



Moderní bezdrátová síť relevantní pro geeky, DevOps i business

Dominik Soukup – Technical Solutions Specialist

dosoukup@cisco.com

2021

Modern Challenges In Wireless



More devices



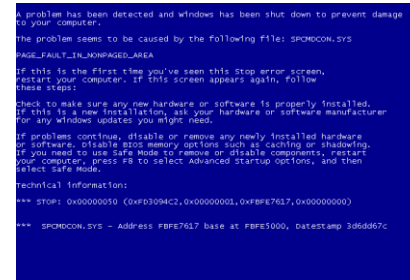
Enhanced experiences



IoT growth



Complicated Deployment



Complicated Management

Increasing Wi-Fi adoption

Cisco partners with major manufacturers to provide the best device experience



SAMSUNG



Microsoft



Best Wi-Fi 6 standards solution

- Client & network interoperability
- Maximize performance increase
- Consistent & Reliable
- Improved power efficiency

Differentiation through standards +

- Client network analytics
- A client-centric view to DNAC Assurance
- Improve Wi-Fi roaming
- Performance: 5x faster Wi-Fi & cellular handoff

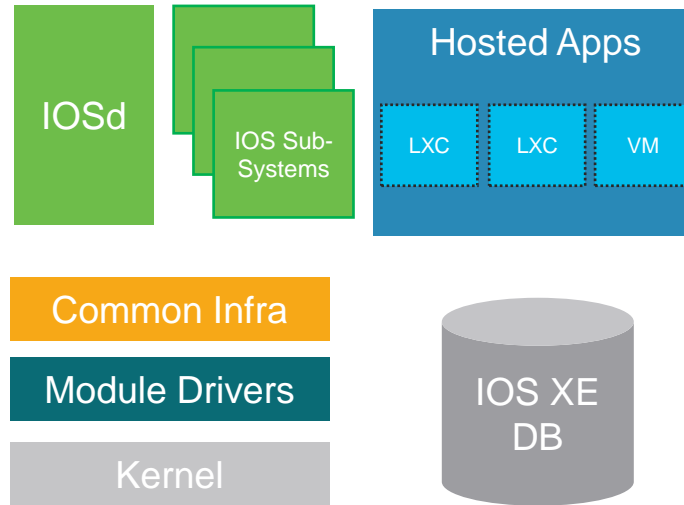
Open Partner Framework



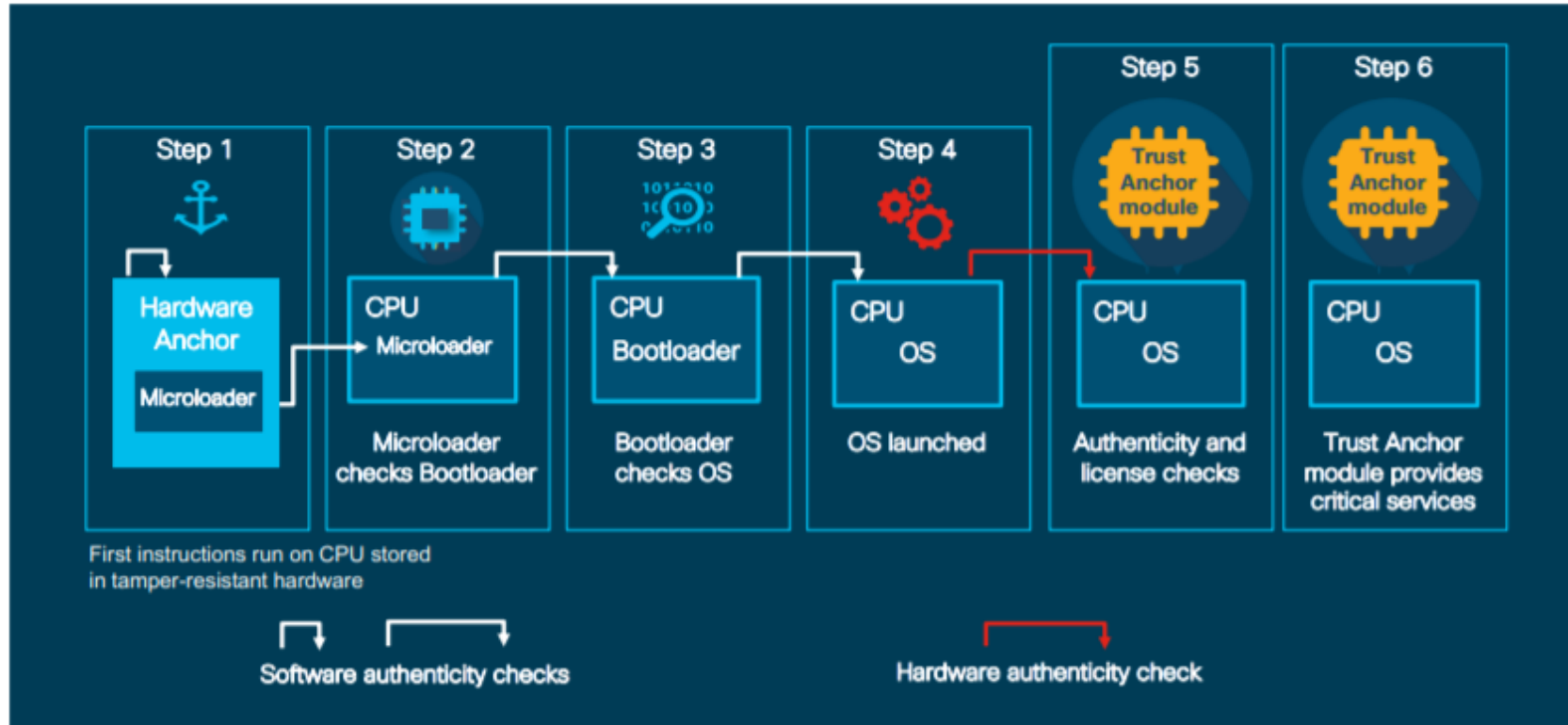
- Enable partners to integrate with Cisco autonomously
- Standards + features across multiple client devices
- TTM Differentiation
- Grow Wi-Fi market

© Rectangular Snip

Modular, Open, Flexible OS

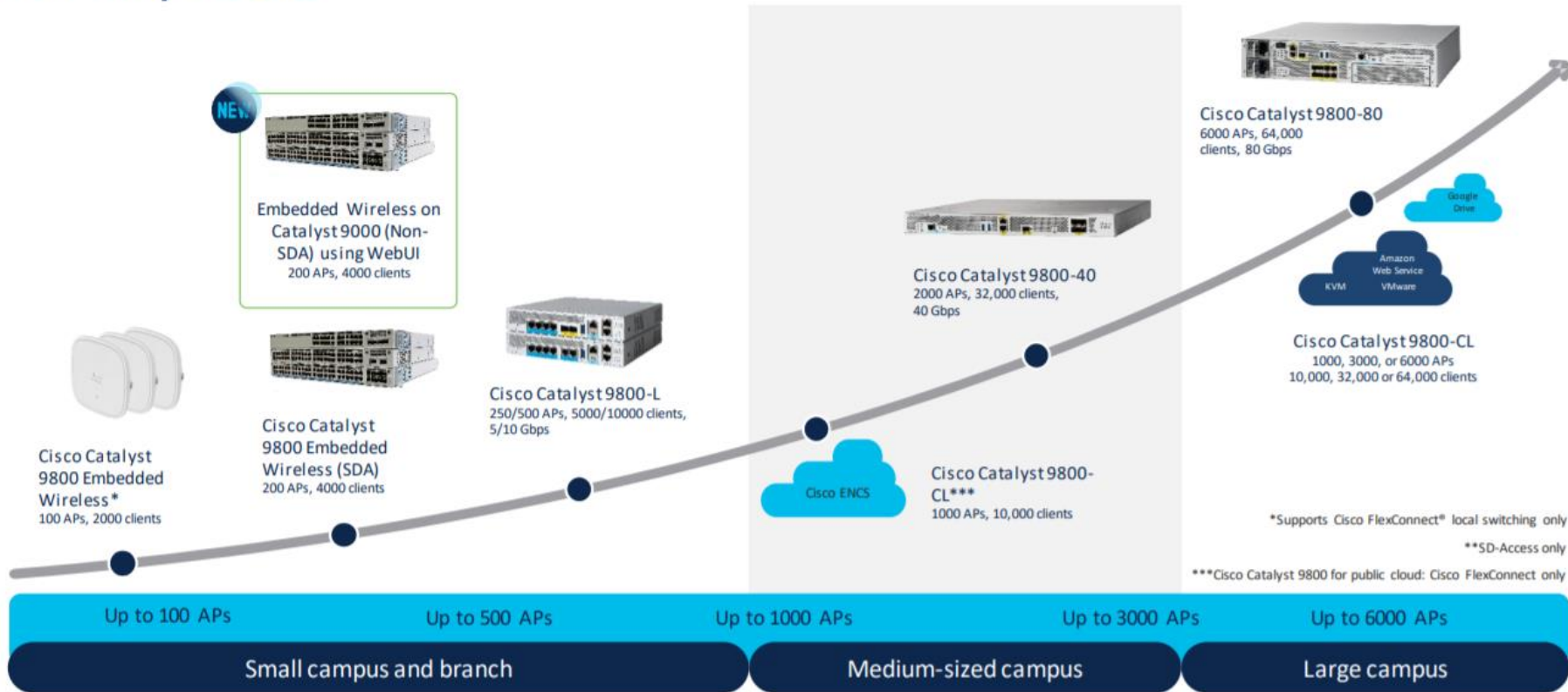


Trustworthy systems built with Cisco Trust Anchor Technologies



Catalyst Solution

Next-generation wireless infrastructure for any scale



New Cisco Catalyst 9100 Series Access Points

Purpose built for Wi-Fi 6

Ideal for small to medium deployments

Mission critical

Best in Class



9105AX

- 2x2 + 2x2
- MU-MIMO, OFDMA
- Spectrum Intelligence
- IoT ready
- 1 x 2.5 mGig (WP)



9115AX | 9117AX

- 4x4 + 4x4 | 8x8 + 4x4
- MU-MIMO, OFDMA (only DL)
- Spectrum intelligence
- 1 x 5 mGig



Powered by
Cisco RF ASIC

9120AX

- 4x4 + 4x4
- Cisco RF ASIC
- Dual 5GHz, HDX
- IoT ready
- Application Hosting
- 1 x 2.5 mGig



Powered by
Cisco RF ASIC

9130AX

- 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

Cisco DNA Assurance
with iCAP

Bluetooth 5

USB

Integrated or external
antenna SKUs

EOS 9117 Announcement

October 30, 2020

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with iCAP

Bluetooth 5

USB

Integrated or external
antenna SKUs

Catalyst 9105AXI

9105AXI – Front



9105AXI – Mechanical: 5.9 x 5.9 x 1.2 in.

9105AXI – Back



This AP uses AIR-AP-BRACKET-8=

Catalyst 9105AXW - Wall plate



Kensington lock

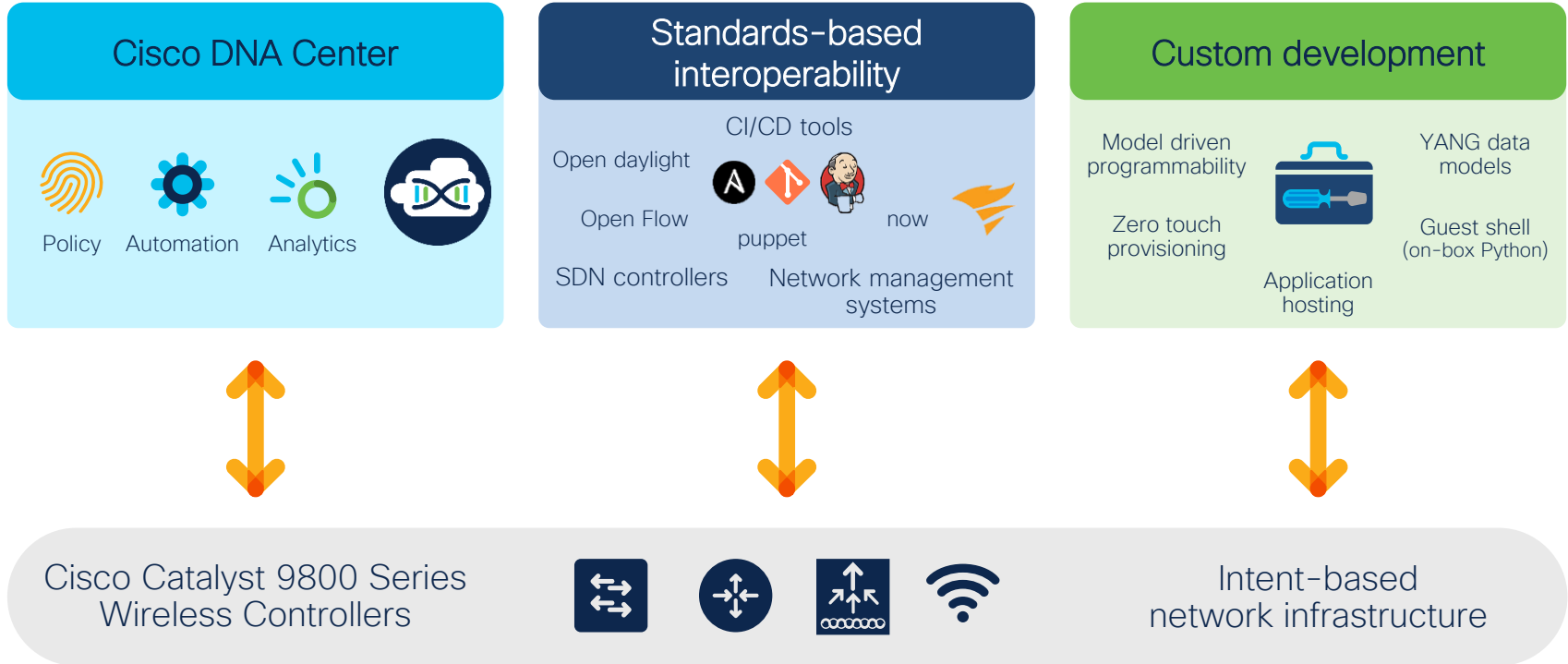
9105AXW - Front/side



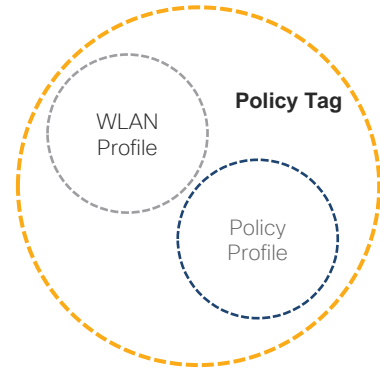
9105AXW - Front/other side (USB)
Uses AIR-AP-BRACKET-W4=

9105AXW - Mechanical: 6.3 x 3.5 x 1.3 in.

Flexible management options with Cisco Catalyst 9800 Series Wireless Controllers



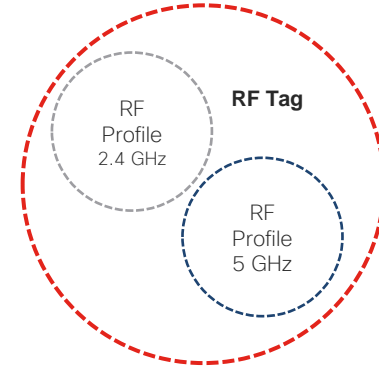
Cisco 9800 Catalyst 9800 Config Model



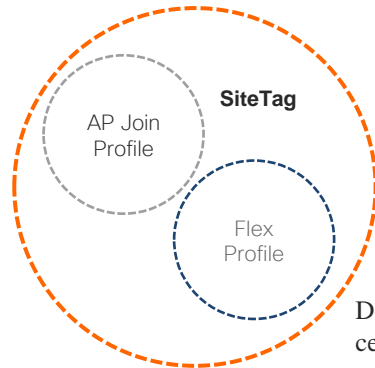
Defines the broadcast domain (list of WLANs to be broadcasted) with the properties of the respective SSIDs



Access Points



Defines the RF properties of the network



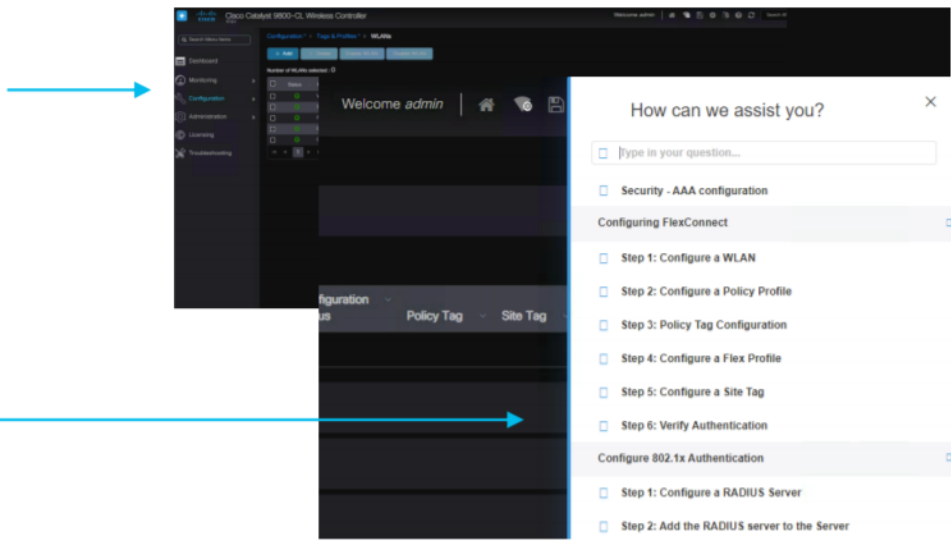
Defines the properties of the central and the remote site APs

DEMO

<https://developer.cisco.com/codeexchange/>

Config Guide Assistance on WebUI*

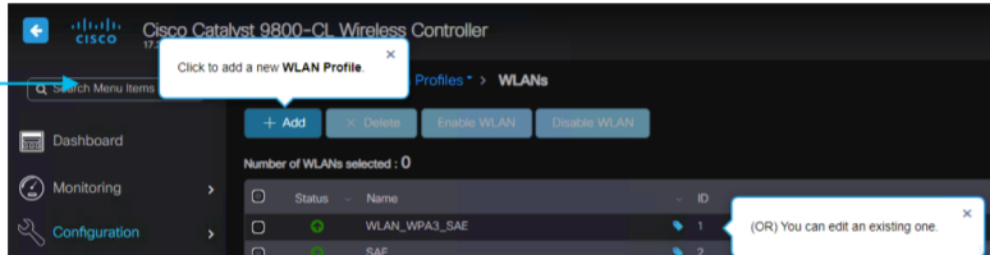
- Click the Guide Assistance on any page



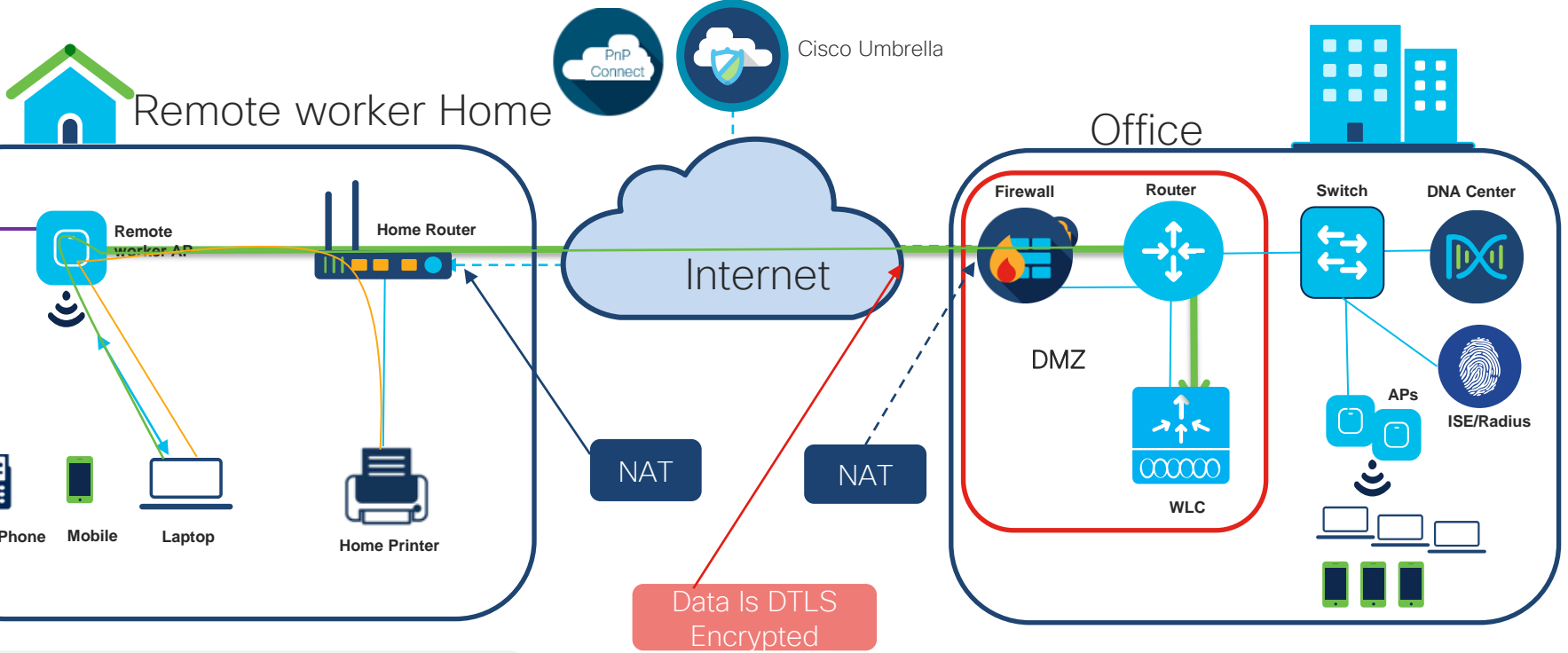
- Search and select the desired topic



- Follow the steps by steps instructions



Cisco Remote Workforce Wireless Solution Deployment model



- CAPWAP
- Split Tunnel
- Wired connection
- RLAN

EN Wireless Offer Summary

Attractive offers to move to the next-gen Wireless stack

1st Year on Us Offer

For both Transactional & EA customers



1 Year **Free** on Cisco DNA Essentials, Advantage or Premier when buying a 3/5/7-year license

Who is it for?

- ALC: Customers migrating to Catalyst 9100 Wi-Fi 6 AP's and/or Catalyst 9800 Controllers
- EA: Customers migrating to subscription or C1 customers coming up for SWSS renewal

Additional benefits for EA customers:

- **Free** Cisco DNA Spaces EXTEND (C1 only)
- + **Free** DNAC appliance, multi suite discount, ramp and more.

9800 Everywhere Offer



50% OFF Catalyst 9800 Controllers

- 50% off C9800-80, C9800-40 and C9800-L with Cisco DNA License Purchase
- Can be combined with EA and 1st Year on Us Offer

Who is it for?








Cisco customers looking to move from AireOS to C9800. New customers also eligible for the offer

Offer available from August 15th 2020. Offers Valid till July 31st, 2021
Refer to offers.cisco.com for offer eligibility, details and updates

Secure Access Bundles SKUs

Built-in bundled discount (can be combined with other promotions)

Available worldwide now and valid through Q4FY21

| | | |
|--|---|--|
| ONENTWK-0210-9300 | ONENTWK-0205-9300 | ONENTWK-0110-9407 ONENTWK-0110-9410 |
| 10 APs   100 Ports | 5 APs   50 Ports | 10 APs Modular Bundles |
| <ul style="list-style-type: none">Secure Access Advantage / Premier Bundle2x 9300mGigUp to 10x 9130 (4 Free)*18% Bundle Discount | <ul style="list-style-type: none">Secure Access Advantage / Premier Bundle2x 9300mGigUp to 5 x 9130 (2 Free)*18% Bundle Discount | <ul style="list-style-type: none">Secure Access 7-Slot / 10 Slot Bundle Advantage/Premier9400 2x mGig LCUp to 10x 9130 (5 Free)*22% Bundle Discount |
|  |  |  |

*Equivalent of free APs based on discount structure

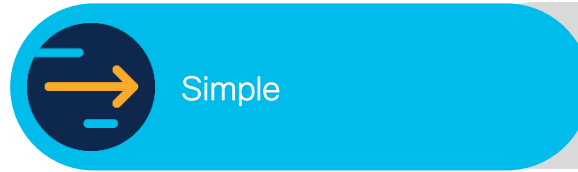
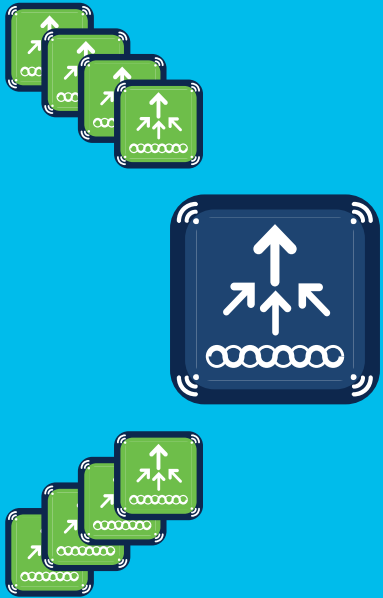
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Catalyst EWC

Cisco Embedded Wireless Controller on Catalyst 9100 Access Points

Modern, open and programmable Wi-Fi solution supporting enterprise features



Simple

Dashboard or Mobile-App to deploy, manage and monitor



Flexible

License-free* for up to 100 APs when using Dashboard/Mobile App
Easy migration to an appliance or cloud-based controller



Secure

Enterprise class security & resiliency features keep the network running and protected

EWC ready for enterprise branch deployments

Simple



Simplified WebUI for monitoring, provisioning, and day-N operations

<10 seconds

Active to standby switchover in a few seconds



SMU (patching) support for both controller and access point

Secure



aWIPS,* rogue detection, identification, and mitigation



Walled garden and DNS blocking



Cisco Umbrella

Cloud-delivered enterprise security with Cisco Umbrella*

Flexible



Redundancy with active and standby controllers running simultaneously on two access points



Cisco DNA Center Plug and Play (PnP), Automation, and Assurance



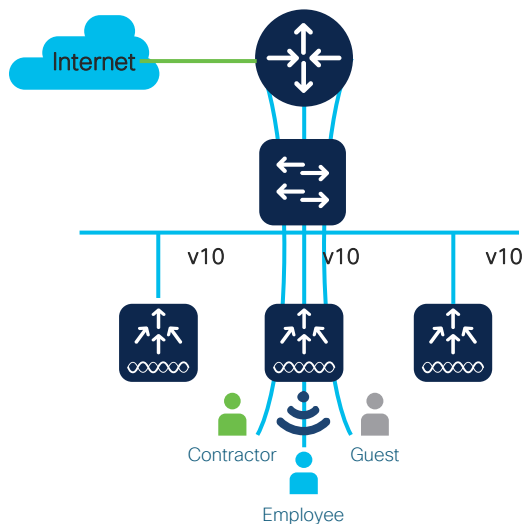
Open standards-based programmability with NETCONF and YANG

DEMO

EWC 0-Day Provisioning

Deploying the Cisco Embedded Wireless Controller

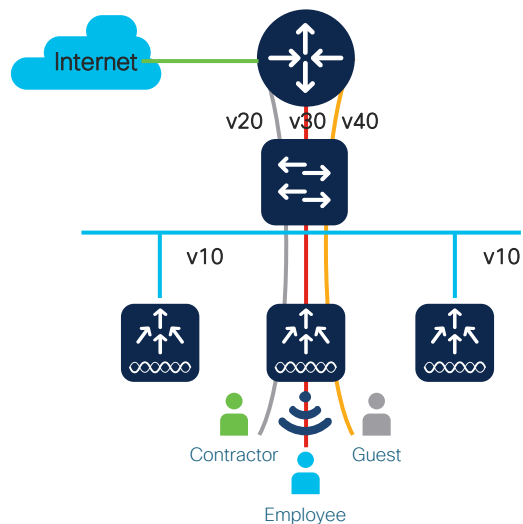
- EWC-capable access points can be connected to an **access port** or a **trunk port** on the switch, depending on the deployment method.
- Management traffic is always untagged.



— VLAN10

If access points and WLANs are all on the same network, EWC-capable access points can connect to an access port on the switch port.

Pros: Simple
Cons: Less flexible



— VLAN10
— VLAN20
— VLAN30
— VLAN40

If access points and WLANs are all on different VLANs, EWC-capable access points will connect to a **trunk port** on the switch, and traffic for individual WLANs will be switched locally.

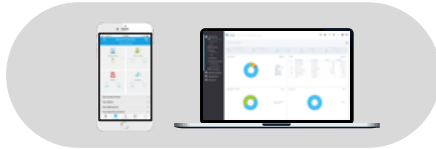
Pros: Flexible, secure
Cons: More configuration


EWC: WLAN deployment

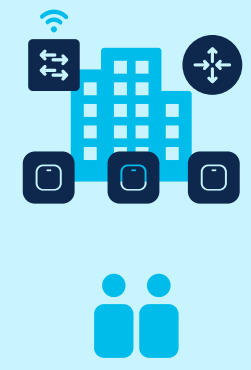
Next-gen Wi-Fi designed for single or multisite small to medium-sized enterprises

Mobile app or WebUI

Cisco DNA Center




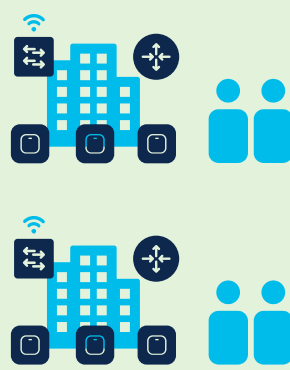
Single Office 



Embedded wireless controller


The diagram shows a single office building with three wireless controllers (represented by squares with a Wi-Fi symbol) and two user icons. A central controller icon is also present.

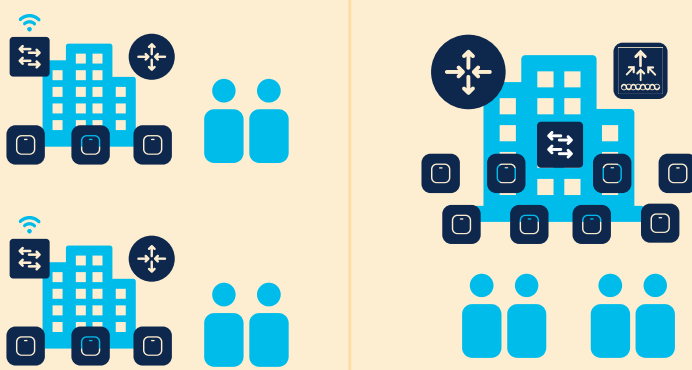
Distributed Office 



Embedded wireless controller

The diagram shows two office buildings, each with three wireless controllers and two user icons. A central controller icon is also present.

Distributed Enterprise 

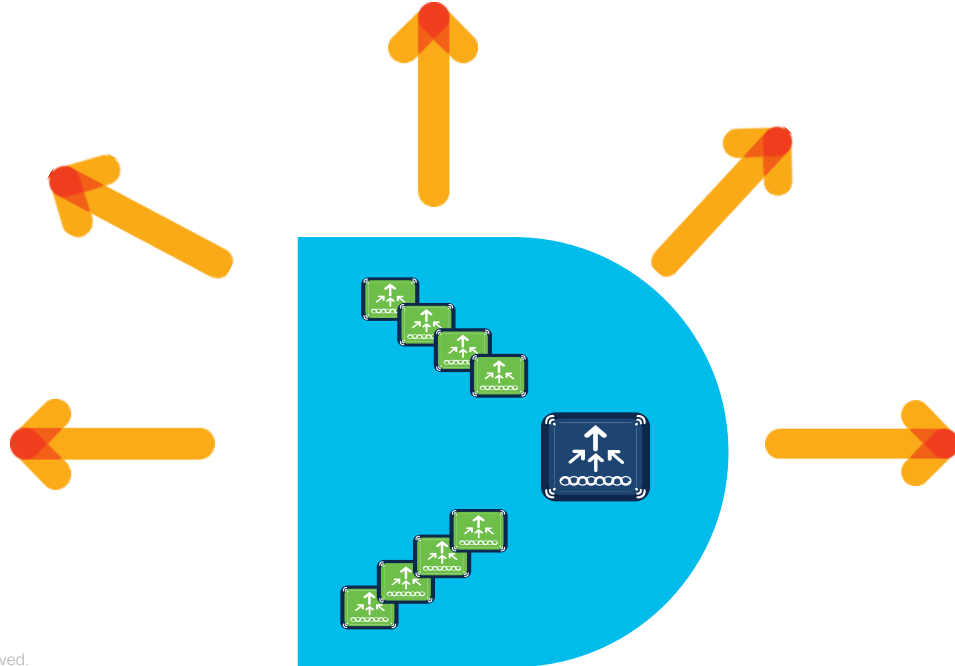


Embedded wireless controller in branch

Controller in campus

The diagram shows two office buildings, each with three wireless controllers and two user icons. A central controller icon is also present. The right side of the diagram shows a larger building with a central controller icon and a server rack icon, representing a campus controller.

Expand



Meraki

The next generation of Meraki Wireless

Wi-Fi Alliance Certified



MR36

2 Tx/Rx Antennas
2 Spatial streams
1 Gbps
802.3af



MR46

4 Tx/Rx Antennas
4 Spatial streams
2.5 Gbps mGig
802.3at



MR56

8 Tx/Rx Antennas
8 Spatial streams
5 Gbps mGig
802.3at



Meraki Wi-Fi 6 Portfolio Expands!

External antennas and outdoor coverage



MR46E

4 Tx/Rx External Antennas
4 Spatial streams

2.5 Gbps mGig
802.3at



MR76

2 Tx/Rx Antennas External Antennas
2 Spatial streams

1 Gbps
802.3af

IP67 Rated



MR86

4 Tx/Rx Antennas External Antennas
4 Spatial streams

2.5 Gbps mGig
802.3at

IP67 Rated



Introducing the MR44



OFDMA
(DL/UL)



MU-MIMO
(DL/UL)



Target Wake
Time



Bluetooth
5.0



2.4 GHz &
5 GHz



MR44

4-stream (5GHz)
2-stream (2.4GHz)

2.5Gbps mGig
802.3at

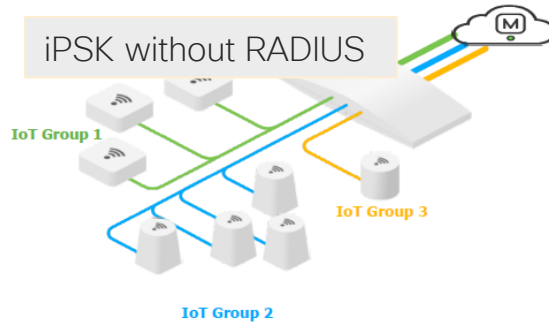
Available starting November 3, 2020

Meraki Wireless – Tons of new features

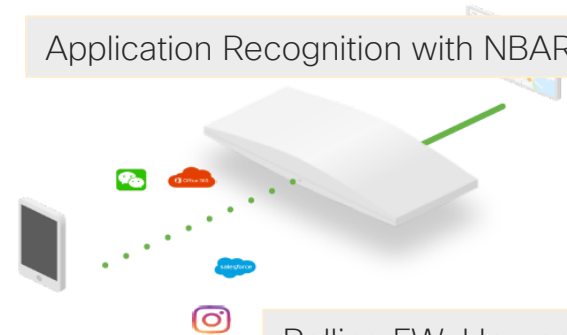
Wireless Client / AP Health



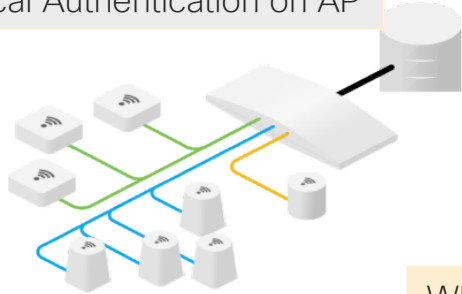
iPSK without RADIUS



Application Recognition with NBAR



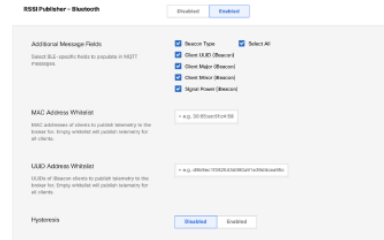
Local Authentication on AP



Adaptive Policy



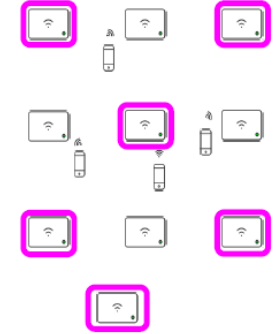
MQTT for WLAN and BLE



WPA3



Rolling FW-Upgrades

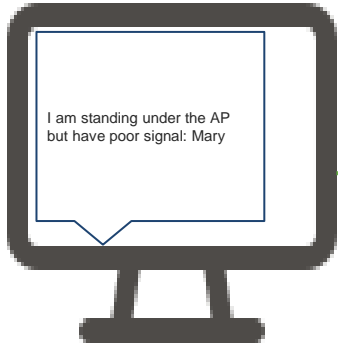


Important notice

The MR 27.x Release is only supported on the 802.11ac Wave 2 and 802.11ax Access Points. Older products will not upgrade and not get these features.

Meraki Health Timeline Enhancements

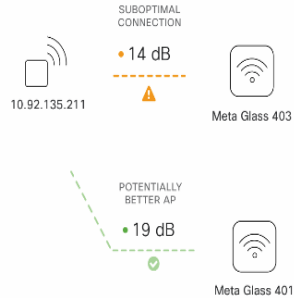
Detect Sticky Clients in 1 click



Poor signal, connected to suboptimal AP

Issue description

This client has poor signal strength from the AP it is connected to. Meanwhile, another nearby AP detects this client and has a stronger signal from it.



Recommended fix

Try to force the client to re-select a more optimal AP by having the client disassociate and reassociate to the AP.

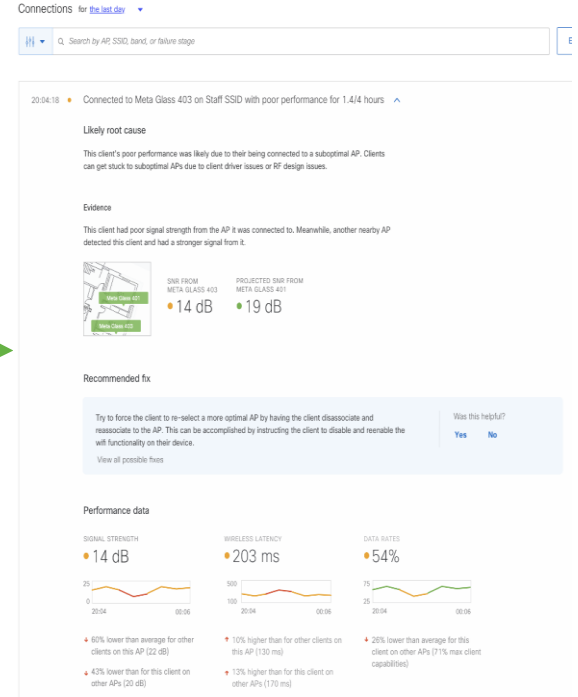
Disconnect client

Did this resolve the problem?

Yes No

Next

Close



The screenshot shows the 'Connections' page for 'the last day'. A search bar is at the top. A timeline entry for 20:04:18 shows a client connected to 'Meta Glass 403 on Staff SSID with poor performance for 1.4/4 hours'. Below this, the 'Likely root cause' states that the client's poor performance is likely due to being connected to a suboptimal AP. The 'Evidence' section shows a comparison of signal strength: 'SNR FROM META GLASS 403' is 14 dB and 'PROJECTED SNR FROM META GLASS 401' is 19 dB. The 'Recommended fix' section suggests forcing the client to re-select a more optimal AP by having it disassociate and reassociate. A 'Was this helpful?' poll is shown with 'Yes' and 'No' buttons. The 'Performance data' section includes three charts: 'SIGNAL STRENGTH' (14 dB), 'WIRELESS LATENCY' (203 ms), and 'DATA RATES' (54%). Below the charts are four bullet points comparing the client's performance to other clients and APs.

MR wireless access points



Lifetime warranty on indoor APs

Variety of models that cater to indoor / outdoor, high performance, and value-priced

802.11ac and Wi-Fi 6 models, multigigabit performance, with dedicated scanning and BLE



FEATURE HIGHLIGHTS

BYOD and guest access policies

Application traffic shaping

Enterprise security

WIDS / WIPS

Location analytics

Wireless Health

Umbrella DNS security

Adaptive Policy

Enterprise

Advanced

Meraki Switches Configurator

Change desired ports to Maintenance

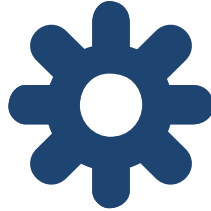
1

Select Desired Ports



2

Using the website ports are changed to "Maintenance Mode"



3

Rollback to Normal

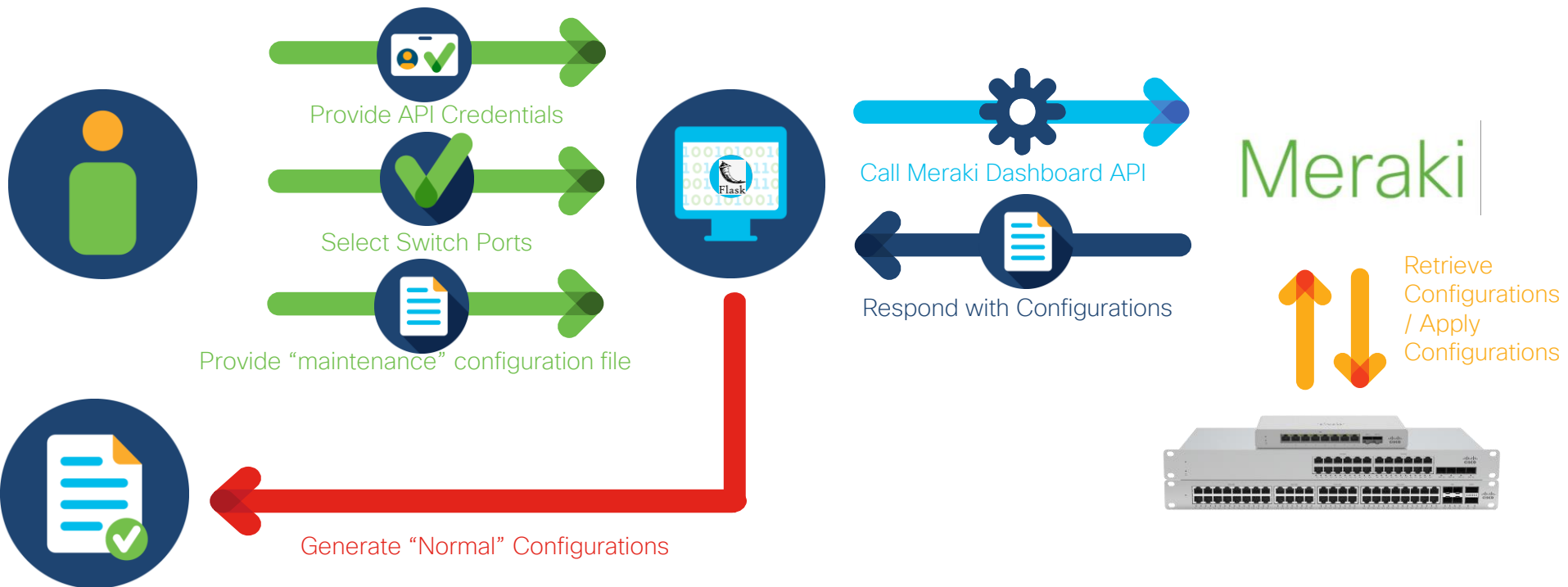


The user select the desired ports and specifies the desired maintenance configuration.

Using the website the selected ports are changed to the specified maintenance configuration. A file is generated containing the "normal" configuration previous to maintenance.

When maintenance is finished, the user rollbacks the configuration to the normal mode using the file previously generated.

High Level Design PoV



DEMO

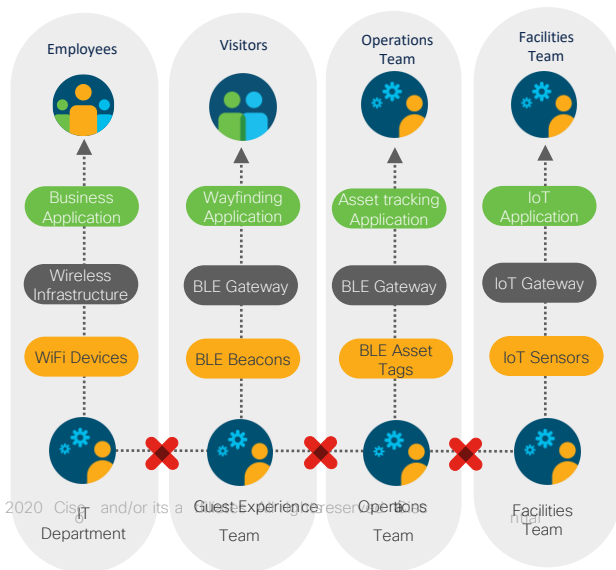
Meraki Custom Dashboard For Automation

DNA Space & IOx

Cisco DNA Spaces Unified Cloud Location Platform enables critical outcomes at scale

Fragmented & Proprietary 'Walled Gardens'

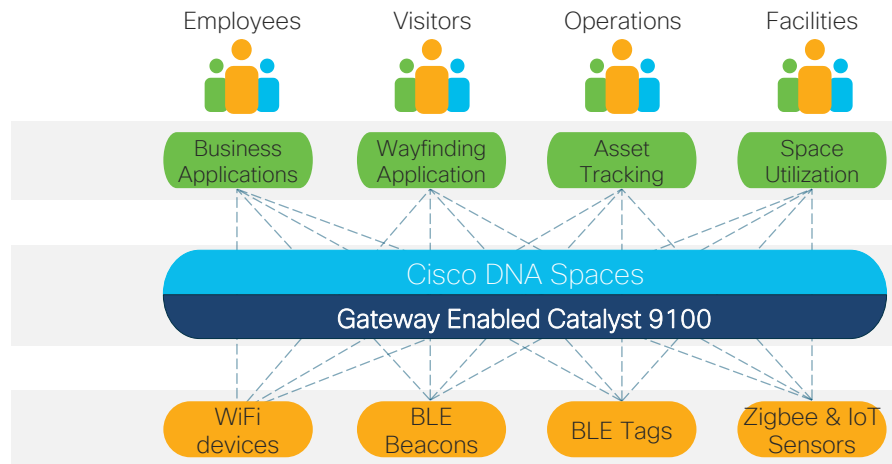
- **Fragmented & proprietary** solutions
- Difficult to replicate **outcomes at scale**
- **Disjointed** end-to-end support model

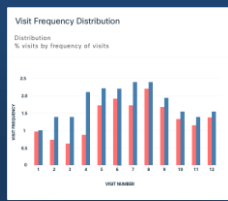


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Open & Unified Platform

- **Open stack at a lower cost** enabling multiple devices & apps
- **Higher Scalability** through the DNA Spaces cloud
- **Unified support model** with end-to-end visibility





- Unified Dashboard,
- Standardized Data,
- End-to-end monitoring

Vertical App Partners

| | | |
|--|---------------------------------------|--|
| IBM TRIRIGA Space Optimization | kontakt.io Asset Management | STANLEY Patient tracking |
| MazeMap Mapping & Way-finding | AIRISTA FLOW Panic Button | involvio Attendance tracking |



IoT Device Marketplace*

| | | |
|-----------------------|------------------------------|------------------|
| Asset Tags | Environmental Sensors | Beacons |
| Wristband Tags | PIR Sensors | Card Tags |

And more

Enterprise Systems

salesforce | sas | IBM | SAP



Application Hosting on Cisco Catalyst Access Points

4 pillars to enable enterprise IoT use cases



AP as an IoT development platform

Simplified application management



Wi-Fi and IoT convergence

Ecosystem of IoT applications



Available in all Cisco® Catalyst® 9100 Access Points

Vzdělávací materiály

The screenshot shows the DevNet website's documentation page for 'Application Hosting on Cisco Catalyst Access Points'. The main heading is 'Development Environment Setup'. Below the heading, there are instructions on how to build an iOx application for a Cisco Catalyst access point, including requirements for iOx SDE and ioclient. A section titled 'iOx SDE Login Credentials' provides the username 'root' and password 'iosdev'. A note at the bottom states: 'Note: If the VM does not obtain an IP address in bridge mode, use the NAT mode.'

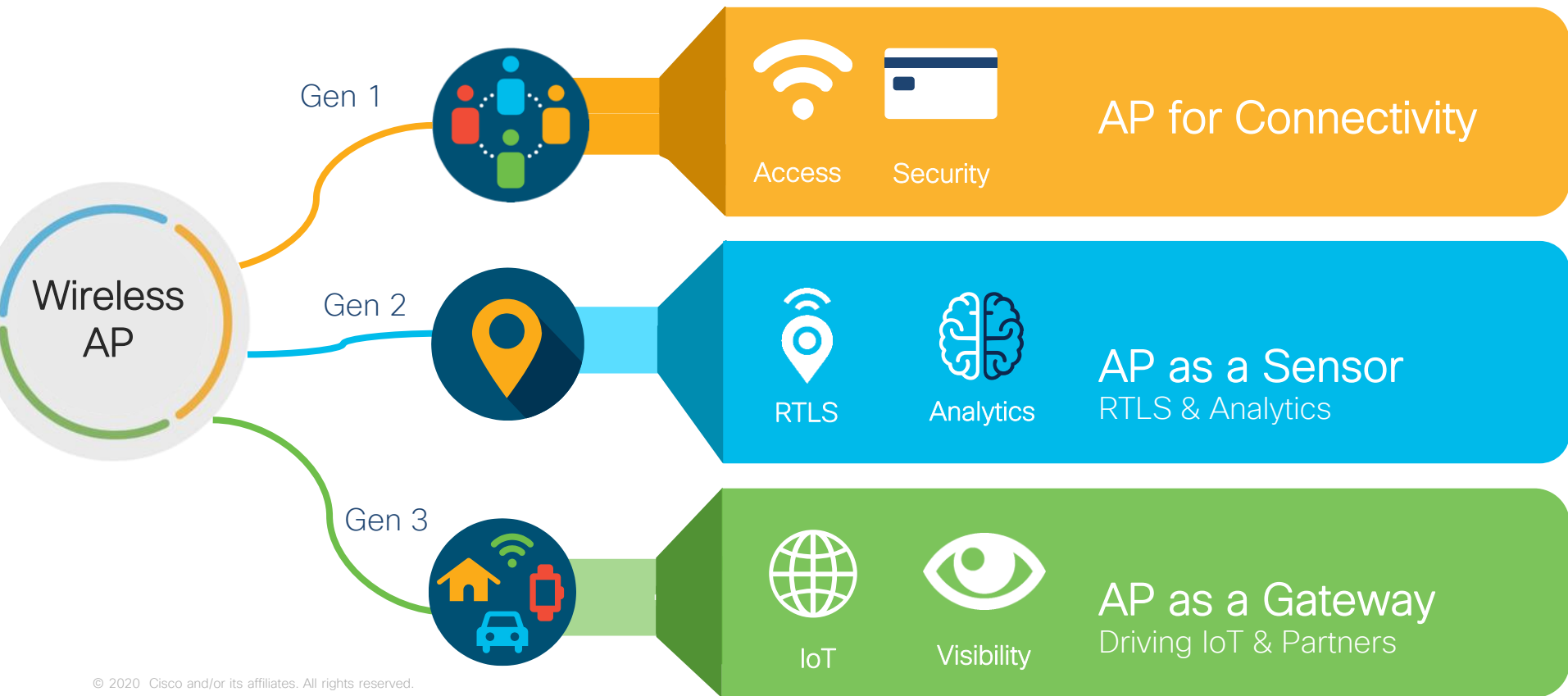
Sandboxy

The screenshot shows the DevNet Sandbox landing page. The main heading is 'Looking for a development lab?'. Below the heading, there is a sub-heading 'Dig in with DevNet Sandbox – technology packed Cisco labs – today! FREE with 24x7 access!'. There are two buttons: 'Learn more' and 'Get started with Sandbox'. Below the buttons, there is a grid of technology icons: Networking, Data Center, Cloud, Security, IoT, Collaboration, Analytics & Automation, and Open Source.

Komentované laby

The screenshot shows the DevNet Learning Labs page for 'Telemetry Streaming with Catalyst 9800 WLC'. The page has a navigation bar with 'DevNet Express', 'Tracks', 'Modules', 'Labs', 'Challenges', and 'Help'. The main heading is 'Telemetry Streaming with Catalyst 9800 WLC'. Below the heading, there is a list of topics: 'Learn about NETCONF and YANG Data Models', 'Learn about dial-in subscriptions', and 'Learn how to programmatically configure WLC9800'. There is a section titled 'Catalyst WLC9800 Programmability' with a sub-heading 'The Catalyst 9800 IOS-XE based Wireless LAN Controller has several options for programmatic configuration. Traditional methods that have now been expanded to include the programmatic interfaces. These programmatic interfaces include NETCONF, RESTCONF, and YANG Data Models. These interfaces define what data is accessible over the programmatic interfaces, and they come in several varieties. Cisco IOS-XE features a set of vendor agnostic features are defined within the open data models. Either models can be used for many tasks, however features are defined within the open data models.'

The Evolution of the Wireless Access Point



Resources

- [Catalyst 9800 Best Practice](#)
- [DevNet](#)
- [Cisco Catalyst Wireless Products](#)
- [Why Cisco Catalyst Wireless](#)
- [Top Reasons To Migrate To Wi-Fi 6](#)
- [Cisco WLAN YouTube Channel](#)
- [Cisco DNA Spaces](#)

