

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**



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 their 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.



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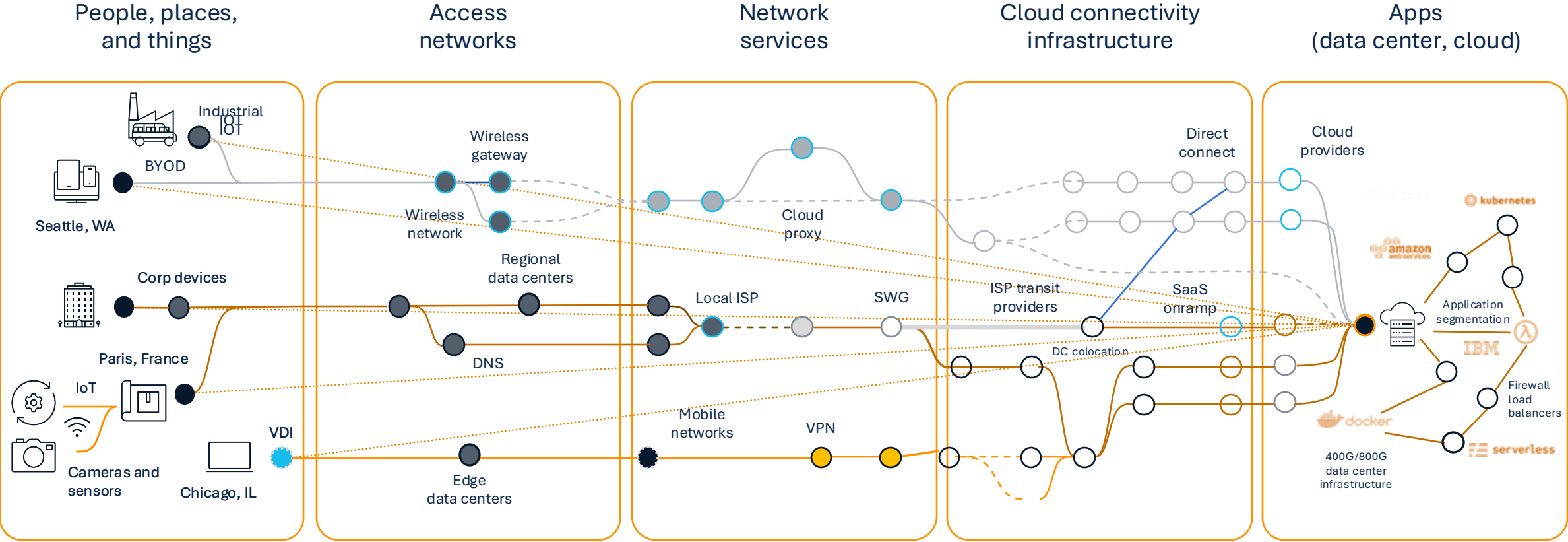
PRESS RELEASE

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

The background of the slide is an abstract design featuring flowing, wavy lines in various shades of blue and white. A large, white rectangular box is positioned on the left side of the slide, serving as a backdrop for the main text.

What is holding us back?

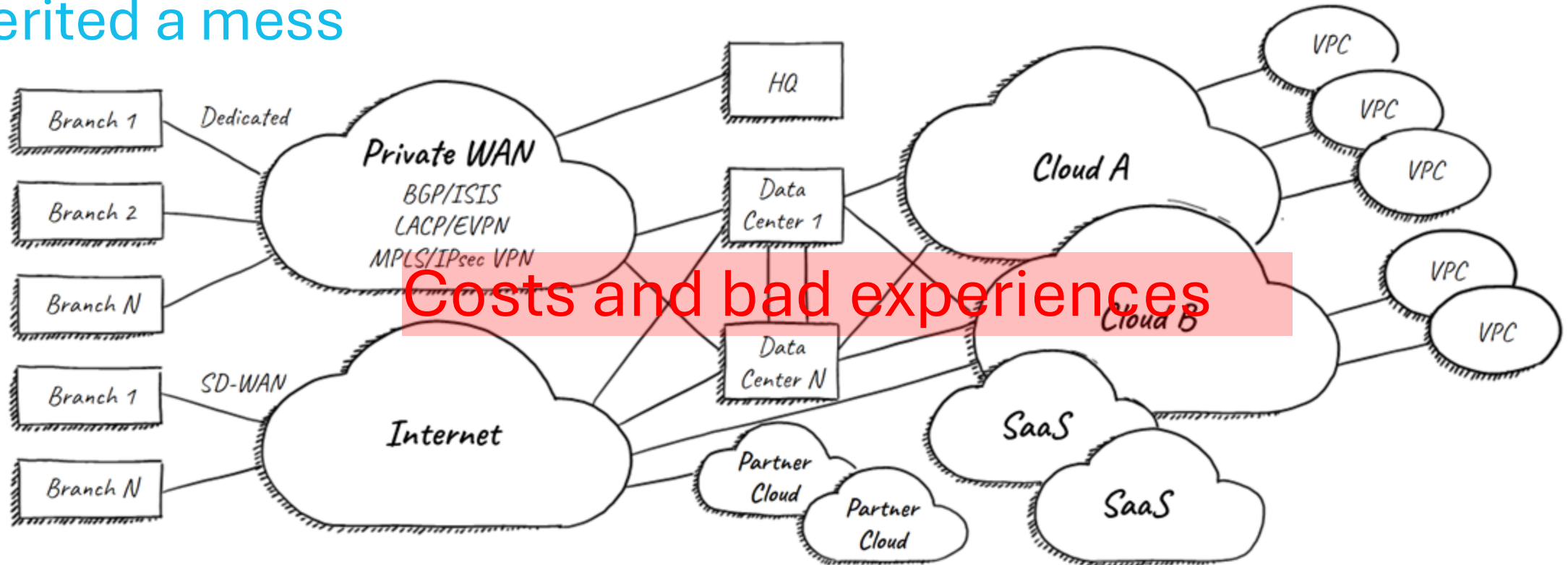
The General Landscape



How You See It

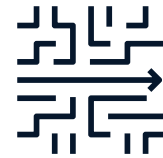
Shadow IT

Inherited a mess



Management points

What you ask Cisco to build?



Simple

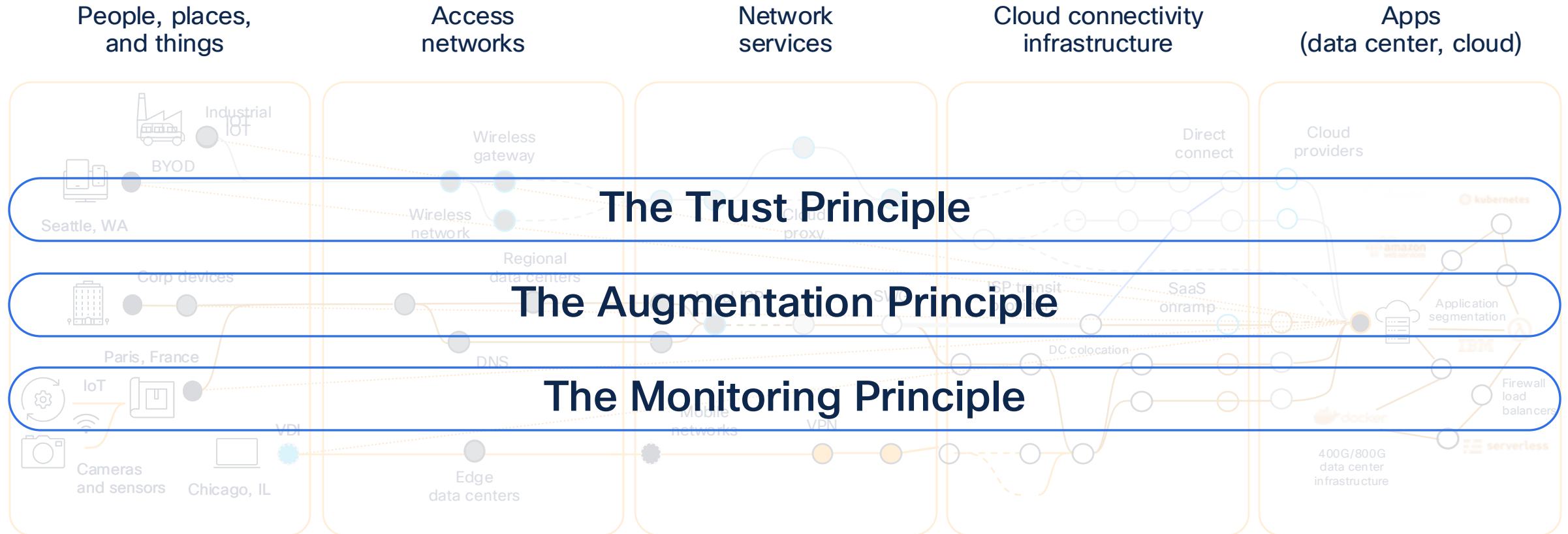


Predictable



Outcome driven

Deriving the Principles



The Augmentation Principle

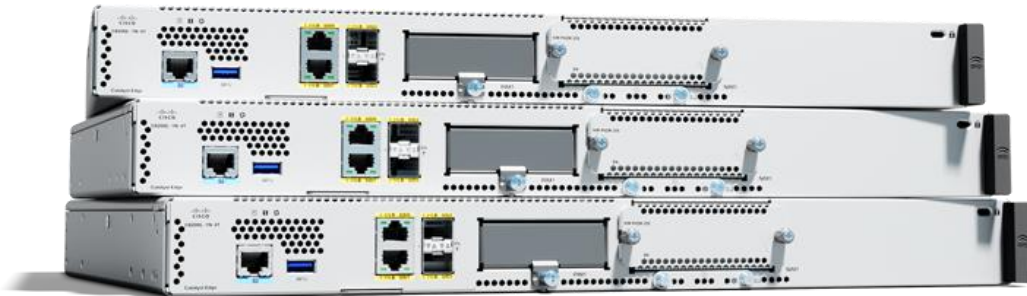
Toaster

Espresso Machine

Coke Zero



How do you consume Cisco's awesome technology?



Browse Routing Features

Search

- ☐ 254/0DMVPN - 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://cfnnng.cisco.com/browse/routing/features>



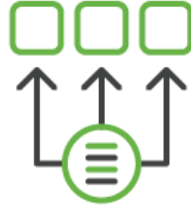
Automating feature
consumption

Guidelines



AI/ML

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

AI Ops: Simplifying Day-2 Operations

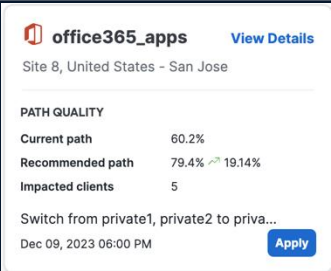


Optimize network and application performance to achieve higher operational efficiency



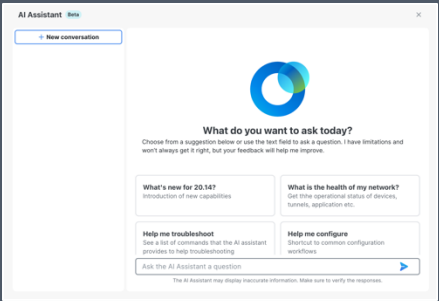
Mitigate issues before they impact. In case issues do occur, offer **root cause analysis** to **reduce MTTR**

Predictive Path Recommendations



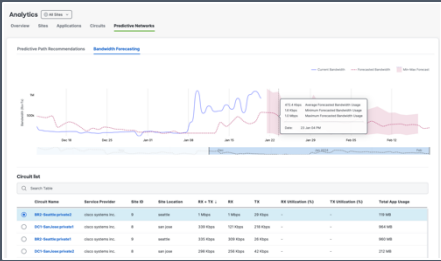
Path recommendations to Improve Application Performance

AI Assistant for Networking



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

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

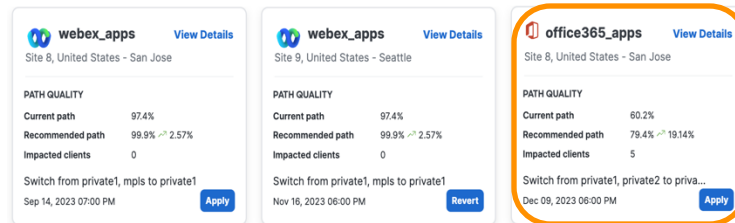
Collect network telemetry via SD-WAN Analytics

2. Data Analysis

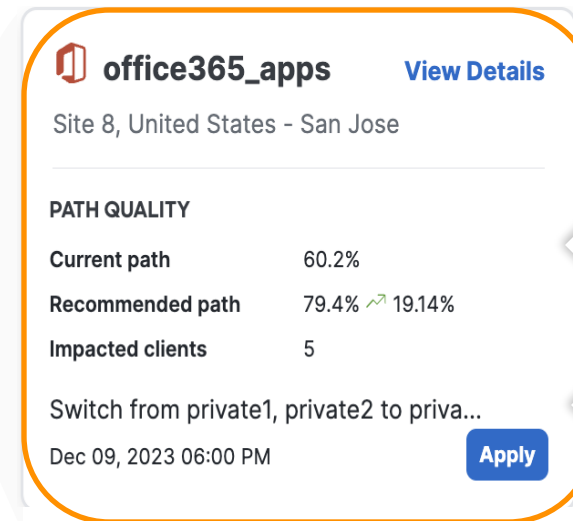
Predictive modeling to forecast issues & make path recommendations

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

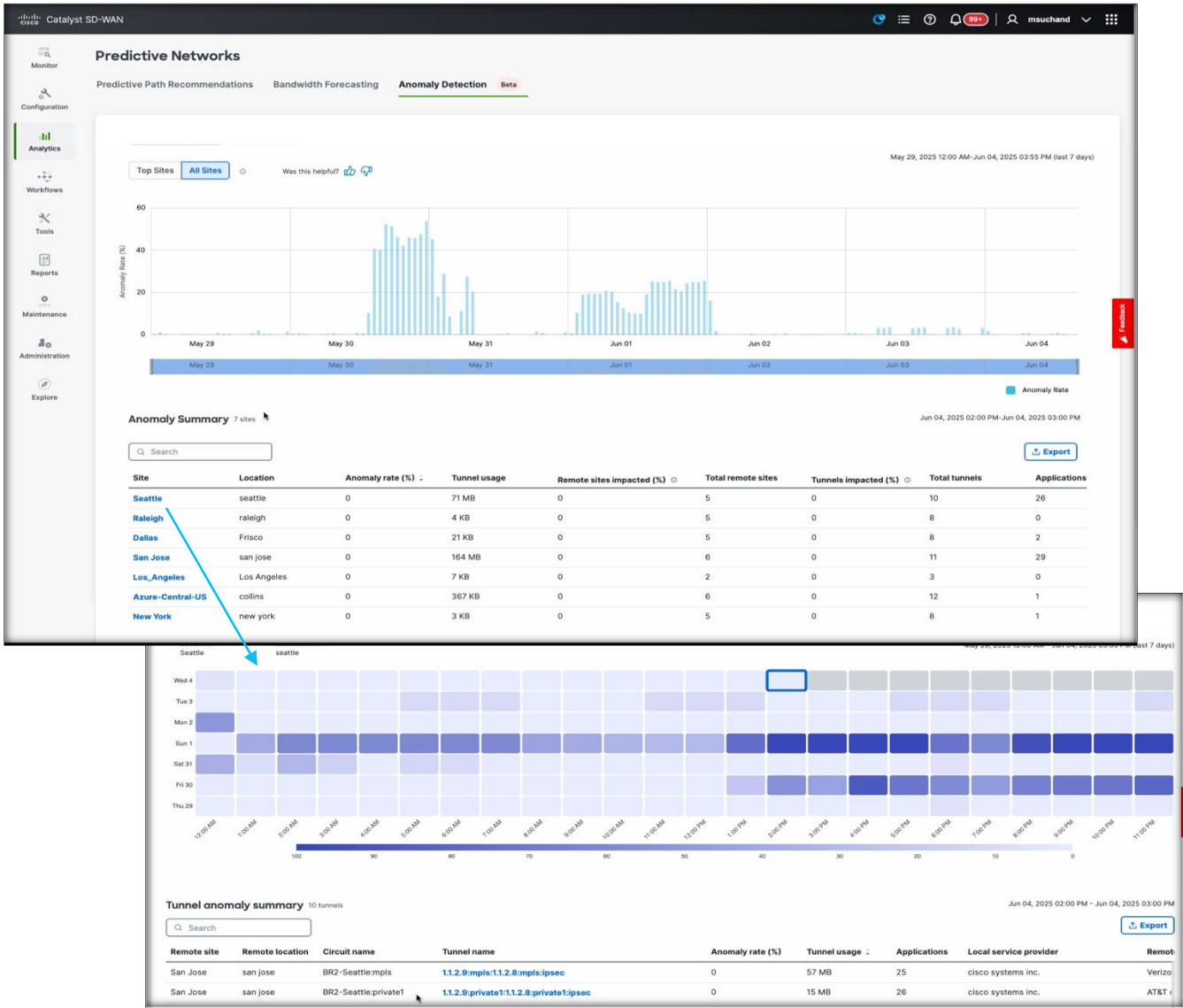
Recommends the path to switch to

Out-of-the-box Application Groups



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

AIOps: Anomaly Detection



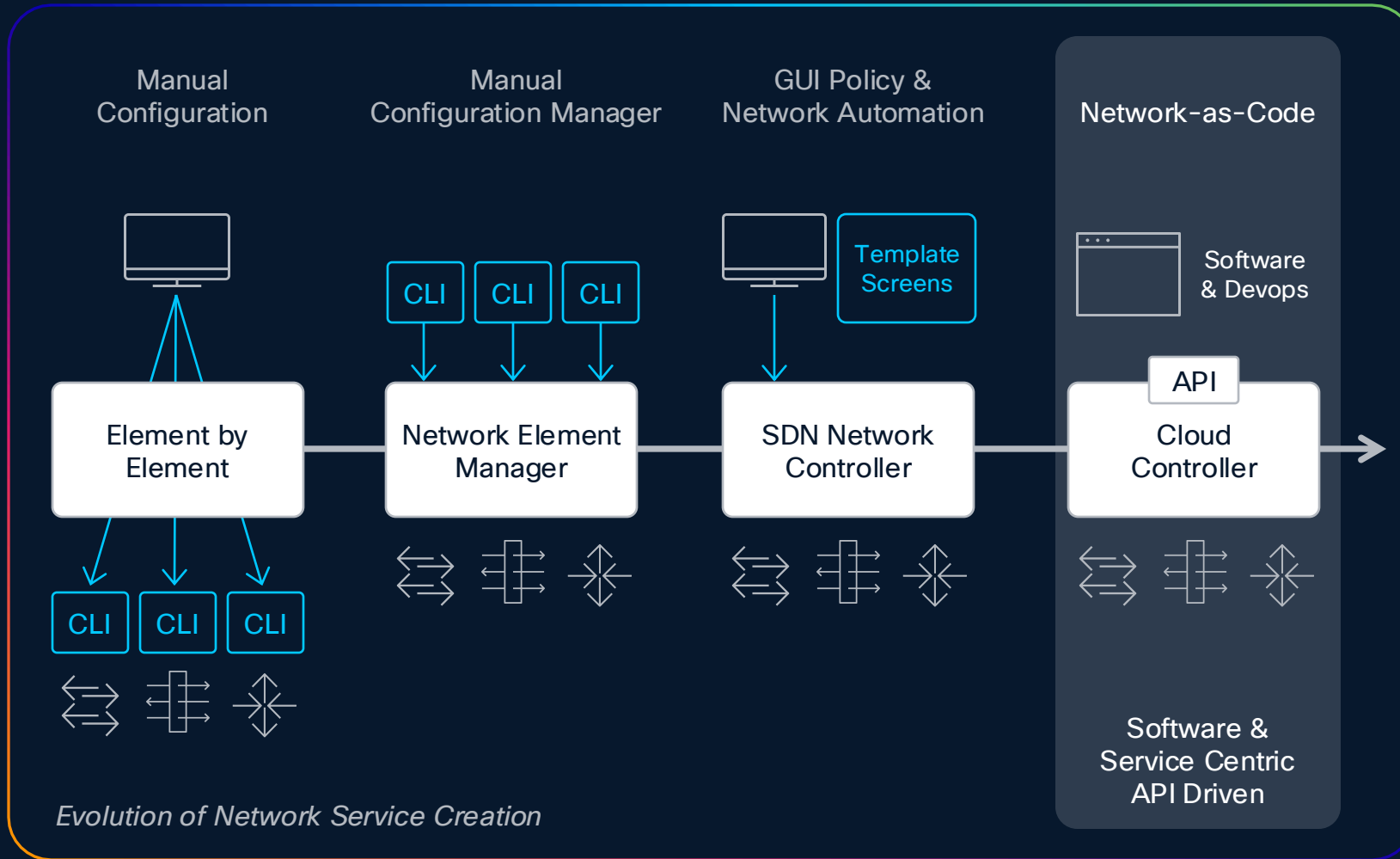
Benefits

- 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

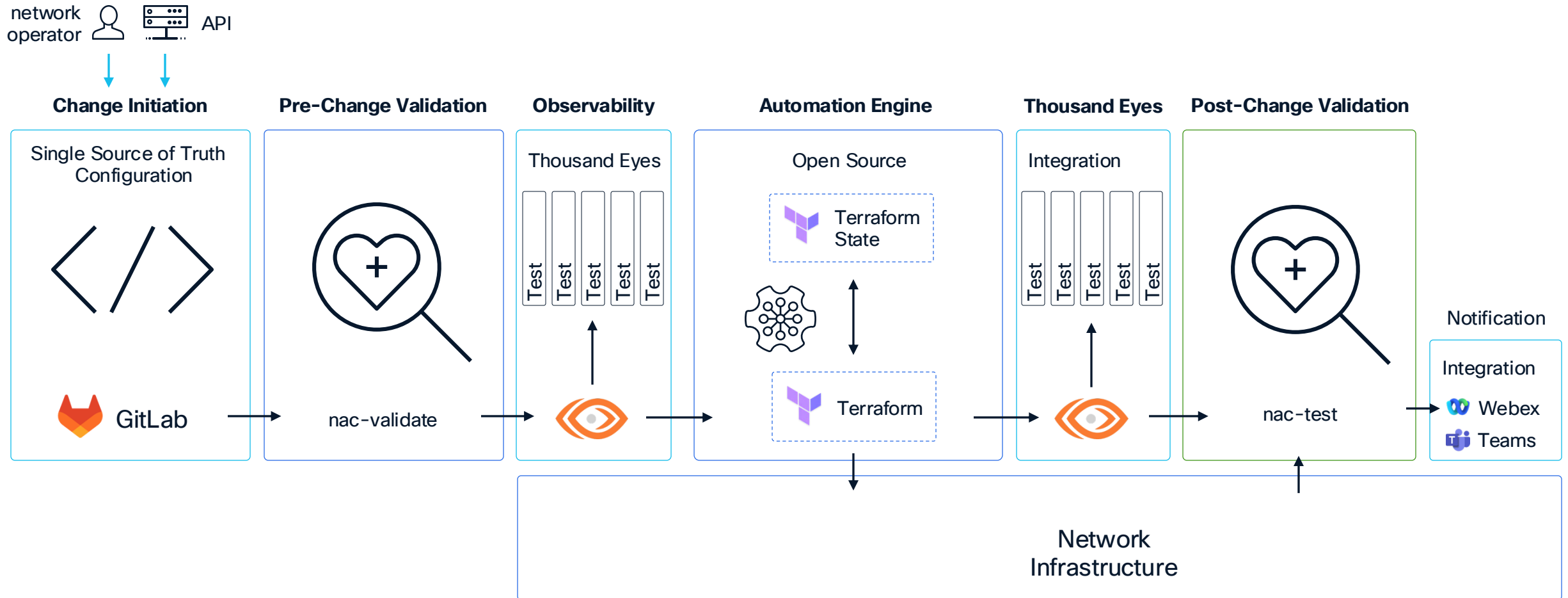


Automation at scale

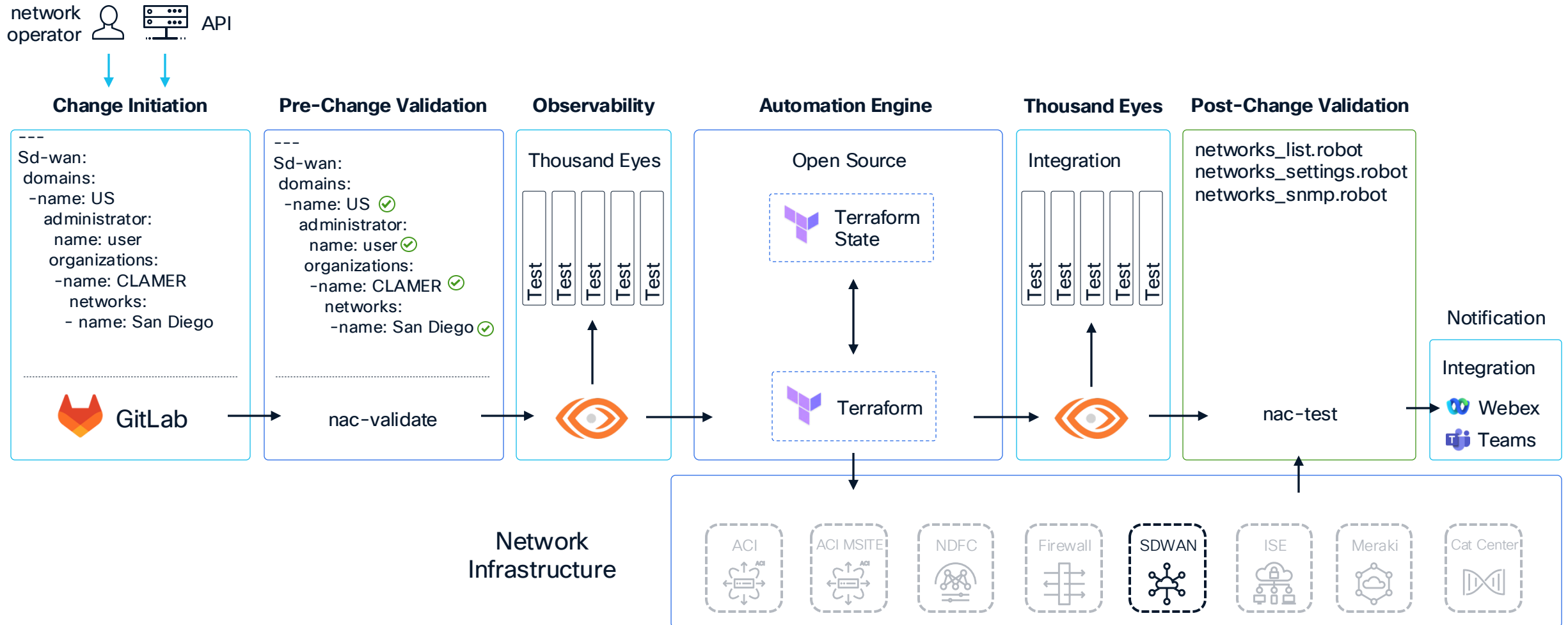
Testing & validation for reliable roll-outs using CI\CD methodology

Enable Partners & customers to do Branch Lifecycle automation using DevOps methods

Orchestrating the entire change lifecycle programmatically



How “as Code” Pipeline is structured



Post-Change Validation

Results Log

Generated
20250225 17:28:38 UTC+01:00
14 days 19 hours ago

Test Statistics

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

CONFIG VALIDATE

5

Post-Change Validation

appliance_uplink.robot
devices_list.robot
....
networks_list.robot
networks_settings.robot
networks_snmp.robot
....

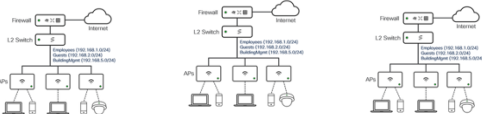
Notification

Integration

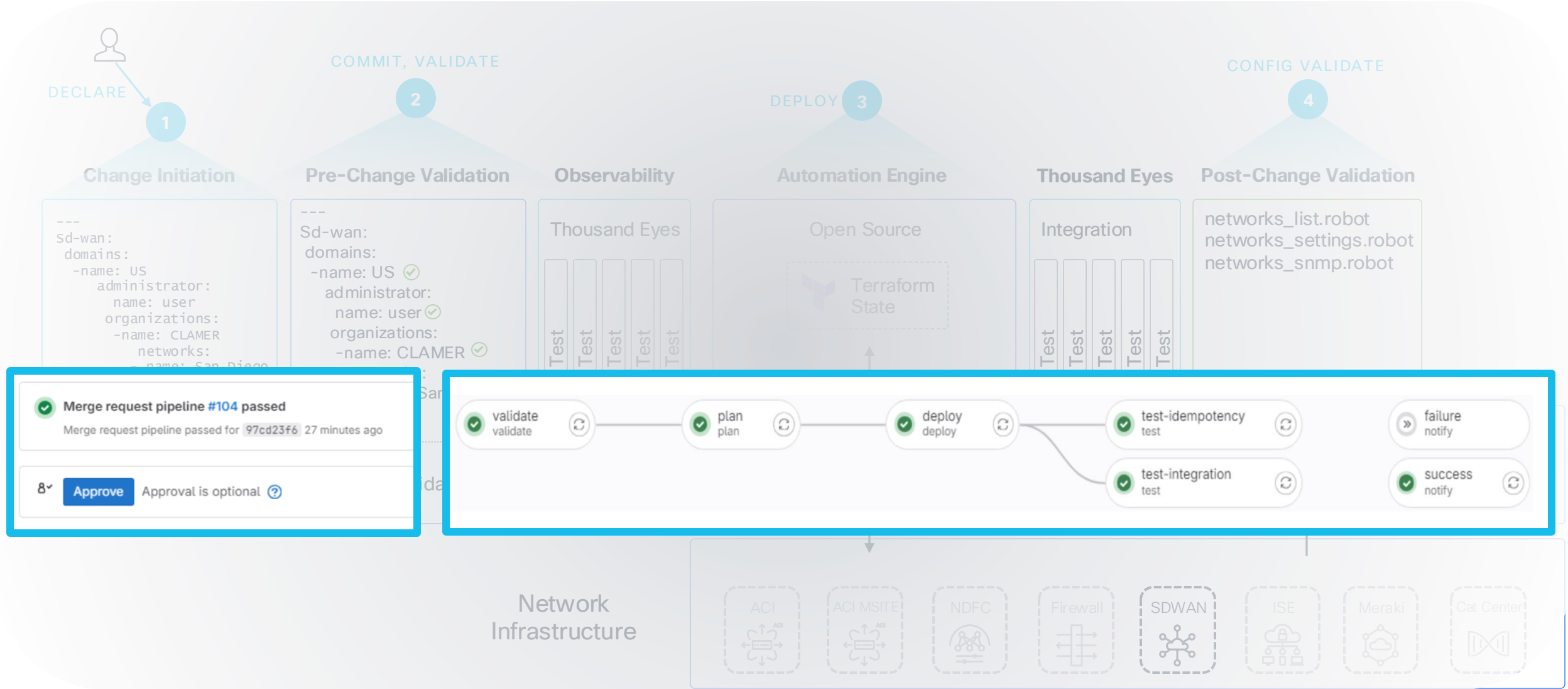
Webex
Teams

nac-test

SD-WAN



Pipeline Successfully Executed



Outcomes



Deploy change 5x faster



Prevent outages to ensure 98+% change success



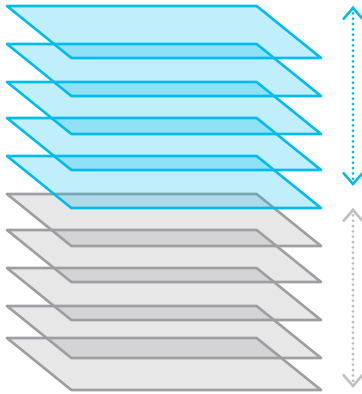
Predictable costs and project time



Management Experience

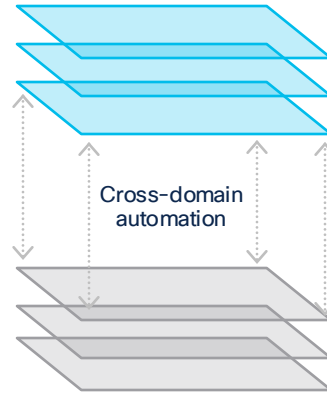
Unifying the Management Experience

Multiple cloud
platforms



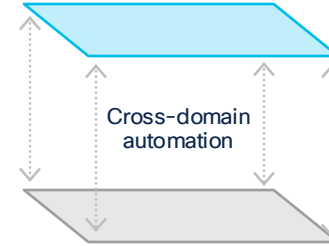
Multiple on-
prem platforms

Fewer cloud
platforms



Fewer on-prem
platforms

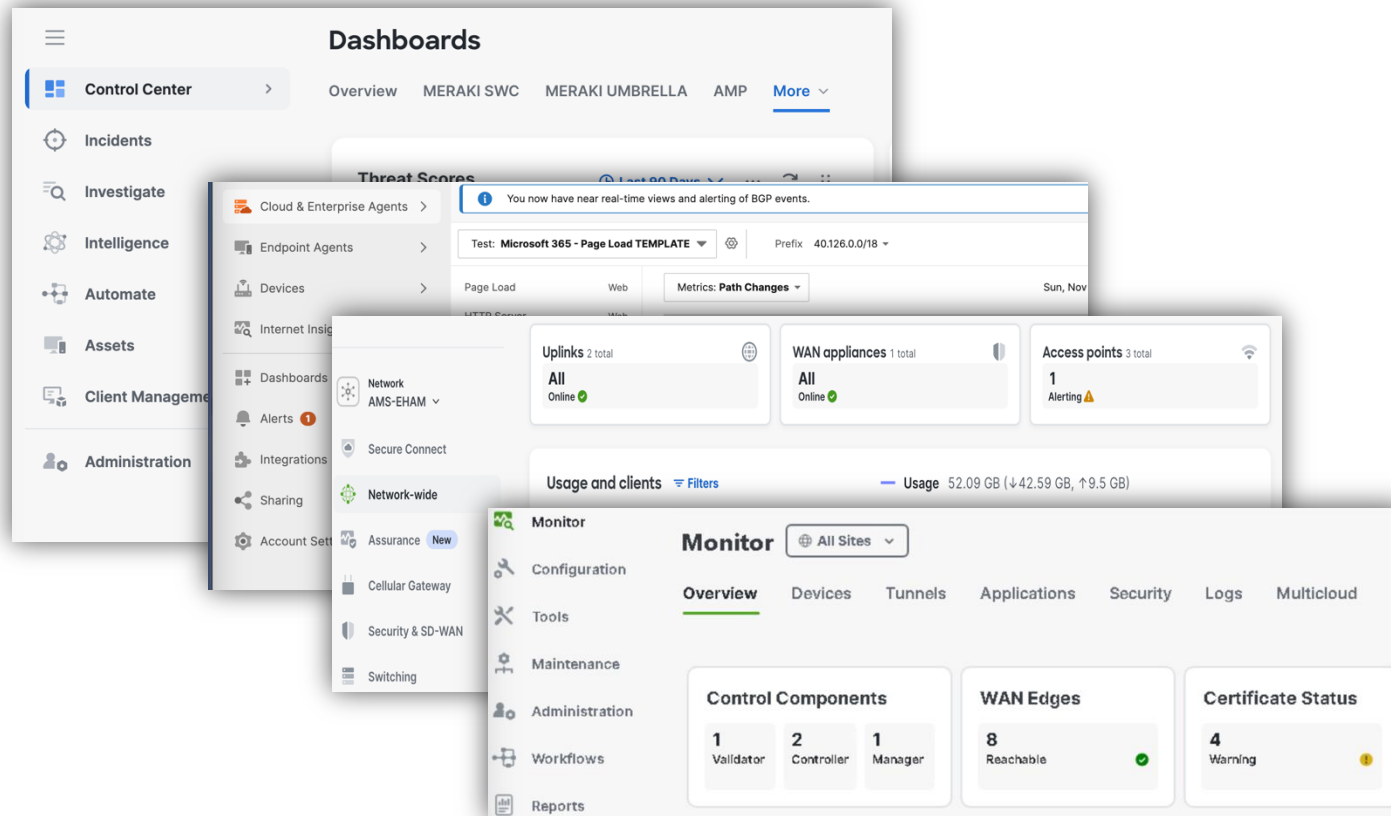
Single cloud
platform



Single on-prem
platform

Operational Translation

Admin experience



Developer experience



OpenAPI Spec

Common Cisco Hardware



Working with Cisco, Simplified

Essentials



Advantage

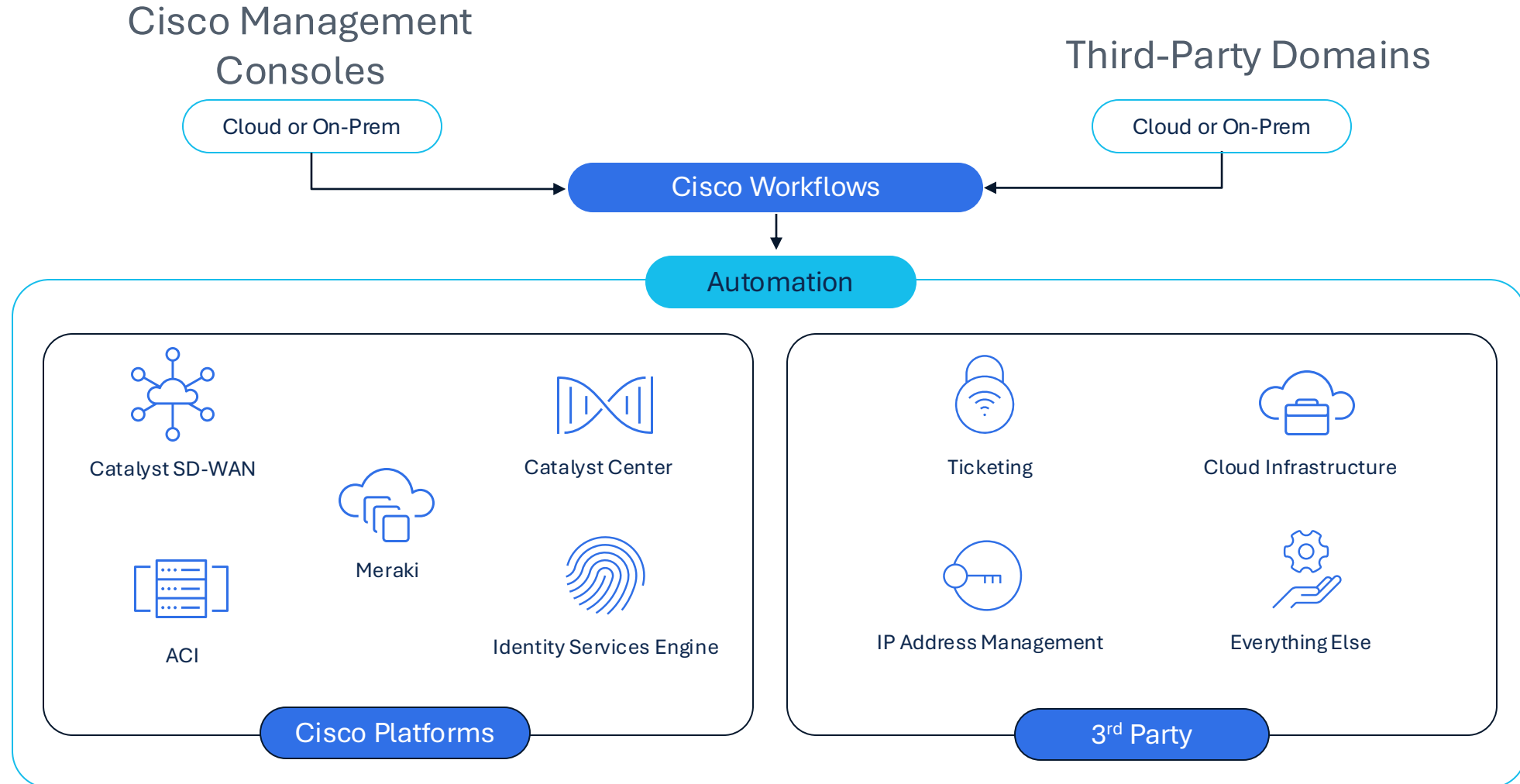


Common nomenclature
Simpler tiering

Cisco Workflows

Central Automation for your entire infrastructure

LABENT-1007



The Monitoring Principle

Which camp are you on?



Maintenance Window



Assume it all works until
there are complaints



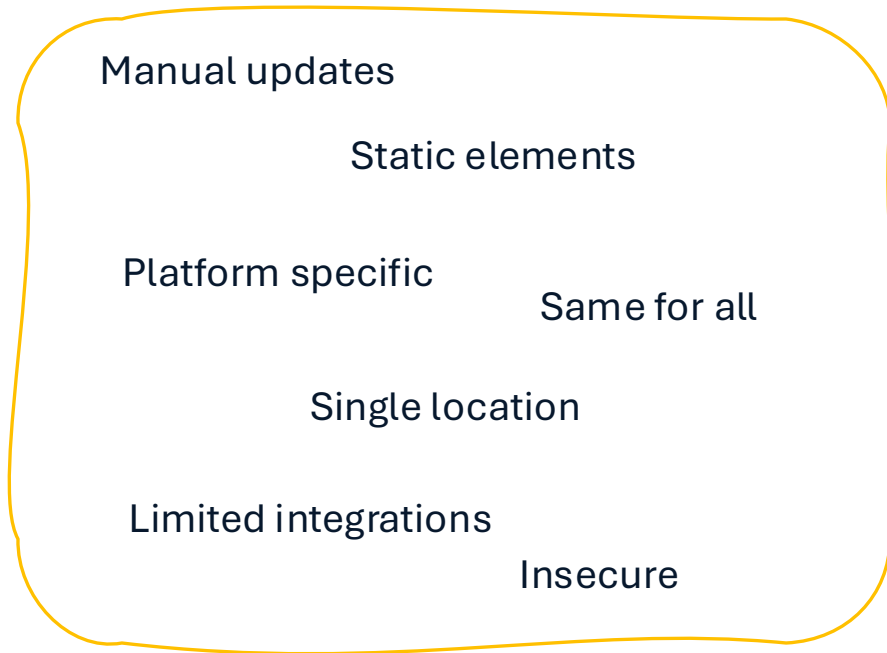
Know the state of things
most of the time



monitoring Architecture
(Monitoring)

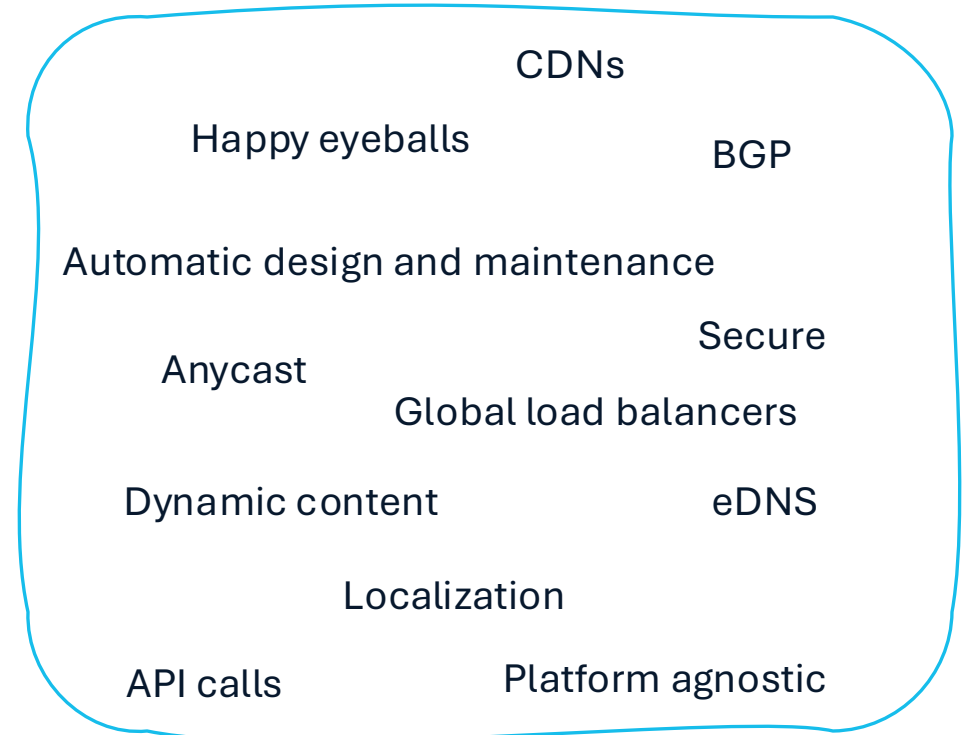
It's a Complex App World

Applications of Yesterday



Deterministic

Applications of Today



Probabilistic

Directives



Transformation

Increase speed and agility with data



Risk Mitigation

Secure networking by default



Assurance

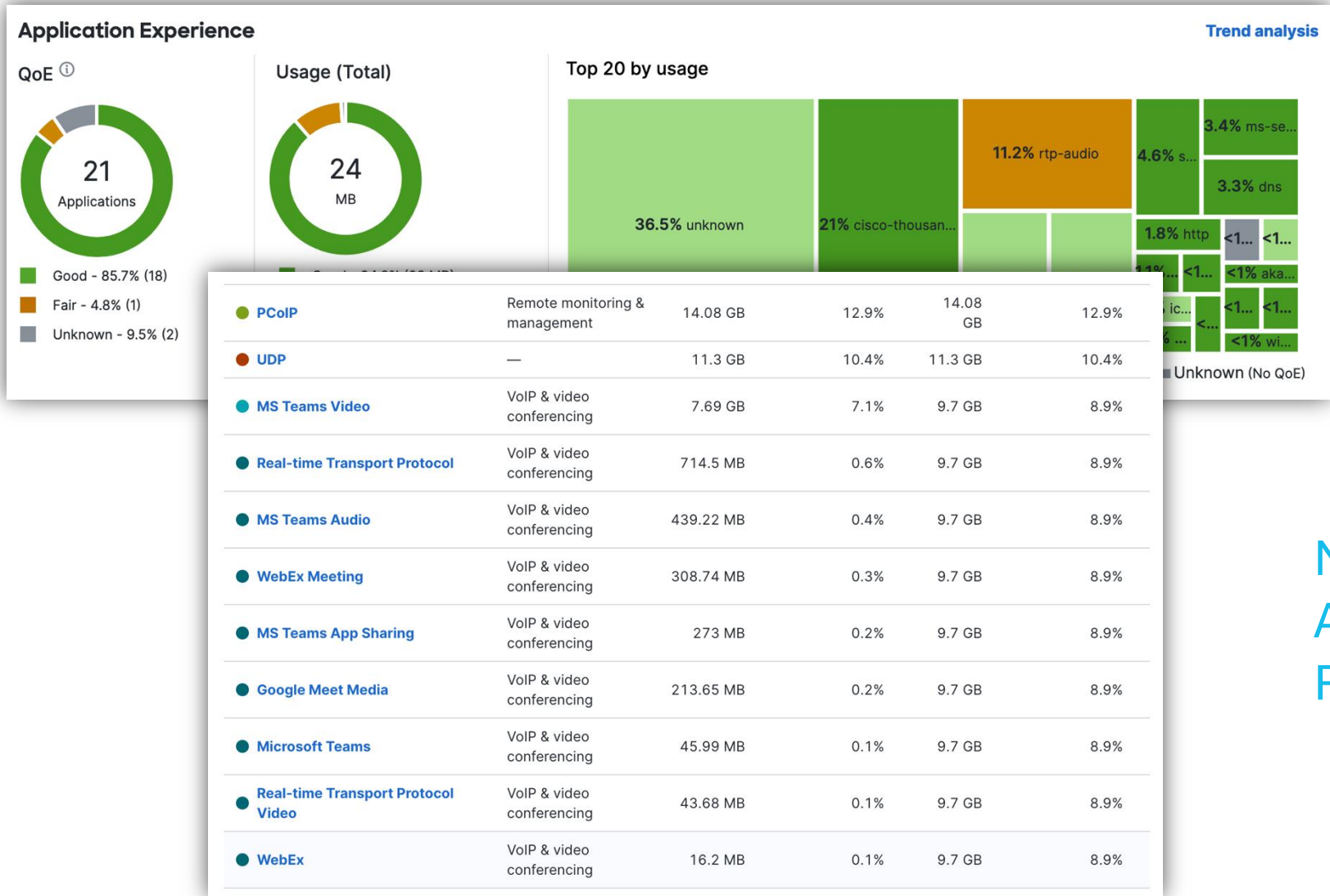
Measure everything



Building a secure data foundation for the AI era

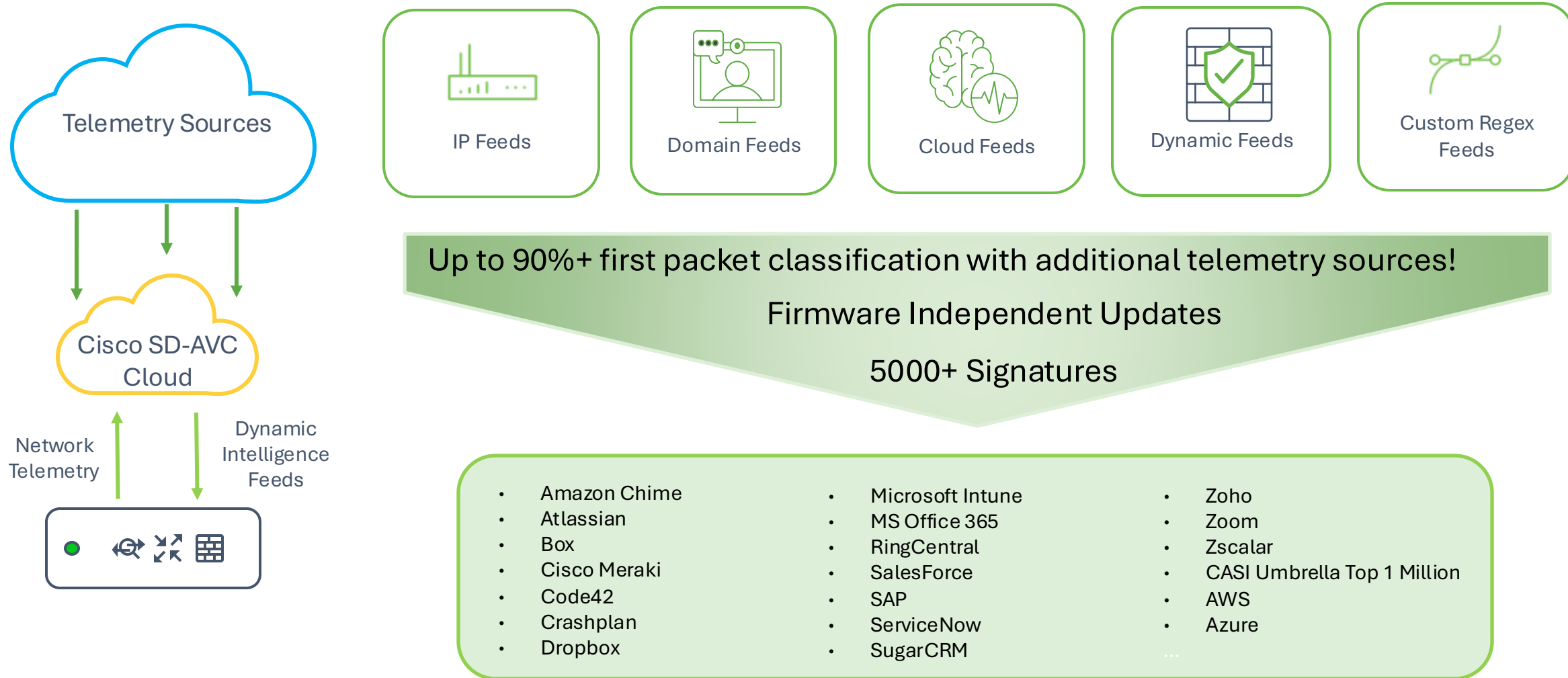
Data Generation

Deep Packet Inspection

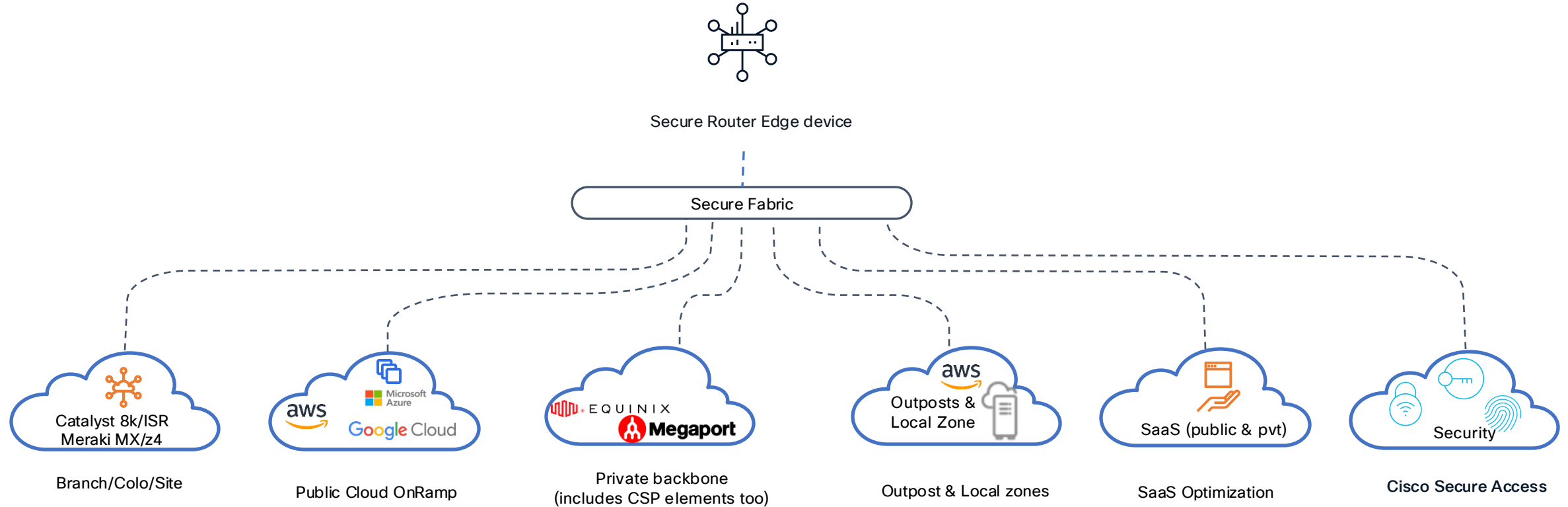


Network-based
Application
Recognition (NBAR)

Cisco Cloud SD-AVC

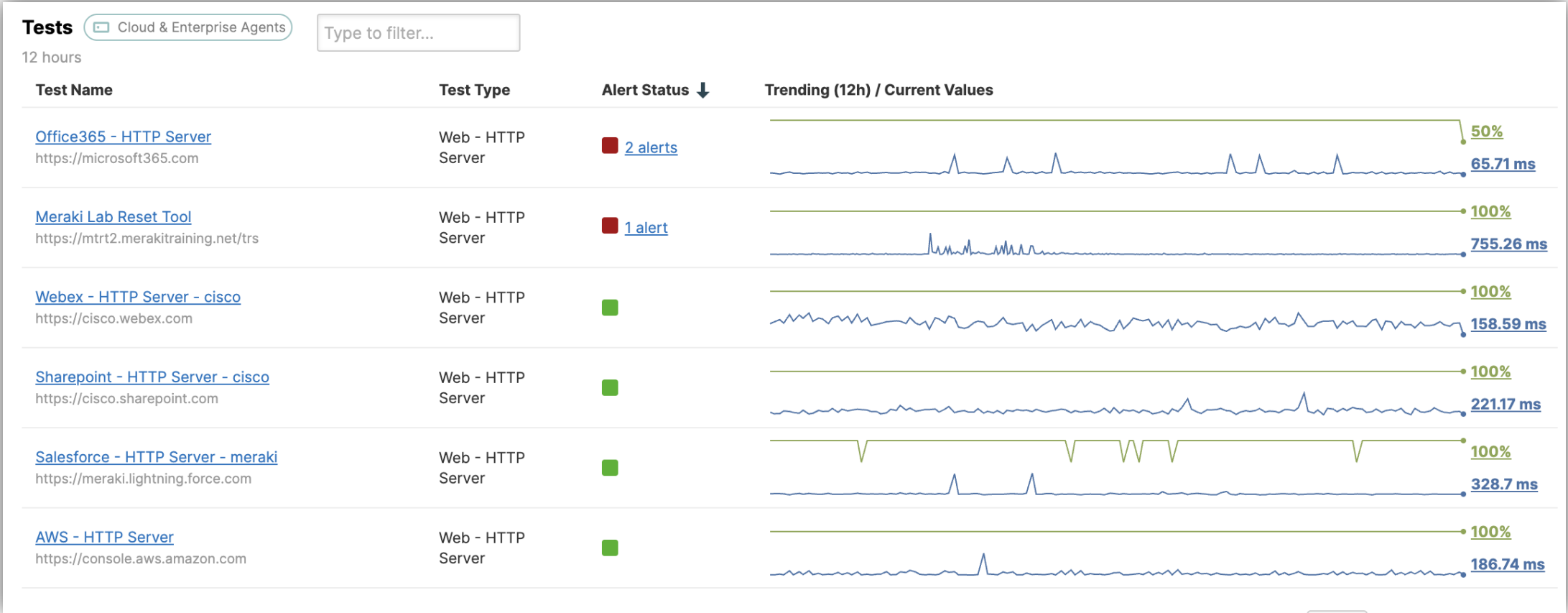


Measuring the Data Plane (High Level)



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 trar
!
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 	<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"/>		
1	2001:db8:abcd:1234:5678::	9995	<input type="checkbox"/>	<input type="checkbox"/>		

Meraki Dashboard

NetFlow collector IP

10.11.11.21

NetFlow collector port

9995

Encrypted Traffic Analytics

☒

ETA collector port

1234

On-premise and “cloud” collector options

The Splunk Effect

Data Fidelity



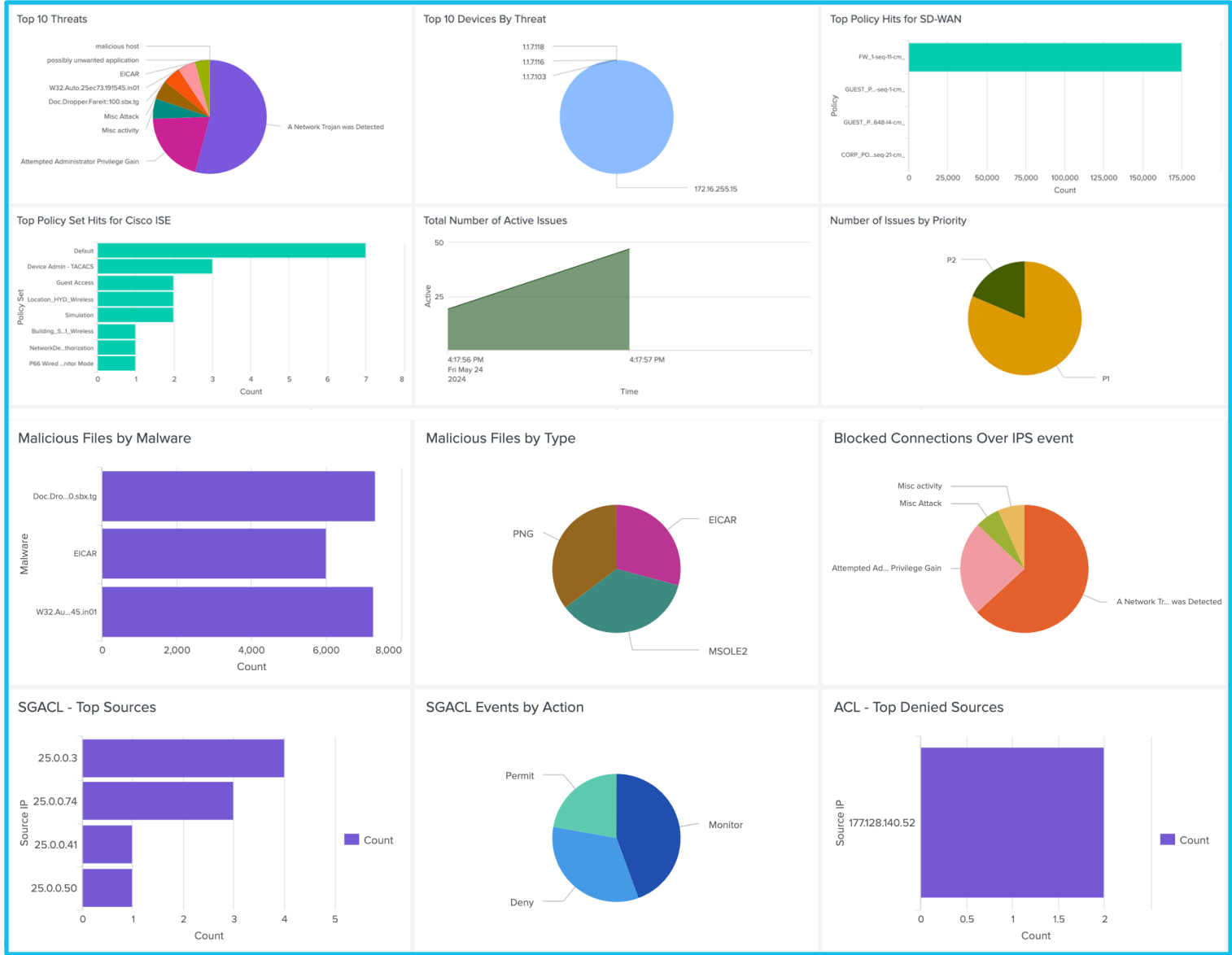
*Nov 1 05:28:51 10.11.11.1 1 1730456931.362125884
KIAH_BDR_MX75 firewall src=2601:1111:8888:cb73::db8
dst=2001:1c08:800:fc05:983:ce39:3f2:f107
mac=10:DD:BB:CC:FC:20 protocol=tcp sport=8000
dport=52815 pattern: allow all*

Skills Evolution



Network Engineering -> Data Management

Splunk Technical Add-ons (TAs)



Benefits

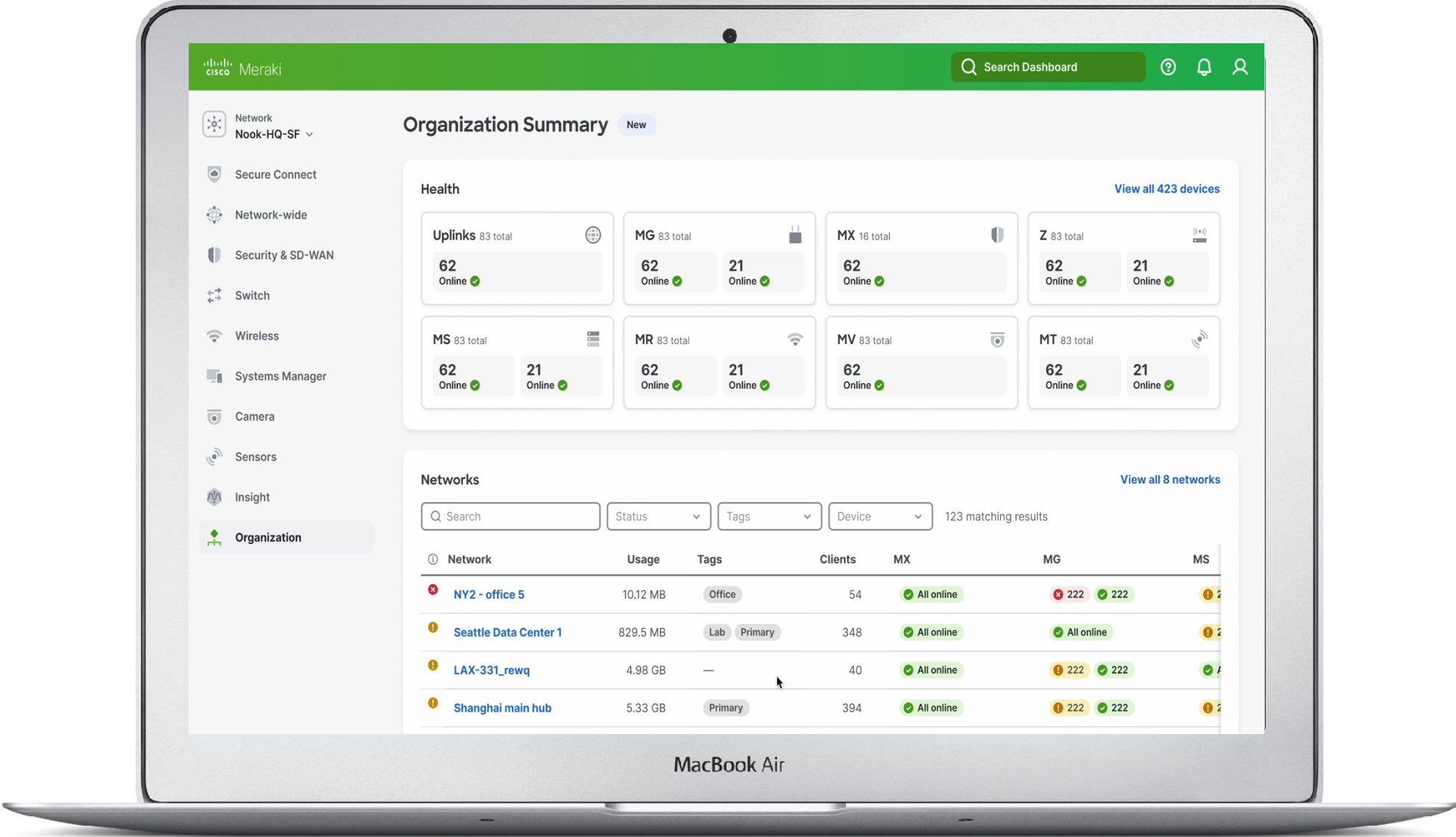
- Holistic view of Network, Security and Identity events
- Long time data retention for compliance needs
- Combined data from multiple sources for ease of visualization (e.g., Top Threats combine threats from WAN and ISE)

Outcomes

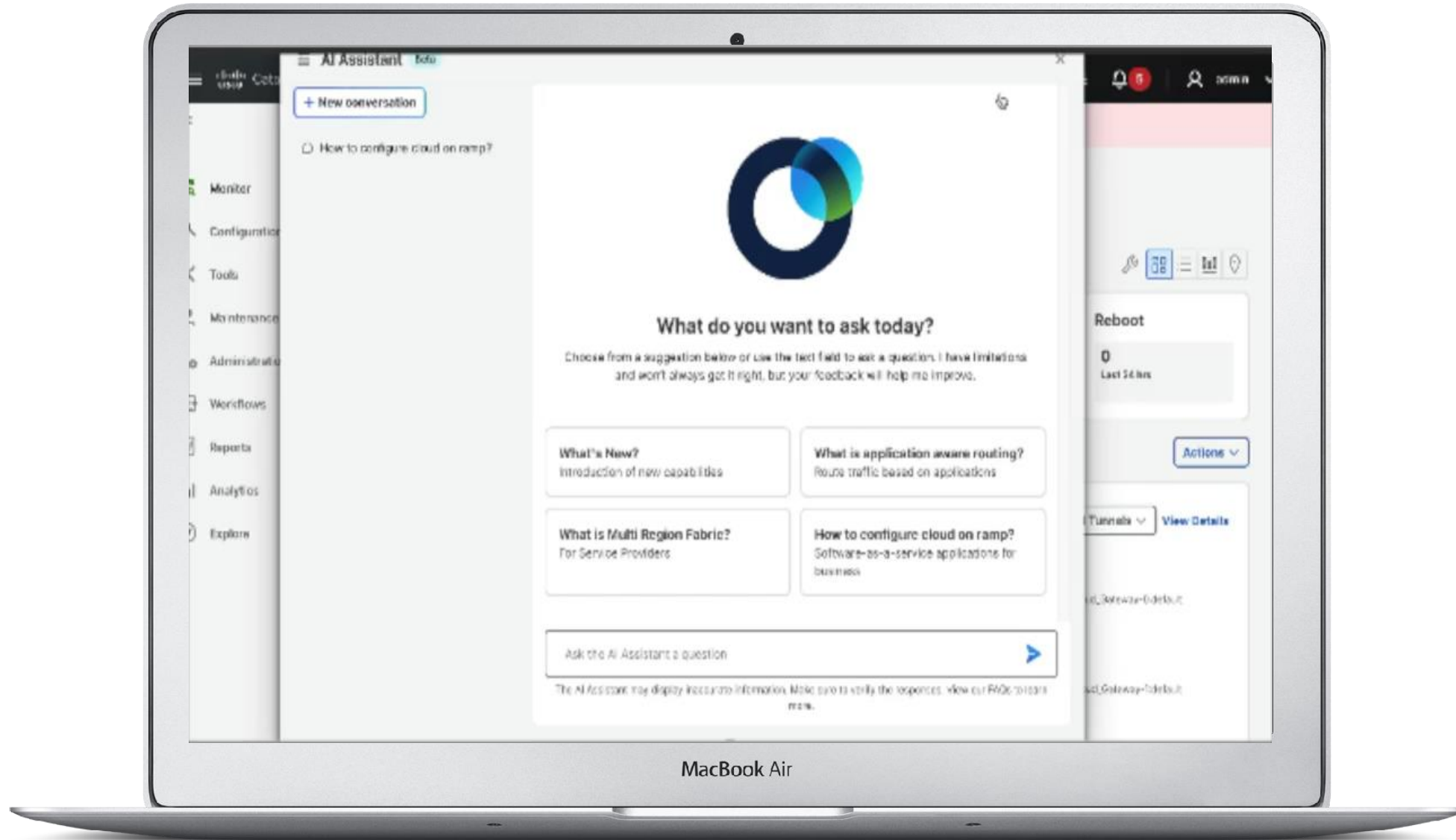
- Improve troubleshooting by tracking device and endpoint issues
- Reduce Mean Time to Resolution (MTTR) by quickly identifying critical events
- Single repository for NGFW events (Malware Protection, Intrusion Prevention, URL-Filtering) and Security Advisories

Sharing Context

Telling the Data Story via the WAN

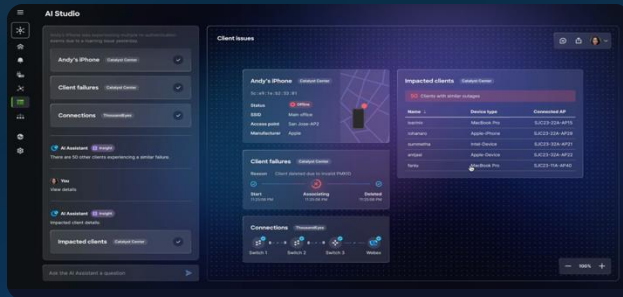


Telling the Data Story supported by AI Assistant



Industry-first AgenticOps

ALPHA | OCTOBER



AI Canvas

Cross-domain collaborative troubleshooting

PUBLIC BETA | AMERICA



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.

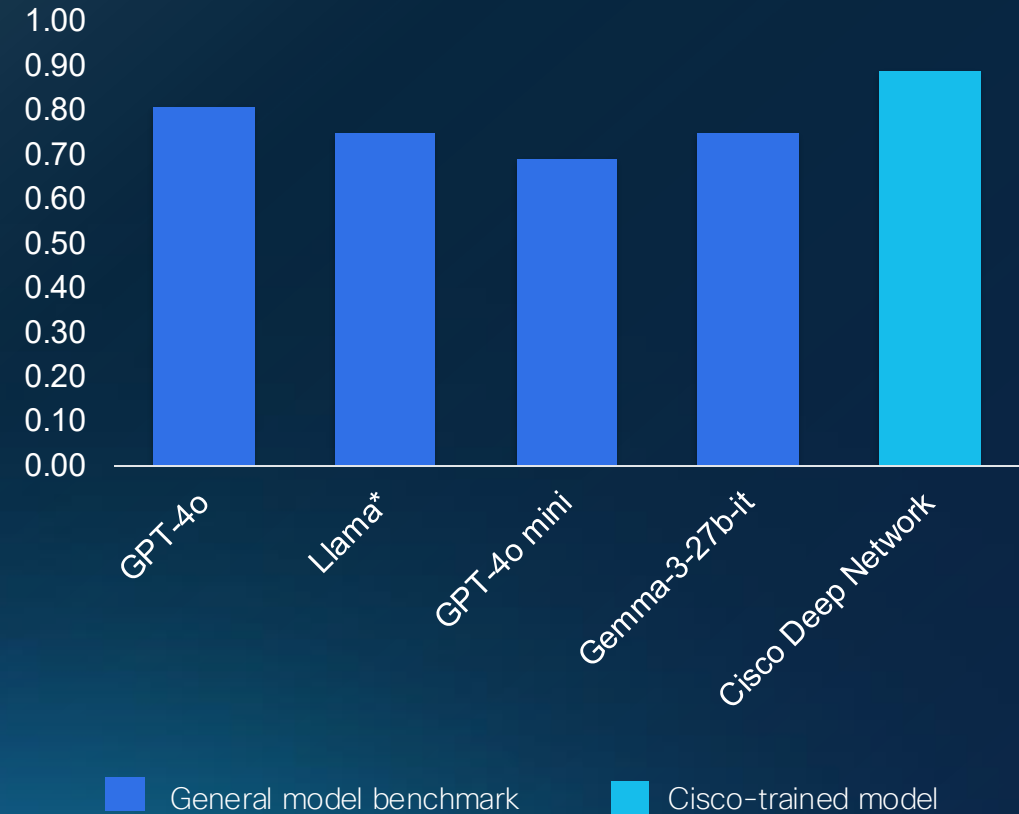
Trusted Training

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.

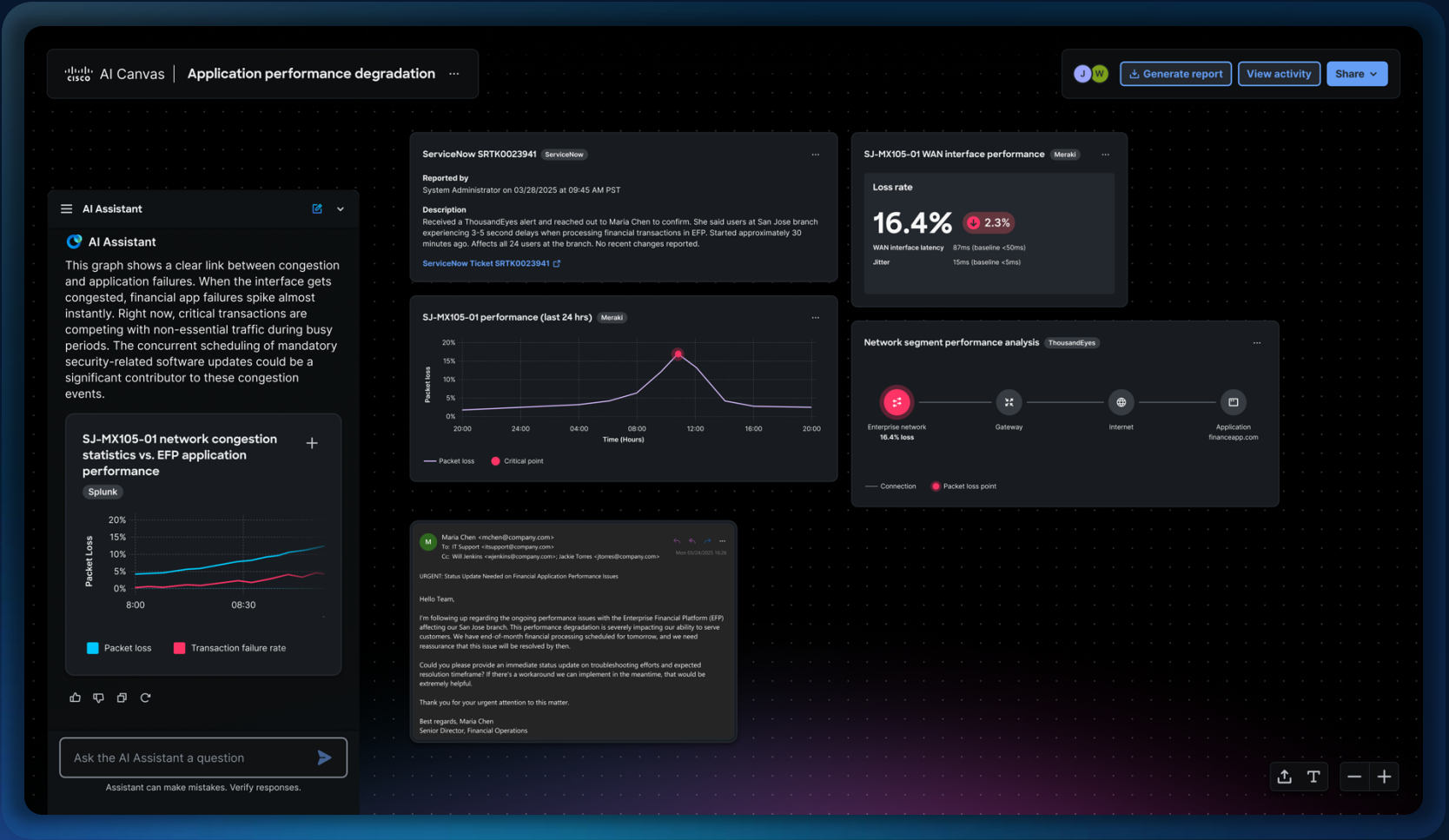
Outperforms general models by ~20%



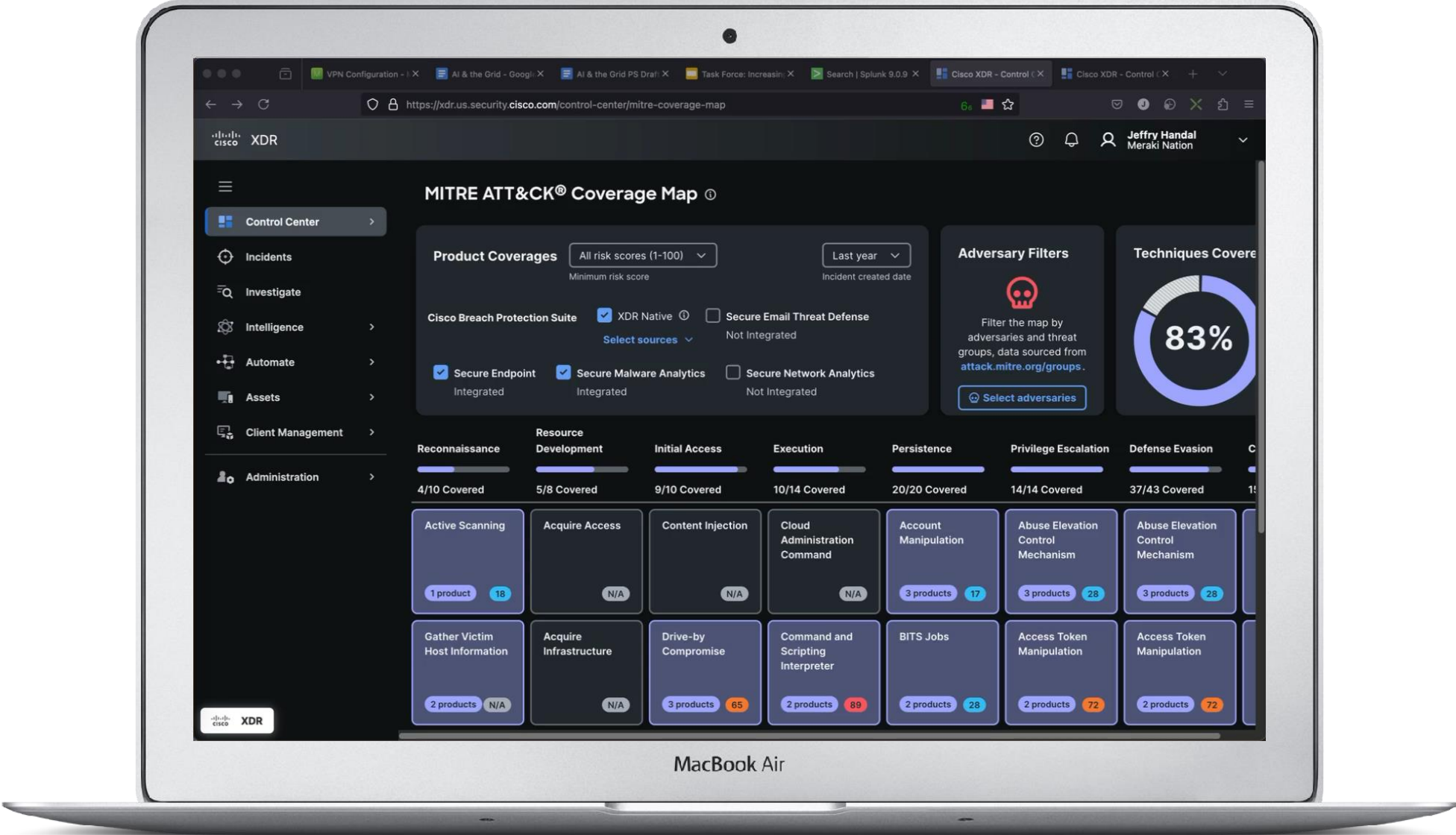
Accuracy on CCIE-style MCQs (590-question benchmark, May 2025)
*3.2-90B-Vision-instruct

AI Canvas

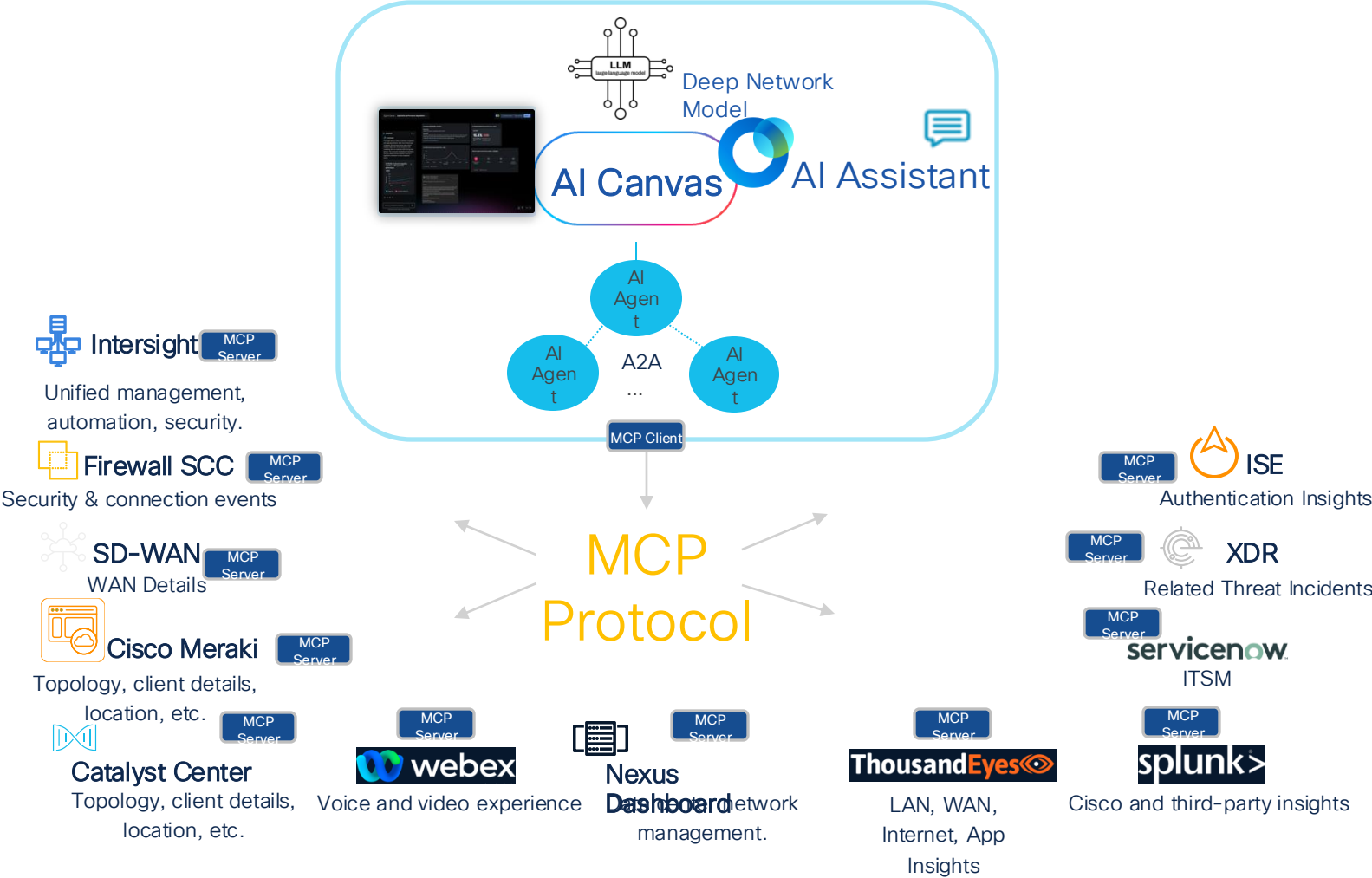
- Collaborative generative dashboard tool
- Create custom network views and visualizations on the fly
- Aggregate telemetry, share insights, and coordinate action



Telling the Data Story via the WAN

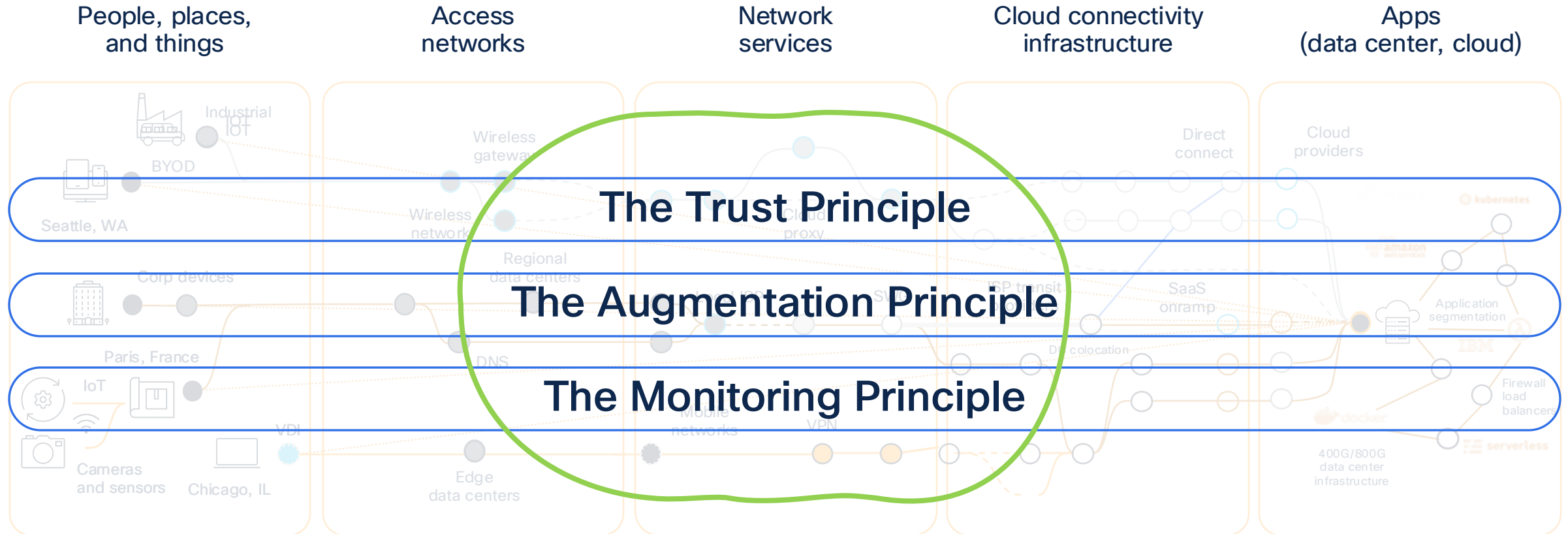


Supported by AI Canvas And Assistants



WAN Mastery

Remember this?



An aerial photograph of an airport tarmac. Three commercial airplanes are parked at gates on the left. A large cargo building with a red roof is on the right. Numerous ground support vehicles, including trucks and cars, are scattered across the tarmac. The text 'Achieve WAN mastery by' is overlaid in white at the top left.

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 !