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The bridge to possible

Implementing ThousandEyes for Success

Lessons Learned From Complex Deployments

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BRKAPP-2726

Cisco Webex App

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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

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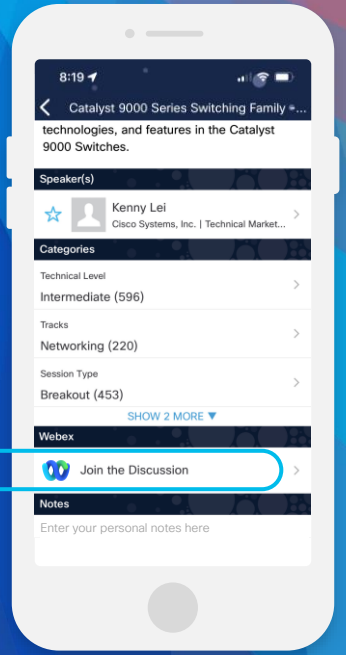

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Agenda

- Introduction
- ThousandEyes Recap
- Things to know prior to the deployment
- Technical lessons learned
- Best practices
- Q&A

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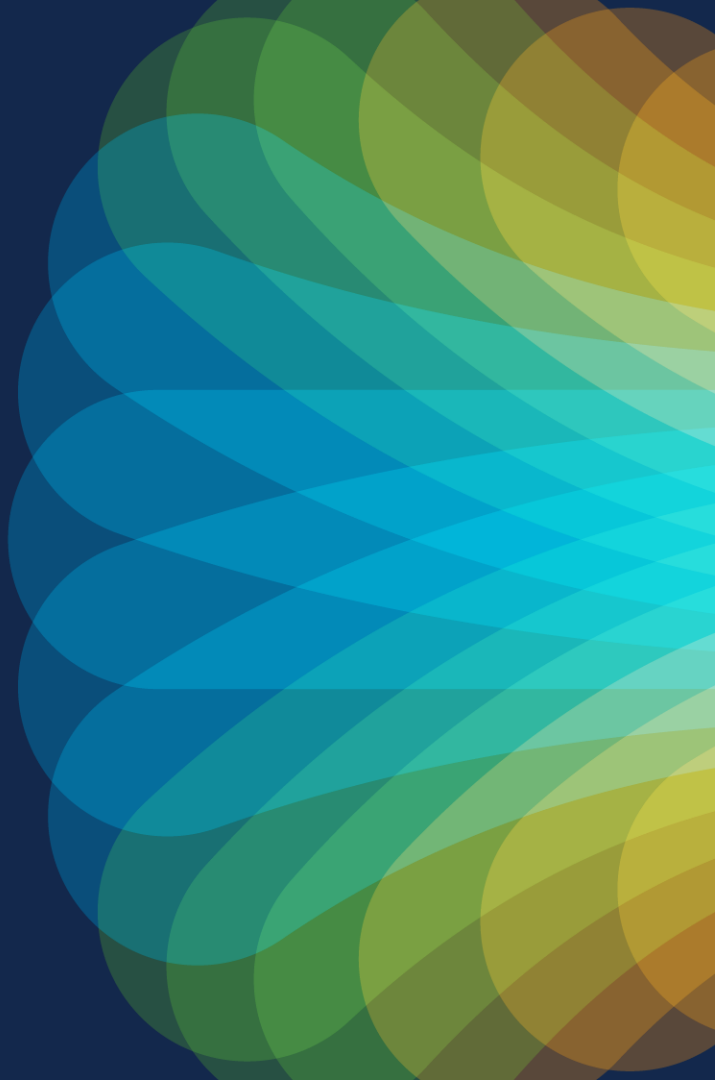
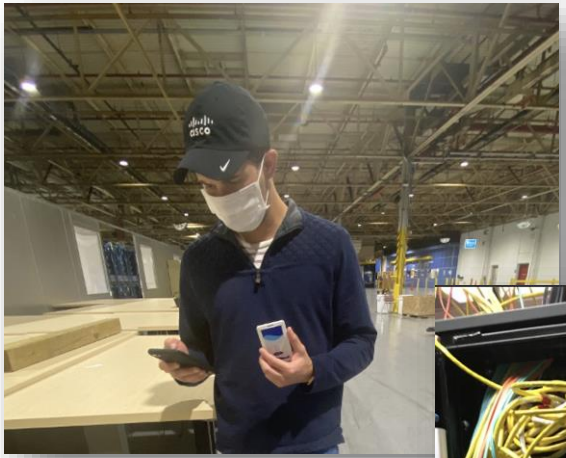
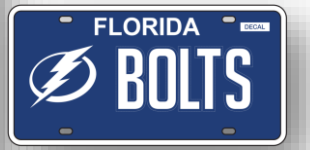
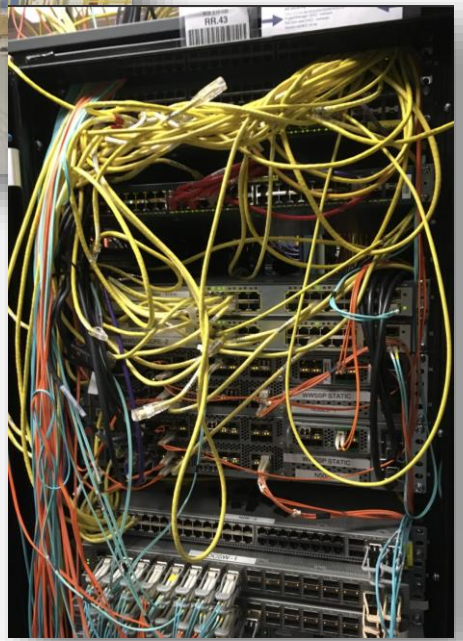
Introduction



Introduction







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What this sessions is and is not about

- ThousandEyes 101
- ThousandEyes deep-dive
- Experience sharing
- Best practices

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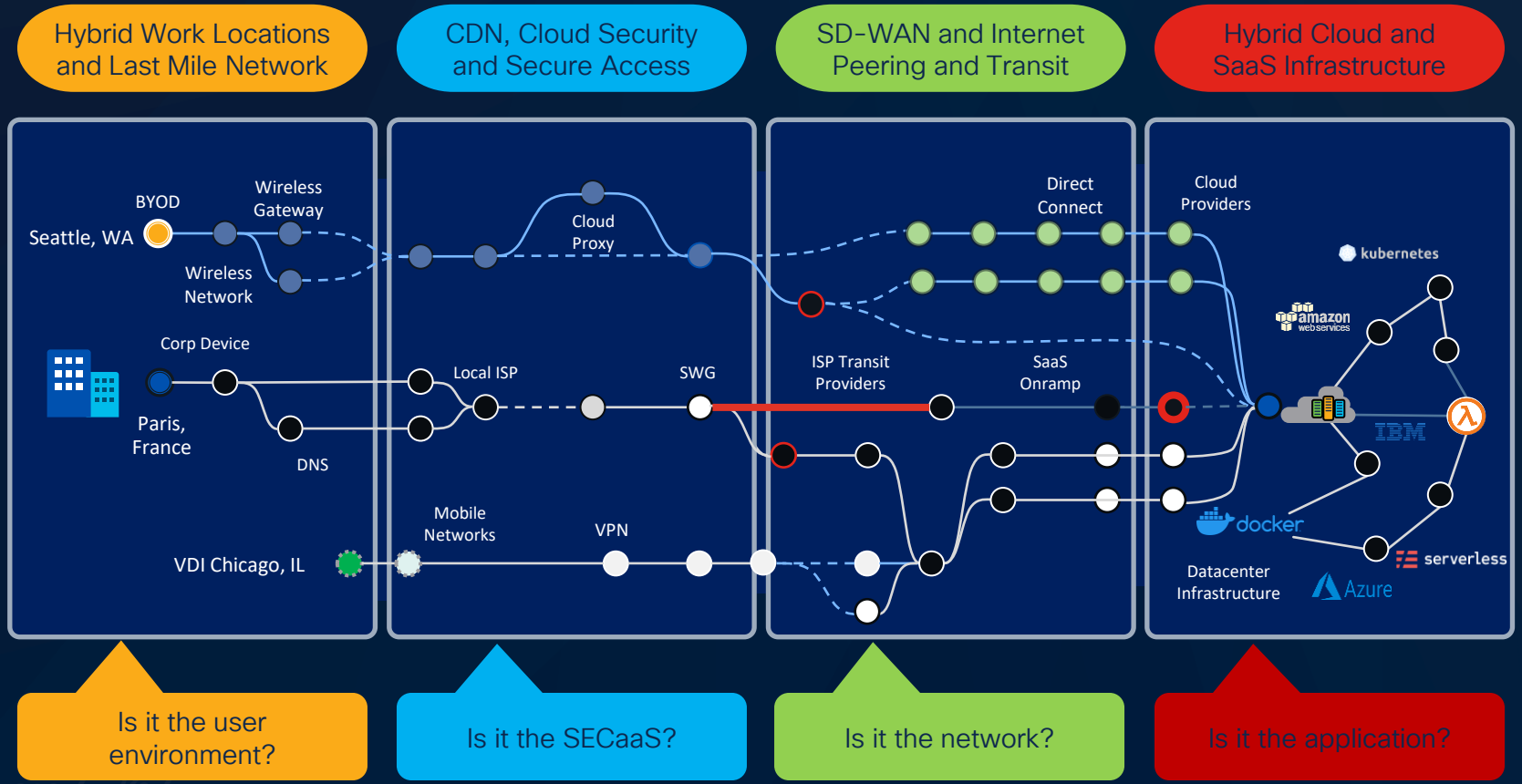
New IT Stack Creates Massive Blind Spots



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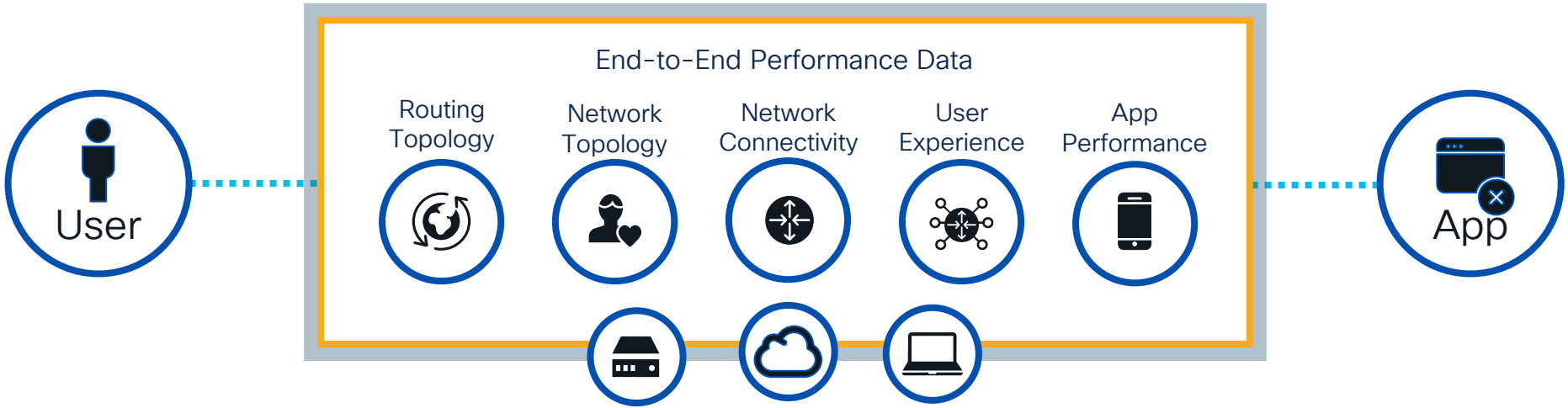
ThousandEyes
“A Unified View of Performance From User to App”



Enterprise, Cloud and Endpoint Agents

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Solution Components

1 Agents

- Strategic vantage points
- Cloud, Enterprise, or Endpoint
- Outside-in/Inside-out View

2 Tests

- Layer 3 – 7 tests available
- Lower layers “nested”
- Run at scheduled intervals

3 Data

- Individual test result data
- Dashboards
- Alerts
- Shareable snapshots

ThousandEyes Agents

Enterprise Agent

- Inside-Out Monitoring
- Inside-Inside Monitoring
  (On-premises Deployment)
- Deployment Options
  - Linux
  - docker
  - CISCO

Cloud Agent

- Outside-In Monitoring
- Outside-Outside Monitoring
  (ThousandEyes Managed)
- 600+ Agents in 400+ Locations

www.thousandeyes.com/map

Endpoint Agent

- Last-Mile Monitoring
  (On-premises Deployment)
- Extends network and service visibility to the user
- Deployment Options
  - Operating Systems

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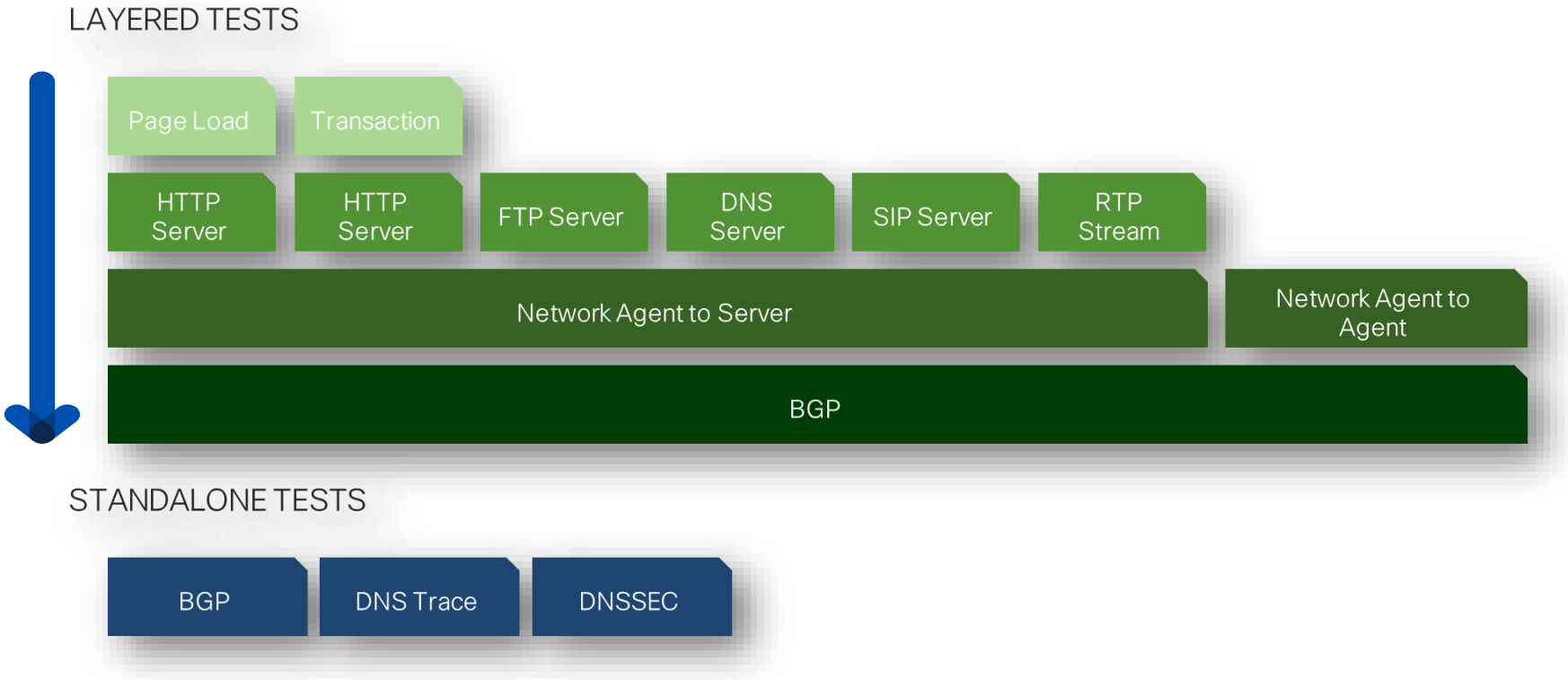
ThousandEyes tests



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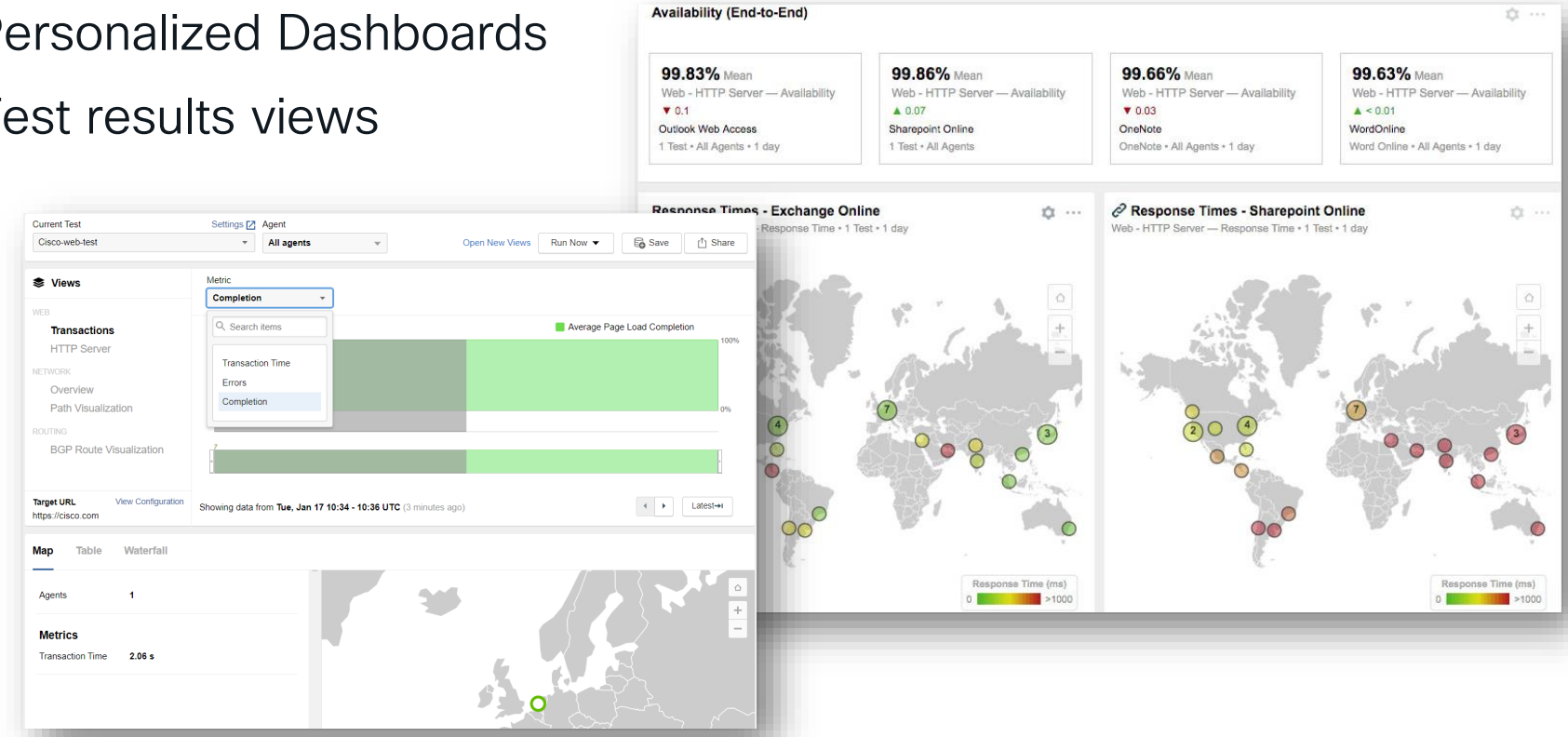
Results

- Personalized Dashboards
- Test results views



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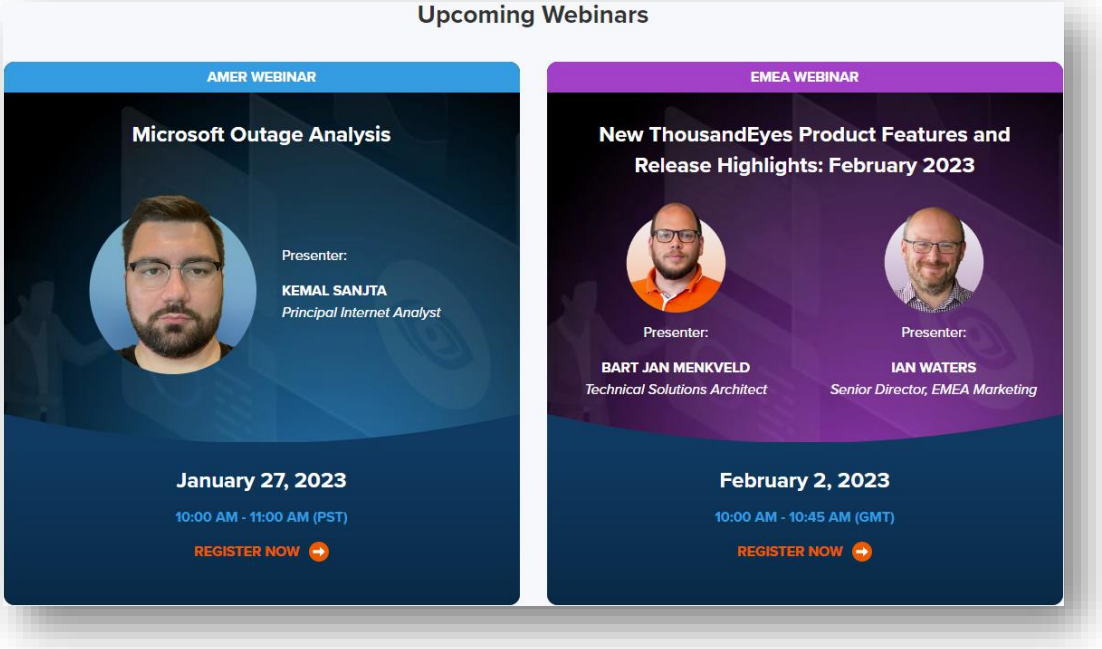
Things to know prior to deployment

Before you get started

Education

- Understanding ThousandEyes
  - ThousandEyes Webinars



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Before you get started

Education

- Understanding ThousandEyes
  - Jumpstart sessions

TOPIC	
TOPIC 1	Intro to the ThousandEyes Platform & Organizational Administration
TOPIC 2	Agents Instrumentation Cloud & Enterprise Agents & Endpoint Agents
TOPIC 3	Test Instrumentation and Event Analysis for Cloud & Enterprise Agents + Device Layer
TOPIC 4	Scheduled Test Instrumentation and Event Analysis for Endpoint Agents
TOPIC 5	Operationalize using Dashboards & Reports + Proactive Monitoring with Alerts
TOPIC 6	Internet Insights & Application Insights
TOPIC 7	Synthetics Monitoring & Best Practices
TOPIC 8	API / Integrations

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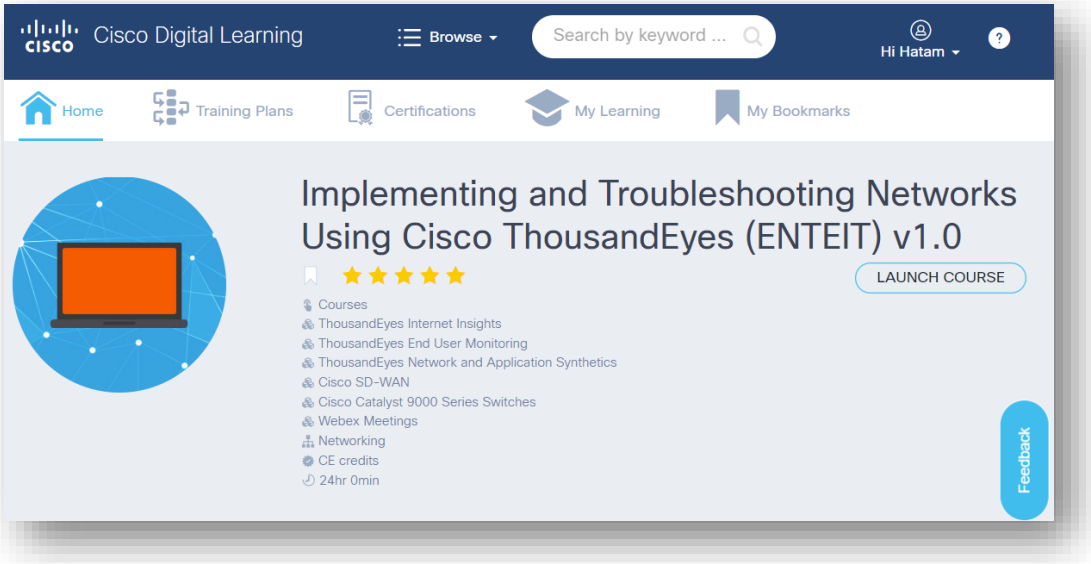
Before you get started

Education

- Understanding ThousandEyes
  - Cisco Digital Learning library
    - Implementing and Troubleshooting Networks Using Cisco ThousandEyes (ENTEIT)



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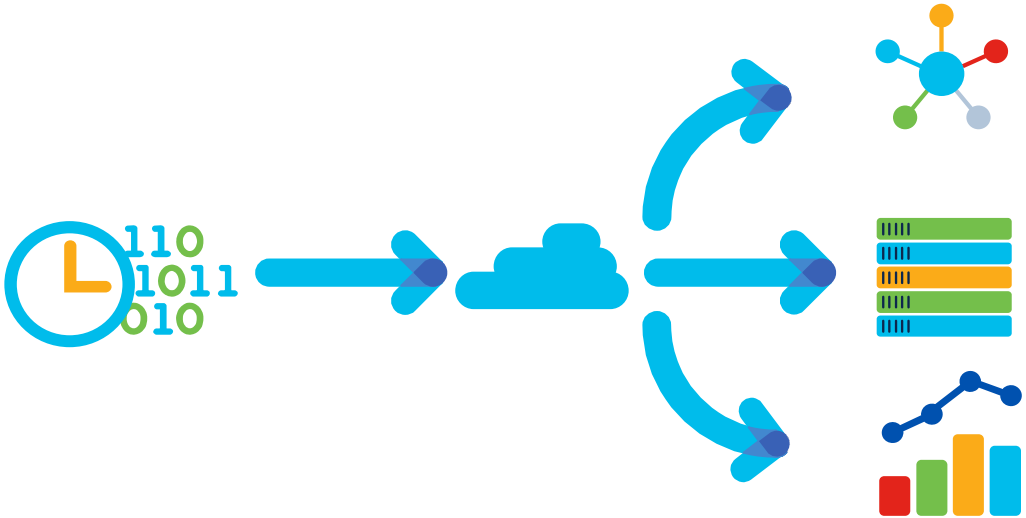
Before you get started

Collaboration

- Working with all stakeholders
- ThousandEyes owners vs ThousandEyes users/consumers
  - Network team, Application team, and Service Managers



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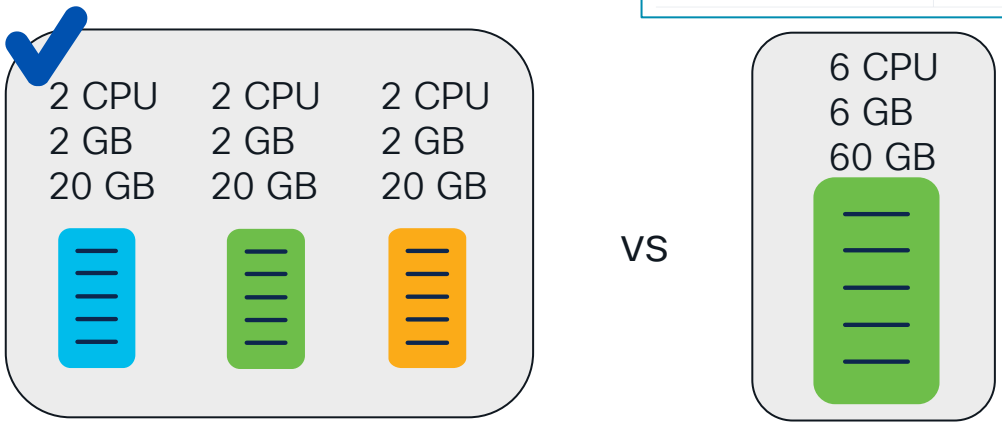
Technical Lessons Learned

Lesson 1: Plan your resources

Enterprise Agent deployment. Agent resources

- Common hardware requirements:
  - More?

	With BrowserBot	Without BrowserBot
CPU Count	2	2
RAM	2 GB	1 GB
Hard Disk Space	20 GB	20 GB
Network Interface	Required	Required
Internet Connection	Required	Required



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Lesson 1: Plan your resources

Enterprise Agent deployment. Agent resources

- Queues

Queue Name	Test Types Assigned to Queue
Browser	Page Load tests Transaction tests
General	All Network Layer tests All DNS Layer tests HTTP Server tests
Bandwidth	All tests with Bandwidth metrics All tests with Throughput metrics
Voice	All Voice Layer tests

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Recap

Why is it important?

- Resources = Money
- You don’t want to allocate resources ineffectively
- Remember what the Enterprise Agent is used for
- Very common misconception in the real world

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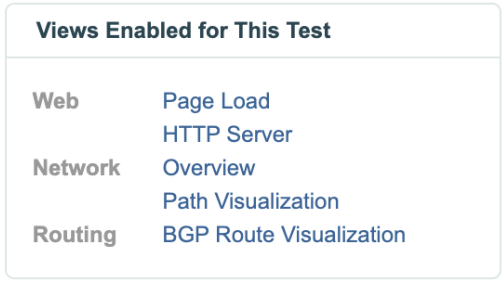
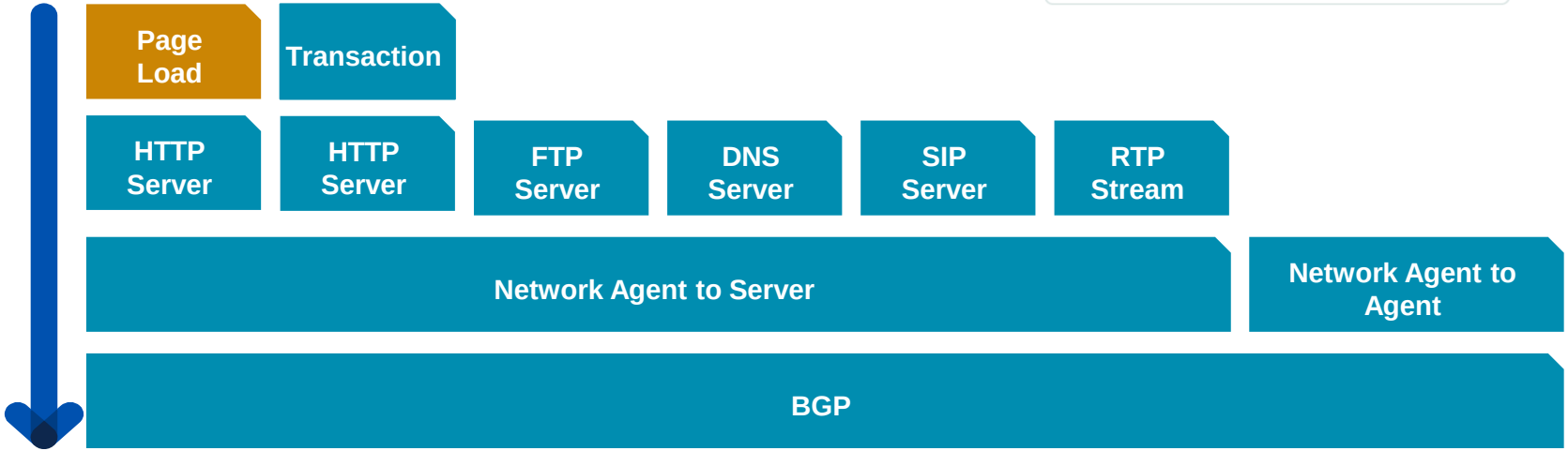
Lesson 2: Plan your tests

Test layers

- Consider it during planning





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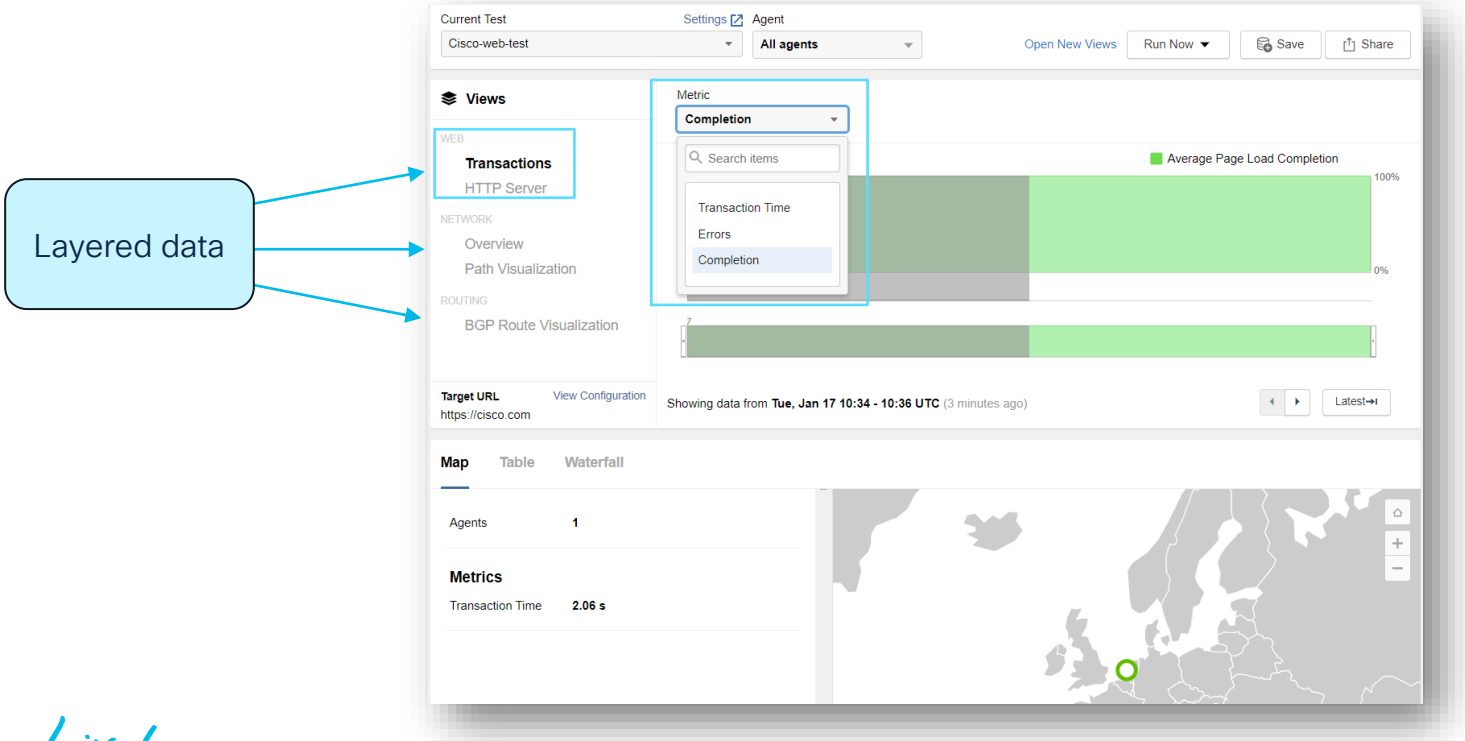
Lesson 2: Plan your tests

Test layers

- Transaction test to load cisco.com and take a screenshot



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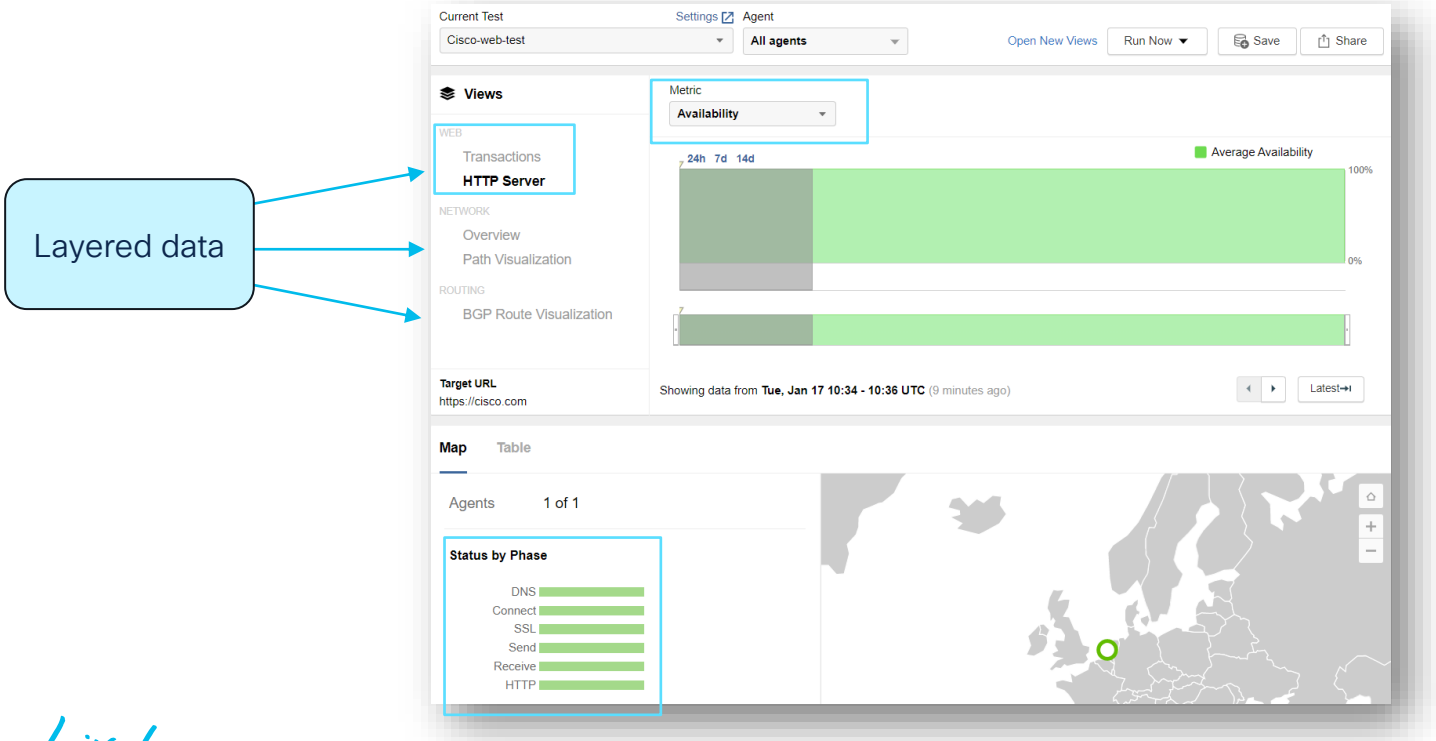
Lesson 2: Plan your tests

Test layers

- Transaction test to load cisco.com and take a screenshot



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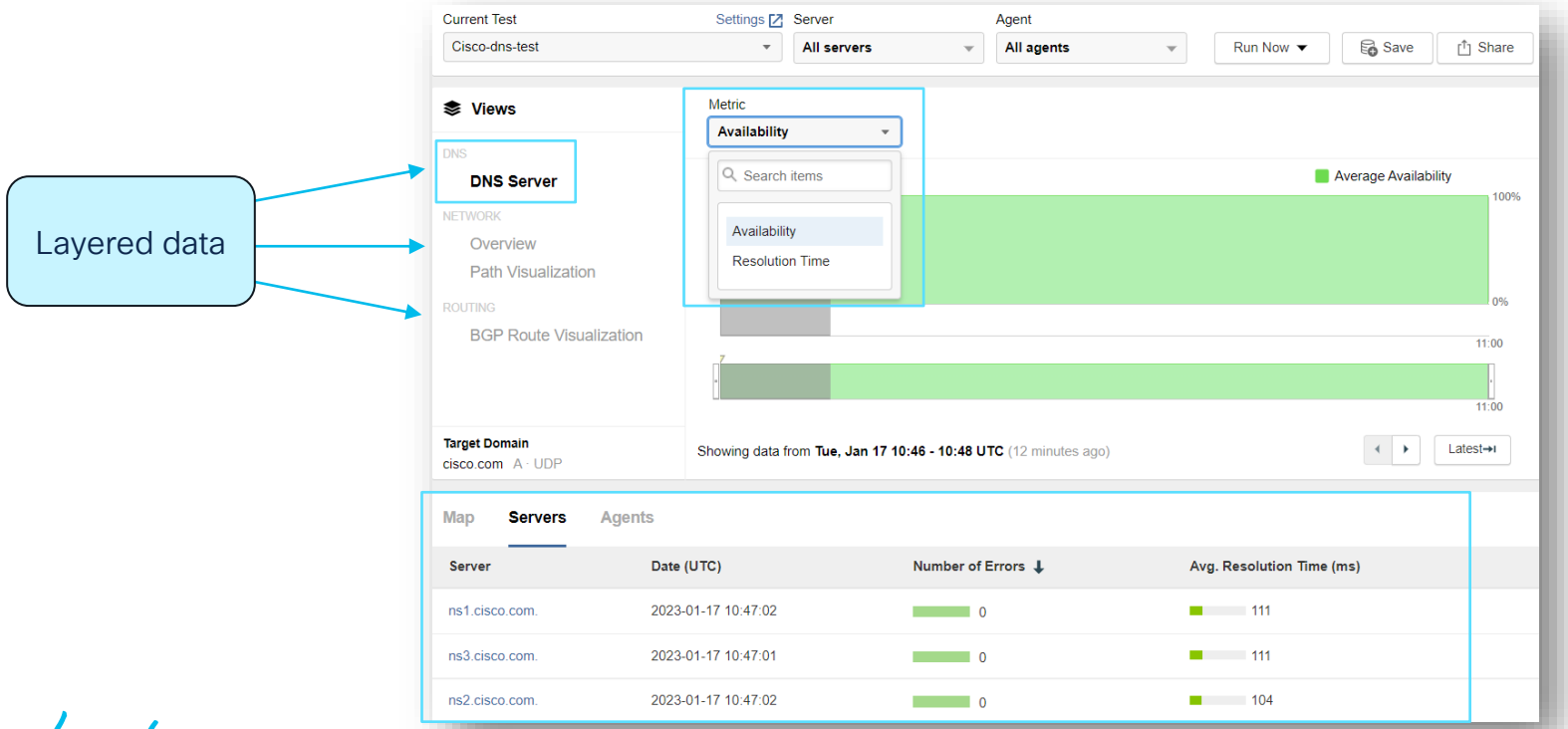
Lesson 2: Plan your tests

Test layers

- DNS test for cisco.com



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Recap

Why is it important?

- Don’t configure 2 tests when 1 test will do
- Tests = Units = Money
- Layered data doesn’t cost additional units
- Using the data in the layered tests can help to save some ThousandEyes Units
- Requires planning and understanding of customer use cases

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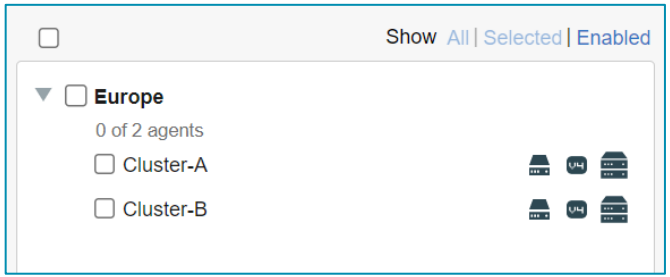
Lesson 3: Know what to expect

Enterprise Agent deployment. Clustering

- Standalone vs Clustered Agent
- Load distribution vs High-availability



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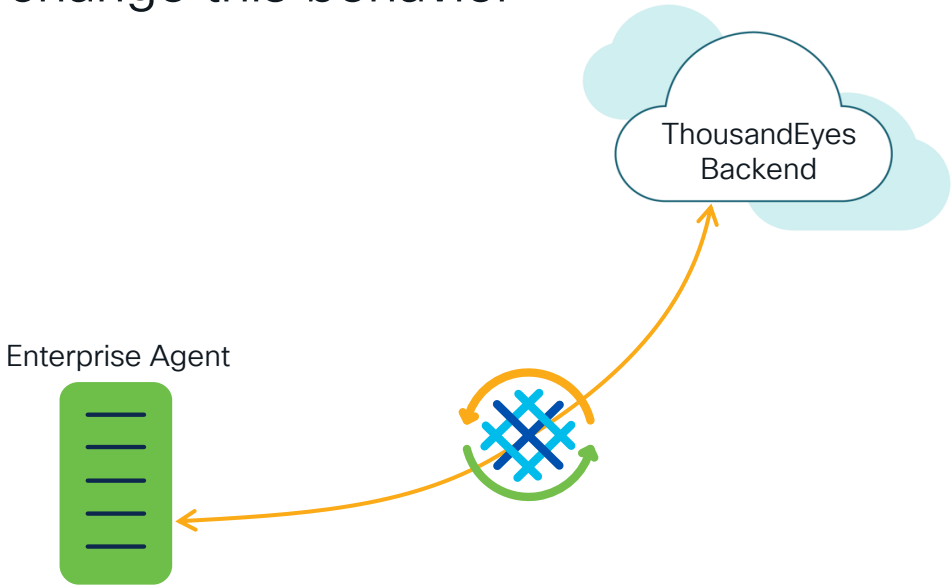
Lesson 3: Know what to expect

Enterprise Agent deployment. Clustering

- The reason why it behaves this way
- There are plans to change this behavior



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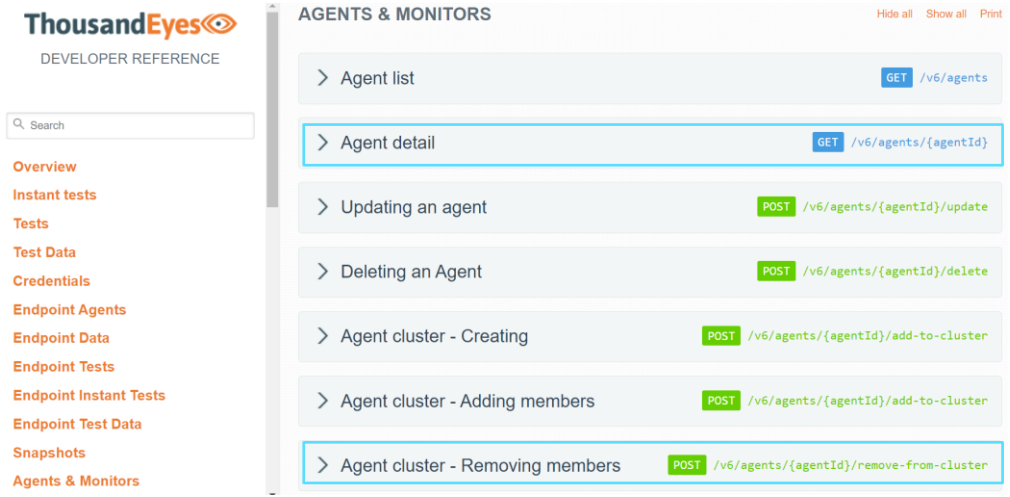
Recap

Why is it important?

- Knowing this beforehand is very helpful
- Can be a reason for escalation or support cases
- When there is ~~a will~~ an API there is a way ☺



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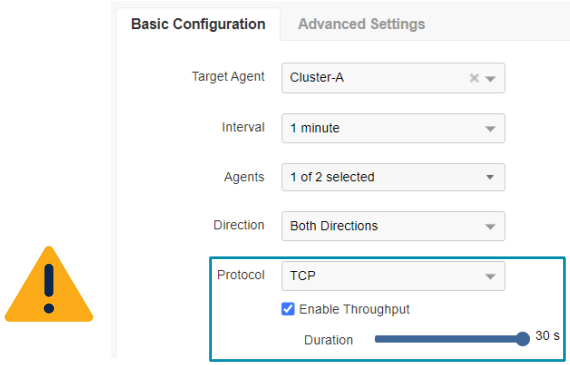
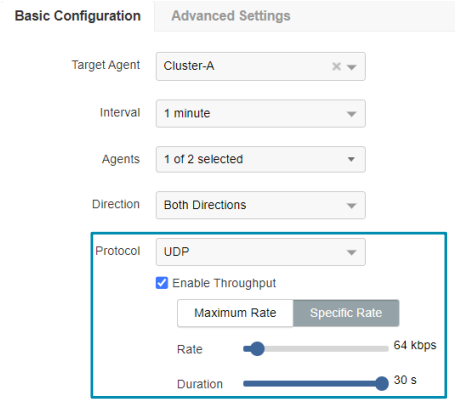
Lesson 4: Know what to expect (again)

Throughput tests

- Only for Enterprise Agents
- TCP or UDP based





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Recap

Why is it important?

- We have seen customers cause network outages by enabling Throughput tests
- Start with a lab or a staging environment first
- Take it into your QoS design consideration

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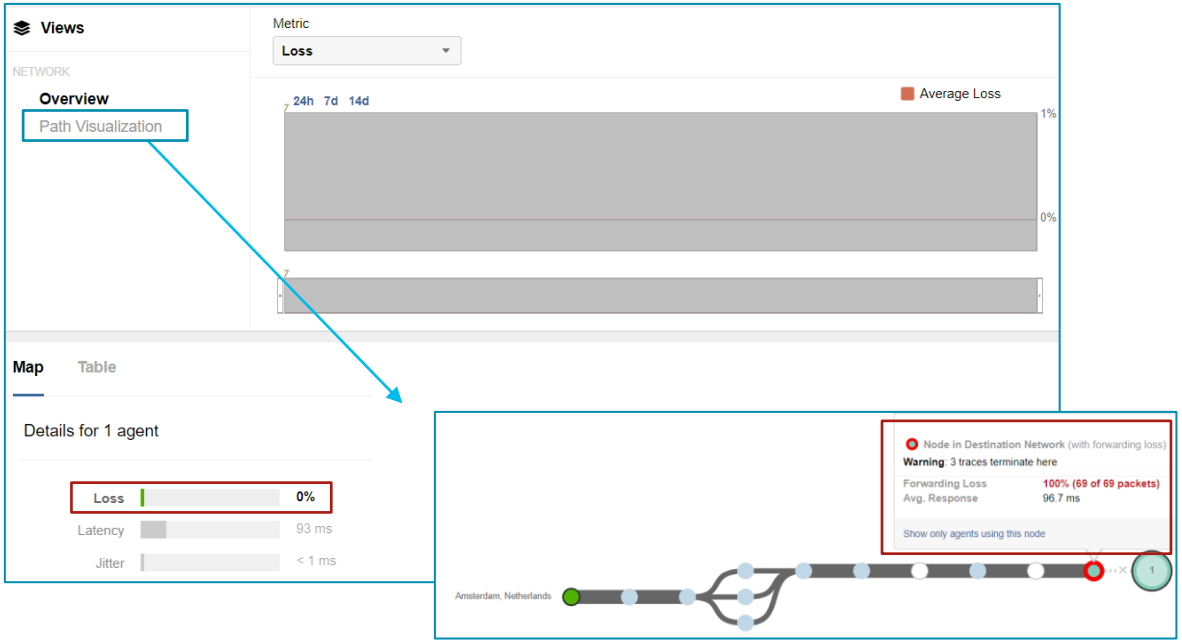
Lesson 5: Know where to look at

Network test results

- Is there a packet loss?

Loss value discrepancy

Network Overview	Path Visualization
50 TCP or ICMP Probes	TCP or ICMP traceroute



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Recap

Why is it important?

- Understanding the data presented is critical
- Network test has dual origin
- Knowing the underlying mechanisms of tests can help to avoid false alarms
- Sometimes discrepancy is a good thing

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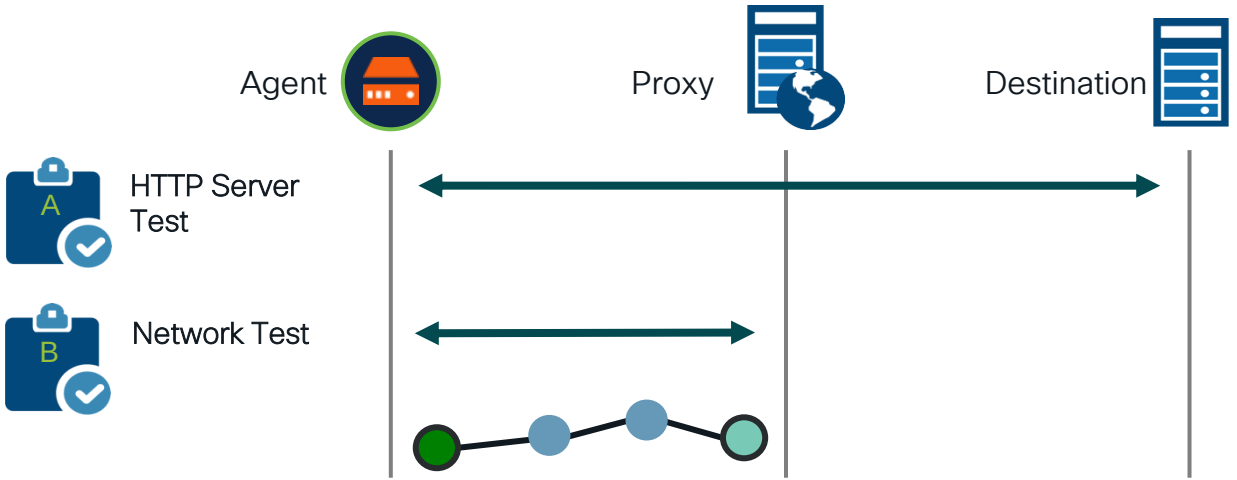
Lesson 6: Don’t forget about the Proxy

Network test results

- What does a proxy change?



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Recap

Why is it important?

- Understand implications of having a proxy in the test path
- Network data collection to a proxy is not enabled by default
- If you have a proxy, then consider:
  - configure separate agent bypassing the proxy
  - install an enterprise agent in the proxy location

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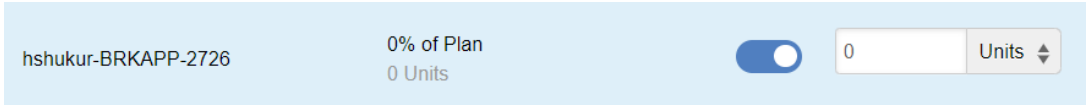
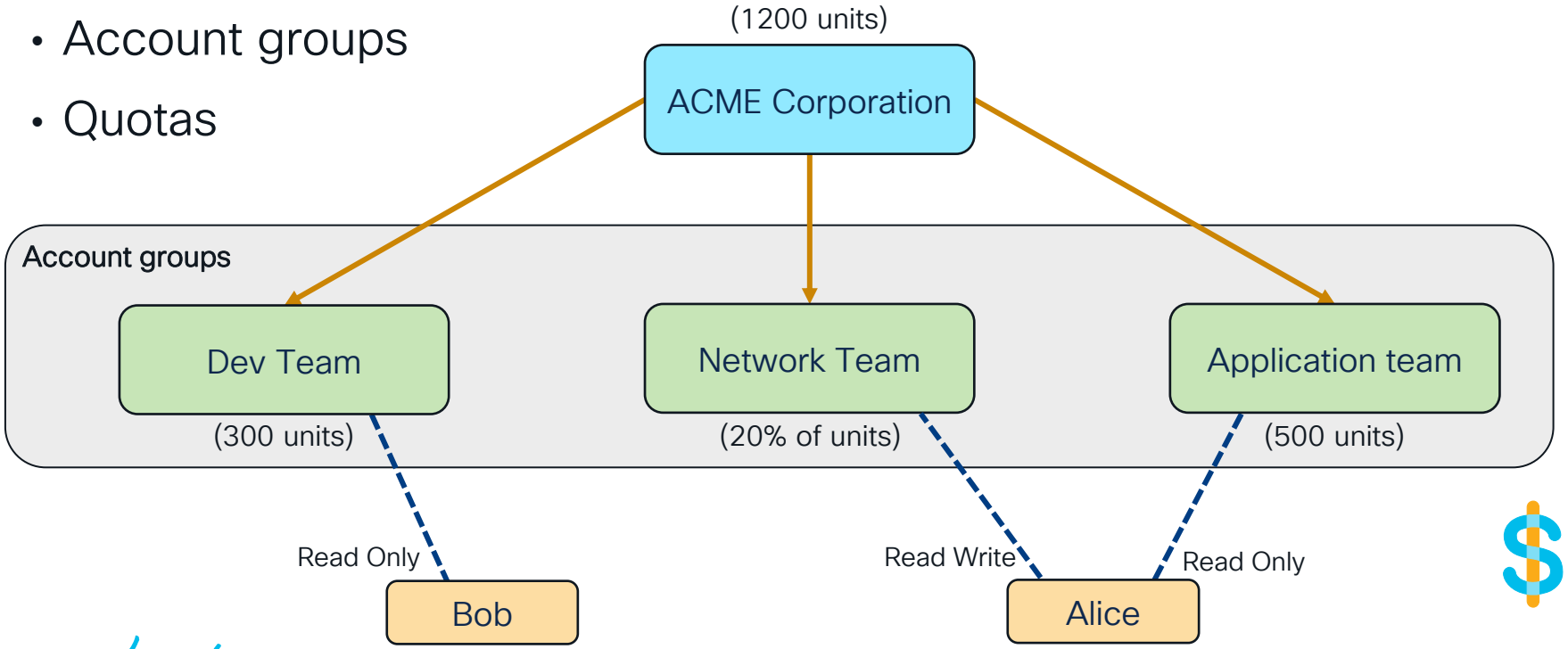
Best Practices

Plan Multi-Tenancy

ACME Corporation organization

- Organization
- Account groups
- Quotas





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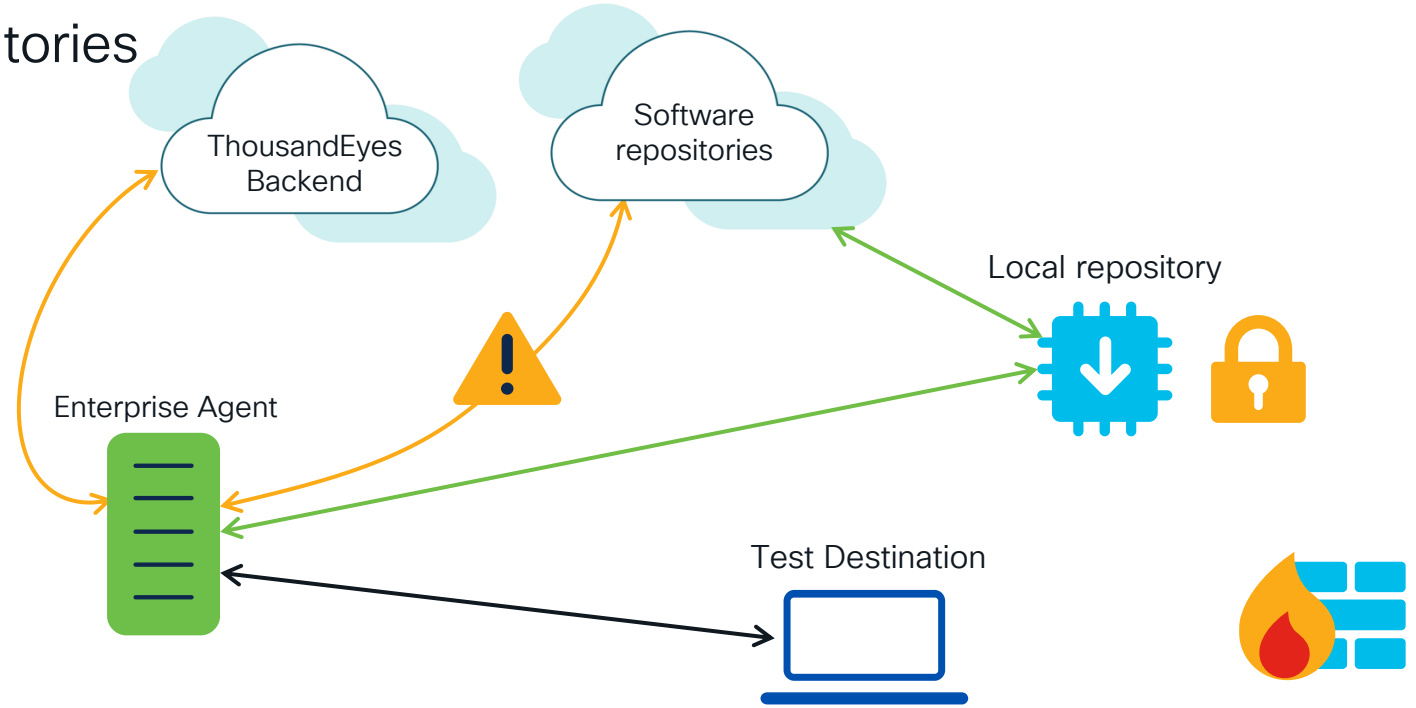
Meet Enterprise Agents Network Requirements

Installation and Maintenance

- Firewall requirements
- Local repositories



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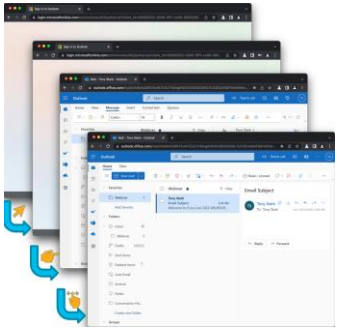
Plan transaction test credentials

When you start scaling up…

- Robot/service accounts
- Identity Provider (SSO) issues



```
async function setUsernameAndPassword() {
    const strAgentName = agent.getInfo().agentName;
    switch (strAgentName.substring(strAgentName.length - 1)) {
        case "1":
            strUsername = credentials.get('ScriptUsername-DC1');
            strPassword = credentials.get('ScriptPassword-DC1');
            break;
        case "2":
            strUsername = credentials.get('ScriptUsername-DC2');
            strPassword = credentials.get('ScriptPassword-DC2');
            break;
        case "3":
            strUsername = credentials.get('ScriptUsername-DC3');
            strPassword = credentials.get('ScriptPassword-DC3');
            break;
        default:
            strUsername = credentials.get('DefaultUsername');
            strPassword = credentials.get('DefaultPassword');
            break;
    }
}
```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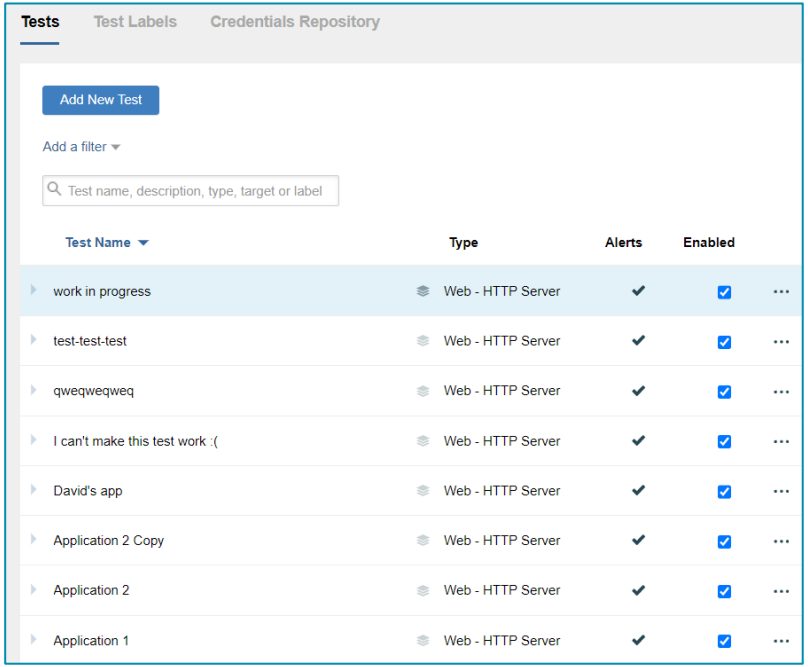
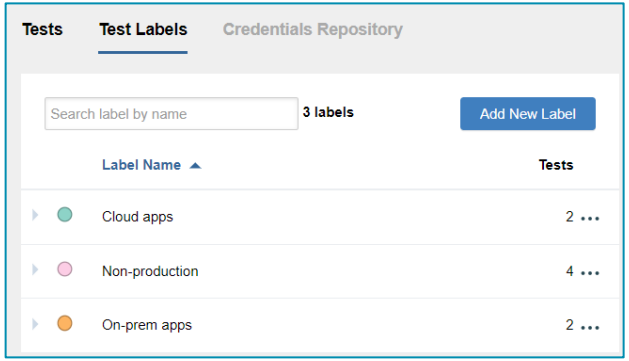
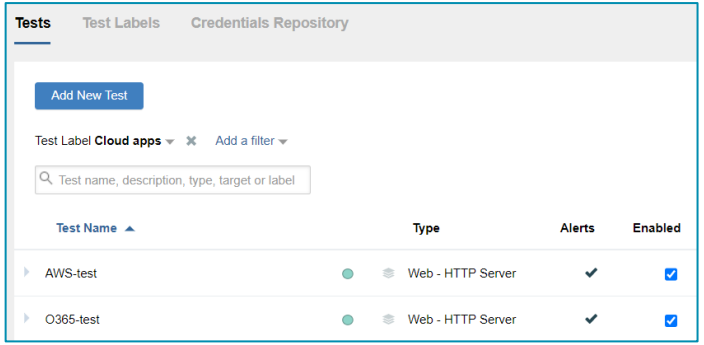
Use Labels

Easy way to track tests, agents, dashboards

- Example







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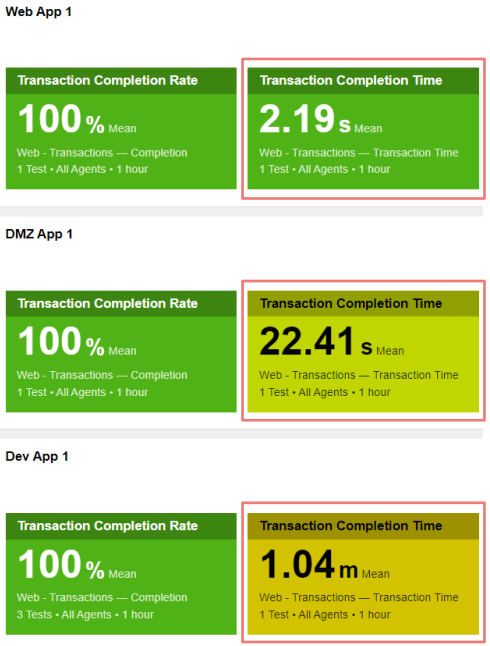
Revise timeout values

One way to save units (money)

- Monitor test completion via dashboards
- Use statistical analysis to determine the optimal timeouts
- Not feasible to do during initial deployment
- Requires observation period



Test Description	Interval	Details	Agents	No. of tests	Monthly Usage
Web - Transaction	5 min	90 s Timeout	0 1	1	402
Web - Transaction	5 min	90 s Timeout	0 1	1	402
Web - Transaction	5 min	90 s Timeout	0 1	1	402

1206 units used

Test Description	Interval	Details	Agents	No. of tests	Monthly Usage
Web - Transaction	5 min	15 s Timeout	0 1	1	67
Web - Transaction	5 min	60 s Timeout	0 1	1	268
Web - Transaction	5 min	90 s Timeout	0 1	1	402

737 units used

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Reference Links

- ThousandEyes Webinars
- Implementing and Troubleshooting Networks Using Cisco ThousandEyes (ENTEIT) v1.0
- Enterprise Agent System Requirements
- Test Type Layers and Units
- Working with Enterprise Agent Clusters
- Developer Reference. Agents & Monitors
- Unit Quotas Use Cases
- Firewall Configuration for Enterprise Agents
- Configuring a Local Mirror of the ThousandEyes Package Repository
- How Unit Consumption Works

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Your main key takeaways

- Invest time into planning
- Collaborate with all stakeholders
- Use these lessons learned and best practices
- Hopefully, you are going to have less “If only I knew” moments ☺

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- 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
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The bridge to possible

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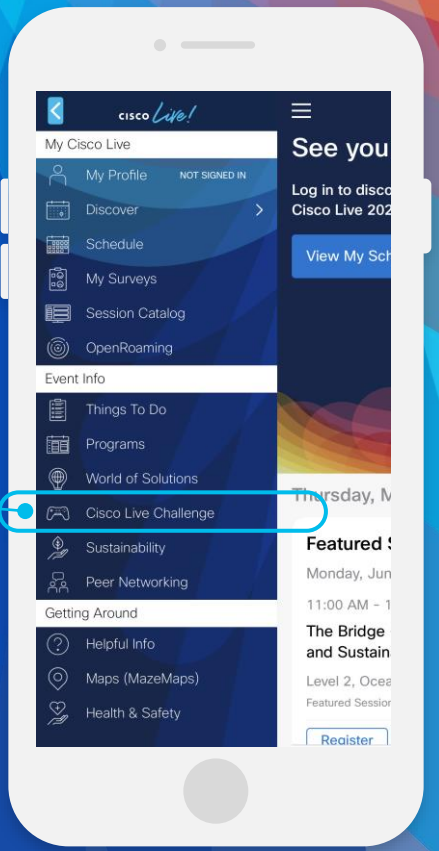
3. Click on View Your Badges at the top.
4. Click the + at the bottom of the screen and scan the QR code:



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