

# 1, 2, 3 CURWB and Cisco's Industrial Portfolio

Fabrizio Guarnieri, Solutions Engineer IOT



# Agenda

1. Trends in the market
2. Industrial Switching
3. Industrial Wireless
4. Validated designs

# About Fabrizio



Fabrizio Guarnieri (Fab)

Solutions Engineer in the IOT Team, based in Chicago

12 Years in Cisco in different functions (Customer delivery, Technical Presales)

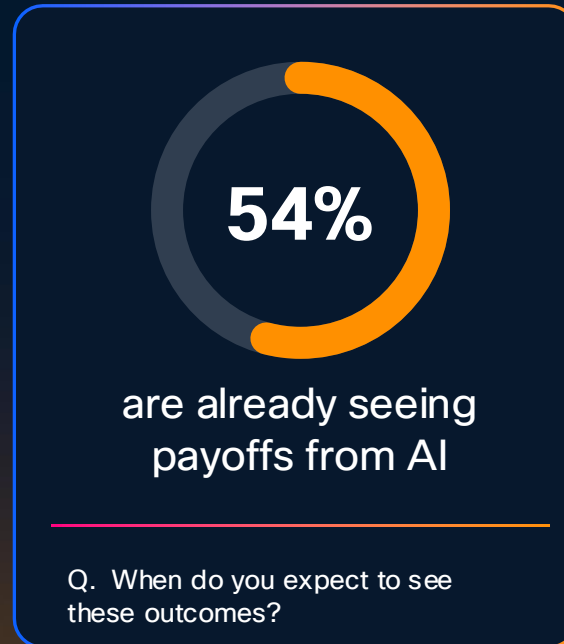
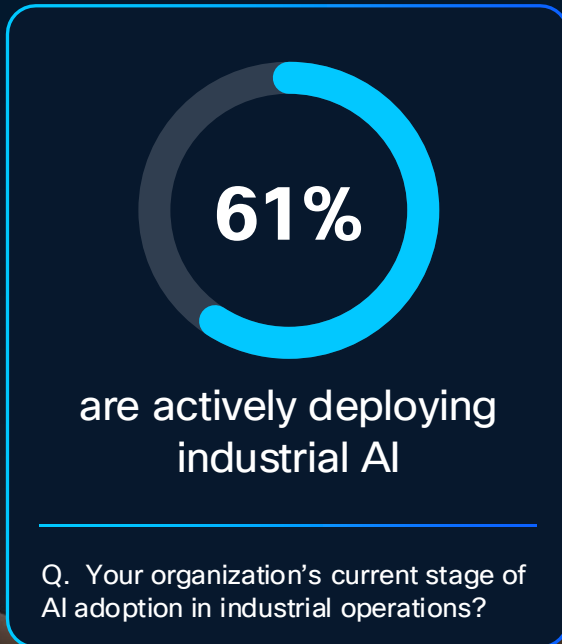
Always been fascinated about technology

Global experience (Italy, Belgium, France, Poland, Australia, USA)

Cisco Live presenter

# Trends in the market and our portfolio

# AI is already driving a paradigm shift for industrial networks



# AI is driving game-changing industrial use cases

## Machine Vision



Quality inspection, Robot guidance, Packaging, Yield optimization, etc.

Make decisions at high speeds and high accuracy, improving product quality and reducing waste

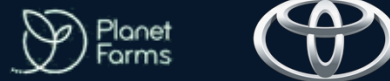


## Autonomous Vehicles



Automated guided vehicles (AGVs), Autonomous mobile robots (AMRs), Tele-remote operations, etc.

Reduce costs, improve safety, save space, and easily adapt to changing needs



## Software Controls



Software-defined Industrial Automation, Virtual PLCs, etc.

Massively reduce CAPEX and OPEX, improve operational agility, accelerate time to market



# Scalable industrial networks, built for the AI era



Industrial switches for  
**AI-driven operations**



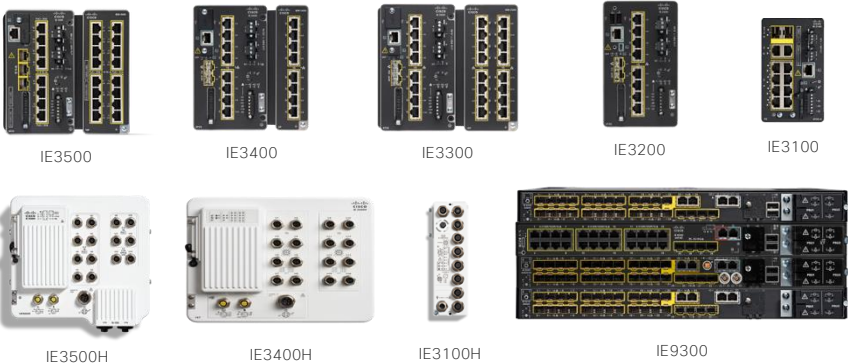
Redefining Wi-Fi to support  
**AI-driven industrial mobility**

# Industrial IoT networking portfolio

Our solutions meet the needs of IT and OT

### Industrial Ethernet switches

DIN-Rail, IP67, and Stackable Rackmount



### Industrial Cybersecurity

Cyber Vision, Secure Equipment Access



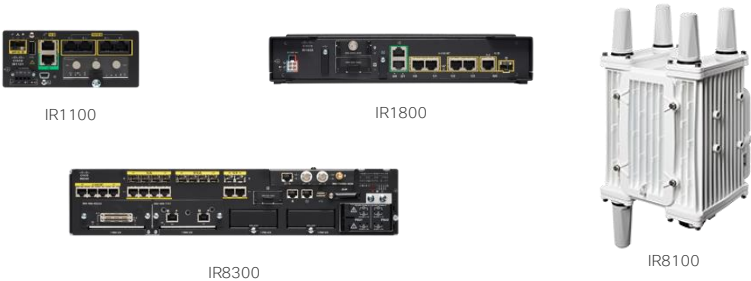
### Industrial Wi-Fi and Ultra-reliable Wireless Backhaul

For outdoor conditions



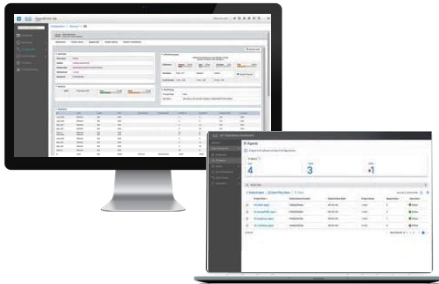
### Industrial Routers

Modular 4G/5G – for connecting remote and mobile assets



### Data Control and Exchange

Edge Intelligence, IOx



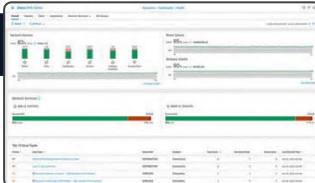
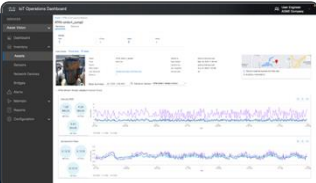
### Embedded Networking

Embedded routers and switches for industrial Makers



### Management and Automation

Cisco Catalyst Center, Cisco Catalyst WAN Manager, \*Meraki



# Industrial Switching

# Cisco Live 2025 Announcements

19 New SKUs

Wifi + URWB Together

Enhanced security with CV and SEA



Industrial switches for AI-driven operations

+

Redefining Wi-Fi to support AI-driven industrial mobility

+

AI-powered security to protect industrial networks

# IE 3500 Rugged Series Switches

SEA+CV ✓  
1000Eyes ✓



## Base



**IE-3500-8T3S**

8x 1GE ports  
3x 1GE SFP ports



**IE-3500-8P3S**

8x PoE/PoE+  
3x 1GE SFP ports  
360W PoE Budget

## Advance



**IE-3505-8T3S**

8x 1GE ports  
3x 1GE SFP ports  
HSR/PRP/DLR



**IE-3505-8P3S**

8x PoE/PoE+  
3x 1GE SFP ports  
360W PoE Budget

## 10G/4PPoE



**IE-3500-8T3X**

8x 1GE ports  
3x 10G SFP ports



**IE-3500-8U3X**

8x PoE/PoE+  
3x 10G SFP ports  
360W PoE Budget

## Common Expansion Modules



**IEM-3500-6T2S**

6x 1GE ports  
2x 1GE SFP ports



**IEM-3500-8T**

8x 1GE ports



**IEM-3500-8P**

8x PoE/PoE+



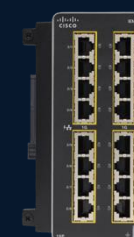
**IEM-3500-8S**

8x 1GE SFP



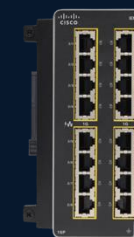
**IEM-3500-14T2S**

14x 1GE ports  
2x 1GE SFP ports



**IEM-3500-16T**

16x 1GE ports



**IEM-3500-16P**

16x PoE/PoE+



**#IEM-3500-4MU**

4x 10G SFP ports

# IE 3500H Heavy Duty Series Switches

SEA+CV ✓

1000Eyes ✓



## PoE



### IE-3500H-14P2T

2x 1GE ports  
14x 1GE PoE ports  
240W PoE Budget



### IE-3500H-12P2MU2X

2x 10G SFP  
2x 2.5G PoE/PoE+/4PPoE (60W)  
12x GE PoE/PoE+  
240W PoE Budget

## FE w/ GE Uplinks



### IE-3500H-12FT4T

12x FE D Code ports  
4x 1GE X Code ports



### IE-3500H-20FT4T

20x FE D Code ports  
4x 1GE X Code ports

## Full GE



### IE-3500H-8T

8x 1GE port  
M12 X-Code



### IE-3500H-16T

16x 1GE ports  
M12 X-Code



### IE-3500H-24T

24x 1GE ports  
M12 X-Code



### IE-3505H-16T

16x 1GE X-Code ports  
HSR/PRP/DLR

# Introducing IE3500 with built-in Visibility, Observability, and Protection



- ✓ Up to 480W PoE Budget to power 16 cameras with PoE+
- ✓ Up to 4x 2.5G and 12x 90W 4PPoE ports
- ✓ Fast PoE and Perpetual PoE to restore power when switch boots after power failures
- ✓ Improved Cyber Vision performance with increased memory
- ✓ Native TrustSec enforcement on all SKUs
- ✓ Support for ThousandEyes agent for application assurance from shop floor to Cloud applications

# IE 3100 Rugged Series Switches

SEA ✓

## Data



**IE-3100-4T2S**

- 4x 1GE ports
- 2x 1GE SFP ports



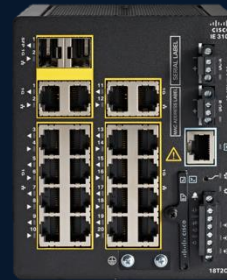
**IE-3100-8T2C**

- 8x 1GE ports
- 2x 1GE combo ports



**IE-3105-8T2C**

- 8x 1GE ports
- 2x 1GE combo ports



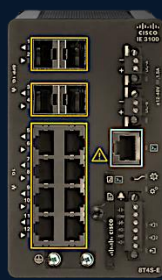
**IE-3100-18T2C-CC-E**

18x 1GE ports  
2x 1GE combo ports  
Conformal Coating  
Network Essentials



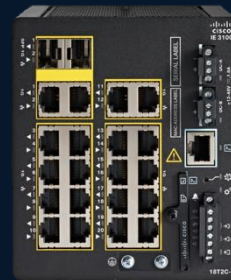
**IE-3100-18T2C**

- 18x 1GE ports
- 2x 1GE combo ports
- Conformal Coating available\*



**IE-3100-8T4S**

- 8x 1GE ports
- 4x 1GE SFP ports



**IE-3105-18T2C**

- 18x 1GE ports
- 2x 1GE combo ports

## PoE+/4PPoE



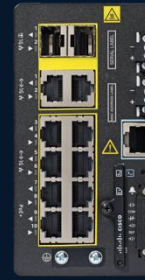
**IE-3100-4P2S**

- 4x PoE/PoE+ ports
- 2x 1GE SFP ports
- 120W PoE Budget



**IE-3100-3P1U2S**

- 3x PoE/PoE+ ports
- 1x 4PPoE (90W) ports
- 2x 1GE SFP ports
- 120W PoE Budget



**IE-3100-8P2S**

- 4x PoE/PoE+ ports
- 2x 1GE SFP ports
- 120W PoE Budget



**IE-3100-6P2U2C**

- 6x PoE/PoE+ ports
- 2x 4PPoE (90W) ports
- 2x 1GE combo ports
- 240W PoE Budget

# IE 3100H Heavy Duty Series Switches

SEA ✓



**IE3100H GE**  
8x GE (X-Code M12)



**IE3100H FE/GE**  
6x FE (D-Code M12)  
2x GE (X-Code M12)



**Compact size to fit into tight spaces** such as cabinets and trailers



**Enhanced resistance** to dust, vibrations, liquid spills, and wash-downs with IP67 protection



**Best-in-class PTP** support for motion applications



Secure Equipment Access for **zero-trust remote access** for configurations, etc.

Bringing advanced industrial networking to places you never imagined before

# Cisco Catalyst 3x00 Product Family

The market leading DIN-Rail and IP67 wall-mount industrial switch portfolio



### Catalyst® IE3100 Rugged Series

Compact switch with PoE for space constrained deployments and machine builders + IP67



### Catalyst® IE3200 Rugged Series

Fixed gigabit switch with PoE for industrial networking with advanced features



### Catalyst® IE3300 Rugged Series

Modular switch with 4PPoE, app hosting, asset visibility, mGig ports and 10G Uplinks



### Catalyst® IE3400 Rugged Series

Modular switch PoE, app hosting, asset visibility, lossless ring redundancy, and micro-segmentation



### Catalyst® IE3500 Rugged Series

Modular switch PoE, app hosting, asset visibility, lossless ring redundancy, and micro-segmentation, fabric and more...

Layer 2 Industrial Switches – Fixed Ports

Layer 3 Industrial Switches – Expandable w/ Modules



Cisco IOS XE Operating Software



Cisco Catalyst Center Management



High-budget, high-density PoE

# Cisco Industrial Catalyst 9300 Portfolio

SEA+CV ✓

1000Eyes ✓

8

## IE9300 Models



### IE-9310-26S2C

26x 1GE SFP ports  
2x 1GE combo ports



### IE-9320-24T4X

24x 1GE ports  
4x 10G SFP ports  
Stackable



### IE-9310-16P8S4X

16x 1GE with PoE/PoE+ ports  
8x 1GE SFP ports  
4x 10G SFP ports  
Up to 480W PoE budget  
HSR/PRP capable



### IE-9320-24P4S

24x 1GE with PoE/PoE+  
Up to 385W PoE budget  
4x 1GE SFP ports  
Stackable



### IE-9320-24P4X

24x 1GE with PoE/PoE+  
4x 10G SFP ports  
Up to 720W PoE budget  
Stackable



### IE-9320-26S2C

26x 1GE SFP ports  
2x 1GE combo ports  
PRP and HSR Support  
Stackable



### IE-9320-22S2C4X

22x 1GE SFP, 4x 10G SFP  
2x 1GE combo ports  
PRP and HSR Support  
Timing input  
Conformal coating  
Stackable



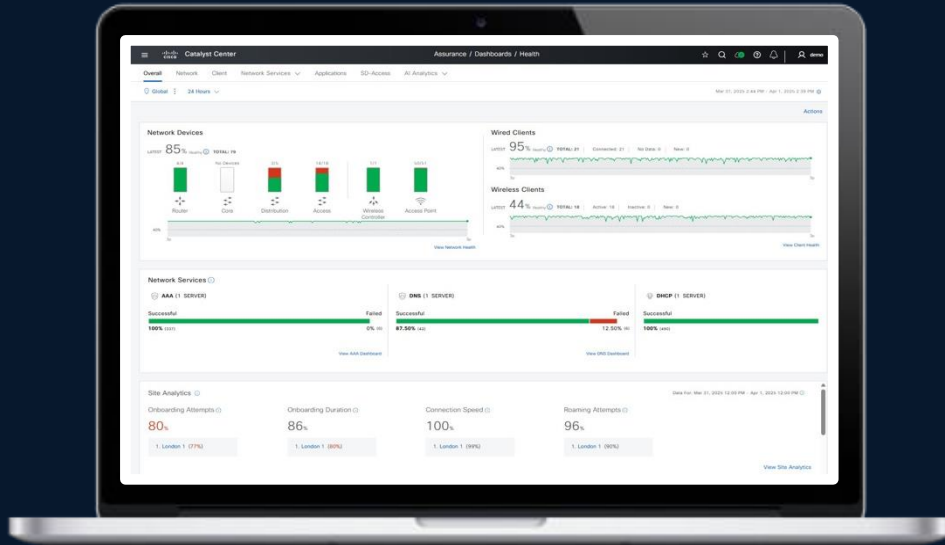
### IE-9320-16P8U4X

8x mGig with 90W 4-pair PoE  
16x 1GE with PoE/PoE+ ports  
Up to 720W PoE budget  
4x 10G SFP ports  
Stackable

The most comprehensive industrial rackmount portfolio in the market

# Cisco Catalyst Center

Shared pane of glass for OT and IT to collaborate



Industrial Switching

Industrial Wireless

Industrial Routing



Reduce downtime



Increase efficiency

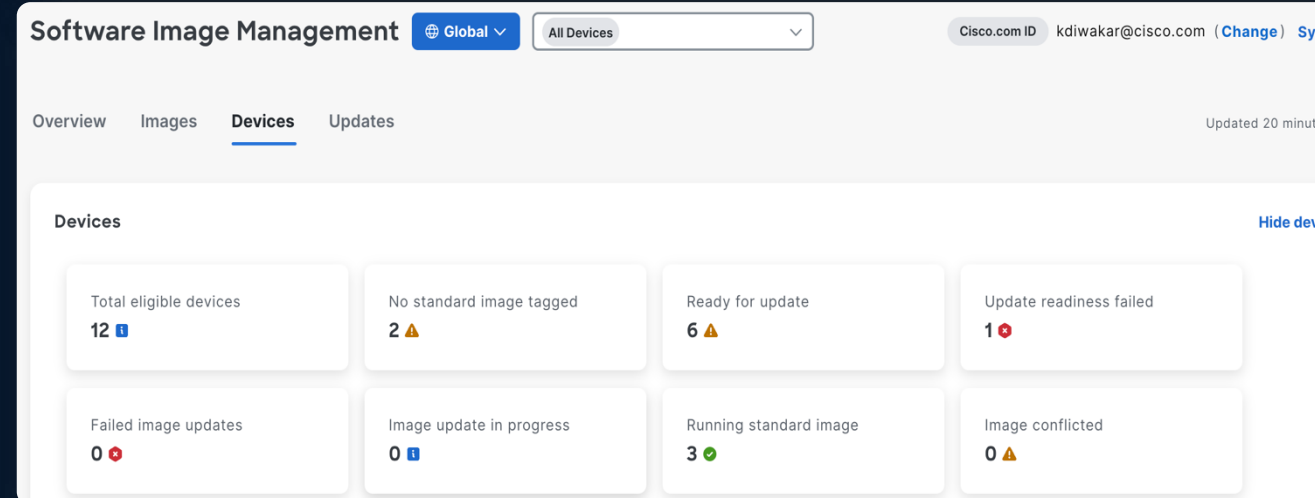
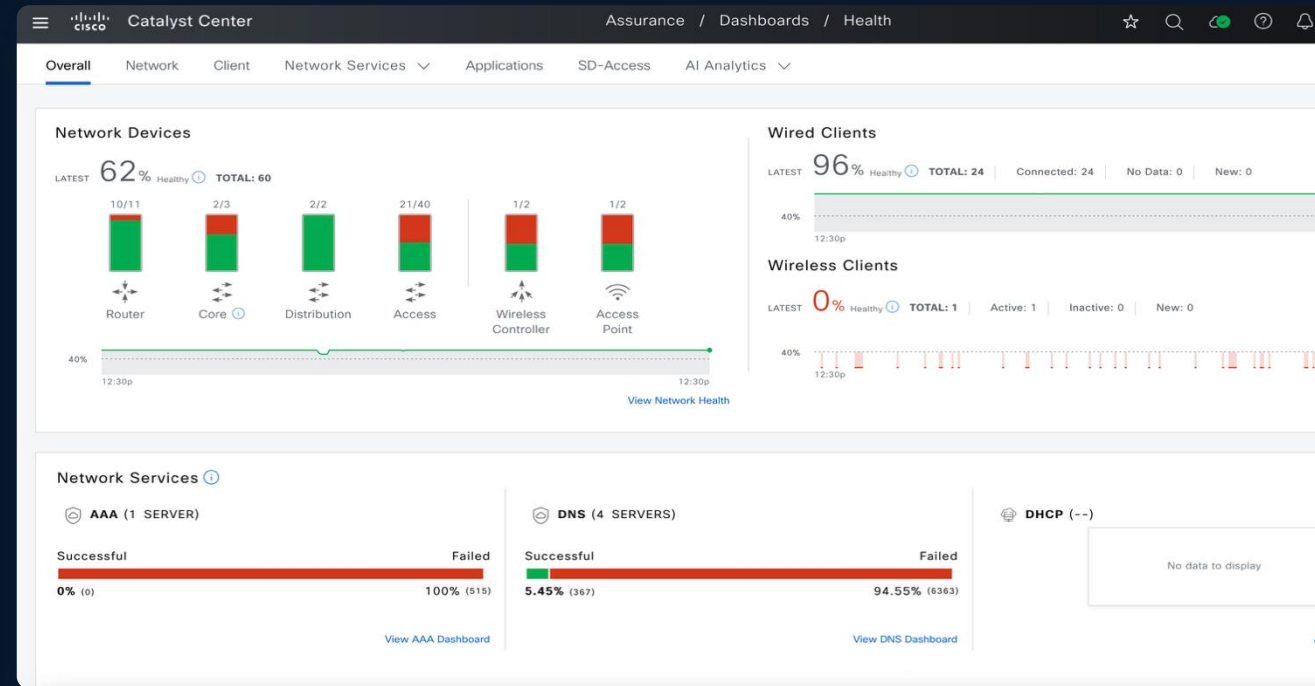


Stay compliant

Unified network management experience

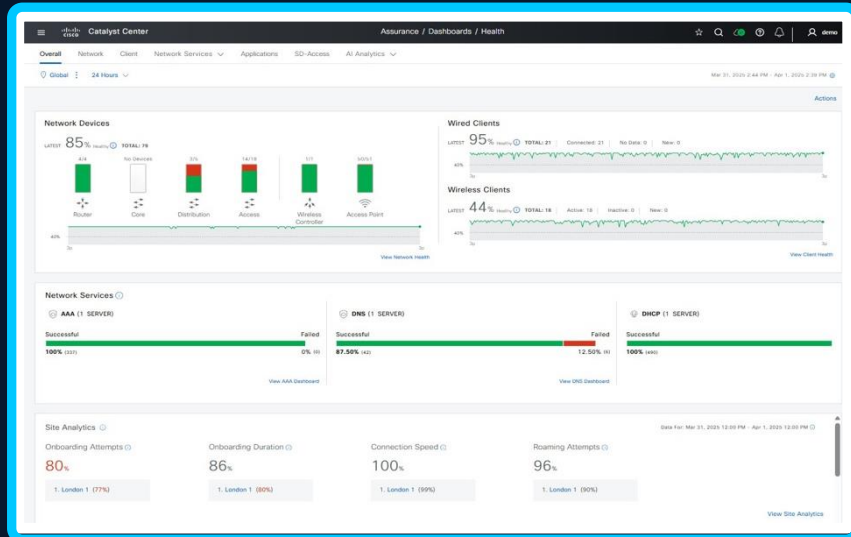
# What can Catalyst Center do for OT networks?

- Manage networks with automation and assurance
- Secure operations by applying consistent policies and SW versions
- Reduce downtime with AI-driven problem identification and resolutions

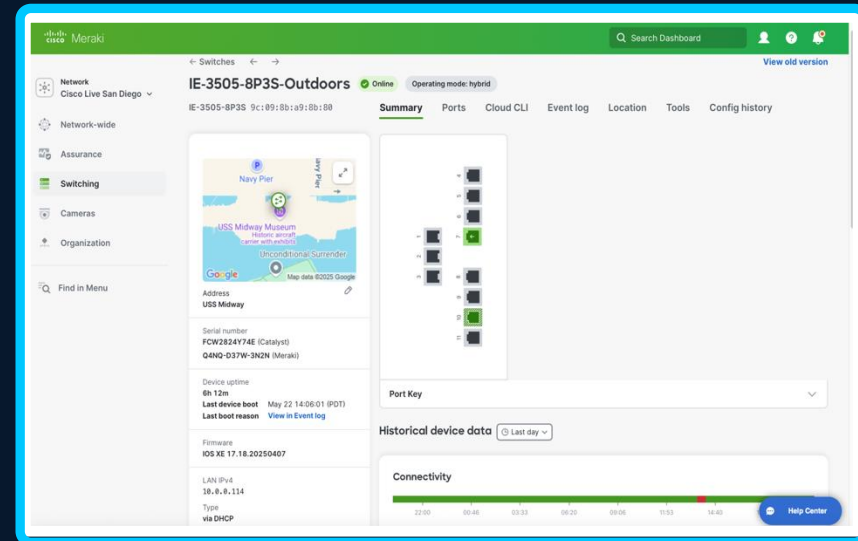


# Cisco Live EMEA 2026 announcement IE3500 in Meraki Dashboard

26.1.1



Catalyst Center Management  
(On-premises)



Meraki dashboard Management\*  
(Cloud-based)

Automate deployment and simplify management  
with tools IT already knows and loves

# Industrial Wireless

# Catalyst industrial 6GHz/Wi-Fi 6E APs portfolio

IW9165E



2x2

External antenna  
On-prem with DNA management  
DIN rail compact form factor  
Modes: URWB, WGB and Wi-Fi 6/6E

IW9165D



2x2

Internal antenna with optional external antennas  
On-prem with DNA management  
Modes: URWB, Wi-Fi 6/6E

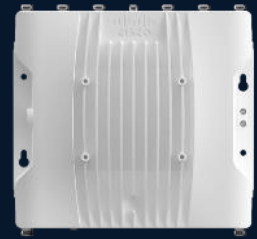
IW9167I



4x4

Internal antenna  
On-prem with DNA management  
Wi-Fi 6/6E

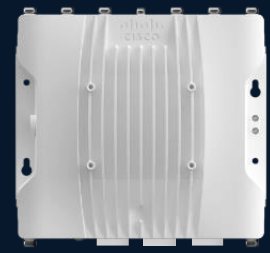
IW9167E



4x4

External antenna  
On-prem with DNA management  
Modes: URWB, WGB and Wi-Fi 6/6E

IW9167E-HZ



4x4

External antenna  
On-prem with DNA management  
Hazardous locations  
Modes: URWB, WGB and Wi-Fi 6/6E

IW9167E-STA



4x4

Directional panel antenna  
On-prem with DNA management  
High-density deployments  
Modes: Wi-Fi 6/6E

# Cisco Live 2025 Announcements

19 New SKUs

Wifi + URWB Together

Enhanced security with CV and SEA



Industrial switches for  
AI-driven operations

+

Redefining Wi-Fi to support  
AI-driven industrial mobility

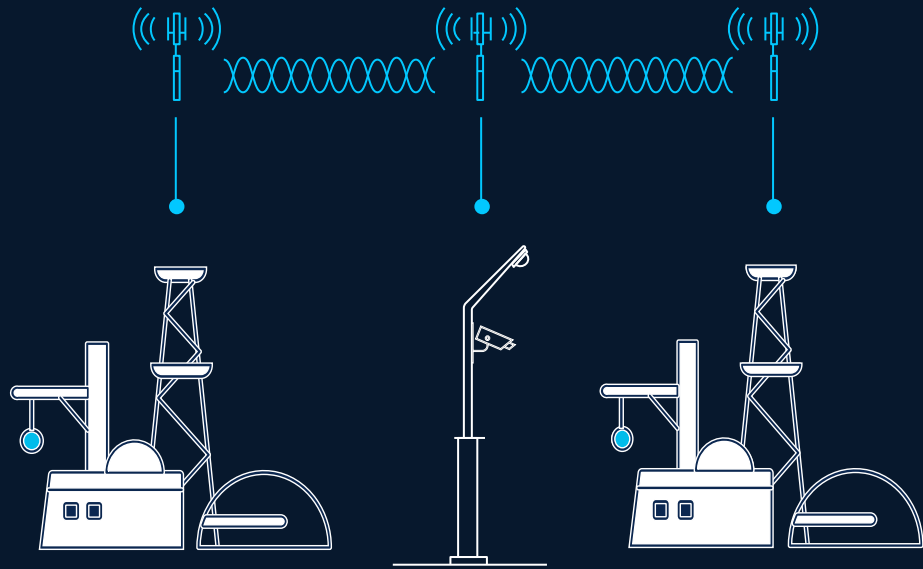
+

AI-powered security to  
protect industrial networks

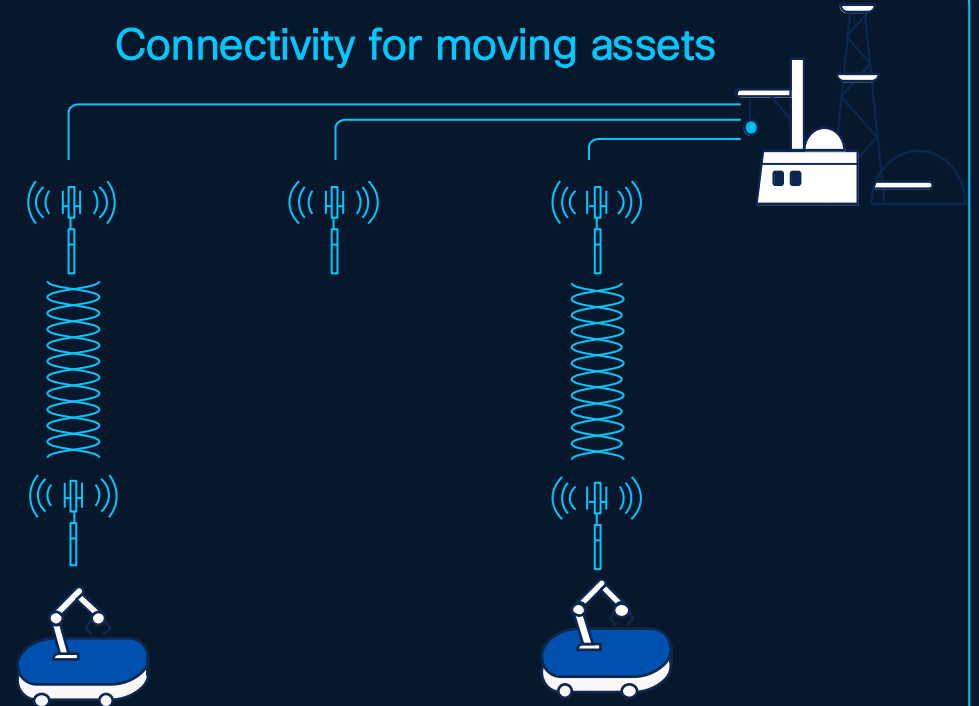
# What is Cisco Ultra-Reliable Wireless Backhaul?

## Reliable fiber-like wireless connectivity, anywhere

Connectivity where fiber isn't available or is too costly



Connectivity for moving assets



End-to-End Overlay



Make-before-break handoff



Multipath operation



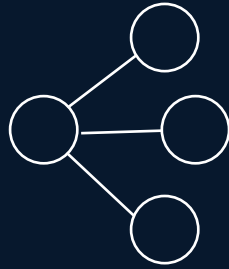
Ultra-fast failover  
Carrier-grade availability

# Supports highly flexible wireless architectures

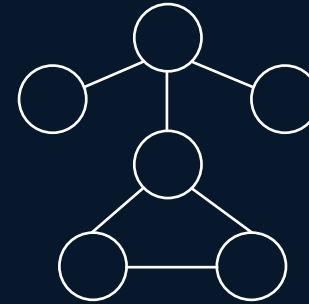
Point to Point



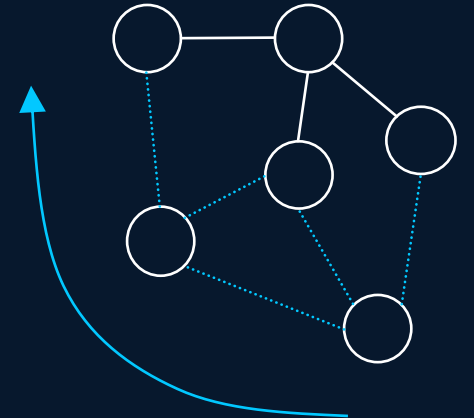
Point to Multipoint



Mixed



Mobility



Ultra-Reliable Wireless Backhaul to connect fixed and mobile assets for Ports, Transportation, Entertainment, Mining, Smart Cities

# What makes URWB Ultra-Reliable?



End-to-End Overlay



Make-before-break handoff



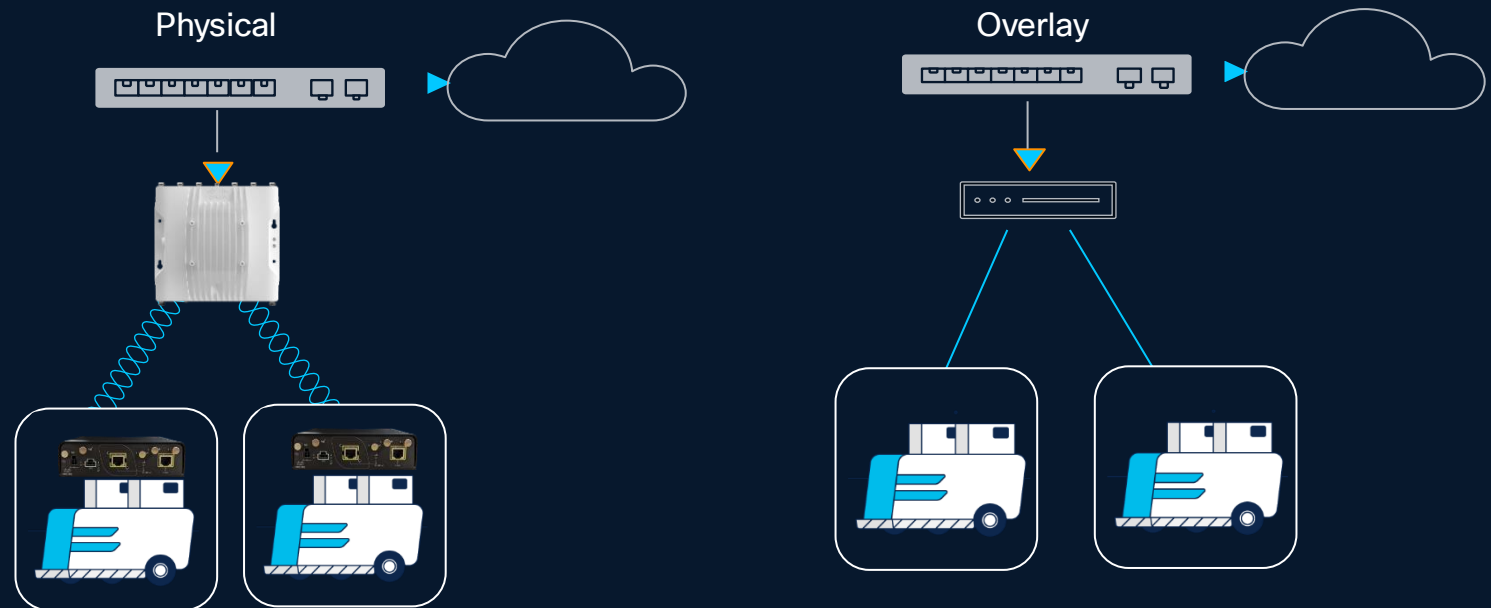
Multipath operations (MPO)



Ultra-fast failover  
Carrier-grade availability





End-to-End Overlay





Overlay technology emulates a virtual switch over 802.11 wireless links, to extend ultra-low latency (<10ms) connectivity to fixed or mobile assets


# What makes URWB Ultra-Reliable?

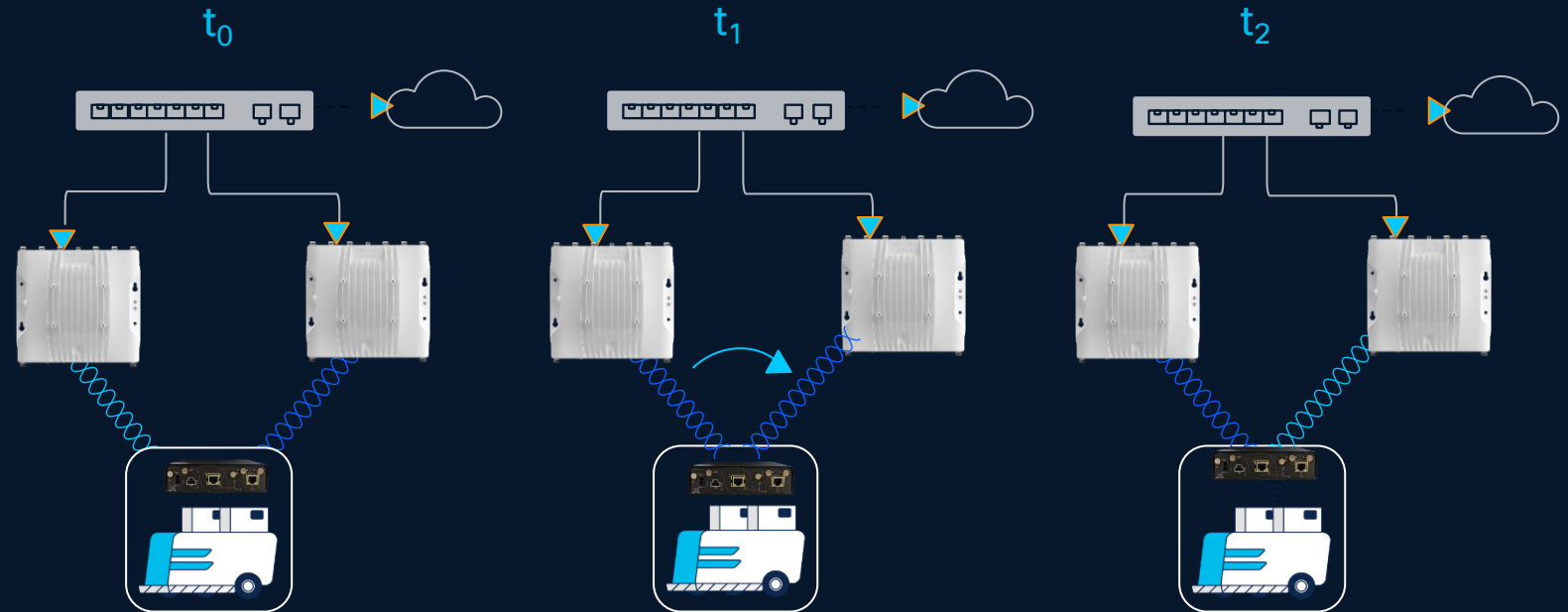
 End-to-End Overlay

 Make-before-break handoff

 Multipath operations (MPO)


 Ultra-fast failover  
Carrier-grade availability


 Make-before-break handoff





Make-before-break handoff ensures connectivity is established with a new AP before dropping connectivity from the previous AP

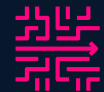
# Multipath Operations

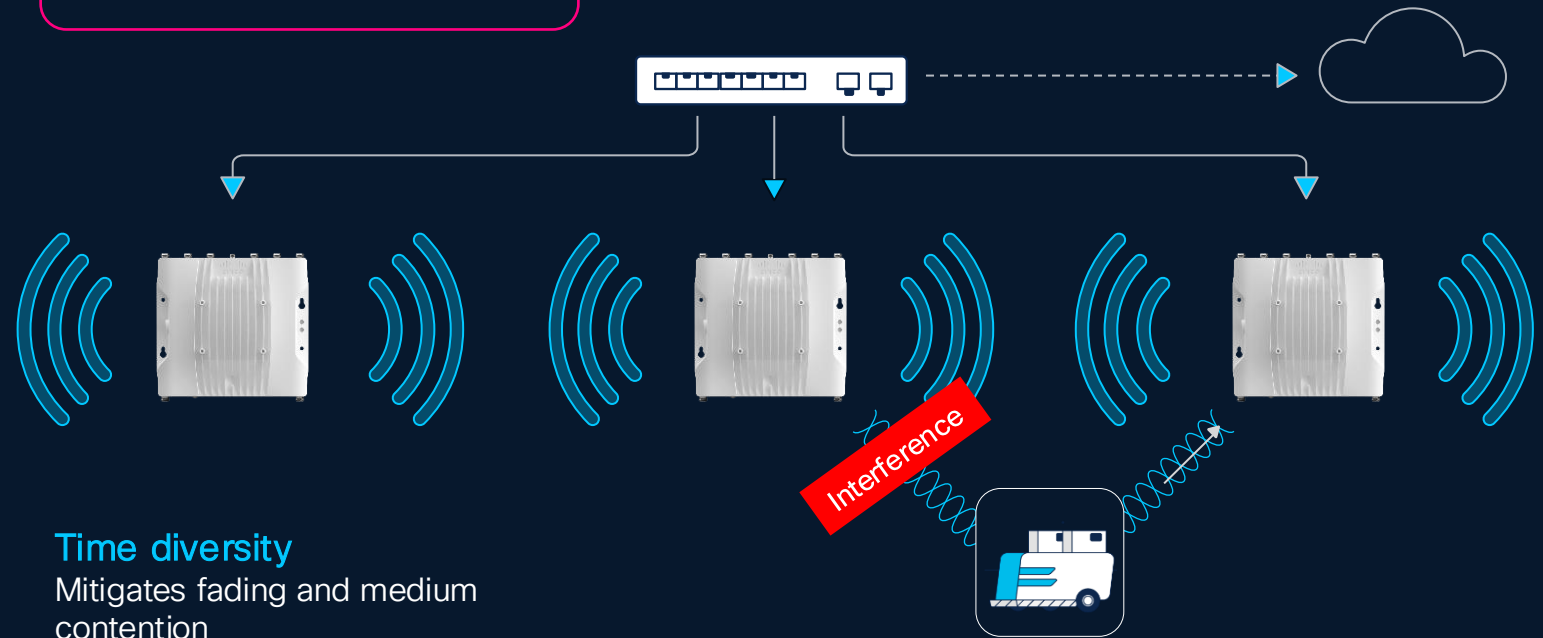
 End-to-End Overlay

 Make-before-break handoff

 Multipath operations (MPO)

 Ultra-fast failover  
Carrier-grade availability

 Multipath operations (MPO)



**Time diversity**  
Mitigates fading and medium contention

**Spatial diversity**  
Mitigates blockages and obstacles

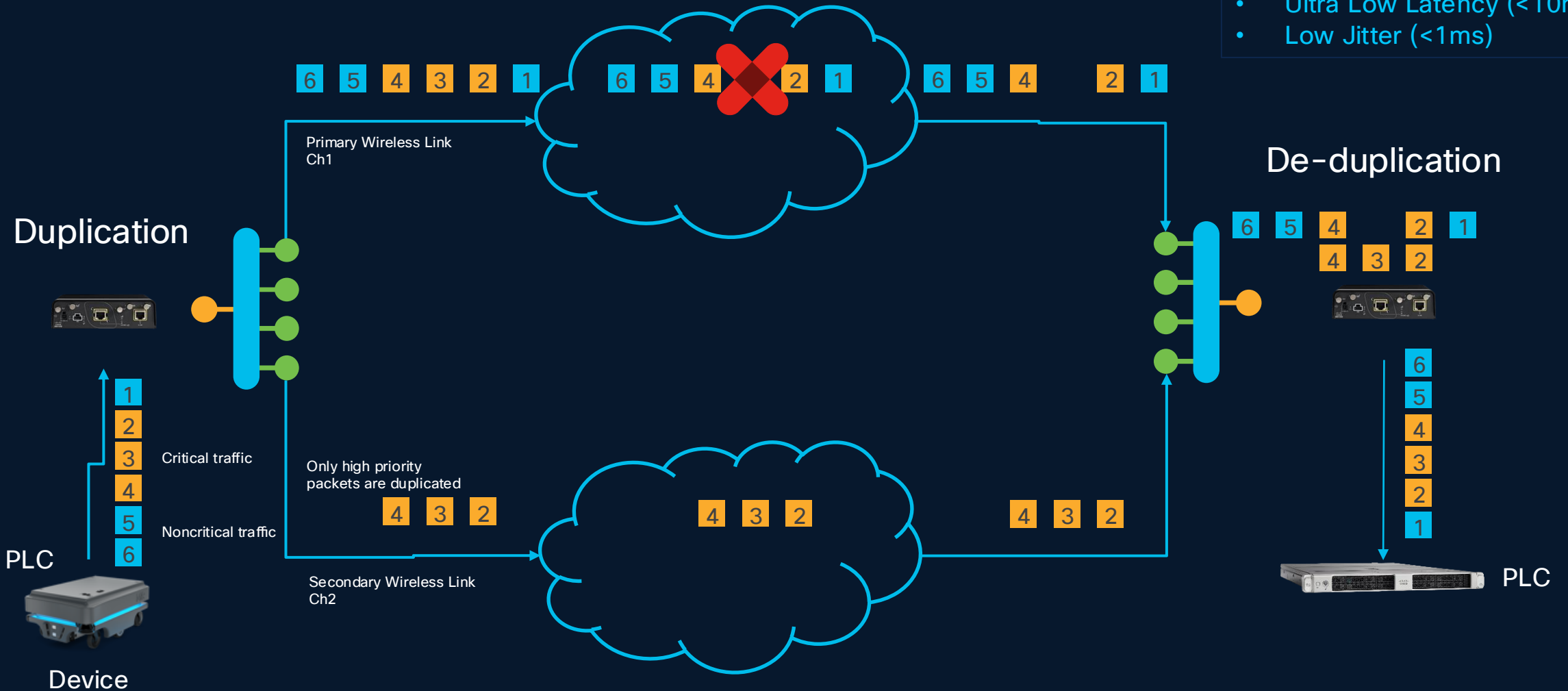
**Frequency diversity**  
Mitigates Interference

MPO duplicates high priority packets over up to 8 different paths on uncorrelated frequencies at the same time to multiple access points

# MPO Duplication and Deduplication

## Advantages:

- ~0% Packet Error Rate
- Ultra Low Latency (<10ms)
- Low Jitter (<1ms)



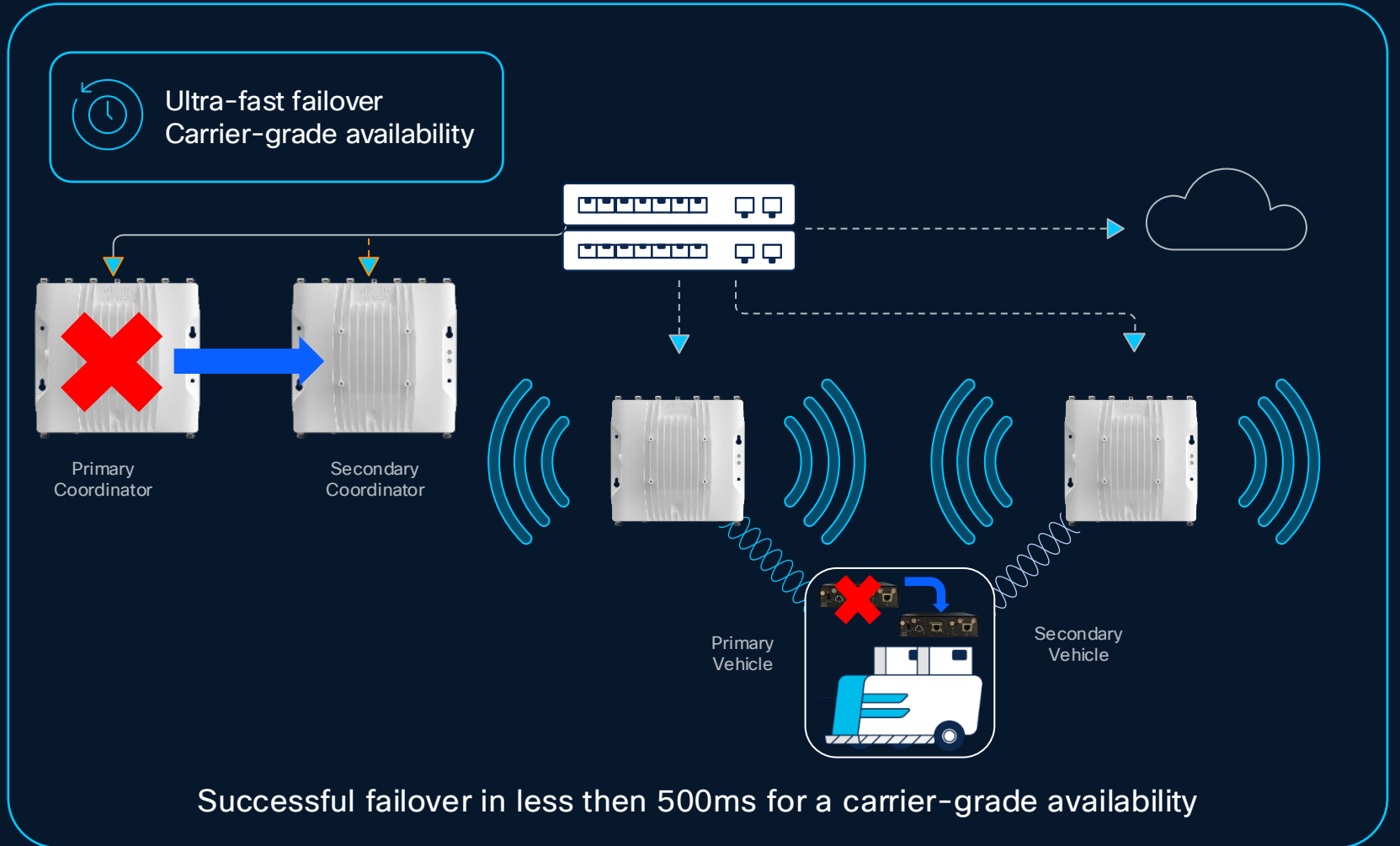
# What makes URWB Ultra-Reliable?

End-to-End Overlay

Make-before-break handoff

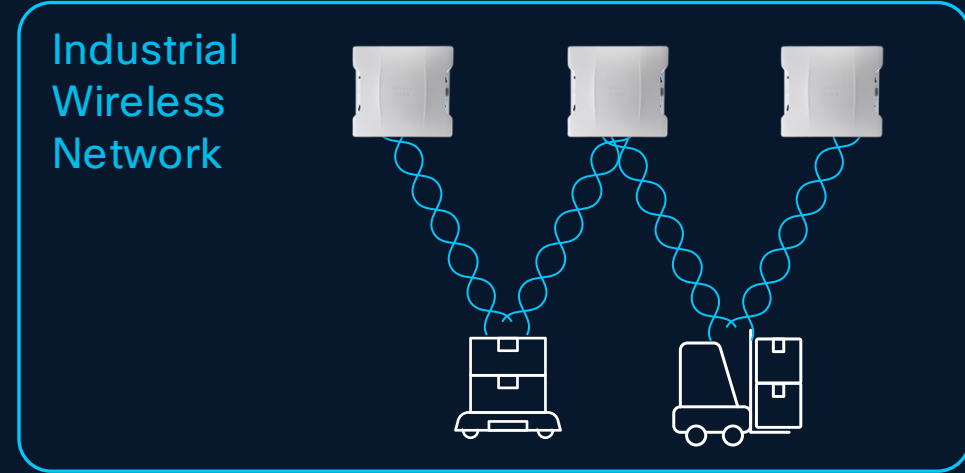
Multipath operations (MPO)

Ultra-fast failover  
Carrier-grade availability

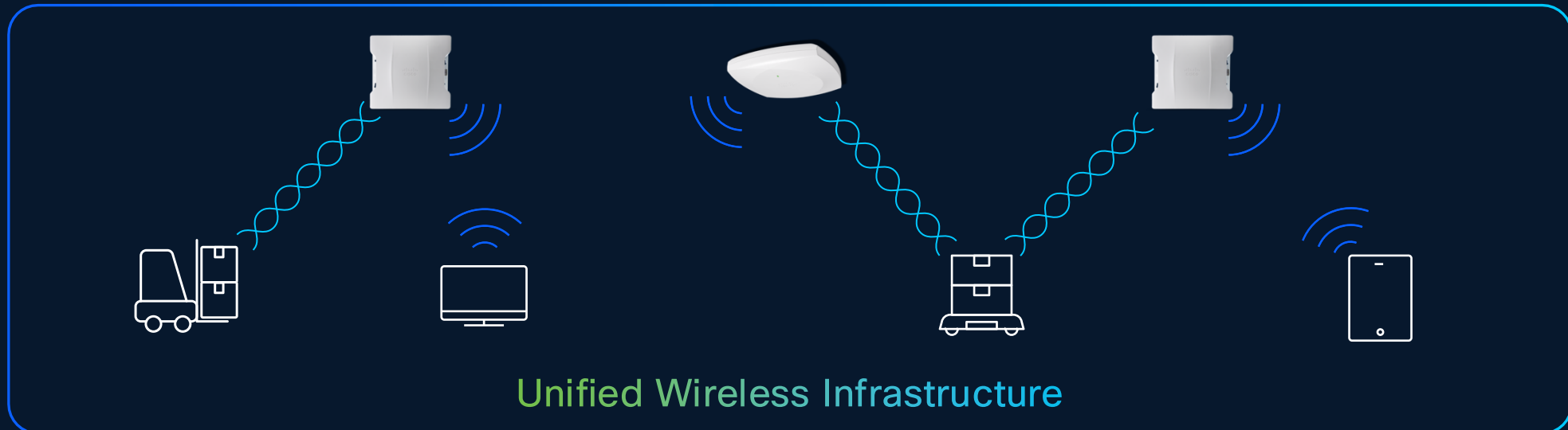


# Wi-Fi and URWB unified infrastructure

Before



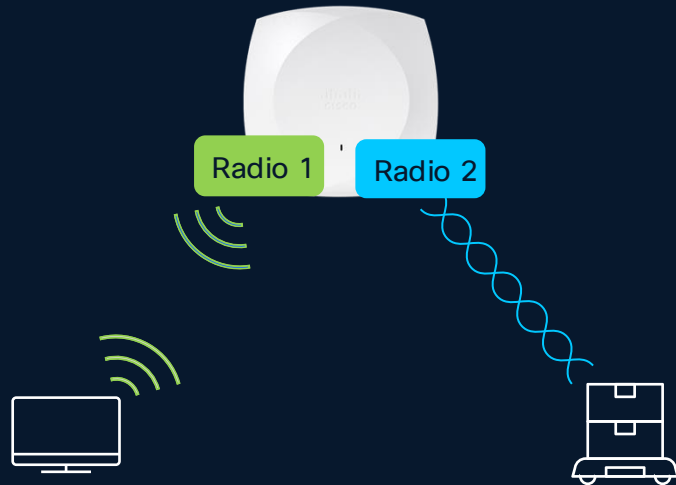
Now



# Unified infrastructure in a nutshell

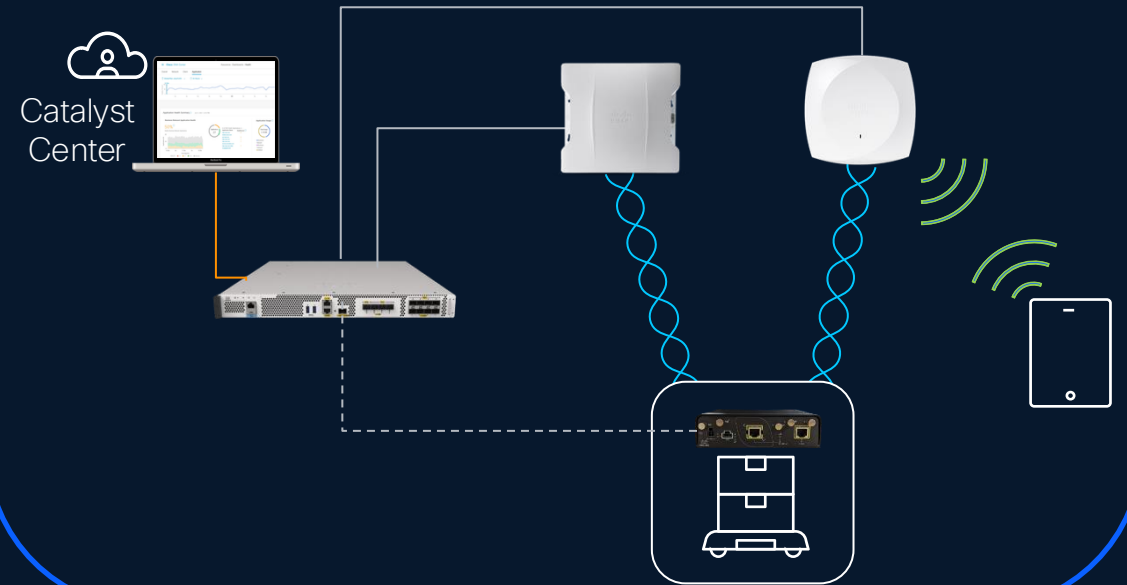
## Unified platform

- ✓ Simultaneous URWB and Wi-Fi operations on the same AP
- ✓ Enable URWB on many WiFi6/6E and Wi-Fi7 APs (IWs and CWs)



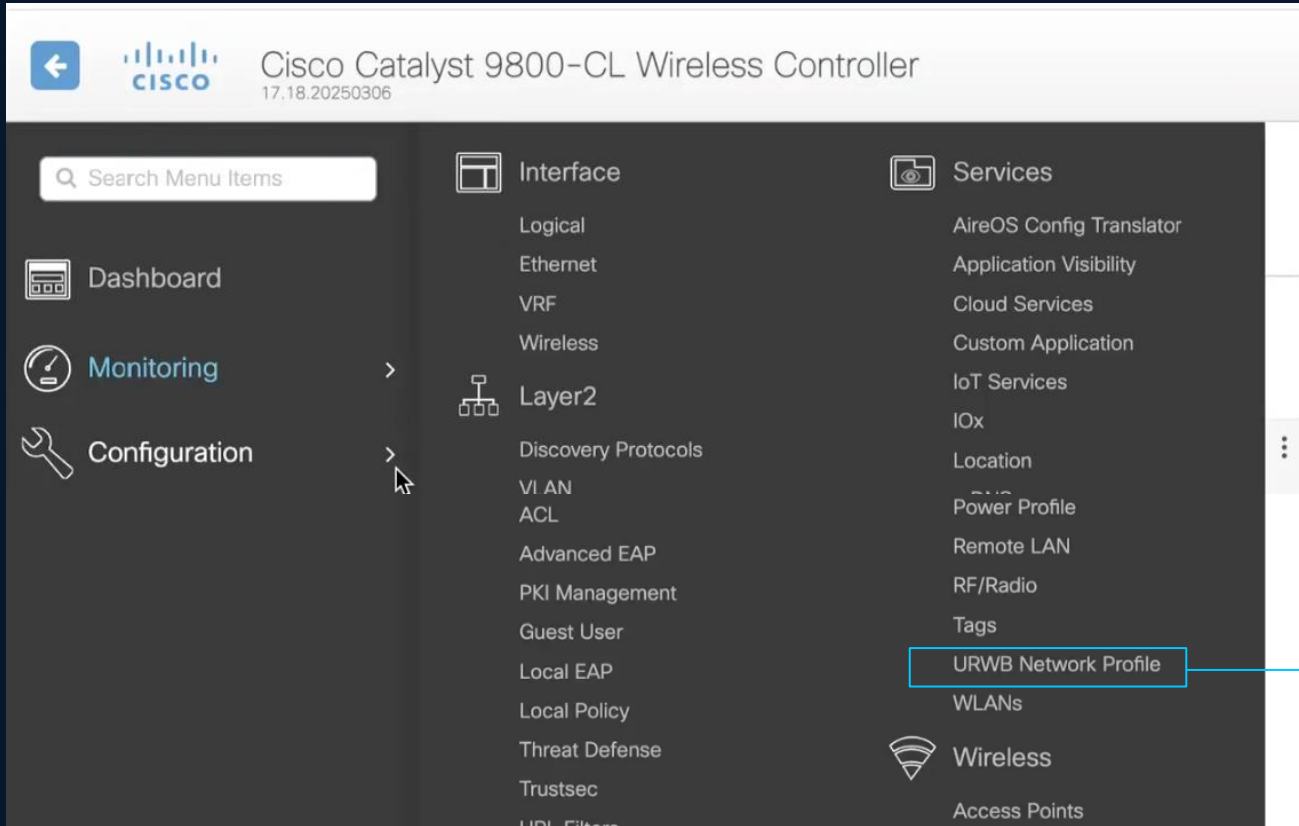
## Unified management

- ✓ Centralize management via WLC and Catalyst Center, for both APs and wireless clients
- ✓ Unified License experience



# Simultaneous URWB and Wi-Fi operations

## URWB Configuration on WLC



URWB configurable as a network capability in the WLC

The screenshot shows the 'Add URWB Network Profile' configuration dialog box. The dialog has a title bar with a close button (X). Below the title bar are four tabs: 'General', 'Mobility', 'MPO', and 'Advanced'. The 'General' tab is selected. The configuration options are as follows:

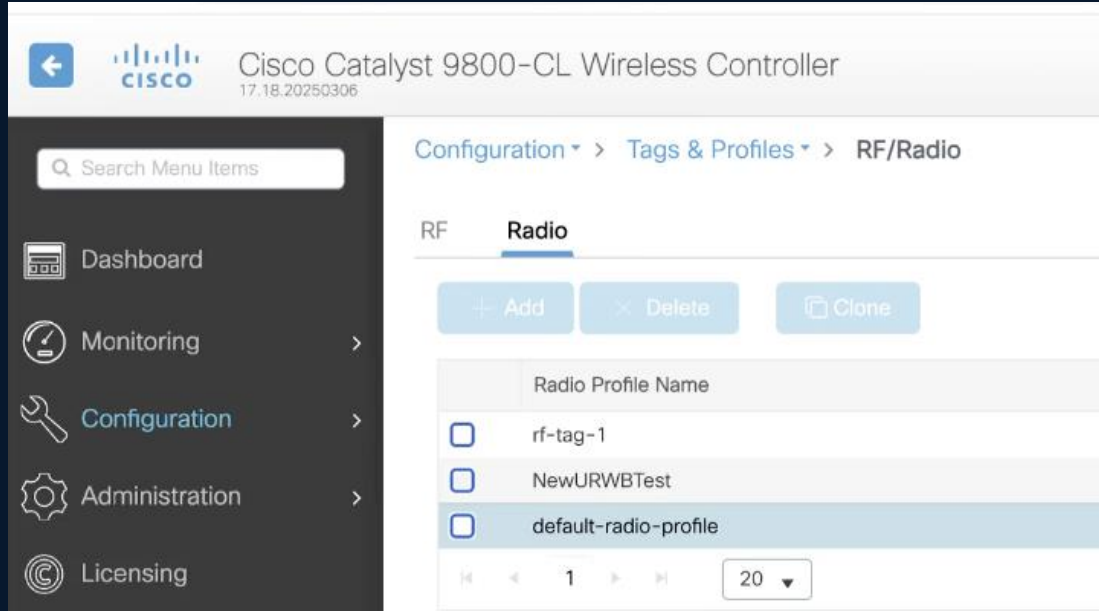
Field	Value/Status
URWB Enabled	<input checked="" type="checkbox"/>
URWB Network Profile Name*	<input type="text"/>
Description	<input type="text" value="Enter Description"/>
Network-Key ⓘ	<input type="text" value="Enter Passphrase"/> ⓘ

At the bottom of the dialog, there are two buttons: 'Cancel' and 'Apply to Device'.

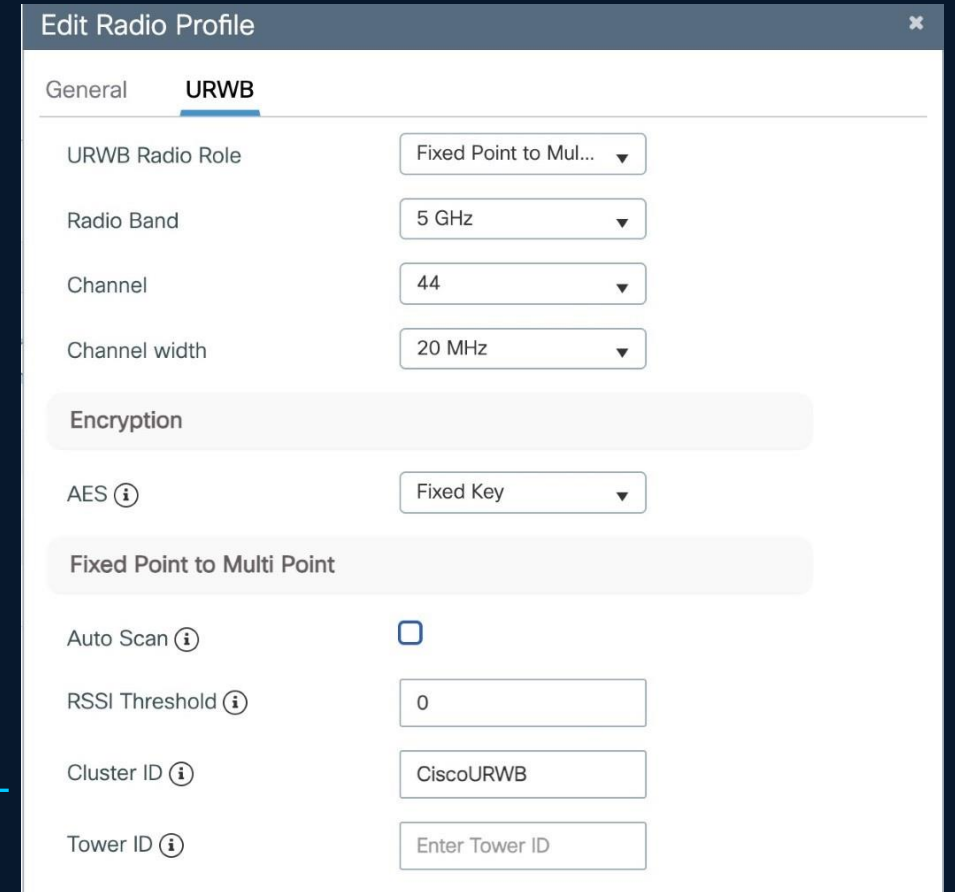
Feature available from 17.18.2

# Simultaneous URWB and Wi-Fi operations

## Radio Roles



Role selection on a radio interface basis



Feature available from 17.18.2

# Available across our industry leading portfolio of indoor, outdoor and industrial access points

## Wi-Fi 7



CW9176I,  
CW9176D1



CW9178I

## Wi-Fi 6E



CW9136I



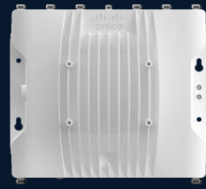
CW9166I,  
CW9166D1



IW9165E



IW9165D



IW9167E  
IW9167E-HZ



IW9167I

## Wi-Fi 6



C9130  
(AXE, AXI)



C9124  
(AXE, AXI, AXD)

# The Catalyst Center proven operational strengths for Wi-Fi

## Now for URWB too



### Zero-Touch Provisioning

Configure URWB infrastructure in minutes versus hours



### Automate Tasks

Workflows to execute complex configurations with a push of the button



### Software Upgrades

Schedule updates during downtime in parallel

The screenshot displays the Catalyst Center interface for applying URWB configuration to access points. The page title is "Apply URWB Configuration to Access Points" under the "Inventory > wlc-01" section. It shows a list of APs with their status and configuration details.

AP name	Hop count	URWB validation status	IP address	RF tag	Associated WLC IP	Site
AP-01	5	Success, activation required	172.21.145.106	SJC-campus-URWB-rf-tag	115.247.195.96	Global/San Jose/SJC-21
AP-01	4	Success, activation required	172.21.145.106	SJC-campus-URWB-rf-tag	115.247.195.96	Global/San Jose/SJC-21
AP-01	3	Success, activation required	172.21.145.106	SJC-campus-URWB-rf-tag	115.247.195.96	Global/San Jose/SJC-21
AP-01	2	Success, reload required	172.21.145.106	SJC-campus-URWB-rf-tag	178.248.121.24	Global/San Jose/SJC-21
AP-01	1	Success, activation required	172.21.145.106	SJC-campus-URWB-rf-tag	115.247.195.96	Global/San Jose/SJC-21

# The Catalyst Center proven operational strengths for Wi-Fi

## Now for URWB too

**Configure URWB Network**

1 **Select URWB network type and radio channels**  
Subtitle

2 **Select the type of URWB network you would like to create**

Fixed  
Fixed networks connect devices in fixed locations, such as industrial equipment,

Mobile  
Mobile networks connect moving assets such as vehicles, robots, or trains. They

3 **Select the radio band, channel, and channel width you would like to use on the APs**

Radio Band \*  Channel \*  Chan

Configure a second channel

[Exit](#)

**Configure URWB Network**

2 **Selection summary**

Base APs (min 1)  
1

Client APs (min 1)  
1

Coordinator 1 \* ⓘ

**Base APs**

Base APs are connected to the wired network infrastructure, and provide connectivity to the client APs.

1 results [+ Assign base APs](#)

AP name	IP address	Model	Associated WLC	Site	Actions
📶 APE4A4.1CD8.1888	192.73.0.158	IW9167IH-ROW	CM-eWLC-73	Global/MJ/BGL11/F1	<a href="#">🗑️</a>

**Client APs**

Client APs act as a wireless bridge, connecting devices at a remote location to the base APs. A client AP connects multiple devices, like cameras or robots, to its ethernet port, effectively extending the network to remote locations.

1 results [+ Assign client APs](#)

[Exit](#) [Back](#) [Next](#)

# The Catalyst Center proven operational strengths for Wi-Fi Now for URWB too

**Select radio slots**

Select the radio slots that need to be enabled for URWB on the selected access points. You can also specify the radio slot assignment at the model level; however, you can expand the assignment to include all APs of the same model.

**Base APs 1**

AP name	Model
📶 APE4A4.1CD8.1888 <b>Coordinator</b>	IW9167IH-ROW

**Client APs 1**

AP name	Model
📶 APE4A4.1CD8.1890	IW9167IH-ROW

**Configure URWB Network**

Enter a maximum of 10 characters that will be prepended to the names of all configurations.

**The following configurations will be created on the WLCs:**

- URWB network profiles**  
2 URWB network profiles will be created for Mobile network types; 1 each for base and client APs.
- URWB network profile name for base APs**  
MJ-URWB-Network1\_base  
The exact URWB network profile name will be displayed on the Summary page.
- URWB network profile name for client APs**  
MJ-URWB-Network1\_client  
The exact URWB network profile name will be displayed on the Summary page.

**Radio profiles**  
New URWB-enabled radio profiles will be created to replace the existing radio profiles for slots chosen in step 3.

**Example radio profile name**  
MJ-URWB-Network1\_radio\_profile  
The exact radio profile names will be displayed on the Summary page.

**RF tags**  
New RF tags will be created to replace the existing RF tags on APs selected in step 2.

**Example RF tag name**  
MJ-URWB-Network1\_rf\_tag  
The exact RF tag names will be displayed on the Summary page.

**Network key type**  
Unencrypted

Strong network key

**Network key \***

**Diagram 1:** Existing radio profile (General) → no changes → General + URWB enabled (New radio profile)

**Diagram 2:** Existing RF tag (RF profiles) → no changes → RF profiles (New RF tag) and URWB network profile (Radio profiles) → no changes → Radio profiles (New RF tag)

**Buttons:** Exit, Back, Next

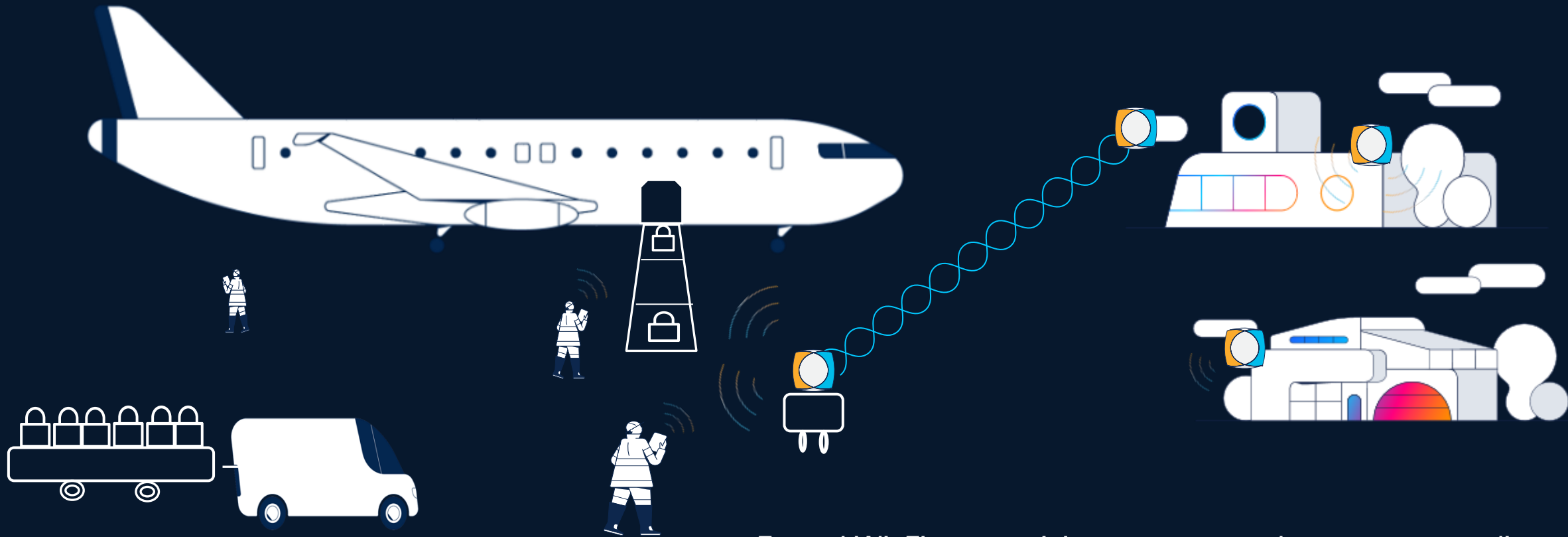
# Rugged Enterprise – use cases

Extend connectivity to places where fiber and copper is not possible or too costly



- Extend connectivity between buildings
- Extend Wi-Fi coverage across the campus and/or in the outdoors
- Extend connectivity to parking lots to connect cameras, gates, cabinets

# Rugged Enterprise – use cases

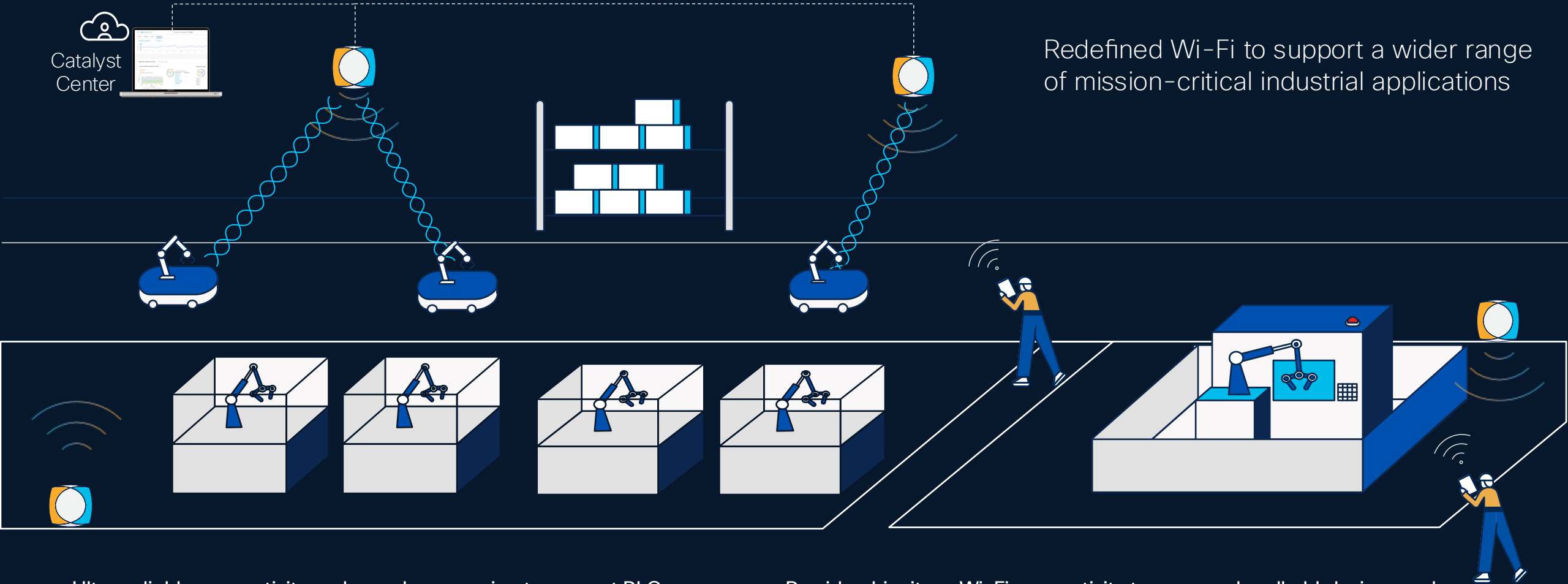


Extend Wi-Fi connectivity to uncarpeted areas to streamline operations and support new use cases

# Industrial: Manufacturing and Logistics



Redefined Wi-Fi to support a wider range of mission-critical industrial applications



- Ultra-reliable connectivity and seamless roaming to support PLC communications and Layer 2 Industrial protocols on AGVs and cobots

- Provide ubiquitous Wi-Fi connectivity to sensors, handheld devices and other Wi-Fi clients

# Validated Designs

# Cisco Validated Designs for Manufacturing

18 validated designs specific for manufacturing



<https://www.cisco.com/go/cvd>

**Accelerating industrial automation**

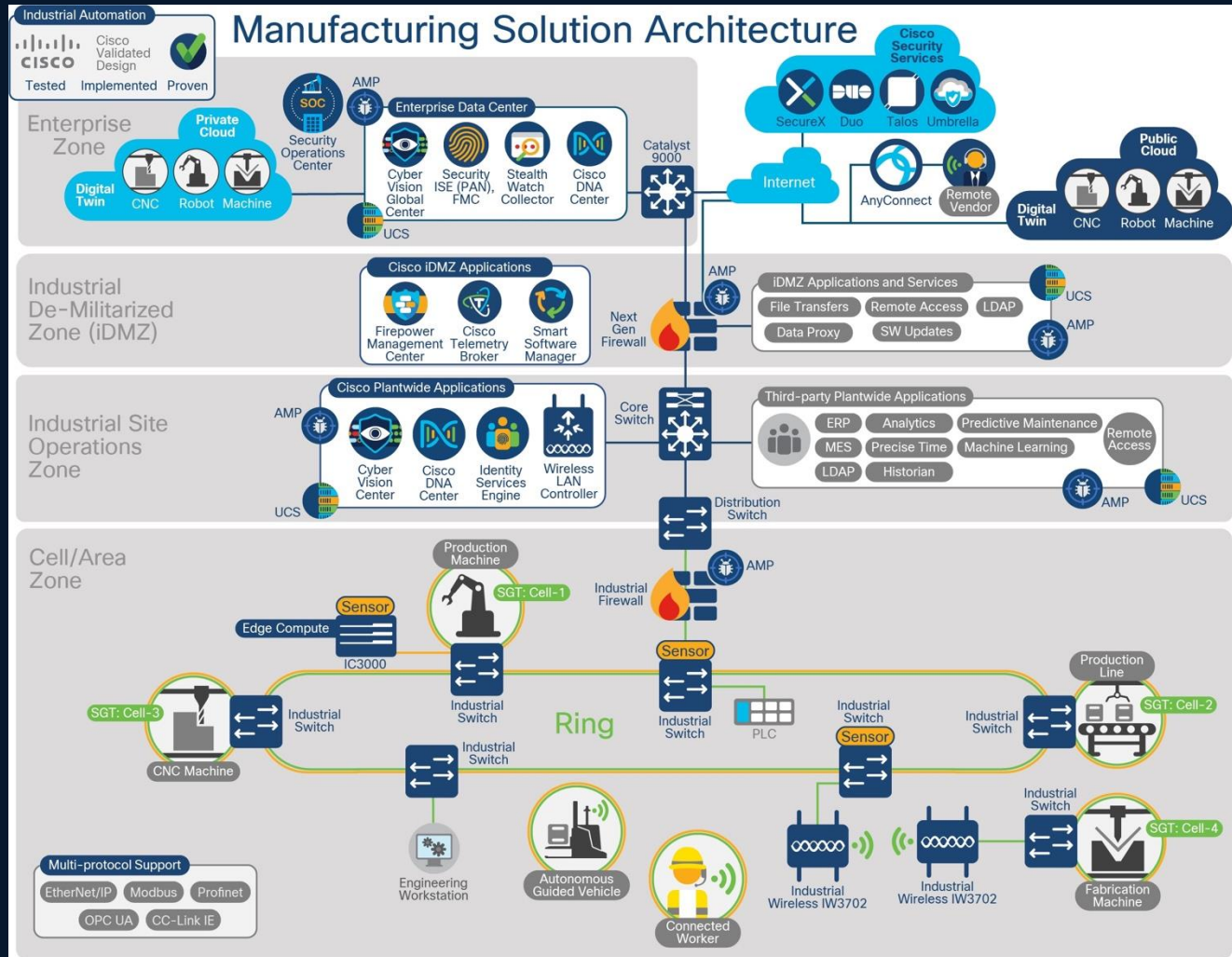
**Making manufacturing networks simpler**

**Securing Manufacturing operations**

**Connect remote and mobile assets**

**Additional automation capabilities**

# CVD Example



# Partners



# New Validated Designs!

**Machine Vision CVD**




**Dual Fabric Architecture for vPLC and Manufacturing Applications**

# Machine Vision Cisco Validated Design

From isolated systems to converged architecture






## Reality in Plants Today

-  **Isolated Network Silos**  
Cameras and vision systems are **added locally**, outside the main industrial network.
-  **Cable + power complexity**  
Separate cabling and external power supplies **increase cost** and design effort.
-  **Determinism concerns**  
**Fear** that shared networks cannot meet real-time vision requirements.



## What the CVD Changes

-  **Integrated Infrastructure**  
Vision becomes part of a secure, automated, and manageable network architecture.
-  **Network-delivered power and timing**  
High-power (**PoE++**) delivery and time synchronization over the network.
-  **Validated deterministic performance**  
Network engineered to deliver **microsecond-level latency** for vision traffic.






CVD Benefits: integrated infrastructure, built-in security, cable/power cost reduction

# New CVD: Dual Fabric Architecture for vPLC and Manufacturing Applications




Modernizing industrial control with dual fabric architecture

## Reality in Plants Today

-  **PLCs on Factory Floor**  
Controllers traditionally deployed **locally near machinery**, increasing hardware footprint.
-  **High Reliability Needs**  
Control systems **require extremely reliable** and predictable network connectivity.
-  **Centralization Risks**  
Centralizing PLC logic increases the potential **blast radius** of failures.



## What the CVD Changes

-  **Dual Fabric Architecture**  
Architecture designed to host virtualized PLCs and **preserve Layer 2 connectivity**. (VXLAN component of SDA)
-  **Local-Like Connectivity**  
Network design delivering **low-latency** performance indistinguishable from local PLCs. (High performance network)
-  **Validated Resiliency**  
Proven resiliency models designed specifically for virtualized automation systems. (PRP for **zero loss**)



Benefit: adopt virtualization with confidence, reduce downtime, reduce cost

**Thank you**

