

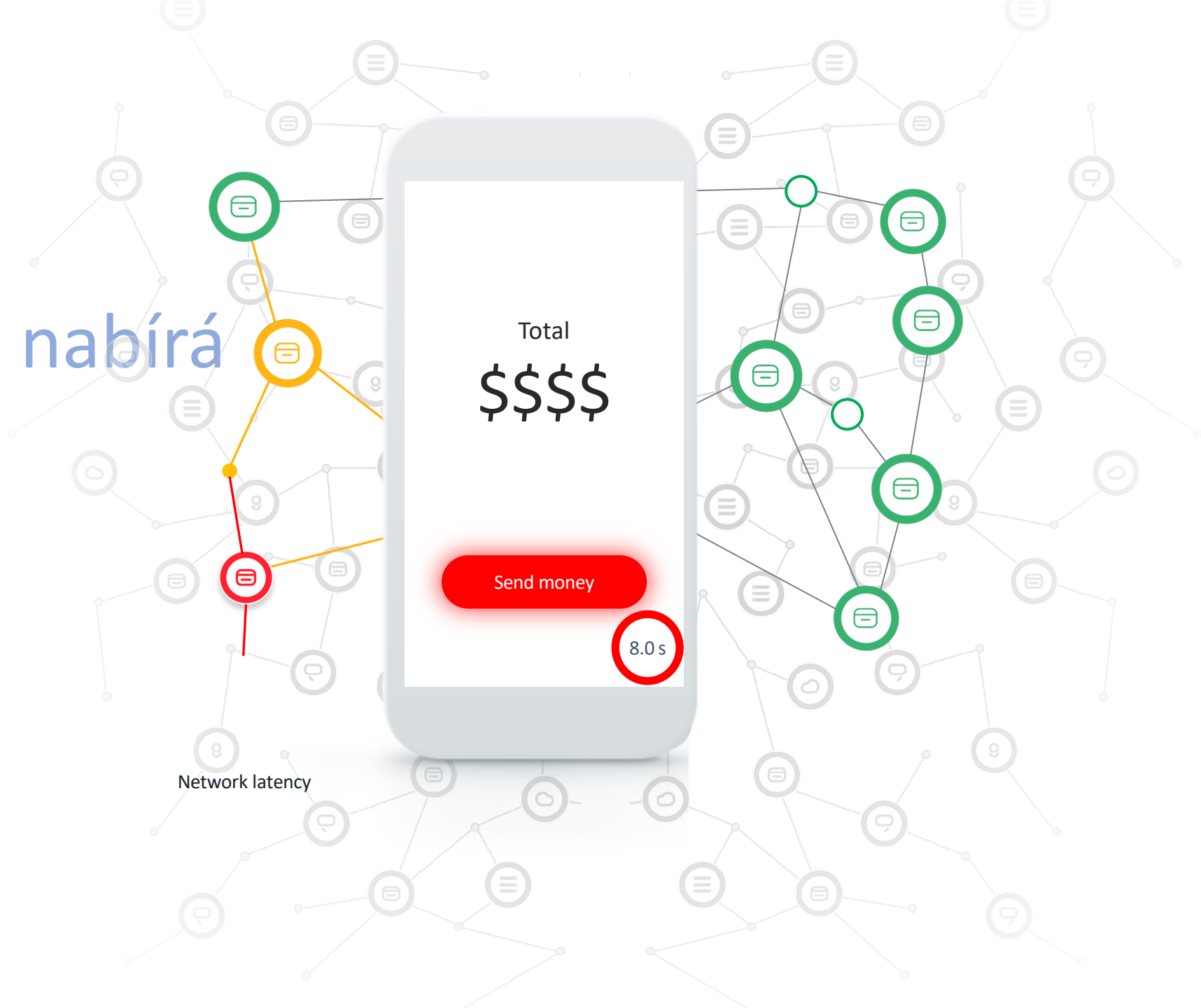


Cisco Tech Club

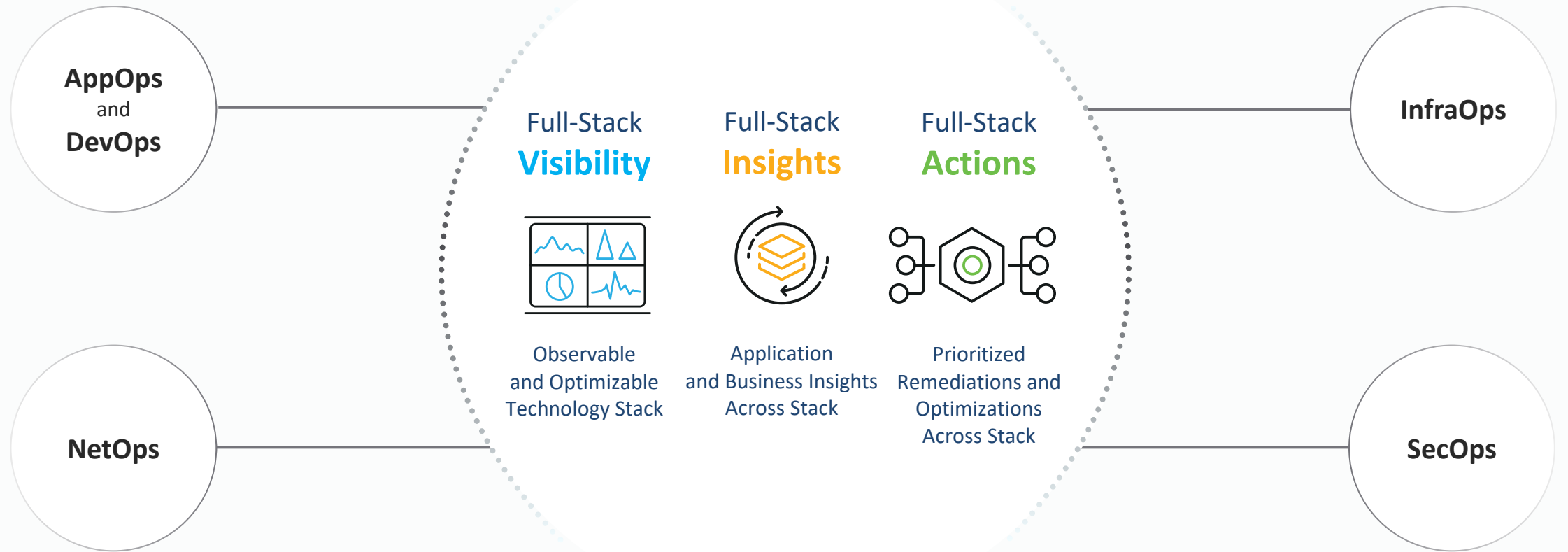
# Riešenia k full-stack observability

Miloš Pavlík  
Cisco Technical Solution Architect

# Digitální Transformace nabírá na obrátkách



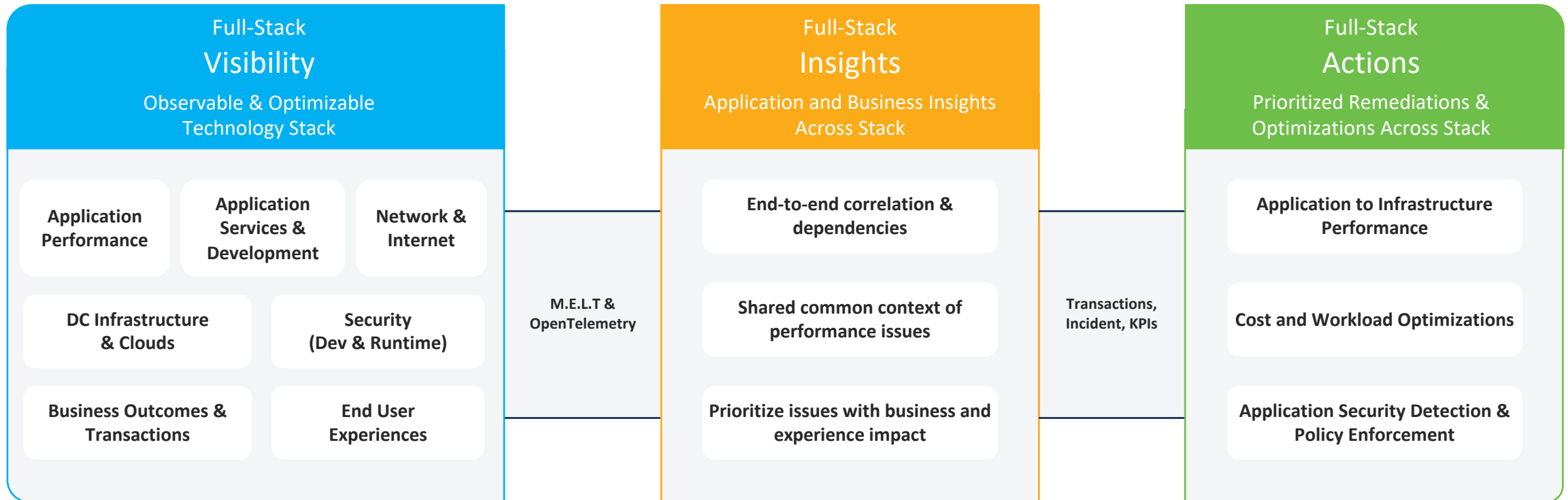
# Full-Stack Observability od Cisco



# Full-Stack Observability

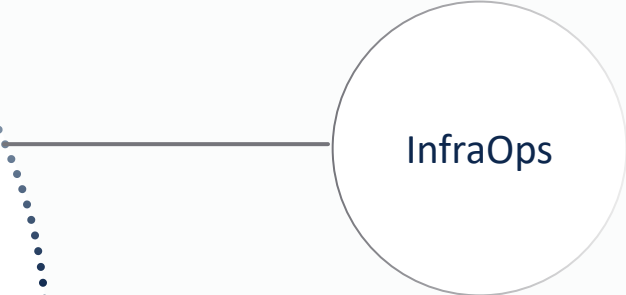
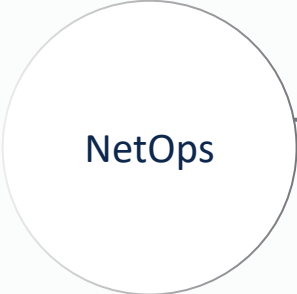
with Business Context

Prioritize issues with Business Context



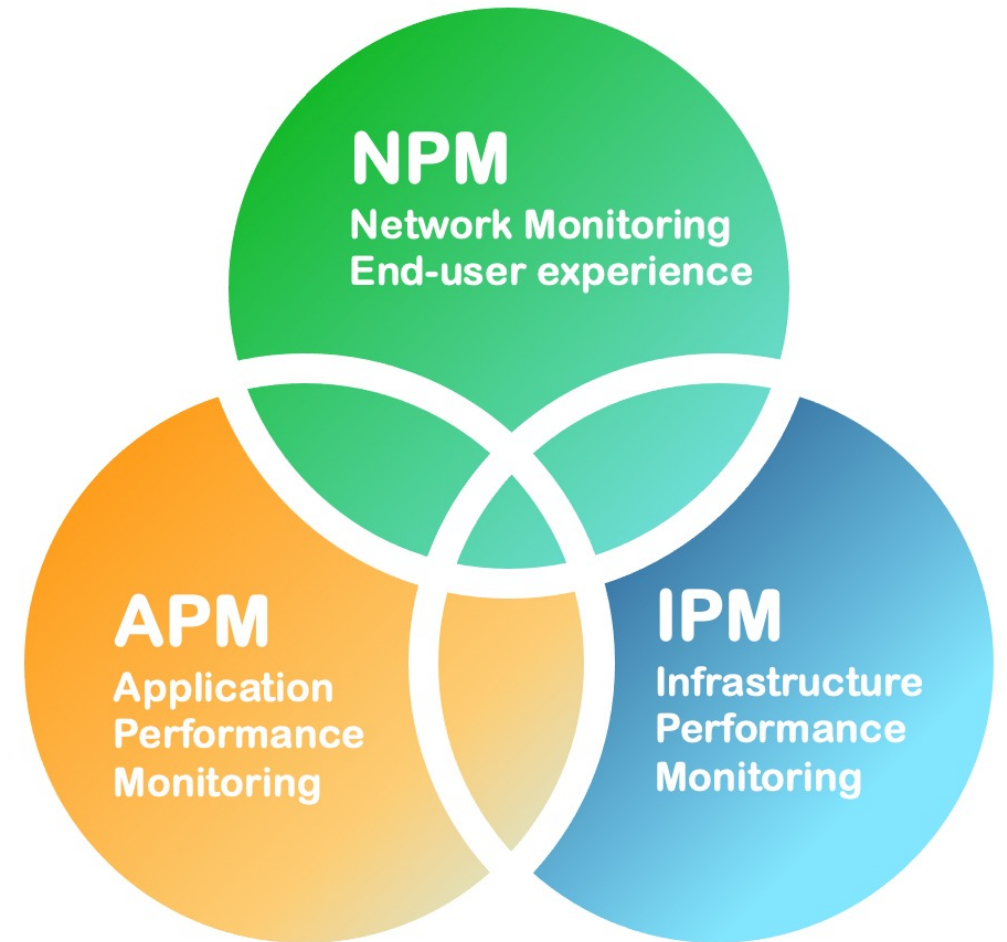
Full-Stack actions for the business

# Základ pro Cisco Full-Stack Observability



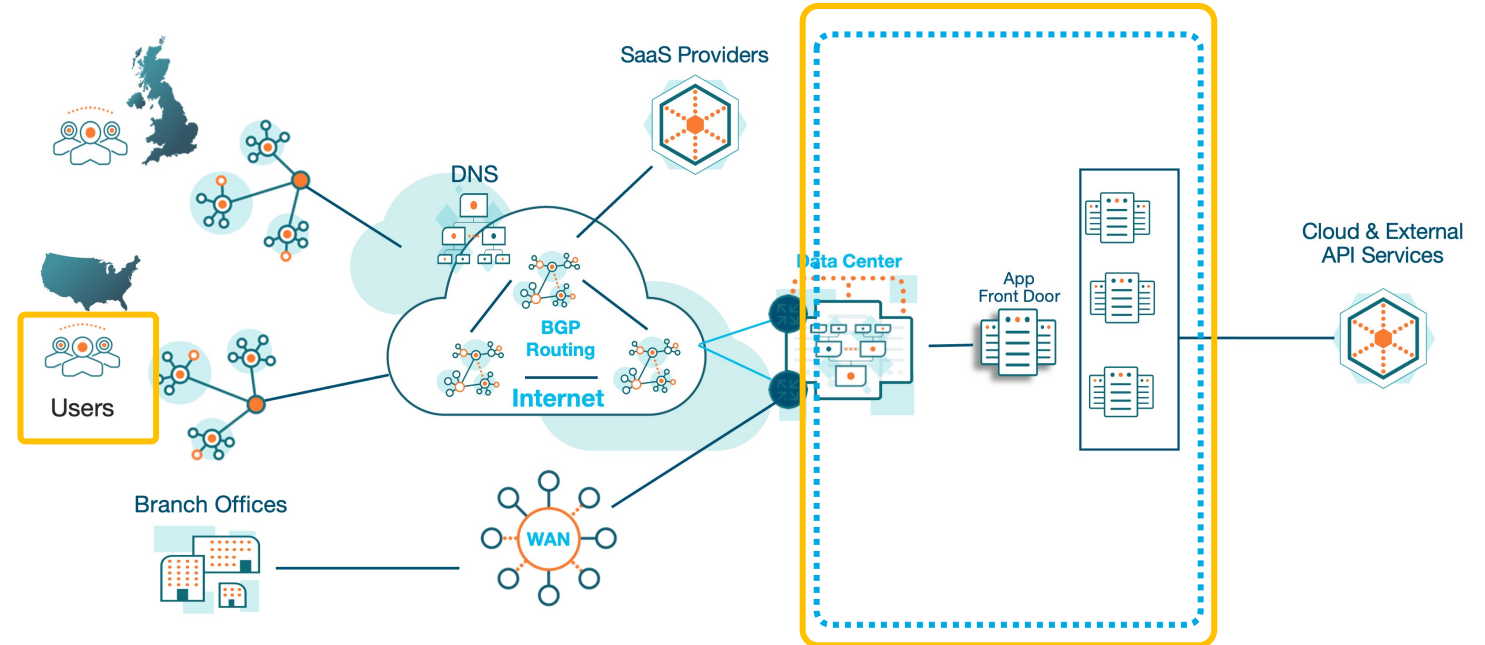
# Aplikace jsou to, oč tu běží

- Klíčová je spokojenost uživatele (bez chyb, rychlá, použitelná)
- Kompletní dohled v IT vyžaduje dohled nad aplikacemi, sítěmi, výpočetními systémy a datovými úložišti
- Předpoklad pro
  - Včasné varování
  - Pochopení vazeb
  - Řešení problémů k celém kontextu



# AppDynamics

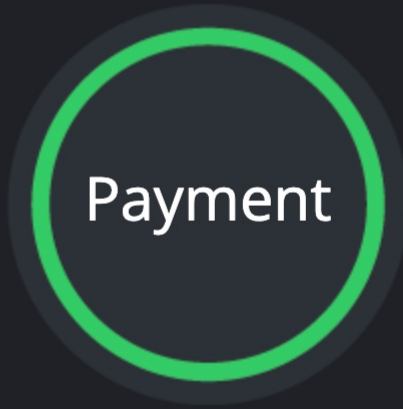
- Vhled do aplikační architektury
- Aplikační monitoring do úrovně kódu aplikací
- Transakčně orientovaný – 100% transakcí monitorovaných od začátku do konce
- Monitoring koncových uživatelů pro HTML a mobilní aplikace
- Health checks, alerts
- Root-cause analýza



- Monitoring infrastruktury
- Monitoring datových toků (DC)
- Obchodní metriky
- Rozšiřitelnost – ACI, CWOM, další extensions

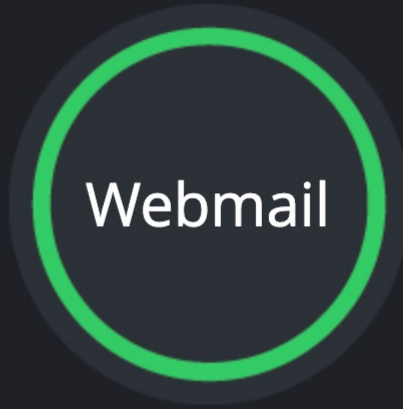
# ECommerce

---



# Movie Tickets

---



APPDYNAMICS



ECommerce

Application Dashboard

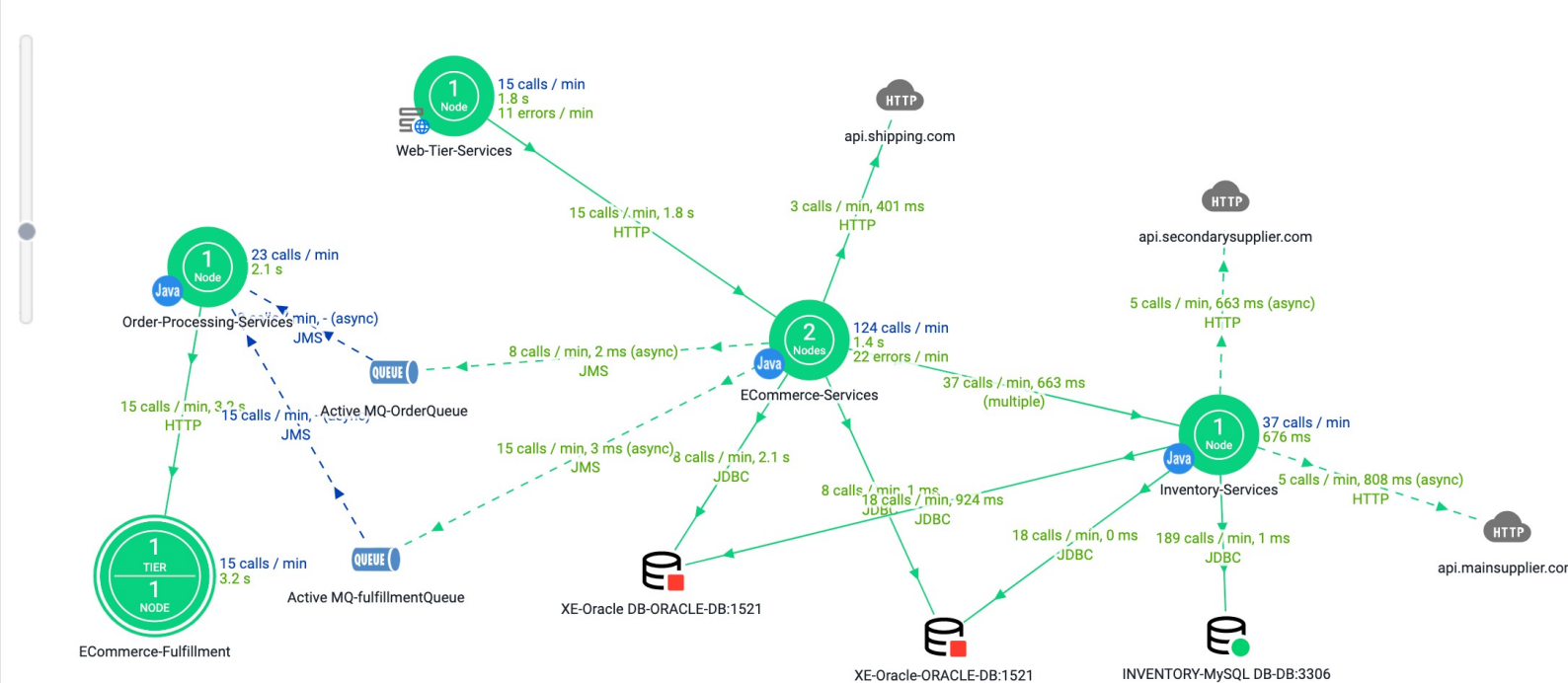
- Business Transactions
- Service Endpoints
- Tiers & Nodes
- Servers
- Containers
- Database Calls
- Remote Services
- Troubleshoot
- More

- Alert & Respond
- Metric Browser
- Configuration
- View in User Experience

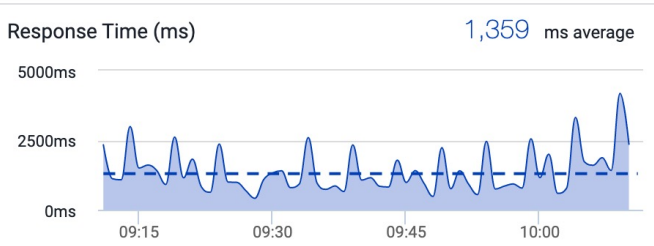
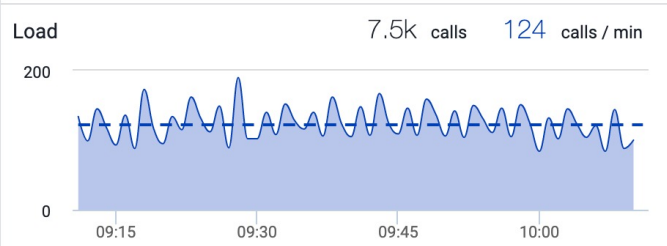
ECommerce

Dashboard Network Dashboard Events Top Business Transactions Transaction Snapshots Transaction Score

Application Flow Map



Legend



**Events**

- Health Rule Violations Started: 8
- Business Transaction Health: 8
- Code Problems: 60

**Business Transaction Health**

4 critical, 3 warning, 14 normal

**Node Health**

0 critical, 0 warning, 5 normal

**Server Health**

1 critical, 0 warning, 0 normal

**Security Events**











0 Critical 0 Warning 0 Normal

**Transaction Scorecard**

Normal	81.3%	6.1k
Slow	0.4%	30
Very Slow	0.8%	59
Stall	0.0%	-
Errors	17.5%	1.3k

**Exentions**

ECommerce ▼

-  Application Dashboard
-  **Business Transactions**
-  Service Endpoints
-  Tiers & Nodes
-  Servers
-  Containers
-  Database Calls
-  Remote Services
-  Troubleshoot ➤
-  More ➤

Alert & Respond
















Metric Browser

Configuration

View in User Experience

## Business Transactions

🔄 last 1 hour ▼ ! ?

<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="display: flex; gap: 10px;"> <span>👁️ Details</span> <span>🔍 Filters</span> <span>⋮ Actions</span> <span>📊 View Options</span> <span>⚙️ Configure</span> </div> <div style="border: 1px solid #ccc; padding: 2px; border-radius: 4px;"> <input type="text" value=""/> </div> </div> <div style="text-align: right; font-size: 0.8em; margin-top: 5px;">Showing 21 of 21</div>											
...	Name	Original Name	H...	Response Time (ms)	Calls	Calls / min	Errors / min	% Errors	Total Errors	Tier	
	All Other Traffic - Web-Tier-Services	_APPDYNAMICS_DEFAULT_TX_	✔️	-	-	-	-	0	-	Web-Tier-Se...	
	FulfillmentConsumer:fulfillmentQueue	FulfillmentConsumer:fulfillmentQueue	✔️	-	-	-	-	0	-	Order-Proce...	
	MessageConsumer:OrderQueue	MessageConsumer:OrderQueue	✔️	-	-	-	-	0	-	Order-Proce...	
	/cart/changeOrder	/cart/changeOrder	✔️	-	-	-	-	0	-	Inventory-Se...	
	Homepage	Homepage	✔️	1	1,813	31	-	0	-	ECommerce...	
	/cart/orderService	/cart/orderService	✔️	-	-	-	-	0	-	Inventory-Se...	
	Checkout	Checkout	❗	2,579	396	7	1	10	44	ECommerce...	
	Confirm Order	Confirm Order	⚠️	2	318	5	-	0	-	ECommerce...	
	Order.update	Order.update	❗	1,381	318	5	-	0	-	ECommerce...	
	Fetch Catalog	Fetch Catalog	❗	490	506	9	0	3	14	ECommerce...	
	Payment Info	Payment Info	✔️	2	335	6	-	0	-	ECommerce...	
	Shipping Address	Shipping Address	⚠️	2	344	6	-	0	-	ECommerce...	
	Add to Cart	Add to Cart	✔️	5	492	8	0	3	16	ECommerce...	
	Login	User Login <span>Add to Cart</span>	✔️	1,864	861	15	11	70	633	Web-Tier-Se...	
	User Logout	User Logout	✔️	-	-	-	-	0	-	Web-Tier-Se...	
	/json/user/all.GET	/json/user/all.GET	✔️	-	-	-	-	0	-	ECommerce...	

ECommerce

Application Dashboard

Business Transactions

Service Endpoints

Tiers & Nodes

Servers

Containers

Database Calls

Remote Services

Troubleshoot

More

Alert & Respond

Metric Browser

Configuration

View in User Experience

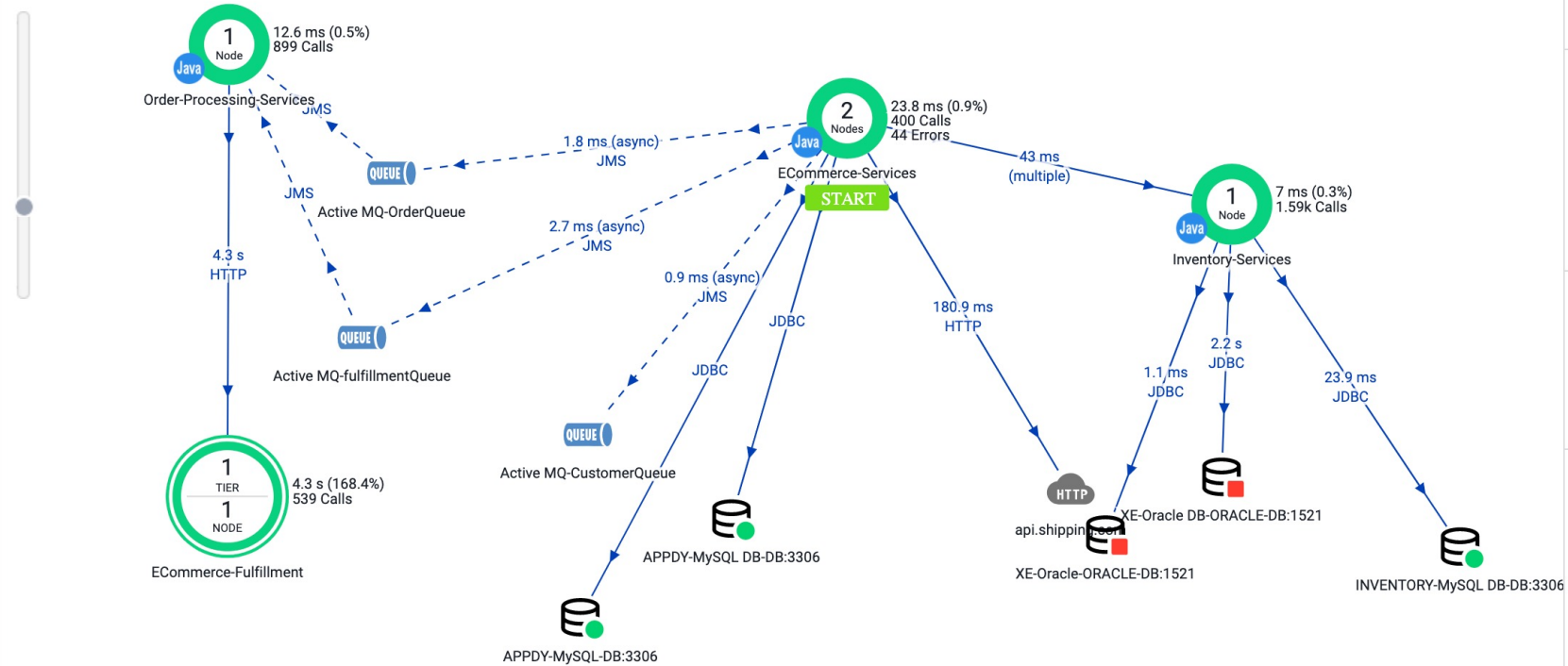
Checkout

🔄 Daily Trend - Last 30 days last 1 hour ⚠️ ?

Dashboard Events Slow Response Times Errors Transaction Snapshots Transaction Score DB Queries

Actions

Transaction Flow Map



Events

Health Rule Violations Started	2	⚠️
Business Transaction Health	2	⚠️

Transaction Scorecard

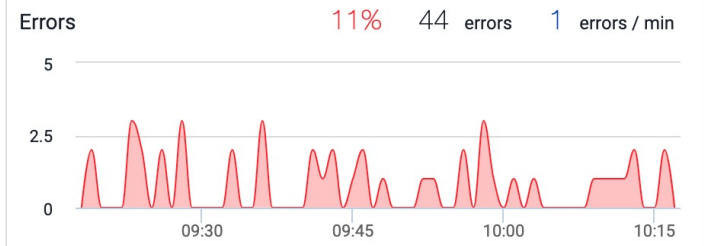
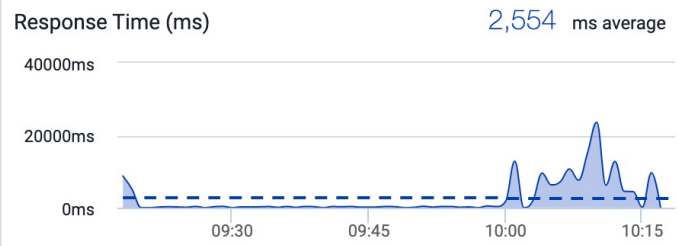
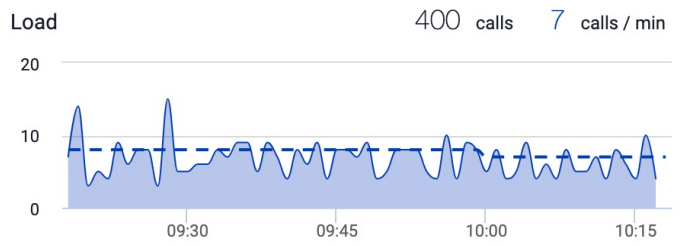
Normal	85.8%	343
Slow	0.3%	1
Very Slow	3.0%	12
Stall	0.0%	-
Errors	11.0%	44

Transaction Diagnostics

No performance issues were identified in the selected time range.

Legend

Not comparing against Baseline data



ECommerce ▼

Application Dashboard

Business Transactions

Service Endpoints

Tiers & Nodes

Servers

Containers

Database Calls

Remote Services

Troubleshoot ➤

More ➤

Alert & Respond

Metric Browser

Configuration

View in User Experience

Checkout ▼

🔄 last 1 hour ▼ ! ?

Dashboard Events Slow Response Times Errors **Transaction Snapshots** Transaction Score DB Queries

All Snapshots Transaction Diagnostics Slow and Error Transactions Diagnostic Sessions Periodic Collection

👁️ Details
🔍 Filters
📊 Analyze
⋮ Actions
⚙️ Configure
🔍 
Showing 13 of 13

+ Add Criteria
User Experience: Very Slow ▼ ×
Business Transactions: (1) Checkout ▼ ×

↓		Time	Exe Time (ms)	URL	Business Transaction	Tier	Node	☰
▼	📄	10/14/21 10:18:50	50,968	/appdynamicspilot/ViewCart!sendItems.action	Checkout	ECommerce-Services	ECommerce_WEB2_NODE	
▼	📄	10/14/21 10:09:15	42,052	/appdynamicspilot/ViewCart!sendItems.action	Checkout	ECommerce-Services	ECommerce_WEB2_NODE	
▼	📄	10/14/21 10:09:12	50,517	/appdynamicspilot/ViewCart!sendItems.action	Checkout	ECommerce-Services	ECommerce_WEB2_NODE	
▼	📄	10/14/21 10:07:41	42,295	/appdynamicspilot/ViewCart!sendItems.action	Checkout	ECommerce-Services	ECommerce_WEB2_NODE	
▼	📄	10/14/21 10:06:37	33,775	/appdynamicspilot/ViewCart!sendItems.action	Checkout	ECommerce-Services	ECommerce_WEB2_NODE	
▼	📄	10/14/21 10:06:20	25,510	/appdynamicspilot/ViewCart!sendItems.action	Checkout	ECommerce-Services	ECommerce_WEB2_NODE	
▼	📄	10/14/21 10:05:00	25,160	/appdynamicspilot/ViewCart!sendItems.action	Checkout	ECommerce-Services	ECommerce_WEB2_NODE	
▼	📄	10/14/21 10:03:19	50,575	/appdynamicspilot/ViewCart!sendItems.action	Checkout	ECommerce-Services	ECommerce_WEB2_NODE	
▼	📄	10/14/21 10:01:40	8,763	/appdynamicspilot/ViewCart!sendItems.action	Checkout	ECommerce-Services	ECommerce_WEB2_NODE	
▼	📄	10/14/21 10:01:31	25,394	/appdynamicspilot/ViewCart!sendItems.action	Checkout	ECommerce-Services	ECommerce_WEB2_NODE	
▼	📄	10/14/21 10:01:19	17,048	/appdynamicspilot/ViewCart!sendItems.action	Checkout	ECommerce-Services	ECommerce_WEB2_NODE	
▼	📄	10/14/21 10:00:32	50,300	/appdynamicspilot/ViewCart!sendItems.action	Checkout	ECommerce-Services	ECommerce_WEB2_NODE	
▼	📄	10/14/21 10:00:20	8,759	/appdynamicspilot/ViewCart!sendItems.action	Checkout	ECommerce-Services	ECommerce_WEB2_NODE	

Summary

Server Browser

User Experience: Very Slow

Execution Time  
33.8 s

Timestamp  
10/14/21 10:06:37

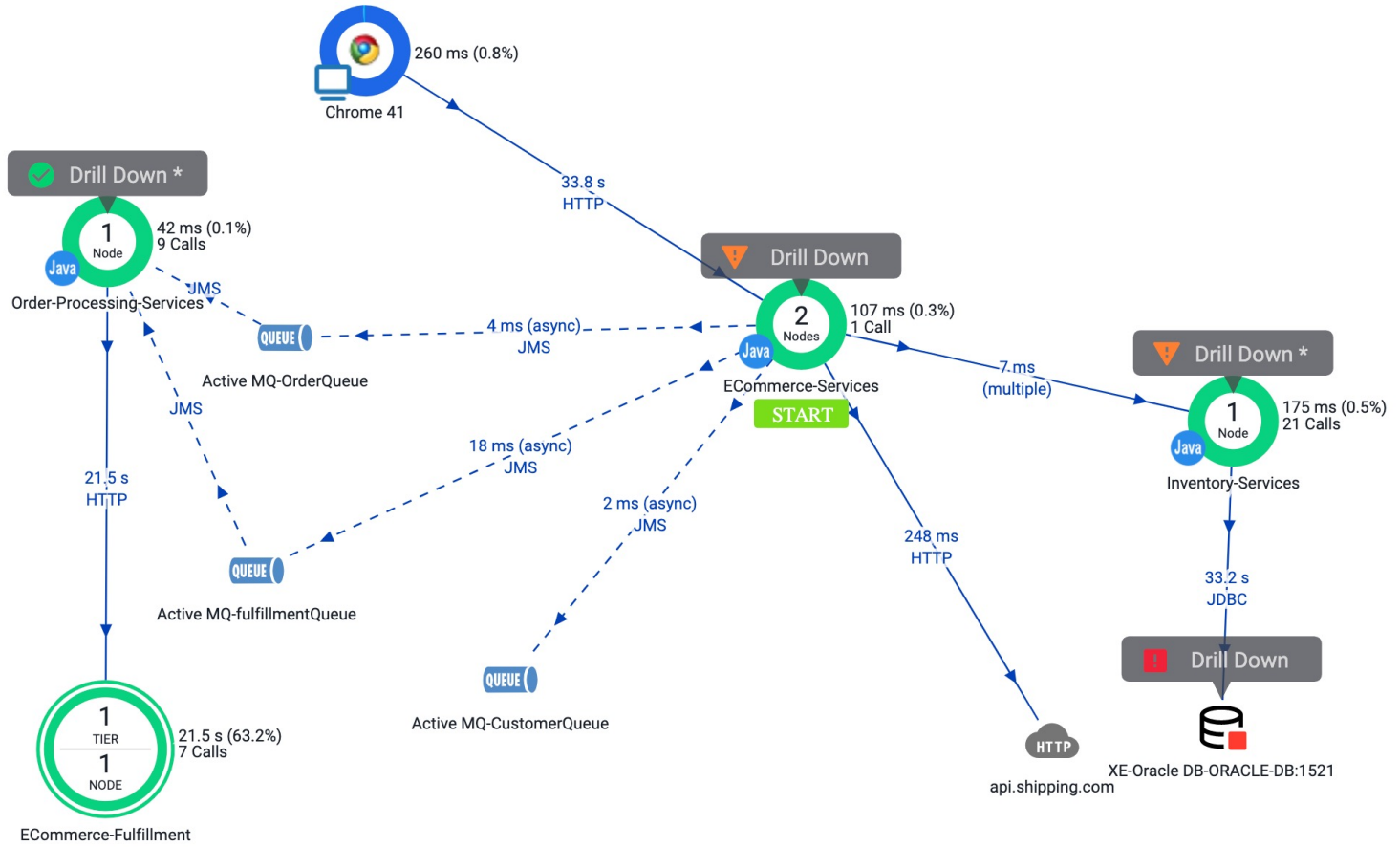
Business Transaction  
Checkout

More Details

Potential Issues

com.appdynamics.inventory.QueryExecutor.executeOracleQuery	33.3 s
com.appdynamics.pilot.jms.FulfillmentConsumer.postToRest	21.5 s
SELECT COMPANY, CITY, COUNT RY, CONTACT, PHONE, TO_CHAR (SUM(ORDERTOTAL), 'L99G999G999D999MI') AS VALUE...	8.5 s
SELECT COMPANY, CITY, COUNT RY, CONTACT, PHONE, TO_CHAR (SUM(ORDERTOTAL), 'L99G999G999D999MI') AS VALUE...	8.3 s
SELECT COMPANY, CITY, COUNT RY, CONTACT, PHONE, TO_CHAR (SUM(ORDERTOTAL), 'L99G999G999D999MI') AS VALUE...	8.2 s
SELECT COMPANY, CITY, COUNT RY, CONTACT, PHONE, TO_CHAR	8.2 s

Legend



Execution Time **33.8 s** Wait Time **20 ms** Block Time **0 ms** Node **ECommerce\_WEB2\_NODE** Timestamp **10/14/21 10:06:37**

Details 
 Filters 
 Set Root 
 Reset Root 
 Export

Showing 105 of 105

Name	Time (ms)	Percent %	Thread State	Exit Calls / Threads *	S...
StrutsActionProxy:execute	2 ms (self)	0%			
ognl.Ognl:getValue:434	0 ms (self)	0%			
ognl.Ognl:getValue:470	0 ms (self)	0%			
ognl.SimpleNode:getValue:258	0 ms (self)	0%			
ognl.SimpleNode:evaluateGetValueBody:212	0 ms (self)	0%			
ognl.ASTMethod:getValueBody:91	0 ms (self)	0%			
ognl.OgnlRuntime:callMethod:1375	0 ms (self)	0%			
ognl.ObjectMethodAccessor:callMethod:68	0 ms (self)	0%			
ognl.OgnlRuntime:callAppropriateMethod:1299	0 ms (self)	0%			
ognl.OgnlRuntime:invokeMethod:897	0 ms (self)	0%			
Struts Action - ViewCart:sendItems:243	249 ms (self)	0.7%		HTTP	
com.appdynamicspilot.service.CartService:checkout:134	44 ms (total)	0.1%		HTTP, Web Service (...)	
Spring Bean - fulfillmentProducer:sendFulfillment:36	4 ms (total)	0%		JMS	
com.appdynamicspilot.service.CartService:checkout:134	8,521 ms (tot...)	25.2%		HTTP, Web Service (...)	
Spring Bean - fulfillmentProducer:sendFulfillment:36	5 ms (total)	0%		JMS	
com.appdynamicspilot.service.CartService:checkout:134	39 ms (total)	0.1%		HTTP, Web Service (...)	

Some packages have been excluded from this Call Graph



Execution Time **8.5 s** Wait Time **0 ms** Block Time **0 ms** Node **ECommerce\_WS\_NODE** Timestamp **10/14/21 10:06:37**

Details Filters  Set Root  Reset Root  Export

Search  Showing 5 of 5

Name	Time (ms)	Percent %	Thread State	Exit Calls / Threads *	S...
Servlet - javax-servlet:doPost	2 ms (self)	0%	<div style="width: 100%;"><div style="width: 100%;"></div></div>		
Web Service - com.sun.xml.ws.server.InvokerTube\$2:invoke:149	0 ms (self)	0%	<div style="width: 100%;"><div style="width: 100%;"></div></div>		
Spring Bean - orderService:createOrder:27	0 ms (self)	0%	<div style="width: 100%;"><div style="width: 100%;"></div></div>		
Spring Bean - OrderDao:createOrder:59	0 ms (self)	0%	<div style="width: 100%;"><div style="width: 100%;"></div></div>		
Spring Bean - queryExecutor:executeOracleQuery:61	8,494 ms (self)	100%	<div style="width: 100%;"><div style="width: 100%;"></div></div>	JDBC	

Some packages have been excluded from this Call Graph



Execution Time 8.5 s Wait Time 0 ms Block Time 0 m

- Details
- Filters
- Set Root
- Reset Root
- Export

Name

- Servlet - javax-servlet:doPost
- Web Service - com.sun.xml.ws.server.InvokerTube\$2:invoke:1
- Spring Bean - orderService:createOrder:27
  - Spring Bean - OrderDao:createOrder:59
    - Spring Bean - queryExecutor:executeOracleQuery:61

executeOracleQuery:61

Name	Spring Bean - queryExecutor:executeOracleQuery	Self Time	8,494ms	100%
Type	Spring Bean	Total Time	8,494ms	100%
Class	com.appdynamics.inventory.QueryExecutor	Details CPU: 3 ms, Block: 0 ms, Wait: 0 ms		
Method	executeOracleQuery			
Line Number	61			

**Exit Calls**

Type	Details	Count	Time (ms)	% Time	From	To
JDBC	SELECT COMPANY, CITY, COUNTRY, CONTACT, P...	1	8485	99.9%	Inventory-Se...	XE-Oracle D...

**JDBC Exit Call**

Time 8,485ms  
 From Inventory-Services  
 To XE-Oracle DB-ORACLE-DB:1521

Details SELECT COMPANY, CITY, COUNTRY, CONTACT, PHONE, TO\_CHAR(SUM(ORDERTOTAL), 'L99G999G999D99MI') AS VALUE\_SHIPPED FROM ( SELECT C.COMPANYNAME AS COMPANY, C.CITY AS CITY, C.COUNTRY AS COUNTRY, C.CONTACTNAME AS CONTACT, C.PHONE AS PHONE, O.ORDERID AS OID1 FROM WORLD.ORDERS O JOIN WORLD.CUSTOMERS C ON O.CUSTOMERID = C.CUSTOMERID WHERE C.CUSTOMERID = ? ) JOIN ( SELECT O.ORDERID AS OID2, SUM(OD.QUANTITY \* O.D.UNITPRICE \* OD.DISCOUNT) AS ORDERTOTAL FROM WORLD.ORDERDETAILS OD JOIN WORLD.ORDERS O ON OD.ORDERID = O.ORDERID WHERE O.CUSTOMERID = (SELECT \* FROM TABLE(WORLD.GET\_NUM\_T(?, ?))) GROUP BY O.ORDERID ) ON OID1 = OID2 GROUP BY COMPANY, CITY, COUNTRY, CONTACT, PHONE

**Properties**

Query Type Query  
 Statement Type String  
 Session Id 11

Showing 5 of 5

Thread State	Exit Calls / Threads *	S...
JDBC		

Query: 323nu5v5r9u1y

🔄 last 1 hour

Dashboard Activity Live View **Queries** Procedures Clients Sessions Blocking Sessions Schemas Modules Programs Containers Users Business Transactions >>

← Query Details Execution Plan

### Plan Details

Execution Plan for: 3351269902

Operation	Name	Optimizer Mode	Rows	Bytes	Cost (%CPU)
[0] SELECT STATEMENT		ALL_ROWS	N/A	N/A	563
[1] HASH (GROUP BY)			1	78	563
[2] VIEW			1	78	562
[3] HASH (GROUP BY)			1	120	562
[4] HASH JOIN			1	120	559
[5] NESTED LOOPS			1	104	242
[6] TABLE ACCESS (BY INDEX ROWID)	CUSTOMERS		1	82	2
[7] INDEX (UNIQUE SCAN)	PRIMARY_4		1	N/A	1
[8] TABLE ACCESS (FULL)	ORDERS		1	22	240
[9] COLLECTION ITERATOR (PICKLER FETCH)	GET_NUM_T		1	2	2
[10] TABLE ACCESS (FULL)	ORDERDETAILS		300.0k	4.8m	314

Number of steps: 11

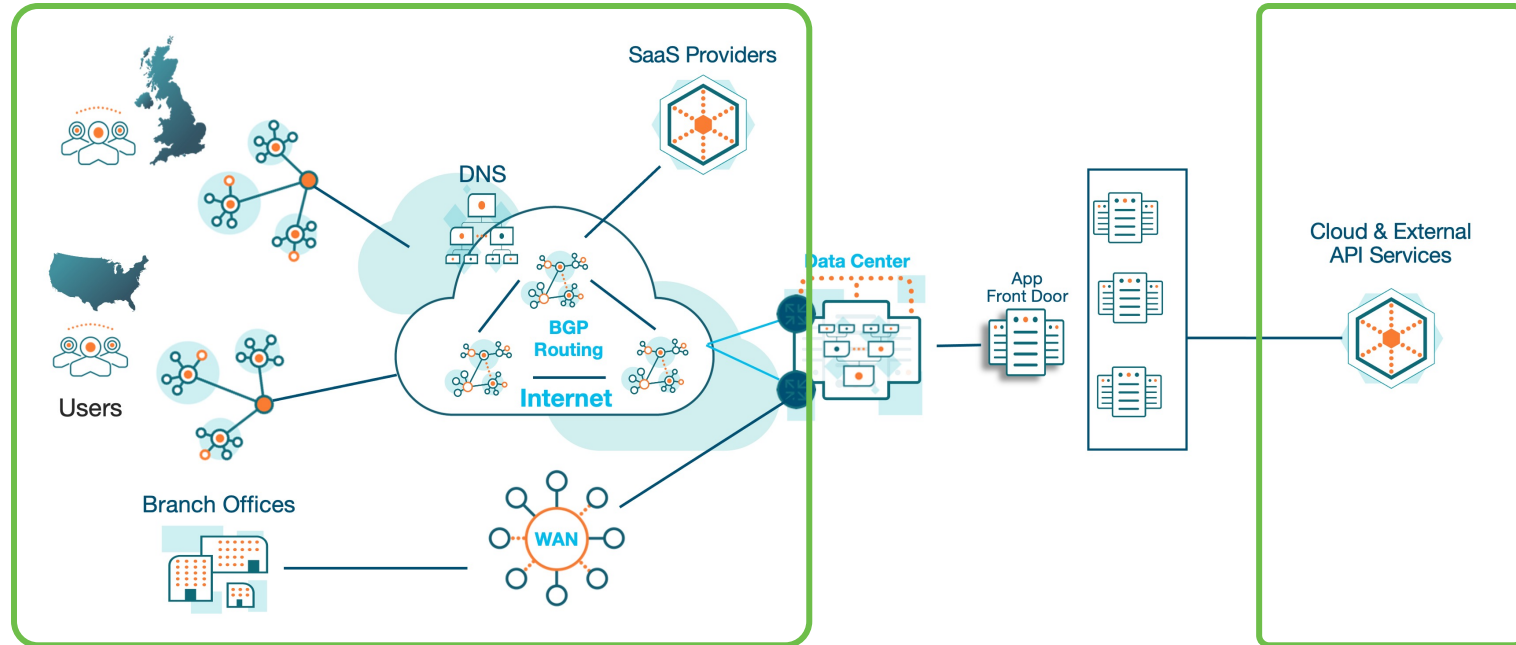
Explained for schema: WORLD

### Top Plan Operations

Operation	Options
SELECT STATEMENT	
HASH	GROUP BY
VIEW	

# ThousandEyes

- Pohled na aplikaci očima uživatele
  - Z cloudu i z firemní sítě
  - Monitoring dostupnosti a pocitu uživatele
- Monitoring z mnoha míst
  - SaaS, on-prem, zařízení v síti
- Aplikace typu SaaS i aplikace provozované firmou
- Monitoring síťových cest, metriky dostupnosti, dob odezev, ztrátovosti atd.



- Podpora koncových uživatelů ve firmách
- Health checks, alerts
- Korelace overlay/underlay v SD-WAN
- Internet Insights

# Jak to funguje?



## Cloud Agent

Globálně distribuovaní agenti instalovaní a spravovaní společností ThousandEyes ve 193 městech v 58 zemích po celém světě

External Vantage Points



## Enterprise Agent

Lehčí softwaroví agenti se snadno instalují do vaší vlastní sítě, v datových centrech, pobočkách a VPCs.

Internal Vantage Points



## Endpoint Agent

Browser-based moduly instalované na end-user pracovní stanice-laptopy

End User Experience

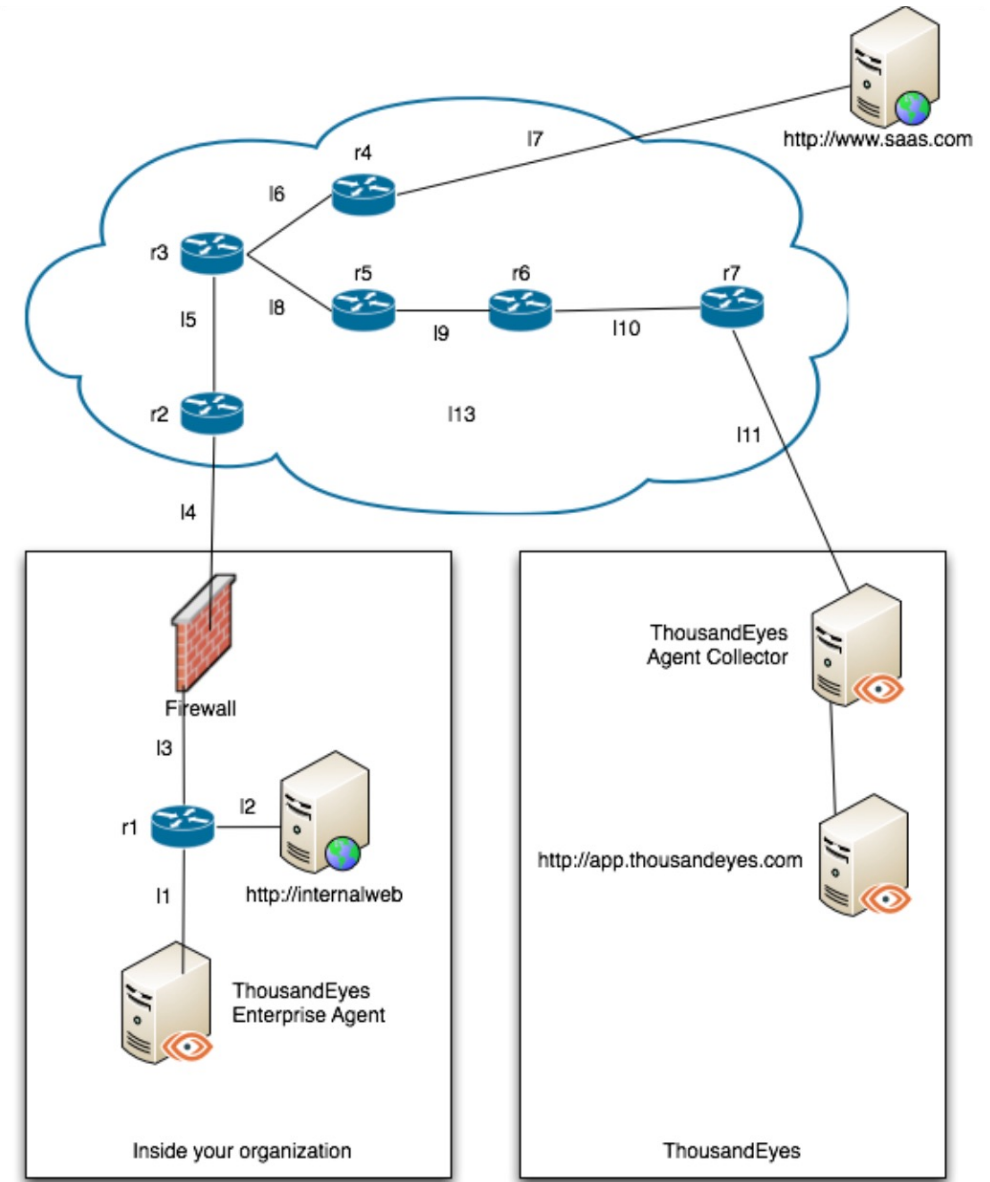


Big Data Analytics



# Enterprise agenti

Enterprise Agents (EA) jsou softwarově založené entity nasazené zákazníkem v rámci své vlastní infrastruktury. ThousandEyes zpřístupňuje EA v různých formách, myšlenkou je, že existuje něco, co by odpovídalo preferované formě každého zákazníka.



# Cloud agenti

Cloud Agenti jsou zákazníkům okamžitě k dispozici pro konfiguraci testů bez administrativních povinností.

Cloud Agenti (CA) poskytují kontrolní body po celém světě. Nachází se ve 193 městech v 54 zemích a tyto agenti jsou instalováni a spravováni společností ThousandEyes a jsou k dispozici všem zákazníkům



# Endpoint agents

Endpoint agent má nejspecializovanější účel: shromažďovat „waterfall“ data webové vrstvy (tj. formát archivu HTTP) a dat síťové vrstvy (včetně informací 2 vrstvy, jako jsou WiFi data) z prostředí pracovních stanic (ačkoli jsou podporovány instalace Windows Server). Sběr dat se často provádí na vyžádání a aktivuje se, když uživatel zaznamená výkonnostní nebo jiné problémy s webovými aplikacemi.



Monitor and proactively get alerted on performance of WiFi networks and access points—from signal quality, throughput and retransmission rate.



Identify if an overloaded user endpoint is contributing to performance issues through CPU and memory metrics.



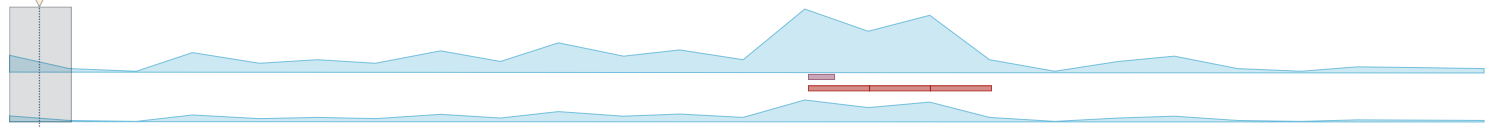
Identify if an overloaded VPN endpoint, lossy network gateway or high DNS resolution times impede the productivity of your workforce.

# Jak se to všechno skládá?

Time Correlated

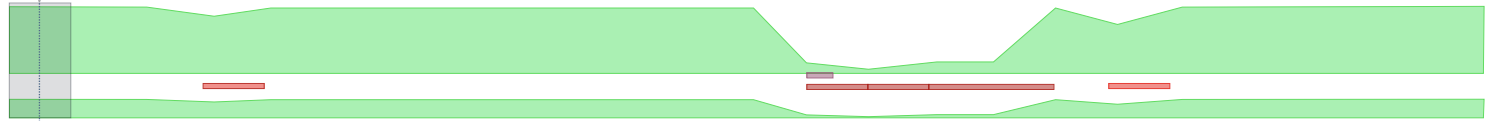
## App Experience

- Transaction scripting, page load



## HTTP/DNS/RTP Server

- HTTP Availability, response time, throughput



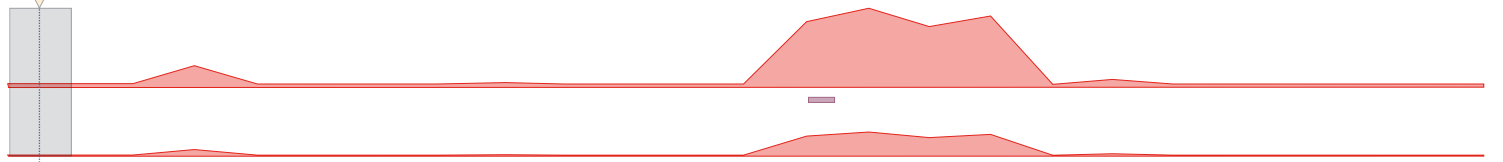
## Scope and Domain

- Geo, HTTP phase, errors



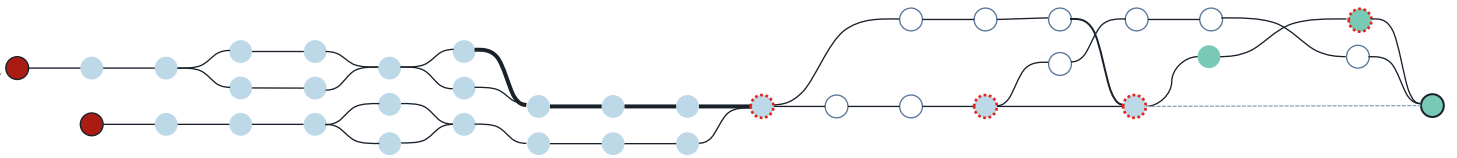
## Network Metrics

- Packet loss, latency, jitter



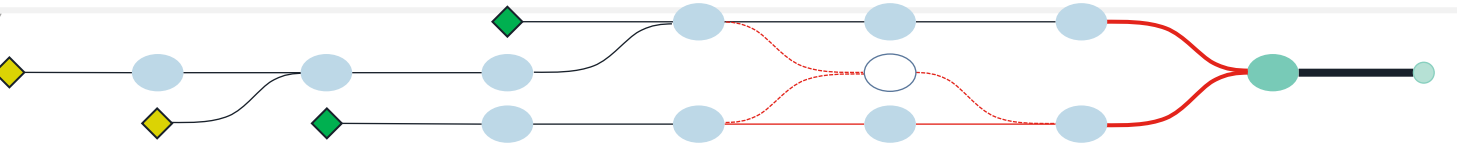
## Path Visualization

- Hop-by-hop; multi-point; bidirectional
- Metrics and data per hop
- Integrated Outage Detection



## BGP Monitoring

- Reachability, path changes, updates



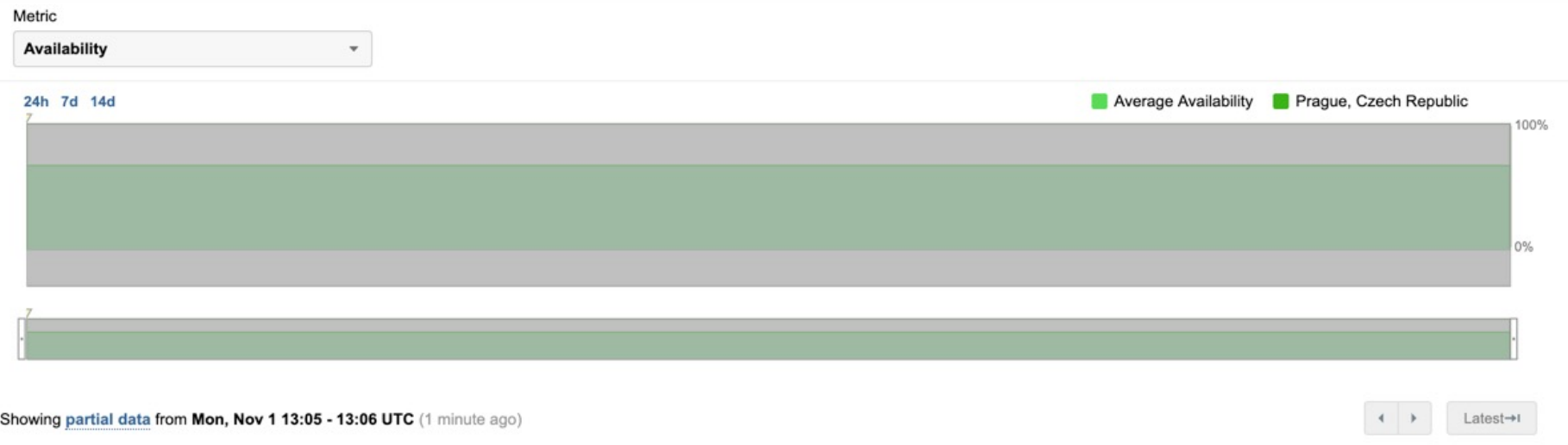


- Cloud & Enterprise Agents
- Views
- Test Settings
- Agent Settings
- BGP Monitors
- Endpoint Agents
- Devices
- Internet Insights
- Dashboards
- Alerts
- Reports
- Sharing
- Account Settings

Instant Test Agent  
 github Prague, Czech Rep...

Run Again Save Share

- Views
- WEB
- HTTP Server
- NETWORK
- Overview
  - Path Visualization



Map Table

Details for Prague, Czech Republic

Redirect Time 109 ms (1)  
 (No. of Redirects)

Final URL https://github.com/

Status ■ 200 OK [Response Details](#)



Views

Test Settings

Agent Settings

BGP Monitors

Endpoint Agents

Devices

Internet Insights

Dashboards

Alerts

Reports

Sharing

Account Settings

Add New Test

New Test

Layer Routing Network DNS Web Voice

Test Type HTTP Server Page Load Transaction FTP Server

Test Name Optional

Test Description Optional

Basic Configuration

Advanced Settings

URL e.g. http[s]://domain:port/path

Interval 2 minutes

Agents Select agent(s)

Alerts  Enable

0 of 0 alert rules selected [Edit Alert Rules](#)

Cancel

Run Once

Create New Test

Views Enabled for This Test

Web	HTTP Server
Network	Overview
	Path Visualization
Routing	BGP Route Visualization

Add a filter

- Cloud & Enterprise Agents
- Views
- Test Settings
- Agent Settings
- BGP Monitors
- Endpoint Agents
- Devices
- Internet Insights
- Dashboards
- Alerts
- Reports
- Sharing
- Account Settings

Current Test: [Settings](#) Agent: **All agents**

github

Run Now Save Share

- Views**
- WEB
- HTTP Server**
- NETWORK
- Overview
  - Path Visualization
- ROUTING
- BGP Route Visualization



**Map** Table

Agents 7 of 7

**Status by Phase**

DNS	<div style="width: 100%; height: 10px; background-color: #28a745;"></div>	Errors from 2 agents
Connect	<div style="width: 100%; height: 10px; background-color: #28a745;"></div>	
SSL	<div style="width: 100%; height: 10px; background-color: #28a745;"></div>	
Send	<div style="width: 100%; height: 10px; background-color: #28a745;"></div>	
Receive	<div style="width: 100%; height: 10px; background-color: #28a745;"></div>	
HTTP	<div style="width: 100%; height: 10px; background-color: #28a745;"></div>	



I wish this page would...

https://www.github.com

Showing data from Mon, Nov 1 13:15 - 13:16 UTC (5 minutes ago)

Map Table **Waterfall** (Prague, Czech Republic)

Breakdown by Domain Breakdown by Provider

Bytes Received



Throughput (kbps)



Total Response Time (ms)



Search by URL or Domain...

Object	Response Code	Domain	Provider	Size (kB)	Waterfall
/	301 [Headers]	www.github.com	GitHub, Inc.	0	45 ms
/	200 [Headers]	github.com	GitHub, Inc.	255.2	32 ms
data.json	200 [Headers]	github.com	GitHub, Inc.	54.9	17 ms
Alliance-No-1-...	200 [Headers]	github.githubasse...	Fastly	44.5	90 ms
Alliance-No-1-...	200 [Headers]	github.githubasse...	Fastly	43.3	92 ms
light-2f4ea964...	200 [Headers]	github.githubasse...	Fastly	54.1	64 ms
dark-c5cc774...	200 [Headers]	github.githubasse...	Fastly	53.4	64 ms
frameworks-3...	200 [Headers]	github.githubasse...	Fastly	198.1	88 ms
behaviors-adc...	200 [Headers]	github.githubasse...	Fastly	213.7	89 ms
github-5ac6a3...	200 [Headers]	github.githubasse...	Fastly	244.6	91 ms
site-da6604c4...	200 [Headers]	github.githubasse...	Fastly	46.7	81 ms
home-48400a...	200 [Headers]	github.githubasse...	Fastly	27.9	80 ms
environment-...	200 [Headers]	github.githubasse...	Fastly	12.1	90 ms
chunk-vendor...	200 [Headers]	github.githubasse...	Fastly	155.6	99 ms
chunk-framew...	200 [Headers]	github.githubasse...	Fastly	86.5	94 ms
behaviors-ca4...	200 [Headers]	github.githubasse...	Fastly	231.8	106 ms
unsupported-...	200 [Headers]	github.githubasse...	Fastly	0.8	100 ms
marketing-abc...	200 [Headers]	github.githubasse...	Fastly	26.1	101 ms
home-6527d5...	200 [Headers]	github.githubasse...	Fastly	0.6	101 ms
webgl-globe-2...	200 [Headers]	github.githubasse...	Fastly	496.9	109 ms
features-7e59...	200 [Headers]	github.githubasse...	Fastly	14.7	107 ms
jasonetco	200 [Headers]	avatars.githubuse...	Fastly	1.5	59 ms
hero-glow.svg	200 [Headers]	github.githubasse...	Fastly	1.9	109 ms
gh-mobile.png	200 [Headers]	github.githubasse...	Fastly	38.8	110 ms
astro-mona.w...	200 [Headers]	github.githubasse...	Fastly	83.1	138 ms
repo-browser...	200 [Headers]	github.githubasse...	Fastly	103.1	137 ms
repo-editor...	200 [Headers]	github.githubasse...	Fastly	2.2	111 ms

I wish this page would...



Current Test

Settings Agent

github2

Prague, Czech Rep...

Run Now

Save

Share

Views

WEB

Page Load

HTTP Server

NETWORK

Overview

Path Visualization

ROUTING

BGP Route Visualization

Target URL

https://www.github.com

Metric

Availability

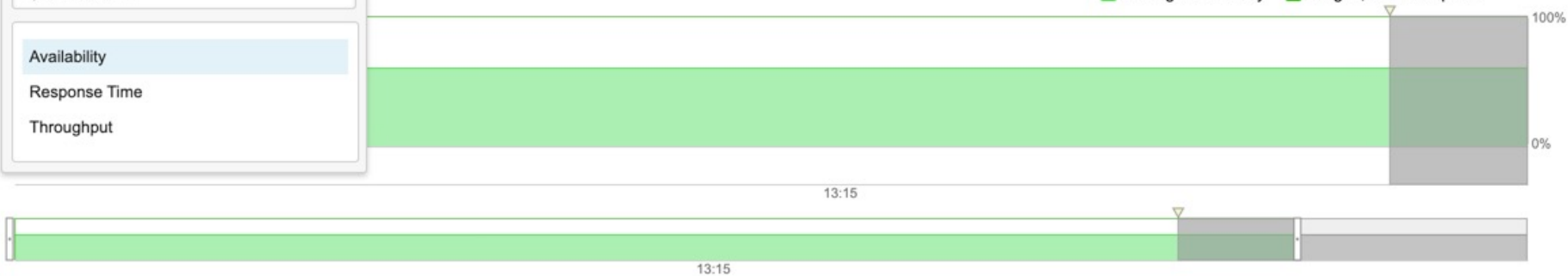
Search items

Availability

Response Time

Throughput

Average Availability, Prague, Czech Republic



Showing data from Mon, Nov 1 13:19 - 13:20 UTC (2 minutes ago)

Navigation buttons: Left, Right, Latest

Map Table

Prague, Czech Republic

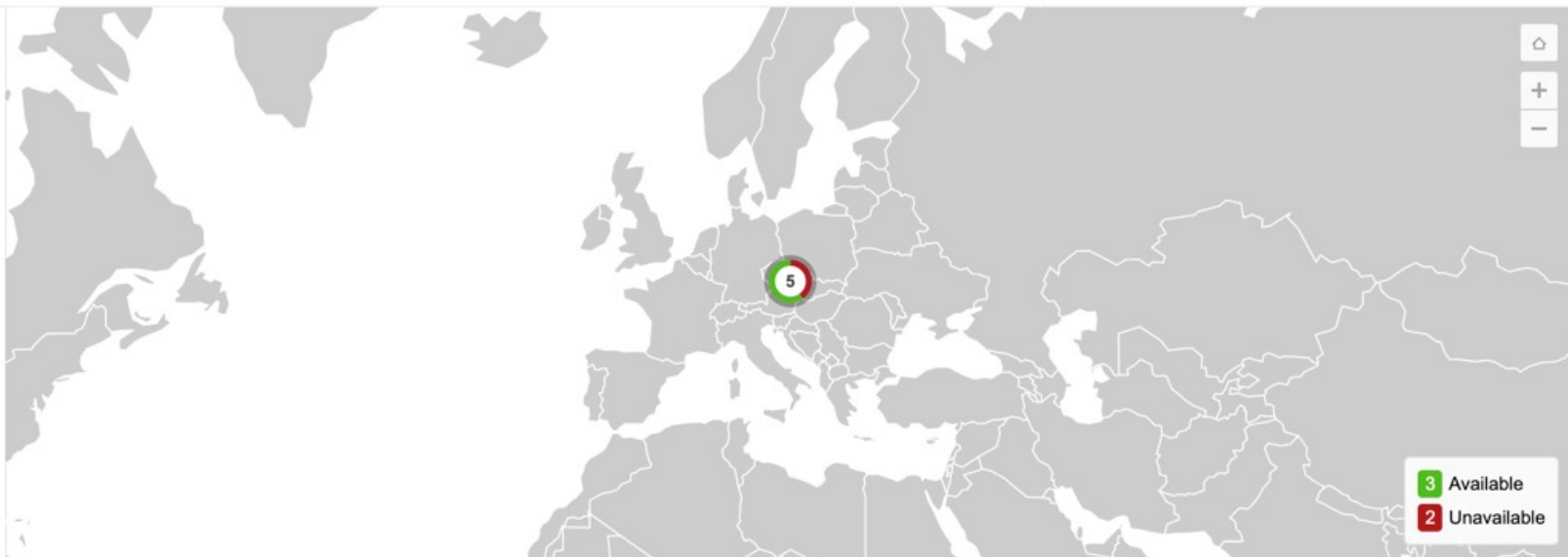
Redirect Time 79 ms (1) (No. of Redirects)

Status

Target IP: 140.82.121.4

2021-11-01 14:19:02

200 OK (Details)



3 Available, 2 Unavailable

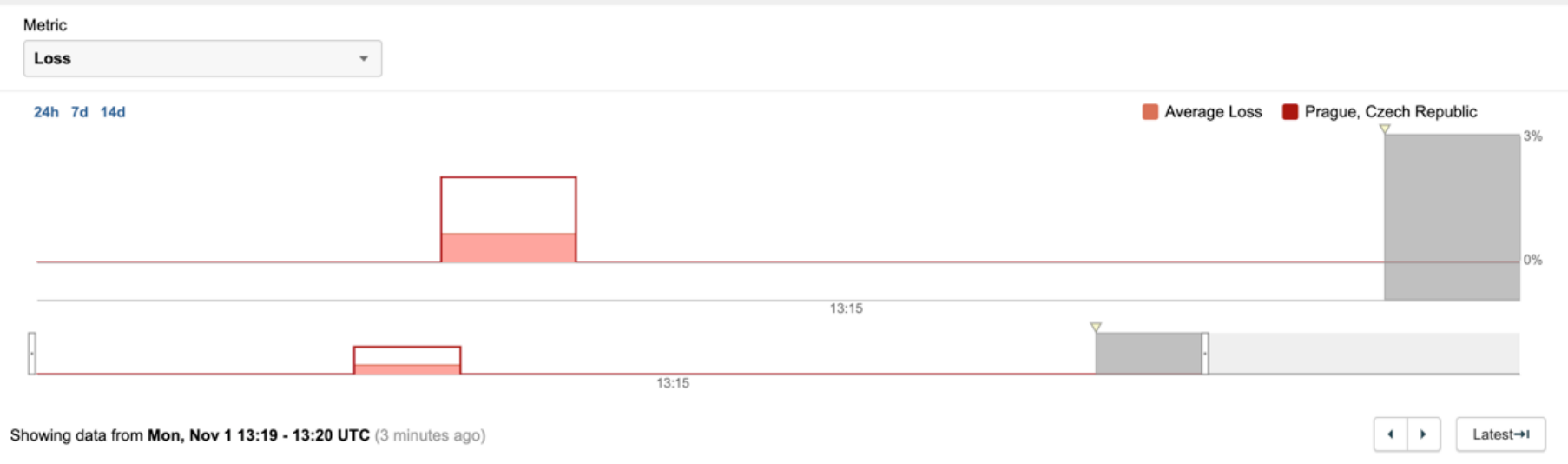
- Cloud & Enterprise Agents
- Views
- Test Settings
- Agent Settings
- BGP Monitors
- Endpoint Agents
- Devices
- Internet Insights
- Dashboards
- Alerts
- Reports
- Sharing
- Account Settings

Current Test [Settings](#) Agent

github2 Prague, Czech Rep...

Run Now Save Share

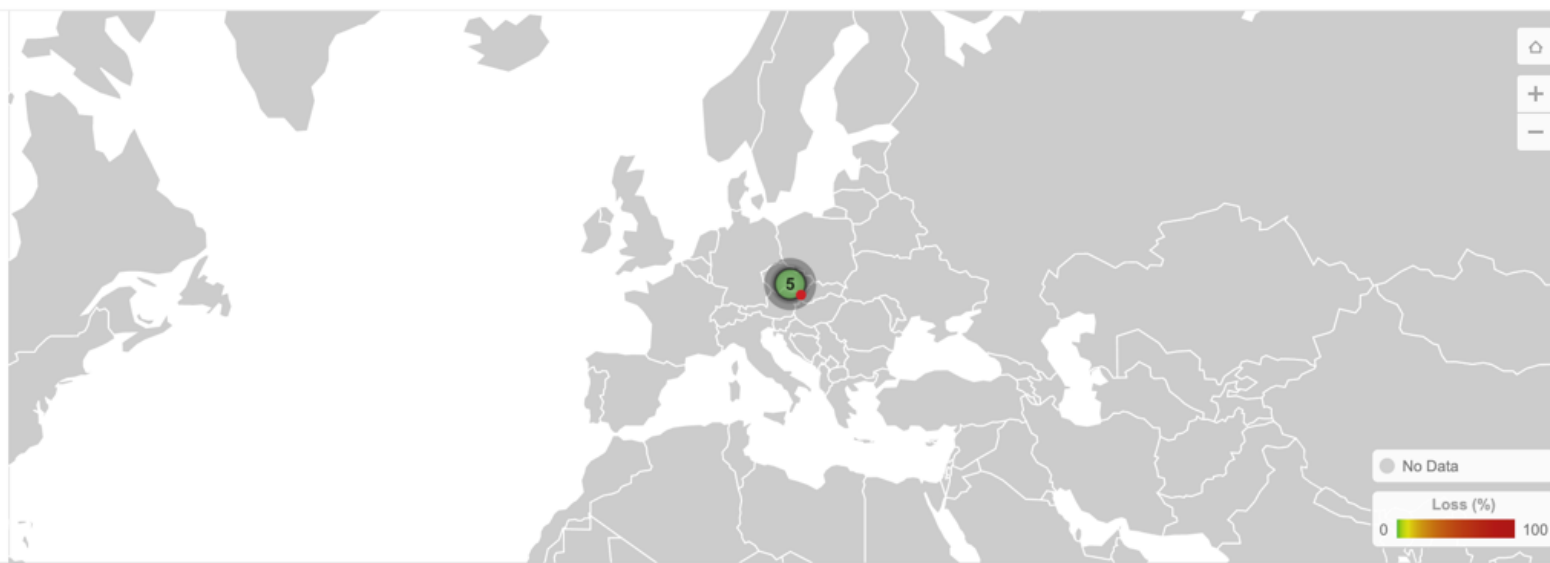
- Views**
- WEB
- Page Load
  - HTTP Server
- NETWORK
- Overview**
  - Path Visualization
- ROUTING
- BGP Route Visualization



Map Table

Prague, Czech Republic

Loss	<div style="width: 0%;"></div>	0%
Latency	<div style="width: 10%;"></div>	6 ms
Jitter	<div style="width: 5%;"></div>	< 1 ms



I wish this page would...

Instant Test Agent  
github2 (Nov 1, 2021 13:25 UTC) Prague, Czech Rep...

Run Again Save Share

Views

- WEB
  - Page Load
  - HTTP Server
- NETWORK
  - Overview
  - Path Visualization**

Metric  
Loss

24h 7d 14d



Target Server  
www.github.com:443

Path Visualization

3 hops 0 hops

Showing: 1 of 1 Test 8 of 8 Agents 1 of 1 Server Hide IP Address labels

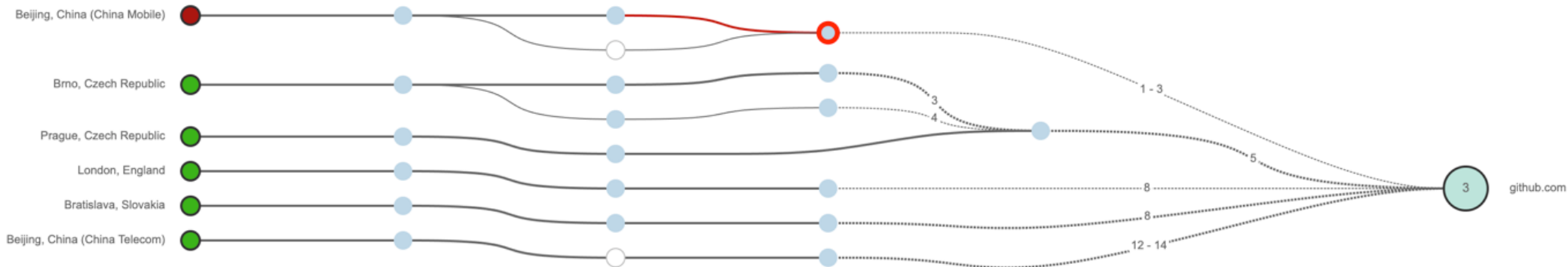
Grouping: Agents by Agent Interfaces by IP Address Destinations by Domain

Highlighting: Forwarding Loss > 10 % ( 2 nodes ) Link Delay > 100 ms ( 1 link )

Selecting: Click a node or link Error (1) Info (2)

Highlight nodes that match all / any

Search on Network, Country, IP address, Prefix, or Title...



I wish this page would...

- Cloud & Enterprise Agents
- Views
- Test Settings
- Agent Settings
- BGP Monitors
- Endpoint Agents
- Devices
- Internet Insights
- Dashboards
- Alerts
- Reports
- Sharing
- Account Settings

Target Server: www.github.com:443

Showing data from Mon, Nov 1 13:25 - 13:26 UTC (8 minutes ago)

13:30

**Path Visualization** 3 hops  0 hops

Showing: 1 of 1 Test | 8 of 8 Agents | 1 of 1 Server | Hide IP Address labels

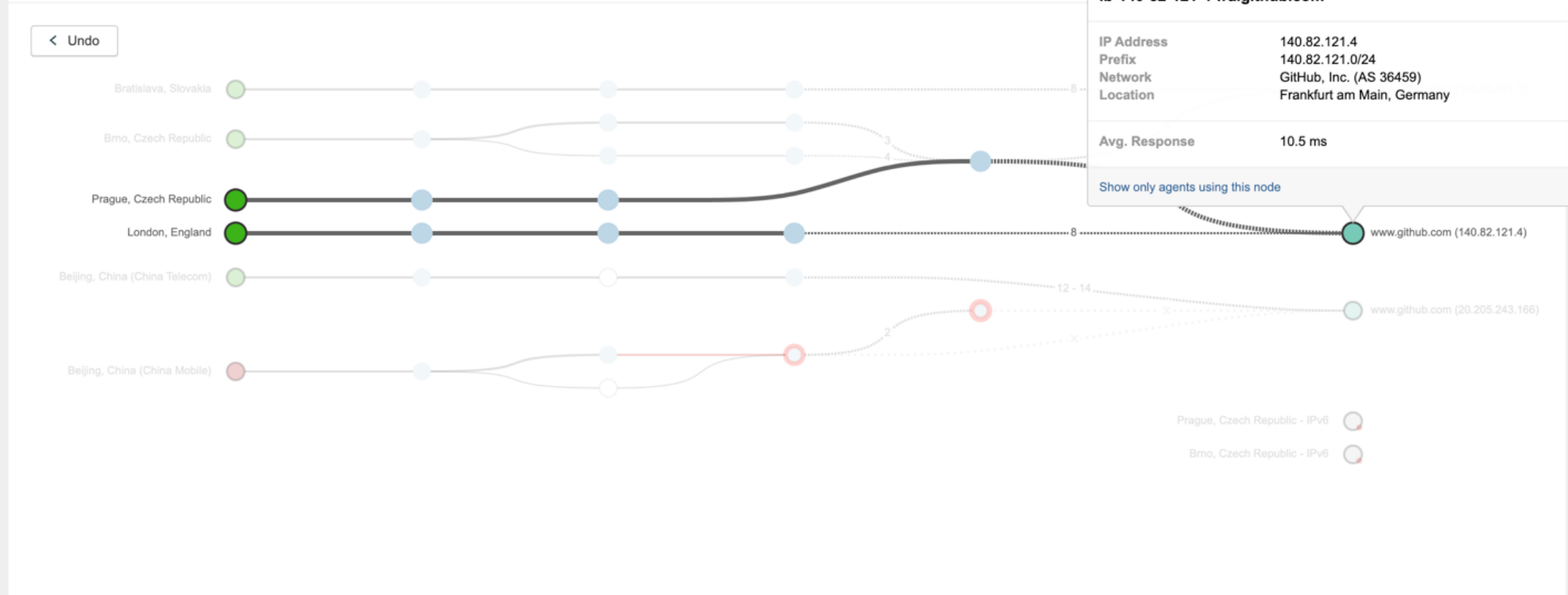
Grouping: Agents by Agent | Interfaces by IP Address | Destinations by Domain

Highlighting: Forwarding Loss > 10 % (2 nodes) | Link Delay > 100 ms (1 link)

Selecting: Click a node or link | Error (1) | Info (2)

Highlight nodes that match all / any

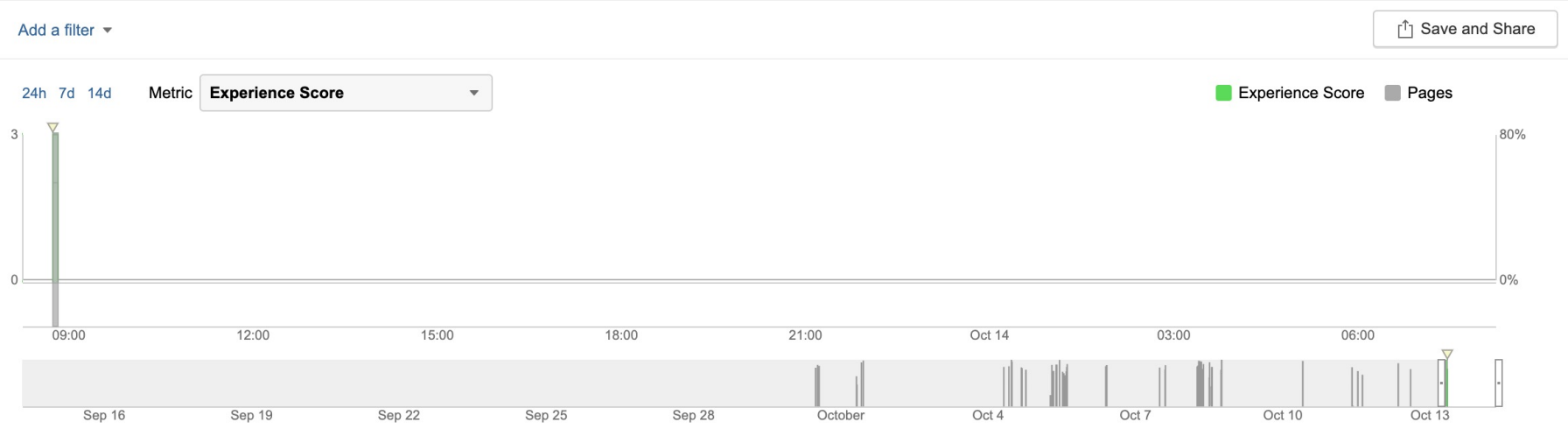
Search on Network, Country, IP address, Prefix, or Title...





- Cloud & Enterprise Agents >
- Endpoint Agents >
  - Overview
  - Views**
  - Browser Session Settings
  - Test Settings
  - Agent Settings
- Devices >
- Internet Insights >
- Dashboards
- Alerts 2 >
- Reports
- Sharing >
- Account Settings >

- VIEWS**
- Scheduled Tests >
- Browser Sessions
  - Visited Pages**
  - Network
- Local Networks >



Overview **Pages** Sessions Showing data from Wed, Oct 13 08:45 - 08:50 UTC (23 hours ago) Latest

### 2 pages

<b>Experience Score</b> <b>79%</b> Experience Score by Visited Site github.com 79%	<b>Page Speed</b> <b>Average</b> Page Speed github.com Average	<b>Total Errors</b> <b>0</b> Errors by Category No data	<b>Browser Session Alerts</b> <b>1</b> Active Alerts Endpoint Checks View all
---	---	--	---

I wish this page would...

Endpoint Agents > Views

Cloud & Enterprise Agents > Endpoint Agents > Overview > Views

Scheduled Tests > 24h 7d 14d Metric Experience Score

Browser Sessions

Visited Pages

Network

Local Networks >

Overview Pages Sessions

2 pages

Experience Score 79% Average

Page Speed Average

Experience Score by Visited Site

github.com	79%
------------	-----

Experience Score by Agent

mdivis-m-x1jq	79%
---------------	-----

I wish this page would...

ThousandEyes © 2021 Privacy

Experience Score 58%

Agent mdivis-m-x1jq

Visited Site github.com

Session ID 1634114700:JCmQqL6g

Time 2021-10-13 08:47:36 UTC

Page Speed Average

Errors —

COMPUTER mdivis-m-x1jq

CONNECTION blizzard

GATEWAY 10.229.96.1

VISITED SITE github.com:443

Quality 80%

Loss 0%

Latency 1 ms

Response time 665 ms

Content time 4746 ms

Page load time 5820 ms

Loss 0%

Latency 47 ms

Computer Info Wireless Info Path Trace Waterfall

mdivis-m-x1jq

Model	MacBookPro14,3	CPU	33%
Manufacturer	Apple, Inc.	Browser	Google Chrome (93.0.4577.82)
OS Version	Version 10.15.7 (Build 19H524)	Public IP Address	173.38.220.46
Kernel	Darwin 19.6.0	Private IP Address	10.229.96.28
Memory	15189 MB / 16384 MB (93%)	Private Subnet Mask	255.255.252.0
Endpoint Agent Version	1.88.0	DNS Servers	2001:420:464d:2000::a; 2001:420:464d:1::a; 144.254.7...

Endpoint Agents > Views

Cloud & Enterprise Agents > Endpoint Agents > Overview > **Views** > Browser Session Settings > Test Settings > Agent Settings

Devices > Internet Insights > Dashboards > Alerts **2** > Reports > Sharing > Account Settings >

I wish this page would...

ThousandEyes © 2021 [Privacy](#)

**VIEWS** Add a filter

Scheduled Tests > 24h 7d 14d Metric **Experience Score**

Browser Sessions

**Visited Pages**

Network

Local Networks > Sep 16 Sep 19 Sep

**Overview** Pages Sessions

**2 pages**

Experience Score **79%** Page Speed **Average**

Experience Score by Visited Site

github.com	79%	github.com	
------------	-----	------------	--

Experience Score by Agent

mdivis-m-x1jq	79%
---------------	-----

**Experience Score** **58%**

Agent: mdivis-m-x1jq  
 Visited Site: github.com  
 Session ID: 1634114700:JCmQqL6g

Time: 2021-10-13 08:47:36 UTC  
 Page Speed: Average  
 Errors: —

**COMPUTER** mdivis-m-x1jq  
**CONNECTION** blizzard  
 Quality 80%

**GATEWAY** 10.229.96.1  
 Loss 0%  
 Latency 1 ms

**VISITED SITE** github.com:443  
 Loss 0%  
 Latency 47 ms

Response time 665 ms  
 Content time 4746 ms  
 Page load time 5820 ms

Computer Info | **Wireless Info** | Path Trace | Waterfall

<b>SSID</b>	blizzard	<b>Signal Quality</b>	80 %
<b>Network BSSID</b>	blizzard (Cisco)	<b>RSSI</b>	-60 dBm
<b>Physical Mode</b>	802.11ac	<b>Noise</b>	-95 dBm
<b>Channel</b>	116		
<b>Transmission Rate</b>	289 Mbps		

Endpoint Agents > Views

Cloud & Enterprise Agents > Endpoint Agents > Overview > Views

Scheduled Tests > 24h 7d 14d Metric Experience Score

Browser Sessions

Visited Pages

Network

Local Networks >

Overview Pages Sessions

2 pages

Experience Score 79% Average

Page Speed Average

Experience Score by Visited Site

Visited Site	Experience Score
github.com	79%

Experience Score by Agent

Agent	Experience Score
mdivis-m-x1jq	79%

I wish this page would...

ThousandEyes © 2021 Privacy

Experience Score **58%**

Agent mdivis-m-x1jq

Visited Site github.com

Session ID 1634114700:JCmQqL6g

Time 2021-10-13 08:47:36 UTC

Page Speed Average

Errors —

COMPUTER mdivis-m-x1jq

CONNECTION blizzard

GATEWAY 10.229.96.1

VISITED SITE github.com:443

Response time 665 ms

Content time 4746 ms

Page load time 5820 ms

Quality 80%

Loss 0%

Latency 1 ms

Loss 0%

Latency 47 ms

Computer Info Wireless Info Path Trace Waterfall

Trace from Computer to 140.82.121.3

	Name (IP Address)	Delay
1	prg7-bb-gw1-vla300.cisco.com (10.229.96.2)	1 ms
2	prg7-wan-gw1-gig0-0-0.cisco.com (10.229.100.193)	1 ms
3	aer01-mdm2-wag-gw2-ten2-1-0-1240.cisco.com (10.229.213.41)	40 ms
4	aer01-mdm1-rbb-gw1-twe1-0-9.cisco.com (10.115.6.254)	34 ms
5	aer01-mdm1-sbb-gw1-hun2-0-25.cisco.com (173.38.195.6)	35 ms
6	aer01-mdm2-corp-gw2-por10.cisco.com (173.38.195.170)	49 ms
7	aer01-mdm1-dmzbb-gw1-vla777.cisco.com (173.38.208.139)	50 ms
8	aer01-mdm2-cbb-gw2-be91.cisco.com (173.38.246.77)	52 ms
9	aer01-mdm1-isp-gw1-be6.cisco.com (128.107.10.22)	50 ms
10	adm-b7-link.ip.twelve99.net (62.115.41.45)	51 ms
11	adm-bb3-link.ip.twelve99.net (80.91.246.44)	49 ms
12	ffm-bb1-link.ip.twelve99.net (62.115.120.241)	49 ms
13	ffm-b11-link.ip.twelve99.net (62.115.124.117)	50 ms
14	github-ic350972-ffm-b11.ip.twelve99-cust.net (62.115.182.171)	50 ms
15	lb-140-82-121-3-fra.github.com (140.82.121.3)	49 ms

Endpoint Agents > Views

Cloud & Enterprise Agents > Endpoint Agents > Overview > Views

Views

Scheduled Tests > 24h 7d 14d Metric Experience Score

Browser Sessions

Visited Pages

Network

Local Networks > Sep 16 Sep 19 Sep

Overview Pages Sessions

2 pages

Experience Score 79%

Page Speed Average

Experience Score by Visited Site

github.com 79%

Experience Score by Agent

mdivis-m-x1jq 79%

I wish this page would...

ThousandEyes © 2021 Privacy

slok/kubewebhook: Go framework to create Kubernetes mutating and validating webho... 1 of 2 pages

https://github.com/slok/kubewebhook

Experience Score 58%

Agent mdivis-m-x1jq

Time 2021-10-13 08:47:36 UTC

Visited Site github.com

Page Speed Average

Session ID 1634114700:JCmQqL6g

Errors -

COMPUTER mdivis-m-x1jq

CONNECTION blizzard Quality 80%

GATEWAY 10.229.96.1 Loss 0% Latency 1 ms

VISITED SITE github.com:443 Loss 0% Latency 47 ms

Response time 665 ms

Content time 4746 ms

Page load time 5820 ms

Computer Info Wireless Info Path Trace Waterfall

slok/kubewebhook: Go framework to create Kubernetes mutating and validating webhooks

https://github.com/slok/kubewebhook

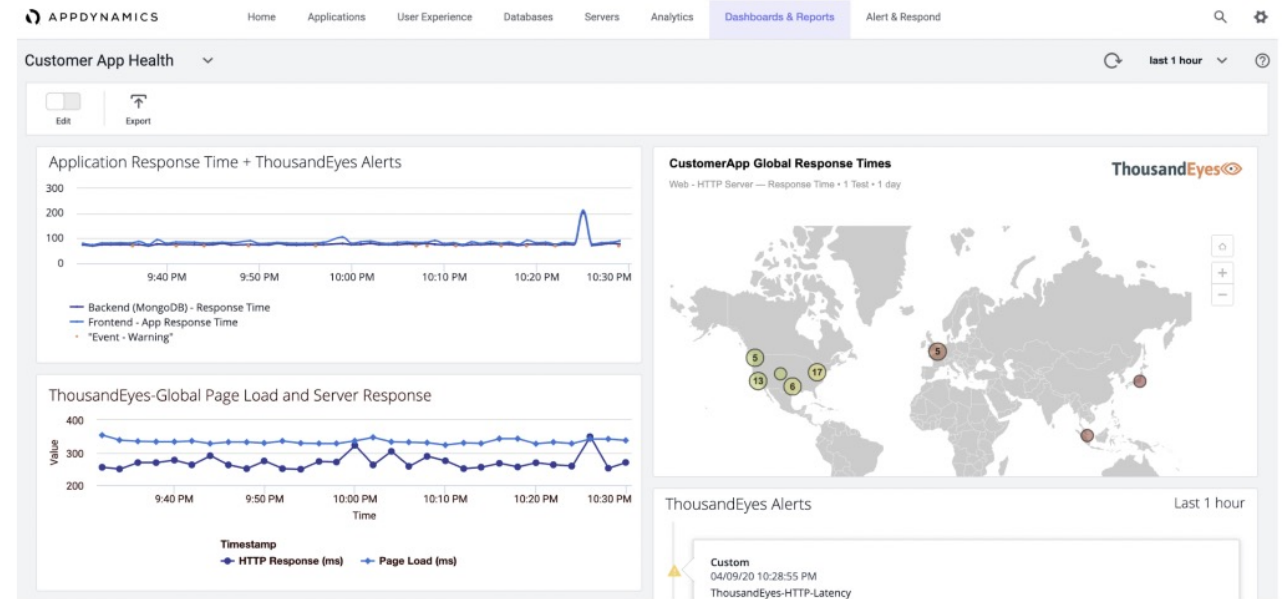
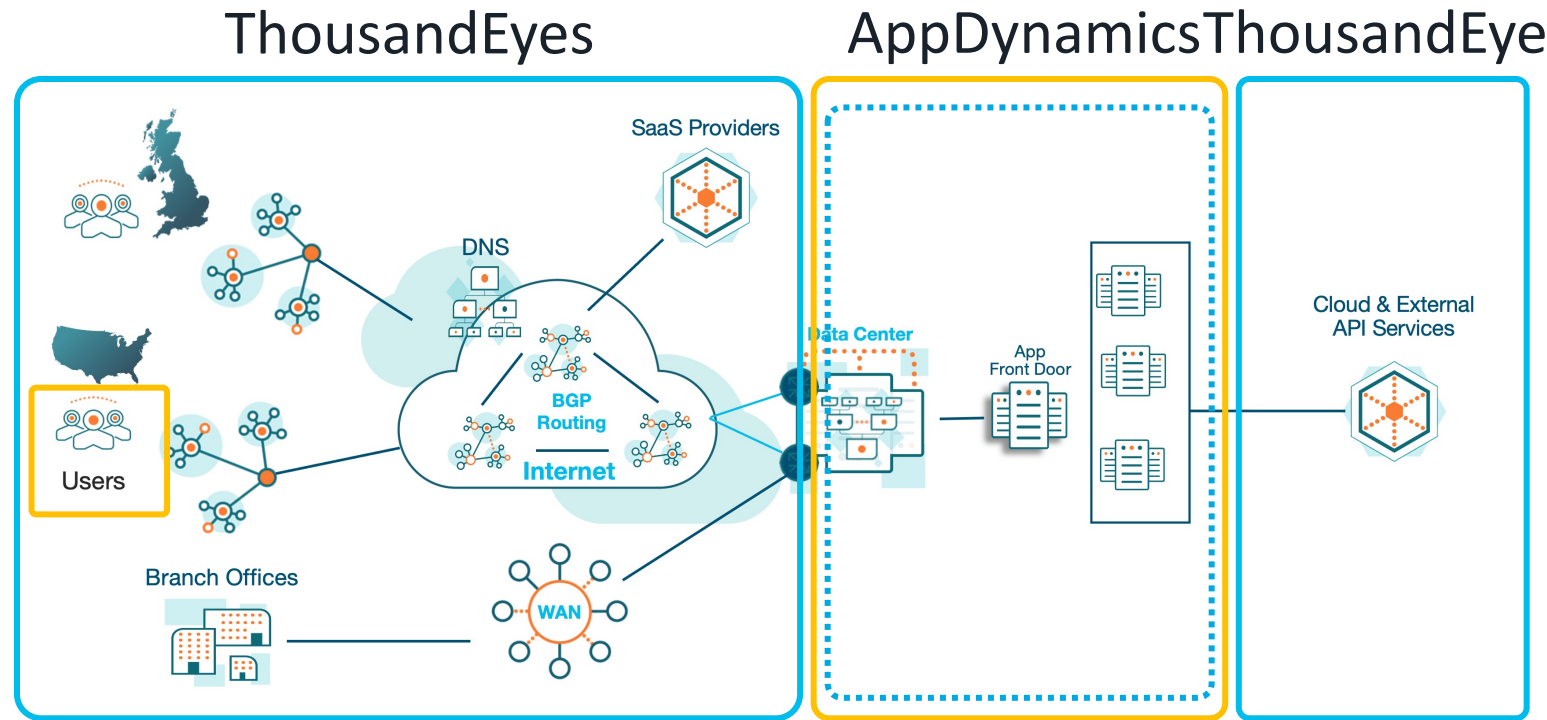
1. slok/kubewebhook: Go framework to create Kubernetes mutating and validating webhooks

https://github.com/slok/kubewebhook

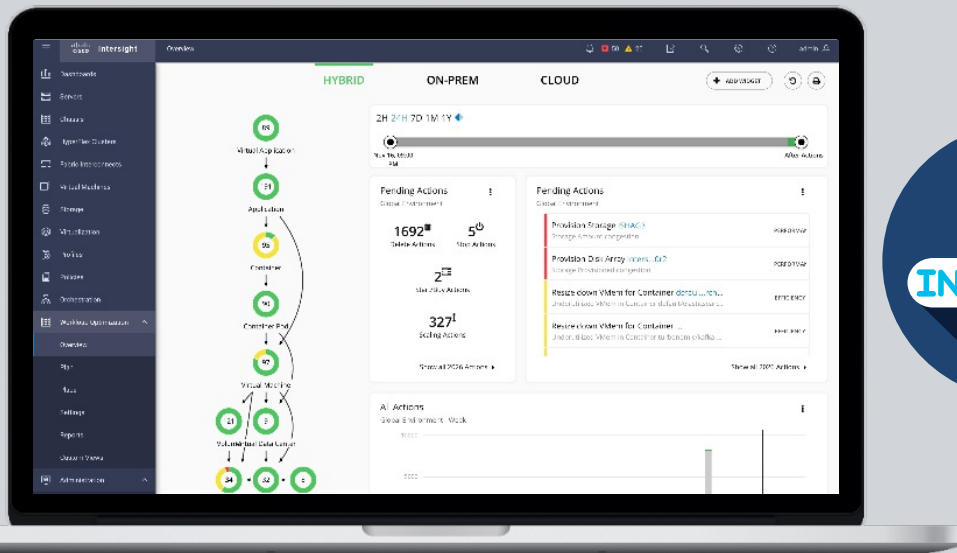
Object	Response Code	Response Time
kubewebhook	200 [Headers]	774 ms
light-7785c2e...	200 [Headers]	< 1 ms
dark-b84802e...	200 [Headers]	< 1 ms
frameworks-a...	200 [Headers]	< 1 ms
behaviors-c2e...	200 [Headers]	< 1 ms
github-7ba2c5...	200 [Headers]	< 1 ms
environment-...	200 [Headers]	< 1 ms
chunk-framew...	200 [Headers]	< 1 ms
chunk-vendor...	200 [Headers]	< 1 ms
behaviors-849...	200 [Headers]	< 1 ms
codespaces-b...	200 [Headers]	< 1 ms
repositories-2...	200 [Headers]	< 1 ms
topic-suggesti...	200 [Headers]	< 1 ms
code-menu-3...	200 [Headers]	< 1 ms
optimizely-bd...	200 [Headers]	< 1 ms
6670587	200 [Headers]	< 1 ms
128204	200 [Headers]	145 ms
kubewebhook...	302 [Headers]	214 ms
badge.svg	200 [Headers]	299 ms
68747470733...	200 [Headers]	677 ms
68747470733...	200 [Headers]	1407 ms

# Dobře se doplňují

- Single pane of glass je v AppDynamics
- Integrované dashboardy
- Výměna a korelace metrik
- Integrace varovných hlášení
- Snapshoty aplikace a stavu sítě
- End-to-end root-case analýza



# Cisco Intersight Workload Optimizer



Complete visualization for hybrid cloud  
Maps interdependencies between apps and infra

Analytics match supply and demand  
Always-on analysis: performance, cost, governance

Recommendations are specific and actionable  
Triggers actions in over 50+ target types

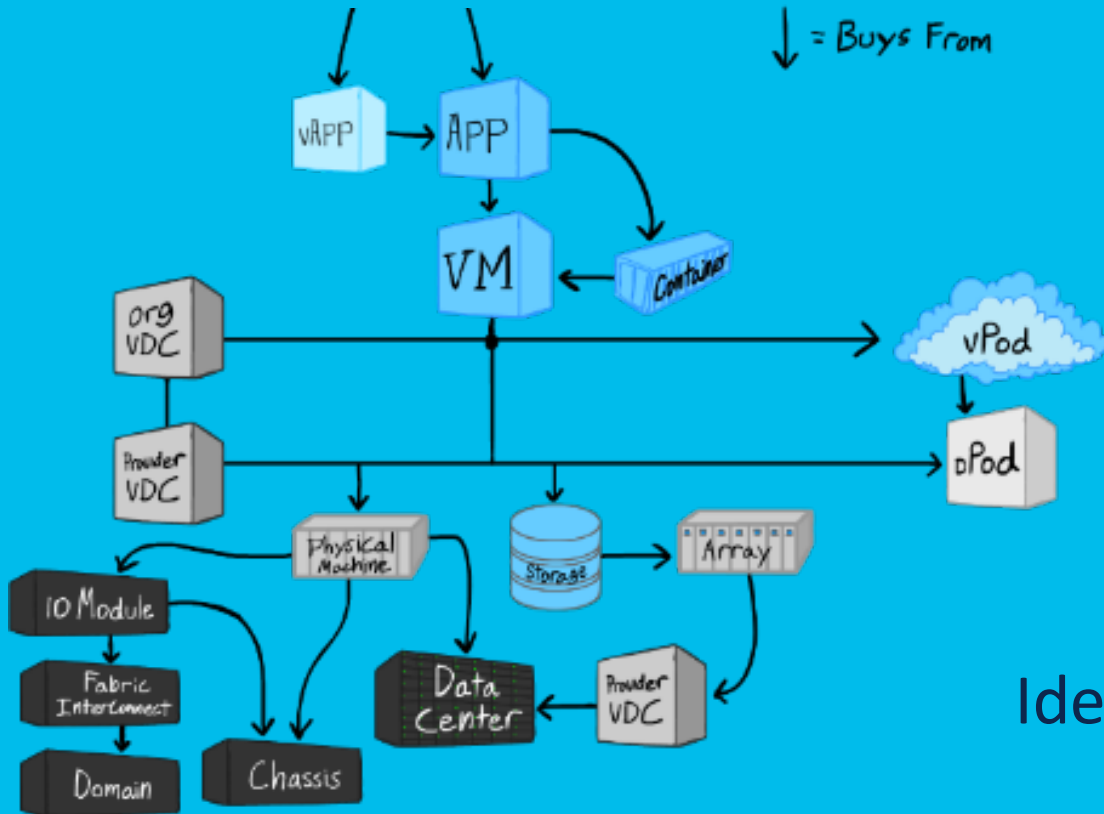
Simplify resource management  
with AIOps

Reduce OPEX and preserve  
capital

Adapt quickly and  
reduce risk

# How does Workload Optimizer automate decision-making?

The Business



Idea



Solution

1

**Abstraction:**  
Supply Chain

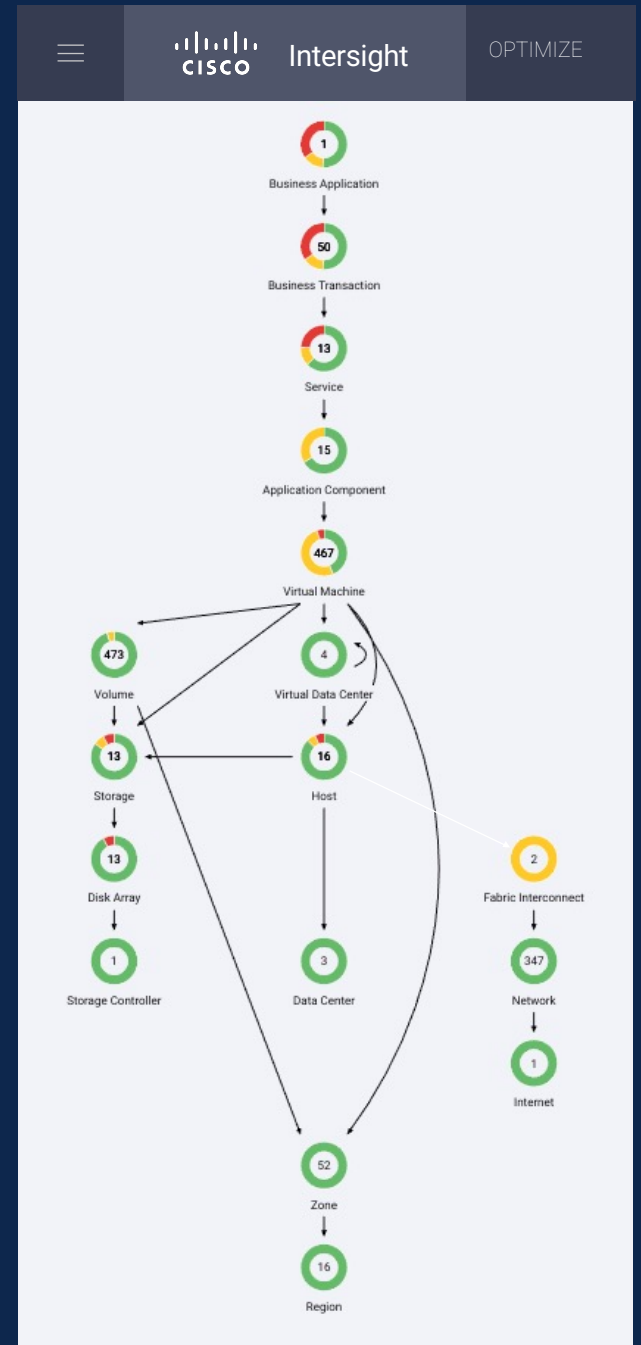
2

**Analytics:**  
Supply, Demand, Price

3

**Automation:**  
Real-time action

- Placement
- Scaling
- Capacity

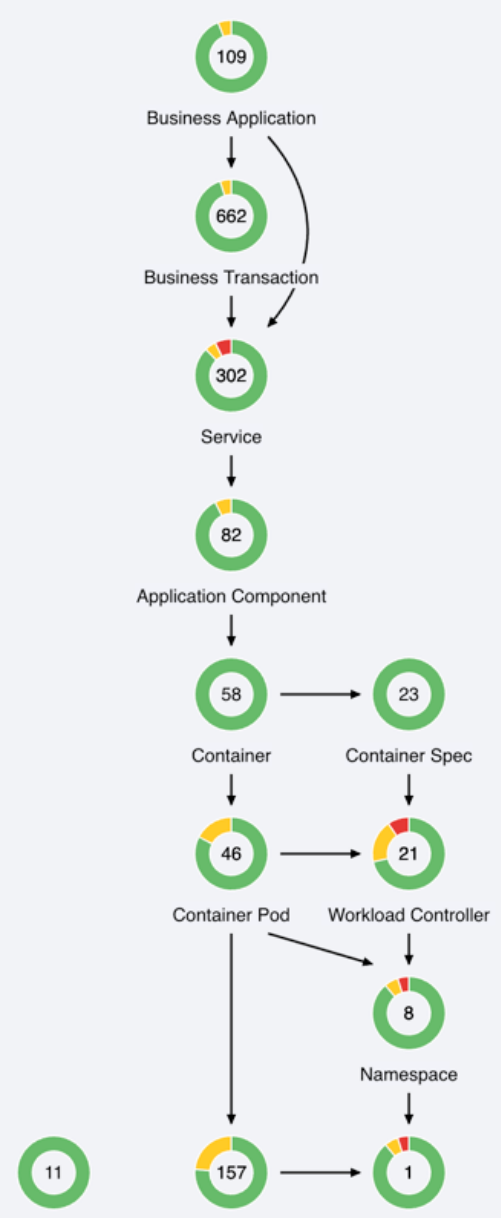




- MONITOR
- OPERATE
- Servers
- Chassis
- Fabric Interconnects
- Networking
- HyperFlex Clusters
- Storage
- Virtualization
- Kubernetes
- CONFIGURE
- Orchestration
- Profiles
- Templates
- Policies
- Pools
- OPTIMIZE
- Overview
- Plan
- Placement
- More
- ADMIN

Application On-Prem Cloud

Add Widget



2H 24H 7D 1M 1Y 
  
 Oct 31, 02:00 PM After Actions

Pending Actions ...
   
 Global Environment

**51**
  
 Scaling Actions

**1**
  
 Start/Buy Actions

**10**
  
 Stop Actions

**20**
  
 Placement Actions

Top Business Applications ...
   
 Global Environment

Sort By: Application Resource Health

Business Application Name	Application Resource Health	SLO Violation	Avg. Response Time	Actions
fralab_apm_game		No		<b>4 ACTIONS</b>
MD-Apm-Game		No	414ms  47%	<b>2 ACTIONS</b>
cfdev-iis		No		no actions

**Show All**

Top Business Transactions ...
   
 Global Environment

Sort By: Application Resource Health

Business Transaction Name	Application Resource Health	SLO Violation	Avg. Response Time	Actions
All Other Traffic - backend [MD-Apm		No		<b>1 ACTION</b>
All Other Traffic - auth [fralab_apm_		No		<b>1 ACTION</b>
All Other Traffic - profile [fralab_apr		No		<b>1 ACTION</b>

