Igniting Digital Transformation Initiatives with Managed Wi-Fi 6 for Managed Service Providers

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Agenda

1. Market Overview
2. Meraki Cloud Managed Wi-Fi Solution
3. Cisco Catalyst Wi-Fi 6 with DNAC Solution
4. Call to Actions
Wireless is the primary access in the digital world

- 13 billion mobile devices connected by 2023\(^1\)
- 71% of total global IP traffic will be wireless by 2022\(^1\)
- Global mobile data traffic will increase 7-fold from 2017 to 2022\(^1\)

\(^1\)Cisco VNI Report 2020
The world has two dominant wireless access ecosystems in transformation today, Wi-Fi 6 and 5G, which are built on the same wireless foundation.

5G & Wi-Fi 6 wireless access are here ...
Wi-Fi 6 addresses the network capacity needs for future enterprise applications

- Improve network responsiveness
- Increase in network capacity
- IoT at scale
- Improved user experience

Support new applications & outcomes
- Enable next generation applications such as 4K/8K & AR/VR Video
- Up to 4x more throughput than 802.11ac
- Reduced latency and greater reliability with hundreds of devices per AP
- Samsung Galaxy S10 devices launched in 2019 support Wi-Fi 6

802.11ax/Wi-Fi 6 is much more than speeds and feeds
High growth: Wi-Fi 6 adoption megatrend

Total 105M Wi-Fi 6 APs will be deployed over next 5 years for enterprise. Number of Wi-Fi 6 APs will increase from 1.3M (4%) in 2019 to 33.6M (67%) in 2024.

Within next 5 years, total $34B enterprise Wi-Fi equipment market, within which Wi-Fi 6 will accounts for $22B, CAGR 33%.

Source: Omdia 2019
Market opportunity for service providers

Nine out of 10 enterprises want someone to manage their sprawling and increasingly WLAN estates, according to new Omdia primary research with enterprises in North America and Europe. This represents $18.5 billion in annuity revenues in 2020.

Source: Omdia
Cisco Wi-Fi 6 offers

Access Points
- Catalyst 9100
- Meraki MR 36/46/56

Access Switches
- Catalyst 9200/9300/9400 Series
- Meraki MS390
- Meraki MS450

Core/Agg Switches
- Catalyst 9500/960 Series

Wireless Controller
- Catalyst 9800 Series

Enterprise campus
Large public venues
SME
Distributed
Enterprise
Managed Wi-Fi service packages
Increasing MSP’s ARPU

WLAN Infrastructure Management
• Design and deploy Wi-Fi infra
• Device on-boarding
• Configuration
• Monitoring, fault management
• Support

WLAN Assurance Service
• Wireless assurance
• Network health monitoring/reporting
• Client experience and application performance monitoring/reporting
• Wireless sensor testing
• Proactive trouble shooting

Business Insights
• Location analytics
• Behavior metrics
• Captive portals
• Engagement
• Operational insight
Polling Question 1

What Wi-Fi access technologies that you are offering to your customers as managed Wi-Fi service today? (Select one or more that applies)

1. We offer managed Wi-Fi service with Wi-Fi 6 (802.11ax) APs
2. We offer managed Wi-Fi service with Wi-Fi 5 APs (802.11ac)
3. We offer managed Wi-Fi service with 802.11a/b/g/n APs
• Portfolio revamped with Wi-Fi 6 certified products

• Assurance made simple by Meraki Health

• Automate security for wireless
Meraki cloud managed Wi-Fi:
Enterprise grade, analytics, customer engagement

<table>
<thead>
<tr>
<th>Enterprise Grade Performance &amp; Security</th>
<th>Branded Splash Page</th>
<th>Powerful Network and Customer Analytics</th>
<th>Real-Time Promotions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fast, secure, multiple SSIDs, QoS for business critical, application, traffic shaping, firewall</td>
<td>Attract customers with branded splash pages and easy Facebook login. Meraki APs collect useful data from nearby smart devices.</td>
<td>Access real-time location data—number of visitors, traffic patterns, dwell time, etc.—with Meraki Dashboard.</td>
<td>Increase revenues and customer loyalty with personalized, location-based messages and offers.</td>
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</table>

Help business customers to compete and win in a digital world.
# Meraki cloud managed Wi-Fi 6 products

<table>
<thead>
<tr>
<th></th>
<th>High Performance</th>
<th>High Density</th>
<th>Ultra High Density</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indoor</strong></td>
<td>MR36 2 Stream, 4-Radio</td>
<td>MR46 4 Stream, 4-Radio, mGig</td>
<td>MR56 8 Stream, 4-Radio, mGig</td>
</tr>
<tr>
<td><strong>Outdoor</strong></td>
<td>*MR76 2 Stream, 4-Radio</td>
<td>*MR46E 4 Stream, 4-Radio, mGig</td>
<td>*MR86 4 Stream, 4-Radio, mGig</td>
</tr>
</tbody>
</table>
Meraki Wi-Fi 6 upgrade path

Wi-Fi 5
- MR33 2 Stream
- MR42 3 Stream Gig
- MR52, MR53 4 Stream mGig

Wi-Fi 6
- MR36 2 Stream
- MR46 4 Stream mGig
- MR56 8 Stream mGig

Ultra High Density
Ultra High Performance

High Density,
High Performance

High Performance
Meraki Wi-Fi 6 upgrade path (ext. antenna)

- **Wi-Fi 5**
  - MR84
    - 4 Stream, mGig
  - MR74
    - 2 Stream
  - MR42E/53E
    - 3 Stream/4 Stream

- **Wi-Fi 6**
  - MR86
    - 4 Stream, mGig
  - MR76
    - 2 Stream
  - MR46E
    - 4 Stream, mGig

**Rugged/Outdoor**
- High Density
- Performance Critical

**Rugged/Outdoor**
- High Density
- General Coverage

**High Density**
- Performance Critical
- Focused Coverage
DECODING COMPLEX WIRELESS ISSUES

I cannot connect to the wireless network

The wireless network is very slow at this location

Association/Roaming
Authentication
DHCP
DNS
RSSI
SNR
Data Rate
Channel Utilization
Latency
Meraki Health - service assurance made simple

EASY TO USE AND UNDERSTAND

Even if the problem area is known, understanding the issue is key and should be easy

RIGHT DATA, RIGHT TIME, RIGHT VIEW

Having the right data and context available is key to troubleshooting

FULL STACK ASSURANCE

Finding issues takes time. The Meraki platform now makes it easy to identify problem areas.
INTRODUCING

Meraki Health

Client Performance

Ability to gauge performance with the client’s view along with color coding to provide context.
INTRODUCING

Meraki Health
Access Point Performance

Ability to gauge performance with the Access Points’ view along with color coding to provide context.
Enhanced Application Recognition with NBAR support

DPI provides more visibility into 1400+ applications running on the network

Available only on Wi-Fi 6 APs with Firmware MR27.x+

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Automating security for wireless

- Trusted Access
- SecureConnect & Adaptive Policy
- Identity PSK
- Umbrella DNS protection
Identity PSK

Unique policies per group of IoT devices on a single SSID

Enabled with MR Devices

iPSK can now be used with either RADIUS based implementation or using Meraki Dashboard based on the use case.

iPSK with RADIUS was released with MR26.7
INTRODUCING

WPA 3

WPA3-Personal (aka SAE)
WPA3-Enterprise (192 bit encryption)
No OWE Support right now
INTRODUCING

Local Auth

Bring enterprise connectivity to devices without dependency on RADIUS

Ability to cache sessions if centralized authentication is needed

Support for EAP-TLS, EAP-TTLS and EAP-GTC

Support for certificate revocation
Adaptive Policy
Tag based identity and policy enforcement

- Utilize Security Group Tags to identify traffic source and destination
- Organization wide access control policy based on business intent
- Micro-segmentation
- Tags can be assigned via:
  - Static SSID mapping
  - Dynamic RADIUS response
  - Static IP Subnet to SGT mappings
- Supported on:
  - All Meraki 802.11ac wave 2 and Wi-Fi 6 MR APs
  - All Meraki MS390 switching platforms

Available with MR Advanced License Only
Umbrella integration

Cisco Meraki MR
- Business-grade Wi-Fi with optimal coverage and performance
- Business analytics and engaging guest Wi-Fi features

Integrated with Cisco Umbrella
- DNS security to stop phishing, ransomware and other malware
- Content filtering to protect users from visiting undesired web sites

Simple, Fast and Secure Wi-Fi
Customer value proposition

**Simple**
- A secure Wi-Fi platform that you don’t have to maintain and manage
- Single easy to use Dashboard to gain full visibility

**Secure**
- Integrated cyber security to protect all devices on the network
- Powered by industry leading threat intelligence
- Strong authentication and policy for secure segmentation

**Reliable**
- Enterprise grade Wi-Fi to address all use cases: indoor, outdoor, high density and high performance
- Ensure Wi-Fi service delivery with Meraki Health
- Automatic software and security updates

**Rich Business Insight**
- Use rich location analytics, application visibility and platform APIs to help your business resource planning, promote your brand and improve customer experience
Polling Question 2

What are the top management challenges of managed Wi-Fi services? (allow multiple choices)

1. To keep customer Wi-Fi network secure
2. Unified LAN/WLAN management
3. Wi-Fi devices on-boarding and visibility
4. Ensure network health, trouble shooting and proactive
5. Gain visibility of networks, devices and applications
6. Support guest access
7. Automatic AP provisioning
8. RF optimization
9. Access rich APIs to ease automation
10. Gain analytics from managed Wi-Fi infrastructure to offer new digital services
Cisco Catalyst Wi-Fi and DNA Center Update

- Catalyst 9100 APs
- Catalyst 9800 WLC
- DNA Center and DNA Space
Introducing Cisco’s next generation wireless stack

Catalyst 9100 Access Points
Catalyst 9800 Wireless Controllers
Cisco DNA Assurance
Cisco DNA Spaces

Resilient | Secure | Intelligent

With innovations in performance, security and analytics
New Cisco Catalyst 9100 series access points
Purpose built for Wi-Fi 6

<table>
<thead>
<tr>
<th>Model</th>
<th>Features</th>
<th>Antenna SKUs</th>
<th>Missions</th>
</tr>
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<tbody>
<tr>
<td>9105AX</td>
<td>2x2 + 2x2, MU-MIMO, OFDMA, Spectrum Intelligence, IoT ready, 1 x 2.5 mGig (WP)</td>
<td>Integrated or external</td>
<td>Ideal for small to medium deployments</td>
</tr>
<tr>
<td>9115AX</td>
<td>4x4 + 4x4</td>
<td>External</td>
<td>Mission critical</td>
</tr>
<tr>
<td>9117AX</td>
<td>8x8 + 4x4, MU-MIMO, OFDMA (only DL), Spectrum Intelligence</td>
<td>Integrated</td>
<td></td>
</tr>
<tr>
<td>9120AX</td>
<td>4x4 + 4x4, Cisco RF ASIC, Dual 5GHz, HDX, IoT ready, Application Hosting, 1 x 2.5 mGig</td>
<td>Integrated</td>
<td></td>
</tr>
<tr>
<td>9130AX</td>
<td>8x8 + 4x4 or 4x4 + 4x4 + 4x4, Tri-radio (Dual 5GHz + 2.4GHz), Cisco RF ASIC, Decrypted data packet iCAP, IoT ready, Application Hosting, 8 port Smart Antennas, 1 x 5 mGig</td>
<td>Integrated</td>
<td></td>
</tr>
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</table>

Cisco DNA Assurance with iCAP | Bluetooth 5 | USB | Integrated or external antenna SKUs
### 9120 and 9130 APs powered by Cisco RF ASIC

Embedded with superior analytics and security for mission critical deployments

Custom ASIC-based Software Defined Radio module For Full time Wireless Monitoring and Analytics.

<table>
<thead>
<tr>
<th>Zero-Wait DFS*</th>
<th>Dual Filter DFS</th>
<th>Clean Air</th>
<th>Off-channel RRM</th>
<th>FastLocate w/o Performance Impact</th>
<th>aWIPS/ Rogue Detection</th>
</tr>
</thead>
</table>
| • Remove 60s scan delay  
• High Density Area, Port Authorities | • Concurrent Dual DFS detection using two discrete chipset  
• Any High-Density Area | • Interferer Detection and Impact Analysis  
• Interference mitigation | • Dedicated Dual-Band Off-channel scanning  
• Improved Low Latency Application performance | • Offload Faster location update using RF ASIC  
• Beneficial on any location-based service | • Dedicate Security Radio Module  
• Mandatory feature for Enterprise Wireless Operation |
Bluetooth Low Energy (BLE) – Zigbee

All Catalyst APs have Dedicated IoT Radio – 9120AX and 9130AX are hardware ready for IoT applications by also supporting BLE, and Zigbee

**BLE**
Beacons, asset tracking, Way Finding

**Zigbee**
Home Automation, Lighting, telemetry for metering
Cisco Wireless APs are IoT Gateways
Cisco Catalyst next-gen wireless architecture

Catalyst 9800
Next Generation Wireless Controller

Built for Intent-based Networking | Powered by IOS XE | Deploy Anywhere

The Most Deployed Controller
RF excellence | Device ecosystem | Wireless assurance

A Modern Software & Hardware
High Availability | Programmability | Scale

Bringing together network leadership with RF innovation
Next-generation wireless infrastructure for any scale

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<tr>
<th></th>
<th>Up to 250 APs</th>
<th>Up to 1000 APs</th>
<th>Up to 3000 APs</th>
<th>Up to 6000 APs</th>
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<tbody>
<tr>
<td>Distributed branch and small campus</td>
<td></td>
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<tr>
<td>Medium-sized campus</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Large campus</td>
<td></td>
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Cisco Catalyst 9800 Embedded Wireless*  
100 APs, 2000 clients

Cisco Catalyst 9800 Embedded Wireless**  
200 APs, 4000 clients

Cisco Catalyst 9800-L  
250 APs, 5000 clients, 5 Gbps

Cisco Catalyst 9800-40  
2000 APs, 32,000 clients, 40 Gbps

Cisco Catalyst 9800-CL***  
1000 APs, 10,000 clients

Cisco Catalyst 9800-CL  
1000, 3000, or 6000 APs  
10,000, 32,000 or 64,000 clients

Cisco Catalyst 9800-80  
6000 APs, 64,000 clients 80 Gbps

Cisco Catalyst 9800-40  
1000, 3000, or 6000 APs  
10,000, 32,000 or 64,000 clients

*Supports Cisco FlexConnect® local switching only
**SD-Access only
***Cisco Catalyst 9800 for public cloud: Cisco FlexConnect only

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Management options

WebUI/Mobile App
- Mobile App for iOS and Android devices
- Feature rich, yet simple
- Use App to Deploy, Monitor and Manage
- Wizard driven provisioning flows

DNA Center
- Policy
- Automation
- Analytics

Standards Based Interoperability
- SDN Controllers
- CI/CD Tools
- NMS Systems

Wireless Controller

Intent-based Network Infrastructure
Cisco DNA Center Automation: journey map

**Day 0**
Network On-boarding
- Greenfield switch on-boarding
- Wi-Fi site planning & deployment
- AP Refresh

**Day 1**
Config & Operations
- Device Provisioning
- Wireless Rogue detection*
- Stack Wise Virtual (SVL)*

**Day 2**
Security & Optimization
- MRE based Security Advisory
- NetFlow/ETA enablement w/ Stealth watch

**Day N**
Patching and Maintenance
- Software upgrade using SWIM
- Application Policy
- Bonjour
- RMA
Cisco DNA Assurance: actionable insights

Right Place: Problem Isolation
- 360-degree contextual graph
- Everything as a sensor
- Event-driven telemetry

Right Time: Problem replication
- 14 days history: full context
- Predictive trends
- Proactive tests

Right Action: Problem resolution
- Step-by-step guided remediation
- Integrate with IT operations
Wi-Fi 6 dashboard

Identify Wi-Fi 6 Readiness for Client and AP

Measure Wi-Fi 6 benefits: Latency, Air-time Efficiency and Traffic Distribution
Device Ecosystem Program
Client-side perspective into DNA Assurance

1. Wi-Fi Coverage
Client Heatmap: Use client’s RF to draw coverage view
AP Discoverability: Identify key coverage holes on a floor using client’s RF view

2. Client Onboarding
Client-side forensics: Leverage client onboarding state machine failures to root cause issues

3. Client Roaming
Client-side forensics: Leverage client authentication failures while roaming to root cause issues

4. Client Classification
Device Type | SW-OS | Firmware version | Tx Power

Samsung Analytics

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Digitizing the physical space

Cisco DNA Spaces

See
how people and things behave on site

Act
on insights through digitization toolkits

Extend
platform capabilities to drive business outcomes

Digitizing Physical Spaces: People and Things
Cisco DNA Spaces delivers business outcomes leveraging Cisco network infrastructure

1. Operational Efficiency & Productivity
2. Improve Experience
3. Understand Behavior
4. Onboarding, Customer Acquisition & Loyalty
5. Extend and Integrate into Enterprise
6. Enhance IT Productivity
Social distancing
Density monitoring

Monitor the real-time clustering of devices to enforce social distancing at your airport, medical facility, or retail store

Prerequisites –
- Cisco AireOS or Catalyst wireless infrastructure
- Maps w/APs placed within Cisco Prime or Cisco DNA Center

Steps to Enable
1. Deploy Cisco DNA Spaces Connector
2. Add WLC to DNA Spaces Connector
3. Import maps from Prime Infrastructure or DNA Center
CALL TO ACTION

- Transform your managed WLAN with Wi-Fi 6
- Deliver rich value of WLAN services to your customers with integrated security, visibility, and analytics
- Visit Cisco Wi-Fi 6 solution portal and MSP portal for more information
Session Objective

• Key message: Wi-Fi 6 will be one of primary wireless access technology together with 5G for the digital transformation

• Huge market opportunity for MSPs - including both refreshing existing managed WLAN with Wi-Fi6 technologies and providing more value added services with assurance, security and analytics

• Cisco is #1 market leader as a Wi-Fi solution provider. Its rich Wi-Fi portfolio, including Meraki and DNA/Catalyst Wi-Fi 6 products, serve the needs of enterprise campus environment and simple distributed branch environment. It provides SPs with both SP hosted management or leverage Meraki cloud management.

• Demonstrate the success cases of service providers which have created services based on these two Cisco Wi-Fi solutions

• Call to action: Start on refreshing your managed WLAN with Wi-Fi 6 journey with Cisco/Meraki now.