IoT in the enterprise
IoT device growth

For the first time in 2023, more than 50% of connections will be from IoT devices. IoT devices are the only device type with an increasing share of total connected devices.

Source: Cisco Annual Internet Report (2018-2023)
IoT in the enterprise
What our customers tell us

Drivers:
1) Hybrid work & sustainability
   - Lower seat occupancy
   - Environmental monitoring & Control

2) Smart value chains
   - Healthcare
   - Retail
   - Hospitality

3) Automation
   - Manufacturing
   - Supply chain
   - Operations
A diverse set of Enterprise use cases

Enterprise IoT use cases

- Building management: 24%
- Asset tracking: 20%
- Healthcare patient monitoring: 17%
- Industrial automation: 15%
- Logistics automation: 10%
- Retail automation: 8%
- Hospitality smart experiences: 8%
- Other: 1%
IoT wireless technology ranking
Survey of Cisco customers – what IoT access is most important to you?

- Wi-Fi
- BLE
- Zigbee
- Thread
- Matter
- Private 5G
- Public 5G

Unlicensed & Supported on Cisco HW!
The eco-system is not quite ready

Enterprise Top concerns when implementing IoT use cases

- IoT device onboarding: 25%
- Integrating with my applications: 15%
- Deploying low-power technologies (BLE, Zigbee, Thread): 20%
- Enforcing security on IoT devices: 23%
- Managing IoT device lifecycle: 11%
- Other: 6%
How do we solve these painpoints?
The enterprise eco-system is fragmented
Proprietary stovepipes hold back growth

Proprietary stovepipes

Apps and devices are developed hand in hand with network ‘gateways’, typically 1 app – 1 stack, protocols not suited for enterprise environment

- Onboarding: developed for home or personal area networks
- Device Control: Proprietary per app/device
- Telemetry/data: Proprietary per app/device

Closed system, does not scale beyond a couple apps.

The need for a standard

Enterprise IoT needs a standard that will allow the network to act as a platform offering secure automated onboarding of any device to any network connecting to any application

Open system, scales to many apps and devices.
Success Factors

Standards-based approach for partners

Works with what is in the market, & Extensible to new onboarding standards and L2 technologies

Leverage existing customer investment in APs and controllers
Leverage existing IT infrastructure: Catalyst 9100 Series Access Points have a built-in Silabs IoT radio

Configure as a BLE Gateway
Enable Catalyst 9100 Access Points as a BLE Gateway

Configure as a Beacon or BLE Centra
BLE scanning and connection-based communication, or AP (virtual beacons)

Configure and Talk to devices
Configure the BLE devices from Cisco Spaces or other applications and consume telemetry from devices.

More coming soon...
Standardizing APIs: Accelerating use case deployment

Enterprise Network

- BLE
- Thread
- Wi-Fi
- Zigbee
- ...

Gateway

- Provisioning (SCIM)
- Device Control (NIPC) (HTTP or MQTT)

Onboarding
- CRUD (Create, Update, Delete devices)

Device Control
- Connect
- Data Registrations

Data Receiver
- Broadcasts
- Streaming data
- Connection state

Application

Common APIs across radio technologies for flexibility based on market needs
Example use case: Patient monitoring with wearables

Patient Monitoring Tomorrow

Patient Monitoring Today

Level of care
- Home
- Level 0: Normal Ward
- Level 1: Acute Ward
- Level 2: Post-op Care
- Level 3: Critical Care

Beds
Nurse scans QR code on patient ID bracelet and on sensor.

Sensor is provisioned on network by Hospital Patient Monitoring Device Mgmt.

Onboarding

Device inventory acquisition

Trusted introduction, Bootstrapping

Device control & Management

Telemetry/Data & Meta

Network sets up telemetry data stream from sensor.

9800 Controller

IoT Controller

Gateway

Device Control

Data Receiver

Onboarding

Sensor Connected to network

Nurses’ Station receives patient from through the pub-sub interface

EMR

Sensor Connected to network
Retail Store IoT Electronic Shelf Labeling

Central ESL Management Server

Cisco Catalyst 9100 Series APs

Electronic Shelf Labels

Remote price update

Item location discovery

Immediate Item availability check

Change Price

Price is Changed

Change Price

Price is Changed

Change Price

Price is Changed
Cisco Spaces IoT Device Marketplace
Ecosystem of third-party IoT devices – wired and wireless

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<th>M1 Tag Beacon</th>
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<tr>
<td>Features</td>
<td>Self-powered, no batteries, lighting, HAC, and shutter control, NFC</td>
<td>3-axis accelerometer sensor optional</td>
<td>Replaceable battery, external on/off button</td>
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<td>Price for 1 unit</td>
<td>US $41.28</td>
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<td>US $10.00</td>
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<td>Volume discount for 1000 units</td>
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<td>Volume discount for 1000 units</td>
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View Details

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Cisco Spaces IoT Explorer

Monitor, manage, and optimize assets, Internet of Things (IoT) sensors, alerting system, and operational workflows
Thank you!