

The background features a vibrant, abstract design with a color gradient from dark blue on the left to bright yellow and white on the right. The design consists of overlapping, wavy horizontal bands and a series of radiating lines that create a sense of motion and energy, resembling a stylized sunburst or a dynamic wave pattern.

cisco *Live!*

Let's go

#CiscoLiveAPJC



The bridge to possible

ThousandEyes 101 for Netops monitoring

Automation for Netops Use case

Shimei Cridlig, Product Solution Architect
BRKAPP-2569

CISCO *Live!*

#CiscoLiveAPJC

Cisco Webex App

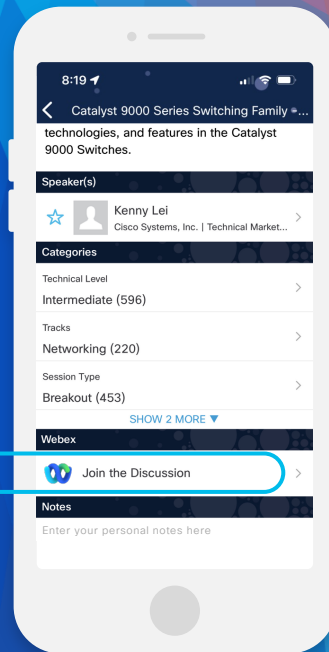
Questions?

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 December 22, 2023.

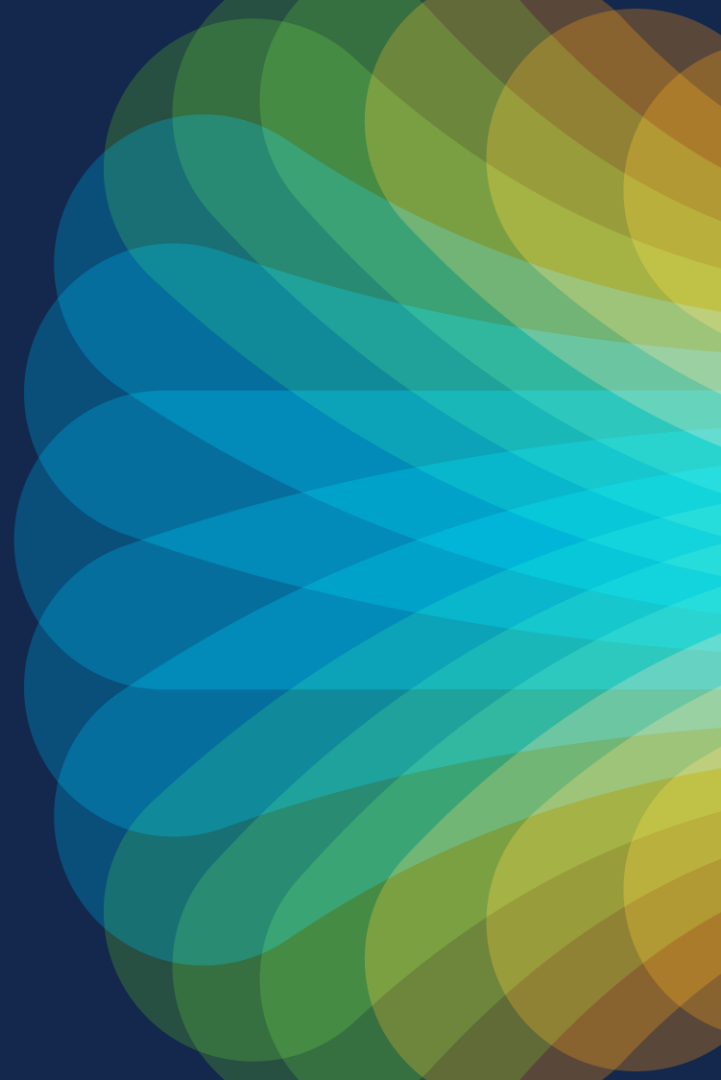


<https://ciscolive.ciscoevents.com/ciscolivebot/#BRKAPP-2569>

Agenda

- ThousandEyes Overview
- Use cases
- Benefit of Automation
- Demo
- FAQ

ThousandEyes Overview



See,
understand, and
improve digital
experiences
everywhere

CISCO *Live!*

ThousandEyes 
part of Cisco

The Challenge
Visibility and
control is
shrinking

External
dependencies
are
exponentially
growing



The Challenge

Massive
blind spots
erode ability
to manage

So many layers, domains,
and providers

Traditional tools don't
work for what you don't
own

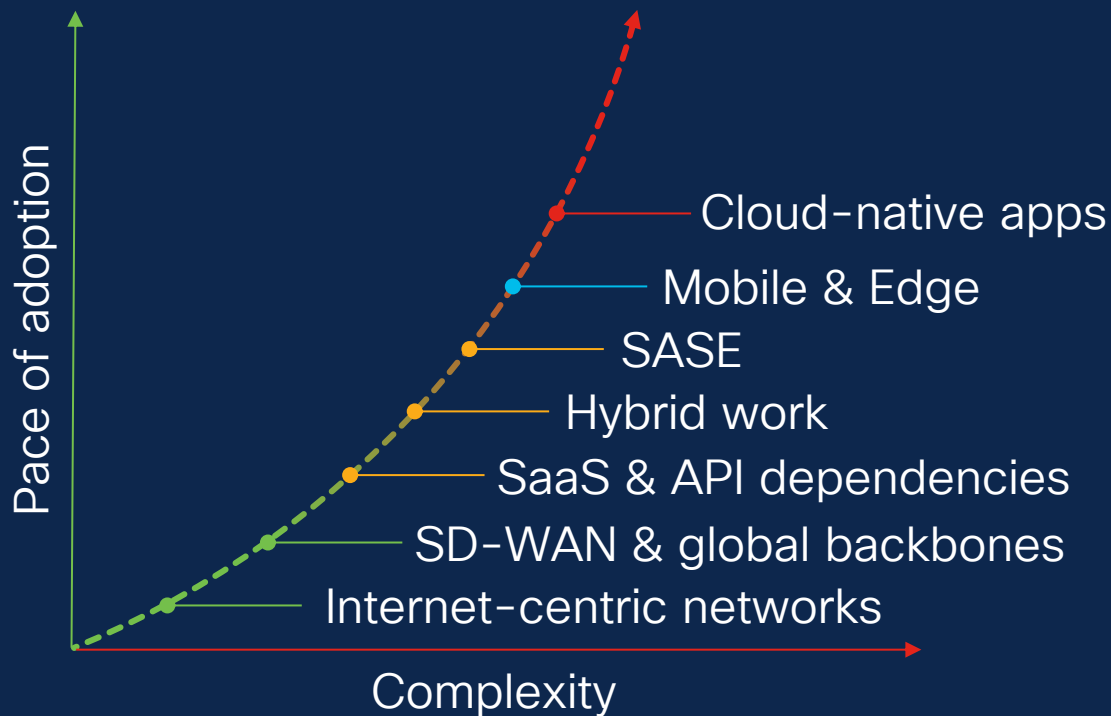


The Challenge

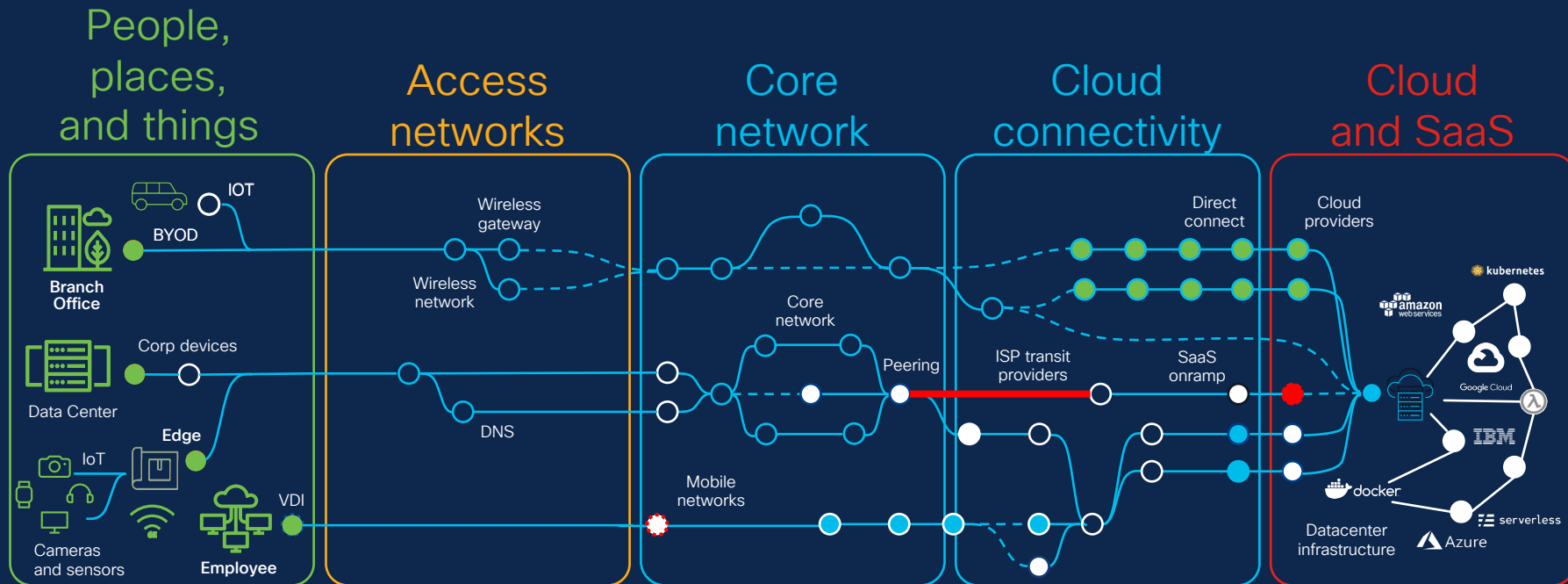
Soaring
complexity curve
is widening
visibility gap

Competitive pressures
driving technology
adoption

Adoption outpacing
capabilities to manage
new environments

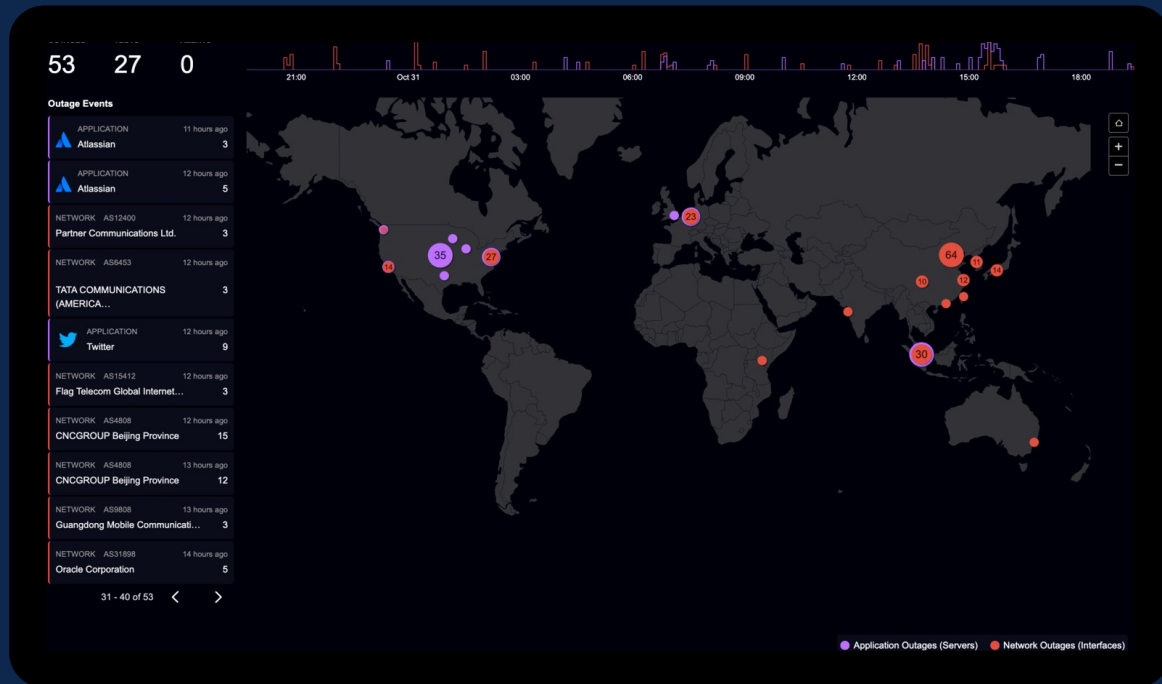


Connections are Complex



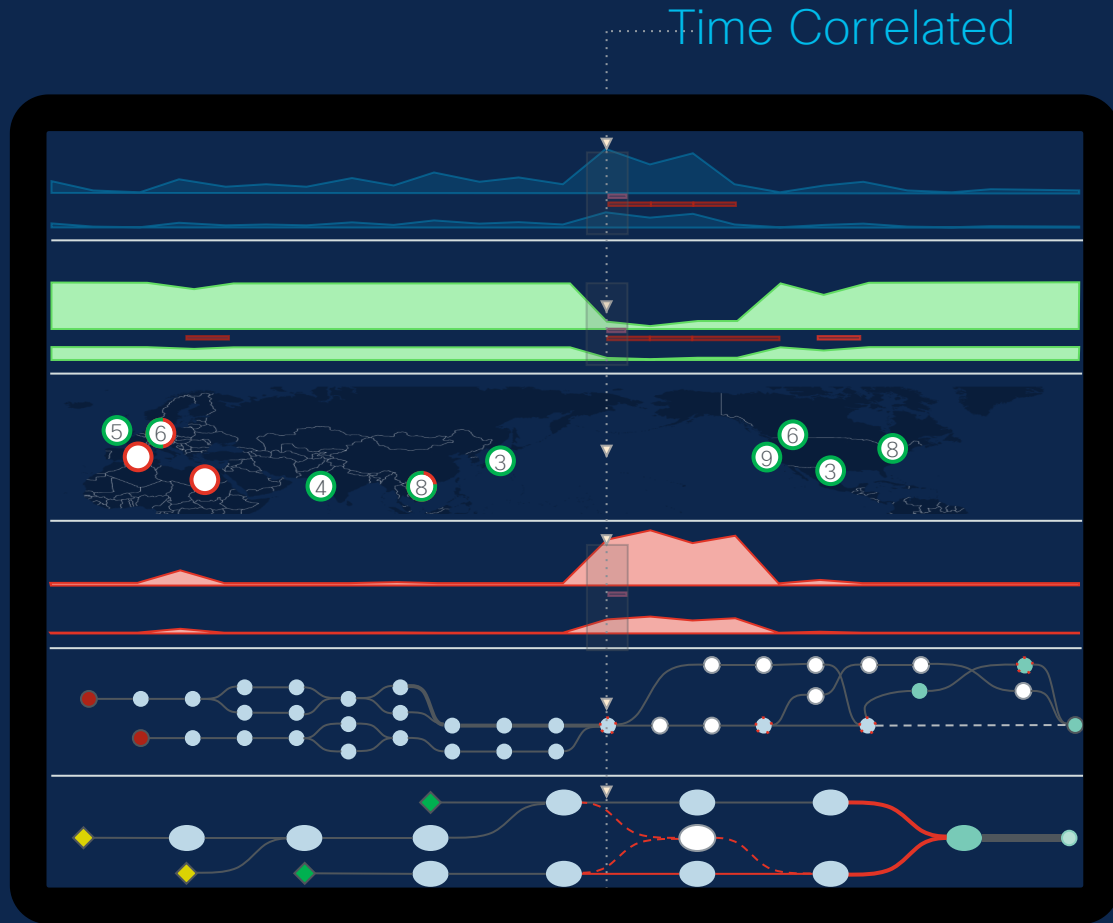
Our Solution

Collectively
powered
Internet
weather map



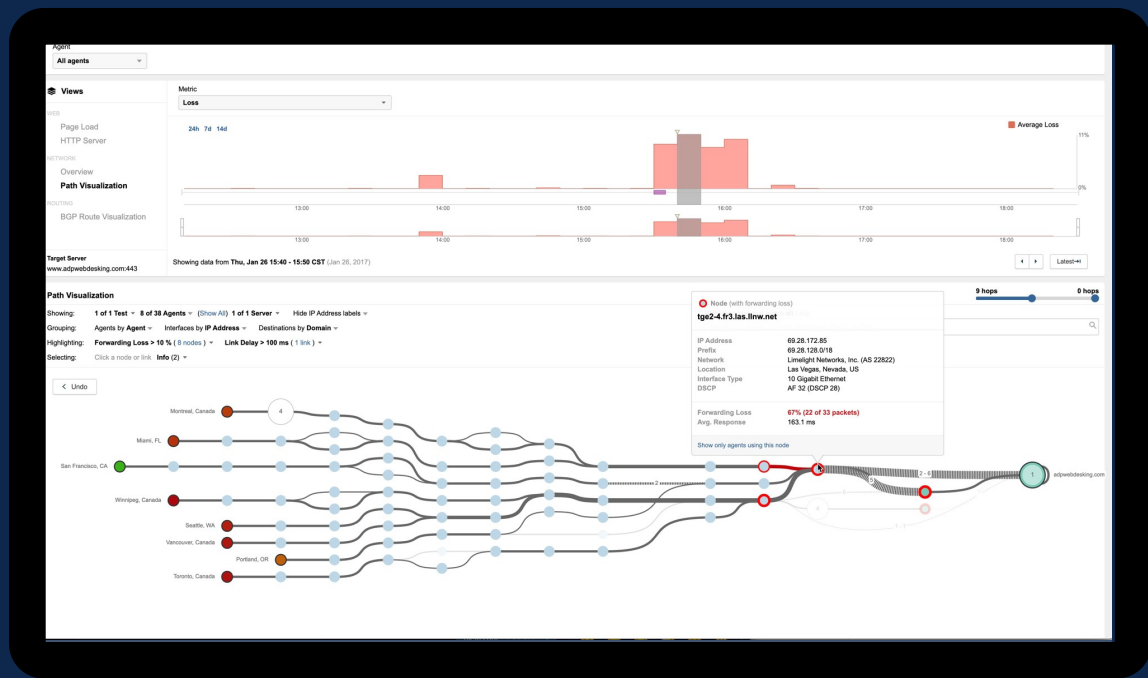
Our Solution

Correlate
performance
across
every layer



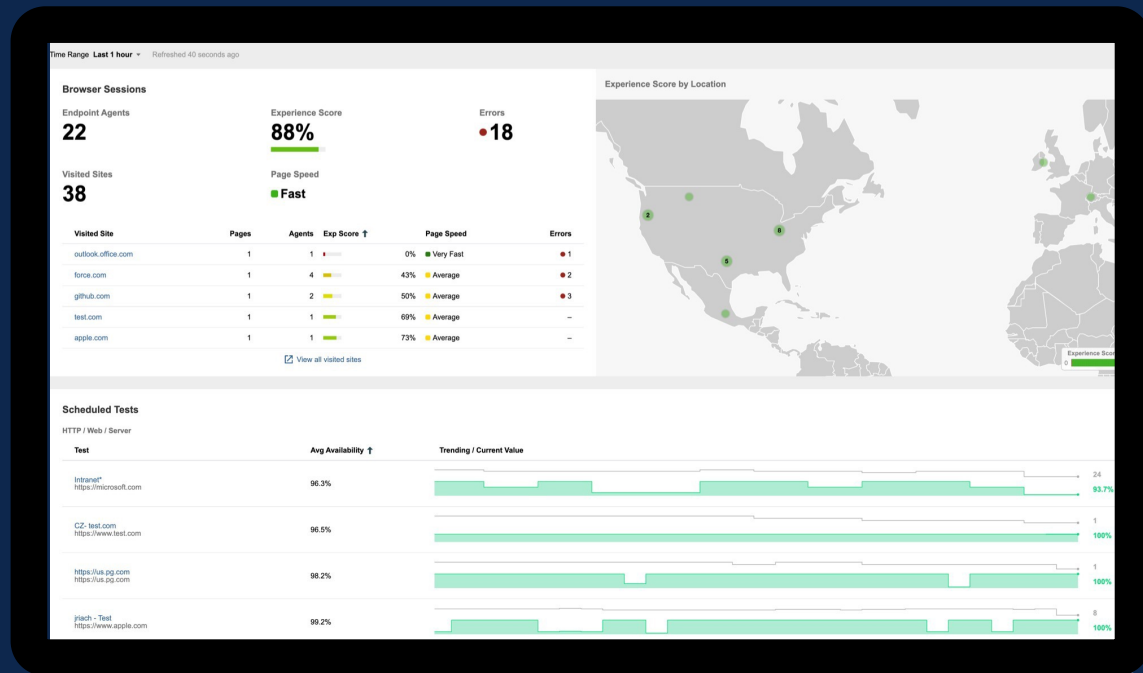
Our Solution

Visualize
services end-
to-end across
every domain



Our Solution

Understand
global
workforce
experience

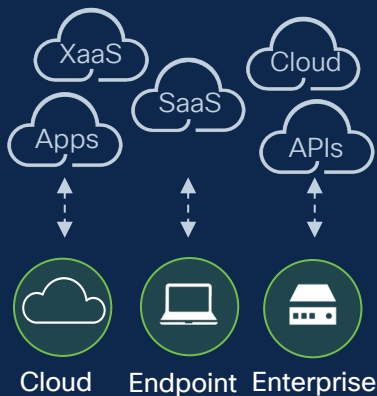


Our Solution

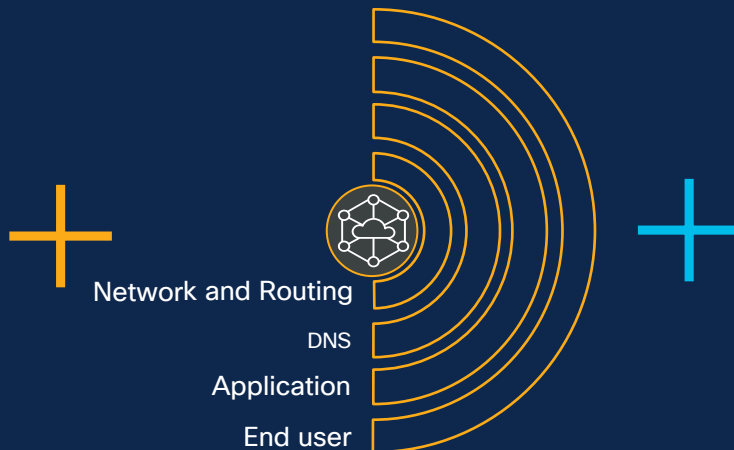
ThousandEyes Internet and Cloud Intelligence

VISIBILITY **INTELLIGENCE** **WORKFLOWS**

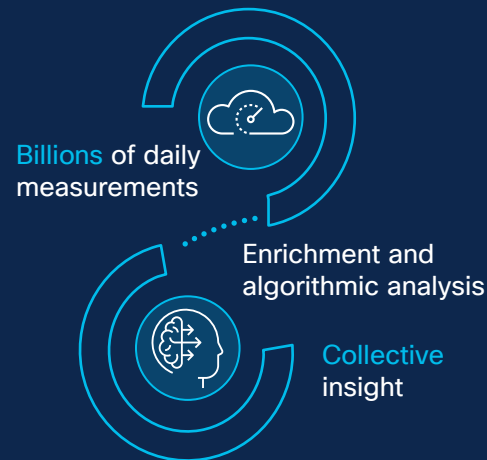
1000s Global Vantage



Unique X-layer Telemetry



Global Collective Insight



Our Solution

ThousandEyes Internet and Cloud Intelligence

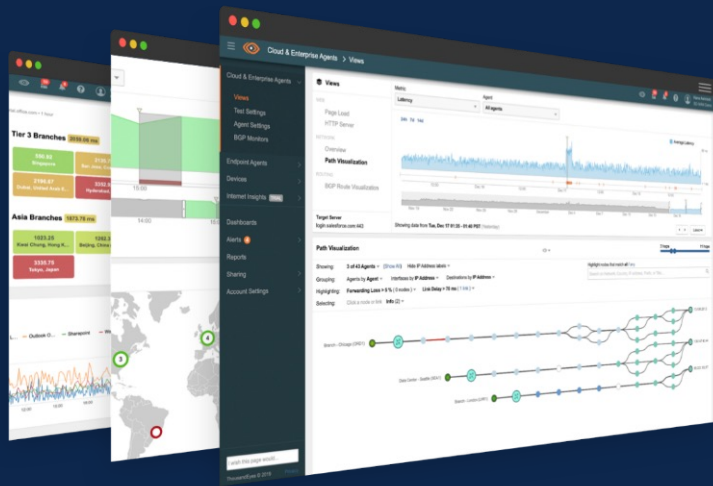
VISIBILITY INTELLIGENCE WORKFLOWS



Surface fault domain,
root cause, and
attribution to
responsible party



See digital experience
in context with deep
correlations across
layers



Gain global insight into
Internet and SaaS App
Outages



Drill down to quality of
experience of individual
users and groups in your
workforce

Our Solution

ThousandEyes Internet and Cloud Intelligence

VISIBILITY



- REST API
- OTEL and Native Integrations
- Custom webhooks
- Cloud templates
- Infra as Code tools
- Sharelinks for easy sharing across teams

CISCO *Live!*



SREs / App owners
Troubleshoot and optimize App, APIs and delivery services



NetOps (Service delivery)
Tune BGP and peering and monitor for anomalies, hijacks and sub-optimal routing



Customer Support
Build trust with timely, data-driven communication



IT Helpdesk
Rapidly prioritize, resolve and direct issues to the right team to ensure workforce productivity



Enterprise WAN Ops
Proactively manage and improve SD-WAN and cloud connectivity to assure app performance for users across sites



External Teams
Receive detailed, actionable information to quickly resolve issues

INTELLIGENCE

WORKFLOWS

Use Cases and Demonstration

Our Use Cases

Empowering every digital experience

Customer

Your Apps



Deliver stellar
digital experiences
to users

Workforce

Your People



Keep workers connected and
enjoying seamless app
performance

Enterprise

Your Infrastructure



Optimize and sustain
the flow of your digital
supply chain

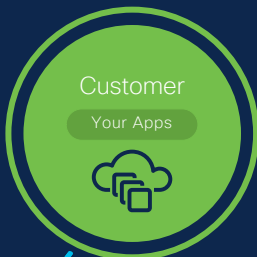
ThousandEyes 
part of Cisco

Our Use Cases Seamless with Cisco

Full Stack Observability (FSO)

ThousandEyes OTEL integration into AppDynamics

Test Recommendations and Application Service Health



Hybrid Work

ThousandEyes Webex Vantage Points and some RoomOS devices

Automatic monitoring Webex sessions

ThousandEyes insights in Webex Control Hub



Secure Access Service Edge (SASE)

ThousandEyes embedded in Cisco SD-WAN platforms + Catalyst 9000, Nexus 9000, Meraki MX67+

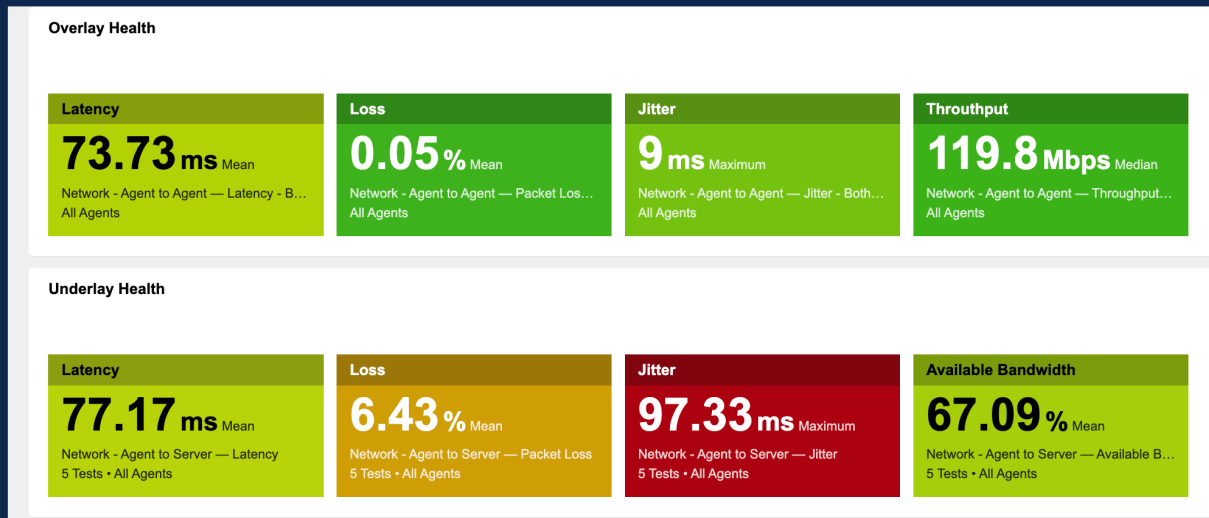
Simple, scalable agent admin through device management platforms



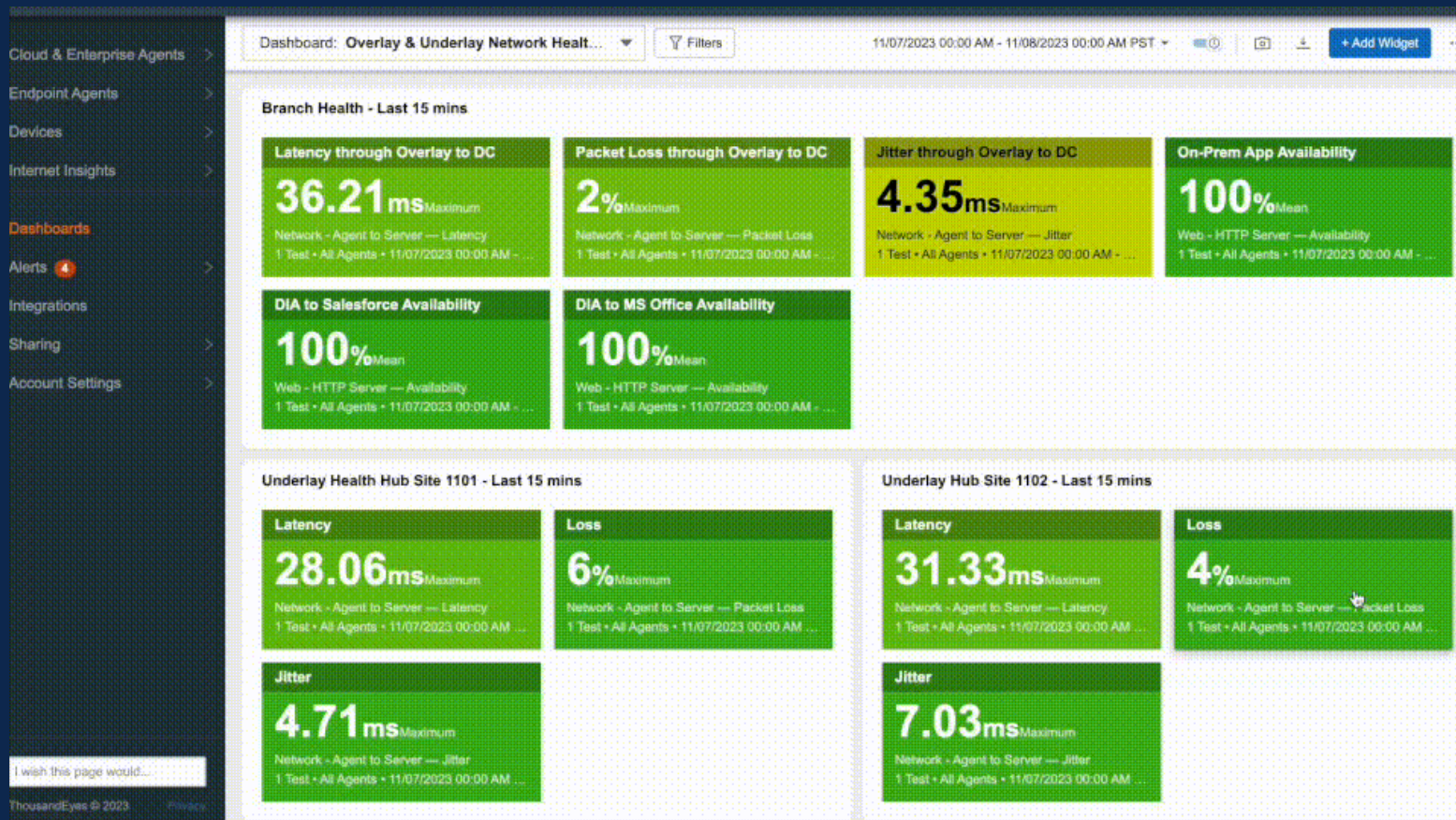
General SD-WAN Monitoring

Health Dashboard Example

- Overlay health
 - Loss
 - Latency
- Underlay transport
 - Loss
 - Latency
- Available bandwidth (overlay and underlay)



Drill down from Dashboard



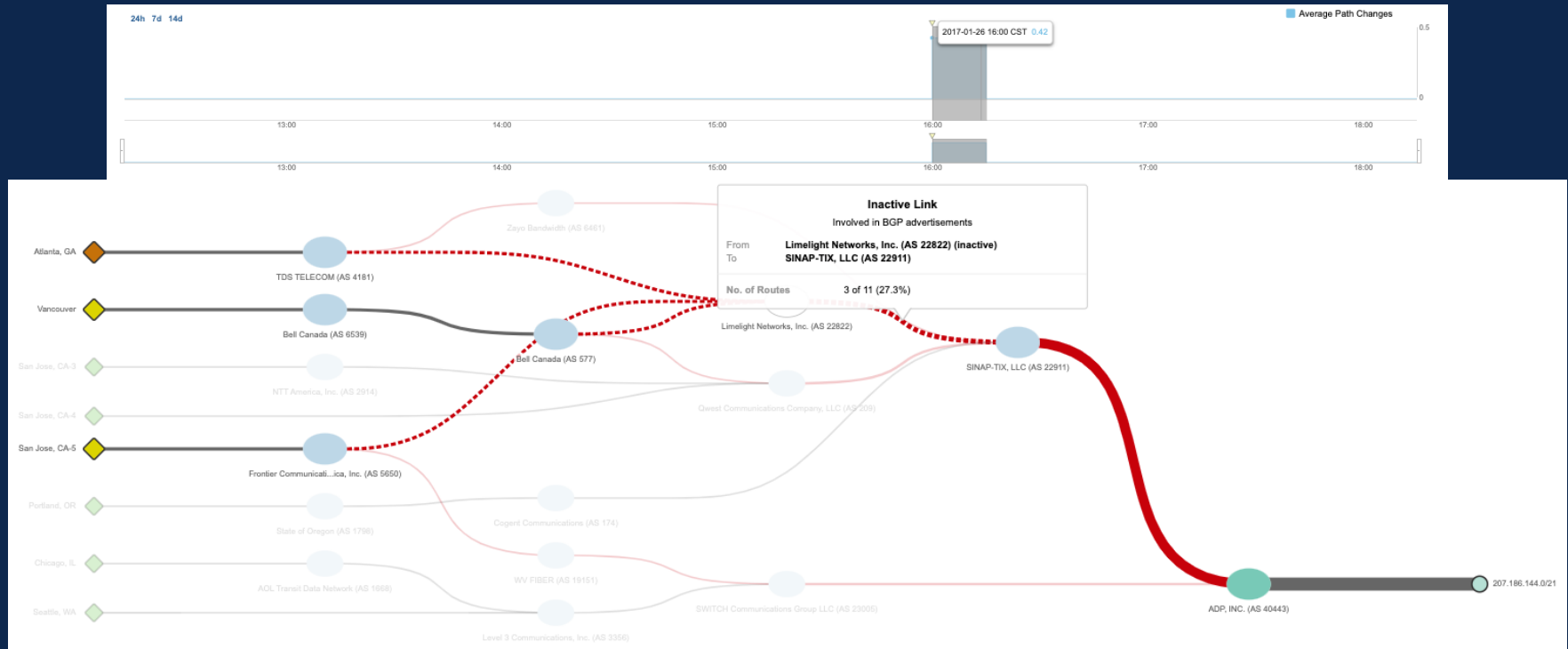
SD-WAN Overlay/Underlay Visualizations

Full mesh underlay and overlay network visibility
Local datacenters to national datacenters

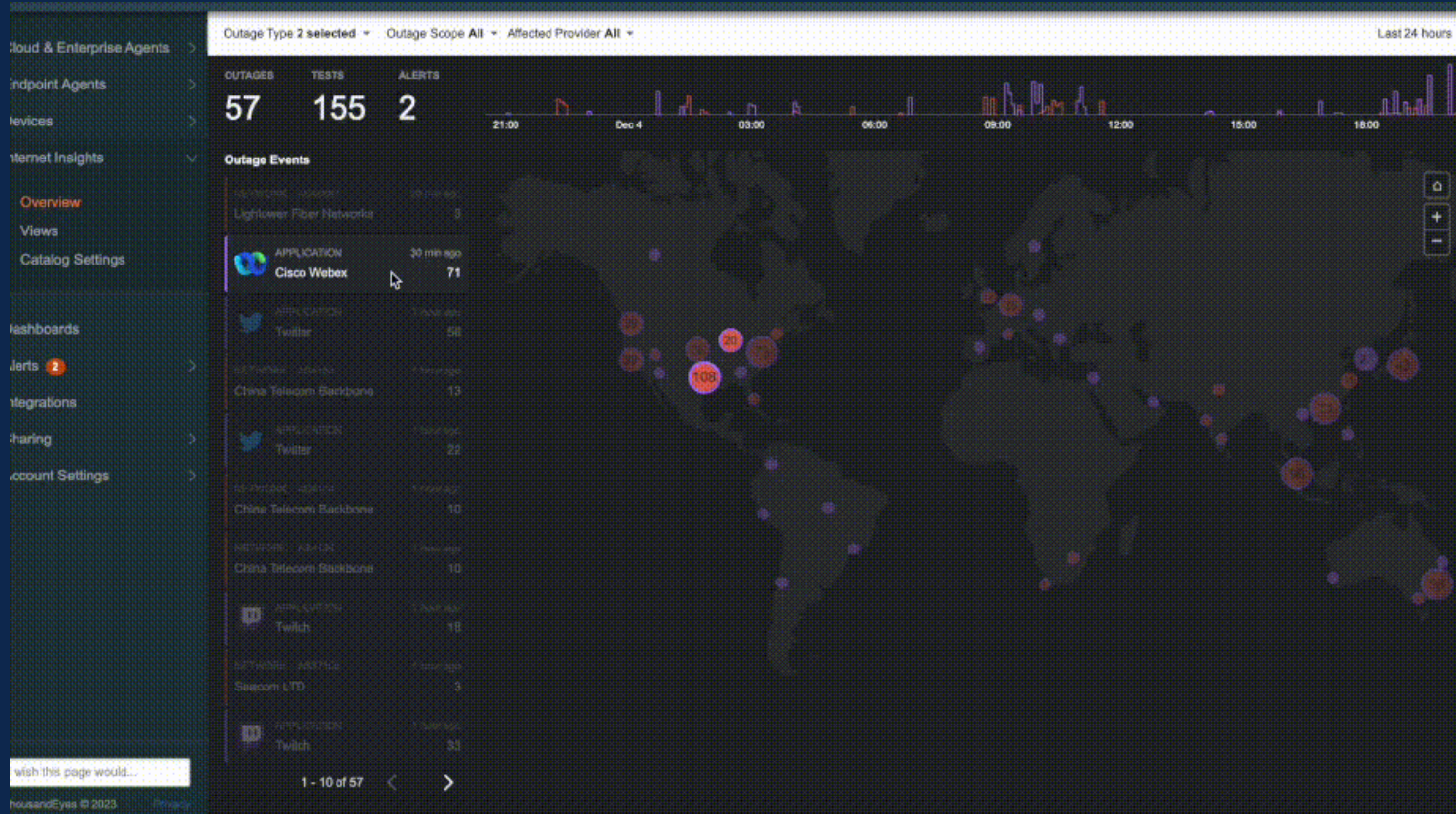


Visualizing a Third-Party ISP Outage

BGP, cloud, SaaS, ISP, DDoS, DNS, CDN <https://oppzu.share.thousandeyes.com/>



Internet Insights and App Outages

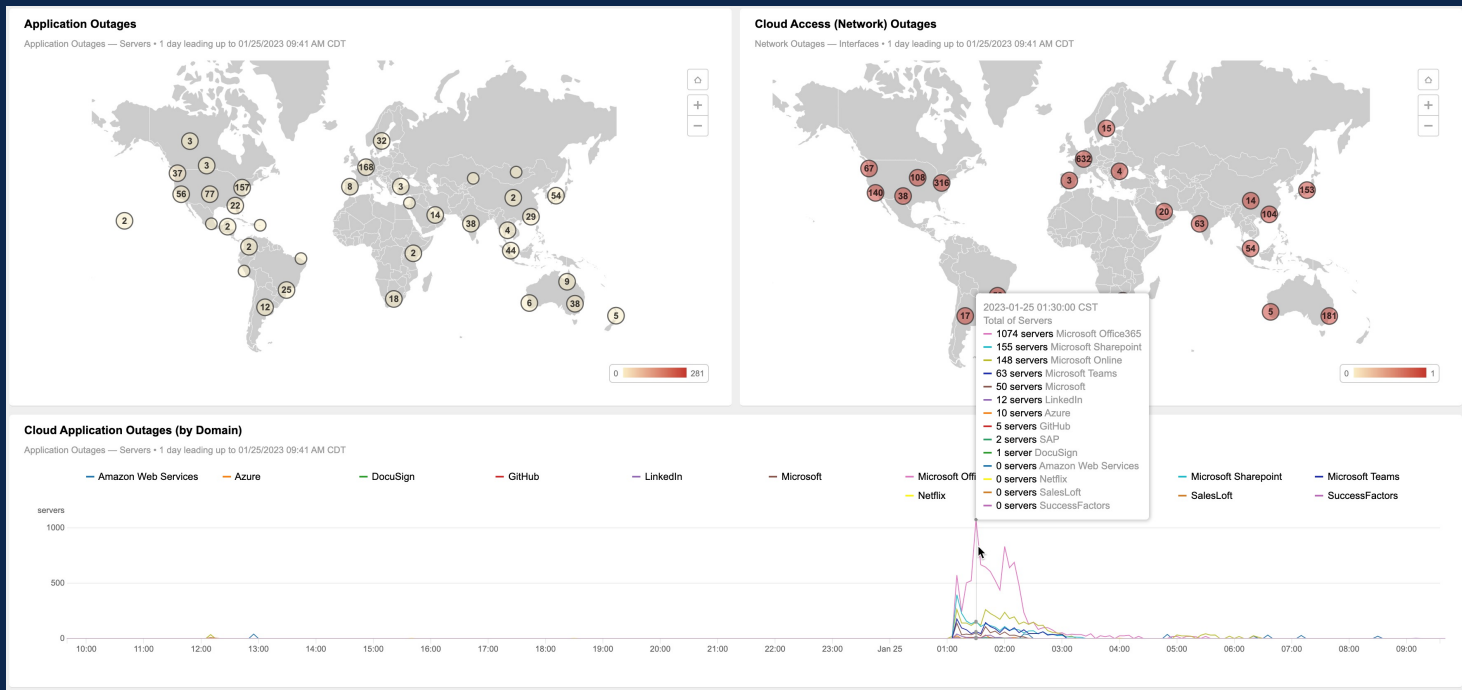


Curated View of Global Internet Health

General SaaS and Provider Network/App Health

Quickly See Outages

- ASN
- App
- Country
- Domain
- Error Type



Benefits of automation

Seamless workflow relies on automation

- Integration with other monitoring tools for a single pane of glass
- On demand tests and agents as part of troubleshooting sessions
- User interface customizations
- ThousandEyes as part of the DevOps toolset
- Automated network sanity checks after network upgrades or changes
- Data Lake for historical storage and analysis

Scale and streamline monitoring with ThousandEyes

ThousandEyes API

Account management, test creation, pull test data, alert rule creation, Dashboard creation, pull alert data, pull dashboard data etc.

Ansible playbook

Agent deployment

Terraform provider

Agent deployment, test creation

Test Template

Test creation, alert rule creation, Dashboard creation

OpenTelemetry

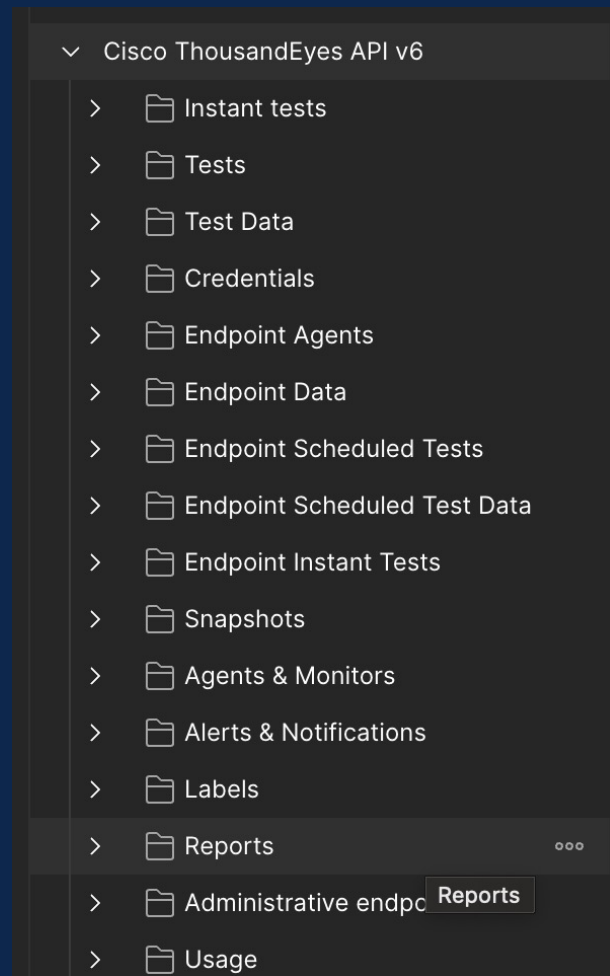
Push test data to OTEL provider

Webhook / Integration

Send alert to third-party tool

ThousandEyes API

- Base URL is <https://api.thousandeyes.com>
- Authentication type can be basic or bearer token, operation set with a mix of HTTP method and URL
- XML and JSON formats are supported
- Download "ThousandEyes API Postman Collection" from Cisco DevNet [here](#)
- Learn more from the API documentation: <https://developer.thousandeyes.com/v6/>



Test APIs

- Recurrent Test: <https://api.thousandeyes.com/v6/tests>
- Instant Test: <https://api.thousandeyes.com/v6/instant>
- The URL is different per test type – for example:

Name	URL
Agent to Server	/v6/tests/agent-to-server/new.json
Agent to Agent	/v6/tests/agent-to-agent/new.json
BGP	/v6/tests/bgp/new.json
Page Load	/v6/tests/page-load/new.json
Transactions	/v6/tests/transactions/new.json

Full list at https://developer.thousandeyes.com/v6/tests/#/test_creation

HTTP Server Test

Test type

Operation

Test URL

Format

The screenshot displays the Cisco API Tester interface for configuring a POST request. The URL bar shows 'https://api.thousandeyes.com/v6/tests/http-server/new' with a dropdown menu open showing 'json'. The 'Body' tab is selected, and the format is set to 'JSON'. The request body is a JSON object with the following structure:

```
1 { "interval": 60,
2   "agents": [
3     {
4       "agentId": 387771
5     }
6   ],
7   "testName": "API server test addition for http://192.168.20.22",
8   "url": "http://10.90.54.152:8080",
9   "protocol": "TCP",
10  "alertsEnabled": 0,
11  "bgpMeasurements": 0
12 }
```

Retrieve Test Metrics

- https://api.thousandeyes.com/v6/net/metrics/{test_id}
- Test ID needs to be obtained first via either:
 - Get tests and filter: <https://api.thousandeyes.com/v6/tests>
 - Response body from test creation

```
"metrics": [  
  {  
    "avgLatency": 74.0,  
    "loss": 0.0,  
    "maxLatency": 78.0,  
    "jitter": 0.73440033,  
    "minLatency": 73.0,  
    "serverIp": "10.94.158.206",  
    "agentName": "sfloresk-lwr01",  
    "countryId": "US",  
    "date": "2022-03-08 22:12:02",  
    "agentId": 347216,  
    "roundId": 1646777520,  
    "permalink": "https://app.thousandeyes.com/view/tests?__a=190644&testId=2622584&roundId=1646777520&agentId=347216"  
  }  
]
```

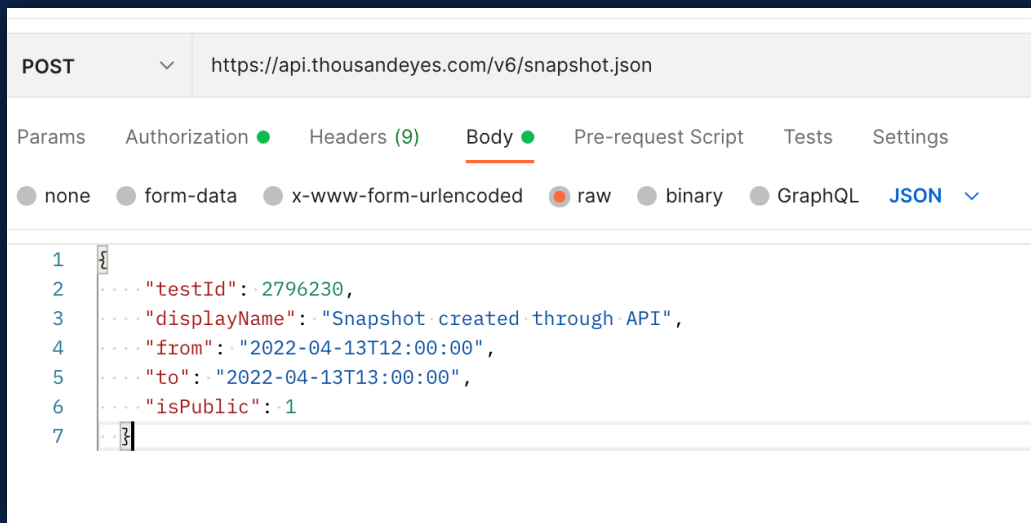
Retrieve Path

- https://api.thousandeyes.com/v6/net/metrics/{test_id}/{agent_id}/{round_id}
- Round ID and agent ID need to be obtained first via network metrics or network path APIs

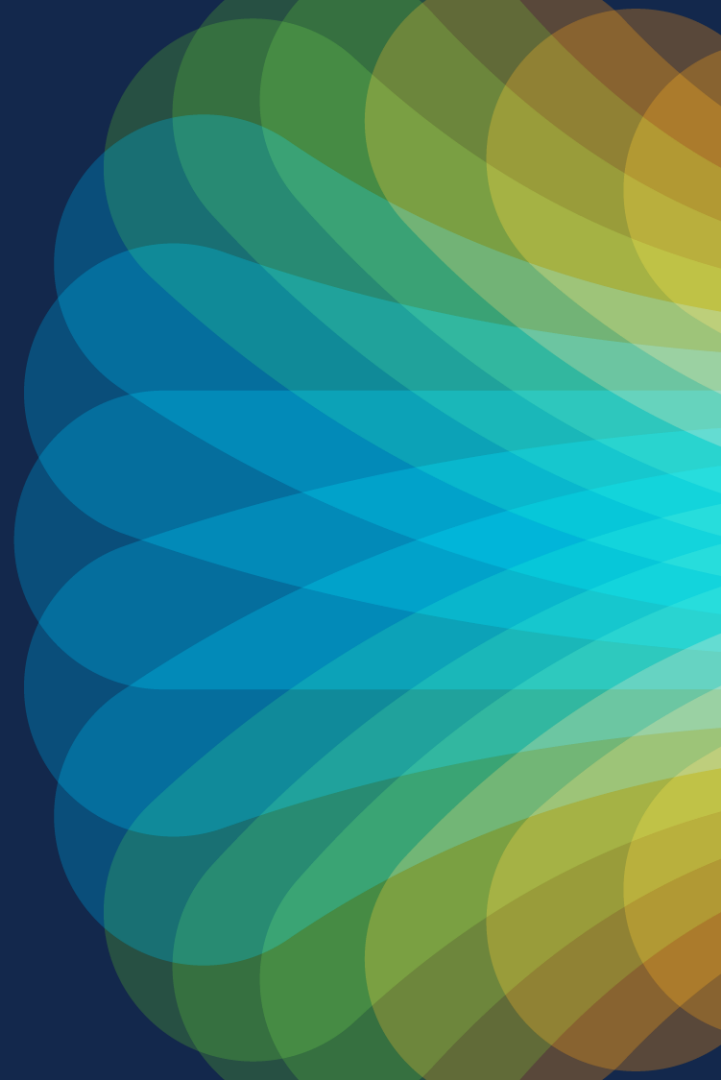
```
"routes": [  
  {  
    "pathId": "20657547682632584681731393106177968817249522579839969819205053747",  
    "hops": [  
      {  
        "hop": 1,  
        "ipAddress": "10.90.54.130",  
        "responseTime": 10,  
        "location": "North Carolina, US"  
      },  
      {  
        "hop": 2,  
        "ipAddress": "10.90.54.129",  
        "responseTime": 3,  
        "location": "North Carolina, US"  
      },  
      {  
        "hop": 3,  
        "ipAddress": "10.90.244.13",  
        "rdns": "lwr01-00-lab-gw2-ten5-5.cisco.com",  
        "responseTime": 0,  
        "location": "North Carolina, US"  
      }  
    ]  
  }  
]
```

Snapshot API

- <https://api.thousandeyes.com/v6/snapshot.json>
- Requires test ID, a name and the date range
- Returns a view URL that can be shared to external users

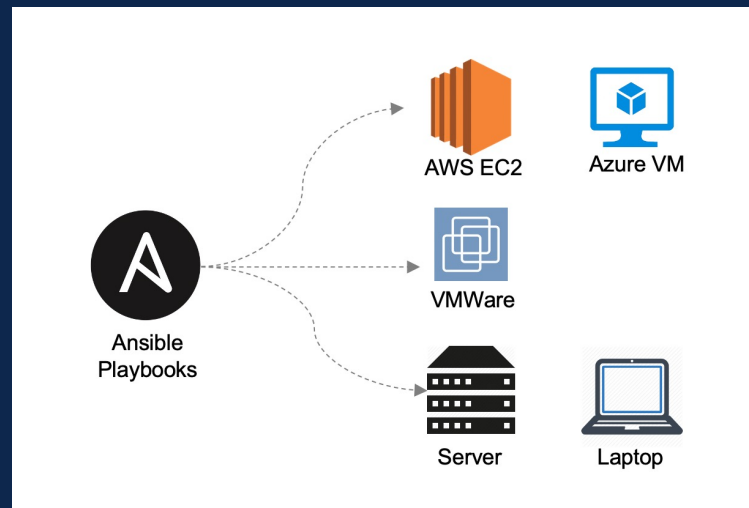


Demo: Deploy tests via Postman API collection



ThousandEyes Ansible playbook

- Enterprise Agent deployment using Linux package method
- Create a simple playbook 'install_thousandeyes.yml' with Agent configuration and simply run the playbook on Linux hosts
- Public Github documentation:
<https://github.com/datacenter/NXOS-TEAgent/blob/main/Instructions.md>
- Mass deployment and easy configuration of Enterprise Agent in your data center's servers, Virtual Machines, docker containers



Enterprise Agents Install Types

- OVA – For manual install (it can be automated, but there are better options)
- Linux installer – Script available in the dashboard
- Docker – Steps available in the dashboard
- Cisco routers, switches, Meraki embedded Agents

Add New Enterprise Agent 

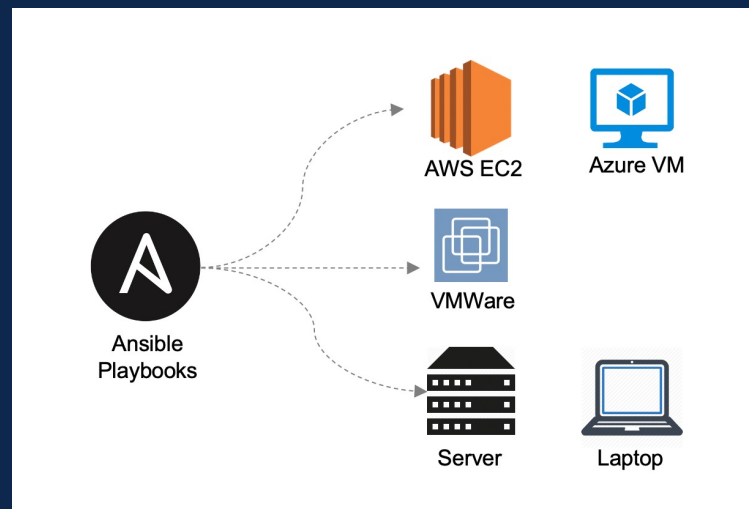
Appliance **Custom Appliance** **Cisco Application Hosting** **Linux Package** **Docker** **IaaS Marketplaces**

Account Group Token 

Virtual Appliance

ThousandEyes Ansible playbook

- Enterprise Agent deployment to Linux hosts
- Create a simple playbook 'install_thousandeyes.yml' with Agent configuration and simply run the playbook on Linux hosts
- Ansible playbook example
Docker Agent >>
<https://github.com/CiscoSE/thousandeyes-ansible-agents/tree/main>
Linux Agent
>> <https://developer.cisco.com/codeexchange/github/repo/cisco-open/ansible-role-thousandeyes-enterprise-agent-linux#readme>
- Mass deployment and easy configuration of Enterprise Agent in your data center's servers, Virtual Machines, docker containers



Terraform provider

- ThousandEyes IaC (Infrastructure as a code) plugin to support a quick provision, configure, and activate server, network, and application infrastructures, and components within cloud environments.
- Use AWS Terraform to deploy a docker Agent in AWS EC2
- Use ThousandEyes Terraform to create tests running on your Agent
- Find more in Terraform Provider documentation:
<https://github.com/thousandeyes/terraform-provider-thousandeyes/blob/main/README.md>

Terraform Provider for ThousandEyes

release v2.0.3 license Apache-2.0

The Terraform provider for ThousandEyes allows you to manage resources in [ThousandEyes](#).

Requirements

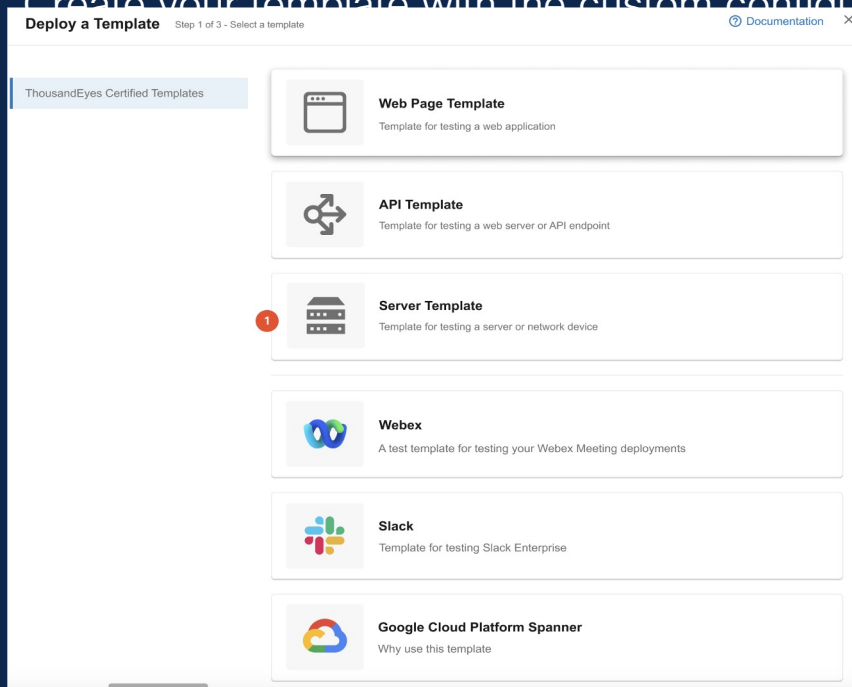
- [Terraform](#) 0.12.x
- [Go](#) 1.17 (to build the provider plugin)

Demo: Automated Agent deployment with Ansible



Test Templates

- Fastest path to start monitoring from day one
- Deploy tests, Dashboard, alert rules from ThousandEyes built-in templates, that reflects the best practice monitoring guide for each application
- Create your template with the custom configuration



The screenshot shows the configuration page for the 'Microsoft 365' template. The page includes the following sections:

- Microsoft 365**: This template can be used for monitoring Microsoft 365, including Office Online, SharePoint Online, and Exchange Online
- Which Enterprise agents should we run tests from?**: 1 of 863 agents
- Which Cloud agents should we run tests from?**: 0 of 863 agents
- Tenant Name**: cisco
- How often should we run tests?**: 5 minutes
- What DNS resolution servers should we use?**: Look Up Servers, ns3-33.azure-dns.org, + 3 more
- Name your template**: M365
- Deployment Summary**:
 - Tests: HTTP Server (10), DNS Server (5), DNS Trace (5)
 - Supporting Resources: Labels (6), Dashboards (2)

Best practice of Test template Summary

- 1 Start your monitoring with the built-in template
- 2 Evaluate the test results and determine the baseline
- 3 Adjust the template configuration file to optimize your monitoring
- 4 Save as a user template for Production monitoring use

Demo: Test Template Deployment

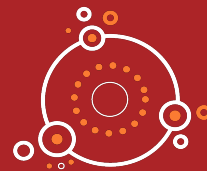
Accelerating IT Operations

<https://www.thousandeyes.com/blog/introducing-thousandeyes-opentelemetry>

Optimize workflows

Lower MTTR

Improve digital experiences



**ThousandEyes for
OpenTelemetry**

*Access the full potential of
ThousandEyes data*

The Power of ThousandEyes for OpenTelemetry

Customizable Visibility Across Tools

Correlates Disparate Data at Scale

Bridges Monitoring Gaps

- 1 ThousandEyes data collection
- 2 Convert raw data
- 3 Data sent via OTLP to Collector
- 4 Meta-data (correlation) tags applied
- 5 Metrics and meta-data exported to AppDynamics or other OTel-speaking system



Integrating across your ecosystem

- With OpenTelemetry, you can now integrate across a wide range of tools for correlated insights.
- The following companies support OpenTelemetry:

Log Management
& Analytics

Application
Monitoring

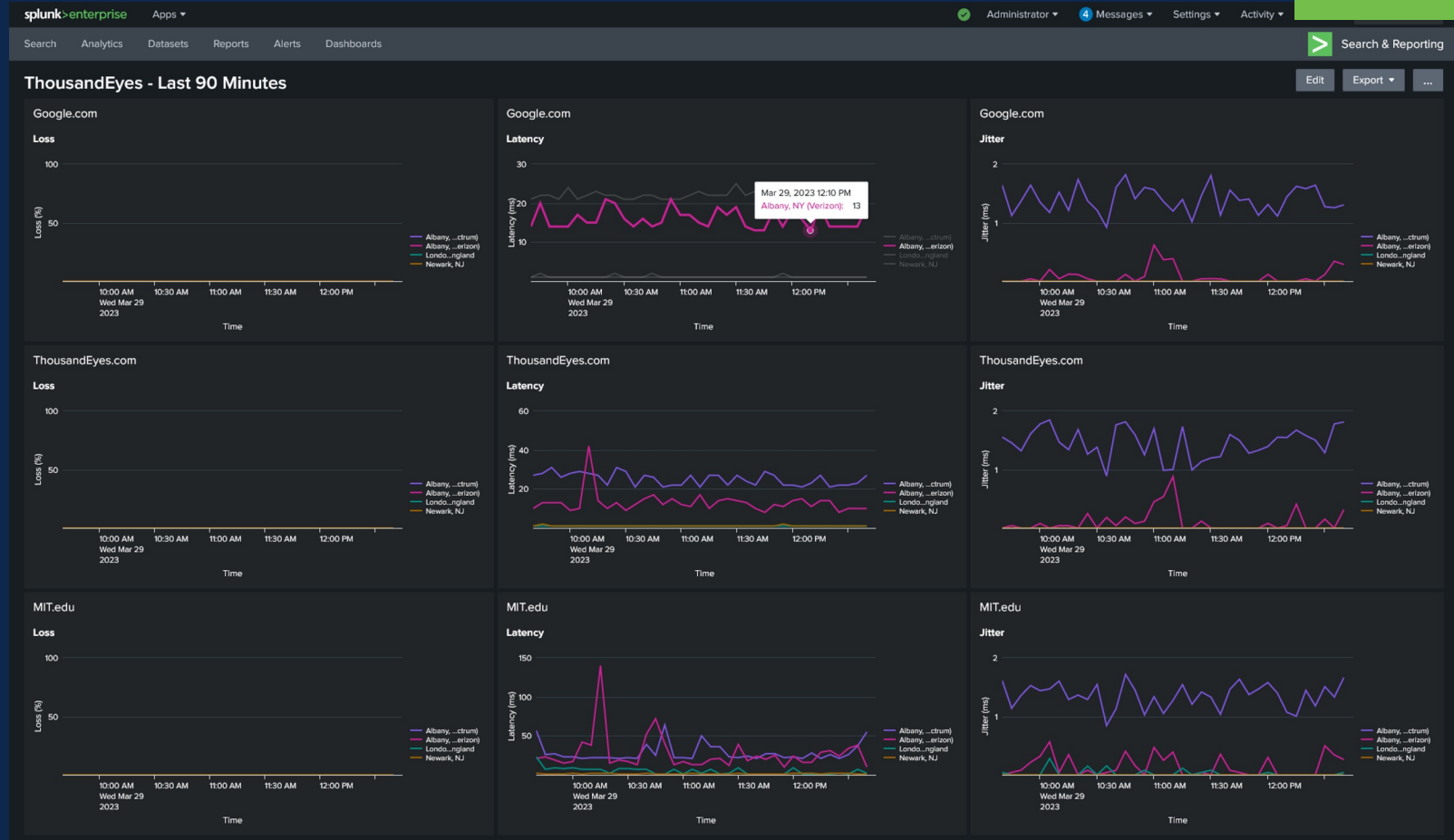
Infrastructure
Monitoring

Cloud
Providers



ThousandEyes for OpenTelemetry

Splunk



Alerts and Alert Rules

Alert rules

Defines alert attributes

Very flexible expressions
response time $\leq$ 500ms

Customizable triggers
All conditions are met by the same agents 3
times out of 5 test in a row

Alerts

Instance of an alert rule for a given test

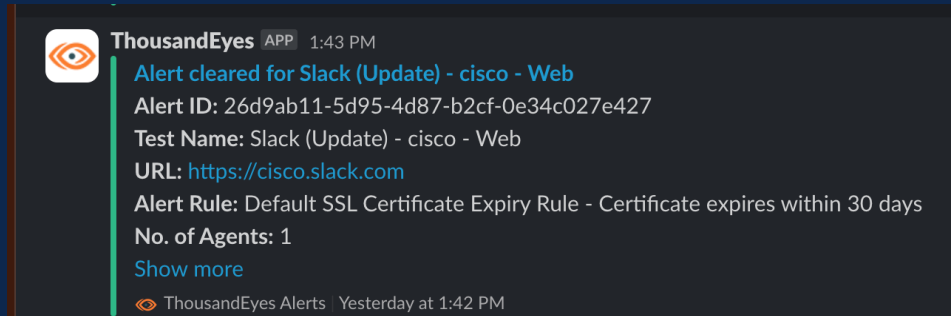
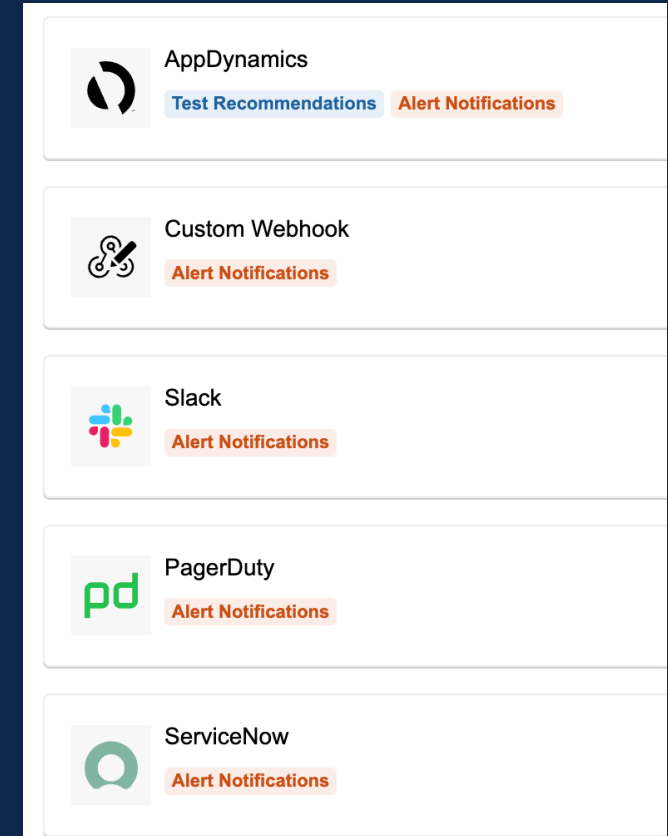
Triggers notifications such as emails or
webhooks

Can be “paused” for maintenance
windows

<https://docs.thousandeyes.com/product-documentation/alerts>

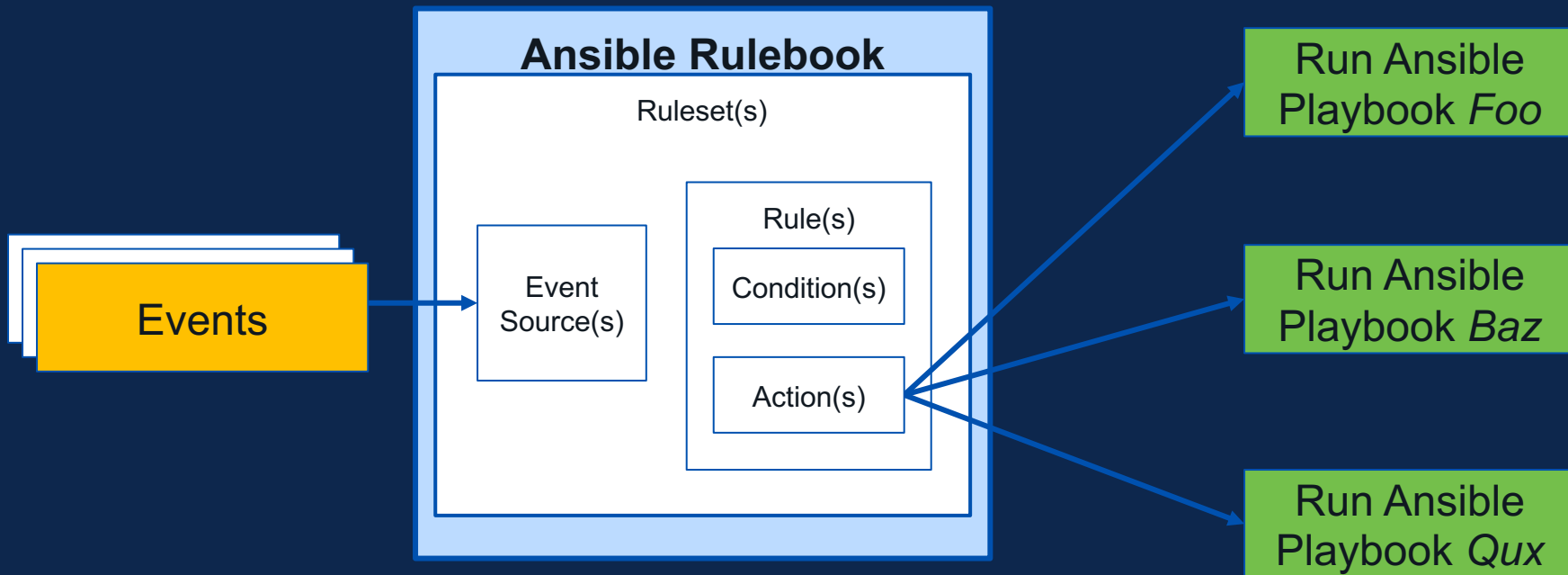
Let Alerts drive the next action

- ThousandEyes supports Integration with third-party tools for alert notification
- Automate the SRE runbook, based on the alert triggering event
- Use custom webhook to receive alerts in the json format to any webhook server



Event Driven Ansible

Create Rules determine if one or more actions should be taken when an event is received based on the rule's conditions.



Conclusion

Why ThousandEyes?

See, understand and improve digital experience everywhere

Broad Data Collection

Deliver ubiquitous visibility

E2E visibility, synthetic, and cloud network visibility across every vantage point that matters

Proactive Intelligence

Identify and isolate issues quickly

Event detection, correlation, and causal analysis for intelligent troubleshooting

Operational Workflows

Integrate with a connected ecosystem

Unlock intelligence and data across ecosystems via open standards

Cisco ThousandEyes assuring every element of modern digital experience



Mobile / Home



Wireless / Access / Routing



Datacenter / Service Provider



Internet



Cloud / App

Skip the Queue! Get a FREE ThousandEyes T-Shirt

Redemption Code: CLAPJC2023





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one-on-one session with
a technical expert!

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to meet, greet, whiteboard & gain
insights about your unique questions
with the best of the best.



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Tuesday	3:00pm – 7:00pm
Wednesday	11:15am – 7:00pm
Thursday	9:30am – 4:00pm
Friday	10:30am – 1:30pm

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We would love to know your feedback on this session!

- Complete a minimum of four session surveys and the overall event surveys to claim a Cisco Live T-Shirt



Continue your education



- Visit the Cisco Showcase for related demos
- Book your one-on-one Meet the Expert meeting
- Attend the interactive education with DevNet, Capture the Flag, and Walk-in Labs
- Visit the On-Demand Library for more sessions at www.CiscoLive.com/on-demand



The bridge to possible

Thank you

CISCO *Live!*

#CiscoLiveAPJC

The background is a vibrant, abstract graphic featuring a rainbow color palette. On the left, there are horizontal, wavy bands of color transitioning from red at the top to blue at the bottom. On the right, a bright white light source emits a series of sharp, triangular rays of color in a radial pattern, also using the rainbow spectrum. The overall effect is energetic and celebratory.

cisco *Live!*

Let's go

#CiscoLiveAPJC