

Tying it All Together with Data Center Security and Observability

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Transform data centers to power AI workloads anywhere



Robust, flexible infrastructure

Power AI and traditional workloads with networking, silicon, and compute in fully-integrated and scalable systems

Seamless operations and observability

Remove silos with unified management, observability, and assurance for traditional and AI workloads, across all environments

Security from ground to cloud

Protect distributed workloads by infusing security everywhere

Our unified approach to data center networking and Security

Unified Architecture

Powering AI/ML Fabrics

Unified Network Operations

Nexus Dashboard

Unified Intelligence

Hypershield

Splunk

Digital Resilience



Silicon



Software



Operating Model



Systems

Cisco Nexus
Data Center Switching

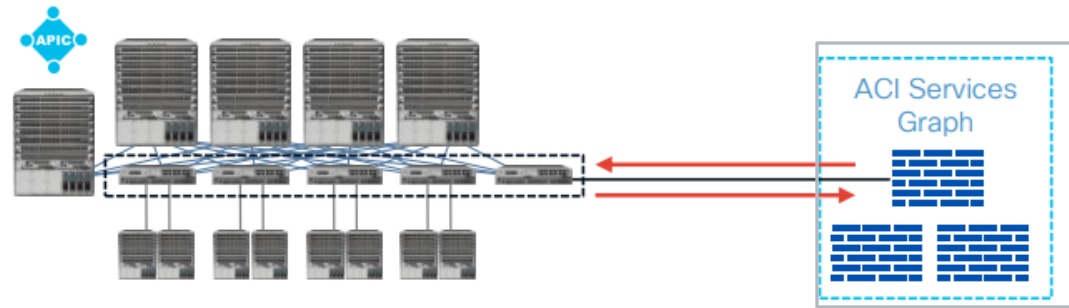
What is new:

- Nexus Smart Switch
- Hypershield
- Hybrid Mesh Firewall

Current Segmentation

ACI Fabric Security

Automated Security with Built in Multi Tenancy



APIC Hardening - Cent OS 7.2

Distributed Stateless Firewall

Line Rate Security Enforcement

Open: Integrate Any Security Device

PCI, FIPS, CC, UC-APL, USG-v6



Embedded Security

- White-list Firewall Policy Model
- RBAC rules
- Hardened CentOS 7.2
- Authenticated Northbound API (X.509)
- Encrypted Intra-VLAN (TLS 1.2)
- Secure Key-store for Image Verification

Micro-Segmentation

- Hypervisor Agnostic (ESX, Hyper-V, KVM*)
- Physical, Virtual Machine, Container
- Attribute Based Isolation/Quarantine
- Point and Click Micro-segmentation
- TrustSec-ACI Integration

Security Automation

- Dynamic Service Insertion and Chaining
- Closed Loop Feedback for Remediation
- Centralized Security Provisioning & Visibility
- Security Policy Follows Workloads



#CiscoLive BRKDCN-3930

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Moore's Law is Dead



“The ability for Moore’s Law to deliver twice the performance at the same cost, or at the same performance, half the cost, every year and a half, is over.”

Jensen Huang, Nvidia

A Tale of Two Customers



One of the Largest Investment/Wealth Management banks in the US (Systemically important financial institution), deploys edge compute to 6 colocations in the US for Direct connections to GCP/AWS/Azure.

One of the top 2 Credit Card firms uses stateful Zone Based Security in their Data Center for security And Compliance.

Cisco Smart Switches Integrated with Hypershield Security

Ultra Ethernet Consortium

Cisco N9300 Series Smart Switches

Shipping



N9324C-SE1U

24-port 100G

800G Services Throughput

Shipping

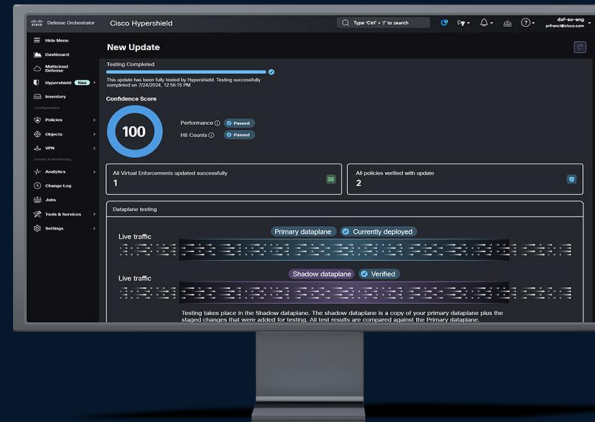


N9348Y2C6D-SE1U

48-port 1G/10G/25G, 6-port 400G, 2-port 100G

800G Services Throughput

Cisco Security Control



Use Cases

Top of Rack segmentation and enforcement

Cloud Edge

Zone-based segmentation

Nexus Smart Switch

Unmatched Flexibility, Performance, and Efficiency

Networking



- Rich NX-OS Features and Services
- High-speed connectivity and scalable performance
- Optimized for latency and power efficiency



Routing
Switching



EVPN/MPLS/
VXLAN/SR



Rich
Telemetry

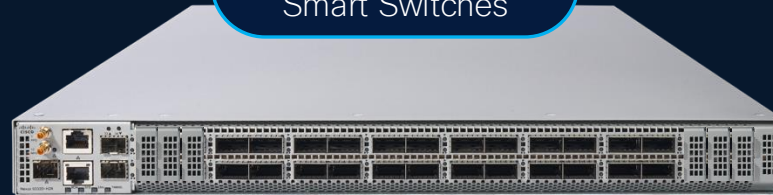


Line-rate
Encryption



Power
Efficiency

Cisco
Smart Switches



Cisco Nexus 9300 Services Accelerated Switch

Hypershield



- Software-defined Stateful Services
- Programmable at all layers: add new services without HW change
- Scale-out services with wire-rate performance
- Power down DPU complex when not used



Distributed
Security



IPSEC
Encryption



Large-Scale
NAT



Event-Based
Telemetry

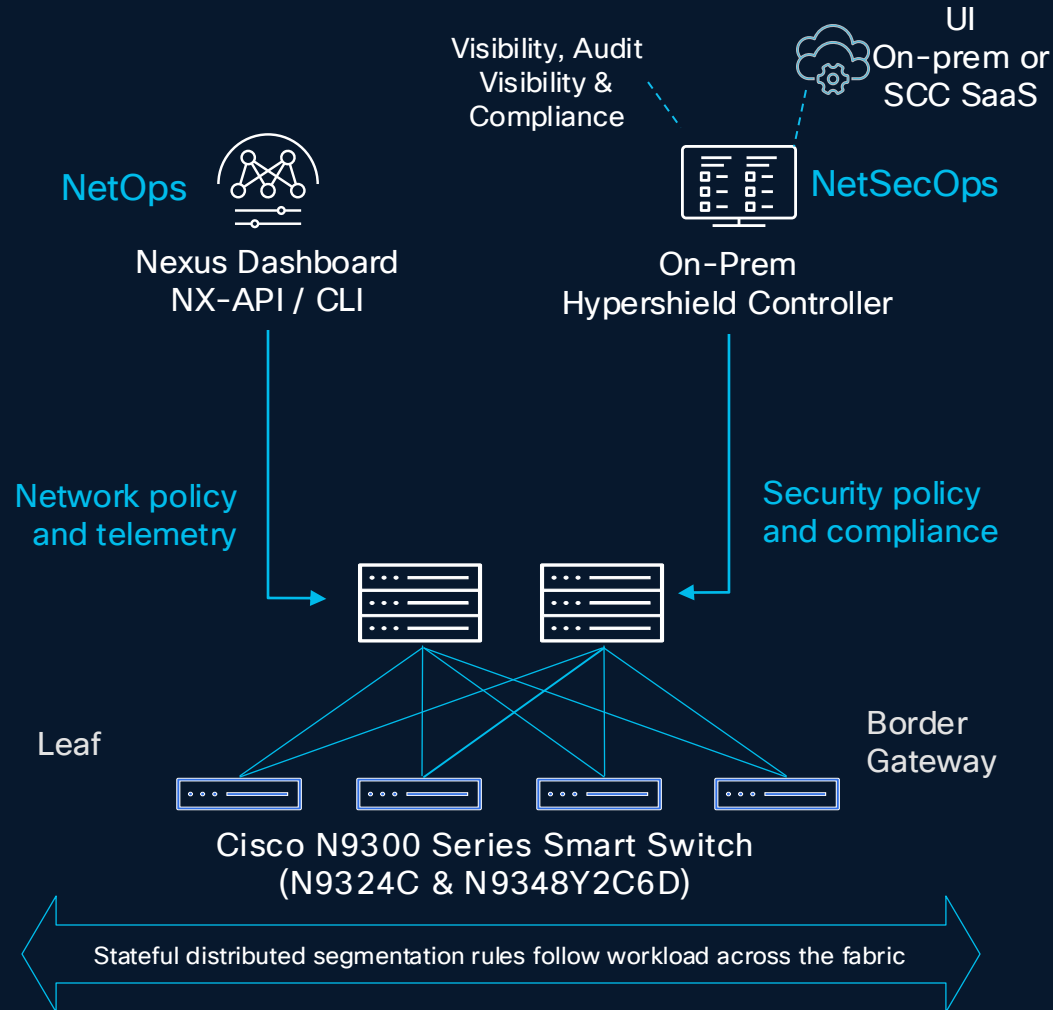


DoS
Protection

Future Use Cases

Smart Switch “Networking & Security” Use Case

Top of Rack L4 Segmentation



Security Infused in Data Center Fabric

Version: NXOS 10.6(2), Hypershield 1.2

Smart Switches: N9348Y2C6D-SE1U, N9324C-SE1U

Fabric: VXLAN-EVPN, VXLAN-multi-site, BGP fabric, brownfield

Segmentation: VRF/VLAN + CIDR rules, stateful/stateless, 100K rules, 800G throughput (final scale based on benchmarking)

Policy: CRD schema, policy validation and canary rollout/rollback

Hypershield: Air-gap ready on-prem controller* and optional Security Cloud Control SaaS

Upgrade: NXOS CLI for DPU load, SMU for Hypershield agent

Observability: Nexus Dashboard, Splunk, Prometheus/Grafana

Smart Switch “Networking Mode” Use Cases

Available Now

September 2025

Single Fabric Use Case

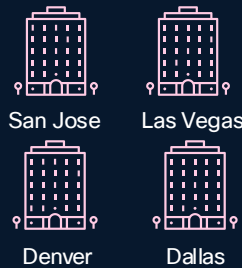


Single Fabric
• VXLAN-EVPN
• BGP

ToR Smart Switch
Deschutes | Dansberg

- ✓ **Role: Leaf, Border Leaf**
- ✓ Comprehensive fabric features (L2, L3, QoS, Multicast, VPC, L2 mobility, L2/L3 stretch, etc ...)

Multi-Fabric Use Case



Multi-Site
VXLAN-EVPN

ToR Smart Switch
Deschutes | Dansberg

- ✓ **Role: Leaf, Border Gateway**
- ✓ Active-Active & DR continuity
- ✓ Multi-site features (L2/L3 stretch, anycast border gateway, TRMv4, etc...)

Futureproofing :

- LDOS
- Good for new builds, RFP, expansions against competition
- Brown field insertion

Product Highlights:

September 2025

- N9324C-SE1U and N9348Y2C6D-SE1U
Networking mode GA on September 1st week
- 10G to 400G fiber and copper support

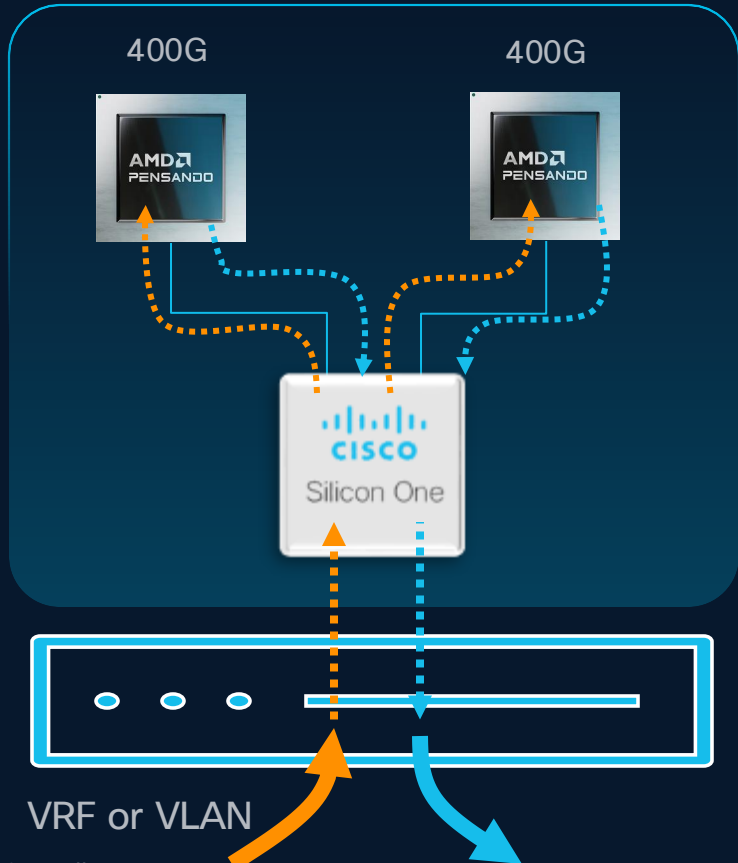
November 2025

- Nexus Dashboard 4.1.x support
- 1G support
- VXLAN vPC BGW
- Netflow

Security Policy Applied to All Smart Switch DPUs

Spray flows between all DPUs

Single policy applied all DPUs

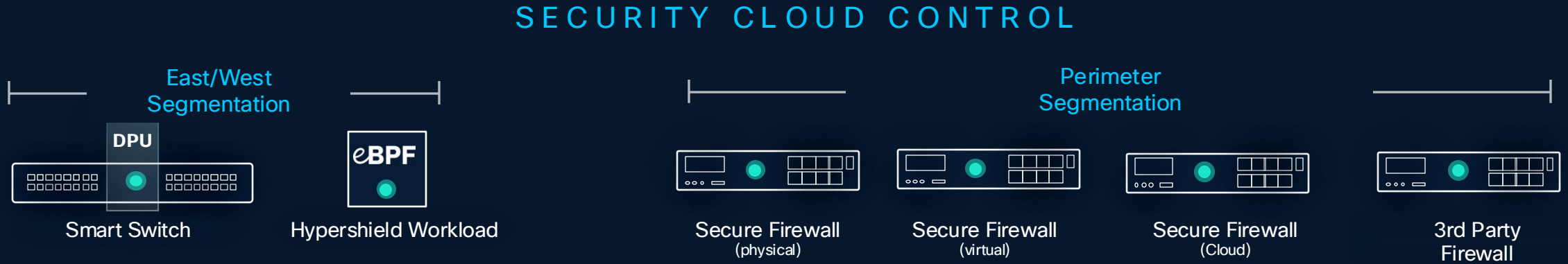


Symmetric Hashing of VRF and VLAN across DPUs

```
service dpu load-balance symmetric-hash  
  
service system hypershield  
service firewall  
  vlan 10  
  vlan 13  
  vrf blue  
  vrf green  
  in-service
```

} Redirect VRF or VLAN to DPU for L4 segmentation

Cisco Hybrid Mesh Firewall goes broader and deeper



Only Cisco Fuses Security Into Both the Network & Workload

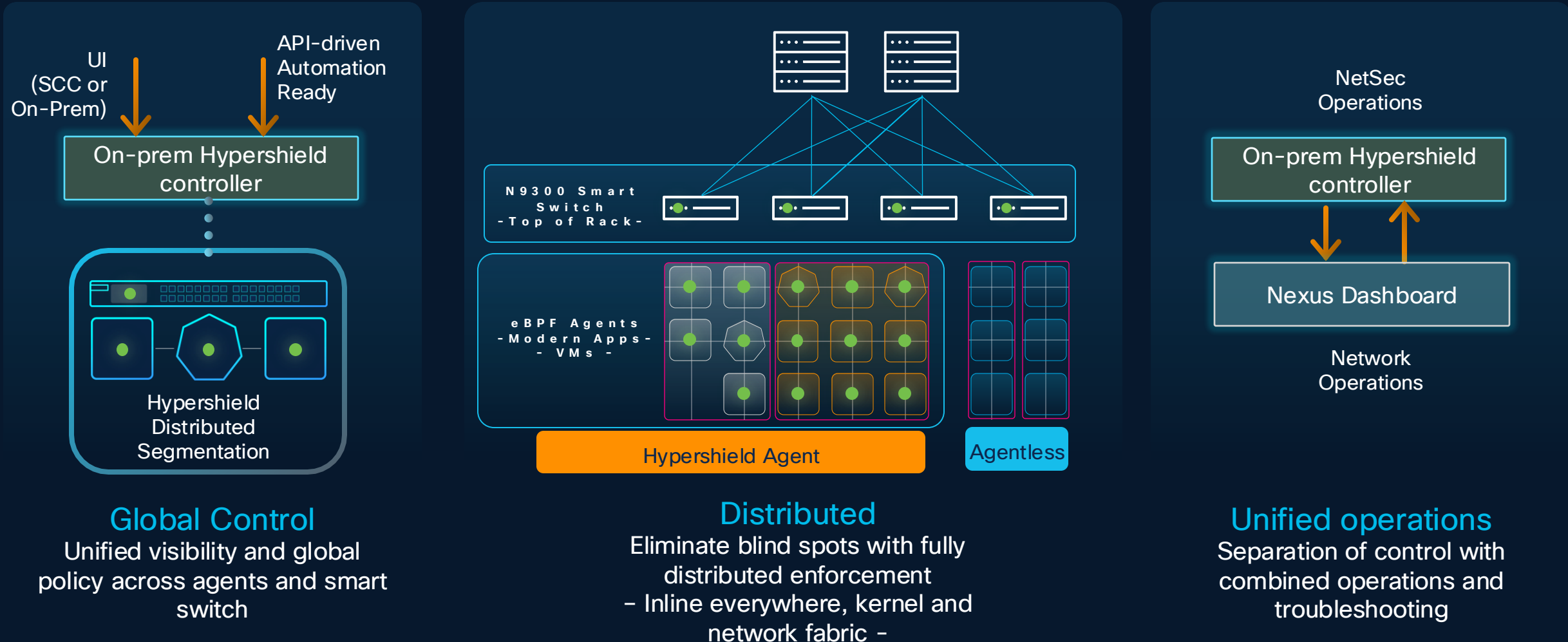
“Cisco’s Boxes managed as one”

Cisco also manages 3rd-Party Firewalls

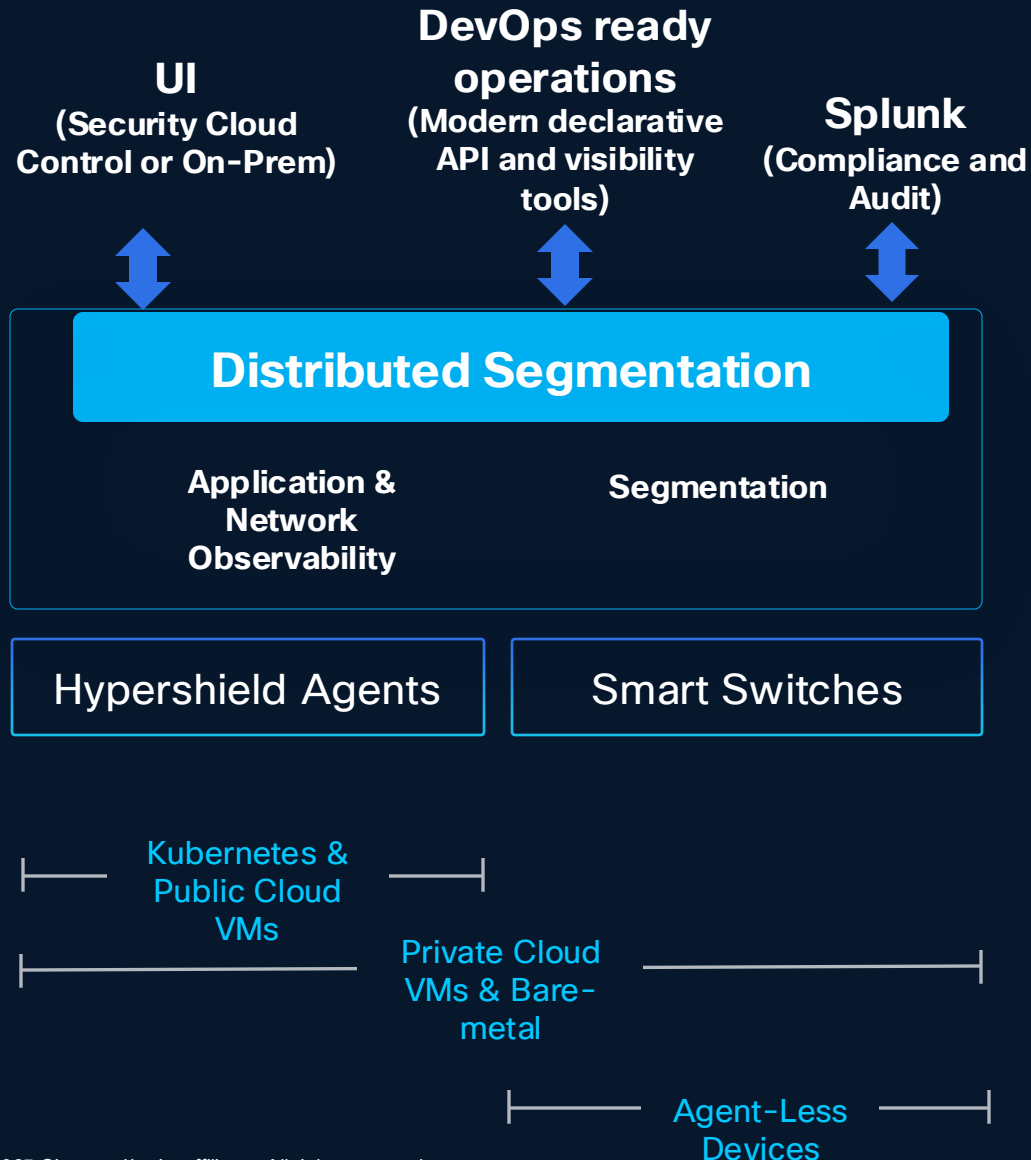
Smart Switches work in Cisco’s Hybrid Mesh Firewall solution for customers that still want advanced firewall features implemented in the network along with Smart Switches (e.g L7 AppID, IDS/IPS, URL Filtering, SSL Decryption)

Write policy once, enforce across the mesh

Hypershield: Distributed Segmentation Architecture



Hypershield Policy



Segmentation Policy:

Distributed segmentation policy model – Order independent

- Stateful or stateless policy
- Per VRF/VLAN + Source/Destination CIDR rules
- Policy canary rollout/rollback

Traffic redirection:

- VLAN or VRF redirection to DPU
- Segmentation of traffic across 2 VRFs with route leak or 2 vlans in a VRF or between VRFs

Policy Sync and HA:

- State sync of active-active HA (vPC & HSRP)

Hypershield On-prem Controller:

- Full on-prem option – API and UI
- Optional Security Cloud Control SaaS hookup for global policy management
- Agent and DPU Upgrade

Visibility

- “Cloud Native” with Grafana and Prometheus
- Application and Network Observability UI – On-prem controller
- Splunk – Security compliance and audit logs

Hypershield: Comprehensive Security

Hypershield

App pod
App pod
App pod
App pod
App pod
TSA pod

K8s Worker Node



App process
App process
App process

TSA

Baremetal OS

App process
App process
App process

TSA

VM

App container
App container
App container

TSA

VM

TSA

Hypervisor Node

Virtual Machine

Network-based Enforcer

Hypershield Policy

Vector Packet
Processing (VPP)

Traffic In

Traffic Out

Nexus 9300 Smart Switch

CPU NXOS Hypershield Agent

PCIe

AMD DPU

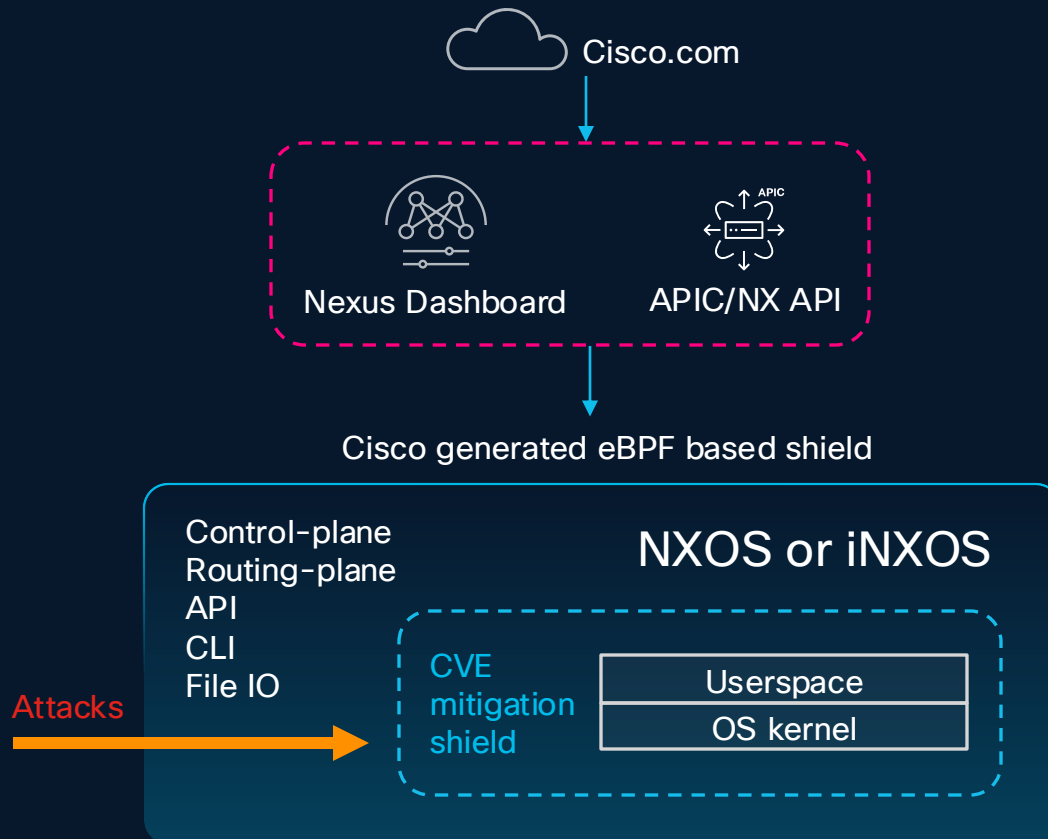
AMD DPU

200G

Cisco NPU
(E100)

Live Protect – CVE Mitigation for Nexus NXOS Switches

No Downtime or Immediate PSIRT Software Upgrades



Data Center is critical infrastructure:

- PSIRTs require large switch fleet upgrades (100s-1000s)
- Require testing, planning, multiple maintenance windows
- High cumulative downtime (high MTTR)

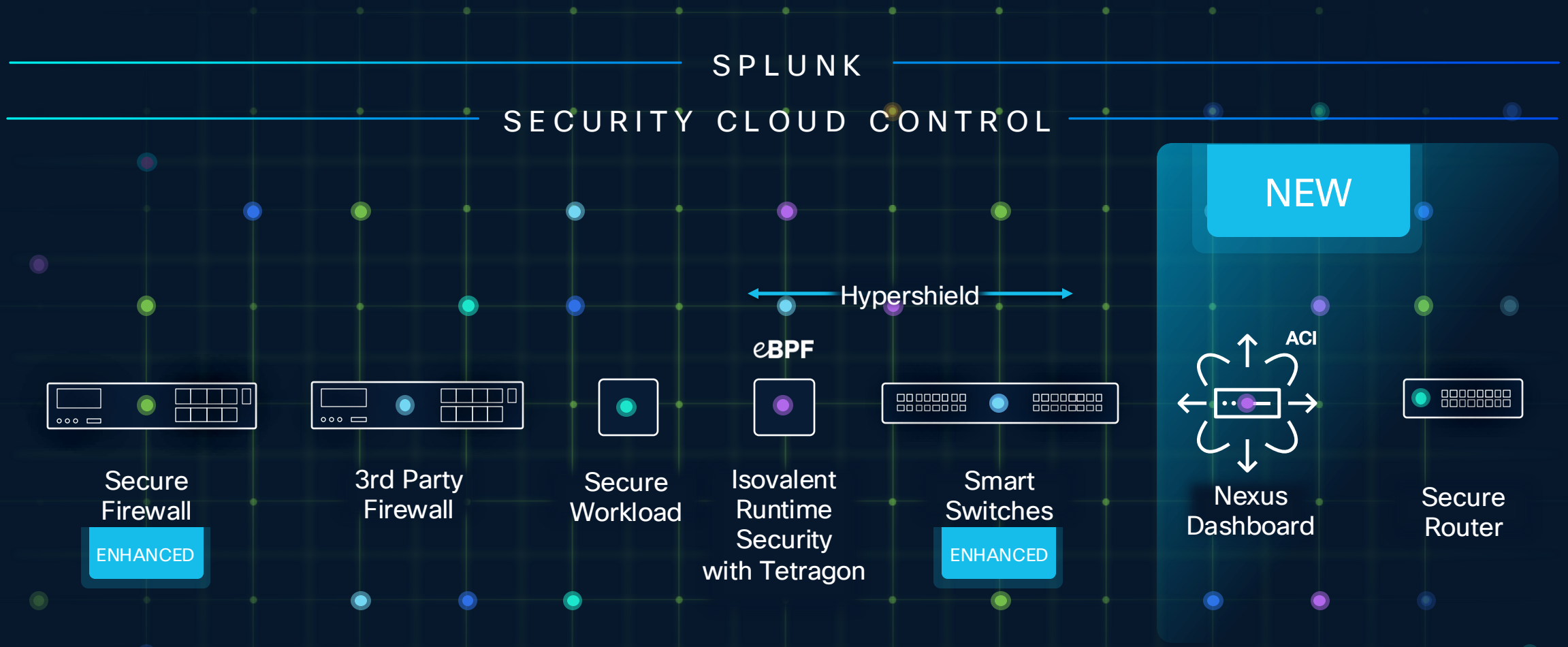
Live Protect workflow:

- Support on Nexus CloudScale and Silicon1 switches
- Download compensating controls from cisco.com
- Tetragon agent applies eBPF policy CVE shields
 - Monitor mode
 - Enforce mode
- Privilege escalation CVEs (NXOS 10.6(2))
- Network control DDoS CVEs (future)

Benefits:

- Nexus is 1st to market
- Catalyst will have this also, no other solution in the market has this.
- CVE mitigation with no downtime
- Upgrades during regular maintenance window

Cisco Hybrid Mesh Firewall



Write policy once, enforce across the mesh

Cisco Hybrid Mesh Firewall

Cisco Secure Firewall 6100 Series

Highest performance density
for AI data centers

AVAILABLE DEC 2025



200Gbps
per rack unit

Line rate advanced
threat protection

Modular
scalability

Firewall price-performance leader

Top to bottom

Branch

Campus

Data center

Cloud

NEW



200 Series

2 Models

Firewalling + IPS

Up to 2.5 Gbps*



1200 Series

5 Models

Firewalling + IPS

Up to 24 Gbps*



3100 Series

5 Models

Firewalling + IPS

Up to 45 Gbps*



4200 Series

3 Models

Firewalling + IPS

Up to 149 Gbps*



6100 Series

2 Models

Firewalling + IPS

Up to 350 Gbps*



Public/Private

20+ cloud variants

Cisco	HyperFlex
Nutanix	KVM
Google Cloud Platform	VMware ESXi
AWS	Alkira
Rockspace	Equinix
OpenStack	Microsoft Azure
Alibaba Cloud	Oracle Cloud Infrastructure

* Cisco performance testing

AI Ready Data Centers: AI Ops and Resiliency

Transform data centers to power AI workloads anywhere



Robust, flexible infrastructure

Power AI and traditional workloads with networking, silicon, and compute in fully-integrated and scalable systems

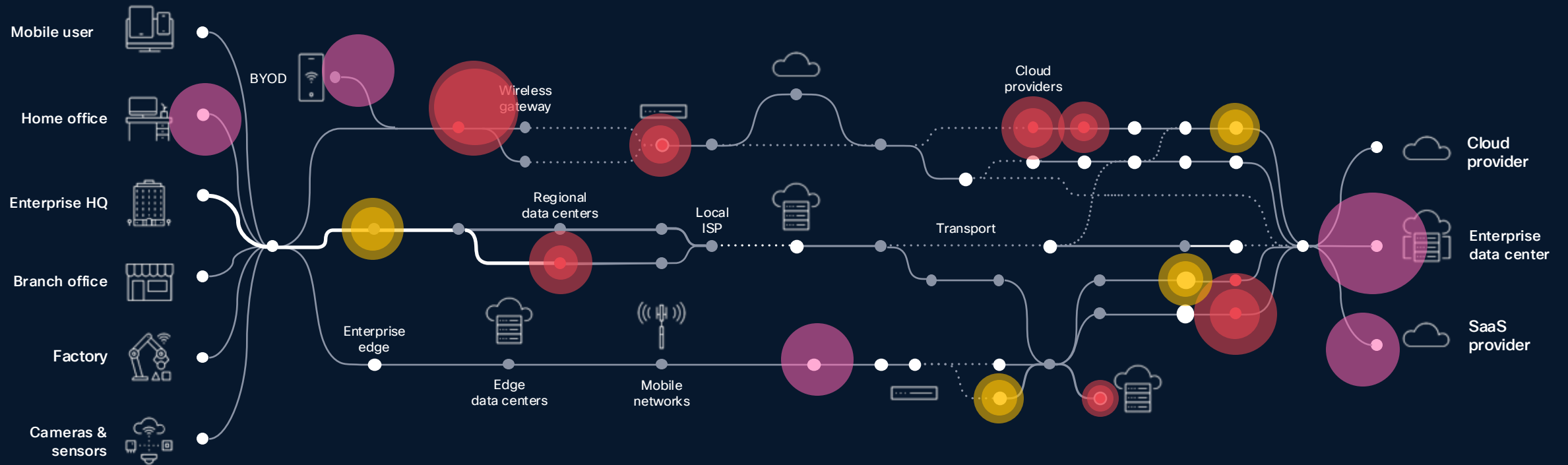
Seamless operations and observability

Remove silos with unified management, observability, and assurance for traditional and AI workloads, across all environments

Security from ground to cloud

Protect distributed workloads by infusing security everywhere

How can you proactively get ready for AI



The ability to detect, investigate, and respond is a data problem



Network team

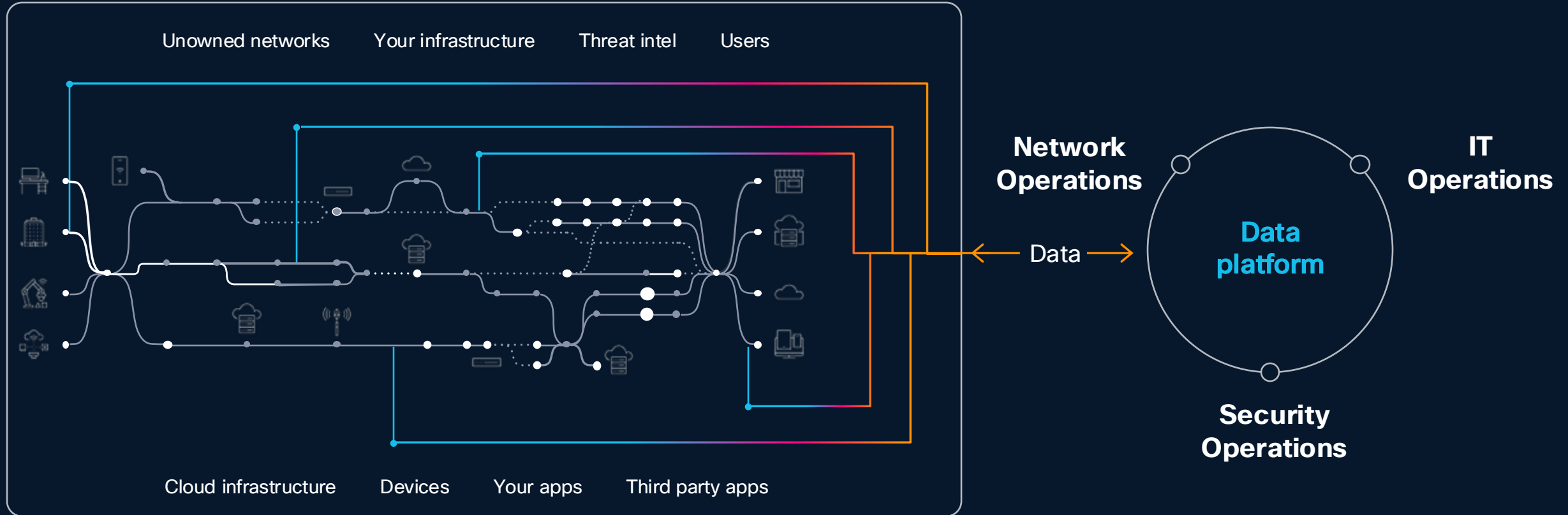
Datacenter team

Security team

IT/Engineering team

What if you could harness data across silos with deeper context, faster detection & remediation, and cost optimization

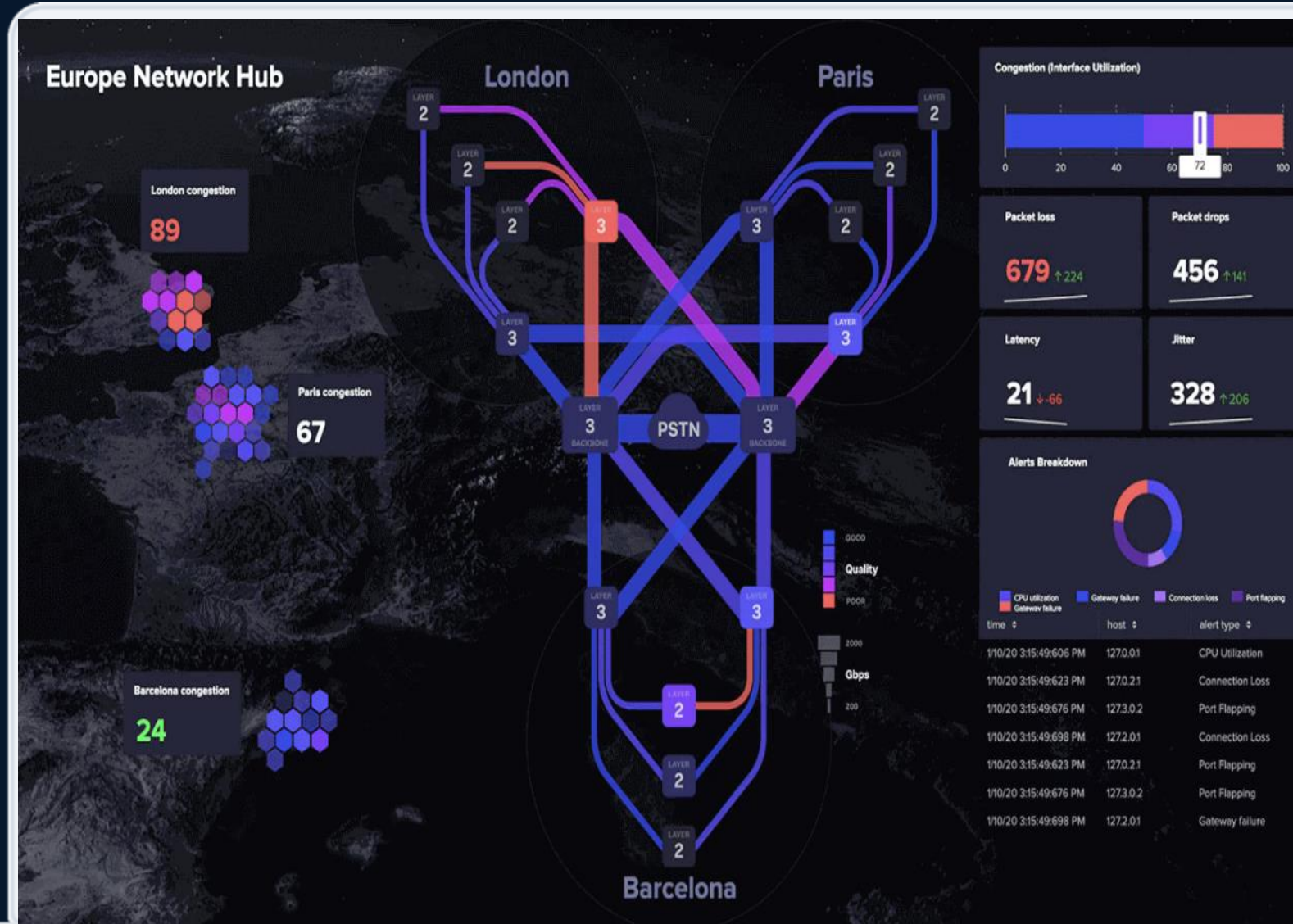
Cisco + Splunk: The data platform for Datacenter resilience



The Data Platform

Monitor the performance, quality, security, and cost of your datacenter and beyond

- Visibility into your data – any structured and unstructured data – from hardware, software, infrastructure, systems, networks, devices, applications, end users, compute...
- Real time insights into anomalies and advisories about affected network objects
- Easy, extensible data onboarding
- Data pipeline capabilities to collect, transform and control your data



The Data Platform

Monitor the performance, quality, security, and cost of your datacenter and beyond

- Flexible approach to monitoring your Cisco® data center fabrics and all other elements of your technology stack
- Leverage Cisco's open API frameworks to collect Data Center Networking product events and health scores and inventory data
- Deliver centralized, real-time visibility for applications as well as for Cisco ACI® and Cisco NX-OS/VXLAN fabrics across bare-metal and virtualized environments

Configuration change transactions

Host

Last 60 minutes

Hide Filters

Configuration change transactions

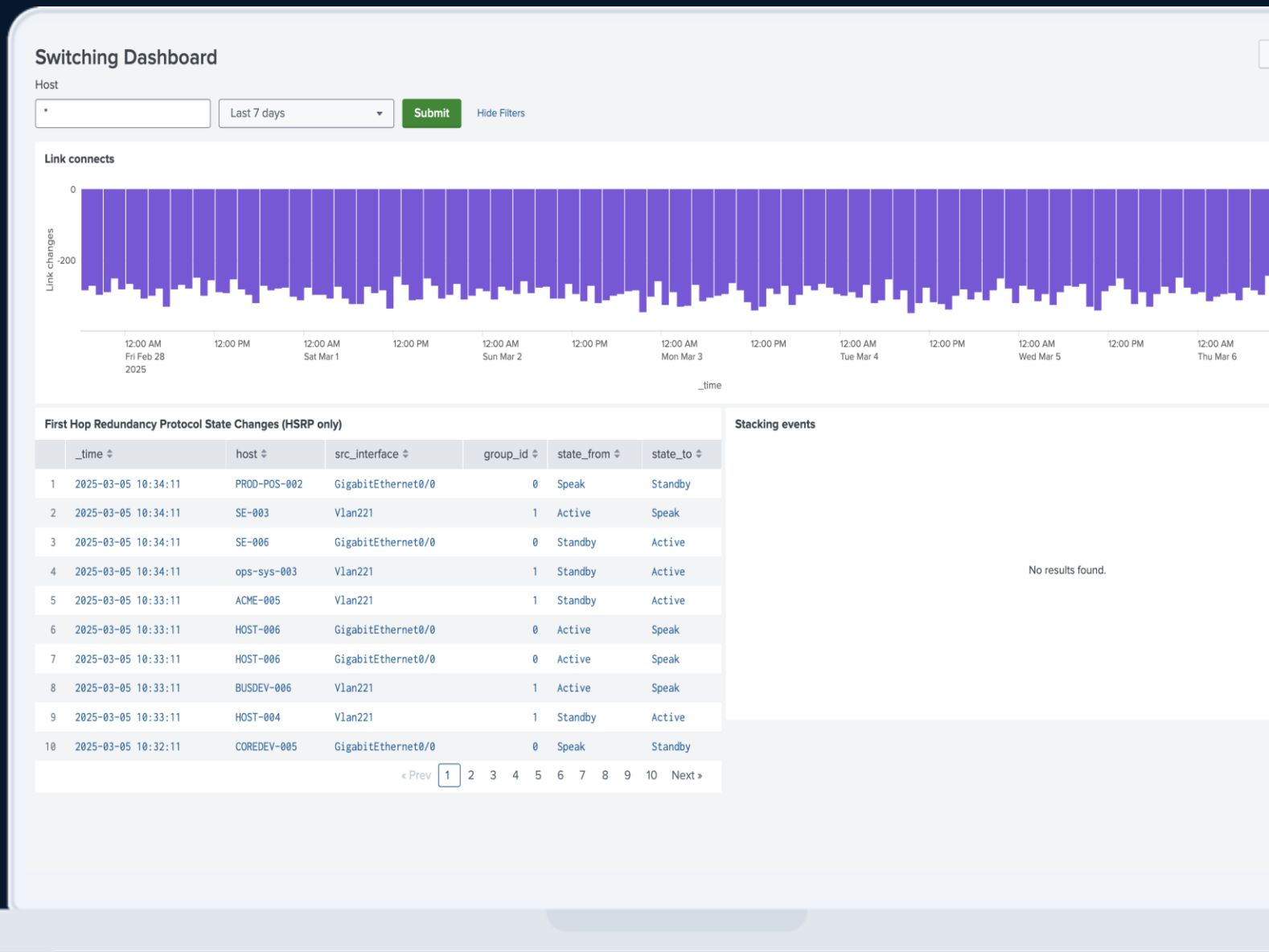
_time ↕	host ↕	config_source ↕	user ↕	line ↕	src_ip ↕	eid ↕	cmd ↕
2025-03-06 17:40:12	HOST-003		ppan			0000000059472	no username admin
2025-03-06 17:40:12	BUSDEV-006		mmouse			000000005432	switchport access vlan 14
2025-03-06 17:40:12	PROD-POS-002	console	hbaldwin	vty0	195.183.193.247		ARCHIVING NOT ENABLED ON THIS DEVICE
2025-03-06 17:40:12	COREDEV-002		svc-nms			000000006489	enable secret ****
2025-03-06 17:39:12	BUSDEV-008		gclooney			0000000052306	monitor session 1 source vlan 16 , 17 ,
2025-03-06 17:39:12	COREDEV-003		hbaldwin			0000000066322	monitor session 1 source vlan 16 , 17 ,
2025-03-06 17:39:12	COREDEV-005		hbaldwin			0000000053894	switchport access vlan 14
2025-03-06 17:39:12	ACME-005	console	mmouse	vty0	58.116.62.108		ARCHIVING NOT ENABLED ON THIS DEVICE
2025-03-06 17:39:12	SE-004		bdylan			0000000099852	no username admin
2025-03-06 17:39:12	PROD-MFS-006		svc-nms			0000000019600	no interface vlan 1112
2025-03-06 17:39:12	PROD-POS-002		bdylan			0000000044275	switchport access vlan 14
2025-03-06 17:39:12	PROD-MFS-004		mjordan			0000000097317	interface FastEthernet0/0
2025-03-06 17:38:12	SE-001		mjordan			0000000082358	interface Ethernet1/0/8
2025-03-06 17:38:12	PROD-MFS-006		hbaldwin			0000000024525	enable secret ****
2025-03-06 17:38:12	COREDEV-003	console	bdylan	vty0	90.229.147.53		ARCHIVING NOT ENABLED ON THIS DEVICE
2025-03-06 17:38:12	PROD-MFS-005		mmouse			0000000080705	interface Ethernet1/0/24
2025-03-06 17:37:12	BUSDEV-008		mmouse			0000000058623	monitor session 1 source vlan 16 , 17 ,
2025-03-06 17:37:12	SE-002		ppan			0000000060540	switchport access vlan 14
2025-03-06 17:37:12	ops-sys-004		bdylan			0000000041730	monitor session 1 source vlan 16 , 17 ,
2025-03-06 17:36:12	COREDEV-006		ppan			0000000057665	no username admin

« Prev 1 2 3 4 5

The Data Platform

Monitor the performance, quality, security, and cost of your datacenter and beyond

- Real-time and historical dashboards that provide detailed insight into system health, inventory, and faults across your entire Cisco Data Center Networking environment
- Visibility into faults and affected network objects, offering improved identification of problems and simplifying troubleshooting

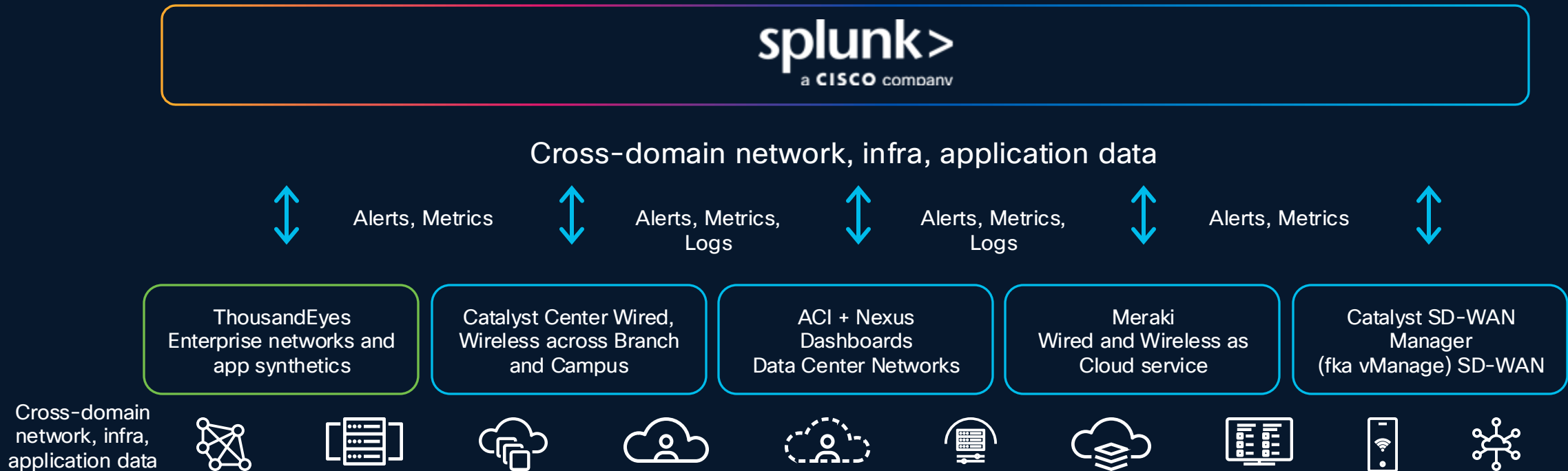


One Cisco powered by Splunk



Cisco Datacenter Network Insights with Splunk

End-to-end visibility leveraging network events and KPIs for Cisco domain controllers



Datacenter Observability



On prem →



Public cloud →



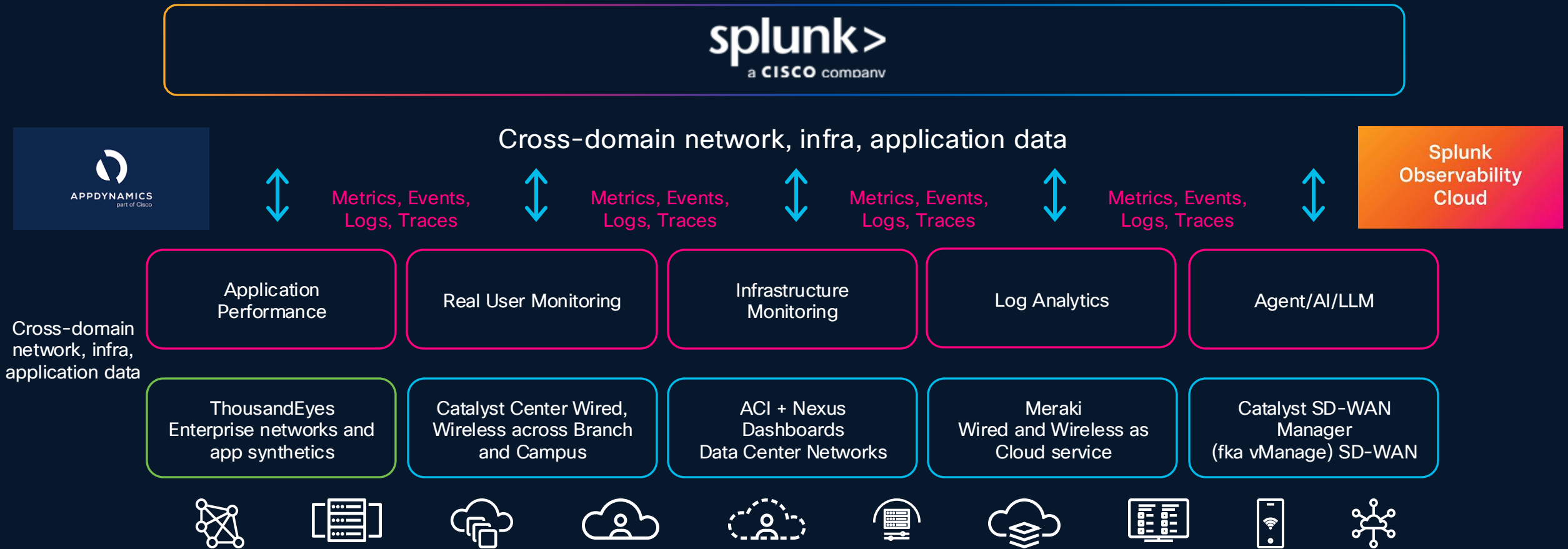
← Your networks



← Internet

Full Stack Observability with Splunk

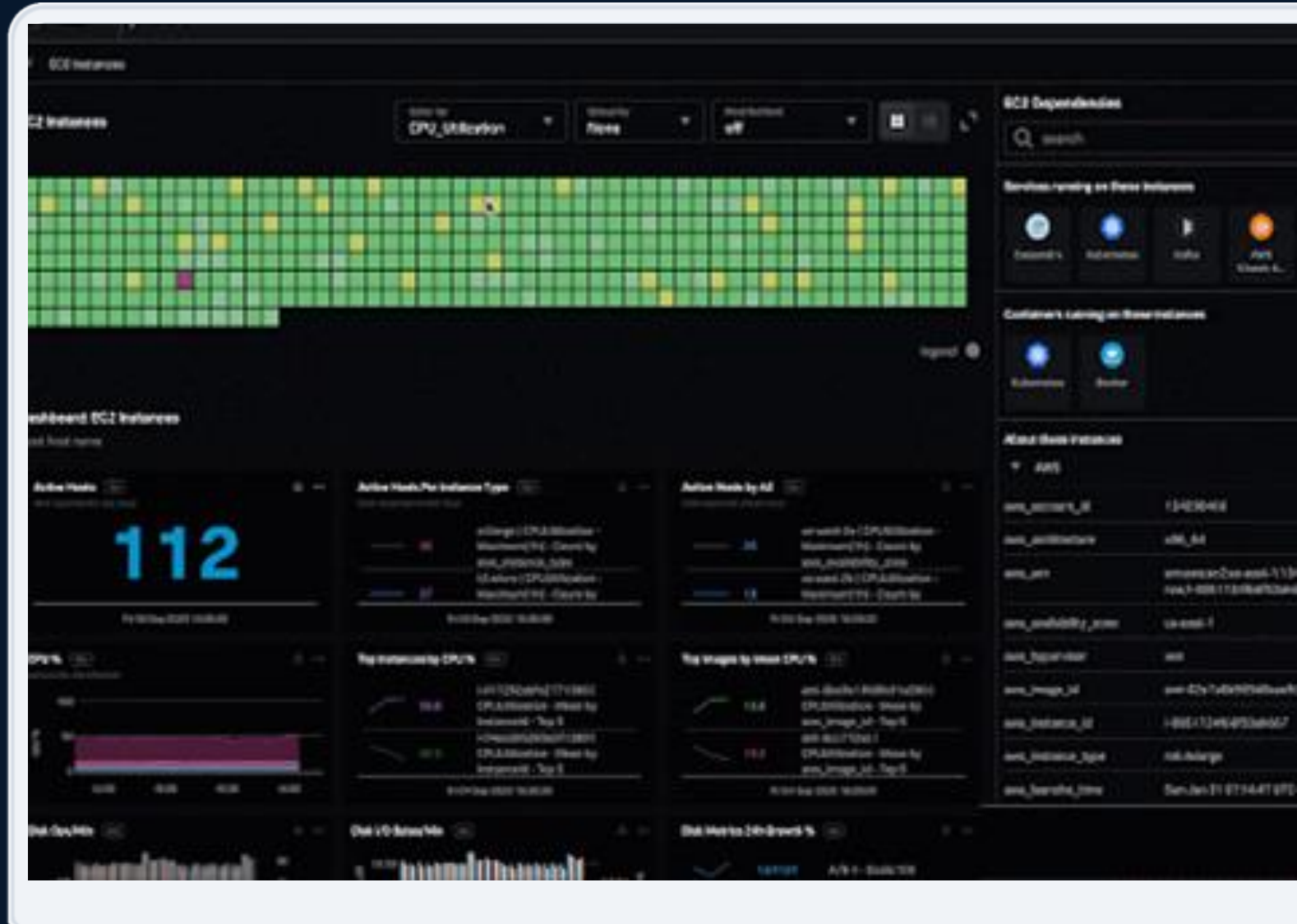
End-to-end and top to bottom visibility leveraging network and application insights



Full Stack Observability

Unified visibility and real-time troubleshooting across any environment

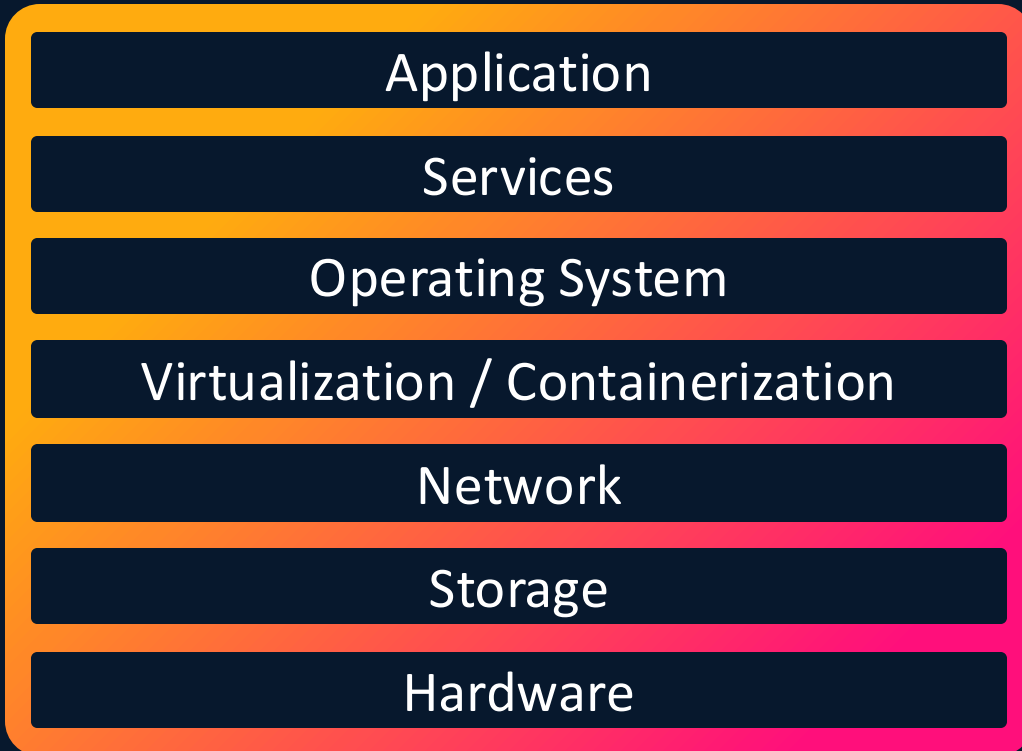
- Accelerate troubleshooting and optimize performance with AI-driven, full-stack insights
- Avoid vendor lock-in with industry-leading OpenTelemetry support
- Gain full cost control - inspect usage, attribute spend, and control metrics volume



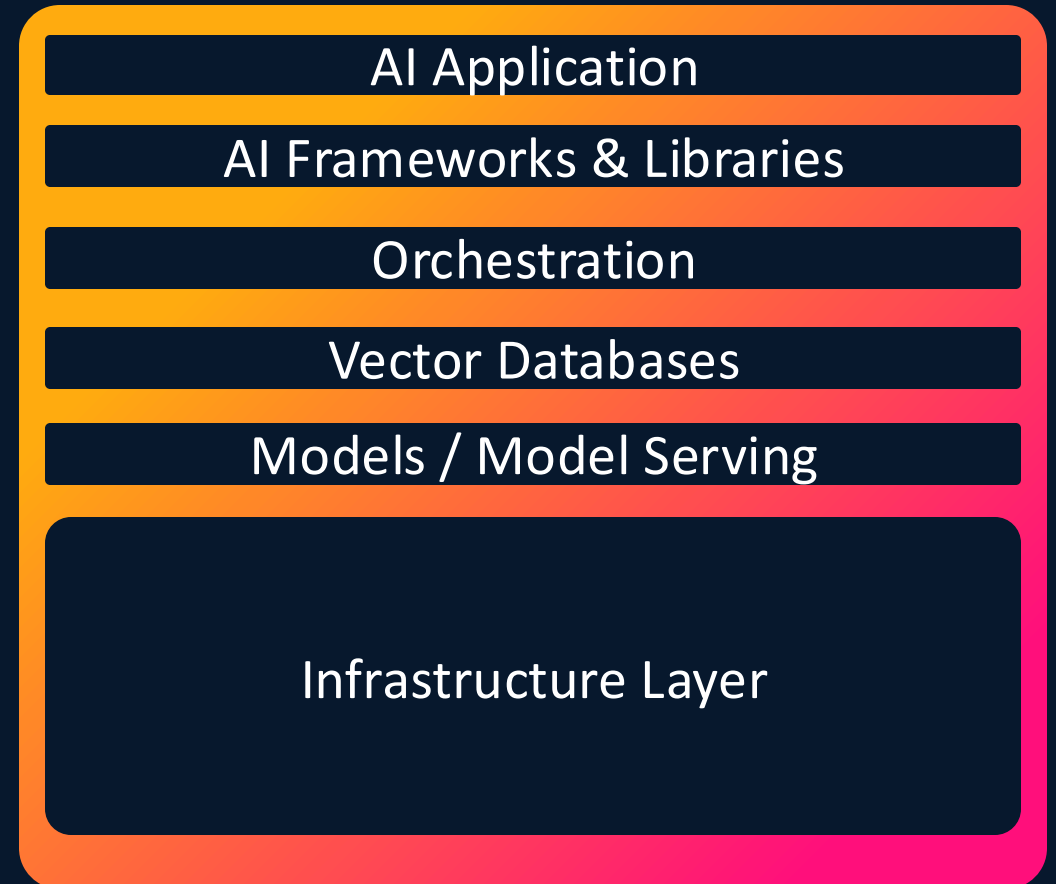
Extend into AI infrastructure observability

To manage AI workloads and resource utilization

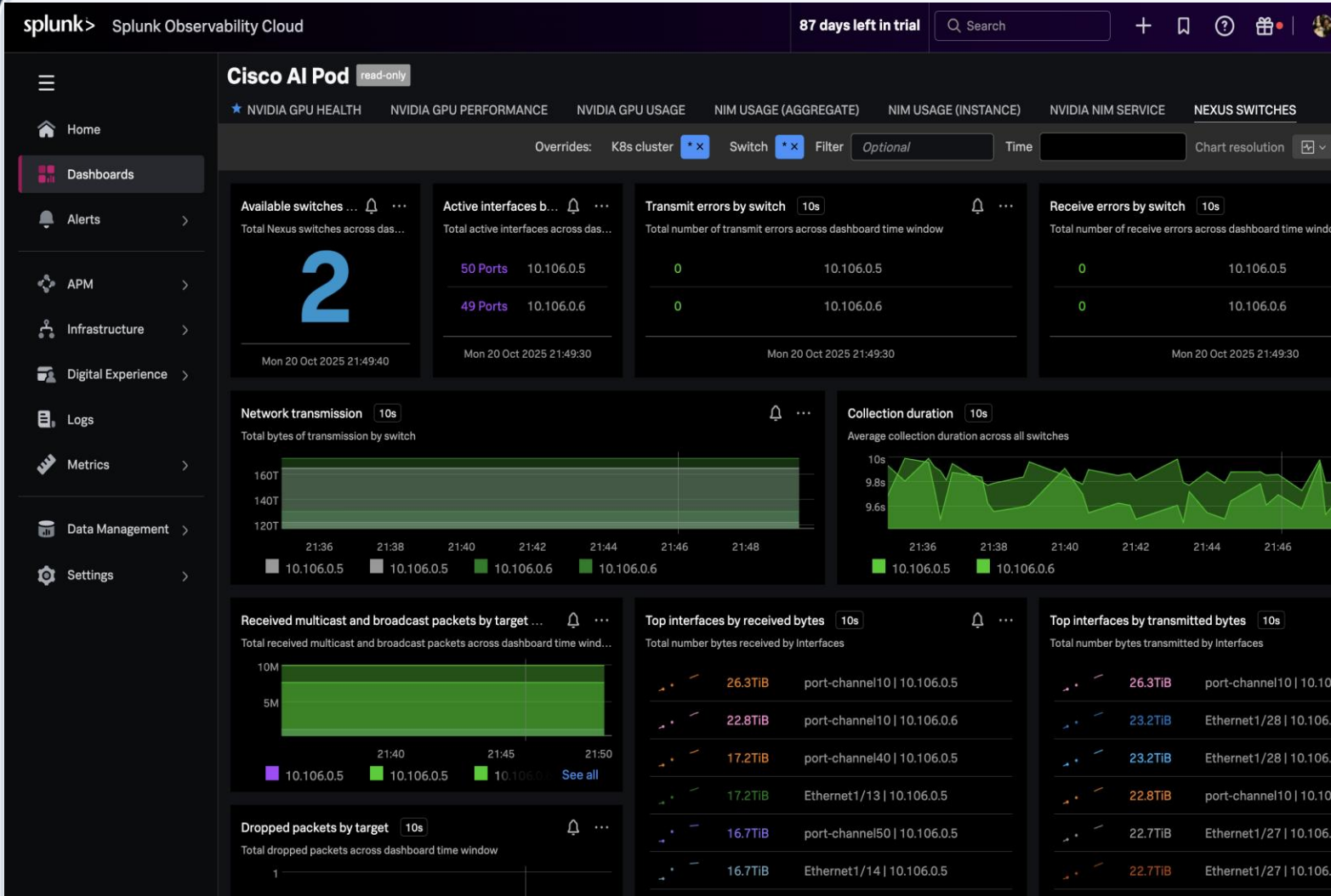
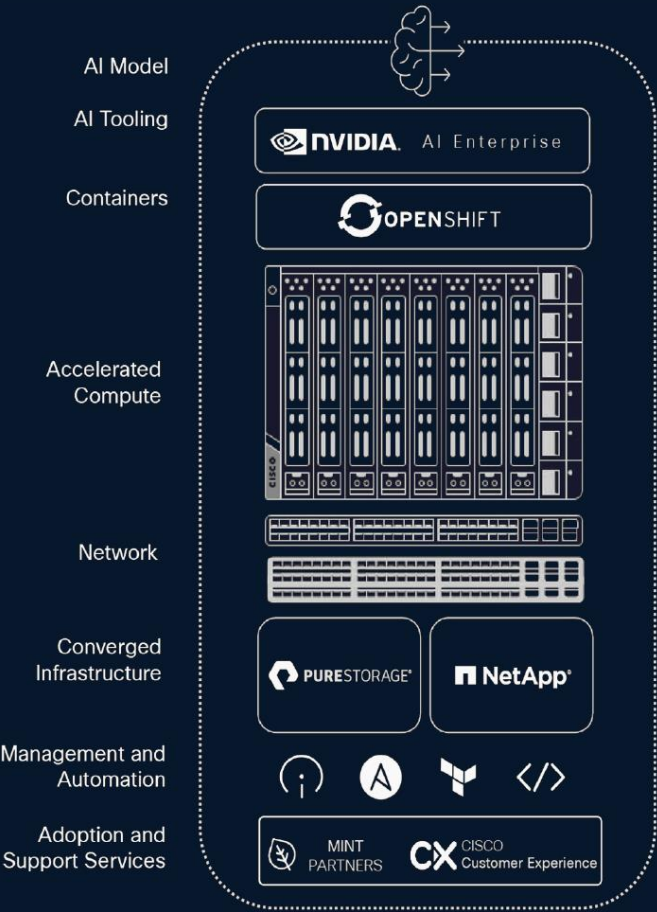
Traditional Infrastructure Monitoring



AI Infrastructure Monitoring



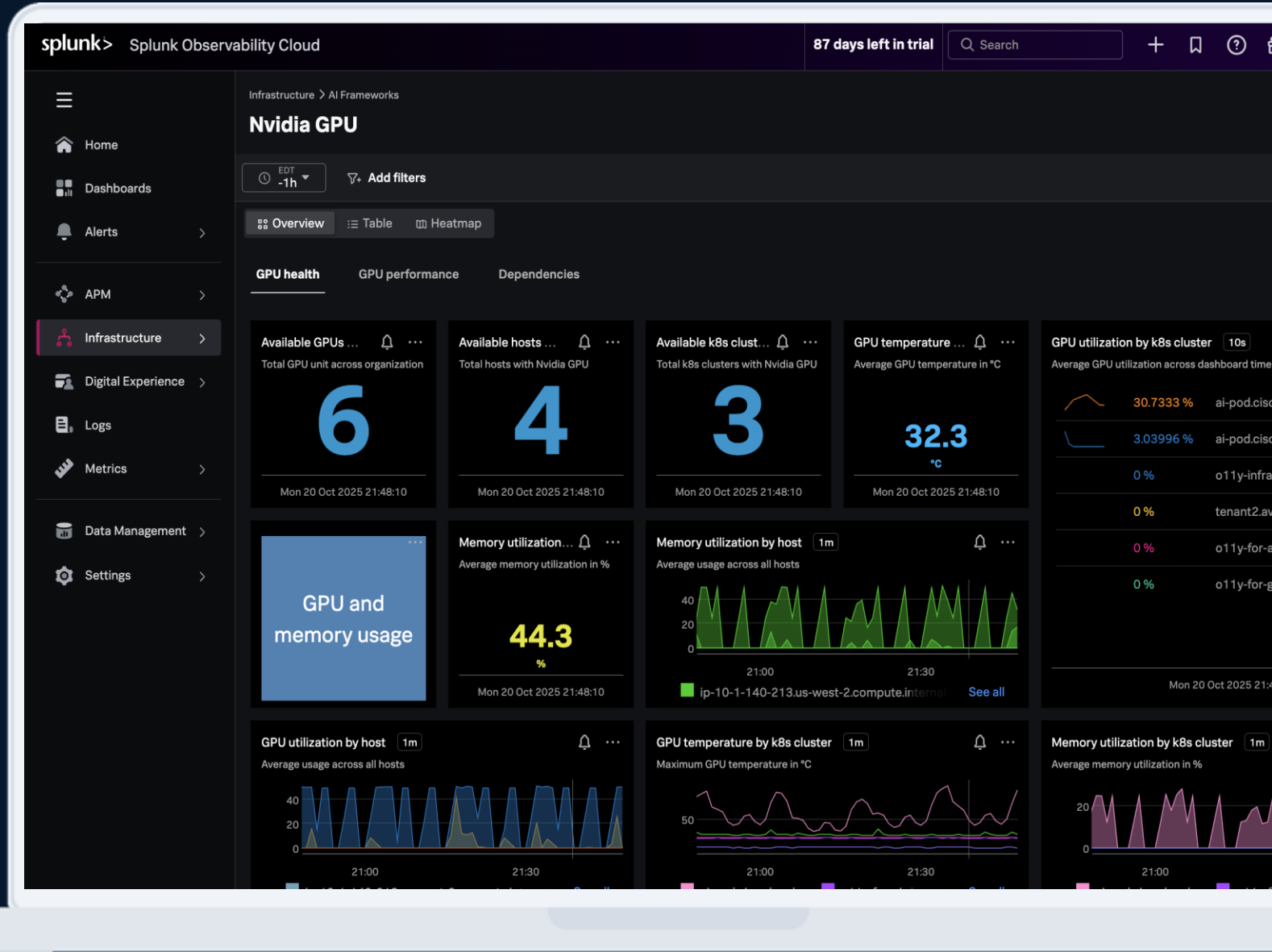
Observability for Cisco AI Pod



Observability for AI Infrastructure

Monitor the performance, quality, and cost of your AI infrastructure

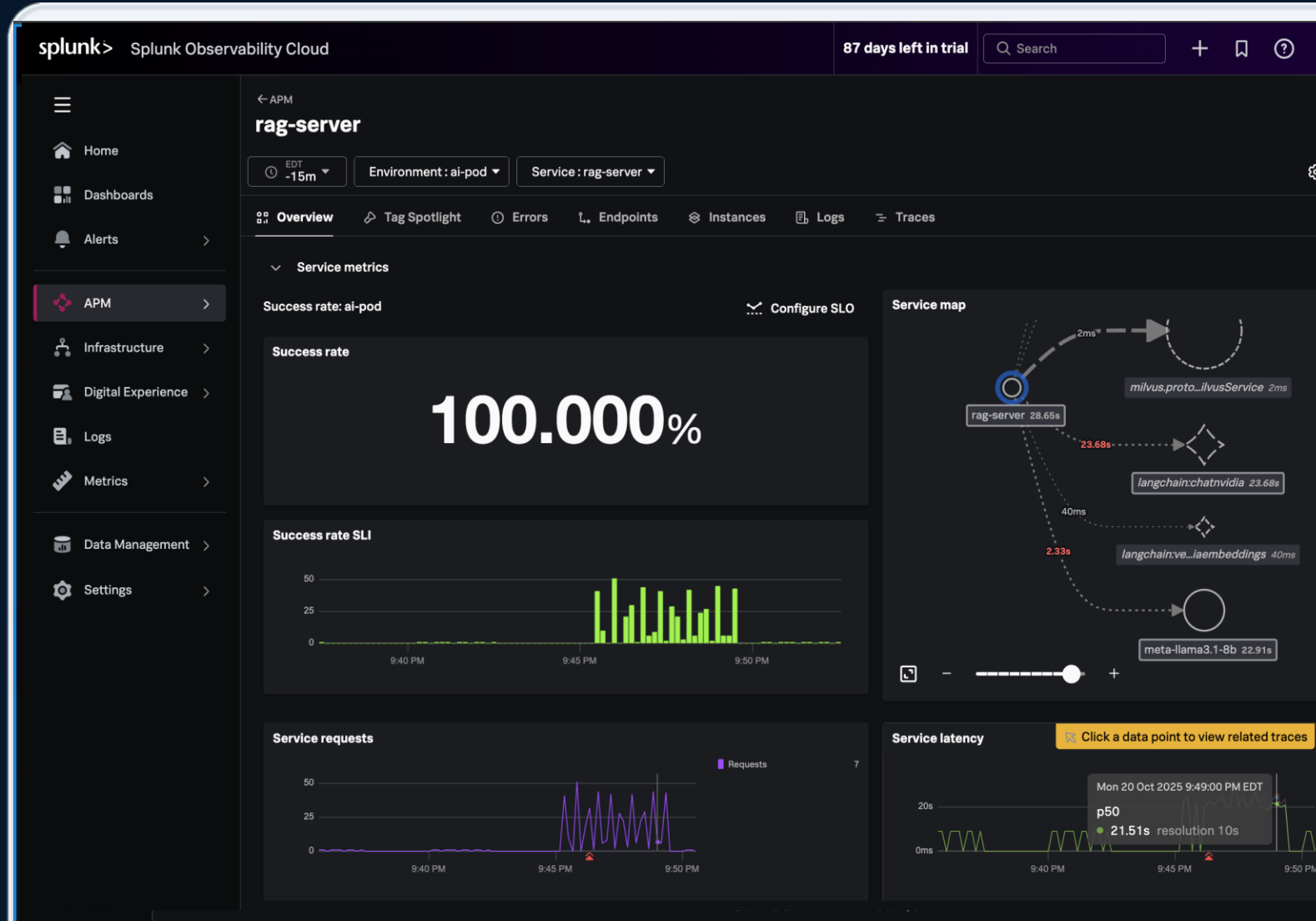
- **AI Infrastructure Monitoring:** troubleshoot failed workloads and resource bottlenecks that impact system health, stability, availability



Observability for AI/Agentic

Monitor the performance, quality of your Agentic AI apps

- **AI Agent Monitoring:** minimize bias, inaccuracies, hallucinations, and other quality, reputational, and security risks in LLMs and agentic apps (with Cisco AI Defense)



Full Stack Observability into Business Insights



IT Service Intelligence

Business service monitoring, event aggregation, network monitoring



Events, KPIs, Services



Cross-domain network, infra, application data



Metrics, Events, Logs, Traces



Metrics, Events, Logs, Traces



Metrics, Events, Logs, Traces



Metrics, Events, Logs, Traces



Application Performance

Real User Monitoring

Infrastructure Monitoring

Log Analytics

Agent/AI/LLM

ThousandEyes Enterprise networks and app synthetics

Catalyst Center Wired, Wireless across Branch and Campus

ACI + Nexus Dashboards Data Center Networks

Meraki Wired and Wireless as Cloud service

Catalyst SD-WAN Manager (fka vManage) SD-WAN



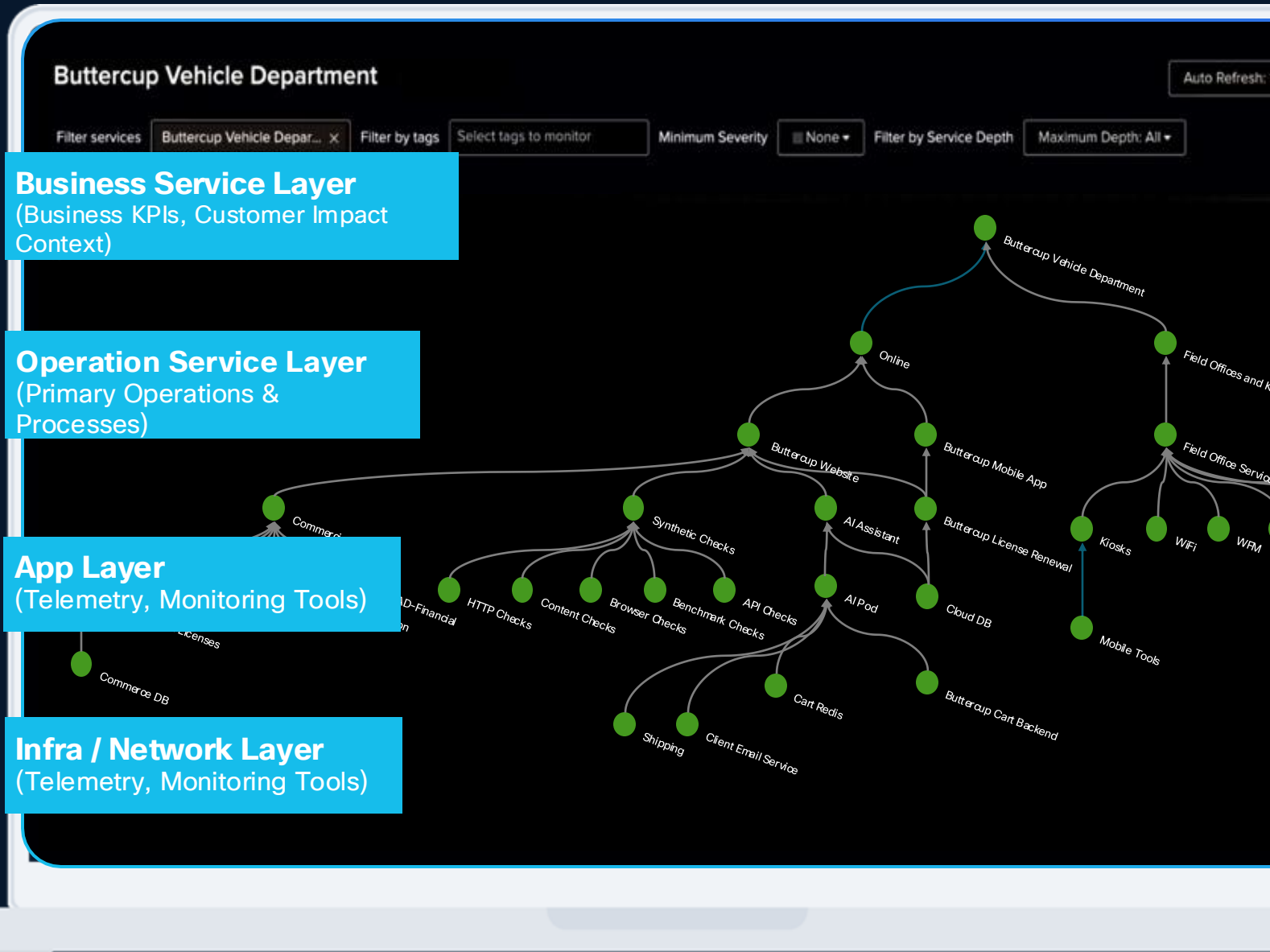
BRKOBS-1020



Service Intelligence

Protect service performance

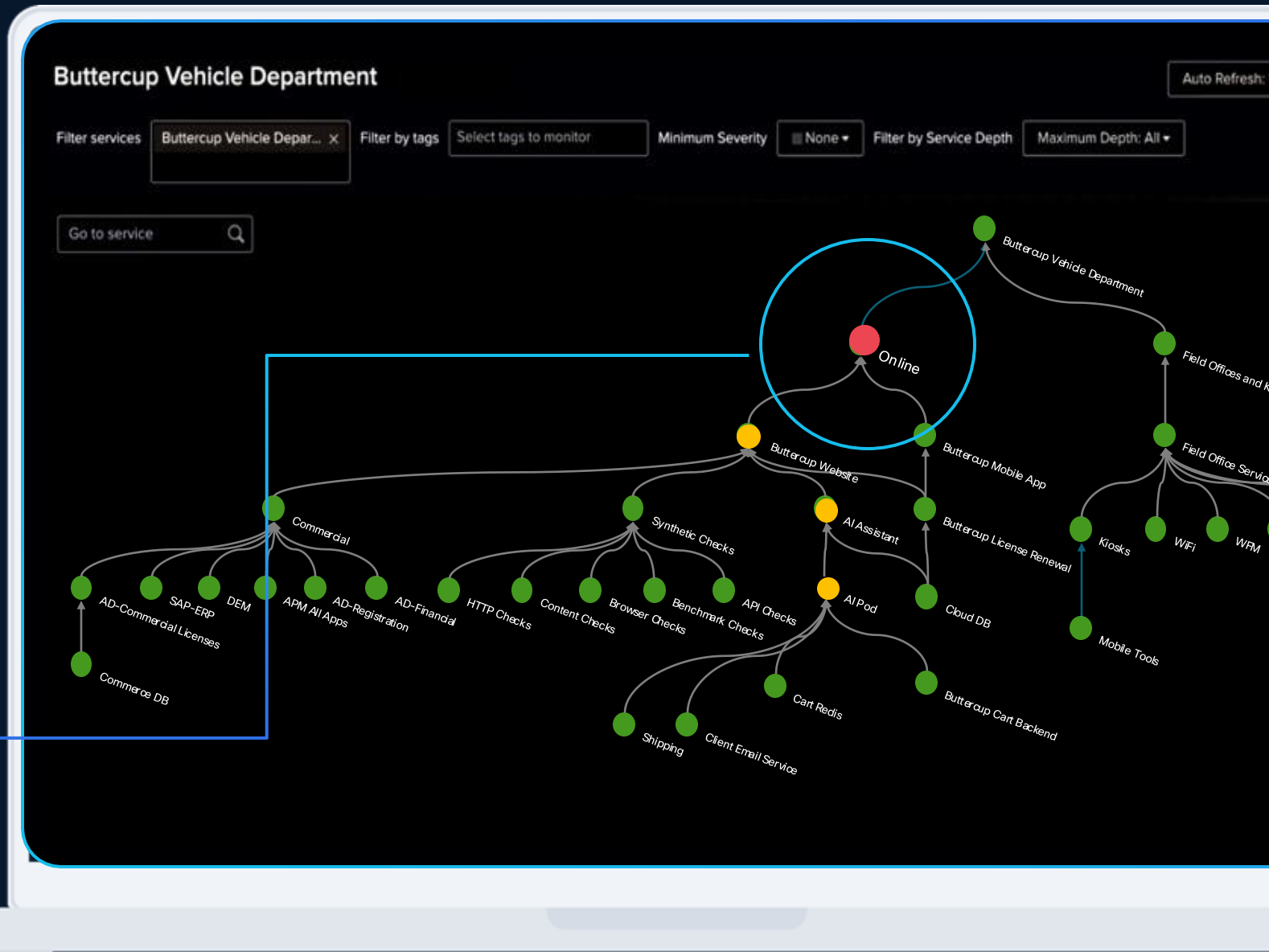
- **Assure network service health** by unifying visibility and reducing alert noise across network domains
- **Troubleshoot app performance** with dependencies on owned and unowned networks
- Reduce MTTR with alert correlation, incident prioritization
- Protect business performance, monitor service health, and drill down into issues, all from a common view
- **AI** embedded throughout for **faster incident response**



Service Intelligence

Protect service performance

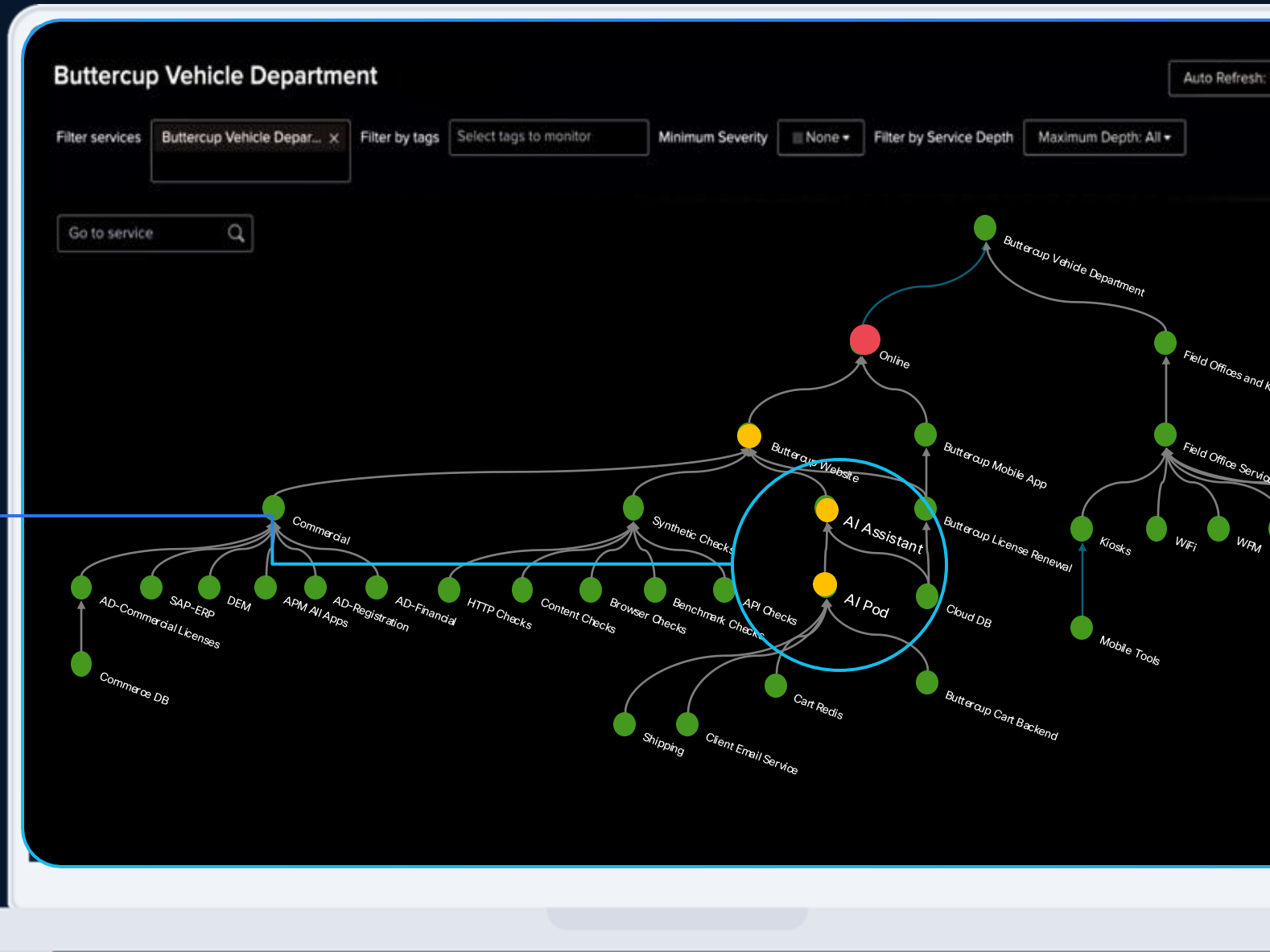
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Service Intelligence

Protect service performance

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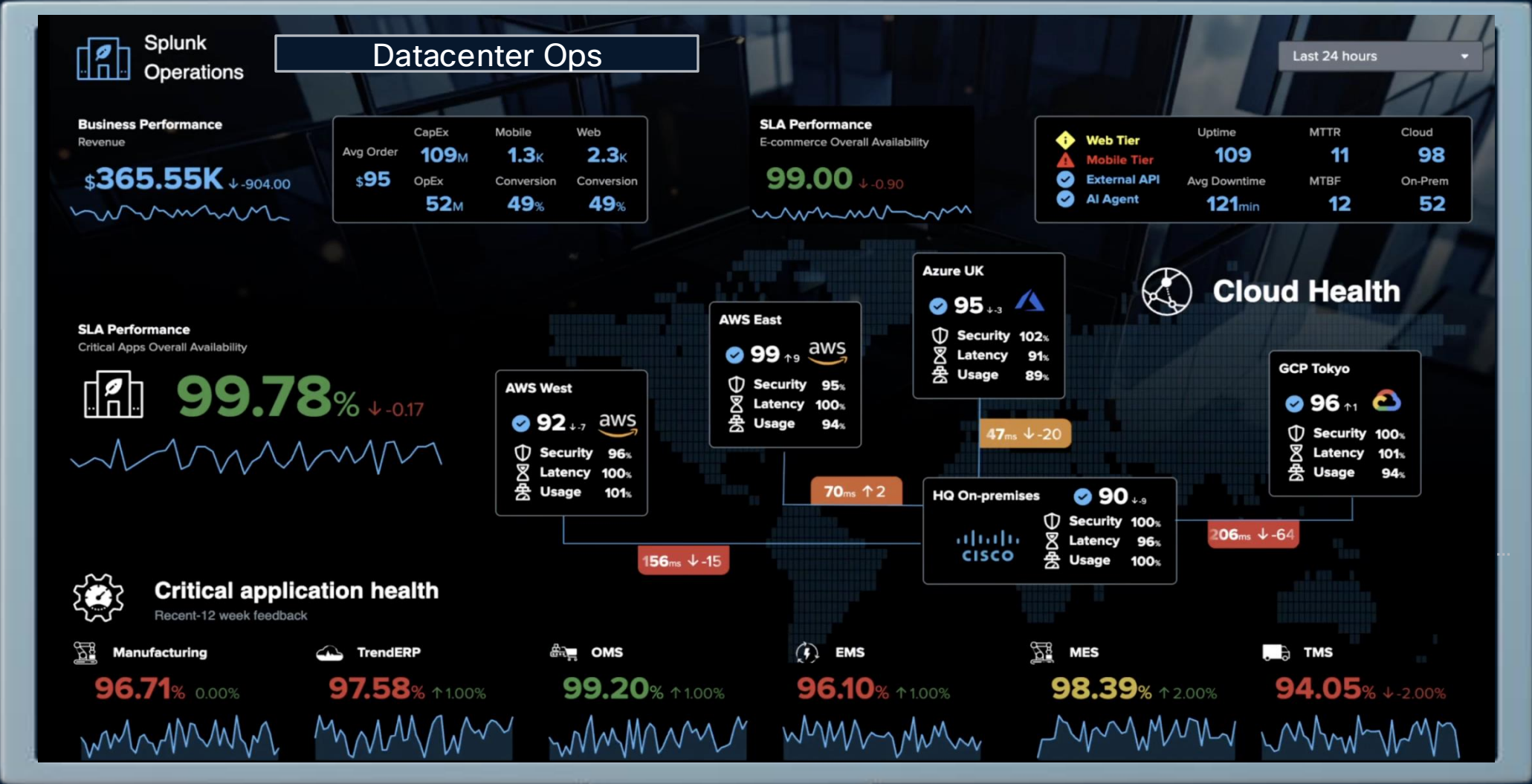
Service Intelligence

Protect service performance



- Isolate misconfiguration cause
- Service restored

One Cisco for Observability everywhere



The Cisco difference for AI-Ready Datacenter & beyond



End-to-end visibility

and insights across your entire digital footprint

Platform approach

combined with persona-specific tools

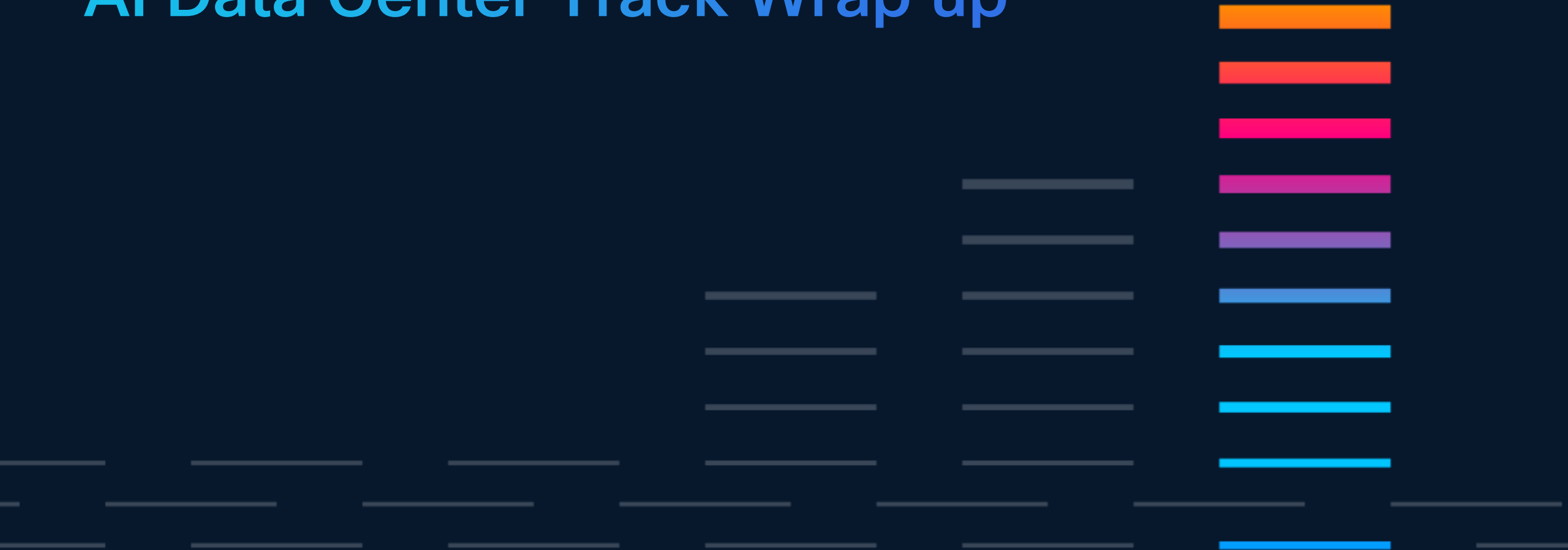
Fully open, yet tightly integrated

across the Cisco portfolio

Accelerated by AI

with domain-specific insights

AI Data Center Track Wrap up



AI Data Center Track

1) Compute & Containers



2) Networking: Inter-



3) Connecting: Intra-



4) Security & Observability



Thank you

