

The background features a vibrant, abstract design. On the left, there are horizontal, wavy bands of color in shades of red, orange, yellow, and green. On the right, a bright white light source emits a series of colorful rays in shades of blue, green, and yellow, creating a sunburst effect. The overall composition is dynamic and energetic.

CISCO *Live!*

Let's go



The bridge to possible

ISE Your Meraki Network with Group Based Adaptive Policy

Thomas Howard, Technical Marketing Engineer
Alex Burger, Principal Technical Marketing Engineer



CISCO The bridge to possible

ISE Your Meraki Network with Group Based Adaptive Policy

BRKSEC-2100

Thomas Howard, Technical Marketing Engineer
Alex Burger, Principal Technical Marketing Engineer

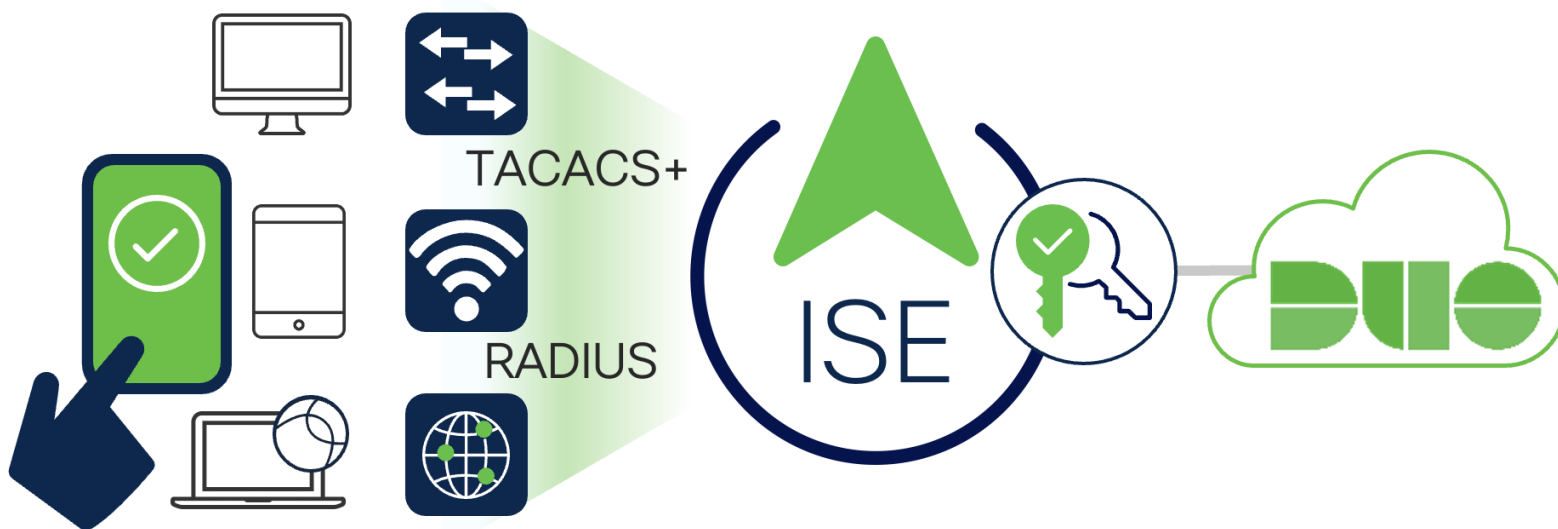
CISCO Live!

BRKSEC-2100

Getting Started with ISE Profiling

bypass (MAB)

ISE & Duo Integration for MFA



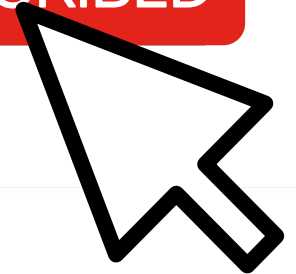
youtu.be/4oJXzySs0tM




 cs.co/ise-youtube



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Live

Gaming



Identity Services Engine



Cisco ISE - Identity Services Engine

@CiscoISE 19.6K subscribers 209 videos

Welcome to the Official Cisco ISE YouTube Channel. >

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Oldest


Rapid Threat Containment with ISE and FMC



43:33

Rapid Threat Containment with ISE


Getting Started with ISE Profiling



59:12

Getting Started with ISE Profiling


ISE Eternal Evaluation for Your Lab



1:00:23

ISE Eternal Evaluation for Your Lab

Cisco SD-Access with ISE



54:28

Cisco SD-Access with ISE

CISCO *Live!*

BRKSEC-2100

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5

Alex Burger



Me



Not
Me



Me

Principal TME in Meraki Product Management | CCIE 45253 | CWNE 249

- Spent many years in the field as a partner post-sales engineer deploying ISE
- Field Sales as a Meraki SE
- Product management
 - Cross product/BU features and integrations
 - MS and Catalyst management
 - Zero-Trust

My desk is not as clean as Thomas's

CISCO Live!



<https://wirelesslywired.com>

Webex App

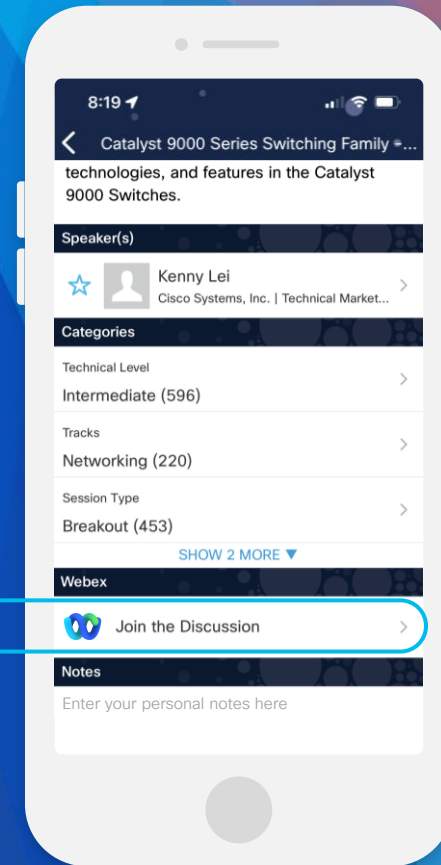
Questions?

Use the Webex App to chat with the speaker after the session

How

- 1 Find this session in the Cisco Events Mobile 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

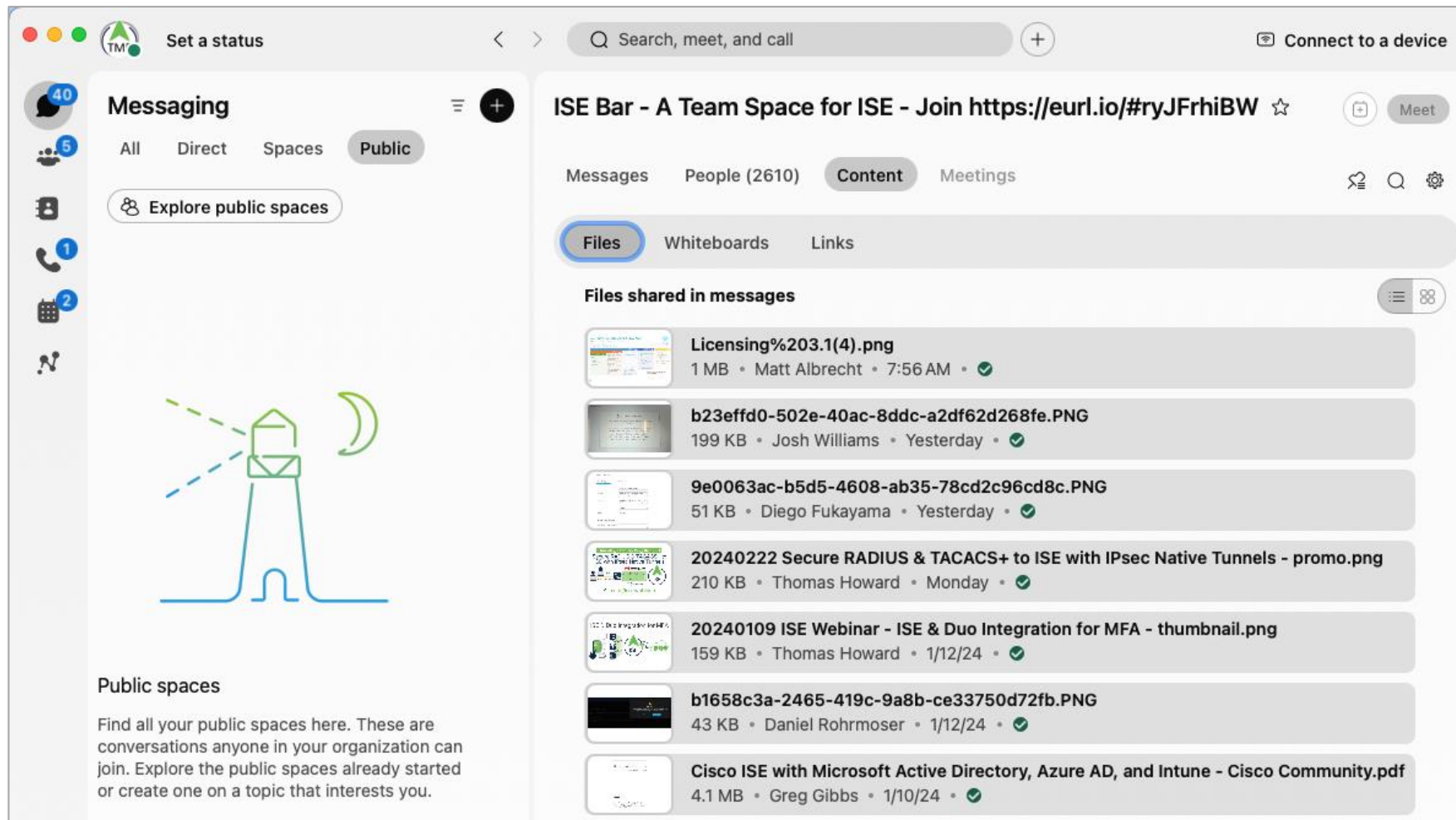
Webex spaces will be moderated by the speaker until February 23, 2024.



<https://ciscolive.ciscoevents.com/ciscolivebot/#BRKSEC-2100>

ISE Bar: A *Public* Webex Team Space for ISE

 cs.co/ise-bar



The screenshot shows the Webex Team Space interface for "ISE Bar - A Team Space for ISE". The top navigation bar includes "Set a status", a search bar, and a "Connect to a device" button. The left sidebar shows the "Messaging" section with tabs for "All", "Direct", "Spaces", and "Public". Below these is a button to "Explore public spaces". The main content area displays the "ISE Bar" space with a join link: <https://eurl.io/#ryJFrhiBW>. The "Content" tab is selected, showing a list of files shared in messages. The files include:

- Licensing%203.1(4).png (1 MB, Matt Albrecht, 7:56 AM)
- b23effd0-502e-40ac-8ddc-a2df62d268fe.PNG (199 KB, Josh Williams, Yesterday)
- 9e0063ac-b5d5-4608-ab35-78cd2c96cd8c.PNG (51 KB, Diego Fukayama, Yesterday)
- 20240222 Secure RADIUS & TACACS+ to ISE with IPsec Native Tunnels - promo.png (210 KB, Thomas Howard, Monday)
- 20240109 ISE Webinar - ISE & Duo Integration for MFA - thumbnail.png (159 KB, Thomas Howard, 1/12/24)
- b1658c3a-2465-419c-9a8b-ce33750d72fb.PNG (43 KB, Daniel Rohrmoser, 1/12/24)
- Cisco ISE with Microsoft Active Directory, Azure AD, and Intune - Cisco Community.pdf (4.1 MB, Greg Gibbs, 1/10/24)

The bottom left of the interface shows a "Public spaces" section with a description: "Find all your public spaces here. These are conversations anyone in your organization can join. Explore the public spaces already started or create one on a topic that interests you."



ISE Bar (Public Webex Space)

Agenda

- Cisco Identity Service Engine
- Cisco TrustSec Segmentation
- Meraki Adaptive Policy
- Cisco ISE with Meraki
 - MX/Z: VPN / SOHO / HOBO
 - MR: Wireless
 - MS: Wired
- ISE Meraki Connector
- TrustSec Matrix in Excel

Cisco Identity Services Engine (ISE)

ISE Capabilities for Zero Trust from Workplace



Establish Trust

- User/Device Authentication
- MFA thru Integrations
- Profiling
- Posture + Context
- Guest
- BYOD Onboarding



Enforce Trust-Based Access

- Network based Authorization Policies
- Micro-segmentation
- Compliance-based CoA
- Device Administration with TACACS+



Continuously Verify Trust

- Integrations :
- Threat Detection
 - Behavior Analysis
 - Vulnerability Assessment



Respond to Change in Trust

- RADIUS Change of Authorization (CoA)
- Adaptive Network Control (ANC)

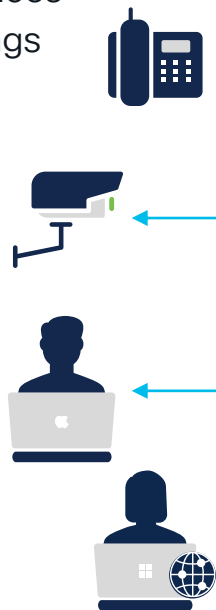
ISE Provides Zero Trust for the Workplace

Enterprise

Security

Endpoints

- Users
- Devices
- Things



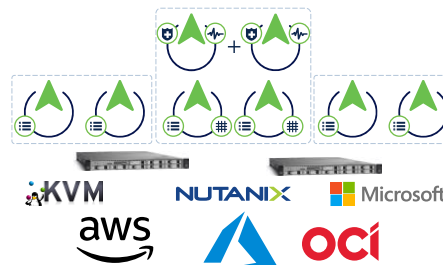
Network Devices

- Switches
- WLCs / APs
- VPN



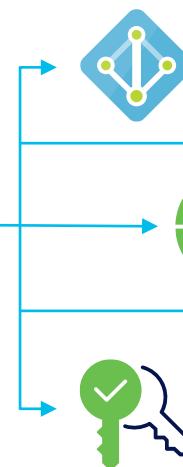
Cisco ISE

- Shared or Distributed
- VM/Appliance/Cloud
- Up to 2M Endpoints
- RADIUS and TACACS



Identity Services

- Azure/AD/LDAP
- MDM
- SAML/MFA



Security Services

- Cloud Analytics
- Secure Firewall
- Partners

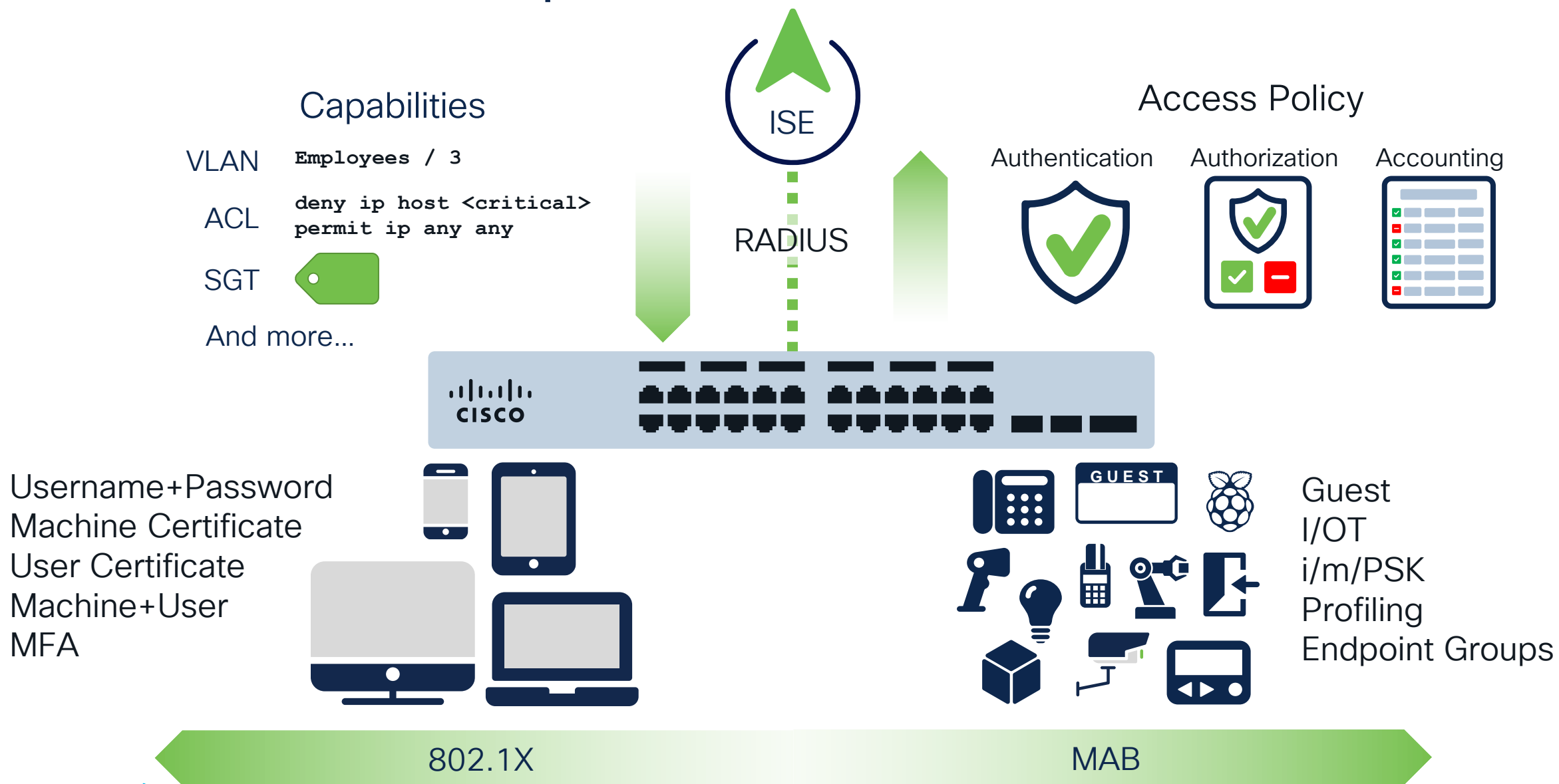


See It

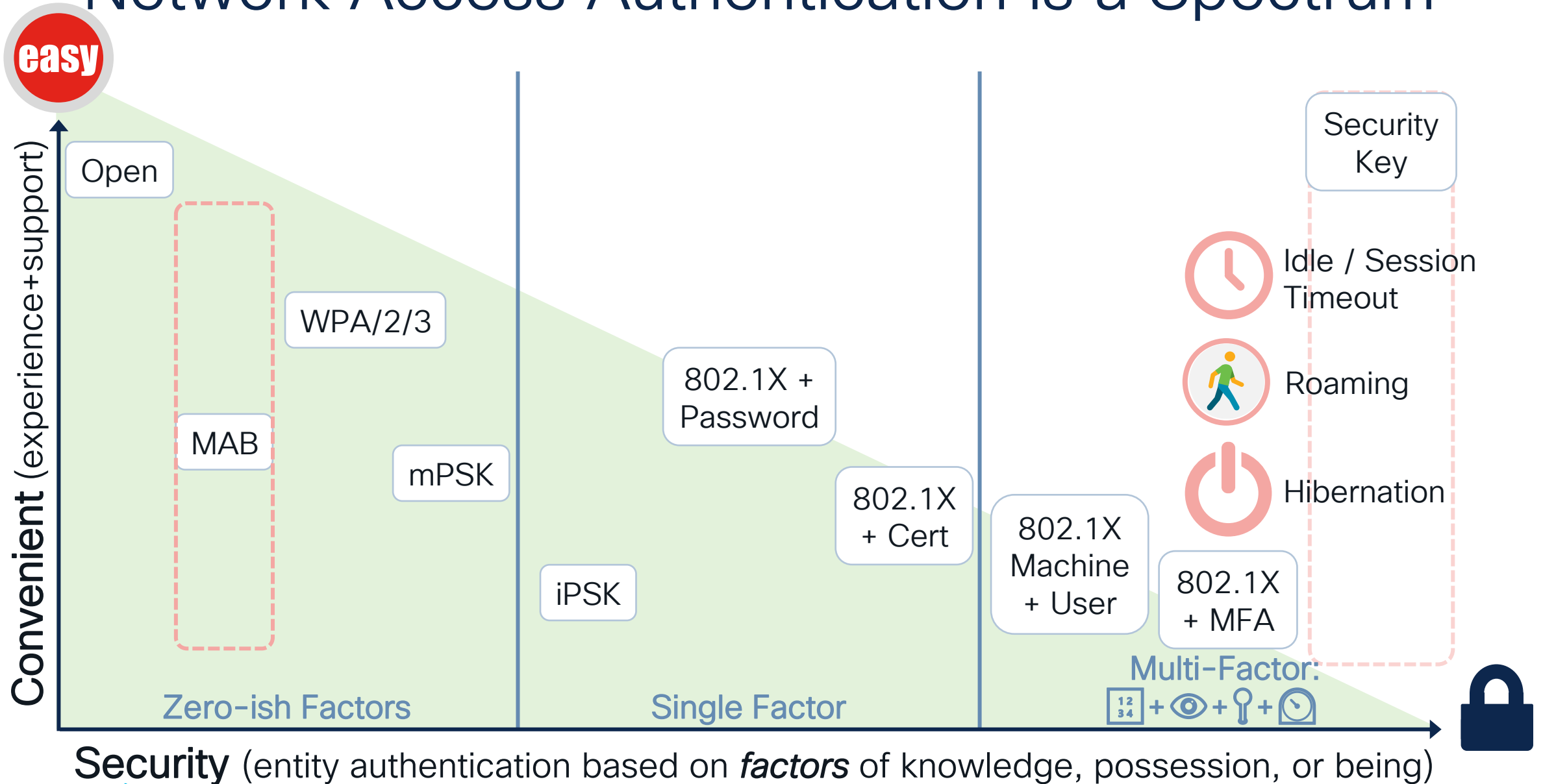
Secure It

Share It

ISE Controls Endpoint Sessions with RADIUS



Network Access Authentication is a Spectrum



MFA Requires a Finger and a Phone



Solve Identity for Zero Trust with Duo *and* ISE

Access Problem



Cisco ISE



Cisco Duo



Cisco ISE + Duo



User + Device
(On-Premise)



On-Premise
Applications



No MFA



Web
Only



IOT Device
(On-Premise)



On-Premise
Applications



User + Device
(Off-Premise)



On-Premise
Applications



VPN
Based



Web
Only



User / Device
(On-Premise)



User / Device
(On-Premise)



User + Device
(On-Premise)



Cloud
Applications



No MFA



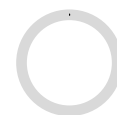
No
network
security



User + Device
(Off-Premise)



Cloud
Applications

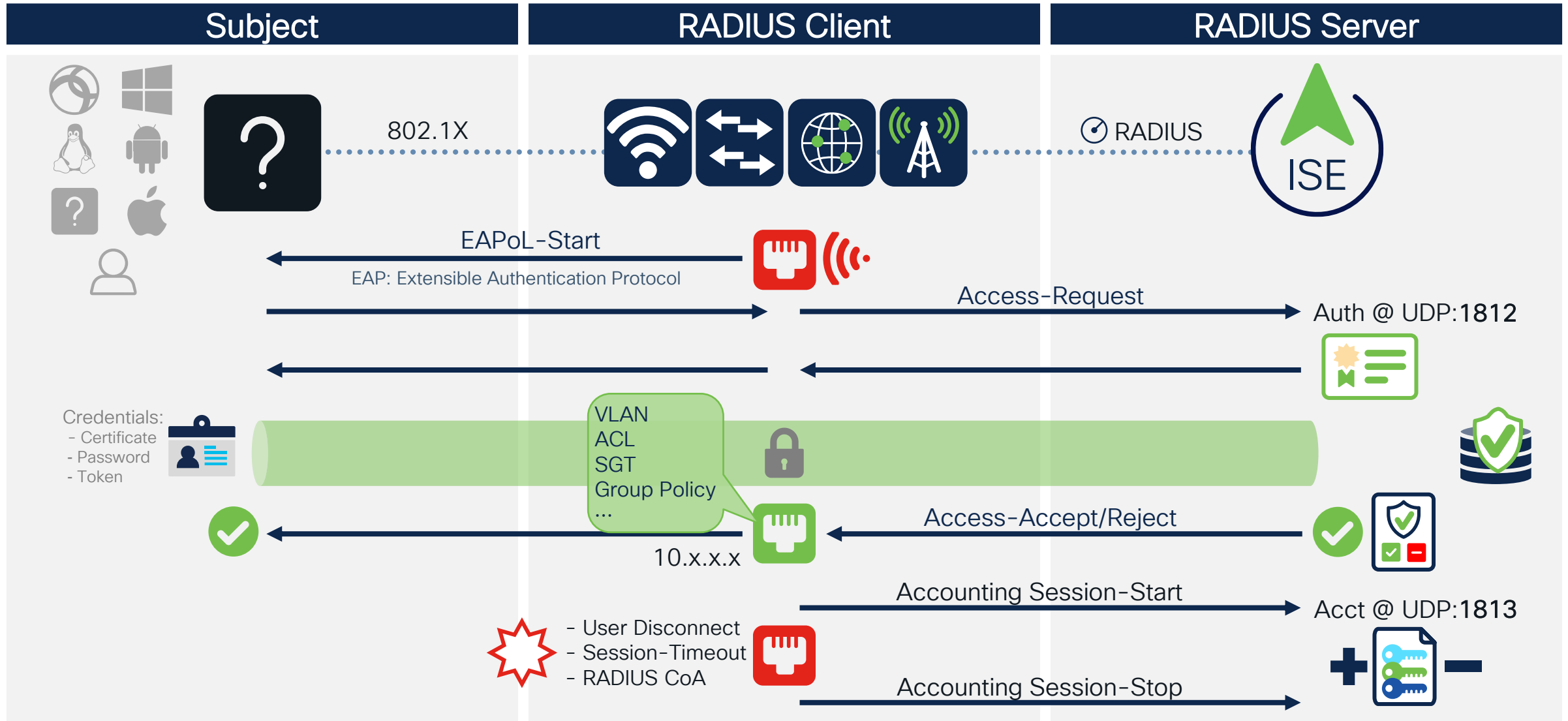


RADIUS : 802.1X

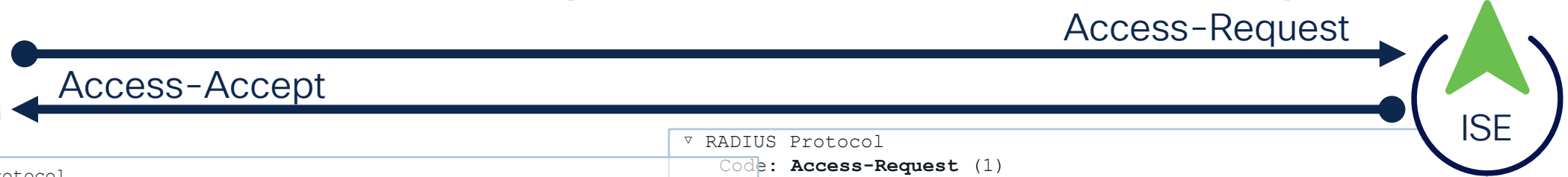


RFC2865 : RADIUS
RFC2866 : Accounting

RFC3579 : EAP Support
RFC5176 : CoA Support



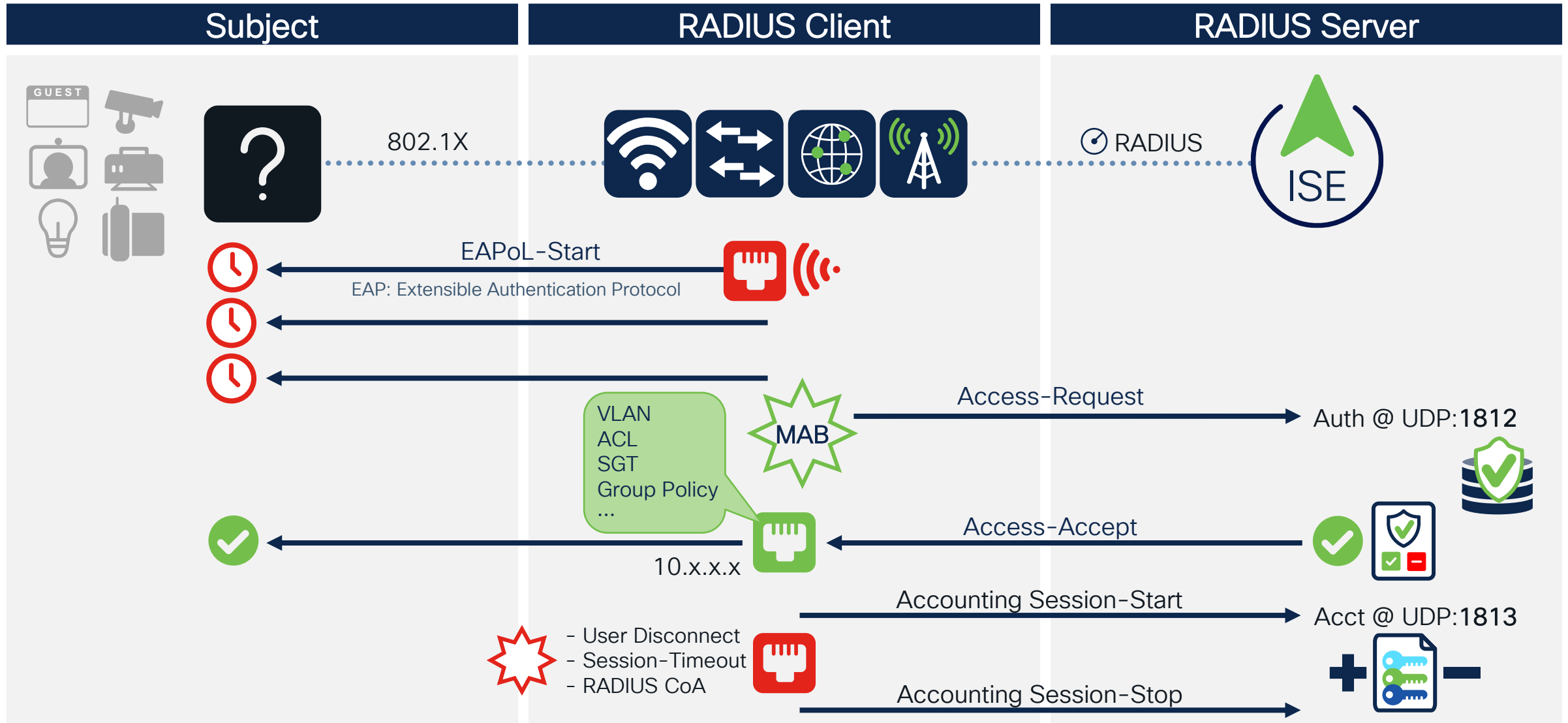
RADIUS : Access-Request + Access-Accept
















```
▼ RADIUS Protocol
  Code: Access-Accept (2)
  Packet identifier: Oxd (13)
  Length: 428
  Authenticator: 66403608336c3e77859116d46cd0d65f
  ▼ Attribute Value Pairs
    > AVP: t=User-Name (1) 1=8 val=thomas
    > AVP: t=Class (25) 1=75 val=434143533a6336313238353162724344a2f7767443633147
    > AVP: t=Session-Timeout (27) 1=6 val=1800
    > AVP: t=Termination-Action (29) (=6 val=RADIUS-Request (1)
    > AVP: t=Tunnel-Type (64) (=6 Tag=0x01 val=VLAN (13)
    > AVP: t=Tunnel-Medium-Type (65) 1=6 Tag=0x01 val=IEEE-802 (6)
    > AVP: t=EAP-Message (79) 1=6 Last Segment [1]
    > AVP: t=Message-Authenticator (80) (=18 val=1cb417480820021d54882fcaea90308c
    > AVP: t=Tunnel-Private-Group-Id (81) (=7 Tag=0x01 val=DATA
    ▼ AVP: t=Vendor-Specific (26) 1=36 vnd=ciscoSystems (9)
      Type: 26
      Length: 36
      Vendor ID: ciscoSystems (9)
      > VSA: t=Cisco-AVPair (1) (=30 val=linksec-policy=should-secure
    ▼ AVP: t=Vendor-Specific (26) 1=80 vnd=ciscoSystems (9)
      Type: 26
      Length: 80
      Vendor ID: ciscoSystems (9)
      > VSA: t=Cisco-AVPair (1) (=74 val=ACS: CiscoSecure-Defined-ACL=#ACSACL#-IP-
PERMIT_ALL_IPV4_TRAFFIC-57f6b0d3
    ▼ AVP: t=Vendor-Specific (26) (=38 vnd=ciscoSystems (9)
      Type: 26
      Length: 38
      Vendor ID: ciscoSystems (9)
      > VSA: t=Cisco-AVPair (1) (=32 val=cts:security-group-taq=0004-00
    > AVP: t=Vendor-Specific (26) 1=58 vnd=Microsoft (311)
```

```
▼ RADIUS Protocol
  Code: Access-Request (1)
  Packet identifier: x0 (0)
  Length: 153
  Authenticator: 29eb293b3a40ea740a8fd33bdb18f1d7
  ▼ Attribute Value Pairs
    > AVP: t=User-Name (1) 1=8 val=thomas
    > AVP: t=NAS-IP-Address (4) (=6 val=6.86.227.108
    > AVP: t=Calling-Station-Id (31) 1=19 val=02-00-00-00-00-01
    > AVP: t=Called-Station-Id (30) 1=27 val=2C-3F-0B-56-E3-6C:Corp
    > AVP: t=Framed-MTU (12) (=6 val=1400
    > AVP: t=NAS-Port-Type (61) (=6 val=Wireless-802.11 (19)
    > AVP: t=Service-Type (6) 1=6 val=Framed (2)
    > AVP: t=Connect-Info (77) (=24 val=CONNECT 11Mbps 802.11b
    > AVP: t=EAP-Message (79) 1=13 Last Segment [1]
    > AVP: t=Message-Authenticator (80) 1=18
    val=26f047af6a9a82279dfd6d19b477c31b
```

RADIUS : MAC Authentication Bypass (MAB)



ISE Endpoint Profiles for Meraki Devices

Profiling Policies				
Selected 0 Total 4  				
 Edit	 Add	 Duplicate	 Delete 	 Import  Export 
Quick Filter  				
Profiling Policy Name	Policy Enabled	System Type	Description	
meraki 				
<input type="checkbox"/> Cisco-Meraki-Access-Point	Enabled	Cisco Provided	Policy for Cisco Meraki Access Point	
<input type="checkbox"/> Cisco-Meraki-Device	Enabled	Cisco Provided	Policy for Cisco Meraki Device	
<input type="checkbox"/> Cisco-Meraki-Security-Appliance	Enabled	Cisco Provided	Policy for Cisco Meraki Security Appliance	
<input type="checkbox"/> Cisco-Meraki-Switch	Enabled	Cisco Provided	Policy for Cisco Meraki Switch	

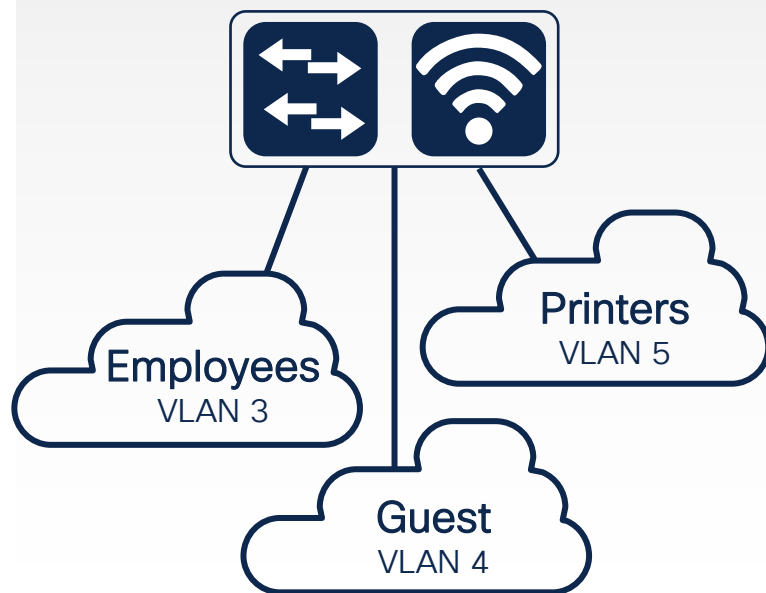
Profile	Conditions
Cisco-Meraki-Device	MAC:OUI CONTAINS Meraki
Cisco-Meraki-Access-Point	LLDP:lldpSystemDescription CONTAINS MR
Cisco-Meraki-Switch	LLDP:lldpSystemDescription CONTAINS MS CDP:cdpCachePlatform CONTAINS MS
Cisco-Meraki-Security-Appliance	LLDP:lldpSystemDescription CONTAINS MX

ISE Segmentation Options

Beyond RADIUS Access-Accept / Access-Reject

VLANs

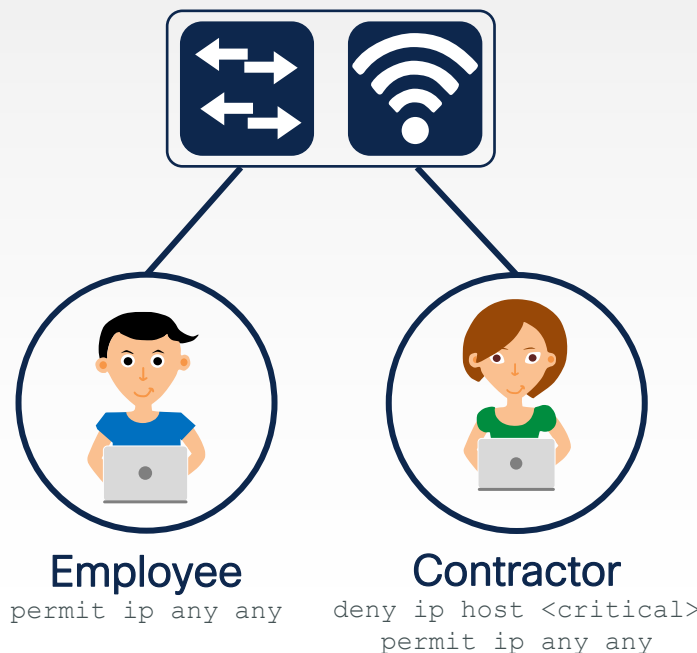
Dynamic VLAN Assignments



Per port / Per Domain / Per MAC

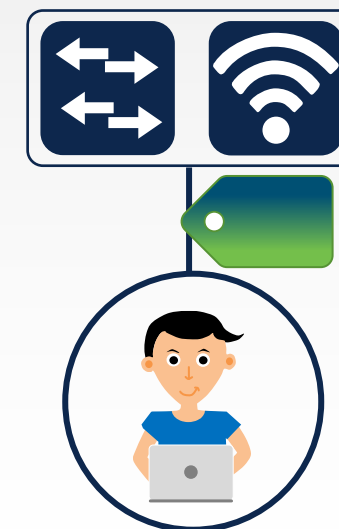
ACLs: DL, Named, DNS

Downloadable ACL (Wired) or
Named ACL (Wired + Wireless)



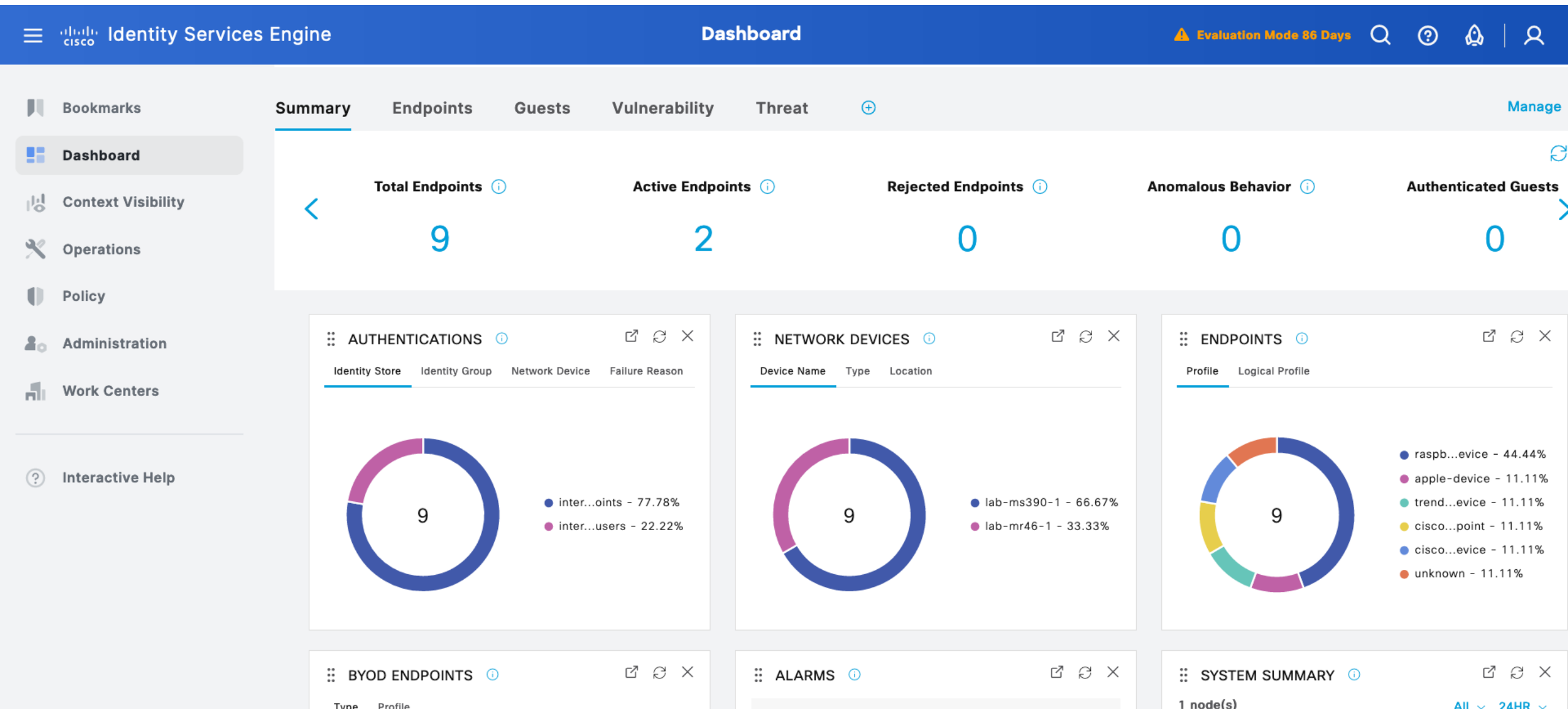
Security Group Tags

Cisco Group-Based Policy











16-bit SGT assignment and
SGT based Access Control

ISE Lab Setup



Network Devices in ISE

-  Bookmarks
-  Dashboard
-  Context Visibility
-  Operations
-  Policy
-  Administration
-  Work Centers
-  Interactive Help

- Network Devices**
- Network Device Groups
- Network Device Profiles
- External RADIUS Servers
- More 









- Network Devices**
- Default Device
- Device Security Settings

Network Devices

Selected 0 Total 4  

 Edit  Add  Duplicate  Import  Export  Generate PAC  Delete 

All  

<input type="checkbox"/>	Name	IP/Mask	Profile Name	Location	Type
<input type="checkbox"/>	lab-ms390-1	192.168.128.4/32	 Cisco 	AMER#HBC	Switches#MS#MS390
<input type="checkbox"/>	lab-mr46-1	192.168.128.2/32	 Cisco 	AMER#HBC	Wireless#MR#MR46
<input type="checkbox"/>	z3-hobo-employee	192.168.129.1/32	 Cisco 	AMER#HBC	SDWAN#Z3
<input type="checkbox"/>	lab-mx68-1	192.168.128.1/32	 Cisco 	AMER#HBC	SDWAN#MX#MX68

Policy Sets

Identity Services Engine

Policy / Policy Sets

Evaluation Mode 86 Days

Bookmarks

Dashboard

Context Visibility

Operations

Policy

Administration

Work Centers

Interactive Help

Network Devices

Network Device Groups

Network Device Profiles

External RADIUS Servers

RADIUS Server Sequences











More

Status	Policy Set Name	Description	Conditions	Allowed Protocols / Server Sequence	Hits	Actions	View
				Search			
✓	802.1X		OR Wired_802.1X AND Wireless_802.1X Radius·Called·Station-ID ENDS_WITH .corp	EAPs	5		
✓	IOT_Wired		Wired_MAB	MAB	0		
✓	IOT_Wireless		AND Wireless_MAB Radius·Called·Station-ID ENDS_WITH .iot	MAB	0		
✓	Guest		Radius·Called·Station-ID ENDS_WITH .guest	Default Network Access	0		
✓	Default	Default policy set		Default Network Access	6		

Reset Save

Authentication Rules


✓Authentication Policy(2)

		Status	Rule Name	Conditions	Use	Hits	Actions
<div> Search</div>							
		ISE_Internal	OR	<div><div></div>Wired_802.1X</div> <div><div></div>Wireless_802.1X</div>	<div>Internal Users</div> <div>> Options</div>	1	
		Default			<div>DenyAccess</div> <div>> Options</div>	0	

➤ Authorization Policy - Local Exceptions

➤ Authorization Policy - Global Exceptions

✓Authorization Policy(2)

				Results			
	Status	Rule Name	Conditions	Profiles	Security Groups	Hits	Actions

Authorization Rules

Identity Services Engine

Policy / Policy Sets

Evaluation Mode 86 Days

Search

✓

IOT_Wired

Wired_MAB

MAB

+

0

> Authentication Policy(1)

> Authorization Policy - Local Exceptions

> Authorization Policy - Global Exceptions

▼ Authorization Policy(5)

				Results			
+	Status	Rule Name	Conditions	Profiles	Security Groups	Hits	Actions
<div>Search</div>							
	✓	IOT_Assets	<div></div> IdentityGroup-Name EQUALS Endpoint Identity Groups:Assets	GP_IOT	<div></div> IOT	<div></div> 0	<div></div>
	✓	IOT_Cameras	<div></div> IdentityGroup-Name EQUALS Endpoint Identity Groups:Assets:Cameras	GP_IOT	<div></div> IOT	<div></div> 0	<div></div>
	✓	IOT_Facilities	<div></div> IdentityGroup-Name EQUALS Endpoint Identity Groups:Assets:Facilities	GP_IOT	<div></div> IOT	<div></div> 0	<div></div>
	✓	IOT_Signage	<div></div> IdentityGroup-Name EQUALS Endpoint Identity Groups:Assets:Signage	GP_IOT	<div></div> IOT	<div></div> 0	<div></div>

Authorization Profiles

Identity Services Engine

Policy / Policy Elements

Evaluation Mode 86 Days

Dictionary

Conditions

Results

Authentication

Authorization

Authorization Profiles

Downloadable ACLs

Profiling

Posture

Client Provisioning

Standard Authorization Profiles

For Policy Export go to [Administration > System > Backup & Restore > Policy Export Page](#)

Selected 0 Total 15

Edit Add Duplicate Delete

All

	Name	Profile	Description
<input type="checkbox"/>	Block_Wireless_Access	Cisco	Default profile used to block wireless devices. Ensure that you configure a NULL I
<input type="checkbox"/>	CMDB_IPSK	Cisco	
<input type="checkbox"/>	Cisco_IP_Phones	Cisco	Default profile used for Cisco Phones.
<input type="checkbox"/>	Cisco_Temporal_Onboard	Cisco	Onboard the device with Cisco temporal agent
<input type="checkbox"/>	Cisco_WebAuth	Cisco	Default Profile used to redirect users to the CWA portal.
<input type="checkbox"/>	GP_Cameras	Cisco	
<input type="checkbox"/>	GP_Employees	Cisco	
<input type="checkbox"/>	GP_Guests	Cisco	
<input type="checkbox"/>	GP_IOT	Cisco	
<input type="checkbox"/>	GP_Unknown	Cisco	
<input type="checkbox"/>	NSP_Onboard	Cisco	Onboard the device with Native Supplicant Provisioning

ISE LiveLogs

Live Logs Live Sessions

Refresh Every 10 sec... Show Latest 20 reco... Within Last 5 minutes

Reset Repeat Counts Export To

Filter

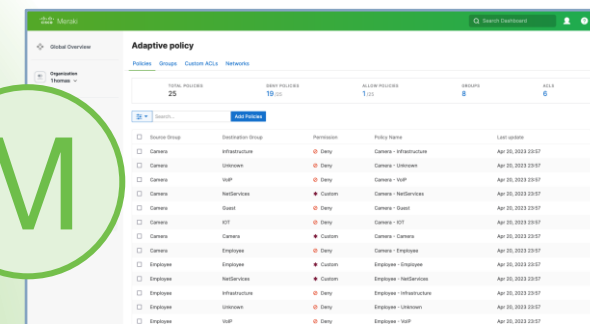
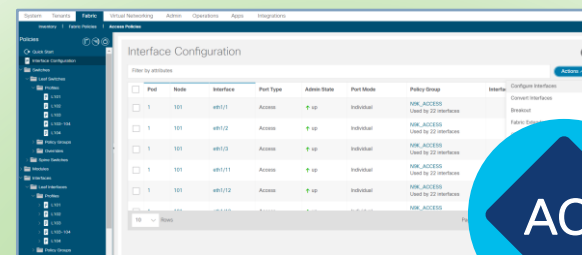
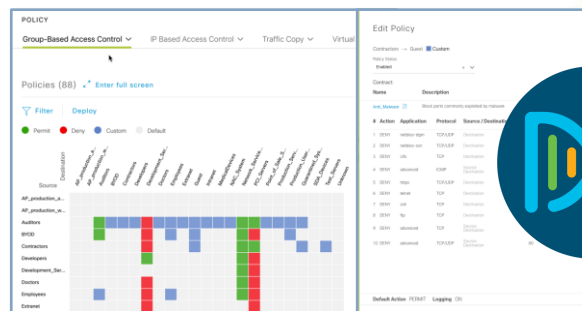
Time	Status	Details	Identity	Endpoint...	Authentication Poli...	Authorization Policy	Authorizatio...	Security ...	Network De...	IF
X			Identity	Endpoint Pr	Authentication Policy	Authorization Policy	Authorization Pr	Security Gr	Network Device	I
Jun 03, 2023 04:50:3...			DC:A6:32:1A:C...	Raspberry...	IOT_Wired >> Default	IOT_Wired >> IOT_Signage	GP_IOT	IOT		1
Jun 03, 2023 04:50:3...			DC:A6:32:6D:A...	Raspberry...	IOT_Wired >> Default	IOT_Wired >> IOT_Facilities	GP_IOT	IOT		1
Jun 03, 2023 04:50:2...			3C:8C:F8:A0:1...	Trendnet-...	IOT_Wired >> Default	IOT_Wired >> Default	PermitAccess	Unknown		1
Jun 03, 2023 04:50:2...			DC:A6:32:1A:C...	Raspberry...	IOT_Wired >> Default	IOT_Wired >> IOT_Signage	GP_IOT		lab-ms390-1	1
Jun 03, 2023 04:50:1...			DC:A6:32:6D:A...	Raspberry...	IOT_Wired >> Default	IOT_Wired >> IOT_Facilities	GP_IOT		lab-ms390-1	1
Jun 03, 2023 04:50:0...			3C:8C:F8:A0:1...	Trendnet-...	IOT_Wired >> Default	IOT_Wired >> Default	PermitAccess		lab-ms390-1	
Jun 03, 2023 04:50:0...			DC:A6:32:1A:C...	Raspberry...	IOT_Wireless >> MAB	IOT_Wireless >> CMDB_Signa...	CMDB_iPSK	IOT		1
Jun 03, 2023 04:50:0...			DC:A6:32:1A:C...	Raspberry...	IOT_Wireless >> MAB	IOT_Wireless >> CMDB_Signa...	CMDB_iPSK		lab-mr46-1	
Jun 03, 2023 04:49:5...			employee	Unknown	802.1X >> ISE_Internal	802.1X >> Employees_Internal	GP_Employees	Employees		1

ISE is the Core of Cisco's Multi-Domain Policy

Data Center

Campus

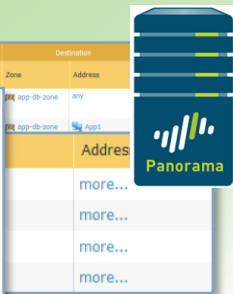
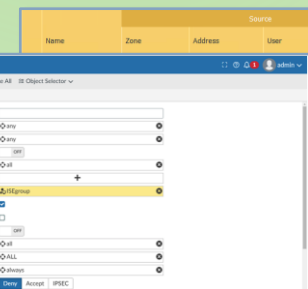
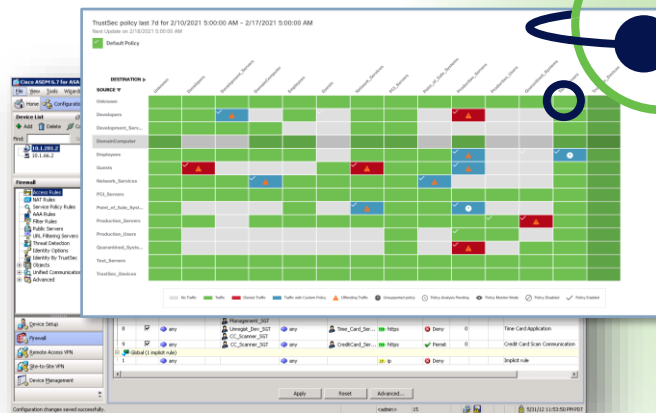
Campus



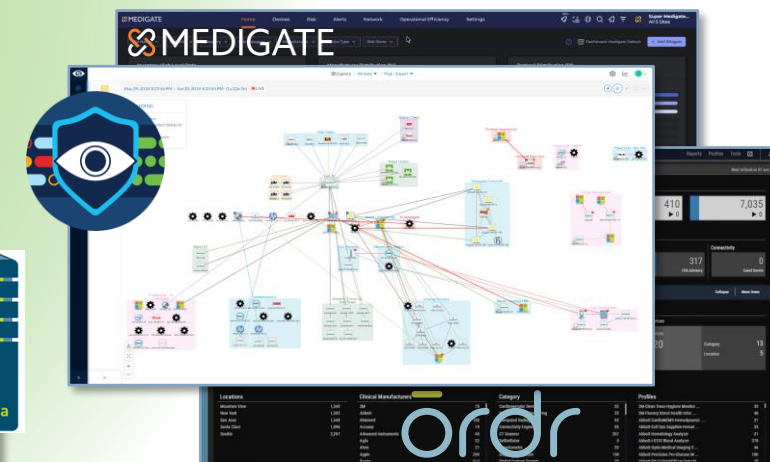
Security



Competitors



IoT

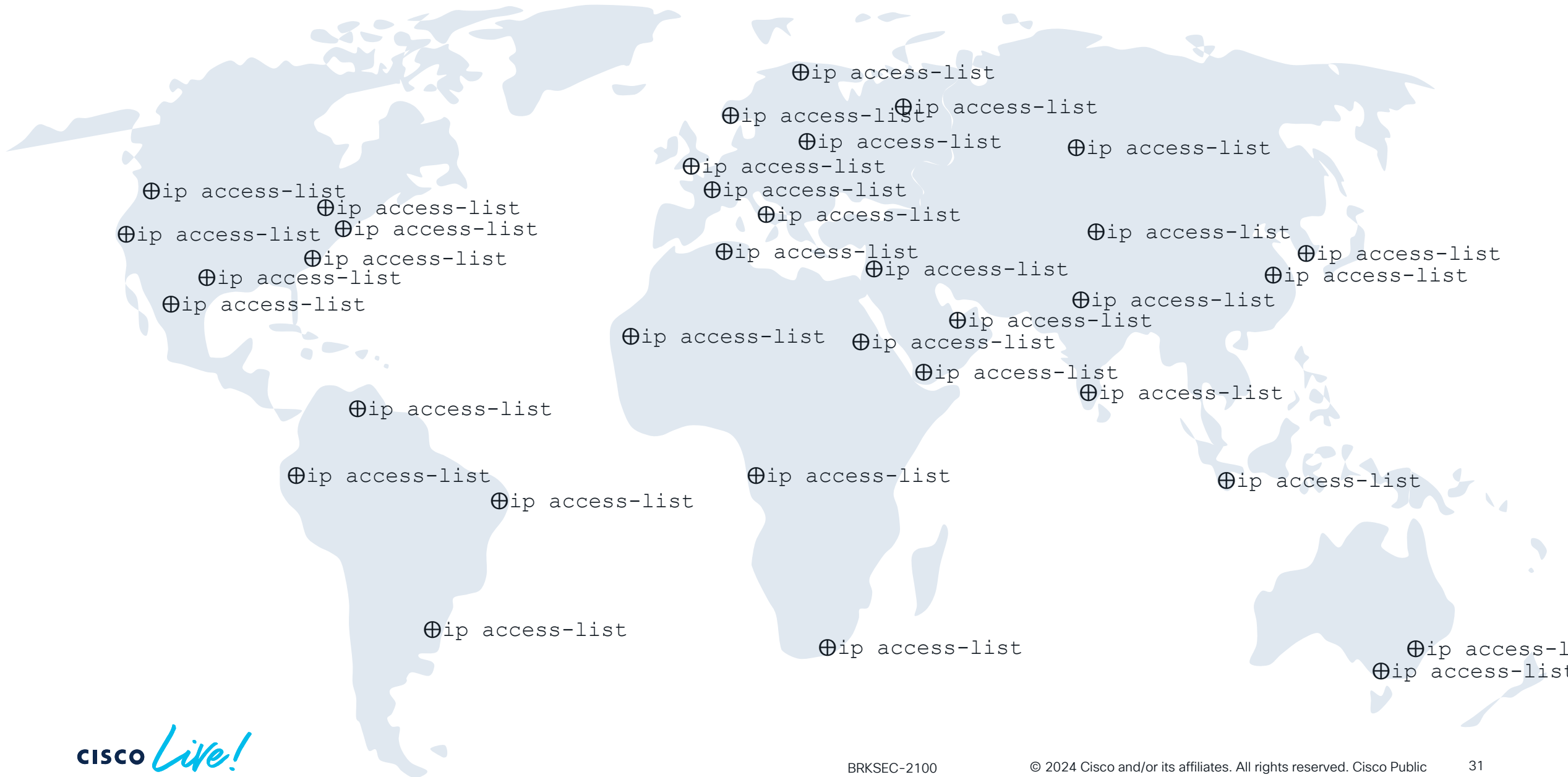


CISCO Live!

Cisco TrustSec (Software-Defined Segmentation)



Policy Challenge



Can You See the Business Intent Here?

```
access-list 102 permit tcp 131.249.33.123 0.0.0.127 lt 4765 71.219.207.89 0.255.255.255 eq 606
access-list 102 deny tcp 112.174.162.193 0.255.255.255 gt 368 4.151.192.136 0.0.0.255 gt 4005
access-list 102 permit ip 189.71.213.162 0.0.0.127 gt 2282 74.67.181.47 0.0.0.127 eq 199
access-list 102 deny udp 130.237.66.56 255.255.255.255 lt 3943 141.68.48.108 0.0.0.255 gt 3782
access-list 102 deny ip 193.250.210.122 0.0.1.255 lt 2297 130.113.139.130 0.255.255.255 gt 526
access-list 102 permit ip 178.97.113.59 255.255.255.255 gt 178 111.184.163.103 255.255.255.255 gt 959
access-list 102 deny ip 164.149.136.73 0.0.0.127 gt 1624 163.41.181.145 0.0.0.255 eq 810
access-list 102 permit icmp 207.221.157.104 0.0.0.255 eq 1979 99.78.135.112 0.255.255.255 gt 3231
access-list 102 permit tcp 100.126.4.49 0.255.255.255 lt 1449 28.237.88.171 0.0.0.127 lt 3679
access-list 102 deny icmp 157.219.157.249 255.255.255.255 gt 1354 60.126.167.112 0.0.31.255 gt 1025
access-list 102 deny icmp 76.176.66.41 0.255.255.255 lt 278 169.48.105.37 0.0.1.255 gt 968
access-list 102 permit ip 8.88.141.113 0.0.0.127 lt 2437 105.145.196.67 0.0.1.255 lt 4167
access-list 102 permit udp 60.242.95.62 0.0.31.255 eq 3181 33.191.71.166 255.255.255.255 lt 2422
access-list 102 permit icmp 186.246.40.245 0.255.255.255 eq 3508 191.139.67.54 0.0.1.255 eq 1479
access-list 102 permit ip 209.111.254.187 0.0.1.255 gt 4640 93.99.173.34 255.255.255.255 gt 28
access-list 102 permit ip 184.232.88.41 0.0.31.255 lt 2247 186.33.104.31 255.255.255.255 lt 4481
access-list 102 deny ip 106.79.247.50 0.0.31.255 gt 1441 96.62.207.209 0.0.0.255 gt 631
access-list 102 permit ip 39.136.60.170 0.0.1.255 eq 4647 96.129.185.116 255.255.255.255 lt 3663
access-list 102 permit tcp 30.175.189.93 0.0.31.255 gt 228 48.33.30.91 0.0.0.255 gt 1388
access-list 102 permit ip 167.100.52.185 0.0.1.255 lt 4379 254.202.200.26 255.255.255.255 gt 4652
access-list 102 permit udp 172.16.184.148 0.255.255.255 gt 4163 124.38.159.247 0.0.0.127 lt 3851
access-list 102 deny icmp 206.107.73.252 0.255.255.255 lt 2465 171.213.183.230 0.0.31.255 gt 1392
access-list 102 permit ip 96.174.38.79 0.255.255.255 eq 1917 1.156.181.180 0.0.31.255 eq 1861
access-list 102 deny icmp 236.123.67.53 0.0.31.255 gt 1181 31.115.75.19 0.0.1.255 gt 2794
access-list 102 deny udp 14.45.208.20 0.0.0.255 lt 419 161.24.159.166 0.0.0.255 lt 2748
access-list 102 permit udp 252.40.175.155 0.0.31.255 lt 4548 87.112.10.20 0.0.1.255 gt 356
access-list 102 deny tcp 124.102.192.59 0.0.0.255 eq 2169 153.233.253.100 0.255.255.255 gt 327
access-list 102 permit icmp 68.14.62.179 255.255.255.255 lt 2985 235.228.242.243 255.255.255.255 lt 2286
access-list 102 deny tcp 91.198.213.34 0.0.0.255 eq 1274 206.136.32.135 0.255.255.255 eq 4191
access-list 102 deny udp 76.150.135.234 255.255.255.255 lt 3573 15.233.106.211 255.255.255.255 eq 3721
access-list 102 permit tcp 126.97.113.32 0.0.1.255 eq 4644 2.216.105.40 0.0.31.255 eq 3716
access-list 102 permit icmp 147.31.93.130 0.0.0.255 gt 968 154.44.194.206 255.255.255.255 eq 4533
access-list 102 deny tcp 154.57.128.91 0.0.0.255 lt 1290 106.233.205.111 0.0.31.255 gt 539
access-list 102 deny ip 9.148.176.48 0.0.1.255 eq 1310 64.61.88.73 0.0.1.255 lt 4570
```


Business Intent is Clear

Egress Policy

- Matrices List
- Matrix**
- Source Tree
- Destination Tree

Network Device Authorization

Production Matrix

Populated cells: 64

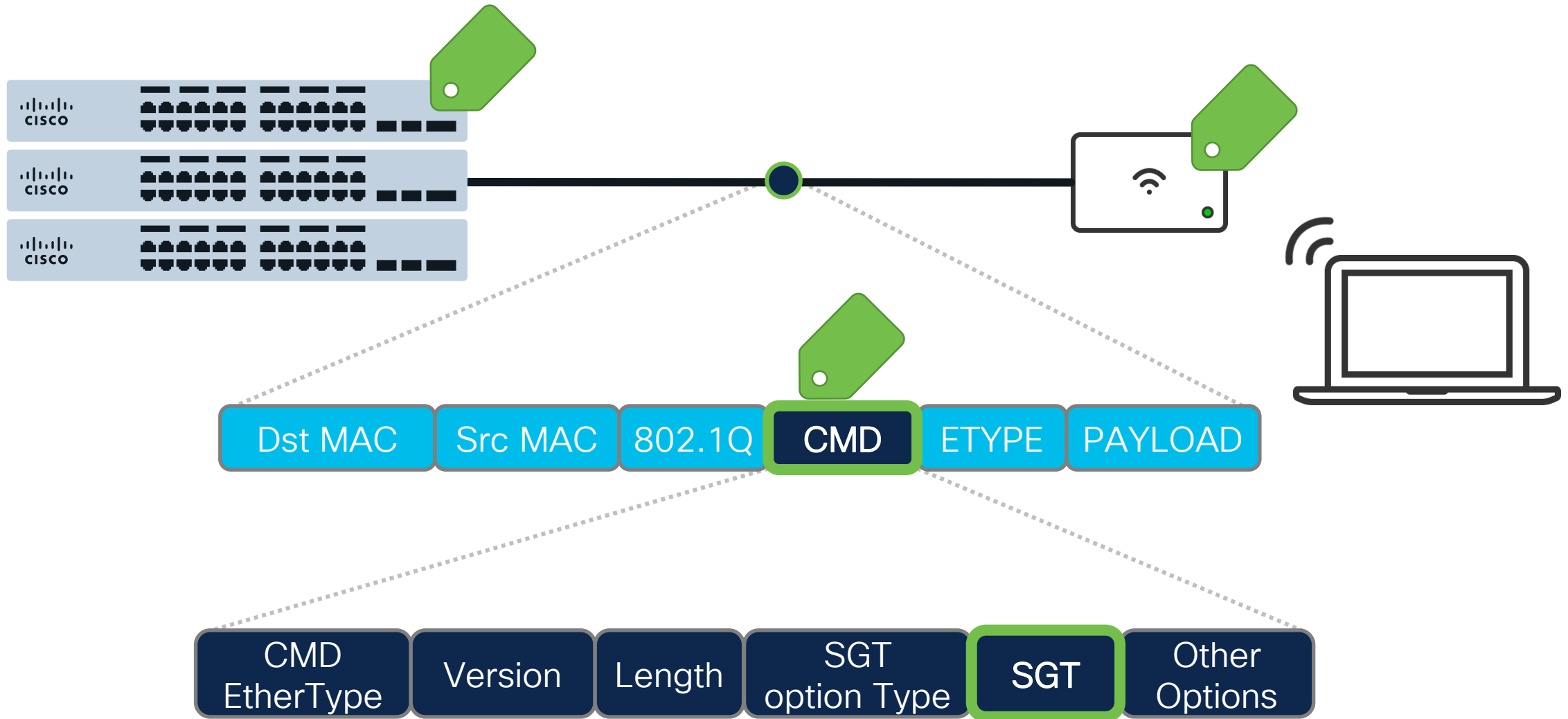
[Edit](#)
[+ Add](#)
[Clear](#)
[Deploy](#)
[Verify Deploy](#)
[Monitor All - Off](#)
[Import](#)
[Export](#)

Source	Cameras 7/0007	Employees 4/0004	Guests 6/0006	IOT 5/0005
Cameras 7/0007	Video	Deny IP	Deny IP	Deny IP
Employees 4/0004	Deny IP	BlockMalware	Deny IP	Deny IP
Guests 6/0006	Deny IP	Deny IP	Deny IP	Deny IP
IOT 5/0005	Deny IP	Deny IP	Deny IP	Permit IP
NetServices 3/0003	Permit IP	Permit IP	Permit IP	Permit IP
TrustSec_Device... 2/0002	Deny IP	Deny IP	Deny IP	Deny IP

deny icmp
 deny tcp dst eq 22
 deny udp dst eq 53
 deny udp dst eq 67
 deny udp dst eq 68
 deny udp dst eq 69
 deny tcp dst eq 135
 deny tcp dst eq 137
 deny tcp dst eq 138
 deny tcp dst eq 139
 deny tcp dst eq 445
 deny tcp dst eq 689
 deny udp dst eq 1025
 deny udp dst eq 1026
 deny tcp dst eq 3389
 permit ip

All

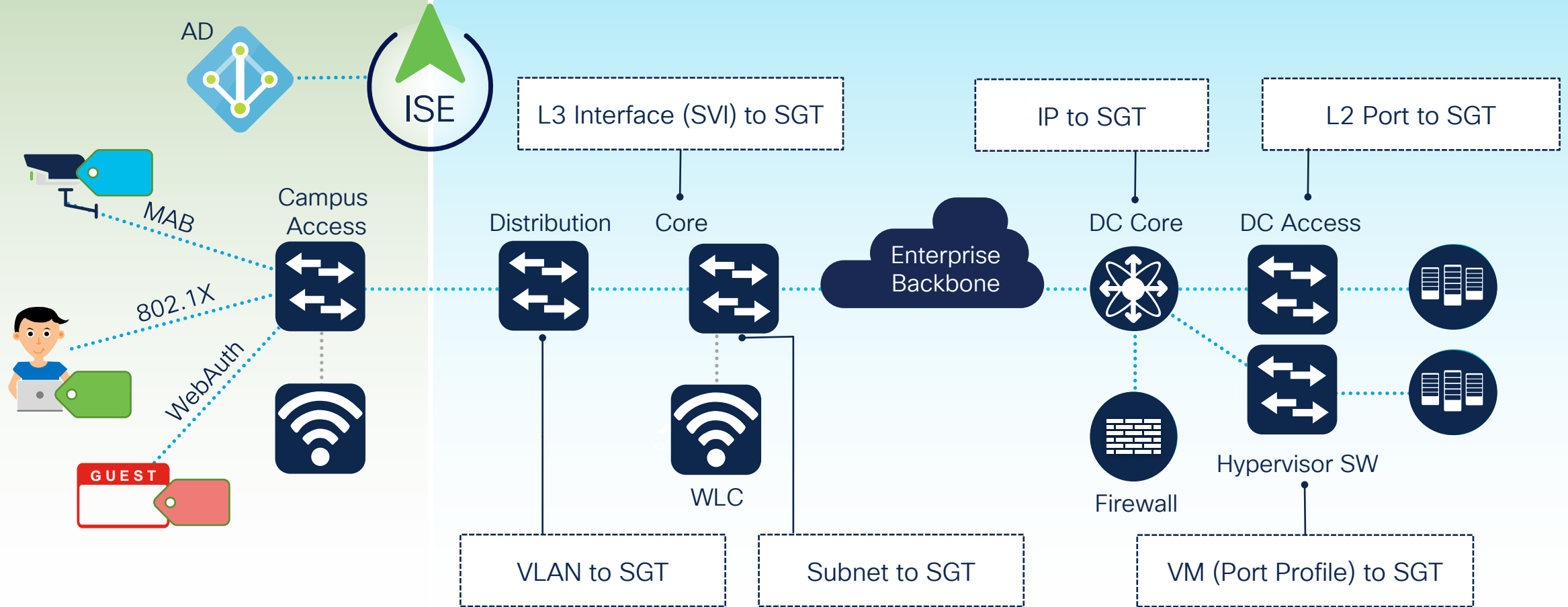
What are SGTs (Security/Scalable Group Tags) ?



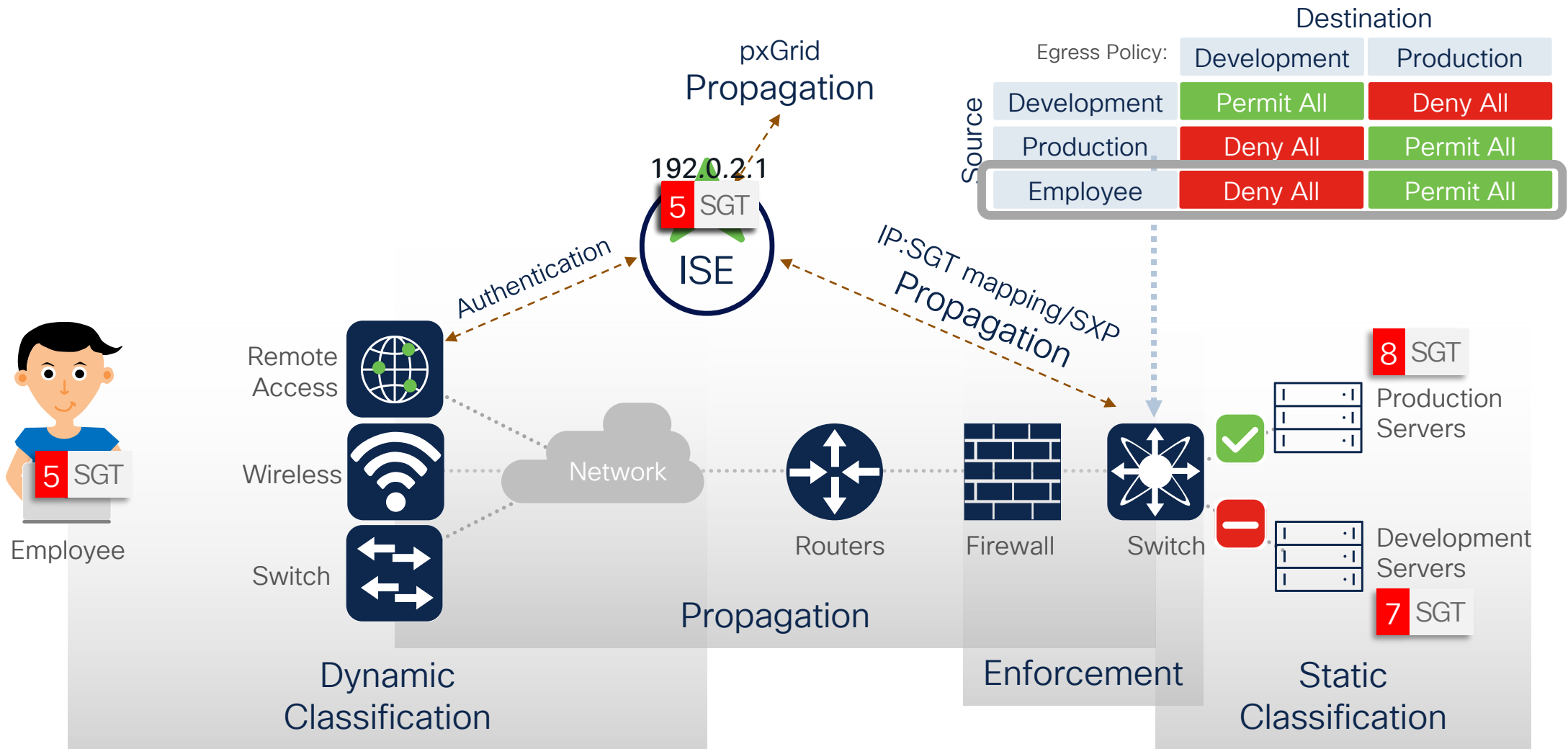
Classification Mechanisms

Dynamic Classification

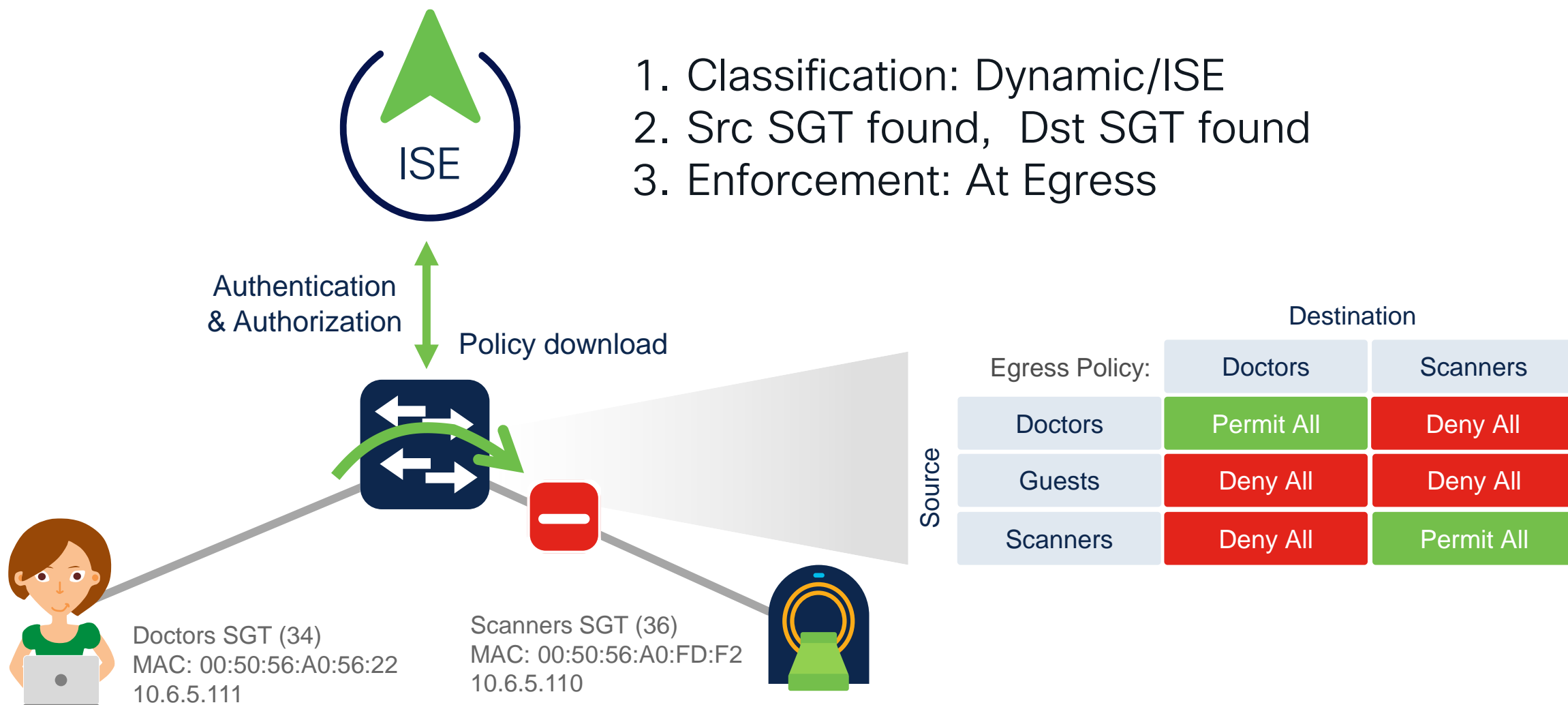
Static Classification



Cisco SGT Propagation & Enforcement



Classification, SGT Lookup and Enforcement



Meraki Adaptive Policy



Adaptive Policy



Organization-Wide intent-based policy



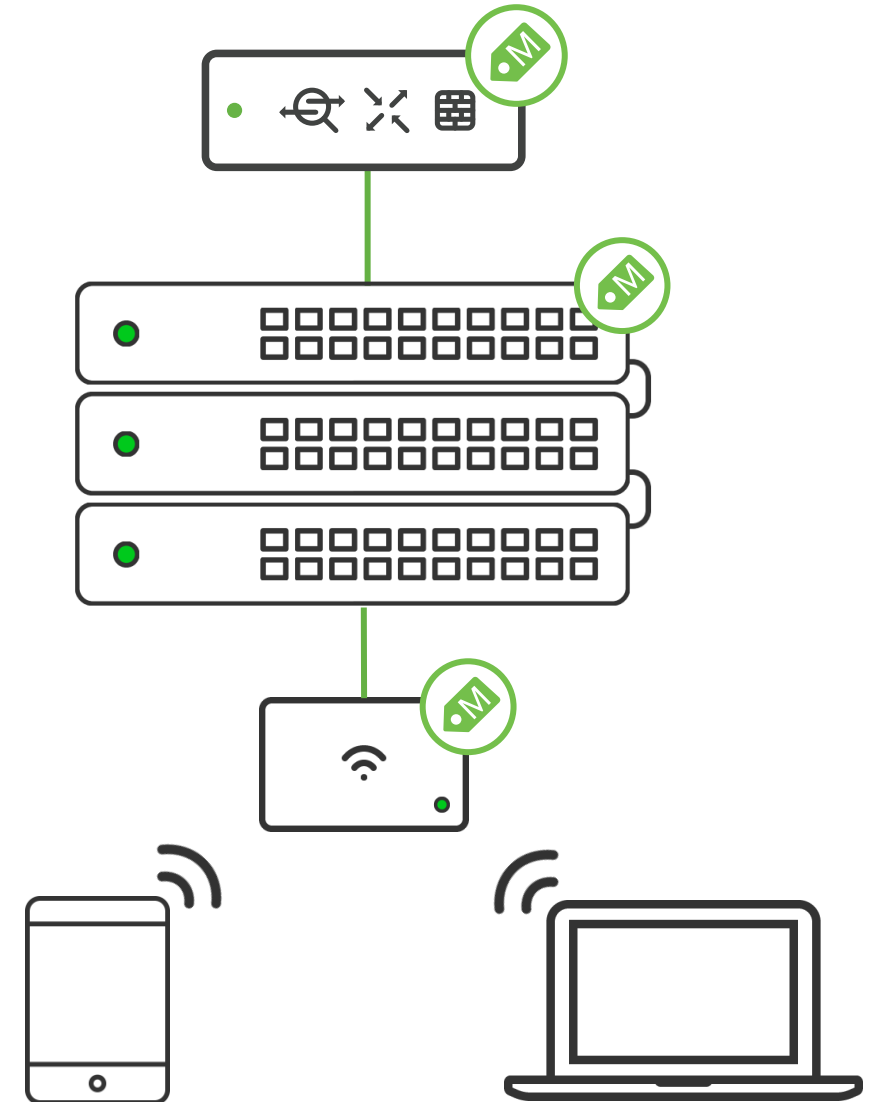
Utilizes inline Security Group Tags (SGTs)



Context shared over the data-plane

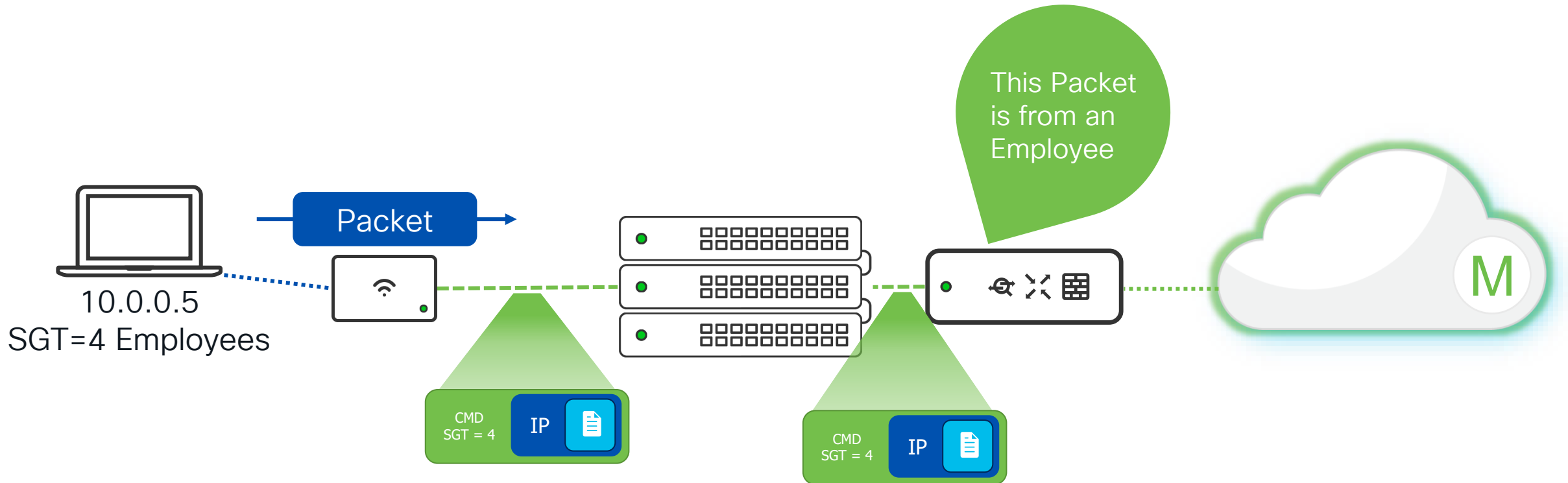


IP and topology agnostic security providing consistent policy for wired and wireless access



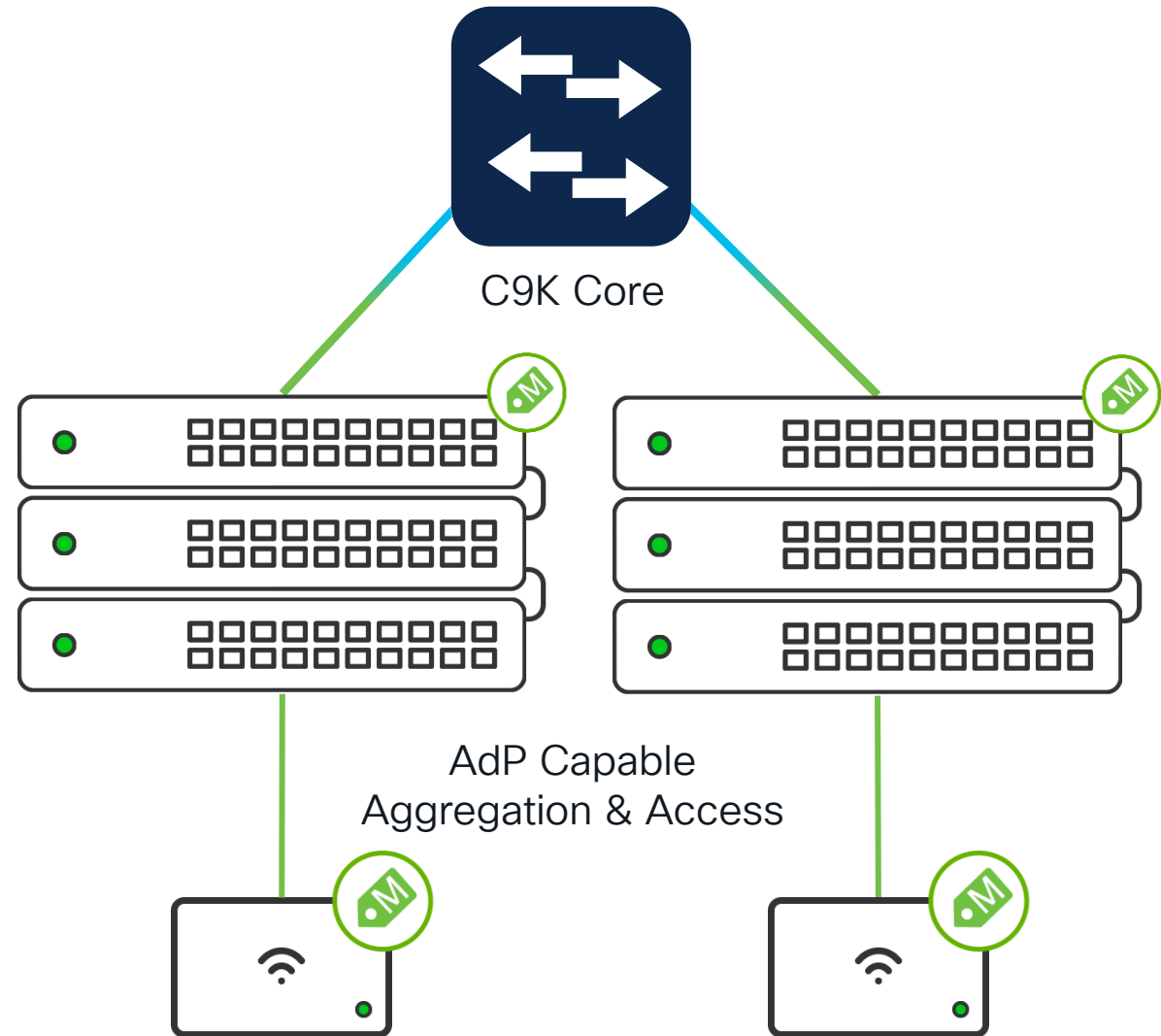
Scalable Identity and Context

Sharing information over the dataplane, in every packet

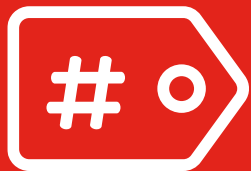


Catalyst 9K as the core of an Adaptive Policy Network

- Meets customer demand for extended feature sets such as ISSU and high-density fiber
- Configuration has been lab tested and documented
- Inline SGTs passed natively between MR access points, MS390/C9300-M Switches, and Cat9K switches
- See document: [Deploying Catalyst Switches as the Core of a Meraki Adaptive Policy Switching Network](#)



Scaling Considerations



60x SGTs



3600 Policies



113 ACEs Per Policy

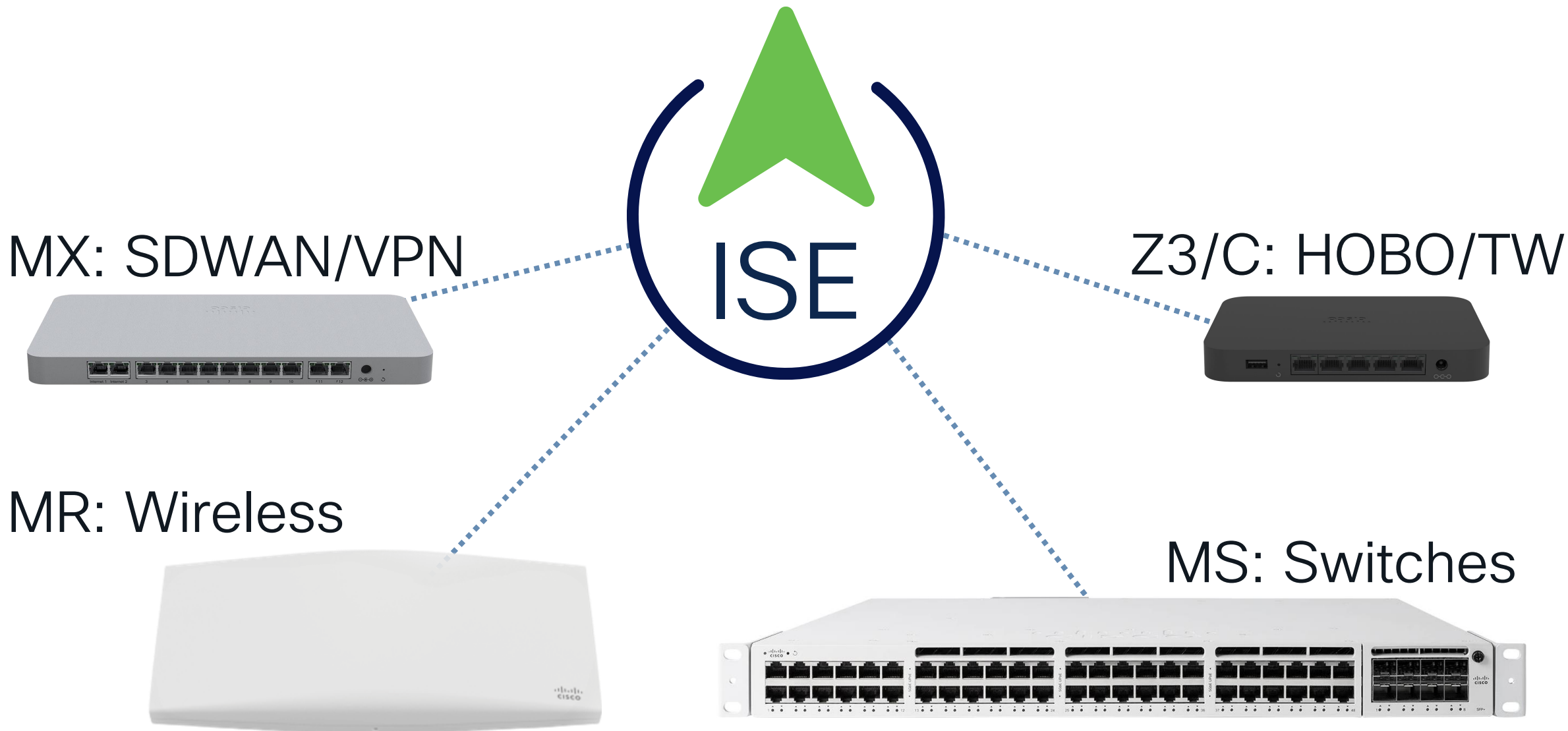


8000 IP to SGT Maps



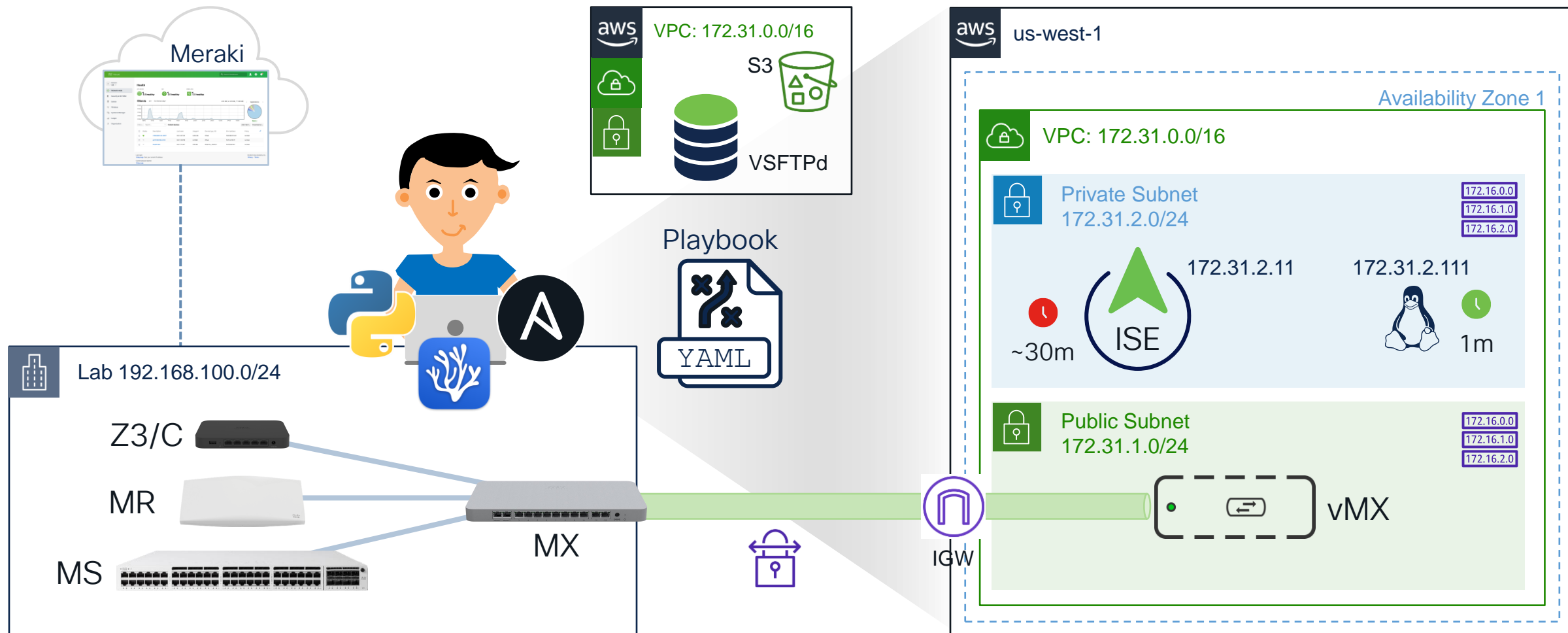
**Limited by standard hardware endpoint scaling e.g. CAM tables*

ISE with Meraki



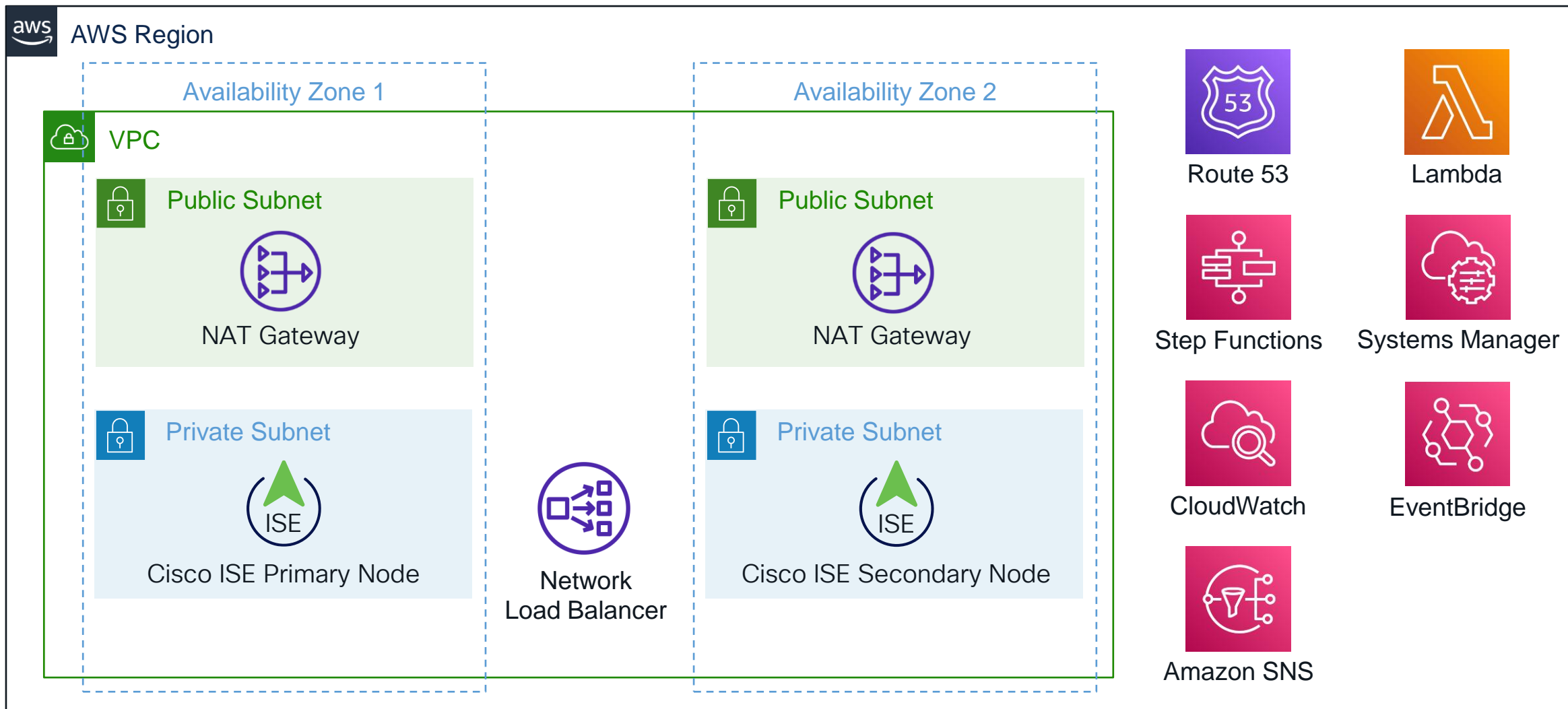
ISE with Meraki in AWS

github.com/1thomas/ISE_with_Meraki_in_AWS




Cisco ISE on AWS Reference Deployment

cs.co/ise-on-aws



ISE Compatibility

 cs.co/ise-compatibility



Supported Protocol Standards, RFCs, and IETF Drafts

Cisco ISE supports protocol standards like RADIUS, its associated RFC Standards, and TACACS+. For more information, see the [ISE Community Resources](#).

Cisco ISE supports interoperability with any Cisco or non-Cisco RADIUS client network access device (NAD) that implements common RADIUS behavior for standards-based authentication.

Cisco ISE interoperates fully with third-party TACACS+ client devices that adhere to the governing protocols. Support for TACACS+ functions depends on the device-specific implementation.

Network Device Capabilities

cs.co/nad-capabilities

✓ : Fully supported
X : Not supported
! : Limited support, some functionalities are not supported

... / Cisco Identity Services Engine / Compatibility Information /

Network Access Control Capabilities of Network Devices with Cisco Identity Services Engine

Save Translations Download Print

Bias-Free Language

Was this Document Helpful?

Yes No Feedback

Customers Also Viewed

- Configure EAP-TLS Authentication with Cisco ISE
- Contact Cisco
- Open a Support Case (Requires a Cisco Service Contract)
- This Document Applies to These Products
- Identity Services Engine

Contents

- Overview
- Network Access Control Capabilities of Cisco Switches
- Network Access Control Capabilities of Cisco Wireless LAN Controllers
- Network Access Control Capabilities of Cisco Access Points
- Network Access Control Capabilities of Cisco Routers
- Network Access Control Capabilities of Cisco Remote Access Platforms
- Validated Cisco Meraki Devices
- Additional References
- Communications, Services, and Additional Information
- Cisco Bug Search Tool
- Documentation Feedback

Overview

Cisco ISE supports protocol standards like RADIUS, its associated RFC Standards, and TACACS+. For more information, see [Cisco ISE Community Resources](#). Cisco ISE interoperates fully with third-party RADIUS devices that adhere to the standard protocols. Support for RADIUS functions depends on the device-specific implementation.

Cisco ISE interoperates fully with third-party TACACS+ client devices that adhere to the governing protocols. Support for TACACS+ functions depends on the device-specific implementation.

Note This document lists only the devices that are validated with Cisco ISE. Hence, this is not the complete list of devices that are supported by Cisco ISE.

The following notations are used to mark the device support:

- ✓ : Fully supported
- X : Not supported
- ! : Limited support, some functionalities are not supported.

Table 1. Network Access Control Capabilities of Cisco Switches

Device	Validated OS ¹ Minimum OS ³	AAA	Profiling	BYOD	Guest	Guest Originating URL	Posture	MDM	TrustSec ²
IE2000 IE3000	Cisco IOS 15.2(2)E4 Cisco IOS 15.2(4)EA6	✓	✓	✓	✓	✓	✓	✓	✓
	Cisco IOS 15.0(2)EB	✓	✓	✓	✓	X	✓	✓	✓
IE-3400-8P2S	Cisco IOS XE 17.9.1	✓	✓	✓	✓	✓	✓	✓	✓
IE4000 IE5000	Cisco IOS 15.2(2)E5 Cisco IOS 15.2(4)E2 Cisco IOS 15.2(4)EA6	✓	✓	✓	✓	✓	✓	✓	✓
	Cisco IOS 15.0.2A-EX5	✓	✓	✓	✓	✓	✓	✓	✓
IE4010	Cisco IOS 15.2(2)E5 Cisco IOS 15.2(4)E2 Cisco IOS 15.0.2A-EX5	✓	✓	✓	✓	✓	✓	✓	✓
IR1101-K9	Cisco IOS XE 17.9.1	✓	Not validated	Not validated	Not validated	Not validated	Not validated	Not validated	✓
CGS 2520	Cisco IOS 15.2(3)E3 Cisco IOS 15.2(3)E3	✓	✓	✓	✓	X	✓	✓	✓
Catalyst 1000	Cisco IOS 15.2(7)E3 Cisco IOS 15.2(7)E3	✓	✓	✓	✓	✓	✓	✓	✓
Catalyst 2960 LAN Base	Cisco IOS 15.0(2)SE11 Cisco IOS v12.2(55)SE5	✓	✓	✓	✓	X	✓	X	X
Catalyst 2960-C Catalyst 2960-X	Cisco IOS 15.2(2)E4 Cisco IOS 12.2(55)EX3	✓	✓	✓	✓	✓	✓	✓	✓

Device	Validated OS ¹	AAA	Profiling	BYOD	Guest	Guest Originating URL	Posture	MDM	TrustSec ²
	Minimum OS ³								
IE2000 IE3000	Cisco IOS 15.2(2)E4 Cisco IOS 15.2(4)EA6	✓	✓	✓	✓	✓	✓	✓	✓
	Cisco IOS 15.0(2)EB	✓	✓	✓	✓	X	✓	✓	✓
IE-3400-8P2S	Cisco IOS XE 17.9.1	✓	✓	✓	✓	✓	✓	✓	✓
IE4000 IE5000	Cisco IOS 15.2(2)E5 Cisco IOS 15.2(4)E2 Cisco IOS 15.2(4)EA6	✓	✓	✓	✓	✓	✓	✓	✓
	Cisco IOS 15.0.2A-EX5	✓	✓	✓	✓	✓	✓	✓	✓
IE4010	Cisco IOS 15.2(2)E5 Cisco IOS 15.2(4)E2	✓	✓	✓	✓	✓	✓	✓	✓
	Cisco IOS 15.0.2A-EX5	✓	✓	✓	✓	✓	✓	✓	✓
	Cisco IOS XE 17.9.1	✓	Not validated	Not validated	Not validated	Not validated	Not validated	Not validated	✓ ⁴⁸

Cisco Meraki Access Control Capabilities with ISE

Model	802.1X	MAB	VLAN	GPACL	Adaptive Policy	URL Redir	CoA	Profiling
Wireless								
MR20, MR70, MR28, MR78	✓	✓	✓	✓	-	✓	✓	-
MR30H/33/42/42E/52/53/53E/74/84	✓	✓	✓	✓	✓	✓	✓	-
MR36/36H/44/45/46/46E/55/56/57/76/86 CW916x	✓	✓	✓	✓	802.11ac Wave2 or higher. Min 27.6	✓	✓	-
Teleworker								
Z3/4/C	✓	✓	-	-	✓ Transport MX18.1+	-	-	-
Switching								
MS120, MS125, MS130	✓	✓	✓	-	-	-	✓	CDP+LLDP
MS130X/R	✓	✓	✓	-	✓ MS17 (initial release)	-	✓	CDP+LLDP
MS210, MS225, MS250	✓	✓	✓	✓	-	✓	✓	CDP+LLDP
MS350, MS355	✓	✓	✓	✓	-	✓	✓	CDP+LLDP
MS390, C9300-M	✓	✓	✓	✓	✓ 14.2+	✓	✓	Device Sensor CDP/LLDP/DHCP/HTTP
MS410, MS425, MS450 (aggregation)	✓	✓	✓	✓	-	✓	✓	CDP+LLDP
Security & SD-WAN								
MX64/65, MX67/68, MX84/100, MX75/85/95/105, MX250/450	✓ 802.1X or MAB	✓ 802.1X or MAB	-	-	✓ Transport MX18.1+	-	-	-
vMX	-	-	-	-	-	-	-	-

Meraki Dashboard Fundamentals

Dashboard Organization

Org Admins

Template Networks

Org-Wide Features

Org-Wide Settings

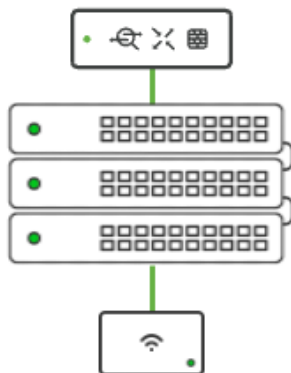
Network A

MR/MS/MX/MV/MT/SM Home

Per-Network Configs

Telemetry and Visibility

Network Level Admins



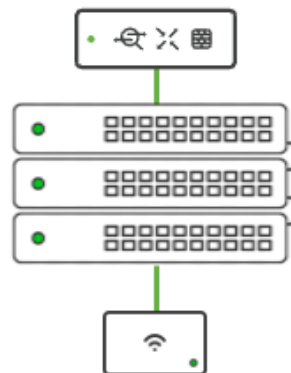
Network B

MR/MS/MX/MV/MT/SM Home

Per-Network Configs

Telemetry and Visibility

Network Level Admins



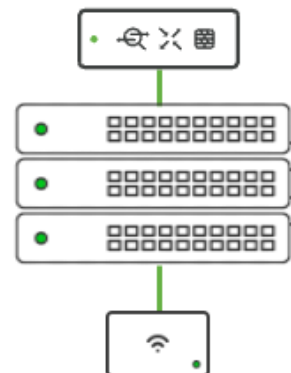
Network C

MR/MS/MX/MV/MT/SM Home

Per-Network Configs

Telemetry and Visibility

Network Level Admins



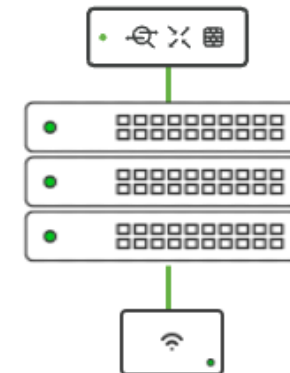
Network D

MR/MS/MX/MV/MT/SM Home

Per-Network Configs

Telemetry and Visibility

Network Level Admins



No TACACS with Meraki – Use Dashboard RBAC

Organization > Configure > Administrators

- Organization:
 - Read-Only
 - Full
- Network:
 - Guest Ambassador
 - Monitor-Only
 - Read-Only
 - Full
- Tags per Switchport

Create administrator

Name:

Email:

Organization access:

✓ None

Read-only

Full

Target	Access
+ Add access privileges	

privacy

Close

Create admin

Meraki Cloud Authentication

Create user

Account type: Meraki 802.1X

Description:

Email (Username):

Password:

Generate

Authorized:

Yes

Expires:

☒ Does not expire

☐ Expires in: days

Close

Print

Create user

Why ISE with Meraki for Access Control?









	Meraki	ISE
Multi-Vendor Deployments	Meraki Only	✓
Active Directory Domains	1 per Splash Page / LocalAuth	50
Identity Stores	AD, LDAP, Google Auth	Sequences of: AD, Azure AD, LDAP, ODBC, SAML, CMDBs
Centralized, Customizable Portals	Splash Page	✓
Guest: Hotspot/AUP/Click-Thru	✓	✓
Guest: Self-Registered	✓	✓
Guest: Sponsored	✓	✓
Social Logins	Facebook	Facebook
Pay for Access Option	✓	X
MDM	Meraki Systems Manager	Meraki SM + 13 MDM Partners
Context / Security Integrations	Splash Page, WPN	70+ CSTA Partners

Wireless



SSIDs

Wireless > Configure > SSIDs

-  Network Lab ▾
-  Network-wide
-  Security & SD-WAN
-  Switching
-  **Wireless**
-  Systems Manager
-  Insight
-  Organization

Configuration overview

SSIDs Showing 4 of 15 SSIDs. [Show all my SSIDs.](#)

	.corp	.iot	.guest	Unconfigured SSID 4
Enabled	<div>enabled ▾</div>	<div>enabled ▾</div>	<div>disabled ▾</div>	<div>disabled ▾</div>
Name	rename	rename	rename	rename
Access control	edit settings	edit settings	edit settings	edit settings
Encryption	802.1X with custom RADIUS	Identity PSK with RADIUS	Open with RADIUS	Open
Sign-on method	None	None	Cisco ISE	None
Bandwidth limit	unlimited	unlimited	unlimited	unlimited
Client IP assignment	Meraki DHCP	Meraki DHCP	Meraki DHCP	Meraki DHCP
Clients blocked from using LAN	yes	no	no	no
Wired clients are part of Wi-Fi network	no	no	no	no
VLAN tag ⓘ	n/a	n/a	n/a	n/a
VPN	Disabled	Disabled	Disabled	Disabled
Splash page				
Splash page enabled	no	no	yes	no
Splash theme	n/a	n/a	n/a	n/a

Save Changes or [cancel](#)

(Please allow 1-2 minutes for changes to take effect.)

Access Control Options per SSID

Security *Open*

☒ Open (no encryption)
Any user can associate

Open / Default

☐ Opportunistic Wireless Encryption (OWE)
Any user can associate with data encryption

☐ Password
Users must enter a passphrase to associate ⓘ

Hotspot / Passphrase

☐ MAC-based access control (no encryption)
RADIUS server is queried at association time

MAB

☐ Enterprise with
my RADIUS server ▾
User credentials are validated with 802.1X at association time

802.1X

☐ Identity PSK with RADIUS
RADIUS server is queried at association time to obtain a passphrase for a device based on its MAC address

Passphrase per MAC

☐ Identity PSK without RADIUS
Devices are assigned a group policy based on its passphrase

Policy per Passphrase

Enterprise Authentication Options per SSID

Security WPA2 Enterprise with 1 RADIUS server and 1 accounting server

☐ Open (no encryption)
Any user can associate

☐ Opportunistic Wireless Encryption (OWE)
Any user can associate with data encryption

☐ Password
Users must enter a passphrase to associate ⓘ

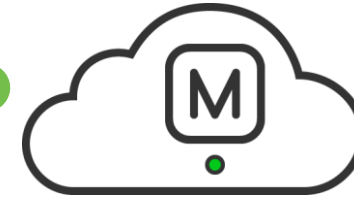
☐ MAC-based access control (no encryption)
RADIUS server is queried at association time

☒ Enterprise with
Meraki Cloud Authentication ▾

☐ my RADIUS server

☐ Local Auth

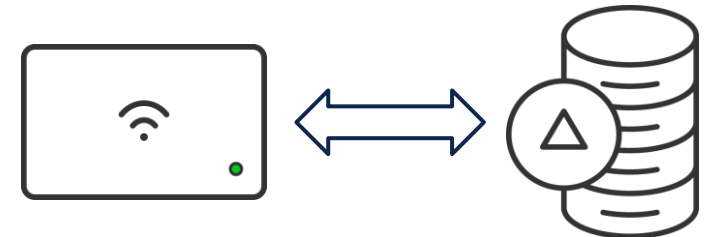
☐ Identity PSK without RADIUS
Devices are assigned a group policy based on its passphrase



Available for:

- Sign-On Splash page
- WPA2 + 802.1X

Open
PSK
MAB
Active Directory
LDAP
ODBC
Azure AD
SAML



Identity PSK with RADIUS

Security *WPA2 Identity PSK with 1 RADIUS server and 1 accounting server*

- ☐ Open (no encryption)
Any user can associate
- ☐ Opportunistic Wireless Encryption (OWE)
Any user can associate with data encryption
- ☐ Password
Users must enter a passphrase to associate ⓘ
- ☐ MAC-based access control (no encryption)
RADIUS server is queried at association time
- ☐ Enterprise with

my RADIUS server ▾

User credentials are validated with 802.1X at association time
- ☒ Identity PSK with RADIUS
RADIUS server is queried at association time to obtain a passphrase for a device based on its MAC address
- ☐ Identity PSK without RADIUS
Devices are assigned a group policy based on its passphrase



MAB
PSK
Active Directory
LDAP
ODBC
CMDB

Group Policy on MS and MR



Per-session 802.1X inbound ACL enforcement



Named ACL orchestration



On-the-fly ACL update (no CoA required)

Name

Schedule

Bandwidth unlimited [details](#)

Hostname visibility

Firewall and traffic shaping

Layer 3 firewall

#	Policy	Protocol	Destination	Port	Comment	Actions
1	<input type="text" value="Allow"/>	<input type="text" value="TCP"/>	<input type="text" value="10.10.1.4"/>	<input type="text" value="1883"/>	<input type="text" value="MQTT-1883"/>	<input type="text" value="⬇️⬆️⬇️"/>
2	<input type="text" value="Allow"/>	<input type="text" value="TCP"/>	<input type="text" value="10.10.1.4"/>	<input type="text" value="1884"/>	<input type="text" value="MQTT-1884"/>	<input type="text" value="⬇️⬆️⬇️"/>
3	<input type="text" value="Deny"/>	<input type="text" value="Any"/>	<input type="text" value="10.0.0.0/8"/>	<input type="text" value="Any"/>	<input type="text" value="Block 10-8"/>	<input type="text" value="⬇️⬆️⬇️"/>
4	<input type="text" value="Deny"/>	<input type="text" value="Any"/>	<input type="text" value="172.16.0.0/12"/>	<input type="text" value="Any"/>	<input type="text" value="Block 172-12"/>	<input type="text" value="⬇️⬆️⬇️"/>
5	<input type="text" value="Deny"/>	<input type="text" value="Any"/>	<input type="text" value="192.168.0.0/16"/>	<input type="text" value="Any"/>	<input type="text" value="Block 192-16"/>	<input type="text" value="⬇️⬆️⬇️"/>
<input type="text" value="Allow"/> <input type="text" value="Any"/> <input type="text" value="Any"/> <input type="text" value="Any"/> <input type="text" value="Default rule"/>						

[Add a firewall rule](#)



Filter-ID → Dashboard
Group-Policy

Meraki Group Policy

Network-Wide > Configure > Group Policies

Search Dashboard

Network Lab

Network-wide

Security & SD-WAN

Switching

Wireless

Systems Manager

Insight

Organization

Group policies

Name	Affecting	Bandwidth	VLAN	Splash	Bonjour	Traffic	AMP	Content	Actions
Add a group									

Meraki Group Policy

Network-Wide > Configure > Group Policies



Search Dashboard



Network
Lab



Network-wide



Security & SD-WAN



Switching



Wireless



Systems Manager



Insight



Organization

Group policies

Name	Affecting	Bandwidth	VLAN ⓘ	Splash ⓘ	Bonjour	Traffic	AMP	Content	Actions
Employees	0 clients	Default	Default	Default	Default	1 rules applied	Default	Default	Clone ✕
Guests	0 clients	Default	Default	Default	Default	1 rules applied	Default	Default	Clone ✕
Unknown	0 clients	Default	Default	Default	Default	1 rules applied	Default	Default	Clone ✕
Cameras	0 clients	Default	Default	Default	Default	1 rules applied	Default	Default	Clone ✕
IOT	0 clients	Default	Default	Default	Default	1 rules applied	Default	Default	Clone ✕

[Add a group](#)

Meraki Group Policy

Network-Wide > Configure > Group Policies



Network
Lab ▾



Network-wide



Security & SD-WAN



Switching



Wireless



Systems Manager



Insight



Organization

[Group policies](#) > **New group**

Name

Schedule ⓘ

Bandwidth ⓘ unlimited

Firewall and traffic shaping ⓘ

Layer 3 firewall

#	Policy	Protocol	Destination	Port	Comment
	Allow	Any	Any	Any	Default rule

[Add a firewall rule](#)

Layer 7 firewall

There are no rules defined for this group.
[Add a layer 7 firewall rule](#)

DNS layer protection (Cisco Umbrella)

Umbrella protection is not available for switches.

Route DNS requests through Cisco Umbrella DNS and deny DNS requests by linking Umbrella policies.

- This function is only available on a created group policy.
- This function is only available when 'Custom network firewall & shaping rules' is selected.

Wireless only

VLAN

Splash

Bonjour forwarding ⓘ
Bridge mode SSIDs only

There are no Bonjour forwarding rules on this network.
[Add a Bonjour forwarding rule](#)

Security appliance only

AMP

Blocked categories ⓘ
See the [full category list](#).

Block list URL patterns

Allow list URL patterns

Restricted YouTube content ⓘ

Web search filtering ⓘ

[Affecting 0 clients.](#)

Dashboard > Wireless > SSIDs > RADIUS Servers



- Network Lab
- Network-wide
- Security & SD-WAN
- Switching
- Wireless**
- Systems Manager
- Insight
- Organization
- Access Manager

RADIUS 1 RADIUS server, 1 accounting server - Testing enabled, CoA supported

#	Host IP or FQDN	Acct port	Secret
1	198.18.133.27	1813

[Add server](#) 3 max.

Accounting interim interval minutes

- Enabling RADIUS CoA
- ☒ RADIUS testing
 - ☒ RADIUS CoA support

RADIUS attribute specifying group policy name

Filter-Id

Reply-Message

Airespace-ACL-Name


Aruba-User-Role

Filter-Id

Common Tasks

- ☐ DACL Name
- ☐ IPv6 DACL Name
- ☐ ACL (Filter-ID)
- ☐ ACL IPv6 (Filter-ID)
- ☐ Security Group
- ☐ VLAN
- ☐ Voice Domain Permission
- ☐ Web Redirection (CWA, MDM, NSP, CPP)
- ☐ Auto Smart Port
- ☐ Assess Vulnerabilities
- ☐ Reauthentication
- ☐ MACSec Policy
- ☐ NEAT
- ☐ Interface Template
- ☐ Web Authentication (Local Web Auth)
- ☐ Airespace ACL Name
- ☐ Airespace IPv6 ACL Name
- ☐ ASA VPN
- ☐ AVC Profile Name
- ☐ UDN Lookup
- ☐ Unique Identifier

Authorization Profiles > Common Tasks

 Identity Services Engine

Policy / Policy Elements

Bookmarks

Dashboard

Context Visibility

Operations

Policy

Administration

Work Centers

Interactive Features

Dictionary

Conditions

Results

Authentication

Authorization

Authorization Profiles

Downloadable ACLs

Profiling

Posture

Client Provisioning

Authorization Profile

* Name

Description

* Access Type

ACCESS_ACCEPT

Network Device Profile

Service Template

Track Movement

Agentless Posture

Passive Identity Tracking

Common Tasks

DACL Name

IPv6 DACL Name

Common Tasks

☐ DACL Name

☐ IPv6 DACL Name

☒ ACL (Filter-ID)

☐ ACL IPv6 (Filter-ID)

☐ Security Group

☐ VLAN

☐ Voice Domain Permission

☐ Web Redirection (CWA, MDM, NSP, CPP)

☐ Auto Smart Port

☐ Assess Vulnerabilities

☐ Reauthentication

☐ MACSec Policy

☐ NEAT

☐ Interface Template

☐ Web Authentication (Local Web Auth)

☒ Airespace ACL Name

☐ Airespace IPv6 ACL Name

☐ ASA VPN

☐ AVC Profile Name

☐ UDN Lookup

☐ Unique Identifier

Dashboard > Wireless > SSIDs > RADIUS Servers



Network
Lab ▾



Network-wide



Security & SD-WAN



Switching



Wireless



Systems Manager



Insight



Organization

RADIUS 1 RADIUS server, 1 accounting server - CoA supported

Advanced RADIUS settings

(NAS ID, Called-station-ID, DAS clients, RADIUS timeout, retry count, fallback, EAP timers)

Called-station-ID

#	Category
1	AP MAC address
2	SSID name

[Add identifier](#) 4 max.

NAS ID

#	Category
1	AP MAC address
2	SSID number

[Add identifier](#) 4 max.

AP MAC address

SSID number

AP name

SSID name

RF profile

AP VLAN ID

AP tags

Custom

RADIUS Server Options



Network
Lab ▾



Network-wide



Security & SD-WAN



Switching



Wireless



Systems Manager



Insight



Organization

RADIUS 1 RADIUS server, 1 accounting server - CoA supported

Server timeout second(s)

Retry count

RADIUS fallback Active Off

EAP timers

EAP timeout second(s)

EAP max retries time(s)

EAP identity timeout second(s)

EAP identity retries time(s)

EAPOL key timeout milliseconds

EAPOL key retries time(s)



Don't touch these unless you know what you are doing!

Basic 802.1X with User Authentication

Live Logs

Live Sessions

Misconfigured Supplicants

0

Misconfigured Network Devices

0

RADIUS Drops ⓘ

0

Client Stopped Responding ⓘ

0

Repeat Counter ⓘ

0

Refresh

Every 10 sec... 

Show

Latest 20 reco... 













Within

Last 5 minutes ▾



↩ Reset Repeat Counts

Export To Filter

Time	Status	Details	Identity	Endpoint...	Authentication Poli...	Authorization Policy	Authorizatio...	Security ...	Network De...	IP
×	▼		Identity	Endpoint Pr	Authentication Policy	Authorization Policy	Authorization Pr	Security Gr	Network Devic	IP
Jun 03, 2023 03:56:4...			DC:A6:32:1A:C...	Raspberry...	IOT_Wireless >> MAB	IOT_Wireless >> CMDB_Signa...	CMDB_iPSK	IOT		1
Jun 03, 2023 03:56:3...			DC:A6:32:1A:C...		IOT_Wireless >> MAB	IOT_Wireless >> CMDB_Signa...	CMDB_iPSK		lab-mr46-1	
Jun 03, 2023 03:56:3...			DC:A6:32:6D:A...	Raspberry...	IOT_Wireless >> MAB	IOT_Wireless >> CMDB_Facilit...	CMDB_iPSK	IOT		1
Jun 03, 2023 03:56:3...			DC:A6:32:6D:A...	Raspberry...	IOT_Wireless >> MAB	IOT_Wireless >> CMDB_Facilit...	CMDB_iPSK		lab-mr46-1	
Jun 03, 2023 03:56:2...			employee	Apple-De...	802.1X >> ISE_Internal	802.1X >> Employees_Internal	GP_Employees	Employees		
Jun 03, 2023 03:56:2...			employee	Apple-De...	802.1X >> ISE_Internal	802.1X >> Employees_Internal	GP_Employees		lab-mr46-1	

Group Policy: Filter-Id and Airespace-ACL-Name

EnableFlag	Enabled
RADIUS Username	employee ✓
NAS-Identifier	2C-3F-0B-56-E3-6C:vap0
Device IP Address	192.168.128.2
CPMSessionID	ac1f020bfEfhGlrE91ZvTNH9So68CFzD2LOdXMkx6pErNjSZphA
Called-Station-ID	2C-3F-0B-56-E3-6C:.corp ✓
CiscoAVPair	AuthenticationIdentityStore=Internal Users, FQSubjectName=9273fe30-8c01-11e6-996c-525400b48521#employee, UniqueSubjectID=2211325dc0354d77d002f713e8bc508b1f04f111

Result	
Filter-ID	Employees ✓
Class	CACS:ac1f020bfEfhGlrE91ZvTNH9So68CFzD2LOdXMkx6pErNjSZphA:ise/475006628/458
cisco-av-pair	cts:security-group-tag=0004-28 ✓
MS-MPPE-Send-Key	****
MS-MPPE-Recv-Key	****
Airespace-ACL-Name	Employees ✓
LicenseTypes	Essential license consumed.

12304	Extracted EAP-Response containing PEAP challenge-response	1
11810	Extracted EAP-Response for inner method containing MSCHAP challenge-response	0
11814	Inner EAP-MSCHAP authentication succeeded	0
11519	Prepared EAP-Success for inner EAP method	0
12314	PEAP inner method finished successfully	0
12305	Prepared EAP-Request with another PEAP challenge	0
11006	Returned RADIUS Access-Challenge	0
11001	Received RADIUS Access-Request	32
11018	RADIUS is re-using an existing session	0
12304	Extracted EAP-Response containing PEAP challenge-response	1
24715	ISE has not confirmed locally previous successful machine authentication for user in Active Directory	0
15036	Evaluating Authorization Policy	0
24209	Looking up Endpoint in Internal Endpoints IDStore - employee	0
24211	Found Endpoint in Internal Endpoints IDStore	2
15016	Selected Authorization Profile - GP_Employees	5
22081	Max sessions policy passed	0
22080	New accounting session created in Session cache	0
12306	PEAP authentication succeeded	0
61026	Shutdown secure connection with TLS peer	0
11503	Prepared EAP-Success	1
11002	Returned RADIUS Access-Accept	1

Supported Models and Firmware for Adaptive Policy

Models:

Wifi5 Wave 2 (all models)
Wifi6/E MR + CW (all models)

MR27+

SSID - SGT
RADIUS based SGT
Propagation & enforcement

MR31

Group Policy + SGT
Policy Hit Counters
ACL Logging
TCP Established Matching

Licensing:

MR Advanced Licensing



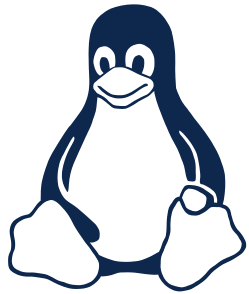
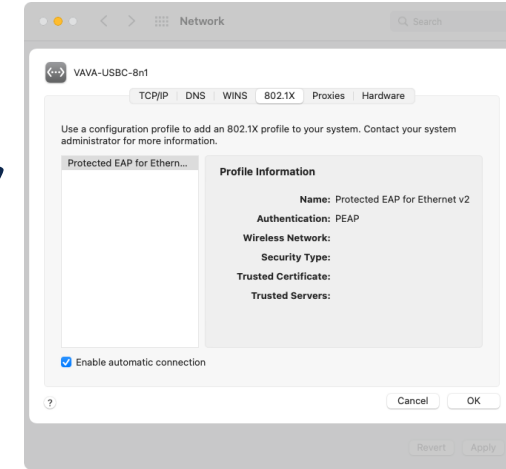
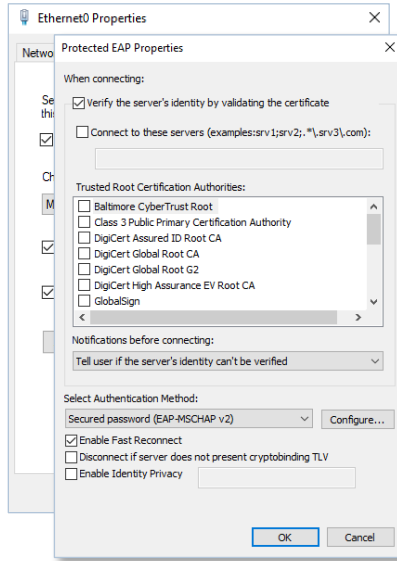
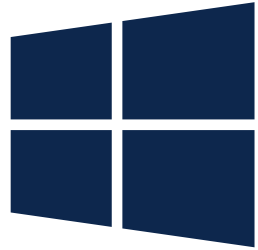
[MR Adaptive Policy Documentation](#)

Meraki System Manager (SM)

A dark gray circle containing the letters 'SM' in a bright green, sans-serif font.

SM

Endpoint 802.1X Supplicant Configuration

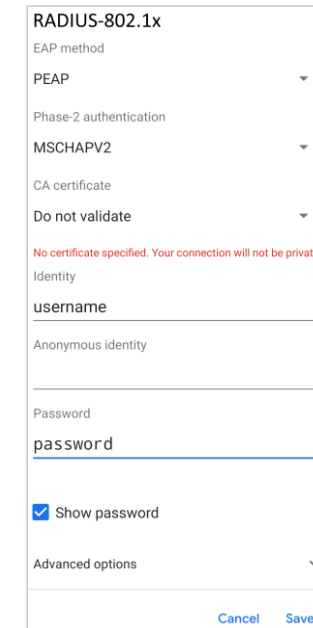


```
wpa_supplicant

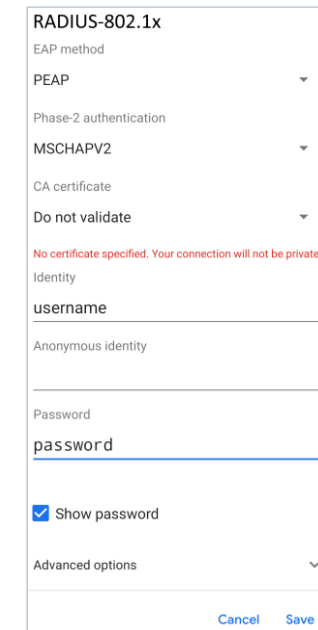
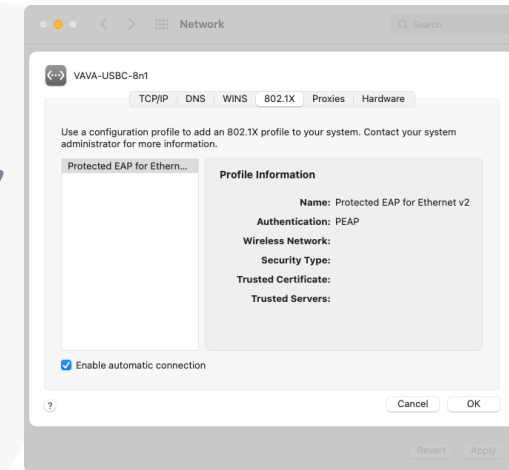
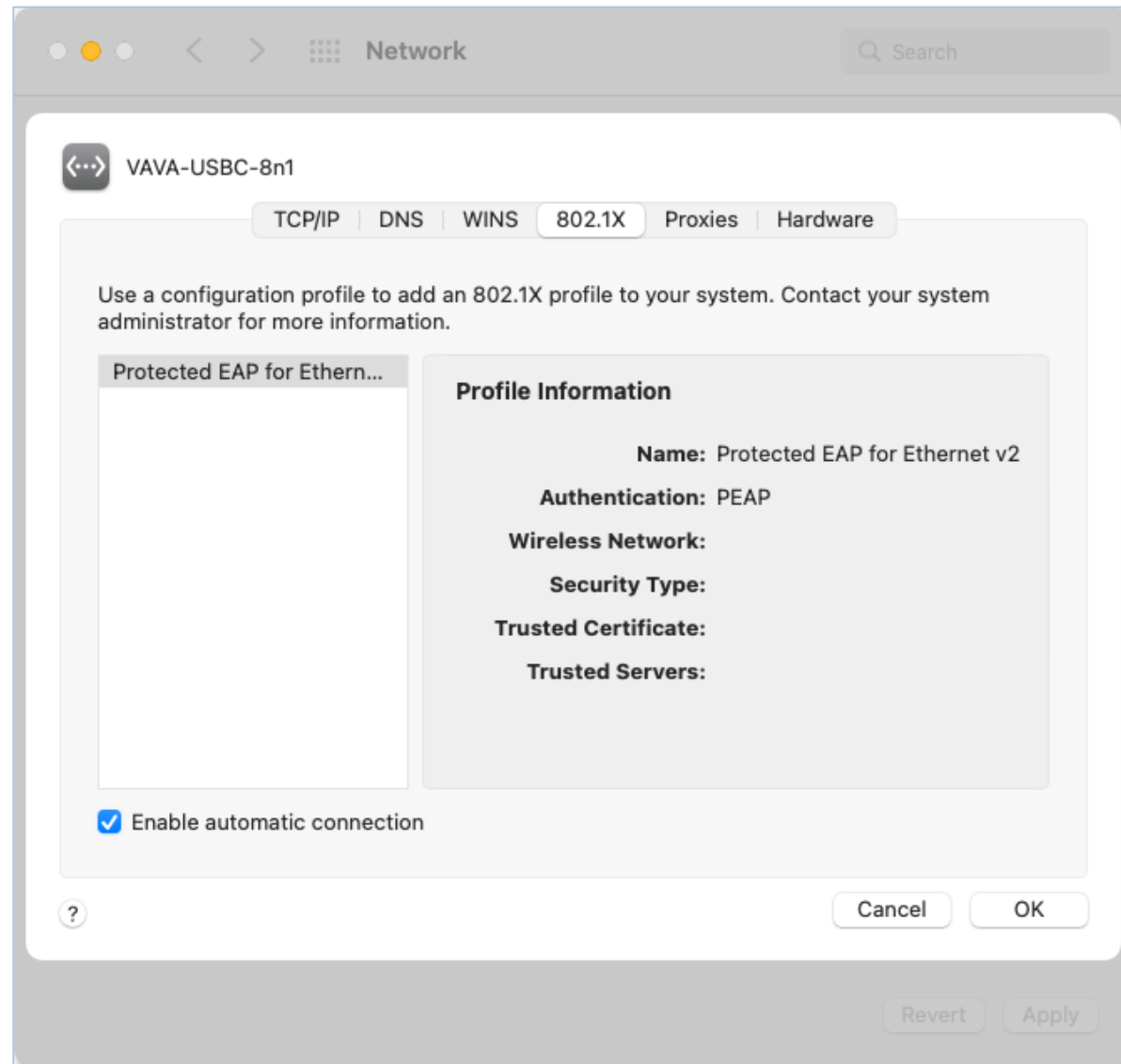
NAME
wpa_supplicant - Wi-Fi Protected Access client and IEEE
802.1X supplicant

SYNOPSIS
wpa_supplicant [ -BddfhKLqqsTtuvW ] [ -iifname ] [ -
cconfig file ] [ -Ddriver ] [ -PPID_file ] [ -foutput
file ]

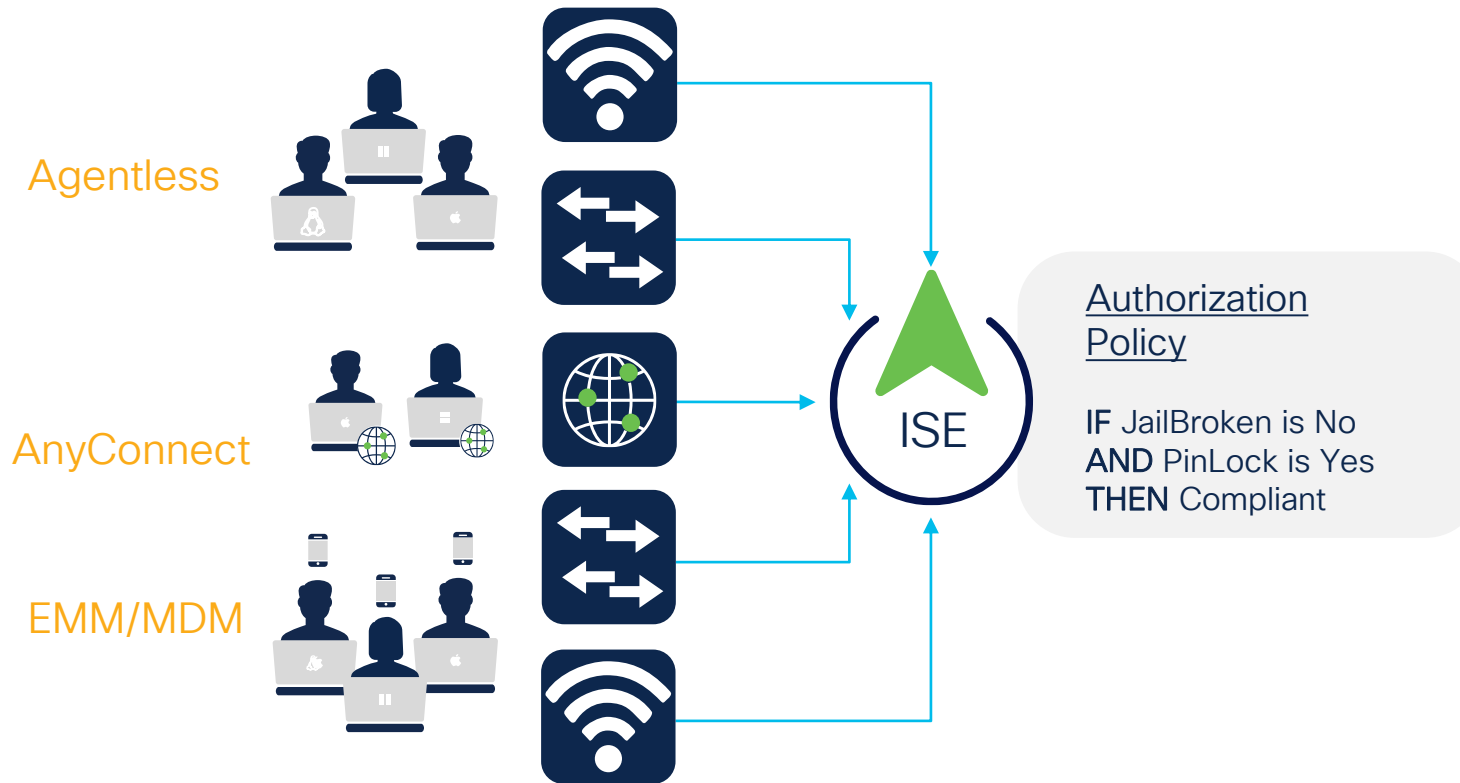
OVERVIEW
Wireless networks do not require physical access to the
network equipment in the same way as wired networks.
This makes it easier for unauthorized users to passively
monitor a network and capture all transmitted frames.
In addition, unauthorized use of the network is much
easier. In many cases, this can happen even
without user's explicit knowledge since the wireless
LAN adapter may have been configured to automatically
join any available network.
Link-layer encryption can be used to provide a layer of security
for wireless networks. The original wireless LAN standard,
```



Endpoint 802.1X Supplicant Configuration



Posture & Compliance



 <https://cisco.com/go/csta>

MDM Attributes

ActivityType
AdminAction
AdminActionUUID
AnyConnectVersion
DaysSinceLastCheckin
DetailedInfo
DeviceID
DeviceName
DeviceType
DiskEncryption
EndPointMatchedProfile
FailureReason
IdentityGroup
IMEI
IpAddress
JailBroken
LastCheckInTimeStamp
MacAddress
Manufacturer
MDMCompliantStatus
MDMFailureReason
MDMServerName
MEID
Model
OperatingSystem
PhoneNumber
PinLock
PolicyMatched
RegisterStatus
SerialNumber
ServerType
SessionId
UDID
UserName
UserNotified

ISE Supported EAP Methods

Identity Services Engine

Policy / Policy Elements

Bookmarks

Dashboard

Context Visibility

Operations

Policy

Administration

Work Centers

Interactive Features

Authentication

Allowed Protocols

Authorization

Authorization Profiles

Downloadable ACLs

Profiling

Posture

Client Provisioning

Allowed Protocols

Authentication Bypass

☒ Process Host Lookup

Authentication Protocols

☒ Allow PAP/ASCII

☐ Allow CHAP

☐ Allow MS-CHAPv1

☐ Allow MS-CHAPv2

☒ Allow EAP-MD5

☒ Allow EAP-TLS

☐ Allow LEAP

☒ Allow PEAP

☒ Allow EAP-FAST

☒ Allow EAP-TTLS

☒ Allow TEAP

☐ Preferred EAP Protocol LEAP

☐ EAP-TLS L-bit

☐ Allow weak ciphers for EAP

☐ Require Message-Authenticator for all RADIUS Requests

☐ Allow 5G

Identity Services Engine

Policy / Policy Elements

Allowed Protocols Service

Allowed Protocols

Authentication Bypass

☒ Process Host Lookup

Authentication Protocols

☒ Allow PAP/ASCII

☐ Allow CHAP

☐ Allow MS-CHAPv1

☐ Allow MS-CHAPv2

☒ Allow EAP-MD5

☒ Allow EAP-TLS

☐ Allow Authentication of expired certificates to allow certificate renewal in Authorization Policy

☐ Enable Stateless Session Resume

Session ticket time to live 2 Hours

Proactive session ticket update will occur after 10 % of Time To Live has expired

☐ Allow LEAP

☒ Allow PEAP

PEAP Inner Methods

☒ Allow EAP-MS-CHAPv2

☒ Allow Password Change Retries 1 (Valid Range 0 to 3)

☐ Allow EAP-GTC

☐ Allow Password Change Retries 1 (Valid Range 0 to 3)

☒ Allow EAP-TLS

☐ Allow Authentication of expired certificates to allow certificate renewal in Authorization Policy

☐ Require cryptobinding TLV

☐ Allow PEAPv0 only for legacy clients

☒ Allow EAP-FAST

EAP-FAST Inner Methods

☒ Allow EAP-MS-CHAPv2

☒ Allow Password Change Retries 1 (Valid Range 0 to 3)

☒ Allow EAP-GTC

☒ Allow Password Change Retries 1 (Valid Range 0 to 3)

☒ Allow EAP-TLS

☐ Allow Authentication of expired certificates to allow certificate renewal in Authorization Policy

☒ Use PACs

☐ Don't Use PACs

Tunnel PAC Time To Live 90 Days

Proactive PAC update will occur after 10 % of PAC Time To Live has expired

☐ Allow Anonymous In-Band PAC Provisioning

☐ Allow Authenticated In-Band PAC Provisioning

☐ Server Returns Access Accept After Authenticated Provisioning

☐ Accept Client Certificate For Provisioning

☐ Allow Machine Authentication

Machine PAC Time To Live 1 Weeks

☐ Enable Stateless Session Resume

Authorization PAC Time To Live 1 Hours

☐ Enable EAP Chaining

☒ Allow EAP-TTLS

EAP-TTLS Inner Methods

☒ Allow PAP/ASCII

☒ Allow CHAP

☒ Allow MS-CHAPv1

☒ Allow MS-CHAPv2

☒ Allow EAP-MD5

☒ Allow EAP-MS-CHAPv2

☒ Allow Password Change Retries 1 (Valid Range 0 to 3)

☒ Allow TEAP

TEAP Inner Methods

☒ Allow EAP-MS-CHAPv2

☒ Allow Password Change Retries 3 (Valid Range 0 to 3)

☒ Allow EAP-TLS

☐ Allow Authentication of expired certificates to allow certificate renewal in Authorization Policy

☐ Allow downgrade to MSK

☒ Accept client certificate during tunnel establishment

☐ Enable EAP Chaining

☐ Preferred EAP Protocol LEAP

☐ EAP-TLS L-bit

☐ Allow weak ciphers for EAP

☐ Require Message-Authenticator for all RADIUS Requests

☐ Allow 5G

Provision Profiles

iOS

macOS

tvOS

Chrome

Windows

Meraki



Network Lab



Network-wide



Security & SD-WAN



Switching



Wireless



Systems Manager



Insight



Organization



[Profiles list](#) / New profile

New profile



Profile configuration



Add settings

Add new settings payload

Device type

All types

iOS

macOS



Search 60 available settings



Restrictions

Supported on

iOS

macOS

tvOS



Passcode Policy

Supported on

iOS

macOS

Android



SCEP Certificate

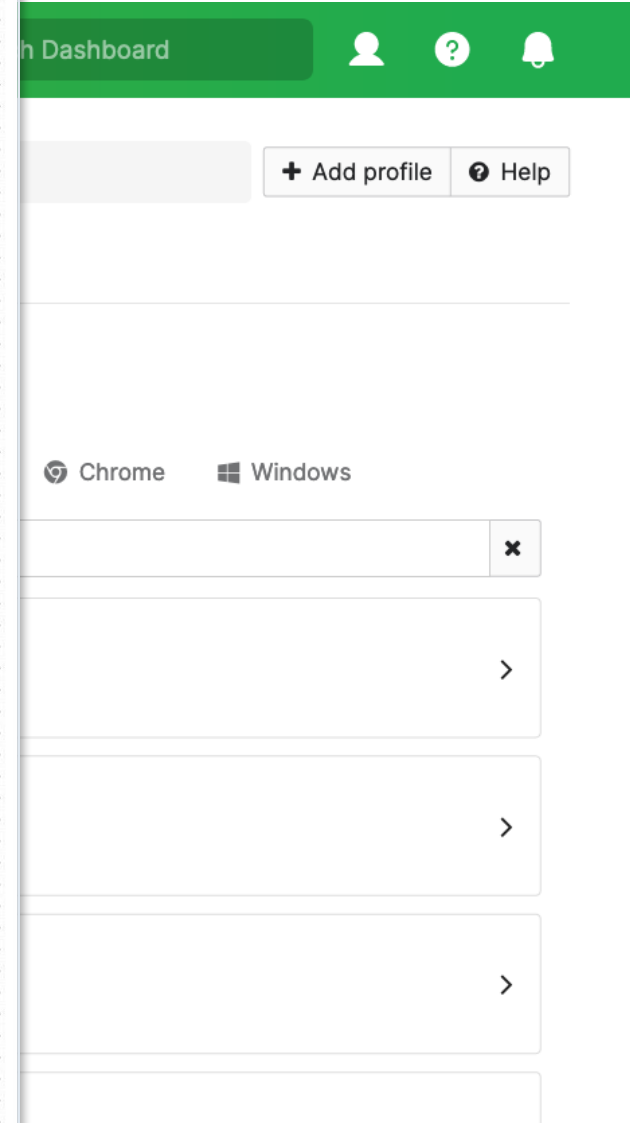
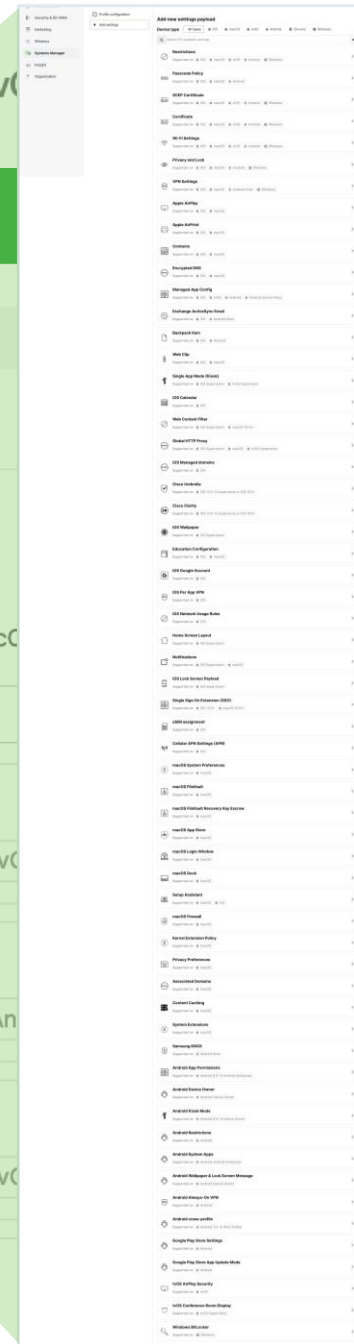
Supported on

iOS

macOS

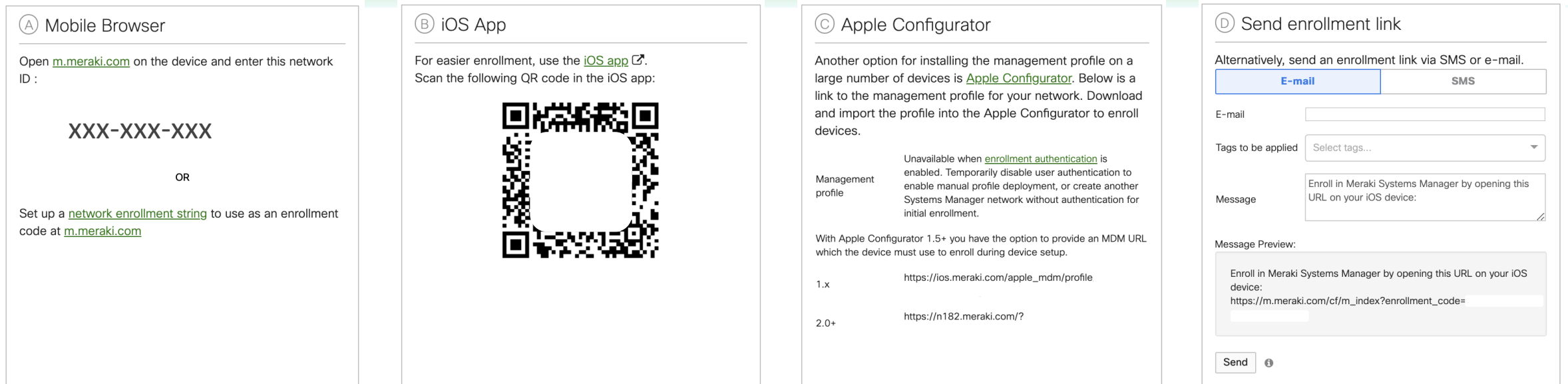
tvOS

Certificate



CISCO Live!

Meraki SM Enrollment



Web Browser

Mobile App

Device Configurator

Email / SMS

MX SDWAN/VPN



Configure MX with 'Hybrid' Access Policy

Security & SDWAN > Configure > Addressing & VLANs

Network Lab

Network-wide

Security & SD-WAN

Switching

Wireless

Systems Manager

Insight

Organization

Routing

LAN setting

Subnets

VLANs

Single LAN

Search by VLAN name, MX IP

Delete

Add VLAN

<input type="checkbox"/>	ID ▲	VLAN name	Version	Config	MX IP	Uplink	Group policy	VPN mode
<input type="checkbox"/>	1	Default	4	Manual	192.168.128.1/24	Any	None	Enabled
			6	Disabled	--	Any		

1 result

Per-port VLAN Settings

Edit

<input type="checkbox"/>	Module	Port	Enabled	Type	VLAN	Allowed VLANs	Access Policy	Peer SGT Capable
<input type="checkbox"/>	Built-in	3	●	Trunk	Native: VLAN 1 (Default)	all	-	Enabled
<input checked="" type="checkbox"/>	Built-in	4	●	Trunk	Native: VLAN 1 (Default)	all	-	Disabled

Configure MX with 'Hybrid' Access Policy

Security & SDWAN > Configure > Addressing & VLANs

Configure MX LAN ports

Enabled: Enabled

Type: Trunk

Native VLAN: VLAN 1 (Default)

Allowed VLANs: Existing Values

Peer SGT capable: Enabled Disabled

Cancel Update

Port	Type	Native VLAN	Allowed VLANs	Peer SGT Capable
Built-in 3	Trunk	Native: VLAN 1 (Default)	all	Enabled
Built-in 4	Trunk	Native: VLAN 1 (Default)	all	Disabled

Configure MX with 'Hybrid' Access Policy

Security & SDWAN > Configure > Addressing & VLANs

Configure MX LAN ports

Enabled: Enabled ▾

Type: Access ▾

VLAN: VLAN 1 (Default) ▾

Access Policy ⓘ: Open ▾

Open
802.1X
Mac authentication bypass
Hybrid

Cancel Update

Per-port VLAN Settings

	Module	P				Allowed VLANs	Access Policy	Peer SGT Capable
<input type="checkbox"/>	Built-in	3	●	Trunk	Native: VLAN 1 (Default)	all	-	Enabled
<input checked="" type="checkbox"/>	Built-in	4	●	Trunk	Native: VLAN 1 (Default)	all	-	Disabled

Configure MX with 'Hybrid' Access Policy

Security & SDWAN > Configure > Addressing & VLANs

Configure MX LAN ports

Enabled: Enabled ▾

Type: Access ▾

VLAN: VLAN 1 (Default) ▾

Access Policy ⓘ: Hybrid ▾

RADIUS Servers ⓘ









host	port	secret	
172.31.2.11	1812	✕

add radius server

Cancel Update

Configure MX with 'Hybrid' Access Policy

Security & SDWAN > Configure > Addressing & VLANs

-  Network Lab ▾
-  Network-wide
-  Security & SD-WAN
-  Switching
-  Wireless
-  Systems Manager
-  Insight
-  Organization

Routing

LAN setting

VLANs

Single LAN



Subnets



Search by VLAN name, MX IP




Delete

Add VLAN

<input type="checkbox"/>	ID ▲	VLAN name	Version	Config	MX IP	Uplink	Group policy	VPN mode
<input type="checkbox"/>	1	Default		Manual	192.168.128.1/24	Any	None	Enabled
				Disabled	--	Any		
1 result								

Per-port VLAN Settings

Edit

<input type="checkbox"/>	Module	Port	Enabled	Type	VLAN	Allowed VLANs	Access Policy	Peer SGT Capable
<input type="checkbox"/>	Built-in	3		Trunk	Native: VLAN 1 (Default)		-	Enabled
<input type="checkbox"/>	Built-in	4		Access	VLAN 1 (Default)	-	Hybrid	-



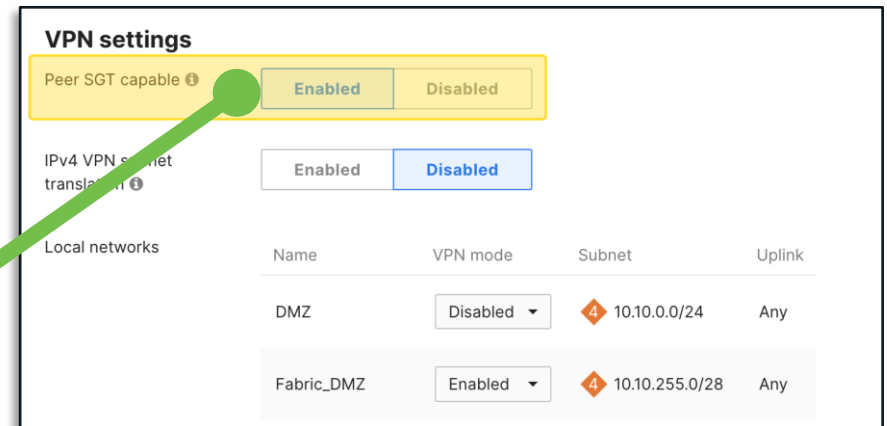
AutoVPN Propagation + Preservation

Enabling SGT Propagation and Preservation over AutoVPN takes 3 steps

Step 1: Configure VLAN support on MX

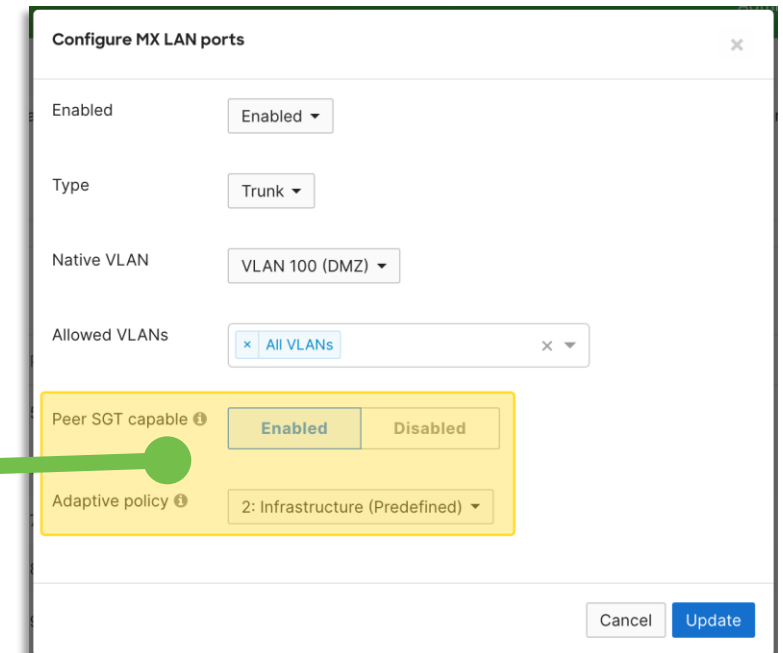
Step 2: Set Site-to-Site VPN to Peer SGT capable
Tells all VPN peers it can receive SGT encapsulated traffic

Step 3: Convert downlink to Trunk and enable Peer SGT Capable + Infrastructure SGT (when connected to a supported switch or access point)
*Propagates SGTs from VPN to Port
Trusts incoming tagged traffic*



The 'VPN settings' window shows the configuration for VPN capabilities. The 'Peer SGT capable' toggle is highlighted with a green circle and a green arrow pointing to the 'Enabled' button. Below it, the 'IPv4 VPN subnet translation' toggle is also highlighted with a green circle and a green arrow pointing to the 'Disabled' button. A table lists local networks with their names, VPN modes, subnets, and uplinks.

Local networks	Name	VPN mode	Subnet	Uplink
	DMZ	Disabled	10.10.0.0/24	Any
	Fabric_DMZ	Enabled	10.10.255.0/28	Any



The 'Configure MX LAN ports' window shows the configuration for LAN ports. The 'Enabled' toggle is set to 'Enabled'. The 'Type' is set to 'Trunk'. The 'Native VLAN' is set to 'VLAN 100 (DMZ)'. The 'Allowed VLANs' are set to 'All VLANs'. The 'Peer SGT capable' toggle is highlighted with a green circle and a green arrow pointing to the 'Enabled' button. The 'Adaptive policy' is set to '2: Infrastructure (Predefined)'. The 'Update' button is highlighted in blue.

Live Logs Live Sessions

Misconfigured Supplicants

0

Misconfigured Network Devices

0

RADIUS Drops

0

Client Stopped Responding

0

Repeat Counter

0

Refresh Every 10 sec... Show Latest 20 reco... Within Last 5 minutes

Reset Repeat Counts Export To

Filter

Time	Status	Details	Identity	Endpoint...	Authentication Poli...	Authorization Policy	Authorizatio...	Security ...	Network De...
×	▼		Identity	Endpoint Pr	Authentication Policy	Authorization Policy	Authorization Pr	Security Gr	Network Device
Jun 03, 2023 02:48:2...			DC:A6:32:1A:C5:F7	Raspberry...	IOT_Wired >> Default	IOT_Wired >> IOT_Signage	PermitAccess	IOT	
Jun 03, 2023 02:48:2...			DC:A6:32:1A:C5:F7	Raspberry...	IOT_Wired >> Default	IOT_Wired >> IOT_Signage	PermitAccess		lab-mx68-1
Jun 03, 2023 02:48:2...			DC:A6:32:6D:A3:BA	Raspberry...	IOT_Wired >> Default	IOT_Wired >> IOT_Facilities	PermitAccess	IOT	
Jun 03, 2023 02:48:2...			DC:A6:32:6D:A3:BA	Raspberry...	IOT_Wired >> Default	IOT_Wired >> IOT_Facilities	PermitAccess		lab-mx68-1
Jun 03, 2023 02:47:5...			employee	Unknown	802.1X >> ISE_Internal	802.1X >> Employees_Internal	PermitAccess	Employees	
Jun 03, 2023 02:47:5...			employee	Unknown	802.1X >> ISE_Internal	802.1X >> Employees_Internal	PermitAccess		lab-mx68-1
Jun 03, 2023 02:47:4...			A0:CE:C8:D3:5B:2B	Unknown	IOT_Wired >> Default	IOT_Wired >> Default	PermitAccess		lab-mx68-1

MX/Z Supported Models and Firmware for Adaptive Policy

Models:

MX64/65/100*

MX67/68/75/85/95/105/250/450

Z3/Z4

Not supported on:

MX84

MX18.1+

NAT mode AutoVPN Support

MX18.2+

VPNc WAN propagation
VLAN/Port SGT Classification
Inter-VLAN Preservation

**MX19+

Enforcement and further
classification support

Licensing:

MX Advanced Licensing / SD-WAN




**only supported for AutoVPN transport in NAT mode*

*** subject to change based on release timelines for MX/Z*

HOB0 Remote Access



Z3: Wireless 802.1X

 Network
hobo-employee ▾

 Network-wide

 Teleworker gateway

 Insight

 Organization

Wireless settings

SSID 1

Status Enabled ▾

Name

Security WPA2 Enterprise ▾

Authentication My RADIUS server ▾

RADIUS servers

#	Host	Port	Secret	Actions	
1	<input type="text" value="172.31.2.11"/>	<input type="text" value="1812"/>	<input type="text" value="....."/>	 	Test

[Add a server](#)


WPA encryption mode WPA2 only ▾

Visibility Advertise this SSID publicly ▾

SSID 2

Status Disabled ▾

Z3: Wired 802.1X – Hybrid Access Policy

 Network
hobo-employee ▾

 Network-wide

 Teleworker gateway

 Insight

 Organization

Routing

LAN setting

VLANs

Single LAN

Subnets



Search by VLAN name, MX IP

Delete

Add VLAN

<input type="checkbox"/>	ID ▲	VLAN name	Version	Config	MX IP	Uplink	Group policy
<input type="checkbox"/>	1	Default	4	Manual	192.168.128.1/24	Any	None
			6	Disabled	--	Any	
1 result							

Per-port VLAN Settings

Edit

<input type="checkbox"/>	Module	Port	Enabled	Type	VLAN	Allowed VLANs	Access Policy
<input type="checkbox"/>	Built-in	2	●	Trunk	Native: VLAN 1 (Default)	all	-
<input type="checkbox"/>	Built-in	3	●	Trunk	Native: VLAN 1 (Default)	all	-
<input type="checkbox"/>	Built-in	4	●	Trunk	Native: VLAN 1 (Default)	all	-
<input type="checkbox"/>	Built-in	5	●	Trunk	Native: VLAN 1 (Default)	all	-

Z3: Wired 802.1X – Hybrid Access Policy

The screenshot shows the Cisco Meraki dashboard interface. On the left, the navigation menu includes 'Network hobo-employee', 'Network-wide', 'Teleworker gateway', 'Insight', and 'Organization'. The main content area is titled 'Routing' and contains sections for 'LAN setting', 'Subnets', and 'Per-port VLAN Settings'. A modal window titled 'Configure teleworker LAN ports' is open, displaying the following configuration options:

- Enabled: Enabled
- Type: Access
- VLAN: VLAN 1 (Default)
- Access Policy: Open

The 'Access Policy' dropdown menu is open, showing three options: 'Open', '802.1X', and 'Hybrid'. The 'Hybrid' option is highlighted with a green border. The modal also includes 'Cancel' and 'Update' buttons.

Below the modal, the 'Per-port VLAN Settings' section is visible, showing a table with columns: Module, Port, Enabled, Type, VLAN, Allowed VLANs, and Access Policy. The table contains two rows of data for built-in ports 2 and 3, both configured as Trunk ports with Native VLAN 1 (Default) and Allowed VLANs set to 'all'.

Module	Port	Enabled	Type	VLAN	Allowed VLANs	Access Policy
Built-in	2	●	Trunk	Native: VLAN 1 (Default)	all	-
Built-in	3	●	Trunk	Native: VLAN 1 (Default)	all	-

Z3: Wired 802.1X – Hybrid Access Policy

Configure teleworker LAN ports

Enabled: Enabled ▾

Type: Access ▾

VLAN: VLAN 1 (Default) ▾


Access Policy ⓘ: Hybrid ▾

RADIUS Servers ⓘ

host	port	secret	
172.31.2.11	1812	✕
add radius server			

Cancel Update

Z3: Wired 802.1X – Hybrid Access Policy

 Network
hobo-employee ▾

 Network-wide

 Teleworker gateway

 Insight

 Organization

Routing

LAN setting

VLANs

Single LAN



Subnets



Search by VLAN name, MX IP



Delete

Add VLAN

<input type="checkbox"/>	ID ▲	VLAN name	Version	Config	MX IP	Uplink	Group policy
<input type="checkbox"/>	1	Default		Manual	192.168.128.1/24	Any	None
				Disabled	--	Any	
1 result							

Per-port VLAN Settings

Edit

<input checked="" type="checkbox"/>	Module	Port	Enabled	Type	VLAN	Allowed VLANs	Access Policy
<input checked="" type="checkbox"/>	Built-in	2		Access	VLAN 1 (Default)	-	Hybrid
<input checked="" type="checkbox"/>	Built-in	3		Access	VLAN 1 (Default)	-	Hybrid

Z3: Wired 802.1X – Hybrid Access Policy

Identity Services Engine

Operations / RADIUS

Evaluation Mode 87 Days

Live Logs

Live Sessions

Misconfigured Supplicants 1

Misconfigured Network Devices 1

RADIUS Drops 1

Client Stopped Responding 1

Repeat Counter 1

0

0

0

0

0

Refresh

Every 10 sec...

Show

Latest 20 reco...

Within

Last 5 minutes

↺ Reset Repeat Counts

↗ Export To

Filter

Time	Status	Details	Identity	Endpoint...	Authentication Poli...	Authorization Policy	Authorizatio...	Security ...	Network De...	I
×	▼		Identity	Endpoint Pr	Authentication Policy	Authorization Policy	Authorization Pr	Security Gr	Network Devi	
Jun 03, 2023 03:47:2...	ⓘ		employee	Apple-De...	802.1X >> ISE_Internal	802.1X >> Employees_Internal	GP_Employees	Employees		
Jun 03, 2023 03:47:2...	✓		employee	Apple-De...	802.1X >> ISE_Internal	802.1X >> Employees_Internal	GP_Employees		z3-hobo-em...	
Jun 03, 2023 03:46:1...	✗		USERNAME		802.1X >> Default	802.1X			z3-hobo-em...	
Jun 03, 2023 03:45:5...	ⓘ		employee	Unknown	802.1X >> ISE_Internal	802.1X >> Employees_Internal	GP_Employees	Employees		
Jun 03, 2023 03:45:5...	✓		employee	Unknown	802.1X >> ISE_Internal	802.1X >> Employees_Internal	GP_Employees		z3-hobo-em...	

Switching



Meraki Switching Portfolio

SMALL BRANCH

MEDIUM TO LARGE BRANCH

CAMPUS

Gigabit Access

Up to 1Gbe Ethernet



MS120- 8

- Compact
- 2x 1GbE SFP
- PoE/PoE+



MS120

- 24/48 ports options
- 4x 1GbE SFP
- PoE/PoE+



MS125

- 24/48 ports options
- 4x 10GbE SFP+
- PoE/PoE+



MS210

- 24/48 ports options
- 4x 1GbE SFP
- PoE/PoE+
- 80G physical Stacking



MS225

- 24/48 ports options
- 4x 10GbE SFP+
- PoE/PoE+
- 80G Physical Stacking



MS250

- Layer 3 support
- 4x 10GbE SFP+
- PoE/PoE+
- 80G Physical Stacking

Multi-Gig Access

Up to 10Gbe Ethernet (mGig)



MS350

- UPoE support
- 10GbE SFP+
- 160G Physical Stacking



MS355

- UPoE support
- 40GbE QSFP+
- 400G Physical Stacking



MS390

- Modular Uplink (10GbE/ 40GbE)
- UPoE support
- 480G Physical Stacking; StackPower
- Modular 80 Plus Platinum PSU

Fiber Aggregation

10GbE SFP+ Fiber



MS410

- 10GbE SFP+
- 160G Physical Stacking
- Redundant PSU option



MS425

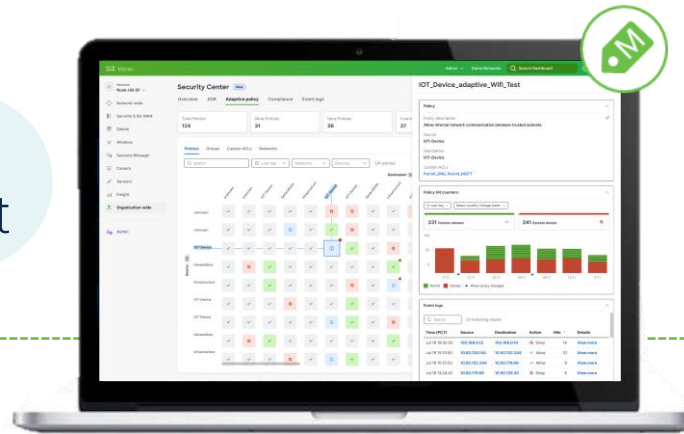
- 40GbE QSFP+
- Front Port 160G Physical Stacking
- Redundant PSU option



MS450

- 100G QSFP28
- Front Port 160G Physical Stacking
- Redundant PSU option

ONE dashboard
ANY environment



Rugged



MS130R

Compact



MS130X

Rack Mount



Most Demanding



Catalyst Meraki
9300/X

Extending **adaptive policy** to **more** platforms

No longer limited to a single MS platform

MS130X/R support coming in MS17

CISCO *Live!*

Adaptive Policy from Access Switching to Aggregation/Core

Fiber aggregation



C9300X-12Y/24Y



C9300-24S/48S

Access



MS130X/R











MS390



Catalyst Meraki
9300/X

New RADIUS and VLAN Features

-  Network Lab ▾
-  Network-wide
-  Security & SD-WAN
-  Switching
-  Wireless
-  Systems Manager
-  Insight
-  Organization
- Access Manager

Dashboard

Organization-wide RADIUS server

 Opt-in settings ^

Define a RADIUS server at the organization level so you no longer need to manually input RADIUS server for each access policy

These organization level RADIUS servers can be selected and applied to any Switching access policy within the organization. When editing an existing RADIUS server, the update will be applied to all networks and access policies that utilize the RADIUS server. * The RADIUS servers defined here are currently only applicable to Meraki Switches.

[Link to Documentation](#)

[Get Support](#)

Switching

Switching Overview

 Opt-in settings ▾

A NEW bird's eye view panel that provides a snapshot of your Switching network's health, utilization, and performance

Dashboard

VLAN Profiles

 Opt-in settings ^

Support for VLAN profiles and Named VLANs for use with access and trunk port configuration.

Make switchport configuration and VLAN assignment less complex! This feature will allow an administrator to map MS to VLAN profiles that contain name and group name to VLAN ID and list mappings. Once enabled a user can create maps of name to VLAN, and group name to VLAN lists that can be statically configured on switchports in dashboard. Now you can reference a name to an access port, or a group name to an allowed VLAN list without having to reference a spreadsheet! To access the VLAN profiles page, enable this feature, then navigate to a network of your choosing > Network-wide > VLAN profiles, to get started.

[Link to Documentation](#)

[Get Support](#)

VLAN Profiles

Generally Available

VLAN profiles

Edit profiles

Profile name
Test API

Iname
Iname

Named VLANs

[Add a Named VLAN](#)

#	VLAN name	VLAN ID	Actions
1	Employee	100	Save Cancel
2	IOT	110	Edit Delete
3	DMZ	999	Edit Delete

VLAN Groups

[Add a VLAN group](#)

#	Group name	VLAN list	Actions
1	Employees	100-109	Save Cancel
2	IOTDevices	110-119	Edit Delete
3	Guest	999-1000	Edit Delete

Edit switch port

Name
Employee Desk Port

Port status
☒ Enabled

Type
Access

Access policy
Open

VLAN
Employee

Voice VLAN
VoIP

Link negotiation
Auto negotiate

Single VLAN ID
to Name

Group of VLANs
to Name

RADIUS based
assignment*

Dashboard
Switchport/SSID
Assignment

*Also available for MR beginning in MR30

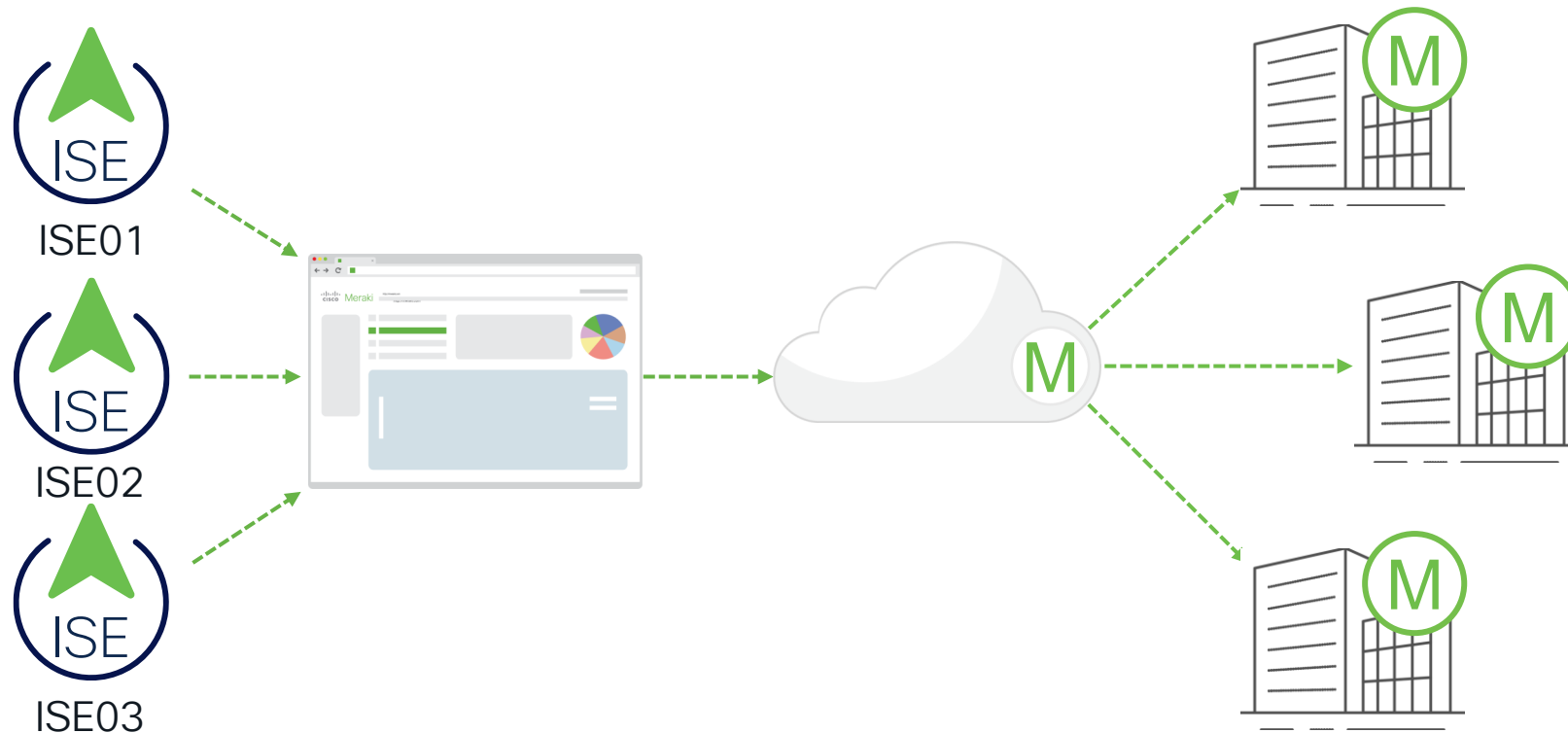
**Available in Early Access

Org-Wide RADIUS Server Configurations

Configure Once
Re-Use Everywhere

Starting with Switching Access
Policies

Coming to MX and MR post GA



Org-Level Configuration Modularity

Early Access

RADIUS servers

Reusable RADIUS servers for access policies across this organization.

Name	Server	Auth Port	Acct Port	Applied networks	Actions
WW_PROD_ISE_01	10.10.0.40	1812	1813	.Wayward_Pines - switch	⋮
WW_PROD_ISE_02	10.10.0.41	1812	1813	.Wayward_Pines - switch	⋮
MSTME_ISE	172.16.0.30	1812	1813	None	⋮

+ Add a RADIUS server

- Organization > Settings
- Switching > Access Policies
- Automatically populates server info
- Up to 100 servers at Organization level
- Max 3 Auth/Acct servers per Access Policy

Access policies

Name

ISE_MD_Crit

Authentication method

my RADIUS server

Radius Servers

#	Name	Host	Port	Secret	Actions
1	WW_PROD_ISE_01	10.10.	1812	Show	⋮
2	WW_PROD_ISE_02	10.10.	1812	Show	⋮

2

+ Add a server

☒ WW_PROD_ISE_01

☒ WW_PROD_ISE_02

☐ MSTME_ISE









Radius Accounting Servers

#	Name	Host	Port	Secret	Actions
1	WW_PROD_ISE_01	10.10.	1813	Show	⋮
2	WW_PROD_ISE_02	10.10.	1813	Show	⋮

2 Select RADIUS

+ Add a server

Switching > Access Policies

-  Network Lab ▾
-  Network-wide
-  Security & SD-WAN
-  Switching
-  Wireless
-  Systems Manager
-  Insight
-  Organization
- Access Manager


Access policies

Name

 802.1X_Multi_Auth_Hybrid



Authentication method

my RADIUS server ▾

 my RADIUS server
Meraki authentication


RADIUS servers ⓘ

3 Max


#	Host	Port	Secret	Actions
1	172.31.2.11	1812	  Test

[Add a server](#)


RADIUS testing ⓘ

 RADIUS testing enabled ▾


RADIUS CoA support ⓘ

 RADIUS CoA enabled ▾

RADIUS accounting

 RADIUS accounting enabled ▾

RADIUS accounting servers

#	Host	Port	Secret	Actions
1	172.31.2.11	1813	 

[Add a server](#)

RADIUS attribute specifying group policy name

Filter-Id ▾

Host Mode ⓘ

Multi-Auth ▾

Access policy type ⓘ

Hybrid authentication ▾

Switching > Access Policies

Access policies

Name 802.1X_Multi_Auth_Hybrid

Authentication method my RADIUS server

RADIUS servers

#	Host	Port	Secret	Actions
1	172.31.2.11	1812	Test

[Add a server](#)

RADIUS testing RADIUS testing enabled

RADIUS CoA support RADIUS CoA enabled

RADIUS accounting RADIUS accounting enabled

RADIUS accounting servers

#	Host	Port	Secret	Actions
1	172.31.2.11	1813	

None

✓ Filter-Id

RADIUS attribute specifying group policy name

Filter-Id

Host Mode Multi-Auth

Access policy type Hybrid authentication

Common Tasks

- ☐ DACL Name
- ☐ IPv6 DACL Name
- ☐ ACL (Filter-ID)
- ☐ ACL IPv6 (Filter-ID)
- ☐ Security Group
- ☐ VLAN
- ☐ Voice Domain Permission
- ☐ Web Redirection (CWA, MDM, NSP, CPP)
- ☐ Auto Smart Port
- ☐ Assess Vulnerabilities
- ☐ Reauthentication
- ☐ MACSec Policy
- ☐ NEAT
- ☐ Interface Template
- ☐ Web Authentication (Local Web Auth)
- ☐ Airespace ACL Name
- ☐ Airespace IPv6 ACL Name
- ☐ ASA VPN
- ☐ AVC Profile Name
- ☐ UDN Lookup
- ☐ Unique Identifier

ISE

Meraki MS Access Policies

Switching > Configure > Access Policies

The screenshot shows the Meraki MS Access Policies configuration page. The left sidebar contains navigation links: Network Lab, Network-wide, Security & SD-WAN, Switching (highlighted), Wireless, Systems Manager, Insight, and Organization. The main content area is titled 'Access Policies' and includes the following configuration options:

- RADIUS attribute specifying group policy name:** Filter-Id (with a checkmark icon).
- Host Mode:** Multi-Auth (with a callout box).
- Access policy type:** Hybrid authentication (with a callout box).
- Increase access speed:** A checkbox option with a warning icon. The text states: 'Enabling this option will make switches execute 802.1X and MAC-bypass authentication simultaneously so that clients authenticate faster. However, it will increase load on the switch.' Below this is a dropdown menu set to 'both' (with a callout box).
- 802.1X Control Direction:** A section containing:
 - Guest VLAN
 - Failed Auth VLAN (BETA)
 - Re-authentication Interval (BETA)
 - Critical Auth VLAN (BETA)
 - Suspend Port Bounce (BETA)
- Voice VLAN clients:** A dropdown menu set to 'Require authentication'.

Callout boxes provide additional context for the selected options:

- Multi-Auth:** Single-Host, Multi-Domain, Multi-Host, Multi-Auth (checked).
- Hybrid authentication:** 802.1X, MAC authentication bypass, Hybrid authentication (checked).
- inbound-only:** inbound-only, both (checked).

Meraki MS Access Policies



Network
Lab ▾



Network-wide



Security & SD-WAN



Switching



Wireless



Systems Manager



Insight



Organization

Switch Ports for the last day ▾

Edit

Aggregate

Split

Mirror


Unmirror









Tags ▾

switch:"lab-ms390-1" AND access ▾

[help](#) 46 of 64 switch ports

Download As ▾

<input type="checkbox"/>	Switch / Port ▲	Name	Type	VLAN	Received bytes	Sent bytes	Status	
<input type="checkbox"/>	lab-ms390-1 / 1	details	access	1, voice 100	18.4 MB	60.5 MB	<div><div></div></div>	
<input type="checkbox"/>	lab-ms390-1 / 2	details	access	1, voice 100	2.8 MB	68.1 MB	<div><div></div></div>	
<input type="checkbox"/>	lab-ms390-1 / 3	details	access	1, voice 100	-	-	<div><div></div></div>	
<input type="checkbox"/>	lab-ms390-1 / 4	details	access	1, voice 100	276.9 KB	394.4 KB	<div><div></div></div>	
<input type="checkbox"/>	lab-ms390-1 / 5	details	access	1, voice 100	682.3 KB	1004.7 KB	<div><div></div></div>	
<input type="checkbox"/>	lab-ms390-1 / 6	details	access	1, voice 100	9.7 KB	480 Bytes	<div><div></div></div>	
<input type="checkbox"/>	lab-ms390-1 / 7	details	access	1, voice 100	-	-	<div><div></div></div>	
<input type="checkbox"/>	lab-ms390-1 / 8	details	access	1, voice 100	-	-	<div><div></div></div>	
<input type="checkbox"/>	lab-ms390-1 / 9	details	access	1, voice 100	-	-	<div><div></div></div>	
<input type="checkbox"/>	lab-ms390-1 / 10	details	access	1, voice 100	-	-	<div><div></div></div>	
<input type="checkbox"/>	lab-ms390-1 / 11	details	access	1, voice 100	-	-	<div><div></div></div>	

-  Network Lab ▾
-  Network-wide
-  Security & SD-WAN
-  Switching
-  Wireless
-  Systems Manager
-  Insight
-  Organization

Update 46 ports

Port status

Enabled

Disabled

Link negotiation

Auto negotiate

Port schedule

Unscheduled

Type

Trunk

Access

Access policy ⓘ

Open

VLAN

1

Voice VLAN

100

RSTP

Enabled

Disabled

STP guard

Disabled

Port isolation

Enabled

Disabled

Trusted DAI

Enabled

Disabled

Cancel

Update

☒ lab-ms390-1 / 14 details

access 1, voice 100

153.6 KB

599.5 KB

Update 46 ports

Port status

Enabled

Disabled

Link negotiation

Auto negotiate

Port schedule

Unscheduled

Type

Trunk

Access

Access policy ⓘ

802.1X_Multi_Auth_Hybrid

Open

802.1X_Multi_Auth_Hybrid

MAC allow list

Sticky MAC allow list

VLAN

Voice VLAN

RSTP

Enabled

Disabled

STP guard

Disabled

Port isolation

Enabled

Disabled

UDLD

Alert only

Enforce

Cancel

Update

Meraki MS Authentications

Live Logs

Live Sessions

Refresh
Never

Show
Latest 20 reco... ▾

Within
Last 5 minutes ▾

↻ Reset Repeat Counts ↗ Export To ▾

Filter ▾ ⚙

Time	Status	Details	Identity	Endpoint Prof...	Authentication Poli...	Authorization Policy	Authorizatio...	Security ...	Network D
×	▾		Identity	Endpoint Profile	Authentication Policy	Authorization Policy	Authorization Pr	Security Grc	Network De
Jun 03, 2023 05:02:0...	🟡	📄	AC:17:C8:0C:17:A0	Cisco-Meraki-...	IOT_Wired >> Default	IOT_Wired >> Default	PermitAccess	Unknown	
Jun 03, 2023 05:01:4...	🟡	📄	employee	Unknown	802.1X >> ISE_Internal	802.1X >> Employees_Internal	GP_Employees	Employees	
Jun 03, 2023 05:01:3...	🟢	📄	employee	Unknown	802.1X >> ISE_Internal	802.1X >> Employees_Internal	GP_Employees		lab-ms390-
Jun 03, 2023 05:01:2...	🟢	📄	AC:17:C8:0C:17:A0	Cisco-Meraki-...	IOT_Wired >> Default	IOT_Wired >> Default	PermitAccess		lab-ms390-
Jun 03, 2023 05:00:3...	🟡	📄	DC:A6:32:1A:C5:F7	RaspberryPi-De...	IOT_Wired >> Default	IOT_Wired >> IOT_Signage	GP_IOT	IOT	
Jun 03, 2023 05:00:3...	🟡	📄	DC:A6:32:6D:A3:BA	RaspberryPi-De...	IOT_Wired >> Default	IOT_Wired >> IOT_Facilities	GP_IOT	IOT	
Jun 03, 2023 05:00:1...	🟢	📄	DC:A6:32:1A:C5:F7	RaspberryPi-De...	IOT_Wired >> Default	IOT_Wired >> IOT_Signage	GP_IOT		lab-ms390-
Jun 03, 2023 05:00:1...	🟢	📄	DC:A6:32:6D:A3:BA	RaspberryPi-De...	IOT_Wired >> Default	IOT_Wired >> IOT_Facilities	GP_IOT		lab-ms390-
Jun 03, 2023 05:00:1...	🟡	📄	3C:8C:F8:A0:1A:06	Trendnet-Device	IOT_Wired >> Default	IOT_Wired >> Default	PermitAccess	Unknown	
Jun 03, 2023 04:59:5...	🟢	📄	3C:8C:F8:A0:1A:06	Trendnet-Device	IOT_Wired >> Default	IOT_Wired >> Default	PermitAccess		lab-ms390-
Jun 03, 2023 04:59:5...	🟢	📄	A0:CE:C8:D3:5B:2B	Unknown	IOT_Wired >> Default	IOT_Wired >> Default	PermitAccess		lab-ms390-

MS/CS Supported Models and Firmware for Adaptive Policy

Models:

MS390 – All Models
C9300-M – All Models

Coming Soon:
MS130 X/R models

MS14

Initial Introduction
Port to SGT
Subnet to SGT
RADIUS assignment

CS16

Policy Hit Counters
ACL Logging

CS17

TCP Established
VLAN to SGT Mapping









Licensing:

MS/CS Advanced Licensing




Adaptive Policy: Groups (Default)

Organization > Configure > Adaptive Policy > Groups

-  Network Lab ▾
-  Network-wide
-  Security & SD-WAN
-  Switching
-  Wireless
-  Systems Manager
-  Insight
-  Organization

Adaptive policy

[Policies](#) [Groups](#) [Custom ACLs](#) [Networks](#)

 Search...

2 groups

[Add group](#)









[Edit](#)

[Delete](#)

<input type="checkbox"/>	Name	SGT Value ▲	Description	Policy Objects 
<input type="checkbox"/>	Unknown	0	Created by Meraki, the Unknown group applies when a policy is specified for unsuccessful group classification	
<input type="checkbox"/>	Infrastructure	2	Created by Meraki, the Infrastructure group is used by Meraki devices for internal and dashboard communication	


Adaptive Policy: Custom ACLs (SGACLs)

Organization > Configure > Adaptive Policy > Groups

-  Network Lab ▾
-  Network-wide
-  Security & SD-WAN
-  Switching
-  Wireless
-  Systems Manager
-  Insight
-  Organization

Adaptive policy









[Policies](#) [Groups](#) [Custom ACLs](#) [Networks](#)

 Search... [Add Custom ACL](#) 0 ACLs

No matching ACLs found



Adaptive Policy: Networks

Organization > Configure > Adaptive Policy > Networks

-  Network Lab ▾
-  Network-wide
-  Security & SD-WAN
-  Switching
-  Wireless
-  Systems Manager
-  Insight
-  Organization









Adaptive policy

[Policies](#) [Groups](#) [Custom ACLs](#) [Networks](#)

 Search...		4 networks
<input type="checkbox"/>	Networks	Status 
<input type="checkbox"/>	Lab	● Adaptive policy disabled
<input type="checkbox"/>	hobo-employee	● Adaptive policy disabled
<input type="checkbox"/>	hobo-thomas	● Adaptive policy disabled
<input type="checkbox"/>	ISE_Meraki_AWS	● Adaptive policy disabled

Adaptive Policy: Policies

Organization > Configure > Adaptive Policy > Policies

-  Network Lab ▾
-  Network-wide
-  Security & SD-WAN
-  Switching
-  Wireless
-  Systems Manager
-  Insight
-  Organization

Adaptive policy

[Policies](#) [Groups](#) [Custom ACLs](#) [Networks](#)

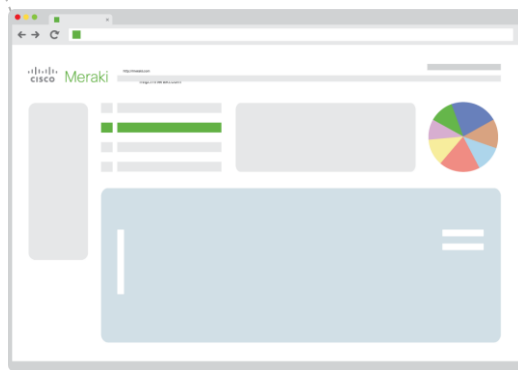
TOTAL POLICIES	DENY POLICIES	ALLOW POLICIES	GROUPS	ACLs
0	0 / 0	0 / 0	2	0

 Search... [Add Policies](#)

No matching groups found

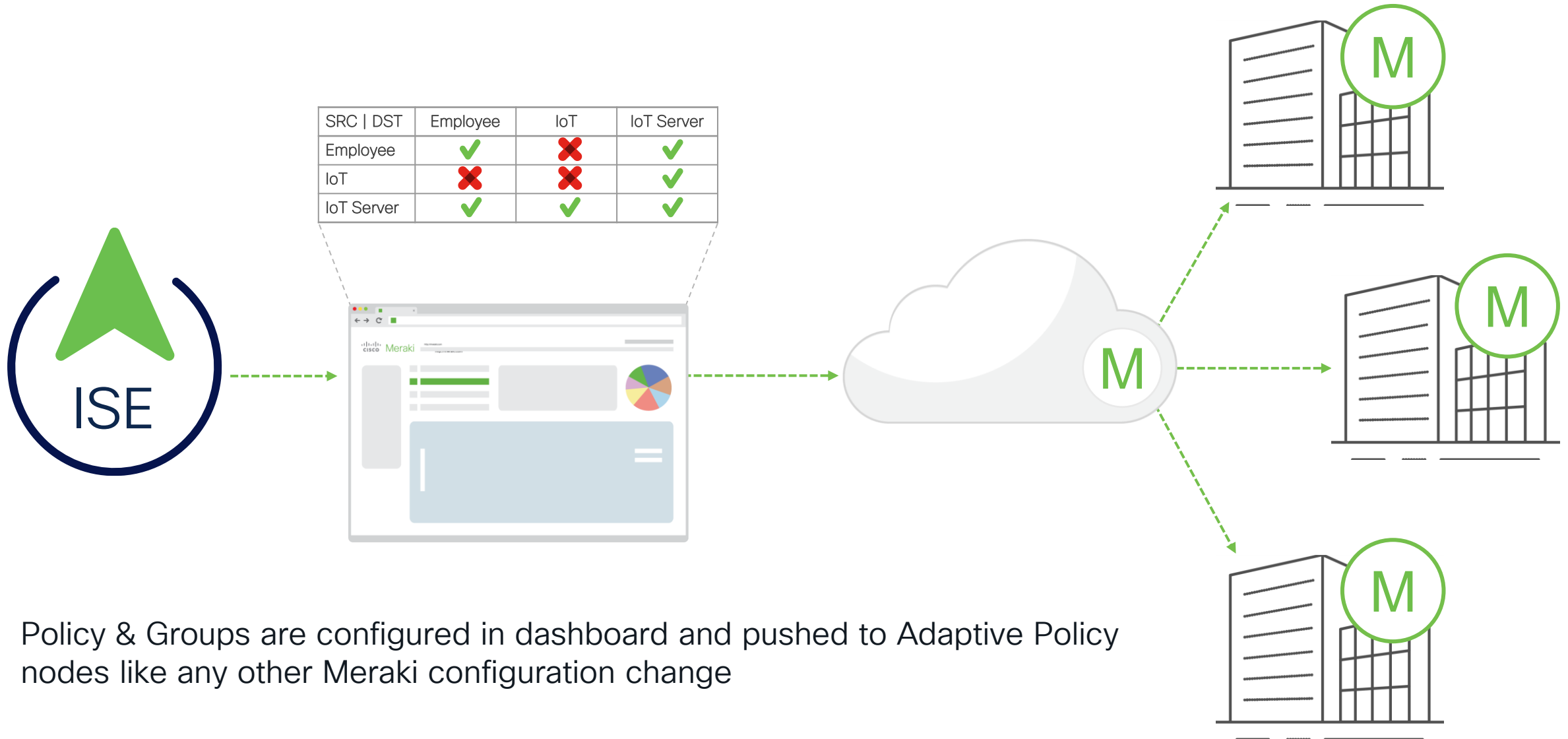
One Consistent Policy Across a Meraki Organization

SRC DST	Employee	IoT	IoT Server
Employee	✓	✗	✓
IoT	✗	✗	✓
IoT Server	✓	✓	✓



Policy & Groups are configured in dashboard and pushed to Adaptive Policy nodes like any other Meraki configuration change

One Consistent Policy Across Organization(s)



ISE Meraki Connector

Why a Meraki Connector?



Hybrid Deployments: Maintain integrity of network security through deploying hybrid networks.



Redundancy: Mitigate the need to perform an extra step of replicating policies across multiple platforms.



Potential Errors: Reduce the possibility of errors in policies that will affect the user experience.



Simplified Experience: Allows ISE to be the single source of truth and interface for policy management.

ISE Unifies the Cisco Segmentation Strategy



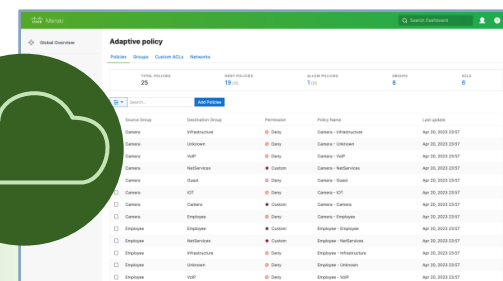
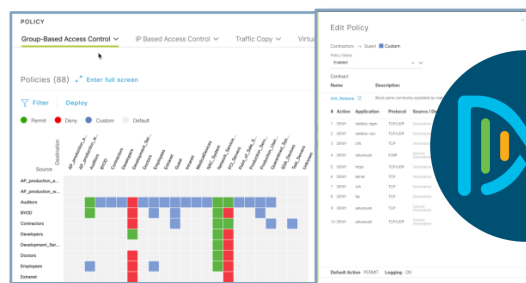
Catalyst



Adaptive
Policy



Meraki



CISCO *Live!*

ISE Meraki Connector

ISE 3.2p1+

The screenshot displays the Cisco Identity Services Engine (ISE) interface. The top navigation bar includes the Cisco logo, 'Identity Services Engine', and 'Work Centers / TrustSec'. The main navigation tabs are Overview, Components, TrustSec Policy, Policy Sets, SXP, Integrations (highlighted with a green box), Troubleshoot, Reports, and Settings. The left sidebar shows a tree view with 'Meraki' expanded, containing Overview, Sync Status (highlighted with a green box), Connections, and Sync Selections. The main content area is titled 'Sync Status' and includes a 'Sync Interval: Every 12 Minutes' and 'Sync cycle running' status. It provides a summary of sync status for Egress Policies, ACLs, and SGTs, and a table of Egress Policies.

Sync Status

Sync Interval: **Every 12 Minutes** | Sync cycle running | [Sync Now](#) | [Pause Sync](#)

View sync status summary. Check remediations of failed for sync Egress Policies, ACLs and SGTs. Check each Cloud Connection status on [Connections](#).

ISE TO MERAKI SYNC

25/25	6/6	8/8
Egress Policies	ACLs	SGTs

ORGANIZATIONS

1	0	0
Fully Synced	Partially Synced	Failed to Sync

As of: Apr 21, 2023 4:00 PM UTC

Egress Policies | ACLs | SGTs

Egress Policies (25)

Source SGT	Destination SGT	SGACLs	EGRS Policy Description	Organizations	Status
Camera	TrustSec_Devices	Deny IP		1	● Fully Synced

ISE Meraki Connector

ISE 3.2p1+

- Up to 20 Meraki Organizations
- 40 Security Group Tags (SGTs)
- 625 (25^2) policies (src-dst map), 7 ACLs per policy
- 95 SGACLs with a maximum of 16 ACEs/rules per SGACL

The screenshot displays the Cisco Identity Services Engine (ISE) interface. The top navigation bar includes the Cisco logo, "Identity Services Engine", and "Work Centers / TrustSec". The main navigation menu on the left lists: Overview, Components, TrustSec Policy, Policy Sets, SXP, Integrations (selected), Troubleshoot, Reports, and Settings. The "Integrations" section is active, showing a sidebar with "ACI" and "Meraki" (expanded to show Overview, Sync Status, Connections, and Sync Selections). The main content area is titled "Egress Policies (64) | ACLs (4) | SGTs (8)". Under the "ACLs (4)" tab, there is a message: "Make ACL selections here. You will not be able to unselect SGACLs and SGTs that are linked to an Egress policy that was previously selected." Below this, it shows "4 Selected" and a table with columns: Name, Description, and IP Version. A green callout box on the right contains the following text:

Supported SGACL Rule Formats
Recommended Max Limits

The recommended maximum limits for TrustSec objects that Cisco ISE can share with Cisco Meraki dashboards:

- 625 policies, 7 ACLs per policy
- 95 ACLs, 16 rules per ACL
- 40 SGTs

Adaptive Policy Limits

REST: GET /organizations/{**organizationId**}/adaptivePolicy/overview

Python: dashboard.organizations.getOrganizationAdaptivePolicyOverview(org_id)

```
{  
  "counts": {  
    "groups": 8,  
    "customGroups": 6,  
    "customAcls": 6,  
    "policies": 25,  
    "allowPolicies": 1,  
    "denyPolicies": 19,  
    "policyObjects": 0  
  },  
  "limits": {  
    "groups": 100,  
    "rulesInAnAcl": 16,  
    "aclsInAPolicy": 7,  
    "policyObjects": 8000  
  }  
}
```

Meraki Supports A Limited SGACL Syntax

`{ Deny | Allow } { TCP | UDP | ICMP | Any } src-port dst-port`

where src-port and dst-port can be any of:

Port number in the range of 1–65535 ⚠️ **Named** ports are not allowed!

A comma-separated list of port numbers. Example: "80, 443, 1521"

A range of port numbers. Example: "33–44"

The constant value `any`

⚠️ For protocols 'ICMP' and 'Any', both the `src-port` and `dst-port` must be `any`.
You cannot specify a port, port list, or port range in these cases.



The ISE Meraki Connector will not sync incompatible SGACLs to Meraki!

Generate a Meraki Dashboard API Key

My Profile > API Access

Search Dashboard

Network Lab

Network-wide

Security & SD-WAN

Switching

Wireless

Systems Manager

Insight

Organization

API access

API keys

Key	Created at	Last used
*****14c2	May 20 2023 16:38 UTC	Jun 03 2023 05:36 UTC

Generate new API key

Color blind assist mode (OFF)

Enables an alternative color palette for various Dashboard elements.

Enable Red/Green assist mode

Sample of elements affected by color blind assist mode:

Device status icons: Active: Alerting: Unreachable: Dormant:

Map pins: Gateway Repeater Alerting Offline

Connectivity:

Connectivity icons:

Labels:

Dashboard language

BETA

demo@1homas.org

My profile

Sign out

CISCO Live!

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Global Overview

Organization
1thomas

Network
Lab

Network-wide

Switching

Wireless

Systems Manager

Insight

Organization


Switch Ports

for the last day

[Edit](#)
[Aggregate](#)
[Split](#)
[Mirror](#)
[Unmirror](#)
[Tags](#)

[help](#) 64 switch ports

Download As

<input type="checkbox"/>	Switch / Port	Name	Type	Access policy	VLAN	Received bytes	Sent bytes	Adaptive Policy Group	Tags	
<input type="checkbox"/>	lab-ms390-1 / 1 details		access	802.1X_Multi_Auth_Hybrid	10, voice 100	4.5 MB	5.7 MB	-	access	
<input type="checkbox"/>	lab-ms390-1 / 2 details		access	802.1X_Multi_Auth_Hybrid	10, voice 100	7.2 MB	36.3 MB	-	access	
<input type="checkbox"/>	lab-ms390-1 / 3 details		access	802.1X_Multi_Auth_Hybrid	10, voice 100	202.8 KB	995.7 KB	-	access	
<input type="checkbox"/>	lab-ms390-1 / 4 details		access	802.1X_Multi_Auth_Hybrid	10, voice 100	358.1 KB	1.6 MB	-	access	
<input type="checkbox"/>	lab-ms390-1 / 5 details		access	802.1X_Multi_Auth_Hybrid	10, voice 100	75.9 KB	250.2 KB	-	access	
<input type="checkbox"/>	lab-ms390-1 / 6 details		access	802.1X_Multi_Auth_Hybrid	10, voice 100	1.4 MB	2.8 MB	-	access	
<input type="checkbox"/>	lab-ms390-1 / 7 details		access	802.1X_Multi_Auth_Hybrid	10, voice 100	121.8 MB	1.8 MB	-	access	
<input type="checkbox"/>	lab-ms390-1 / 8 details		access	802.1X_Multi_Auth_Hybrid	10, voice 100	-	-	-	access	
<input type="checkbox"/>	lab-ms390-1 / 9 details		access	802.1X_Multi_Auth_Hybrid	10, voice 100	138.2 KB	489.6 KB	-	access	
<input type="checkbox"/>	lab-ms390-1 / 10 details		access	802.1X_Multi_Auth_Hybrid	10, voice 100	-	-	-	access	
<input type="checkbox"/>	lab-ms390-1 / 11 details		access	802.1X_Multi_Auth_Hybrid	10, voice 100	11.6 MB	60.7 MB	-	access	
<input type="checkbox"/>	lab-ms390-1 / 12 details		access	802.1X_Multi_Auth_Hybrid	10, voice 100	50.4 KB	71.5 KB	-	access	
<input type="checkbox"/>	lab-ms390-1 / 13 details		access	802.1X_Multi_Auth_Hybrid	10, voice 100	298.4 MB	34.2 MB	-	access	
<input type="checkbox"/>	lab-ms390-1 / 14 details		access	802.1X_Multi_Auth_Hybrid	10, voice 100	-	-	-	access	
<input type="checkbox"/>	lab-ms390-1 / 15 details		access	802.1X_Multi_Auth_Hybrid	10, voice 100	290.5 KB	5.4 MB	-	access	
<input type="checkbox"/>	lab-ms390-1 / 16 details		access	802.1X_Multi_Auth_Hybrid	10, voice 100	-	-	-	access	

Sync Limitations



Cardinality

- ISE TrustSec Matrix maps to Organizations, not individual Networks
- Synchronization is from 1 ISE deployment to 20 Meraki organizations
- All Meraki Organizations get the same default ISE TrustSec Matrix



One-Way

- Objects can only be synchronized from ISE → Meraki Dashboard
- ISE will override any existing objects in Meraki
- ISE will not *delete* Meraki Adaptive Policies - only *create* policies



Caveats

- Only supports the default ISE TrustSec Matrix, not multiple matrices
- Meraki supports only a limited SGACLs syntax
- No static IP to SGT mapping in Meraki
- No indication in Meraki Dashboard which policies originated from ISE



ISE only creates policies but doesn't delete them. If you revert to default, the policy is still on the Meraki Dashboard. You must explicitly select Permit or go to Dashboard and manually delete.

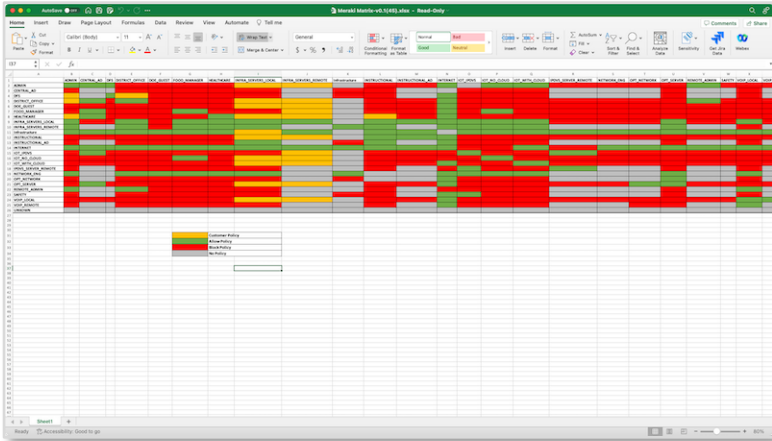
DNAC ↔ ISE ⇒ Meraki



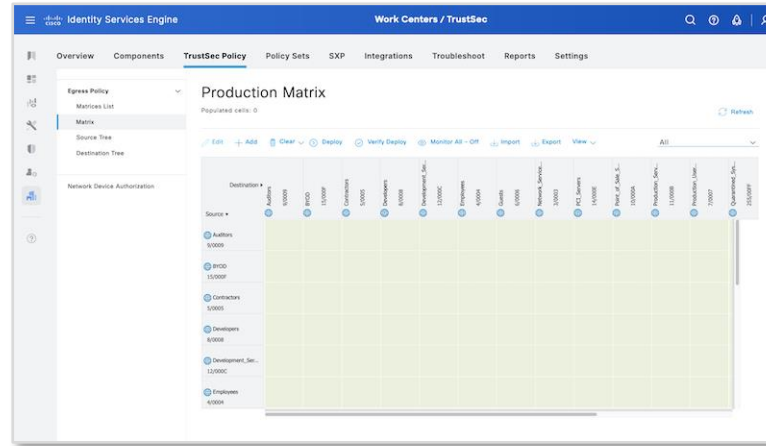
Getting Started with TrustSec & Adaptive Policy

Matrix Conversion

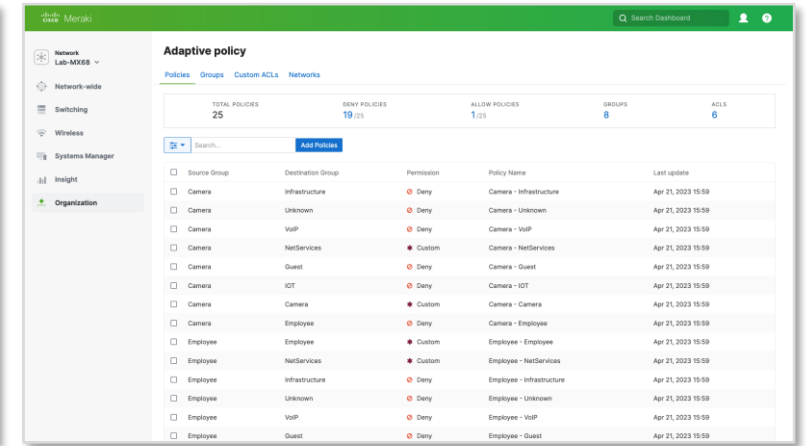
Excel



ISE



Meraki




excel_trustsec_matrix_to_ise.py

ISE Meraki Connector




meraki_trustsec_export.py (SGACL syntax)


github.com/1thomas/Cisco_ISE_Meraki_TrustSec_Scripts







Search or jump to...




[Pull requests](#) [Issues](#) [Codespaces](#) [Marketplace](#) [Explore](#)


 **1thomas** / **Cisco_ISE_Meraki_TrustSec_Scripts** Public










 Pin  Unwatch **2**  Fork **0**  Star **0**

[Code](#) [Issues](#) [Pull requests](#) [Actions](#) [Projects](#) [Wiki](#) [Security](#) [Insights](#) [Settings](#)

 main  1 branch  0 tags

[Go to file](#) [Add file](#) [Code](#)

 **1thomas** Added example images 9eeb56b 3 days ago 🕒 8 commits

 images	Initial Checkin	3 days ago
 .gitignore	Initial Checkin	3 days ago
 LICENSE.txt	Rename LICENSE to LICENSE.txt	3 days ago
 README.md	Added example images	3 days ago
 excel_trustsec_matrix_to_ise.py	Initial Checkin	3 days ago
 ise_api_enabled.py	Initial Checkin	3 days ago
 ise_trustsec_clear.py	Initial Checkin	3 days ago
 ise_trustsec_export.py	Initial Checkin	3 days ago
 ise_trustsec_matrix_default.xlsx	Initial Checkin	3 days ago

About

Scripts and CSV templates for converting Cisco Identity Services Engine (ISE) TrustSec components and matrix to Cisco Meraki Adaptive Policy.

api

cisco

rest

excel

matrix

spreadsheet

policy

authorization

adaptive

group

ise


enforcement


meraki


sgt


trustsec


sgacl


 Readme

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 Activity

 0 stars

 2 watching

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Cisco_ISE_Meraki_TrustSec_Scripts

Scripts and CSV templates for converting Cisco Identity Services Engine (ISE) TrustSec components and matrix to Cisco Meraki Adaptive Policy.

A1											
	A	B	C	D	E	F	G	H	I	J	K
	SGT	Value	Description	Camera	Employee	Guest	IOT	NetServices	TrustSec_Devices	Unknown	VOIP
1											
2	Camera	7		Video	Deny IP	Deny IP	Deny IP	Deny IP	Deny IP	Deny IP	Deny IP
3	Employee	4		Deny IP	BlockMalware	Deny IP	Deny IP	Permit IP	Deny IP	Deny IP	Deny IP
4	Guest	6		Deny IP	Deny IP	Deny IP	Deny IP	Permit IP	Deny IP	Deny IP	Deny IP
5	IOT	5		Deny IP	Deny IP	Deny IP	Permit IP	Permit IP	Deny IP	Deny IP	Deny IP
6	NetServices	3	TrustSec Devices Secu	Deny IP	Deny IP	Deny IP	Deny IP	Permit IP	Permit IP	Deny IP	Deny IP
7	TrustSec_Devices	2	TrustSec Devices Secu	Permit IP	Permit IP	Permit IP	Permit IP	Permit IP	Permit IP	Permit IP	Permit IP
8	Unknown	0	Unknown Security Gr	Deny IP	Deny IP	Deny IP	Deny IP	Permit IP	Deny IP	Deny IP	Deny IP
9	VOIP	8		Deny IP	Deny IP	Deny IP	Deny IP	Deny IP	Deny IP	Deny IP	VOIP

Identity Services Engine

Work Centers / TrustSec

Bookmarks

Dashboard

Context Visibility

Operations

Policy

Administration

Work Centers

Interactive Help

Overview

Components

TrustSec Policy

Policy Sets

SXP

Integrations

Troubleshoot

Reports

Settings

Egress Policy

Matrices List

Matrix

Source Tree

Destination Tree

Network Device Authorization

Production Matrix

Populated cells: 64

Refresh

Edit

Add

Clear

Deploy

Verify Deploy

Monitor All - Off

Import

Export

View

Destination

Source

	Camera 7/0007	Employee 4/0004	Guest 6/0006	IOT 5/0005	NetServices 3/0003	TrustSec_Devices... 2/0002	Unknown	VOIP 8/0008
Camera 7/0007	Video	Deny IP	Deny IP	Deny IP	Deny IP	Deny IP	Deny IP	Deny IP
Employee 4/0004	Deny IP	BlockMalware	Deny IP	Deny IP	Permit IP	Deny IP	Deny IP	Deny IP
Guest 6/0006	Deny IP	Deny IP	Deny IP	Deny IP	Permit IP	Deny IP	Deny IP	Deny IP
IOT 5/0005	Deny IP	Deny IP	Deny IP	Permit IP	Permit IP	Deny IP	Deny IP	Deny IP

No packages published
[Publish your first package](#)

Languages

Python 100.0%

Suggested Workflows

Based on your tech stack



Actions Importer

Set up

Automatically convert CI/CD files to YAML for GitHub Actions.



Python package

Configure

Create and test a Python package on multiple Python versions.



Pylint

Configure

Lint a Python application with pylint.

[More workflows](#)

[Dismiss suggestions](#)

Example TrustSec Spreadsheets

ise_trustsec_matrix_default															
Home Insert Draw Page Layout Formulas Data Review View Automate Tell me															
A1 x fx name															
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	name	description	generationId	aclcontent											
2	Deny IP	Deny IP SGACL		0 deny ip											
3	Deny_IP_Log	Deny IP with loggin		0 deny ip log											
4	Permit IP	Permit IP SGACL		0 permit ip											
5	Permit_IP_Log	Permit IP with logg		0 permit ip log											
6															
7															
8															
9															
10															
11															
12															

Example TrustSec Matrix Spreadsheets

ise_trustsec_matrix_thomas

AutoSave OFF

Home Insert Draw Page Layout Formulas Data Review View Automate Tell me

Comments Share

A1

SGT

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	SGT	Value	Description										
2	Cameras	7		Cameras	Employees	Guests	IOT	NetServices	TrustSec_Devices	Unknown	VOIP		
3	Employees	4		Video	Deny IP	Deny IP	Deny IP	Deny IP	Deny IP	Deny IP	Deny IP		
4	Guests	6		Deny IP	BlockMalware	Deny IP	Deny IP	Permit IP	Deny IP	Deny IP	Deny IP		
5	IOT	5		Deny IP	Deny IP	Deny IP	Permit IP	Permit IP	Deny IP	Deny IP	Deny IP		
6	NetServices	3	TrustSec Devices Secu	Permit IP	Permit IP	Permit IP	Permit IP	Permit IP	Permit IP	Permit IP	Permit IP		
7	TrustSec Devices Secu			Deny IP	Deny IP	Deny IP	Deny IP	Deny IP	Deny IP	Deny IP	Deny IP		
8	Unknown												
9	VOIP												

ise_trustsec_matrix_thomas

AutoSave OFF

Home Insert Draw Page Layout Formulas Data Review View Automate Tell me

Comments Share

A2

BlockMalware

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	name	description	generationId	ipVersion	accontent												
2	BlockMalware			0 IPV4	deny icmp deny tcp dst eq 22 deny udp dst eq 53 deny udp dst eq 67 deny udp dst eq 68 deny udp dst eq 69 deny tcp dst eq 135 deny tcp dst eq 137 deny tcp dst eq 138 deny tcp dst eq 139 deny tcp dst eq 445 deny tcp dst eq 689 deny udp dst eq 1025 deny udp dst eq 1026 deny tcp dst eq 3389 permit ip												
3	Deny IP	Deny IP SGACL		0	deny ip												
4	Deny_IP_Log	Deny IP with logging		0	deny ip log												
5	NetServices			0 IPV4	deny icmp												

Matrix

SGACLs

SGTs

+

Ready Accessibility: Good to go

BRKSEC-2100

132

124%

```
~/hack/Projects/Cisco_ISE_Meraki_TrustSec_Scripts git:(main)
```

```
python -m ensurepip --upgrade
```

```
pip3 install --upgrade pipenv      # use pipenv for a virtual development environment
```

```
pipenv install --python 3.11       # use Python 3.9 or later
```

```
pipenv install -r requirements.txt # install required Python packages (`pip freeze > requirements.txt`)
```

```
pipenv shell
```

```
(Cisco_ISE_Meraki_TrustSec_Scripts) ✓ Cisco_ISE_Meraki_TrustSec_Scripts >
```

```
(Cisco_ISE_Meraki_TrustSec_Scripts) ✓ Cisco_ISE_Meraki_TrustSec_Scripts > █
```

What's coming

Adaptive Policy Matrix and Policy Visualization

Coming Soon

Finally.



Organization-Wide
Multi-network
filtering
Device-level filtering

- Policy Management
- Activity Indicators
- Policy Visualization
- Historical Hit Counters
- Historical ACL Logging
- Policy change filtering for validation pre<>post change

Security Center

Overview Events Integrations **Adaptive Policy**

Total Policies: 124 Allow Policies: 31 Deny Policies: 56 Custom Policies: 37

Policies Groups Custom ACLs Networks

Search: Last day Networks Devices 124 policies

	Unknown	Unknown	IOT-Device	GeneralData	Infrastructure	IOT-Device	IOT-Device	GeneralData	Infrastructure
Unknown	✓	✓	✓	✓	✓	✗	✗	✓	✓
Unknown	✓	✓	✓	ⓘ	✓	✓	✗	✓	✓
IOT-Device	✓	✓	✓	✓	✓	ⓘ	✓	✗	✗
GeneralData	✓	✗	✓	✓	✓	✓	✓	✓	✓
Infrastructure	✓	✓	✓	✓	✓	✗	✓	ⓘ	✓
IOT-Device	✓	✓	✓	✗	✓	✓	✓	✓	✓
IOT-Device	✓	✓	✓	✓	✓	ⓘ	✓	✗	✓
GeneralData	✓	✗	✓	✓	✓	✓	✓	✓	✓
Infrastructure	✓	✓	✓	✗	✓	ⓘ	✓	✓	✓

IOT_Device_adaptive_Wifi_Test

Policy

Policy description: Allow internal network communication between trusted subnets.

Source: IOT-Device

Destination: IOT-Device

Custom ACLs: Permit_DNS, Permit_MQTT

Policy Hit counters

Last day Select a policy change event

231 Packets allowed 241 Packets denied

100
50
0

17:11 21:11 01:11 05:11 09:11 13:11 17:11

Permit Denied When policy changed

Event logs

Search 24 matching results

Time (PCT)	Source	Destination	Action	Hits	Details
Jul 19 19:32:52	192.168.0.12	192.168.0.10	✗ Deny	14	View more
Jul 19 15:15:50	10.92.128.144	10.92.152.244	✓ Allow	10	View more
Jul 19 15:15:50	10.92.152.244	10.92.179.69	✓ Allow	8	View more
Jul 18 13:24:41	10.92.179.69	10.92.129.30	✗ Deny	6	View more
Jul 19 15:15:50	10.241.67.101	10.92.129.209	✗ Deny	3	View more

Last login: about 2 hours ago from your current IP address

Current session started: about 2 hours ago

Cancel Save

Static Per-Network VLAN to SGT (MS/CS)

Coming Soon

Not final design

VLAN profiles

i You are modifying the default profile.

Edit profile

Profile name
Default

Iname
Default

VLAN name + Add Named VLAN

#	VLAN name	VLAN ID	AdP Group	Actions
1	WORKSTATION	101	4: Emj	
2	VOICE	102	12: VC	
3	IOTDEVICES	103	10: IO	

Save profile changes Cancel

Group name + Add VLAN group

#	Group name	VLAN list	Actions
1	WORKSTATIONS	400-401	
2	Guest	150-155	
3	EmployeeWireless	110-120	

Using Network VLAN Profiles

- Map an SGT to a VLAN
- Support for multiple profiles

Used as a fallback when static IP to SGT or more specific match is found

Adaptive Policy Assignment through Meraki Group Policy

SGT assignment through Dashboard's group policy constructs

Applicable to:

MR
MX**

MS uses RADIUS/Port/IP/VLAN

Example Uses:

- iPSK w/o RADIUS psk-based SGT
- Single RADIUS attribute for group policy assignment + SGT
- AnyConnect VPN SGT assignment
- Static API/Dashboard assignment

** subject to change based on release timelines for MX/Z

Group Policy

Group policies > WPN_Group_1

Name: WPN_Group_1

Schedule: Scheduling disabled

Bandwidth: Use network default unlimited

Hostname visibility: Use network default

Adaptive Policy Group: Select Adaptive Policy Group

Firewall and traffic shaping: Use network firewall & shaping rules

Layer 3 firewall

#	Policy	Protocol	Destination	Port	Comment
	Allow	Any	Any	Any	Default rule

[Add a firewall rule](#)

Layer 7 firewall

There are no rules defined for this group.

[Add a layer 7 firewall rule](#)

Dashboard

Policy: Forget status: online 15 clients in 30

Apply policy to 1 selected client

☐ Normal
☐ Allow list (no bandwidth limits or splash page)
☐ Block list (no access allowed)
☒ Group policy

Employee

Guest

Voice

Contractor

HR

New group

Production net-VL120

QUARANTINE

Usage	Client type, OS
1.9 MB	Cisco wireless access po
6.5 MB	Debian-based Linux
66.8 MB	Other
130.1 MB	Other
298.2 MB	Other
262.5 MB	Other
67.8 MB	Other
323.9 MB	Other
5.8 MB	Other
15.1 MB	Other
377.0 MB	Other
1.3 MB	Other
36.1 MB	Other
4.4 MB	Other
987.4 MB	Other

iPSK

Add Identity PSK

Note: You may not edit or view passphrase after Identity PSK has been created

Name: Guest

Passphrase:

Group Policy: Guests

Cancel Add

AnyConnect**

Dynamic Client Routing: Disable Dynamic Split Tunneling

☐ Send all traffic except traffic going to these hostnames
☐ Only send traffic going to these destinations

Session Timeout: None

Default Group Policy: Guests

Resources



Keep it short, find it fast



cs.co/ise-guides

ISE Configuration & Integrations from A to Z

Resources

- cs.co/ise-resources
- cs.co/ise-community
- cs.co/ise-compatibility
- cs.co/nad-capabilities
- documentation.meraki.com
- community.meraki.com
- developer.cisco.com/meraki/
- github.com/1thomas/ISE_with_Meraki_in_AWS
- github.com/1thomas/Cisco_ISE_Meraki_TrustSec_Scripts

Meraki Adaptive Policy

- [Meraki Adaptive Policy Overview](#)
- [Cross-Product Adaptive Policy Configuration Guide](#)
- [Adaptive Policy MS Configuration Guide](#)
- [Adaptive Policy MR Configuration Guide](#)
- [Adaptive Policy MX Configuration Guide](#)

Trustec / Segmentation / Group-Based Policy

- [Cisco Segmentation Strategy Guide](#)
- [Group-Based SGT Troubleshooting Guide on Communities](#)
- [Group-Based SGT YouTube Channel](#)
- [Group-Based Policy Community Resources](#)

- ▷ [Enhanced ISE + Duo Integration for MFA](#) 2024-01-09
- ▷ [Threat-Centric NAC with ISE](#)
- ▷ [Upgrading ISE in the Cloud with Automation](#) 2023-11-07
- ▷ [ISE Live Q&A](#) 2023-10-05
- ▷ [Device Administration with ISE](#) 2023-10-03
- ▷ [Rapid Threat Containment with ISE and FMC](#) 2023-09-07
- ▷ [Getting Started with ISE Profiling](#) 2023-09-05
- ▷ [ISE Eternal Evaluation for Your Lab](#) 2023-08-03
- ▷ [Cisco SD-Access with ISE](#) 2023-08-01
- ▷ [MAC Authentication Bypass \(MAB\) with ISE](#) 2023-07-20
- ▷ [Cisco ISE New Split Upgrades](#) 2023-07-06
- ▷ [Cloud Load Balancing with ISE](#) 2023-06-15
- ▷ [What's New in ISE 3.3](#) 2023-06-01
- ▷ [RADIUS Simulation with ISE](#) 2023-05-04
- ▷ [ISE pxGrid Direct with CMDBs](#) 2023-05-02
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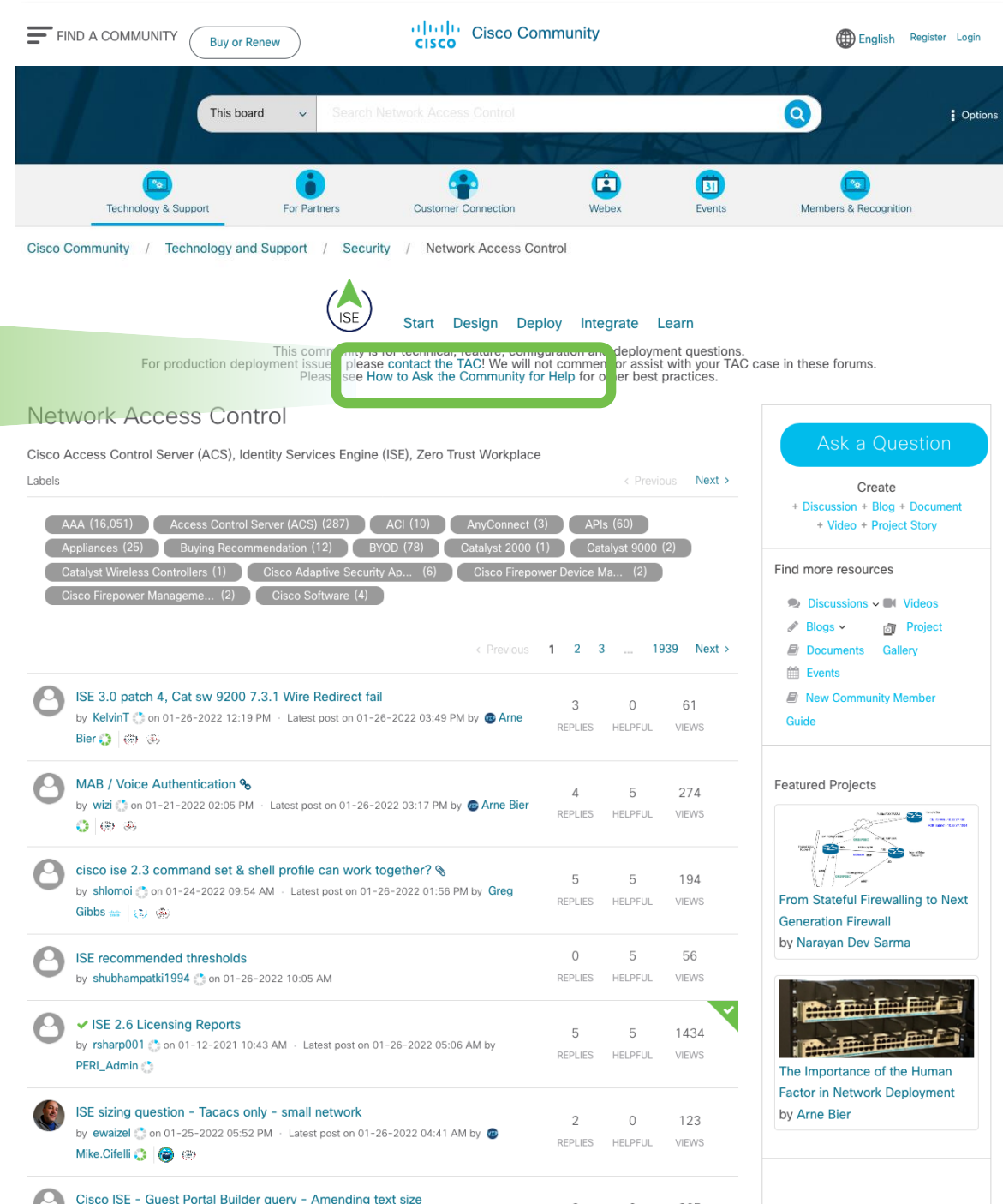


Ask The Community

 cs.co/ise-community

How to Ask the Community for Help

- The Community is Not TAC
- No Comment on Roadmaps or Fixes
- New Features and Feedback
- Provide Details
 - Goal/Scenario?
 - NAD Hardware & Software?
 - Endpoint OS(es)?
 - Browser(s)?
- Reproducibility (expected vs actual)
- Pictures and Video!



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This community is for technical, feature, configuration and deployment questions. For production deployment issues, please contact the TAC! We will not comment or assist with your TAC case in these forums. Please see How to Ask the Community for Help for our best practices.

Network Access Control

Cisco Access Control Server (ACS), Identity Services Engine (ISE), Zero Trust Workplace

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