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The bridge to possible

# Thousand Eyes from a Network Engineers Perspective.

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BRKXAR-2007

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# Cisco Webex App

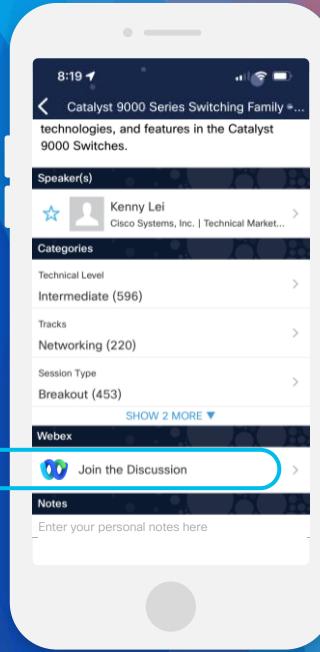
## Questions?

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”
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Webex spaces will be moderated by the speaker until June 9, 2023.



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# Agenda

- The WW(What & Why) of ThousandEyes
- ThousandEyes Agents & Dashboard
- Use cases
- Key Takeaways
- Q & A
- Appendix

# The WW(What & Why) of ThousandEyes

# Session Objective :

This Session Focuses on :

- Brief Overview of Thousand Eyes platform.
- The Use cases cover some of the challenges faced by a Network Engineer & how Thousand Eyes could have helped in those situations.

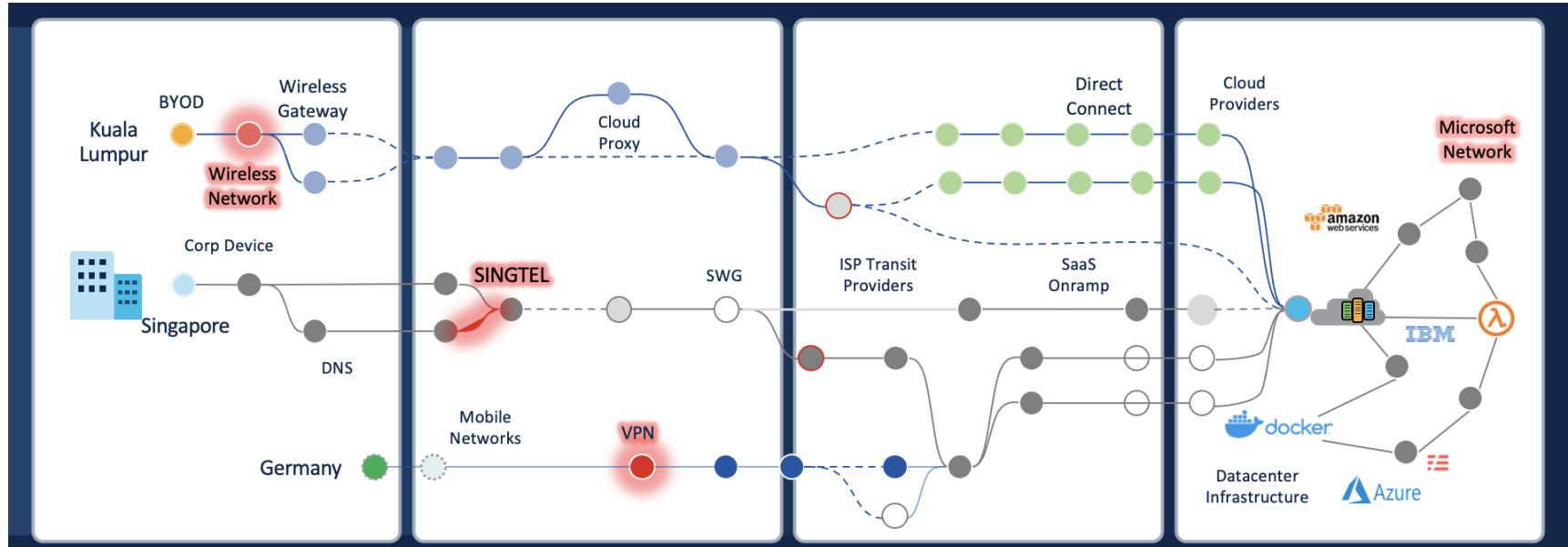
By the end, I hope everyone in this room gets a better understanding of the how we can use Thousand Eyes in our Troubleshooting approach to detect and resolve issues way faster than the traditional methods.

# Session Non-Objective :

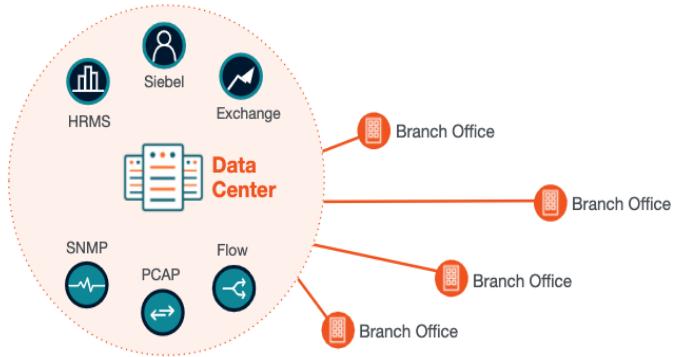
- We will not cover any ThousandEyes test configurations or deep dive on them.
- We will not focus on the Installation/Licensing of Thousand Eyes.

# What Is ThousandEyes?

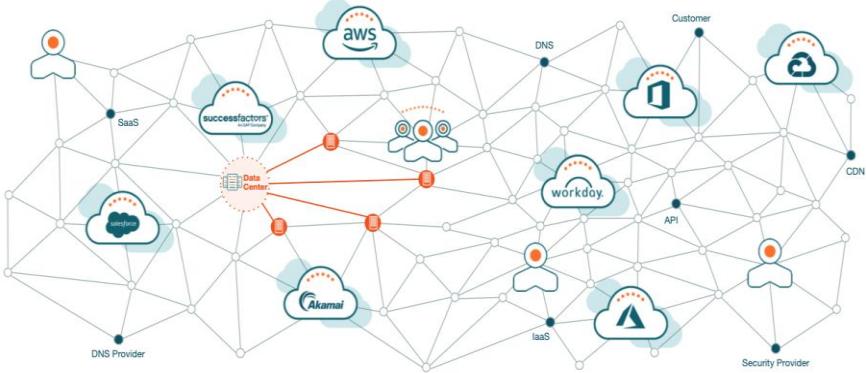
ThousandEyes allows you to visualize any network as if it was your own, quickly surface actionable insights, and collaborate and solve problems with your partners.



# Why Does It Matter



THE WAY IT WAS



THE WAY IT IS

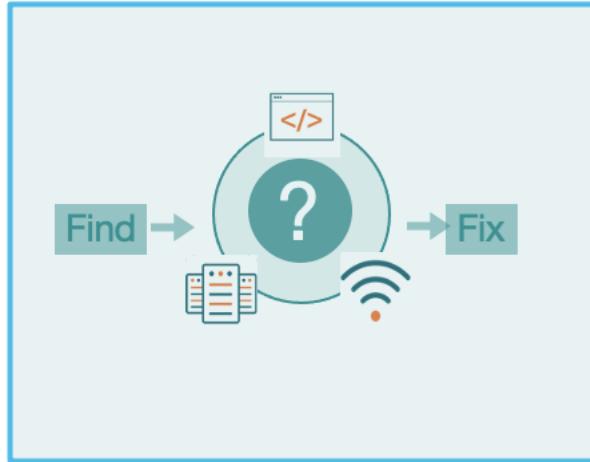
CLOUD is the new  
DataCenter

INTERNET is the  
new Network

SaaS is the new  
App Stack

# Operations Processes Change

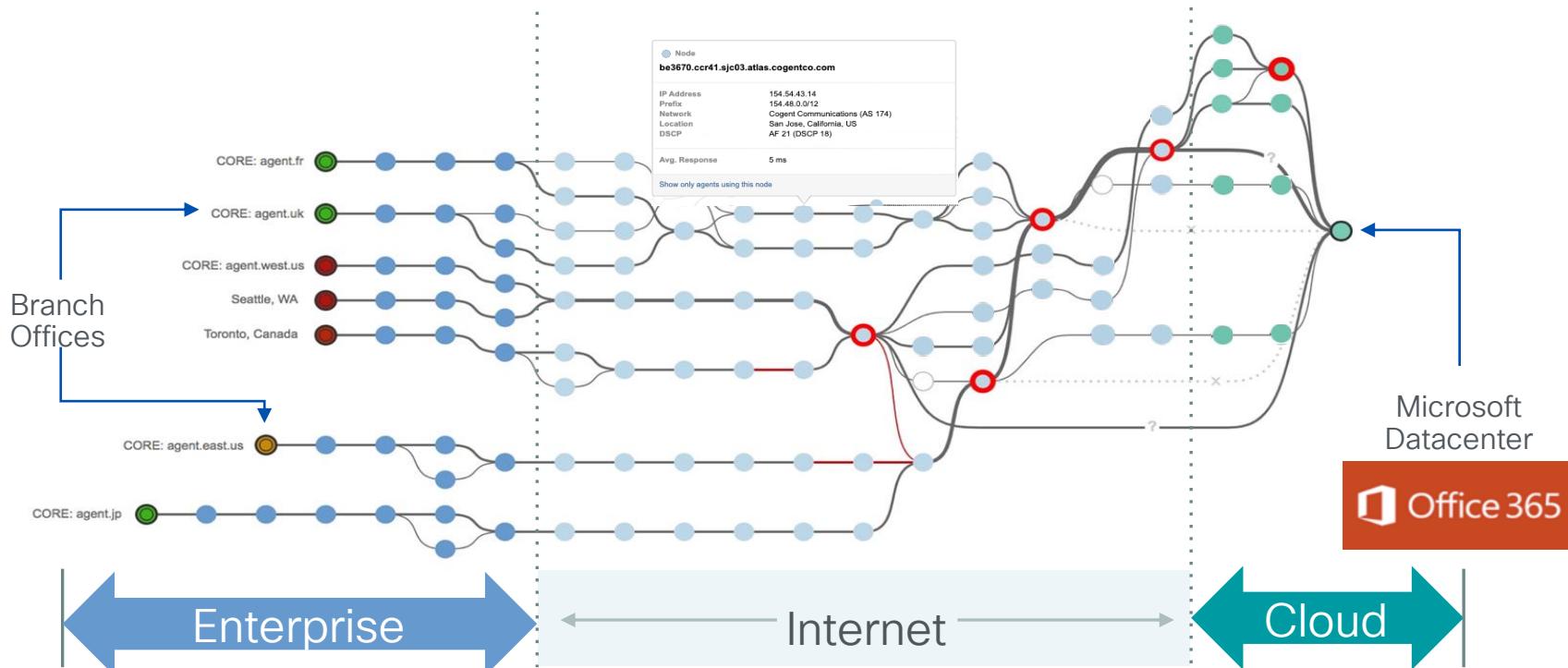
## IT Assets You Control



## IT Assets You Don't Control

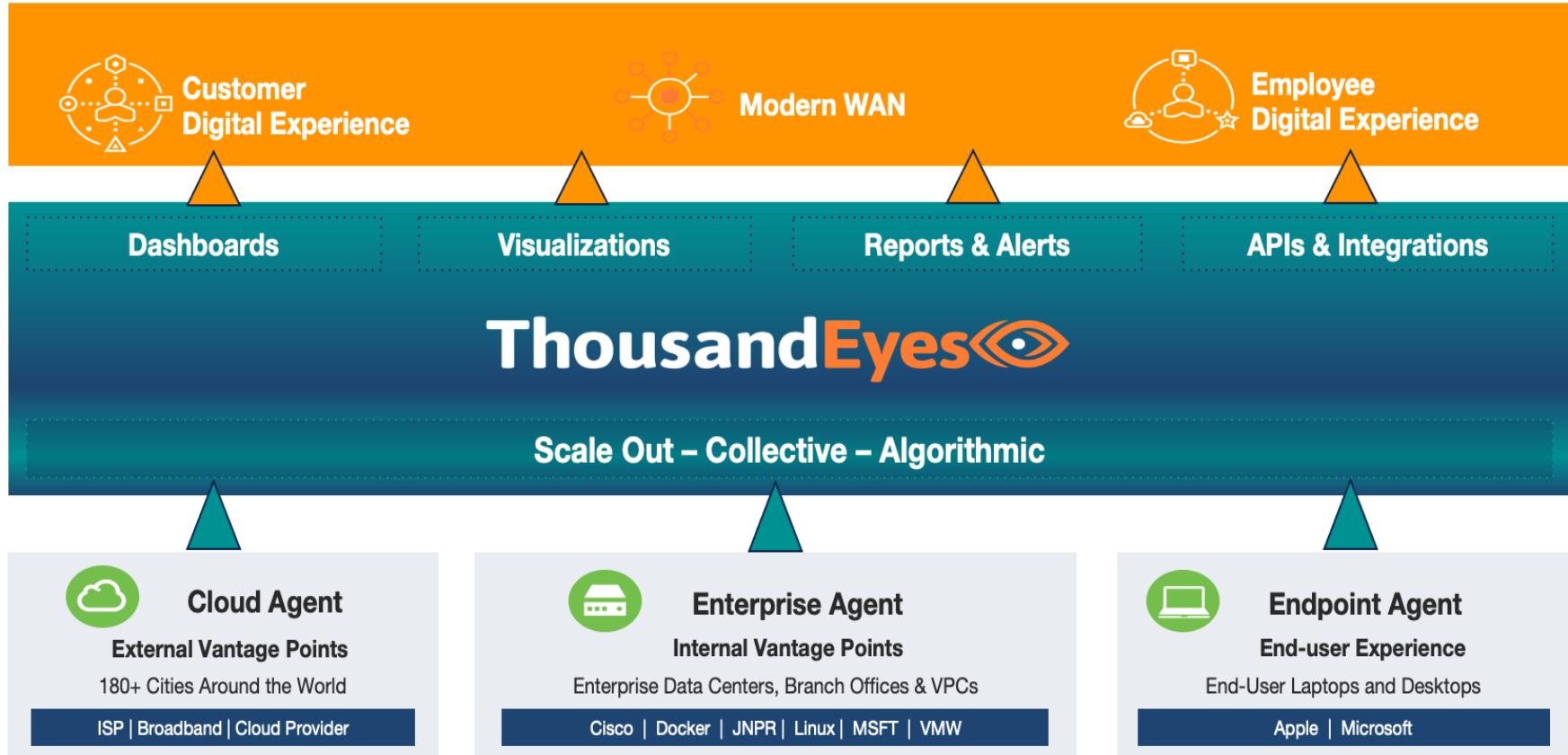


# Correlated Visibility Into ALL Networks Availability, Performance and Change



# ThousandEyes Agents & Dashboard

# The ThousandEyes Platform



# Cloud Agent

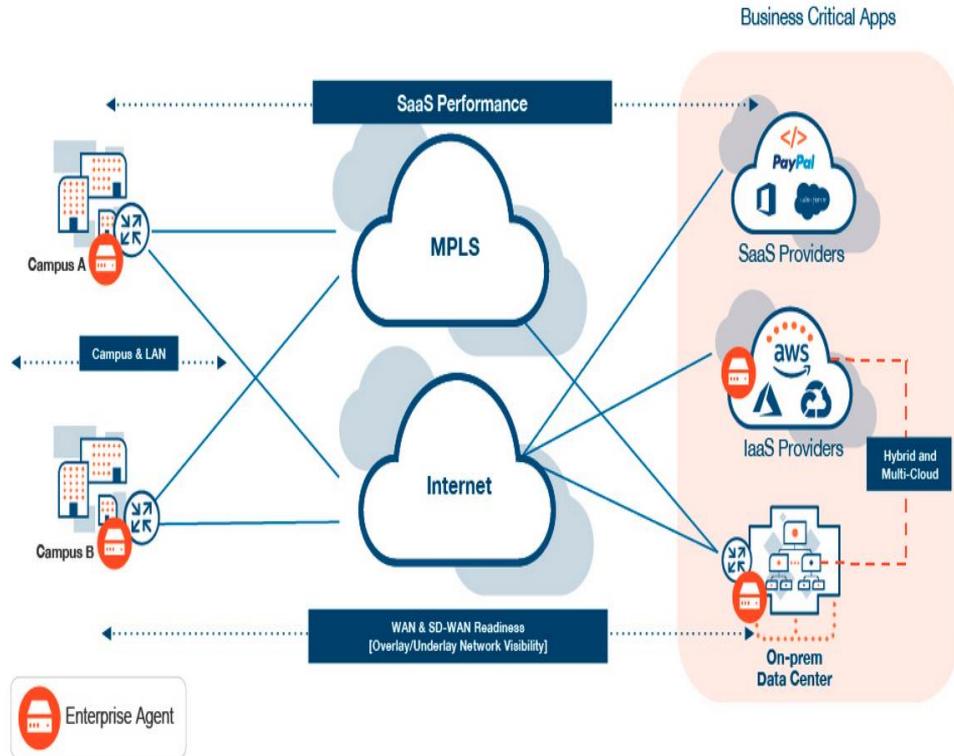
- Outside-In monitoring
- 370+ Locations
  - Tier 2 and 3 service providers, broadband, cloud
  - [www.thousandeyes.com/map](http://www.thousandeyes.com/map)
- Commonly for customer/public facing applications
- The simplest way to see Global connectivity



Cloud Agents World Map

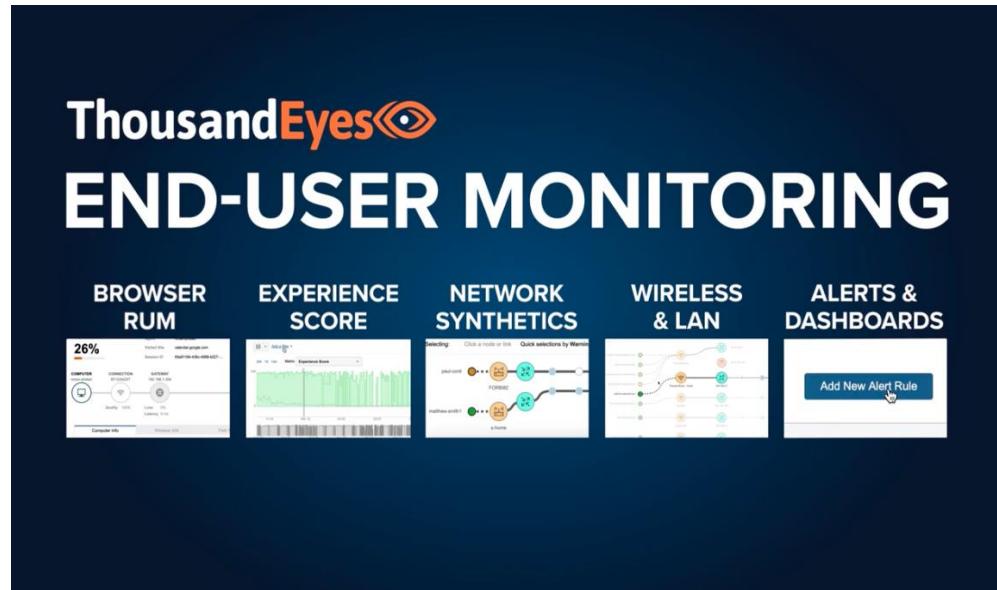
# Enterprise Agent

- Inside-Out monitoring (on-prem)
- Deployment Options
  - OVA / Physical Appliance
    - vmware
    - VirtualBox
    - Microsoft Hyper-V
  - Linux Package/NUC/rPI
    - ubuntu®
    - redhat
    - CentOS
  - Docker
  - Cisco ASR1k / ISR4k /CAT9K
- Commonly for internal applications, SaaS and Site-to-Site
- Get Visibility into all segments of your Enterprise Network.



# Endpoint Agent

- Last-mile monitoring
- Extends network and service visibility in a way that is agnostic to the location of the user
- Deployment Options
  - Operating Systems
    - Windows 7 / 8/ 8.1 / 10
    - Mac OS X 10.9 / 10.10 / 10.11
  - Browsers
    - Google Chrome 41+
    - Internet Explorer 11+
- Gain Visibility from any Employee to any Application over the network



# Dashboard

The Dashboard page is the starting point when we log in to the ThousandEyes Platform



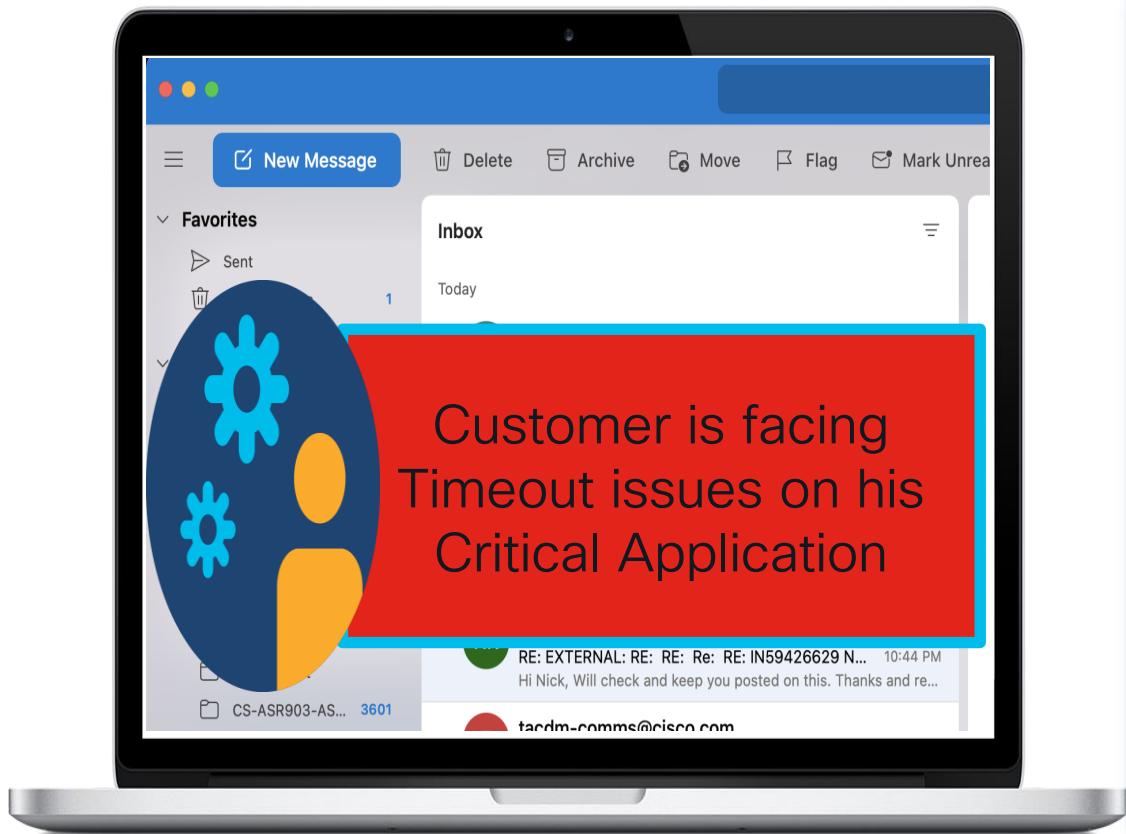
# Dashboard

Quick and easy customizable options provided to build your own Dashboard.



# Use case #1

Application Issues  
“Let’s Blame the Network Engineer”



## Data Gathering :

- Application url – <https://login.microsoftonline.com>
- Criticality – Severe Impact
- Users Affected – All Users
- Site Location – Cincinnati Office
- Any recent changes in the Network – No
- Any other application in same site.. – No
- Any other Site having the same issue – No
- Engage with one of the User :
  - Exact Issue – Operation timed out !!
  - Past Performance – Not Sure
  - Issue Start time – ~10:40 AM

## Initial Triage :

- Edge Device on site is Healthy.
- No Drops or anomalies noticed on the device.
- Need to involve ISP
- Need to Involve Application Team(Microsoft)

## Customer Sentiment :



- Customer getting Impatient
- Lot of time Elapsed but no clue on the Root Cause
- Involving ISP or Application Team will cause more delays



Mr. ISP

## Initial Triage Report :

- No Drops reported on the PE devices
- No Global outages
- No path changes observed
- Issue must be beyond the ISP boundary
  - Customer network
  - Application

## Customer Sentiments :

- Bad to Worse
- Loses trust in Mr. U
- Demands further escalation to Accounts/Sales
- Won't Involve Application team without further escalation

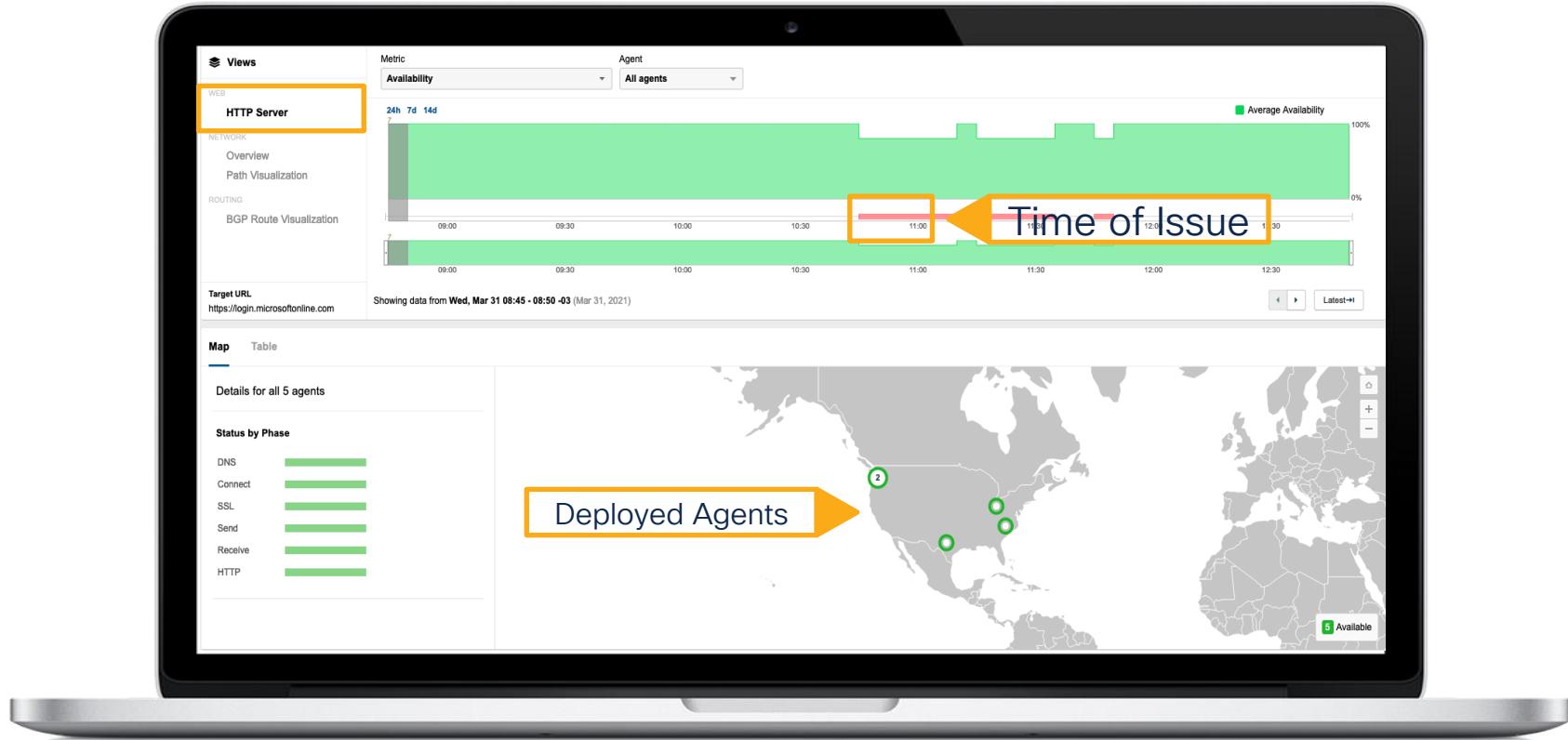
*"Blame The Network Engineer"*

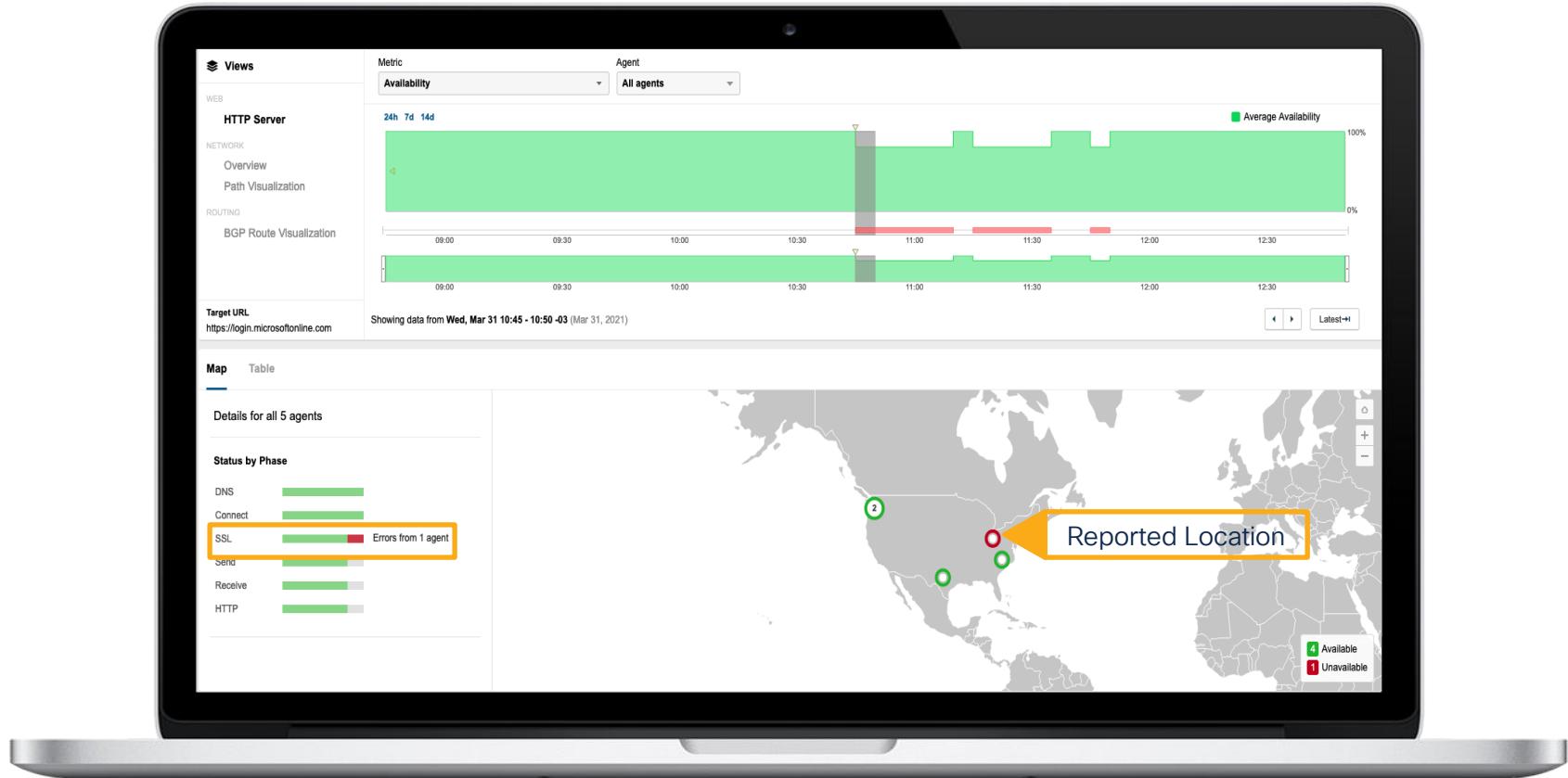


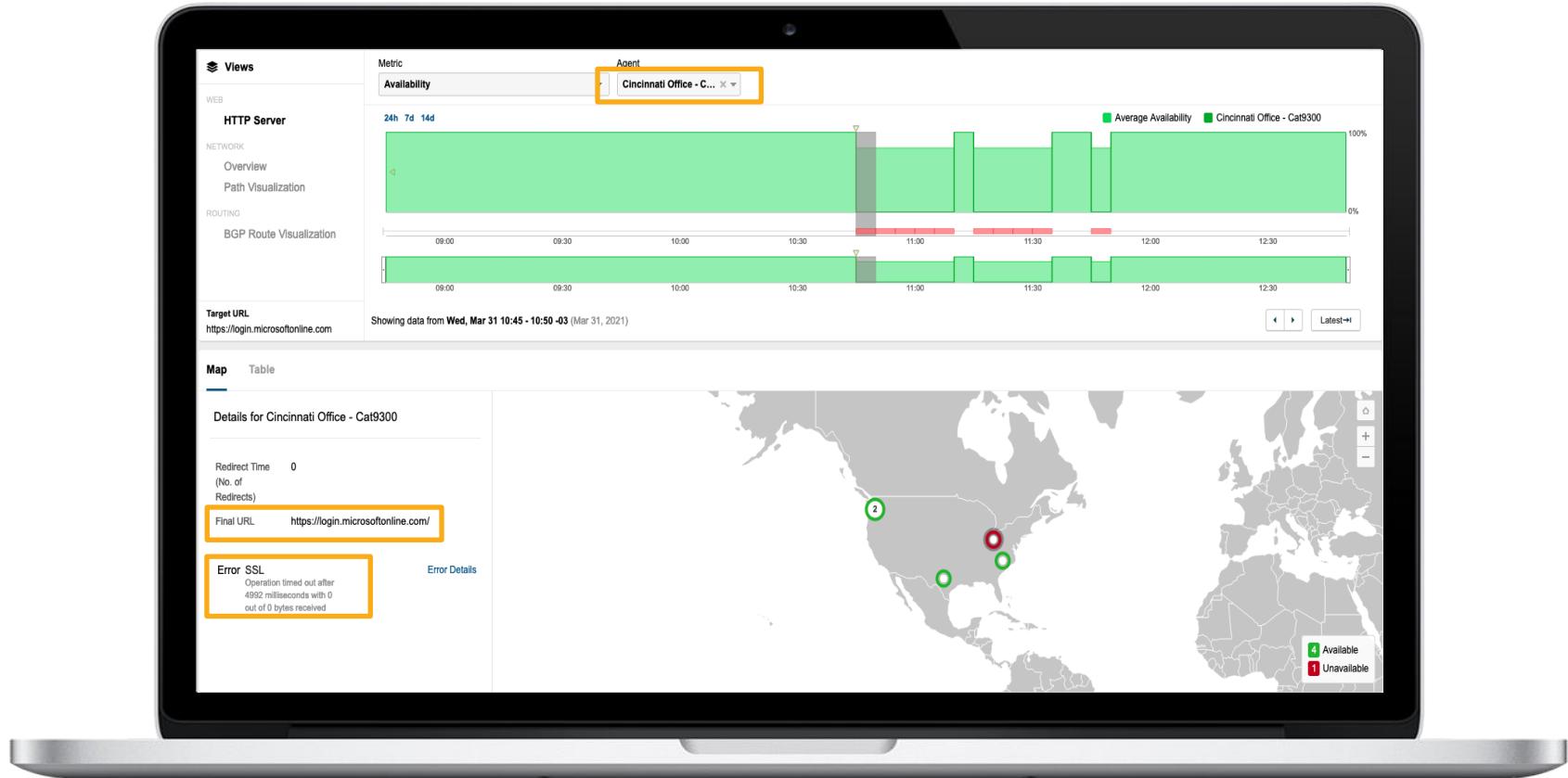
Courtesy : Google Images

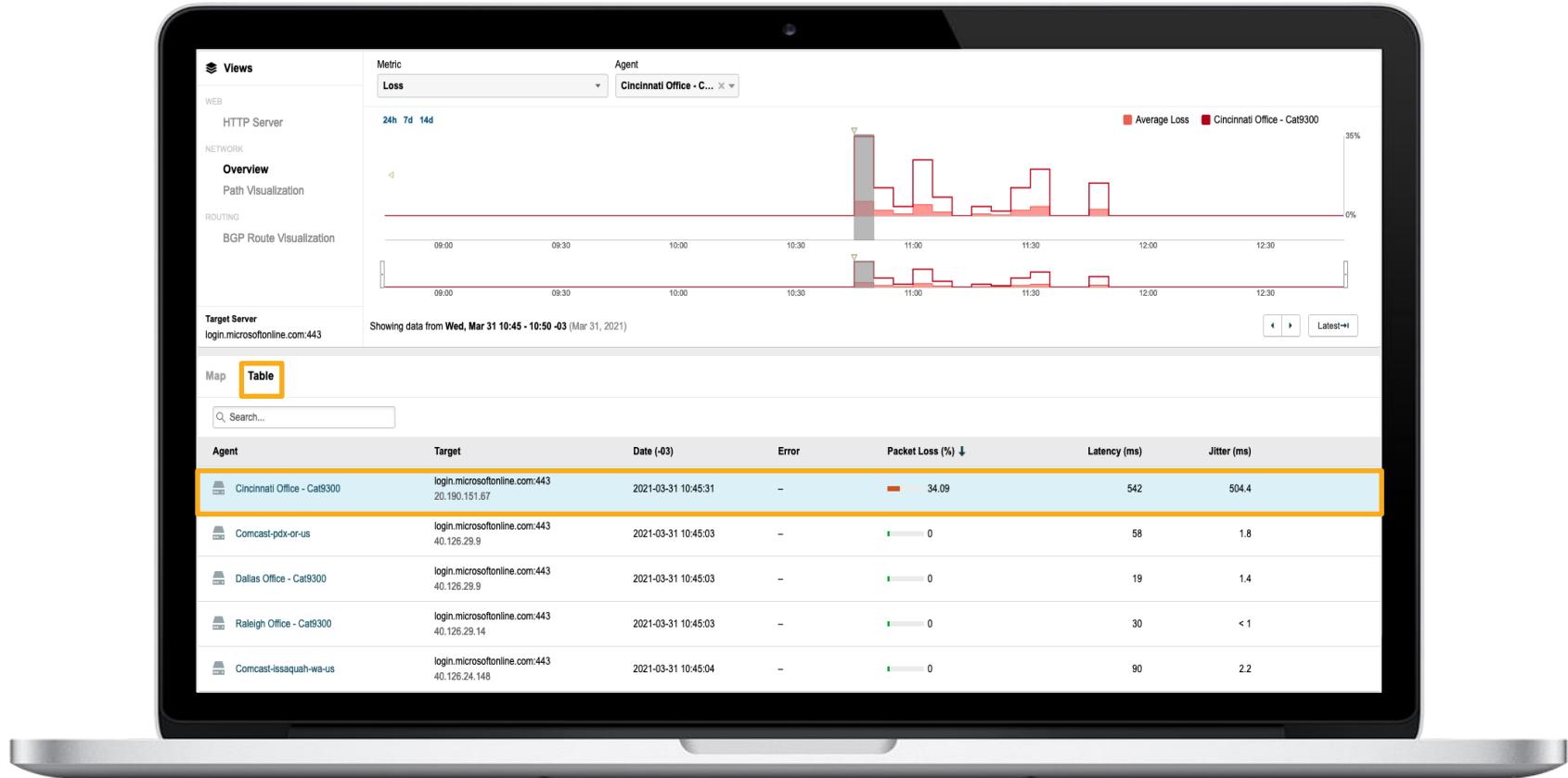


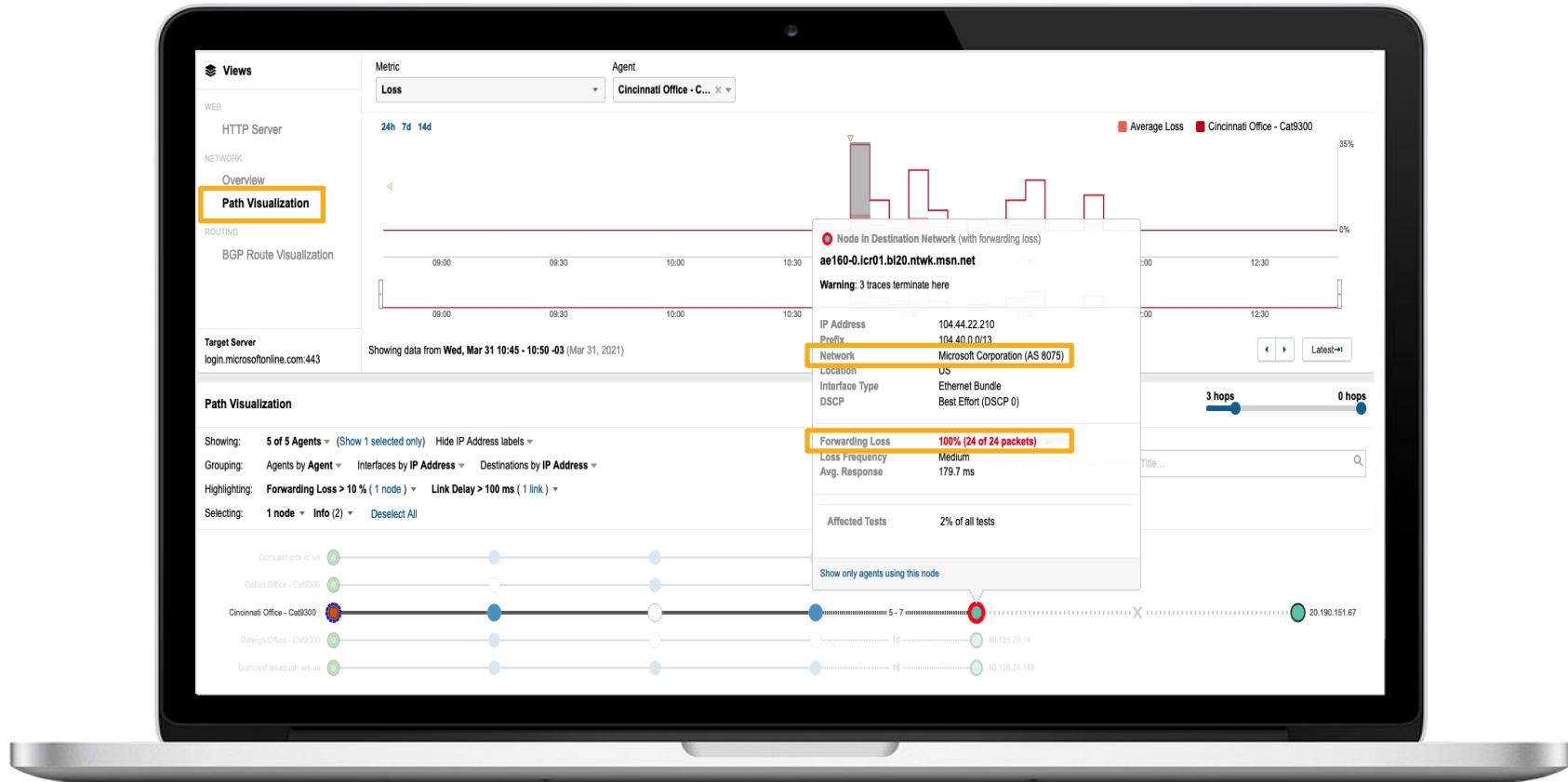
# ThousandEyes Changes the Game !!!











# Use Case #2

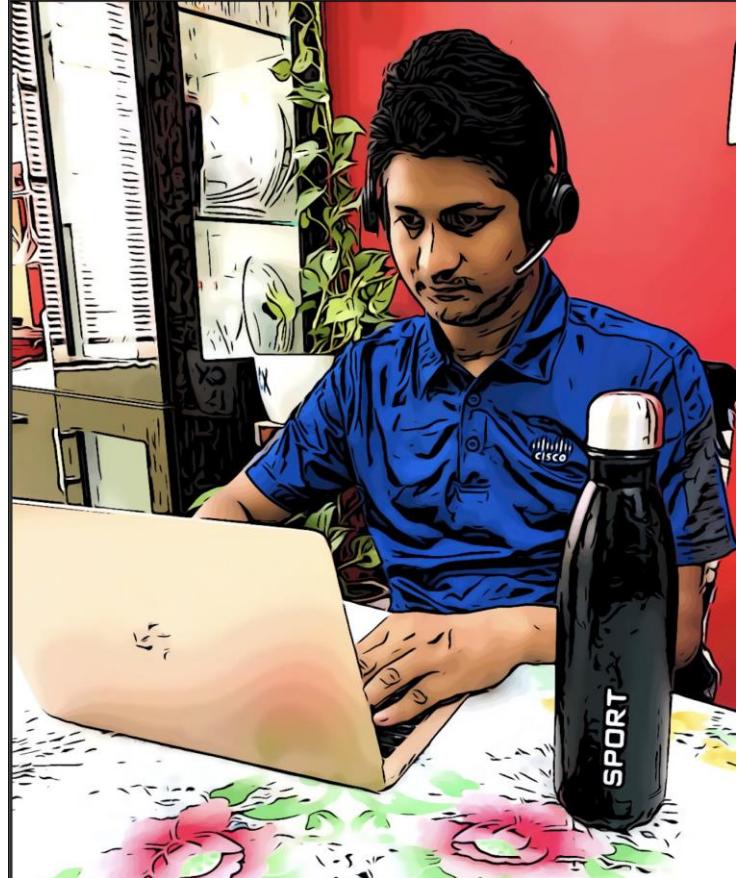
Asymmetric Routing

“Can we be a little Proactive !!”

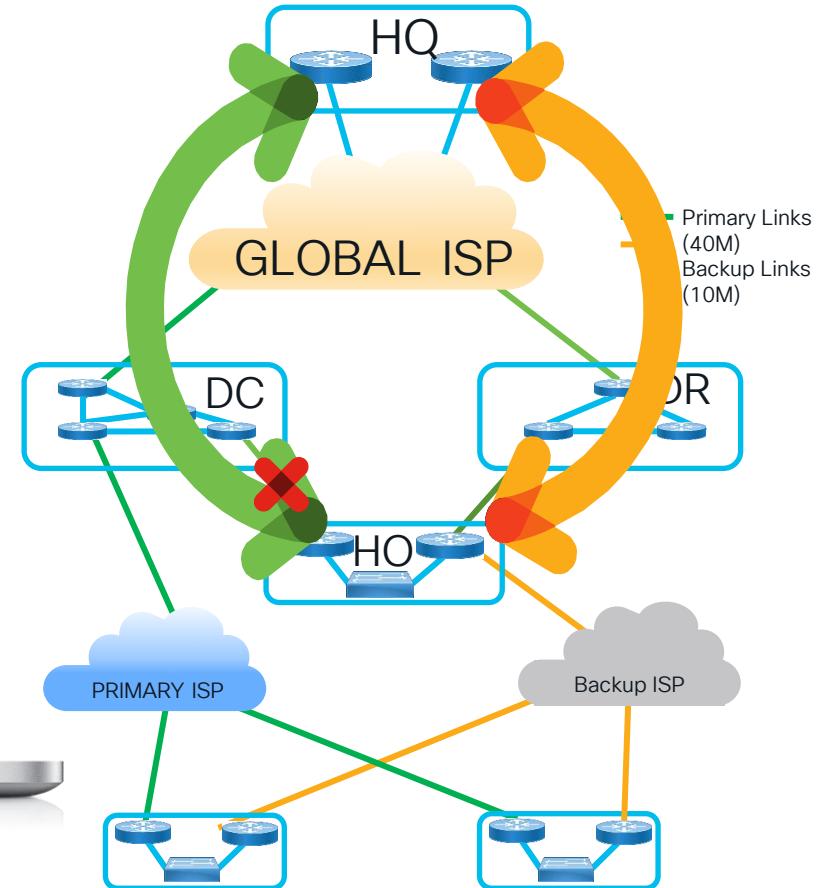
Mr. U – Working on a weekend

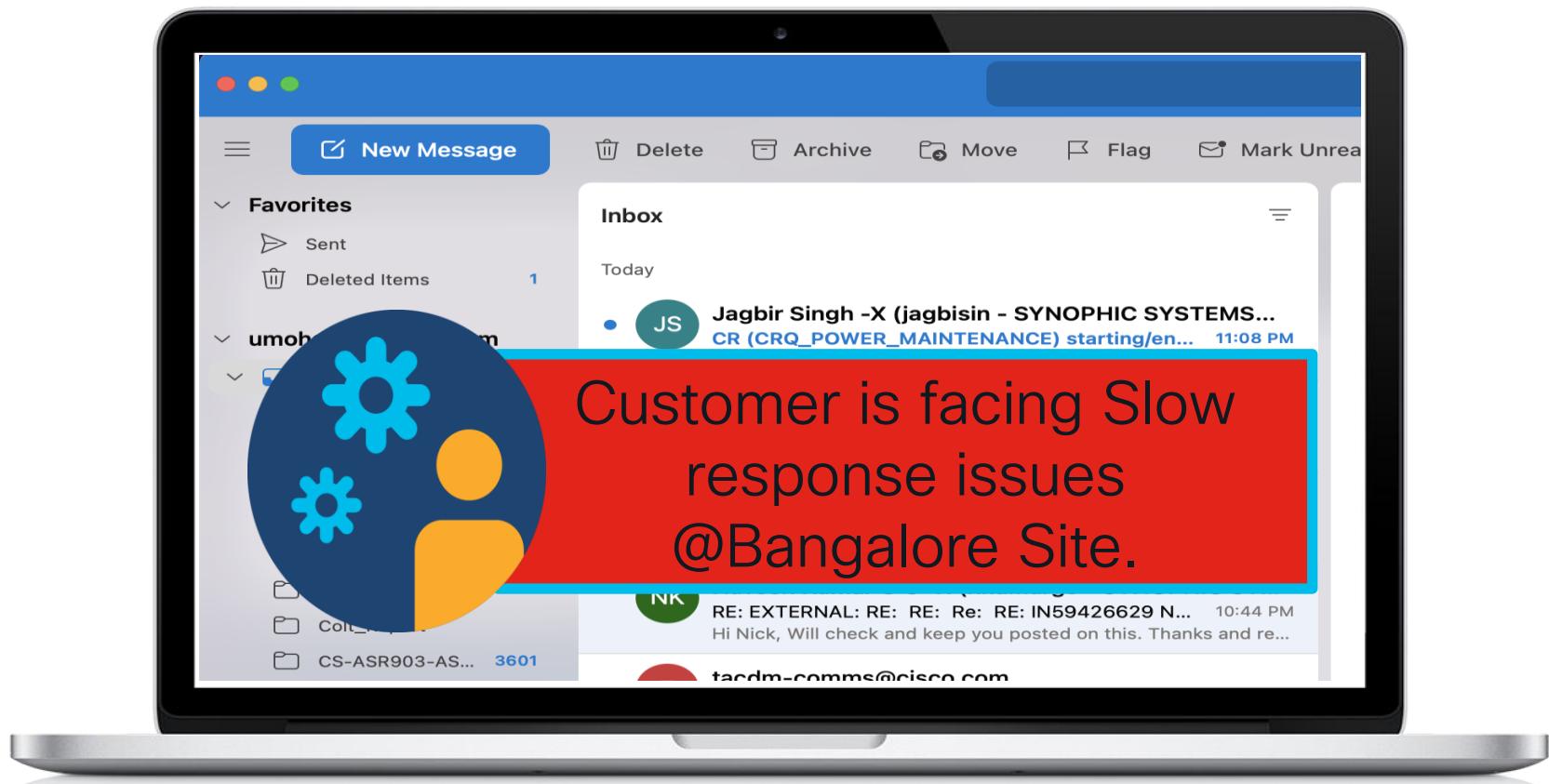
Proactive alert – EIGRP Down  
between DC & Head Office site  
(Bangalore)

Root Cause – ISP link is down.

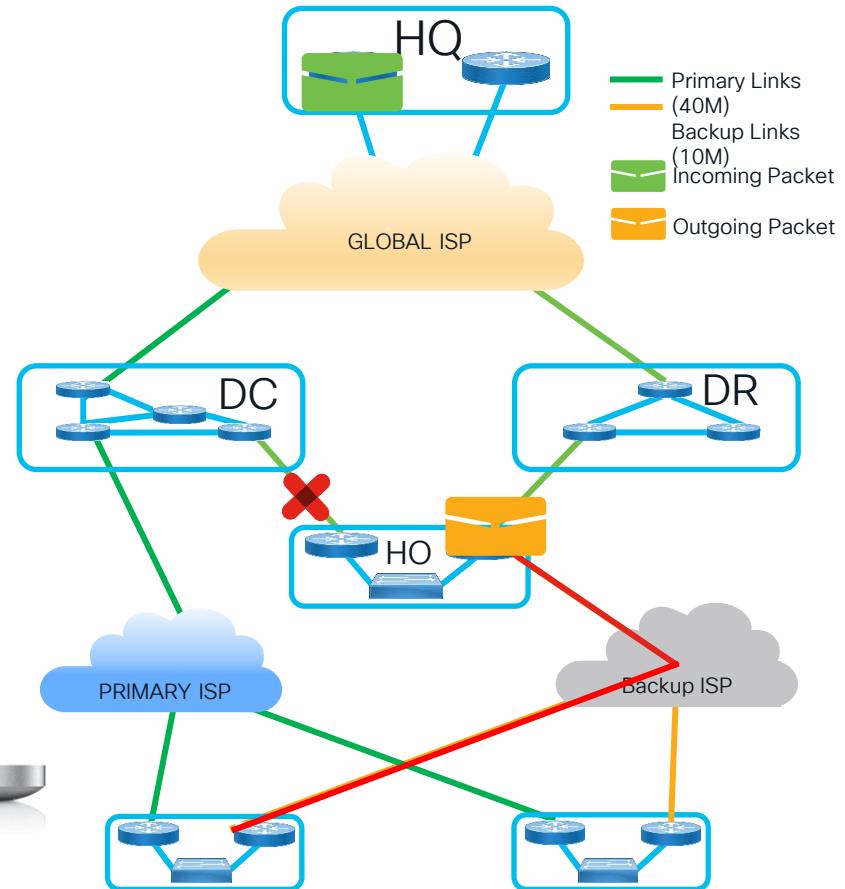


- HO Site reachable.
- Branch sites reachable.
- Situational Awareness sent to customer.





- Initial Triage :
  - Back up ISP link showing Drops
- Root Cause : Asymmetric routing
  - Missing Distribute list on HO Site
- Urgent Change Request raised to fix.





Courtesy : Google Images



Time spent since the Proactive alert was seen



Customer losing revenue

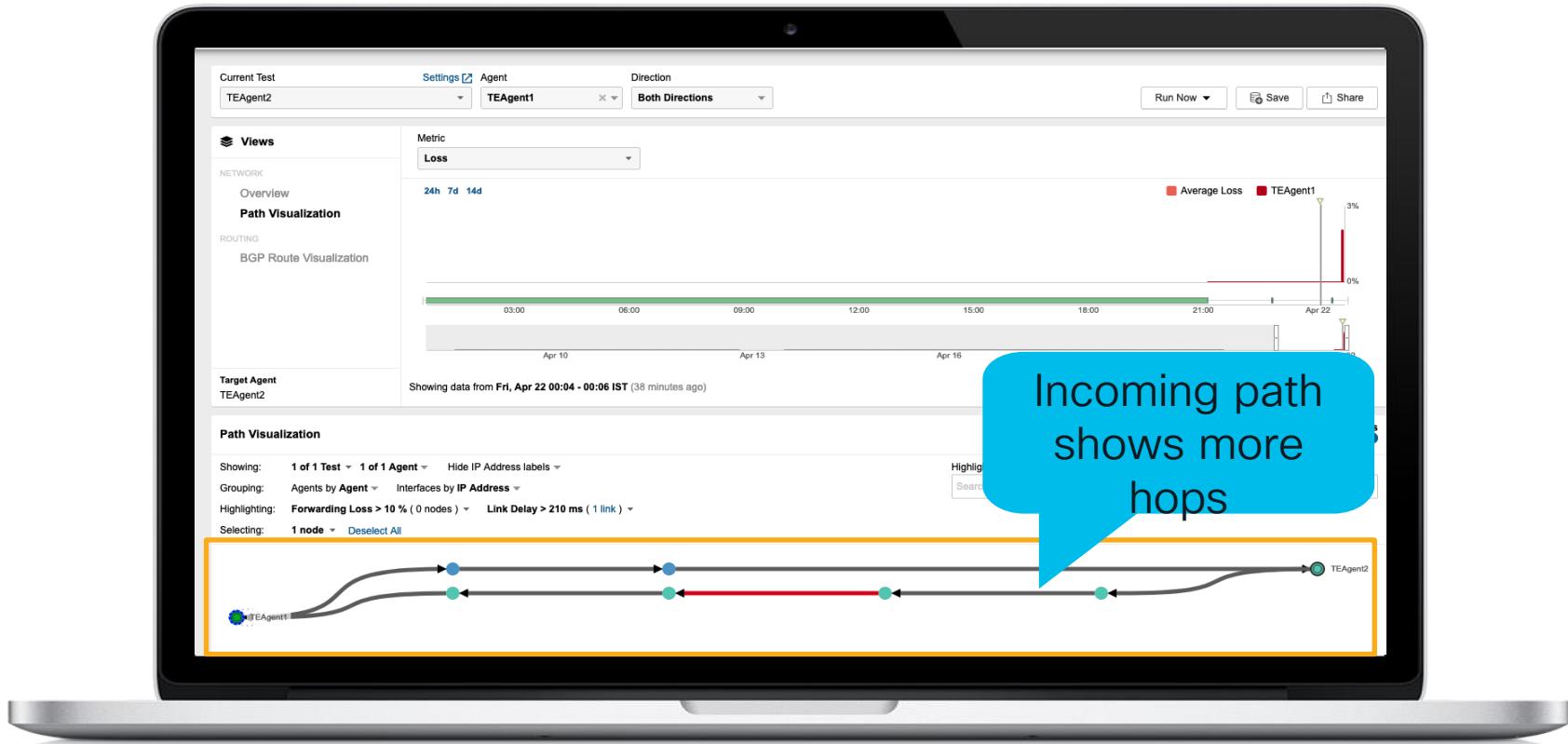


Waiting for Issue to Occur

*“Can we be a little Proactive”*

# ThousandEyes Changes the Game !!!

The screenshot displays the ThousandEyes Cloud & Enterprise Agents interface. The top navigation bar shows 'Cloud & Enterprise Agents > Views'. The left sidebar includes sections for 'Cloud & Enterprise Agents' (Views, Test Settings, Agent Settings, BGP Monitors), 'Endpoint Agents', 'Devices', 'Internet Insights', 'Dashboards', 'Alerts', 'Reports', 'Sharing', and 'Account Settings'. The main content area is titled 'Cloud & Enterprise Agents > Views'. It shows a 'Current Test' dropdown set to 'TEAgent2', an 'Agent' dropdown set to 'TEAgent1', and a 'Direction' dropdown set to 'Both Directions'. A search bar and a 'Selected Tests' section are also present. The 'Selected Tests' section highlights 'TEAgent2 Agent To Agent'. Below this, there are sections for 'DNS Server' (2 tests: Baidu Recursive Resolver, eFeedLink Recursive Resolver) and 'Agents' (All Agents). A timeline chart on the right shows 'Average Loss' and 'TEAgent1' data from April 16 to April 22. A world map at the bottom shows the location of the 'Target Agent' in India.





# Use Case #3

Chronic Carrier Issues  
“Escalate With Proof”

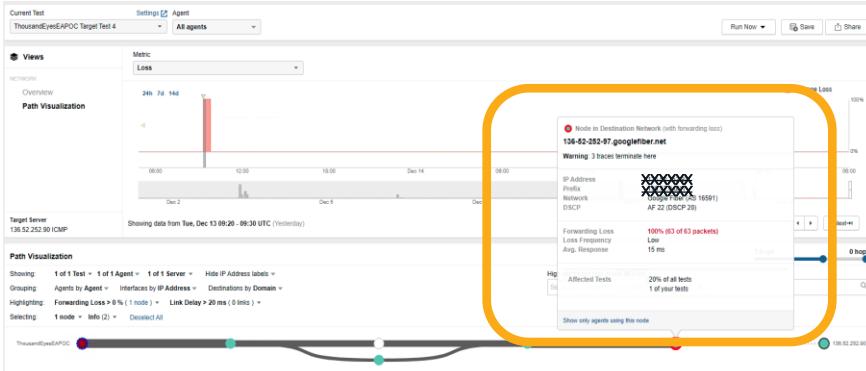
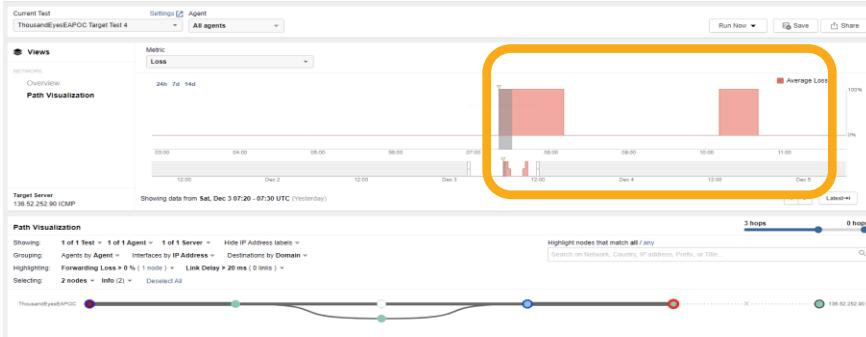
# Chronic Issues :



Courtesy : Google Images

- Frequent Packet loss issues seen
- Short lived outage of 10-20 mins Intermittently.
- No Record of Past performance of the link.
- Only proof was Protocol flaps seen on the device logs.
- No concrete evidence if it was ISP or edge device related issue.

## Escalation to Carrier:



- Gather data & Escalate to proper Stakeholders.
- Test shows the exact time when the issue occurred.
- Convincing ISP was easier with proof.

# Permanent Fix

- ISP changed the path in their NLD(National Long Distance) network.
- More stabler circuit and Happy Customer ☺

# Use case #4

Major Outage  
“Correlation becomes easy”

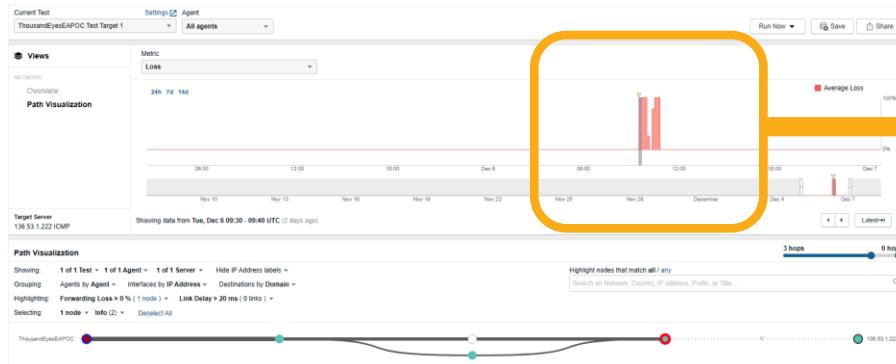
# Major Outage within ISP :



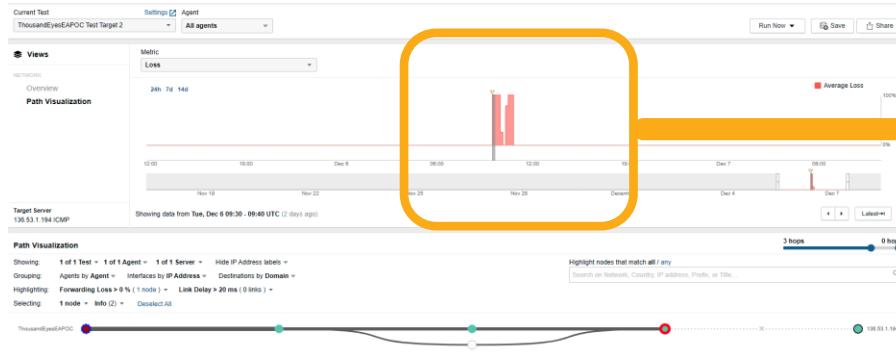
Courtesy : Google Images

- Worst Nightmare for Network Engineers.
- So many alerts and so less time !!
- How do I correlate ?
- Issues at site or ISP related ?

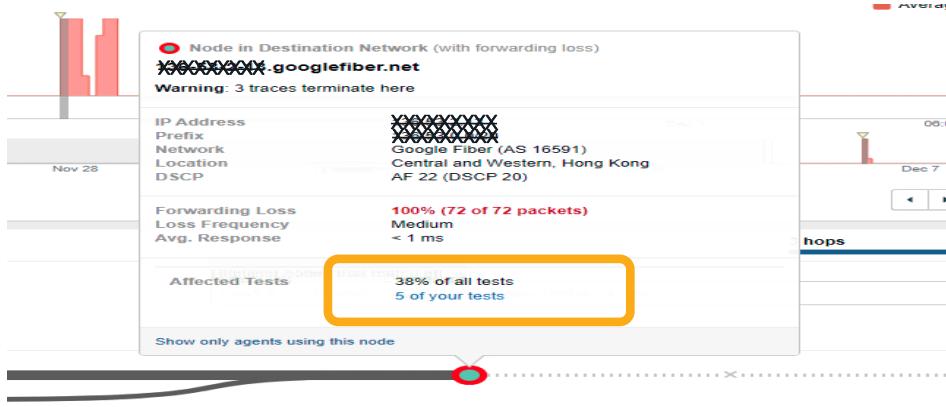
# Correlation made Easy :



Target Test 1 showing 100% packet loss @0930 UTC



Target Test 2 showing 100% packet loss @0930 UTC



Affected Tests using **xxxxxxxxxx**

Test Name	Test Type	Account Group
HY2 - BG7 - Sify -ICMP- <b>xxxxxxxxxx</b>	Agent to Server	Net-Int-Dev
HY2-BG7-Sify- <b>xxxxxxxxxx</b>	Agent to Server	Net-Int-Dev
ThousandEyesEAPOC Test Target 2	Agent to Server	Net-Int-Dev
HY2-K1-Sify- <b>xxxxxxxxxx</b>	Agent to Server	Net-Int-Dev
HY2 - K1 - Sify -ICMP- <b>xxxxxxxxxx</b>	Agent to Server	Net-Int-Dev

- Single click shows the number of Tests affected.
- Automatic Correlation.
- Easy to narrow down the issue towards ISP from.

## Quick Action & RCA

- Issue reported to ISP & Escalated.
- RCA : The link aggregation (LAG) connectivity between provider edge Router and Metro aggregation device was flapping.
- Traffic re-routed through alternate LAG



Courtesy : Google Images



Rapid Detection, Isolation & Response



Giving Customer the Global view



Even a small glitch on network is accounted.



Hit the Bullseye !!

# Key Takeaways

# Key Takeaways

- What is ThousandEyes ?
  - ThousandEyes allows you to visualize any network as if it was your own, helps to build an approach and solve network issues with ease.
- Why ThousandEyes ?
  - Correlated Visibility Into ALL Networks, Availability, Performance and Change.
- ThousandEyes Platform :
  - Cloud Agent
  - Enterprise Agent
  - End-Point Agent
- Dashboard :
  - Customizable Widgets to build your own dashboard.
- Use Cases :
  - Let's Blame the Network Engineer
  - Can we be a little Proactive
  - Escalate with Proof
  - Correlation becomes Easy



# Q & A

# Fill out your session surveys!



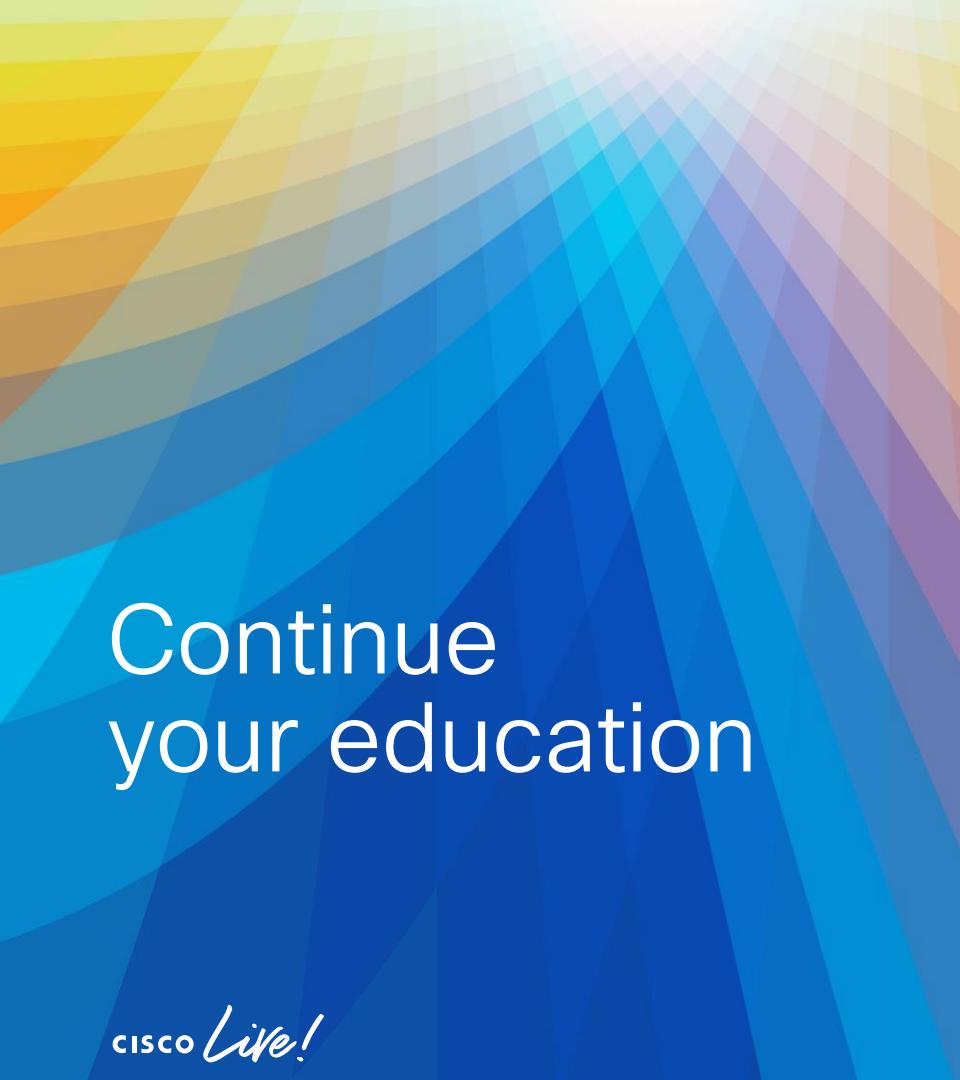
Attendees who fill out a minimum of four session surveys and the overall event survey will get **Cisco Live-branded socks** (while supplies last)!



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



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- 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](http://www.CiscoLive.com/on-demand)



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# Thank you

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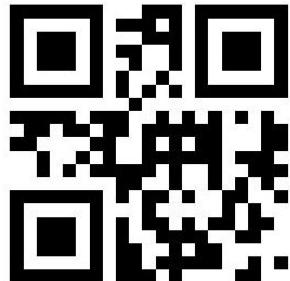
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# Cisco Live Challenge

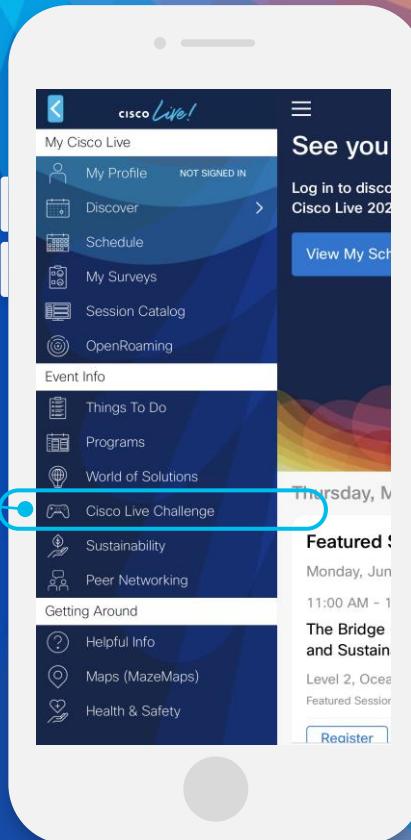
Gamify your Cisco Live experience!  
Get points for attending this session!

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:



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