

The Cisco Live! logo features the word "CISCO" in a dark blue, sans-serif font, followed by "Live!" in a dark blue, cursive script font. The background of the entire image is a vibrant, multi-colored abstract pattern of overlapping, wavy lines and geometric shapes, transitioning from dark blue on the left to bright yellow and white on the right, with a sunburst effect on the right side.

CISCO *Live!*

Let's go



The bridge to possible

# Beginner's Guide to Enterprise Network Monitoring With ThousandEyes

Primož Sečnik Kolman, Global Technical Solutions Architect

CISCO *Live!*

BRKENT-1656

# Introduction

## Primož Sečnik Kolman

*Global Technical Solutions Architect*

Cisco ThousandEyes

- Software development and computer networks background
- Joined ThousandEyes in 2015
  - Various customer-facing roles



# Agenda

CISCO *Live!*

- Introduction
  - Demo
- Customer Digital Experience
  - Demo
- Workforce Digital Experience
  - Demo
- Enterprise Digital Experience
  - Demo
- I Want More
- Licensing

# Introduction

What were you doing  
when ... ?

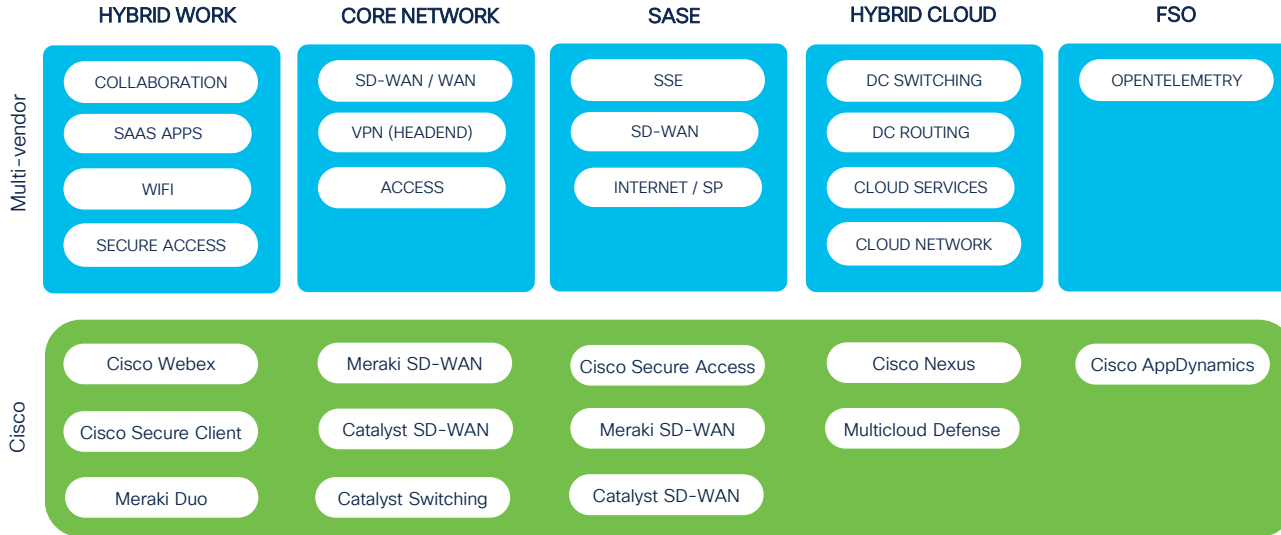
Demo

# ThousandEyes is ...

- Monitoring
- Digital Experience Monitoring (DEM)
- Visibility (in your SASE environment)
- Experience Insights (in Cisco Secure Access)
- Observability (in your Full Stack Observability)

# ThousandEyes is Network Assurance

## ThousandEyes Network Assurance platform



One experience  
One UI  
One instance for organization-wide use cases

Team-specific views + **common operational language** to collaborate and share information

Vendor-neutral and seamless with Cisco



# Why do you need Network Assurance?

IF  
YOU  
CAN  
READ THIS,  
YOU PROBABLY  
DON'T NEED

# Why do you need Network Assurance?



Houston, we have a problem



Employee

2X  
Go ahead,  
blame the network

L  
The Notorious  
BGP

L  
Real networking  
is #NotSocial

XL  
f\*\*\*  
tracer\*ute

It's not your fault, but it is your problem



M  
Cover your AS

Discover New Insights

Actionable Intelligence to Improve End User Experience

Vantage Points for Any Network



Enterprise Agents

Enterprise Agents

Enterprise Agents

Network Insights for Your WAN and the Cloud

Detailed Views of Network Connectivity

See App Performance over both Internal and External Networks

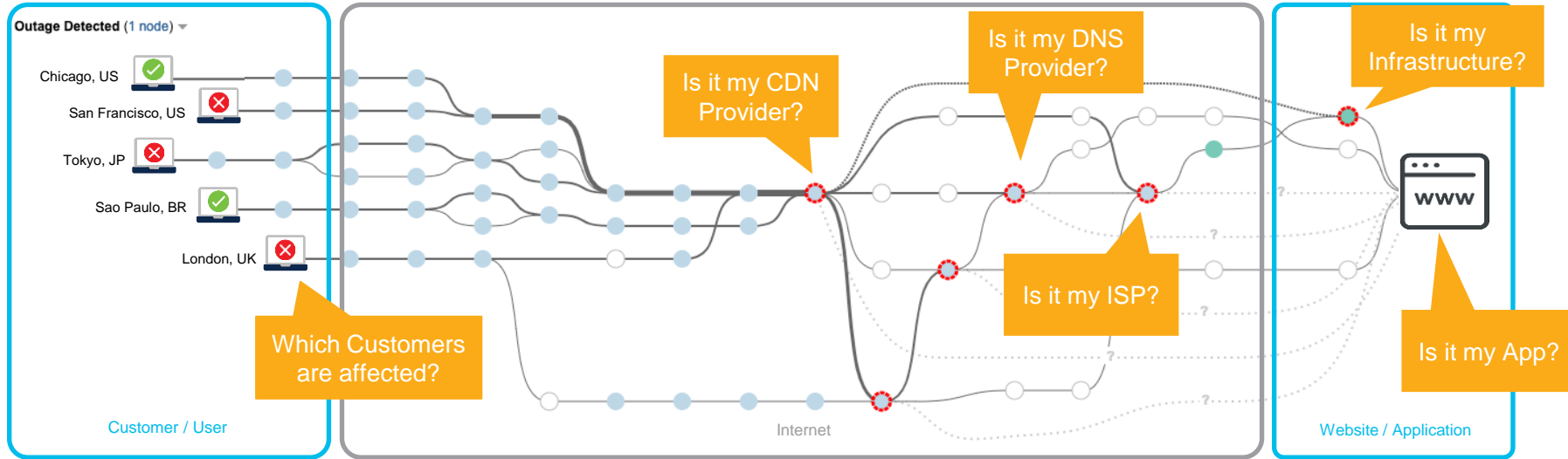
Key Enterprise Agent Use Cases

Optimize WAN Performance

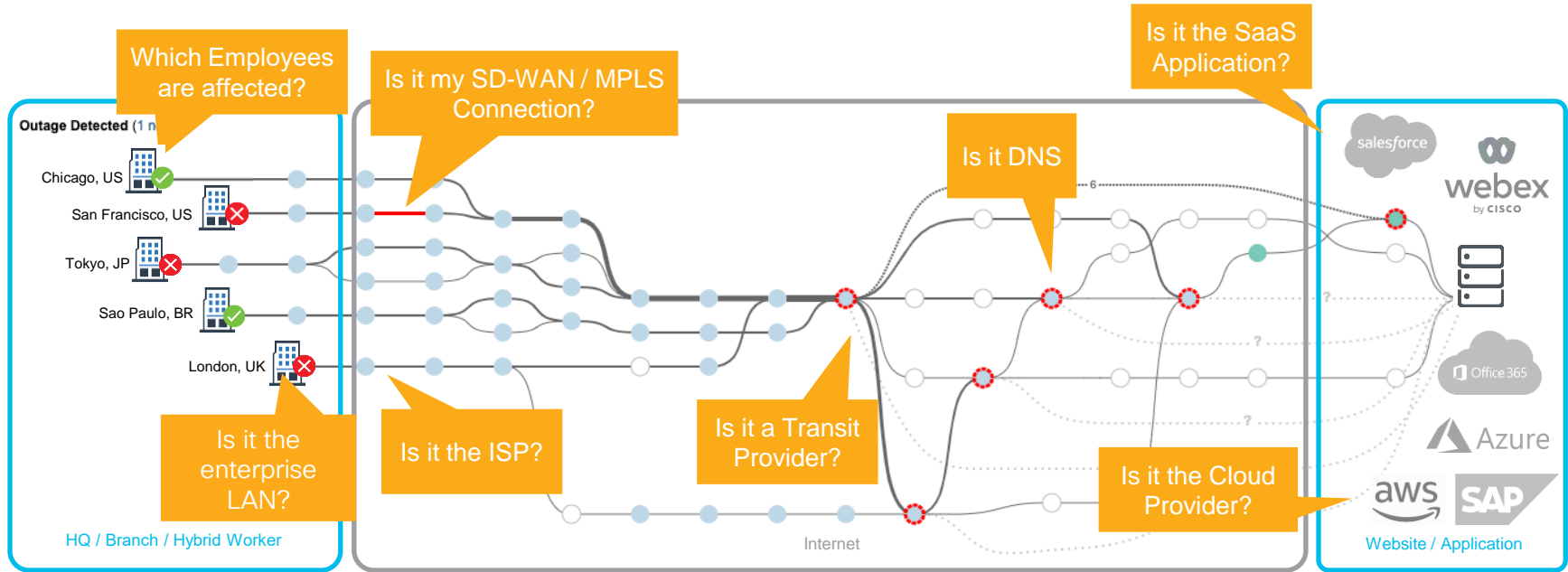
Monitor Critical Enterprise Apps

Get Visibility into Forward and Backward Traffic

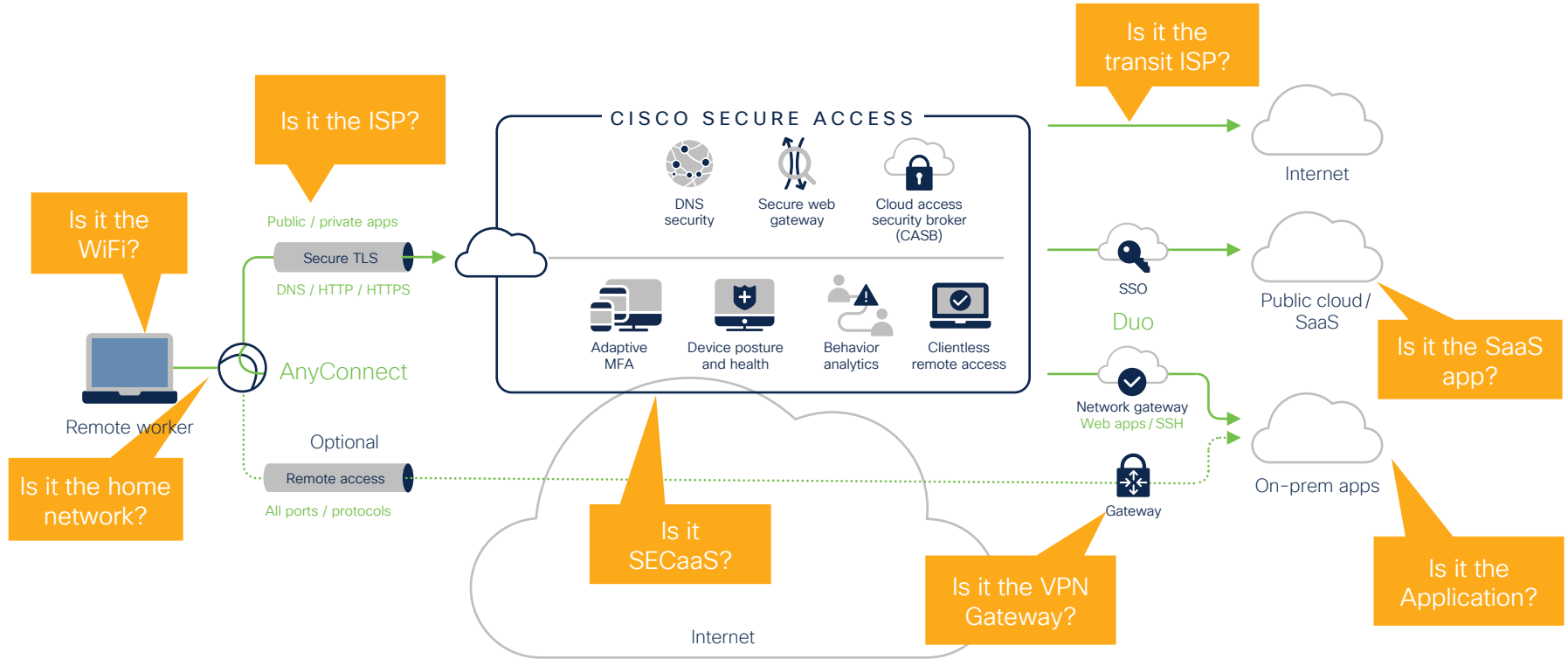
# Problem Landscape: Application Provider



# Problem Landscape: Branch Office

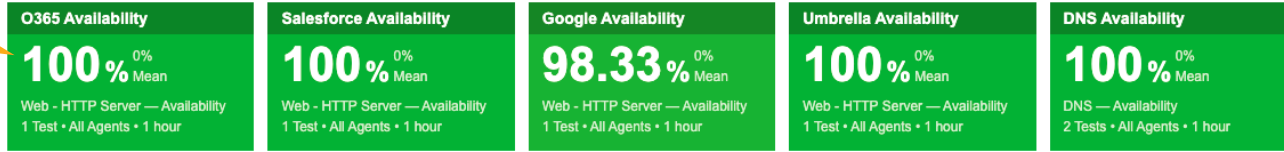


# Problem Landscape: Remote Worker



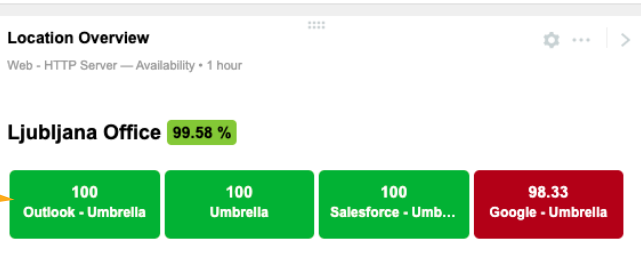
# ThousandEyes Network Assurance

Application availability

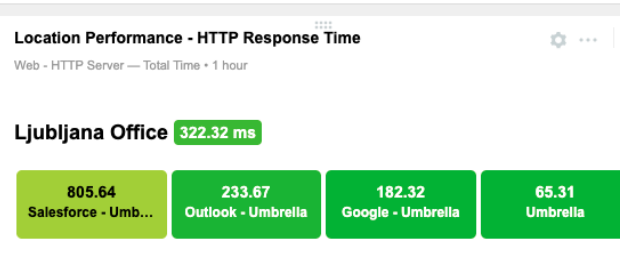


Service availability

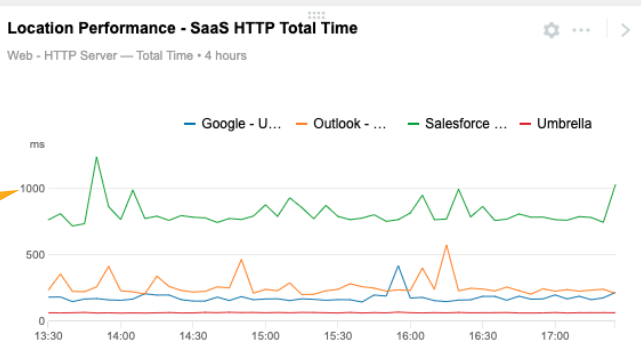
Per-office availability



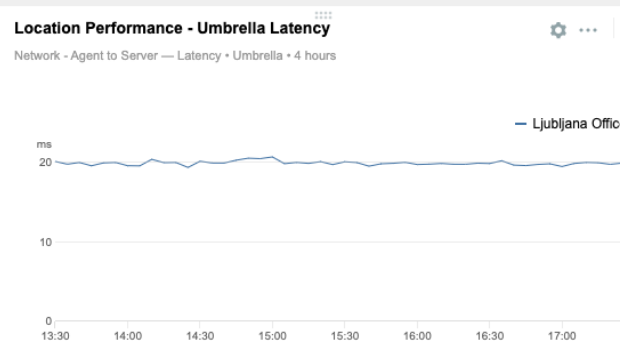
Per-office performance



Application performance



Umbrella performance

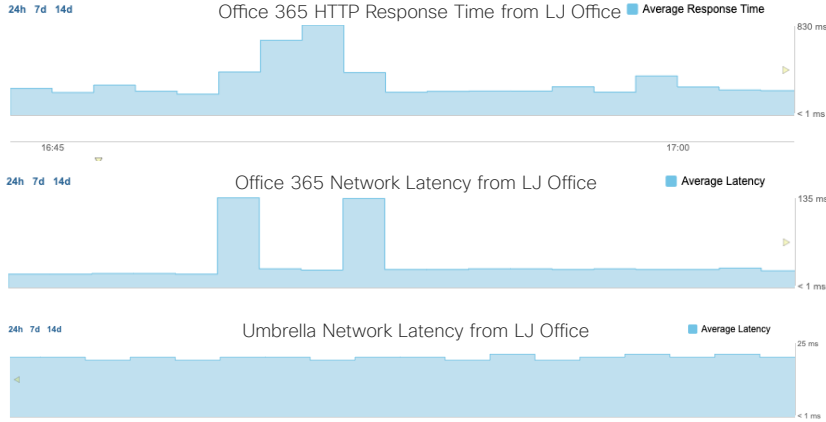






# Network Assurance Must Be Actionable

When service degradation occurs, quickly identify where the problem is.

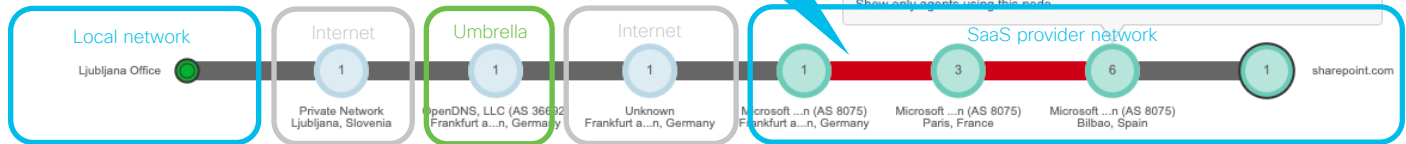
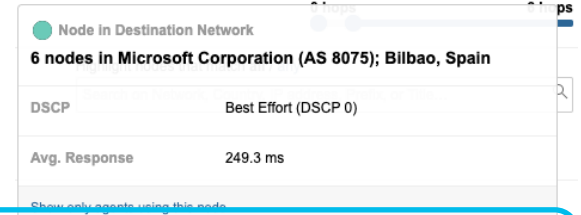


1 Increase in the **service response** time

2 Due to an increase in **network latency**

3 Caused by a network **path change**

Service degradation due to a network path change in SaaS provider network



# Network Assurance Decreases Your MTTR/I





**assurance**

**noun**

as·sur·ance ə-'shʊr-ən(t)s

confidence of mind or manner

Network  
Assurance  
gives you  
Confidence

# ThousandEyes Use-cases



Deliver stellar digital experiences to customers



Keep workers connected and enjoying seamless app performance



Optimize and sustain the flow of your digital supply chain

# ThousandEyes Use-cases



---

You are an online service provider (retail, bank, SaaS, ...)

Your customers are everywhere.

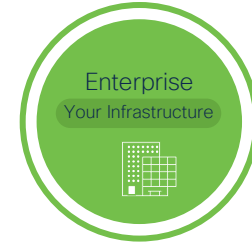
You monitor your applications and APIs.



---

Your workers rely on business-critical applications while working from anywhere.

You monitor the applications your employees use, on-prem or in the cloud.



---

You own your network infrastructure, but also rely on Cloud, SD-WAN and SSE.

You monitor the network between your campus, branch offices, DCs and multi-cloud.

# ThousandEyes Cisco Integrations

## Full Stack Observability (FSO)

ThousandEyes insights integrated into AppDynamics Dash Studio

Open Telemetry



## Hybrid Work

ThousandEyes delivers Experience Insights to Cisco Secure Access

Automatic monitoring for Webex sessions

ThousandEyes insights in Webex Control Hub



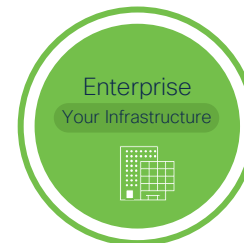
Cisco Secure Access



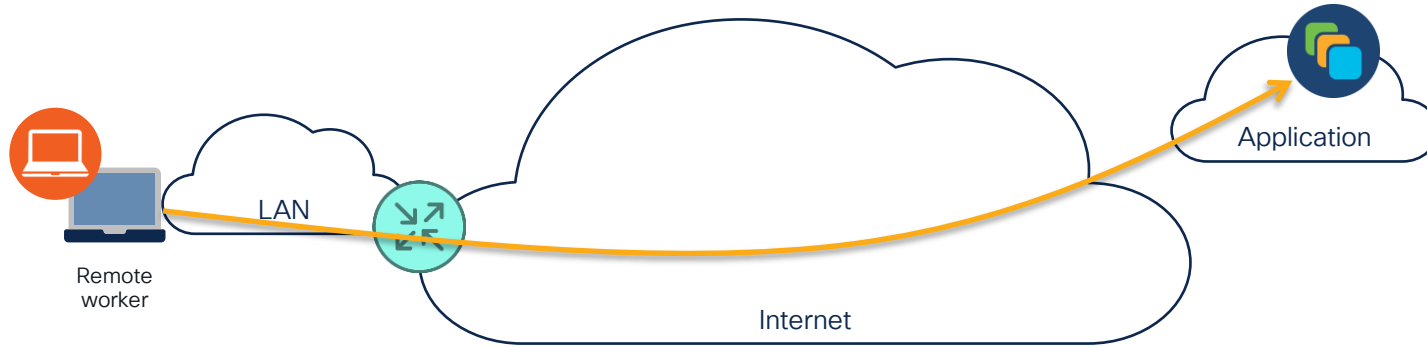
## Cisco Networking

ThousandEyes embedded in Cisco SD-WAN, Catalyst 9000, Meraki MX, ... platforms

Simple, scalable agent admin through device management platforms



# How Do We Do It?



- We generate our own synthetic traffic (Cloud, Enterprise and Endpoint Agent)
- We passively gather data from the client (Endpoint Agent)
- We passively gather data from network devices (Device Layer)
- No packet captures
- No flow monitoring

# ThousandEyes Agents



## Cloud Agents

- Installed in 268 cities and 66 countries around the world
- Broadband ISPs
- Cloud providers (AWS, Azure, GCP, Alibaba)
- Webex DCs



## Enterprise Agents

- Install them in your offices
  - On Cisco devices, as VMs, Docker containers, Intel NUC appliances
- Perform active application and network performance monitoring



## Endpoint Agents

- Install them on your employees' computers (Windows & macOS)
- Perform active application and network tests
- Passively collect performance data (WiFi metrics, CPU, ...)





# Customer Digital Experience



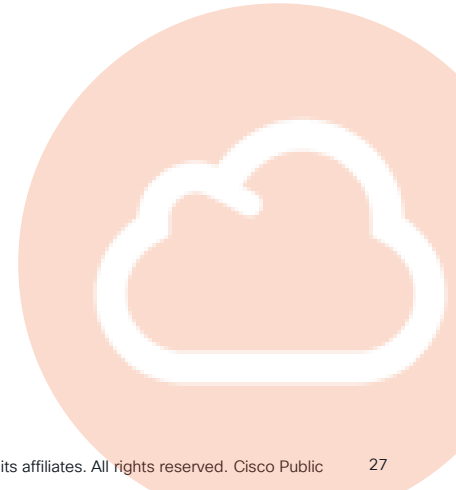
# Demo

Customer Digital Experience

CISCO *Live!*

# Cloud Agents

- They are as close to your real users experience as possible
- Installed in 268 cities and 66 countries around the world
  - Broadband ISPs
  - Cloud providers (AWS, Azure, GCP, Alibaba)
  - Webex data centers
  - Mobile edge compute (AWS Wavelength)



# Workforce Digital Experience



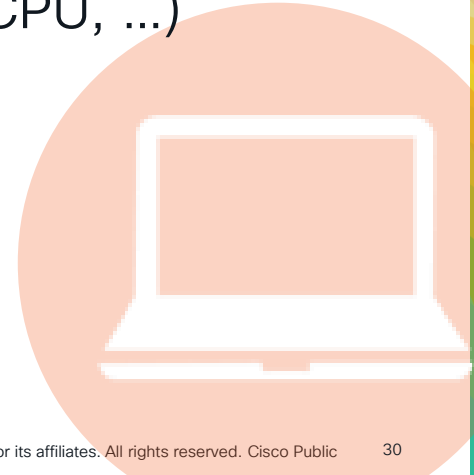
# Demo

Workforce Digital Experience

CISCO *Live!*

# Endpoint Agent

- Install it on your employees' computers (Windows & macOS)
  - Manual, Group policy or Managed Software Center
  - Standalone or as Cisco Secure Client module
- Performs active application and network performance tests
- Passively collects performance data (WiFi metrics, CPU, ...)
- Detects and monitors VPNs, proxies
- Follows the employee wherever he works from
  - Work from home, office, anywhere



# Endpoint Agent & Cisco Secure Access

- Endpoint agent is an important component of Cisco Secure Access Experience Insights
- Comes for free with Cisco Secure Access, albeit not with full functionality (Experience Insights license)
- It's a start (general availability less than a month ago)



# Enterprise Digital Experience







# Demo

Enterprise Digital Experience

CISCO *Live!*

# Enterprise Agent

- Install it in your office in user VLAN
  - Cisco Catalyst 8000, Catalyst 9000, ISR 4000 and Meraki MX Series
  - VM, Docker, Intel NUC, Raspberry Pi
  - Install on whatever available, Cisco devices give you no visibility advantage
- Performs active application and network performance tests
  - Performs complex Web application testing (incl. SSO)
  - Can test VPN and SD-WAN underlay
- Provides constant baseline regardless if there are any active users



# Enterprise Agent Deployment Matrix

Platform	Web Browser Tests	Multi-interface
Virtual Appliance	Yes	Yes
Docker	Yes	Yes
Linux package (Ubuntu, RHEL)	Yes	Yes
Cat 9300, Cat 9400	Yes, with SSD	Yes
Cat 8200, Cat 8300, ISR 4000, ASR 1000, ISR 1100X-6G	No	No
Meraki MX	No	No
Nexus 9000	No	No
Physical Appliance on Intel NUC	Yes	Yes
Physical Appliance on Raspberry Pi	No	Yes

I Want More



# Internet Insights

- Internet insights provide network and SaaS app outage detection at Internet scale
  - Visibility into network outages that disrupt your global SD-WAN mesh
  - Visibility into SaaS application outages, and its scale and geographic scope
- **Eliminates unnecessary troubleshooting cycles**
- Package licenses (per region / service provider type)



# Device Layer

- Device layer provides visibility into performance of your internal network devices by gathering network device topology
- Good old SNMP
  - But still very useful to get that insight into Layer 2
- Free of charge



# WAN Insights

- Applies statistical models to Catalyst Analytics path metrics
- Provides network forecasts and SD-WAN policy recommendations
- Optimizes user experience across enterprise sites
- If you have Catalyst Analytics, you're already eligible to use it!

# Licensing



# Licensing

Product	Licensing	Example
Cloud Agents Enterprise Agents	Test usage based, linear	<ul style="list-style-type: none"><li>• 1 HTTP test 5-min interval on EA: 23 units / month</li><li>• 1 HTTP test 5-min interval on CA: 45 units / month</li><li>• 1 HTTP test 10-min interval on CA: 23 units / month</li></ul>
Endpoint Agent	Agent based	<ul style="list-style-type: none"><li>• 500 active EPAs -&gt; 500 EPA licences</li><li>• 3 license tiers</li></ul>
Internet Insights	Per Region / Provider	<ul style="list-style-type: none"><li>• All ISPs in North America</li><li>• All CDNs in EMEA</li><li>• All in</li></ul>
Device Layer	Free	
WAN Insights	Free with Catalyst Analytics	

# ThousandEyes Endpoint Agent Licences

	Advantage (default)	Essentials	Experience Insights *
Buying Motion	Separate purchase	Separate purchase	Included in Secure Access
Data Retention	30 days	14 days	4 days
Browser session monitoring	Yes	Yes	No
Synthetic tests	10 dynamic and scheduled tests (mix and match)	4 dynamic and scheduled tests (mix and match)	1 dynamic test, 1 scheduled test to SSE Cloud infrastructure
Local network tests	Included	Included	Included
Machine metrics	“Top 5”	“Top 5”	“Basic”

Network  
Assurance  
gives you  
Confidence

**ThousandEyes**   
part of Cisco

# Recap

# Recap



---

You are an online service provider. Your customers are everywhere.

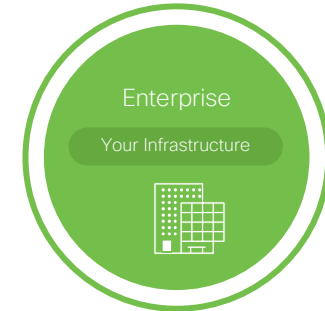
Utilize Cloud Agents to monitor your online services from over 400 locations around the world.



---

Your workers rely on business-critical applications while working from anywhere.

Utilize Endpoint Agents to monitor your employees digital experience when using business-critical applications wherever they work from.



---

You own your network infrastructure, but also rely on Cloud, SD-WAN or SSE.

Utilize Enterprise Agents to monitor your network infrastructure and 3<sup>rd</sup> party service providers from your offices and data centers.

Utilize Internet Insights for global network and SaaS app outage detection.

Utilize Device Layer to gain visibility in the performance of your Layer 2 network.



The bridge to possible

Thank you

CISCO *Live!*

The Cisco Live! logo features the word "CISCO" in a bold, black, sans-serif font, followed by "Live!" in a black, cursive script font. The background of the entire image is a vibrant, multi-colored abstract pattern of overlapping, wavy bands in shades of red, orange, yellow, green, and blue, creating a sense of motion and energy.

CISCO *Live!*

Let's go