No Fiber? No Problem!
Connecting Meraki cameras anywhere with Cisco Ultra-Reliable Wireless Backhaul

March, 2022
Agenda

• Introduction
• Update on Video Surveillance market
• Meraki cameras
• Simple, wireless backhaul leveraging Cisco Ultra-Reliable Wireless Backhaul (CURWB)
• Demo
• Cost benefit analysis
The need for Video Surveillance is increasing

CAGR of 10.0% from 2021 to 2026

92% of Physical security buyers said it is of greater strategic importance now than it was before the pandemic

In the United States the number of surveillance cameras will reach 85 million, up 10 million from the previous year.

But challenges remains:
- The average cost of laying fiber is about $27,000 per mile
- For a building looking to get wired, costs can reportedly range from $1 to $6 per ft.
MV development principles

- Cost reduction through architectural SIMPLIFICATION
- Operational simplification through AUTOMATION
- Business value through INTELLIGENCE
Cutting-edge architecture

EASY ON THE NETWORK
Less than 50kbps upstream bandwidth per camera when not watching video

ACCESS ANYWHERE
View locally, or view remotely via cloud proxy streaming, from the Meraki dashboard

SMART PROCESSING
Video is analyzed on camera, motion indexed in the cloud, improving search and analytics
Use cases

Retail
MV
- Fraud Alert (Returns)
- Conversion Rate Measure
- Suspicious Person Alert
- Theft Alert
- Heatmapping
- Demographics & PPL Count
MT
- Refrigerator Sensors
- IDF Closet Sensors
- Intrusion Sensors

Healthcare
MV
- Slip and Fall Detection/Alert
- Aggressive Behavior Alert
- Suspicious Person Alert
- Theft Alert – high value pharma
- Heatmapping
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Manufacturing
MV
- Slip and Fall Detection/Alert
- Aggressive Behavior Alert
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Financial
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How do we connect them?
No single connectivity option can meet all needs

<table>
<thead>
<tr>
<th>Connectivity Option</th>
<th>Pros</th>
<th>Cons</th>
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<tbody>
<tr>
<td><strong>Cellular 3G, 4G, 5G</strong></td>
<td>• Medium-to high bandwidth, easy to deploy, long range</td>
<td>• High OpEX, monthly cost ($40–100/SIM/Month)</td>
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<td></td>
<td>• High bandwidth, unlicensed spectrum, broadly supported CPEs</td>
<td>• Delays with roaming handoff, prone to WiFi interference (dominant)</td>
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<tr>
<td><strong>LoRaWAN / WiSUN</strong></td>
<td>• Long range, great for sensors with small data payloads (&lt;1 Mbps)</td>
<td>• Low Power</td>
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<tr>
<td></td>
<td>• Low bandwidth</td>
<td></td>
</tr>
<tr>
<td><strong>802.11 Wi-Fi</strong></td>
<td>• High bandwidth, unlicensed spectrum, broadly supported CPEs</td>
<td>• Delays with roaming handoff, prone to WiFi interference (dominant)</td>
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<td><strong>Fiber or Wired Ethernet</strong></td>
<td>• Very high bandwidth, low latency</td>
<td>• Costly to deploy and construct, inflexible with design</td>
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<td></td>
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**Ultra-Reliable Wireless Backhaul**

- Proprietary Air-Interface, medium-long range, flexible deployment, re-deployable worldwide (unlicensed)
- High bandwidth (~500 Mbps), unlicensed spectrum (no licensed OpEx)
- 0ms roaming (Fluidity) Low latency (compared to other wireless architectures)
Wireless Backhaul Defined

- **Long range and high bandwidth connectivity**
  (up to 15 miles / 500 Mbps)

- **Fast and accurate handoff**
  (0ms handoff, up to 225 Mph)

- **Support for real-time sensitive traffic**

- **Support fixed and mobile architectures**
Enterprise industries require network connectivity outdoors

Cisco Ultra-Reliable Wireless Backhaul is utilized as a wireless replacement for fiber enabling CCTV and VoIP backhauls.
Is Cisco Ultra-Reliable Wireless Backhaul a robust solution?

Nuclear plant remediation
The dome of the structure is 108 metres high, 162 metres long and has an external span of 270 metres. 27 IP cameras for general view and monitoring

DOT traffic monitoring
Over 1500 radios, 350 intersections, 130 independent data networks.
Replaced the existing cabled solution. Approx. savings $600,000 in the initial roll-out and $20,000 per month on a recurring basis

Used in most challenging environments
Ad-Hoc deployments for multi-day event connections

Ocean race
12 in-shore regattas. 15+ racing boats
Main application: Live Video Broadcasting and Social Media

Extending Wi-Fi, IPTV, CCTV, PoS, and E-TEL
Temporary deployment
Leicester Diwali

Source: https://www.visitleicester.info/diwali

This week we have installed 13 temporary cameras to monitor the crowds at the Leicester Diwali lights switch on celebration. Using Fluidmesh wireless point to multipoint kit. #Fluidmesh #diwali #crowdmanagement #eventsafety

Source: LinkedIn

1x2 MIMO-based Ethernet radio, VOLO is designed for mission-critical video, voice, and data. VOLO is intuitive, easy to deploy, and can be used to create point-to-point, point-to-multipoint, mesh, and mobility networks with a real throughput of up to 150 Mbps.
City and college campus surveillance

• Extensive point-to-multipoint & wireless mesh system delivering connectivity for 80 cameras in park area on both sides of the river for events.

• Main application: live Video Surveillance. Network taken down and repurposed for various events
Secure industrial warehouses, distribution centers, and operational centers

Challenges
• Goods theft
• Vehicle accident

Cisco Solution
• Improved security
• Superior employee safety
• Theft prevention

Improve safety and security for people
Secure industrial warehouses, distribution centers, and operational centers

Challenges
- Parking video surveillance
- Cost of trenching fiber
- Lack of flexibility

Cisco Solution
- Improved safety
- Superior customer experience
- Theft prevention
- Smart parking enforcement

Improve safety and security to visitors
Swimming pool surveillance

Challenges
• Swimming pool video surveillance
• For security

Cisco Solution
• Improved safety
• Superior customer experience
• Theft prevention

Improve safety and security to users
The Solution
Outdoor safety & security monitoring solution
Meraki MV + IoT CURWB

MV Camera + FM Ponte Kit + Optional: Switch + AP

Simple & reliable solution:
Easy to deploy smart physical security cameras with ultra-reliable low-latency wireless connectivity

Faster cheaper deployment:
Analysis shows between 20% to 80% installation cost reduction due to elimination of road work for fiber connectivity when needed

Faster, cheaper, smarter reliable physical security deployment wherever you need it
Cisco Ultra-Reliable Wireless Backhaul
All in one, fixed network nodes portfolio making surveillance deployment seamless

**FM Ponte Kit**
- Wireless bridge kit consisting of 2 radios
- Ideal for video, voice and data backhauling
- **50 Mbps** with Ultra-Reliable Low-Latency
- Small camera deployment

**FM3200 Base Station**
- Point-to-multipoint base station
- Wide horizontal coverage antenna
- Up to **150 Mbps** with Ultra-Reliable Low-Latency
- Larger camera deployment

**FM1200 Volo**
- Fixed wireless networks
- Point-to-point, point-to-multipoint, and mesh
- Up to **100 Mbps** with Ultra-Reliable Low-Latency
- High-definition cameras

**Meraki MV Camera**
- On-camera storage and processing
- Centralized cloud management and viewing for anywhere access
- Built-in wireless simplifies install and deployment

The MV52 long-range bullet camera complements the current MV outdoor portfolio with high optical zoom capability, 1TB storage, 4k resolution
Typical design considerations
Major CURWB Design Consideration

Line of sight is #1 priority when implementing with zero obstruction
Sample Point-to-Point (PtP) solution
For clear video camera streaming

FM-Ponte 50 50 Mbps
Up to 3 miles PtP
Almost zero latency

HEADEND

MV-72

FM-Ponte 50

MV-72
Sample Point-to-Multipoint (PtMP) Solution
For video solution across multiple locations

FM-3200 Base

150 Mbps

< 5 Miles

HEADEND

FM-1200 Volo

MV-72

MV-72

MV-72
How does this look in a deployment?
Casino Use Case – Parking Lot Surveillance
Meraki MV connectivity – point to multi-point
Medical Center Use Case - Fixed Infrastructure

Mixed architecture
dCloud demo
dCloud demo: Meraki MV and Cisco Ultra-Reliable Wireless Backhaul instant demo

Meraki MV and Cisco Ultra-Reliable Wireless Backhaul Instant Demo v1

The timer below indicates the validity of your session. Please click View on the product you wish to use.

1h 59m 34s

http://cs.co/9005KOIND
$how me the money
Let’s Compare the costs
1 camera outside

Traditional fiber deployment
- Cost of fiber infrastructure per mile*: US$ 22,000.00
- 1 Meraki MV72 Camera with 3-year license: US$ 2,540.55

Total: US$ 24,540.55

MV + CURWB deployment
- 2 CURWB radios (Ponte bundle): US$ 2,126.83
- 1 Meraki MV72 camera with 3-year license: US$ 2,540.55

Total: US$ 4,667.38

Note: Fiber has less speed limitations. The most suitable choice will vary for the specific deployment. Fiber pricing can vary regionally, but CURWB will generally be 40–80% lower cost. Prices are US List Price, work with your Cisco AM on discounting.

* Assuming 1 mile of fiber. Network equipment & termination included
Let's Compare the costs
20 cameras outside

**Traditional fiber deployment**
- Cost of fiber infrastructure per mile*: US$ 22,000.00
- 20 Meraki MV72 cameras with 3-year license: US$ 50,811.00

**Total: US$ 490,811.00**

**MV + CURWB deployment**
- 23 CURWB radios**: US$ 49,334.61
- 20 Meraki MV72 cameras with 3-year license: US$ 50,811.00

**Total: US$ 100,145.44**

* Assuming 1 mile of fiber. Network equipment & termination included
** Assuming all connections are point-to-point, multi-point option will reduce costs

Note: Fiber has less speed limitations. The most suitable choice will vary for the specific deployment. Fiber pricing can vary regionally, but CURWB will generally be 40–80% lower cost. Prices are US List Price, work with your Cisco AM on discounting
Questions?

• Please e-mail ask-iot-amer-commercial@cisco.com