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The bridge to possible

# Beginner's Guide to Enterprise Network Monitoring

with ThousandEyes

Primož Sečnik Kolman, Global Technical Solutions Architect  
BRKENT-1656

CISCO *Live!*

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# 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 June 9, 2023.



<https://ciscolive.ciscoevents.com/ciscolivebot/#BRKENT-1656>

# Introduction

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



# Agenda

- 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 ...

- Digital Experience Monitoring (DEM)
- Visibility (in your SASE environment)
- Observability (in your Full Stack Observability)
- According to Gartner ...
- According to me: potato, potato
- Call it whatever, let me show you why you need it



# Why do you need Digital Experience Monitoring?

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

# Why do you need Digital Experience Monitoring?



Employee

Houston, we  
have a problem

Go ahead,  
blame the network

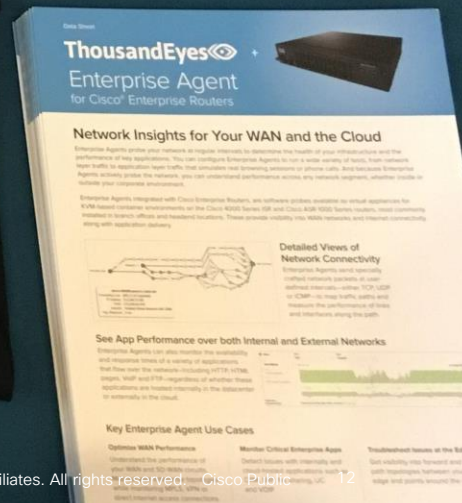
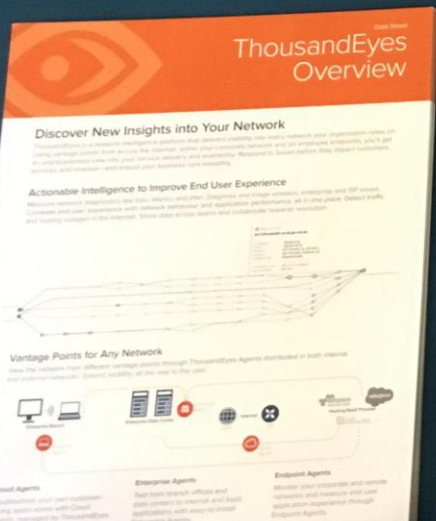
The Notorious  
BGP

Real networking  
is #NotSocial

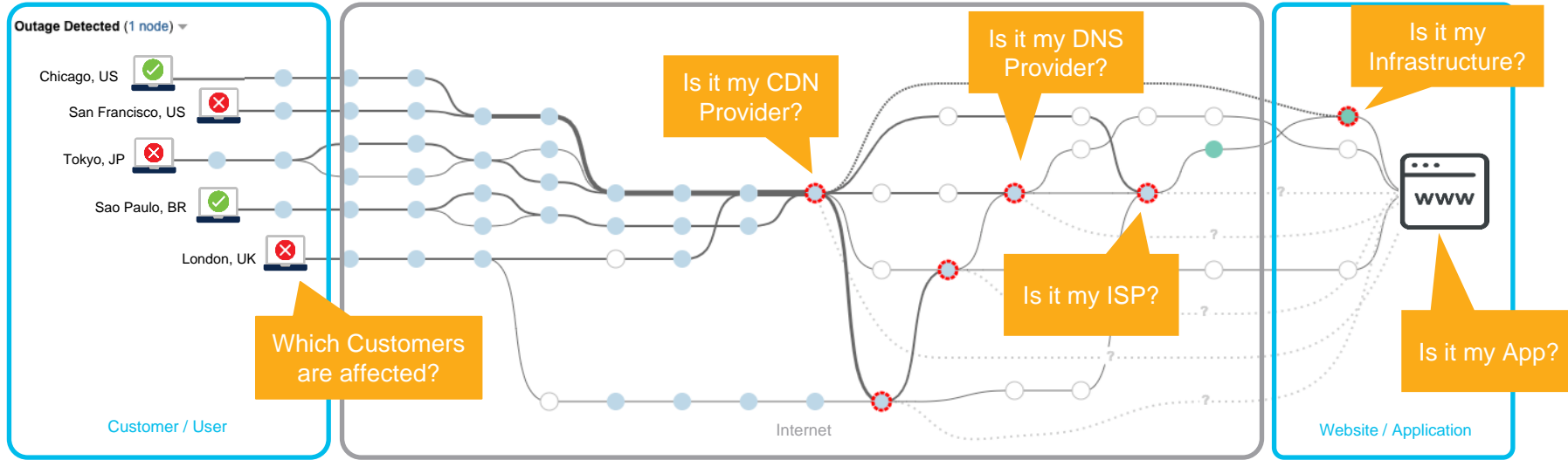
f\*\*\*  
tracer\*ute



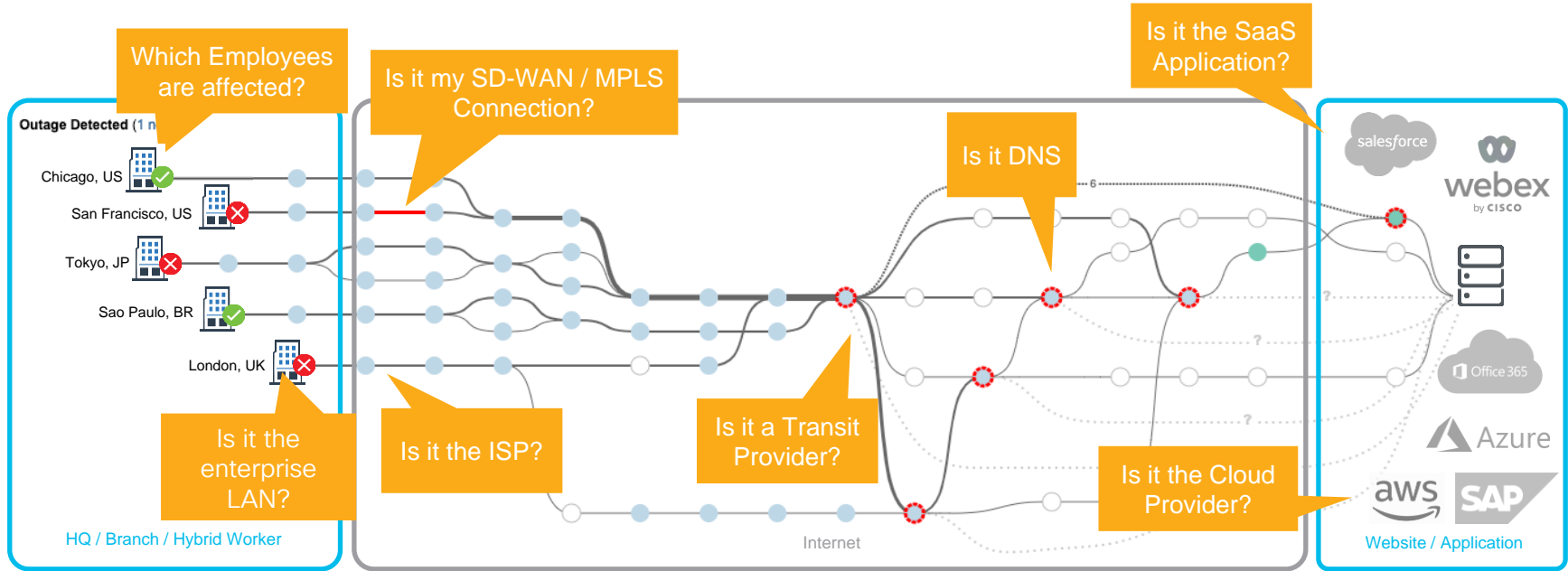
Cover your AS



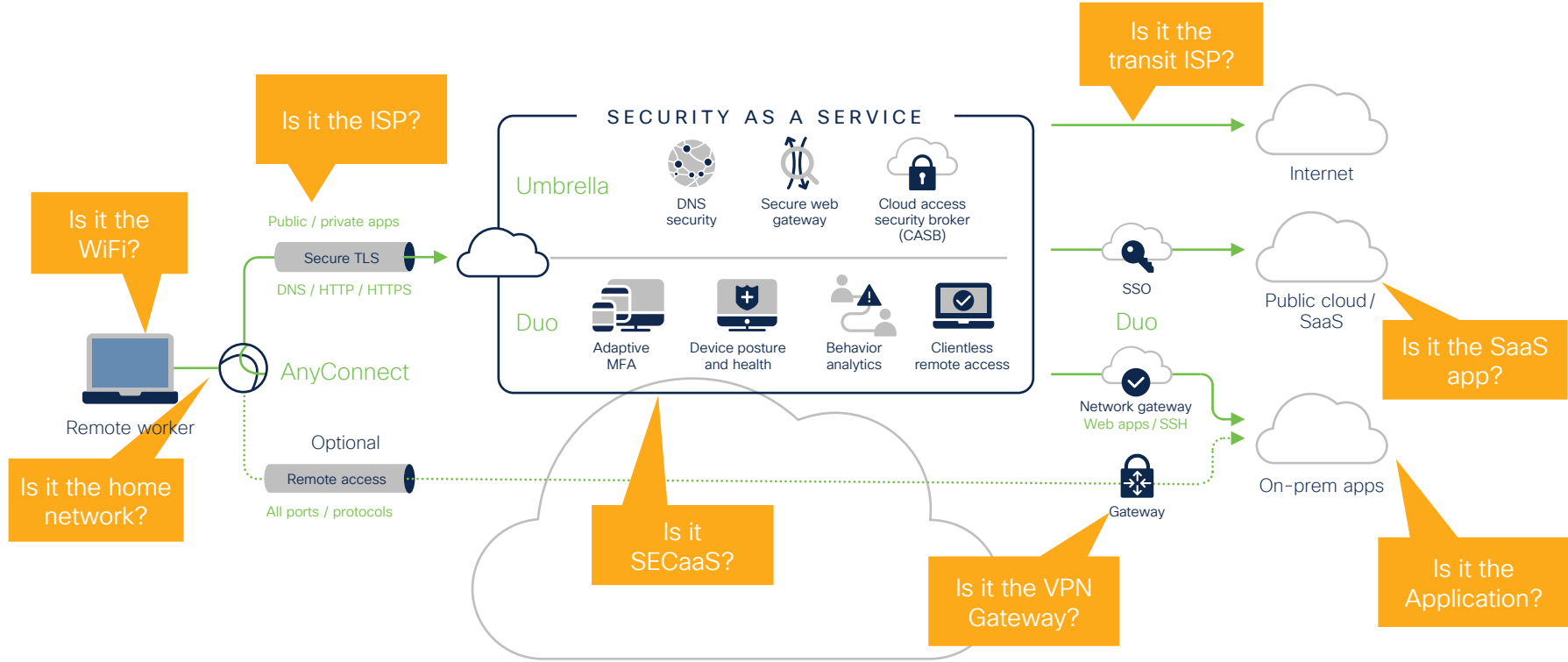
# Problem Landscape: Application Provider



## Problem Landscape: Branch Office



# Problem Landscape: Remote Worker



# ThousandEyes Digital Experience Monitoring

Application  
availability

O365 Availability

**100%** 0% Mean

Web - HTTP Server — Availability  
1 Test • All Agents • 1 hour

Salesforce Availability

**100%** 0% Mean

Web - HTTP Server — Availability  
1 Test • All Agents • 1 hour

Google Availability

**98.33%** 0% Mean

Web - HTTP Server — Availability  
1 Test • All Agents • 1 hour

Umbrella Availability

**100%** 0% Mean

Web - HTTP Server — Availability  
1 Test • All Agents • 1 hour

DNS Availability

**100%** 0% Mean

DNS — Availability  
2 Tests • All Agents • 1 hour

Service  
availability

Per-office  
availability

Location Overview

Web - HTTP Server — Availability • 1 hour

Ljubljana Office **99.58 %**

**100**

Outlook - Umbrella

**100**

Umbrella

**100**

Salesforce - Umb...

**98.33**

Google - Umbrella

Location Performance - HTTP Response Time

Web - HTTP Server — Total Time • 1 hour

Ljubljana Office **322.32 ms**

**805.64**  
Salesforce - Umb...

**233.67**  
Outlook - Umbrella

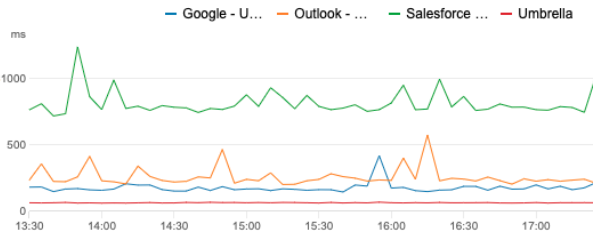
**182.32**  
Google - Umbrella

**65.31**  
Umbrella

Per-office  
performance

Location Performance - SaaS HTTP Total Time

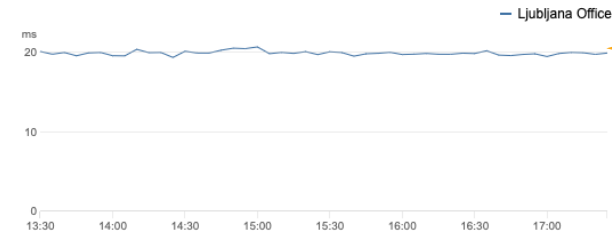
Web - HTTP Server — Total Time • 4 hours



Application  
performance

Location Performance - Umbrella Latency

Network - Agent to Server — Latency • Umbrella • 4 hours



Umbrella  
performance



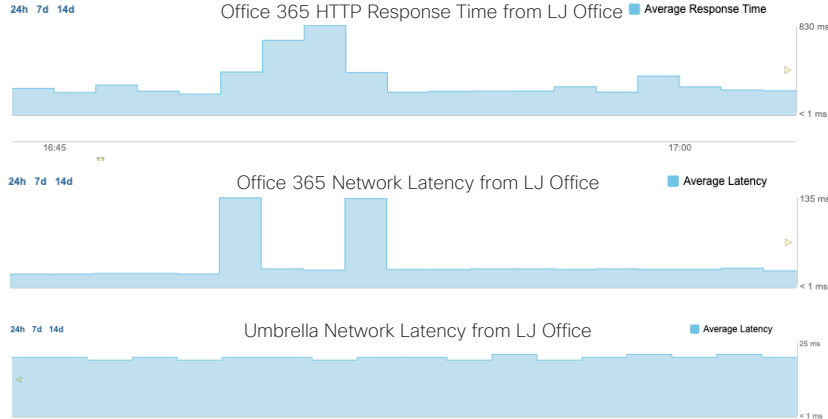
**DEM**  
puts you in  
control

**ThousandEyes**   
part of Cisco



# DEM Must Be Actionable

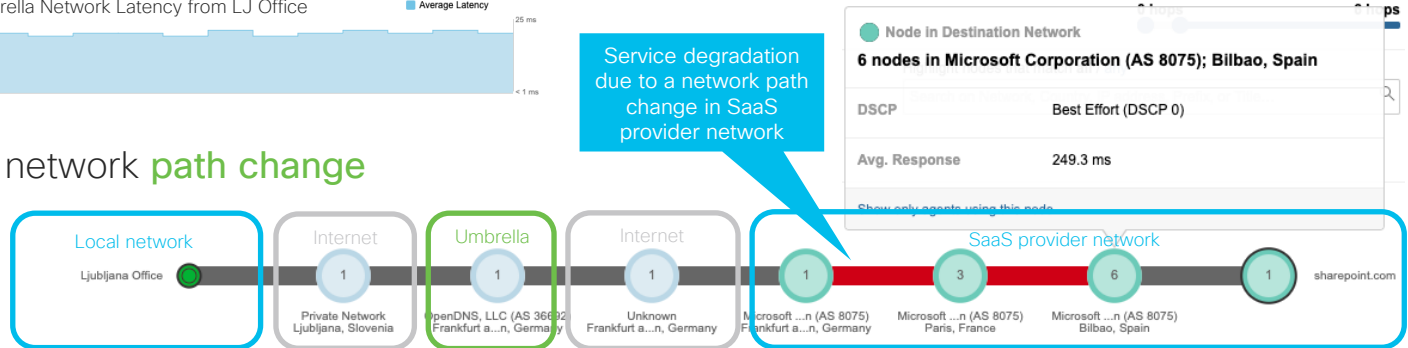
When service degradation occurs, quickly identify where the problem is.



1 Increase in the **service response time**

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

3 Caused by a network **path change**



# ThousandEyes DEM 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 DEM Use-cases



---

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



---

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



---

You own your network infrastructure, but also rely on SD-WAN, SWG or SASE.



# ThousandEyes DEM Use-cases

## Full Stack Observability (FSO)

ThousandEyes insights integrated into AppDynamics Dash Studio



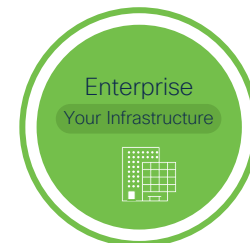
## Hybrid Work

ThousandEyes Webex Vantage Points  
Automatic monitoring for Webex sessions  
ThousandEyes insights in Webex Control Hub

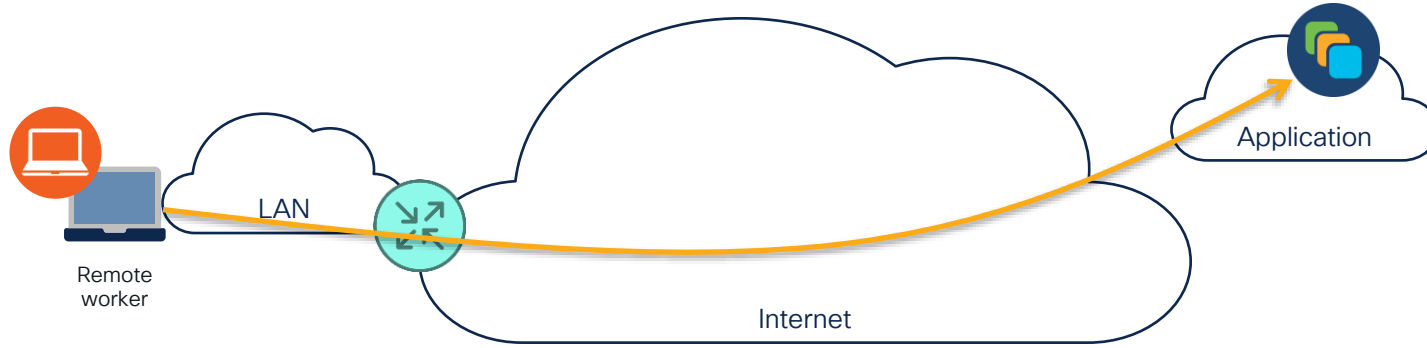


## Secure Access Service Edge (SASE)

ThousandEyes embedded in Cisco SD-WAN platforms + Catalyst 9000, Meraki MX  
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 251 cities and 64 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, ...)



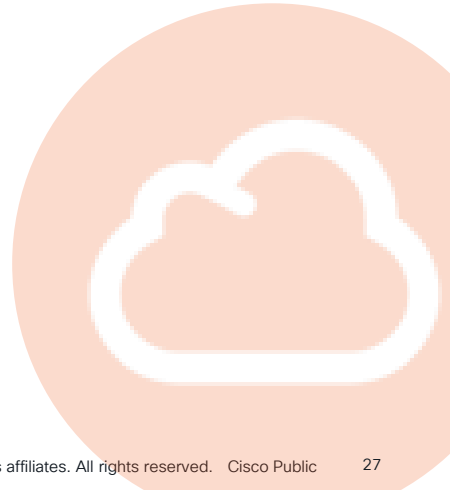
# Customer Digital Experience

# Demo

Customer Digital Experience

# Cloud Agents

- They are as close to your real users experience as possible
- Installed in 251 cities and 64 countries around the world
  - Broadband ISPs
  - Cloud providers (AWS, Azure, GCP, Alibaba)
  - Webex data centers



# Workforce Digital Experience

# Demo

Workforce Digital Experience

# Endpoint Agent

- Install it on your employees' computers (Windows & macOS)
  - Manual, Group policy or Managed Software Center
- 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
  - Work from office
  - Work from anywhere





# Enterprise Digital Experience

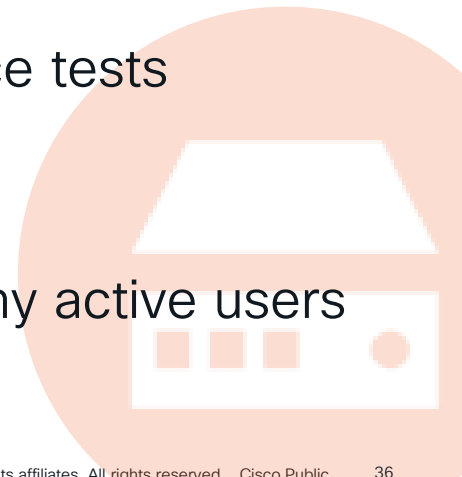


# Demo

Enterprise Digital Experience

# 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, Catalyst devices give you no visibility advantage
- Performs active application and network performance tests
  - Performs complex Web application testing (incl. ZTNA)
  - 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 Cisco vAnalytics path metrics
- Provides network forecasts and SD-WAN policy recommendations
- Optimizes user experience across enterprise sites
- If you have vAnalytics, you're eligible to use it!

# Licensing

# Licensing

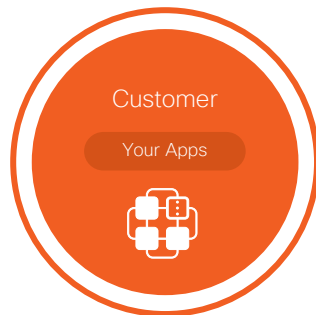
Product	Licensing	Example
Cloud Agents Enterprise Agents	Test usage based, linear	<ul style="list-style-type: none"><li>• 1 HTTP test 5-min interval on EA: 23 units / month</li><li>• 1 HTTP test 5-min interval on CA: 45 units / month</li><li>• 1 HTTP test 10-min interval on CA: 23 units / month</li></ul>
Endpoint Agent	Agent based	500 active EPAs -> 500 EPA licences
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 vAnalytics	

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control

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part of Cisco

# Recap

# Recap



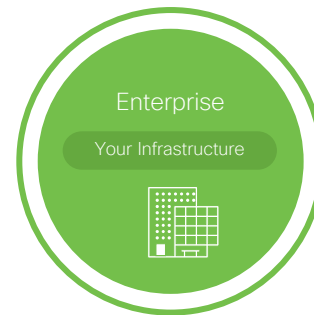
You are an online service provider. Your customers are everywhere.

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 SD-WAN, SWG or SASE.

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.

# Fill out your session surveys!



Attendees who fill out a minimum of four session surveys and the overall event survey will get **Cisco Live-branded socks** (while supplies last)!



Attendees will also earn 100 points in the **Cisco Live Challenge** for every survey completed.



**These points** help you get on the leaderboard and increase your chances of winning daily and grand prizes

# Continue your education



- Visit the Cisco Showcase for related demos
- Book your one-on-one Meet the Engineer 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](https://www.CiscoLive.com/on-demand)



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# Thank you

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Let's go

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# Cisco Live Challenge

Gamify your Cisco Live experience!  
Get points for attending this session!

## How:

- 1 Open the Cisco Events App.
- 2 Click on 'Cisco Live Challenge' in the side menu.
- 3 Click on View Your Badges at the top.
- 4 Click the + at the bottom of the screen and scan the QR code:

