Learnings Behind the Biggest Network Outages

Using ThousandEyes insights to improve IT resilience

CISCO Live !

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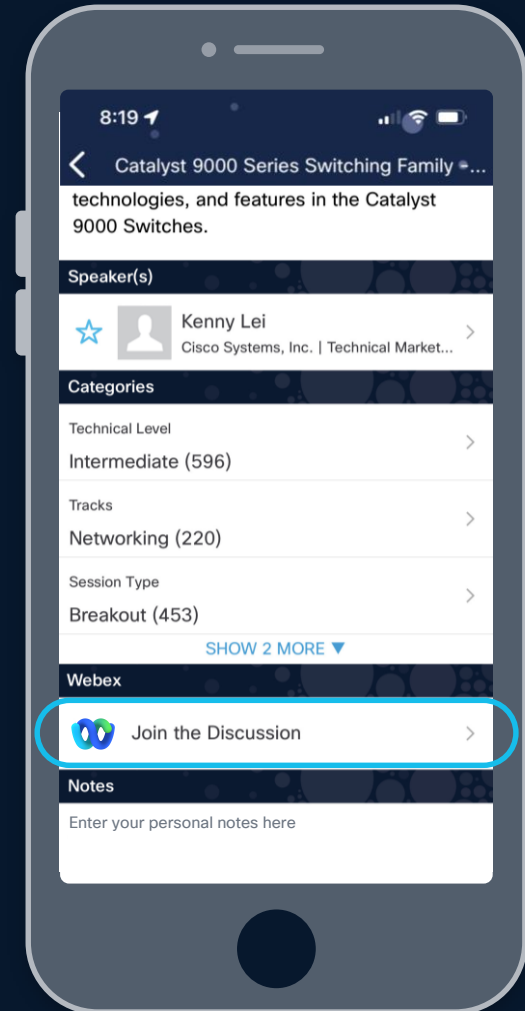
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About Your Speaker

Mike Hicks

Principal Solution Analyst

Mike Hicks is a recognized expert in network and application performance, with more than 30 years of industry experience supporting large, complex networks and working closely with infrastructure vendors on application profiling and management. He is the author of "Managing Distributed Applications: Troubleshooting in a Heterogeneous Environment" (Prentice Hall 2000) and "Optimising Applications on Cisco Networks" (Cisco Press 2004).

ThousandEyes Internet Intelligence
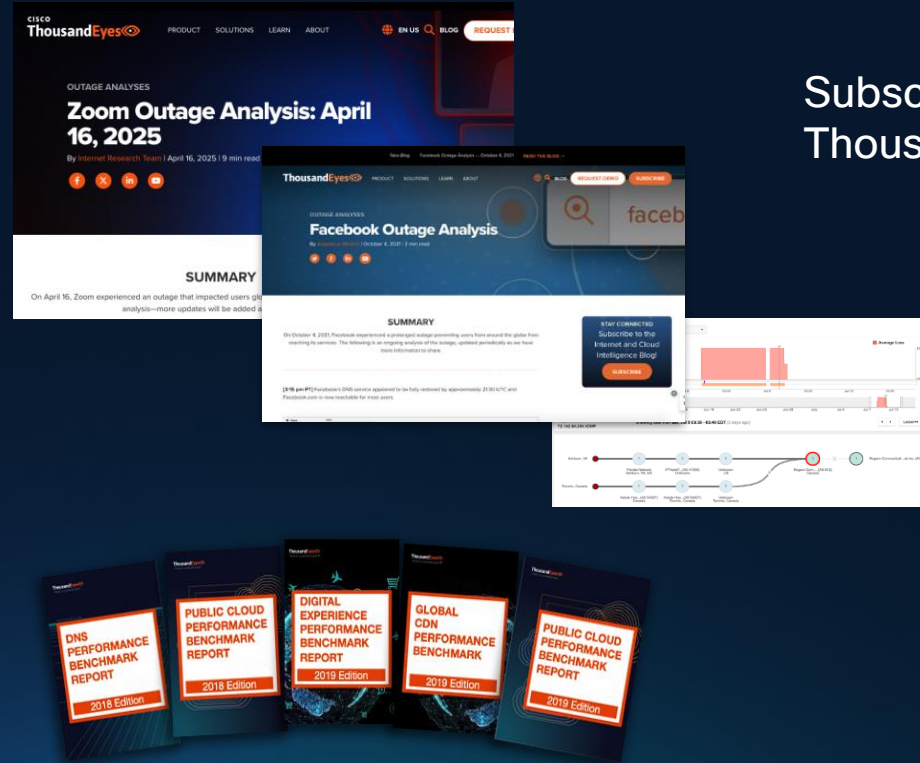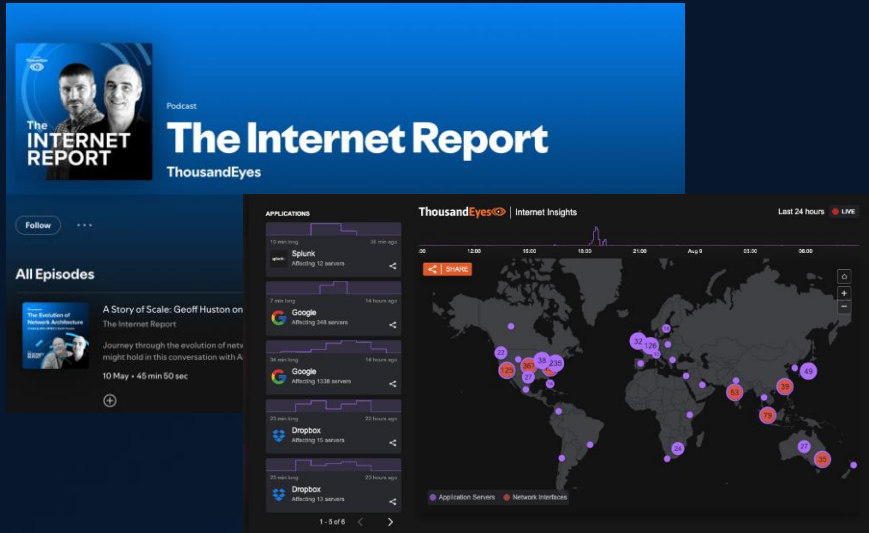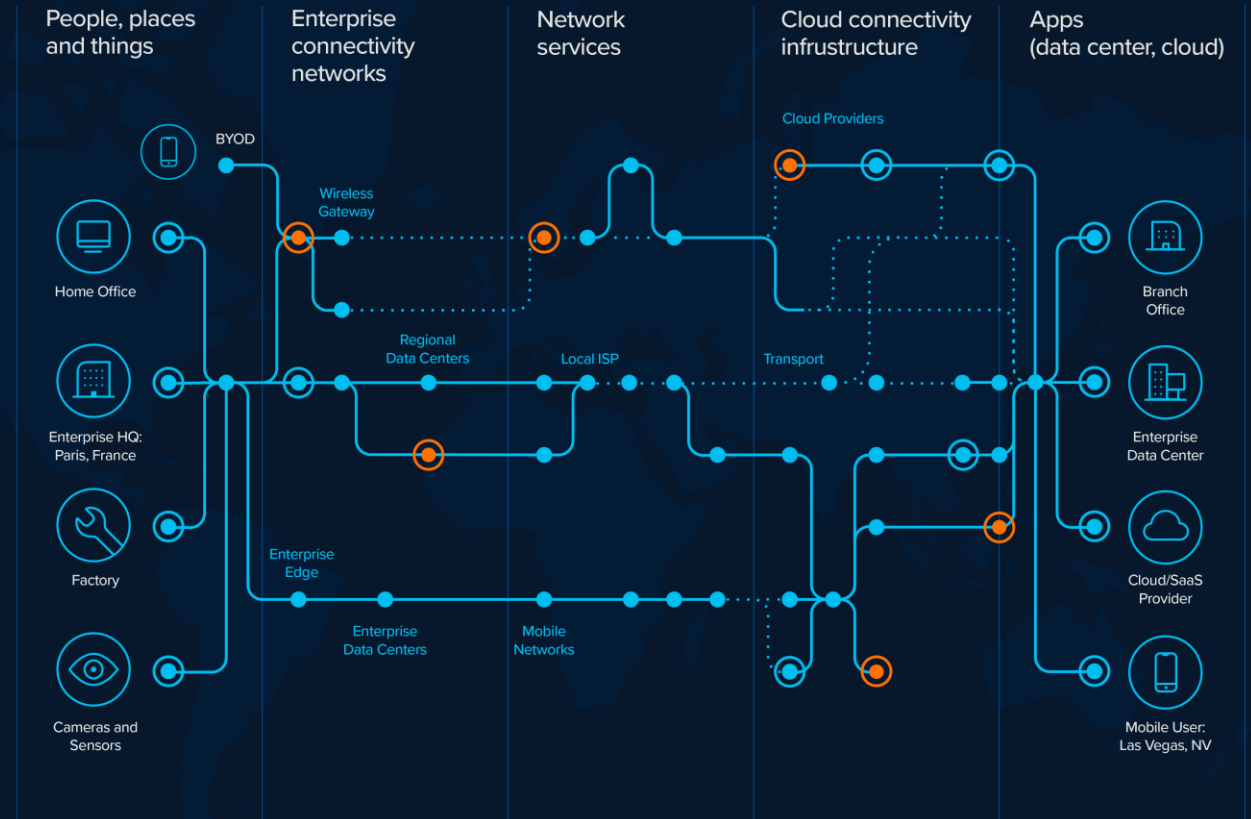

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Agenda

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The Challenge

End-to-end visibility is essential to IT resilience

Signals need to be considered in context

API Performance · Network Performance · Infrastructure Performance · Application Performance · Cloud Performance · Service Provider Performance · System Performance · 3 sec
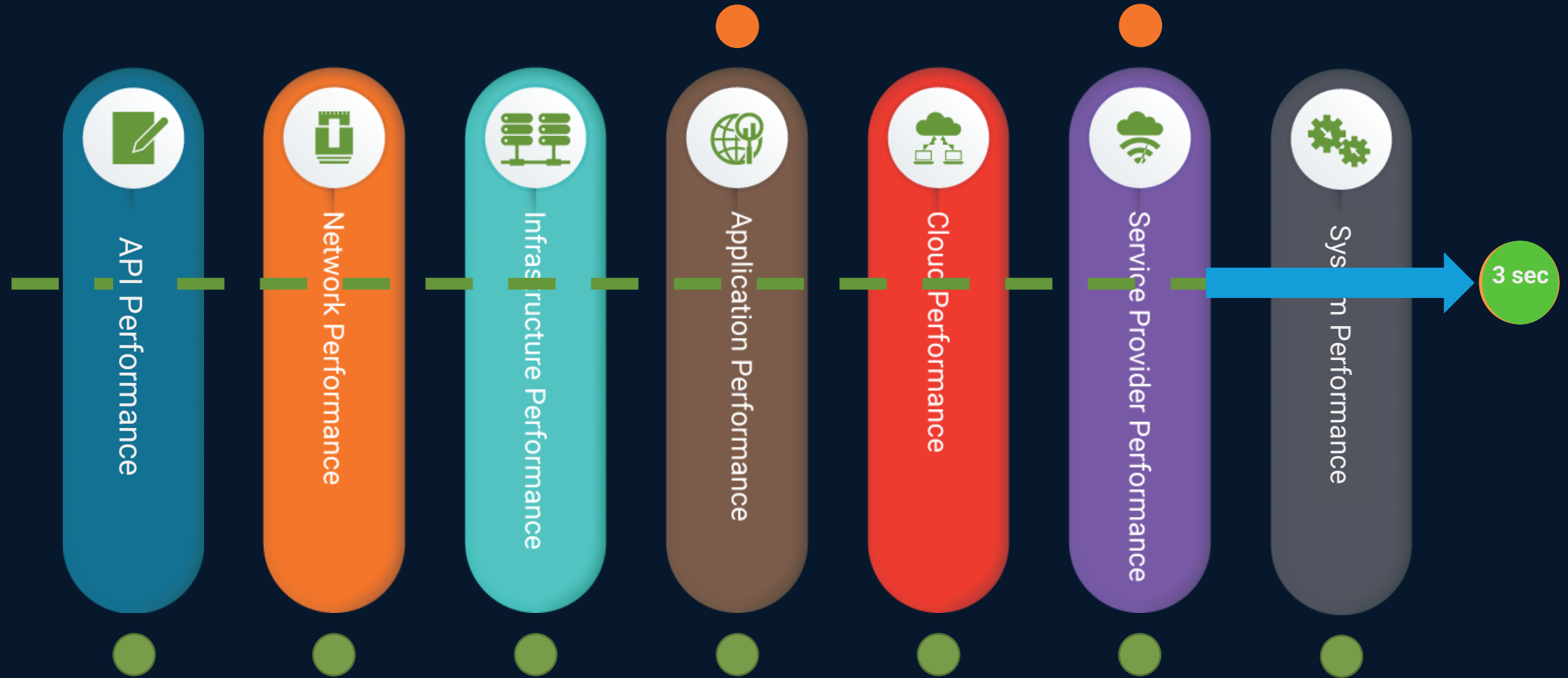
Five insights to improve IT resilience

- Prevention

- Preparation

- Detection and Diagnosis

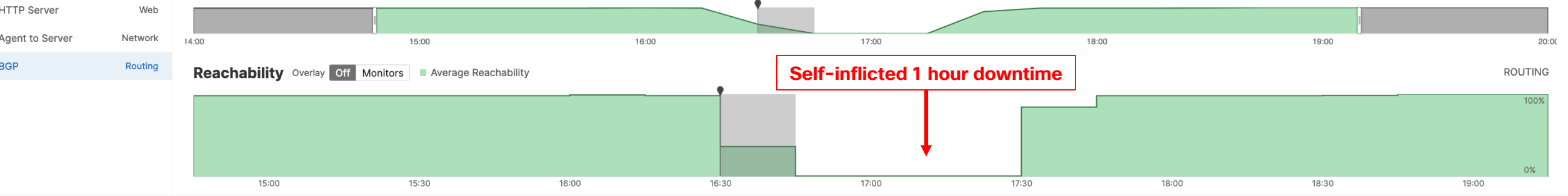- Remediation

- Optimization

Prevention

Insight 1: Resilience is a daily practice

Typical org: Alert-driven, break/fix approach to monitoring and assurance

Best practice org:
End-to-end visibility is embedded into day-to-day operational workflows

People Places and Things

Enterprise Connectivity Networks

Network Services

Cloud Connectivity Infrustructure

Apps, Data Center, Cloud

HTTP Server — Web
Agent to Server — Network
BGP — Routing

14:00   15:00   16:00   17:00   18:00   19:00   20:00

Reachability   Overlay   Off   Monitors   ▪ Average Reachability   ROUTING

Self-inflicted 1 hour downtime

100%

0%

15:00   15:30   16:00   16:30   17:00   17:30   18:00   18:30   19:00

Show   Monitor: **England-46 - NTT America, Inc. (AS 2...** +2 ✕   Monitor Location: **All** ▾   Network: **All** ▾   Monitor Network: **All** ▾   Paths active for more than: **0s** ▾

1 hop   5 hops
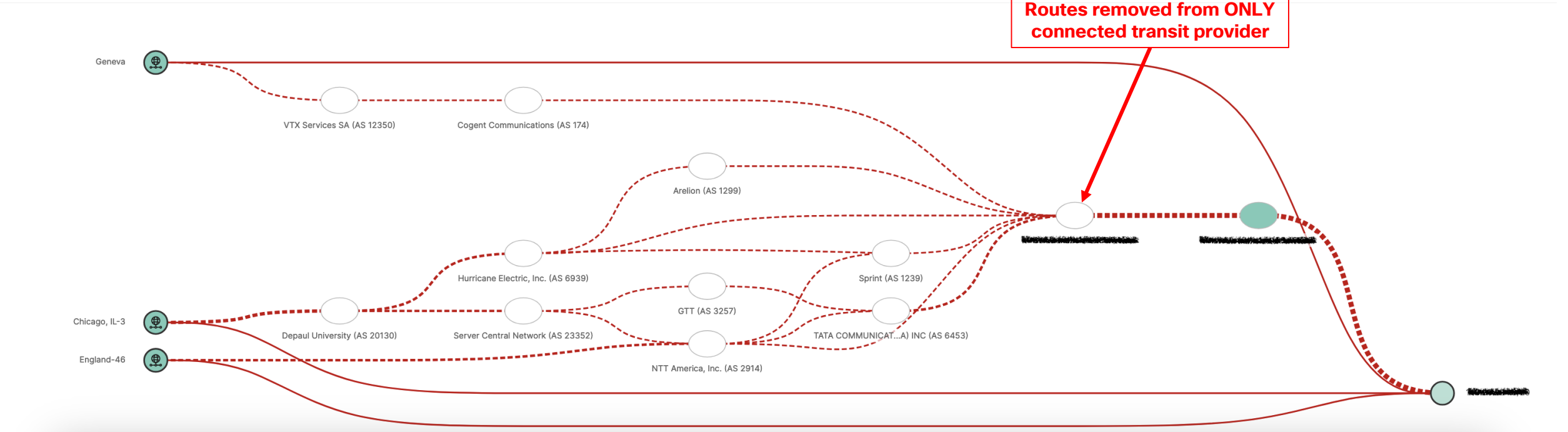
Group   Monitors by Monitor ▾

Highlight   All ▾   Search Network, Country, IP Address, Prefix or Title   0 matches

Select   Click a node or link   Warning (2) ▾   ↺ Undo (9)   Reset to Default

Routes removed from ONLY connected transit provider

Geneva

VTX Services SA (AS 12350)   Cogent Communications (AS 174)

Arelion (AS 1299)

Hurricane Electric, Inc. (AS 6939)

Sprint (AS 1239)

Chicago, IL-3

Depaul University (AS 20130)   Server Central Network (AS 23352)

GTT (AS 3257)

TATA COMMUNICAT...A) INC (AS 6453)

England-46

NTT America, Inc. (AS 2914)

Preparation

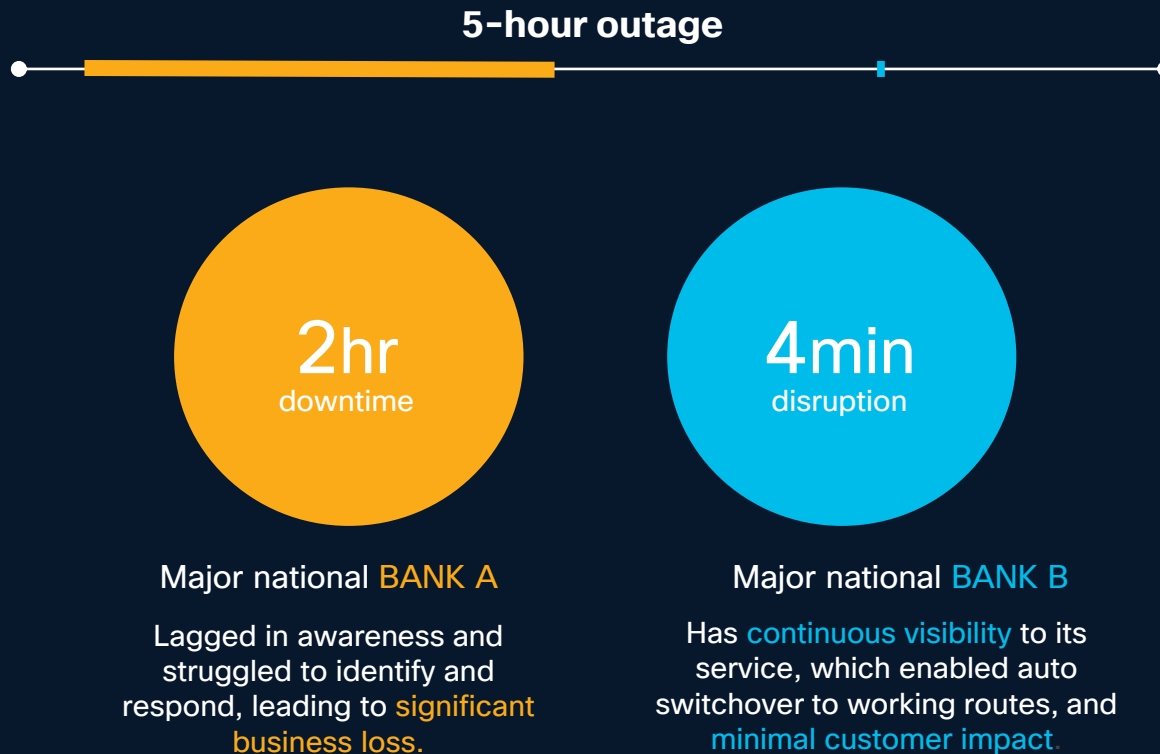# Insight 2: Outages will happen, impact doesn't have to

Typical org: Offload business continuity to vendors and hope for the best

Best practice org: Assume the worst is inevitable and put concrete, validated steps in place, such as failover automation or response playbooks
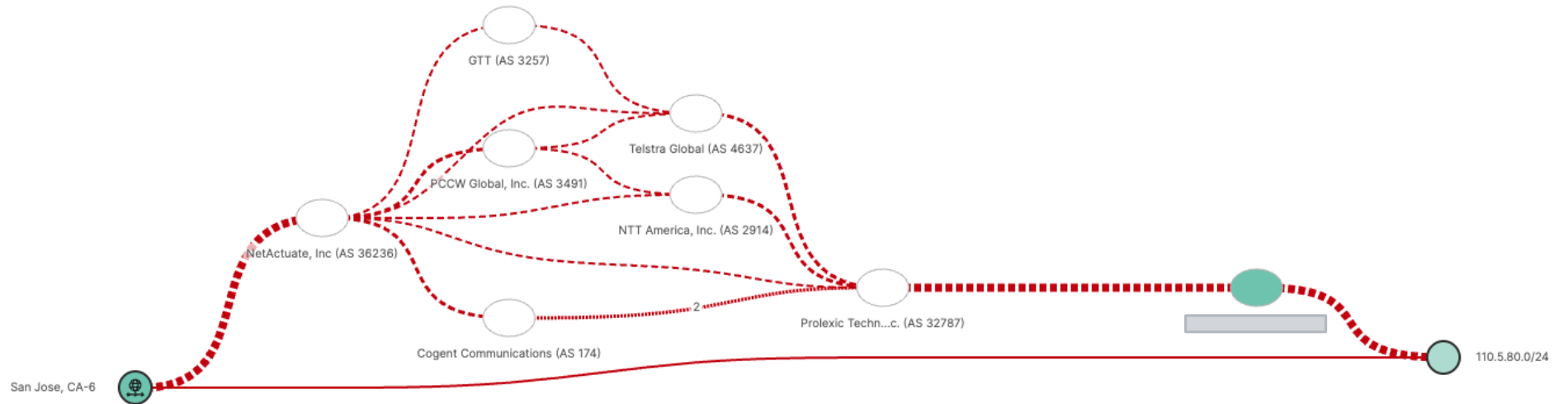
Global content delivery network provider experienced a global outage

One outage. Two outcomes.

5-hour outage

2hr
downtime

4min
disruption

Major national BANK A

Lagged in awareness and struggled to identify and respond, leading to significant business loss.

Major national BANK B

Has continuous visibility to its service, which enabled auto switchover to working routes, and minimal customer impact.

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DEMO
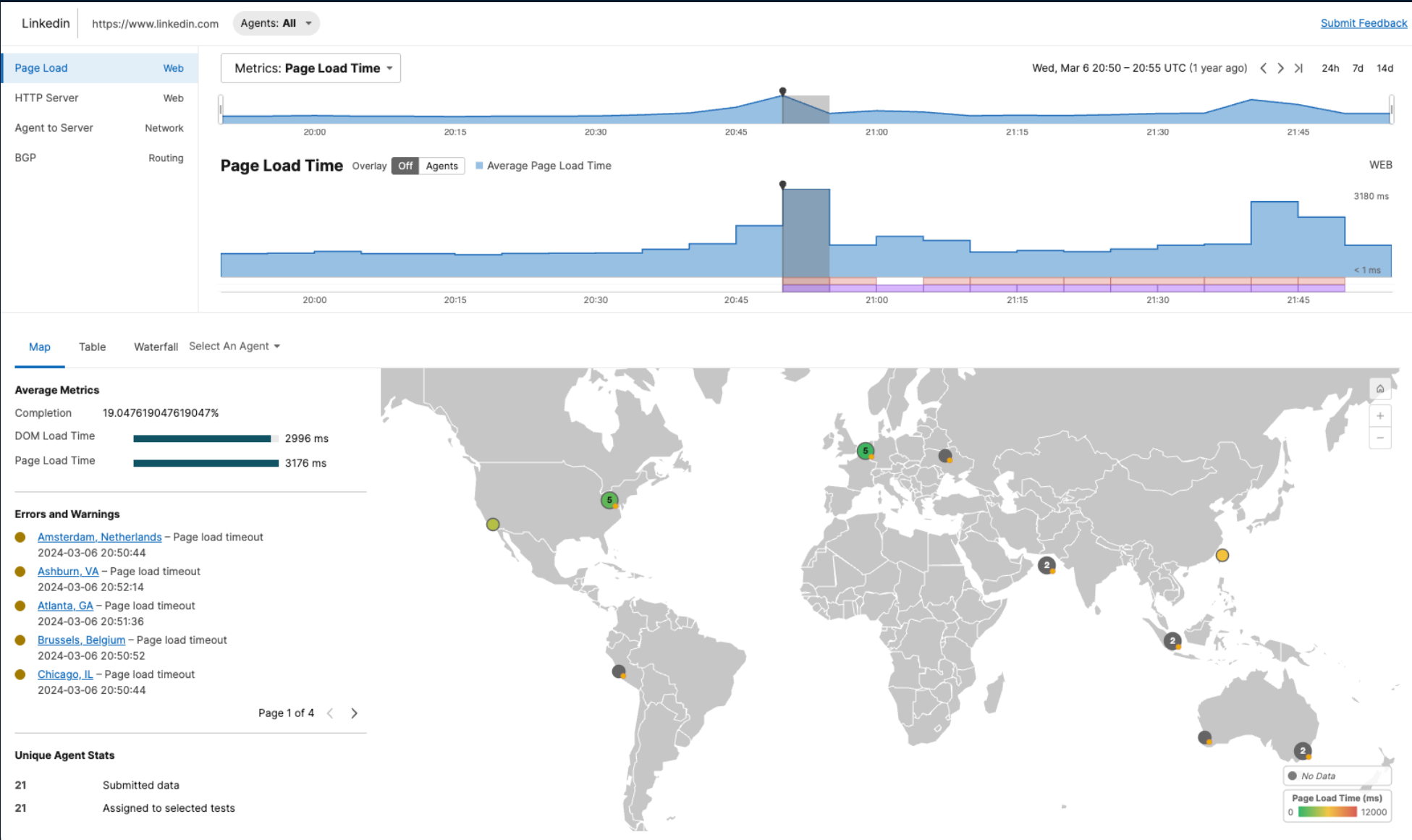
Detection and Diagnosis

Insight 3: Today's service architectures require Internet-scale perspective

Typical org: May recognize issue but not able to see full scope and scale

Best practice org: Leverage collective data to gain broader understanding of the true root causes of issues

DEMO

Remediation

# Insight 4: Mitigation of external outage impact is possible

Typical org: Wait for Internet and SaaS outages to resolve

Best practice org: Take responsibility for service delivery and implement mitigation actions to ensure business continuity

If know where something is but can't reach it ...

- Outage affected parts of Comcast's network.

- Disrupted applications and services including Webex, Salesforce, and AWS.

- Significant traffic disruption in Comcast's network backbone.

- Especially in Texas, impacting traffic from California and Colorado.

- Mitigation was achieved by "avoiding" part of the network.
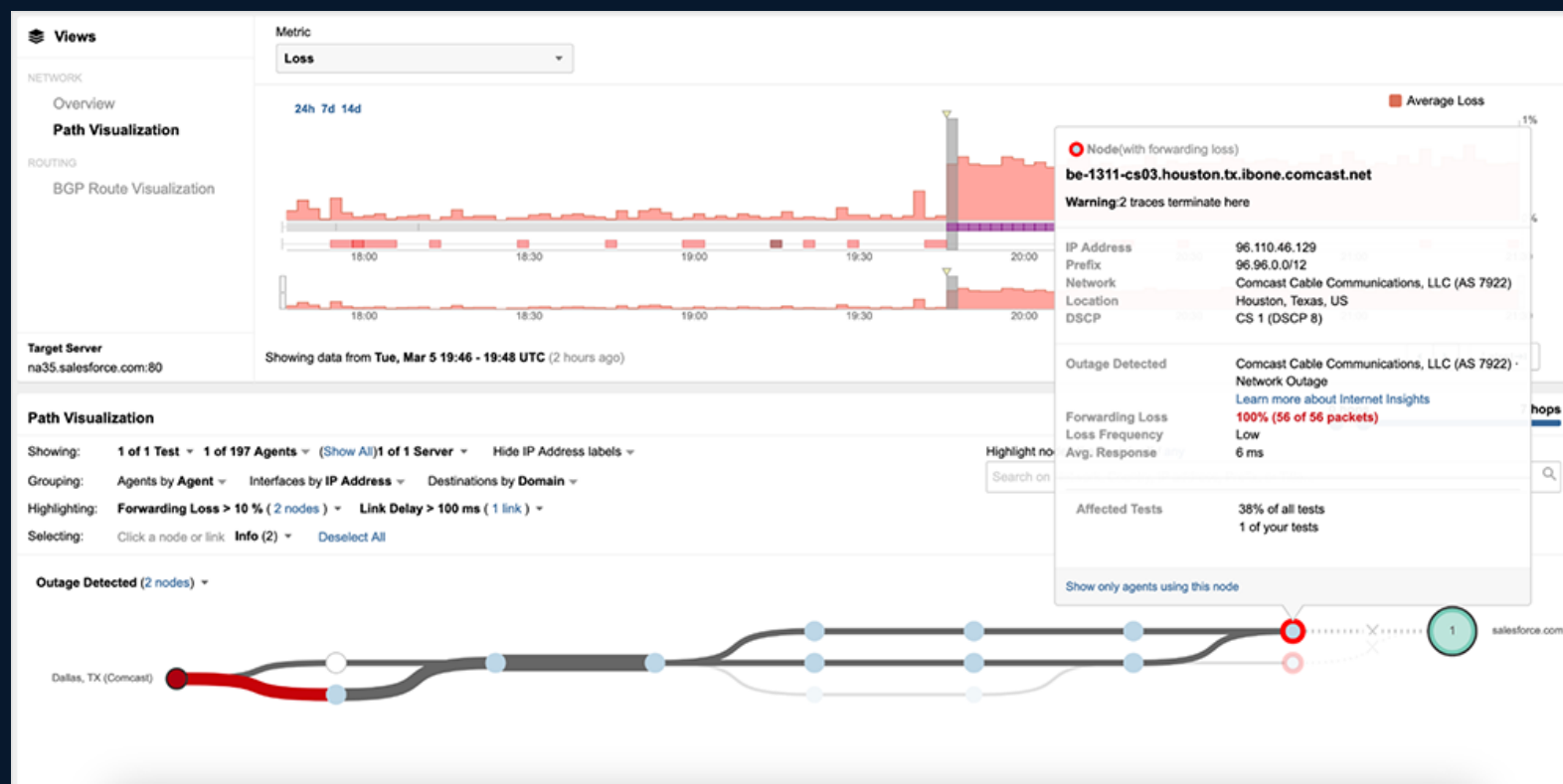
Optimization
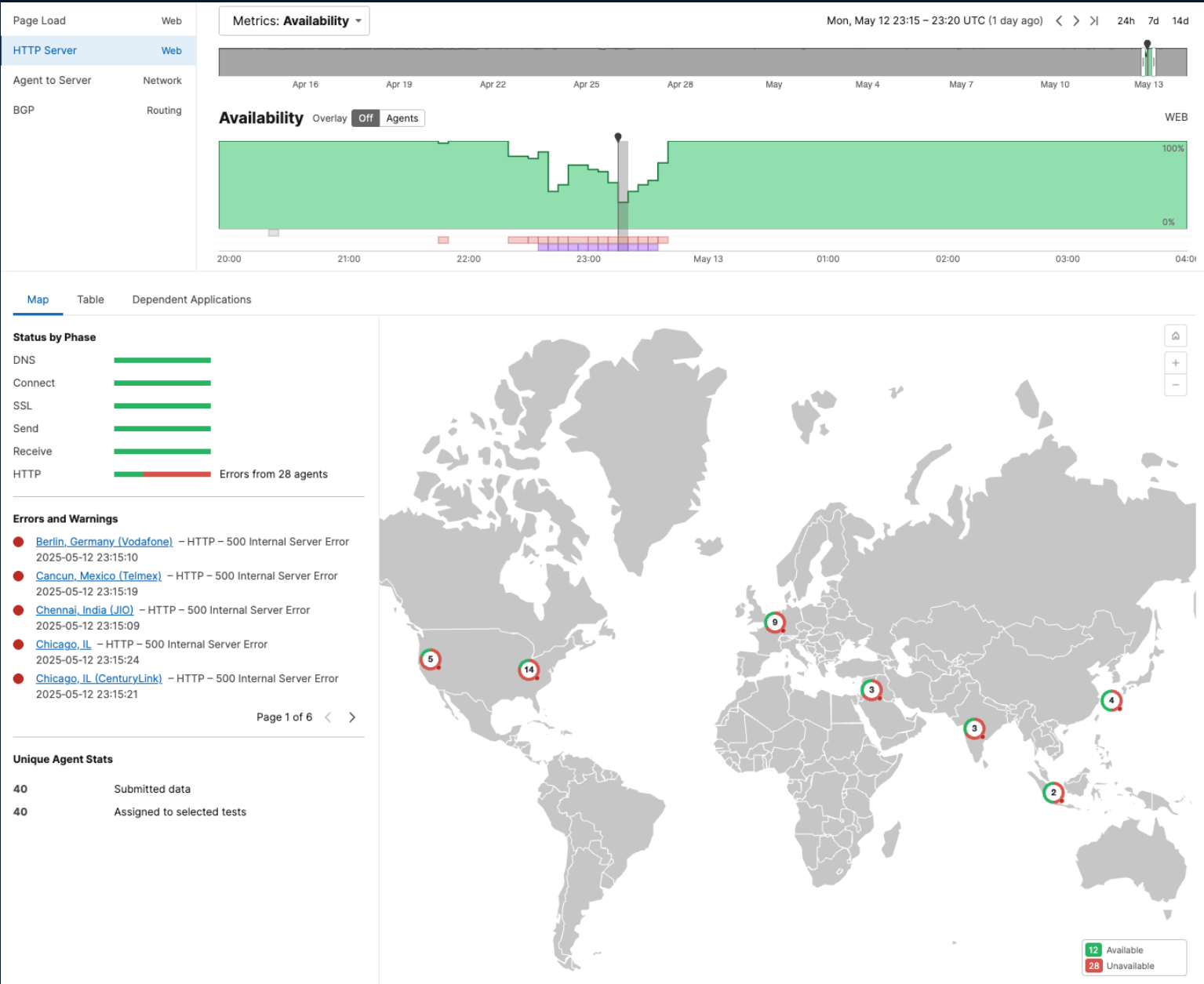
Insight 5: Know what good looks like

Typical org:
Only meaningful metric is user complaints

Best practice org:
Know how they compare to baselines across different industries and providers

DEMO

Key Takeaways

1 Embed end-to-end visibility into daily IT operations

2 Leverage Internet-scale insight to accelerate incident response and improve digital performance

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Internet research: www.thousandeyes.com/research

Contact us at: acmedina@cisco.com , mhicks@cisco.com

Thank you

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