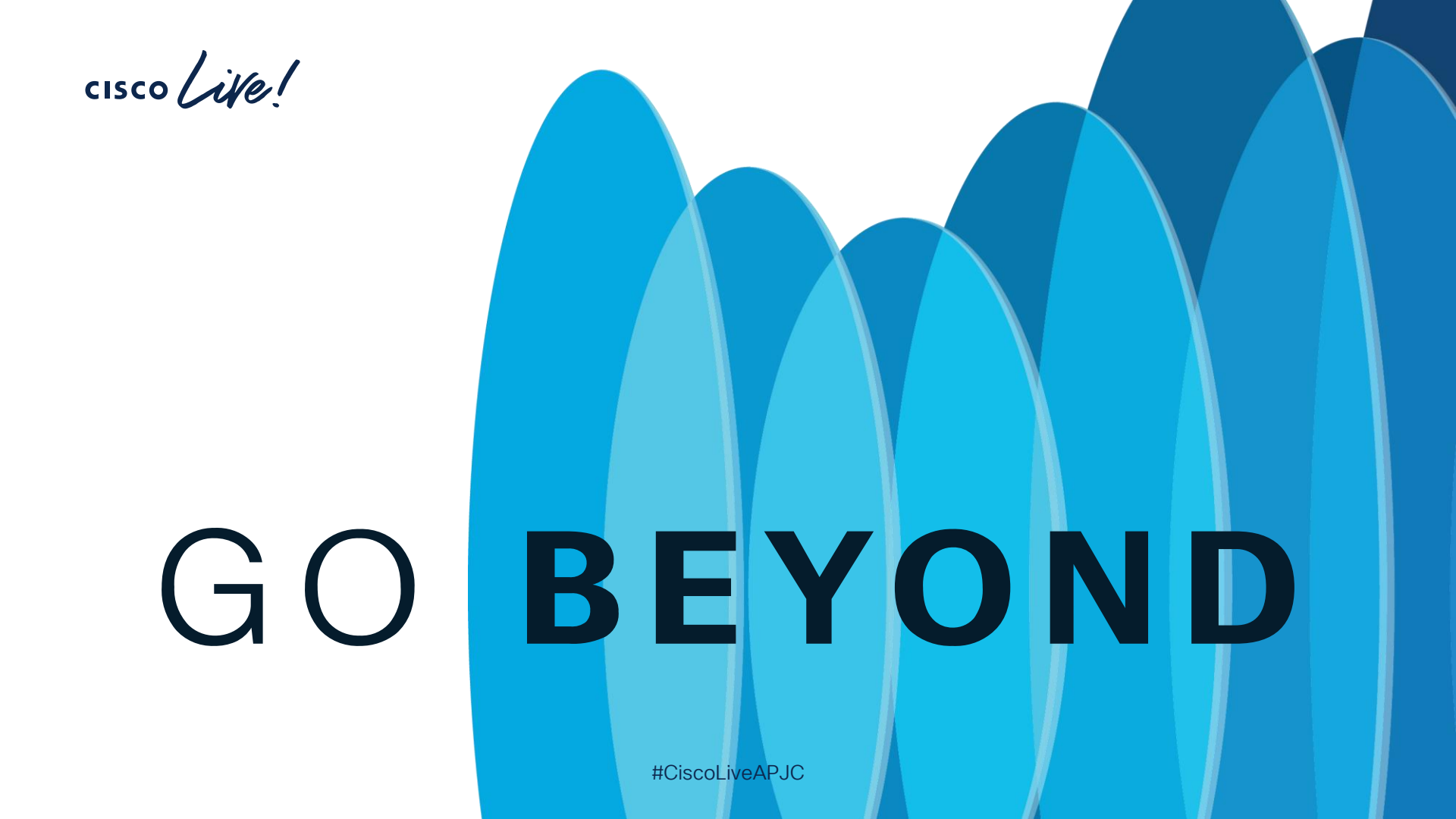
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GO BEYOND
#CiscoLiveAPJC

"Reconciliation"- Dustin Koa Art

# Extending end-to-end visibility deep into public cloud environments, using ThousandEyes

Mike Hicks – Principal Solution Analyst
@apnoau
BRKAPP-2161

# Cisco Webex App

https://ciscolive.ciscoevents.com/ciscolivebot/#BRKAPP-2161

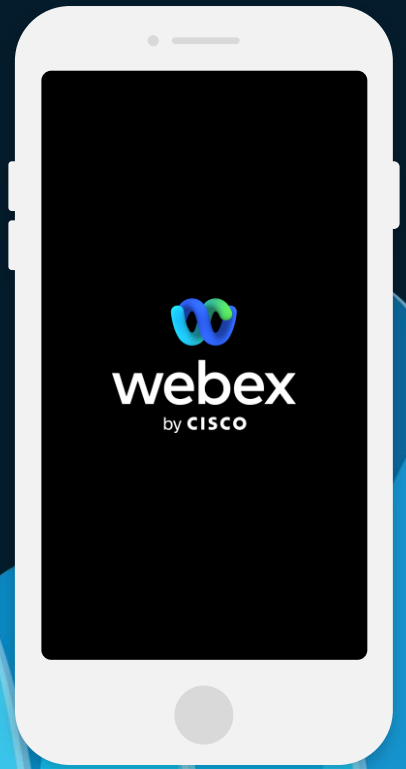
## Questions?

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 November 15, 2024.

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# Who is Mike Hicks?

- Over 30 years of experience in network and application performance.
- Worked with infrastructure vendors on application profiling and management.
- Author of "Managing Distributed Applications: Troubleshooting in a Heterogeneous Environment" (Prentice Hall 2000) and "Optimising Applications on Cisco Networks" (Cisco Press 2004).

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# Agenda

- How traffic moves across the network
- Challenges
- Unpacking the Cloud
- Bridging the Gap
- End-to-End
- Applying the insights
- Summary


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# Steps for filling in session IDs

- Once you have entered your Session ID on the Title Slide:
  - Copy the Session ID
  - Insert / Header & Footer / Paste the Session ID into the Footer box
  - Ensure Slide number and Footer checkboxes are marked
  - Click “Apply to All”


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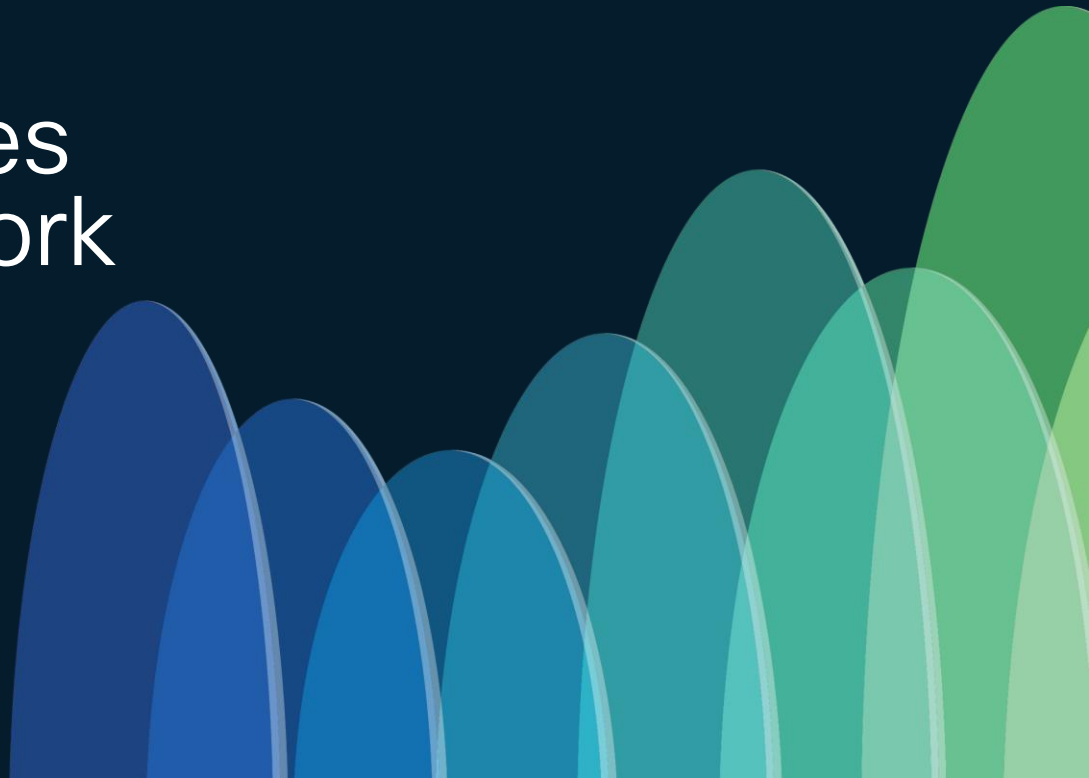
# How traffic moves across the network



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# There and back again: How traffic moves across the Internet

- Collection of interconnected, autonomous networks
- No governing body on how networks interconnect and exchange traffic
- Peering and transit/customer relationships
- Dynamic nature of the “Internet”


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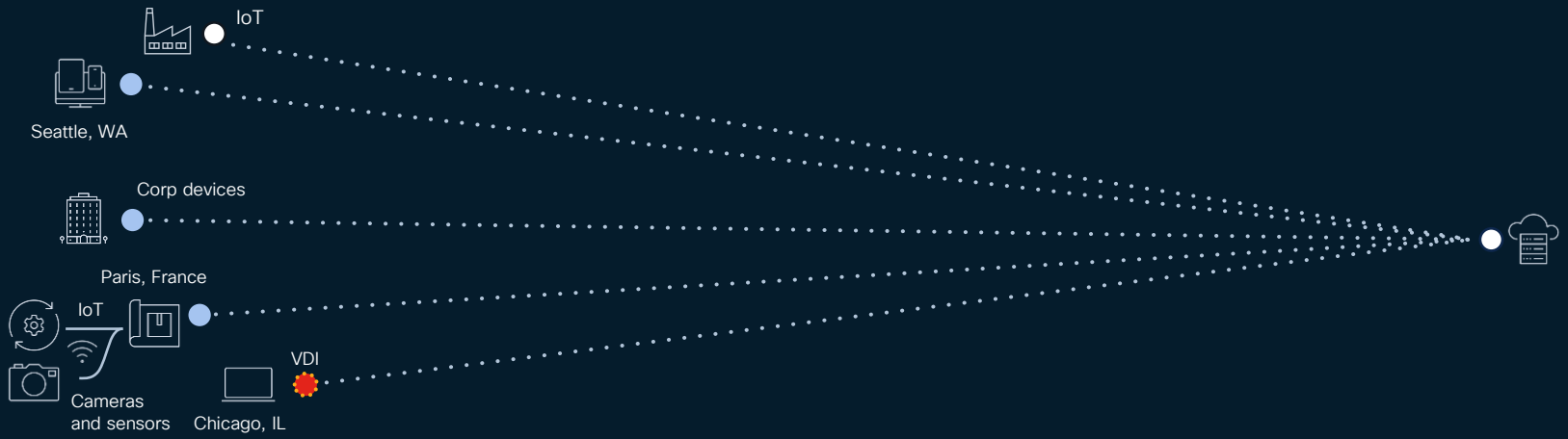
# The experience you **want**





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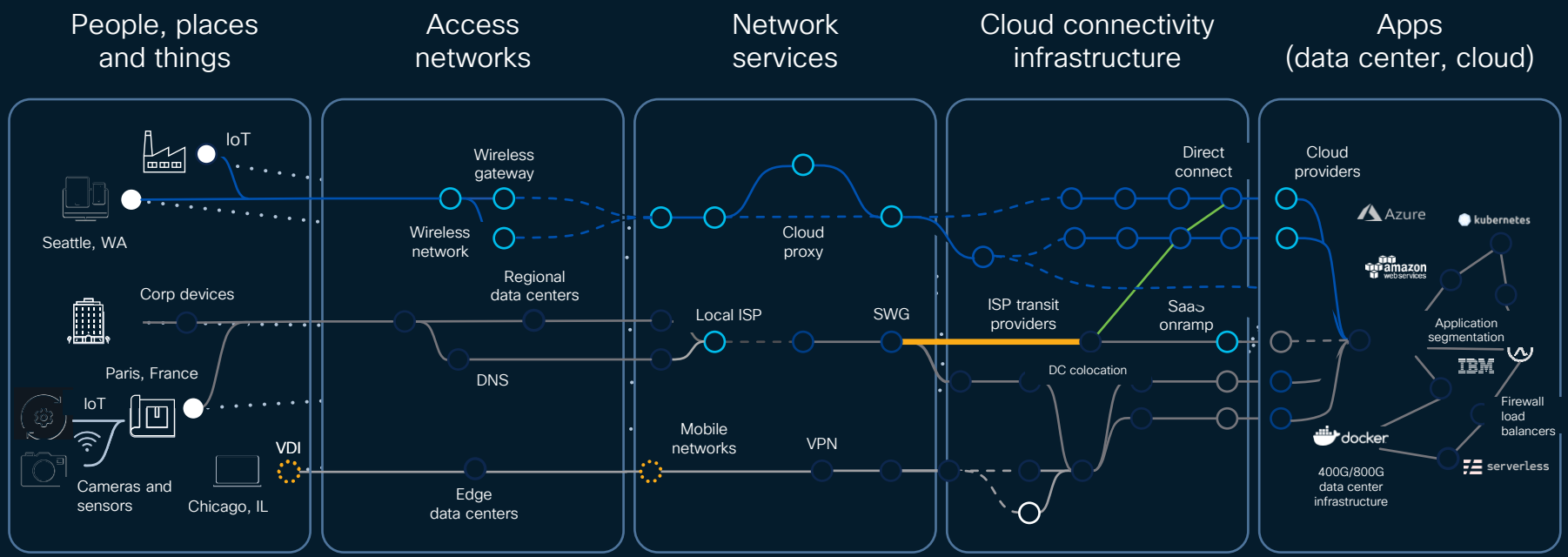
# But the **reality** is...





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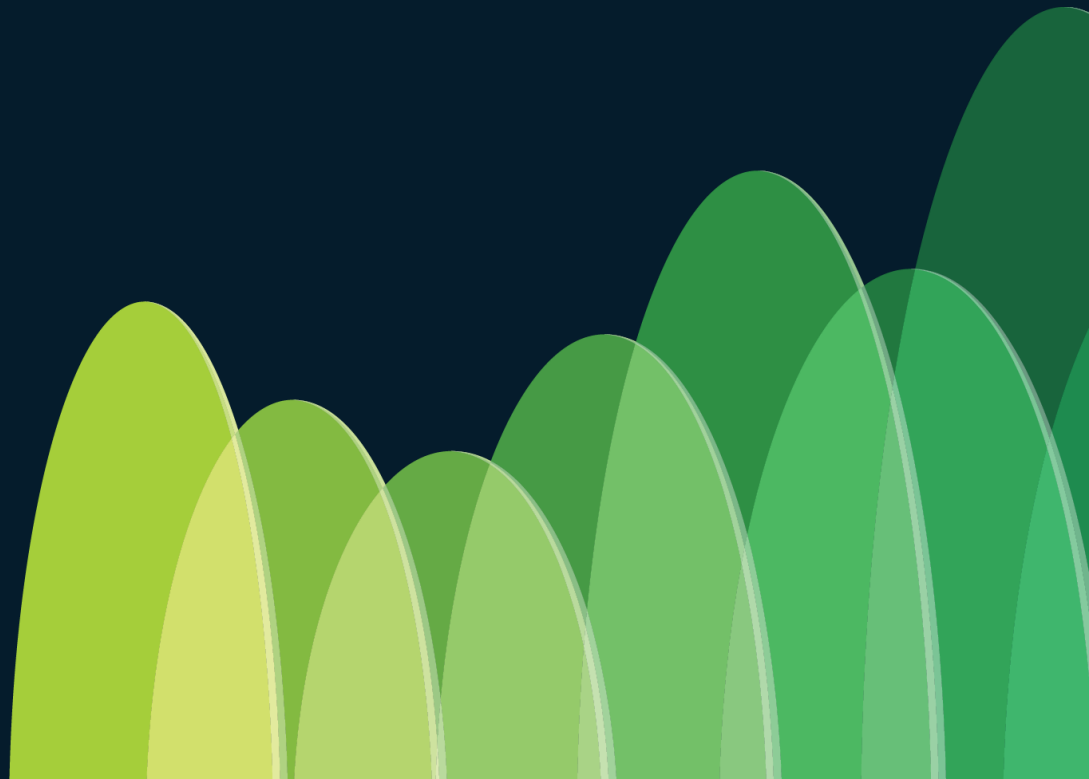
# Challenges



# Unavoidable scale and complexity of today's service delivery

Digital experience is not monolithic

You don't own (by design) most dependencies

Fixing what you own isn't good enough

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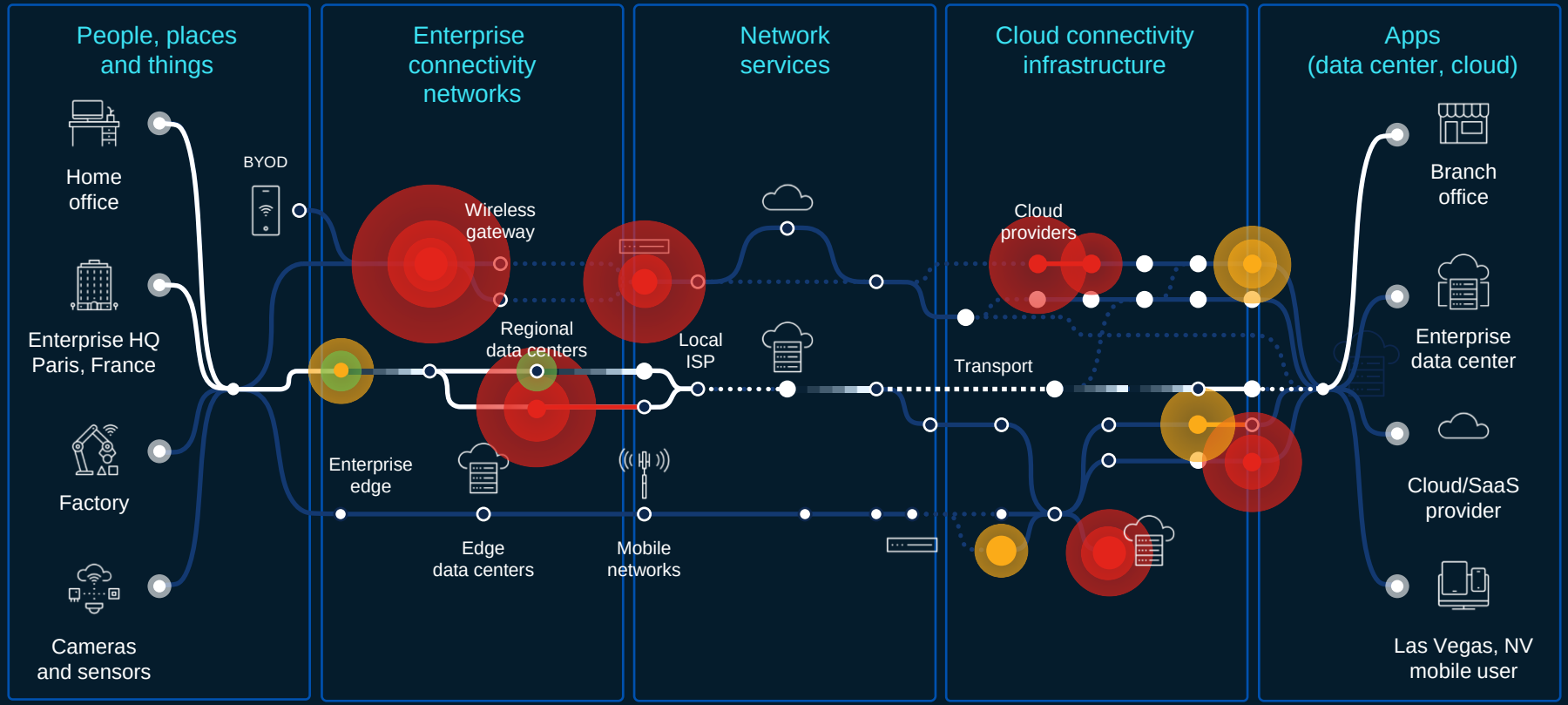
# What is the worst that could happen?





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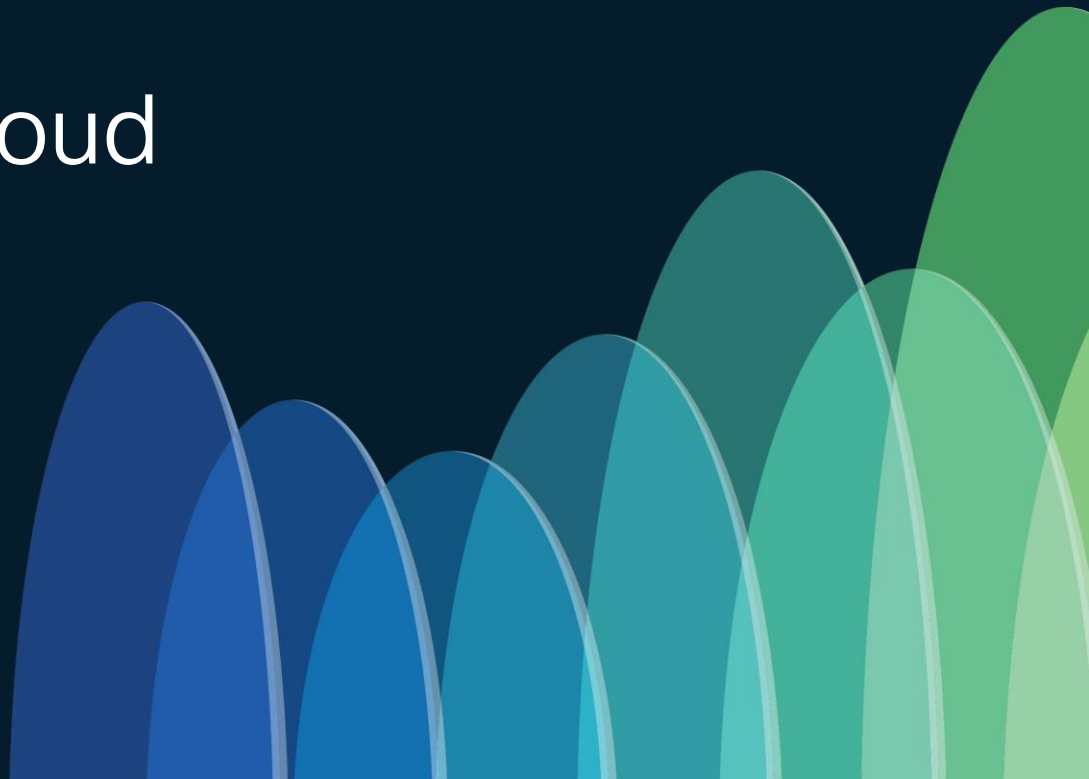
# Unpacking the Cloud



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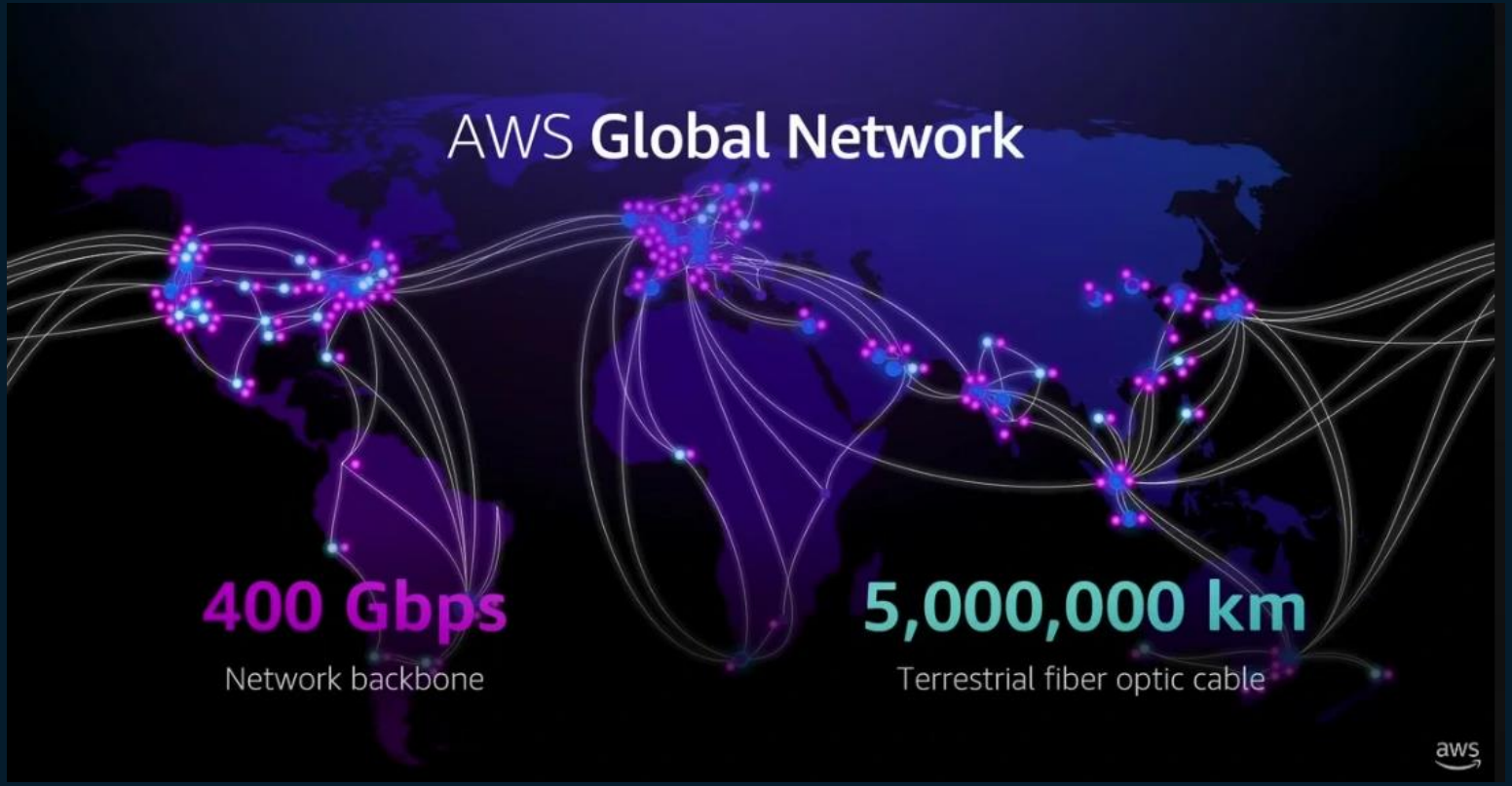
# Hyperscale deployments





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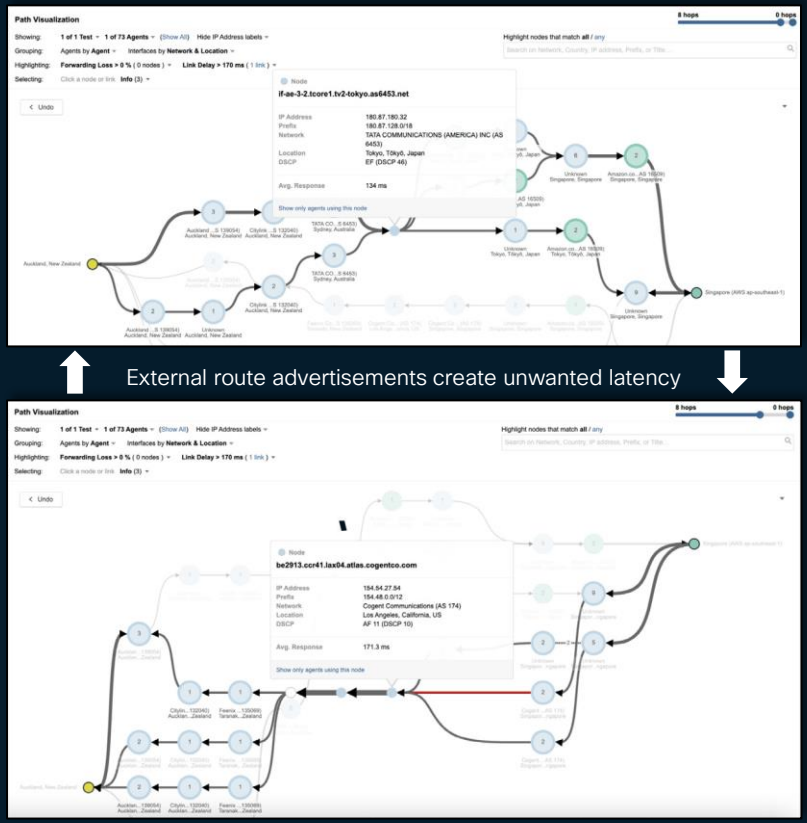
# So, all network paths are created equal?

- How do cloud providers connect to the public Internet
- How and where do cloud providers connect to one another
- Regional differences among providers





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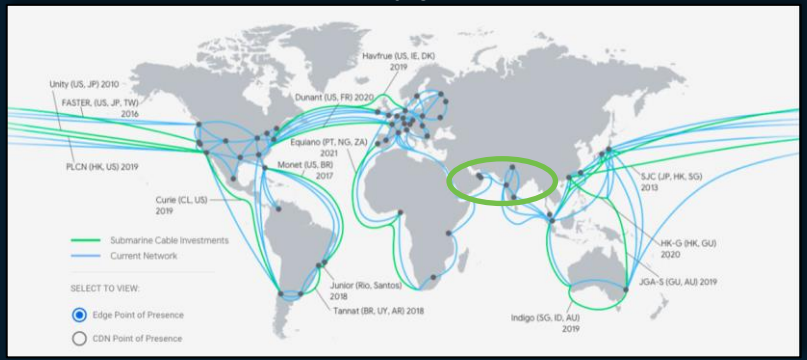
# Where do I need service?

- Optimising application performance in cloud environments
- Reliability and performance in specific cloud regions
- Conditions will change over time

GCP backbone lacked direct connectivity between Europe and SE Asia in 2018




Reduced latency by approximately 100ms between Europe and Mumbai by May 2020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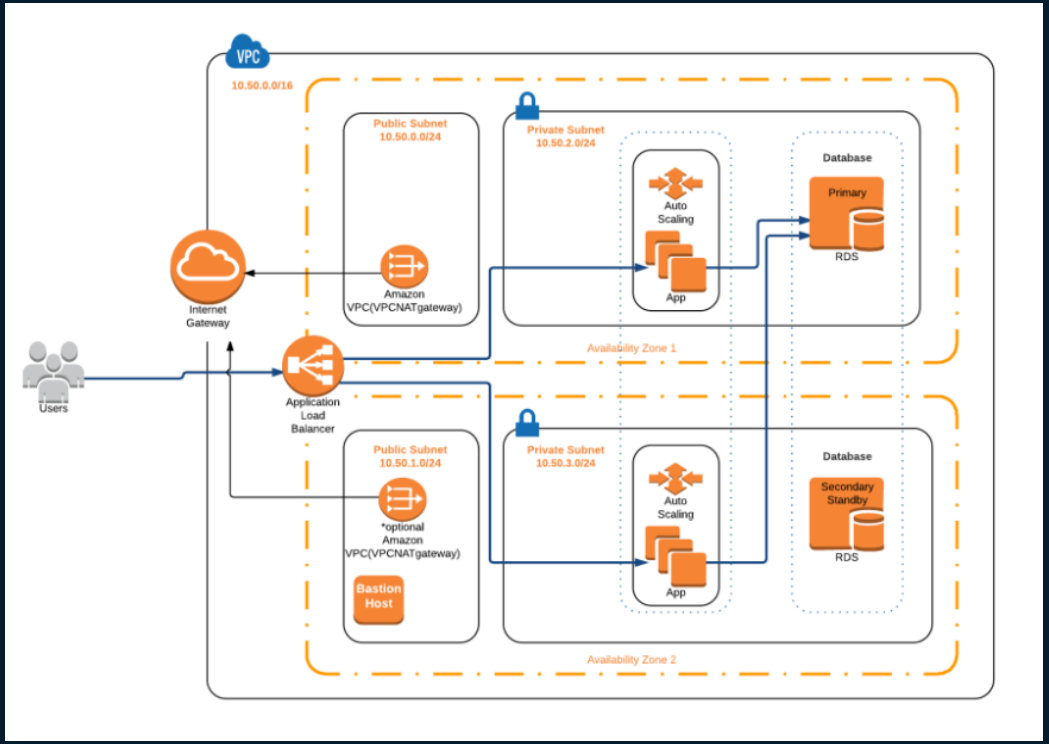
# That is just to get to the Cloud

- Network Cloud
- Multiple components and services
- Distributed architecture
- Obfuscated path





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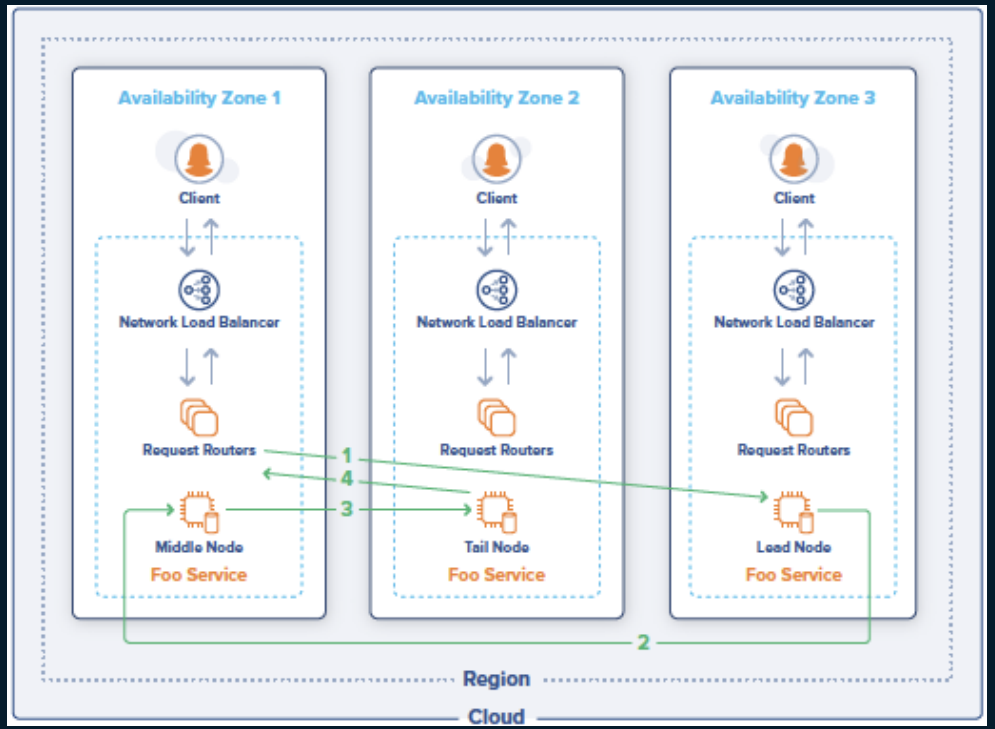
# Architected for resilience

- Architecting cloud apps to optimise both resiliency and performance
- Variabilities in performance between AZs operated by different providers
- Tolerance levels in frequency and duration of outages





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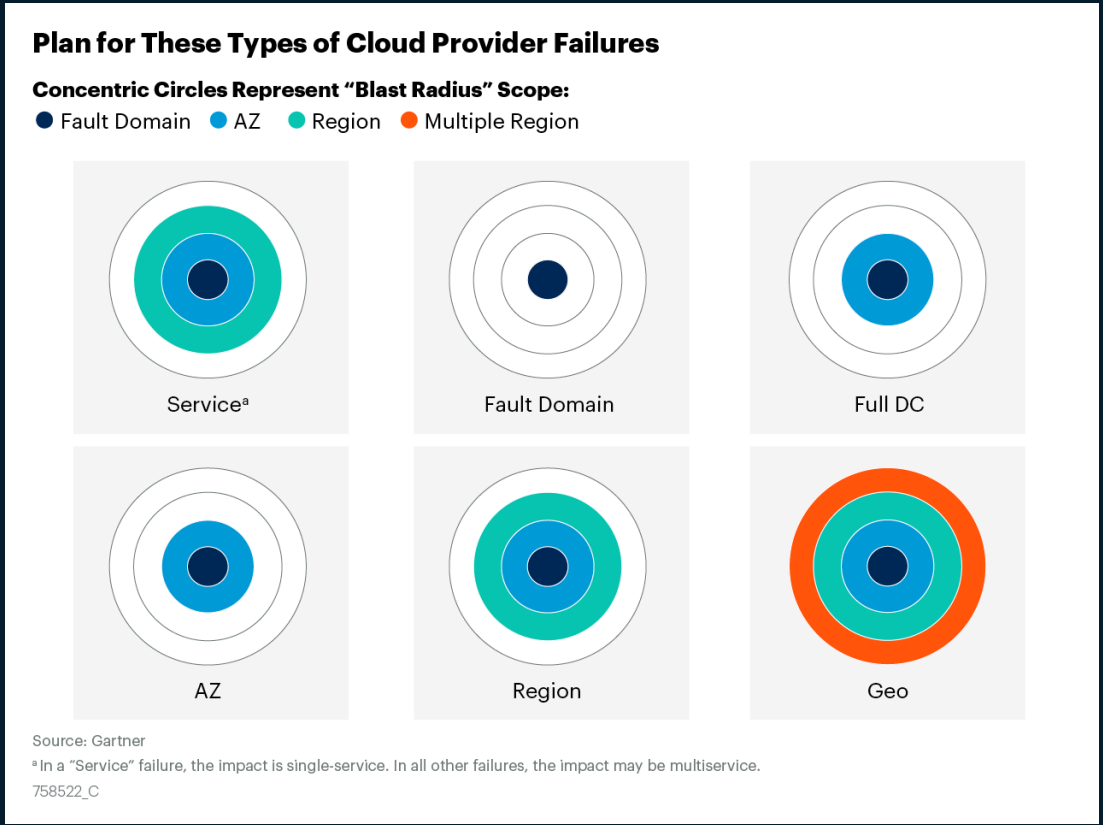
# Multiple points of potential failure





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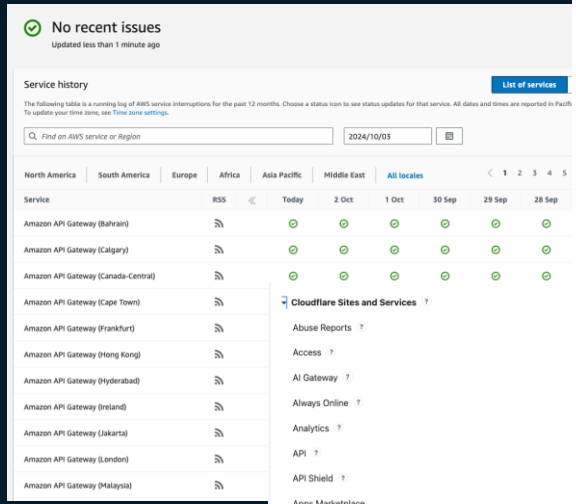
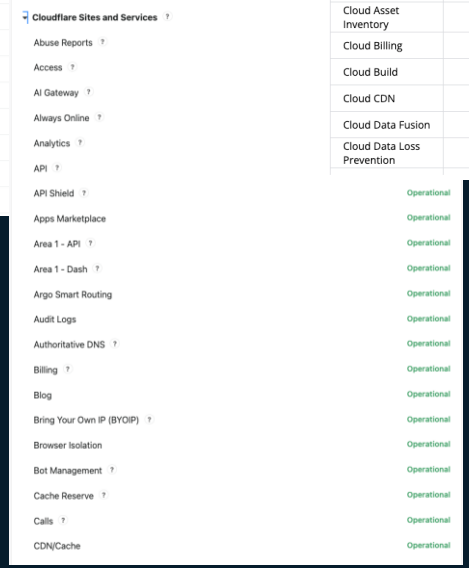
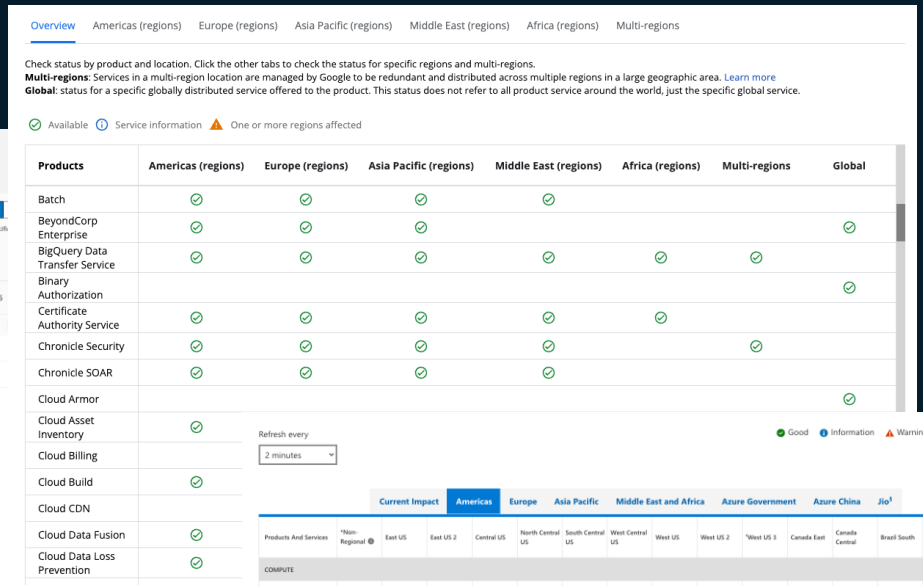
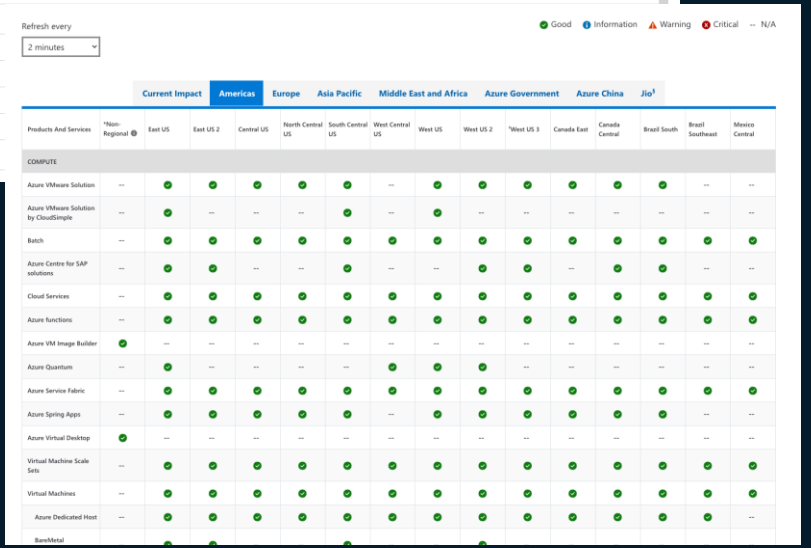
# Many silo views





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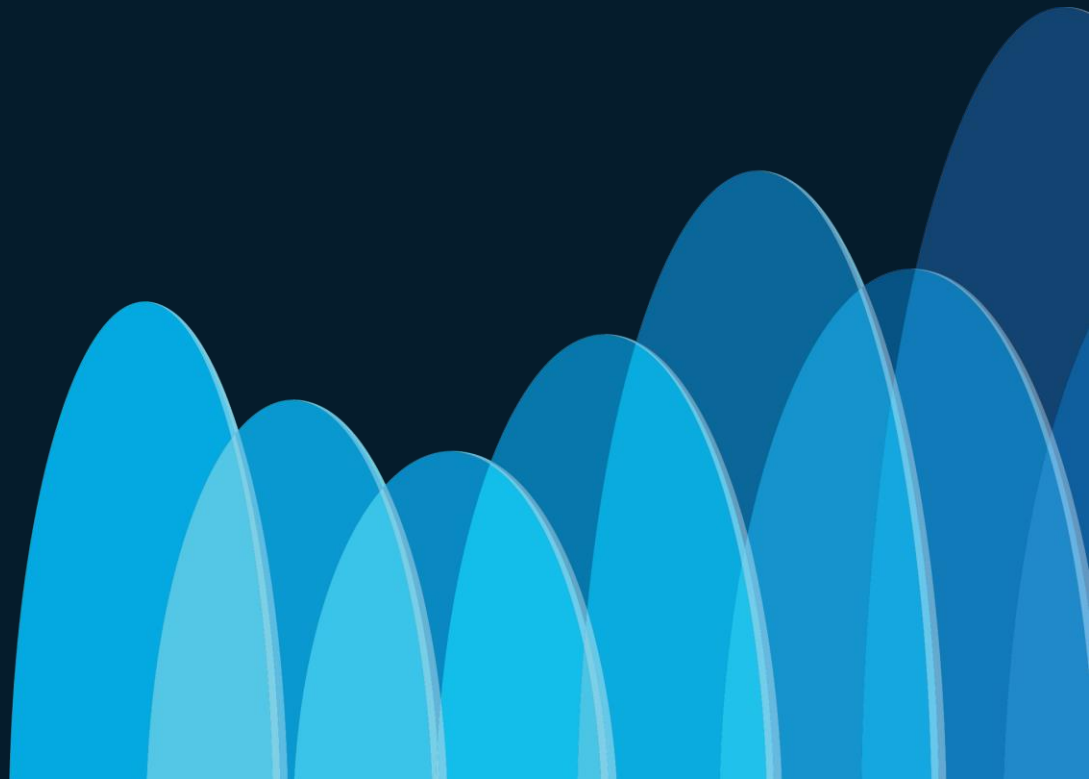
# Bridging the gap



# Cloud Native Monitoring for Cloud

## Path enrichment

- IP-address enrichment for cloud-based targets by identifying AWS services, and AWS region, as well as providing the expected TCP latency to AWS Global Accelerator
- Released in October 2023

## AWS test recommendation of Cloud Front and Global Accelerator

- Using the same AWS integration for API Gateway, discover the hosted public service endpoints, “Cloud Front and Global Accelerator and generate the recommendations
- Released on April 2024

## AWS test recommendation of API Gateway

- By connecting to your AWS account, auto-discover your critical API endpoints and generate the appropriate test recommendations for monitoring the API Gateway
- Released in Jan 2024

## Cloud Insights with AWS

- Through another AWS integration, gain insight into their AWS inventory, topology, and traffic flow to enable them troubleshoot and take actions based on these insights
- Limited Preview in Sep 2024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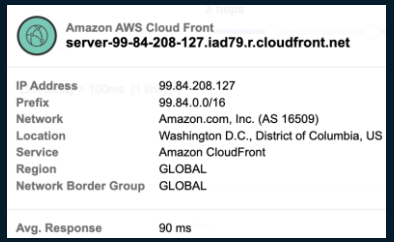
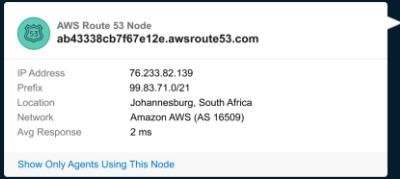
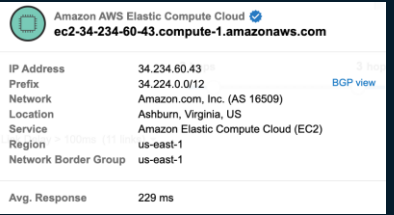
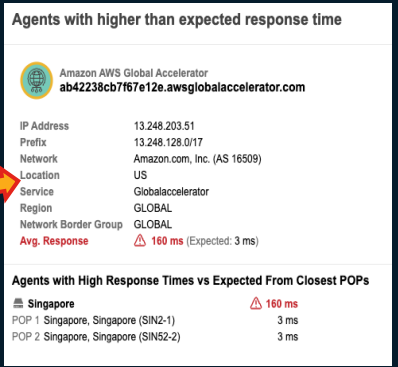
# Network Path Enrichment

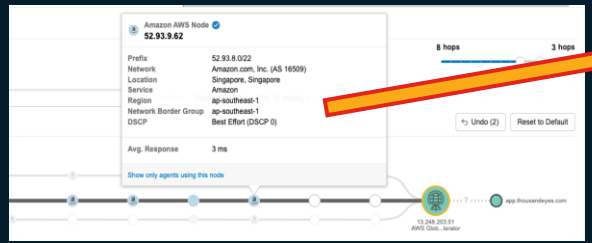
- ThousandEyes Path Visualisation gives you a hop-by-hop view of network traffic
- The enrichments to the path visualisation leverage new AWS data sources to:
  - Improve the identification of IP addresses across the global AWS network
  - Notify when observed TCP latency across the AWS global accelerator network rises above expected levels
  - Provide enrichment for AWS nodes within the network path visualisation to help easily identify services like S3, EC2, CloudFront, Route 53, and AGA
  - Enable more accurate Internet outage detections across AWS edge and backbone networks
  - Display the AWS Region and network associated with user traffic and cloud services
- Relationship between AWS and ThousandEyes provides enriched network metrics and actionable intelligence to facilitate faster issue resolution and increased visibility into cloud-based traffic.
- Detailed diagnostic data collected by ThousandEyes can be shared with  Support for troubleshooting





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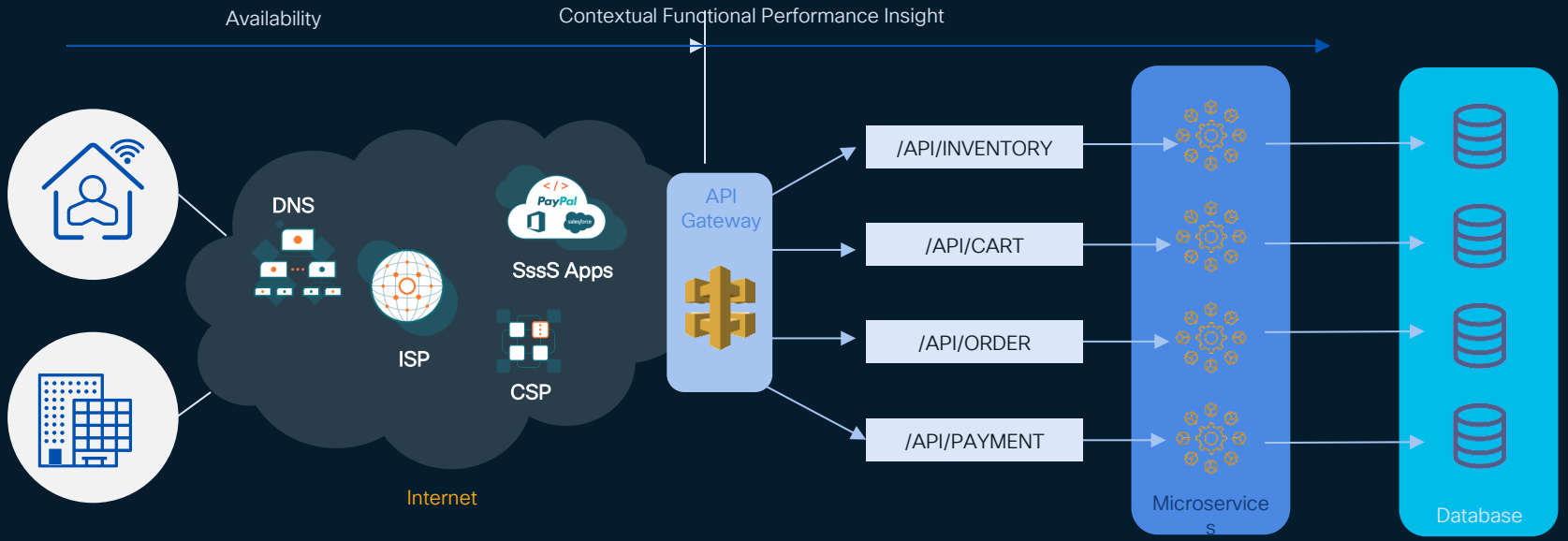
# The Journey of an API





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# Cloud Insights

## Key Capabilities

### Cloud Topology Visualisation

Auto discover cloud provider resources to understand every service dependency

### Cloud Traffic Views

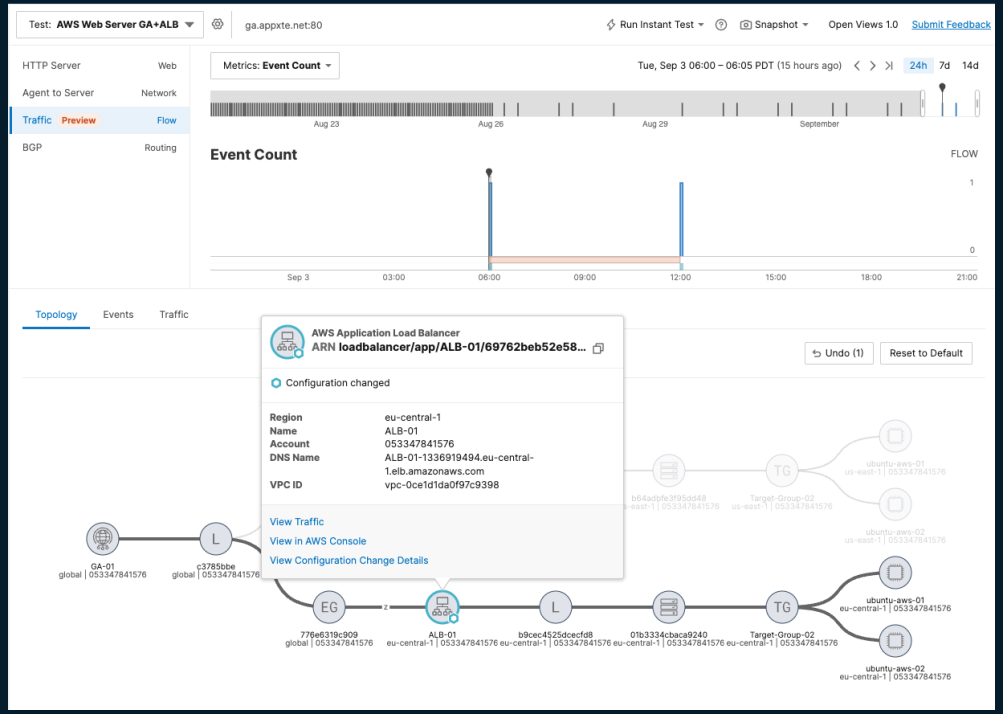
View traffic patterns so you can efficiently architect and troubleshoot your cloud network

### Correlated Cloud Infrastructure Changes

Append config changes and events to time-correlated views of experience so you can isolate root-cause faster

### Value

Deep visibility into public cloud infrastructure and service dependencies that impact digital experiences to dramatically reduce MTTR





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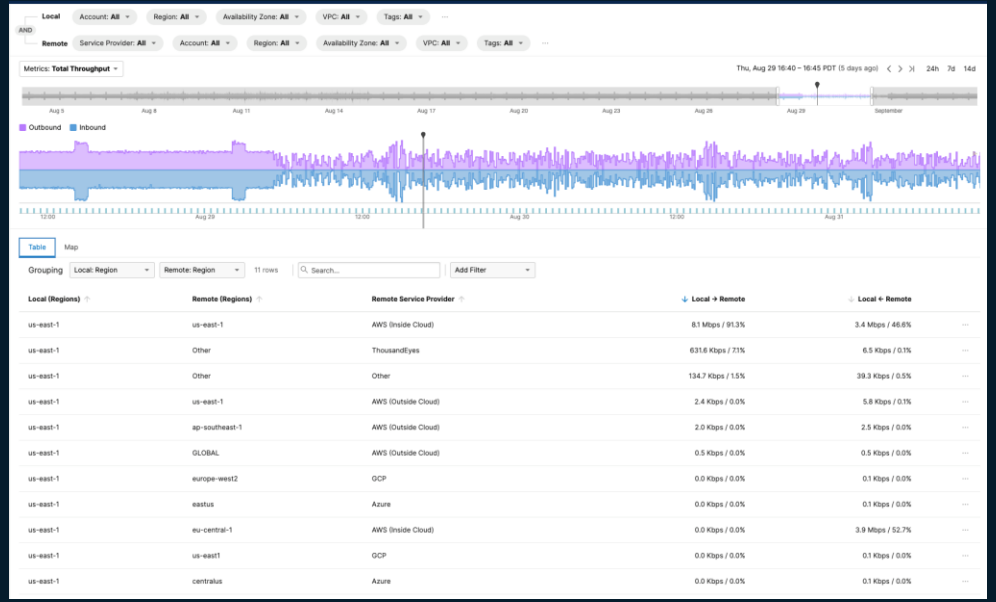
# Cloud Insights with AWS

## Traffic Flow Analysis

- Ingests VPC flow logs from AWS and displays traffic information in pre-built dashboards and views
- Traffic views can be filtered by several dimensions, such as by cloud account, region, availability zone, VPC, application, enabling flexible and contextual views of performance
- Events takes recent configuration changes and other events, time-correlating them with views of digital experience to provide necessary context for quickly isolate root causes.




### Value

This visibility empowers CloudOps teams to identify and fix problems faster and gives them the information they need to architect cloud workloads more efficiently.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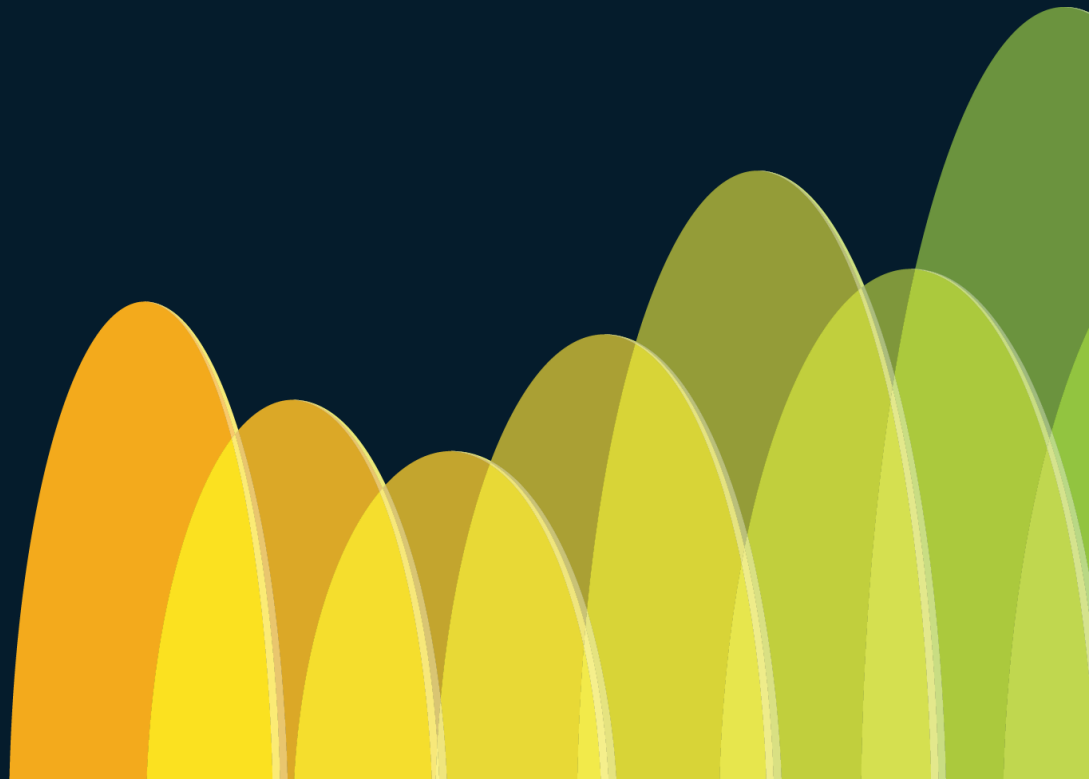
# End-to-End



# End-to-end command of service delivery

Performance is critical but it's not the only thing that matters...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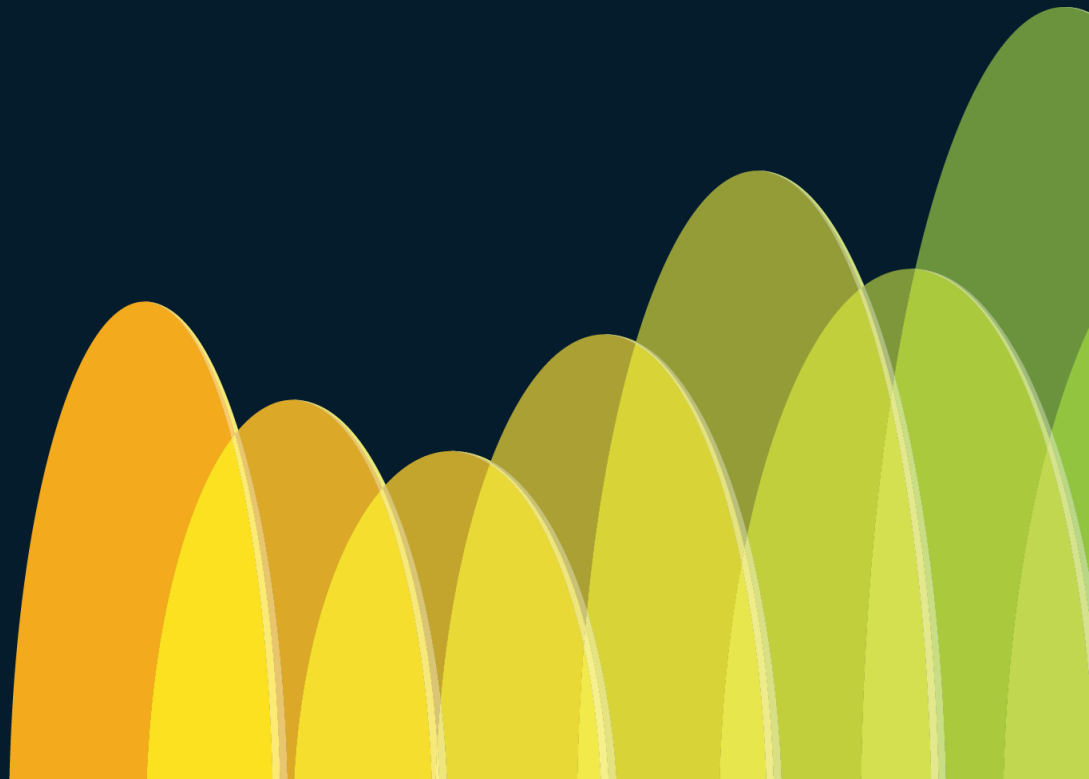
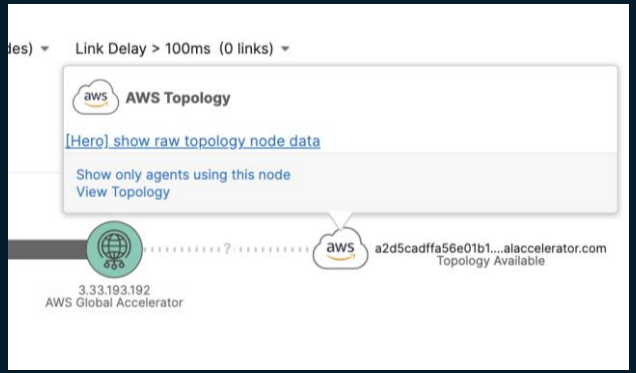
# Demo

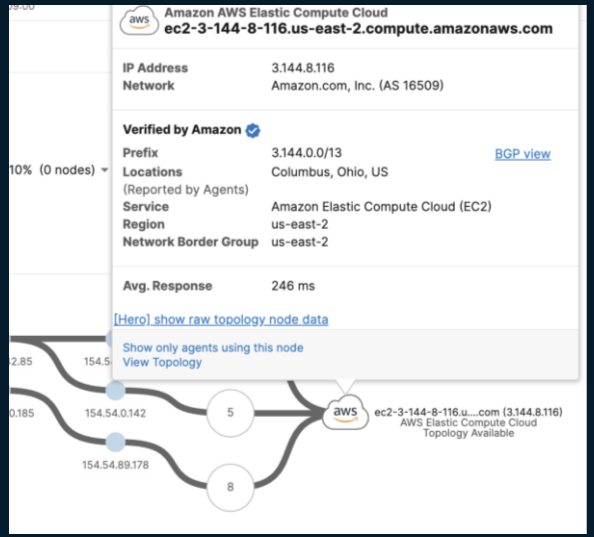


# Demo

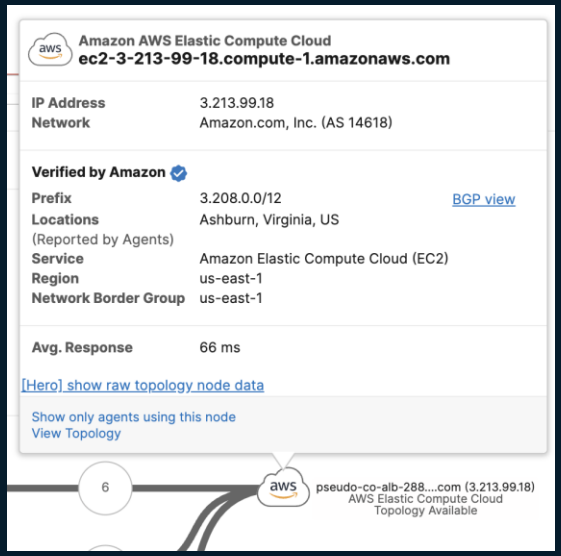
## Global Accelerator




## EC2 instance




## Load Balancer





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# Summary

# Assuring Critical Digital Capabilities

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# Keynote Deep Dives

**Wednesday**
**10:30am –11:30am**

Experiences Amplified: How AI Can Fuel Better Employee and Customer Experiences

**Level 1**
**Room 106**

Smart, Secure, Seamless: Transforming Experiences with Next-Generation Networking

**Level 2**
**Room 204**

Harness a Bold New Era: Transform Data Centre and Service Provider Connectivity

**Level 2**
**Room 203**

Securing User to Application and Everything in Between

**Level 2**
**Melbourne Room 2**

Unlocking Digital Resilience through Unified Observability

**The HUB**
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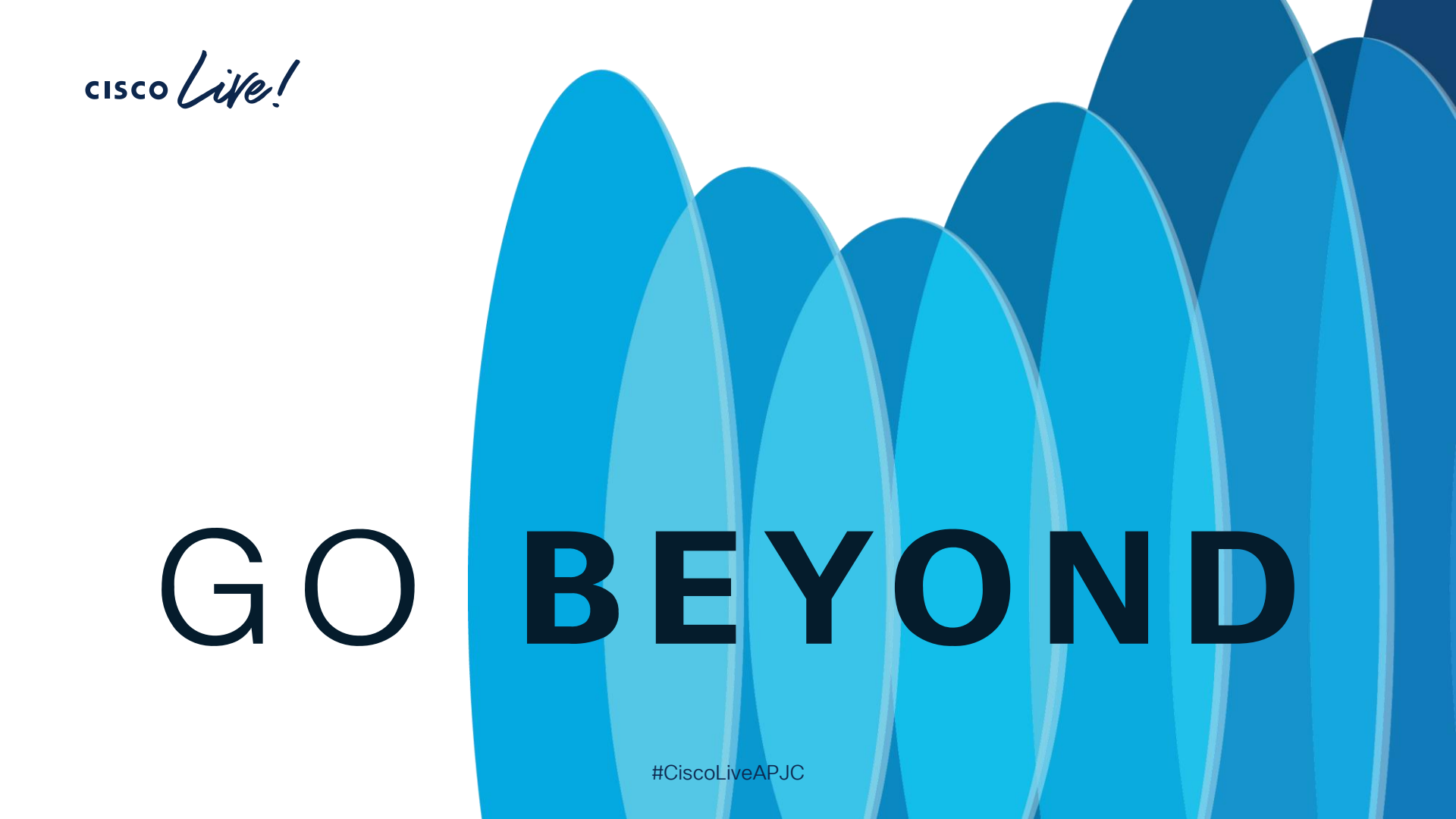
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