

IBM and AppDynamics: Empowering Greater Agility through Mobile-to-Mainframe Visibility

Nathan Brice
IBM

November 2019
Session ON

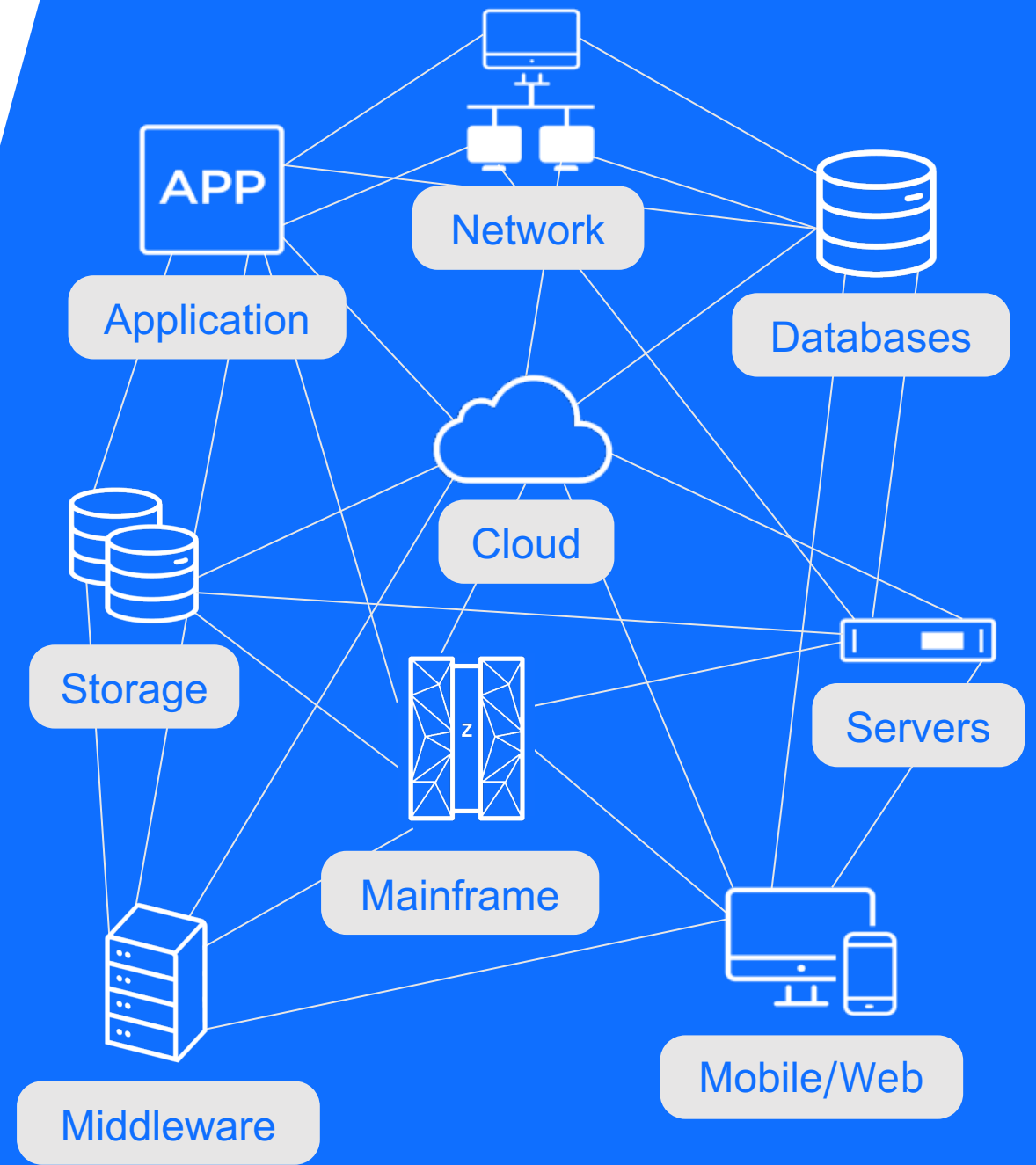
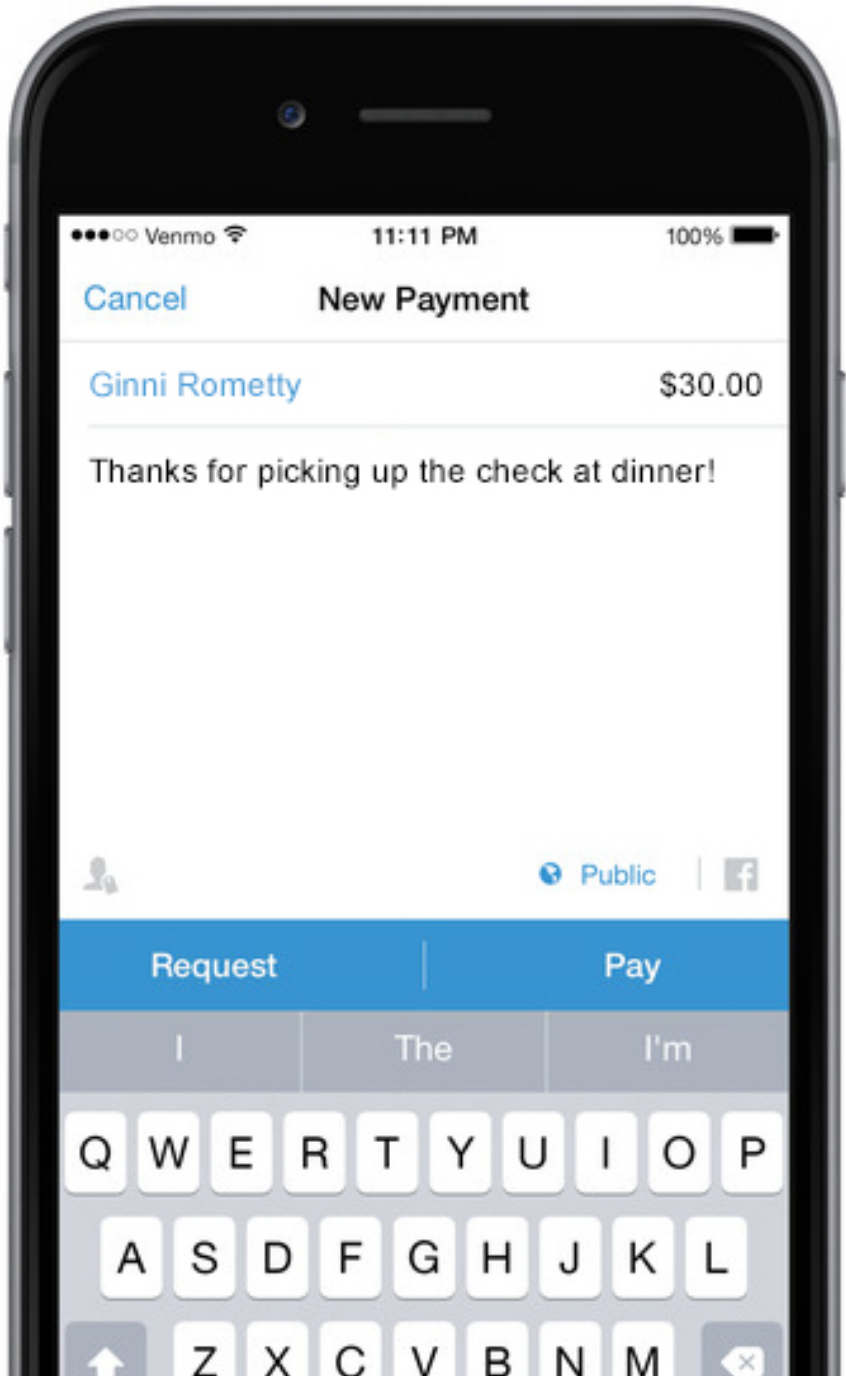


Important Disclaimer

IBM's statements regarding its plans, directions and intent are subject to change or withdrawal without notice at IBM's sole discretion. Information regarding potential future products is intended to outline our general product direction and it should not be relied on in making a purchasing decision. The information mentioned regarding potential future products is not a commitment, promise, or legal obligation to deliver any material, code or functionality. Information about potential future products may not be incorporated into any contract. The development, release, and timing of any future features or functionality described for our products remains at our sole discretion.

The information in this document is provided "as is" without any warranty, express or implied, including without any warranties of merchantability, fitness for a particular purpose and any warranty or condition of non-infringement. IBM products are warranted according to the terms and conditions of the agreements under which they are provided. It is the user's responsibility to evaluate and verify the operation of any other products or programs with IBM products and programs.

- **Performance.** Performance is based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput or performance that any user will experience will vary depending upon many factors, including considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve results similar to those stated here.
- **Customer Examples.** All customer examples described are presented as illustrations of how those customers have used IBM products and the results they may have achieved. Actual environmental costs and performance characteristics may vary by customer. Nothing contained in these materials is intended to, nor shall have the effect of, stating or implying that any activities undertaken by you will result in any specific sales, revenue growth or other results.
- **Availability.** Not all offerings are available in every country in which IBM operates. This document is current as of the initial date of publication and may be changed by IBM at any time.
- **Trademarks.** IBM and the IBM logo are trademarks of International Business Machines Corporation, registered in many jurisdictions. Java and all Java-based trademarks and logos are trademarks or registered trademarks of Oracle and/or its affiliates. Other company, product and service names may be trademarks, registered marks or service marks of their respective owners.



Digital stakes are getting higher

70% of consumers are **less tolerant of digital service problems** than two years ago

63% of consumers **actively discourage others from using a service** if they've had a bad digital experience

49% of consumers **have switched suppliers due to a poor digital experience**

24% of consumers say that **headlines about technical issues destroy their trust** in companies in question

Outage

Immediately detectable

Fixed in panic mode

Has a root cause

Measurable customer impact

Slowdown

Incremental over time

Addressed temporarily buying time
for a better fix later

Potentially partial failures in
multiple systems

Silent customer loss

How enterprise IT teams discover performance problems:

58%

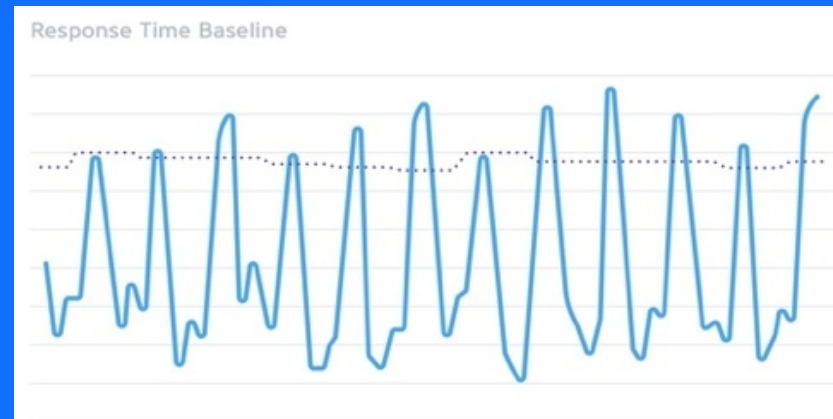
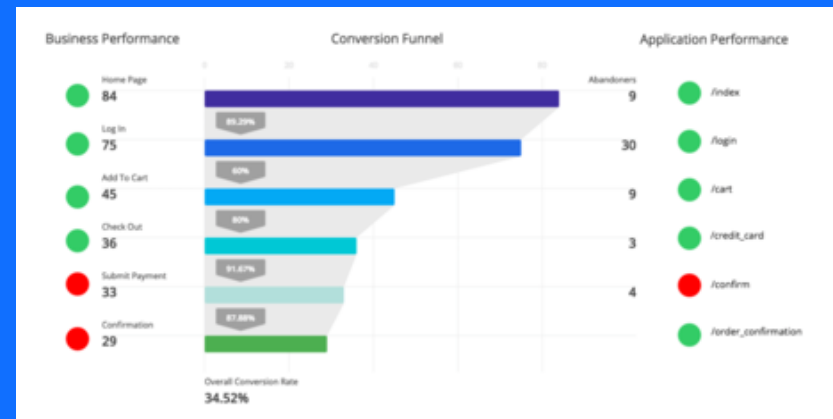
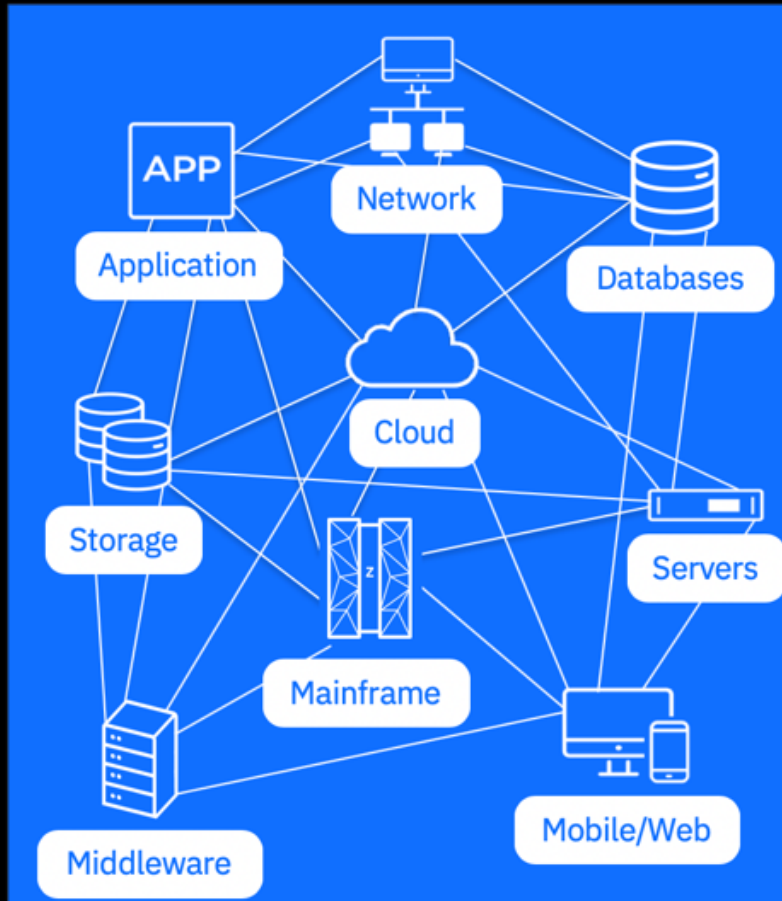
find out from users calling or emailing their organization's help desk

55%

find out from an executive or non-IT team member at their company who alerts the IT department

38%

find out from users posting on social networks





App iQ

Move **Fast**

- Auto-discover and Map
- No Manual Configuration
- Baseline Every Metric



Business iQ

Follow Everything

- Production Monitoring
- Low Overhead
- All User Transactions

Focus on What Matters Most

- Unified Platform
- One Consistent UI
- Real-time Context



APPDYNAMICS


**Before AppDynamics
we were paramedics, and
with AppDynamics we are
brain surgeons...**





Organizations making APM data actionable have seen
hours spent in war rooms reduced by 59%

Trac Research

A woman with blonde hair, wearing a purple short-sleeved shirt and black trousers, is standing in a data center. She is looking down at a large, dark-colored IBM mainframe server rack. The server rack has a distinctive blue and black geometric pattern on its front panel. In the background, another person is working on a similar server rack. The data center is filled with various pieces of equipment, including cables and other server racks. The floor is light-colored with yellow and black safety markings.

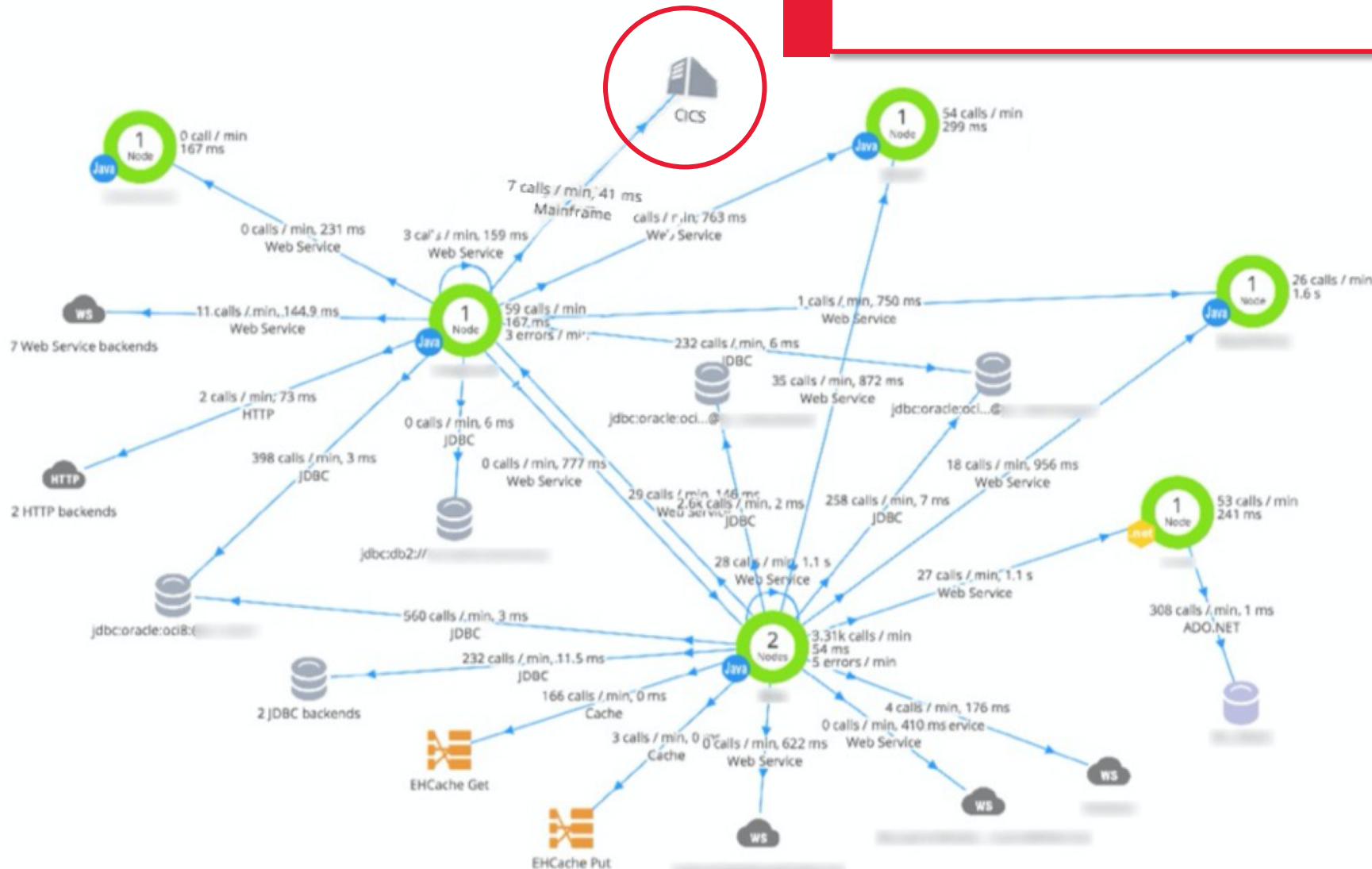
72% of all consumer applications still utilize
the mainframe in some form

Forrester

Mainframe
visibility is
severely limited
or nonexistent
in market
leading APMs



The mainframe is a black box in AppDynamics



Hybrid cloud applications are often monitored by teams with a highly variable set of skills and tooling



Miki,
IT Ops Practitioner



Jim,
Z Subject Matter Expert



02/13/2017 13:36:39
Auto Update : Off
Plex ID : LPAR400J
SMF ID : SYS

Command ==> KM5ASPO

Address Space Overview

Address Space Counts	
Address Space Count.....	434
Started Task Count.....	360
TSO User Count.....	23
Batch Job Count.....	32
Total Enclave Count.....	95
Active Enclave Count.....	31
Inactive Enclave Count...	64
APPC Count.....	19

CPU Utilization Summary

Address Space	ASID	ACPU Percent	TCB Percent	SRB Percent	CPU% Excluding Home	SRB Time
WLM	000B	0.9	0.9	0.0	0.9	0.9
CICSMH08	0105	0.9	0.4	0.0	0.9	0.9
W85BGAP	014C	0.9	0.9	0.0	0.9	0.9
XCFAS	0006	0.4	0.4	0.0	0.4	0.4
DB1DMSTR	00E2	0.4	0.4	0.0	0.4	0.4
INGNAPPL	0129	0.4	0.4	0.0	0.4	0.4
JJD0NWJT	0197	0.4	0.4	0.0	0.4	0.4
MG0UV4	01AC	0.4	0.4	0.0	0.4	0.4
DC1HMSTR	01AE	0.4	0.4	0.0	0.4	0.4
DC1DMSTR	01C0	0.4	0.4	0.0	0.4	0.4
MASTER	0001	0.0	0.0	0.0	0.0	0.0
PCAUTH	0002	0.0	0.0	0.0	0.0	0.0
RASP	0003	0.0	0.0	0.0	0.0	0.0
TRACE	0004	0.0	0.0	0.0	0.0	0.0
DUMPSRV	0005	0.0	0.0	0.0	0.0	0.0
GRS	0007	0.0	0.0	0.0	0.0	0.0
SMSPDSE	0008	0.0	0.0	0.0	0.0	0.0
SMSVSAM	0009	0.0	0.0	0.0	0.0	0.0
CONSOLE	000A	0.0	0.0	0.0	0.0	0.0
ANTMAIN	000C	0.0	0.0	0.0	0.0	0.0
ANTAS000	000D	0.0	0.0	0.0	0.0	0.0
DEVMAN	000E	0.0	0.0	0.0	0.0	0.0

Hub OMD1HUB:CMS on platform SP22(z/OS)

Without Z APM Connect



IT Ops

Our APM has alerted on a performance deviation.

I can see the response is slower than normal calling the mainframe. I'm going to speak to MQ SME.



MQ SME

MQ looks ok to me.
It's definitely not my problem.



IMS SME

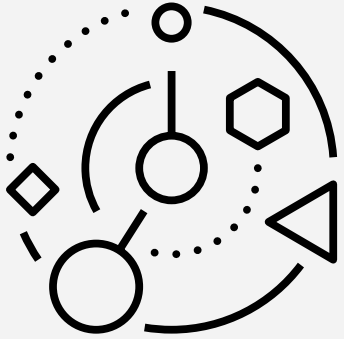
IMS looks idle.
Are you sure your app is even calling IMS?



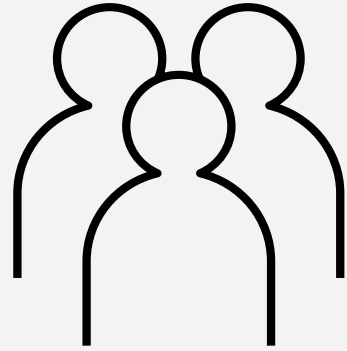
CICS SME

Uh-oh! There's a slowdown. Let me look in to it.

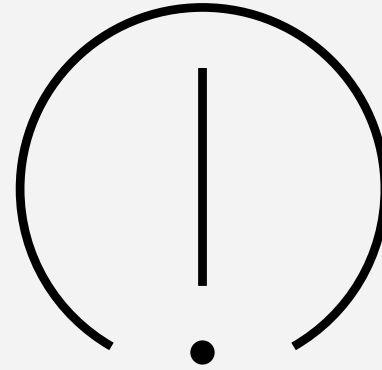
What drove the creation of Z APM?



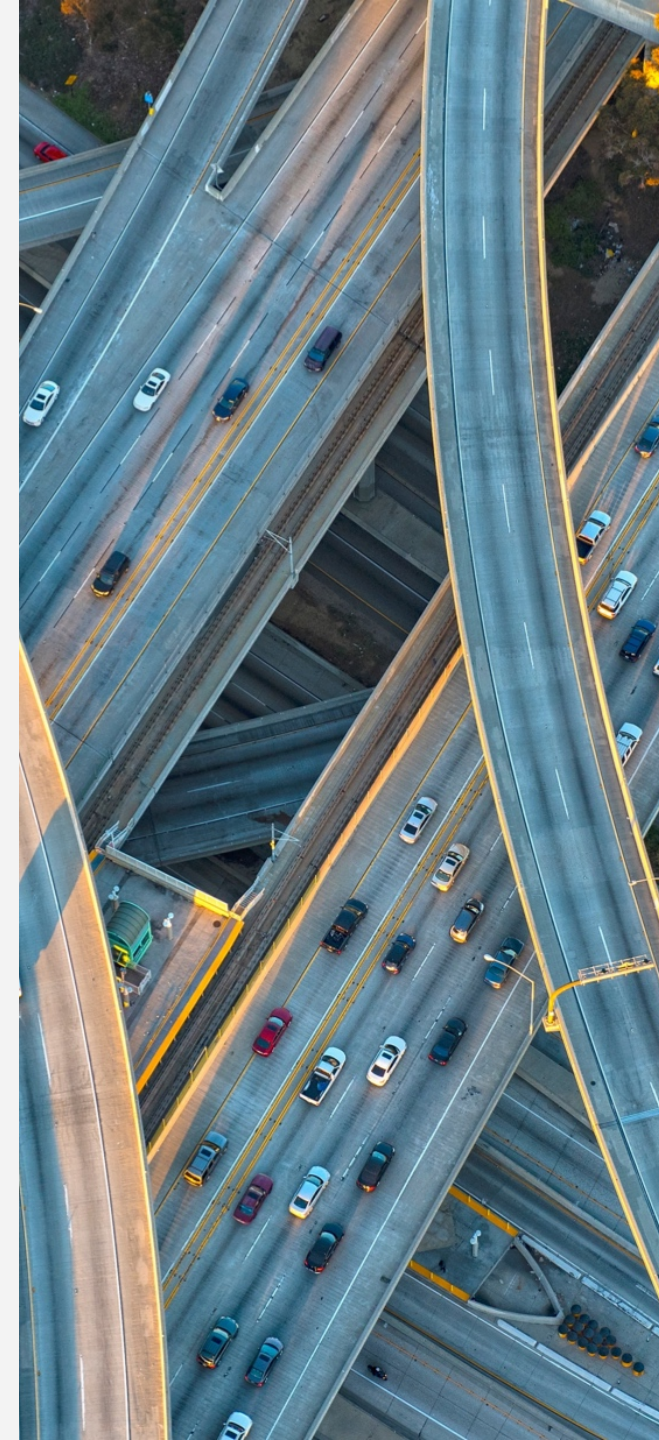
We must meet our customers where they are **in the APMs they love**



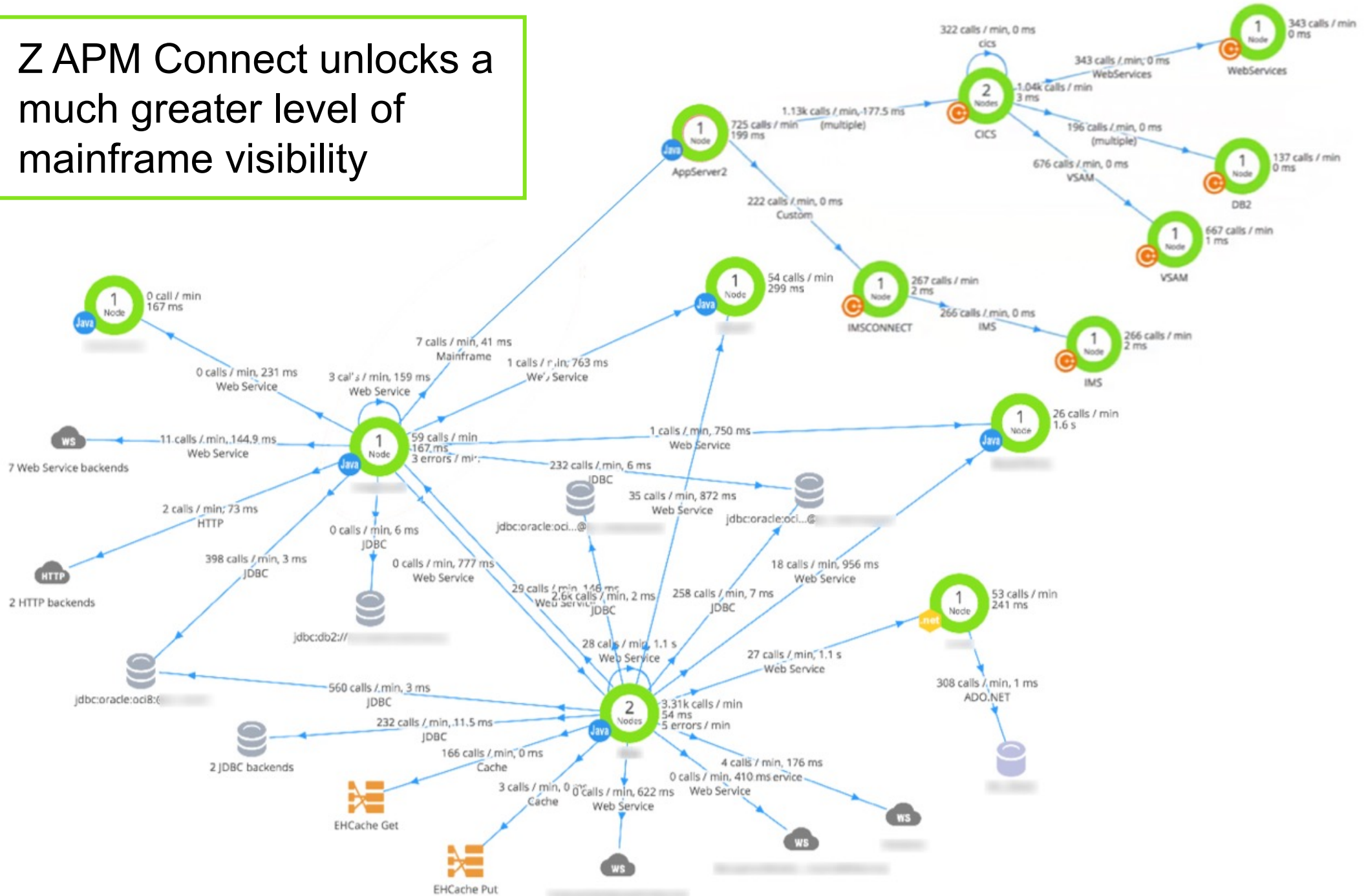
Only IBM has the mainframe talent and expertise to build a solution optimized for platform



Z visibility in APMs can **reduce a huge pain point** for app teams



Z APM Connect unlocks a much greater level of mainframe visibility



With Z APM Connect



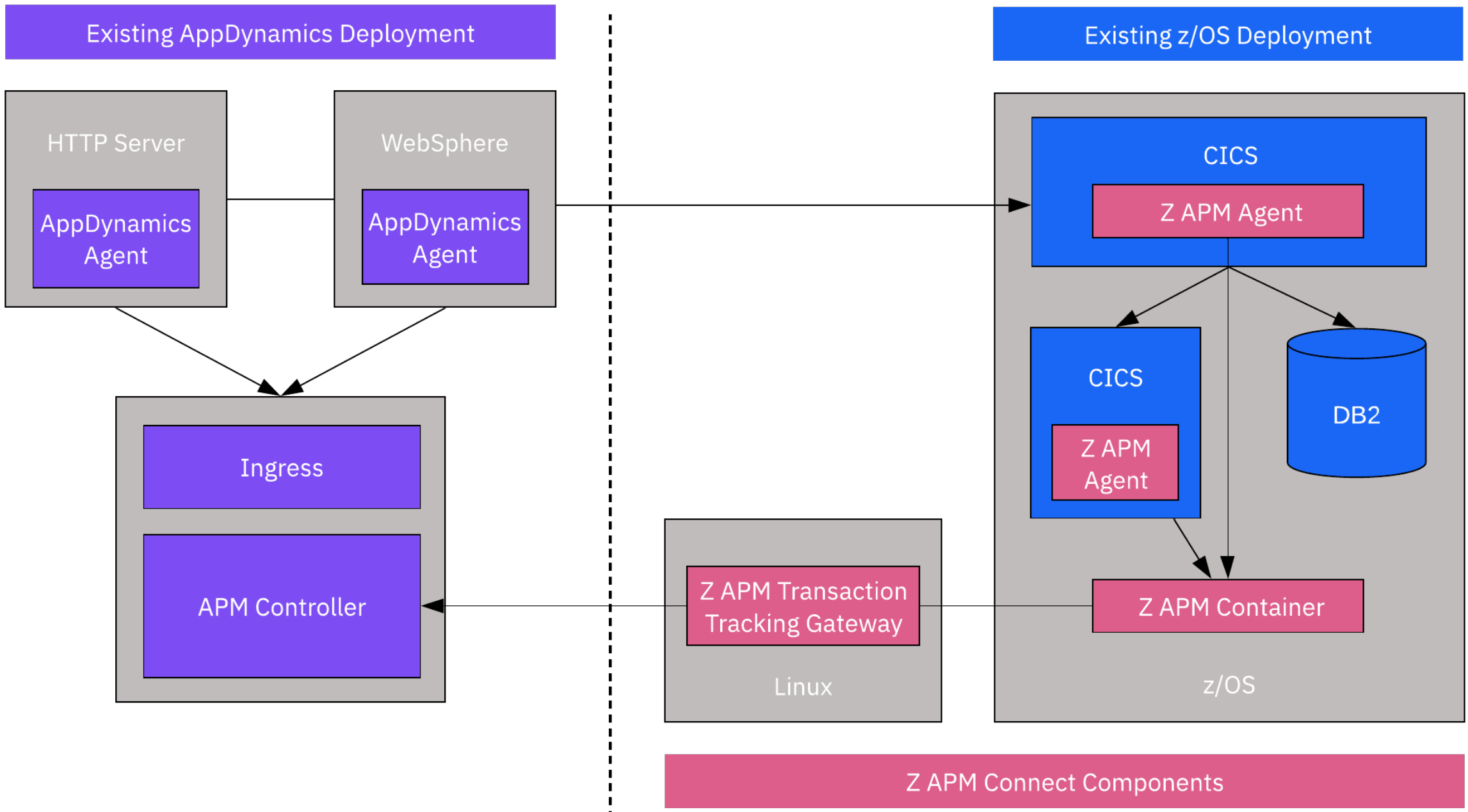
IT Ops

I see the slowdown is coming from [CICS Region Name] and [TaskID] is associated. Here's a [link] if you need more info.



CICS SME

Thanks for the heads up. I'm going to navigate to that CICS region in OMEGAMON, review the CICS task history, and take action immediately.



Z APM Connect Installation



Miki,
IT Ops Practitioner

Requirements:

- Configure the TTG on a Linux box

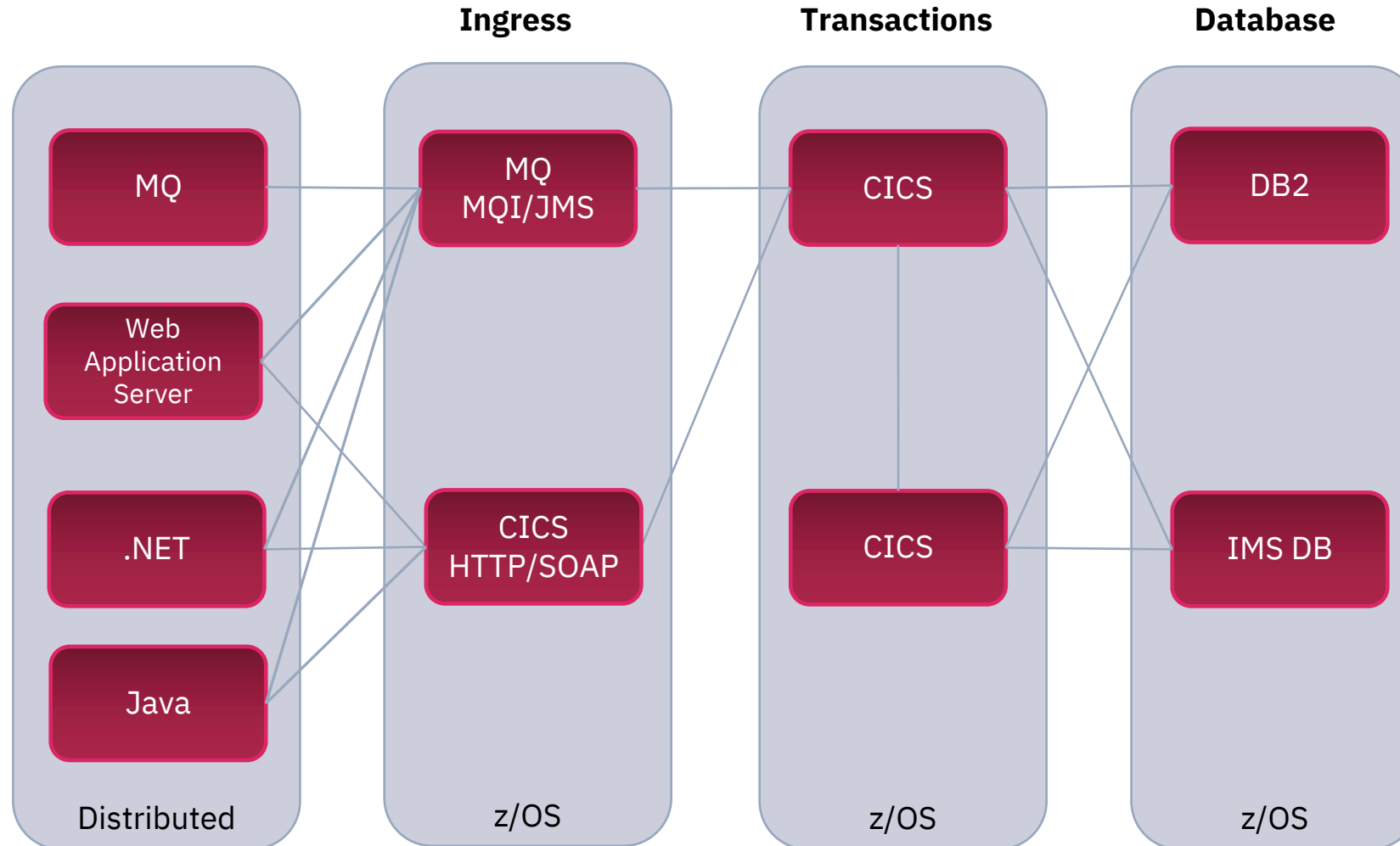


Jim,
Z Subject Matter Expert

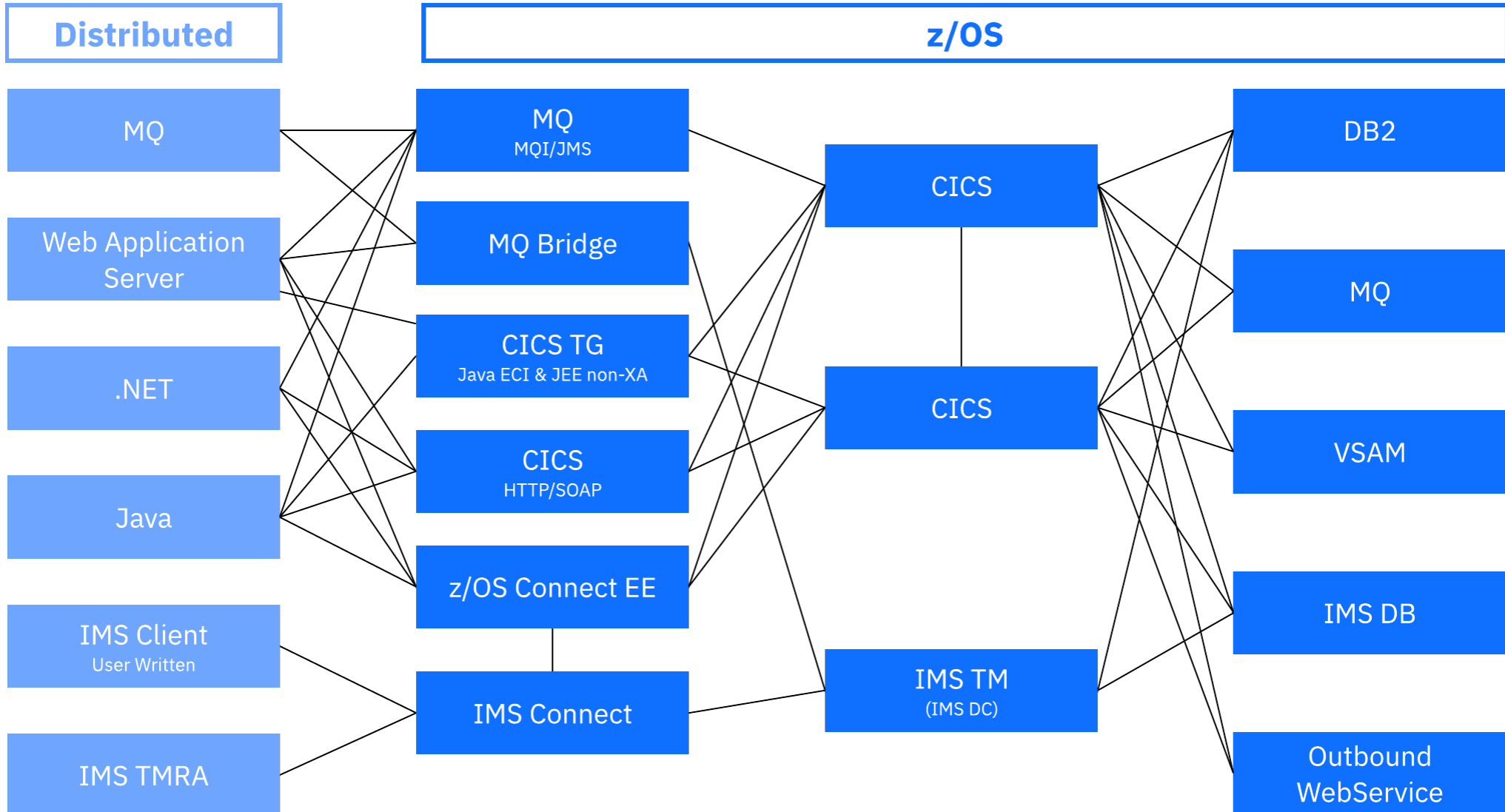
Requirements:

- One-time SMPE install
- Configuration per LPAR
 - Define an address space per LPAR
 - Configure Z APM monitoring code per subsystem

January 1, 2018



December 13, 2019



Continuous delivery drops for Z APM Connect

December 2019



CTG; IMS --> Db2; Scale

Customers using Java APIs calling CTG has support; new architecture enables greater scale; and IMS --> Db2 support

July 2019



IMS --> IMS DB Support

Customers using IMS DB as a backend can track transactions end-to-end from IMS

April 2019



z/OS Connect Support

Customers employing z/OS Connect can track transactions as they enter CICS and/or IMS

December 2018



IMS TMRA Support

Customers employing IMS Transaction Manager Resource Adaptor can track transactions when they enter IMS Connect

September 2018



Z APM Connect v6.1

Customers can add multiple AppDynamics controllers to track transactions across their organization calling shared Z resources

July 2018



Initial IMS Support

Customers employing a user written IMS client can track transactions when they enter IMS Connect to IMS TM

April 2018



MQ Improvements

User can now see WebSphere MQ usage by CICS transactions in AppDynamics

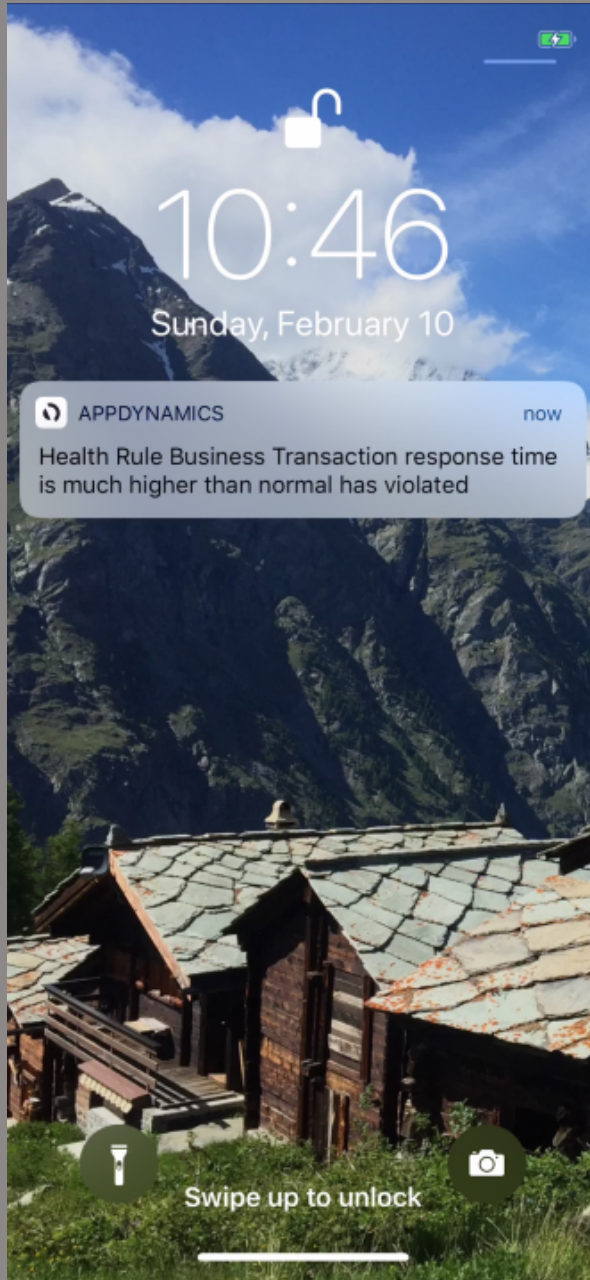
November 2017



Z APM Connect v5.5

Initial public release of Z APM Connect empowering customers to mainly track the performance of CICS transactions

Demo



9:41 ↗



Health Rule Business Tr...
Inventory

Last Updated : Just Now

Event Type

⚠ Health Rule Violation Started - Warning

Summary

Health Rule Business Transaction response time is much higher than normal has violated

Time

02/10/19, 10:45:55 PM

Health Rule

⚠ Business Transaction response time is much higher than normal

Health Rule Type

Business Transaction Performance (load,

Affects

/Warehouse_Inventory

Violation State

Open



Search

Last Updated : Just Now

Inventory >

Business Transaction Health

Tier Health

14.51k

RT(ms)

115

Calls

23

Calls / min

0

Error %

0

Errors

0

Errors / min

WAS_ZCEE_APP >

Business Transaction Health

Tier Health

0

RT(ms)

0

Calls

0

Calls / min

0

Error %

0

Errors

0

Errors / min

TestAppD >

9:41



Inventory



Last Updated : Just Now

Events



- Health Rule Violations Started 3
- Business Transaction Health 3

Business Transaction Health



0 Critical 2 Warning 8 Normal

Tier Health

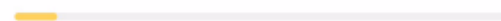


0 Critical 0 Warning 6 Normal

Transaction Scorecard



Normal 36.5% 42



Slow 8.7% 10



Very Slow 47.8% 55



Stalls 7% 8

9:41



10 Business Transactions

Inventory



Error %	Errors	Errors / min
---------	--------	--------------



/Order_Status



Web

20.4k

RT(ms)

5

Calls

1

Calls / min

0

Error %

-

Errors

-

Errors / min



/Place_Order



Web

20k

RT(ms)

5

Calls

1

Calls / min

0

Error %

-

Errors

-

Errors / min



/Approve_Order



Web

18.59k

RT(ms)

5

Calls

1

Calls / min

0

Error %

-

Errors

-

Errors / min



/HelloHttp/HelloHttpClient





admin|

••••••••

Remember me

[Forgot Password](#)

Login

Applications



last 1 hour



👁️ Details |
 ➕ Create Application |
 ⋮ Actions |
 🔍 View Options |
 📊 View |
 📄 Calls / min |
 ⌵ Sort

🔍

Showing 1-16 of 16

Inventory > ⋮

2.82k ms Response Time (ms)	5.3k Calls	91 Calls / min
0.0 % Error %	0 Errors	0 Errors / min

ICTTest_CJD > ⋮

0 ms Response Time (ms)	0 Calls	0 Calls / min
0.0 % Error %	0 Errors	0 Errors / min

dotNetIMS_MAHERJO > ⋮

0 ms Response Time (ms)	0 Calls	0 Calls / min
0.0 % Error %	0 Errors	0 Errors / min

IMS_Connect_MAHERJO > ⋮

0 ms Response Time (ms)	0 Calls	0 Calls / min
0.0 % Error %	0 Errors	0 Errors / min

CICS_Driver_A > ⋮

0 ms Response Time (ms)	0 Calls	0 Calls / min
0.0 % Error %	0 Errors	0 Errors / min

ICTTest_CJD2 > ⋮

0 ms Response Time (ms)	0 Calls	0 Calls / min
0.0 % Error %	0 Errors	0 Errors / min

TestAppD > ⋮

0 ms Response Time (ms)	0 Calls	0 Calls / min
0.0 % Error %	0 Errors	0 Errors / min

ICTTEST_JAVA_CJD > ⋮

0 ms Response Time (ms)	0 Calls	0 Calls / min
0.0 % Error %	0 Errors	0 Errors / min

IMSConnAPPD > ⋮

0 ms Response Time (ms)	0 Calls	0 Calls / min
0.0 % Error %	0 Errors	0 Errors / min

Inventory

Application Dashboard

Business Transactions

Service Endpoints

Tiers & Nodes

Servers

Containers

Database Calls

Remote Services

Troubleshoot

More

Alert & Respond

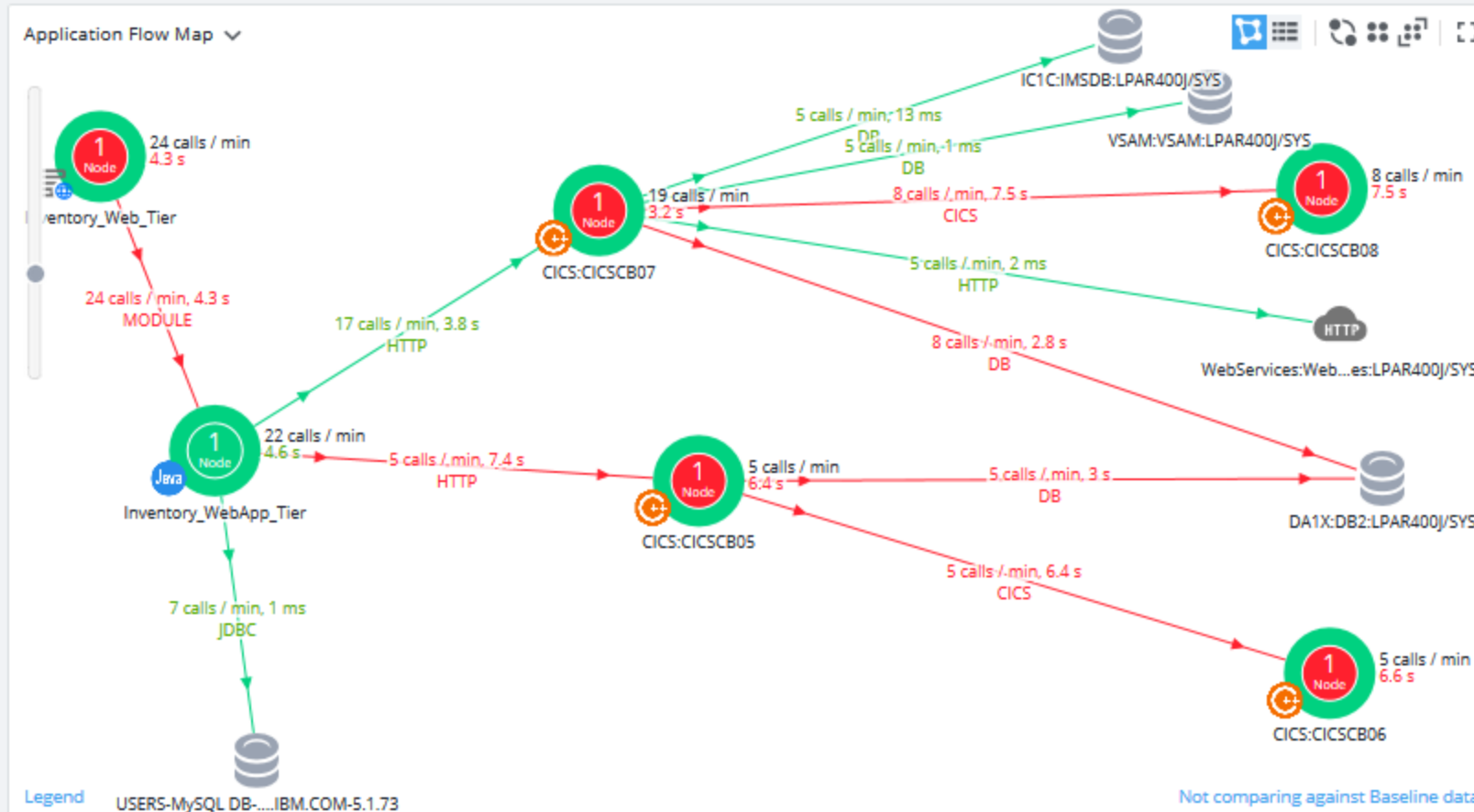
Metric Browser

Configuration

Inventory

All data - Last 15 days last 15 minutes

Dashboard Events Top Business Transactions Transaction Snapshots Transaction Score



Events

- Health Rule Violations Started 4
- Business Transaction Health 4

Business Transaction Health

3 critical, 1 warning, 6 normal

Node Health

0 critical, 0 warning, 6 normal

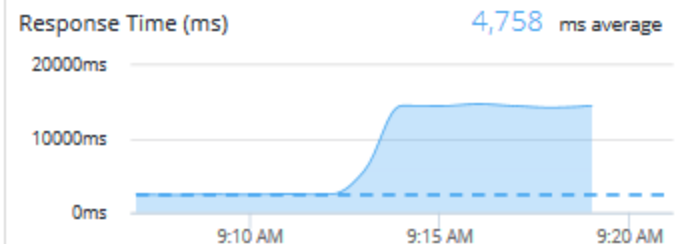
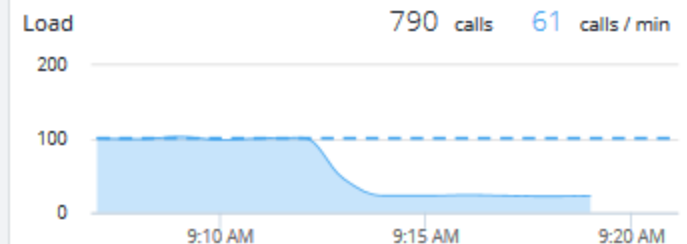
Server Health

Transaction Scorecard

Normal	86.6 %	684
Slow	2.4 %	19
Very Slow	8.9 %	70
Stall	2.2 %	17
Errors	0.0 %	-

Exceptions

Exceptions	- total	- / min
HTTP Error Codes	- total	- / min
Error Page Redirects	- total	- / min



Errors

- % - errors - errors / min

No data to display

Inventory

Application Dashboard

Business Transactions

Service Endpoints

Tiers & Nodes

Servers

Containers

Database Calls

Remote Services

Troubleshoot

More

Alert & Respond

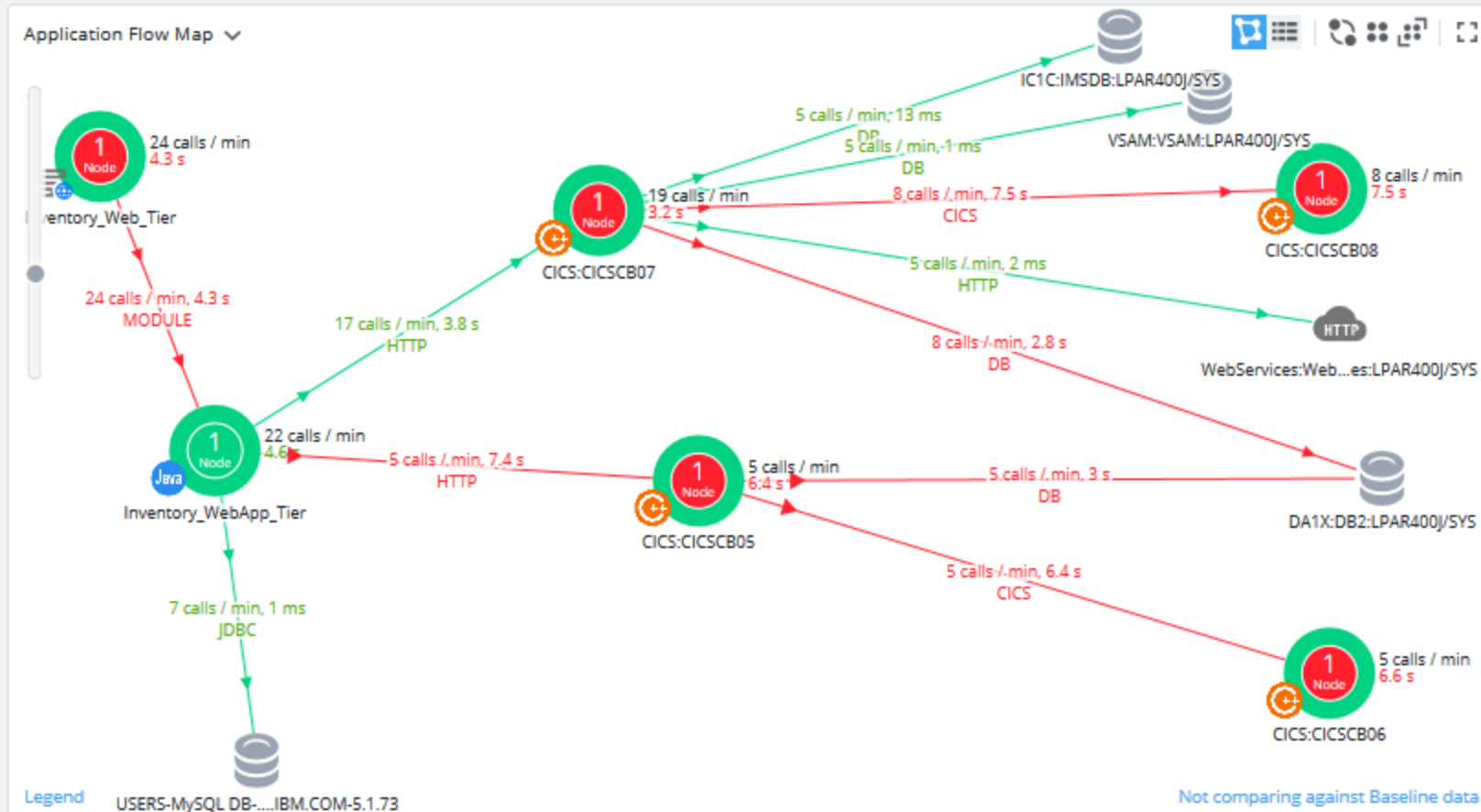
Metric Browser

Configuration

Inventory

All data - Last 15 days last 15 minutes

Dashboard Events Top Business Transactions Transaction Snapshots Transaction Score



Events

- Health Rule Violations Started 4
- Business Transaction Health 4

Business Transaction Health

3 critical, 1 warning, 6 normal

Node Health

0 critical, 0 warning, 6 normal

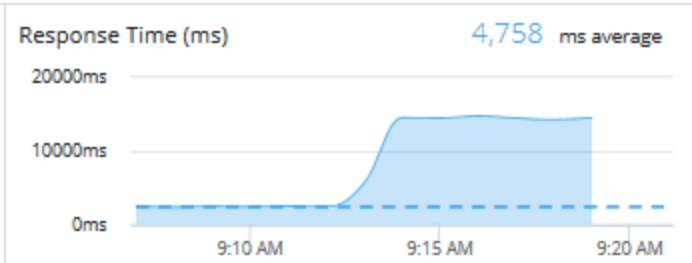
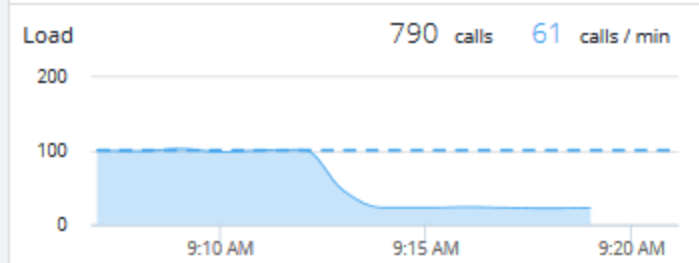
Server Health

Transaction Scorecard

Normal	86.6 %	684
Slow	2.4 %	19
Very Slow	8.9 %	70
Stall	2.2 %	17
Errors	0.0 %	-

Exceptions

Exceptions	- total	- / min
HTTP Error Codes	- total	- / min
Error Page Redirects	- total	- / min



Errors

- % - errors - errors / min

No data to display

Inventory

Application Dashboard

Business Transactions

Service Endpoints

Tiers & Nodes

Servers

Containers

Database Calls

Remote Services

Troubleshoot

More

Alert & Respond

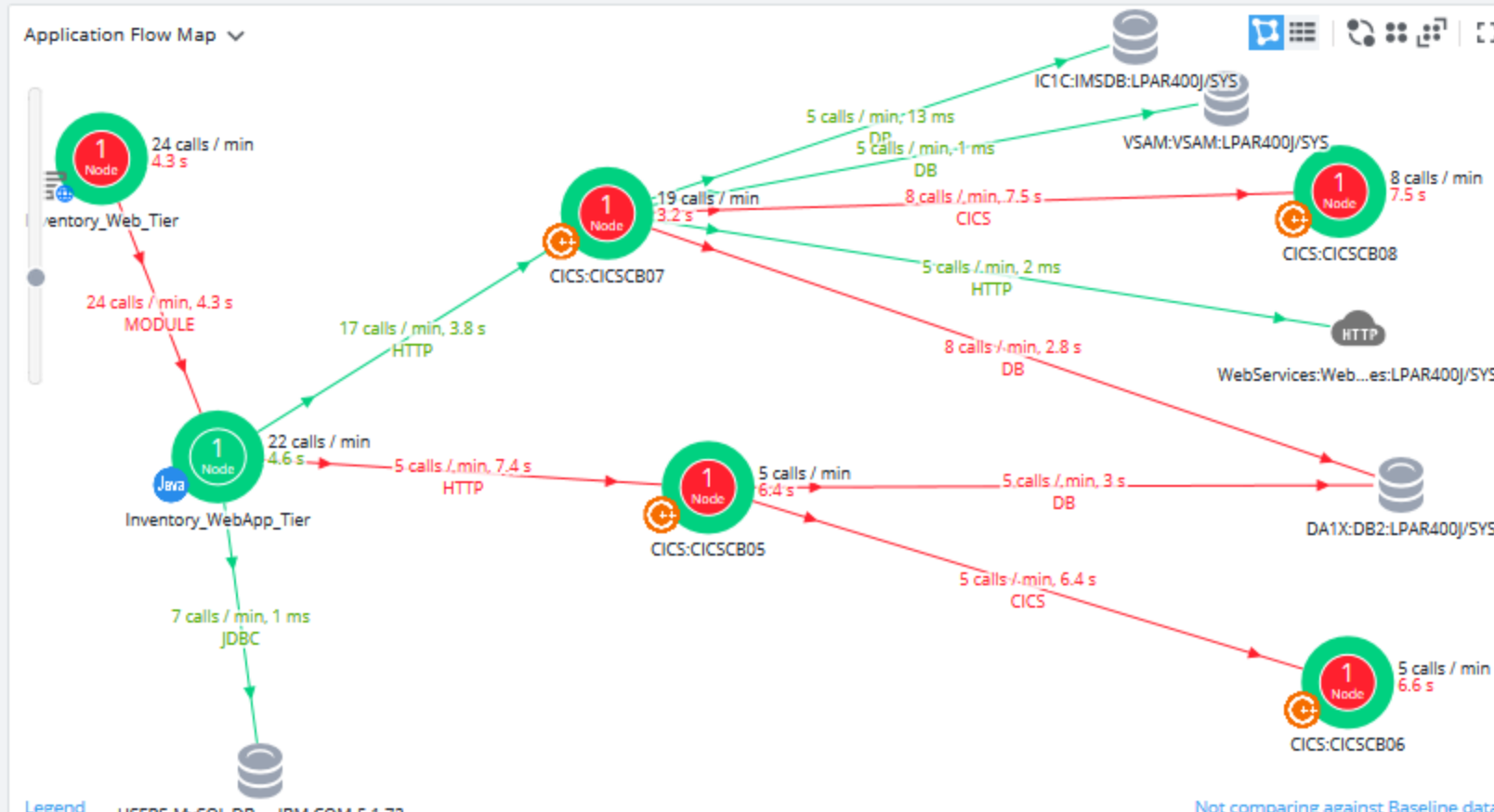
Metric Browser

Configuration

Inventory

All data - Last 15 days last 15 minutes

Dashboard Events Top Business Transactions Transaction Snapshots Transaction Score



Events

- Health Rule Violations Started 4
- Business Transaction Health 4

Business Transaction Health

3 critical, 1 warning, 6 normal

Node Health

0 critical, 0 warning, 6 normal

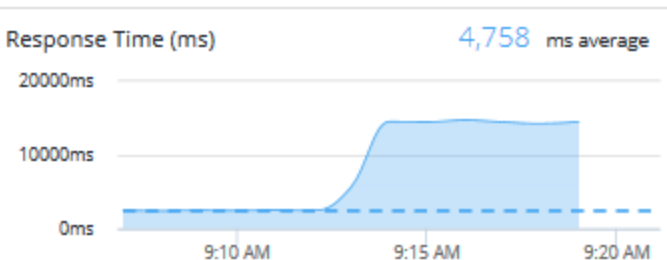
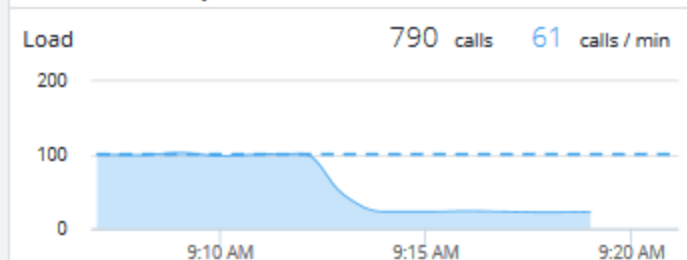
Server Health

Transaction Scorecard

Normal	86.6 %	684
Slow	2.4 %	19
Very Slow	8.9 %	70
Stall	2.2 %	17
Errors	0.0 %	-

Exceptions

Exceptions	- total	- / min
HTTP Error Codes	- total	- / min
Error Page Redirects	- total	- / min



Errors

- % - errors - errors / min

No data to display

Inventory

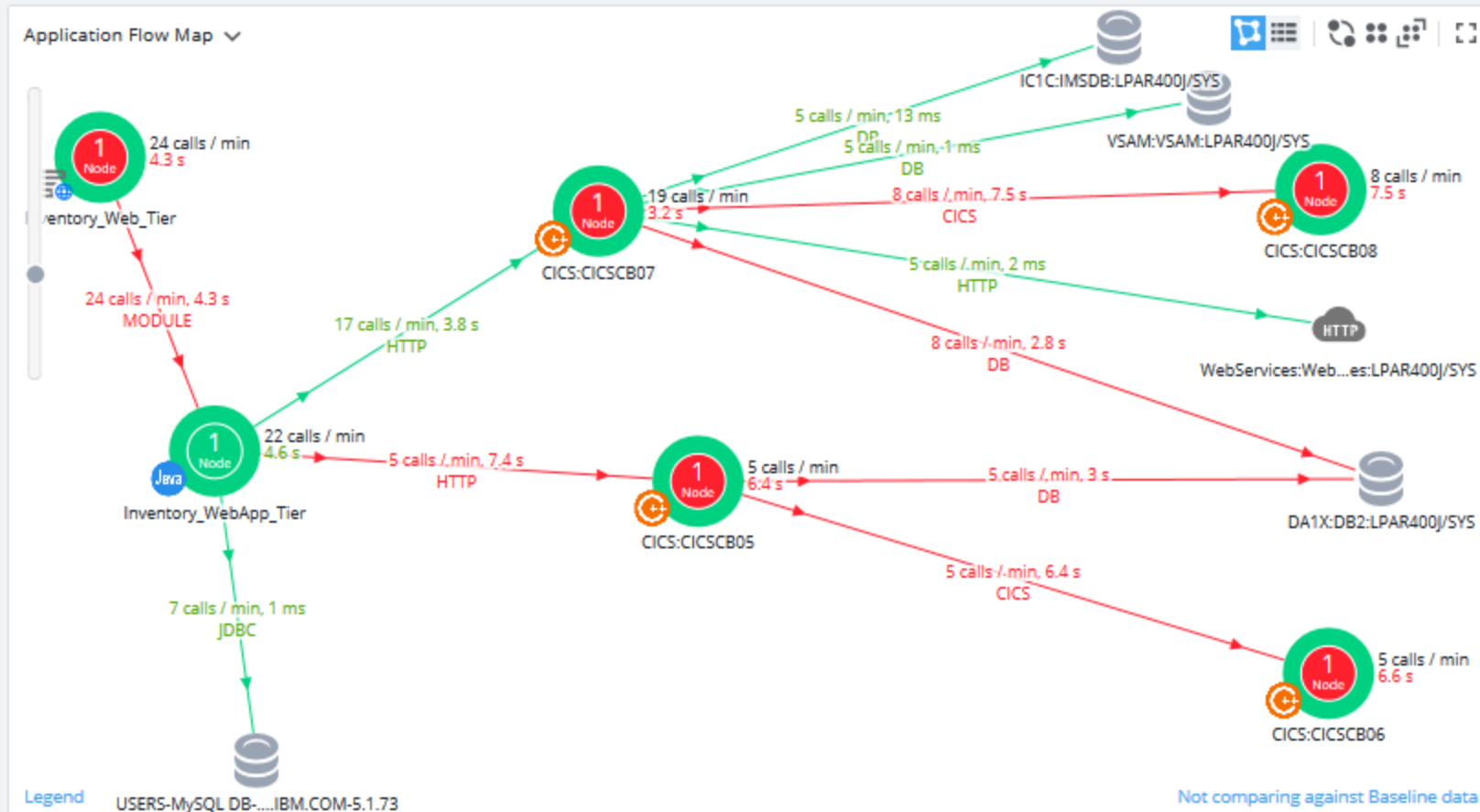
- Application Dashboard
- Business Transactions
- Service Endpoints
- Tiers & Nodes
- Servers
- Containers
- Database Calls
- Remote Services
- Troubleshoot
- More

- Alert & Respond
- Metric Browser
- Configuration

Inventory

All data - Last 15 days last 15 minutes

Dashboard Events Top Business Transactions Transaction Snapshots Transaction Score



Events
 Health Rule Violations Started 4 ⚠️
 Business Transaction Health 4 ⚠️

Business Transaction Health
 3 critical, 1 warning, 6 normal

Node Health
 This is a representation of how Health Rule Violations have occurred
 0 critical, 0 warning, 6 normal

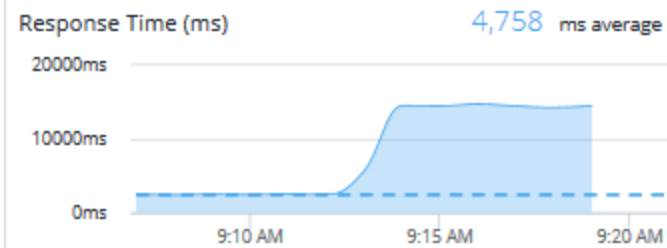
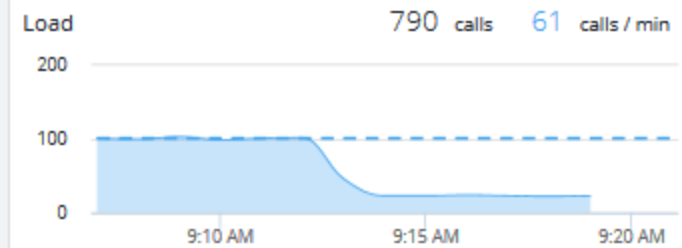
Server Health

Transaction Scorecard

Normal	86.6 %	684
Slow	2.4 %	19
Very Slow	8.9 %	70
Stall	2.2 %	17
Errors	0.0 %	-

Exceptions

Exceptions	- total	- / min
HTTP Error Codes	- total	- / min
Error Page Redirects	- total	- / min



Errors

- % - errors - errors / min

No data to display

Inventory ▼

Application Dashboard

Business Transactions

Service Endpoints

Tiers & Nodes

Servers

Containers

Database Calls

Remote Services

Troubleshoot ➤

More ➤

Alert & Respond











Metric Browser

Configuration

Business Transactions

🔄 last 15 minutes ▼ ?

👁️ Details |
 🔍 Filters |
 ⋮ Actions |
 📊 View Options |
 ⚙️ Configure
🔍
Showing 10 of 10

Name	Health	Response Time (ms)	Calls / min	Errors / min	% Errors	% Slow Transactions	% Very Slow Transactions	% Stalled Transactions
 /Store_Inventory	🟢	294	5	-	0	10	2	0
 /Login	🟢	218	5	-	0	2	0	0
 /Warehouse_Inventory	🔴	9,126	5	-	0	2	20	2
 /Place_Order	🔴	7,683	2	-	0	0	20	3
 /Order_Status	🔴	7,835	2	-	0	0	20	3
 /Approve_Order	🟡	8,788	2	-	0	3	20	0
 /Test/HelloHttpB	🟢	-	-	-	0	0	0	0
 /CICS_Driver/HttpDriver	🟢	-	-	-	0	0	0	0
 /HelloHttp/HelloHttpClient	🟢	-	-	-	0	0	0	0
 /Test/HelloHttpA	🟢	-	-	-	0	0	0	0

Inventory

Application Dashboard

Business Transactions

Service Endpoints

Tiers & Nodes

Servers

Containers

Database Calls

Remote Services

Troubleshoot

More

Alert & Respond

Metric Browser

Configuration

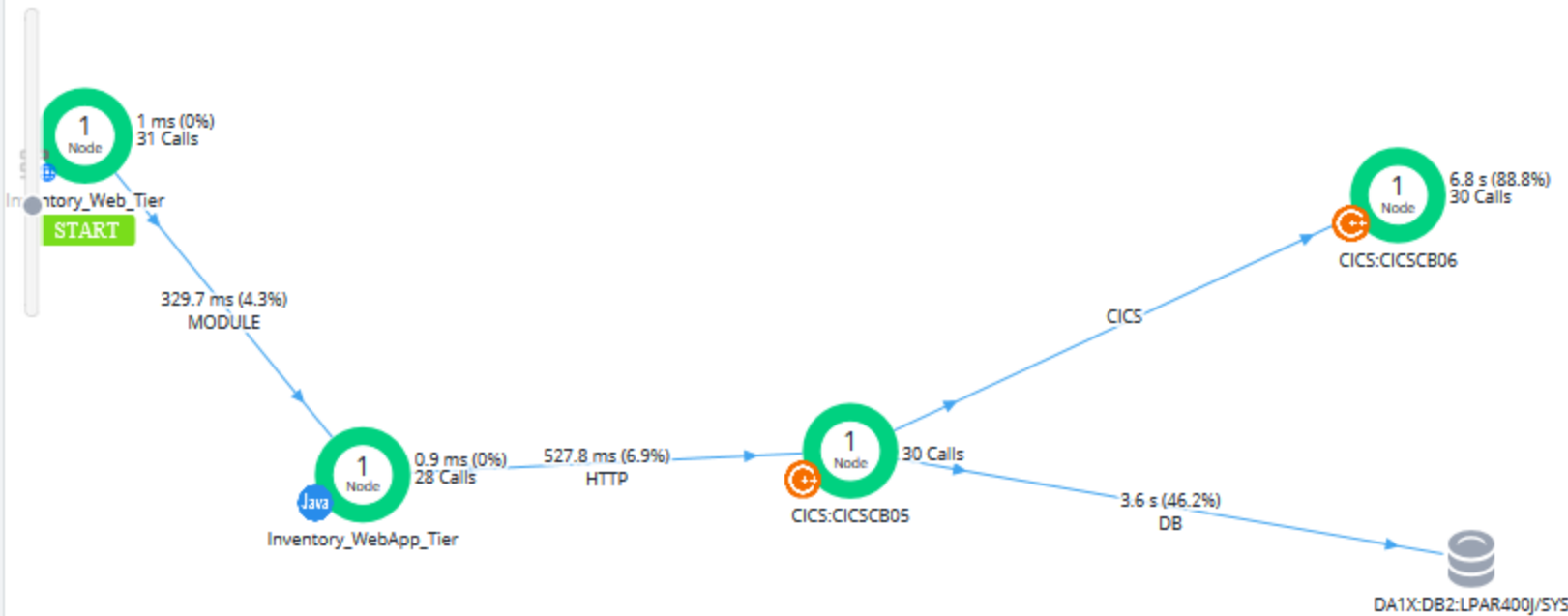
/Place_Order

Refresh All data - Last 15 days last 15 minutes

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

Actions

Transaction Flow Map



Events

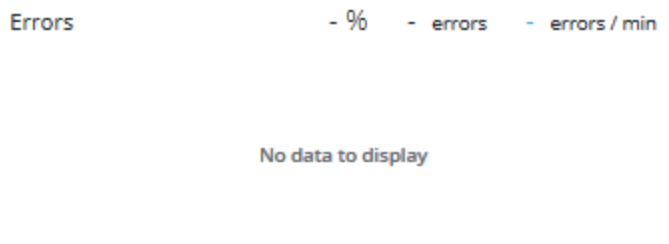
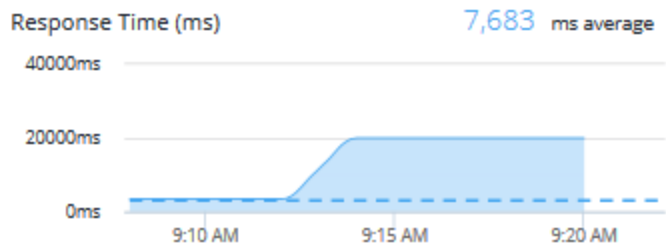
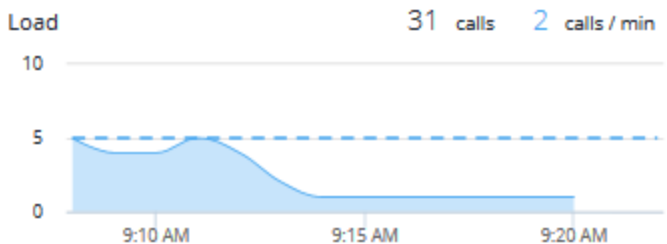
Health Rule Violations Started	1	⚠
Business Transaction Health	1	⚠

Transaction Scorecard

Normal	<div style="width: 74.2%;"></div>	74.2 %	23
Slow	<div style="width: 0.0%;"></div>	0.0 %	< 1
Very Slow	<div style="width: 22.6%;"></div>	22.6 %	7
Stall	<div style="width: 3.2%;"></div>	3.2 %	1
Errors	<div style="width: 0.0%;"></div>	0.0 %	-

Legend

Not comparing against Baseline data



Inventory

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

Alert & Respond

Metric Browser

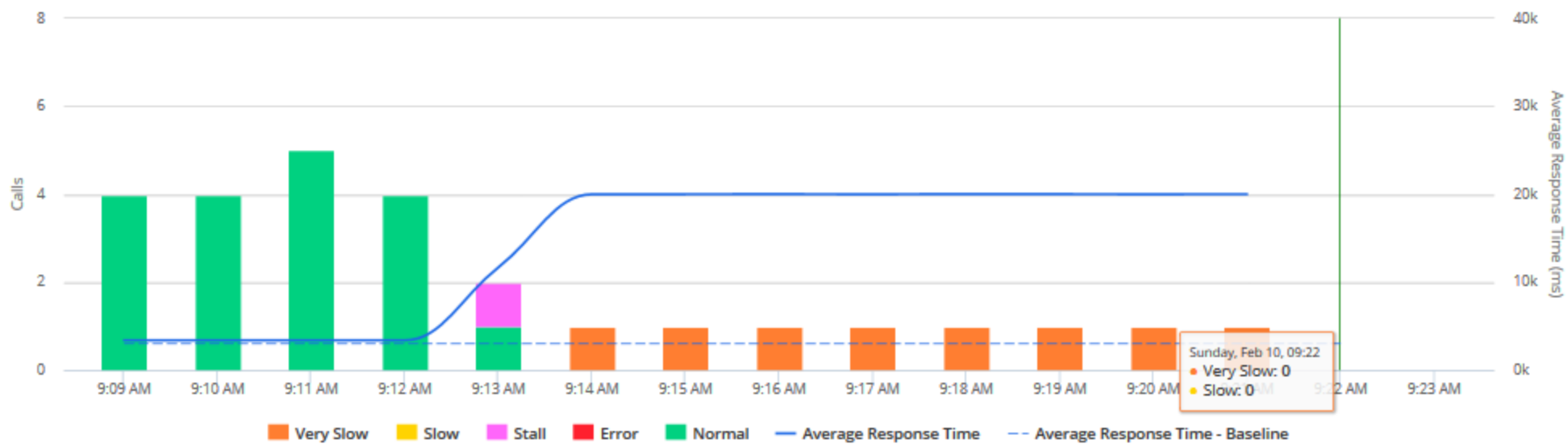
Configuration

/Place_Order

Refresh icon | All data - Last 15 days | last 15 minutes | Help icon

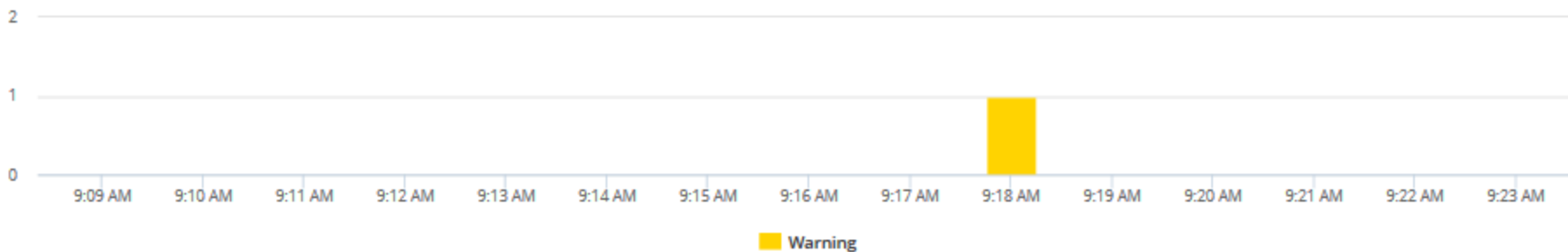
Dashboard Events Slow Response Times Errors Transaction Snapshots **Transaction Score** DB Queries

Transaction Score



Events

Show Filters



Snapshots

Show Filters



Inventory ▾

Application Dashboard

Business Transactions

Service Endpoints

Tiers & Nodes

Servers

Containers

Database Calls

Remote Services

Troubleshoot >

More >

Alert & Respond

Metric Browser

Configuration

/Place_Order ▾

🔄 last 15 minutes ▾ ?

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

All Snapshots Slow and Error Transactions Diagnostic Sessions Periodic Collection

	Time ↓	Exe Time (ms)	URL	Business Transaction	Tier	Node
▼	02/10/19 9:23:53 AM	20,001	/Place_Order	/Place_Order	Inventory_Web_Tier	Inventory_Web_Node
▼	02/10/19 9:22:53 AM	20,003	/Place_Order	/Place_Order	Inventory_Web_Tier	Inventory_Web_Node
▼	02/10/19 9:21:53 AM	20,002	/Place_Order	/Place_Order	Inventory_Web_Tier	Inventory_Web_Node
▼	02/10/19 9:20:53 AM	19,997	/Place_Order	/Place_Order	Inventory_Web_Tier	Inventory_Web_Node
▼	02/10/19 9:19:53 AM	20,005	/Place_Order	/Place_Order	Inventory_Web_Tier	Inventory_Web_Node
▼	02/10/19 9:18:53 AM	20,018	/Place_Order	/Place_Order	Inventory_Web_Tier	Inventory_Web_Node
▼	02/10/19 9:17:53 AM	19,994	/Place_Order	/Place_Order	Inventory_Web_Tier	Inventory_Web_Node
▼	02/10/19 9:16:53 AM	20,006	/Place_Order	/Place_Order	Inventory_Web_Tier	Inventory_Web_Node
▼	02/10/19 9:15:53 AM	19,998	/Place_Order	/Place_Order	Inventory_Web_Tier	Inventory_Web_Node
▼	02/10/19 9:14:53 AM	19,994	/Place_Order	/Place_Order	Inventory_Web_Tier	Inventory_Web_Node
ⓘ	02/10/19 9:13:53 AM	19,996	/Place_Order	/Place_Order	Inventory_Web_Tier	Inventory_Web_Node

Transaction: 22a81220-01b5-481d-a355-47e2559e2d581975

Overview Slow Calls and Errors Waterfall View Segment List Data Collectors

Summary

User Experience: Very Slow

Execution Time
20 s

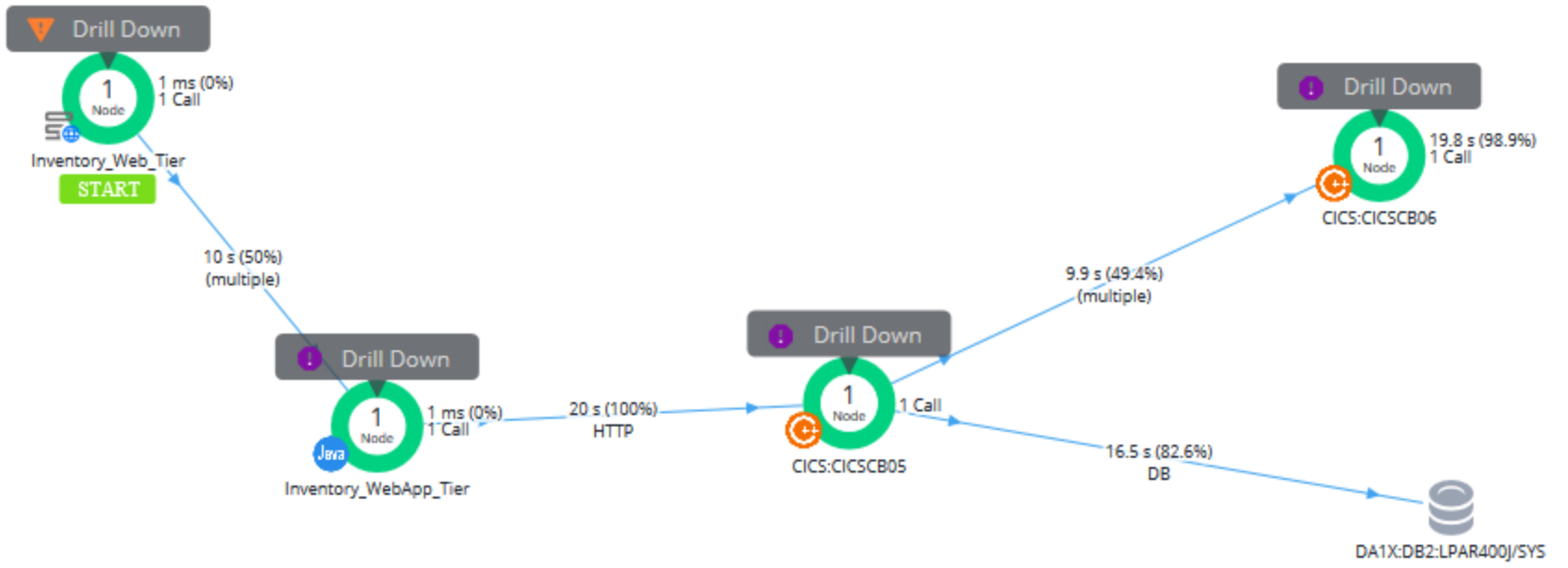
Timestamp
02/10/19 9:23:53 AM

Business Transaction
[/Place_Order](#)

More Details >

Potential Issues

STAGE:HANDLER,MODULE:MOD_PROXY.C	20 s
http://9.30.238.55:40575/CICS/CWBA/CHU\$WB1D	20 s
Agent did not collect the detail information for this exit call because the Business Transaction was...	19.8 s
DA1X:DB2:LPAR400J/SYS - IBM	16.5 s



Legend

Inventory

Application Dashboard

Business Transactions

Service Endpoints

Tiers & Nodes

Servers

Containers

Database Calls

Remote Services

Troubleshoot

More

Alert & Respond

Metric Browser

Configuration

DA1X:DB2:LPAR400J/SYS



All data - Last 15 days

last 15 minutes

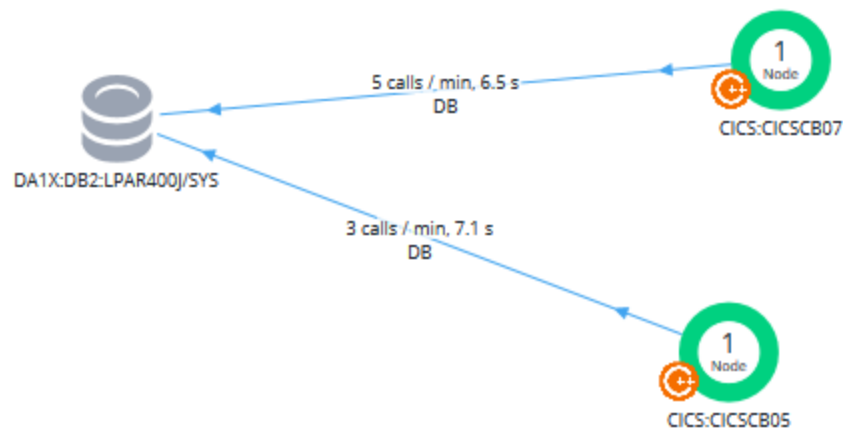


Dashboard

Slowest Database Calls

Actions

Backend Flow Map



Backend Properties

Host
DA1X:DB2:LPAR400J/SYS

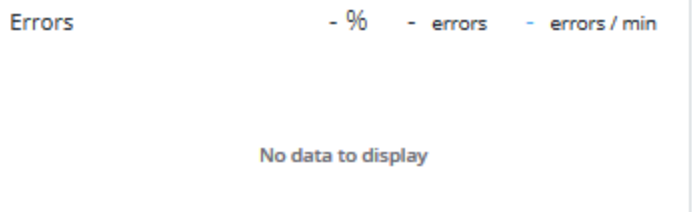
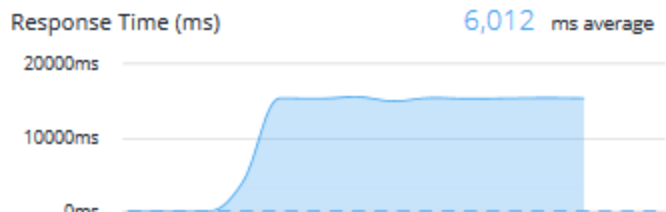
Vendor
IBM

AppDynamics Databases

[Click here to link this database with AppDynamics Databases.](#)

Legend

Not comparing against Baseline data



Transaction: 22a81220-01b5-481d-a355-47e2559e2d581975

Metric Browser - Inventory

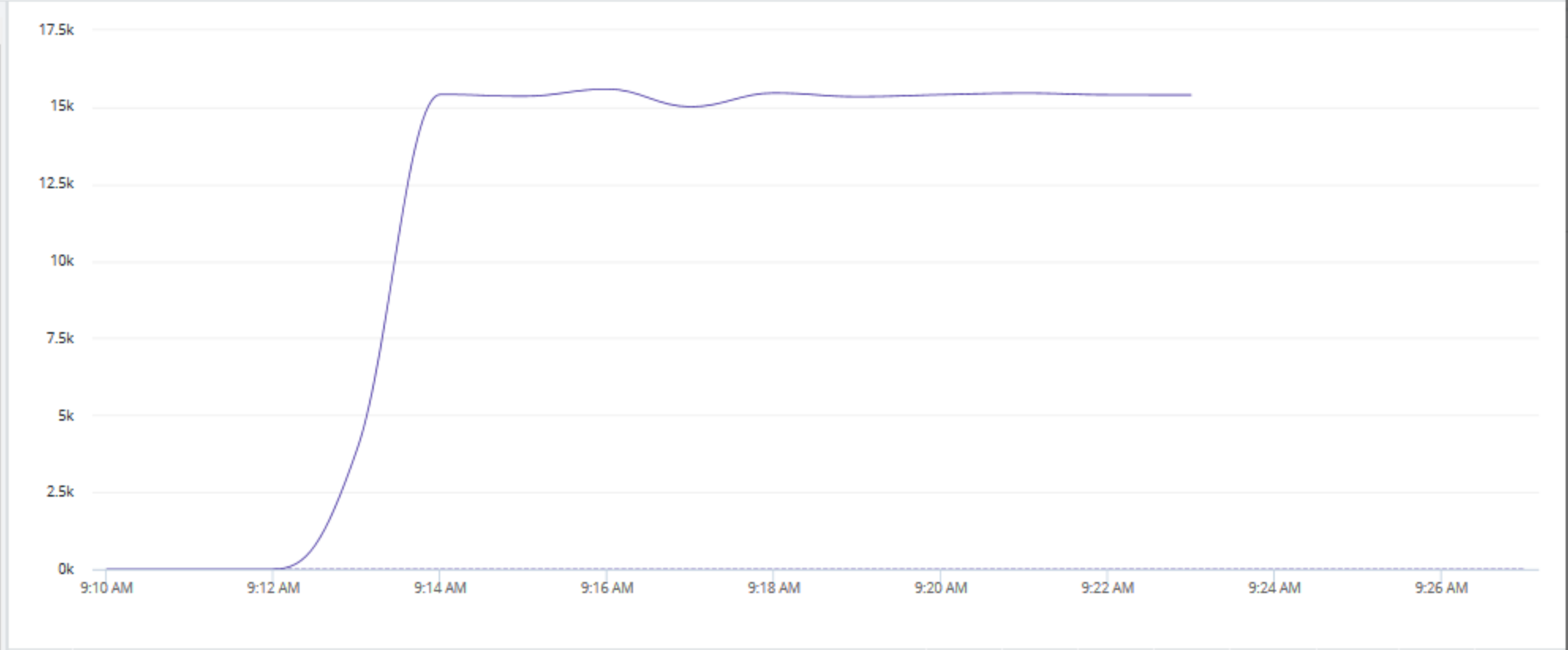


Metric Tree | Add | Clear | Configure | Actions | Scale | Plot Points

Refresh | All data - Last 15 days | last 15 minutes

Inventory tree structure:

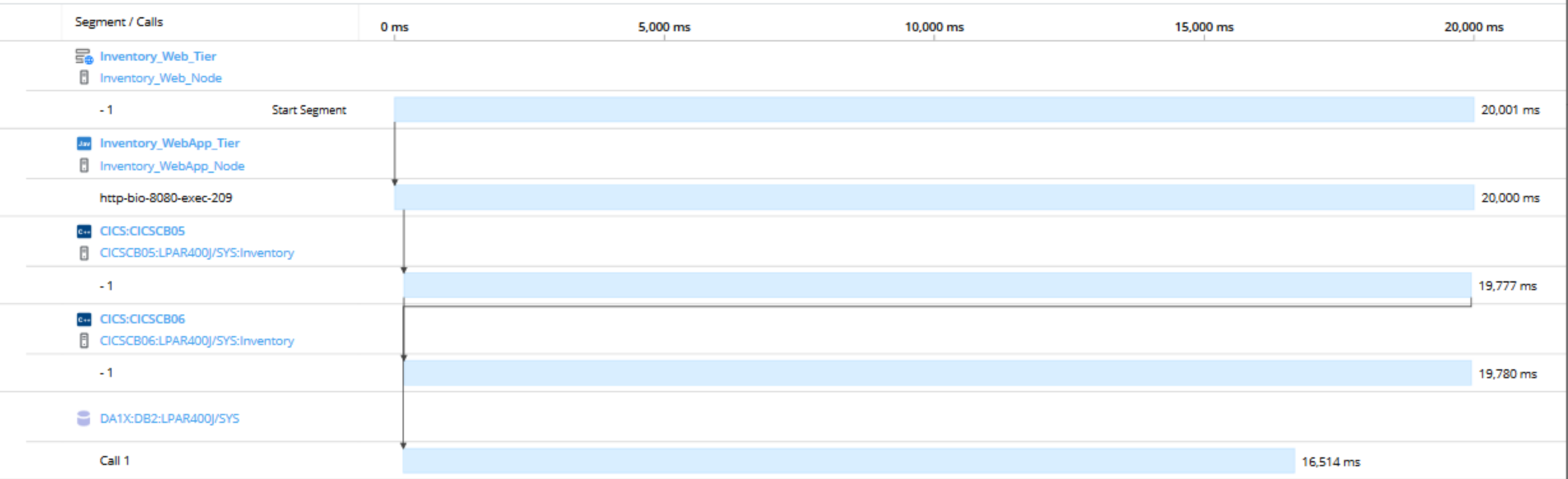
- LPAR400/SYS
- LPAR400/SYS
- SQL DB-ERICLINUX1.RTP.RALEIGH.IBM.COM-5.1.73
- LPAR400/SYS
- WebServices:LPAR400/SYS



Name	Obs.	Min	Max	Sum	Count	Base	Shade
Backends Discovered backend call - DA1X:DB2:LPAR400/SYS Average Response Time (ms)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Drill Down Filters

+ Add Criteria Exe Time (ms) >= 10



Learn more about Z APM Connect

Product Page	ibm.biz/ZAPMConnect
Documentation	ibm.biz/ZAPMDocs
Overview Video	ibm.biz/ZAPMOverview
Pricing Details	ibm.biz/VU-pricing-info
AppDynamics Partnership	ibm.biz/IBMAAppDPartnership

Product Information

Current PIDs

Z APM Connect V6.1.0 PID:
5698-ABL

Z APM Connect S&S PID:
5698-ABG

SalesConnect Code

Level 30

IBM Z APM Connect BSRB0

Old PIDs

Z APM Connect V5.5.0 PID:
5698-ABF

Contacts

Nicole Nemec

Lead Z APM Offering Manager
Nicole.Nemec@ibm.com

Kyu Kim

Supporting Z APM Offering
Manger
Kyu.Kim@ibm.com


Kathy Williams

Z APM Development Manager
KW@us.ibm.com

Please submit your session feedback!

- Do it online at <http://conferences.gse.org.uk/2019/feedback/on>
- This session is ON

1. What is your conference registration number?


 This is the three digit number on the bottom of your delegate badge

2. Was the length of this presentation correct?

 1 to 4 = "Too Short" 5 = "OK" 6-9 = "Too Long"

1 2 3 4 5 6 7 8 9

3. Did this presentation meet your requirements?

 1 to 4 = "No" 5 = "OK" 6-9 = "Yes"

1 2 3 4 5 6 7 8 9

4. Was the session content what you expected?

 1 to 4 = "No" 5 = "OK" 6-9 = "Yes"

1 2 3 4 5 6 7 8 9