

The background features a vibrant, multi-colored abstract design. On the left, there are overlapping, wavy bands of color in shades of orange, red, and yellow. On the right, a bright white light source emits a series of sharp, radiating lines in various colors, including blue, green, and yellow, creating a sunburst effect.

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Let's go

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The bridge to possible

Unleash the Power of Industrial IoT

Turn Your Remote & Mobile Assets into Super Heros
Using Your Cisco Network

Bryan Tantzen, Sr. Director, IoT Solutions
PSOIOT-1008

cisco *Live!*

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Cisco Webex App

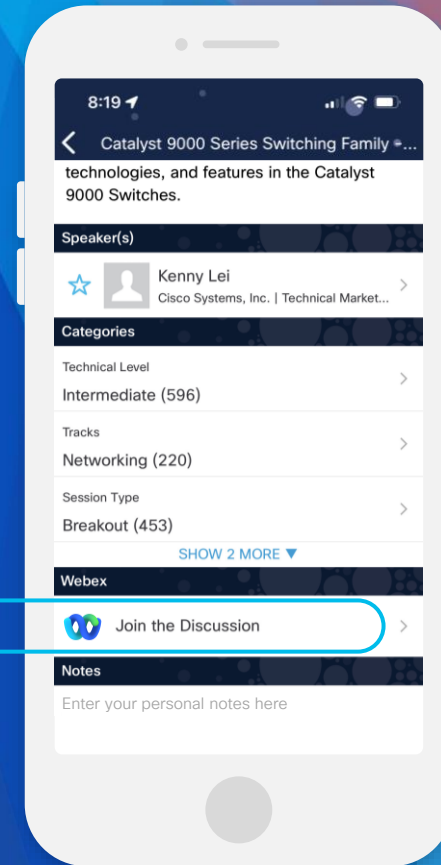
Questions?

Use Cisco Webex App to chat with the speaker after the session

How

- 1 Find this session in the Cisco Live Mobile App
- 2 Click “Join the Discussion”
- 3 Install the Webex App or go directly to the Webex space
- 4 Enter messages/questions in the Webex space

Webex spaces will be moderated by the speaker until June 9, 2023.



<https://ciscolive.ciscoevents.com/ciscolivebot/#PSOIoT-1008>

Agenda

- Cisco's IoT Strategy
- The Challenge: Connecting Remote Field Assets
- How to Turn Your Remote Assets into Super Heros!
 - Customer Examples

Industries are digitizing to accelerate business transformation



Increase agility



Drive efficiency



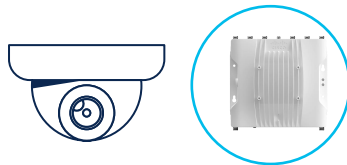
Reduce cost

Only Cisco can provide solutions to secure and connect businesses end-to-end



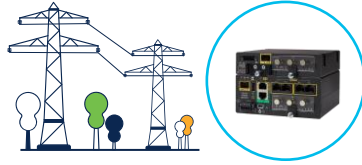
Field Asset Use Cases are Everywhere for Almost Every Company

Fixed Remote Assets



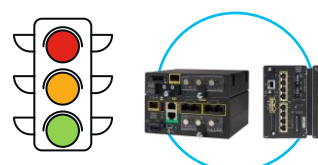
CURWB

Outdoor physical cameras in parking lots



IR1101

Utility distribution automation assets



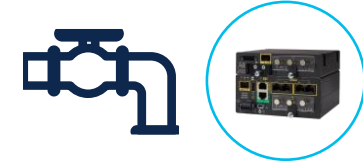
IR1101 and IE3K

Roadside cabinets for traffic management



IR1101

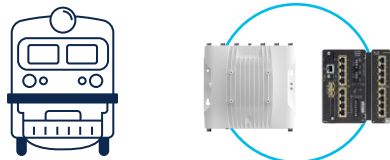
EV charging points, battery storage, renewable energy



IR1101

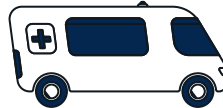
Remote fixed assets (e.g. water utility, pipelines, ATMs, Kiosks)

Mobile Assets



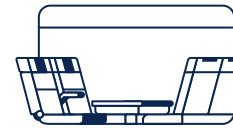
CURWB and IE3Ks

Passenger Trains
Autonomous Mining



IR1800

Fire responders (police, fire, ambulance)



IR1800

Mass transit



IR1800

Field service fleet

Remote Field Assets are where some of the biggest challenges are...

Typical IoT Problems



Complexity

- Numerous connectivity types for each use case
- Fragmented point solutions
- Difficult to scale due to multiple distributed sites



Cybersecurity

- Lack of visibility into connected assets and cyber risks
- Outside vendors accessing OT assets for remote operations



Lack of skilled resources

- Small IT teams in charge of massively distributed infrastructures
- Increasing dependency on IT
- Need to enable OT to be self sufficient

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Additional problems for Remote Assets:



High OPEX

- High operating costs from truck rolls to maintain and update
- Growing need for video for physical security and theft avoidance



Downtime

- Expensive, chronic, and frequent end customer impacting downtime
- Demanding outdoor ruggedization requirements



Mobility

- Oftentimes, remote and/or mobile assets have demanding throughput, performance and latency requirements

Increased safety and security risks | High risk of outages | Limited agility

Transform Your Remote Assets into Super Heros



From: Disconnected

- Cannot See
- Slow
- Weak: Cannot secure
- Not sustainable

To: Super Heros

- ✓ Unlimited Vision Across the Country
- ✓ Instantly Fix Problems Anywhere
- ✓ Block thousands of Cyber Hackers & Malicious Malware attacks
- ✓ Helping Save the Planet via Sustainability

The Extended Network to Transform & Connect Field Assets Needs...



Connectivity In Rugged environments

Designed for Rugged
Environments

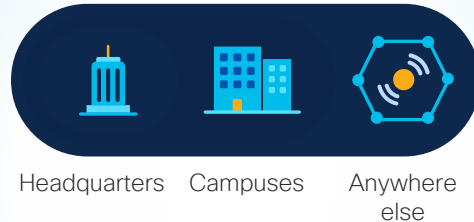


Fan-less self cooled operation
Shock and Vibration
Size, weight and form-factor



Automation Across IT/OT

Centralized Management

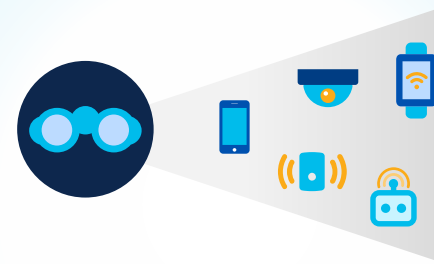


Centralized management
Scalable and repeatable operations
across the Entire Enterprise



Security and Visibility Identify, Locate and Set Policy

Simplified Security



Security and access policies
for IoT devices
Greater visibility into
diverse IoT device
Analytics and insights



Performance

Highly availability and
Reliability



High MTBF
Resilient operations
Meet Standards and compliance

We are the #1 industrial networking vendor

Our solutions meet the needs of IT and operations

Connectivity
In Rugged environments



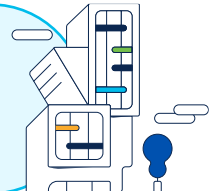
Cisco Catalyst
Industrial Networking



Industrial Grade
Purpose built for operations



Enterprise IT Grade
Leverage existing knowledge and investments



Connecting Remote ATMs

Ensure corporate network's security and management policies work seamlessly with remote ATMs

Challenges

- Ruggedized routing needed for ATMs
- Challenge is avoiding a siloed ATM network from the main bank's corporate network.
- Cyber security concerns
- Physical security concerns: need router with built-in GPS, and accelerometer to ensure ATM is in correct location and hasn't been pushed over

Solutions

- Cisco Catalyst IR1800 Rugged Series Routers
- Cisco DNA Center & ISE

Outcomes

- IT / OT Convergence: using same Cisco DNA Center on both IT corporate network side and for managing
- ATMs
- Strong Cybers Security capabilities with Cisco's security solutions, including ISE
- Simplified management: Dynamic ACLs to push ACL config from ISE to IR1800



Extended Enterprise **Solution**

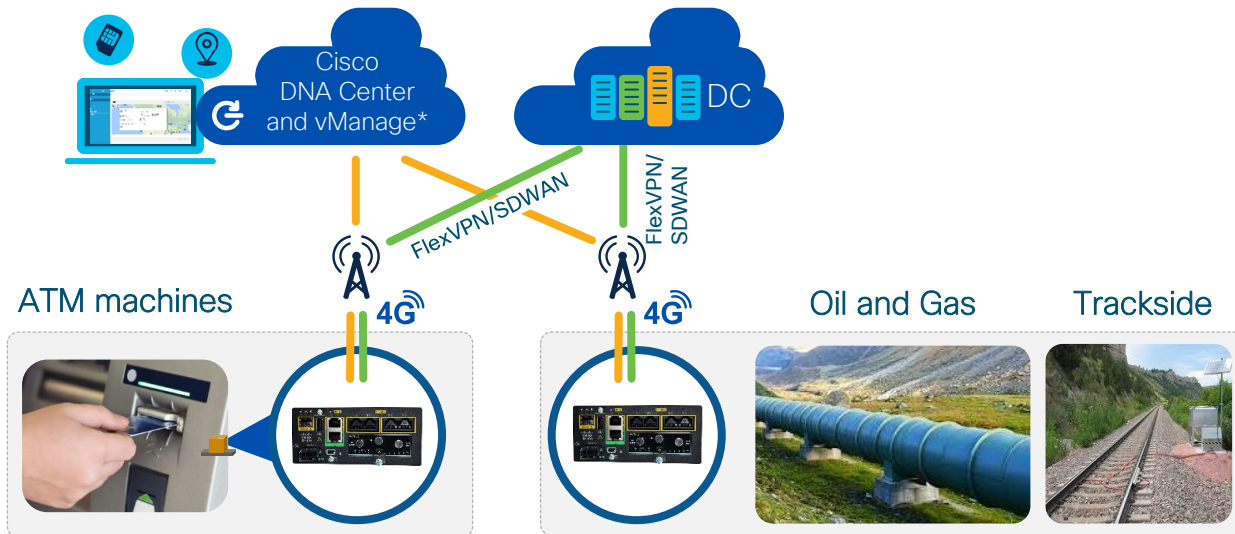


Catalyst IR1101



Catalyst IR1800

Secured financial transactions and assets



3 Key Benefits



IoT Routers provide high availability and connectivity in remote locations with multi-access technology



Easy to provision and scalable solutions with common management platform such as DNAC



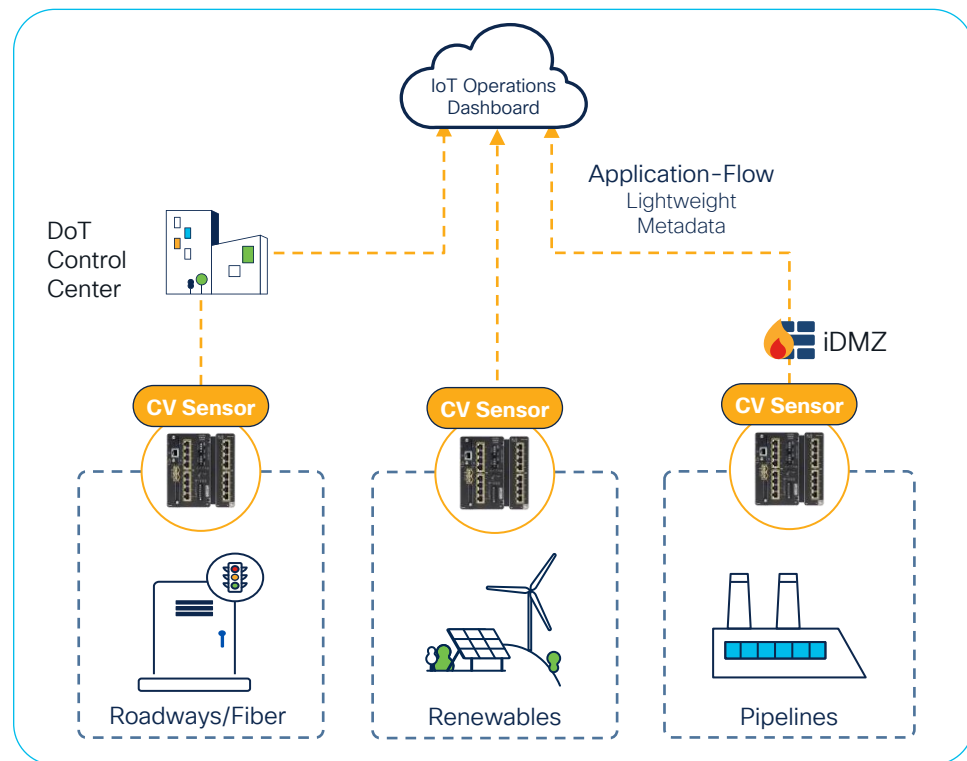
Extend enterprise level security to harsh environments with extensive compliance certifications

Cyber Vision service

Visibility into your operation's security posture

Your Cisco IE switch sees everything that attaches to it

Planned for Q2 FY24



- ✓ No On-Prem Center hardware to maintain; Lower TCO
- ✓ Higher Scale. Not limited by server resource constraints
- ✓ 2-Tier architecture; No Global Center; Multiple sites in one dashboard
- ✓ Get features faster with monthly updates
- ✓ Asset Visibility & Vulnerabilities features at GA
- ✓ Roadmap to bring additional on-prem features to the cloud

Lower TCO with the scale and simplicity enabled by a cloud delivered security service

Cyber Vision for Roadways

Large US state DOT customer



Cybersecurity

Challenges

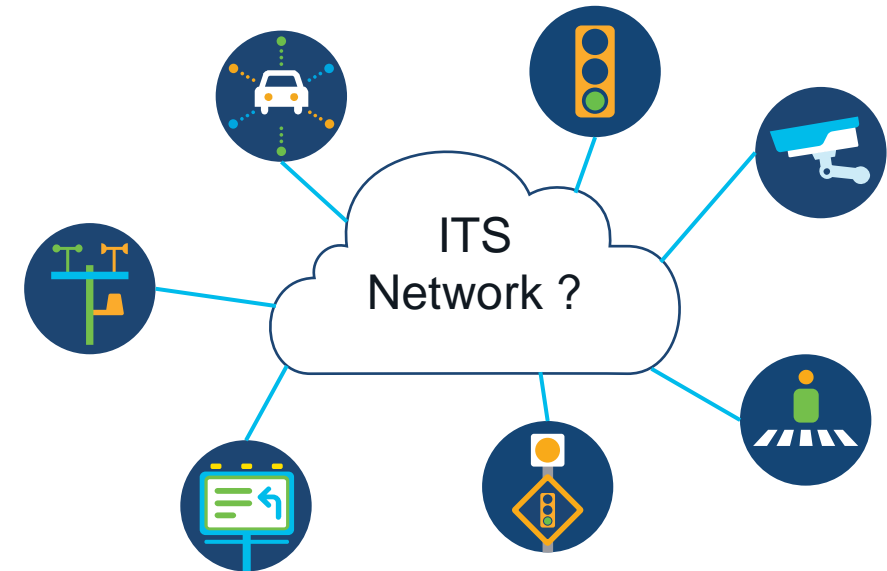
- Cyber security risks: recognition roadside network a security exposure as neither IT nor OT teams had clear picture of what was connected to network
- Disparate, hard to manage networks: Need common security architecture across cellular routers and fiber switches

Solutions

- Cisco Cyber Vision

Results

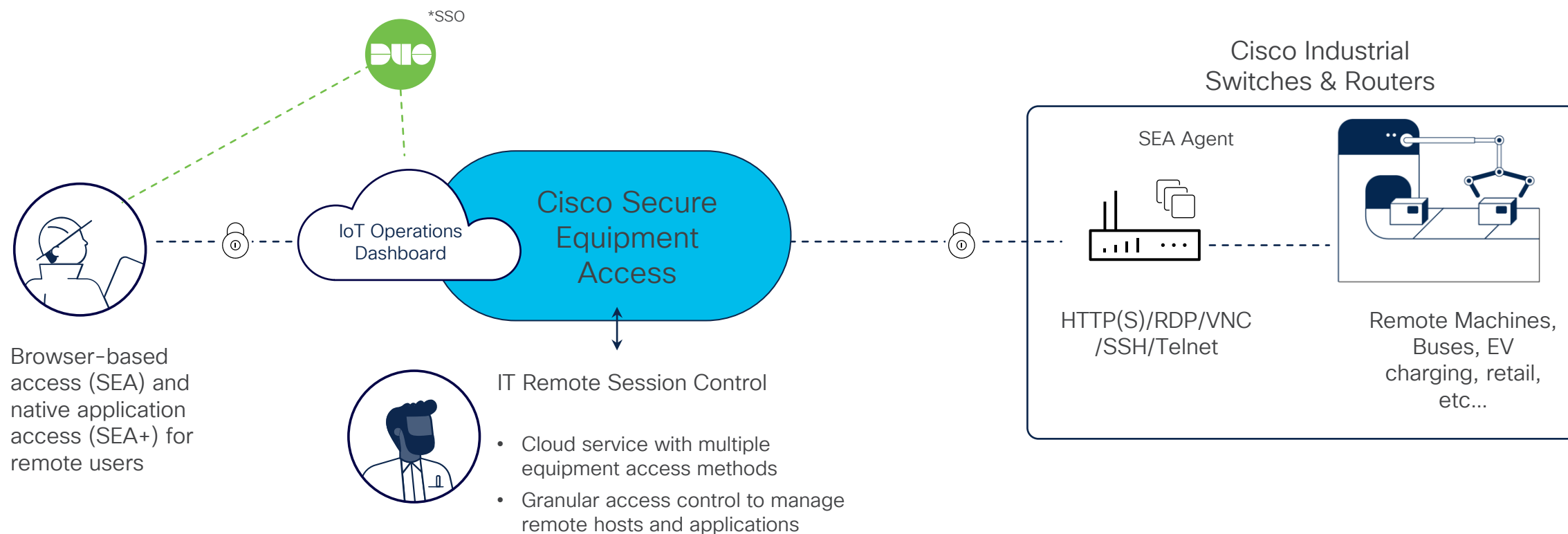
- Cisco team showed Cyber Vision could get visibility into OT network without impacting operations
- Committed to **deploy Cisco Cyber Vision state-wide for monitoring more than 300K+ roadway devices!**



Secure Equipment Access service

Secure remote access for all connected assets

Easily enable operations teams to securely maintain connected assets and manage access



Reduce truck rolls, speed issue resolution, and keep employees safe

Connecting Small Retail

Optimizing energy usage



High OPEX

Challenges

- Connecting sensors in thousands of small retail stores to optimize energy costs
- Being able to remotely and securely update, monitor, & troubleshoot Energybox applications and devices thru the Cisco router

Solutions

- Cisco IoT Operations Dashboard with Secure Equipment Access (SER)
- Cisco Catalyst IR1101 Rugged Router with the ability to host 3rd party energy management software

Results

- Save \$10,000 per remote site per year With 3,000 sites = **\$30 million energy savings/year**
- Save \$350 per truck roll Secure equipment access avoids expensive upgrade/troubleshooting truck-rolls = **>\$1million savings/year**

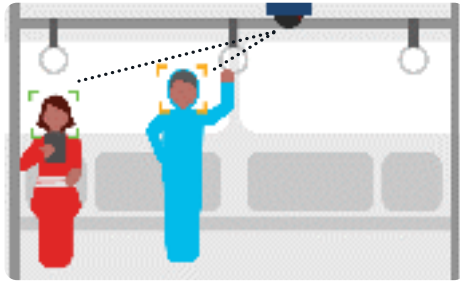


IR1800

Modular Trustworthy Platform



Passenger's experience
Wi-Fi6 AP
LTEAP/5G WAN



Physical security
IP cameras on GE LAN
with PoE video storage
on SSD



Dead Reckoning
GNSS/GPS, CAN bus



Enhanced operations
Ignition npower
management
CAN bus, Edge
Computing



Centralized
Management
SDWAN, IOT OD

✓ Wi-Fi 6

✓ LTE

✓ 5G



Device security, Network, security, cyber-security

Industrial wireless portfolio

Cisco Industrial Wireless Portfolio

Industrial and outdoor Wi-Fi and Ultra-Reliable Wireless Backhaul



IW6300
Hazloc Wi-Fi



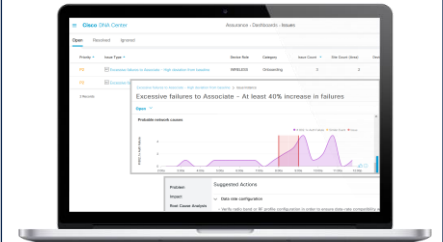
Ultra-Reliable
Wireless Backhaul



IW9167E
Cisco URWB &
Wi-Fi 6/6E-ready* AP



IW9167I
Wi-Fi 6/6E-ready* AP



Cisco DNA Center
(Wi-Fi)



ESW6300
Embedded Wi-Fi



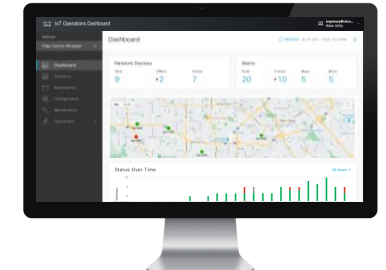
IW9165D
Cisco URWB



IW9165E
Cisco URWB &
Wi-Fi 6/6E-ready* client



IEC6400 Cisco Edge
Compute Appliance for
Large Cisco URWB
deployments



IoT Operations Dashboard
(Cisco URWB)

*Wi-Fi 6E subject to regulatory agencies' regulations and approvals.

Connecting Mass Transit

Resilient, secure connectivity to mobile field assets

Business Needs

- Deploy more passenger services, faster.
- Easier for mechanics to deploy and operate
- 2,000+ of assets, multiple routers, disjointed systems, weak cybersecurity

Solution

- Secure gateway with native edge compute
- Mechanic-friendly router with management
- Work Group Bridge in bus yard for bulk upload & updates

Result

- **Simple** transit operations, zero-touch
- **Scalable** & secure infrastructure for consolidated communications
- **Flexible** edge compute for apps



Port and Terminals Autonomous Vehicles

Near zero latency to mobile, automated field assets



Downtime



Mobility

Challenges

- Connect on-the-move Cranes, carriers, and other autonomous systems with higher reliability and uptime
- Expand capacity & reduce delays

Solutions

- Vehicle-mounted wireless radios with Cisco Fluidity for near zero latency wireless
- Built-in dual-radio solution for redundancy and to ensure high signal strength between vehicles and wayside

Results

- Increased network uptime from 75% to 99.99%
- Low latency and zero packet loss
- Achieved data speeds of 50–60 Mbps



Automated guided vehicles & mobile robots

Reliable connectivity for AGVs / AMRs

Challenges

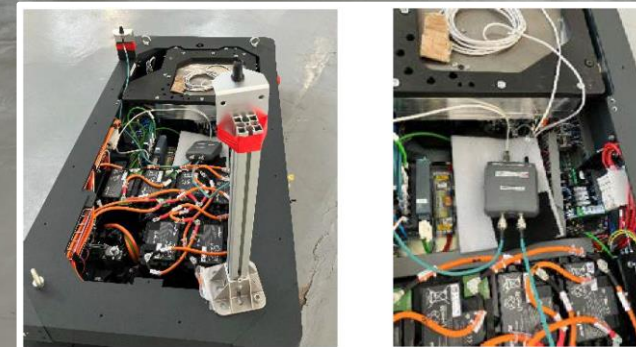
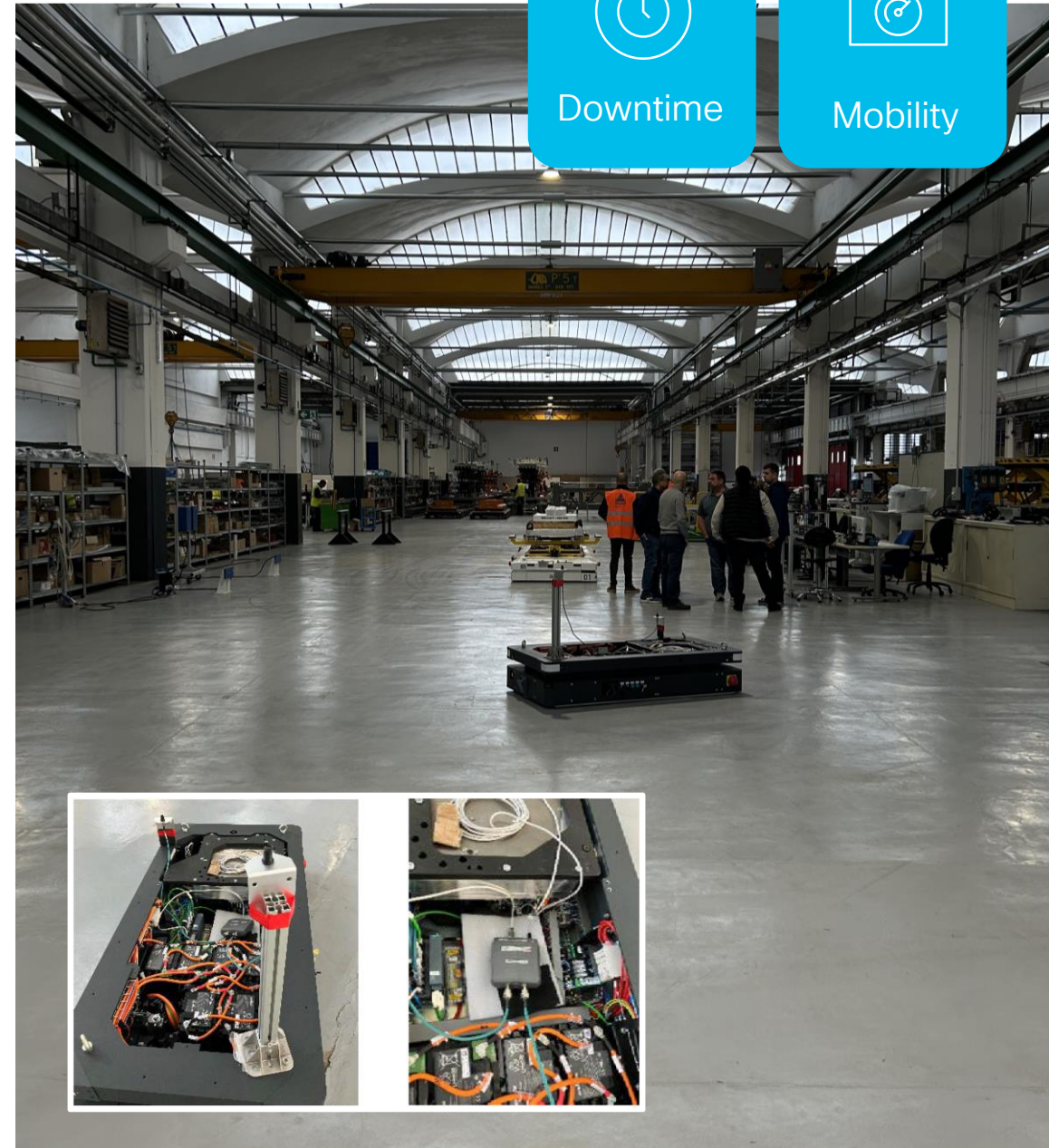
- Standardize on Cisco across the organization (IT & OT)
- Roaming and density issues when the AGVs are on the move
- Need for ultra-reliable communication to support on-board PLC control and safety
- Need easy-to-deploy solution to address tight project timeline

Solution

- Cisco® FM4500M on-board supporting Fluidity
- Future upgrade to IW9165E on-board, IW9167 (fixed)

Result

- Cisco Solution: 0.01% packet loss, 1ms average latency, 1.3ms jitter
- Competitor solution: 1% packet loss, 40ms avg. latency, 70ms jitter



Bringing simplicity and scale for IT and operations teams

Cloud-delivered OT services on IE switching or routing through IoT Operations Dashboard

- Secure Equipment Access
- Cyber Vision
- Edge Intelligence



Cloud-delivered OT services



Cisco Catalyst IR1101 Rugged Series routers

Cisco Catalyst IR1800 Rugged Series routers



Cisco Catalyst IE3400 Heavy-Duty Series switches



Cisco Catalyst IE3400 & IE3300 Rugged Series switches



Cisco Catalyst IE9300 Rugged Series switches

Cloud-driven simplicity and scale for IT and operations teams can now be used in more industries



IT + OT partnership is key to success

The time to extend the enterprise is now



Digitize your
operations in the
ruggedized
space



Reduce costs by
increasing
productivity and
operational
efficiency

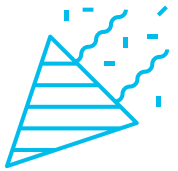


Enable IT to manage
the extended
enterprise



Achieve your
business goals

Fill out your session surveys!



Attendees who fill out a minimum of four session surveys and the overall event survey will get **Cisco Live-branded socks** (while supplies last)!



Attendees will also earn 100 points in the **Cisco Live Challenge** for every survey completed.



These points help you get on the leaderboard and increase your chances of winning daily and grand prizes

Continue your education



- Visit the Cisco Showcase for related demos
- Book your one-on-one Meet the Engineer meeting
- Attend the interactive education with DevNet, Capture the Flag, and Walk-in Labs
- Visit the On-Demand Library for more sessions at www.CiscoLive.com/on-demand



The bridge to possible

Thank you

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Cisco Live Challenge

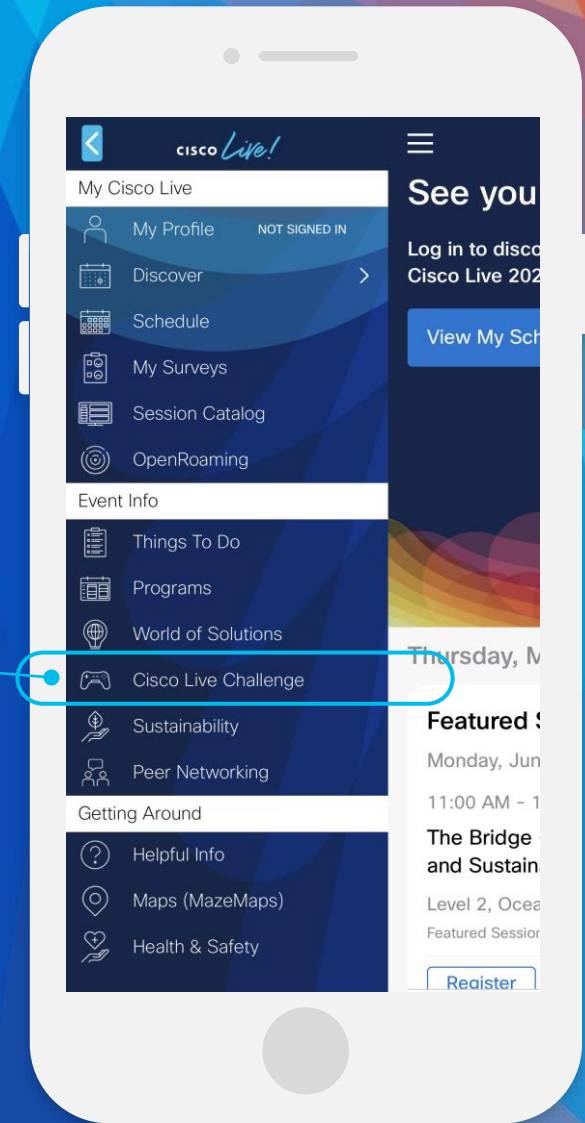
Gamify your Cisco Live experience!
Get points for attending this session!

How:

- 1 Open the Cisco Events App.
- 2 Click on 'Cisco Live Challenge' in the side menu.
- 3 Click on View Your Badges at the top.
- 4 Click the + at the bottom of the screen and scan the QR code:



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