

# Designing Access and Core Switching Architectures with Meraki

**CISCO** Live !

Enterprise Cloud managed switching

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Product Management Leader,  
Switching Experiences

# Webex App

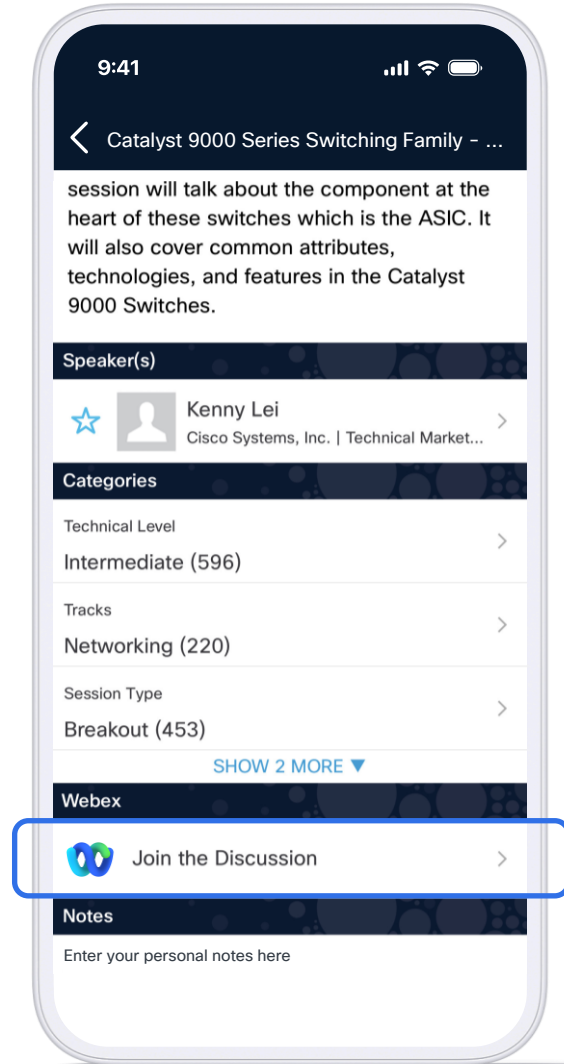
## Questions?

Use Webex App to chat with the speaker after the session

## How

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

**Webex spaces will be moderated by the speaker until February 27, 2026.**



# Agenda

- 01 Intro
- 02 Cloud management with IOS XE
- 03 Platforms
- 04 Cloud Configuration
- 05 IOS XE 17.18
- 06 Designing Switching Cloud Architectures



# More time underground than in data centers

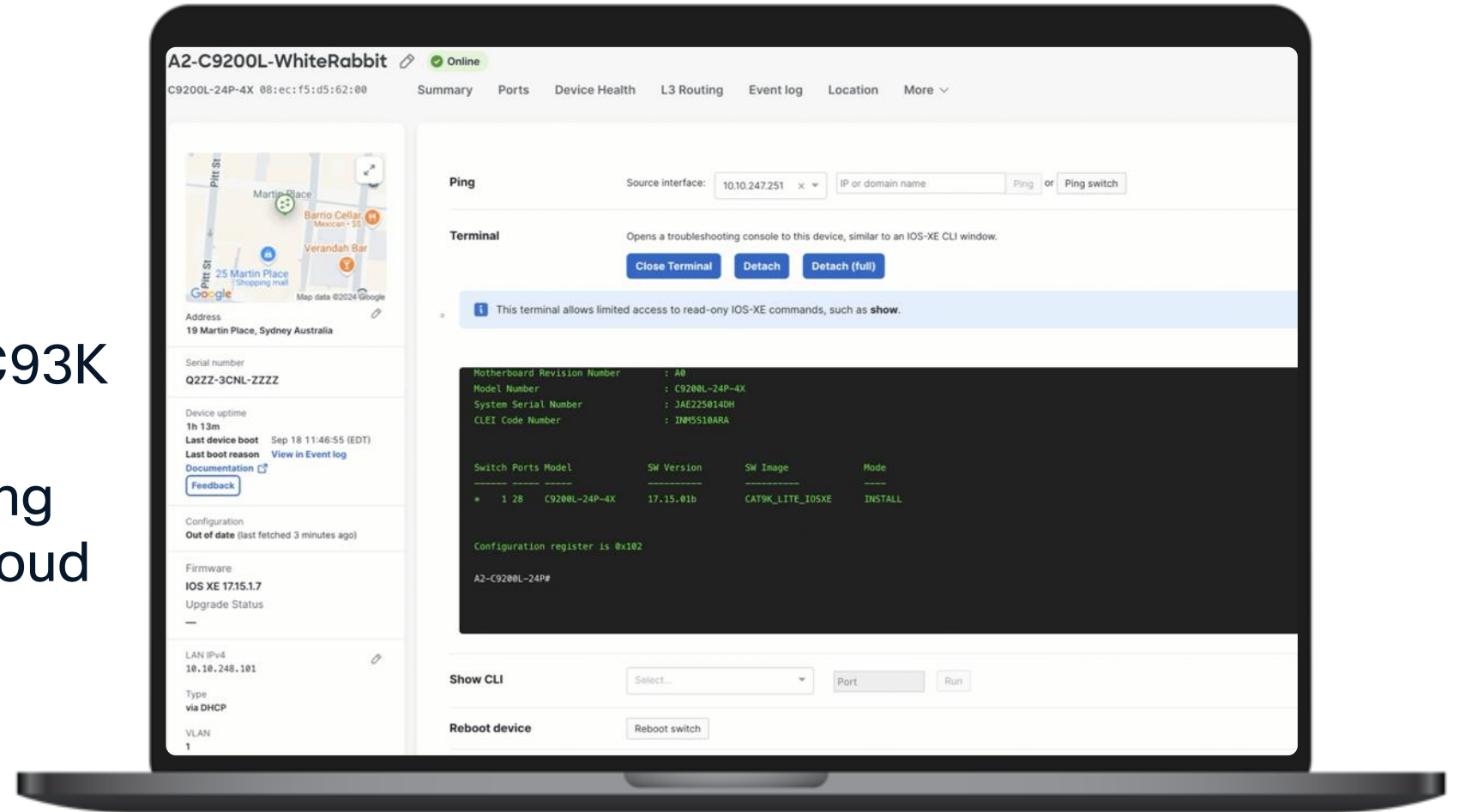
- Ask me about potash
- Saskatoon, Saskatchewan – Canada
- 20+ years building networks
- CCIE R/S #50782

# Cloud management with IOS XE

# We've been busy with cloud enablement

## IOS XE:

- Cloud CLI
- Support for all C92K,C93K
- Support for 9500H
- Streamlined Onboarding
- Config on device or cloud



# Introducing a secure Cloud CLI terminal, directly in dashboard

Access an embedded cloud-hosted CLI terminal within the Meraki dashboard without the need for VPN or jump host

Support for common CLI commands to uncover network issues effecting network devices

Leverage existing and familiar skillsets while ensuring your teams maintain access to detailed device data with CLI

The screenshot shows the Meraki dashboard interface for a device named 'ACCESS-2'. The 'Cloud CLI' tab is active, displaying a terminal window. The terminal output shows the command 'WW\_CORE\_9300X#show ip route bgp' and its output, which includes a legend for route codes and the gateway of last resort.

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

**Close Terminal** **Detach**

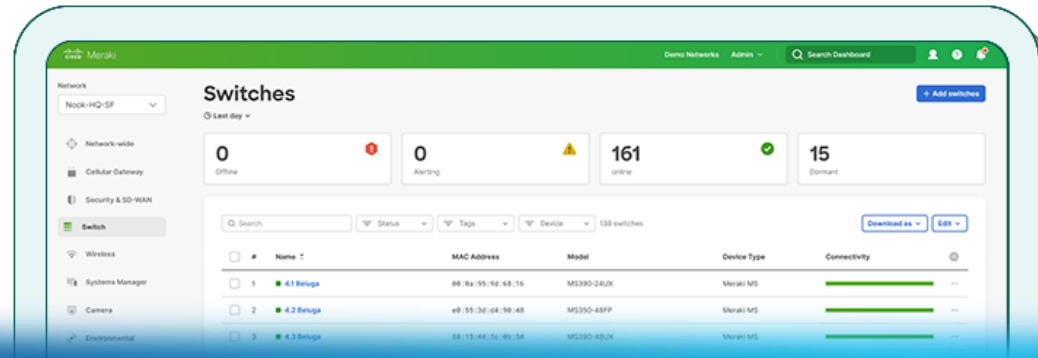
**i** This terminal allows limited access to read-only IOS-XE commands, such as **show**.

```
WW_CORE_9300X#show ip route bgp
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, m - OMP
       n - NAT, Ni - NAT inside, No - NAT outside, Nd - NAT DIA
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       H - NHRP, G - NHRP registered, g - NHRP registration summary
       o - ODR, P - periodic downloaded static route, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR
       & - replicated local route overrides by connected

Gateway of last resort is 10.10.254.2 to network 0.0.0.0
```

# Platforms

# Now supporting 9200L



**IOS XE 17.15 - AVAILABLE NOW**



C9300L



C9300



C9300X



C9200L

**NEW**

# Building on simplified cloud management with IOS XE

IOS XE 17.18



One unified OS for cloud and on-prem



Options for migration or Day 0 cloud management



Cloud simplicity with advanced IOS XE features

Industry Leading Enterprise Switching Portfolio



Unified Cloud Platform

✓ C9200CX

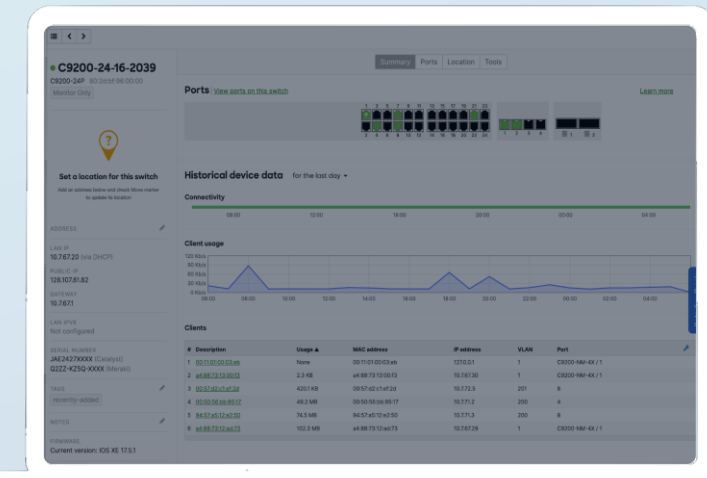
✓ C9500H

✓ C9350 Smart Switches

✓ C9200/L

✓ C9300/L/X/LM

✓ C9610 Smart Switches



Cisco Meraki Dashboard

**Catalyst 9200**  
Migration and Out of Box



**Catalyst 9300**  
Migration and Out of Box



**Cisco C9350**  
Out of Box Experience



**Catalyst 9500**  
Migration Only



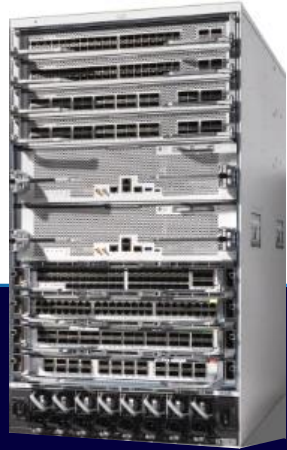
Cloud Management

# Our Portfolio

Cloud Management for Catalyst and  
Cisco C9000 Smart Switches

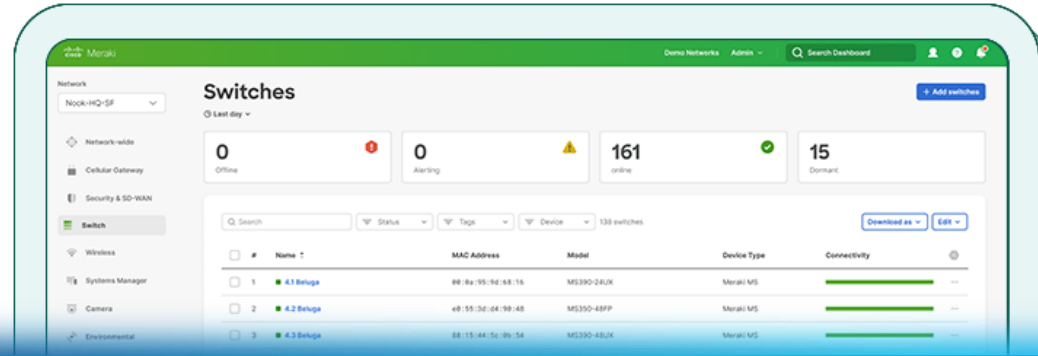
\*Cloud management capabilities for C9610 available in subsequent release

# Unlocking the Portfolio



C9610

**Preview:** Modular Platform support coming soon  
*Available now*



**Preview:** Extend secure connectivity to rugged outdoor networks  
*Targeting Q2 CY2026*



IE3500

IOS XE 17.15 - AVAILABLE NOW

IOS XE 17.18



C9300L



C9300



C9300X



C9200L

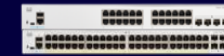
NEW



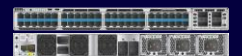
C9500



C9200/CX



C9300LM



C9350

Every C9200 and C9300 model,  
with more on the way

# Streamlined Onboarding

Available Now

# It starts with a streamlined onboarding process

Users can quickly onboard new devices to the network, choose the configuration source, and begin cloud management without any additional applications.

## Add devices to network



Select network



Configure IOS-XE devices



Summary

### Device management and configuration source

C9500

Device

C9500H refers to C9500-48Y4C, C9500-24Y4C, C9500-32C, C9500-32QC

C9200/C9300/C9500H devices



Cloud configuration

Configuration is sourced from the Meraki Dashboard.



Device configuration

Configuration remains local to the device.

### Device configuration credentials

Please provide the [level 15 configuration access credentials](#) so the Meraki dashboard can make necessary configuration changes to these devices.

Username

Password

# Streamlined Onboarding

```
WW_CORE_9300(config)# service meraki connect

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

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

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

## Cloud Management app-free 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

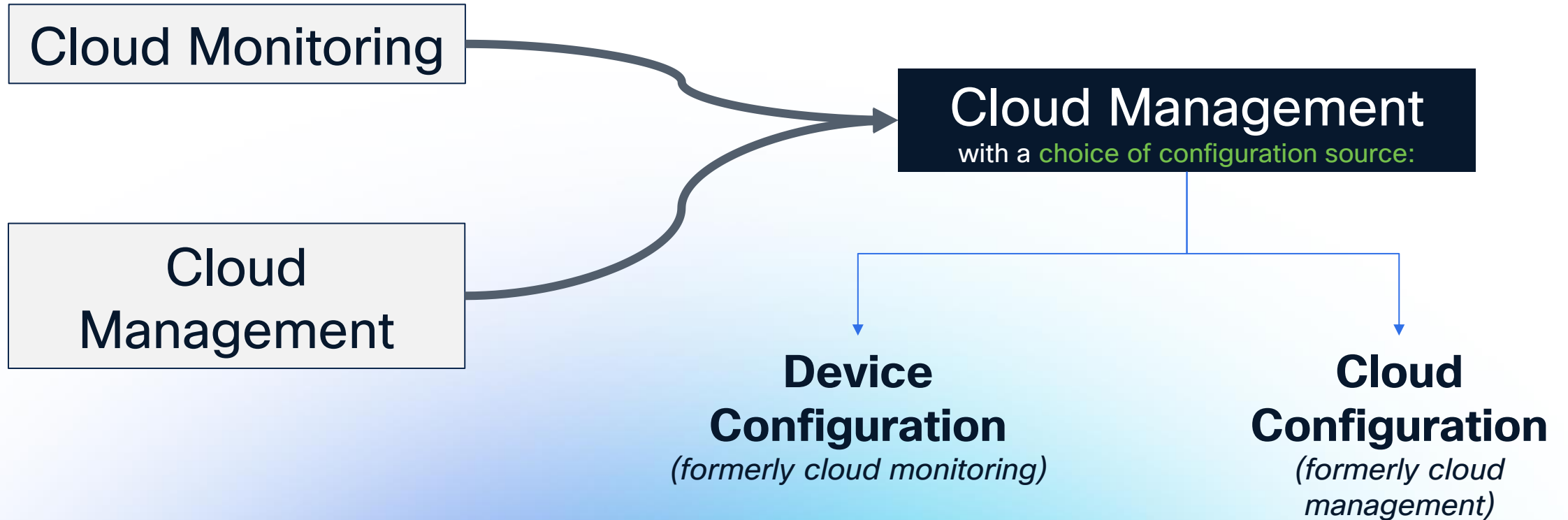
Meraki Tunnel Interface
-----
Status:           Enable
Rx Packets:       795767
Tx Packets:       600246
Rx Errors:        0
Tx Errors:        0
Rx Drop Packets:  0
Tx Drop Packets:  0

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

**Connection state**  
(show meraki connect)

Prior to IOS XE 17.15

IOS XE 17.15+



# Streamlined Onboarding

## Choose Your Configuration Source When Onboarding

### Add devices to network



Select network



Configure IOS-XE devices



Summary

### Device management and configuration source

#### C9200/C9300 devices

- Cloud configuration  
Configuration is sourced from the Meraki Dashboard.
- Device configuration **Beta**  
Configuration remains local to the device.

### Device configuration credentials

Please provide the [level 15 configuration access credentials](#) so the Meraki dashboard can make necessary configuration changes to these devices.

Username

Password

 [Show](#)

IOS-XE enable password (optional)

 [Show](#)

I accept the [Terms and Conditions](#)

[Cancel](#)

[Back](#)

[Next](#)

## Cloud Configuration

Existing configuration removed  
Reload with full cloud configurations synced to  
IOS XE

## Device Configuration

Enter switch local credentials  
Dashboard connection and telemetry IOS XE  
configurations provisioned by Dashboard

# Maintain operational flexibility with cloud management

## Configuration Source: Cloud



### UNLOCK FULL CLOUD SIMPLICITY

Configurations are performed in the cloud and managed using the dashboard UI

## Configuration Source: Device



### RETAIN ADVANCED CONTROL

Configurations are managed via traditional methods and performed local to the device

FLEXIBLE OPTIONS FOR MANAGING YOUR DEVICES FROM THE CLOUD

## Configuration Source: Cloud

### The full cloud experience with management and configurations performed in the cloud

- Cloud CLI Support for read-only 'show' commands for advanced troubleshooting
- Leverage the intuitive user interface to build configurations that are performed directly from the Meraki cloud at scale.

The screenshot shows a configuration page titled "Add devices to network". At the top, there is a progress indicator with three steps: 1. Select network (completed), 2. Configure IOS-XE devices (current step), and 3. Summary. Below the progress indicator, the section "Device management and configuration source" is displayed. Under the sub-heading "C9200/C9300 devices", there are two radio button options: "Cloud configuration" (selected) and "Device configuration" (labeled as "Beta"). The "Cloud configuration" option includes the text "Configuration is sourced from the Meraki Dashboard." The "Device configuration" option includes the text "Configuration remains local to the device." At the bottom of the form, there are three buttons: "Cancel", "Back", and "Next".

[Full List of Supported Models Here](#)

## Configuration Source: Device

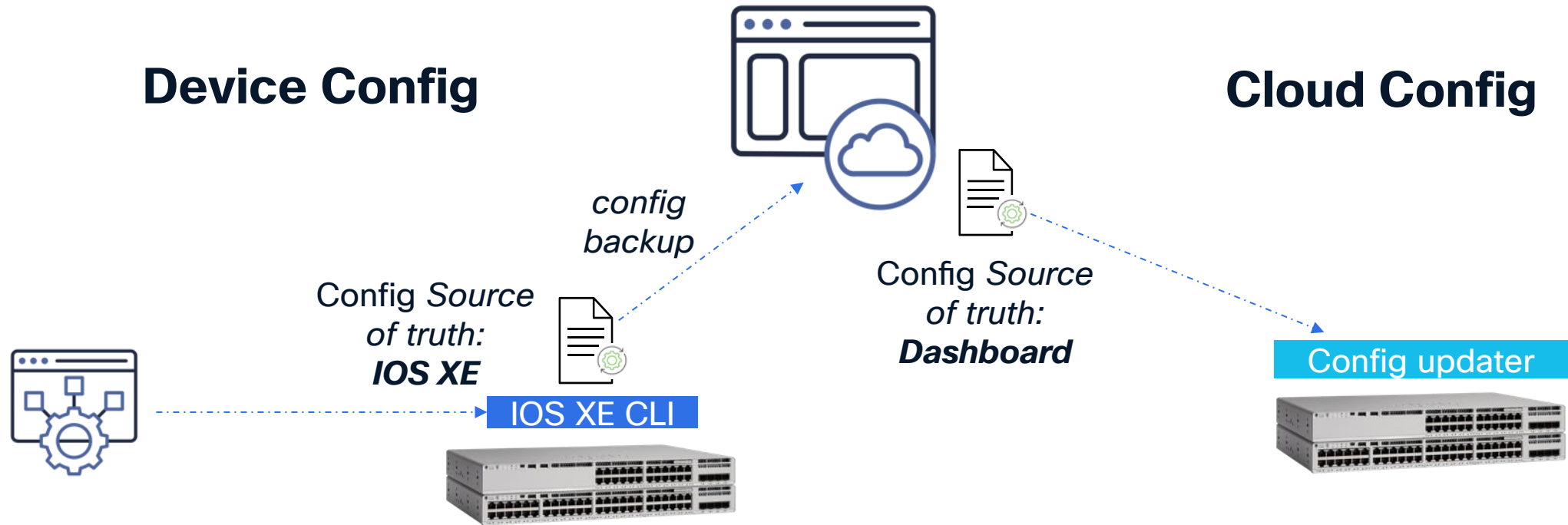
### Cloud scale visibility with localized configurations and the full IOS XE feature set

- Non-destructive onboarding preserves configurations, which are managed and performed local to the device via traditional methods.
- Cloud CLI support for show and config commands in dashboard
- Configuration back up in the cloud.

The screenshot shows a configuration interface titled "Add devices to network". It features a progress bar with three steps: 1. Select network (completed), 2. Configure IOS-XE devices (current step), and 3. Summary. Under the heading "Device management and configuration source", there are two radio button options for "C9200/C9300 devices": "Cloud configuration" (with subtext "Configuration is sourced from the Meraki Dashboard.") and "Device configuration" (with a "Beta" badge and subtext "Configuration remains local to the device."). The "Device configuration" option is selected and highlighted with a blue border. At the bottom, there are "Cancel", "Back", and "Next" buttons.

[Full List of Supported Models Here](#)

# Configuration Source



*Adopt cloud-managed networking as you evolve your IT operations to cloud*

*Full cloud-managed for efficient and scalable cloud network operations*

# Cloud Configuration

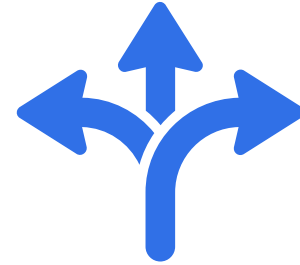
# Cloud management with IOS XE

## Architecture Advancements

# Resilient connectivity to the Cloud

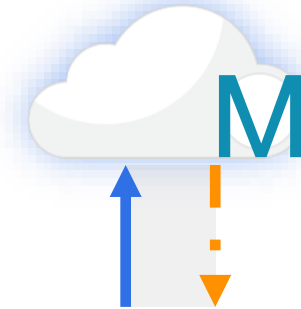
## Uplink Auto Config (UAC)

*Can I reach dashboard?*



## Nextunnel

*Connect to dashboard*



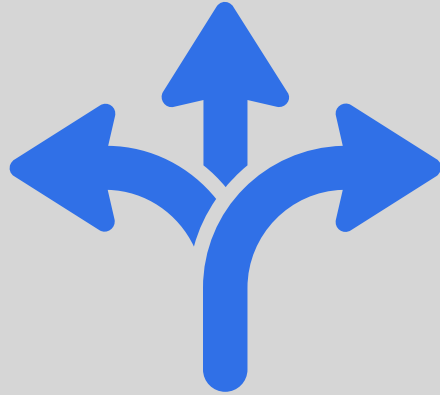
## Config Updater

Apply and synchronize config, safe config rollback



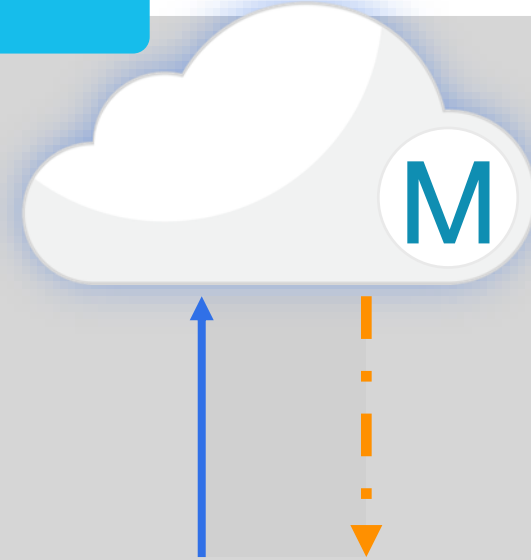
# Resilient connectivity to the Cloud

*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



## Nextunnel

- Secure tunnel to dashboard for configuration and telemetry

# 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?



# Nextunnel

## show meraki connect

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

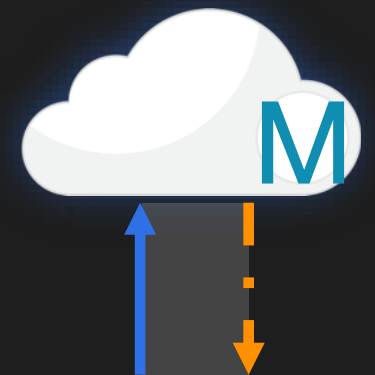
```
[Rocky_and_Bullwinkle#sh meraki connect
Service meraki connect: enable

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

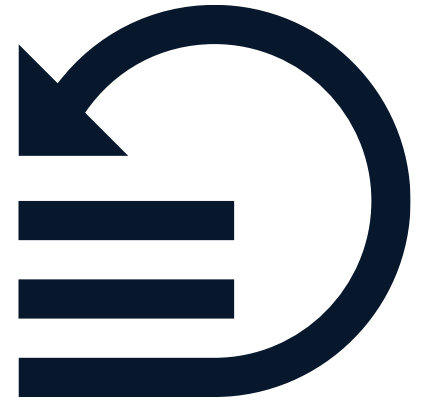
*IOS XE 17.15*



## **Config Updater**

- Fetch and apply config from dashboard
- Safe configuration rollback: recovery mechanism for configuration errors causing loss of connection to dash

# 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
```

# Optimizations



**Management Interface  
Architecture Change**



**Default Network  
Module**

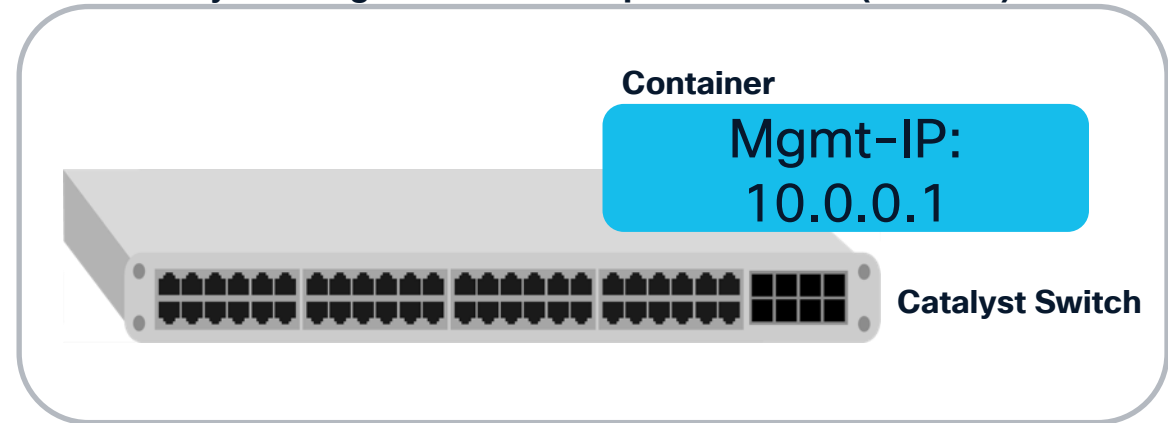


**Command Runner**

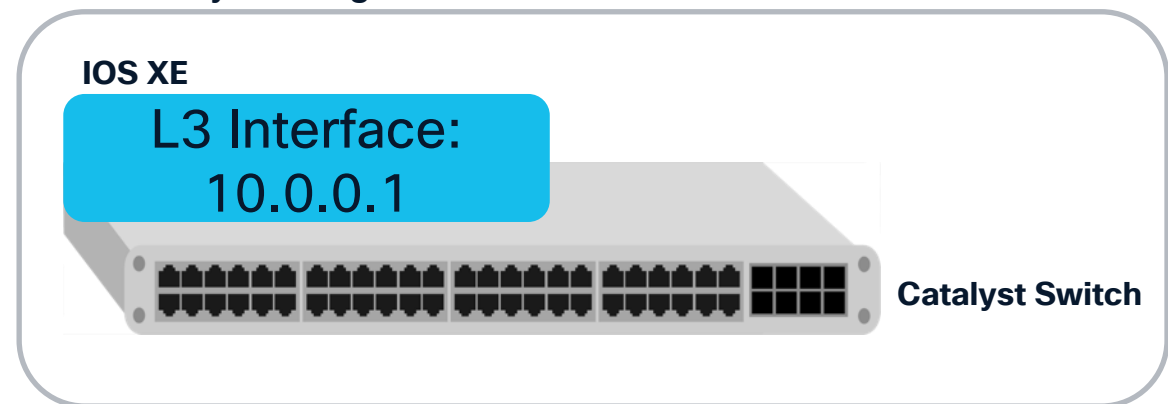
# Management Interface Architecture Change

- The management interface is now an L3 Interface. Switches running CS firmware required a dedicated management IP address, now management is handled by **any L3 interface**
- All configuration for management connectivity and L3 interfaces is now available on the Routing & DHCP page.
- If a switch is L2 only, DHCP will work 👍 but enabling L3 requires first setting a static management IP

L2 Catalyst Management Behavior prior to IOS XE (<= CS17)



L2 Catalyst Management Behavior with IOS XE



# Management Interface Architecture Change

Switch Summary page >

The screenshot shows the Cisco management interface for a switch. On the left, a navigation menu has 'Switching' selected. A dropdown menu is open, showing 'Monitor', 'Switches' (with a checkmark), and 'Switch Ports'. The main content area displays a table with the following information:

Upgrade Status	—
<a href="#">Open source licenses</a> ↓	
LAN IPv4	10.20.20.4
Type	statically assigned
VLAN	20
Public IP	

On the right, a configuration panel for 'IPv4 Type \*' is shown. It features a dropdown menu set to 'Static'. Below this is a yellow warning box with an exclamation mark icon and the text: 'Visit the [Routing & DHCP](#) page to configure your Uplink L3 Interface.' At the bottom right of the panel is a blue 'Save' button.

Red callout boxes with numbers 1, 2, and 3 are overlaid on the interface:


- 1: Points to the edit icon next to the 'Type' field in the table.
- 2: Points to the 'Static' dropdown menu in the configuration panel.
- 3: Points to the 'Save' button in the configuration panel.

1. Edit IP config
2. Change type to static
3. Redirect to Routing & DHCP page

# Management Interface Architecture Change

VLAN

IP Toggle  IPv4 Only  IPv6 Only

 Choose the **Both** tab to configure both IPv4 and IPv6

**IPv4**

V4 Uplink

Subnet

Interface IP

Default gateway

DNS server 1

DNS server 2

Uplink interfaces include DNS and Default Gateway settings

Easily move the uplink to a different interface

- Define the new gateway
- Confirm DNS

**IPv4**

V4 Uplink

Subnet

Interface IP

Default gateway

DNS server 1

DNS server 2

Multicast routing

# Default Network Module

## The CS way:

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



C9300-NM-4G



C9300X-NM-8Y



C9300X-NM-2C

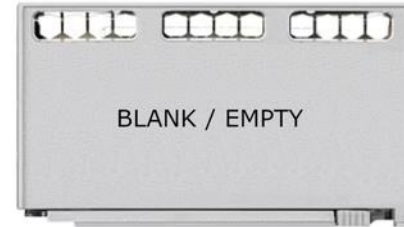
- [STACK-MS390-RR / 4×10G / 1 details](#)
- [STACK-MS390-RR / 4×10G / 2 details](#)
- [STACK-MS390-RR / 4×10G / 3 details](#)
- [STACK-MS390-RR / 4×10G / 4 details](#)
- [STACK-MS390-RR / 8×10G / 1 details](#)
- [STACK-MS390-RR / 8×10G / 2 details](#)
- [STACK-MS390-RR / 8×10G / 3 details](#)
- [STACK-MS390-RR / 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:

- 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

No module installed



C9300X-NM-8Y

8x10G installed



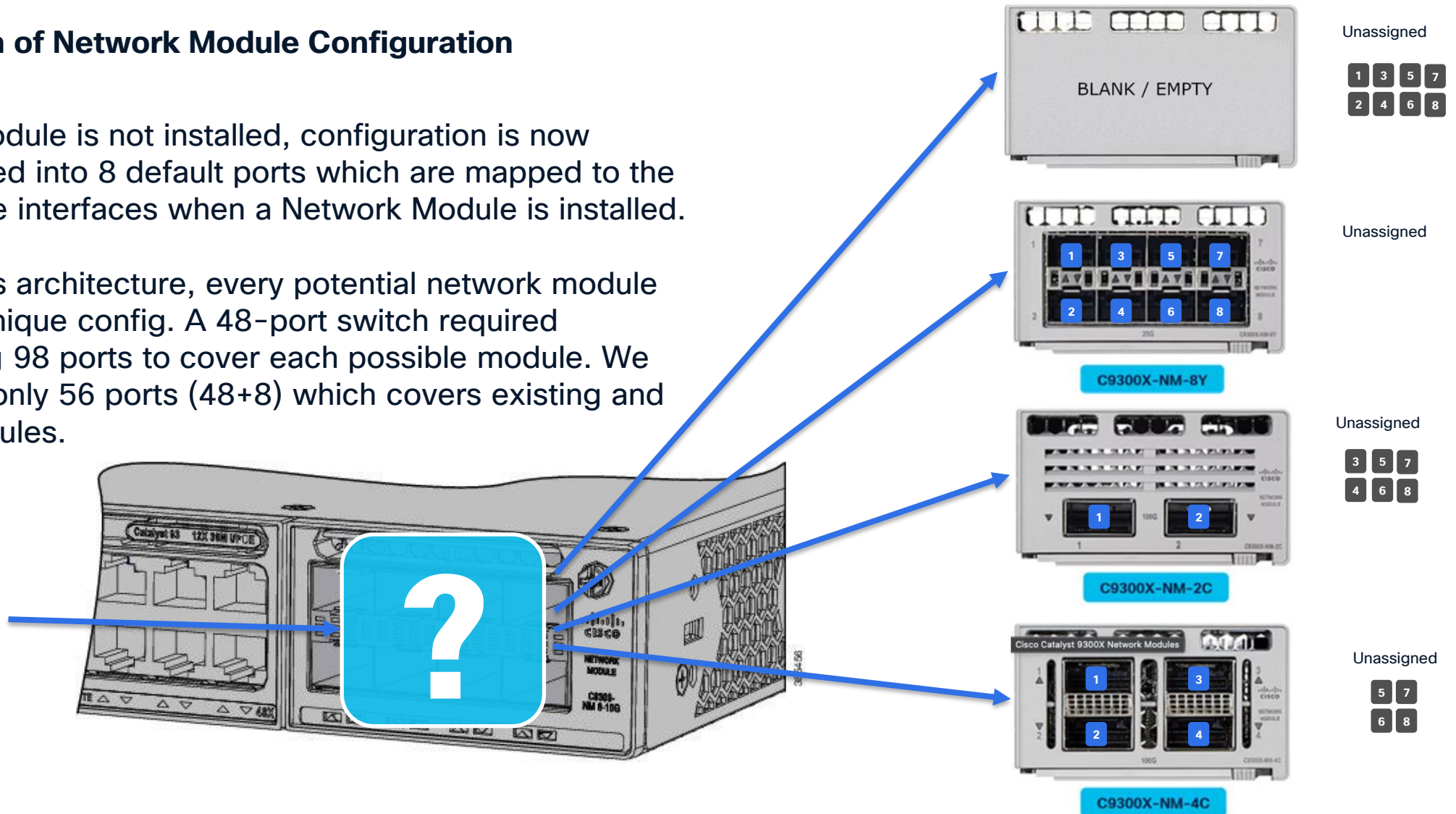
- Mr Peabody / 8x10G / 1 details
- Mr Peabody / 8x10G / 2 details
- Mr Peabody / 8x10G / 3 details
- Mr Peabody / 8x10G / 4 details
- Mr Peabody / 8x10G / 5 details
- Mr Peabody / 8x10G / 6 details
- Mr Peabody / 8x10G / 7 details
- Mr Peabody / 8x10G / 8 details

# Default Network Module

## Simplification of Network Module Configuration

- When a module is not installed, configuration is now consolidated into 8 default ports which are mapped to the appropriate interfaces when a Network Module is installed.
- Prior to this architecture, every potential network module required unique config. A 48-port switch required configuring 98 ports to cover each possible module. We now have only 56 ports (48+8) which covers existing and future modules.

Pre-Configured  
Default Ports



# Show CLI / Command runner

*Quick access to over 30 common CLI outputs*

- Platform monitoring
- Device tracking
- Stacking details
- Dashboard connection status
- Etc...

Show CLI Show Power Over Ethernet D... x ▾ Run

Outputs power over ethernet details

- Show Power Over Ethernet Details ↻

```
1 Rocky# show power inline
```

Module	Available (Watts)		Used (Watts)	Remaining (Watts)	
Interface	Admin	Oper	Power (Watts)	Device	Class Max
1	595.0		0.0	595.0	
Tel1/0/1	auto	off	0.0	n/a	60.0
Tel1/0/2	auto	off	0.0	n/a	60.0
Tel1/0/3	auto	off	0.0	n/a	60.0
Tel1/0/4	auto	off	0.0	n/a	60.0
Tel1/0/5	auto	off	0.0	n/a	60.0
Tel1/0/6	auto	off	0.0	n/a	60.0
Tel1/0/7	auto	off	0.0	n/a	60.0
Tel1/0/8	auto	off	0.0	n/a	60.0
Tel1/0/9	auto	off	0.0	n/a	60.0
Tel1/0/10	auto	off	0.0	n/a	60.0
Tel1/0/11	auto	off	0.0	n/a	60.0

# Firmware Upgrade Status for IOS XE

✔ Upgrade complete. [Expand to show details](#)

✔ Upgrade scheduled — ✔ Firmware download — ✔ Firmware install — ✔ Firmware verification — ✔ Upgrade complete

Drill down into each switch to view progression through each stage, with guidance on expected times, and success and failure states.

Supports CS to IOS XE and all IOS XE upgrades.

**i** Upgrade scheduled. [Collapse to hide the details](#)

✔ Upgrade scheduled

Switch upgrade to IOS XE 17.15.4 scheduled for Oct 05, 2025 10:23 ETC

○ Firmware download

Estimated time: up to 20 minutes

Switch will download the network firmware.

○ Firmware install

Estimated time: up to 40 minutes

Switch will install the network firmware and reboot using the new firmware version.

○ Firmware verification

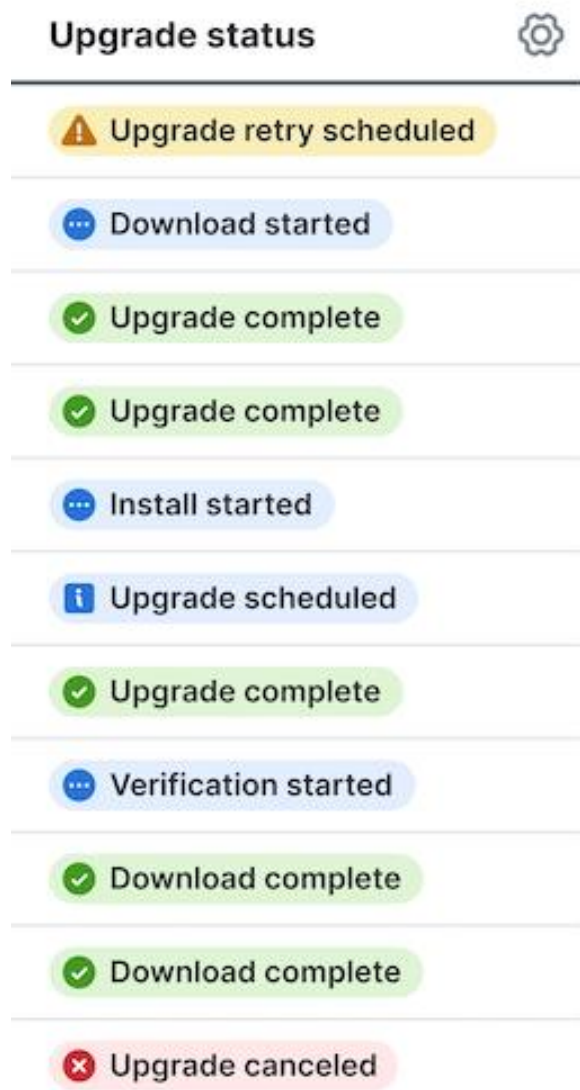
Estimated time: up to 5 minutes

Switch will verify that it has a stable connection with the Meraki cloud on the new firmware.

○ Upgrade complete

See [Documentation on firmware upgrades](#) 

# Firmware Upgrade Status for IOS XE



Monitor each stage of firmware upgrades for all switches in a single view:

- Download
- Installation
- Verification

Supports CS or IOS XE to IOS XE upgrades

# **IOS XE 17.18**

## **Cloud switching**

# Combined with advanced features powered by IOS XE

## What's New

IOS XE 17.18 brings advanced capabilities to the cloud through the introduction of advanced routing and high availability features.

### Cloud CLI

Access an embedded cloud terminal within the Meraki dashboard.

### Expanded Support

Support for new hardware models and expanded support for cloud features.

### Advanced Routing

Advanced capabilities like BGP and VRF are now supported in the cloud dashboard

### High Availability

In-Service Software Upgrades, Virtual Stacking for C9500, and more.

IOS XE 17.18

# Cloud Managed Enterprise Switching on IOS XE 17.18

## Enterprise Feature Development

### Advanced Routing

Routed Ports

Loop-free Routed Access

VRF Lite

Scalable Macro Segmentation

BGP

Flexible, Open Dynamic Routing

### High-Availability

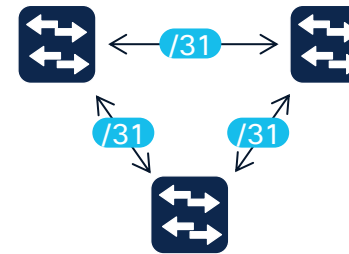
Rapid PVST+

Enhanced L2 Loop Prevention

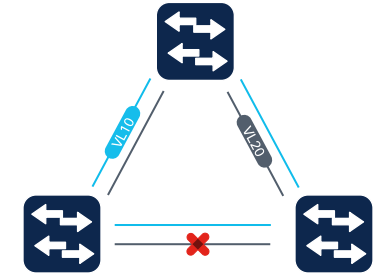
StackWise Virtual (SVL)  
ISSU

Sub-second downtime  
firmware upgrades

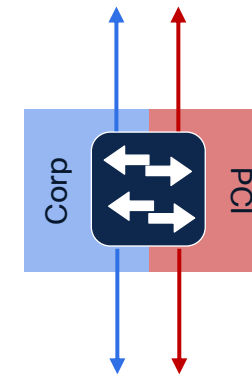
Routed Ports



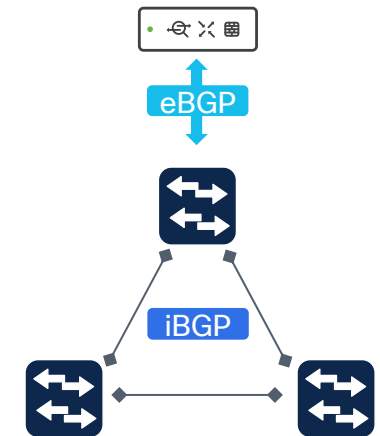
RPVST+



VRF Lite



BGP



# Introducing VRF deployment from the cloud

Easily create isolated routing domains without additional hardware

Strengthen security with scalable macro-segmentation, limiting lateral movement of threats

Simplify network management by eliminating the need for ACLs on every SVI and reducing oversized route tables

The screenshot displays the Cisco Cloud Managed Network (CMN) interface. The main view is titled "Routing & DHCP" and shows a table of interfaces and their associated VRFs. A modal window titled "Edit BLUE\_VRF" is open, showing configuration details for the BLUE\_VRF. Another modal window titled "VRF" is also open, showing a list of VRFs.

Switch or switch stack	Interface	Name	VRF	Subnet	IP
<input type="checkbox"/> Doug	80 VLAN	eighty	BLUE_VRF	10.80.80.0/24	10.80.80.254
<input type="checkbox"/> Rocky_and_Bullwinkle	80 VLAN	BLUE VLAN 80	BLUE_VRF	10.80.80.0/24	10.80.80.253
<input type="checkbox"/> Bob	Bob / 13	Bobs routed port	BLUE_VRF	10.88.88.0/24	10.88.88.252
<input type="checkbox"/> Bob	Bob / 14	Bobs 2nd routed port	BLUE_VRF	10.89.89.0/24	10.89.89.252
<input type="checkbox"/> Doug	0 Loop	0	BLUE_VRF	10.252.252.252/32	10.252.252.252
<input type="checkbox"/> Doug	20 VLAN	Uplink Vlan 20	Default	10.20.20.0/24	10.20.20.2

**Edit BLUE\_VRF Configuration details**

VRF name \*  
BLUE\_VRF

Description  
IoT

Route distinguisher ⓘ  
52:106

Route target ⓘ

Save changes Cancel

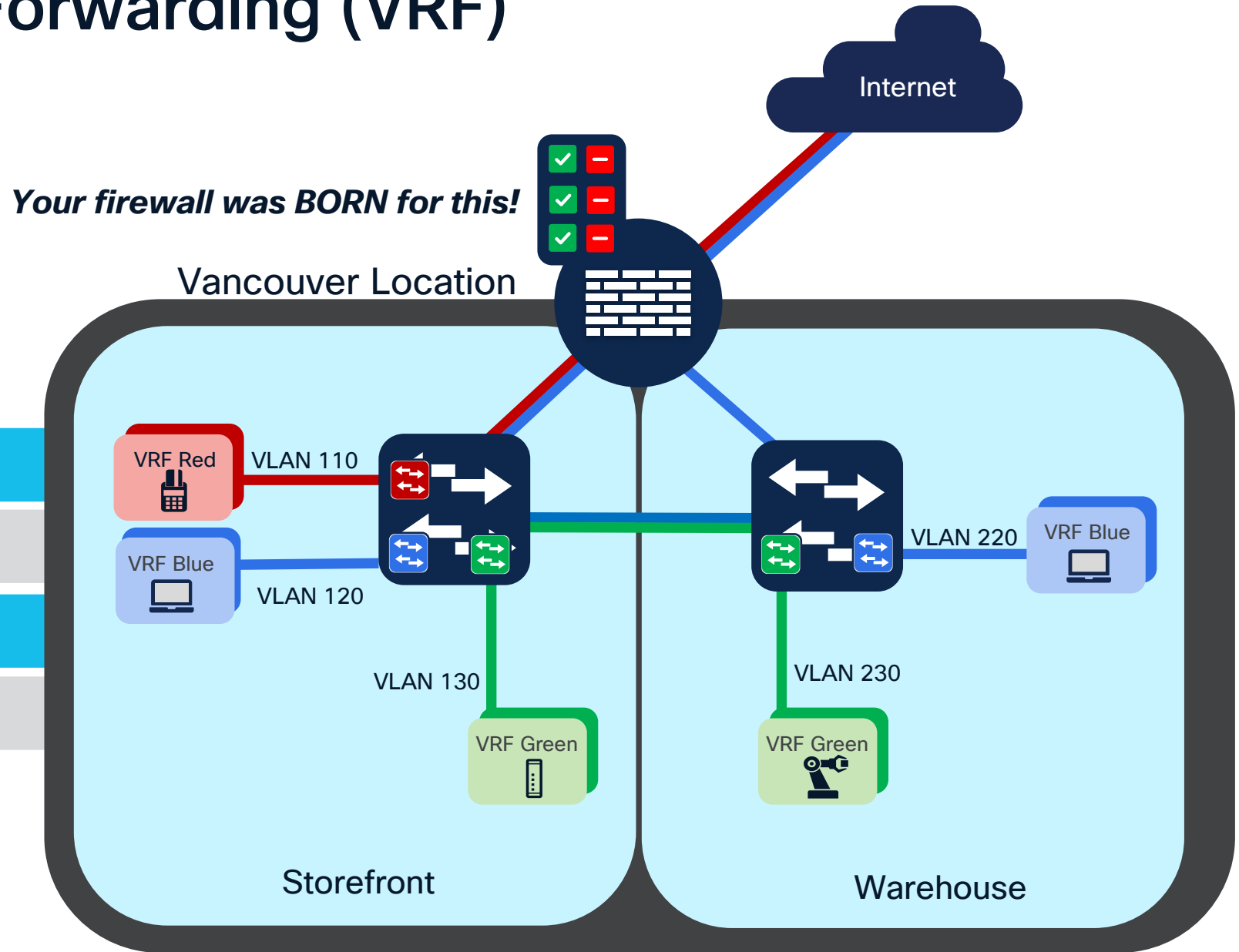
**VRF**

0 VRFs with associated interfaces    0 VRFs without associated interfaces

Search    + Add VRF

Name	Description	Route distinguisher	Route target	Networks
<input type="checkbox"/> Default	—	—	—	—
<input type="checkbox"/> BLUE_VRF	IoT	52:106	—	—
<input type="checkbox"/> GREEN_VRF	PCI	52:108	—	—
<input type="checkbox"/> RED_VRF	Evil Printers and Fax Machines	52:107	—	—

# Virtual Routing and Forwarding (VRF)



Macro-segmentation that scales

Centralized ACLs

Efficient route handling and forwarding

A separate lane for management traffic









# VRF Config

Organization > VRFs

**VRF**

0 VRFs with associated interfaces      0 VRFs without associated interfaces

Q Search + Add VRF

<input type="checkbox"/>	Name	Description	Route distinguisher	Route target	Networks
<input type="checkbox"/>	Default	—	—	—	—  
<input type="checkbox"/>	BLUE_VRF	IoT	52:106	—	—  
<input type="checkbox"/>	GREEN_VRF	PCI	52:108	—	—  
<input type="checkbox"/>	RED_VRF	Evil Printers and Fax Machines	52:107	—	—  

← VRF

## Edit BLUE\_VRF

**Configuration details**

VRF name \*

Description

Route distinguisher ⓘ

Route target ⓘ

Save changes Cancel

- Create VRFs at an organization-level
- Assign a name, and Route Distinguisher *(future use)*

# VRF Config

## Switching > Routing & DHCP

<input type="checkbox"/> Switch or switch stack	Interface	Name	VRF ↕	Subnet
<input type="checkbox"/> Doug	80 <b>VLAN</b>	eighty	BLUE_VRF	10.80.80.0/24
<input type="checkbox"/> Rocky_and_Bullwinkle	80 <b>VLAN</b>	BLUE VLAN 80	BLUE_VRF	10.80.80.0/24
<input type="checkbox"/> Bob	Bob / 13 <b>Routed</b>	Bobs routed port	BLUE_VRF	10.88.88.0/24
<input type="checkbox"/> Bob	Bob / 14 <b>Routed</b>	Bobs 2nd routed port	BLUE_VRF	10.89.89.0/24
<input type="checkbox"/> Doug	0 <b>Loop</b>	0	BLUE_VRF	10.252.252.252/32
<input type="checkbox"/> Doug	20 <b>VLAN</b>	Uplink Vlan 20	Default	10.20.20.0/24

- Assign interfaces to a VRF

← Routing & DHCP

### Edit Interfaces

**Interface editor**

**Interface mode**  
 VLAN  Routed port  Loopback

**Switch or switch stack**  
Bob

**Switch ports**  
Bob / 9

**Name**  
Transit Network Routed Port

**VRF**  
GREEN\_VRF

**IP toggle**  
 IPv4 only  IPv6 only  Both

**IPv4**

**Subnet**  
10.52.108.0/24

**Interface IP**  
10.52.108.254

**Info:** Select "Both" in IP Toggle to configure both IPv4 and IPv6

# Introducing Routed Ports from the cloud

Reduce convergence time while simplifying network management

Routed peer to peer links including east/west and north/south traffic

Minimize VLAN ID consumption while joining separate networks

*New port icon*

The screenshot displays the Cisco Cloud Managed Network interface. At the top, a 'New port icon' is highlighted. Below it, a grid of port icons is shown, with port 13 selected. The main interface is titled 'Routing & DHCP' and shows a table of interfaces. A modal window titled 'Update 1 Ports' is open, showing the configuration for port 13. The modal includes a 'Selected Switch / Port' dropdown set to 'Bob/13'. The 'Interface mode' is set to 'Routed port' (selected with a radio button). The 'Name' is 'Transit Network'. The 'Tags' field is empty. The 'Port status' is 'Enabled' (checked). The 'Link negotiation' is 'Auto negotiate'. The 'EEE' is 'Enabled' (unchecked). The 'Port schedule' is 'Unscheduled'. The 'PoE' is 'Enabled' (checked). The 'Port isolation' is 'Enabled' (unchecked). At the bottom right of the modal are 'Cancel' and 'Update' buttons.

Switch	VLAN	Name	Subnet
<input type="checkbox"/>	CAMPUS01-CORE	10	Corp-Data
<input type="checkbox"/>	CAMPUS01-CORE	172.16.10.0/24	
<input type="checkbox"/>	CAMPUS01-CORE	172.16.10.254	
<input type="checkbox"/>	CAMPUS01-CORE	False	False
<input type="checkbox"/>	CAMPUS01-CORE	Server	Enabled

**Update 1 Ports**

Selected Switch / Port: Bob/13

Interface mode:  Switch port  Routed port

Navigate to configure routed port

Name: Transit Network

Tags: [Empty]

Port status:  Enabled

Link negotiation: Auto negotiate

EEE:  Enabled

Port schedule: Unscheduled

PoE:  Enabled

Port isolation:  Enabled

Cancel Update

# Routed Ports

Routed peer to peer links  
East/West and North/South

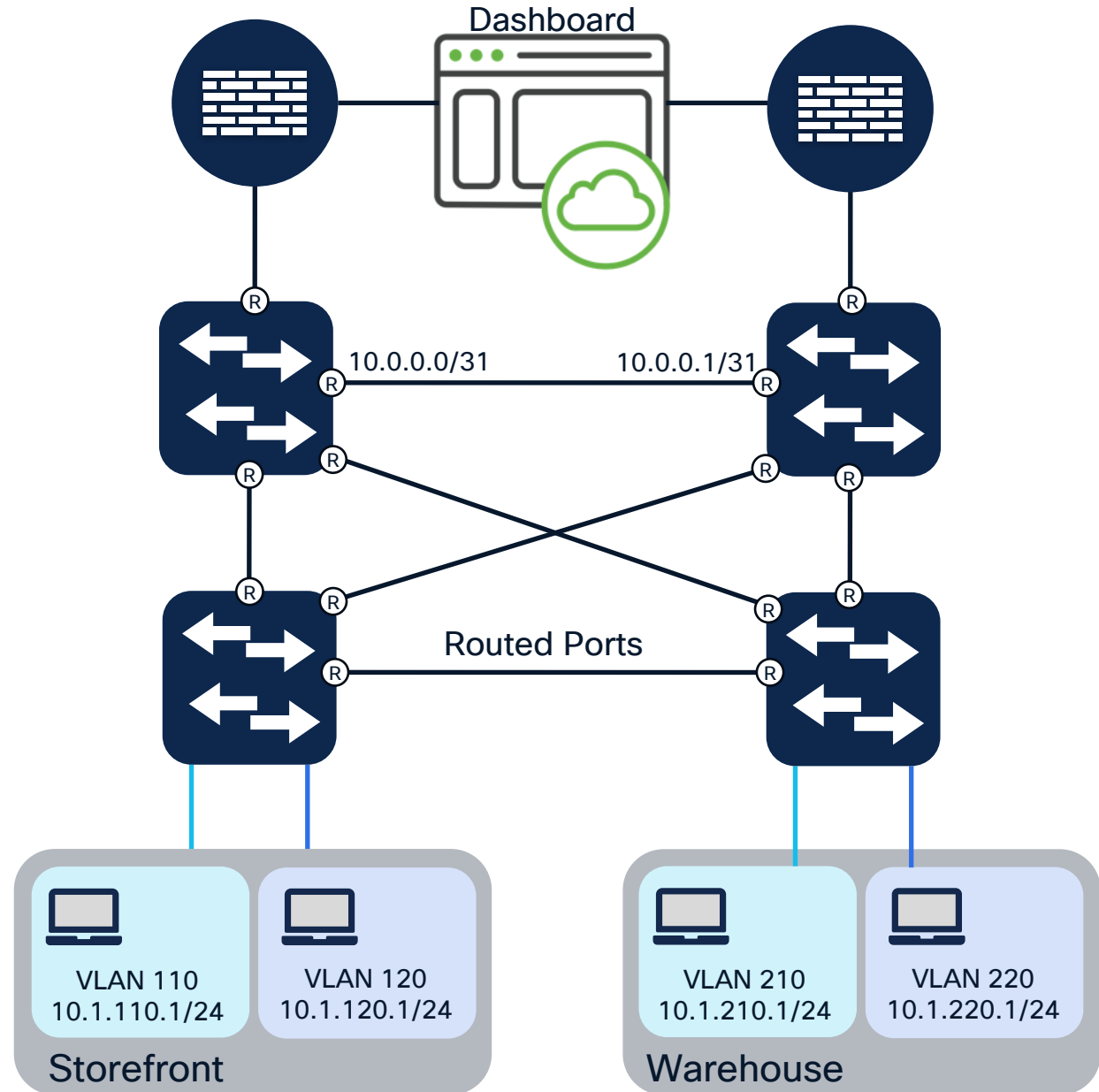
/31 Addressing

Reduced VLAN ID consumption

Faster Convergence

STP boundaries

Equal cost load balancing



# Routed Port Config

Switching > Switches > Switch Summary

### Update 1 Ports

Selected Switch / Port 1 ^

Bob/13

**Interface mode**  Switch port  Routed port

Navigate to configure routed port

**Name**

**Tags**

**Port status**  Enabled

**Link negotiation**

**EEE**  Enabled

**Port schedule**

**PoE**  Enabled

**Port isolation**  Enabled

[Cancel](#) [Update](#)

Switching > Routing & DHCP

← Routing & DHCP

### Edit Interfaces

**Interface editor**

**Interface mode**  VLAN  Routed port  Loopback

**Switch or switch stack**

**Switch ports**

**Name**

**VRF**

**IP toggle**  IPv4 only  IPv6 only  Both

**i** Select "Both" in IP Toggle to configure both IPv4 and IPv6

**IPv4**

**Subnet**

**Interface IP**

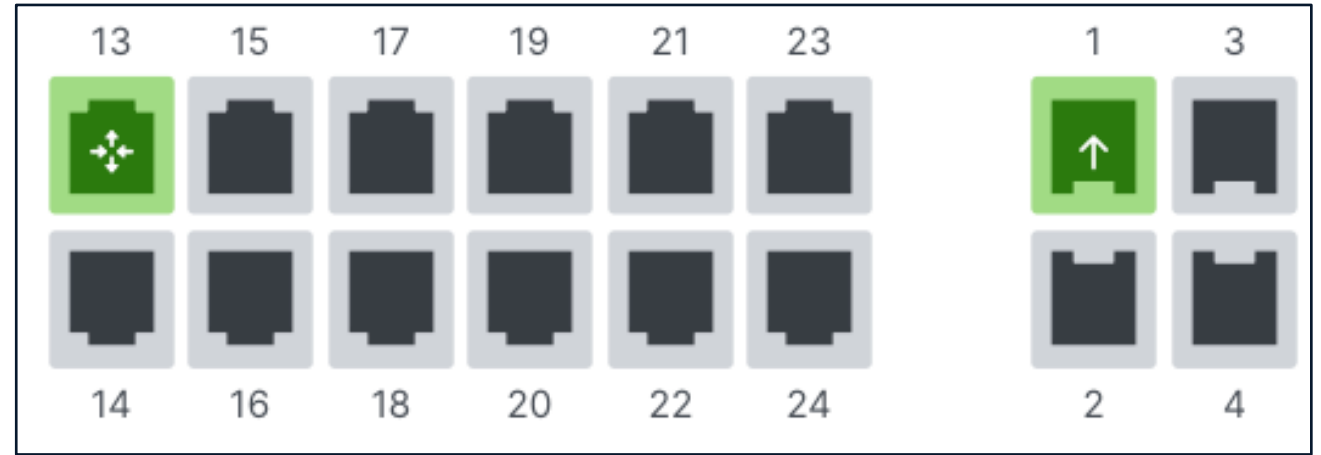
# Routed Port Config

Switching > Routing & DHCP

### Routing & DHCP

#### Interfaces

<input type="checkbox"/> Switch or switch stack	Interface
<input type="checkbox"/> C9300-Lab1	1 <b>VLAN</b>
<input type="checkbox"/> C9300-Lab1	C9300-Lab1 / 5 <b>Routed</b>
<input type="checkbox"/> C9300-Lab1	C9300-Lab1 / 1 <b>Routed</b>
<input type="checkbox"/> C9300-Lab1	C9300-Lab1 / 3 <b>Routed</b>
<input type="checkbox"/> C9300-Lab1	111 <b>VLAN</b>



*Adorable new routed port icon* ♥

New tags for routed ports and VLAN Interfaces(SVIs)

# Introducing **Border Gateway Protocol** from the cloud

Multiple configuration options including full stack dynamic routing (SD-WAN + LAN) and simplified iBGP/eBGP routing

Flexible configurations including per switch and peer-group templates, plus support for common policy objects

Support for full API programmability and open compatibility with third-party vendors

**BGP Routing**

General BGP Filters ASN

**BGP Routers**

Switch name	Model	ASN	Active peers	Advertised routes
Bob	C9300-24UX	65500	0	1

Rows per page 20 1-1 of 1 < 1 >

**Autonomous System Numbers (ASN)**

ASNs can only be deleted once BGP routers have been removed. [How to remove BGP routers.](#)

ASN	Description	BGP routers
65500		1

Rows per page 10 1-1 of 1 < 1 >

Supported Hardware: C9500, C9300X, C9300, C9300L, C9300LM, C9200CX, MS390

# BGP

## Simple eBGP/iBGP

- Full stack meraki (MX + Catalyst)
- Vendor neutral peering

## Large Campus Route-Reflector

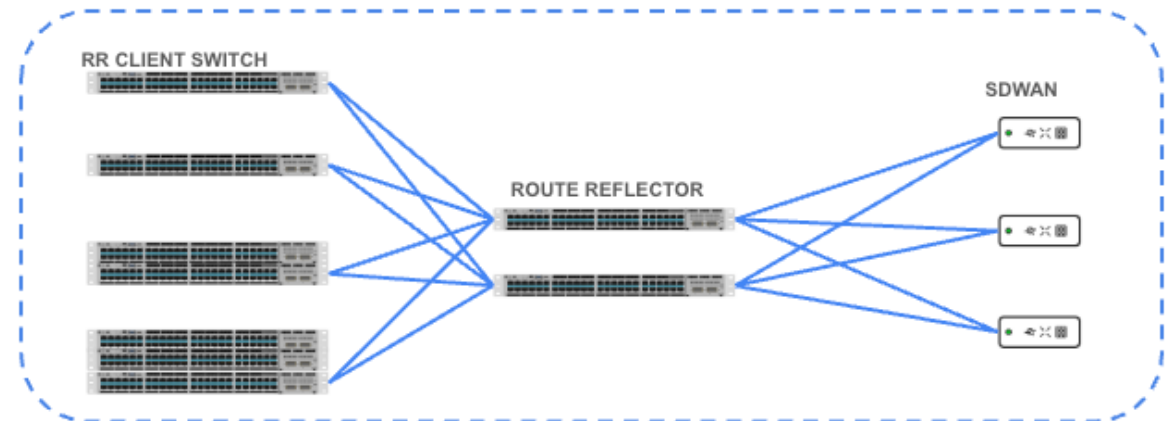
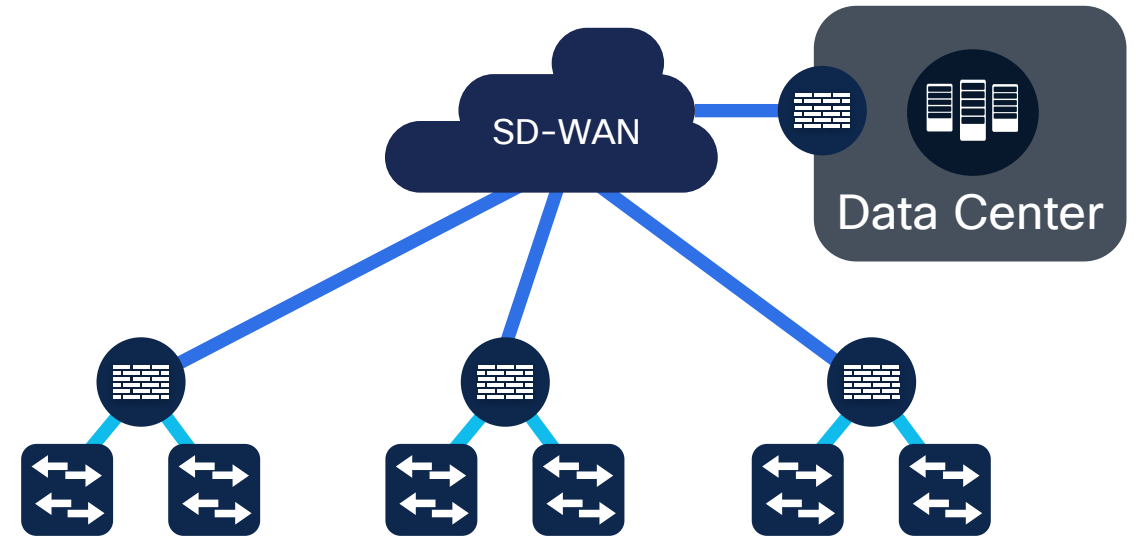
- iBGP peer route-reflector
- Loopback support
- Route filtering and AS-path control
- Traffic ECMP

## Spin your own

- Per-switch configuration
- Peer-group templates
- Common policy objects

## Requirements

- Firmware: IOS XE 17.18+
- HW: C9500, C9300X, C9300, C9300L, C9300LM



# BGP Config

Switching > BGP Routing

Create an ASN

### BGP Routing

General BGP Filters ASN

Autonomous System Numbers (ASN) + Add ASN

**⚠** ASNs can only be deleted once BGP routers have been removed. [How to remove BGP routers.](#)

ASN	Description	BGP routers	
65500		1	

Rows per page  1-1 of 1 <  >

### BGP Routing

General BGP Filters ASN

## Create a BGP Router

BGP Routers ⓘ + Add router

	Switch name	Model	ASN ⓘ	Active peers	Advertised routes
<input checked="" type="checkbox"/> Enable	Bob	C9300-24UX	65500	0	1 ...

Rows per page  1-1 of 1 <  >

Enable BGP per switch

# BGP Config

## Route Filtering

### Add prefix-list

Name

Description (optional)

Rules + Add rule

Sequence #	Action	Prefix	GE	LE
10	Deny	10.100.0.0/16	23	
20	Deny	10.101.0.0/16	24	

Cancel Add

Prefix-lists

### Add AS-path access-list

Number

Description (optional)

Rules + Add rule

Action	Path
Deny	65100 65101 65328

AS-path access-lists

## Peering Config

### Local Networks

Enable	Subnet	Description
<input checked="" type="checkbox"/>	10.255.255.255/32	BobLoop
<input checked="" type="checkbox"/>	10.20.0.0/16	20 Network

### BGP Peer Groups

Supports either an IPv4 or IPv6 address.

#	Name	Description	Neighbors Count
1	WANGroup	WAN peer group	1

#### Peer Group Settings

Remote AS	65234	Update Source	Loop0
Multihop	255	Authentication	Enabled
Weight	32768		

#### Peers

Active	Peer	Description
<input checked="" type="checkbox"/>	52.105.10.23	WAN SP1

Advertise local networks  
Create Peer Groups  
Attach Peers

# Introducing support for StackWise Virtual from the cloud

Simplify configuration management by presenting two physical switches as one logical entity

Lower the risk associated with a looped topology while reducing operational failure points

Maintain HA with support for stateful switch failover (SSO) by ensuring minimal downtime during failures or maintenance

## Create Stack

Stack name  
Hourglass Twins

Q Search

Name
<input checked="" type="checkbox"/> Ash Twin
<input checked="" type="checkbox"/> Ember Twin

### Configure your StackWise Virtual pair

To successfully provision Catalyst 9500 switches as a StackWise Virtual pair, select switch ports below to set up SVL and DAD links.

**⚠ Please ensure you have physically connected the ports selected below before proceeding**

Stack name: Hourglass Twins  
Members: Ash Twin, Ember Twin

#### SVL links

Select between 2 and 8 ports on each switch to establish the SVL link. Note that any existing switch port config will be overwritten for ports selected here.

Ash Twin: 1 x, 2 x  
Ember Twin: 1 x, 2 x

#### DAD link

Select 1 port to establish the DAD link. Note that any existing switch port config will be overwritten for the port selected here.

Ash Twin: 3  
Ember Twin: 3

I acknowledge that by clicking 'Configure' I have physically connected the ports selected for SVL and DAD links.

Cancel **Configure**

# StackWise Virtual Setup

**Create Stack**

Stack name: Hourglass Twins

Search: [Q Search] Device type: [v] 2 results

Name	Serial number	Model
<input checked="" type="checkbox"/> Ash Twin	Q2ZZ-6SH4-2458	C9500-24Y4C
<input checked="" type="checkbox"/> Ember Twin	Q2ZZ-A2ZZ-2HL3	C9500-24Y4C

Rows per page: 30 1-2 of 2 < 1 >

Cancel Create

**Configure your StackWise Virtual pair**

To successfully provision Catalyst 9500 switches as a StackWise Virtual pair, select switch ports below to set up SVL and DAD links.

**⚠ Please ensure you have physically connected the ports selected below before proceeding**

Stack name: Hourglass Twins  
Members: Ash Twin, Ember Twin

**SVL links**  
Select between 2 and 8 ports on each switch to establish the SVL link. Note that any existing switch port config will be overwritten for ports selected here.

Ash Twin: [1 x] [2 x] [⊗ v] ⇌ Ember Twin: [1 x] [2 x] [⊗ v]

**DAD link**  
Select 1 port to establish the DAD link. Note that any existing switch port config will be overwritten for the port selected here.

Ash Twin: [3 v] ⇌ Ember Twin: [3 v]

I acknowledge that by clicking 'Configure' I have physically connected the ports selected for SVL and DAD links.

Cancel Configure

# StackWise Virtual Config

The screenshot displays the StackWise Virtual Config interface. On the left, a grid of 40 ports (numbered 1-40) is shown. Port 1 is solid green (Enabled/Full speed). Port 3 is hatched green (Reduced speed). Port 5 is green with a 'D' icon (Authenticated via SecurePort). Port 7 is green with an upward arrow (Detected as uplink). Port 15 is green with an 'S' icon (Authenticated via SecurePort (PoE)). Port 26 is solid green. Port 28 is hatched green. Port 29 is hatched green. Port 32 is solid green. Port 34 is solid green. Port 36 is solid green. Port 37 is hatched green. Port 38 is solid green. Below the grid is a 'Port key' legend with 12 items: Enabled/Full speed (solid green), Reduced speed (hatched green), Disabled (grey), Disconnected (black), Error (Warning) (orange), Error (Critical) (red), Active PoE draw (lightning bolt), Authenticated via SecurePort (Wi-Fi), Authenticated via SecurePort (PoE) (Wi-Fi with lightning bolt), Blocking (circle with slash), Detected as uplink (upward arrow), Low power (battery), Pass-through (double arrow), Stacked port (three horizontal lines), and SVL and DAD links (interlocking circles). A link for 'Documentation on switch ports' is at the bottom left.

On the right, a 'StackWise Virtual Pair Provisioning' dialog box is open. It contains the following information:

- StackWise Virtual Pair Provisioning** (with a close button)
- Monitor your new StackWise Virtual pair creation process.
- Number of StackWise Virtual pairs being provisioned: 5
- My SVL Stack** (expanded): SVL domain configuration. Members: sfo12-4-1-sw-01-pdu, sfo12-4-1-sw-01-pdu. SVL links: Port 1, Port 2. DAD links: Port 5. Provisioning progress: 1/4 SVL domain configuration. Buttons: Cancel provisioning, Go to stack.
- My SVL Stack 2** (collapsed): SVL and DAD link configuration.
- My SVL Stack 3** (collapsed): SVL and DAD link configuration.
- My SVL Stack 4** (collapsed, with a green checkmark): StackWise Virtual pair ready.

# Introducing In-Service Software Upgrades from the cloud

ISSU allows users to upgrade switch stacks while the network continues to forward packets

Minimize network disruptions and downtimes with simplified scheduling

Deploy new services and features faster with remote execution

The screenshot displays the Meraki management console interface. On the left is a navigation sidebar with categories like Global Overview, Organization, Network, Secure Connect, Network-wide, Assurance, Security & SD-WAN, Switching, Wireless, Insight, Organization, Security, Automation, and Access Manager. The main content area is titled 'Staged upgrades' and has tabs for 'Groups' and 'Sequence'. A modal dialog box titled 'Schedule firmware change' is open, containing the following elements:

- A question: "When should this firmware be installed?"
- A note: "Upgrade times may be staggered depending on the number of devices changing firmware."
- Two radio button options: "Perform the upgrade now" (selected) and "Schedule the upgrade for:".
- A date input field showing "03/28/2025" and a time dropdown menu showing "11:00" with "(network local time)" next to it.
- A section titled "ISSU" with the text: "When enabled, this setting will apply exclusively to the eligible switches with the StackWise Virtual pairs."
- A checked checkbox labeled "Attempt ISSU when available".
- Navigation buttons at the bottom right: "Back" and "Next".

# Introducing Rapid Per-VLAN STP+ from the cloud

RPVST+ provides faster convergence to minimize downtime and ensure resilience in dynamic environments

Allows efficient load balancing across multiple different VLANs

Critical for maintaining stable L2 topologies in dense campus deployments

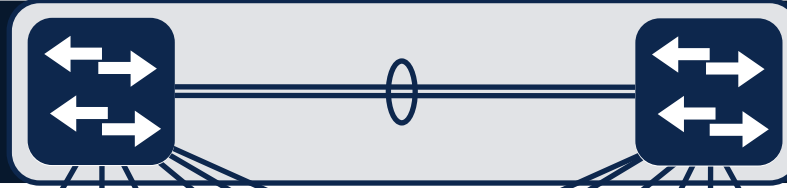
The screenshot displays the 'Switch settings' configuration page. The 'VLAN configuration' section shows 'Management VLAN' set to 1. The 'STP configuration' section has 'Enable Rapid Spanning Tree (RSTP)' checked. Below it, a table shows 'STP bridge priority' for 'Switches/Stacks' with a 'Bridge priority' of 32768. A link '+ Set the bridge priority for another switch or stack' is visible. The 'Quality of service' section contains a table with columns: '#', 'VLAN', 'Protocol', 'Source port', 'Destination port', and 'Trust incoming DSCP'. A modal window is open over the STP configuration, showing 'STP configuration mode' with three radio buttons: 'Enable Spanning Tree' (selected), 'Enable Multiple Spanning Tree (MST)', and 'Enable Rapid per-VLAN Spanning Tree (RPVST+)'. A blue information box contains the text: 'Operating network with a mix of RPVST+ and RSTP may cause unexpected issues, please refer to Documentation for best practices for operating mixed STP environments.' Below the radio buttons, there is a 'Disable Spanning Tree' option and another 'STP bridge priority' section with a table:

Switches/Stacks	Bridge priority	VLAN list	Actions
Default	32768		
Rocky_and_Bullwinkle	8192	1-4094	

A link '+ Set the bridge priority for another switch or stack' is at the bottom of the modal.

# Mixed Spanning-tree Versions

RPVST+ domain



MST domain



## Rules of MST PVST+ interaction

- If the MST bridge is the root, this bridge must be the root for all VLANs
- If the PVST+ bridge is the root, this bridge must be the root for all VLANs (this includes the CST, which always runs on VLAN 1, regardless of the native VLAN, when the CST runs PVST+)
- The simulation fails and produces an error message if the MST bridge is the root for the CST, while the PVST+ bridge is the root for one or more other VLANs. A failed simulation puts the boundary port in root inconsistent mode.

REF: [\*Understanding Multiple Spanning Tree Protocol \(802.1s\)\*](#)

# VLANs and PVST+ Instances

Time to use VLAN Database

Cloud-managed switches start with max supported active VLANs

- Catalyst 9300 = 1000
- Catalyst 9200 = 512

Catalyst switches can't run that many PVST+ instances

- Catalyst 9300 max 300 PVST instances
- Catalyst 9200 max 128 PVST instances
- Max 13000 STP Virtual ports\*

## VLAN profiles

### Edit profile

Profile name

Building 12 VLANs

Iname

bldg12

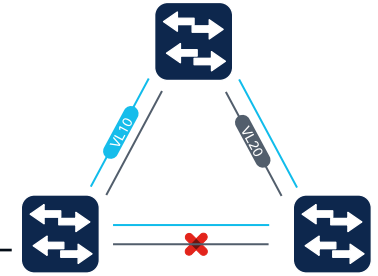
Active VLANs

1,4-8,10,20,30,33,80,100-102,106

*The secret to a happy life is pruning unneeded VLANs*

\*STP virtual ports = trunks \* active VLANs on trunk + number of non-trunk ports.

# RPVST+ Config



## Switching > Switch Settings

### STP configuration

#### STP configuration mode

- Enable Spanning Tree  
Select Spanning Tree mode for Catalyst switches:
  - Enable Multiple Spanning Tree (MST)
  - Enable Rapid per-VLAN Spanning Tree (RPVST+)

**i** Operating network with a mix of RPVST+ and RSTP may cause unexpected issues, please refer to [Documentation](#) for best practices for operating mixed STP environments.

- Disable Spanning Tree

#### STP bridge priority ⓘ

Switches/Stacks	Bridge priority	VLAN list	Actions
Default	32768		
Rocky_and_Bullwinkle	8192	1-4094	

[+ Set the bridge priority for another switch or stack](#)

Set the STP mode for the entire network

Set bridge priorities per switch & VLAN

# VRRP

Flexible, interoperable HA *available starting with 17.18.2*

- 1 Create/Edit a Layer3 SVI on each switch
- 2 Enable "VRRP" for IPv4 or IPv6
- 3 Configure both switches with matching Group-ID and VIP
- 4 Assign Priority to control Active

High Availability (VRRP)

Enabled

Virtual IP

10.0.40.1

Priority

Custom

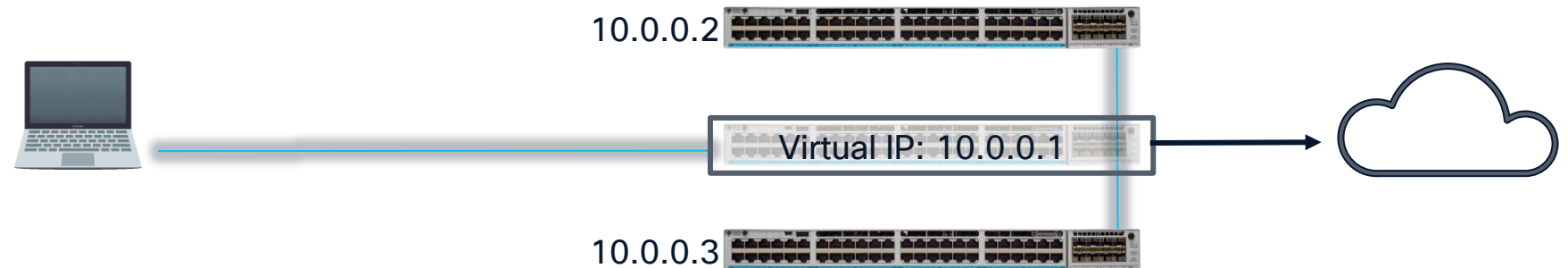
Custom priority

155

Group ID

120

- IPv4 and IPv6 Support
- Per-Interface Control
- Compatible with OSPF/BGP/VRF
- Standards-based compatibility



# Additional cloud features now available on Catalyst 9000

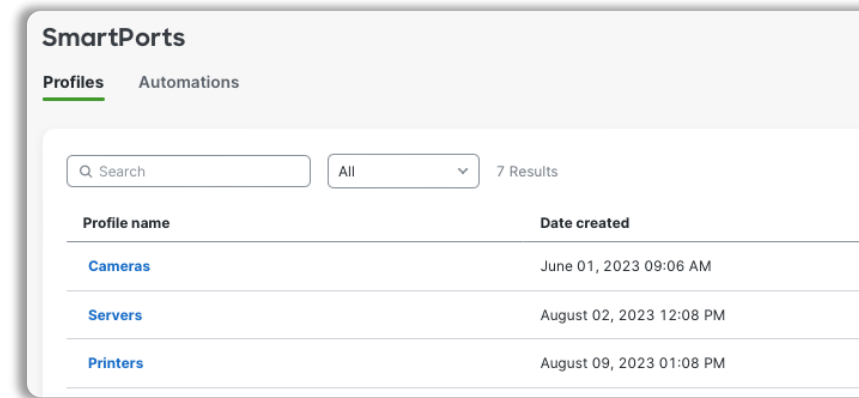
Standardize and simplify configuration management by predefining port profiles with SmartPorts

Reduce time spent on PCAP analysis by remotely scheduling captures with Intelligent Capture

View statistics and receive alerts for critical system resources with Device Health support

View statistics relative to Device Uptime including time online, last boot, and last boot reason.

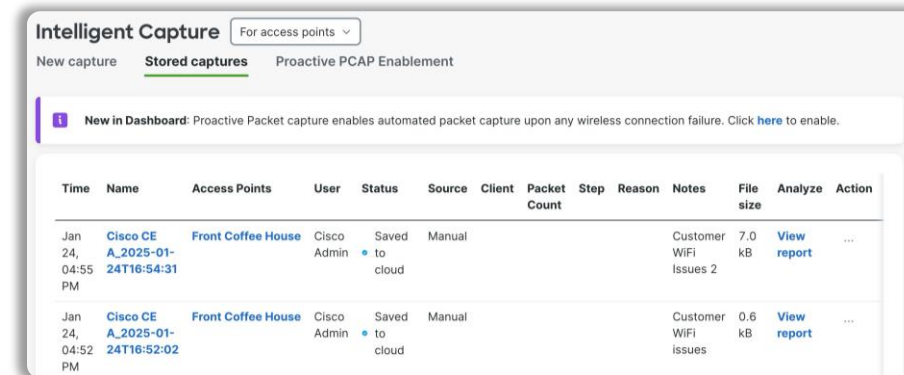
Support for Digital Optical Monitoring to enable real-time monitoring of fiber optic transceivers



SmartPorts Profiles Automations

Search: [ ] All [v] 7 Results

Profile name	Date created
<a href="#">Cameras</a>	June 01, 2023 09:06 AM
<a href="#">Servers</a>	August 02, 2023 12:08 PM
<a href="#">Printers</a>	August 09, 2023 01:08 PM

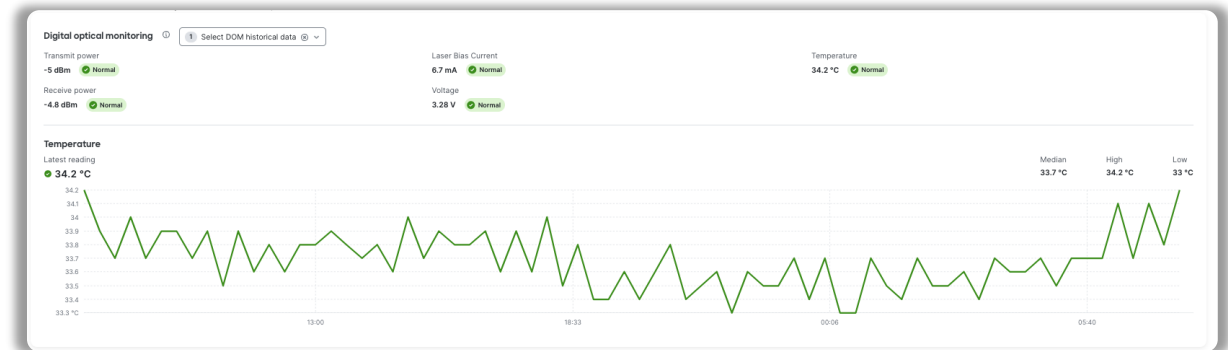


Intelligent Capture For access points [v]

New capture **Stored captures** Proactive PCAP Enablement

**New in Dashboard:** Proactive Packet capture enables automated packet capture upon any wireless connection failure. Click [here](#) to enable.

Time	Name	Access Points	User	Status	Source	Client	Packet Count	Step	Reason	Notes	File size	Analyze	Action
Jan 24, 04:55 PM	<a href="#">Cisco CE A_2025-01-24T16:54:31</a>	Front Coffee House	Cisco Admin	Saved to cloud	Manual					Customer WiFi Issues 2	7.0 kB	<a href="#">View report</a>	...
Jan 24, 04:52 PM	<a href="#">Cisco CE A_2025-01-24T16:52:02</a>	Front Coffee House	Cisco Admin	Saved to cloud	Manual					Customer WiFi Issues	0.6 kB	<a href="#">View report</a>	...



# Cloud Managed Modular

- Over 400 ports on a single page
- Redesigned UI to visualize supervisor and line card details
- Read-write Cloud CLI for config from the cloud



**C9610** ✔ Online Configuration source: Device  
C9610R 8c:44:a5:a8:bb:c0 [Summary](#)

## Supervisor and line cards

Slot	Model	Role	Serial number
1	C9600-LC-48TX	—	FDO283207ZA
2	C9600-LC-48TX	—	FDO28360KH5
3	C9600X-LC-56YL4C	—	FDO27230H8M
4	C9600X-LC-56YL4C	—	FDO27230H8Y
5	C9610-SUP-3XL	<span style="color: green;">✔ Active</span>	FDO282715A3
6	C9610-SUP-3XL	<span style="color: grey;">⊖ Standby</span>	FDO282715A8
7	C9610-LC-32CD	—	FDO28480139
8	C9610-LC-48YL4CD	—	FDO28470M7K

# IE3500 support on Meraki Dashboard

Use  
Case

Rugged Enterprise  
Networks:

Cisco 9K or MS customers  
extending connectivity outdoors to  
parking lots, kiosks, outdoor  
spaces etc.

Target  
Timelines

Beta: Q1CY26  
GA: Q2CY26

The screenshot displays the Meraki Dashboard interface for a Cisco IE3505-8P3S switch. The device is shown as online with a configuration source of Cloud. The page is divided into several sections:

- Map:** Shows the device location at Mandalay Bay, 3950 S Las Vegas Blvd, Las Vegas, NV 89119. Landmarks like Ruby Blue, Lux Vegas, and W Las Vegas are visible.
- Serial number:** FCW2824Y74E (Cloud ID: Q4NQ-D37W-3N2N).
- Device uptime:** 12d 4h 54m. Last device boot: Aug 6 13:52:49 (PDT). Last boot reason: View in Event log.
- Configuration:** Up to date (last fetched 39 minutes ago).
- Firmware:** Not running configured version. Upgrade Status: —. Open source licenses link is provided.
- Port Status:** A table showing the status of 24 ports. Ports 1/17, 1/20, and 2/8 are highlighted in green, indicating they are active.
- Connectivity:** A graph showing the device's connectivity over time, with a green bar indicating active connectivity from 16:50 to 17:23.

# Sneak peek: Coming Soon to Cloud CLI

Access to XE capabilities that are not exposed via Meraki Dashboard

**CLI Profiles**  
CLI configuration profiles enable creation of reusable settings that can be easily applied to devices using tags. [Documentation](#)

1 result

**New CLI profile added**  
Standard switch configs

Name	Description	Assigned Tag	Devices	Last modified	Commit #
Standard switch configs	VLAN configurations	Access	19 switches	Just now by Janetsmrt	b4a450b5

← CLI Profiles

## Create a new CLI Profile

**Configuration** | Assigned devices (19)

**Profile details**

Name: Standard switch configs

+ Description

**Initial deployment**  
Schedule the initial deployment date and time. Future updates will apply immediately.

Deploy:  Now  Later

Initial deployment date and time: 01/13/2026, 2:00 PM

**Device assignment**  
Enter a tag to assign this profile to a device. All devices with the tag will receive the configuration.

Select tag(s): Access

19 matching devices—view details in the [assigned devices](#) tab.

- Full IOS XE CLIs in dashboard
- Jinja2 variables supported in Profile
- Assigned to switches at scale via device tags
- Single profile per device
- Full serial console access available when using CLI Profiles

# Designing Switching Cloud Architectures

# Enterprise Campus

## Campus Core

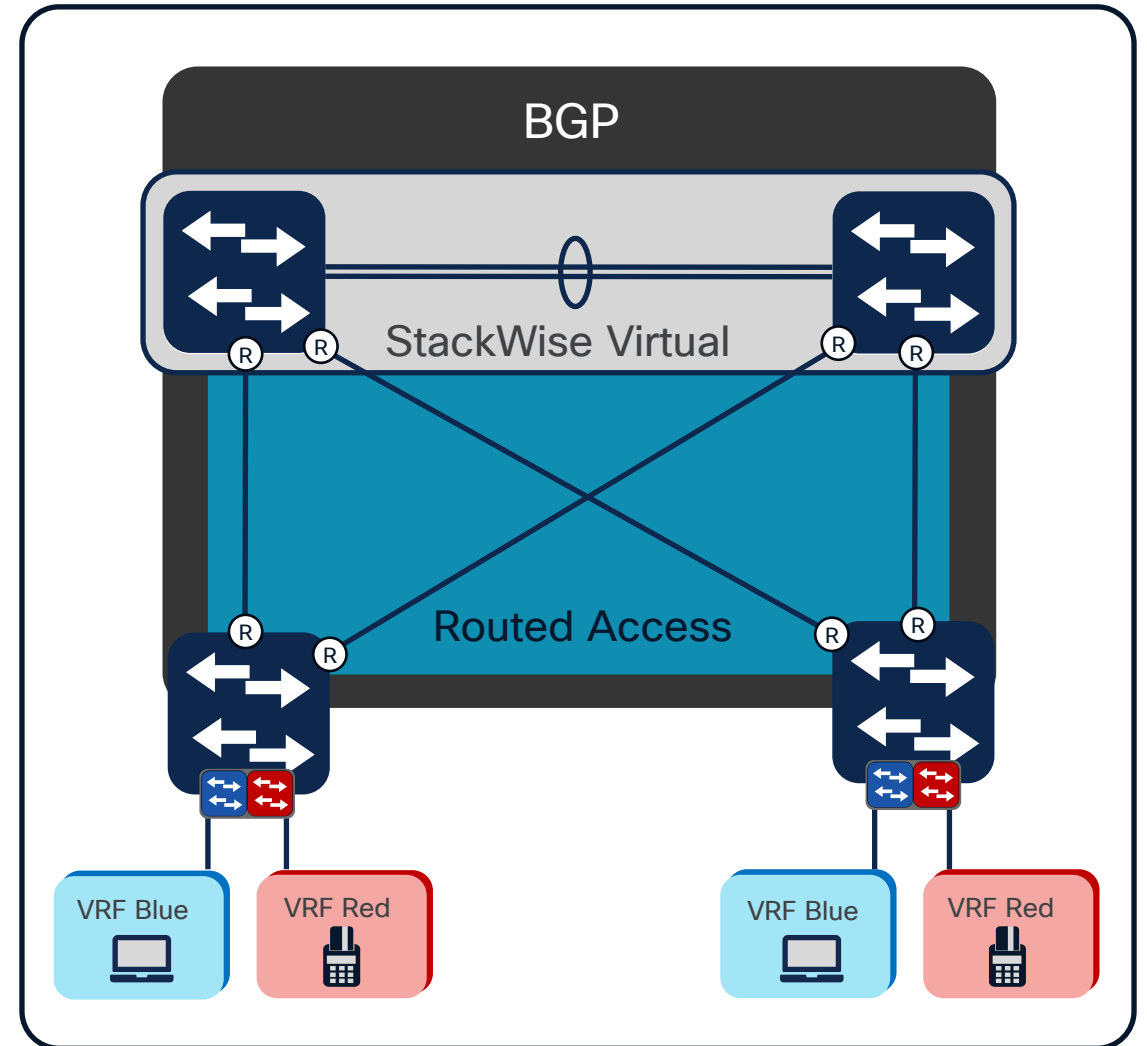
Low-latency, high-availability

## Core-Access Interconnect

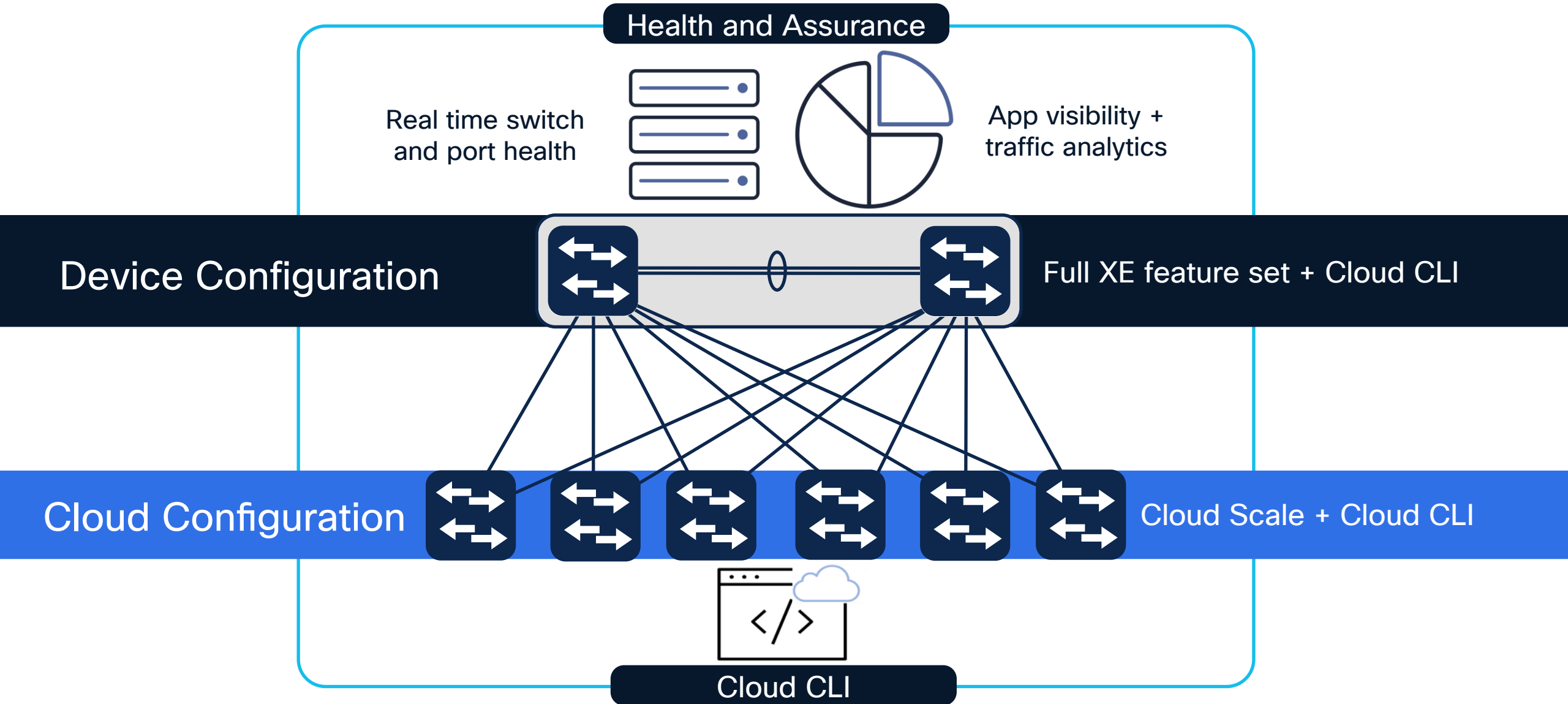
L3 routed access, limited STP  
RPVST+ is still common

## Campus Access

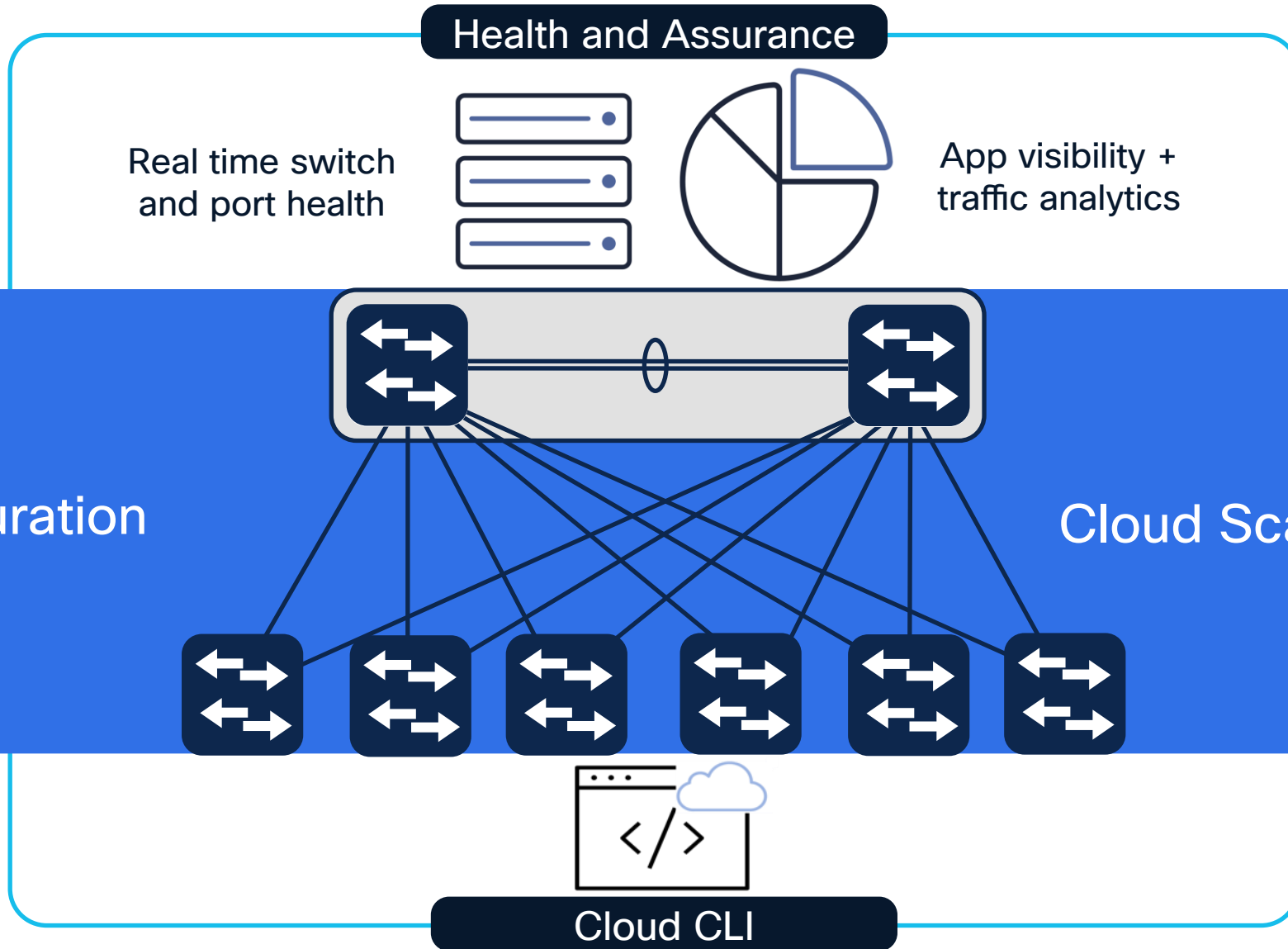
VRF segmented access layer  
RPVST+ is common



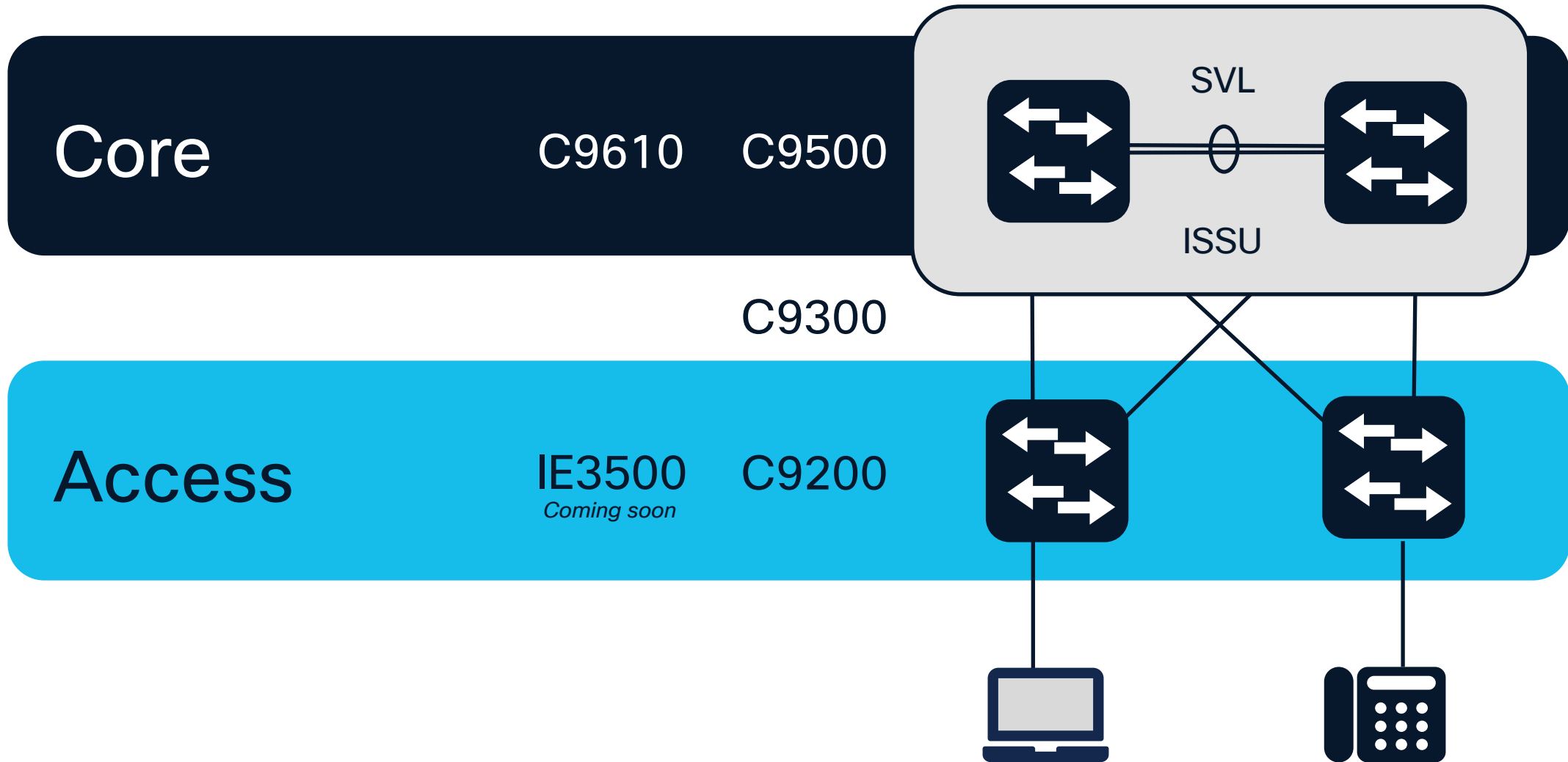
# Choose Mixed Device and Cloud Config



# Or Choose Full cloud config



# Choose Cloud Supported Core and Access Platforms



# Designing for the Multi-tier Enterprise

## Advanced Routing

Routed Ports

Loop-free routed access

VRF Lite

Scalable macro segmentation

BGP

Flexible, open dynamic routing

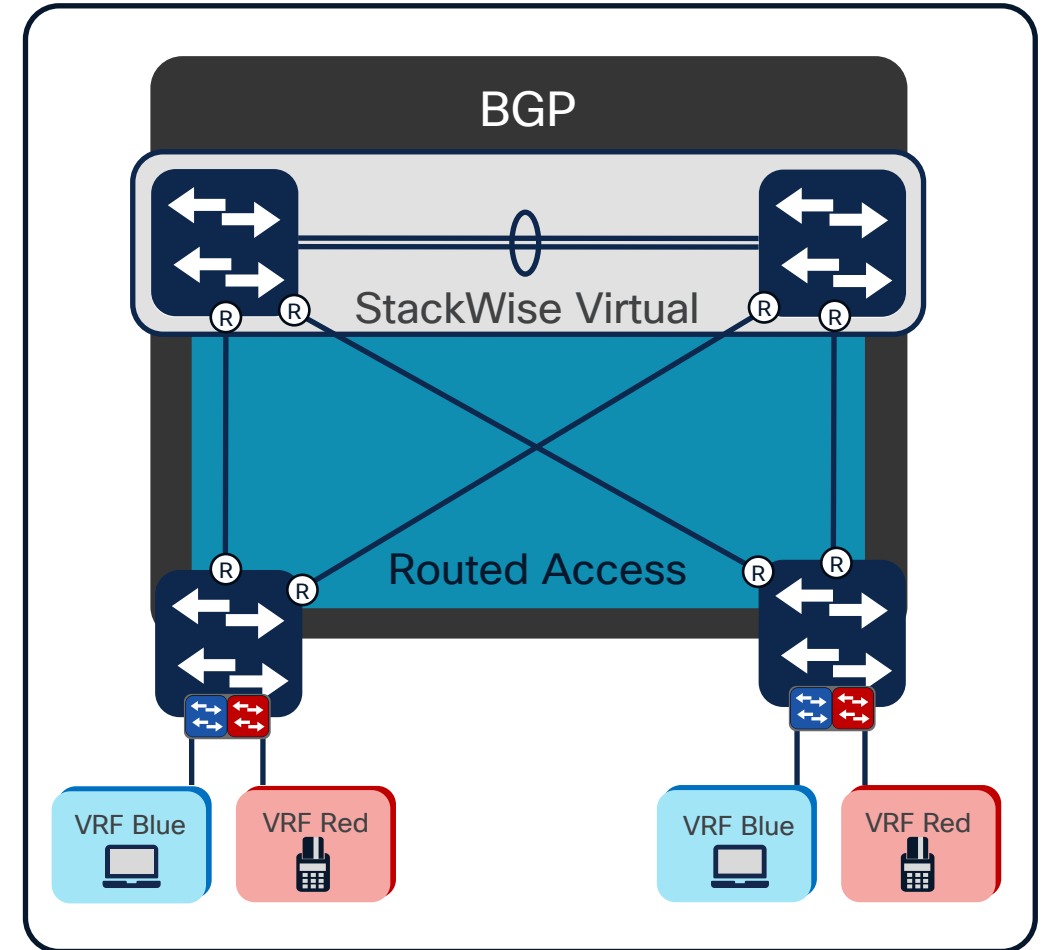
## High-Availability

Rapid PVST+

Enhanced L2 loop prevention

StackWise Virtual (SVL)  
ISSU

Sub-second downtime  
firmware upgrades



# Designing with Advanced L3

## Use Routed Ports to

Leverage Layer 3:

- Limit spanning-tree issues
- Smaller broadcast domains
- Faster Convergence
- Fewer VLANs

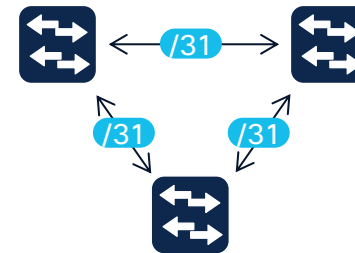
## Use VRF for

- Simple Macro Segmentation
- Separate IT and OT

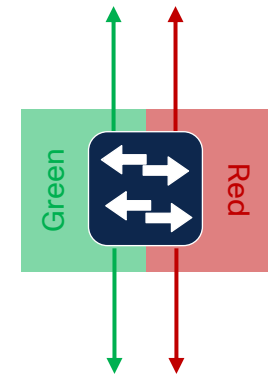
## Use BGP for

- Highly Flexible Reachability
- Peering with edge firewall
- Large Campus Route Reflector

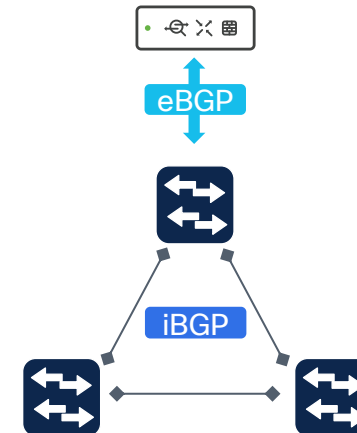
### Routed Interfaces



### VRF Lite



### BGP



# Designing for High Availability

## Use Stackwise Virtual and ISSU

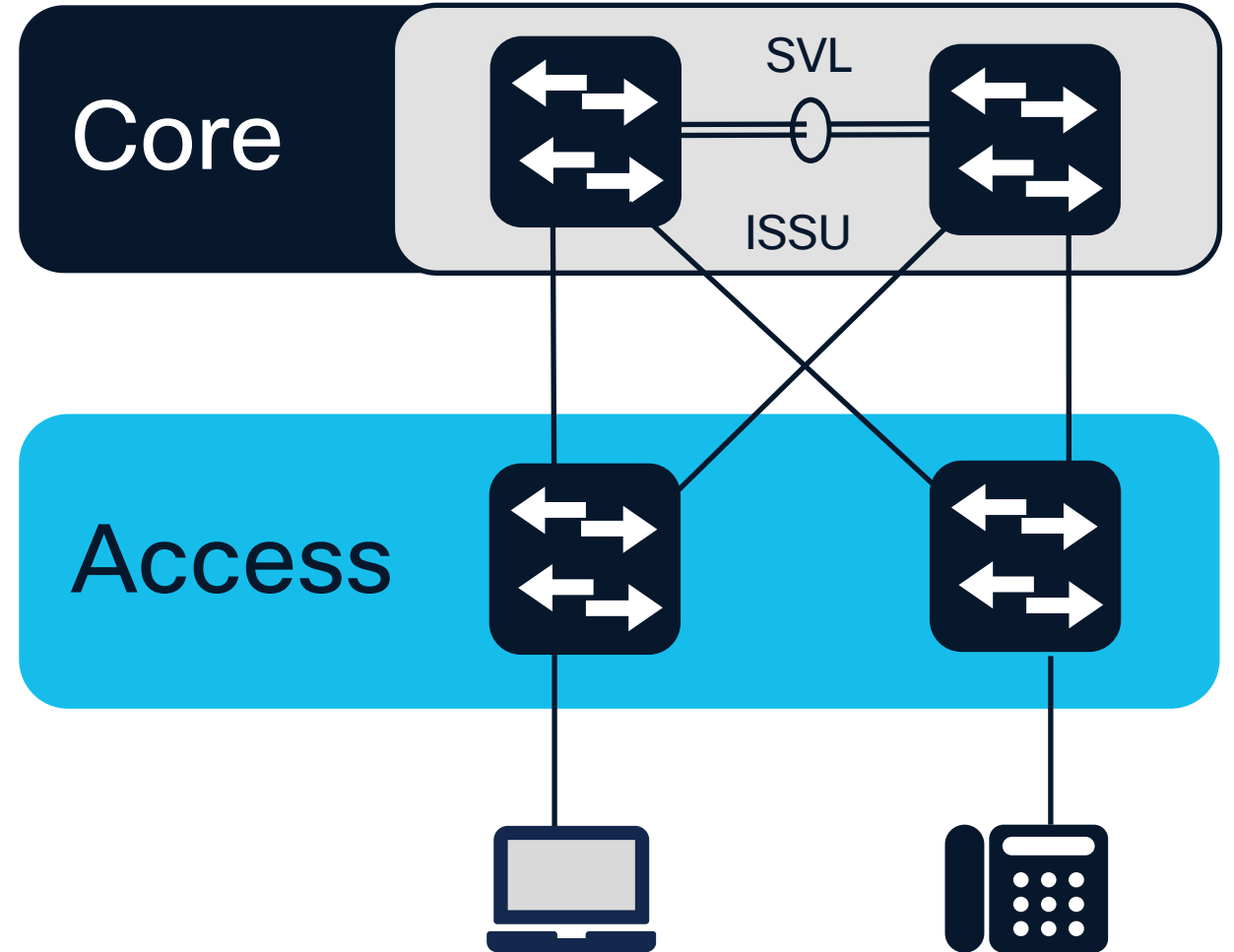
- To have sub-second downtime at the core when performing firmware upgrades

## Use Staged Upgrades

- To roll incremental upgrades across a campus network:
  - Building by building
  - Floor by floor
  - Custom groupings

## Use RPVST+ for

- Interoperability with all Catalyst based platforms
- Per-VLAN high availability

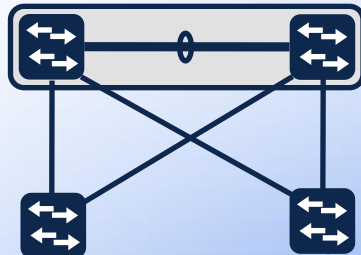


# Is cloud ready for you?



Cloud manage your Catalyst

Check out the Cloud CLI



Look to the core in 17.18

# Q&A

# Complete your session surveys



**Complete your surveys** in the Cisco Events App.



**Complete** a minimum of 4 session surveys and the overall event survey to receive a unique Cisco Live t-shirt.  
(from 11:30 on Thursday, while supplies last)

# Continue your education



**Visit** the Cisco Showcase for related demos



**Book** your one-on-one Meet the Engineer meeting

**Visit** the Technical Solutions Clinics to discuss your technical questions



**Attend** the interactive education with DevNet, Capture the Flag, and Walk-in Labs



**Visit** the On-Demand Library for more sessions at [CiscoLive.com/On-Demand](https://CiscoLive.com/On-Demand)

**Thank you**

**CISCO** Live !

