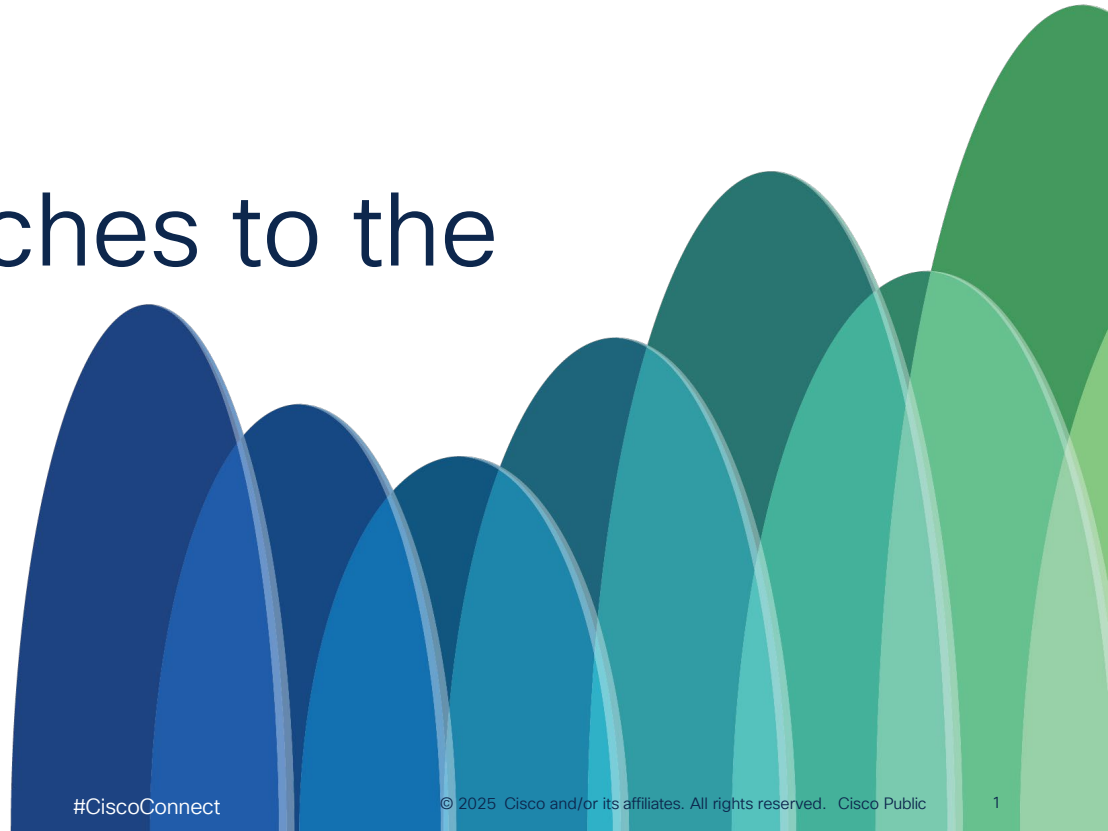
Take your Switches to the Cloud

Brennan Martin
Technical Leader
Cisco Switching

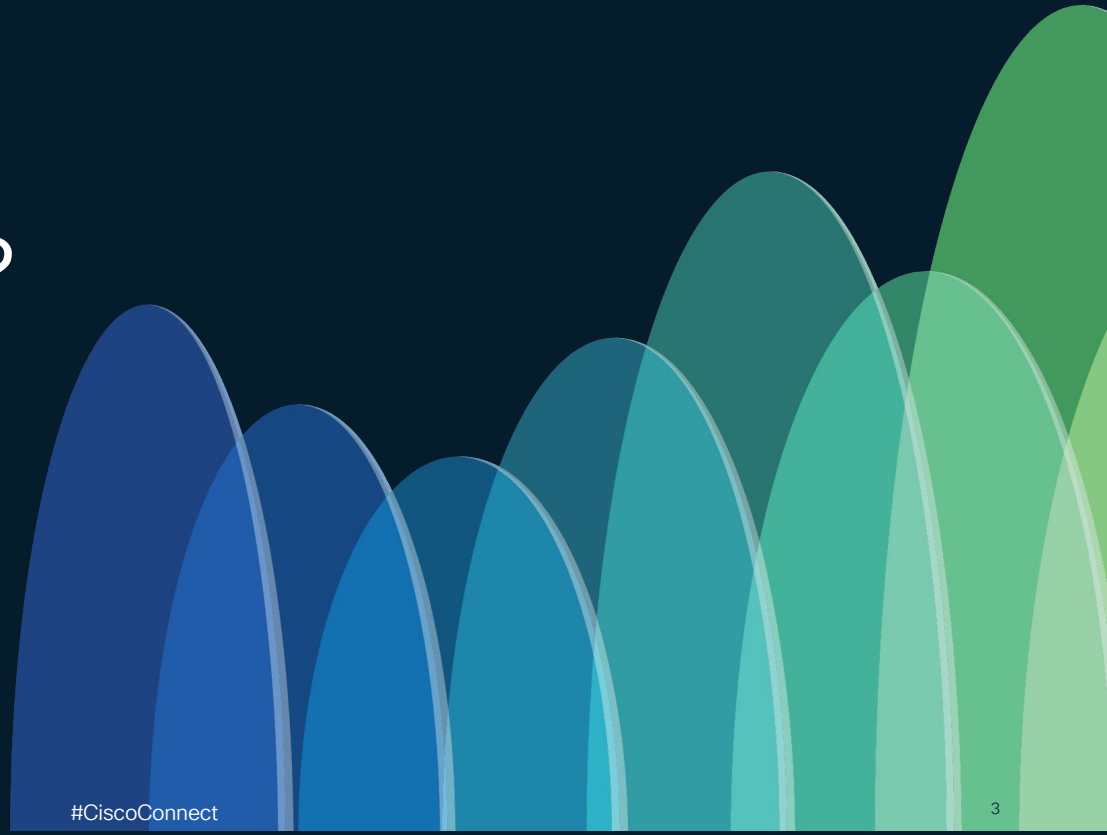


cisco Connect

Agenda

- Introduction
- Cloud-native Catalyst
- Cloud Monitoring Transformation
- Platforms
- New Features
- Conclusion

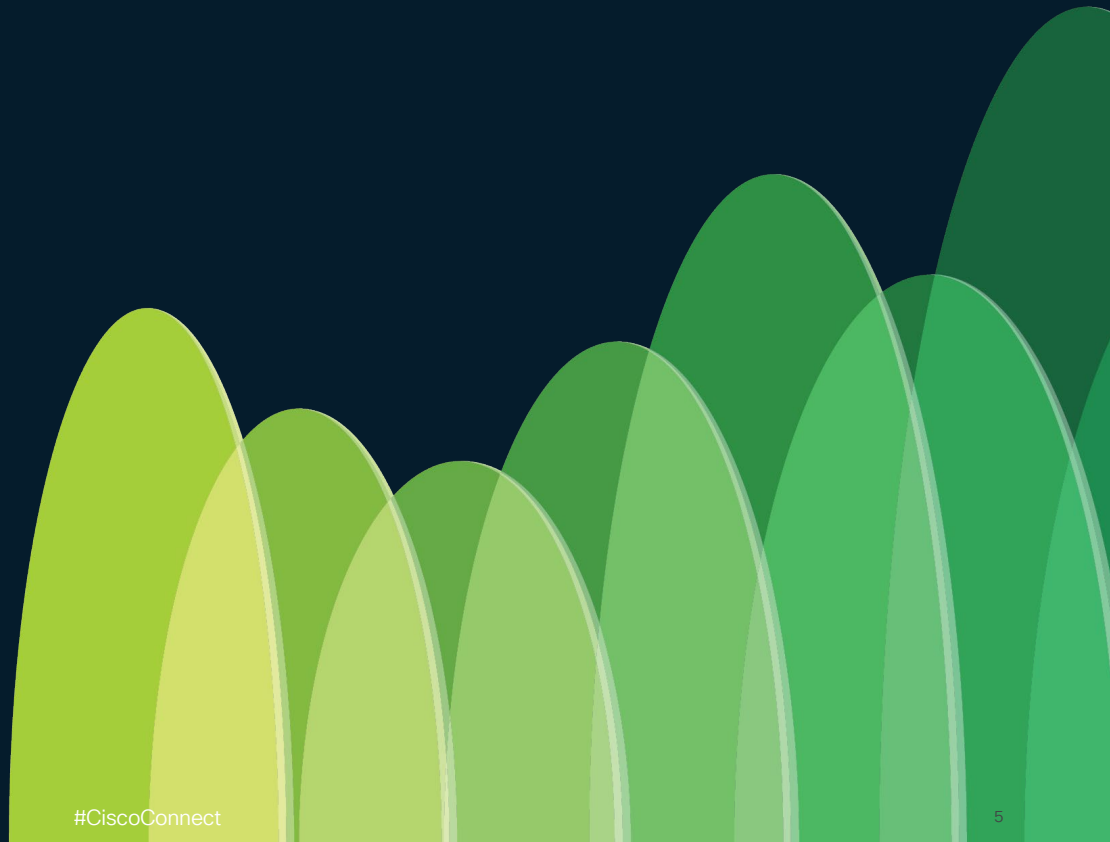
Who is this guy?



I’m a Canadian that loves building networks

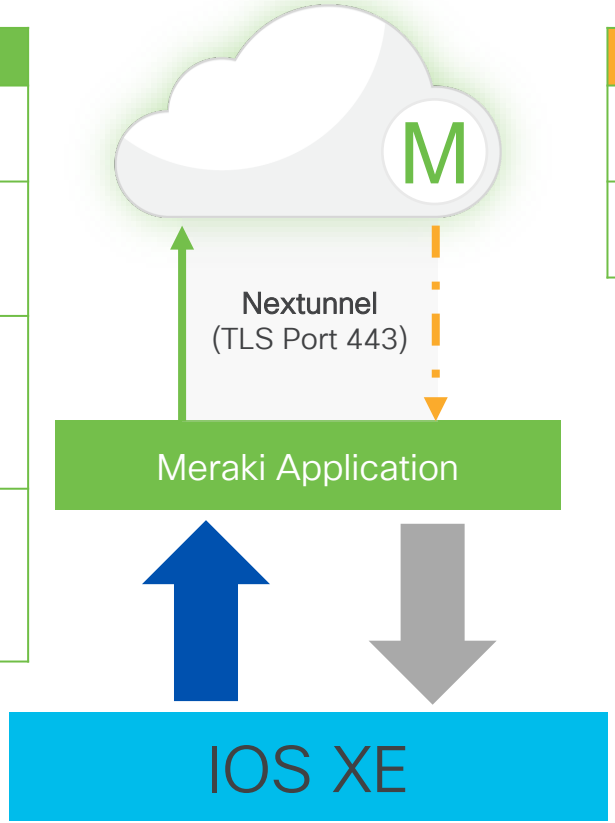
- Based in Saskatoon, Saskatchewan – Canada
- 20+ years building networks
- CCIE R/S #50782
- More time underground than in data centers
- Ask me about potash

Cloud-native Catalyst



1st Gen Software Architecture – App to Cloud

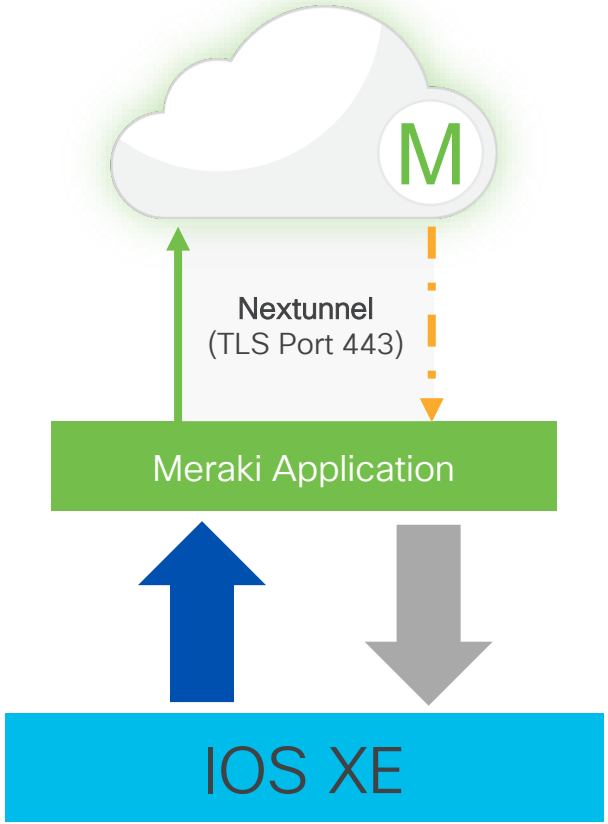
Function	Use
Heartbeat	Checks in to dashboard and evaluates state flags
Packet Capture Stream	Stream packet capture to dashboard browser proxy
Config File Download	Pulls the configuration file and translates config lines to XML yang modeled configuration
Firmware Proxy	Downloads firmware and stages for either an app update or IOS XE + app update



Function	Use
Protobuf Grabber	Captures telemetry and stores in dashboard
Live Tool Execution	Proxy live tool command to Meraki App

1st Gen Software Architecture – App to XE

Function	Use
NetConf Oper Subscriptions	Telemetry capture and store as protobuf
Packet Capture	Stream packet capture to dashboard browser proxy
IPFIX Stream	Client and application visibility and tracking



Function	Use
NetConf Write Operations	Configuration Deploy & update
Live Tool Execution	Run Tools executed by admin in dashboard
Firmware Management	Deploys firmware installation to IOS XE

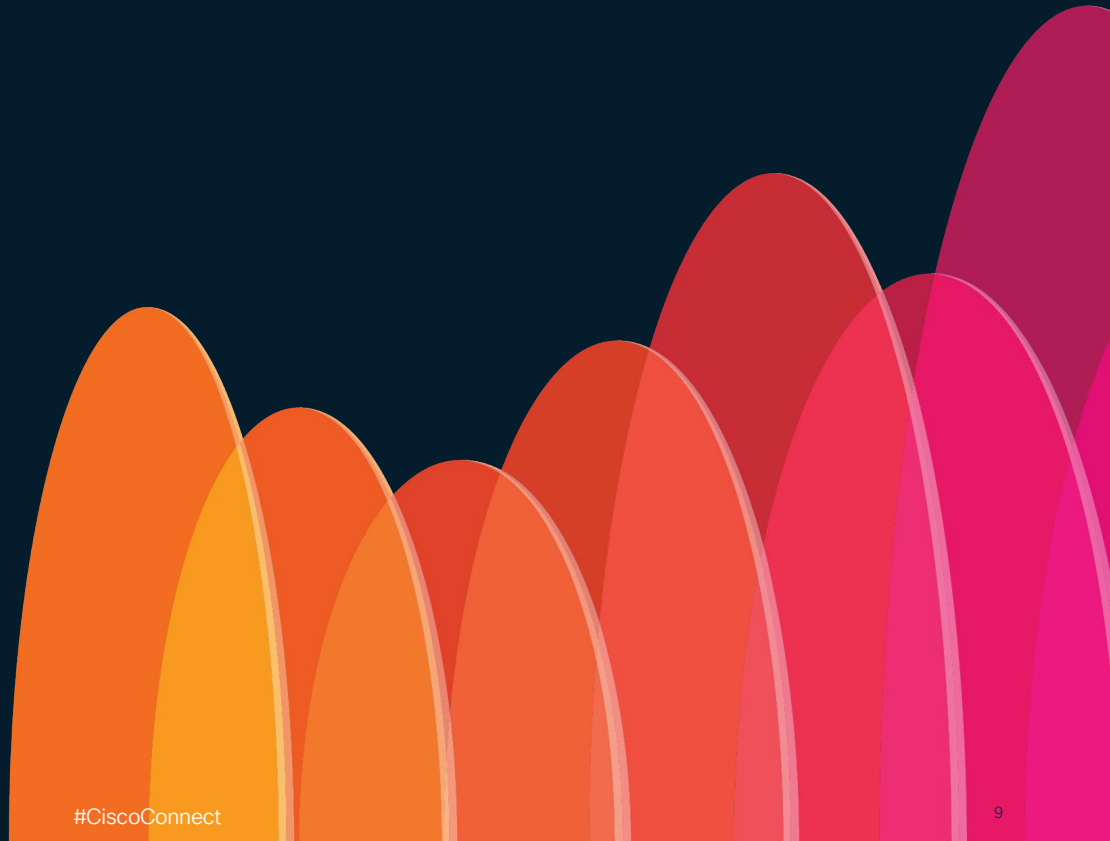
Challenges and Learnings

Platform dependent development

Limited agility in software architecture

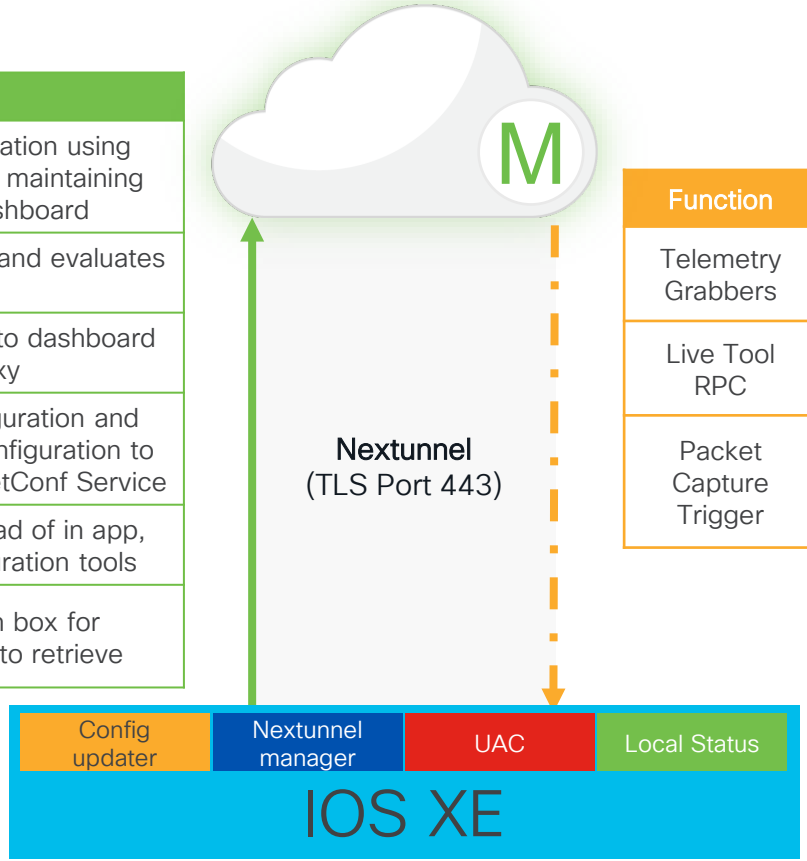
Multiple abstraction layers and software stacks

Cloud-native IOS XE



How did we improve the architecture?

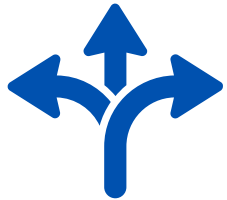
Function	Use
Uplink Auto Configuration (UAC)	Dynamic interface creation using discovery mechanisms maintaining connectivity to dashboard
Connect Service	Checks in to dashboard and evaluates state flags
Packet Capture	Stream packet capture to dashboard browser proxy
Config File DL/UL and deployment	Uploads current configuration and pulls XML formatted configuration to deploy locally against NetConf Service
Local Status Page	Hosted in IOS XE instead of in app, providing local configuration tools
Telemetry Cache	Stores telemetry on box for Dashboard grabbers to retrieve



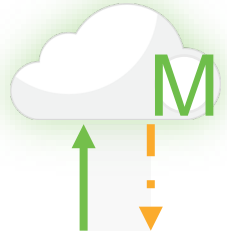
Function	Use
Telemetry Grabbers	Pulls telemetry directly from IOS XE for presentation in Dashboard
Live Tool RPC	Executes Live Tools via NetConf RPC
Packet Capture Trigger	Executes packet capture process using NetConf RPC

Resilient Connectivity to the Cloud

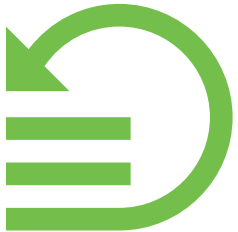
Uplink Auto Config (UAC) *Can I reach Dashboard?*



NexTunnel *Connect to Dashboard*

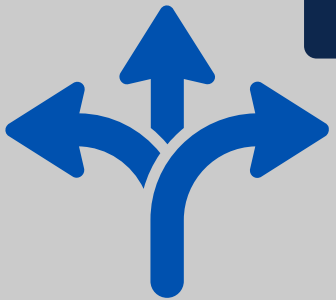


Config Updater Apply, Synchronize, and rollback config



Resilient connectivity to the Cloud

IOS XE 17.15



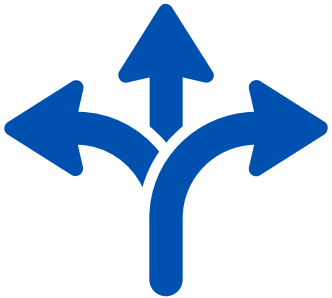
Uplink Auto Config (UAC)

- Automated discovery for dashboard connectivity
- Automated failover / path discovery
- Tunable for primary interface
- Creates a ranked/scored interface list

Uplink auto config

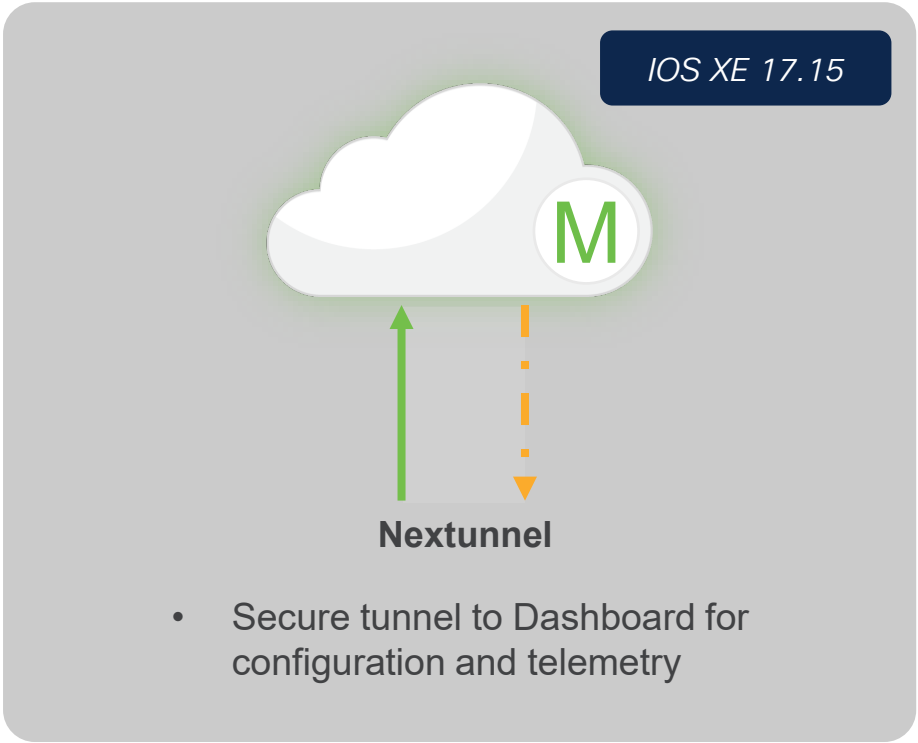
```
Rocky_and_Bullwinkle#show uac ?
  active-vlan  Active vlans in network
  uplink       Uplink Autoconfig Uplink info
```

show uac



- Which VLANs has UAC discovered?
- Which VLAN has the best score?
- Which SVI is being used to reach Meraki Dashboard?

Resilient connectivity to the Cloud



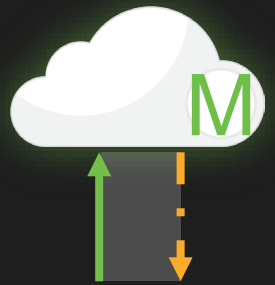
- Secure tunnel to Dashboard for configuration and telemetry

Nextunnel

show meraki connect

- Has the switch fetched tunnel config?
- Is the tunnel up?
- Are packets coming/going?

```
Rocky_and_Bullwinkle#sh meraki connect
Service meraki connect: enable

Meraki Tunnel Config
------------------------------------
  Fetch State:                 Config fetch succeeded
  Fetch Fail:
  Last Fetch(UTC):             2025-01-28 16:25:24
  Next Fetch(UTC):             2025-01-28 17:28:58
  Config Server:               cs46-2037.meraki.com
  Primary:                     usw.nt.meraki.com
  Secondary:                   use.nt.meraki.com
  Client IPv6 Addr:            FD0A:9B09:1F7:1:2E3F:BFF:FE2B:9F80
  Network Name:                Eh2 - switch

Meraki Tunnel State
------------------------------------
  Primary:                     Up
  Secondary:                   Up
  Primary Last Change(UTC):    2025-01-23 19:17:42
  Secondary Last Change(UTC): 2025-01-23 19:17:42
  Client Last Restart(UTC):    2025-01-22 19:25:10

Meraki Tunnel Interface
------------------------------------
  Status:                      Enable
  Rx Packets:                  22355237
  Tx Packets:                  35429584
  Rx Errors:                   0
  Tx Errors:                   0
  Rx Drop Packets:             0
  Tx Drop Packets:             0

Meraki Device Registration
------------------------------------
  url:                         https://catalyst.meraki.com/nodes/register
```



Resilient connectivity to the Cloud

IOS XE 17.15

Config Updater

- Fetch and apply config from Dashboard
- Safe configuration rollback: 30 minute recovery mechanism for configuration error

Config Updater

show meraki config updater

- Can the switch fetch config?
- Can the switch upload the config?
- Does the switch need to upload config?

```
Rocky_and_Bullwinkle#sh meraki config updater
Config Updater
-----------------------------------
  Current state:                Ready

Latest operation
-----------------------------------
  Upload running config

  Get running config: Pass
    start time(UTC): 2025-01-29 22:22:15
    result time(UTC): 2025-01-29 22:22:33
    Running config location: /flash/meraki/config_updater/monitor/upload.config
  Get presigned url: Not needed
    start time(UTC): 2025-01-29 22:22:33
    result time(UTC): 2025-01-29 22:22:36
    dashboard status code: 204
  Upload config: Not started
```

Upgrade Path – CS to IOS XE

All Catalyst-based switches will have an upgrade to Cloud-native IOS XE

Runtime Improvements with architecture changes

Configuration Updates		
Type	**1st Gen**	**2nd Gen**
Small config update	30s	15s
Full configuration deployment	120s	60s

Boot Times		
Stack Size	**1st Gen**	**2nd Gen**
Single switch	6 min	4 min
8M stack	11 min	4 min

50% Improvement
on standalone switches

More than 50%
Improvement on stacks

Easy Cloud Onboarding

```
WW_CORE_9300(config)# service meraki connect

Switch 1 has been successfully registered
Meraki MAC: AABBCCDDEEFF
Cloud ID: QXXX-XXXX-YYYY

*May  7 00:16:03.519: %MERAKI-5-SWITCH_REGISTER_SUCCESS: Switch 1 has been succesfully registered.
*May  7 00:16:03.519: %MERAKI-5-MAC_ADDR: Meraki MAC: AABBCCDDEEFF
*May  7 00:16:03.519: %MERAKI-5-CLOUD_ID: Cloud ID: QXXX-XXXX-YYYY

Device Registration Status:
---------------------------
Switch                Serial                                          Migration
Num    PID            Number           Cloud ID       Mac Address     Status       Mode
-------------------------------------------------------------------------------------------
1   C9300-24UX        XXYYQQCCXXC      QXXX-XXXX-YYYY  aabb.ccdd.eeff  Registered   C9K-C [Monitoring]
```

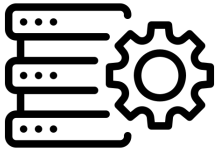
Cloud Management App-less Onboarding

- Automated Registration and Nextunnel creation (`service meraki connect`)
- Simply claim the Cloud ID and add to a network

```
Service meraki connect: enable

Meraki Tunnel Config
------------------------------------
  Fetch State:
  Fetch Fail:
  Last Fetch(UTC):
  Next Fetch(UTC):
  Config Server:
  Primary:                    usw.nt.meraki.com
  Secondary:                  use.nt.meraki.com
  Client IPv6 Addr:           FD0A:9B09:1F7:1:9A18:88FF:FE00:CC00
  Network Name:               .Corrin - switch

Meraki Tunnel State
------------------------------------
  Primary:                    Up
  Secondary:                  Up
  Primary Last Change(UTC):   2024-05-29 23:34:02
  Secondary Last Change(UTC): 2024-05-29 23:34:02
  Client Last Restart(UTC):   2024-05-29 23:33:56

Meraki Tunnel Interface
------------------------------------
  Status:                     Enable
  Rx Packets:                 795767
  Tx Packets:                 600246
  Rx Errors:                  0
  Tx Errors:                  0
  Rx Drop Packets:            0
  Tx Drop Packets:            0

Meraki Device Registration
------------------------------------
  url:                        https://catalyst.meraki.com/nodes/register
```

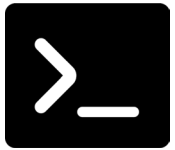
Connection State (`show meraki connect`)

Optimizations



Management Interface Architecture Change

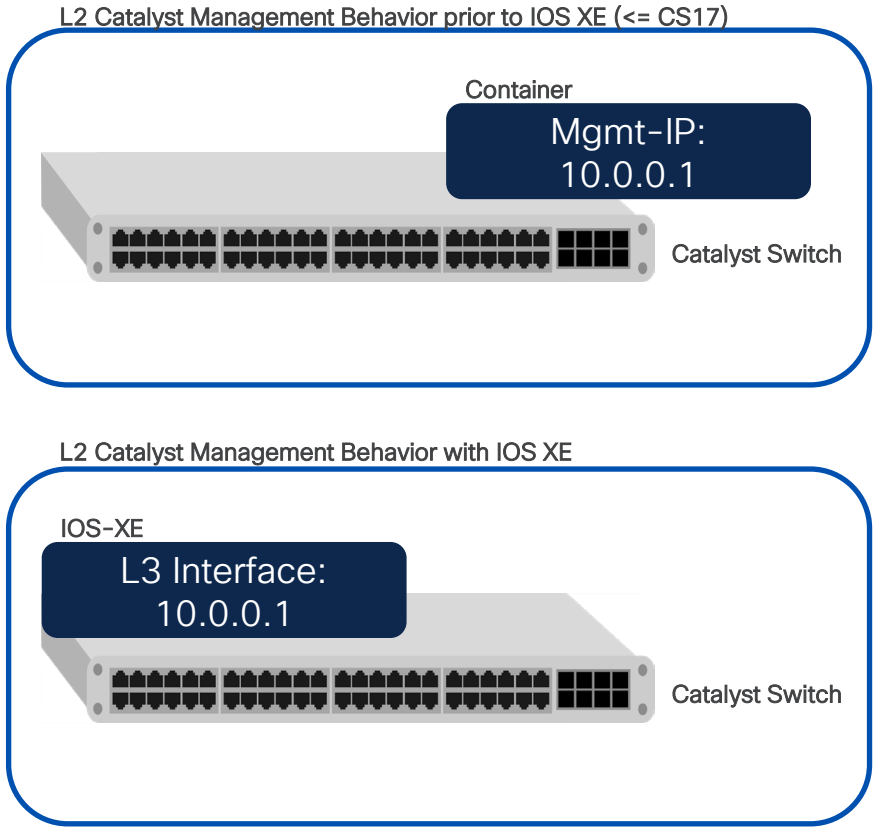
Default Network Module



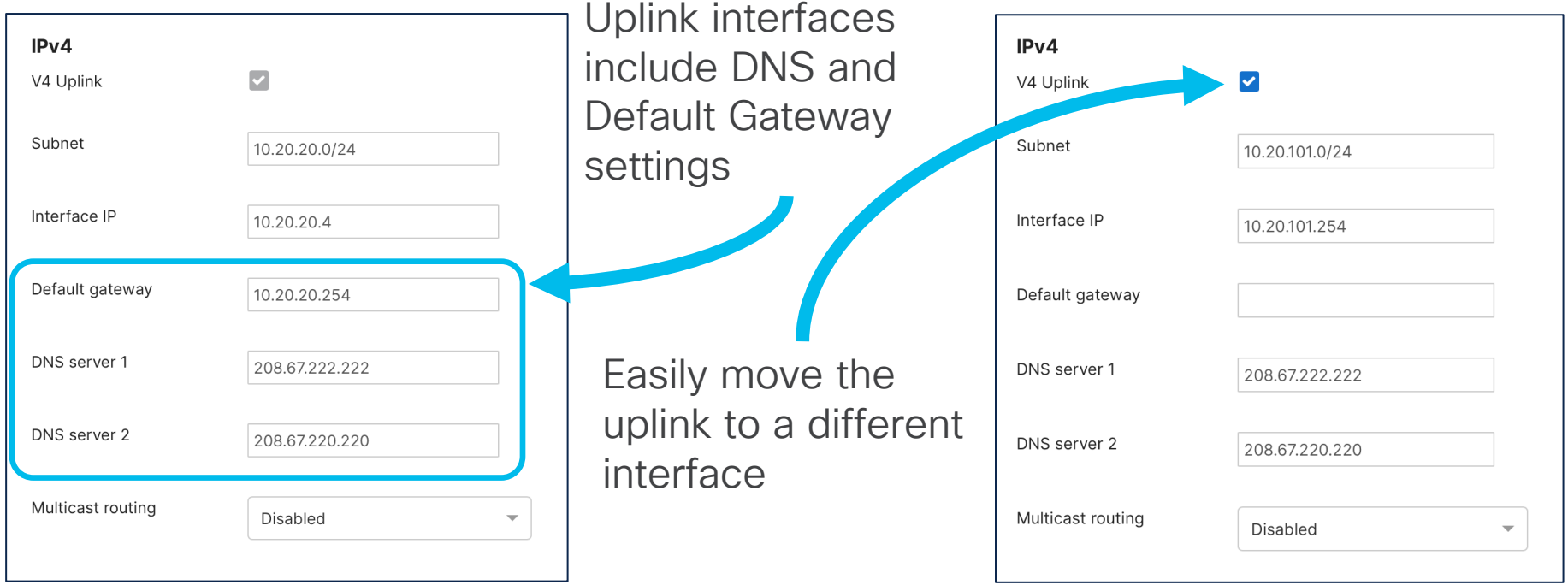
Show CLI / Command Runner

Management Interface Architecture Change

- Switches running CS firmware used a dedicated management interface, also called the *uplink*
- The uplink is now **any IOS XE L3 Interface**.
- All configuration for uplink connectivity and L3 interfaces is now on the **Routing & DHCP page.**
- If a switch is L2 only, DHCP will work 👍🏽 but enabling L3 requires first setting a static uplink IP



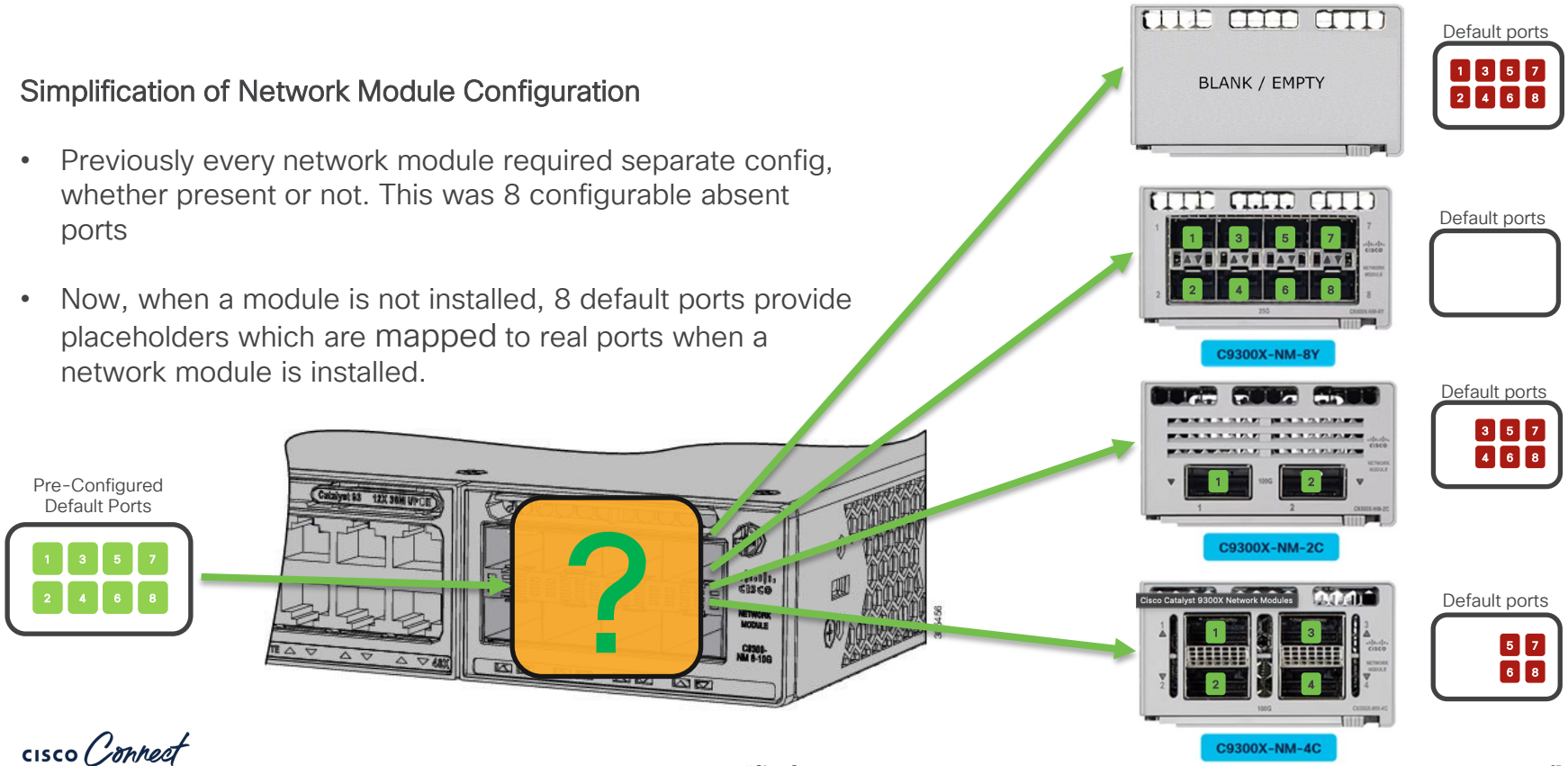
Management Interface Architecture Change



Default Network Module

Simplification of Network Module Configuration

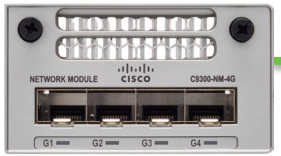
- Previously every network module required separate config, whether present or not. This was 8 configurable absent ports
- Now, when a module is not installed, 8 default ports provide placeholders which are mapped to real ports when a network module is installed.



Default Network Module

The old way:

- Which module is installed?
- Is any module installed?



C9300-NM-4G

C9300X-NM-8Y

C9300X-NM-2C

- STACK-MS390-RR / 4×10G / 1 details
- STACK-MS390-RR / 4×10G / 2 details
- STACK-MS390-RR / 4×10G / 3 details
- STACK-MS390-RR / 4×10G / 4 details
- STACK-MS390-RR / 8×10G / 1 details
- STACK-MS390-RR / 8×10G / 2 details
- STACK-MS390-RR / 8×10G / 3 details
- STACK-MS390-RR / 8×10G / 4 details
- STACK-MS390-RR / 8×10G / 5 details
- STACK-MS390-RR / 8×10G / 6 details
- STACK-MS390-RR / 8×10G / 7 details
- STACK-MS390-RR / 8×10G / 8 details
- STACK-MS390-RR / 2×40G / 1 details
- STACK-MS390-RR / 2×40G / 2 details

Default Network Module

The IOS XE 17.15.2+ way:

- Mr Peabody / 8×10G / 1 details
- Mr Peabody / 8×10G / 2 details
- Mr Peabody / 8×10G / 3 details
- Mr Peabody / 8×10G / 4 details
- Mr Peabody / 8×10G / 5 details
- Mr Peabody / 8×10G / 6 details
- Mr Peabody / 8×10G / 7 details
- Mr Peabody / 8×10G / 8 details

8x10G installed

No module installed

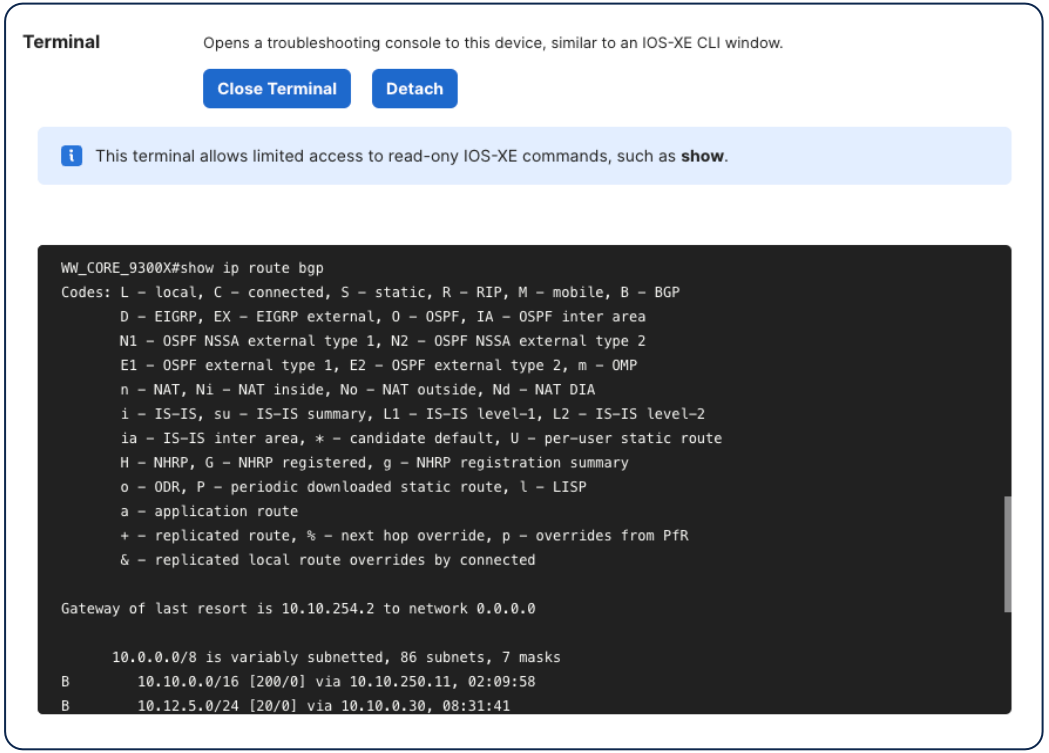
- Bullwinkle / DEFAULT / 1 details
- Bullwinkle / DEFAULT / 2 details
- Bullwinkle / DEFAULT / 3 details
- Bullwinkle / DEFAULT / 4 details
- Bullwinkle / DEFAULT / 5 details
- Bullwinkle / DEFAULT / 6 details
- Bullwinkle / DEFAULT / 7 details
- Bullwinkle / DEFAULT / 8 details

Cloud CLI *IOS XE 17.15*

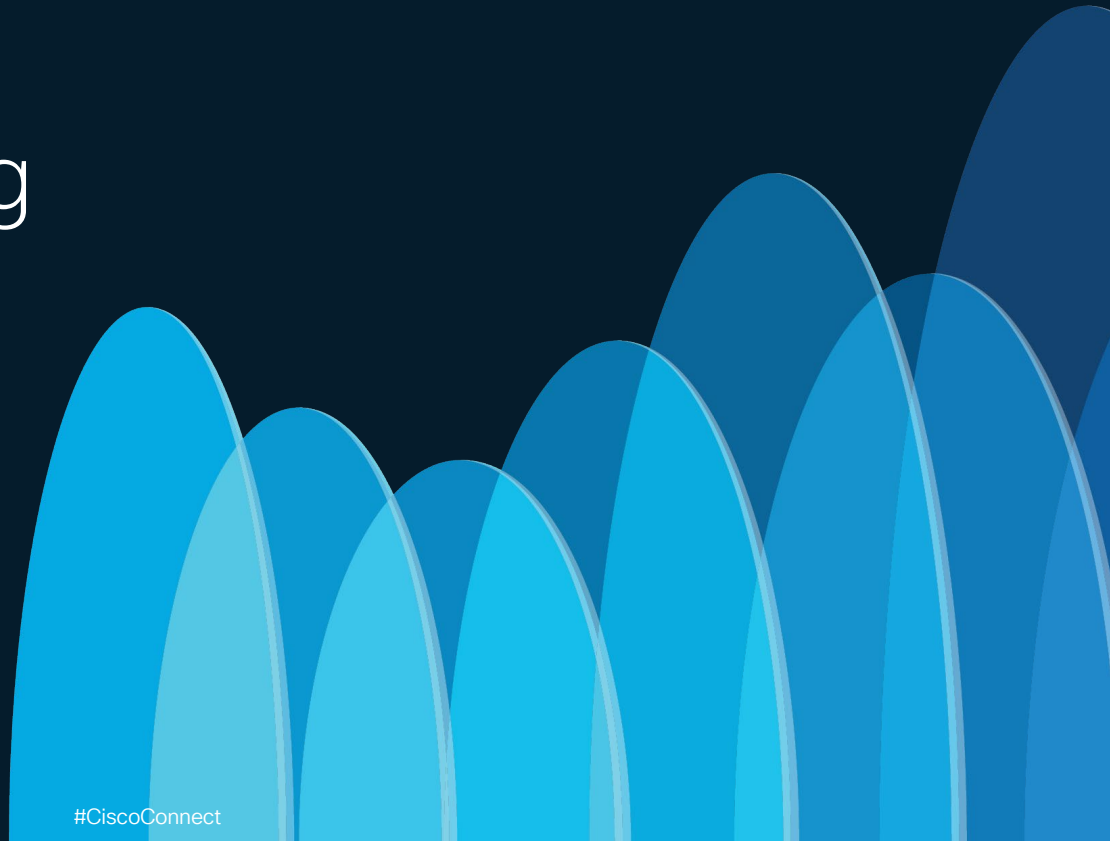
Securely proxied CLI access in Dashboard

Enhancing troubleshooting with common CLI show commands

Ensuring accessibility to detailed information



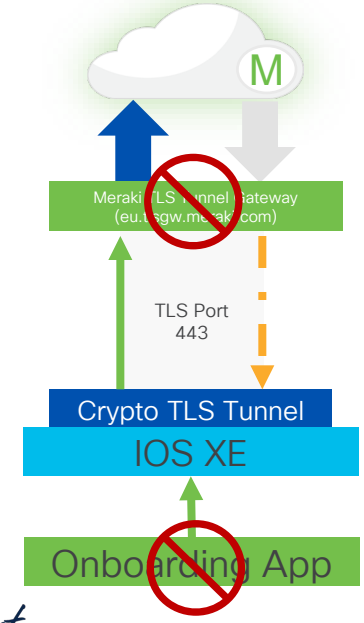
Cloud monitoring Transformation



Cloud Monitoring for Catalyst *Transformation*

One Cloud platform, One OS, multiple paths to cloud

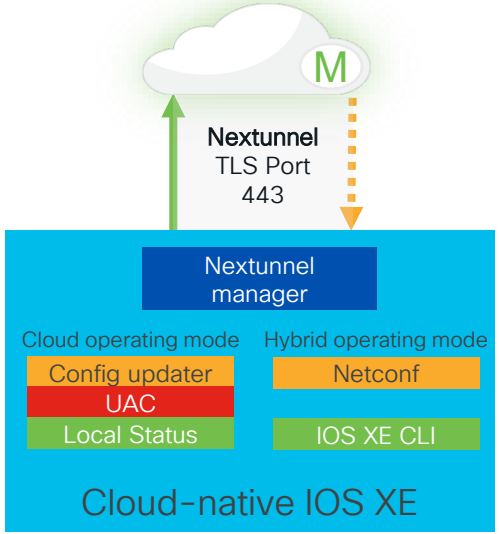
Cloud Monitored Catalyst



Cloud Monitoring

Transformation

Cloud-managed Switching



Operating Modes *One Cloud platform, One OS*

Cloud Operating Mode

C9200L

C9300/X/L

Full Dashboard-driven management

UI / API-driven configuration

Cloud CLI: Show Commands

Formerly Cloud Monitoring

Hybrid Operating Mode

Coming Soon

C9200/L/CX

C9300/X/L/LM

C9500/X

Configuration remains local to device

Non-destructive onboarding

Cloud CLI: Show + Config Mode Commands

Powerful Catalyst hardware with flexible cloud operation modes

Operating Modes

Cloud operating mode

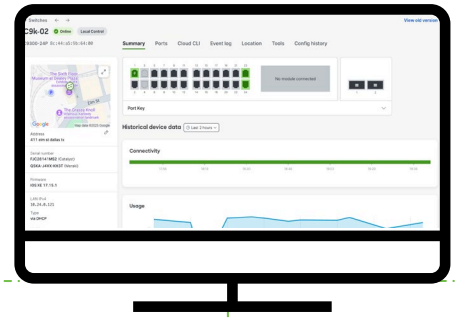
- Exclusively managed by Dashboard
- Config stored in cloud and synced to IOS XE
- Perform configurations with Dashboard UI
- Uplink auto configuration

Hybrid operating mode

- Management flexibility
- Config stored in IOS XE with cloud backup
- Perform configurations with Cloud CLI terminal
- Uplink discovery

Operating Modes

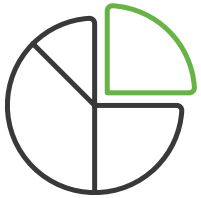
Cloud
Operating Mode



Hybrid
Operating Mode

Health and Assurance

Real time switch and port health

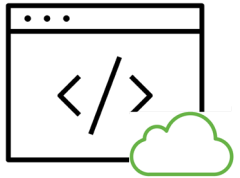


App visibility + traffic analytics

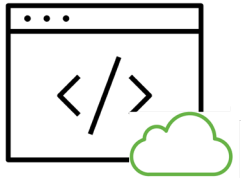
Image Upgrades*

IOS XE Software Upgrades

Cloud CLI



Show Terminal

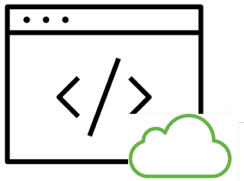


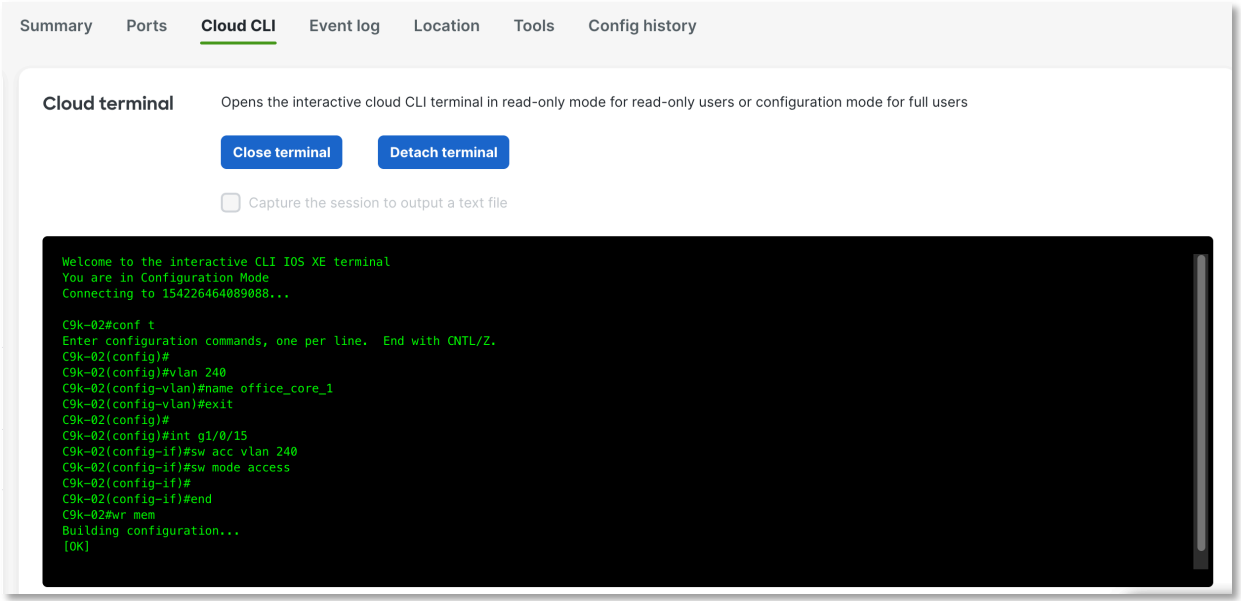
Interactive CLI terminal

*Hybrid mode image upgrades coming soon

Cloud CLI for Hybrid Operating Mode

Interactive CLI terminal for hybrid operating mode with configuration commands



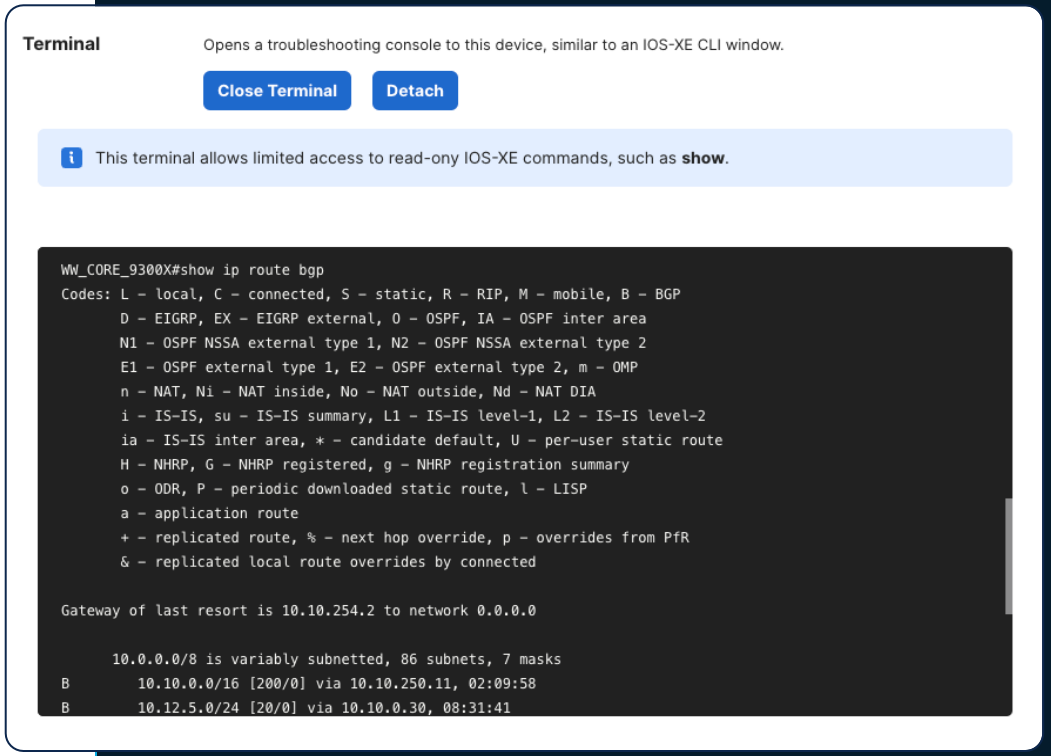


Secure direct terminal with IOS XE Meraki tunnel

CLI access from anywhere

Complete config commands with audit logging

Demo: Cloud CLI



Easy Cloud Onboarding

```
WW_CORE_9300(config)# service meraki connect

Switch 1 has been successfully registered
Meraki MAC: AABBCCDDEEFF
Cloud ID: QXXX-XXXX-YYYY

*May  7 00:16:03.519: %MERAKI-5-SWITCH_REGISTER_SUCCESS: Switch 1 has been succesfully registered.
*May  7 00:16:03.519: %MERAKI-5-MAC_ADDR: Meraki MAC: AABBCCDDEEFF
*May  7 00:16:03.519: %MERAKI-5-CLOUD_ID: Cloud ID: QXXX-XXXX-YYYY

Device Registration Status:
---------------------------
Switch                Serial                                          Migration
Num    PID            Number           Cloud ID       Mac Address     Status       Mode
-------------------------------------------------------------------------------------------
1   C9300-24UX        XXYYQQCCXXC      QXXX-XXXX-YYYY  aabb.ccdd.eeff  Registered   C9K-C [Monitoring]
```

Cloud Management App-less Onboarding

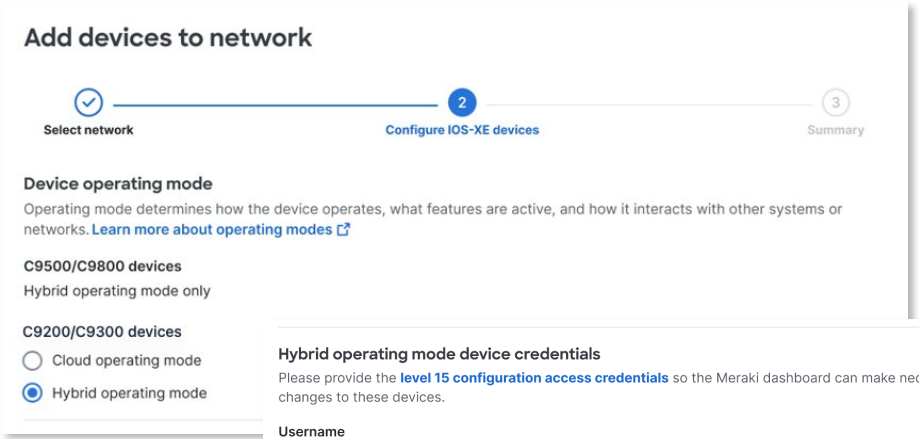
- Automated Registration and Nextunnel creation (`service meraki connect`)
- Simply claim the Cloud ID and add to a network

```
Service meraki connect: enable

Meraki Tunnel Config
------------------------------------
  Fetch State:
  Fetch Fail:
  Last Fetch(UTC):
  Next Fetch(UTC):
  Config Server:
  Primary:                    usw.nt.meraki.com
  Secondary:                  use.nt.meraki.com
  Client IPv6 Addr:           FD0A:9B09:1F7:1:9A18:88FF:FE00:CC00
  Network Name:               .Corrin - switch

Meraki Tunnel State
------------------------------------
  Primary:                    Up
  Secondary:                  Up
  Primary Last Change(UTC):   2024-05-29 23:34:02
  Secondary Last Change(UTC): 2024-05-29 23:34:02
  Client Last Restart(UTC):   2024-05-29 23:33:56

Meraki Tunnel Interface
------------------------------------
  Status:                     Enable
  Rx Packets:                 795767
  Tx Packets:                 600246
  Rx Errors:                  0
  Tx Errors:                  0
  Rx Drop Packets:            0
  Tx Drop Packets:            0

Meraki Device Registration
------------------------------------
  url:                        https://catalyst.meraki.com/nodes/register
```

Connection State (`show meraki connect`)

Easy Cloud Onboarding

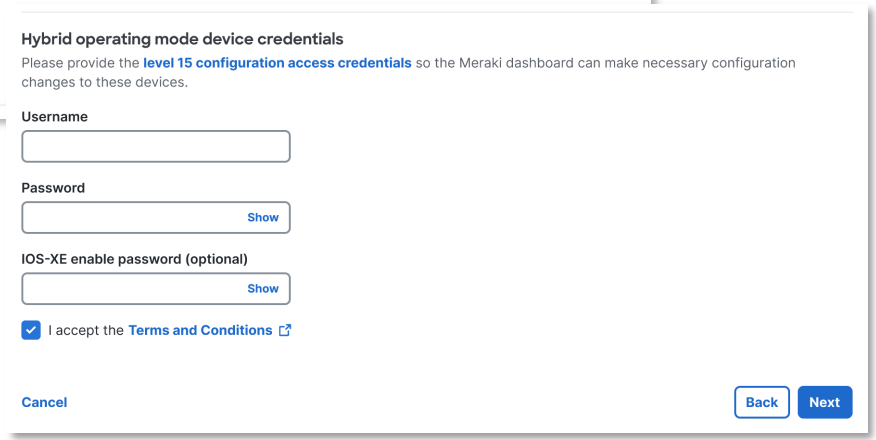
Choose Your Operating Mode When Onboarding



Cloud operating mode

Switch configuration removed

Reloads into Cloud operating mode
Full cloud configurations synced to IOS XE



Hybrid operating mode

Enter switch local credentials

Hybrid operating mode IOS XE configurations provisioned by Dashboard

Cloud Monitoring for Catalyst *Transformation*

One Cloud platform, One OS

Cloud Monitoring

Downloadable onboarding application

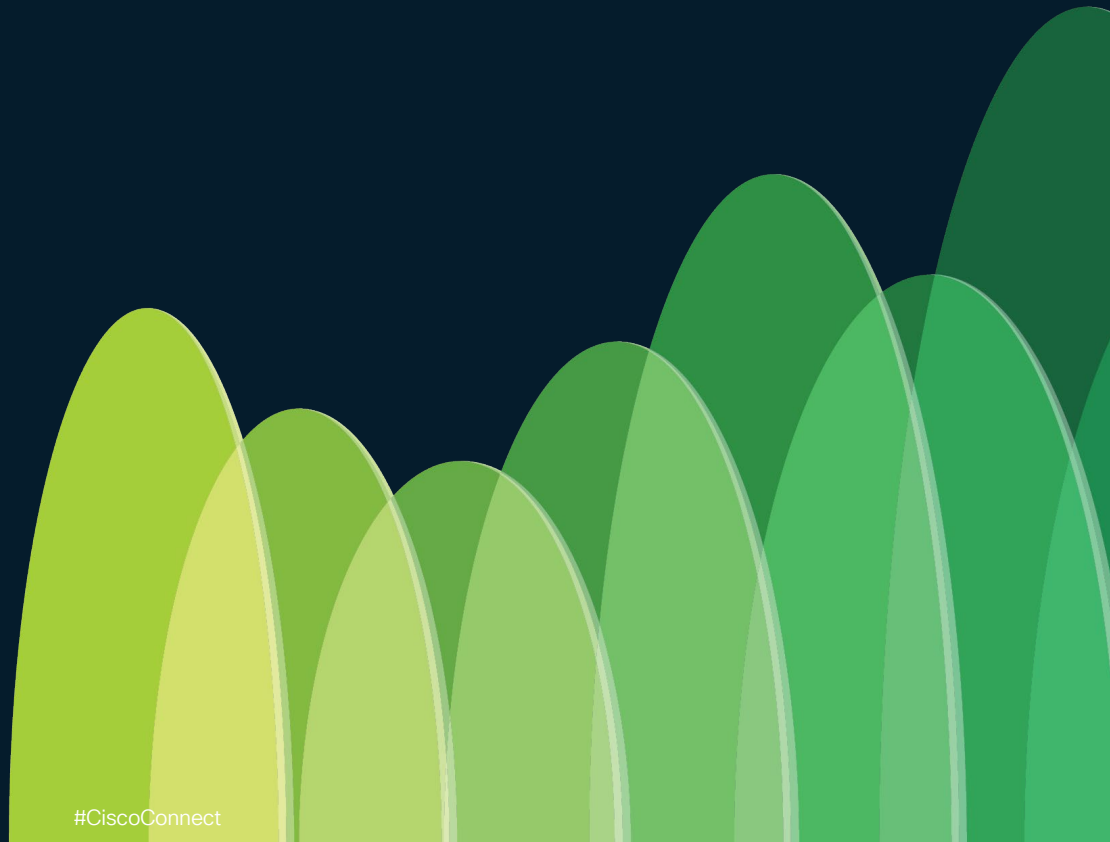
Claim/add supported Catalyst switches to monitoring within the onboarding application

Hybrid Operating Mode

Connect switches to Dashboard with *One* CLI command

Simply claim the Cloud ID and add to a network and select your operating mode

Platforms



A next-gen model for every network need

Access

Enhanced PoE and Stacking

IOS XE 17.15

MS130/R

IP30

30W PoE+

2.5 GbE

10 GbE SFP+

MS150

80 Gbps stacking

60W PoE++ (802.3bt)

C9200L

All Models

160 Gbps stacking

30W PoE+

C9300L-M

320 Gbps stacking

60W UPoE+ (802.3bt)

C9300-M

480 Gbps stacking + StackPower 60W UPoE+ (802.3bt)

C9300X-M

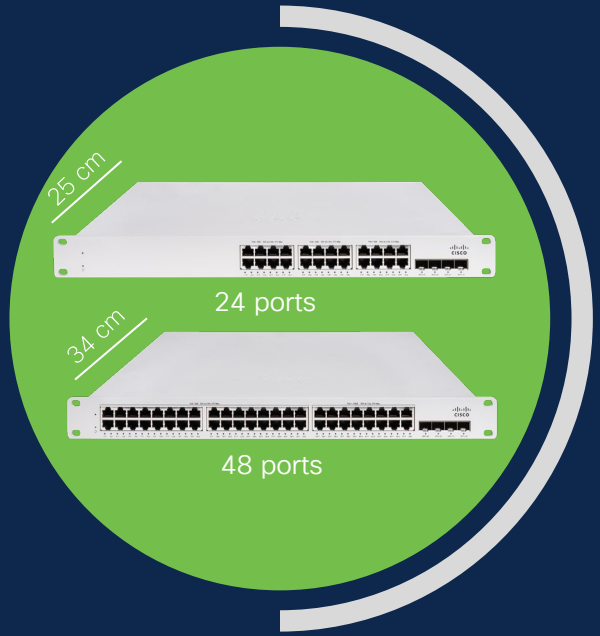
1Tbps stacking + StackPower 90W UPoE+ (802.3bt)

C9300/X-M

480 Gbps /1Tbps stacking + StackPower

Common policy | Scalable segmentation | End-to-end network management | Zero-touch provisioning

Introducing MS150



60W PoE++ (802.3bt)

Power the latest IoT devices with up to 740W power budget

Multigigabit Speeds

Increased throughput with 5GbE mGig and 10GbE SFP+ options

Static Routing*

Configure predictable network paths up to 16 routes

Perpetual and Fast PoE

Minimize potential loss of connectivity and power with perpetual and fast PoE

Stackable

Stack up to 8 x MS150 switches with 2x dedicated stacking ports

Adaptive Policy

Mircosegmentation of users, devices, and applications to simplify security and access policies

*Static routing will be available in a subsequent firmware release

MS150 Series Overview

Gigabit SKUs

10G SFP+

MS150-24T-4X
- 24 x 1 GbE
- 4 SFP+
- Data only

M150-24P-4X
- 24 x 1 GbE
- 4 SFP+
- PoE+ (370W)

MS150-48T-4X
- 48 x 1 GbE
- 4 SFP+
- Data only

MS150-48LP-4X
- 48 x 1 GbE
- 4 SFP+
- PoE+ (370W)

MS150-48FP-4X
- 48 x 1 GbE
- 4 SFP+
- PoE+ (740W)

1G SFP

MS150-24T-4G
- 24 x 1 GbE
- 4 SFP
- Data only

M150-24P-4G
- 24 x 1 GbE
- 4 SFP
- PoE+ (370W)

MS150-48T-4G
- 48 x 1 GbE
- 4 SFP
- Data only

MS150-48LP-4G
- 48 x 1 GbE
- 4 SFP
- PoE+ (370W)

MS150-48FP-4G
- 48 x 1 GbE
- 4 SFP
- PoE+ (740W)

Multigigabit SKUs

MS150-24MP-4X
- 16 x 1 GbE + 8 x 5 GbE
- 4 SFP+
- POE++ (370W)

MS150-48MP-4X
- 32 x 1 GbE + 16 x 5 GbE
- 4 SFP+
- POE++ (740W)

Stacking Cables

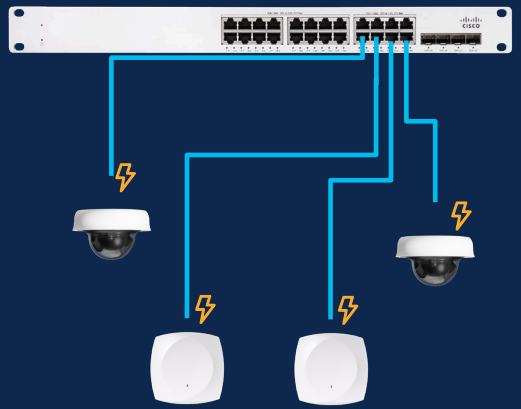
MA-CBL-100G-50CM

MA-CBL-100G-1M

MA-CBL-100G-3M

Business Continuity with Perpetual and Fast PoE

supported on MS150



Reduce downtime by more than

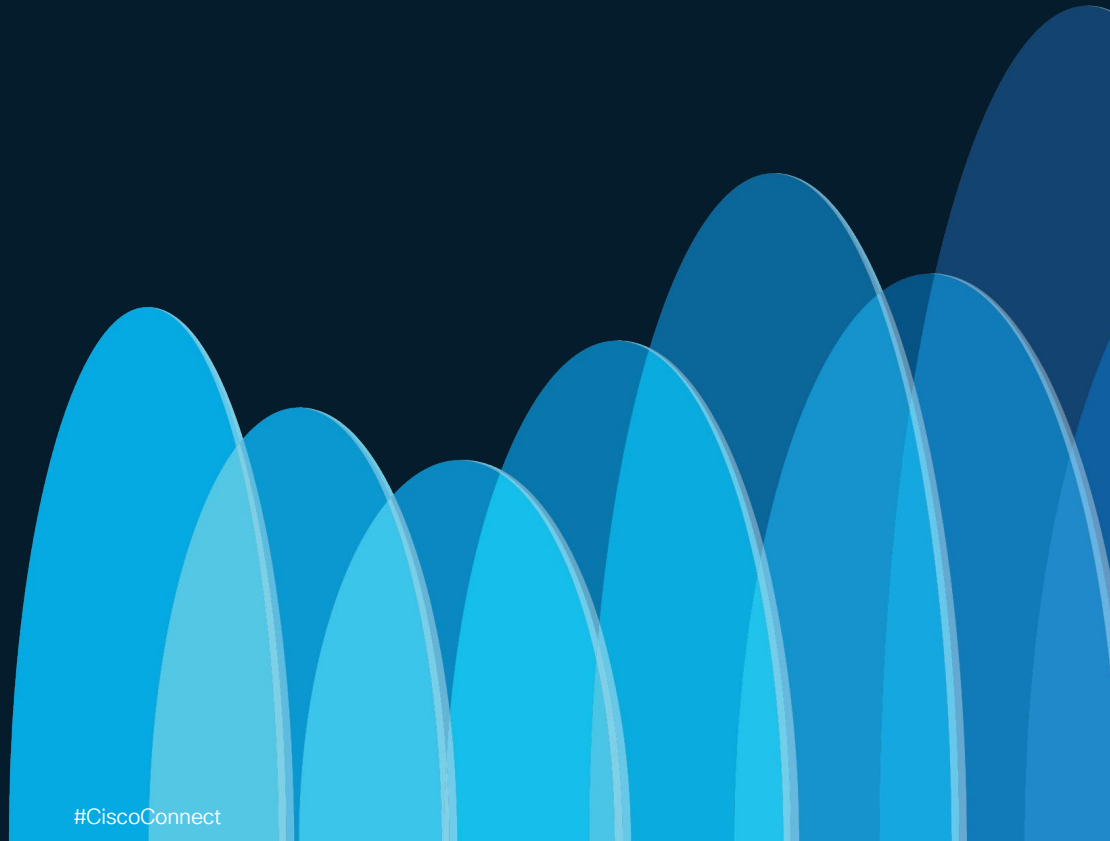
60%

Perpetual PoE: Maintain uninterrupted power to security cameras while performing firmware upgrades

Fast PoE: Restore power to PDs quickly in the event power cannot be maintained

No configuration required! Perpetual + Fast PoE are enabled out of the box

New Features



Meraki Early Access Program

Test-drive new features

SmartPorts - Automations
Enable automated application of port profiles on MS devices

Switching

Switch Device Health
Switch Device Health offers a comprehensive view of key metrics to evaluate the contro

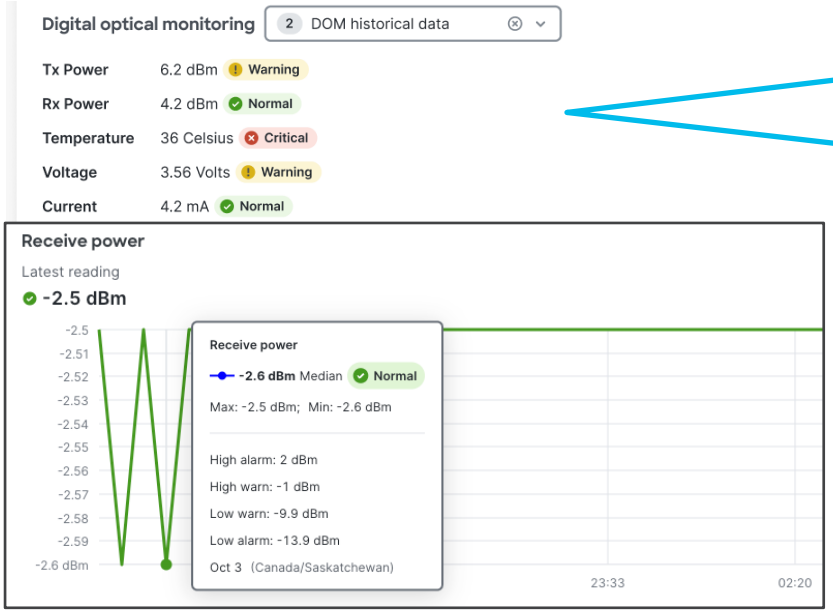
Switching

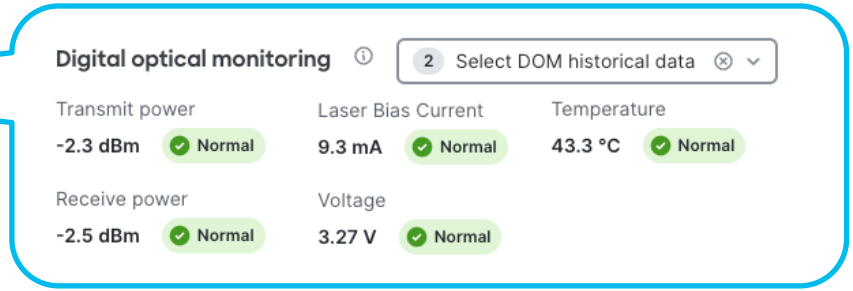
VLAN Database
Enables VLAN DB Feature for pruning VLANs on Cloud Managed Catalyst Switches

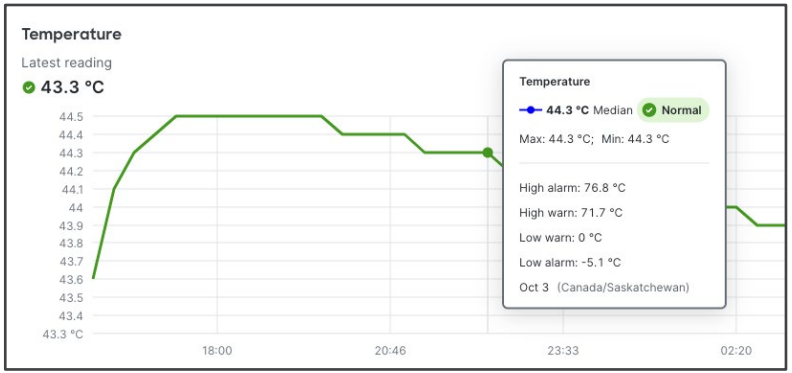
Digital Optical Monitoring

MS17

Soon to IOS XE

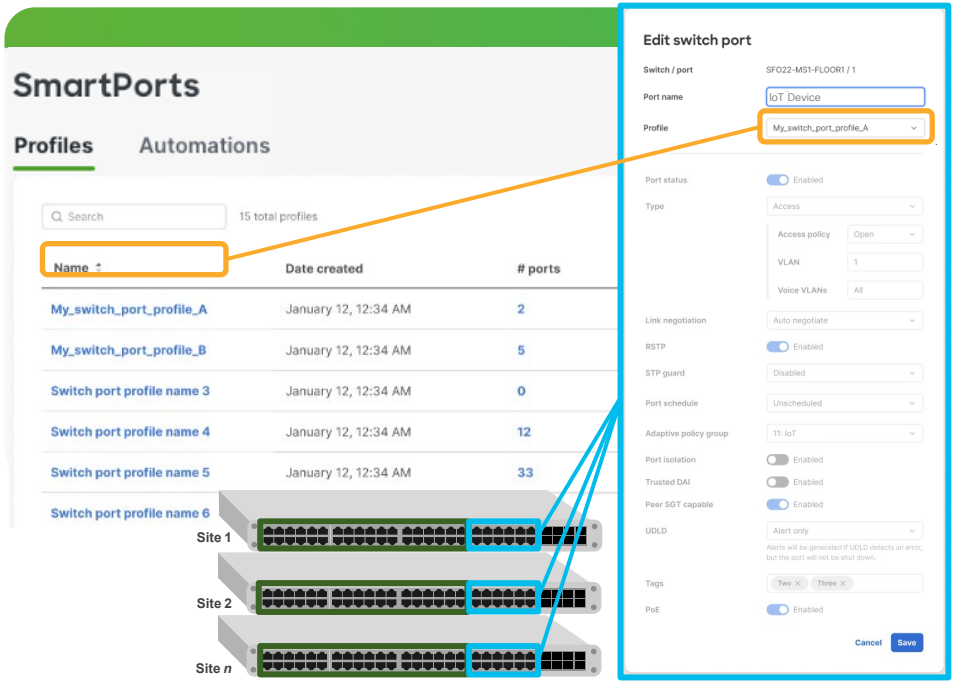






- Compare multiple metrics
- Real-time and historical values
- Thresholds for supported modules

Port Management at Scale with SmartPort Profiles



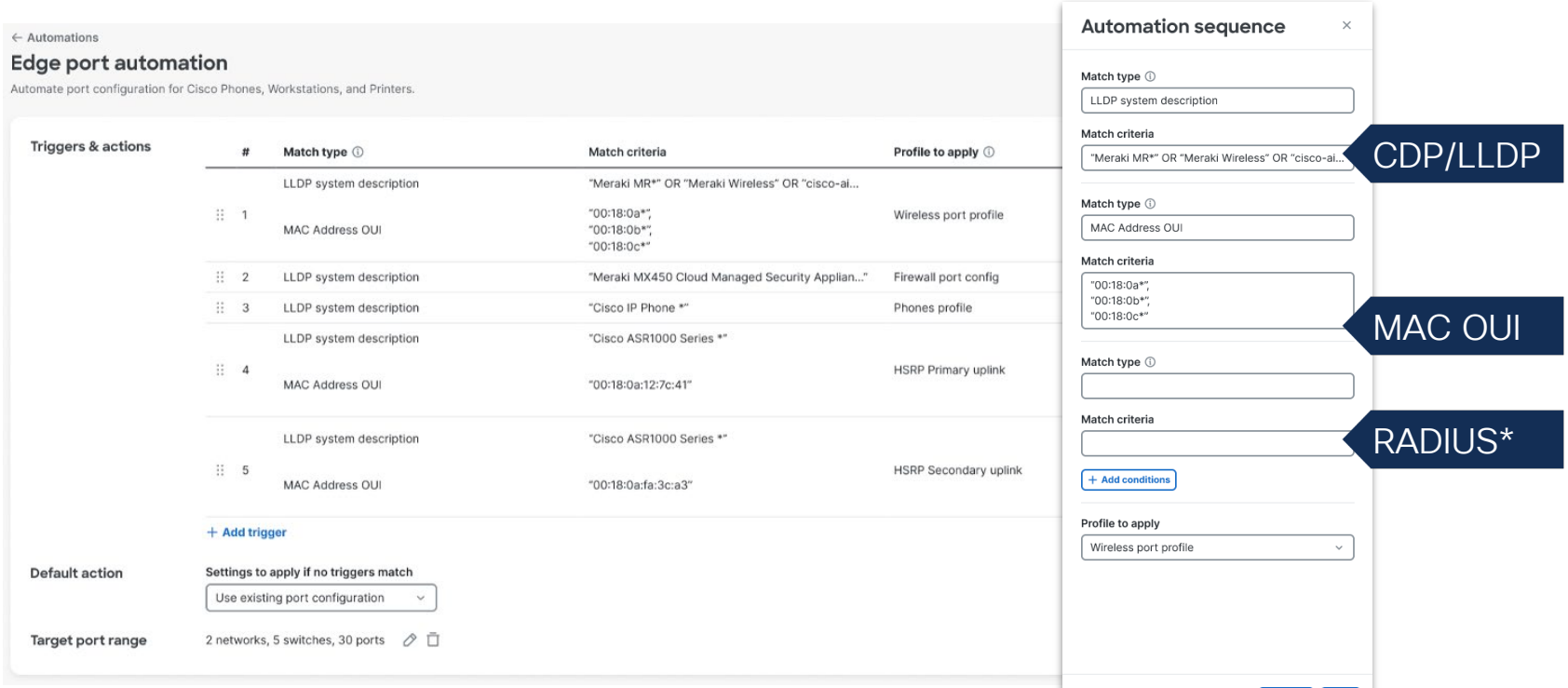
Building-blocks containing configuration settings for switchports that can be applied to one or thousands of ports.

SmartPorts

MS17

Soon to IOS XE

Automations for configuring ports based on connected device recognition

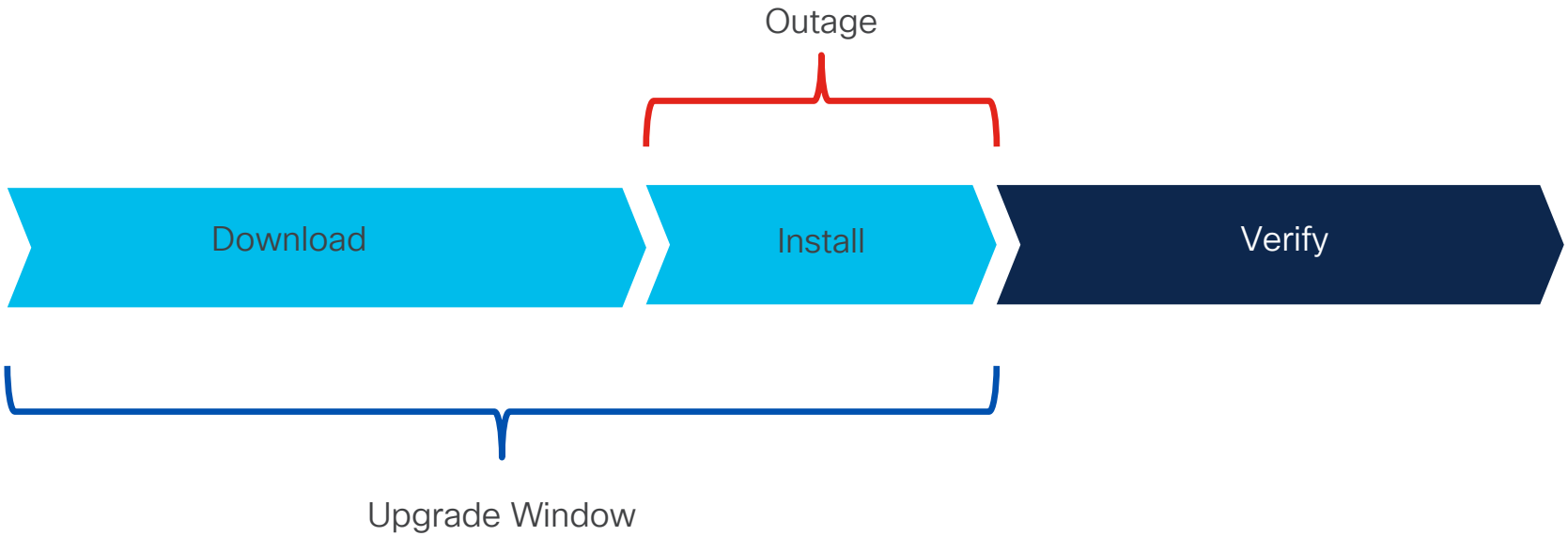


*Coming soon

How about shorter upgrade windows?

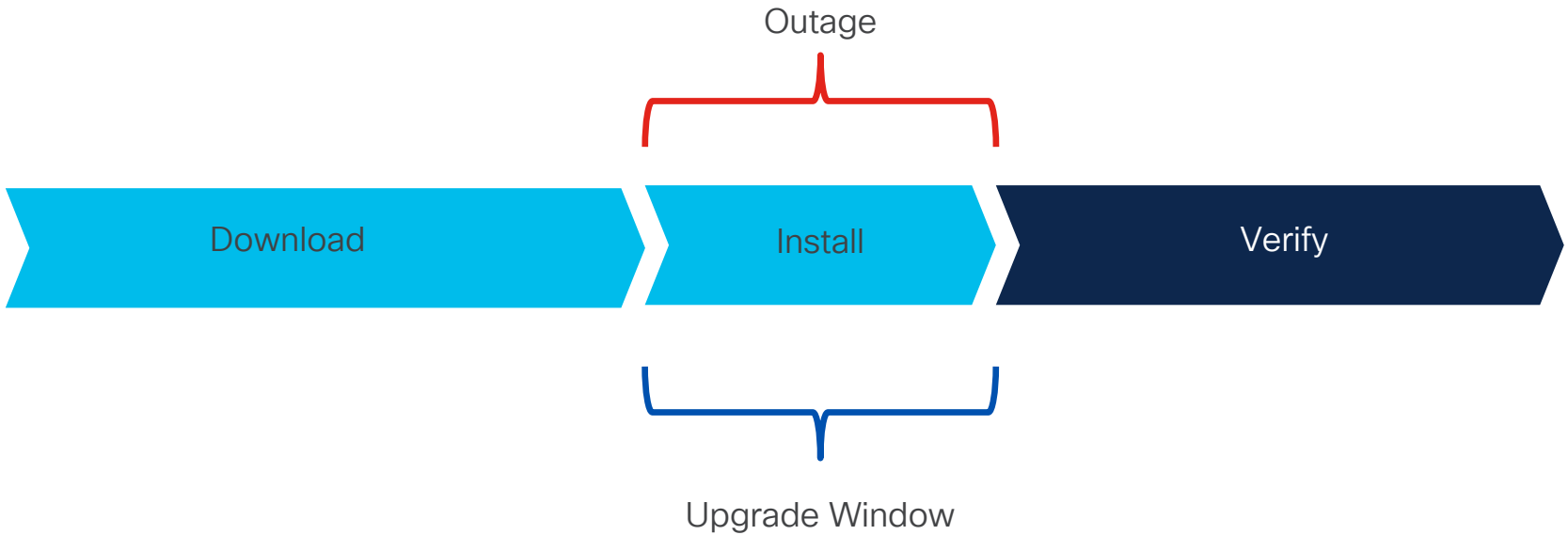
IOS XE 17.15 MS TBD

Firmware Predownload



How about shorter upgrade windows? IOS XE 17.15 MS TBD

Firmware Predownload



How about shorter upgrade windows?

IOS XE 17.15 MS TBD

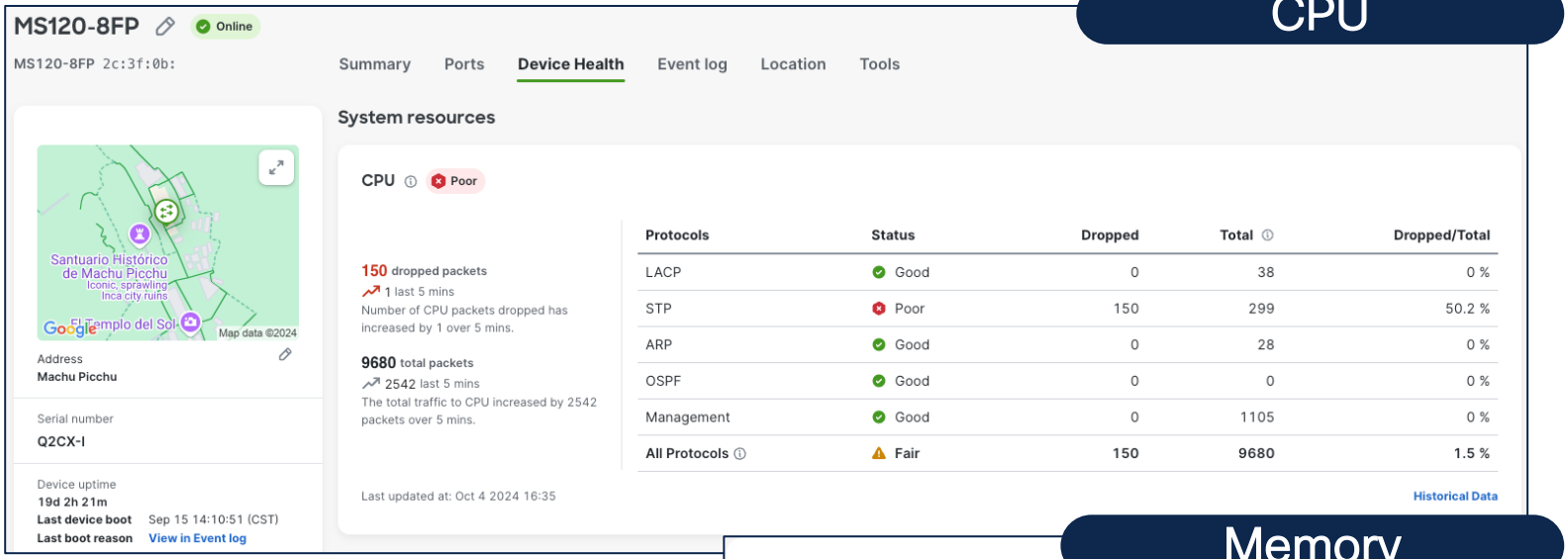
Napkin math

100 switches with 100Mbps goodput:

- MS 30 min > 5 min
- IOS XE 2h44 min > 10 min

MS Device Health

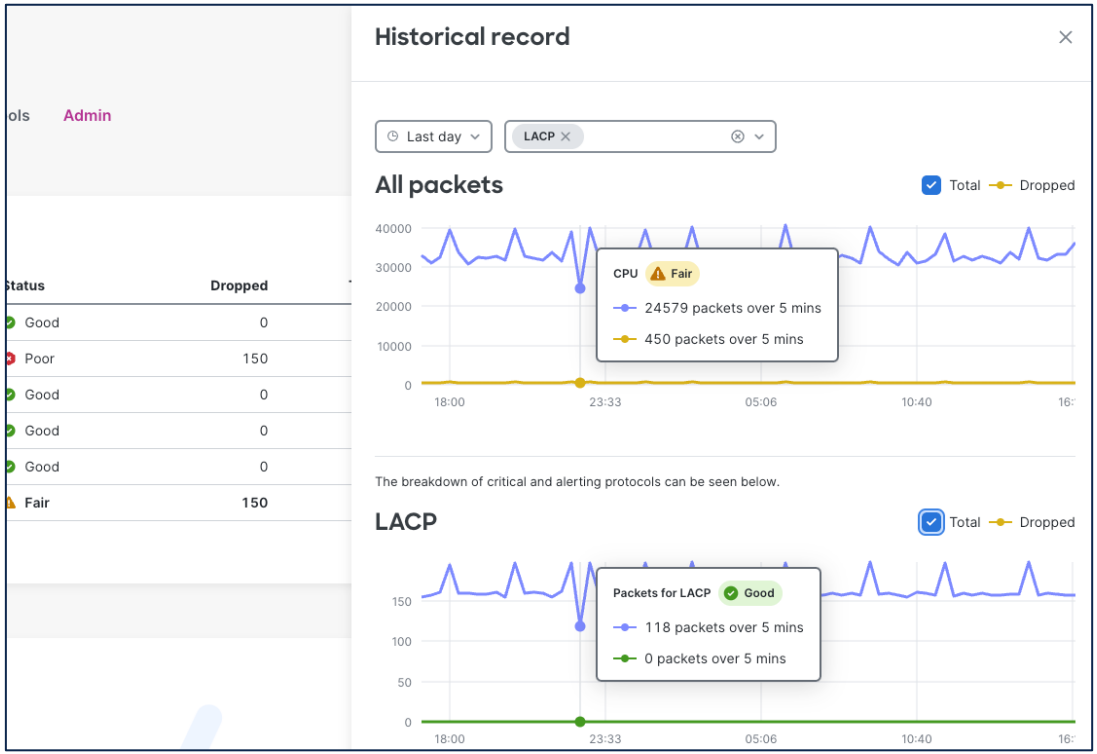
Visibility into switch health metrics

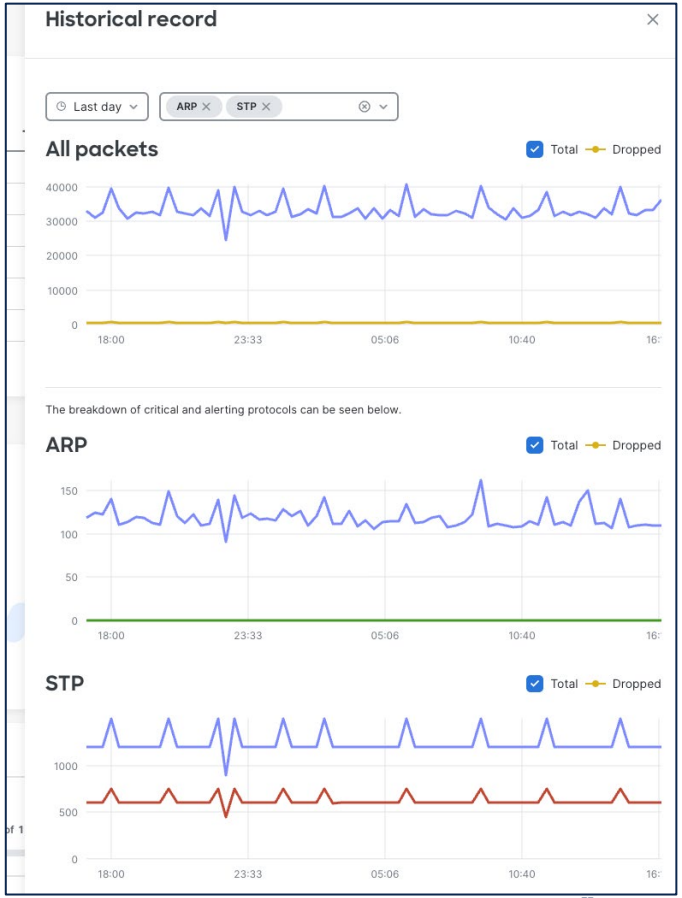


Real-time metrics

MS Device Health

Historical Benchmarking





MT sensor integration

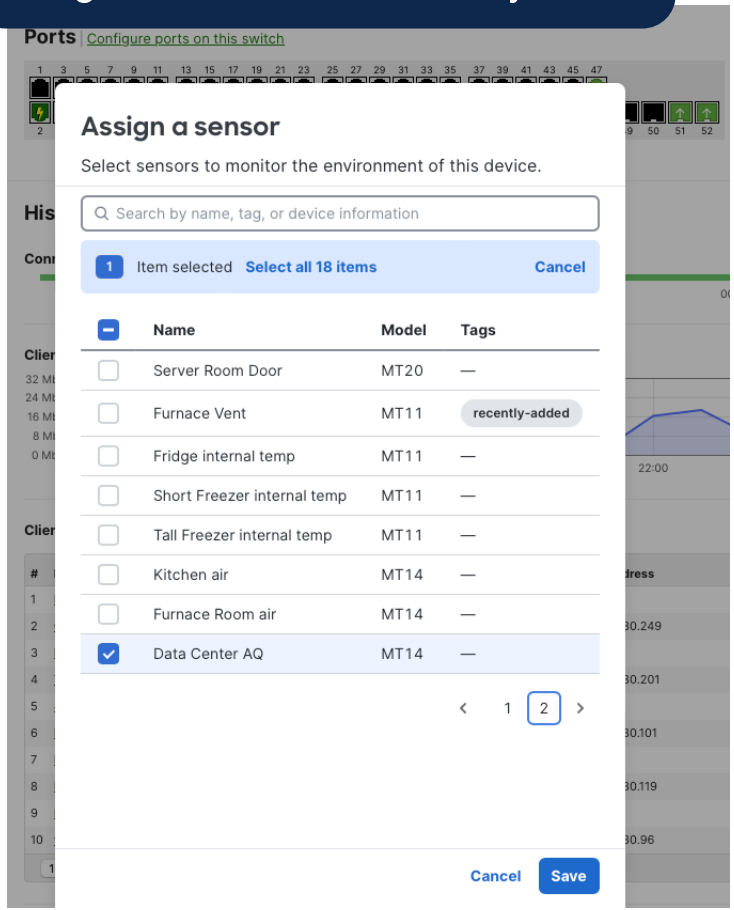
Name	Model	Latest reading	
Rack 3	MT40	Apparent power	59.5 VA
		Current	0.49 A
		Frequency	60 Hz
		Power factor	99%
		Real power	59.1 W
		Voltage	121.4 V
Data Center AQ	MT14	Humidity	30% RH
		Indoor air quality	75
		Ambient noise	59 dBA
		PM2.5	0 µg/m³
		Temperature	30.94°C
		TVOC	50 µg/m³
Data Center water sensor	MT12	Water leak	Present

Environment readings on the switch details page

Is it too hot in the network closet?

How loud is the data center?

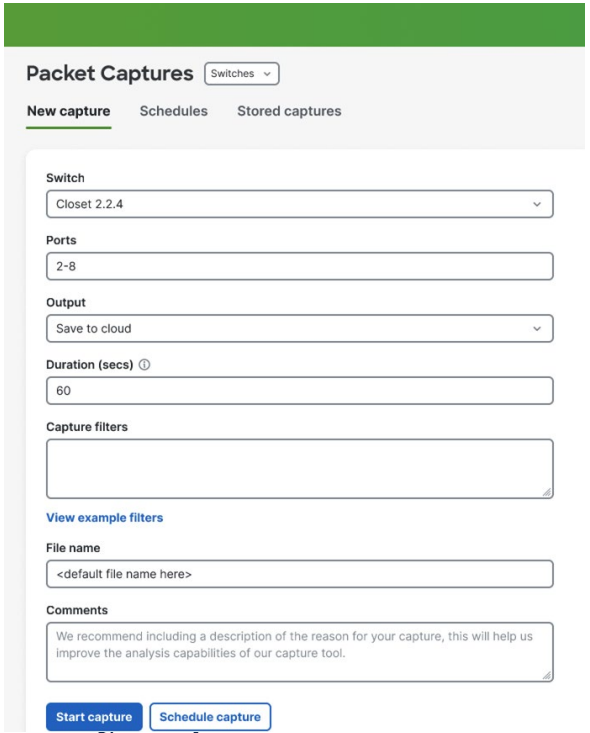
Assign relevant sensors to any switch



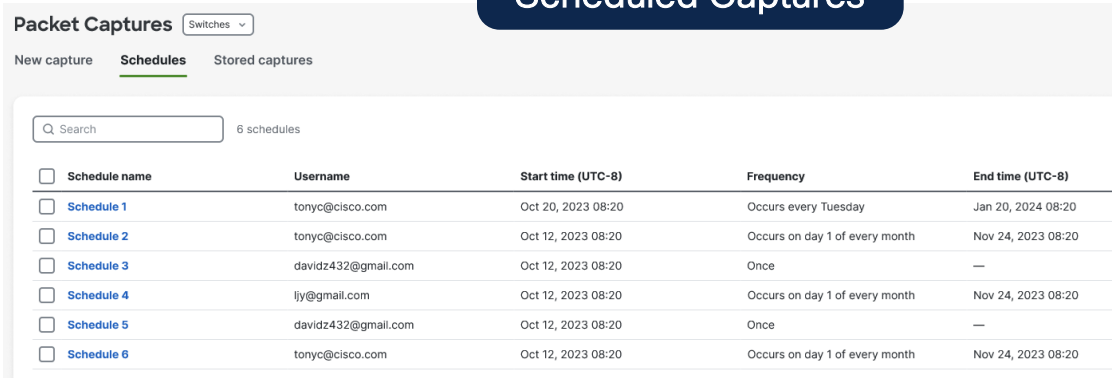
Intelligent Capture

MS17 IOSXE 17.15

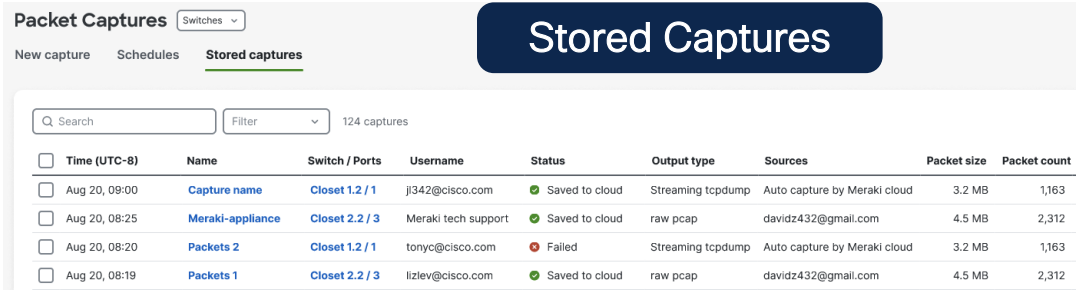
Streamlined packet captures with a cloud-hosted option



Scheduled Captures



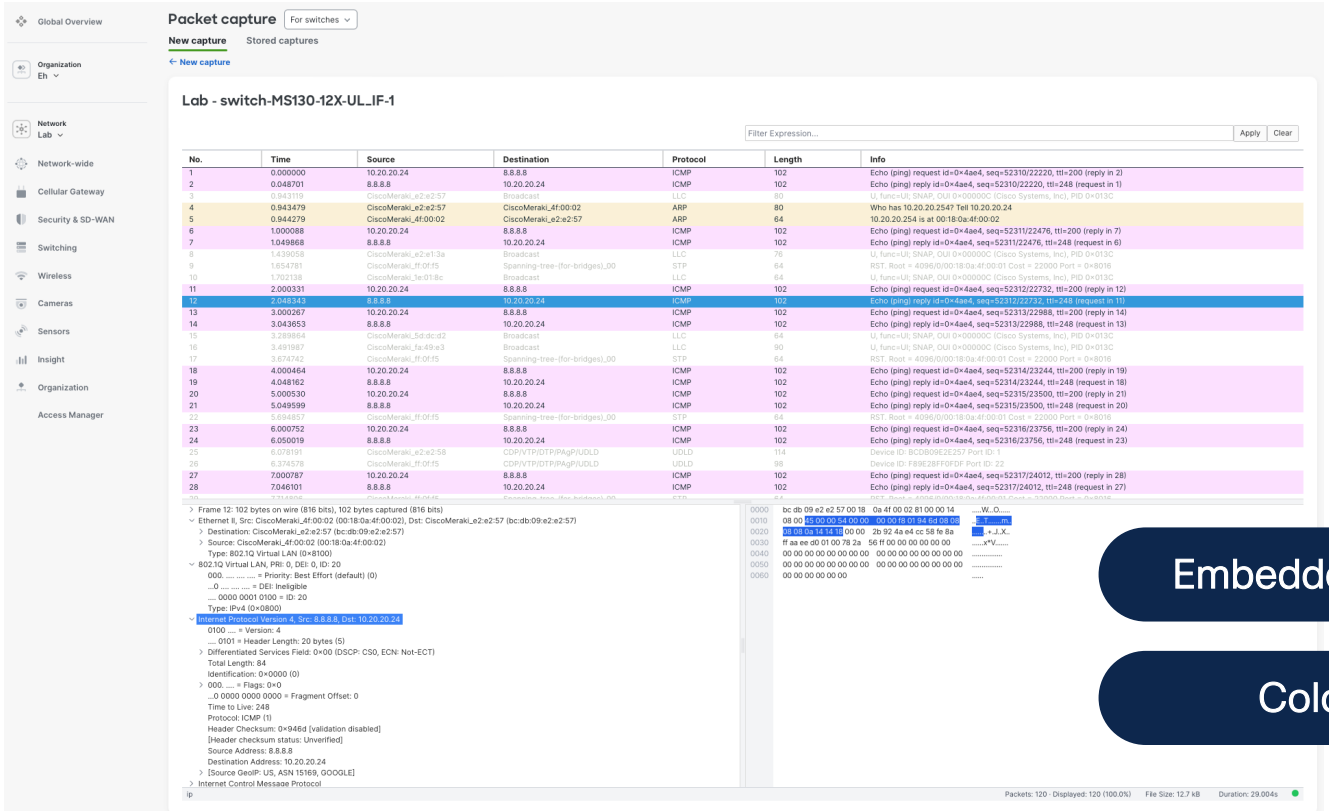
Stored Captures



Intelligent Capture

MS17

IOSXE 17.15



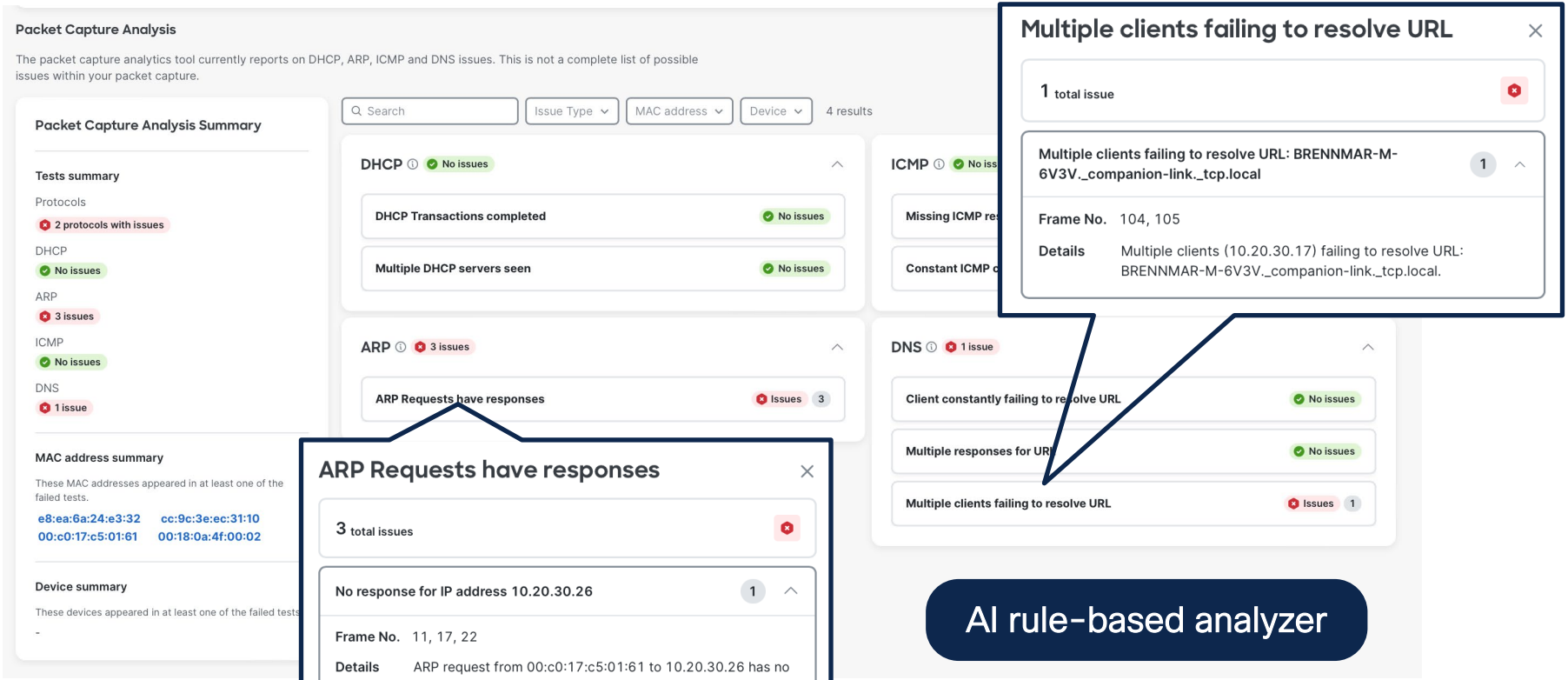
Embedded Packet Viewer

Coloring Profiles

Intelligent Capture

MS17

IOSXE 17.15



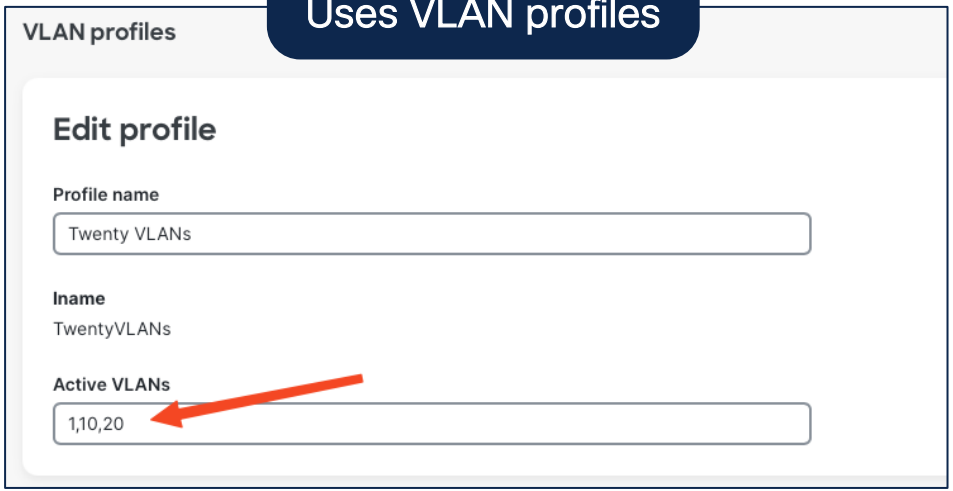
AI rule-based analyzer

Demo: Intelligent Capture

VLAN Database

Early Access

Uses VLAN profiles



Maximum Active VLANs
Catalyst 9300 = 1000
Catalyst 9200 = 512

Dashboard intelligently handles active VLAN limits

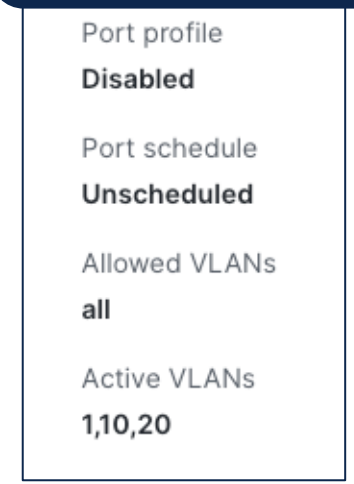
Lower broadcast and multicast overhead

Simpler trunk configs

Easier out-of-box deployment

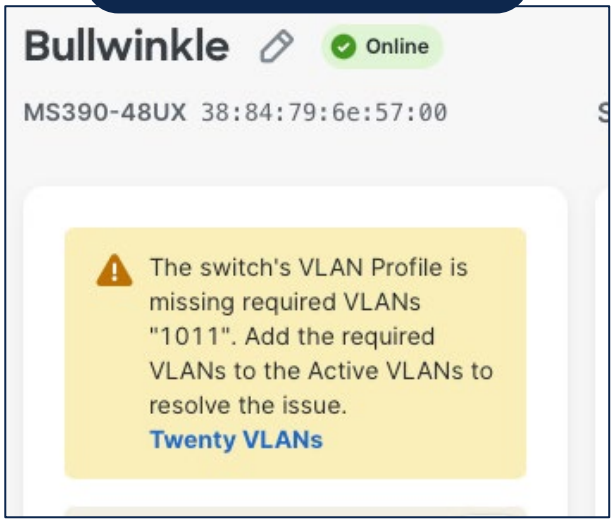
VLAN Database Early Access

Active VLANs per Trunk



Allow all on trunks

Alerts



Lower broadcast and multicast overhead

Simpler trunk configs

VLAN Database Early Access

Terminal

Opens a troubleshooting console to this device, similar to an IOS-XE CLI window.

Close Terminal | Detach | Detach (full)

This terminal allows limited access to read-only IOS-XE commands, such as **show**.

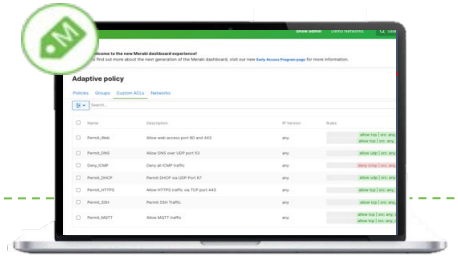
```
Rocky#sh vlan brief
VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Te1/0/2, Te1/0/3, Te1/0/4, Te1/0/5, Te1/0/6, Te1/0/7,
1/0/15, Te1/0/16, Te1/0/17, Te1/0/18, Te1/0/19, Te1/0/20, Te1/0/21, Te1/0/22, Te1/0/23, Te1/0/24, Te1
1/0/1, Gi2/0/1, Gi2/0/2, Gi2/0/3, Gi2/0/4, Gi2/0/5, Gi2/0/6, Gi2/0/7, Gi2/0/8, Gi2/0/9, Gi2/0/10, Gi2
0/18, Gi2/0/19, Gi2/0/20, Gi2/0/21, Gi2/0/22, Gi2/0/24, Ap2/0/1, Tw3/0/2, Tw3/0/4, Tw3/0/5, Tw3/0/6, T
0/14, Tw3/0/15, Tw3/0/16, Tw3/0/17, Tw3/0/18, Tw3/0/19, Tw3/0/20, Tw3/0/21, Tw3/0/22, Tw3/0/23, Tw3/0
1, Tw3/0/32, Tw3/0/33, Tw3/0/34, Tw3/0/36, Te3/0/37, Te3/0/38, Te3/0/39, Te3/0/40, Te3/0/41, Te3/0/42
e3/1/2, Te3/1/3, Te3/1/4, Te3/1/5, Te3/1/6, Te3/1/7, Te3/1/8, Ap3/0/1
10   VLAN0010                         active
20   VLAN0020                         active
1002 fddi-default                     act/unsup
1003 token-ring-default               act/unsup
1004 fddinet-default                  act/unsup
1005 trnet-default                    act/unsup Tw3/0/3
```

CLI verification

Adaptive Policy on MS130X/R, MS150

MS17

Leverage Cisco TrustSec across the entire wired network, from the core to any type of edge



Rugged

MS130R*

Branch

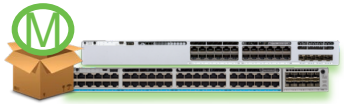
Small/medium campus

MS130X

Stackable

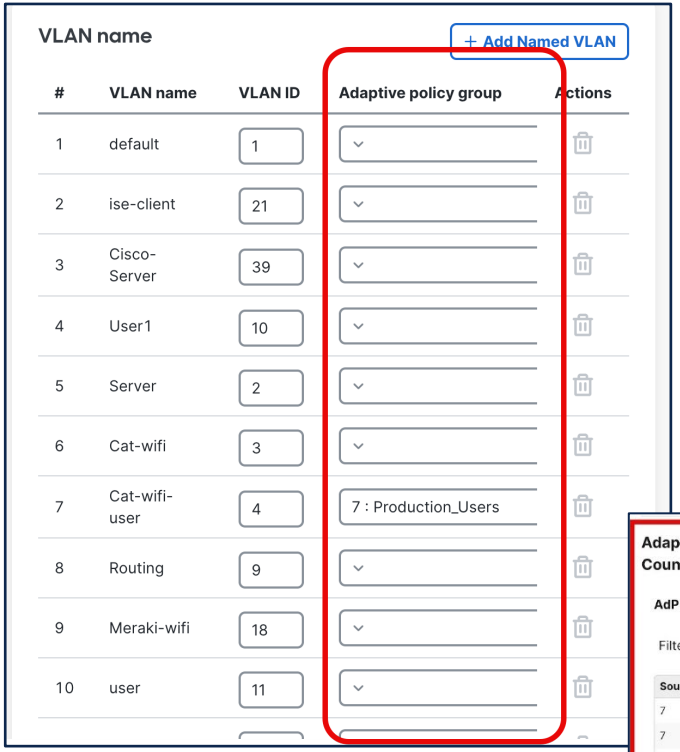
MS150

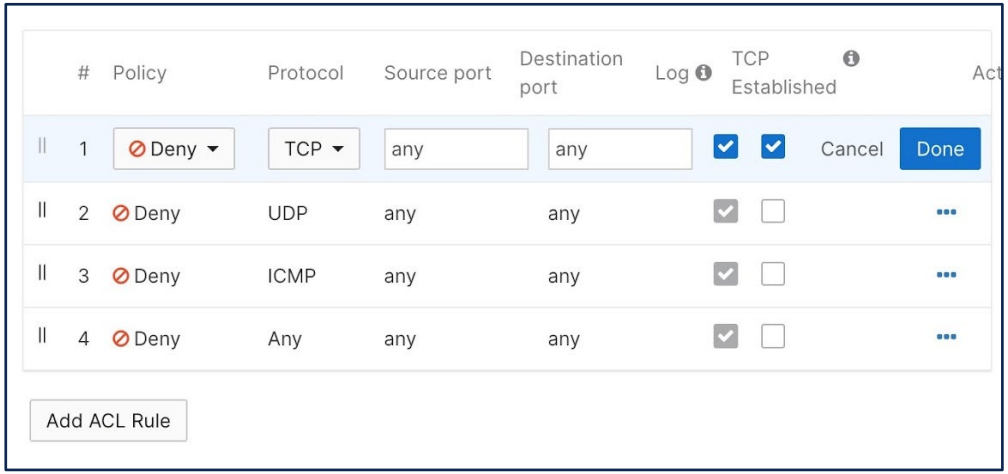
Large campus

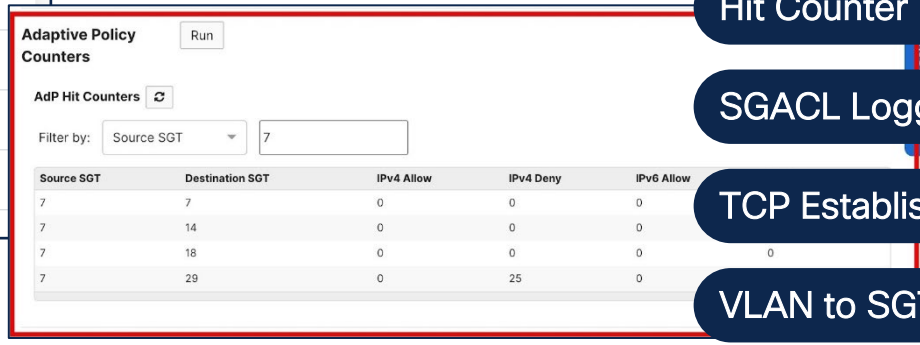


Catalyst 9000-M

Adaptive Policy Enhancements CS17







Hit Counter Live Tool

SGACL Logging

TCP Established

VLAN to SGT mapping

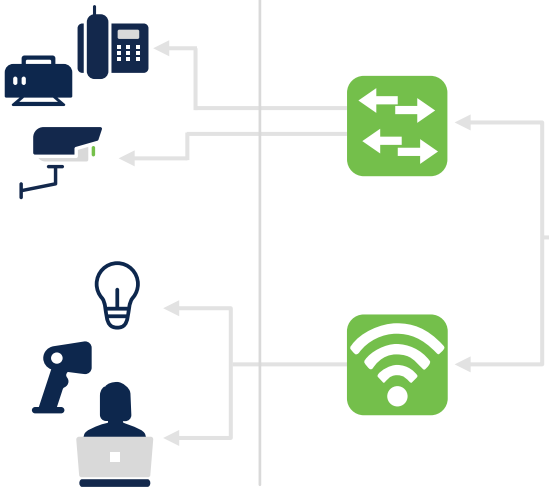
What makes it all work?

Endpoints

- Users
- Devices
- Things

Network Devices

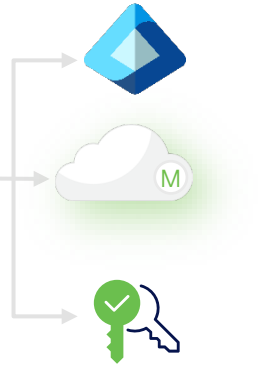
- Cloud Managed
  - Switching
  - Wireless



Your NAC/RADIUS servers in a data center

Identity Services

- Microsoft EntraID (certificate | user/password)
- Dashboard dB for Endpoints and Endpoint Groups
- EAP-TLS cert match



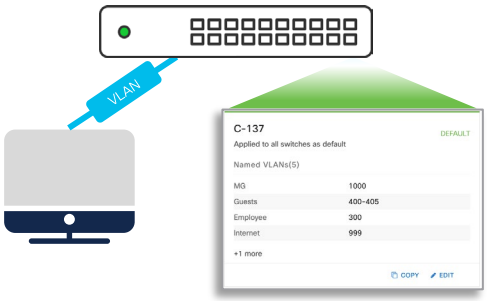
Authorization

- Adaptive Policy (SGT)
- Group Policy Assignment
- VLAN assignment
- iPSK passphrase
- Interface Template*

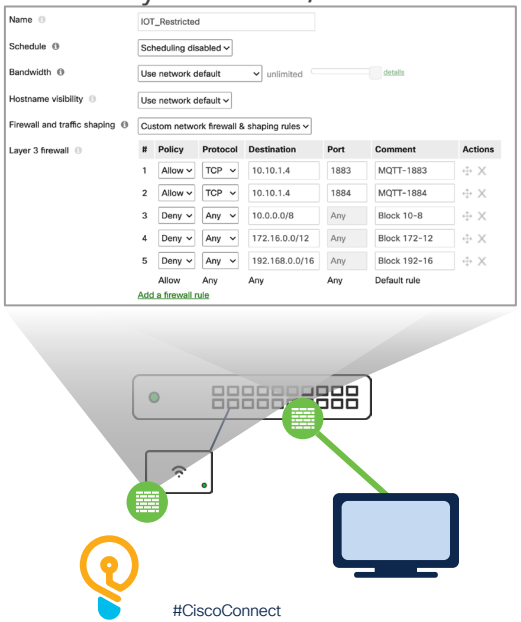
802.1X and RADIUS Support is not new to Meraki

External RADIUS service

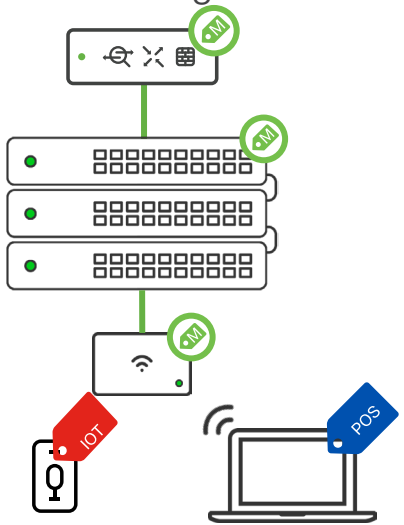
Per-Session VLAN Assignment



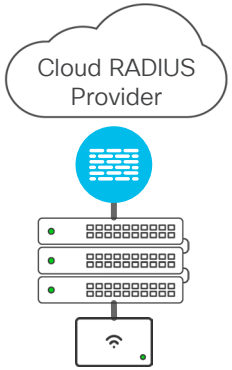
Per-Session Dynamic L3/L4 ACL



Zero-Trust micro-segmentation



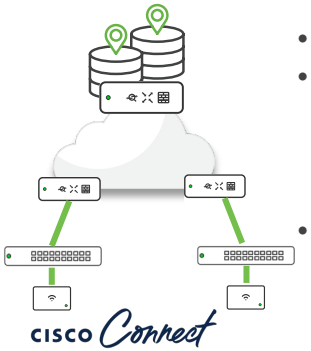
External RADIUS can be complex



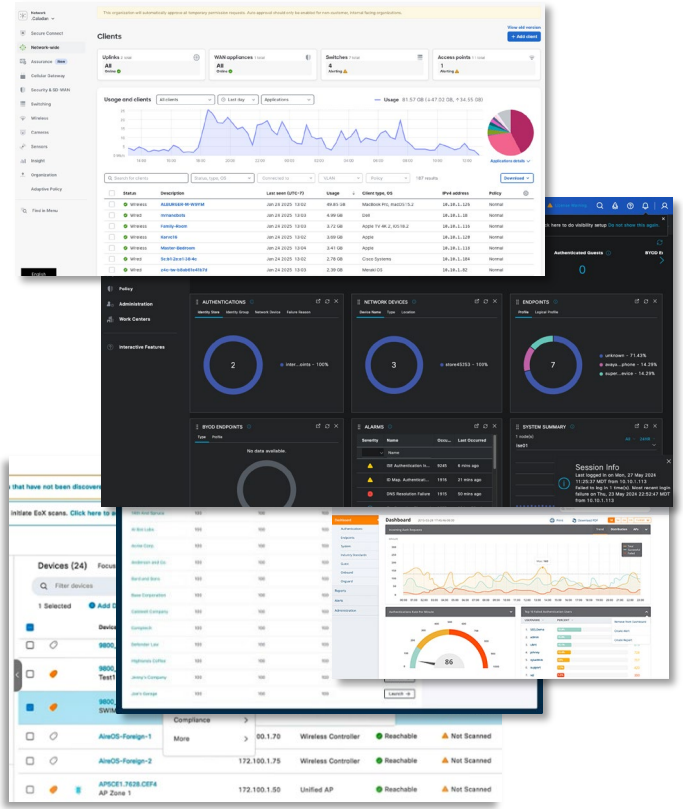
- Complex firewall rulesets
- Complex connectivity configurations
- Potential in-transit security implications
- Manual input of network and security contexts

Overhead from console pivots

On-premises AAA



- Complex deployment management and Operations
- Connectivity complexity in distributed deployments
  - VPN tunnel management
  - Load-balancers
  - Etc.
- Manual input of network and security contexts



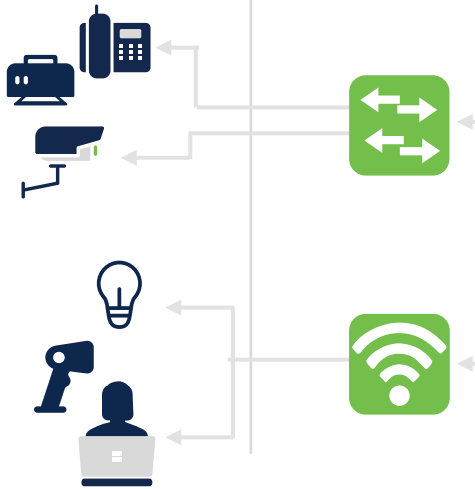
Meraki Access Manager

Endpoints

- Users
- Devices
- Things

Network Devices

- Cloud Managed
  - Switching
  - Wireless



Meraki Access Manager

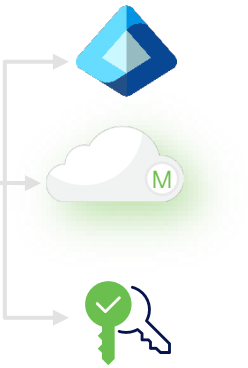
Scalable Meraki Cloud Service

HA Multi-Tenant Service

Single console

Identity Services

- Microsoft EntraID (certificate | user/password)
- Dashboard dB for Endpoints and Endpoint Groups
- EAP-TLS cert match

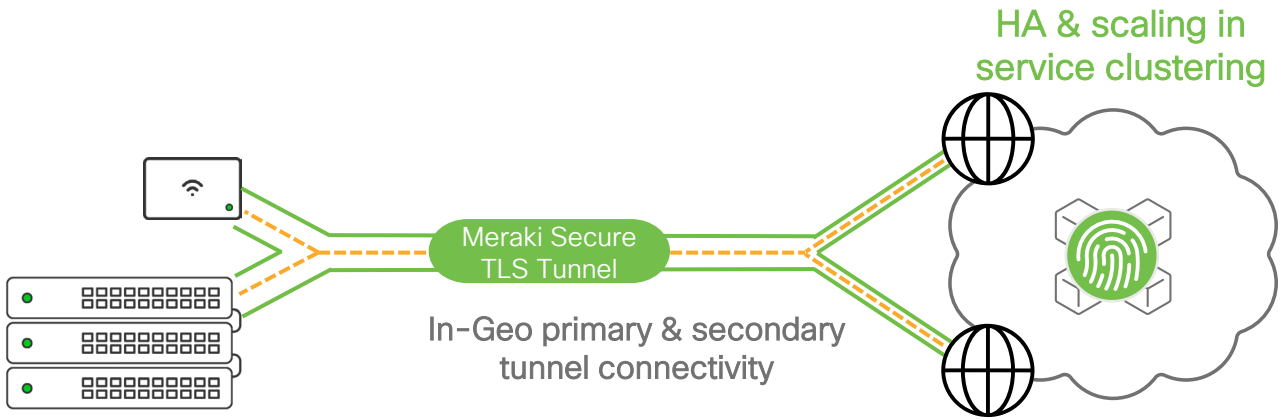


Authorization

- Adaptive Policy (SGT)
- Group Policy Assignment
- VLAN assignment
- iPSK passphrase
- Interface Template*

cisco Connect

Highly Available Cloud Architecture



Network Device Resiliency

- Tunnel connectivity to primary and secondary tunnel servers in the same geographic region
- 802.1X resiliency through RADIUS caching and critical-auth/fallback functionality

Cloud Service Resiliency

- Service clustering leveraging Kubernetes
- Horizontal scaling

Features Overview

Platforms	Firmware
All Current Generation MS	MS16+
CS (catalyst management V1)	CS17
Cloud native XE (support being finalized)	Cloud native IOS XE17.15.3

Authentication methods

Authenticate users and devices using:

- **EAP-TLS** (certificate)
- **EAP-TTLS** (Username/Password)
- **MAB** (MAC Authentication Bypass)

Identity & Context

Match identity & context attributes:

- Certificate Attributes
- RADIUS attributes
- Entra ID attributes
- Networks, SSIDs, connection details etc.
- Endpoints and their groups

Authorization Results

Apply authorizations:

- SGT — Adaptive Policy Group
- L3 ACL/Group Policy
- VLAN — VLAN Assignment
- iPSK passphrase

Meraki Access Manager Beta

Reduced management overhead & costs

Eliminates the need for deploying and maintaining external RADIUS servers, Load-balancers for high-availability, VPN tunnels for multi-site deployments etc.

One dashboard for everything

Eliminates the complexity and effort involved in configuring, monitoring and troubleshooting across multiple products

Bult-in Scalability and high-availability

Cloud-delivered services offer scalability and high-availability to support growing number of users and devices without the need for additional hardware

Rapid adoption of micro-segmentation

Enables rapid adoption of micro-segmentation to implement zero-trust policies through Adaptive Policy and restrict ransomware propagation

Immediate conventional access controls

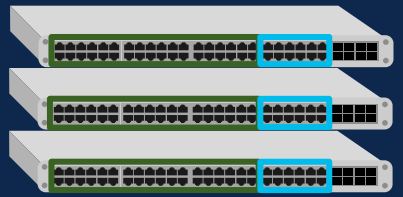
Provides immediate ability to apply conventional across controls like VLANs, ACLs, etc. without having to configure additional integrations

Seamless external cloud-based integrations

Provides a more seamless way to integrate with external cloud-based services

Get ready for Cloud-native IOS XE M

Get Intelligent help
analyzing packet captures



Check out the CLI in Dashboard

```
Bullwinkle# show meraki connect

Service meraki connect: enable

Meraki Tunnel Config
------------------------------------
  Fetch State:                Config fetch succeeded
  Fetch Fail:
  Last Fetch(UTC):            2024-10-05 16:45:40
  Next Fetch(UTC):            2024-10-05 18:10:56
  Config Server:              cs46-2037.meraki.com
  Primary:                    usw.nt.meraki.com
  Secondary:                  use.nt.meraki.com
  Client IPv6 Addr:           FD0A:9B09:1F7:1:3A84:79FF:FE6E:5700
  Network Name:               Eh2 - switch

Meraki Tunnel State
------------------------------------
  Primary:                    Up
  Secondary:                  Up
```


CISCO