The bridge to possible

Wireless Technology

For Manufacturing

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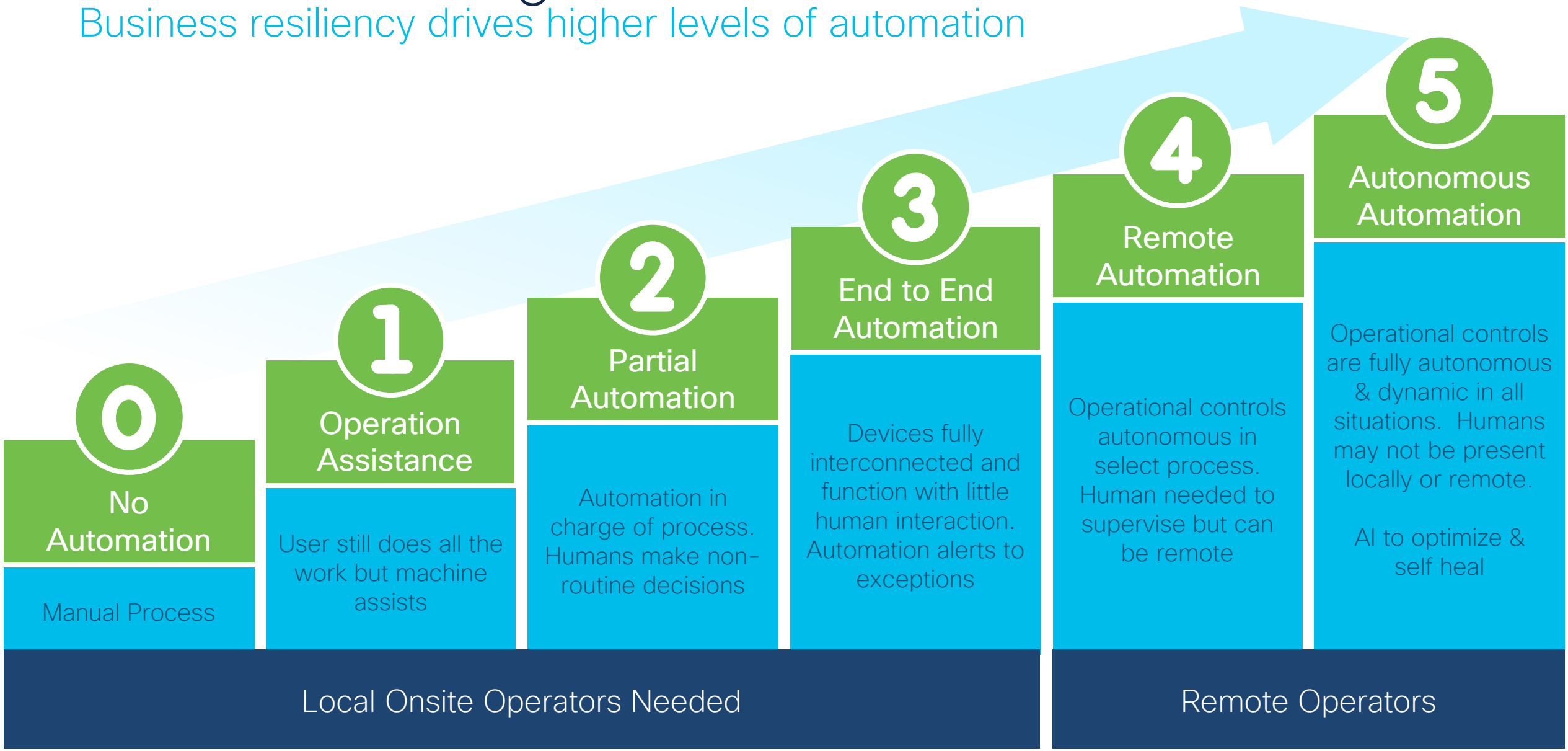
December 2021

Automation brings benefits

Business resiliency drives higher levels of automation



Industry and use-case driven technology selection criteria


MFG


Transportation


Mining


Utilities


Roadways

Customer use case:

AGV/AMR, train to trackside, autonomous mining, remote crane operations

1

What are the devices to connect?

Devices

2

What are the applications requirements?

Resiliency

3

Deployment Scenarios?

Deployment

4

What are the potential technology options?

Technology

5

What are the CapEx and OpEx Implication?

TCO

Multi wireless access – better together!

Cellular, CURWB and Wi-Fi 6 are complementary technologies – always be searching for better together

Cellular/LoRaWAN

Broad geographic coverage

Wide Area Coverage

Process Automation

CURWB

Zero loss – sub ms latency and seamless roaming

Mission Critical Applications

Industrial Robots

Fixed Backhaul

WiFi 6 (802.11ax)

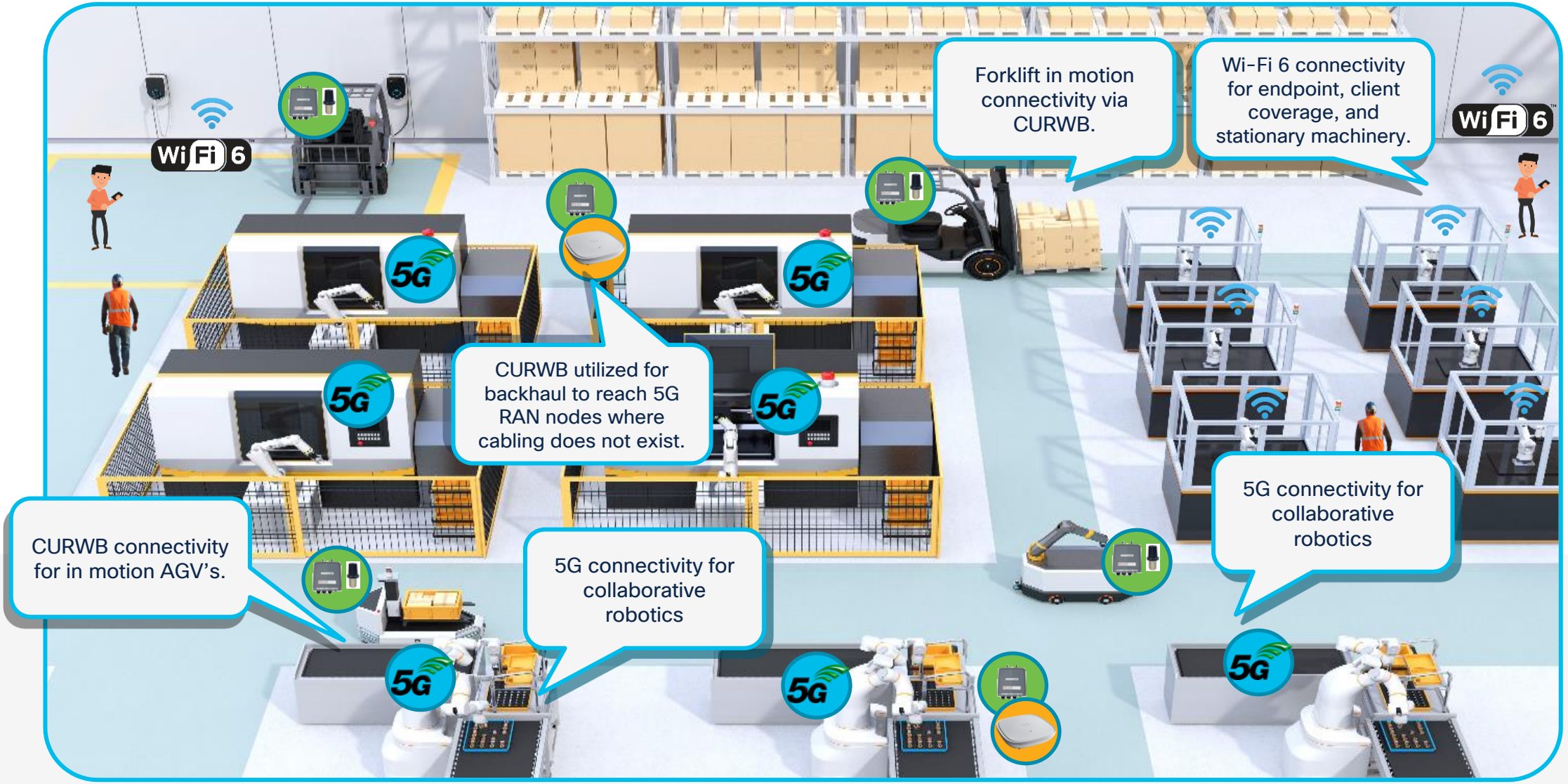
Applications focused on capacity, client density, mobility, “guest” access, BYOD

Remote Expert

Digital Campus

Performance | IOT Scale | Capacity | Security

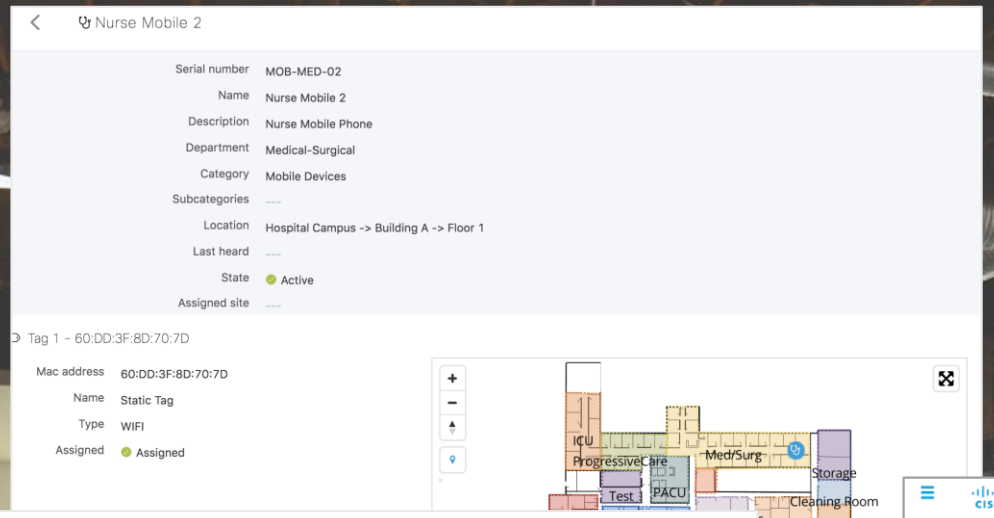
Multi-access wireless examples in manufacturing

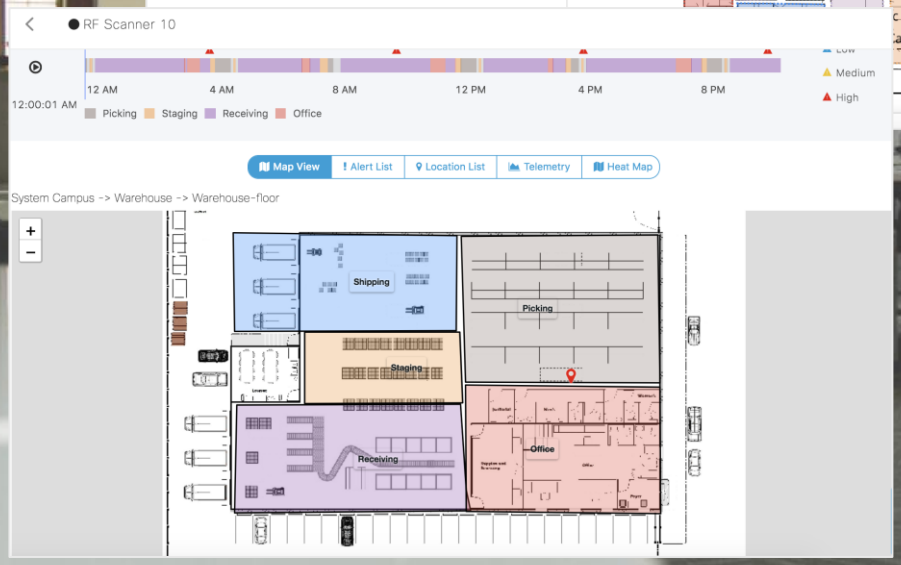


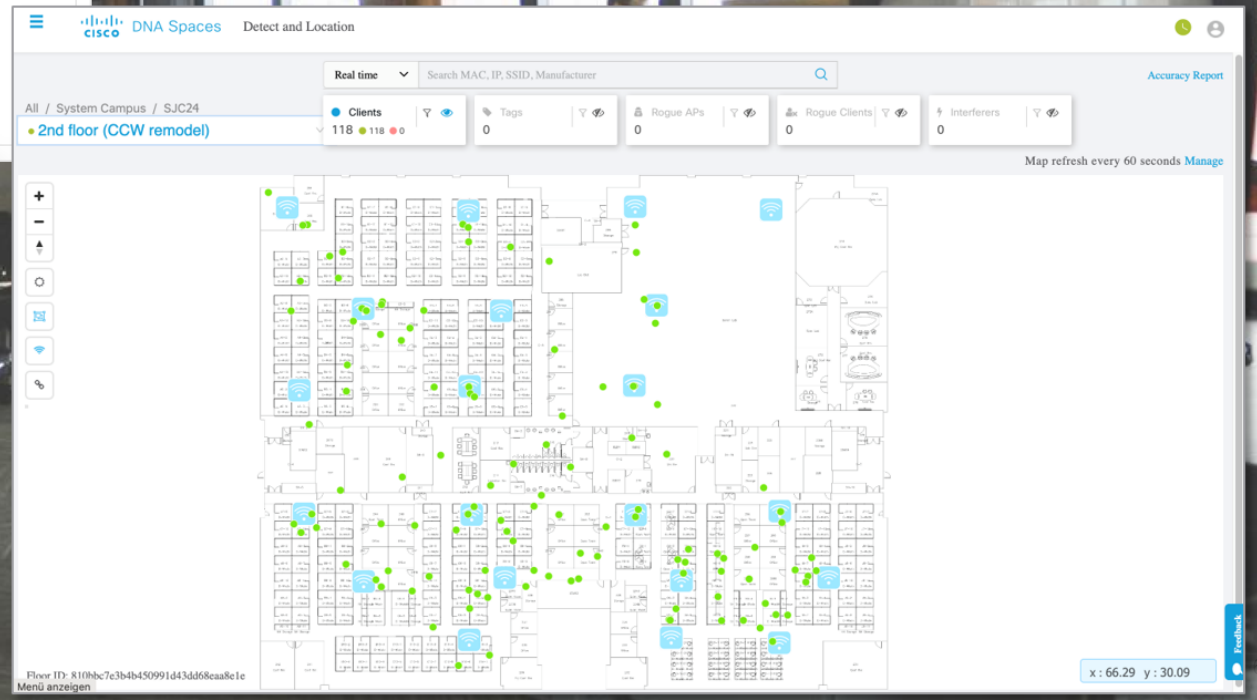
WiFi Location Services: Asset Locator

Asset Locator

- Real-time tracking of digital (mobile device / laptop),and Wi-Fi-tagged physical assets
- Define rules for asset location and utilization to alert staff of any unexpected movement or usage







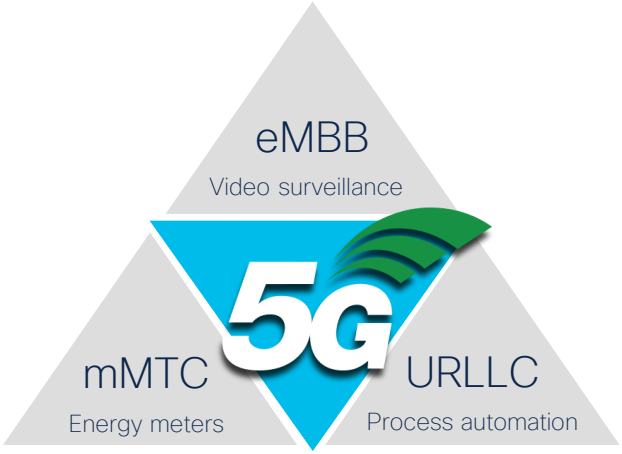
Enterprise 5G – 3 classes of service

Low latency services will drive maximum 5G demand in the near-future

5G services are optimized for latency, capacity and density

Mobile Broadband

High data rates, High traffic volumes



Massive IoT

Massive number of small devices, low energy

Low Latency

Ultra-high reliability & Ultra-low latency

URLLC and eMBB are most relevant in Enterprise

	uRLLC	eMBB	mMTC
Use Cases	Manufacturing, Industrial, Warehouses	Real Time Video, Carpeted Enterprise	Smart City, Sensors
Requirement	Optimized for Latency: 1ms Latency; 99.999 Aval.	Optimized for Capacity: 10Gbps or more	Optimized for Density of devices: 1M Per km2
N/W Needs	Timing, QoS, UPF flexibility	Bandwidth, UPF flexibility	Timing, Bandwidth

7

Cisco Wireless Backhaul's unique capabilities

1. Your own network
2. Ultra-low latency
3. Ultra reliable
4. High performance
5. Fast mobility

Private mobile network, custom-made to your needs

Native TCP/IP technology

IP

Easy to deploy, use and manage

Ultra-Low Latency

<10ms

Tested up to

350 km/h

no packet loss during handoffs (make before break)

Self-healing network

99.999%

availability

up to

500 Mbps

dedicated bandwidth

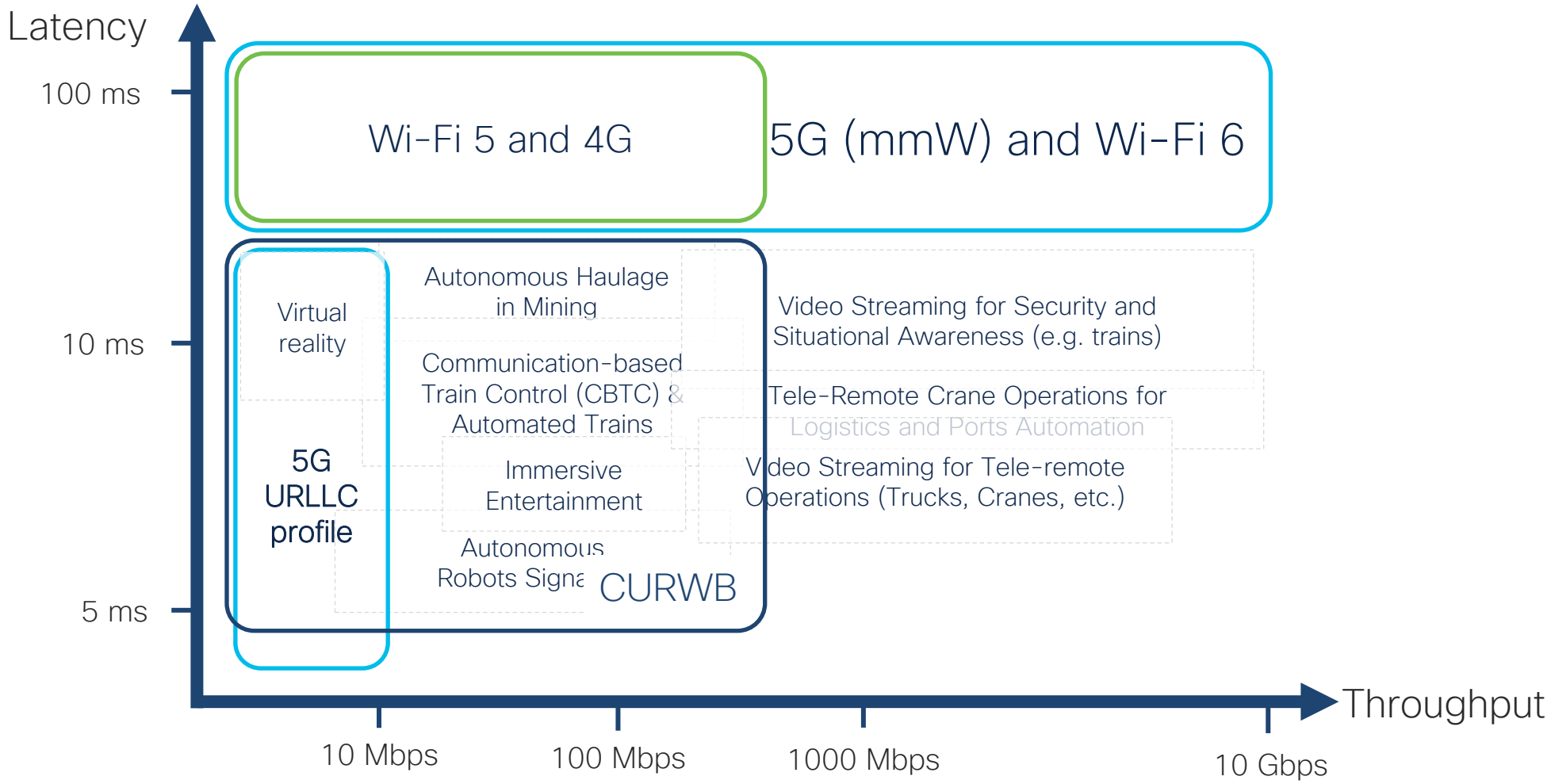
$ 0

no service provider subscription

Unlicensed spectrum

Cisco Ultra-Reliable Wireless Backhaul

The only option for low latency, high throughput applications



CURWB factory AGV solution

Reducing downtime with **0ms roaming**

Largest plant in the North America

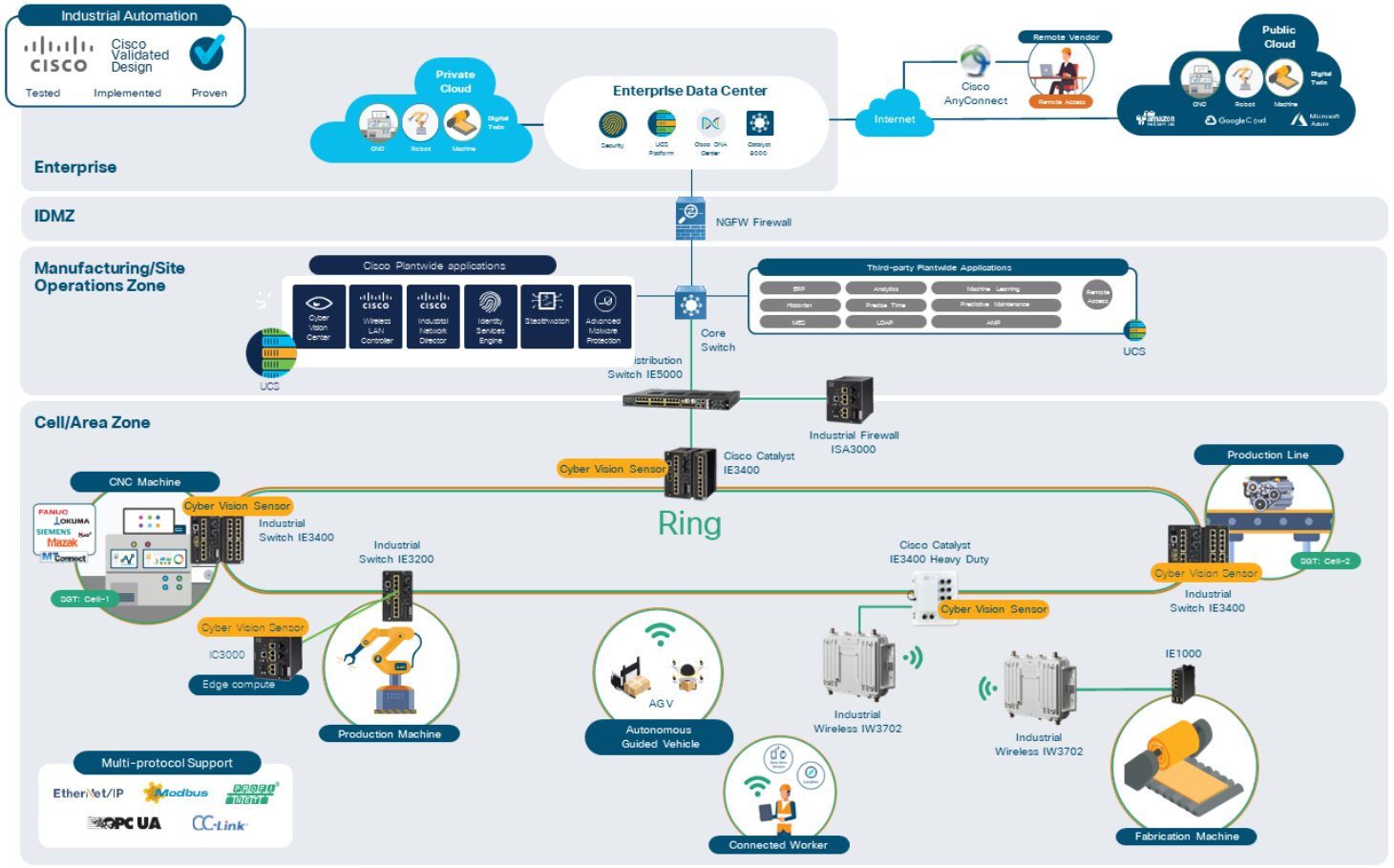
- ✔ 640,000 vehicles annually
- ✔ 7,250 employees
- ✔ 6 vehicle models
- ✔ **6 million square feet**
- ✔ 884-acre location
- ✔ $7.1B Invested

Automotive Manufacturing in US

- Customer wanted to reduce the factory downtime by enabling consistent and automation with low latency **connectivity to their AGVs.**
- CURWB will be deployed across the 6 million sq ft. plant enabling mission critical applications in harmony with traditional WiFi access.

Industrial Automation 2.5 CVD

Reduce cyber threats for production with integrated Cisco Cyber Vision



Proven to work with: Rockwell Automation, SIEMENS, Schneider Electric, MITSUBISHI ELECTRIC

Outcomes

- Improve OEE and asset utilization
- Reduce risk from cybersecurity threats

Use-Cases

- Resilient connectivity (wired & wireless) for IACS devices: sensors, actuators, and controllers
- Visibility of IACS devices and communication
- Plant & Cell-area zone security and segmentation
- Remote access to production assets

Unique Features

- Visibility and monitoring of IACS devices and communication with Cisco® Cyber Vision
- Expanded resiliency: REP-Fast on IE3x00
- Support for site-wide Precision Time Protocol (PTP)
- Consistent with enterprise networks (Catalyst 9300/9500)

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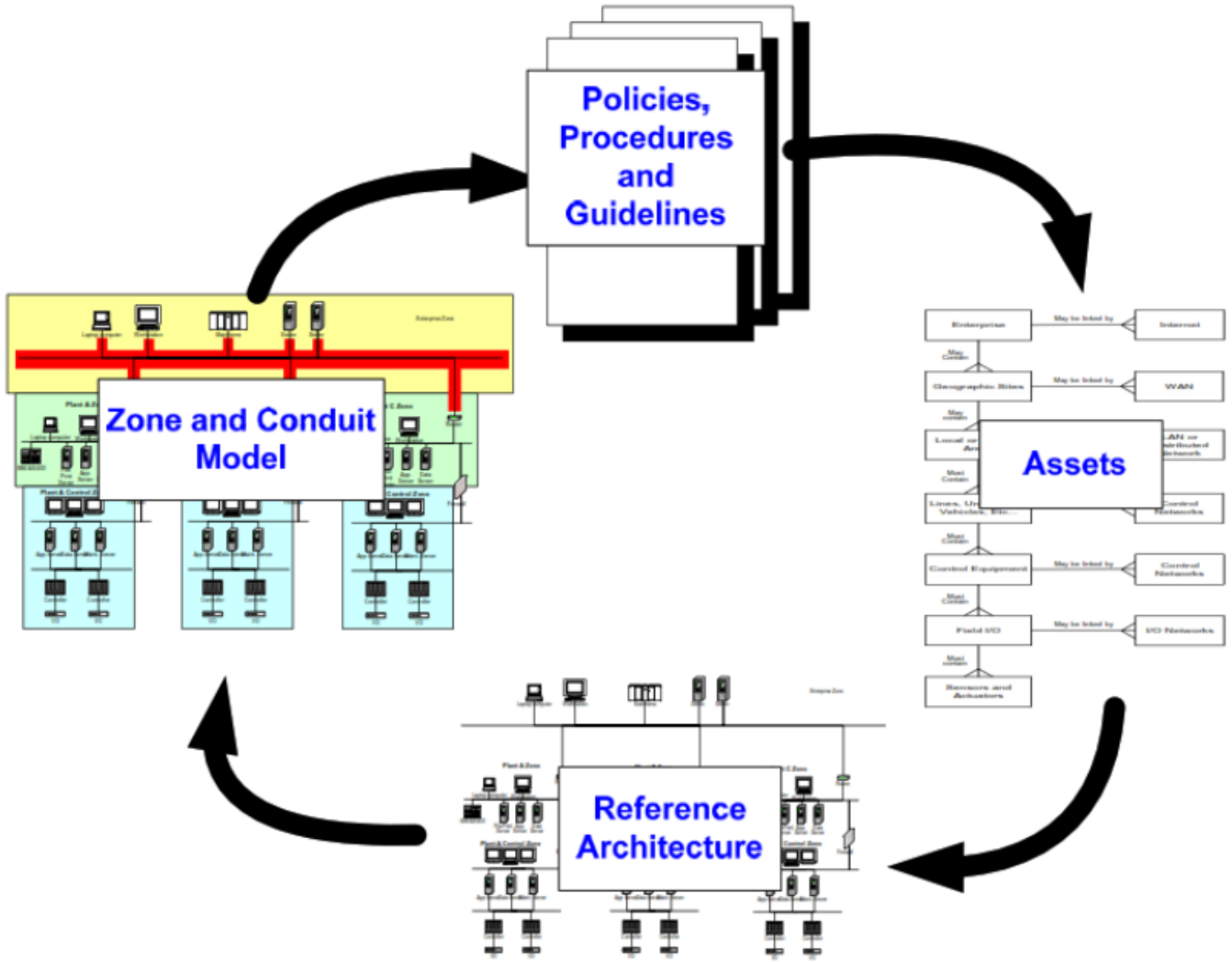
IEC 62443 Model Relationships



Foundation OT Security

New capabilities to secure industrial networks

Asset discovery

Identify all your industrial assets to build the right security strategy

Network segmentation

Isolate networks to build zones and conduits to avoid attacks to spread

Live threat detection

Detect IT intrusions and abnormal OT behaviors to maintain process integrity

Investigate and Respond

Gain a holistic view on security events to ease investigation & remediation

Gain visibility on your OT to build and enforce the right security policies

Building a converged IT/OT Security is a journey

Adapt objectives to limit complexity and align all stakeholders