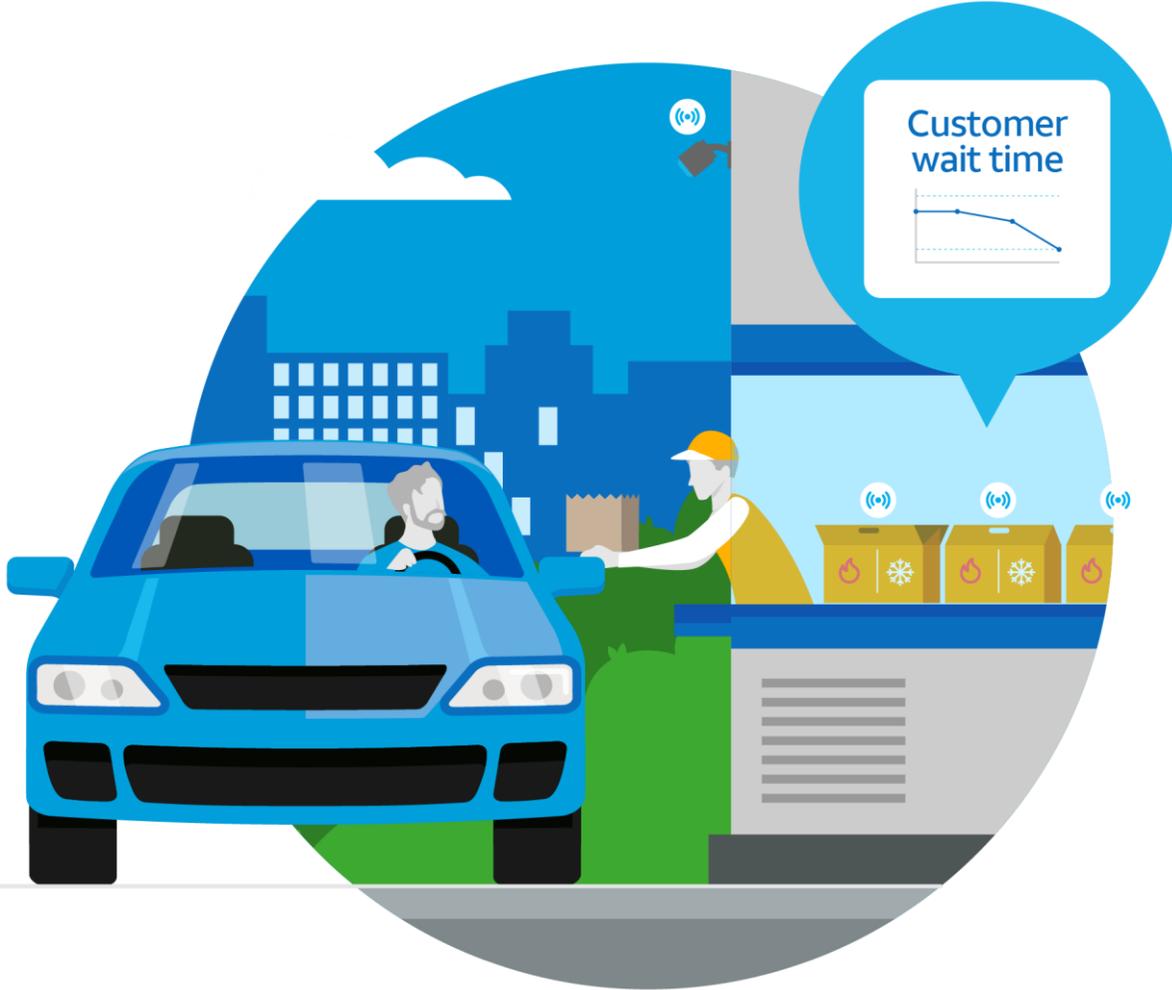


Optimized drive-thru

Real-time drive-thru traffic analysis to reduce lines and wait times

Use Case: Curbside service solutions

Match the customer with their preferences and pick up fresh food on time at the right temperature



Increase staff efficiency and effectiveness

Streamline everyday tasks to let your crew focus on what's important



Streamline processes

Connect point-of-sale to kitchen equipment to reduce errors and decrease delivery times



Drive consistency

Remotely update programmable equipment with the latest recipes, processes, and firmware



Increase safety and compliance

Gather and monitor data for worker hygiene, safety, and facility operations

Use Case: Recipe uploader

Remotely uploading recipes provides your associates with the latest offerings across your locations faster and at lower cost



Transform operations and supply chain

Reduce strain on your people, processes, and supply chain to unlock cost savings for your business



Minimize truck rolls

Minimize hands-on repairs with alerts and predictive maintenance



Extend equipment life

Insights from connected equipment help extend the usable life of equipment



Reduce spoilage

Monitor temperature to improve food safety and optimize inventory

Use Case: Connected kitchen equipment

Improve appliance uptime and minimize hands-on tasks to increase throughput and reduce costs



Improve sustainability and energy efficiency

Drive long-term value for shareholders, customers, employees and society with IoT and smart technologies



Increase energy efficiency

Intelligent lighting, equipment, and HVAC integrated into building management systems



Water monitoring

Detect and respond to water leakage or waste isolated to specific equipment or processes



Air quality

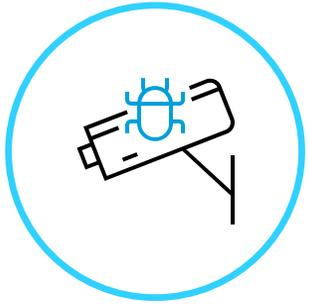
Monitor temperature, humidity, pressure, and harmful gases to ensure safety of workers and guests

Use Case: Connected air quality management

Get consistently clean indoor air with maximum energy efficiency – it's good for health and for business



Operational challenges for connected spaces



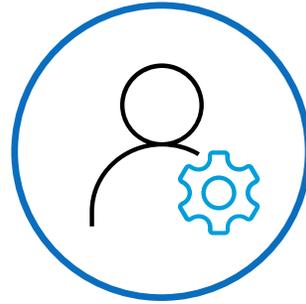
IoT threats

Stolen data
Downtime
Ransomware



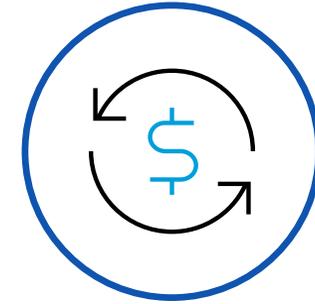
Unsecured networks

No data separation
Lack of control
Inconsistent experience



Inconsistent support

Complex deployment
Disparate systems
Ongoing updates



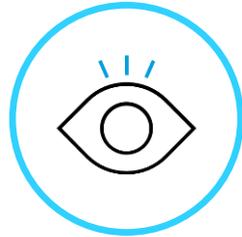
Solution scalability

Repeatability
Tied to operational goals
Lack of experience

Connected Kitchens enabled by AT&T and Microsoft Azure Sphere

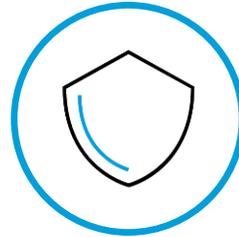
Transform your business

Connect equipment with solutions from two industry leaders to help you innovate and grow securely with global consistency



Actionable insights

Information and alerts that improve operations and customer satisfaction



Security at depth

Enterprise-grade security at every level
Protect systems while innovating quickly



Help where you need it

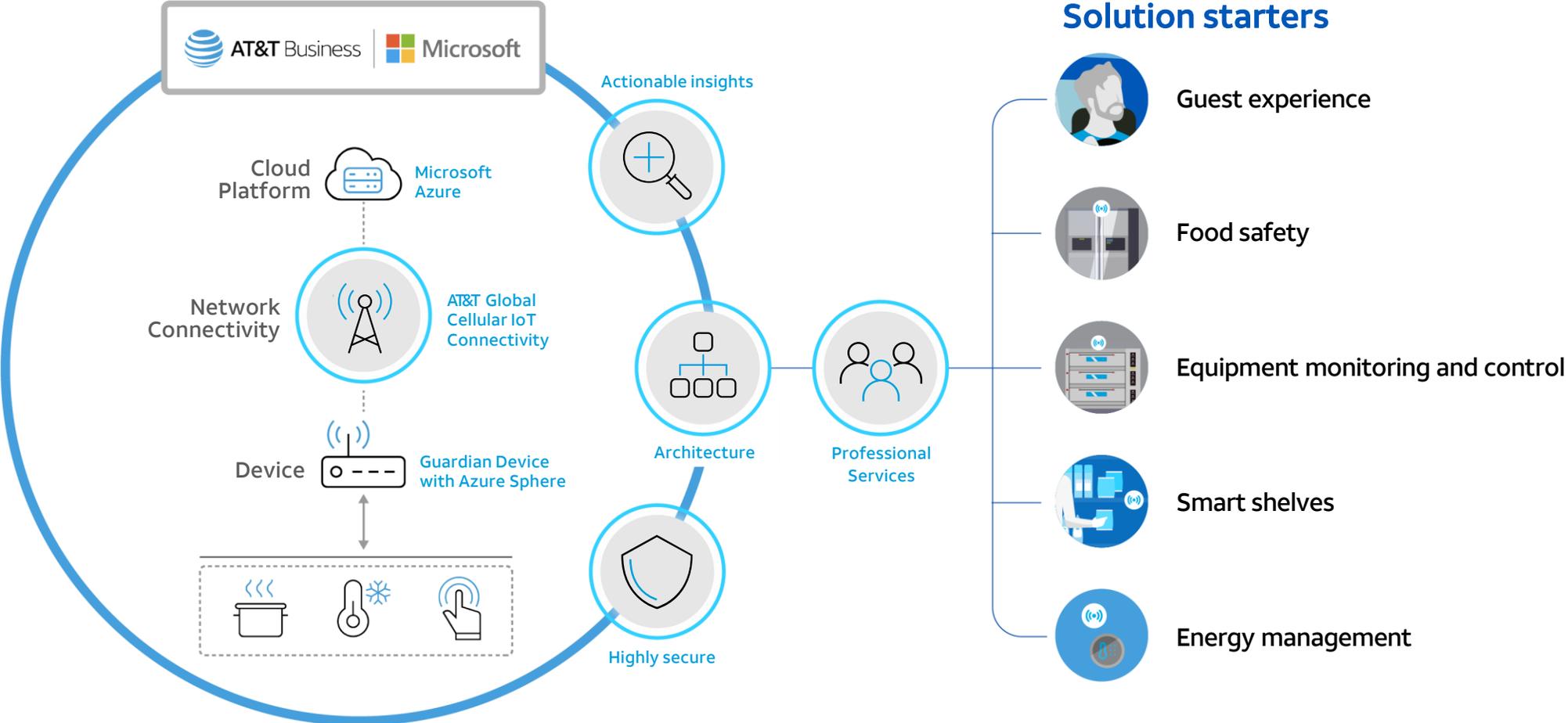
Accelerate successful deployment with the experience and expertise of industry leaders



Scalable return

Drive return on investment (ROI) from your first project with a flexible platform that lets you build your connections as needed

AT&T Connected Kitchen with Microsoft



Insights is a journey

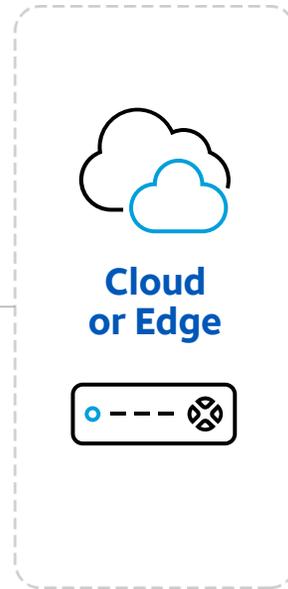
Sense

Sensors, cameras, and microphones detect and communicate



Analyze

Make sense of sensor information and figure out what to do



Act

Notify someone to do something or automate processes



High level architecture

AT&T guardian device

Collects and transmits data, authenticates cloud endpoints and validates message between cloud and device

AT&T/Microsoft SmartHub

A transparent gateway and protocol translator for connected devices to talk to each other and process data locally

AT&T Cellular IoT Network

Cellular network separate from store systems and networks enabling better scale and security

Microsoft Azure Sphere Security Service

Provides app and OS updates for guardian devices, remote attestation & cert-based authentication

Customer's Azure tenant

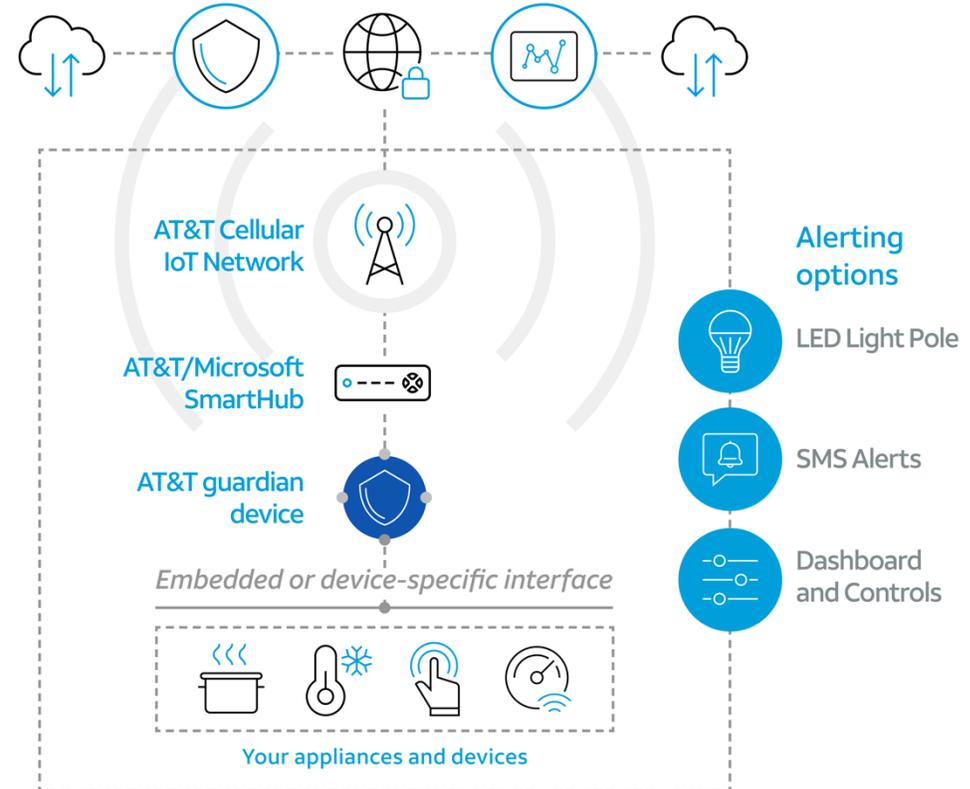
All device telemetry and data will route to the end customer's Azure tenant

Azure-based PaaS¹ Architecture

Microsoft Azure Sphere Security Service

Customer's Azure Tenant

Azure IoT Hub, Business Apps, and Analytics



1. PaaS: Platform-as-a-service

AT&T guardian device with Azure Sphere

Multiple layers of protection to help guard against and respond to threats

Protects

your devices and your customers with certificate-based authentication of all communication

Detects

emerging security threats through automated processing of on-device failures

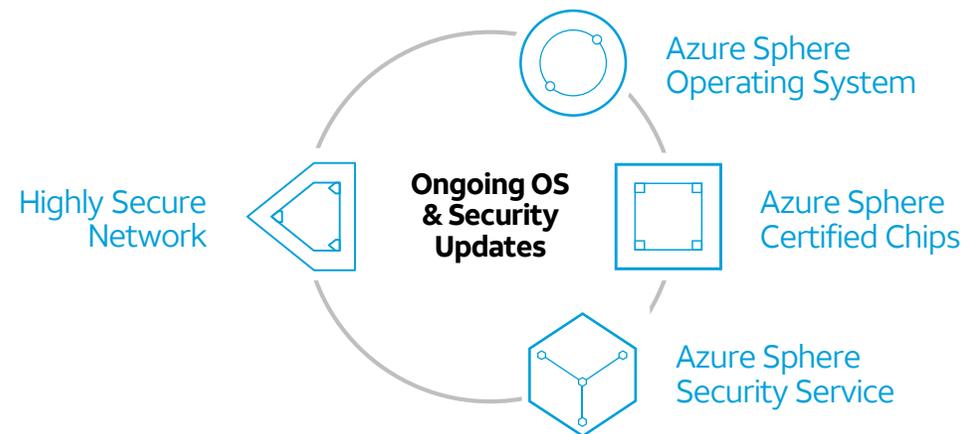
Responds

to threats with fully automated on-device updates of OS

Hardware root of trust allows for multiple layers of hardware-based security

Integrated hardware, software, network and cloud services work seamlessly together and deliver active security by default

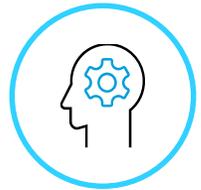
Over 10 years of security and OS updates delivered directly to each device by Microsoft



AT&T Professional Services

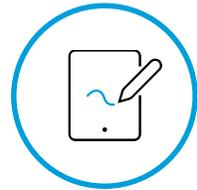
Offering a full suite of services and integrated solutions, enabling a streamlined approach for each customer's unique Connected Kitchen application

Strategy and roadmap to implementation



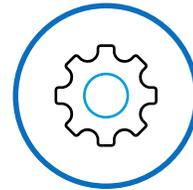
Envisioning sessions

- Define the problem and desired future state
- Determine business and technical requirements
- Identify existing assets
- Understand ROI constraints



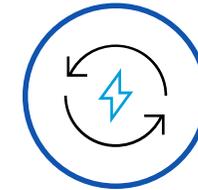
Develop solution architecture

- Determine needed sensors and processing requirements
- Determine interfaces: sensor-to-gateway; gateway-to-cloud
- Determine cloud services and data plane requirements



Manage the project: proofs of concept, pilots, production

- Define Low Level Designs (LLD) and implementation schedules
- Procure hardware, software and network connectivity
- Develop or source business logic
- Deploy and integrate IoT devices, apps, dashboards, and data stores



Ongoing managed services

- Service and solution enablement
- Operations, administration and management / monitoring
- Conduct security audits
- Lifecycle management for continuous improvement

AT&T IoT portfolio of services

AT&T dynamic IoT connectivity and solutions help simplify IoT technology and help you scale to meet evolving business opportunities

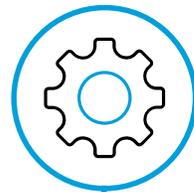


Comprehensive global solutions

Range of global solutions using both cellular and satellite connections to meet your specific business and technical needs

200 countries

and territories where we can deliver global solutions with roaming agreements across more than 500 global carriers



Management platform and expertise

Industry leading platforms allow you to expand your IoT solutions with flexibility and the confidence to connect virtually anything your business needs

83 million

IoT devices connected to the AT&T Network as of 1Q 2021



End-to-end solution support

Expertise, leadership, and innovation in professional services to help create seamless and accelerate adoption and ROI

7th year

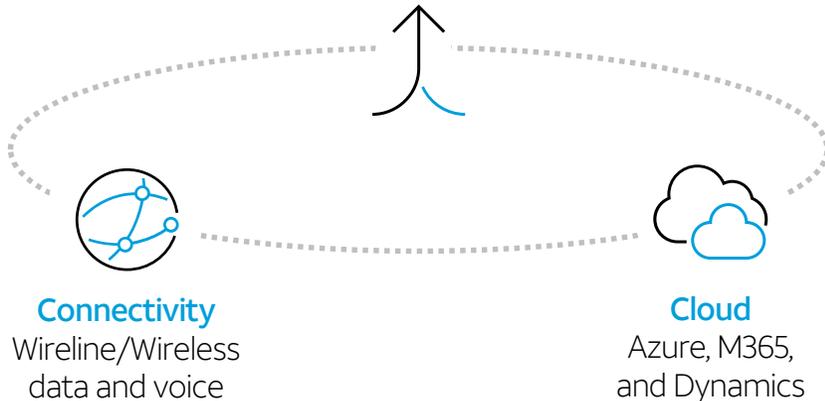
named Leader by Gartner in its [2021 Magic Quadrant](#) for Managed IoT Connectivity Services, Worldwide

It's all about business outcomes

Multiyear collaboration accelerating the AT&T “public cloud first” internal transformation;
Delivering new customer offerings built on AT&T’s network and Microsoft’s cloud.



Coordinated
Planning, deployment,
and management



5 Pillars of Innovation

	End-to-end digital enterprise	Managed cloud and networks
	Supercharge application environment	AT&T 5G and Azure Edge Computing
	Empower and elevate the employee and customer experience	AT&T Cloud Voice for Microsoft Teams
	Connected data, devices, and people	AT&T Asset Alert powered by Azure IoT
	Holistic cybersecurity solutions	AT&T guardian devices with Azure Sphere

Both the **cloud and network** need to act as a **scalable, highly secure platform** that complements and enables outstanding performance

Guest experience

Create more personalized offers and enable your associates to provide better service with real-time insights on customers in and outside your establishment

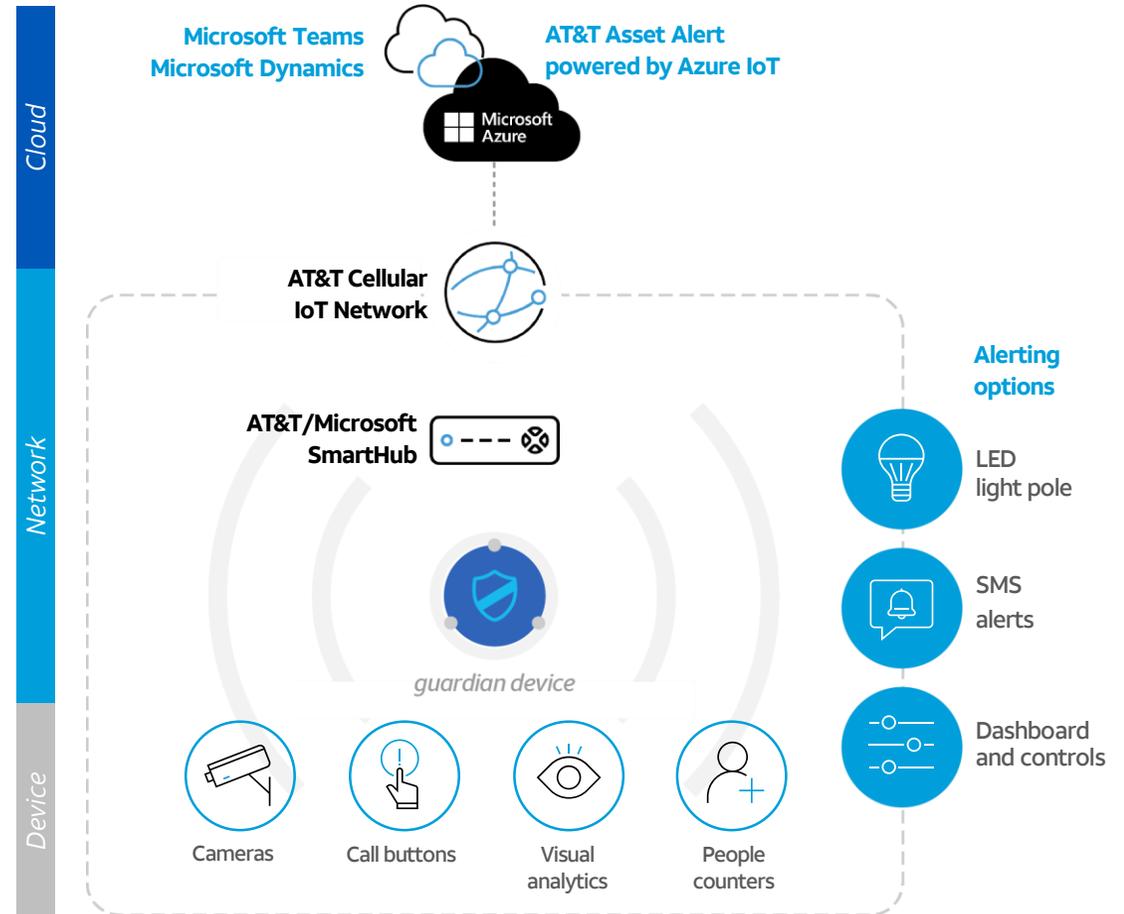
Value

- Dispatch associates to serve customers
- Reduce inside and drive-thru queues and wait times
- Display directed, specific content to customers
- Uncover new vs. repeat customer insights across locations

Alerts and intelligence

- Are people in line at the register?
- How many vehicles are in line outside?
- Where do people go when they are in my location?
- Has anyone pickup up a product or looked at a display

- Associates and servers
- Site managers
- Marketing managers



Kitchen equipment monitoring and control

Use real time data preventing machine breakdowns, along with remote updates optimizing business critical operations and flow

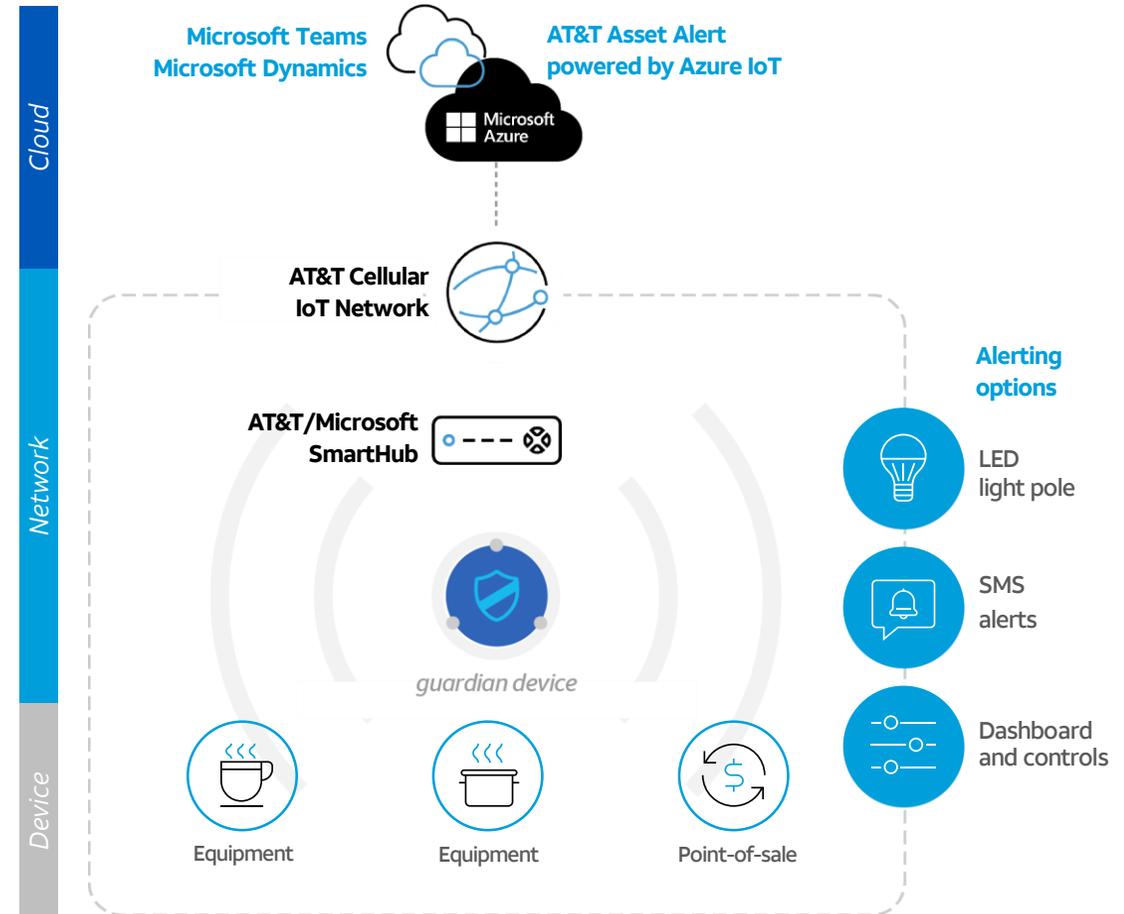
Value

- Predictive maintenance reduces truck rolls
- Increased equipment life span
- Reduce chances for human error
- Automatic recipe updates saving time
- Consistent product quality

Alerts and intelligence

- Real time alerts of abnormal operation/predictive maintenance
- Are new recipes available?
- What are prescribed portions and combinations?
- What is being ordered and how often?

-  Associates and servers
-  Site managers
-  Offer/product managers



Food safety

Prevent public health concerns through pre-emptive signals protecting customers and maintaining a positive brand image

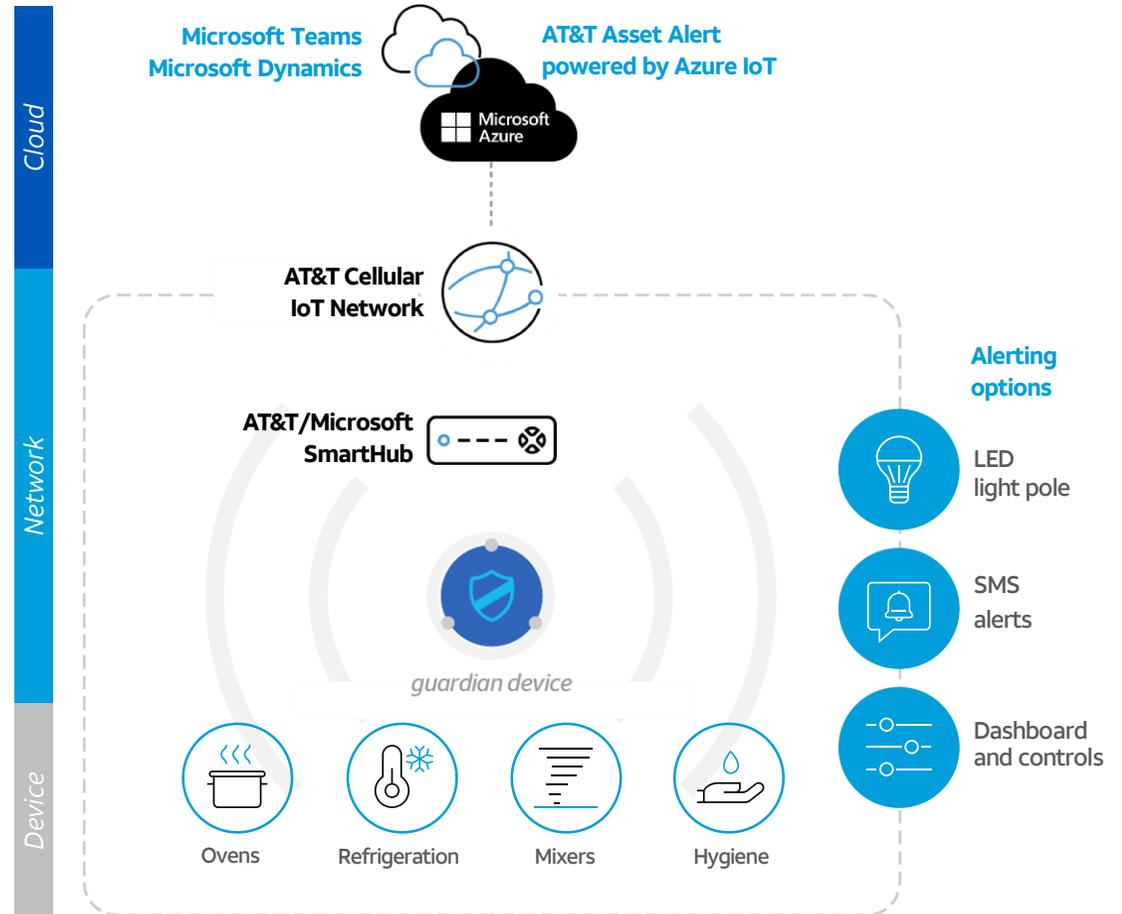
Value

- Consistent product quality and safety
- Real time alerts of temperature deviations
- Less downtime for equipment
- Stay compliant with OSHA, NIST, CDC, etc.
- Lower cost of maintenance; extend usable life of equipment

Alerts and intelligence

- Are refrigerators, freezers, and dishwashers operating at proper temperature?
- Is prep area or catering maintaining safe temperatures?
- Are employees following safety and compliance protocols?

-  Associates and servers
-  Site managers
-  Procurement managers



Smart shelves

Automatically monitor supplies in the pantry, refrigerators, and/or freezers to let you know when goods are expiring or at low capacity

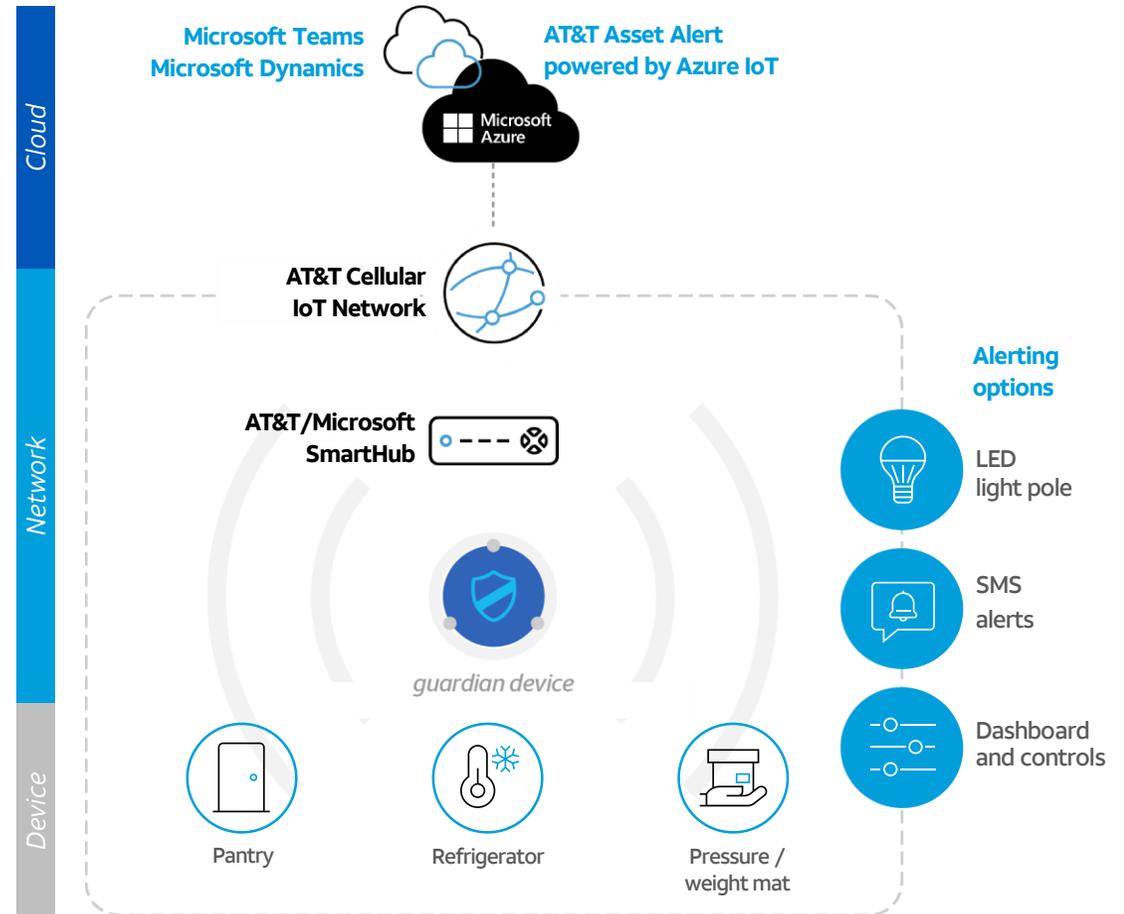
Value

- Generate auto-replenishments for stock
- Know stock is on shelf for buy-online/pick-up-in-store orders
- Eliminate manual stock checks/counts
- Reduced waste and increased food safety

Alerts and intelligence

- Is there any food we need to use before expiration?
- Do I have on hand what is needed for the day?
- Is stock being used efficiently at all locations?
- Is it time to re-order or set up auto-replenishment?

-  Associates and servers
-  Site managers
-  Supply chain



Energy management

Monitor and control HVAC, lighting, and other high energy appliances to save on the energy bill

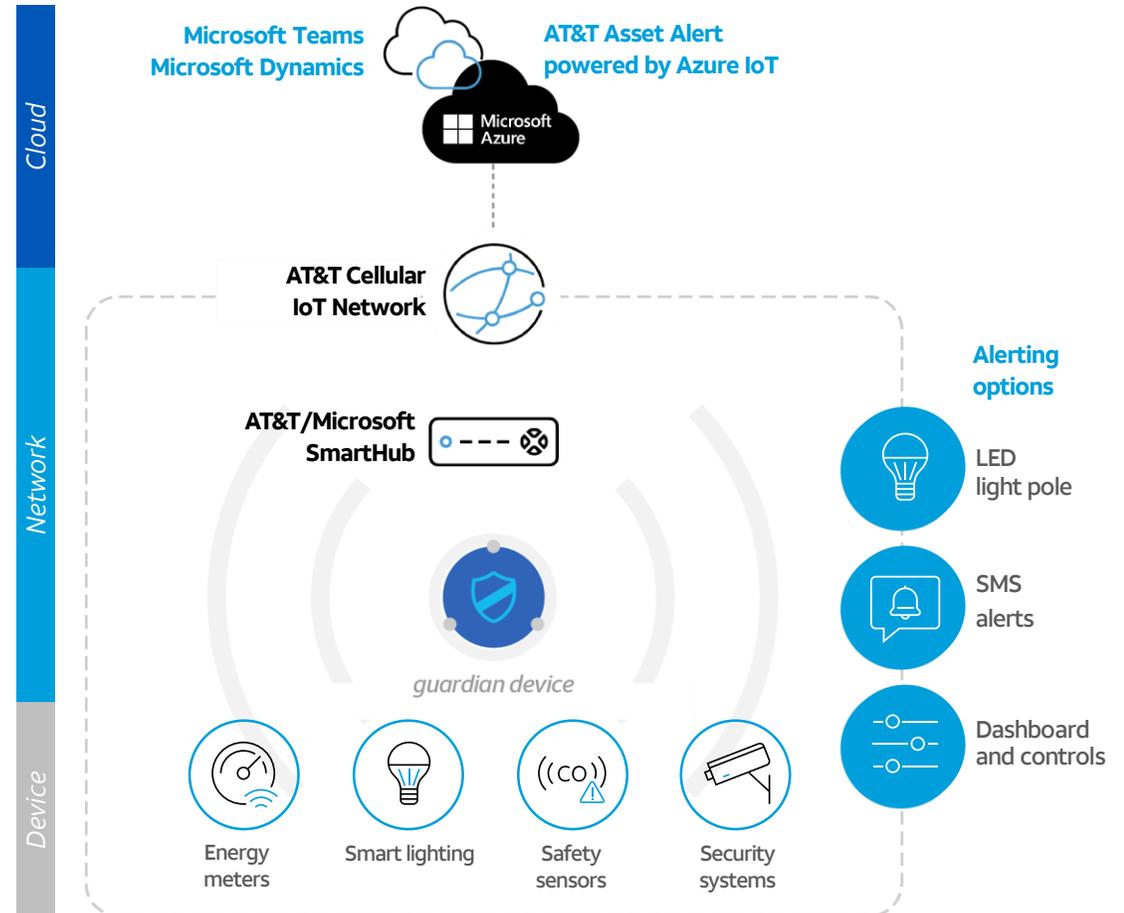
Value

Operational intelligence for optimizing energy management
 Reduce expenses and manpower for maintenance and repairs
 Can integrate with existing EBMS systems; provide alerts and fault detection

Alerts and intelligence

What is the ambient temperature?
 Humidity?
 Are refrigerator doors open?
 Are doors/windows open with HVAC running?
 Do we need all lighting on now?
 Is there a water or gas leak?
 Is air quality good?

-  Associates and servers
-  Site managers
-  Sustainability office



Let's get started!

1 Move fast and take advantage of one of our solution starters



Guest experience



Food safety



Equipment monitoring and control



Smart shelves



Energy management

OR

2 Schedule an Innovation Session to start innovation sprint

Days 1 – 30



2-day Workshop
Select Use Cases
Validate Solutions

Days 31 – 90



Implement POCs
Measure/Validate
Final design

Days 91+



Limited Pilot
Measure/Validate
Roadmap for Scale



AT&T Business