

Building Digital Resilience for AI-Driven Applications with Cisco SD-WAN and ThousandEyes



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Building the Future Today



The future is within reach today!

How Amazon Uses Artificial Intelligence: The Flywheel Approach

Let's face it: Amazon's got an edge.

As an early adopter of **artificial intelligence**, and one of the first companies to build their business around **AI and machine learning**,

[Home](#) / [Press](#) / [Releases](#)



PRESS RELEASE

Target to Roll Out Transformative GenAI Technology to its Store Team Members Chainwide

Walmart Partners with OpenAI to Create AI-First Shopping Experiences

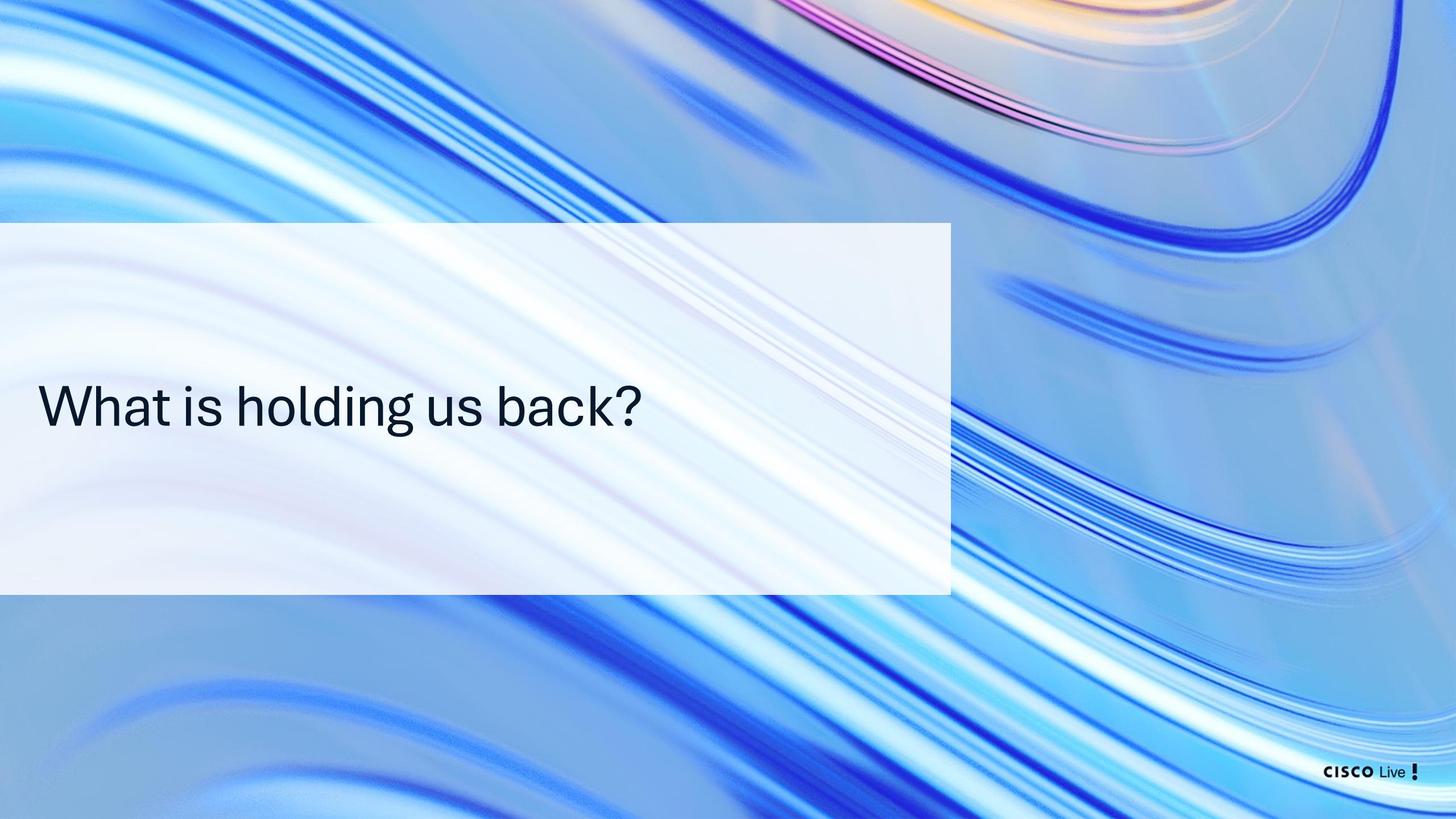
From inspiration to purchase, Walmart and Sam's Club are shaping the future of retail, connecting with customers and members at every step.

Key Insights

- Partnership will allow customers and members to complete purchases from Walmart directly within ChatGPT.
- Through AI-first shopping, the retail experience shifts from reactive to proactive as it learns, plans and predicts, helping ir needs before they do.

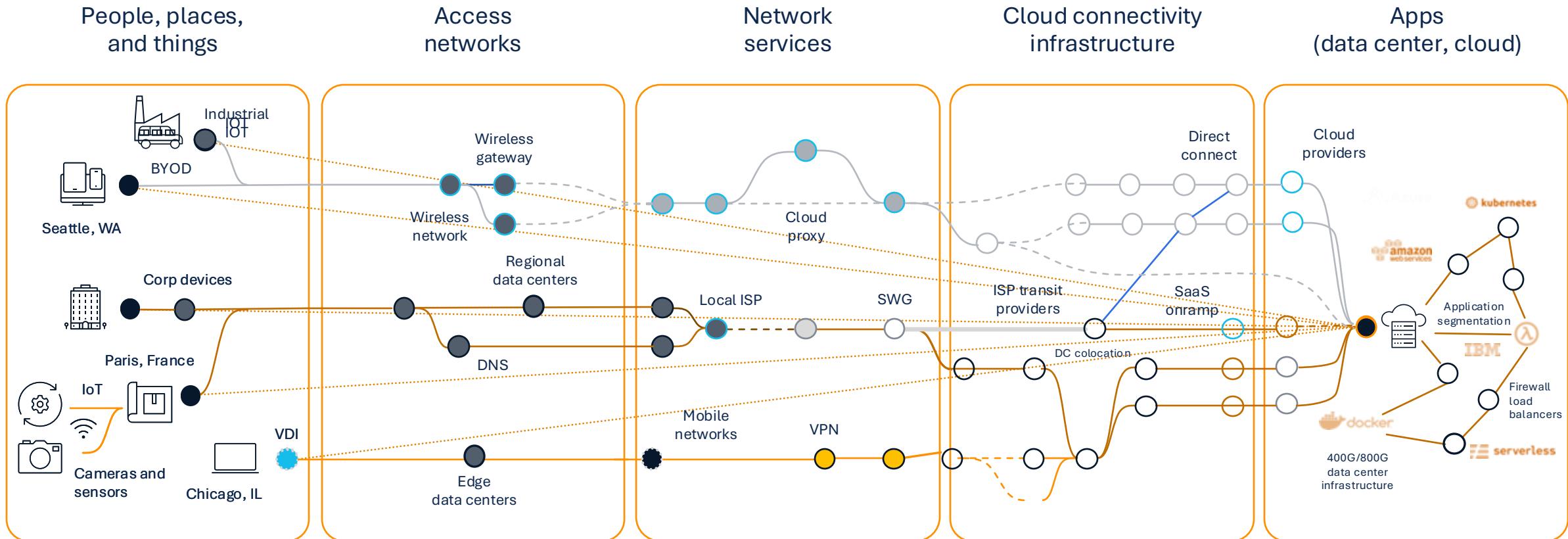
In the multiple ways Walmart and Sam's Club are already using AI, like enhancing product catalogs, :resolution times and promoting AI literacy among associates.





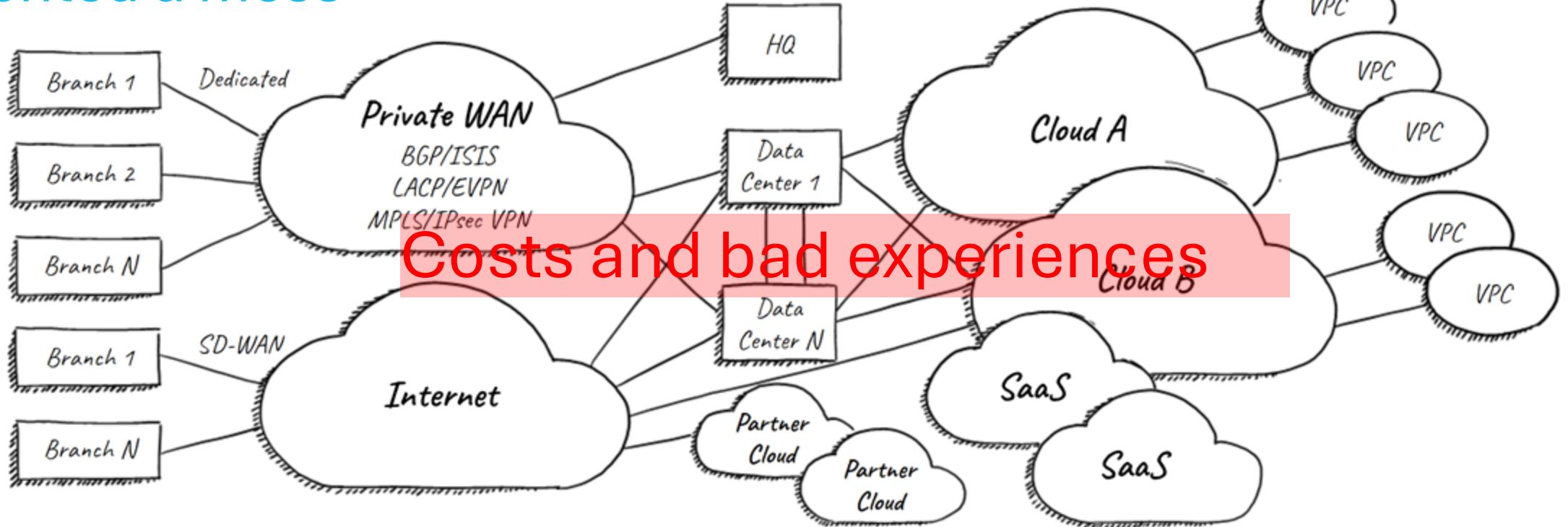
What is holding us back?

The General Landscape



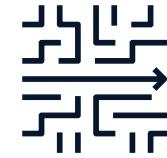
How You See It

Inherited a mess



Management points

What you ask Cisco to build?



Simple

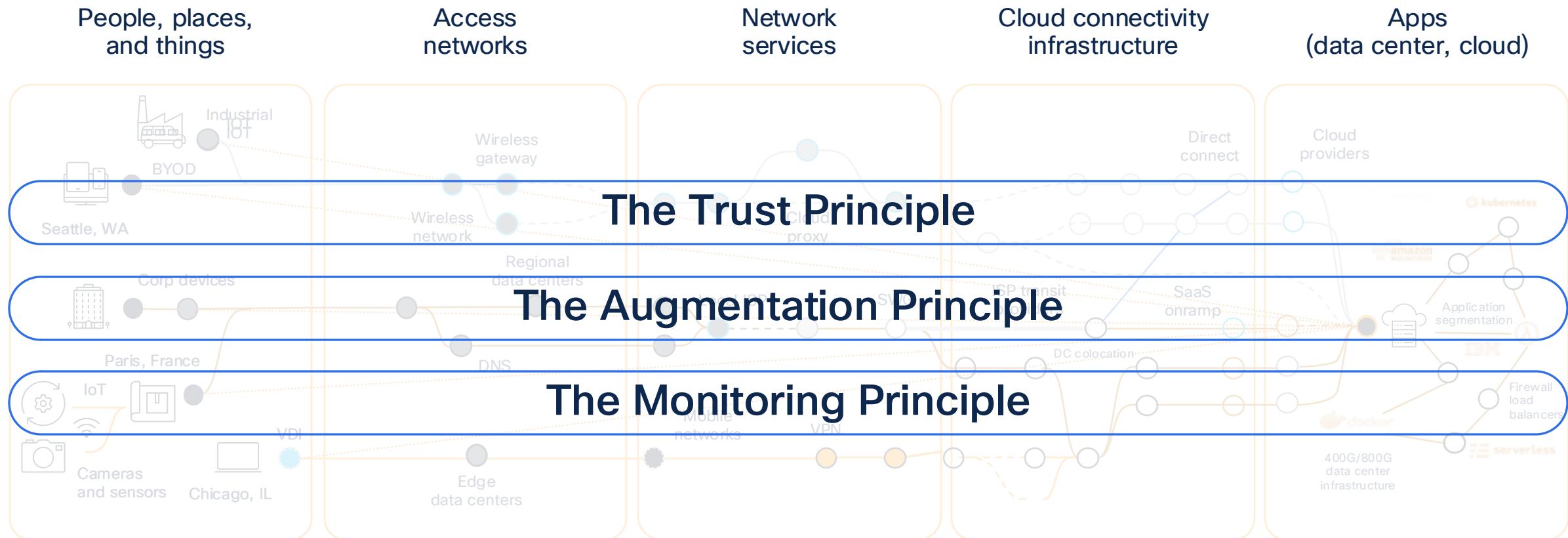


Predictable



Outcome driven

Deriving the Principles



The Augmentation Principle

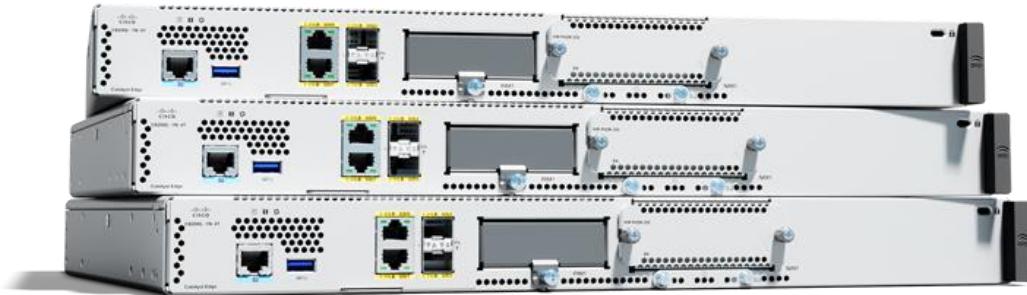


Toaster

Espresso Machine

Coke Zero

How do you consume Cisco's awesome technology?



Browse Routing Features

Search

- 254/0 DMVPN - Enabling traffic Seg...
- 256+ VLANs
- 2x10G IM Support
- 2x2 BAU RPD support(cBR8)
- 2x40GE EPA w/**MACSec**
- 3 Level Egress QoS Policy
- 3-level user-defined queuing policy ...
- 3.1.8 Extend AAA Radius server (TAC...
- 30G NSI Slot w/ SUP-160
- 3rd party SFP support
- 4 Level Scheduler
- 4/8 ports layer2 GE switch NIM mod...
- 40,000 subscriber scaling with certai...
- 40K Multicast Session
- 4293 IP-MIB (IPv6 only) and RFC 42...
- 5000 MEP Support
- 5G SA PIM - Software Support
- 5G SDH

<https://cfnng.cisco.com/browse/routing/features>



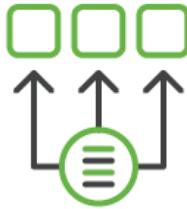
Automating feature
consumption

Guidelines



AIOps

Automatically enable widely adopted elements that establish a strong, secure baseline by default.



Common Services

Reuse the same elements across platforms



“Consumable” API-first

Simple pre-built, drag and drop automations



Enabling great Cisco innovation easily and effortlessly

AIOps: Simplifying Day-2 Operations



Optimize network and application performance to achieve higher operational efficiency

Predictive Path Recommendations

Path recommendations to Improve Application Performance

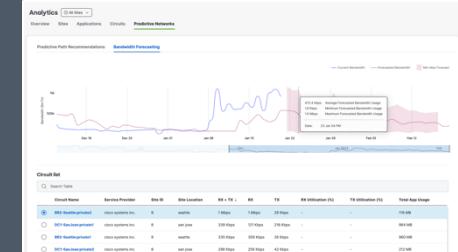
AI Assistant for Networking

Interactive LLM-based AI Assistant for Networking (Gen AI)



Mitigate issues before they impact. In case issues do occur, offer root cause analysis to reduce MTTR

Bandwidth Forecasting



AI/ML-based forecasting
Capacity planning

Anomaly Detection



Detect Network Anomalies

AIOps: Predictive Path Recommendations

Powered by ThousandEyes WAN Insights



Forecast issues and make policy recommendations

1. Ingest Telemetry

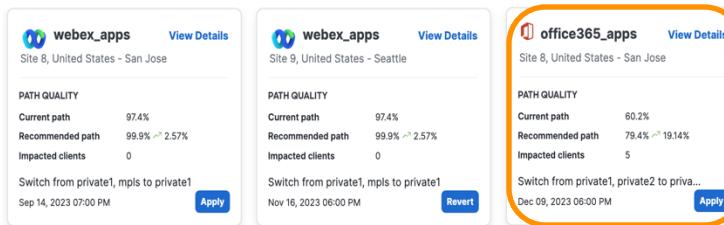
Collect network telemetry
via SD-WAN Analytics

2. Data Analysis

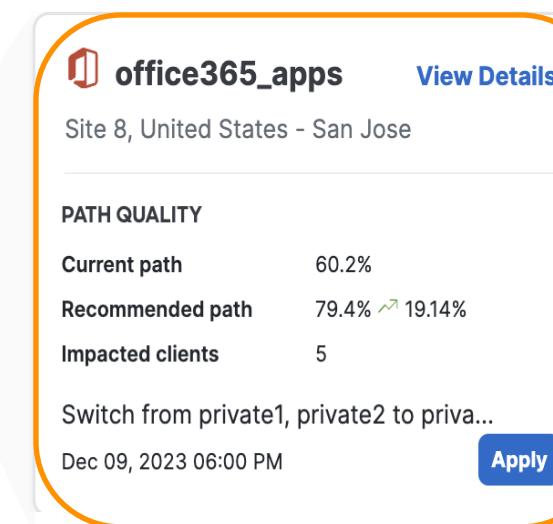
Predictive modeling to
forecast issues & make path
recommendations

3. Feedback Loop

Fine-tune SD-WAN policies to
make path changes to improve
App experience



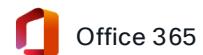
Transforming IT operations from a
reactive to a predictive model



Current & Recommended
Path Quality with
estimated % gain

Recommends the path
to switch to

Out-of-the-box Application Groups



Office 365



Webex



Google Workspace



Salesforce



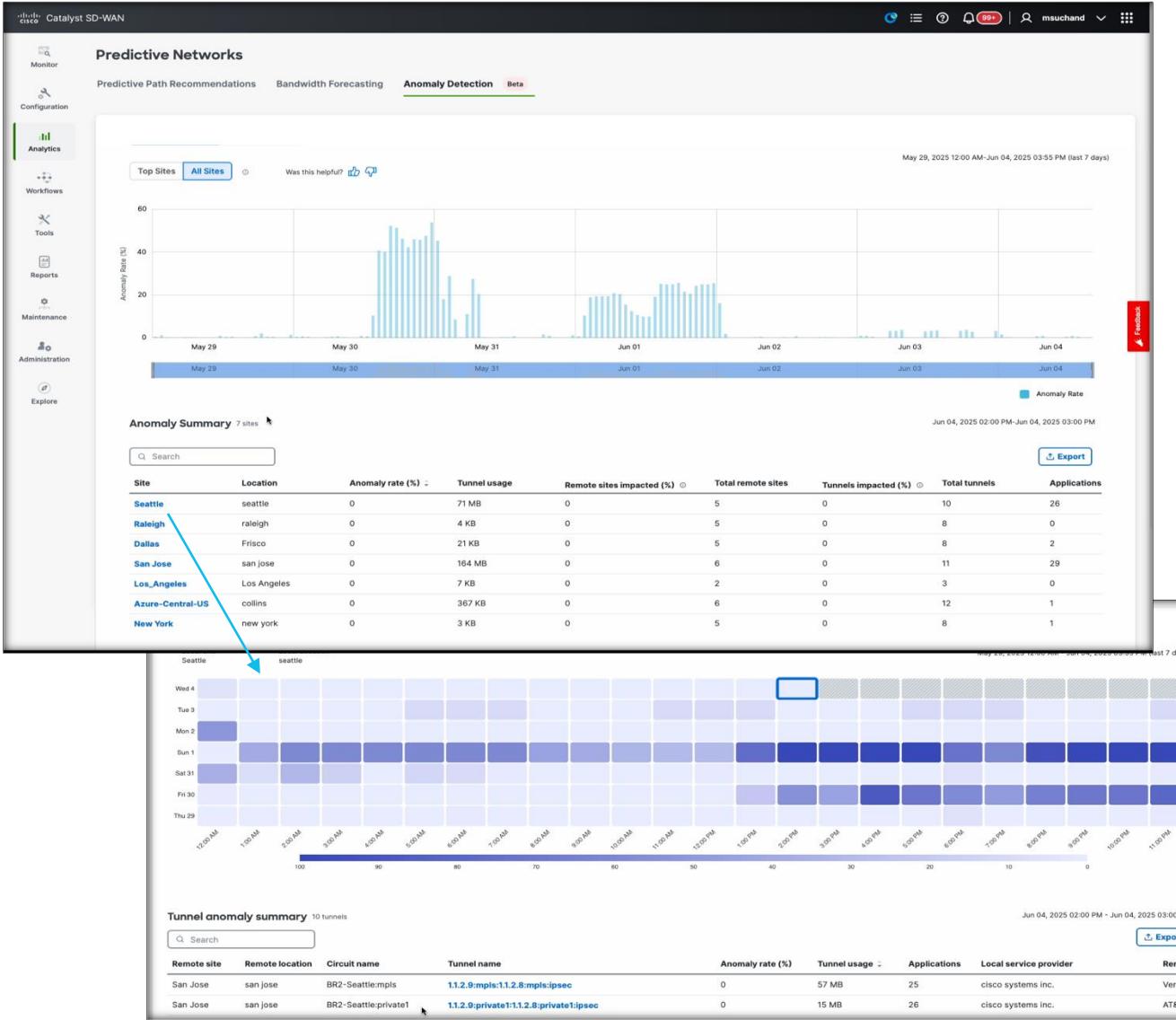
GoTo Meeting



Voice

- Included with SD-WAN DNA Advantage+ license; ThousandEyes Enterprise Agent not necessary

AIOps: Anomaly Detection



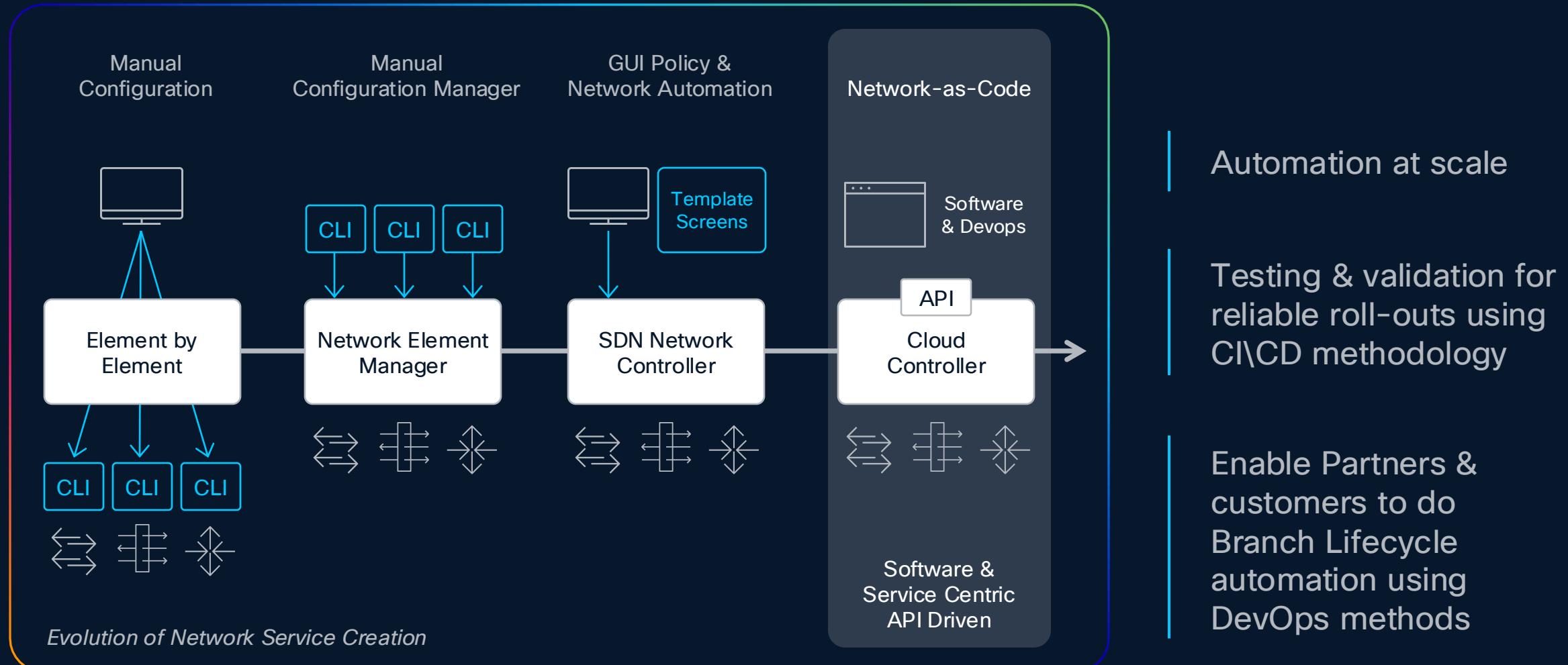
Benefits

- Early problem detection: Identify unusual patterns before they manifest into larger issues
- Optimize network performance: Fine-tune your network to improve end-user experience

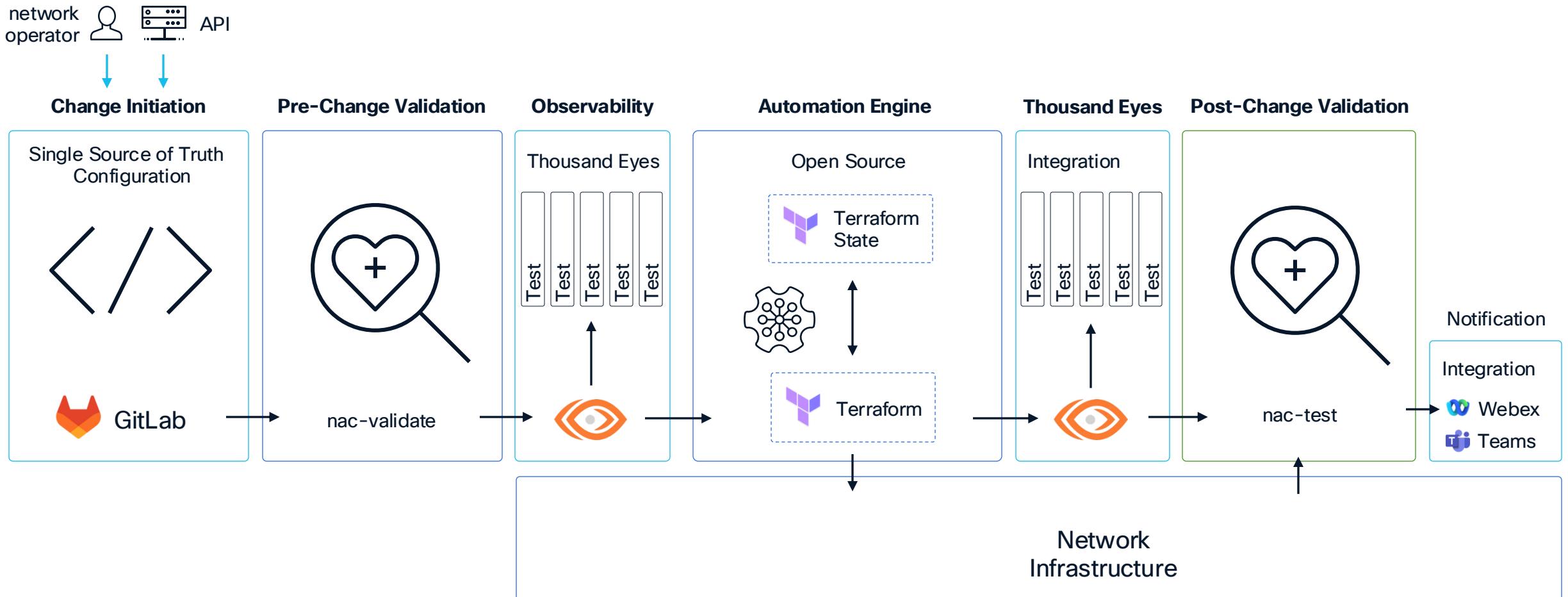
Highlights

- Identify tunnels with anomalies across key network KPIs (loss, latency, jitter)
- Determine impact radius based on site count, usage & app count
- Determine if it's a chronic issue by viewing the trend information

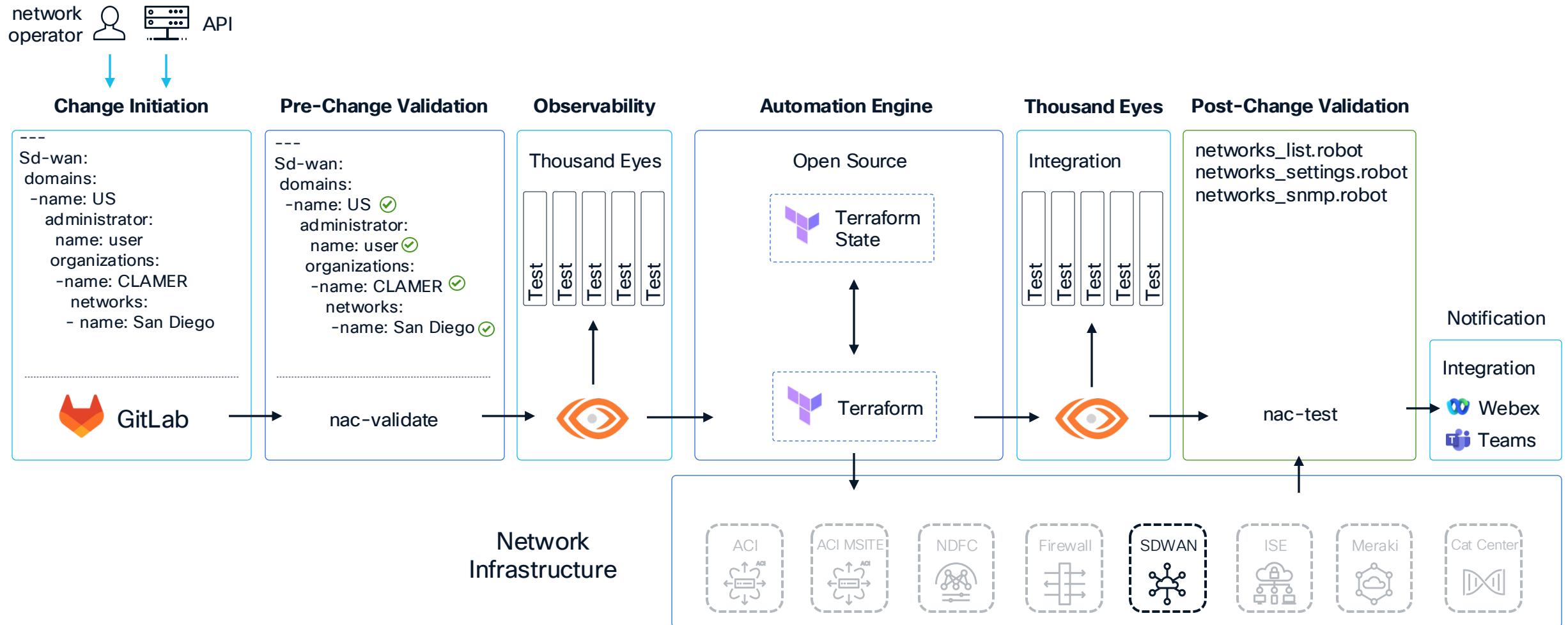
Next Chapter of Networking: Network as a Code



Orchestrating the entire change lifecycle programmatically



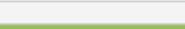
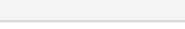
How “as Code” Pipeline is structured



Post-Change Validation

Results Log

Test Statistics

Total Statistics		Total	Pass	Fail	Skip	Elapsed	Pass / Fail / Skip
All Tests		601	368	0	233	00:02:00	
Statistics by Tag							
No Tags		Total	Pass	Fail	Skip	Elapsed	Pass / Fail / Skip
Statistics by Suite							
Results		601	368	0	233	00:00:24	
Results.Config		601	368	0	233	00:00:23	
Results.Config.Devices Appliance Uplinks Settings		7	1	0	6	00:00:02	
Results.Config.Devices List		42	42	0	0	00:00:13	
Results.Config.Devices Switch Ports List		52	27	0	25	00:00:06	
Results.Config.Devices Switch Routing Interfaces Dhcp		11	10	0	1	00:00:03	
Results.Config.Devices Switch Routing Interfaces List		6	6	0	0	00:00:03	
Results.Config.Devices Switch Routing Static Routes List		6	5	0	1	00:00:03	
Results.Config.Devices Wireless Bluetooth Settings		21	3	0	18	00:00:02	
Results.Config.Devices Wireless Radio Settings		14	0	0	14	00:00:00	
Results.Config.Networks Appliance Firewall Firewallled Services List		9	7	0	2	00:00:03	
Results.Config.Networks Appliance Firewall L3 Firewall Rules		2	1	0	1	00:00:04	
Results.Config.Networks Appliance Firewall One To Many Nat Rules		1	1	0	0	00:00:01	
Results.Config.Networks Appliance Firewall One To One Nat Rules		1	1	0	0	00:00:02	
Results.Config.Networks Appliance Firewall Port Forwarding Rules		1	1	0	0	00:00:01	

CONFIG VALIDATE

5

Post-Change Validation

appliance_uplink.robot
devices_list.robot

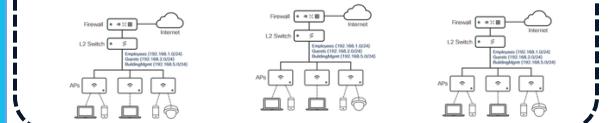
....
networks_list.robot
networks_settings.robot
networks_snmp.robot
....

Notification

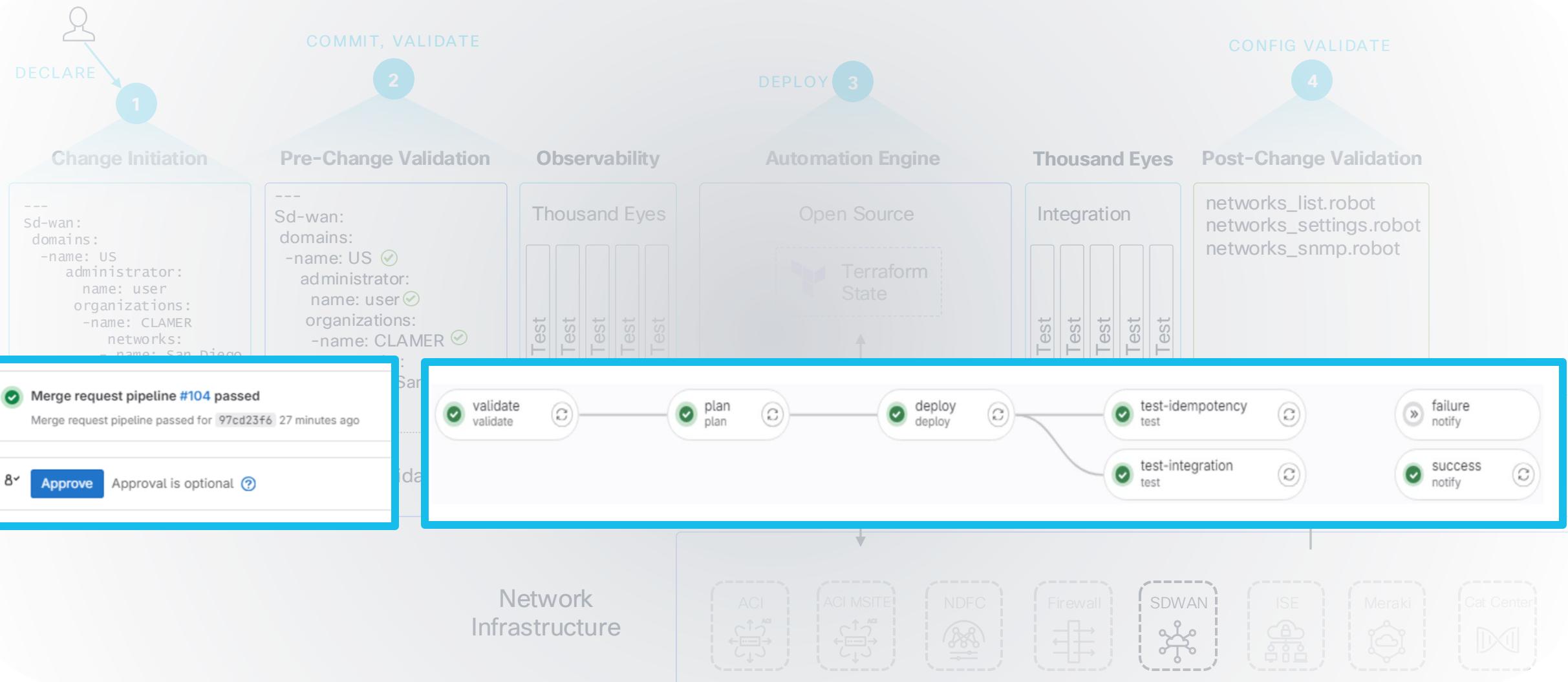
Integration
 Webex
 Teams

nac-test

SD-WAN



Pipeline Successfully Executed



Outcomes



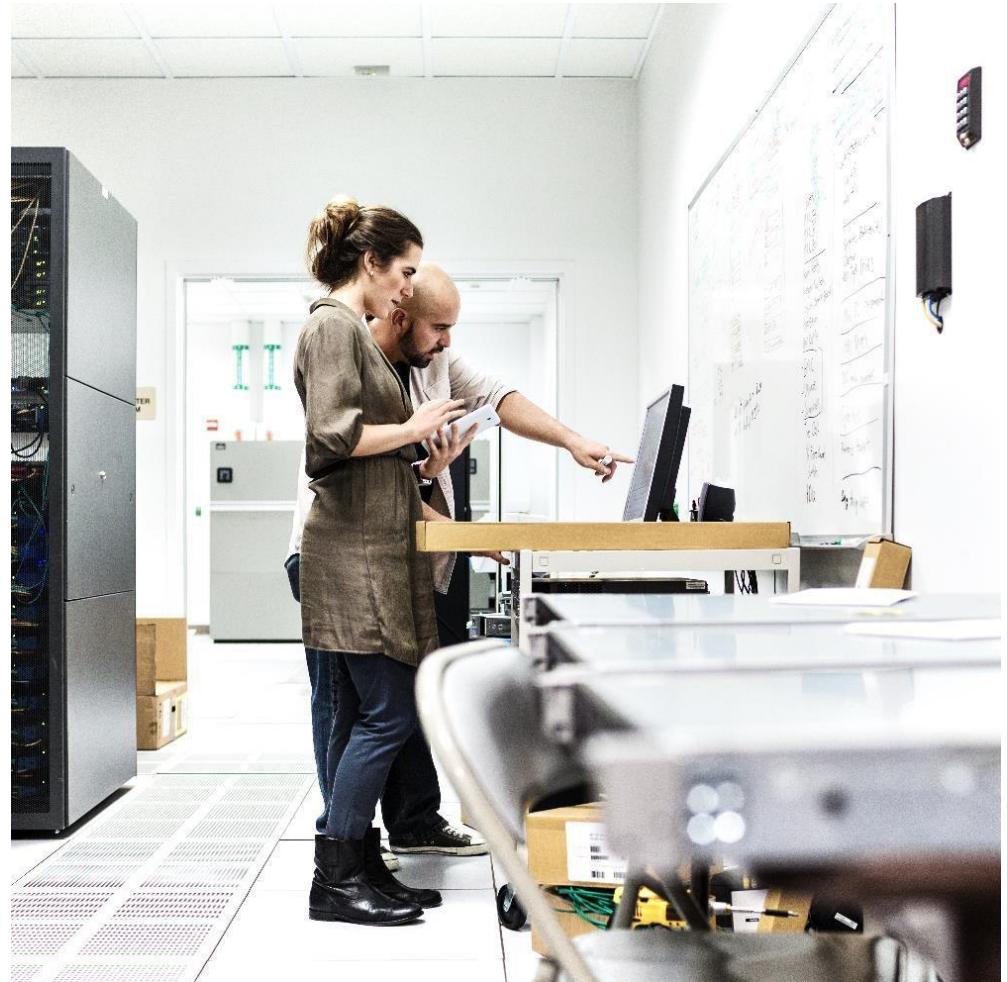
Deploy change 5x faster



Prevent outages to ensure 98+% change success



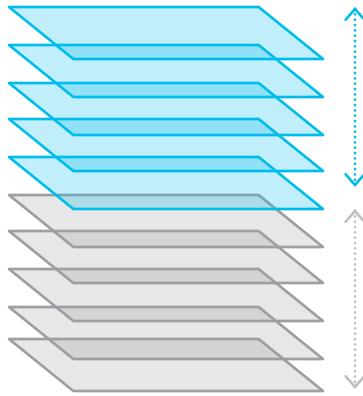
Predictable costs and project time



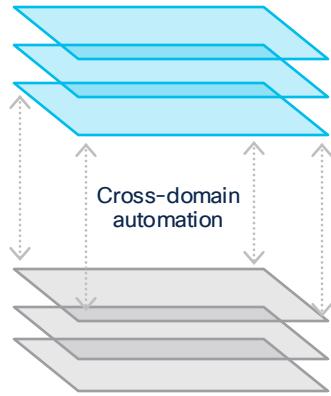
Management Experience

Unifying the Management Experience

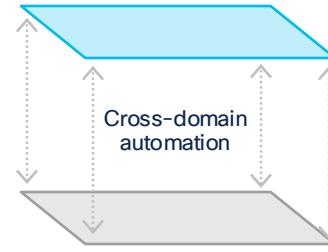
Multiple cloud platforms



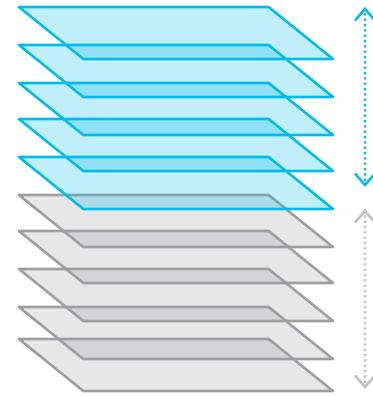
Fewer cloud platforms



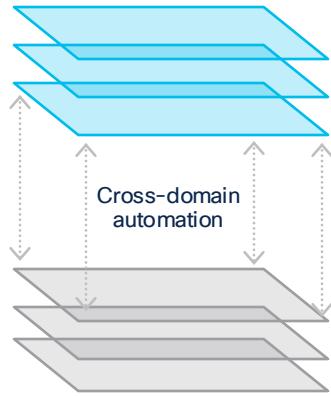
Single cloud platform



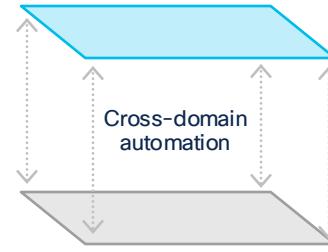
Multiple on-prem platforms



Fewer on-prem platforms

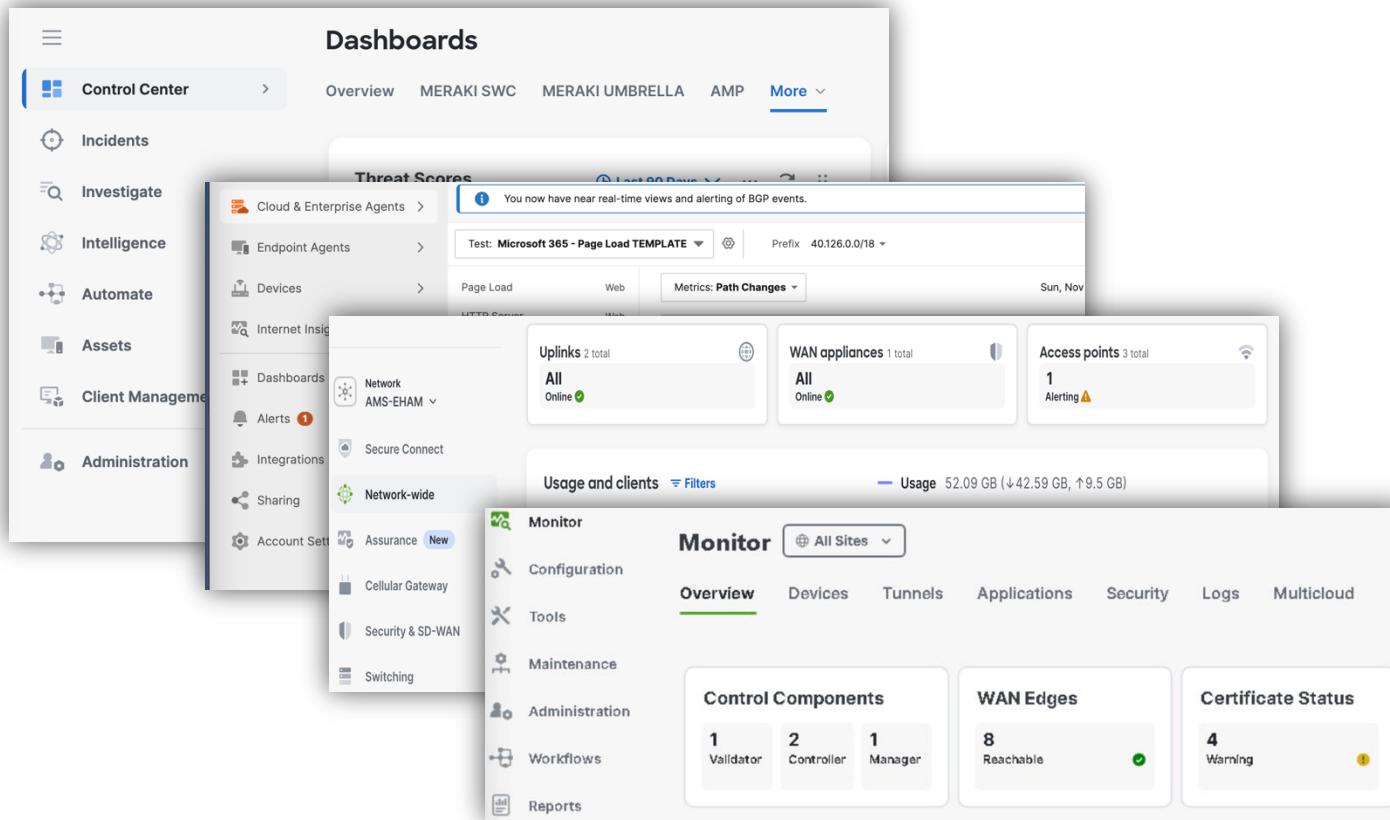


Single on-prem platform



Operational Translation

Admin experience



The screenshot shows the Cisco Meraki Control Center interface. The left sidebar includes sections for Control Center, Incidents, Investigate, Intelligence, Automate, Assets, Client Management, and Administration. The main dashboard displays Threat Scores, Cloud & Enterprise Agents, Endpoint Agents, Devices, and Internet Insights. A central panel shows Uplinks, WAN appliances, and Access points. Below this is a Usage and clients section. The bottom section is a Monitor panel with tabs for Overview, Devices, Tunnels, Applications, Security, Logs, and Multicloud. It displays Control Components (1 Validator, 2 Controller, 1 Manager), WAN Edges (8 Reachable), and Certificate Status (4 Warning).

Developer experience



The screenshot shows a developer interface with tabs for networks, configure, and syslogServers. The main content is titled "Get Network Syslog Servers". It includes an "Operation Id: `getNetworkSyslogServers`" and a "Description: List the syslog servers for a network". Below this is a code block for a GET request: `GET /networks/{networkId}/syslogServers`.

OpenAPI Spec

Common Cisco Hardware



Working with Cisco, Simplified

Essentials



Advantage

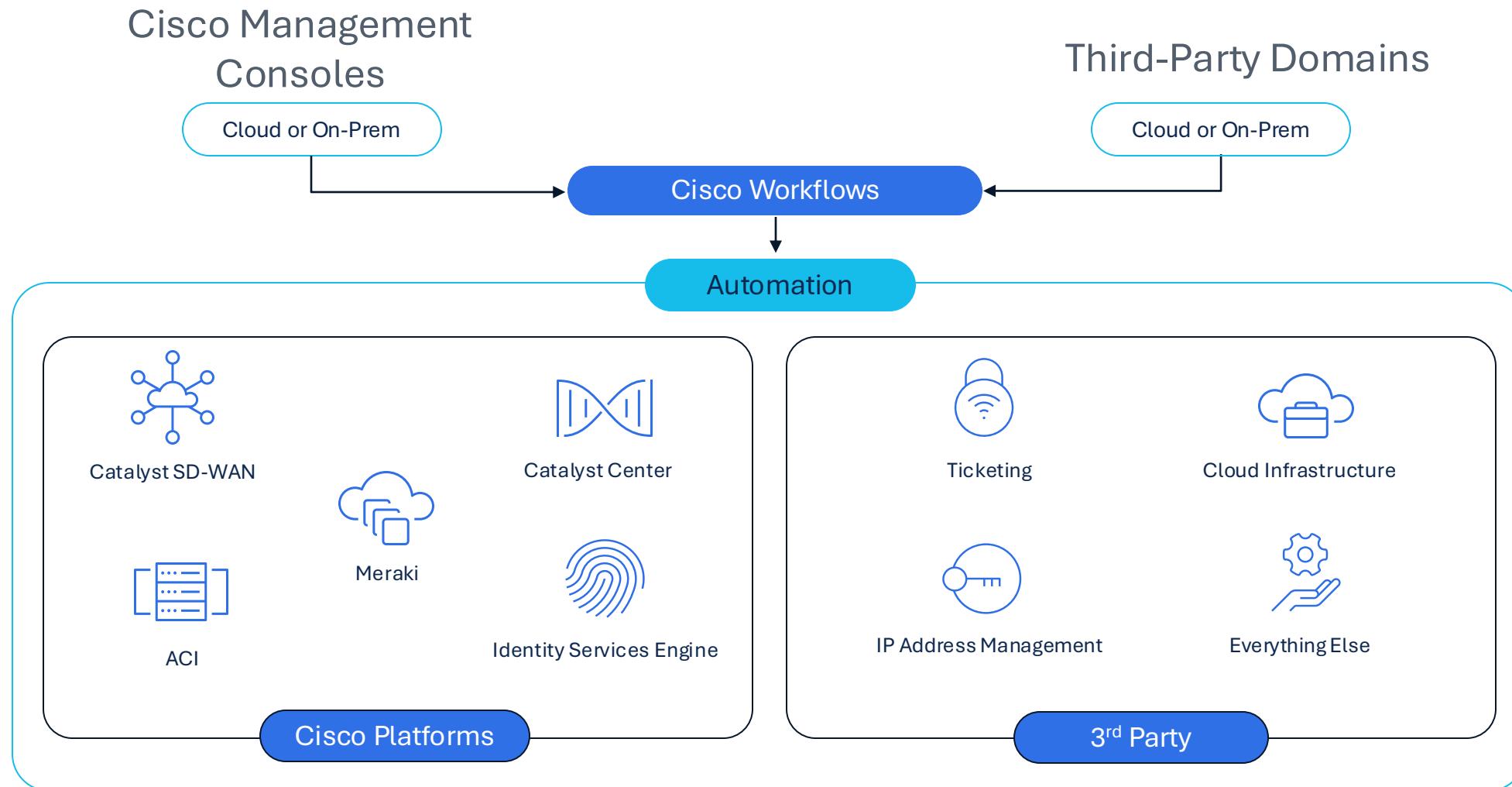


Common nomenclature
Simpler tiering

Cisco Workflows

LABENT-
1007

Central Automation for your entire infrastructure



The Monitoring Principle

Which camp are you on?



Maintenance Window



Assume it all works until
there are complaints



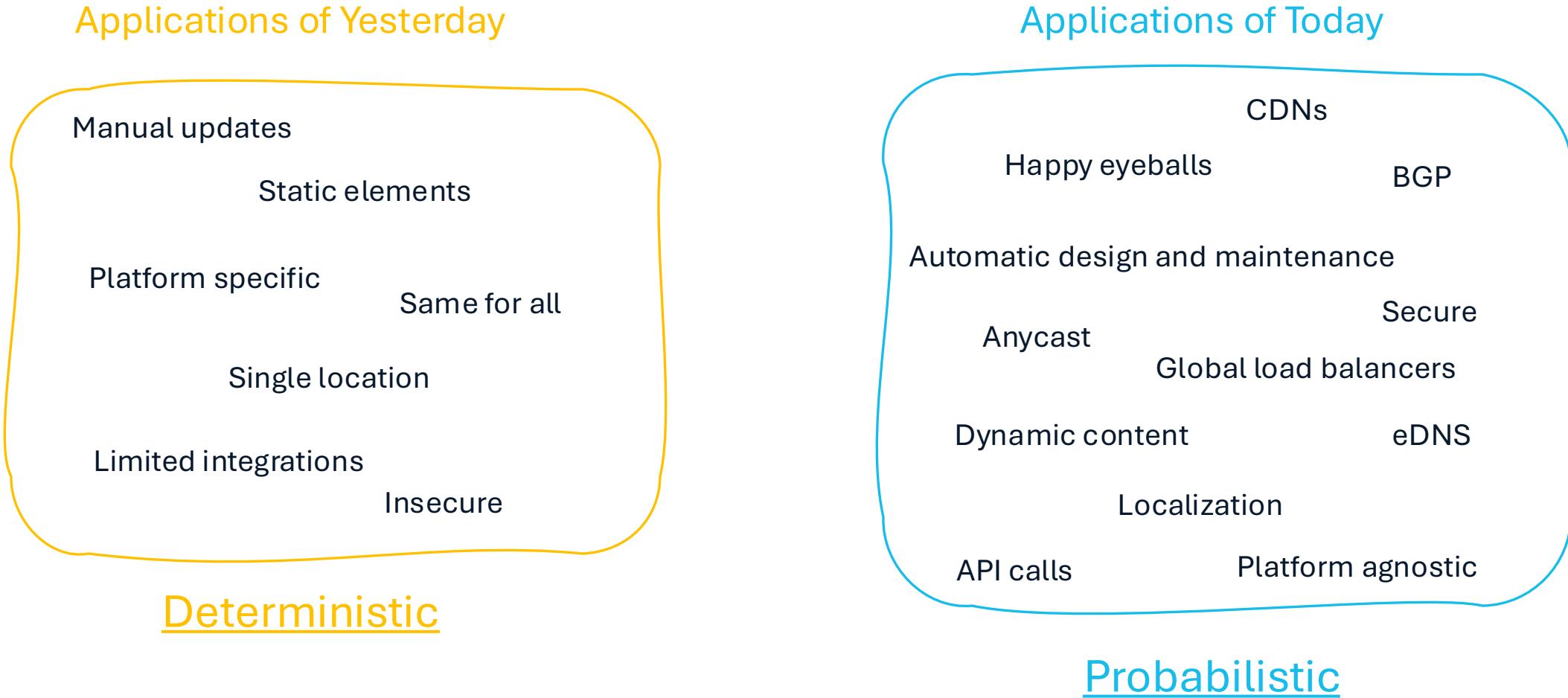
Know the state of things
most of the time



monitoring Architecture
(Monitoring)



It's a Complex App World



Directives



Transformation

Increase speed and agility with data



Risk Mitigation

Secure networking by default



Assurance

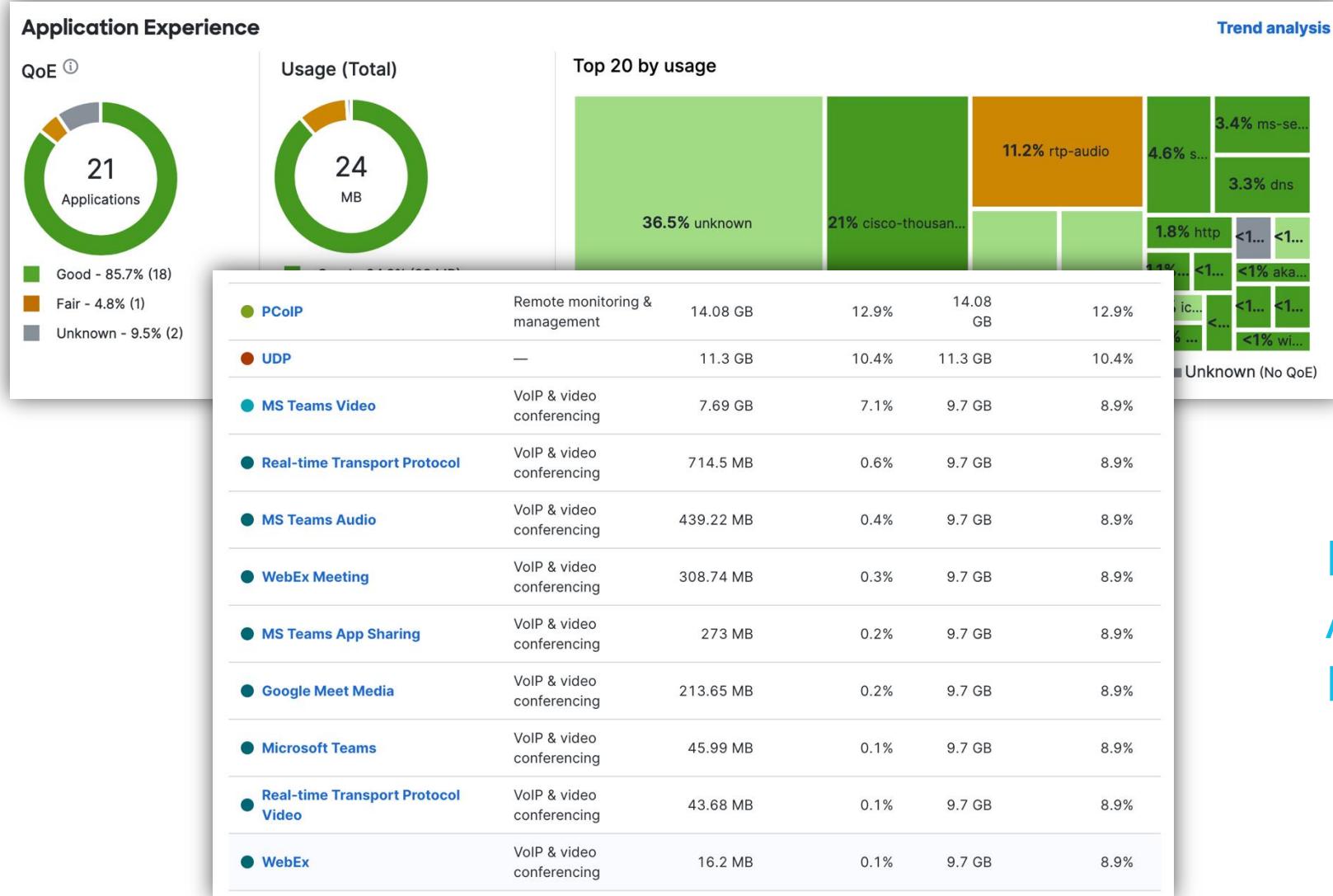
Measure everything



Building a secure data foundation for the AI era

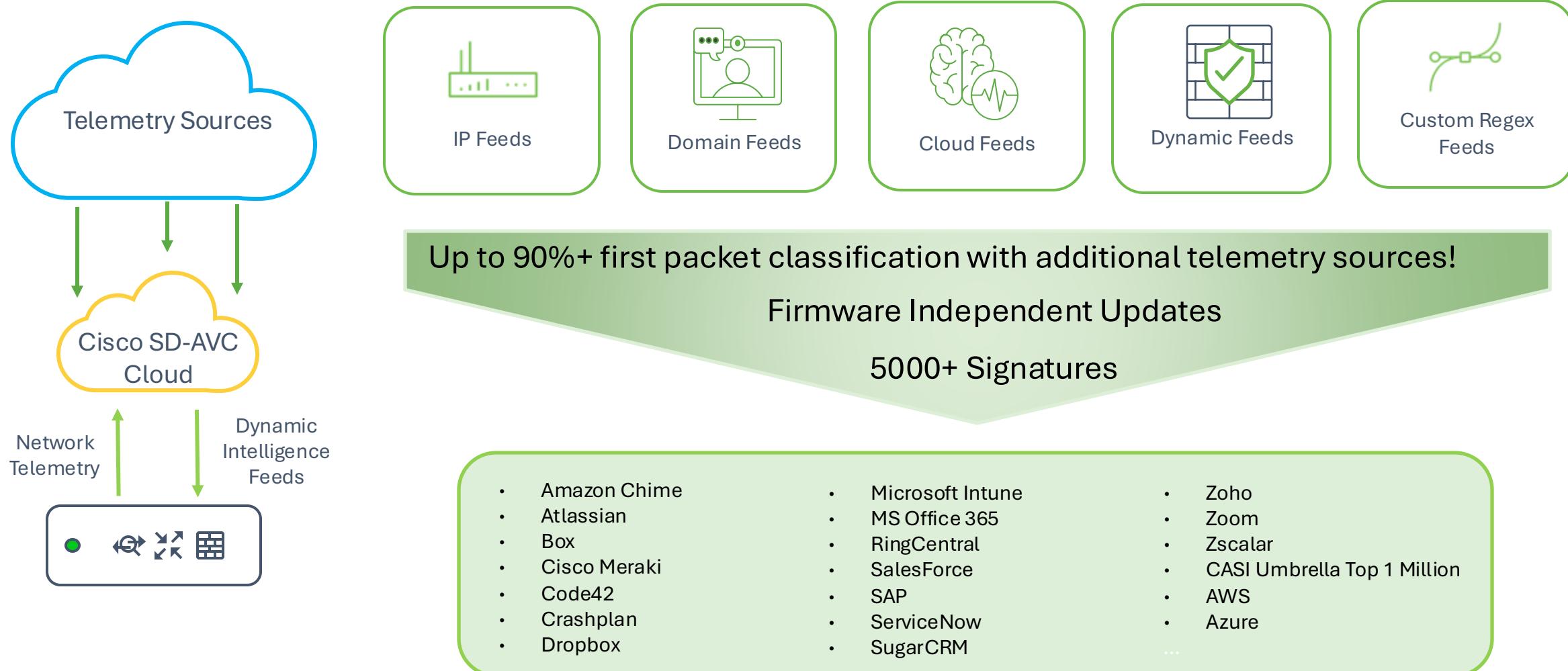
Data Generation

Deep Packet Inspection

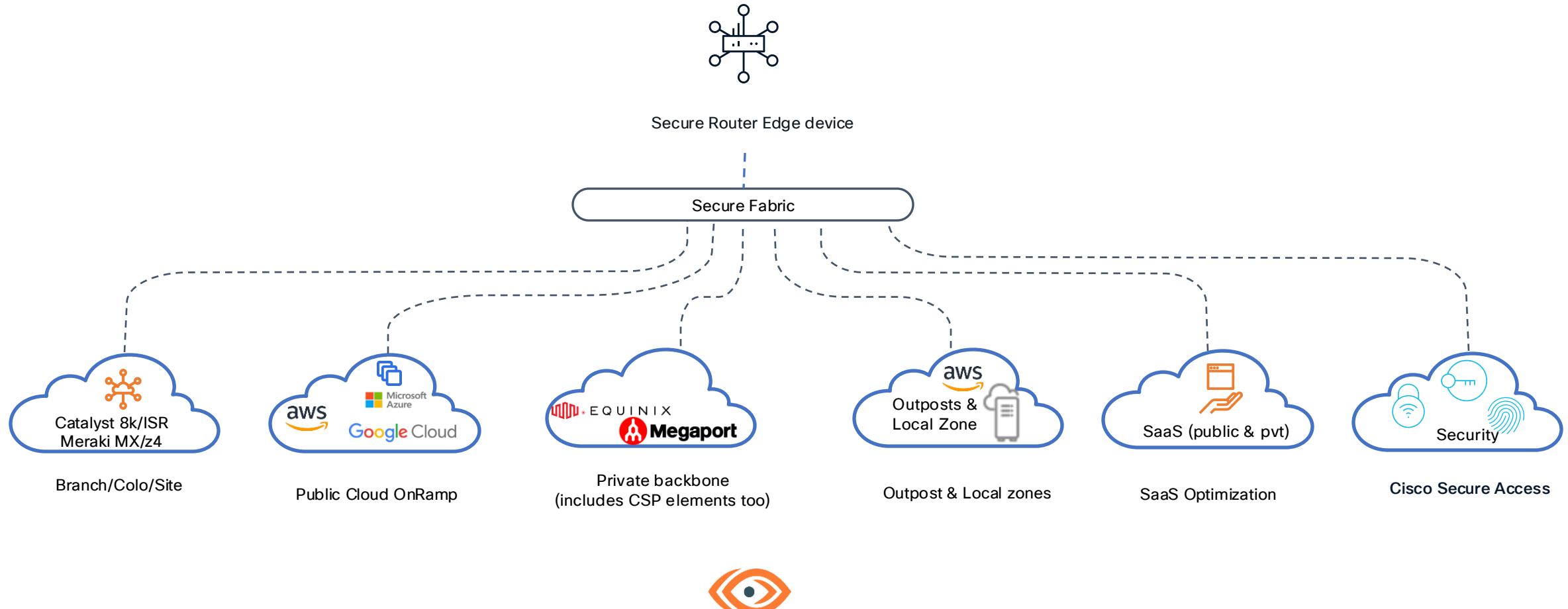


Network-based
Application
Recognition (NBAR)

Cisco Cloud SD-AVC

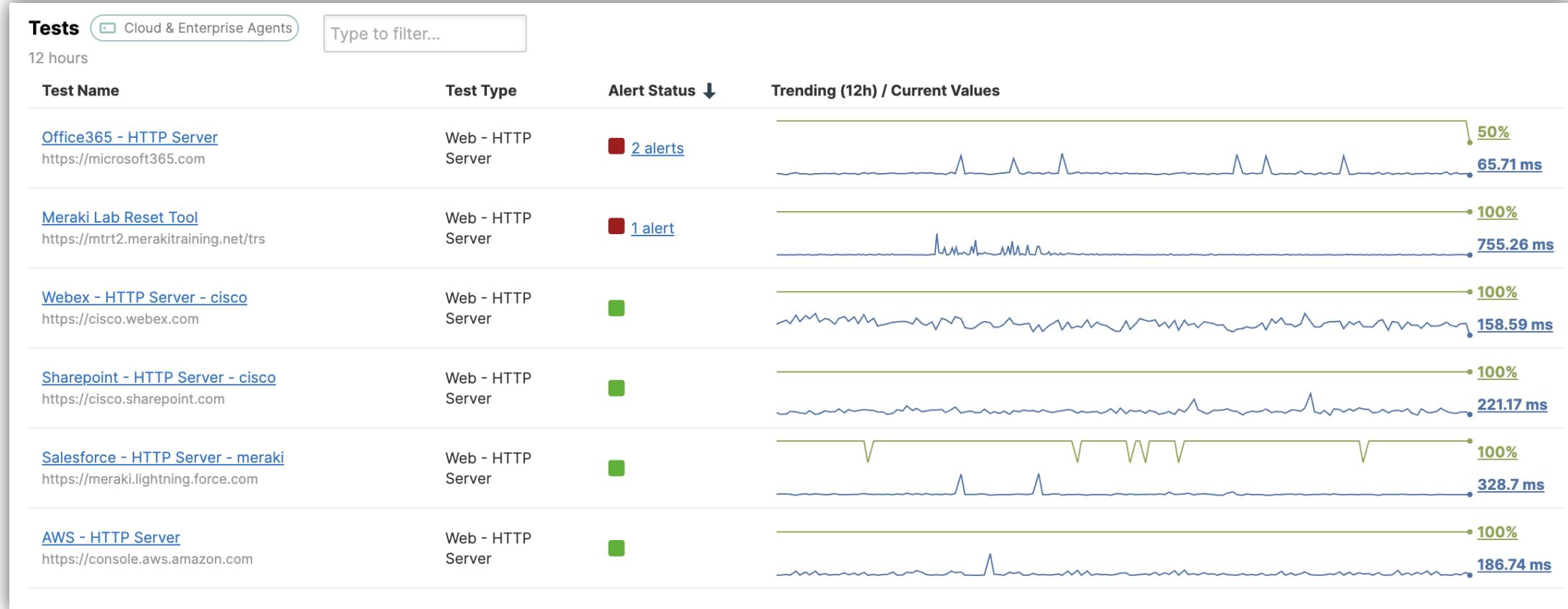


Measuring the Data Plane (High Level)



Measuring experiences with ThousandEyes

ThousandEyes Measurements



Netflow – Making the Old Awesome

```
apply-policy
site-list cflowd-sites
  data-policy test-cflowd-policy
  cflowd-template test-cflowd-template
!
!
policy
  data-policy test-cflowd-policy
  vpn-list vpn_1
    sequence 1
    match
      protocol 6
    !
    action accept
      cflowd
    !
  !
  default-action accept
!
!
cflowd-template test-cflowd-template
  flow-inactive-timeout 60
  template-refresh 90
  collector vpn 1 address 192.168.0.1 protocol ipv4 port 13322 transport tra
!
lists
  vpn-list vpn_1
    vpn 1
  !
  site-list cflowd-sites
    site-id 400,500,600
  !
!
```

Meraki Dashboard

NetFlow collector IP	<input type="text" value="10.11.11.21"/>
NetFlow collector port	<input type="text" value="9995"/>
Encrypted Traffic Analytics <small>?</small>	<input checked="" type="checkbox"/>
ETA collector port	<input type="text" value="1234"/>

On-premise and “cloud” collector options

Netflow – Making the Old Awesome

Catalyst SD-WAN Manager

Global
Global node for network hierarchy
Type: GLOBAL

Pools **Collectors** Multi Region Fabric (MRF) External Services

VPN ID	IPv4/IPv6 Address	UDP Port	Export Spreading (optional)	BFD Metrics Exporting (optional)	Exporting Interval (optional)	Action
0	10.11.11.21	9995	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
1	2001:db8:abcd:1234:5678::	9995	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

Meraki Dashboard

NetFlow collector IP

NetFlow collector port

Encrypted Traffic Analytics

ETA collector port

On-premise and “cloud” collector options

The Splunk Effect

Data Fidelity



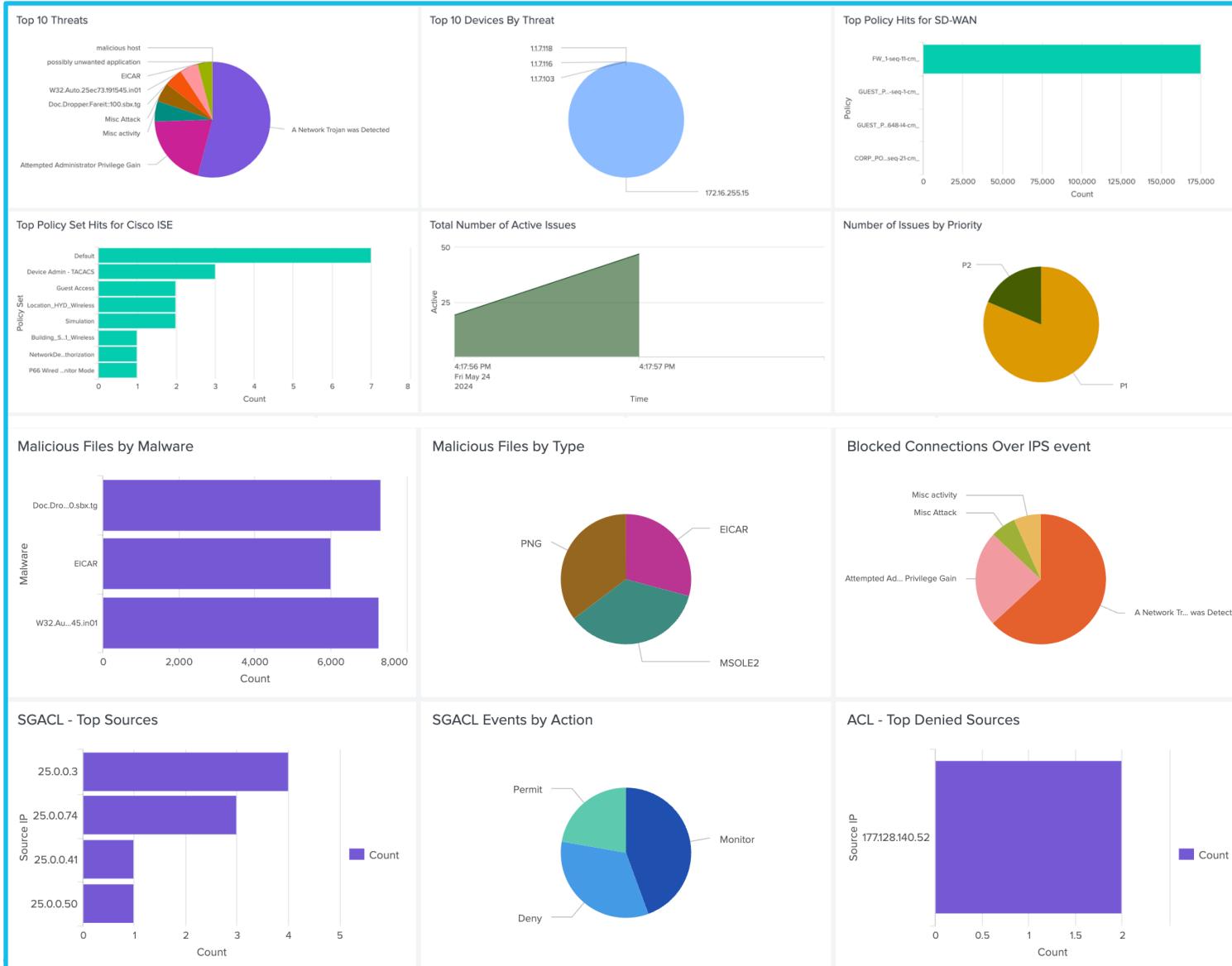
```
Nov 1 05:28:51 10.11.11.1 11730456931.362125884
KIAH_BDR_MX75 firewall src=2601:1111:8888:cb73::db8
dst=2001:1c08:800:fc05:983:ce39:3f2:f107
mac=10:DD:BB:CC:FC:20 protocol=tcp sport=8000
dport=52815 pattern: allow all
```

Skills Evolution



Network Engineering -> Data Management

Splunk Technical Add-ons (TAs)



Benefits

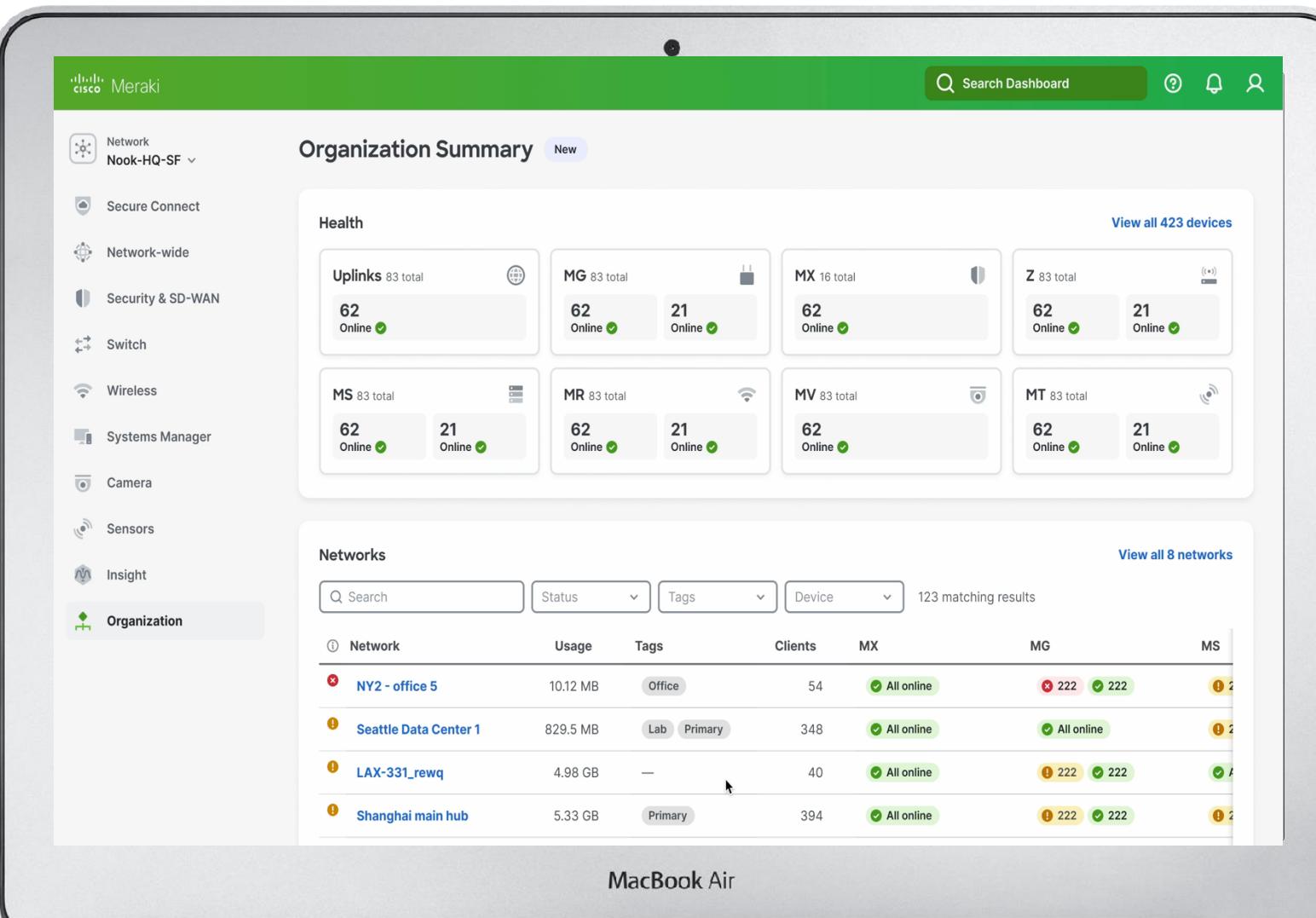
- Holistic view of Network, Security and Identity events
- Long time data retention for compliance needs
- Combined data from multiple sources for ease of visualization (e.g., Top Threats combine threats from WAN and ISE)

Outcomes

- Improve troubleshooting by tracking device and endpoint issues
- Reduce Mean Time to Resolution (MTTR) by quickly identifying critical events
- Single repository for NGFW events (Malware Protection, Intrusion Prevention, URL-Filtering) and Security Advisories

Sharing Context

Telling the Data Story via the WAN



The image shows a Cisco Meraki Organization Summary dashboard displayed on a MacBook Air. The dashboard is organized into sections: Health, Networks, and a detailed table for specific networks.

Health section:

- Uplinks: 83 total, 62 Online, 21 Online
- MG: 83 total, 62 Online, 21 Online
- MX: 16 total, 62 Online
- Z: 83 total, 62 Online, 21 Online
- MS: 83 total, 62 Online, 21 Online
- MR: 83 total, 62 Online, 21 Online
- MV: 83 total, 62 Online
- MT: 83 total, 62 Online, 21 Online

Networks section:

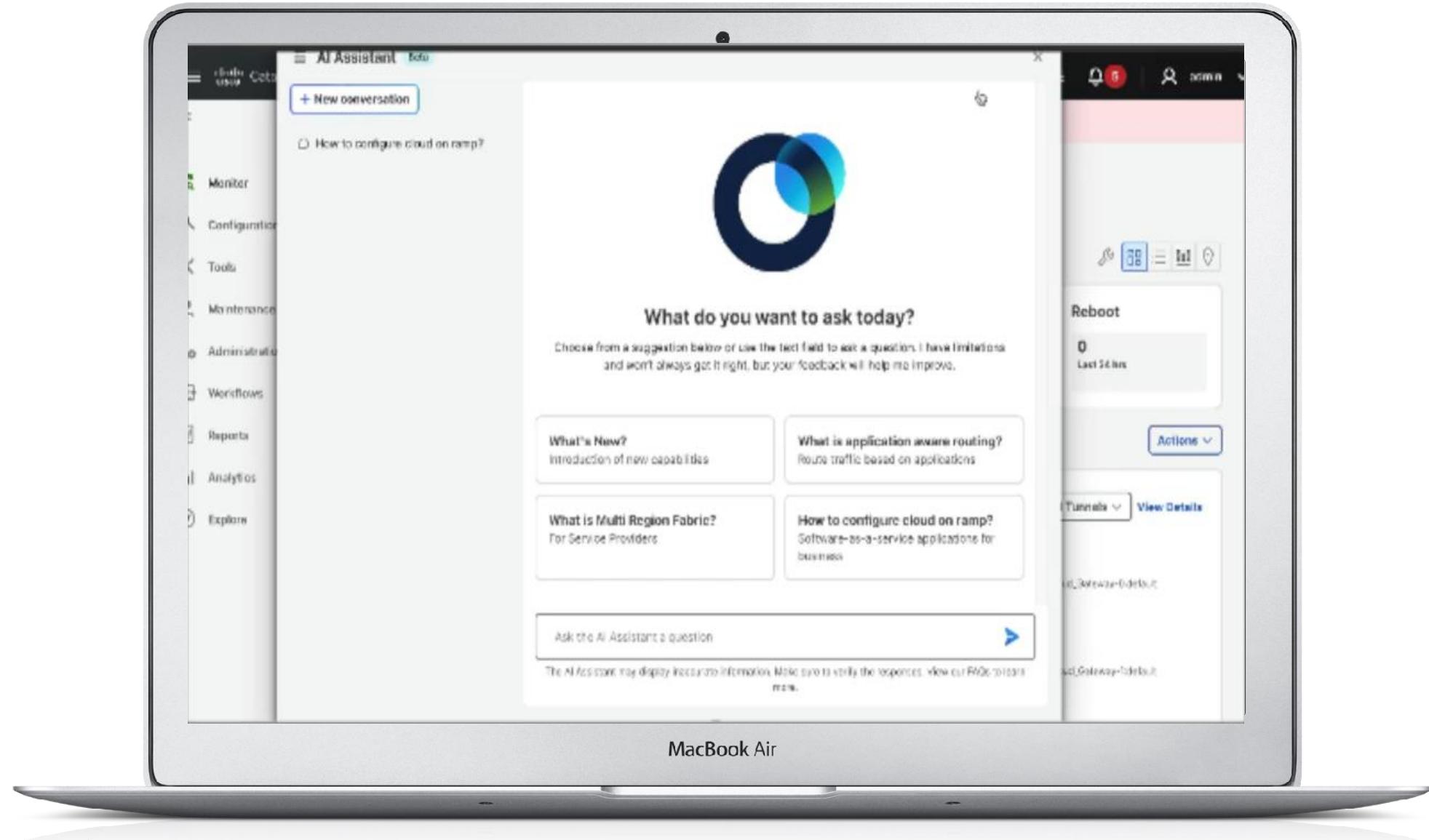
View all 8 networks

Network	Usage	Tags	Clients	MX	MG	MS
NY2 - office 5	10.12 MB	Office	54	All online	222	222
Seattle Data Center 1	829.5 MB	Lab Primary	348	All online	All online	222
LAX-331_rewq	4.98 GB	—	40	All online	222	222
Shanghai main hub	5.33 GB	Primary	394	All online	222	222

123 matching results

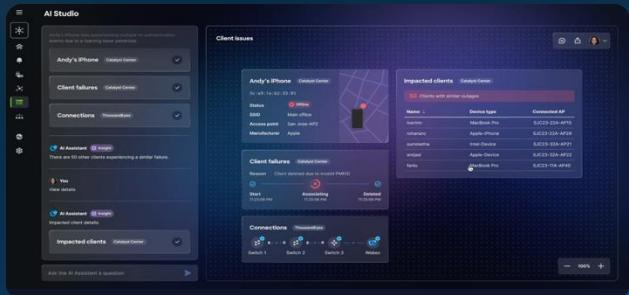
MacBook Air

Telling the Data Story supported by AI Assistant



Industry-first AgenticOps

ALPHA | OCTOBER



AI Canvas

Cross-domain collaborative troubleshooting

PUBLIC BETA | AMERICA



cisco
AI Assistant

AI Assistant

Accelerate network operations

POWERED BY DEEP NETWORK MODEL

Deep Network Model

The most advanced networking LLM

Purpose-Built for Networking

Up to 20% more precise reasoning for troubleshooting, configuration, and automation.

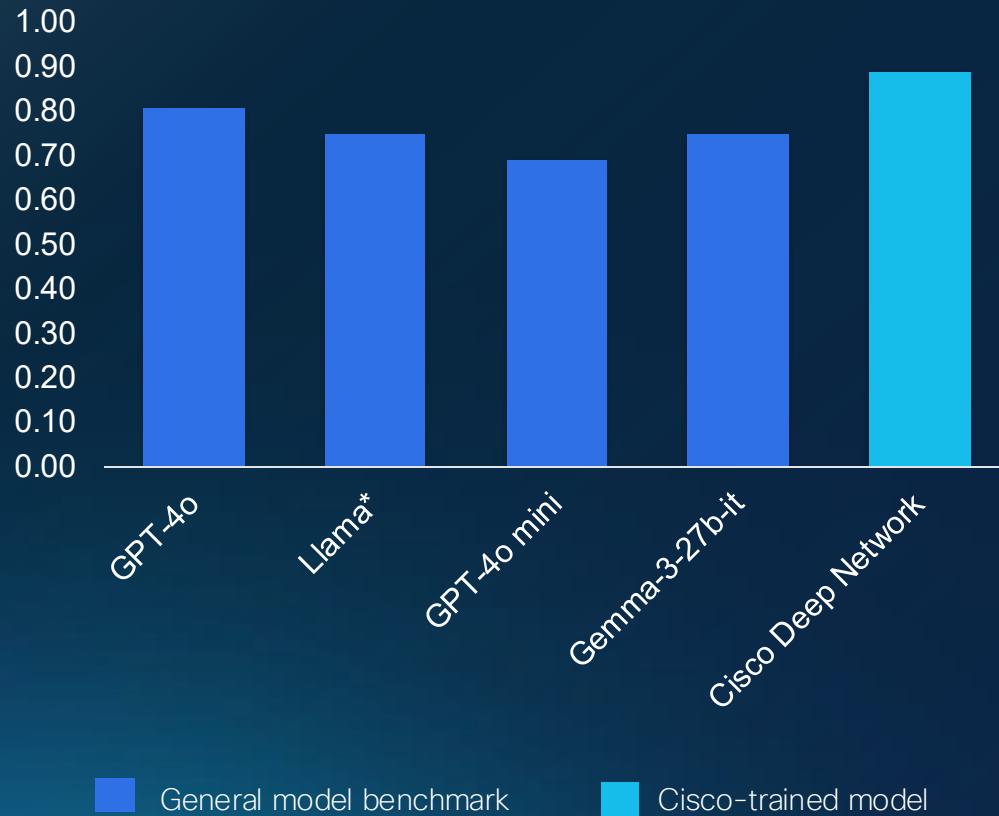
Trusted Training

Fine-tuned on 40+ years of Cisco expertise and expert-vetted for accuracy.

Continuous Learning

Evolves with live telemetry and real-world Cisco TAC and CX insights.

Outperforms general models by ~20%



Accuracy on CCIE-style MCQs (590-question benchmark, May 2025)
*3.2-90B-Vision-instruct

AI Canvas

Collaborative generative dashboard tool

Create custom network views and visualizations on the fly

Aggregate telemetry, share insights, and coordinate action

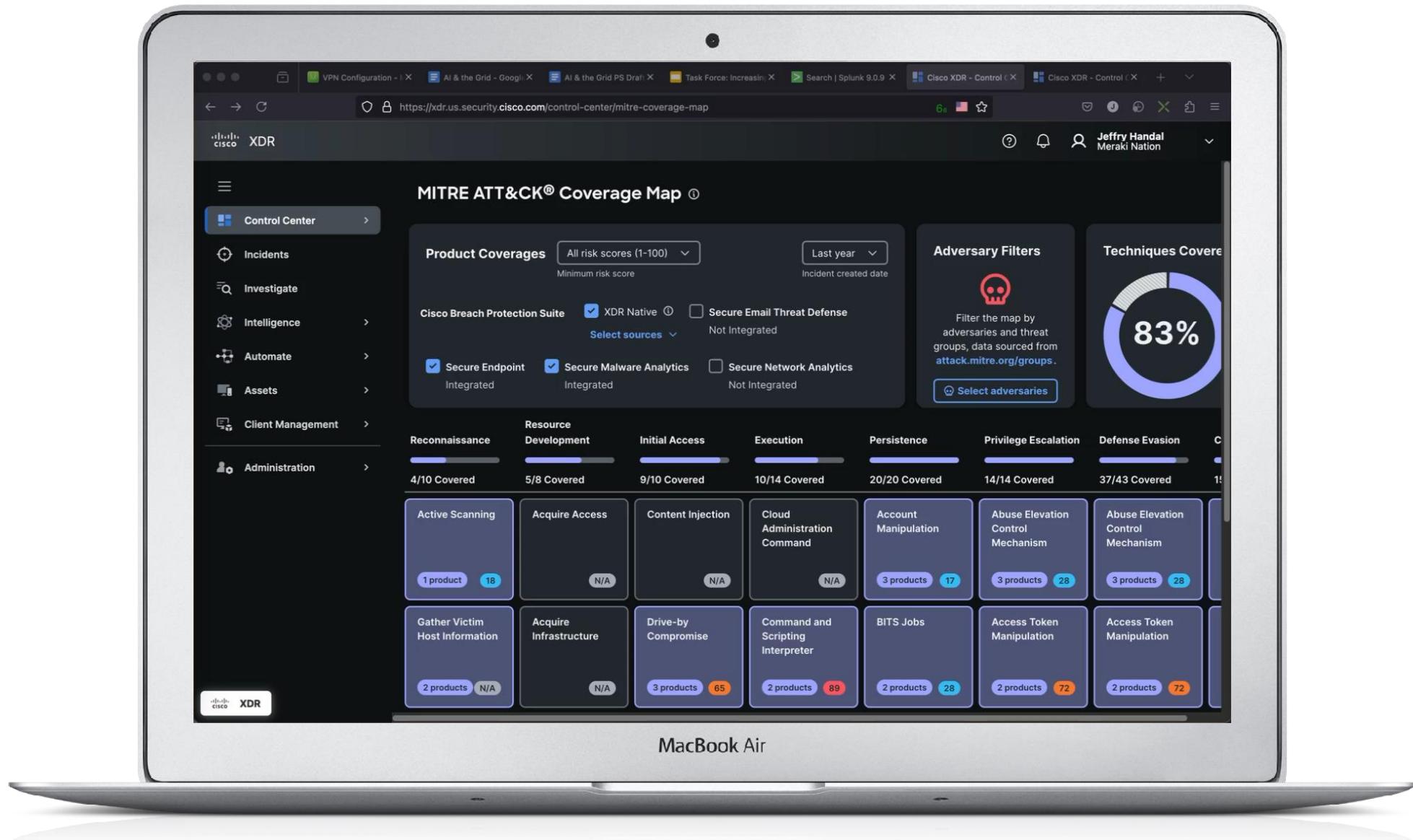
The screenshot displays the AI Canvas interface, a collaborative generative dashboard tool. The top navigation bar includes the Cisco logo, 'AI Canvas', and a search bar for 'Application performance degradation'. On the right, there are user icons for 'J' and 'W', and buttons for 'Generate report', 'View activity', and 'Share'.

The main content area is divided into several cards:

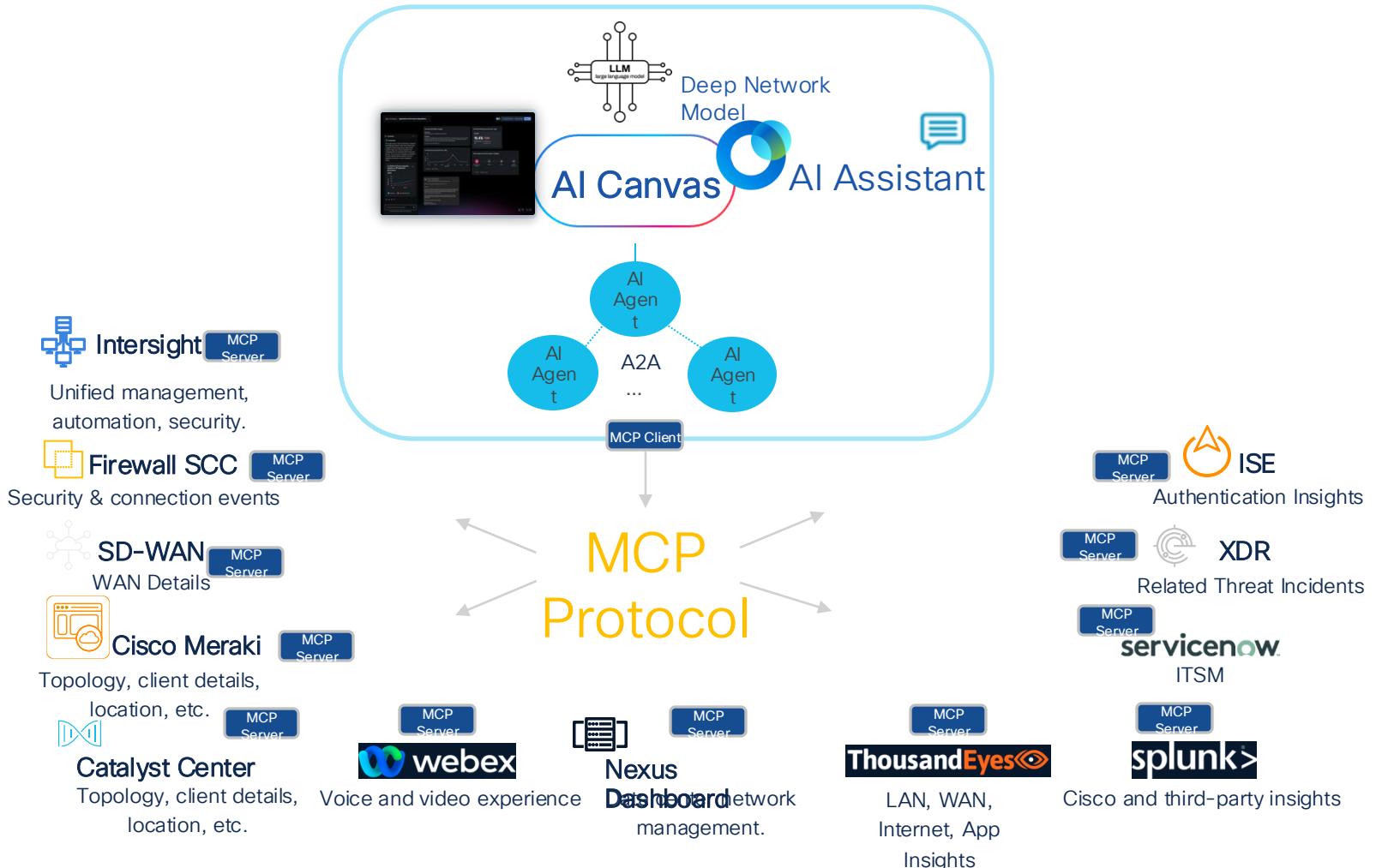
- AI Assistant**: A text box explaining the relationship between network congestion and application failures, mentioning financial app failures and mandatory security-related software updates.
- SJ-MX105-01 network congestion statistics vs. EFP application performance**: A Splunk-generated line graph showing 'Packet Loss' (blue line) and 'Transaction failure rate' (red line) over time. The x-axis shows hours from 8:00 to 20:00, and the y-axis shows packet loss from 0% to 20%. A red dot marks a 'Critical point' at approximately 11:30.
- ServiceNow SRTK0023941**: An alert from ServiceNow reporting a 3-5 second delay in financial transaction processing. It includes a ticket link: [ServiceNow Ticket SRTK0023941](#).
- SJ-MX105-01 WAN interface performance**: A card showing 'Loss rate' at 16.4% (red) and 2.3% (green). It includes 'WAN interface latency' (87ms) and 'Jitter' (15ms) data.
- SJ-MX105-01 performance (last 24 hrs)**: A line graph showing packet loss over the last 24 hours, with a red dot at the peak around 11:30.
- Network segment performance analysis**: A diagram showing network segments: 'Enterprise network' (16.4% loss), 'Gateway', 'Internet', and 'Application financeapp.com'. A red dot indicates a 'Packet loss point' on the connection line.
- Communication**: An email interface showing an incoming message from Maria Chen. The subject is 'URGENT: Status Update Needed on Financial Application Performance Issues'. The message body discusses ongoing performance issues with the Enterprise Financial Platform (EFP) and asks for immediate status updates and a workaround.

At the bottom, there are controls for 'Ask the AI Assistant a question' (with a 'Verify responses' note), a zoom icon, and a 'T' icon. The Cisco logo is in the bottom right corner.

Telling the Data Story via the WAN

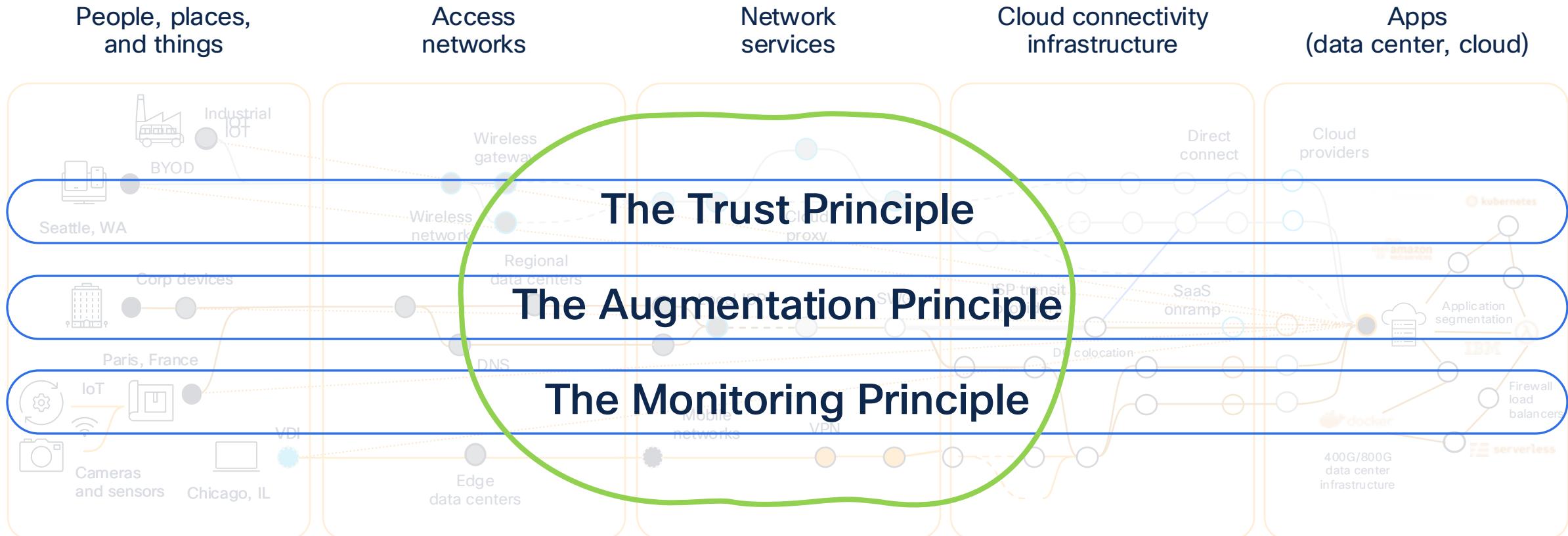


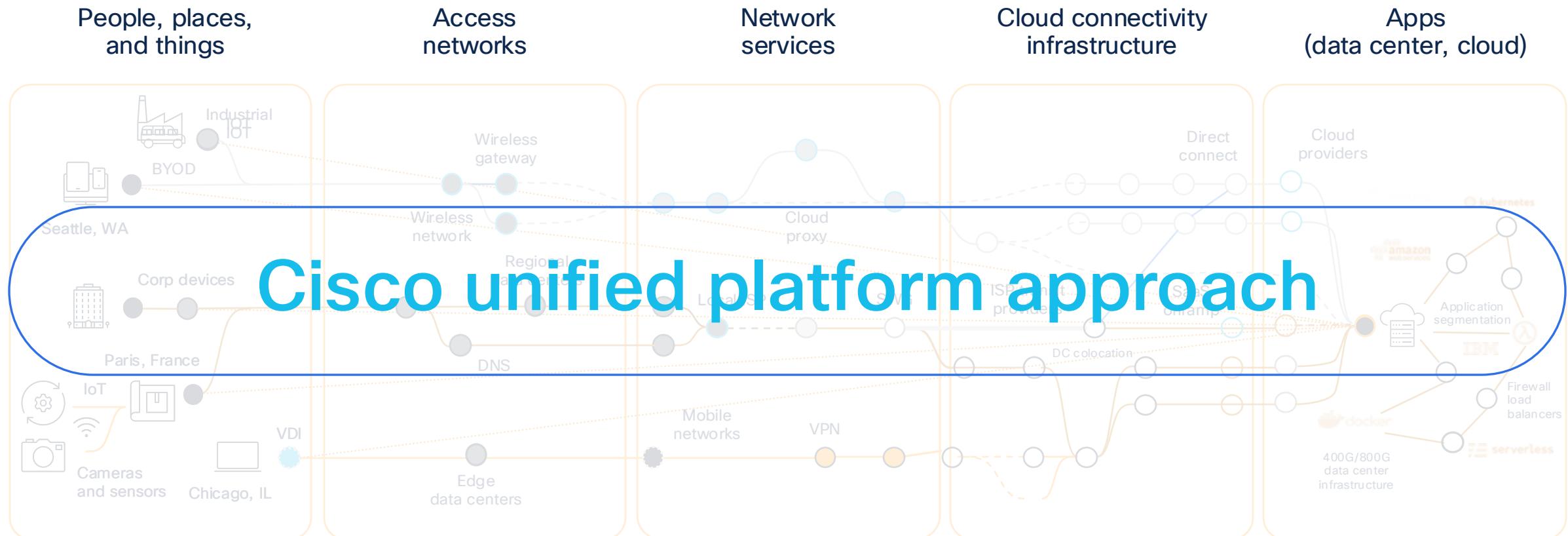
Supported by AI Canvas And Assistants



WAN Mastery

Remember this?



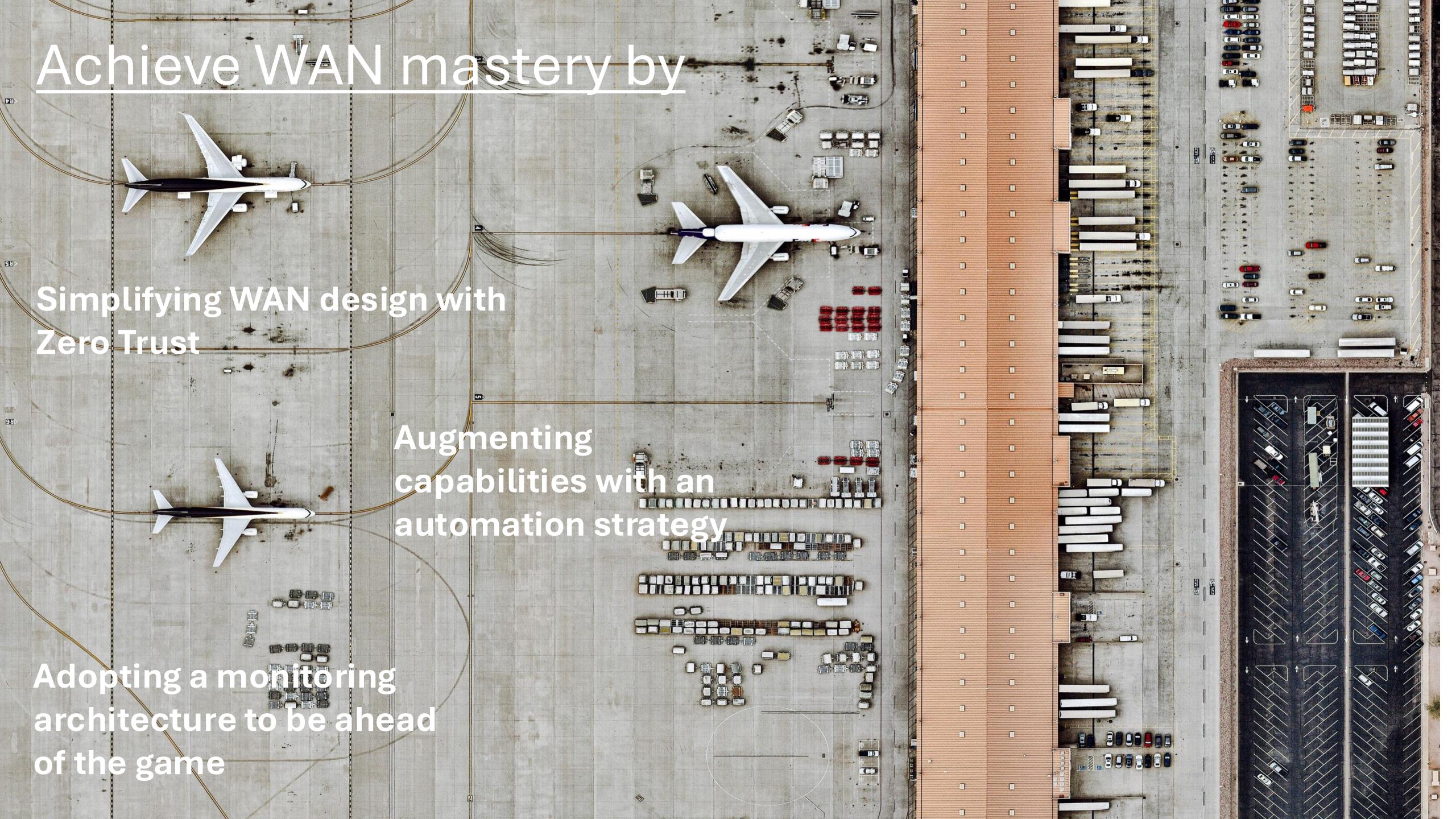


Achieve WAN mastery by

Simplifying WAN design with
Zero Trust

Augmenting
capabilities with an
automation strategy

Adopting a monitoring
architecture to be ahead
of the game



Thank you

CISCO Live !