

Catalyst SD-WAN: Start here

CISCO Live !

Lars Granberg – Technical Marketing Engineering Technical Leader
@larslijja

Cisco Webex App

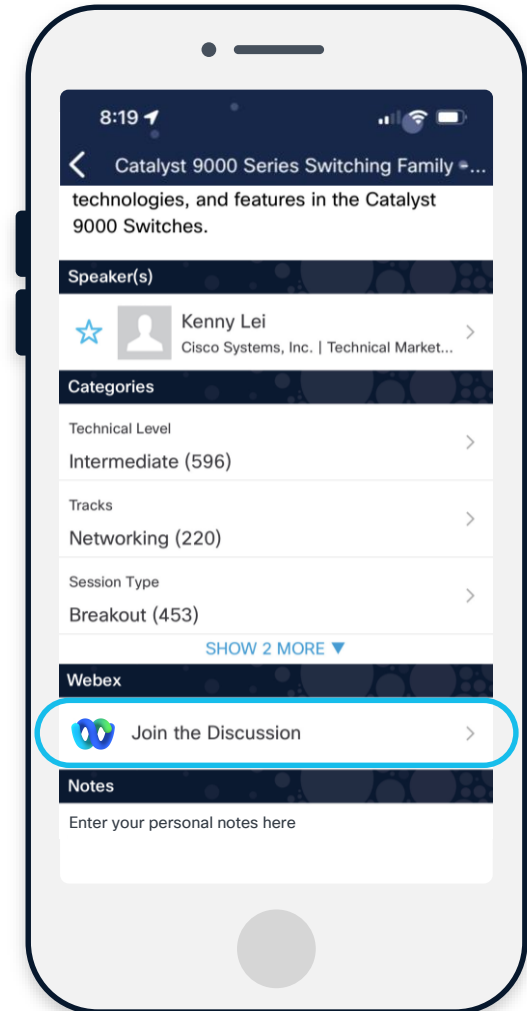
Questions?

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

How

- 1 Find this session in the Cisco Live 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 June 13, 2025.



<https://ciscolive.ciscoevents.com/ciscolivebot/#BRKENT-2108>

Agenda

- 1 **Why SD-WAN**
- 2 **Where are we coming from**
- 3 **Solution Architecture**
- 4 **Software Features**
- 5 **Learn More**

About me



Copenhagen, Denmark

Technical Marketing Engineer Technical leader
SD-WAN And Routing Business Unit

Previous roles in Cisco

Systems Architect

Technical Solutions Architect

Systems Engineer

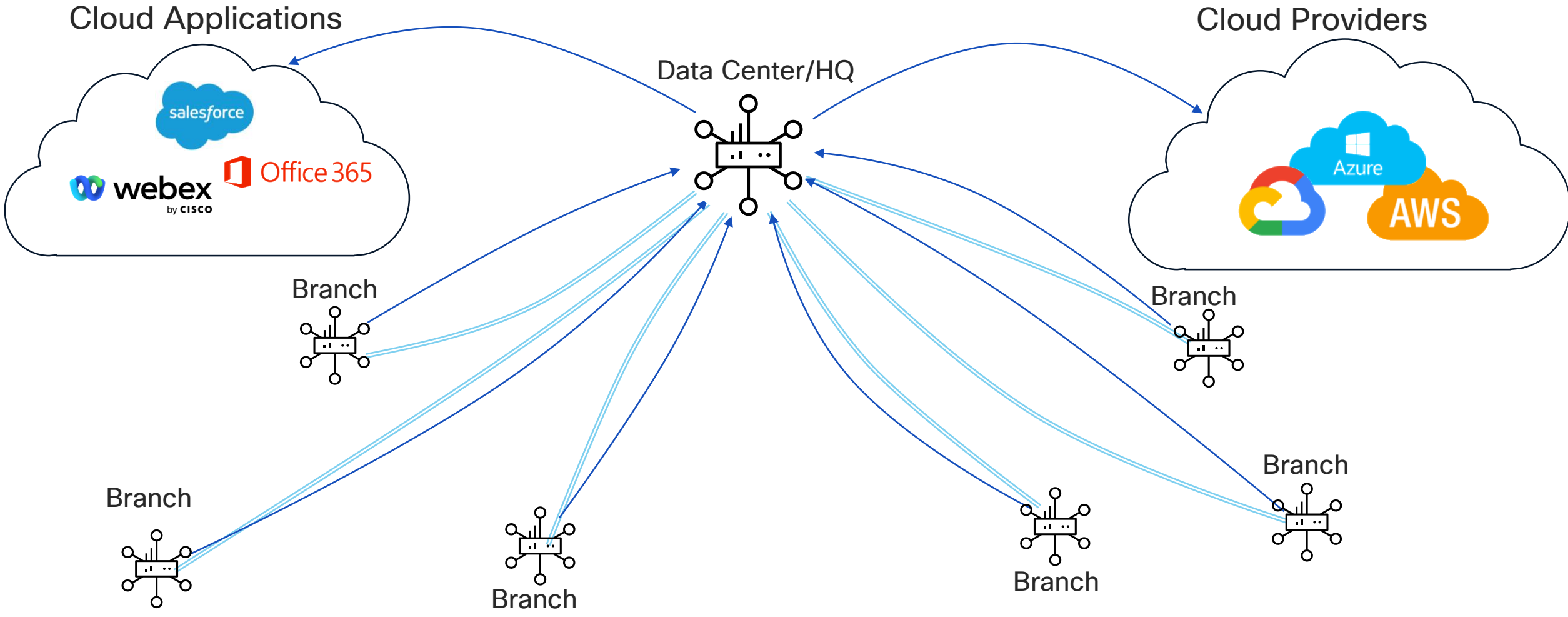
Cisco since 2014
IT and networking since 2003

SD-WAN - This is it.

Why SD-WAN?

The classical Hardware Based WANs

Doesn't Keep up with the Needs of Today



Cisco SD-WAN: Software Approach



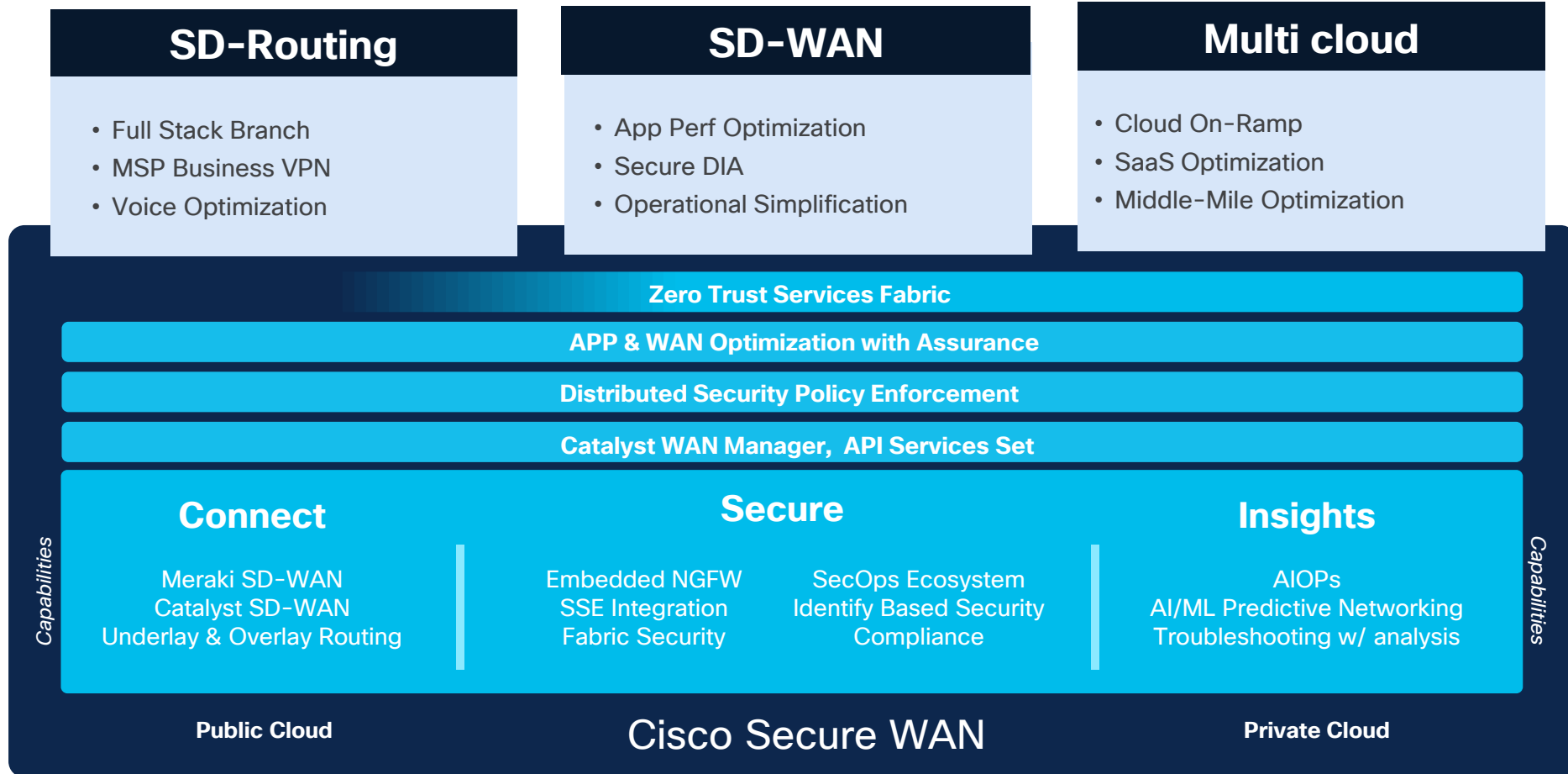
Learn more attend
BRKXAR-2027

Cloud Applications

Cloud Providers



Cisco Secure WAN

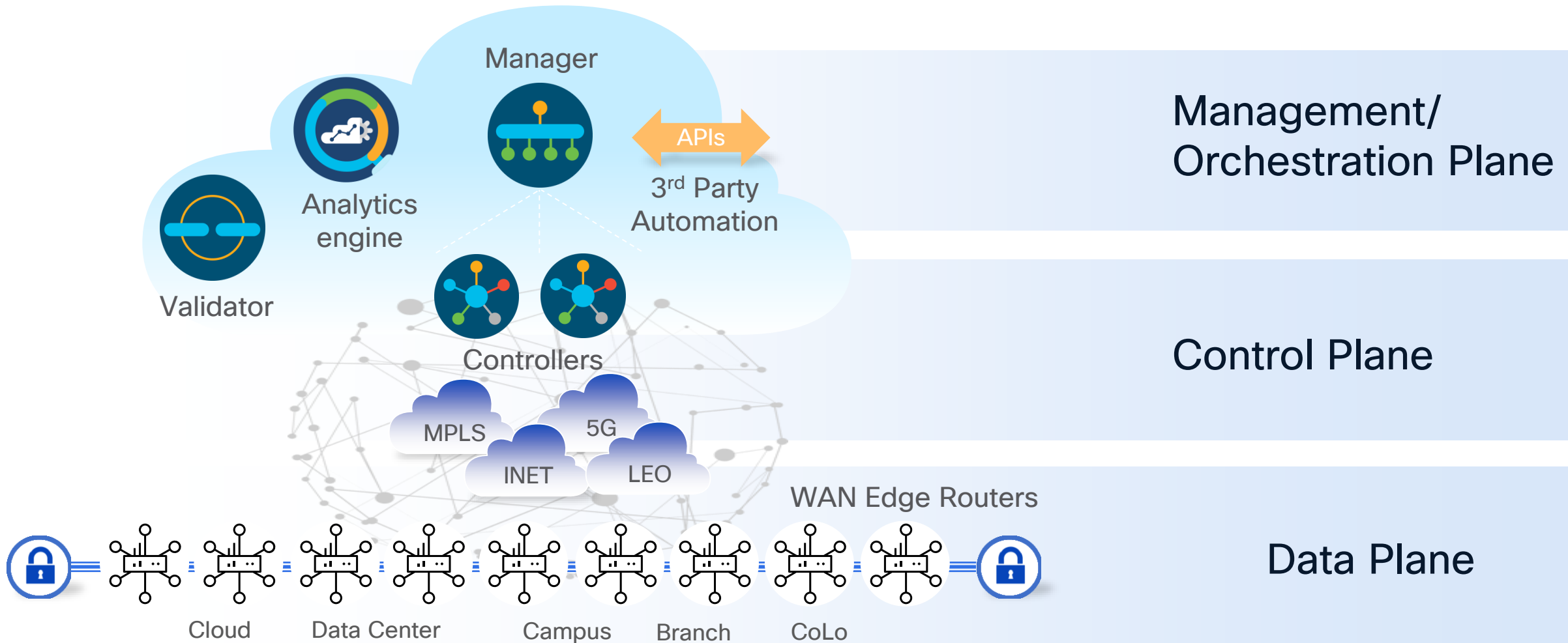


Common use-cases for SD-WAN

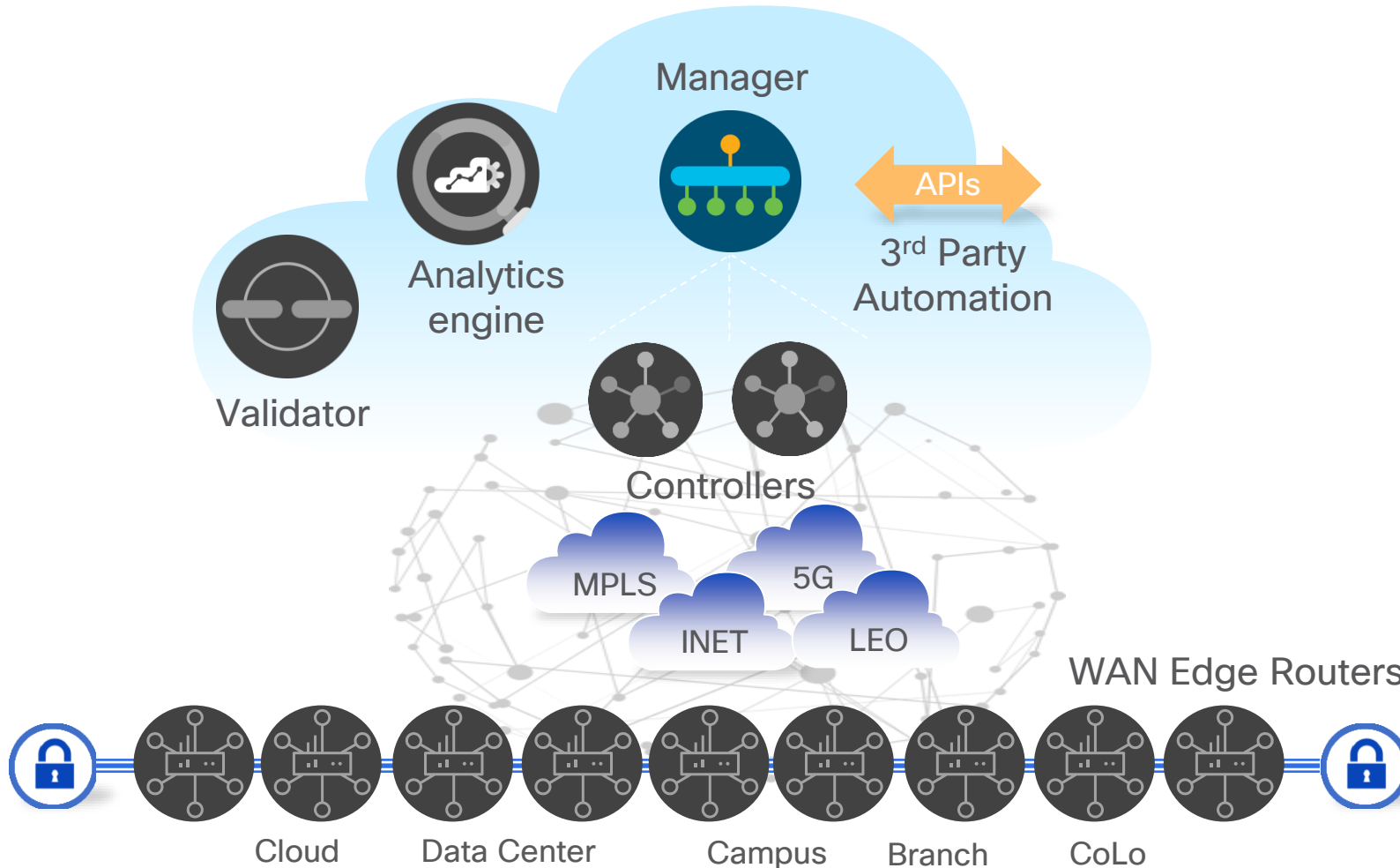
- **Secure Branch connectivity**
 - Automated, Easy, fast, visible and simplified.
- **Multi-Cloud Connectivity**
 - Expand the network to any cloud provider.
- **Use any type of transport**
 - Fiber, Cable, Satellite, Leo, LTE, 5G or DSL
- **Secure and flexible**
 - Direct Internet access, security features, SSE and scalable deployments.
- **Feature rich**
 - Voice, L2VPN, WAN Optimization and much more.

Solution Architecture

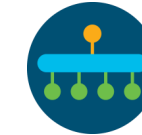
Cisco Catalyst SD-WAN Solution Overview



Cisco Catalyst SD-WAN Solution Elements



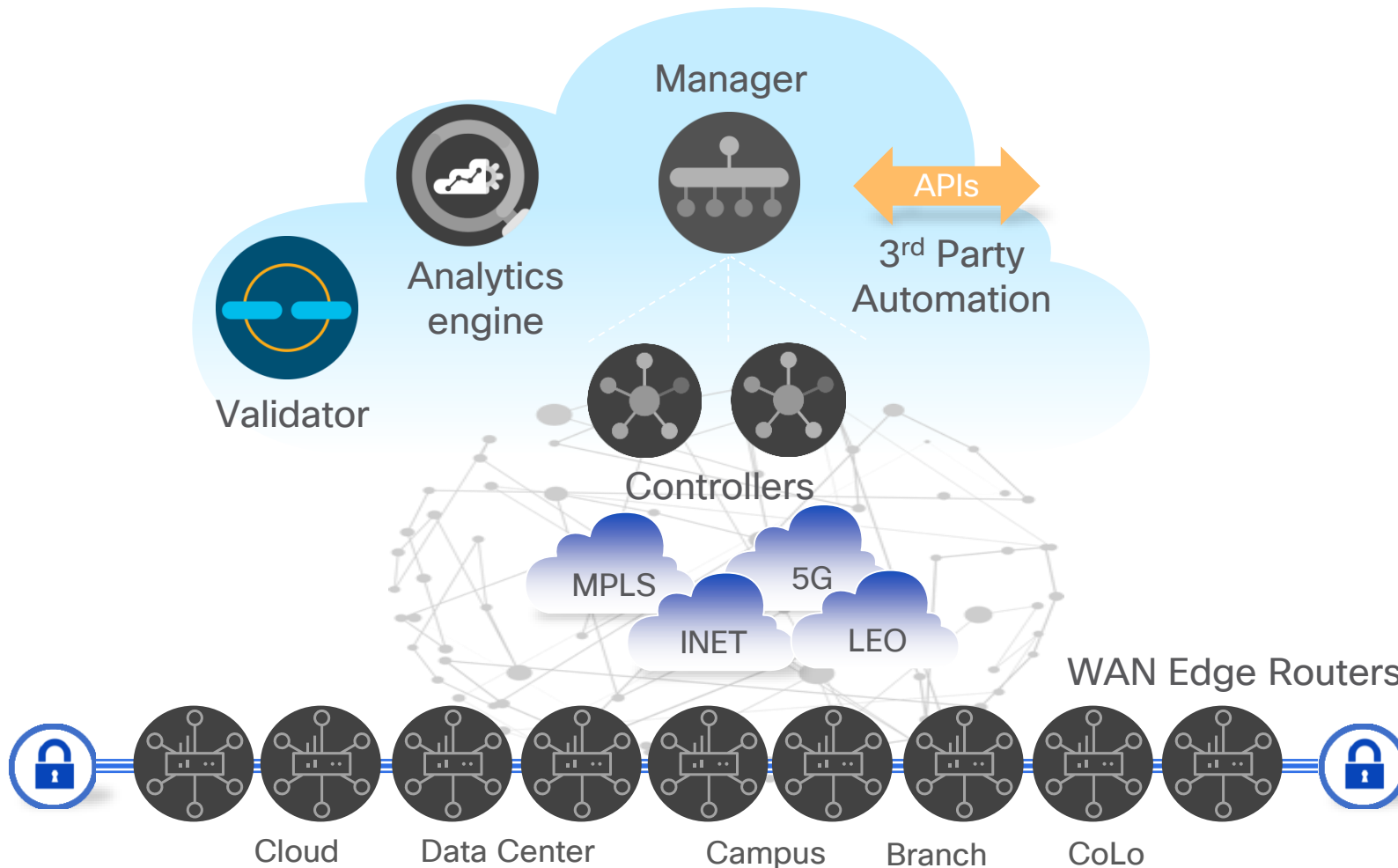
Management Plane



Cisco Catalyst SD-wan Manager

- Single pane of glass for Day0, Day1 and Day2 operations
- Multitenant with web scale
- Centralized provisioning
- Policies and Templates
- Troubleshooting and Monitoring
- Software upgrades
- GUI with RBAC
- Programmatic interfaces (REST, NETCONF)
- Highly resilient

Cisco Catalyst SD-WAN Solution Elements



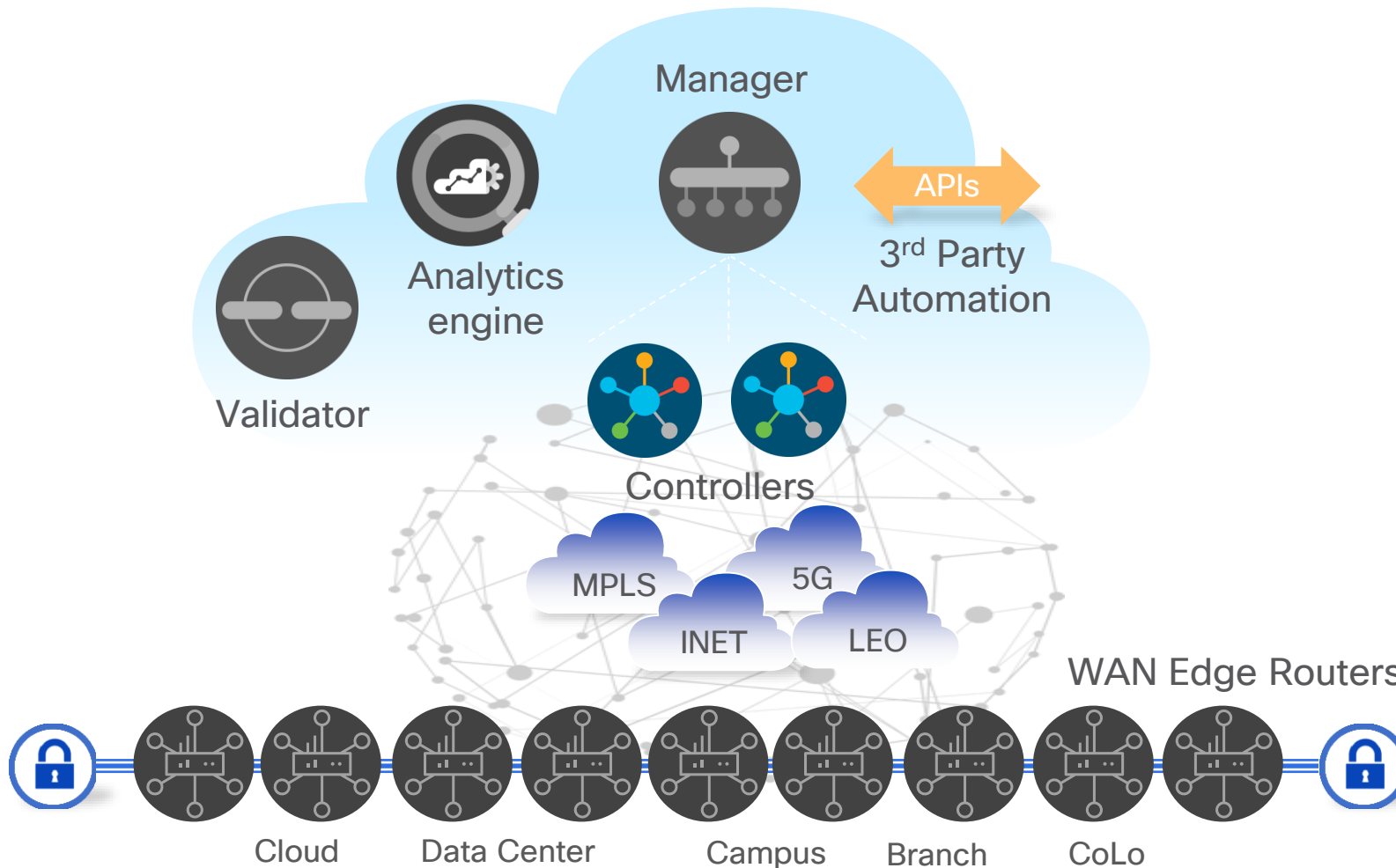
Orchestration Plane



Cisco Catalyst SD-WAN Validator

- Orchestrates control and management plane
- First point of authentication (white-list model)
- Distributes list of Controllers/ Manager to all WAN Edge routers
- Facilitates NAT traversal
- Requires public IP Address [could sit behind 1:1 NAT]
- Highly resilient

Cisco Catalyst SD-WAN Solution Elements



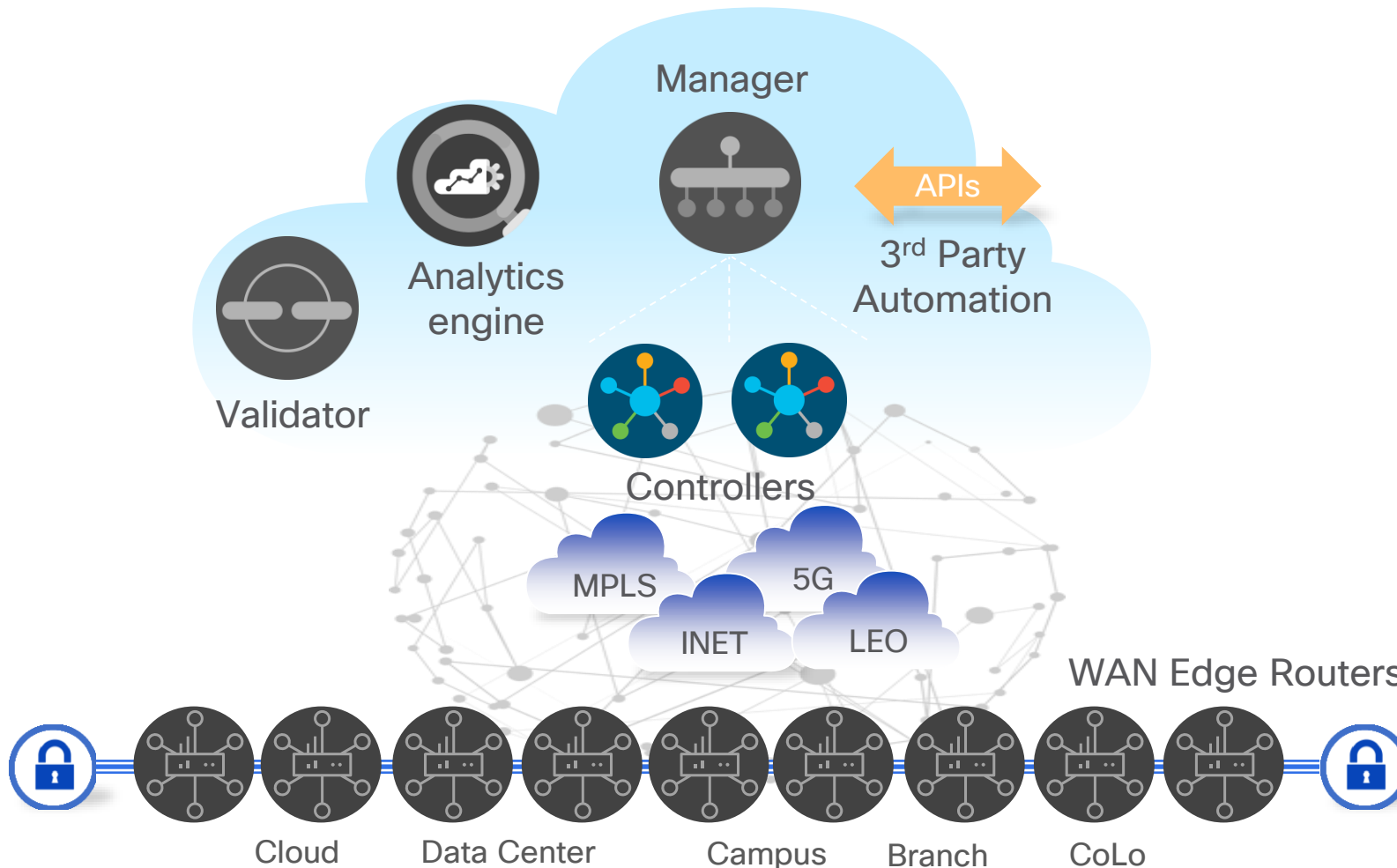
Control Plane



Cisco Catalyst SD-WAN Controller

- Facilitates fabric discovery
- Dissimilates control plane information between WAN Edge Routers
- Distributes data plane and app-aware routing policies to the WAN Edge routers
- Implements control plane policies, such as service chaining, multi-topology and multi-hop
- Dramatically reduces control plane complexity
- Highly resilient

Cisco Catalyst SD-WAN Solution Elements



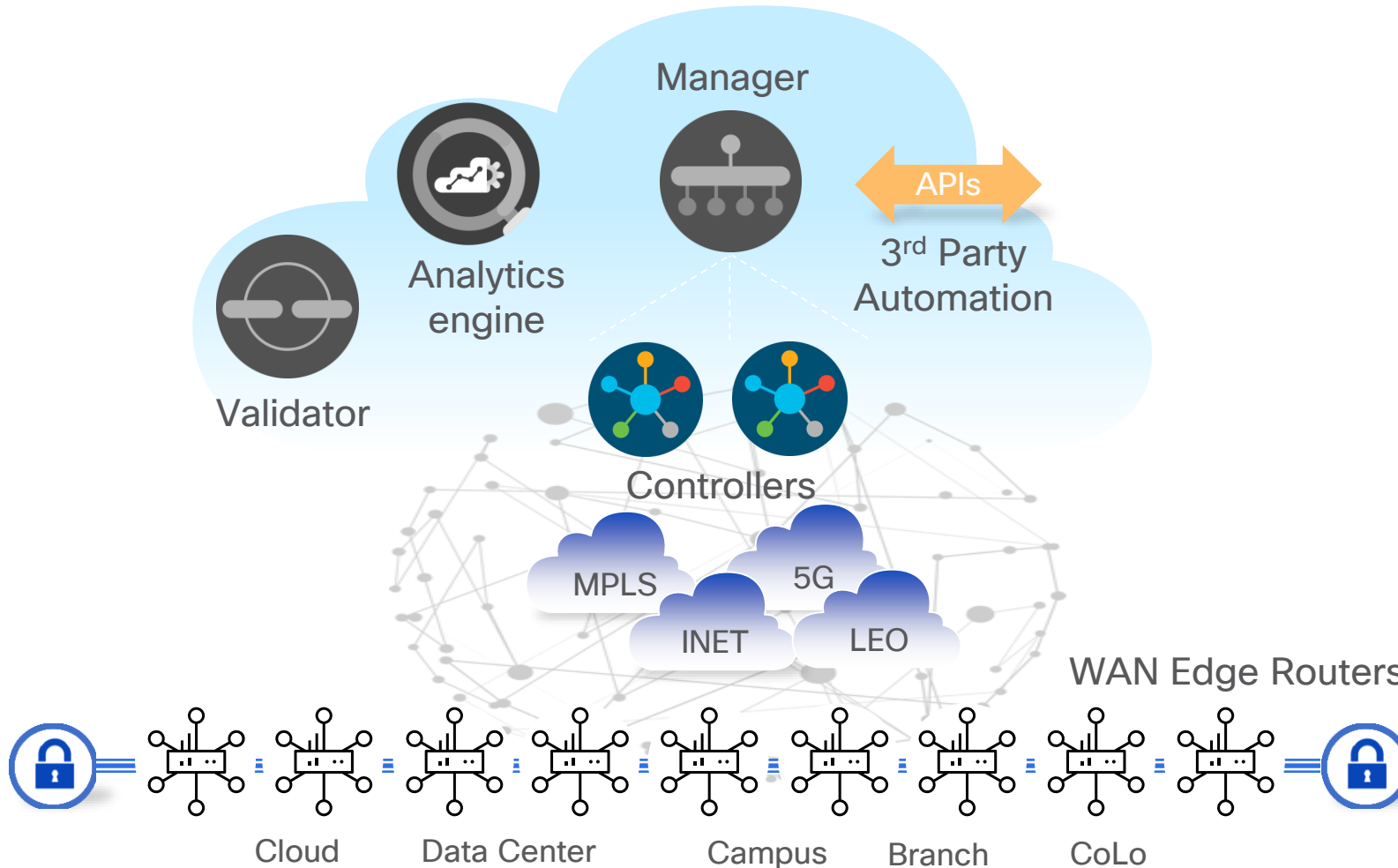
Control Plane



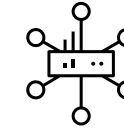
Cisco Catalyst SD-WAN Controller

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Cisco Catalyst SD-WAN Solution Elements



Data Plane



Cisco SD-WAN WAN Edge

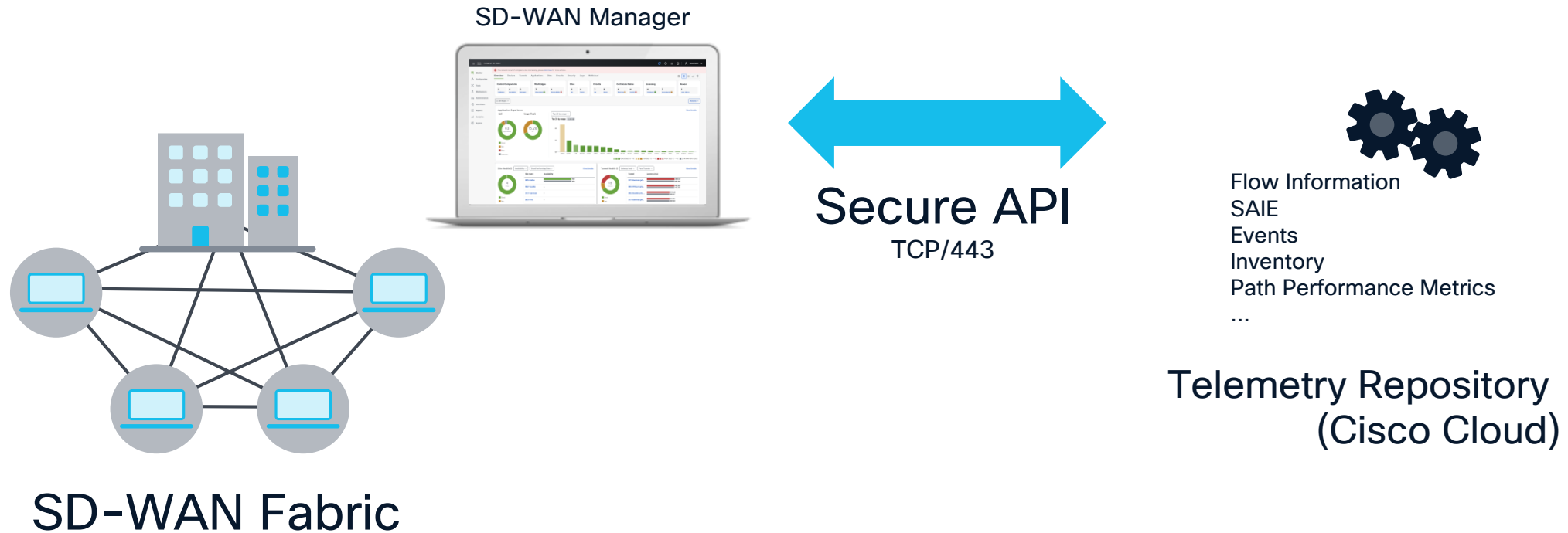
- WAN edge router
- Provides secure data plane with remote WAN Edge routers
- Establishes secure control plane with vSmart controllers (OMP)
- Implements data plane and application aware routing policies
- Exports performance statistics
- Leverages traditional routing protocols like OSPF, BGP, and EIGRP
- Support Zero Touch Deployment
- Physical or Virtual form factor (100Mb, 1Gb, 10Gb, 40Gb, 100Gb)

Catalyst SD-WAN Analytics



Learn more attend
BRKENT-2351

From 20.15/17.15 – SD-WAN Manager & Analytics are converged*



Cloud tethered SD-WAN Manager (On-Prem or Cloud Hosted)

*Air Gap SD-WAN Manager supports monitoring capabilities local to SD-WAN Manager

Cisco Catalyst SD-WAN Fabric Deployment Models

Reduce operational burden of customers

Customer/MSP Hosted

Customer Private Cloud
& Public Cloud

MSP Private Cloud &
Public Cloud

Cisco Hosted (AWS & Azure)

Standard Environment
(Shared and Dedicated)

Certified Environment
(PCI, SOC2, ISO, C5, etc.)

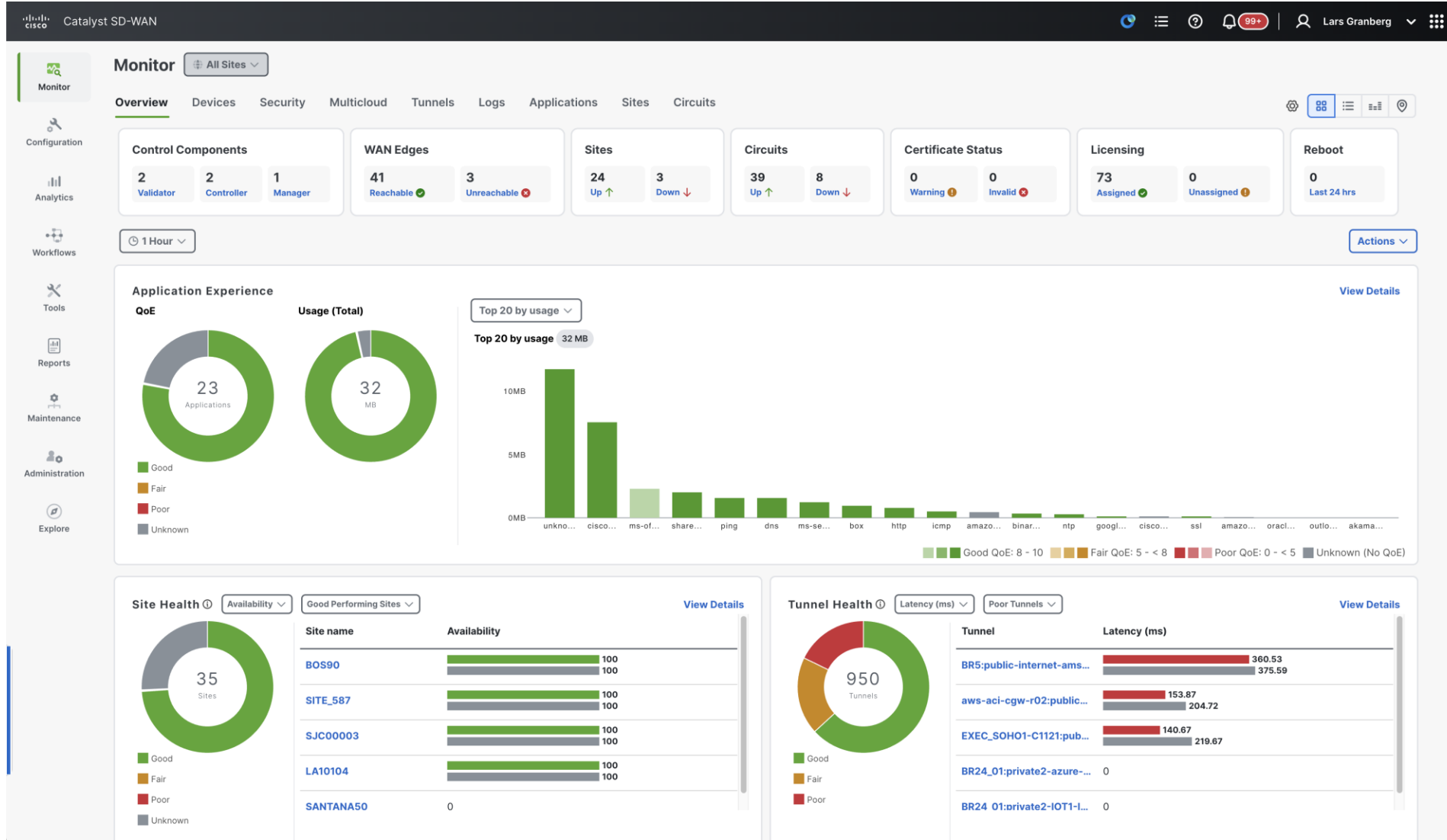
Gov. Cloud
(FedRAMP)

Cloud-delivered

- Life Cycle Management of SD-WAN Fabric
- Agile and scalable service access
- Operational simplicity
- Rich analytics providing actionable insights

Flexible deployment models aligned to your business needs

SD-WAN Manager UI



Demo



Catalyst SD-WAN

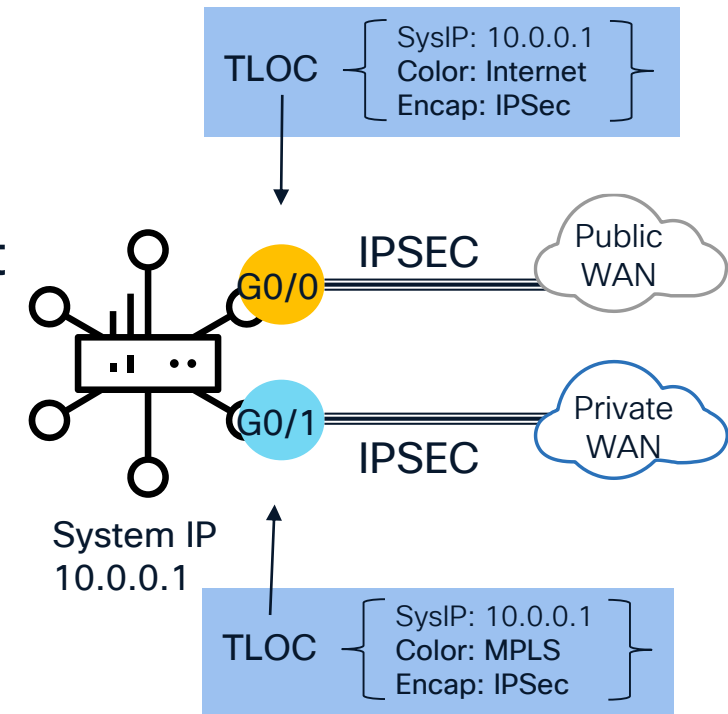
Username

Continue

SD-WAN Features

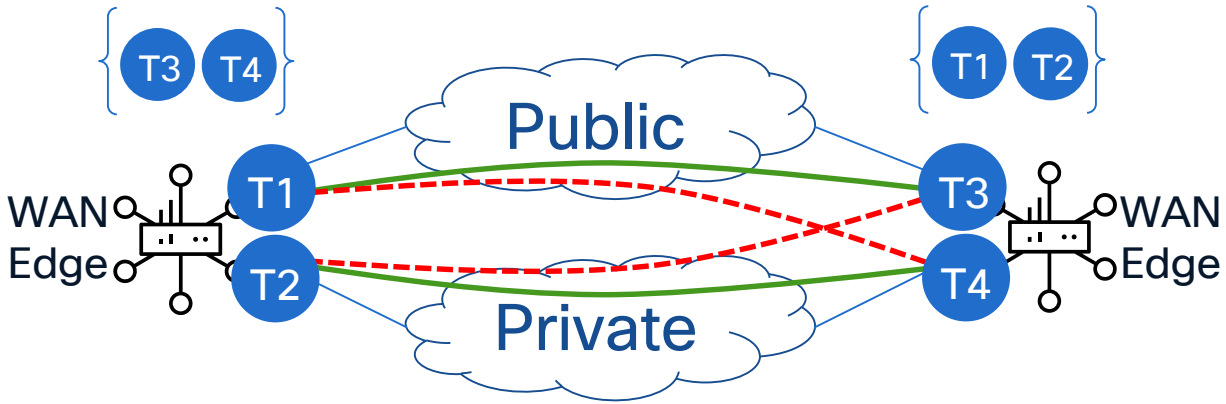
Significance of TLOC Color

- Color is an abstraction used to identify individual WAN transport
- Colors are KEYWORDS not just LABELS
- Policy is written based on these
- TLOC maps to a physical WAN interfaces
- “Color” dictates the use of private-ip vs public-ip (dest) for Tunnel Establishment when there is NAT present
- Example:
 - If two ends have a **private** color: private IP address/port used for DTLS/TLS or IPSec
 - If endpoint has **public** color: Public IP is used for DTLS/TLS or IPSec

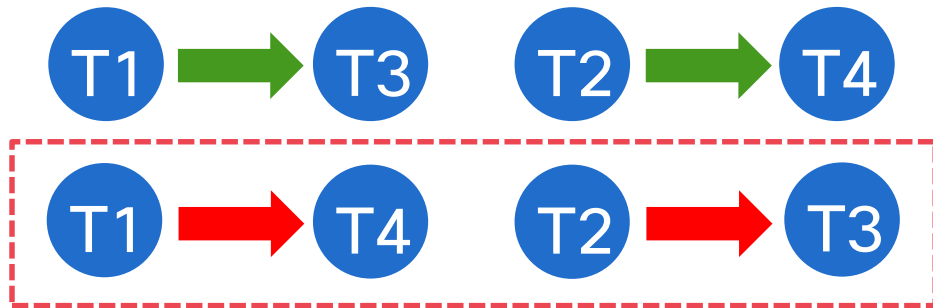


Private Colors	Public Colors
Metro-ethernet	3g
mpls	lte
private1	biz-internet
private2	public-internet
private3	blue
private4	green
private5	red
private6	gold
	silver
	bronze

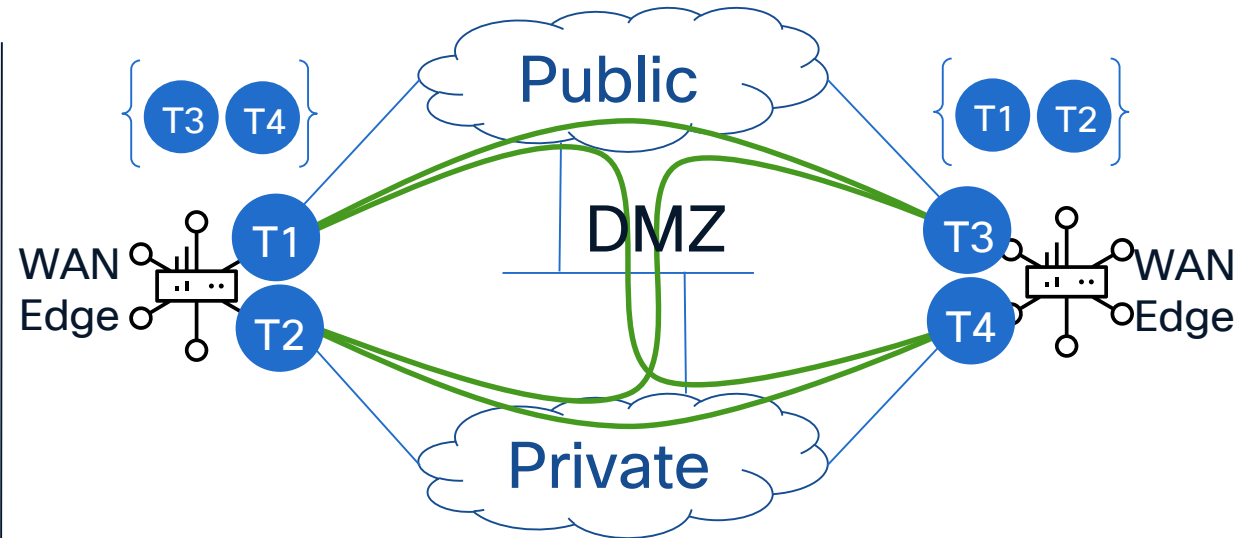
Transport Colors



T1, T3 - Public Color T2, T4 - Private Color



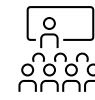
Color restrict will prevent attempt to establish IPsec tunnel to TLOCs with different color



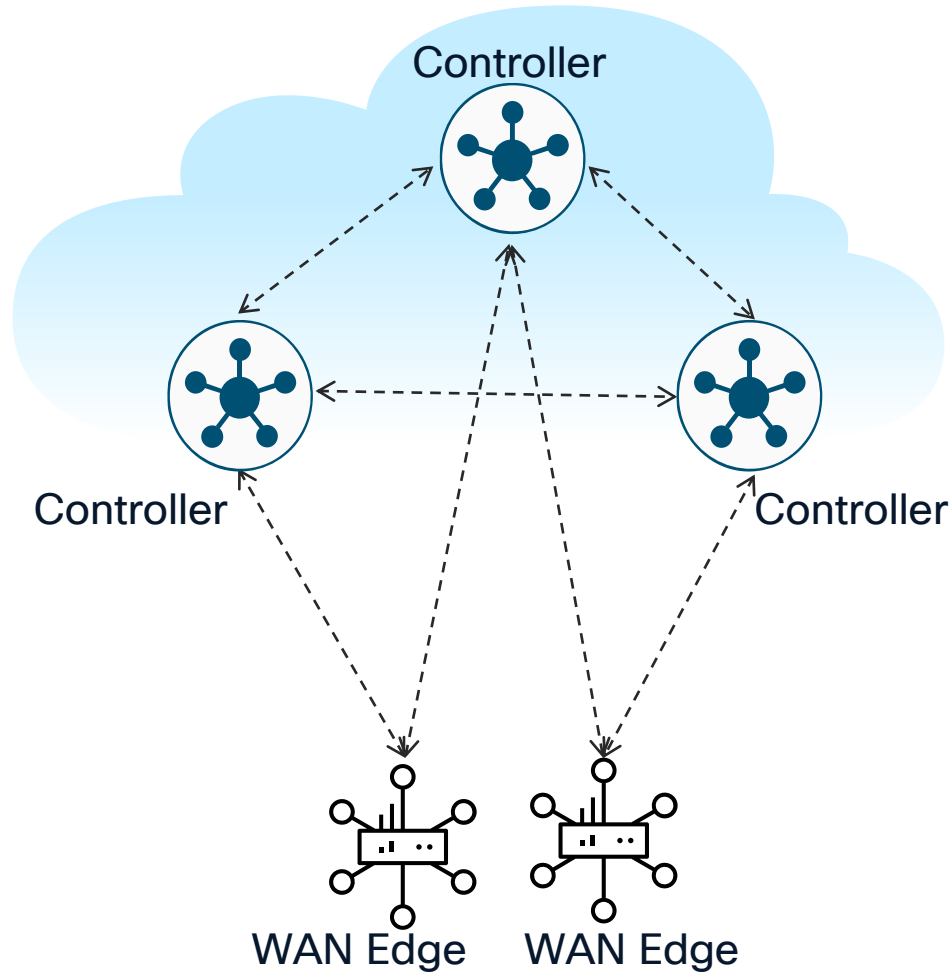
T1, T3 - Public Color T2, T4 - Private Color



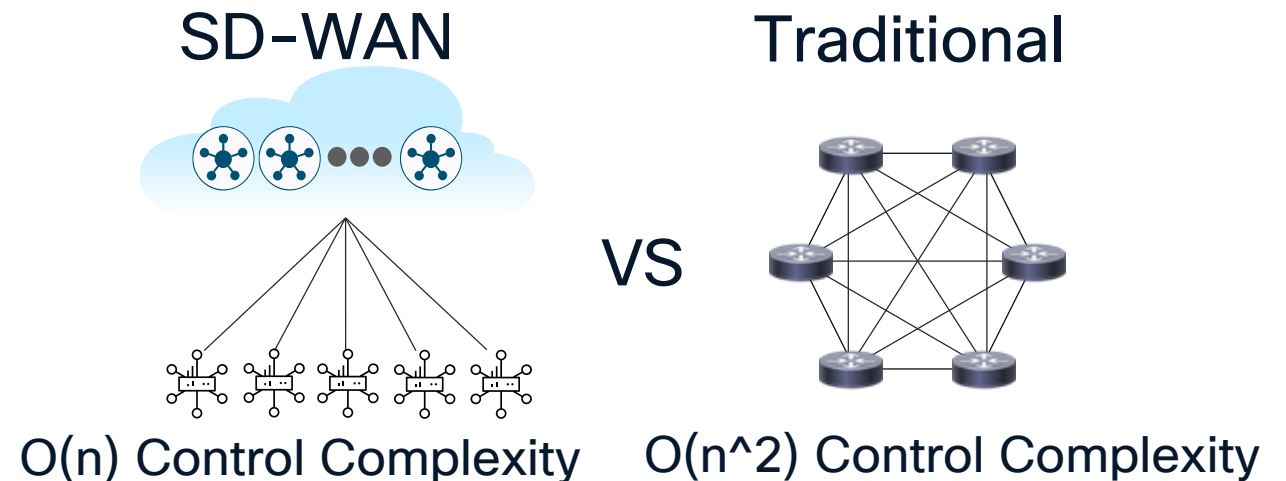
Overlay Management Protocol (OMP)



Learn more watch
BRKENT-3115

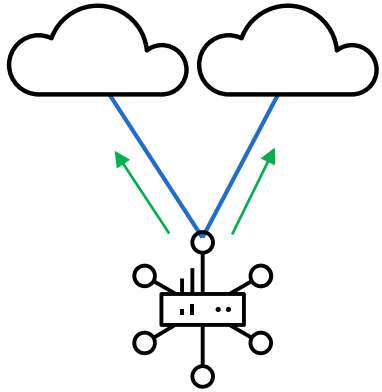


- Overlay Management Protocol (OMP)
- TCP-based extensible control plane protocol
- Runs between WAN Edge routers and vSmart controllers and between the vSmart controllers
 - Inside authenticated TLS/DTLS connections
- Advertises control plane context and policies
- Dramatically lowers control plane complexity and raises overall solution scale

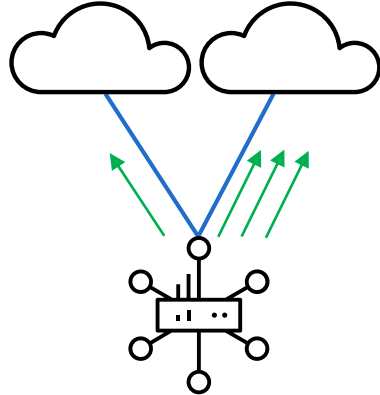


Fabric Communication

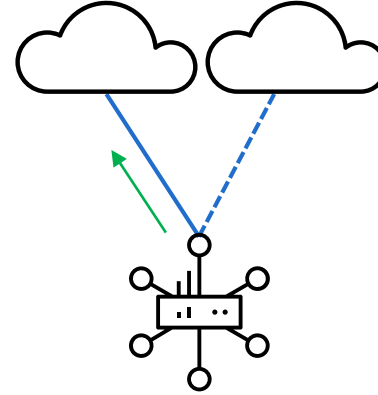
Per-Session Load-sharing
Active/Active



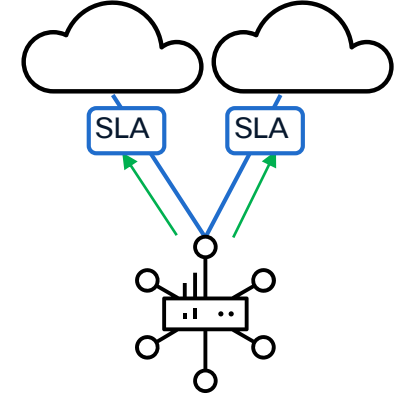
Per-Session Weighted
Active/Active



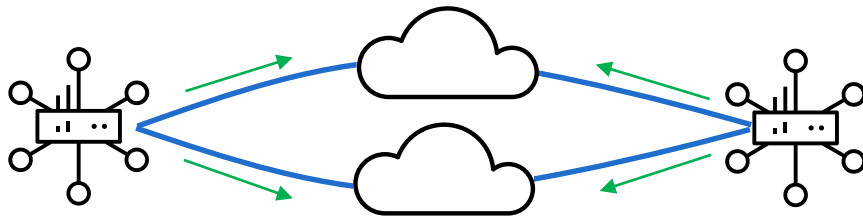
Application Pinning
Active/Standby



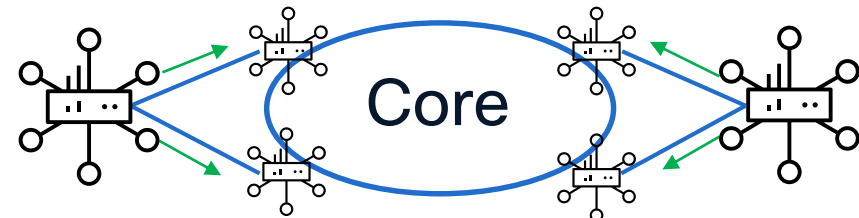
Application Aware Routing
SLA Compliant



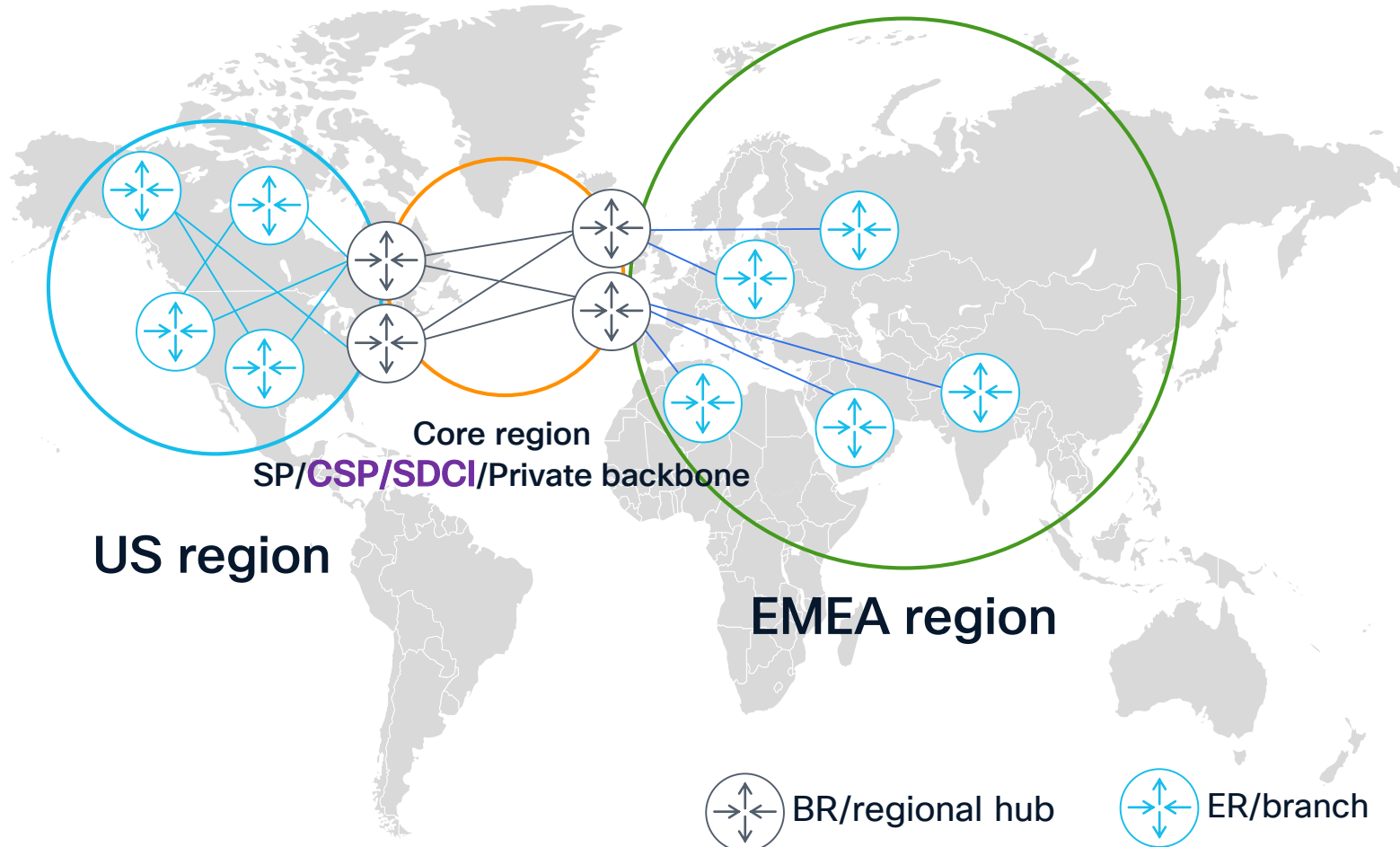
Single-hop Fabric



Multi-Region Fabric



What is Multi Region Fabric (MRF)?



- Intuitive user-defined site grouping. E.g. based on geo
- Finer grouping using sub-regions
- Auto restrict overlay tunnels between regions
- Different topologies per region
- Mix access transports across regions
- Scale up control-plane per region(s)

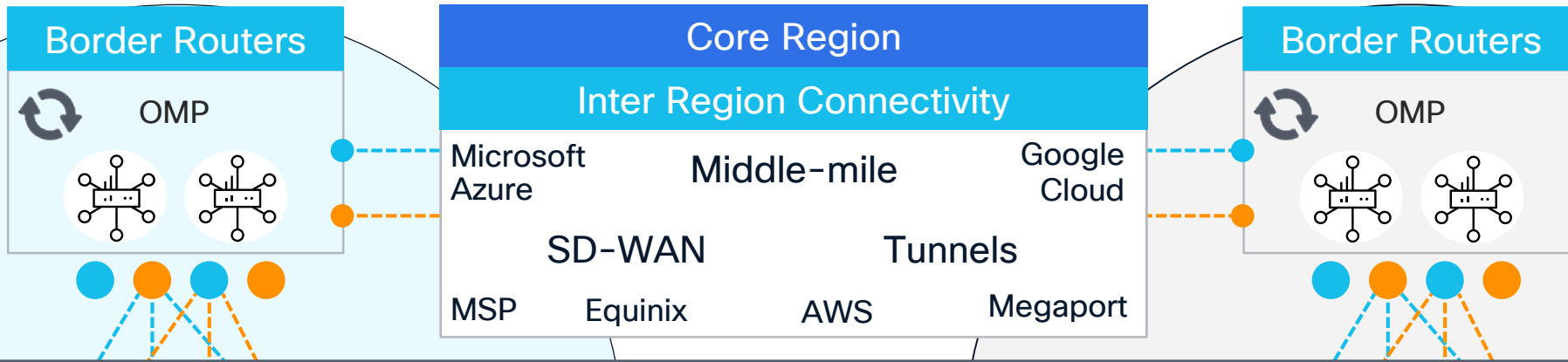
CSP = Cloud Service Provider (AWS, Azure, GCP)
SDCI = Software Defined Cloud Interconnect

The Network, with Multi-Region Fabric

Legend

SD-WAN Tunnels/TLOCs

- Blue dashed line with blue dot
- Orange dashed line with orange dot



Learn more attend

Implementing and Troubleshooting

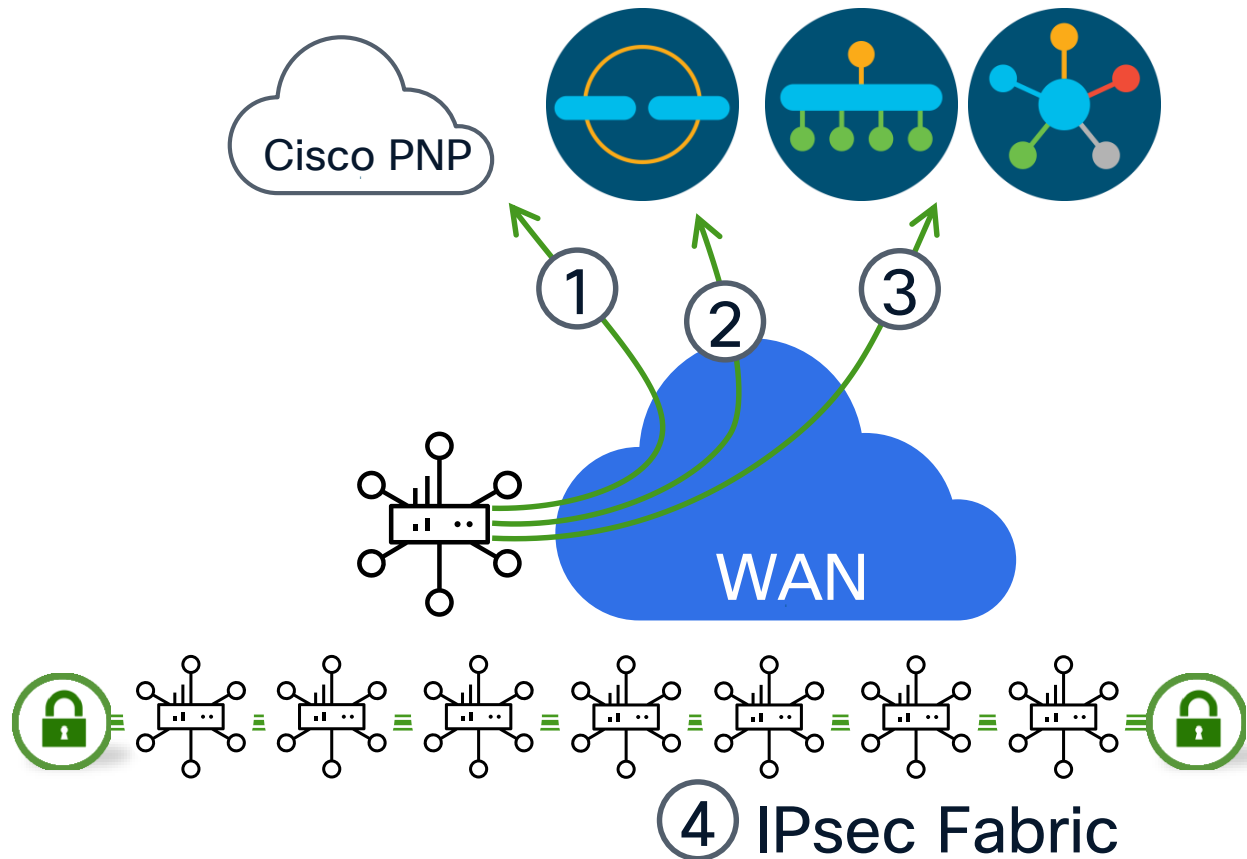
Cisco Catalyst SD-WAN Multi-Region Fabric (MRF) Network – watch BRKENT-2609





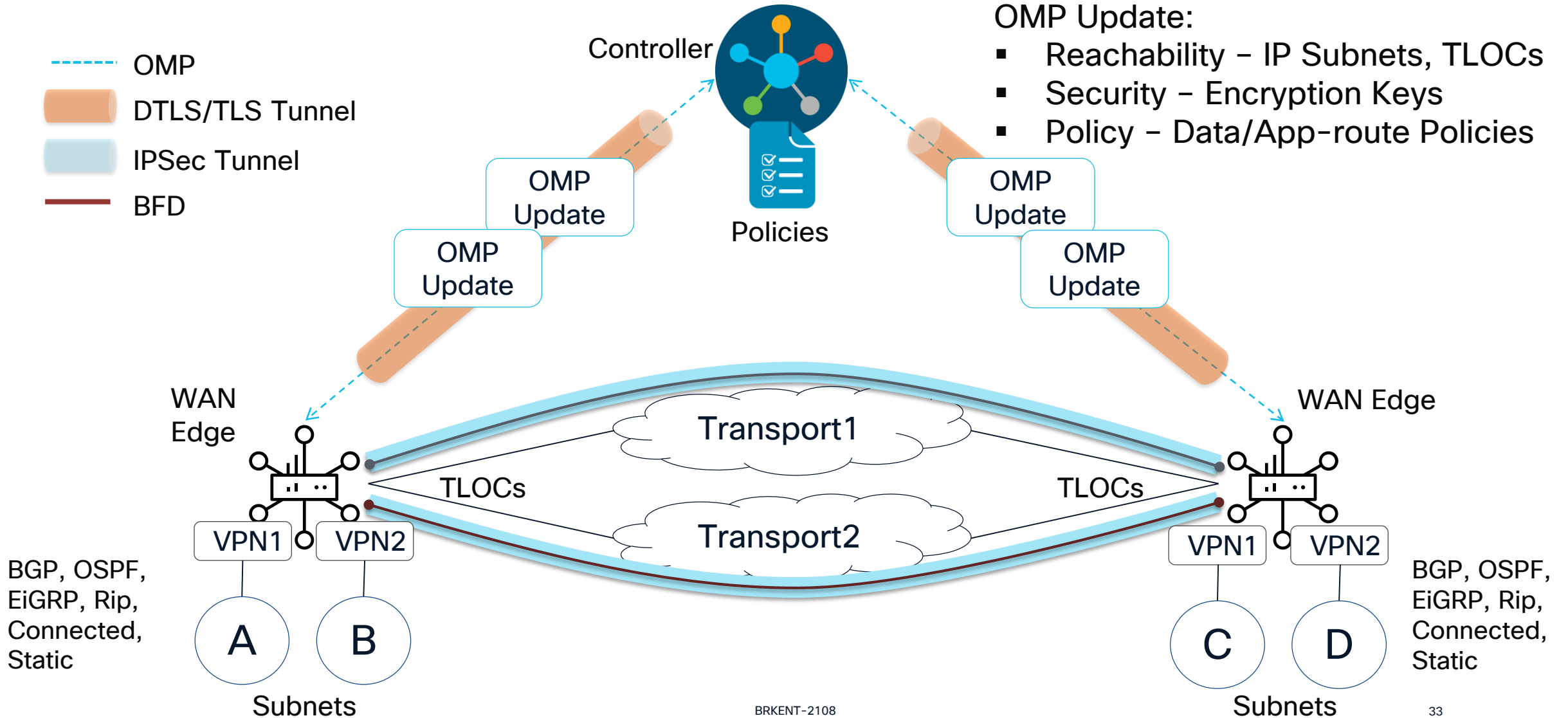
Lets bring it up

Automated, Zero-Touch Onboarding

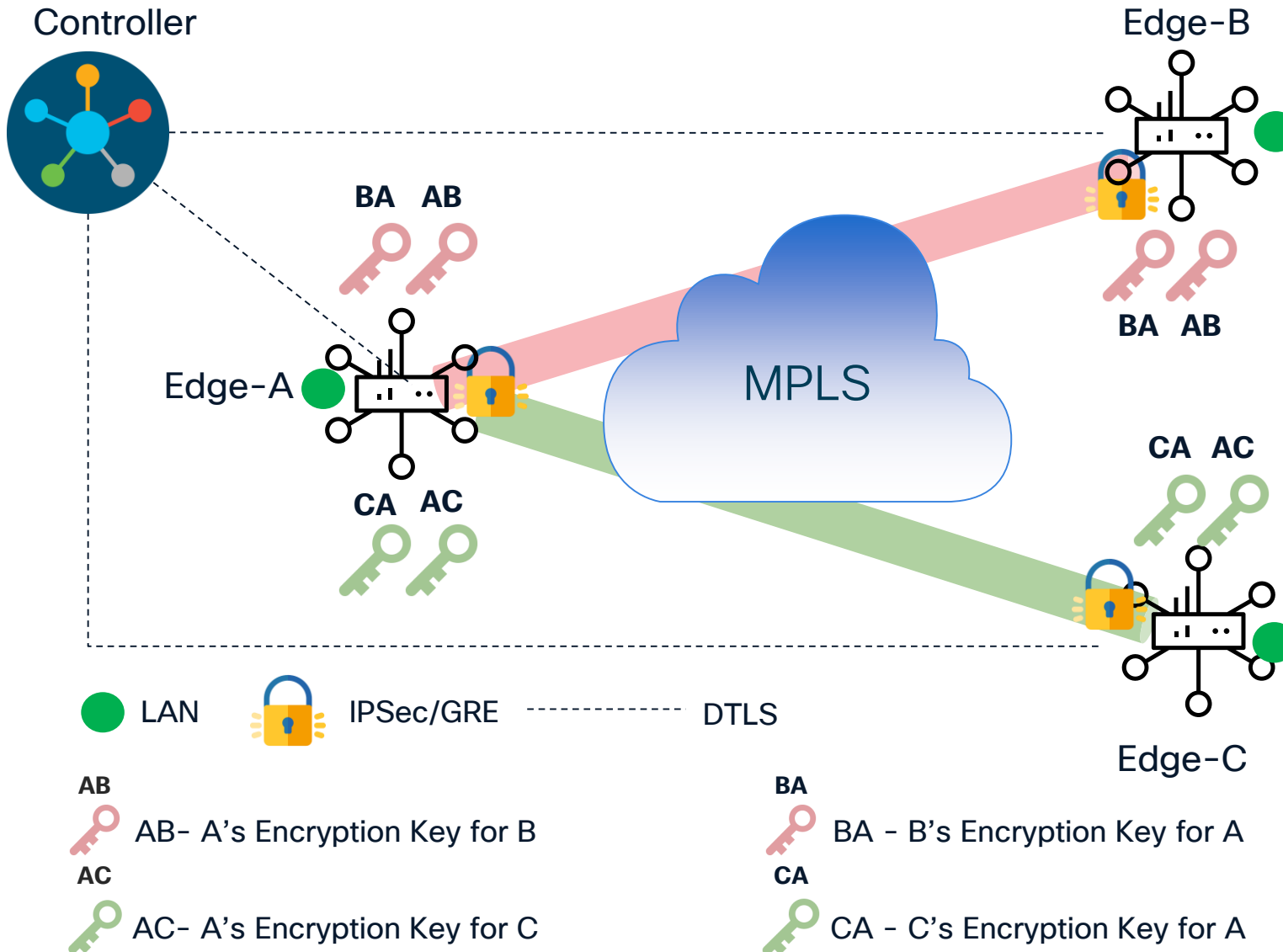


- SD-WAN appliance will onboard itself into the SD-WAN fabric automatically with no administrative intervention.
- Connect the SD-WAN appliance to a WAN transport that can provide a dynamic IP address, default-gateway and DNS information.
- If no DHCP service is available then bootstrap file is an option either on USB or Bootflash

Fabric Operation Walk-Through



Data Plane Privacy (Pairwise)

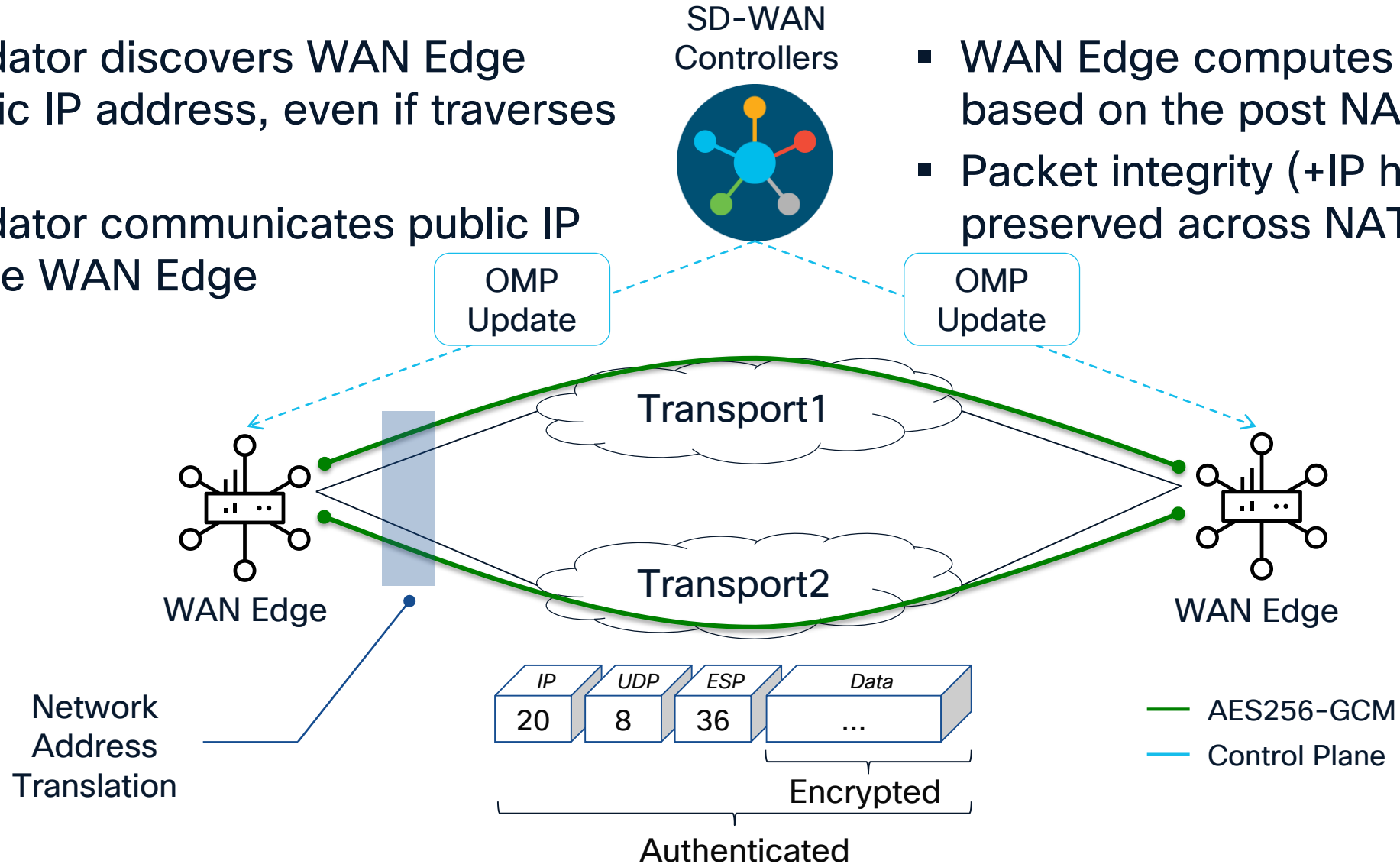


- Each WAN edge will create separate session key for each transport and for each peer
- Session keys will be advertised through vSmart using OMP
- When Edge-A needs to send traffic to Edge-B, it will use session key "AB" (B will use key "BA")

Data Plane Integrity

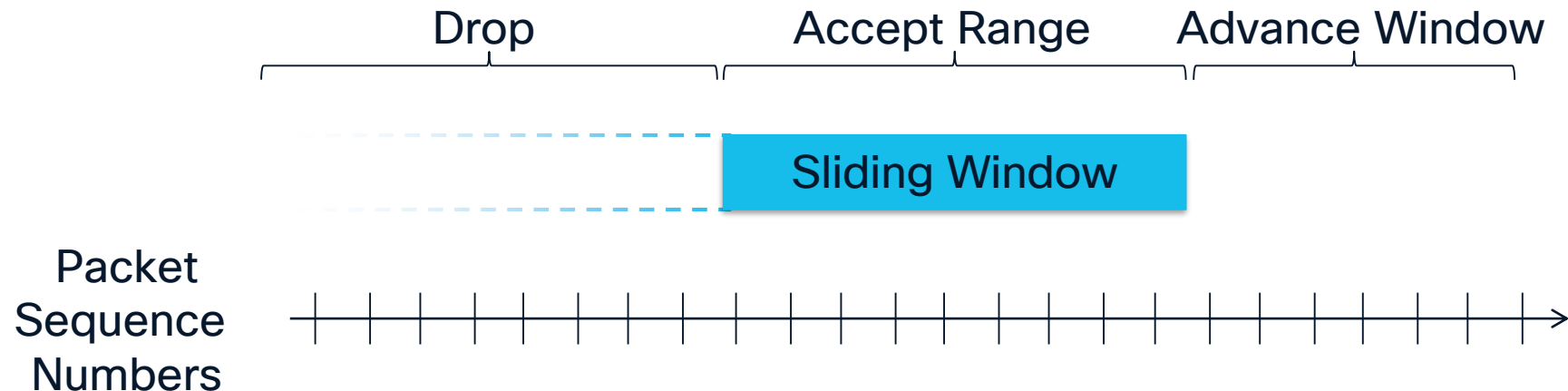
- Validator discovers WAN Edge public IP address, even if traverses NAT
- Validator communicates public IP to the WAN Edge

- WAN Edge computes AH value based on the post NAT public IP
- Packet integrity (+IP headers) is preserved across NAT

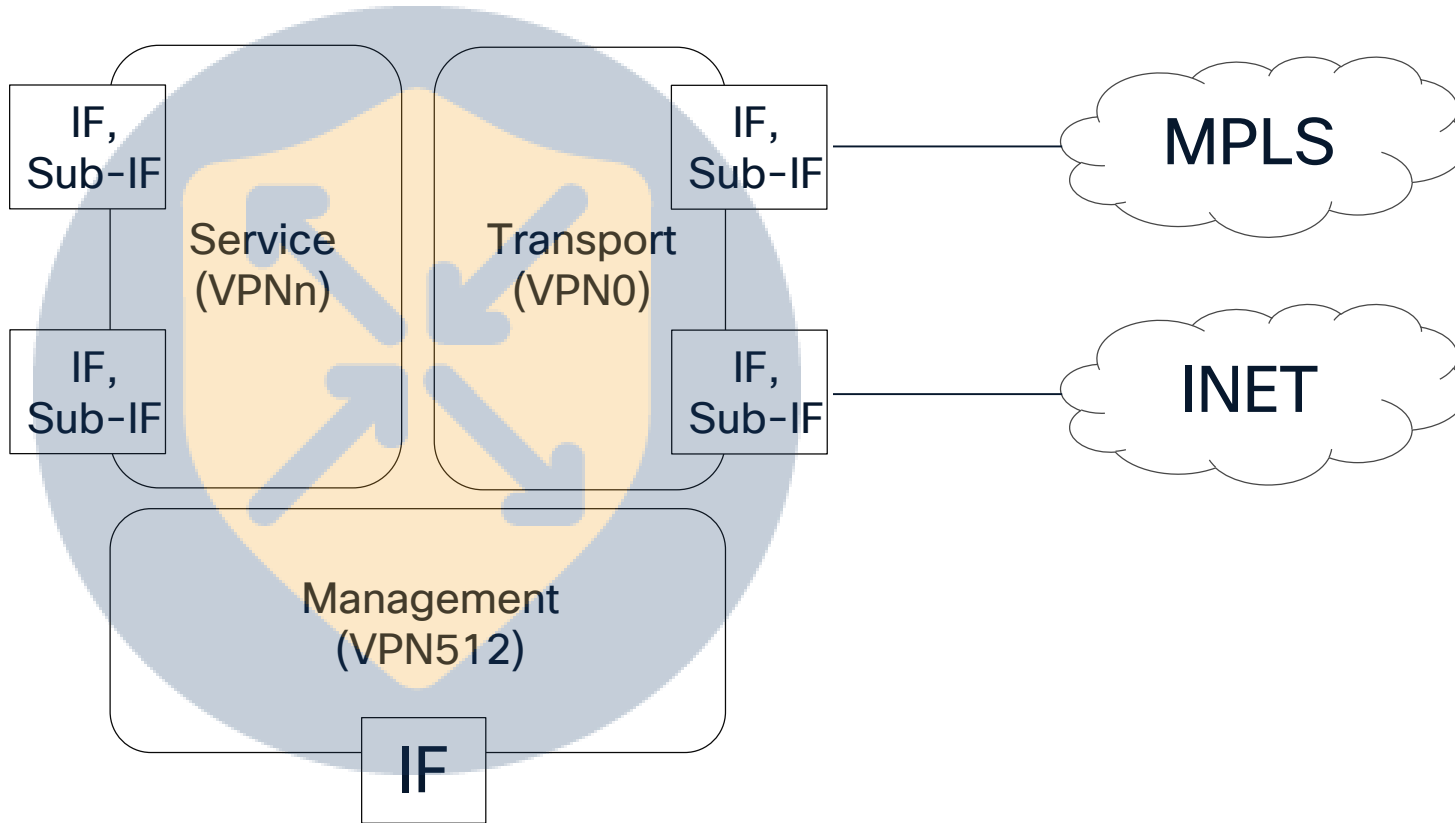


IPsec Anti-Replay Protection

- Encrypted packets are assigned sequence numbers. WAN Edge routers drop packets with duplicate sequence numbers
 - Replayed packet
- WAN Edge routers drop packets with sequence numbers lower than the minimal number of the sliding window
 - Maliciously injected packet
- Upon receipt of a packet with higher sequence number than received thus far, WAN Edge router will advance the sliding window
- Sliding window is CoS aware to prevent low priority traffic from “slowing down” high priority traffic

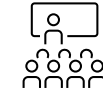


Cisco SD-WAN VPNs (VRFs)



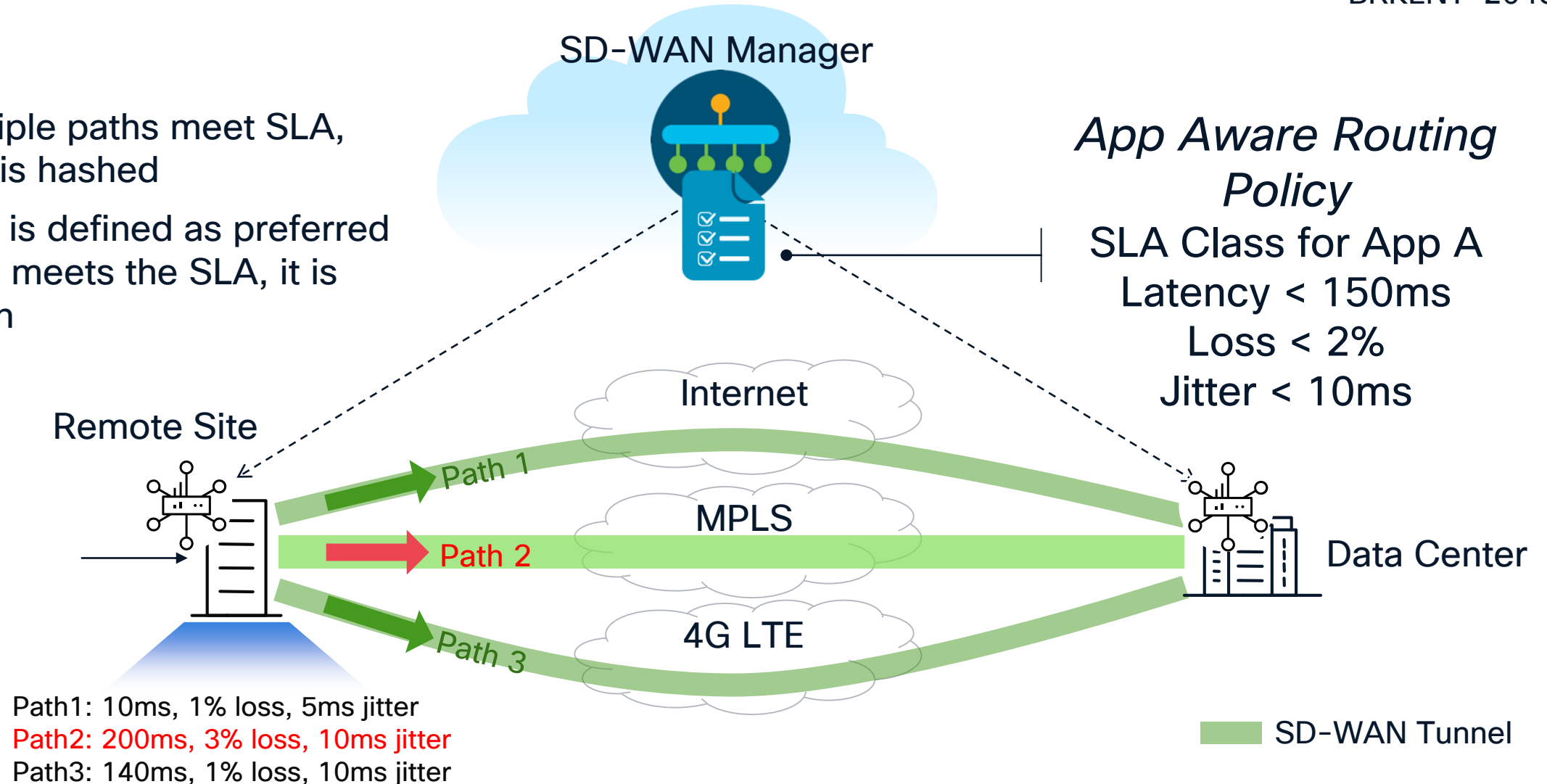
- VPNs are isolated from each other, with each VPN has its own forwarding table
- Reachability within VPN is advertised by OMP
- VPN0 is reserved for WAN uplinks (Transport)
- VPN512 is reserved for Management interfaces
- VPNn represents user-defined LAN segments (Service)

Application Aware Routing



Learn more about
policy watch
BRKENT-2043

- If multiple paths meet SLA, traffic is hashed
- If path is defined as preferred AND it meets the SLA, it is chosen



Key Building Blocks of AppQoE

Configuration Management System



SD-WAN Manager - Virtualized | Scalable | Network Insights



DRE, LZW



Byte Level Caching
& Compression

Protocol
Agnostic

Forward Error Correction



Packet Duplication

```
110 110
1011 1011
010 010
110 110
1011 1011
010 010
```

TCP Optimization



BBR2 Congestion
Algorithm



Window
Scaling



Large Initial
Windows

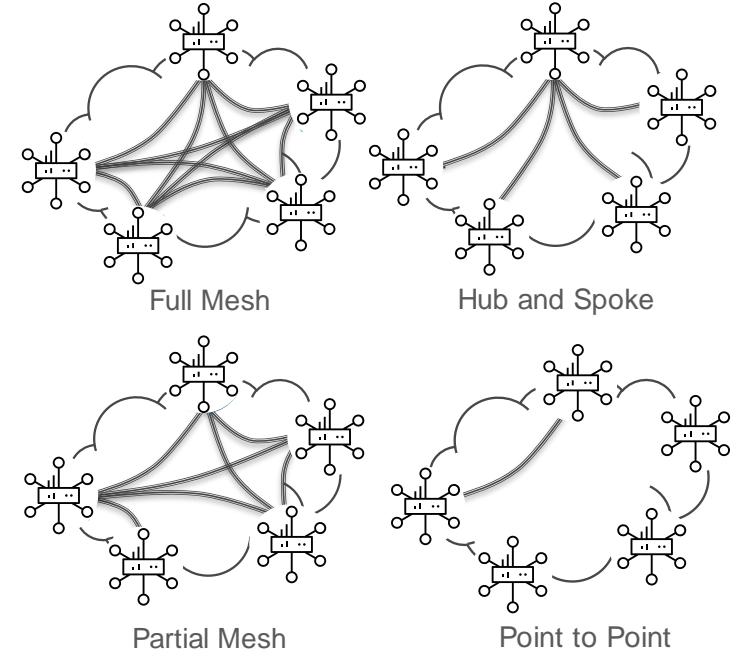
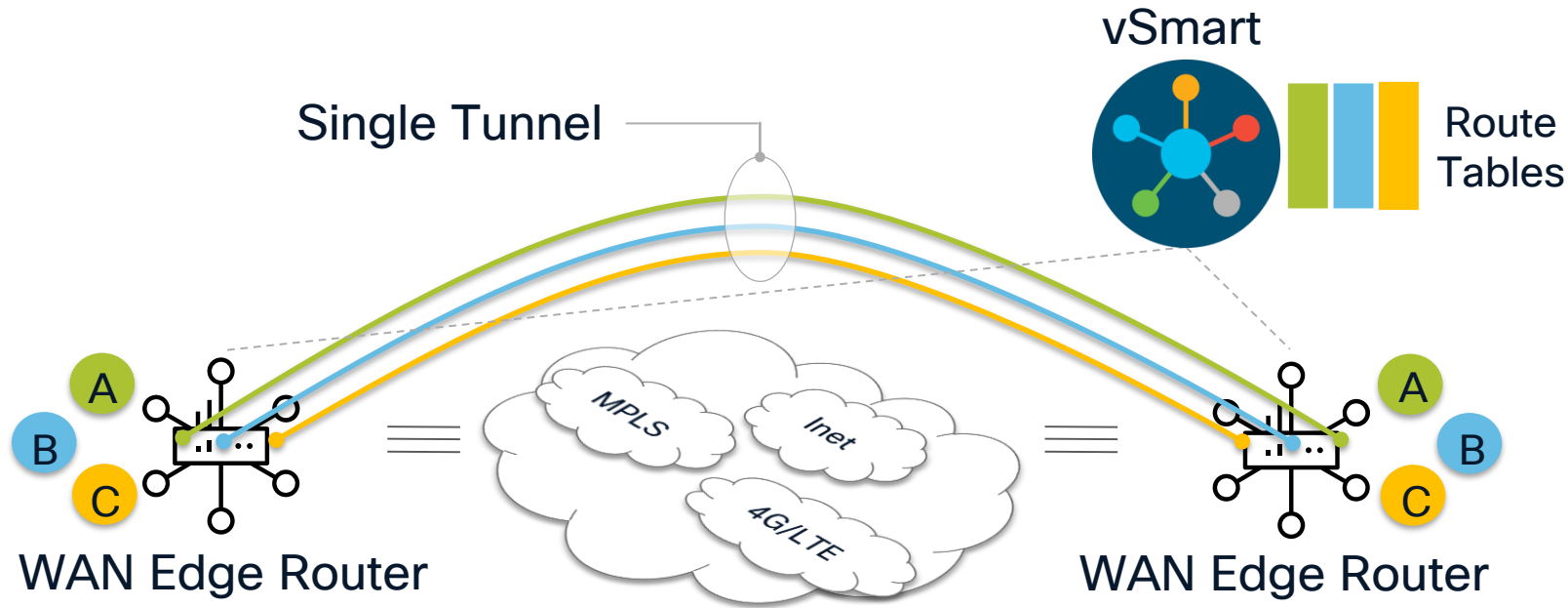


Selective
Acknowledgement

BBR - Bottleneck Bandwidth and Round-trip propagation time

Security features

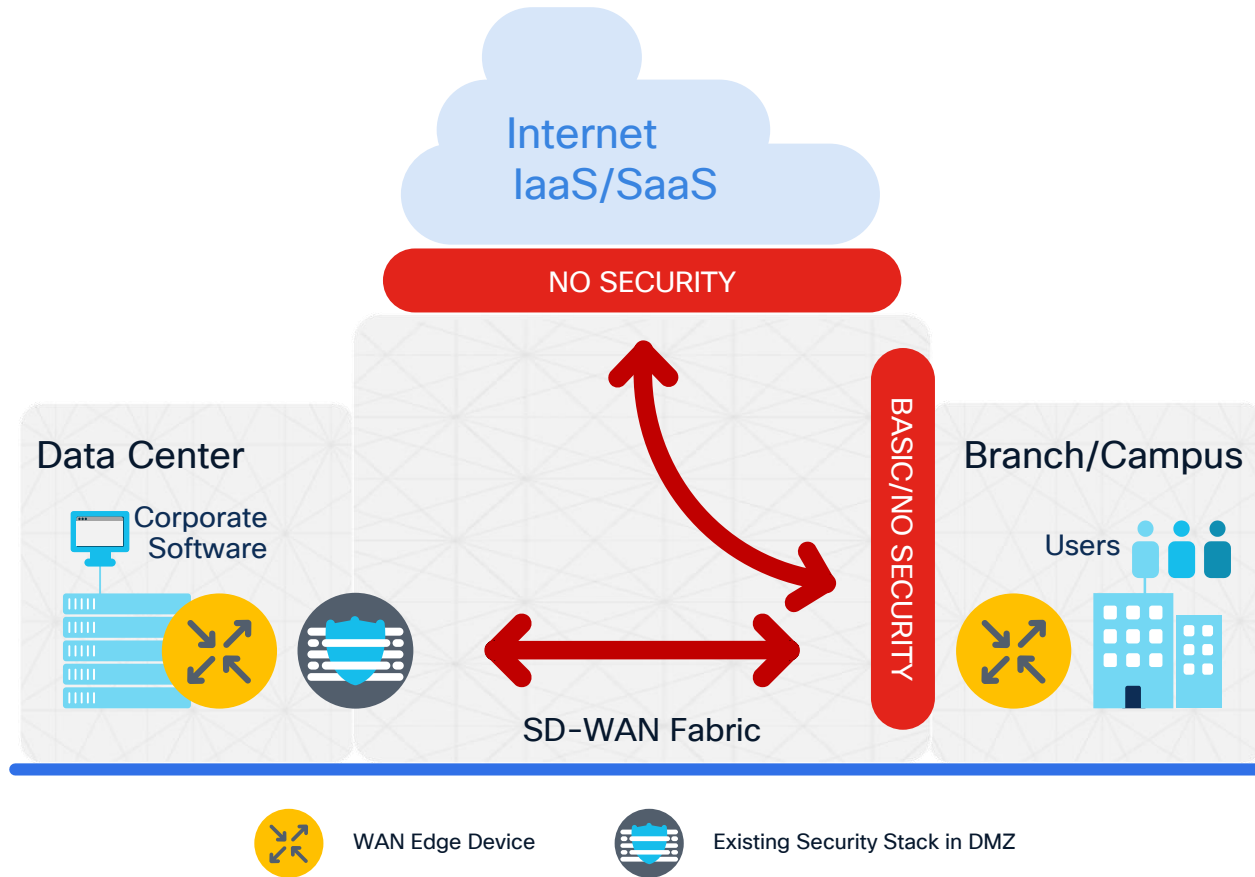
End-to-End Segmentation with Multi-Topology



Segment connectivity across the SD-WAN fabric without reliance on underlay transport

WAN Edge routers maintain per-VPN routing table for complete control plane separation

How SD-WAN Exposes New Security Challenges



Internal & External Threats

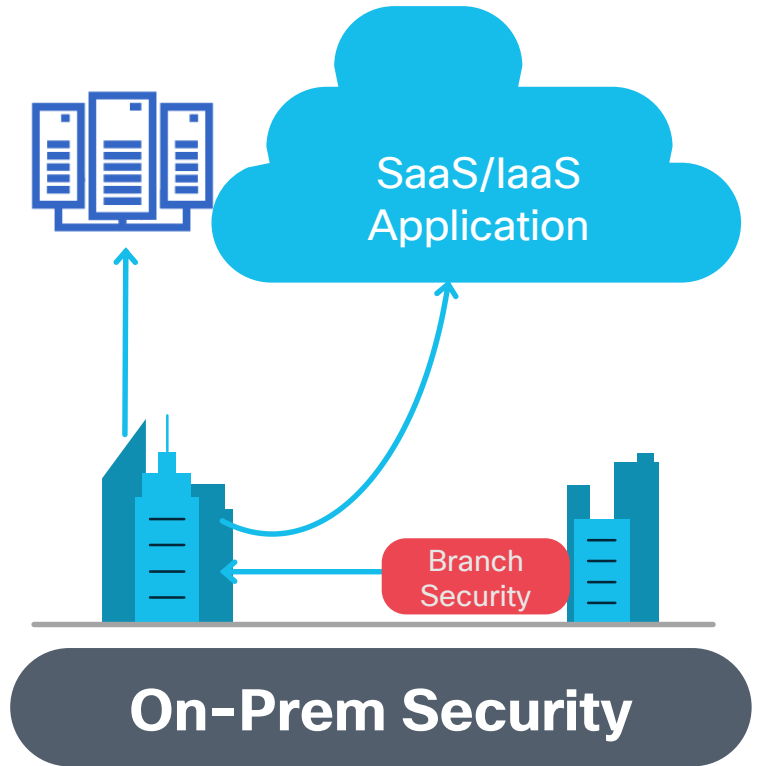
External

- Exposure to malware & phishing due to direct internet and cloud access
- Data breaches
- Guest access liability

Internal

- Untrusted access (malicious insider)
- Compliance (PCI, HIPPA, GDPR)
- Lateral movements (breach propagation)

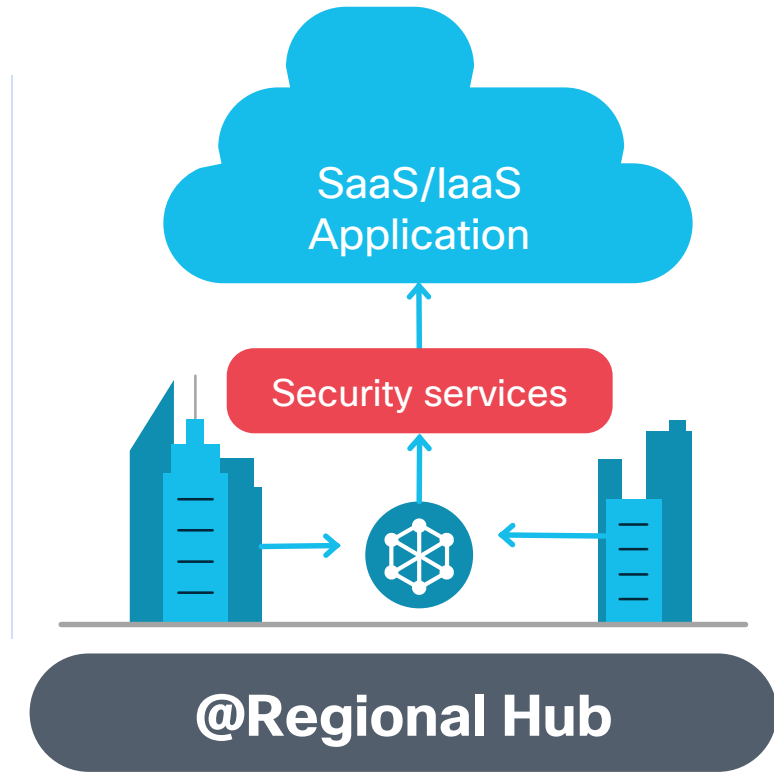
Relevant Security Models. Driving towards SASE



Thick branch with Routing and Security



Thin branch with security in the cloud

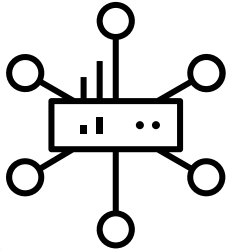


Security Services on a Regional Hub

Cisco Catalyst SD-WAN Security & SASE Solution

Consistent across on-prem and cloud

**Cisco
SD-WAN**



< 8G Ram

**Cisco
Security**

NextGeneration Firewall

Layer 3 to 7 apps classified with User Identity

Intrusion Protection System

Most widely deployed IPS engine in the world

Custom
Applications

URL-Filtering

Web reputation score using 82+ web categories

Adv. Malware Protection

With File Reputation and Sandboxing (TG)

SSL Proxy

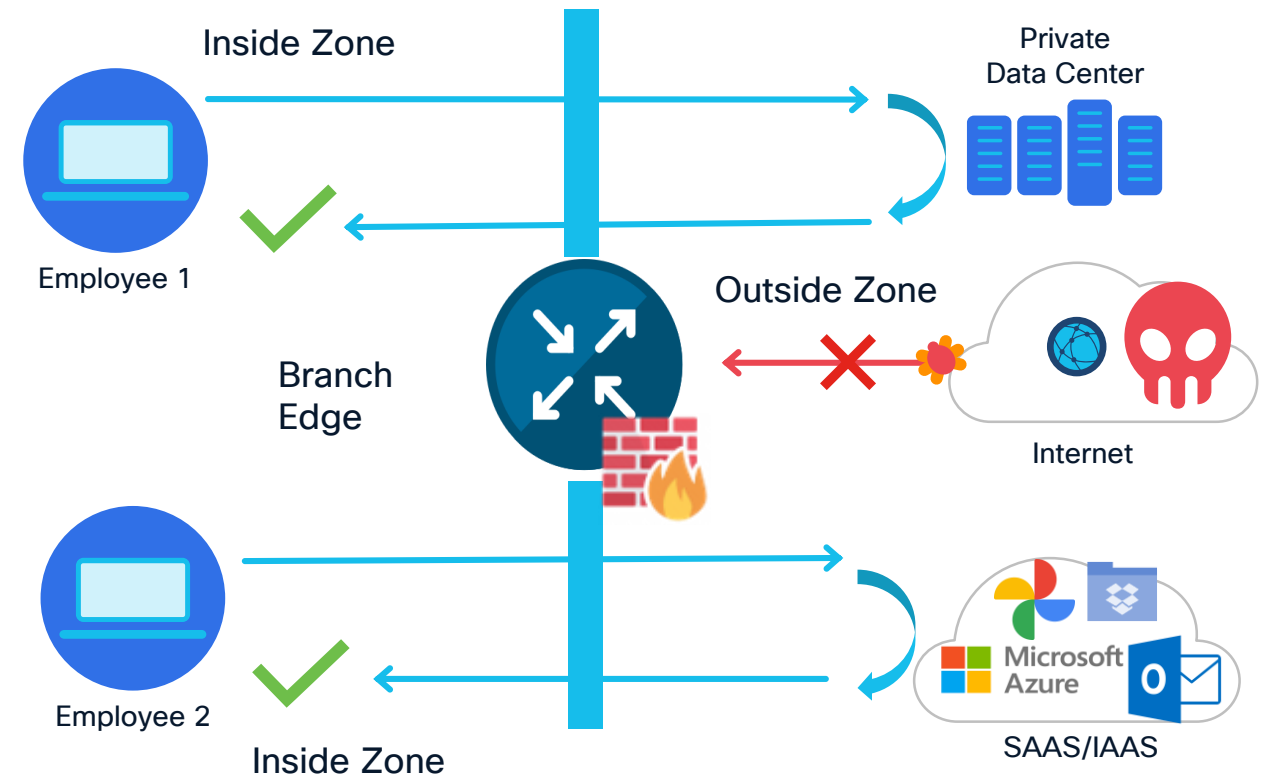
Detect Threats in Encrypted Traffic

Umbrella Cloud Security

DNS Security/Cloud FW with Cisco Umbrella

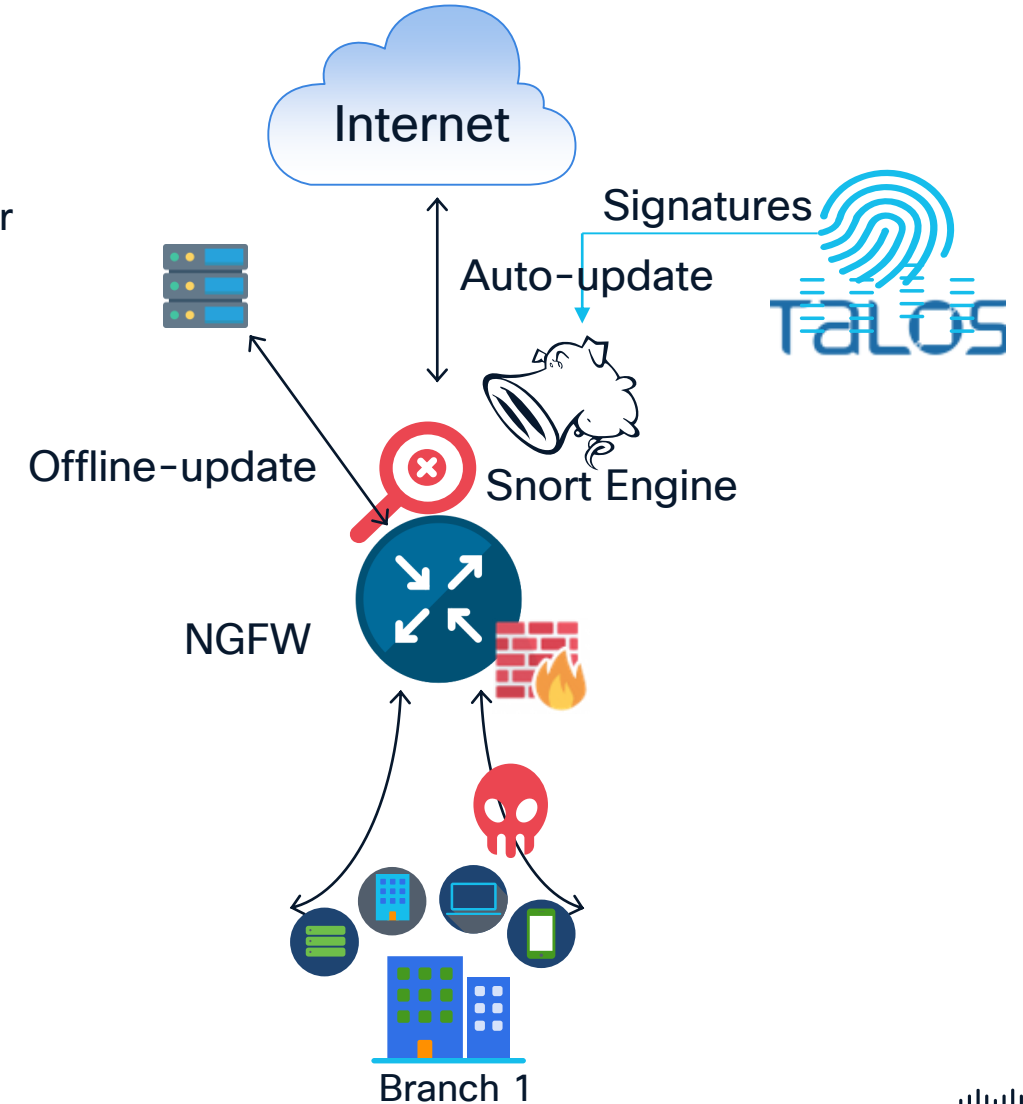
Catalyst Firewall

- Stateful Firewall (TCP,UDP,ICMP)
- App-aware using NBAR2 / SDAVC (Layer 3-7 visibility), Custom-app
- VRFs / Interfaces as Zones
- Self-Zones/Default-Zones
- Policy based on IPv4/IPv6, Ports, Protocols, FQDN, GEO, SGTs, User / User-group and Applications
- HSL logging/Unified Logging (multiple collectors)
- Session re-classification, Flood attack prevention
- ALG support (FTP, TFTP, SIP etc.)
- Object-groups/Rule-sets support for scalable configs
- FW Action: Pass | Drop | Inspect along with sending for Advanced Inspection



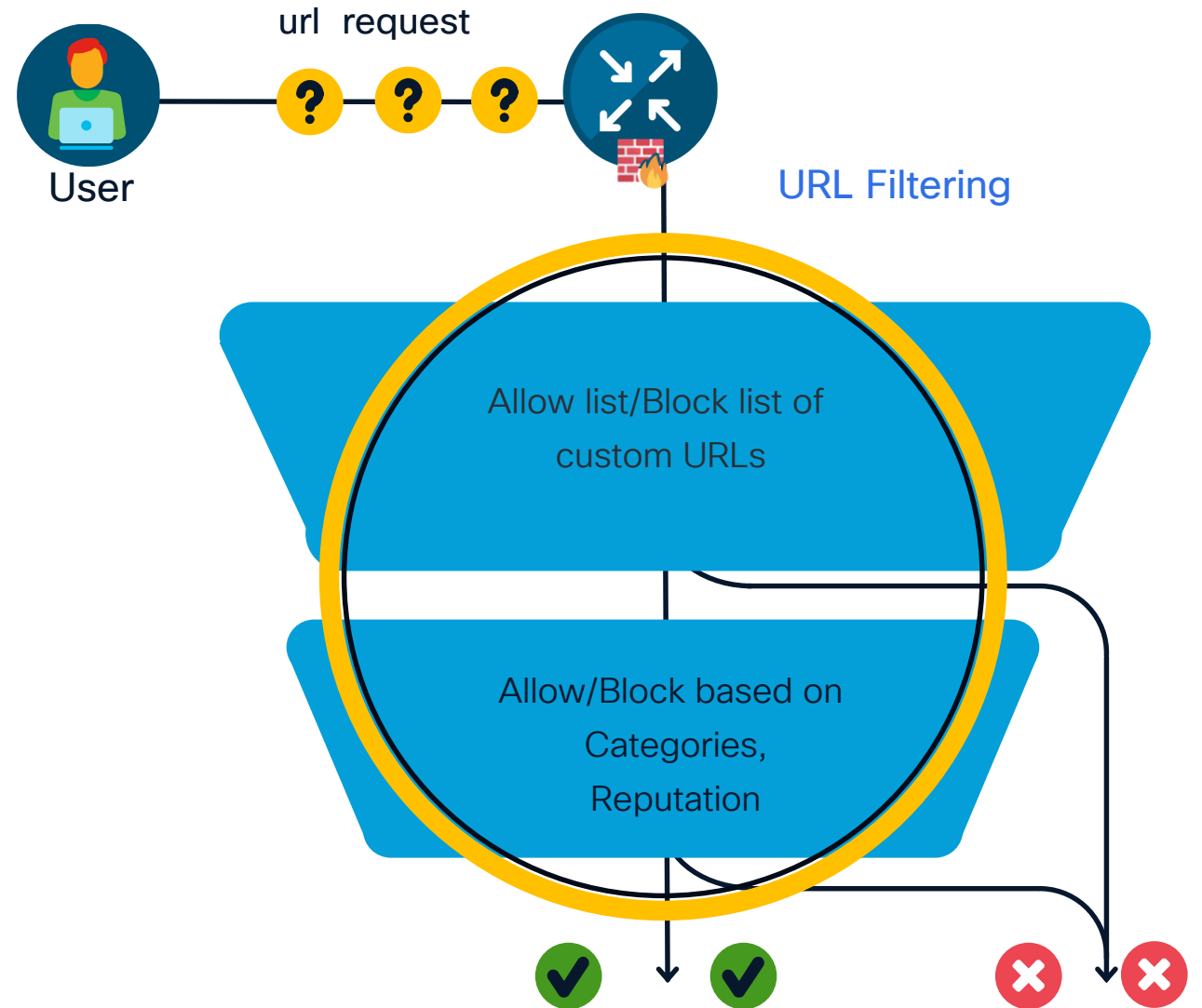
Intrusion Prevention/Detection System (IPS/IDS)

- Snort 3.0 - most widely deployed IPS engine in the world (better performance, ruleset coverage)
- IPS signatures (Talos) updated automatically by SDWAN manager or using local-server for air-gap networks Security-levels
 - Connectivity
 - Balanced
 - Security
- Custom IPS Signature
- IPS Signature Allow list
- Notifications and Syslog



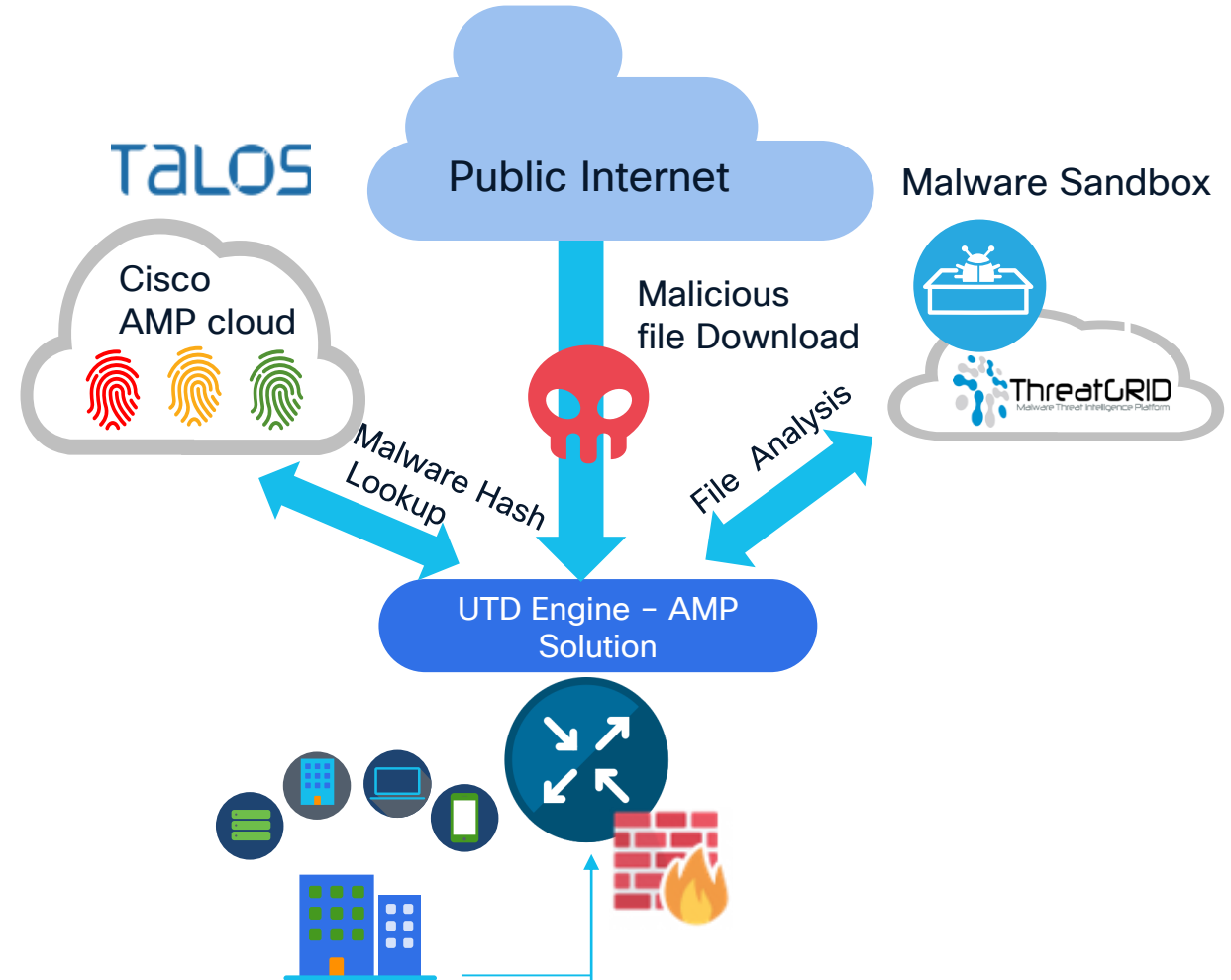
URL-Filtering

- Content filter of HTTP and HTTPs Traffic
- Utilizes Webroot Bright Cloud Web Classification and Web Reputation Service
- 82+ Web Categories and dynamic updates
- With URL-F feature enabled, order of process followed:
 - > Allow lists of custom URLs
 - > Block lists of custom URLs
 - > Web Categories
 - > Web Reputation Score
- Custom Regex based Allow and Block URL List
- Customizable End-user notifications – Block page or redirection
- Logging and Visibility



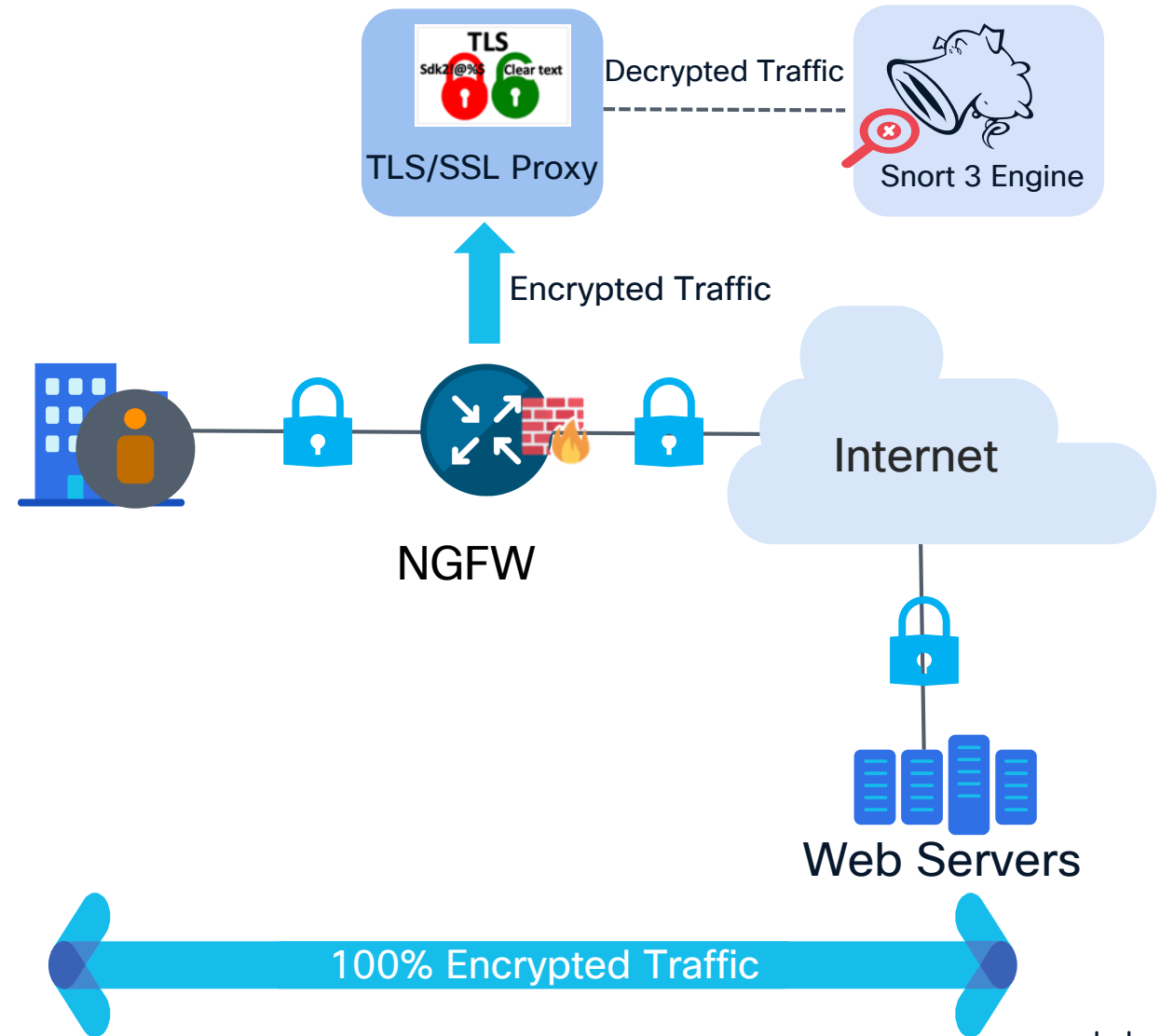
Advanced Malware Protection

- Integration with AMP Cloud
 - File Reputation
 - File Retrospection
- Integration with Threat Grid
 - File Analysis(sandboxing)
 - File Retrospection
- Customize log level



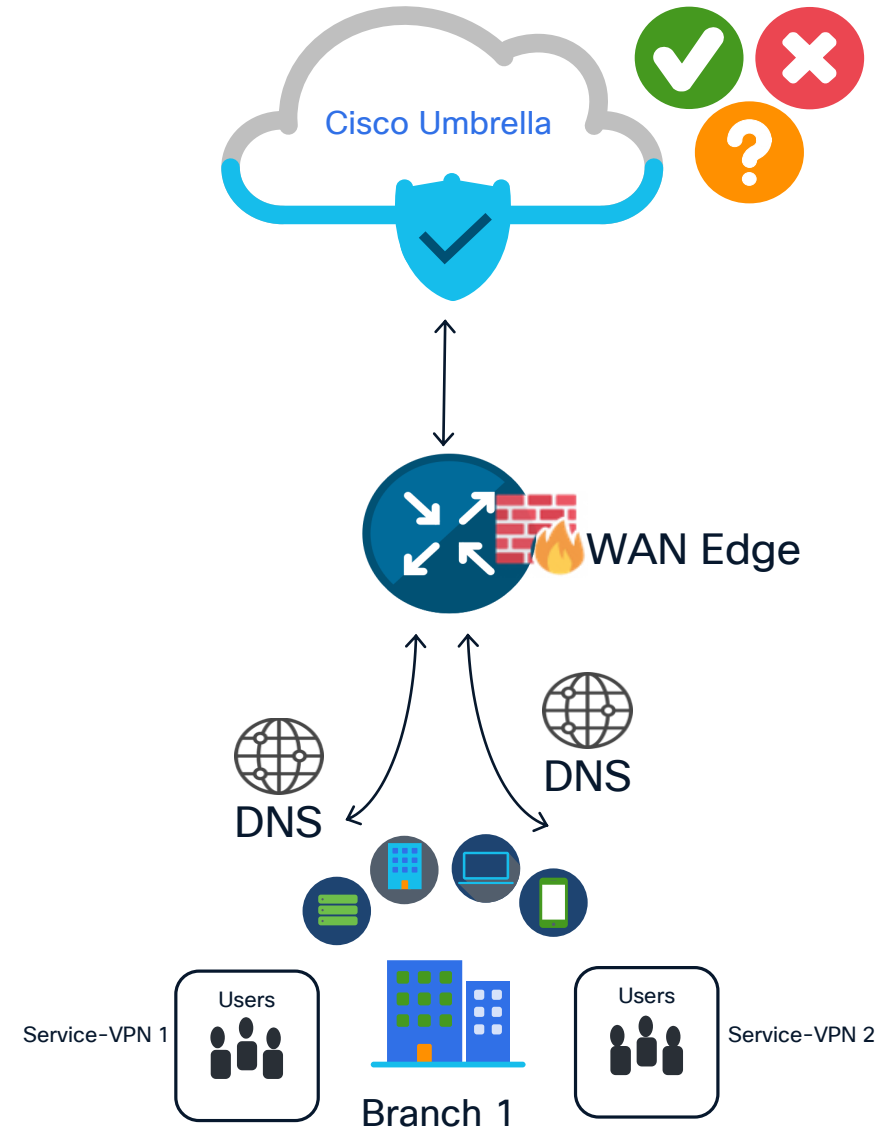
TLS/SSL Decryption

- TLS Proxy act as a Man in The Middle (MiTM)
- Proxy runs a Certificate authority
- Proxy generates Server certificates dynamically
- Catalyst Manager can act as a Certificate Authority to automate Proxy certificates
- Policy based decryption
- URL Reputation/Categories can be excluded



DNS Security

- Cloud-only DNS based inspection
- Automatic API Key registration
- VPN-aware policies
- Global points of presence (POP) and anycast IP for fastest response and high availability
- Block malware, phishing, and non-compliance domain requests
- Supports DNS-crypt
- Local Domain-bypass option



Cisco Secure Access



Learn more attend
BRKSEC-2285

Go beyond core Secure Service Edge (SSE) to better connect and protect your business

Core SSE



Secure Web Gateway (SWG)



Cloud Access Security Broker (CASB) and DLP



Zero Trust Network Access (ZTA)



Firewall as a Service (FWaaS) and IPS

Cisco delivers the core and more in a single subscription...



DNS Security



Multimode DLP



Advanced Malware protection



Sandbox



Talos Threat Intelligence



VPN as a Service



Digital Experience Monitoring*



Remote Browser Isolation*

Add-on solutions



SD-WAN



XDR



DUO MFA/SSO



CSPM

Cisco Catalyst WAN - Secure Access - Today



Use Case

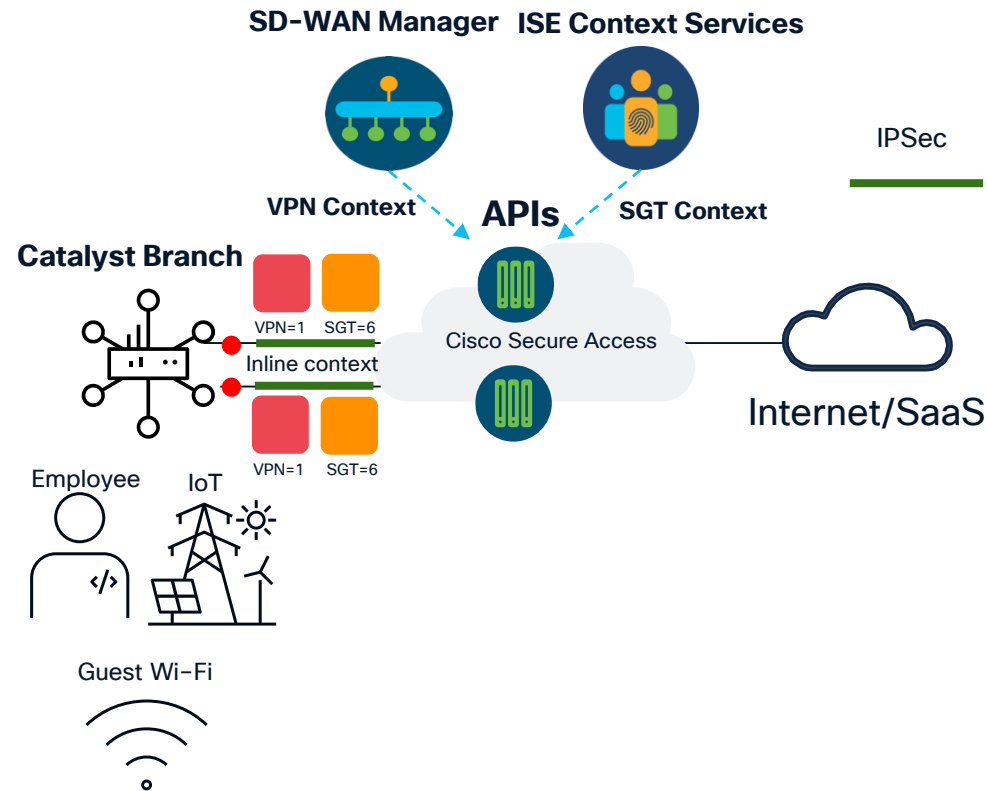
Catalyst Edge

Secure Internet/SAAS Access from Catalyst Branch

- Automated connectivity with Auto/manual Region selection
- Controller-Based Automation Framework
- Robust Reliability with 8 Active/8 Backup Tunnels
- Application Assurance and Tracking
- Advanced traffic steering and monitoring
- SD-Routing Support

Catalyst SD-WAN-Cisco Secure Access Context Sharing

Context-aware security is key for implementing and achieving a true zero-trust framework for an enterprise.



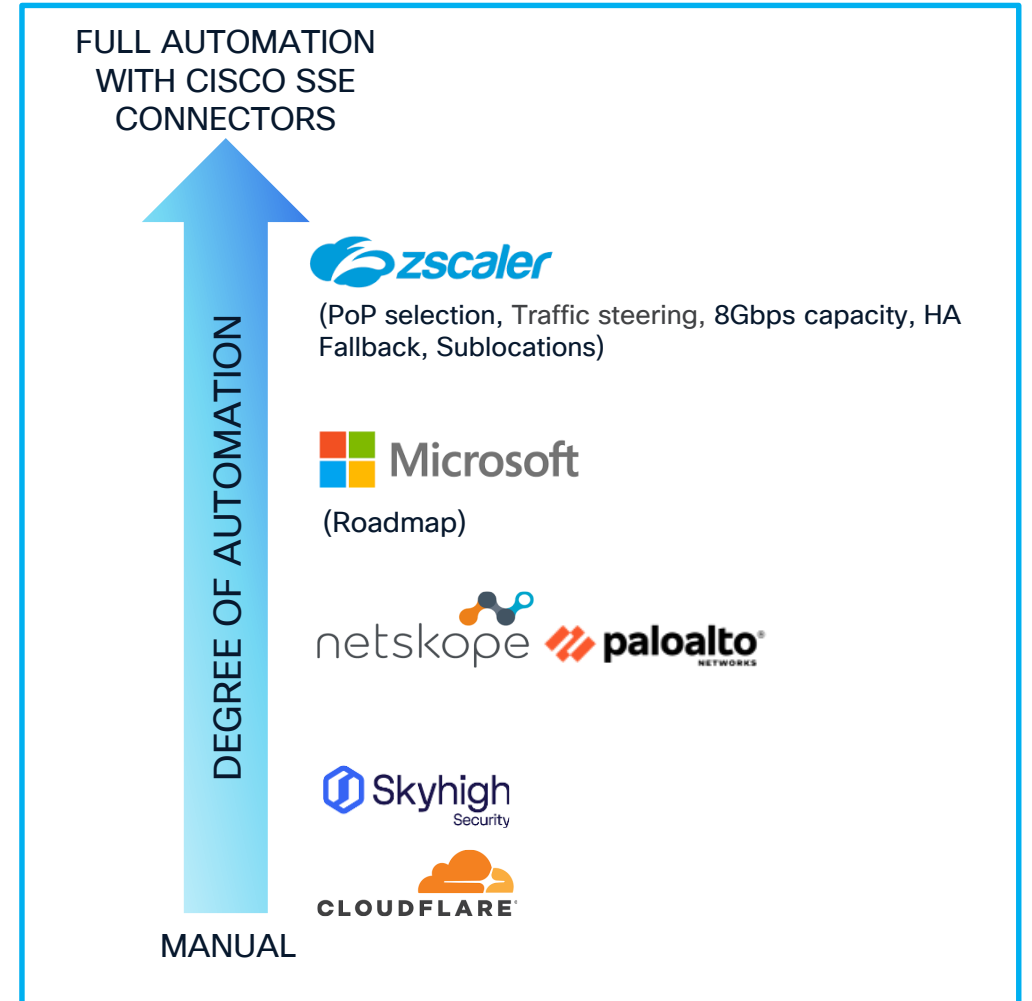
- **Catalyst SD-WAN will share enterprise context with Cisco Secure Access**
- **Part of the efforts to share end-end context across the enterprise with Cisco-on-Cisco solutions**
- **Competitive differentiator for Cisco**
- **Both Macro(VPN-ID) and Micro (SGT) segmentation support**
- **Granular but simplified security policy control on Cisco Secure Access for catalyst branches accessing internet/SAAS apps**

Employee, Guest and IOT segments behind a Catalyst Branch securely accessing Internet/SAAS with differentiated policy enforcement by Cisco Secure Access.

Multi-Vendor SSE Integrations

900+ customers love the flexibility and interoperability that Cisco SD-WAN offers

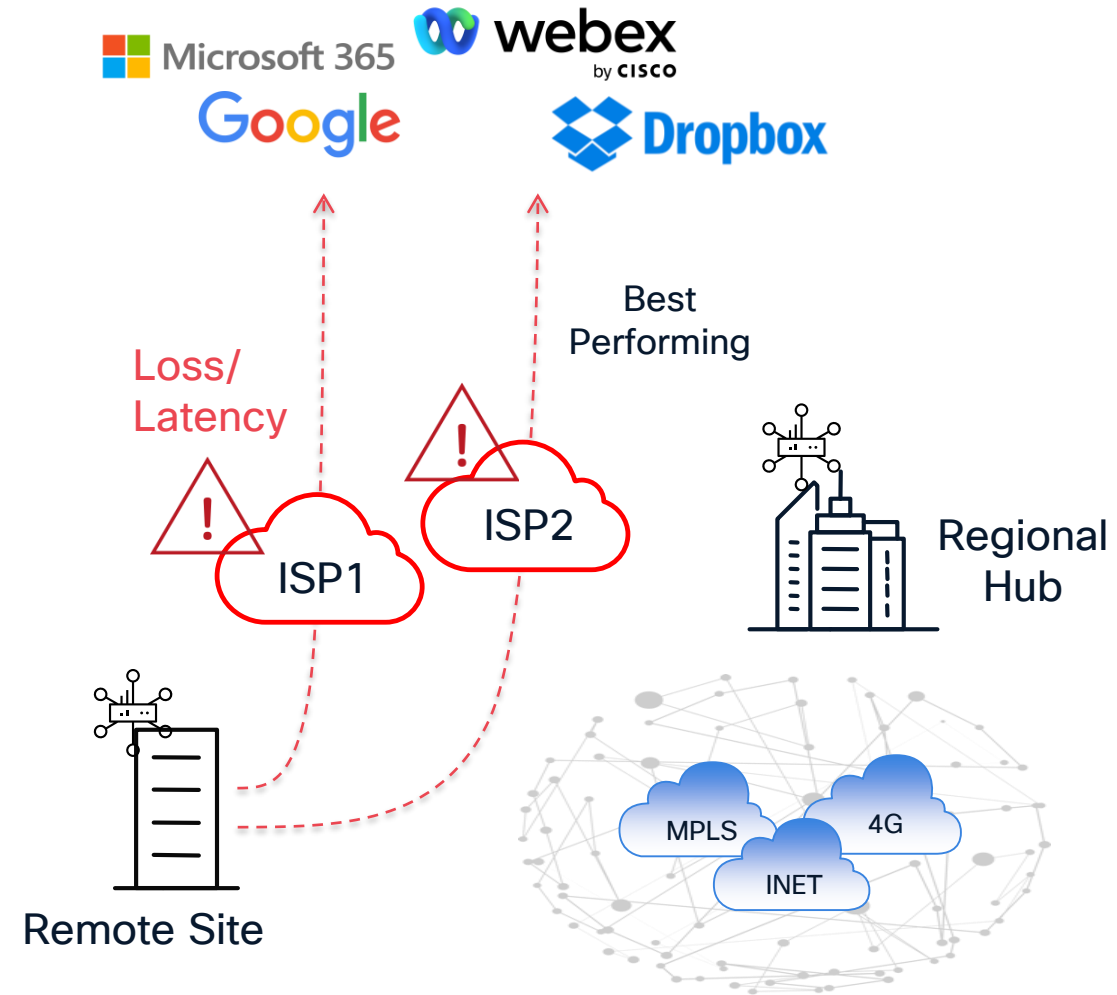
- Dashboard & API based automation
- IPSec / GRE tunnel automation and PoP selection
- Resiliency with fallback and application health check
- Granular traffic redirection
- Segmentation



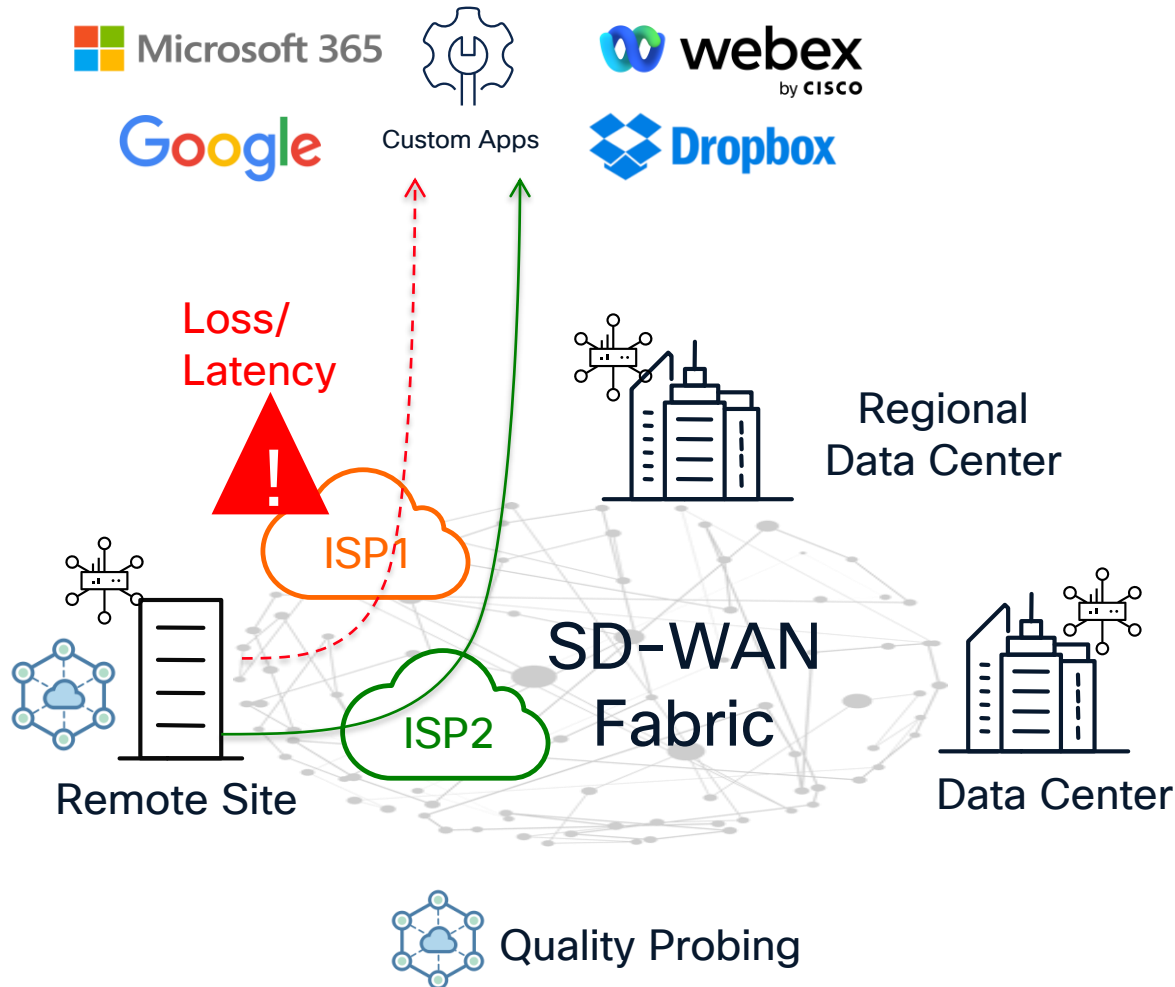
Cloud OnRamp for SaaS

SaaS Optimization Challenges

- Internet circuits performance is unreliable.
- How to get performance visibility for each available path?
- When specific path is having performance issues, How to automatically steer traffic ?

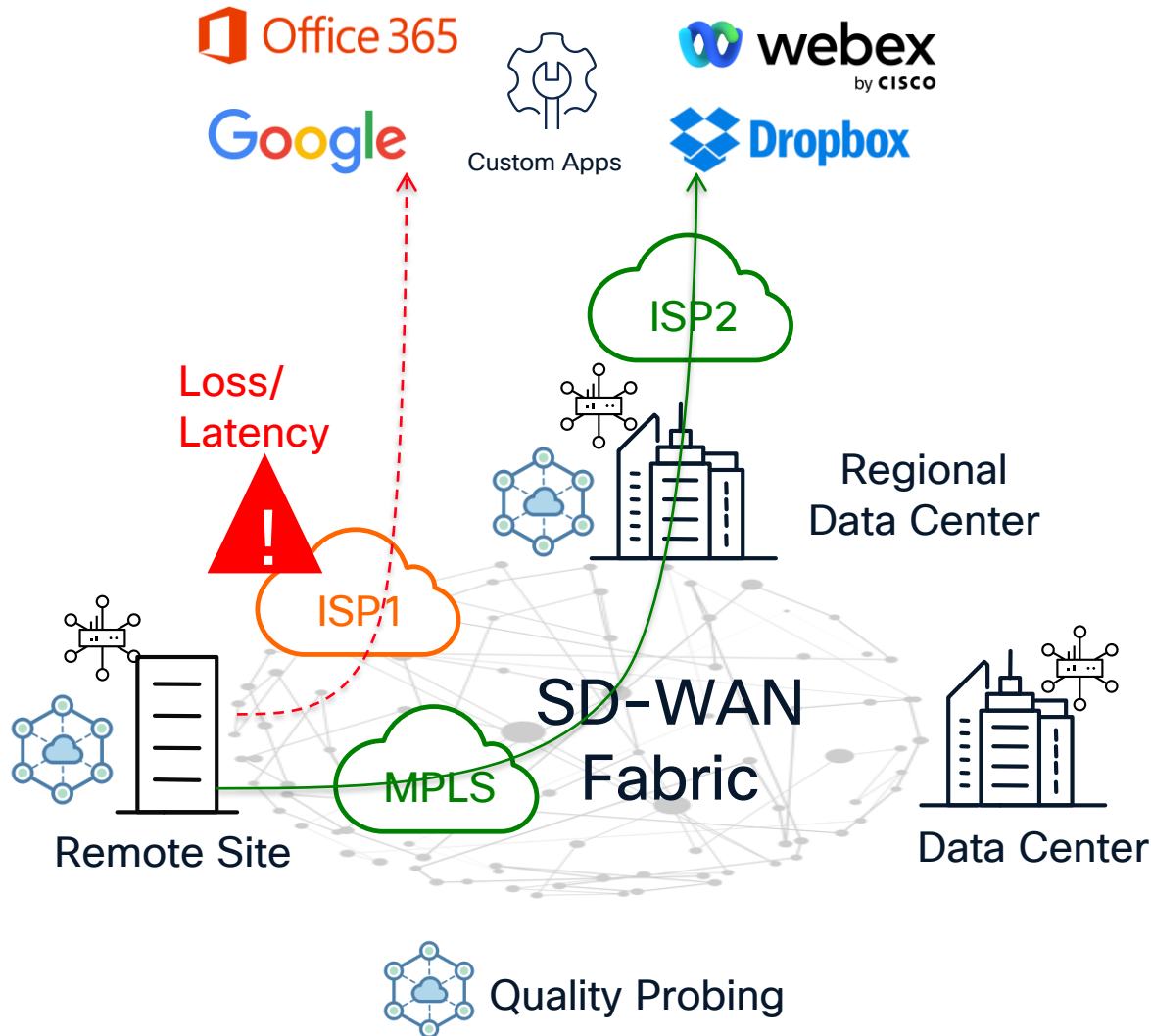


Cloud onRamp for SaaS – Internet DIA



- WAN Edge router at the remote site performs quality probing for selected SaaS applications across each local DIA exit
 - Simulates client connection using HTTP ping
- Results of quality probing are quantified as vQoE score (combination of loss and latency)
- Local DIA exit with better vQoE score is chosen to carry the traffic for the selected SaaS application
 - Initial application flow may choose sub-optimal path until DPI identification is complete and cache table is populated

Cloud onRamp for SaaS – Regional Gateway



- Wan Edge routers at the remote site and regional hub perform quality probing for selected SaaS applications across their local Internet exits
 - Simulate client connection using HTTP ping
- Results of quality probing are quantified as vQoE score (combination of loss and latency)
 - HTTP ping for local DIA and App-Route+HTTP ping for regional Internet exit
- Internet exit with better vQoE score is chosen to carry the traffic for the selected SaaS application
 - Initial application flow may choose sub-optimal path until DPI identification is complete and cache table is populated

Cloud OnRamp for MultiCloud

Cisco SD-WAN Cloud Hub- Use Cases

-  = Cisco SD-WAN virtual router hosted at Cloud Service Provider POP
-  = Cisco SD-WAN router on-premises

Enterprise Site to Cloud



Enterprise Site to Enterprise Site

Cloud to Cloud/Inter-Cloud

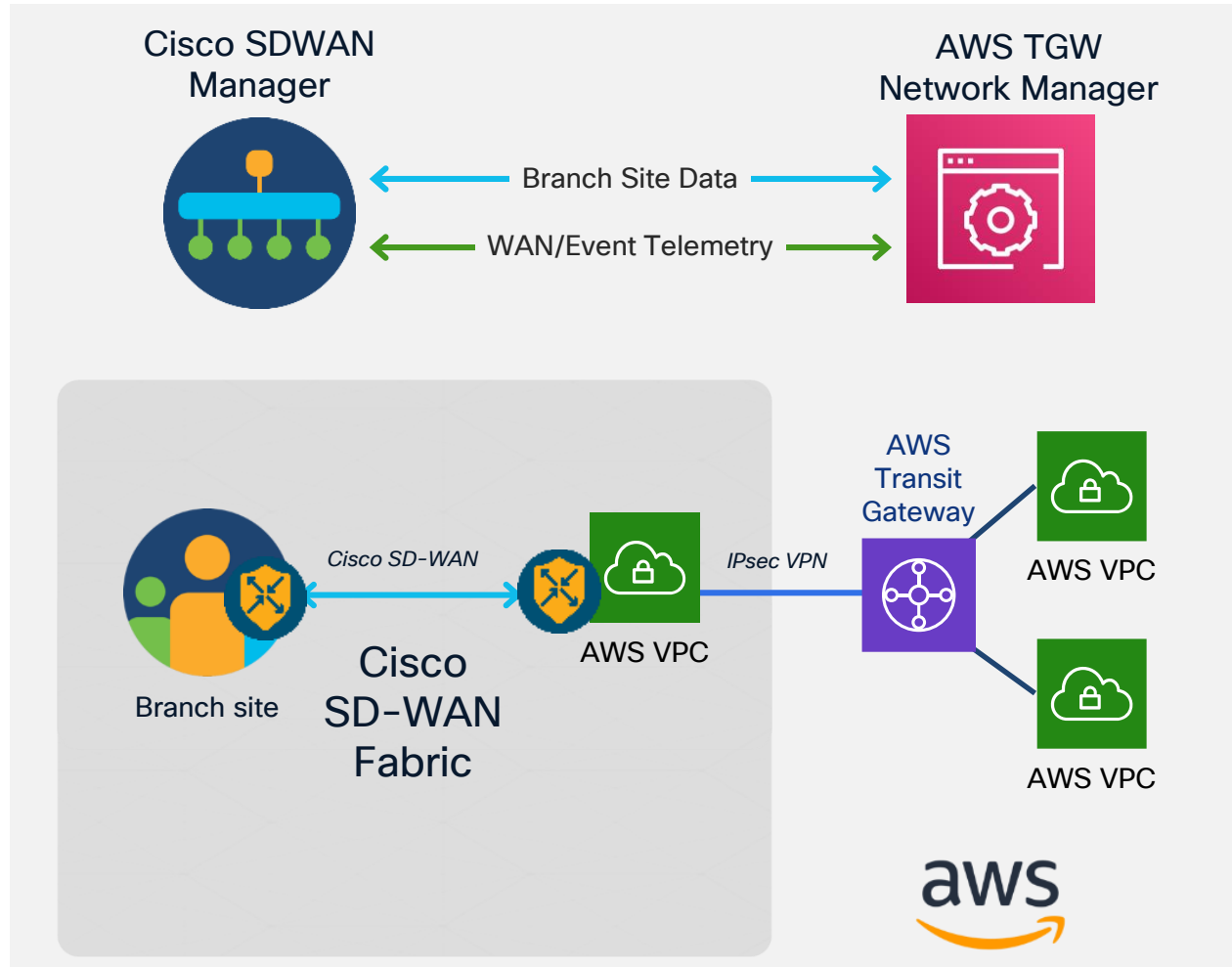


Cisco SD-WAN simplifying connectivity with fabric extension to cloud providers, it is building a programmable site-to-cloud, Region to Region, site-to-site and cloud to cloud connectivity using cloud providers Native contracts and backbone

Extending SD-WAN into Public Cloud (AWS as example)

Benefits

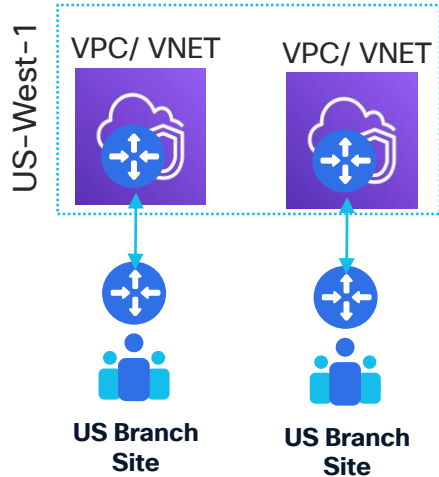
- Automated provisioning of SD-WAN Transit VPC and TGW, route exchange for site to cloud and site to site traffic over AWS backbone
- Full Visibility into inter-regional transit traffic and telemetry with TGW Network Manager
- Consistent Policy and Segmentation across branch and cloud for enterprise class security



High Level Design Options

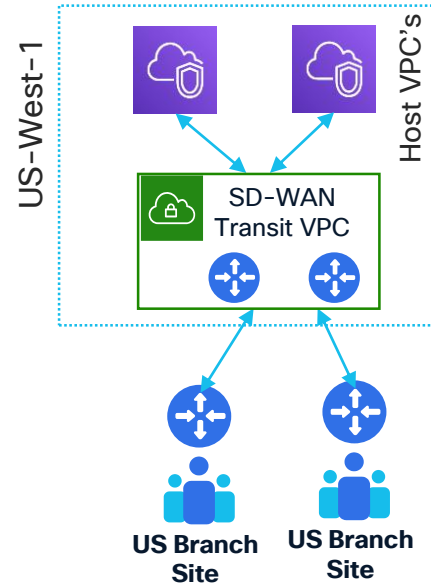
CSP-generic, AWS used as example

Cloud Gateway



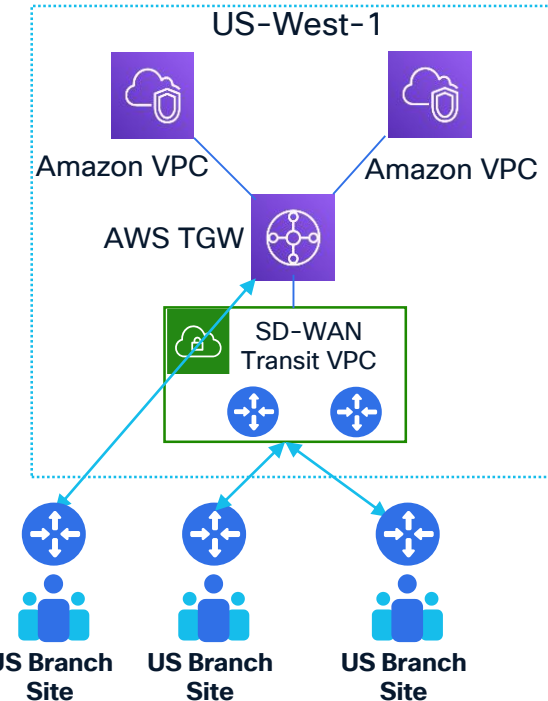
- SD-WAN Router in every VPC/VNET.
- Not scalable, but okay for one VPC.
- No built-in automation in Cloud onRamp, custom automation possible

Cloud OnRamp for IaaS



- Transit VPC with SD-WAN routers.
- IPSec to host VPCs / VNETS via VGW
- Cloud networks learnt via BGP, redistributed into OMP.
- AWS and Azure automation on vManage known as Cloud OnRamp for IaaS

Cloud OnRamp for Multicloud



- AWS TGW or Azure vWAN is used
- IPSec to AWS TGW, BGP on top of IPSec
- Cloud networks learnt via BGP, redistributed into OMP.
- AWS (17.3), Azure (17.4) and Google Cloud (17.5) automation on vManage known as Cloud onRamp for Multicloud
- Branch Connect - Traditional IPSec to AWS TGW (17.5)
- Cloud WAN coming in 2022

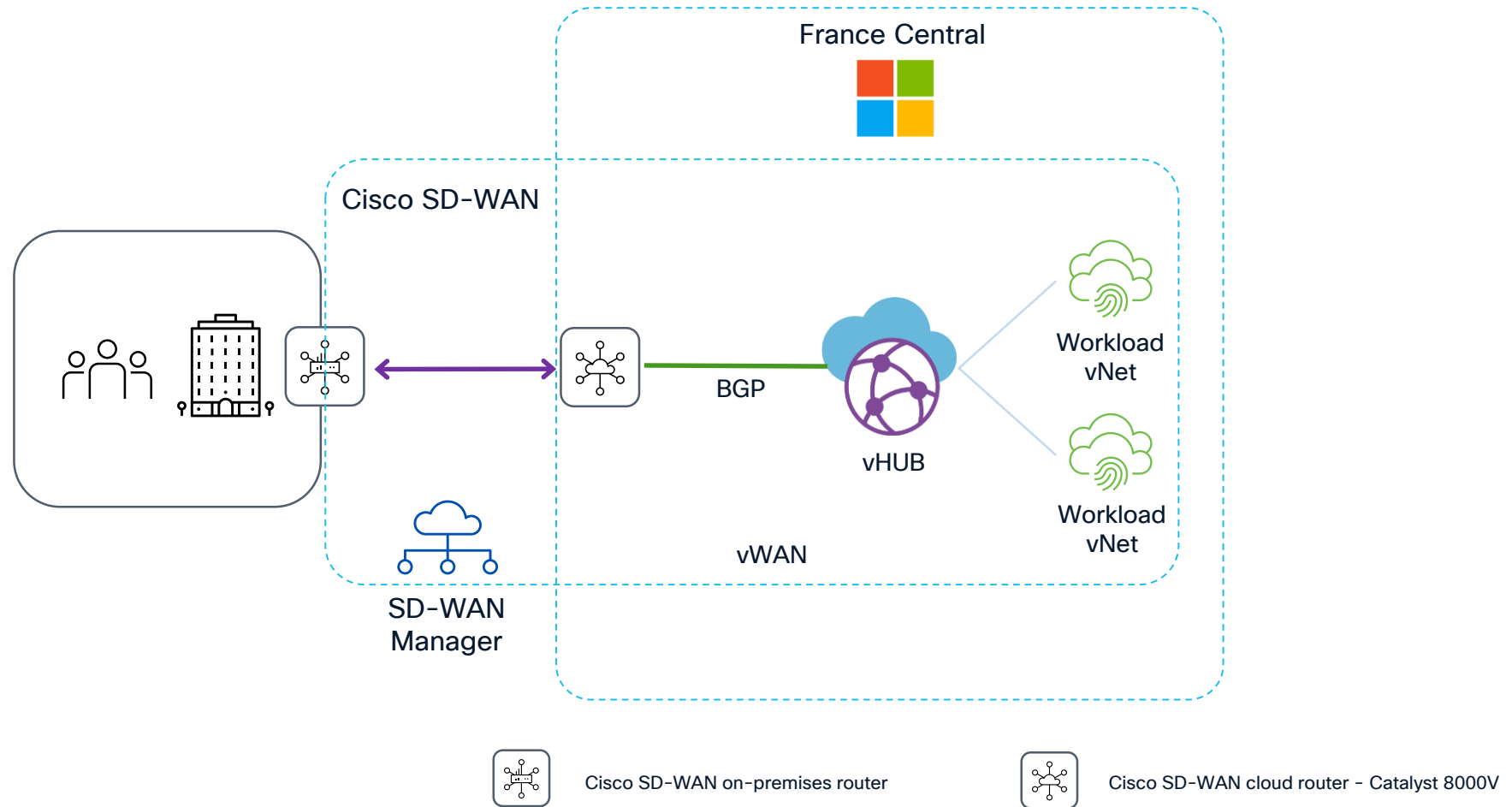
Automation (CSP-generic)

Different Automation options

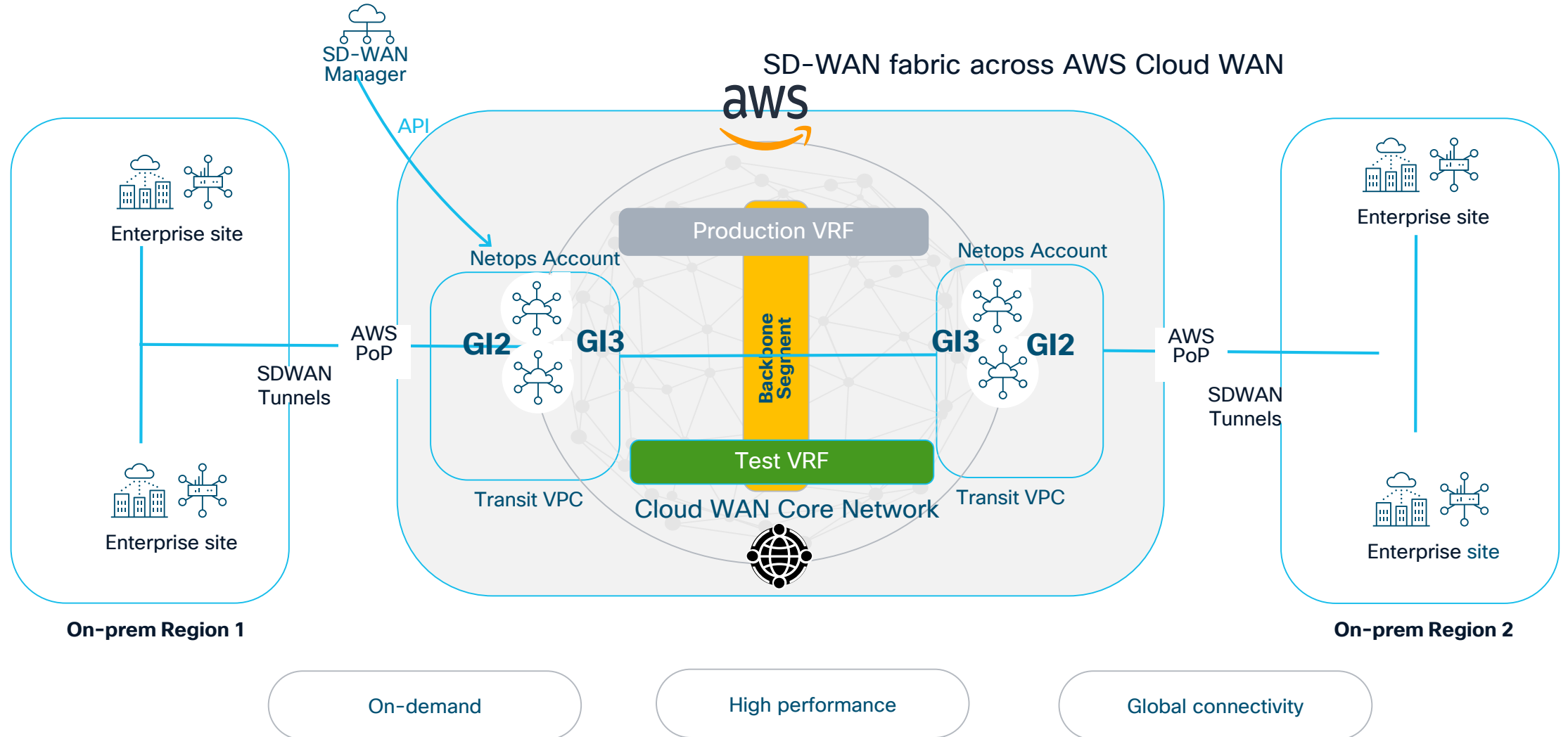
- Cloud OnRamp (CoR) for Multicloud Automation built in vManage
- Custom Automation with 3rd party tools like Terraform and Ansible

	Pros	Cons
Cloud OnRamp Automation	<ul style="list-style-type: none">• Single UI in vManage for the whole workflow• Discovers host VPCs/VNETS and connects public-cloud with SD-WAN within minutes	<ul style="list-style-type: none">• Not possible to add own customization for design changes i.e., virtual firewall• No built-in auto scale capabilities (yet)
Custom Automation	<ul style="list-style-type: none">• Will do exactly what customer wants• Can be changed in case of any design changes	<ul style="list-style-type: none">• Takes time and money to develop and test (customer, Cisco CX or Partner)


Cisco SD-WAN Cloud OnRamp for Multicloud with Microsoft Azure




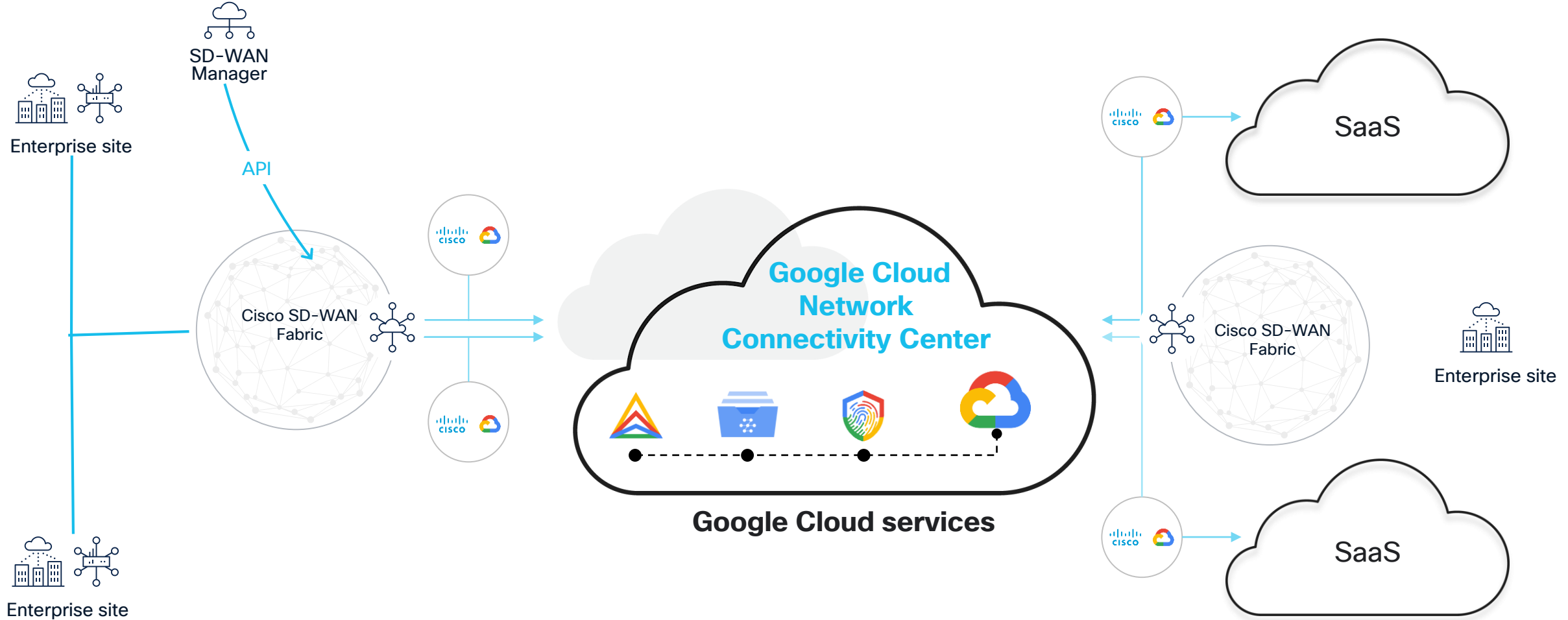
Site-to-Site with Cloud WAN



Cisco SD-WAN Cloud Hub and Google Cloud Network Connectivity Center

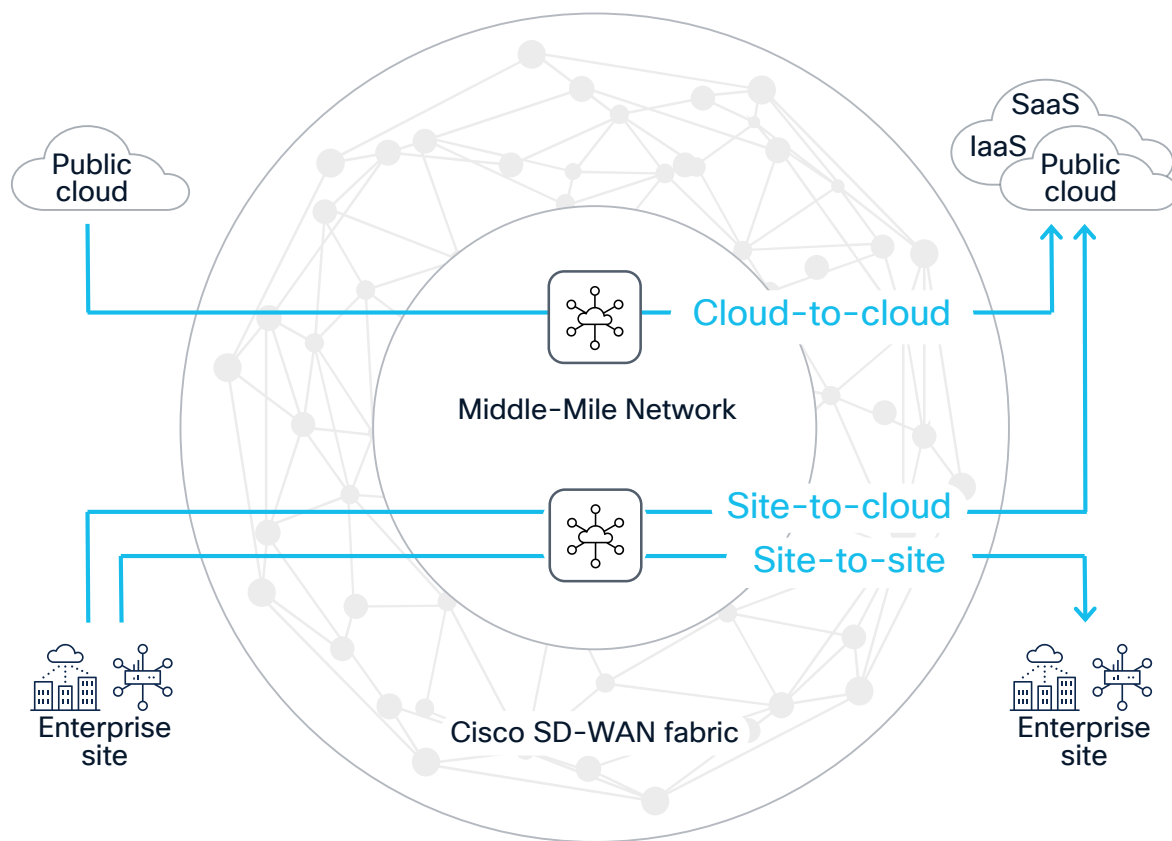
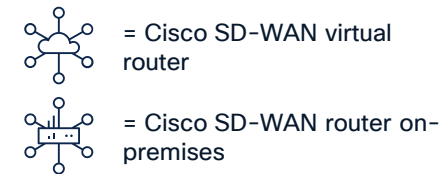
 = Cisco SD-WAN router on-premises

 = Cisco SD-WAN cloud router at Google Cloud PoP



Cisco SD-WAN Cloud Hub with Google Cloud

Cisco SD-WAN Middle-Mile Optimization



Flexibility
All or selective traffic sent based on type or app

Reliability
Reliable, high-speed connectivity between sites

Security
End-to-end encryption over middle mile global backbone

On-demand
Automated connectivity via vManage central dashboard

MultiCloud Defence

What is Multicloud Defense (MCD)?

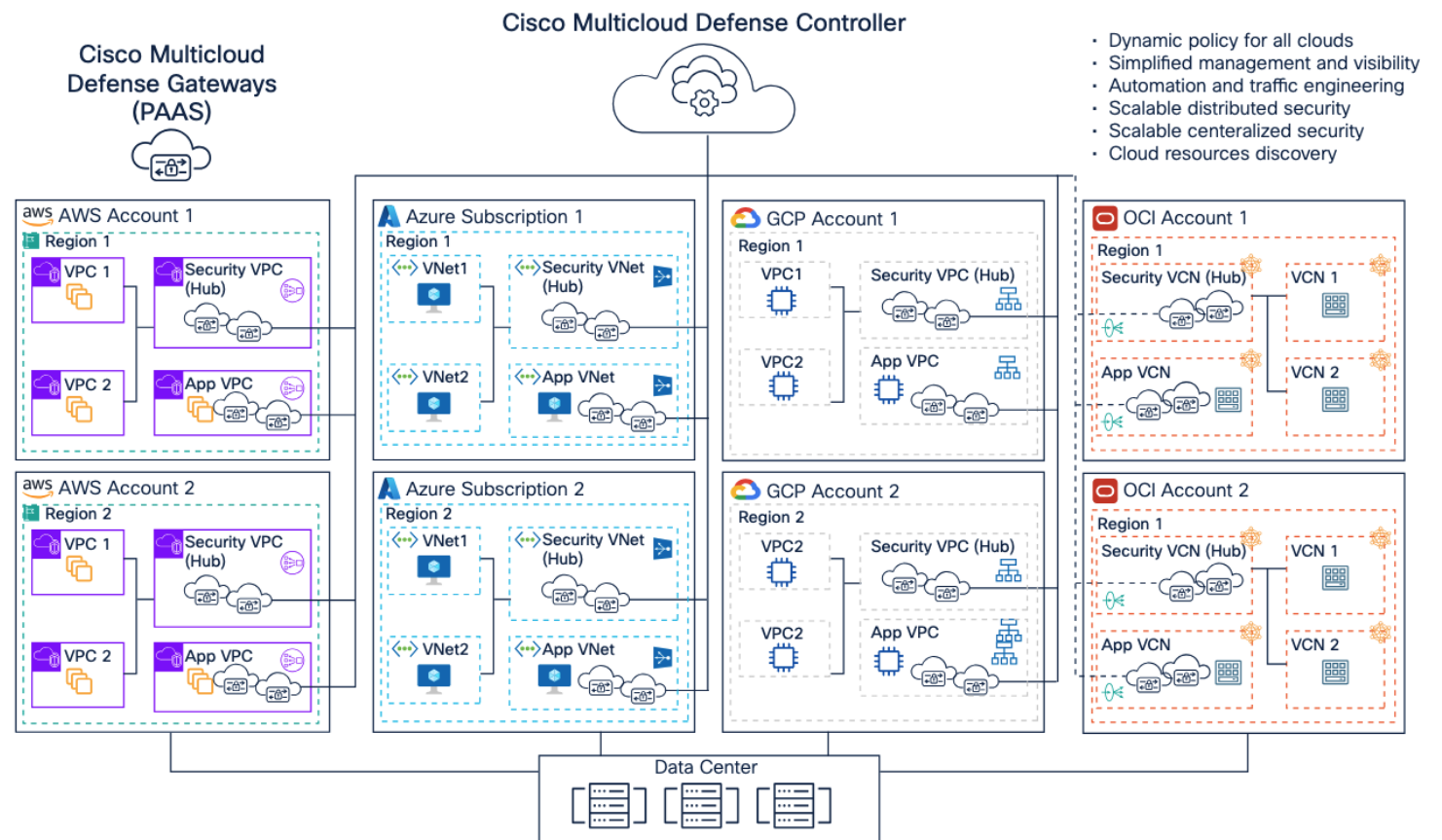
Runs in your Cloud Account. Not as a Cisco Secure Access cloud service.



Learn more attend
BRKENT-2283

Use cases:

- Ingress Security (IPS/IDS/WAF)
- Egress Security
- East/West Segmentation
- Data Loss Prevention (DLP)
- Multicloud Networking



Multicloud Defense Gateways



Ingress Gateway

- ✓ Reverse Proxy
- ✓ TLS decrypt
- ✓ WAF - L7 DoS
- ✓ IDS / IPS
- ✓ Antivirus
- ✓ Geo IP
- ✓ Malicious IP



Egress Gateway

Egress

- ✓ URL filtering
- ✓ Forward proxy
- ✓ TLS decrypt
- ✓ FQDN filtering*
- ✓ FQDN-based firewall policy
- ✓ DLP
- ✓ IDS / IPS
- ✓ Antivirus

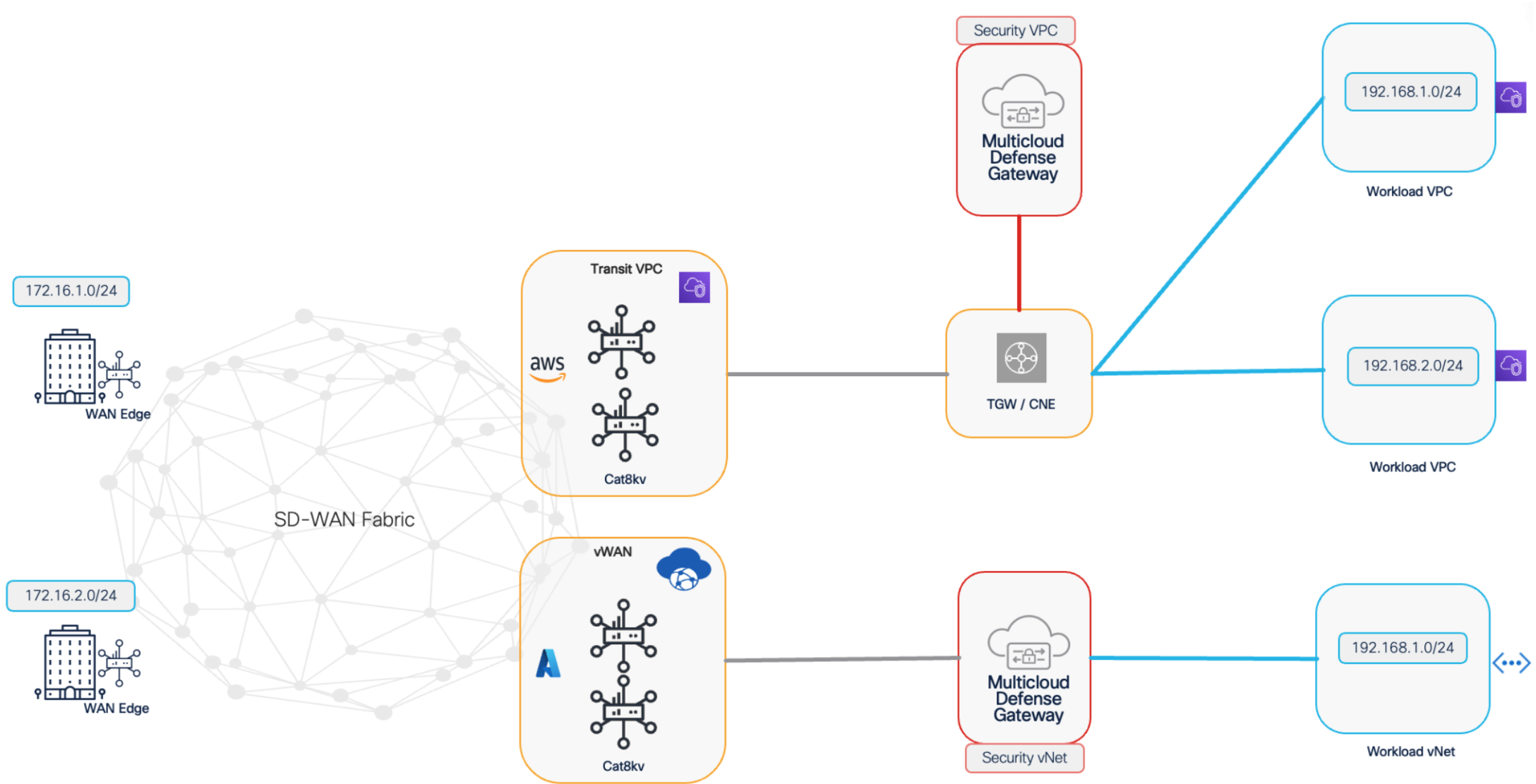
East/West

- ✓ FQDN filtering
- ✓ IPS / IDS
- ✓ Antivirus
- ✓ Segmentation
- ✓ FQDN-based firewall policy
- ✓ TLS decrypt

- Flexible Single Pass Architecture, Available in AWS, Azure, GCP and OCI

* No TLS decryption is needed
Forwarding mode is available on Multicloud Defense Gateway

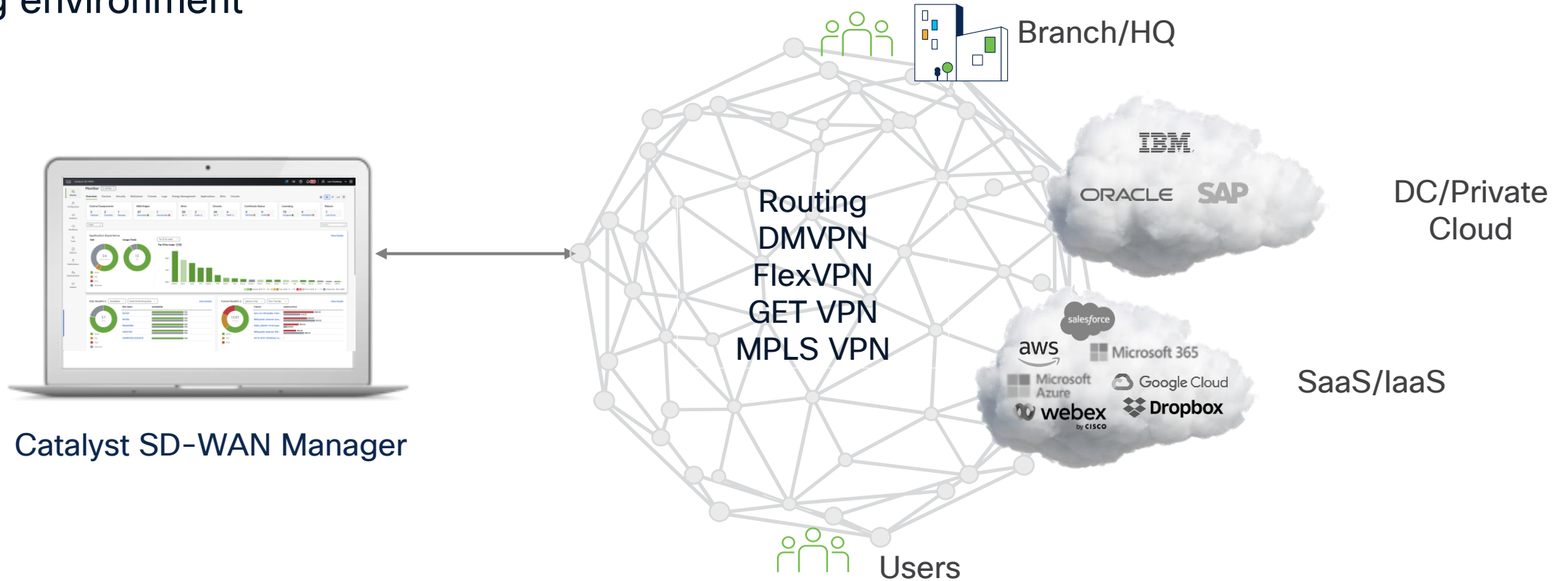
Centralized MCD deployment model



SD-Routing

Introducing SD-Routing

Transform the operational experience for your routing environment



Simplicity and Agility

OpEx Reduction

Future-Ready WAN

Multi-layered Security

SD-WAN vs SD-Routing

Architecture Components

SD-WAN deployment



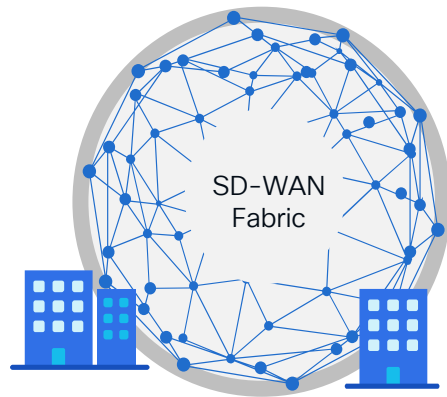
SD-WAN Validator



SD-WAN Manager



SD-WAN Controller



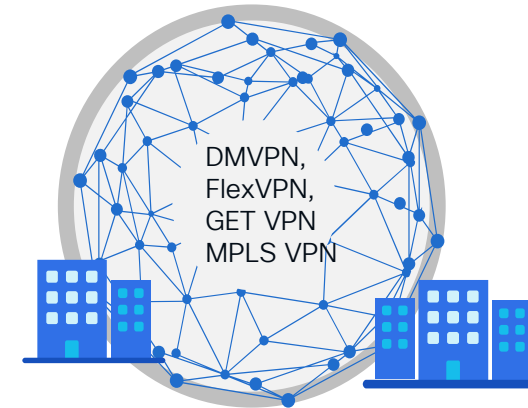
SD-Routing deployment



SD-WAN Validator



SD-WAN Manager



NEW: Cisco Secure Router 8000 Series



ISR 1000



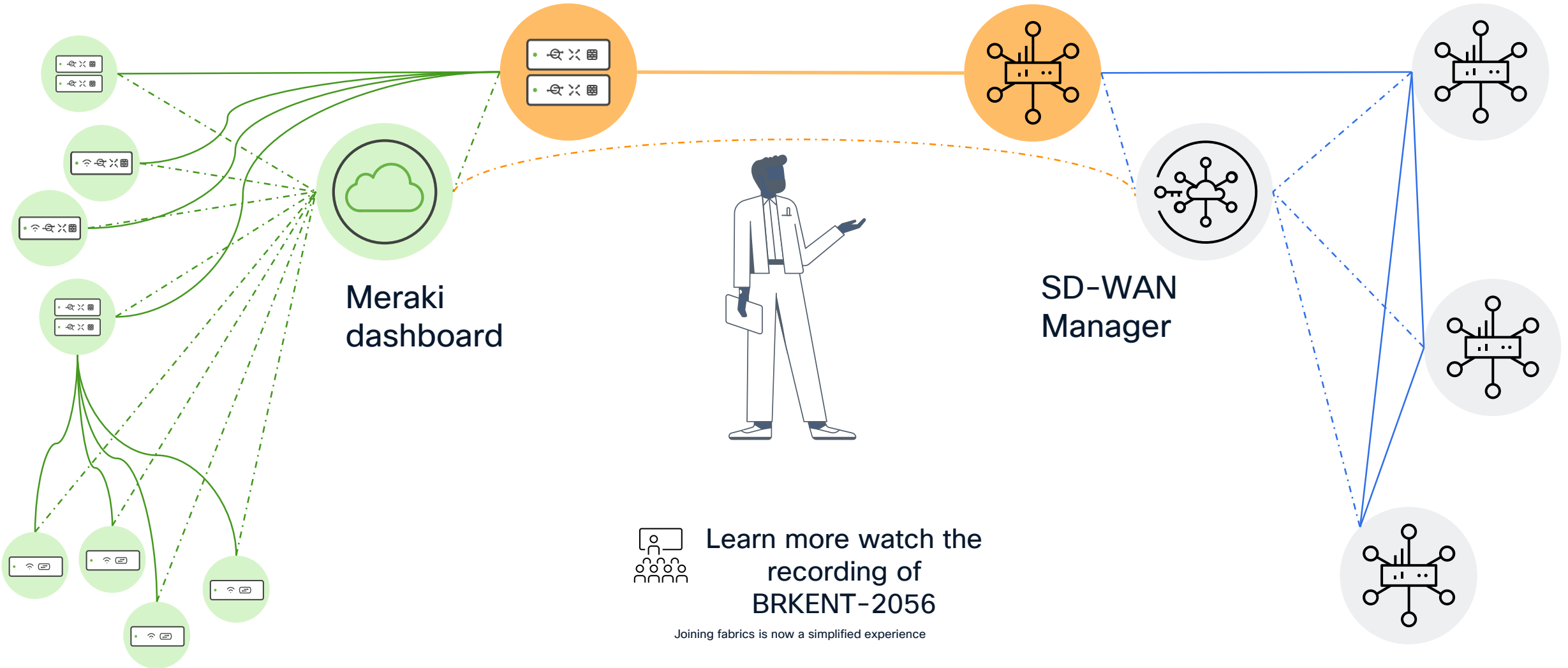
Cisco Catalyst 8000 Series



Cisco IR Series

What about Meraki SD-WAN?

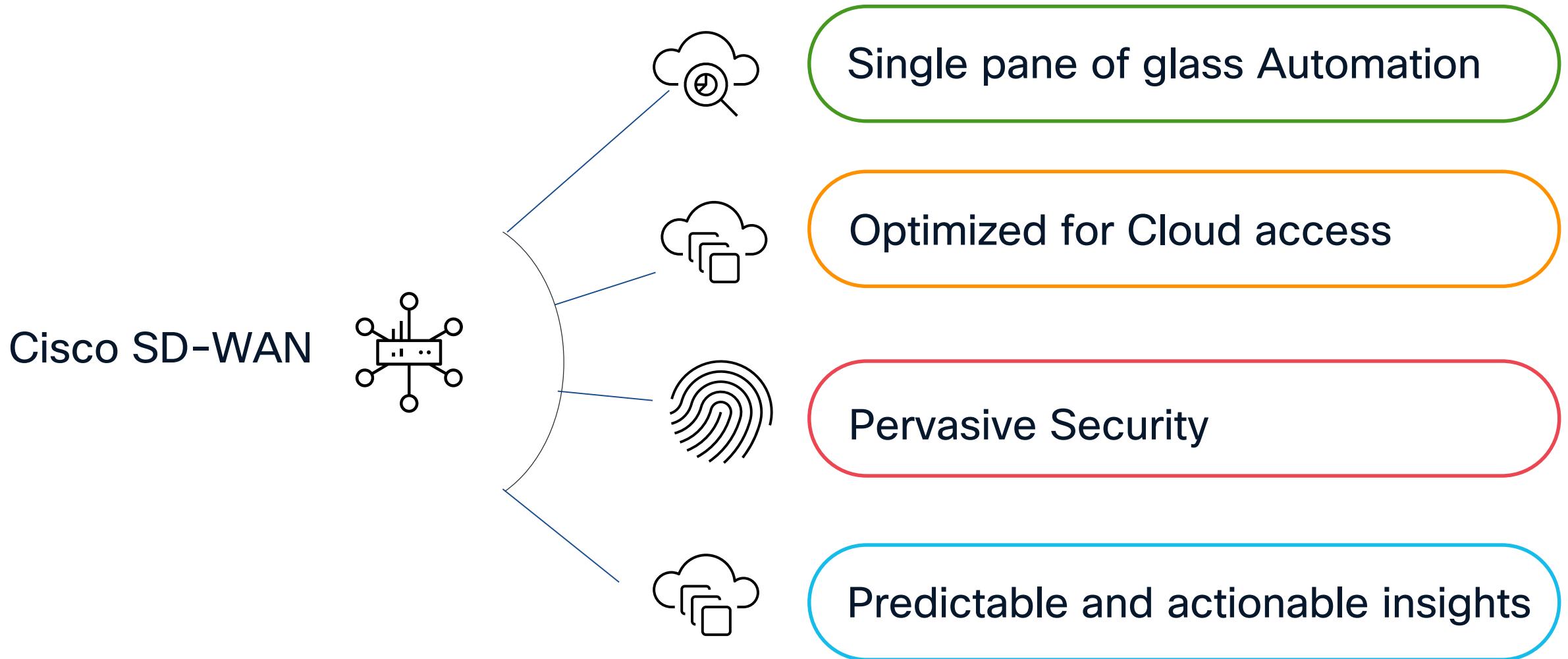
Cisco SD-WAN



Learn more watch the recording of
BRKENT-2056

Joining fabrics is now a simplified experience

Key Takeaways



SD-WAN - This is it.

Networking

SD-WAN

Learn how to confidently deploy and operate Cisco SD-WAN solutions. These sessions provide a journey from fundamentals to the latest SD-WAN innovations focusing on design, troubleshooting, and integrations with Cloud, SASE, and Assurance/Analytics.

START

- Monday, June 9 | 8:00 a.m.
BRKENT-2108
Cisco Catalyst SD-WAN: Start Here
- Monday, June 9 | 10:00 a.m.
BRKENT-2708
Elevating the Security in your SD-WAN
- Monday, June 9 | 3:30 p.m.
BRKENT-2660
Customer Case Studies: Less Learned from the Cisco SD-WAN Design Council
- Monday, June 9 | 4:00 p.m.
BRKENT-2176
Meraki MX Next-Gen SD-WAN and SD-Internet Connectivity Dual-Stack
- Tuesday, June 10 | 3:00 p.m.
BRKENT-1656
Beginner's Guide to ThousandEyes

FINISH

- Tuesday, June 10 | 4:00 p.m.
BRKENT-2283
7 Steps: Master the art of unifying Multicloud secure Connectivity and Design - Cisco SD-WAN + Multicloud Defense
- Wednesday, June 11 | 10:30 a.m.
BRKENT-2351
How Catalyst SD-WAN Analytics & Insights Powers Faster Mean Time to Innocence!
- Wednesday, June 11 | 2:30 p.m.
BRKENT-2166
End to End Segmentation with Cisco Catalyst SD-WAN and ISE
- Thursday, June 12 | 10:30 a.m.
BRKENT-3797
Advanced Catalyst SD-WAN Policies Troubleshooting

Complete your session evaluations



Complete a minimum of 4 session surveys and the Overall Event Survey to be entered in a drawing to win 1 of 5 full conference passes to Cisco Live 2026.



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Thank you

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