

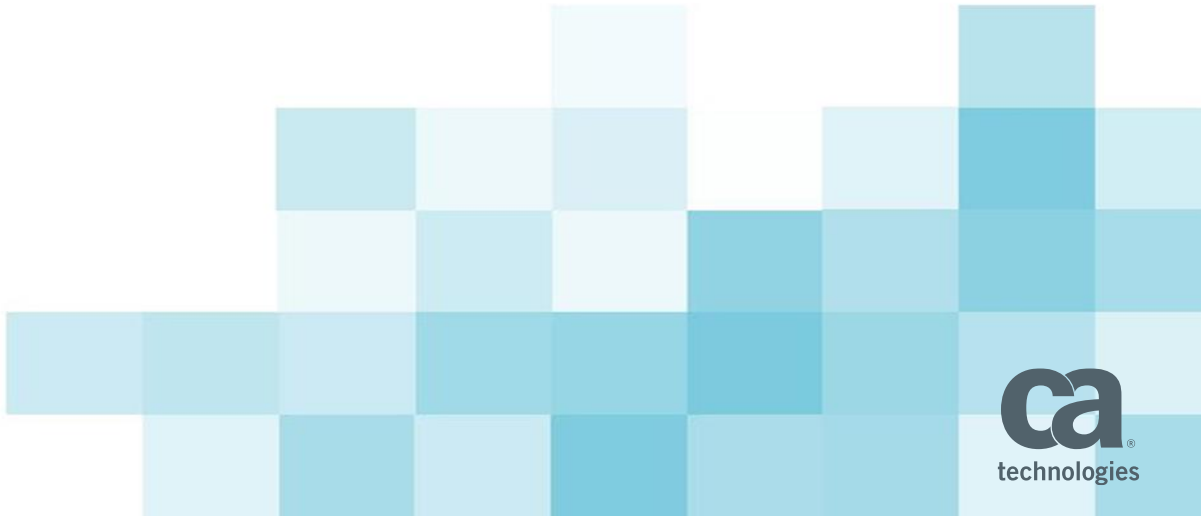
Automatically Find and Prioritize Common App Performance Issues with CA APM Team Center

Andreas Reiss

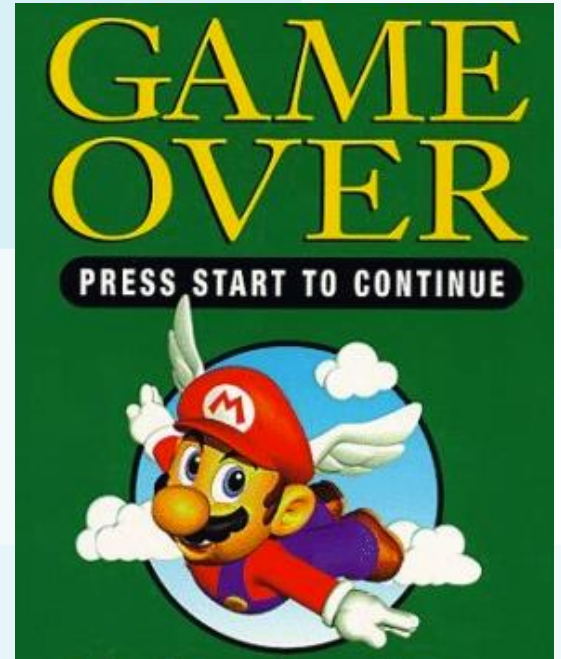
Agile Ops SWAT Innovation Team

ca technologies

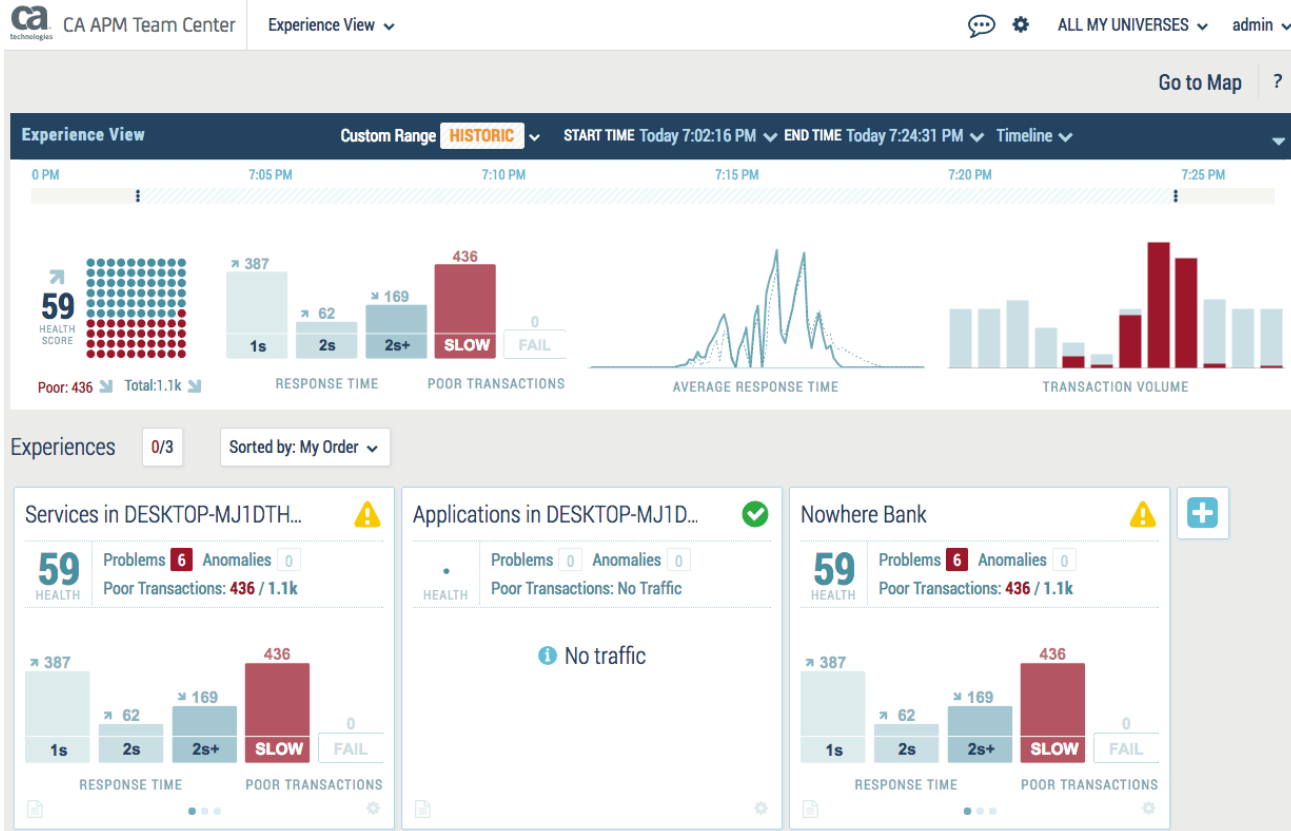
10.05.2017



A Normal Day In Production ... With State Of The Art APM



A normal day in production...



1

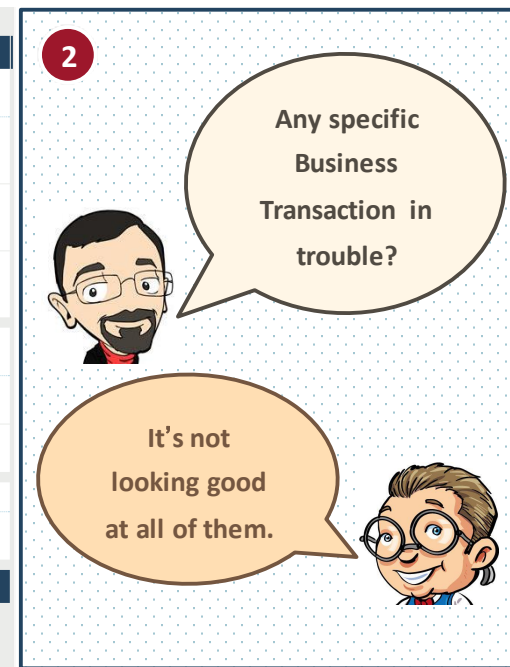
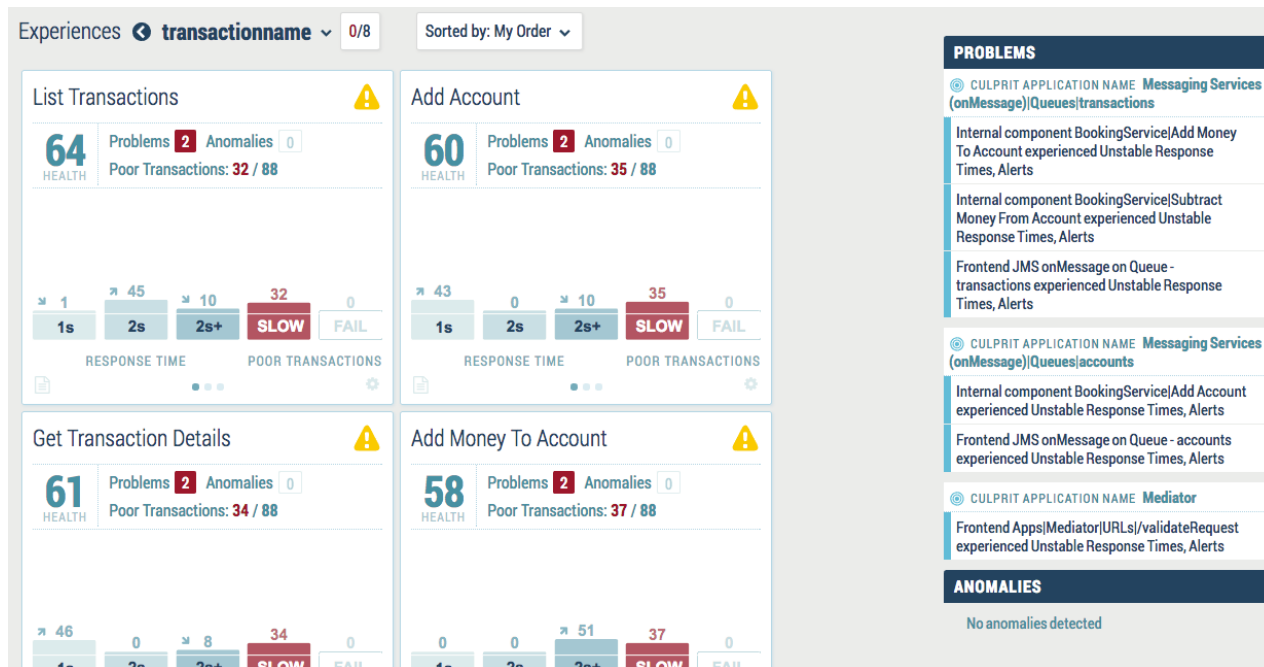


Pete, what is going on? I heard about serious trouble on Nowhere Bank?

Something is not looking right on Nowhere Bank



A normal day in production...



A normal day in production...

PROBLEMS

🔍 CULPRIT APPLICATION NAME **Messaging Services**
(onMessage)|Queues|transactions

Internal component BookingService|Add Money To Account experienced Unstable Response Times, Alerts

Internal component BookingService|Subtract Money From Account experienced Unstable Response Times, Alerts

Frontend JMS onMessage on Queue - transactions experienced Unstable Response Times, Alerts

🔍 CULPRIT APPLICATION NAME **Messaging Services**
(onMessage)|Queues|accounts

Internal component BookingService|Add Account experienced Unstable Response Times, Alerts

Frontend JMS onMessage on Queue - accounts experienced Unstable Response Times, Alerts

3

Looks like the Applications consuming our messages are in trouble



A normal day in production...

PROBLEMS

⦿ CULPRIT APPLICATION NAME **Messaging Services**
(onMessage)|Queues|transactions

Internal component BookingService|Add Money
To Account experienced Unstable Response
Times, Alerts

Internal component BookingService|Subtract
Money From Account experienced Unstable
Response Times, Alerts

Frontend JMS onMessage on Queue -
transactions experienced Unstable Response
Times, Alerts

⦿ CULPRIT APPLICATION NAME **Messaging Services**
(onMessage)|Queues|accounts

Internal component BookingService|Add Account
experienced Unstable Response Times, Alerts

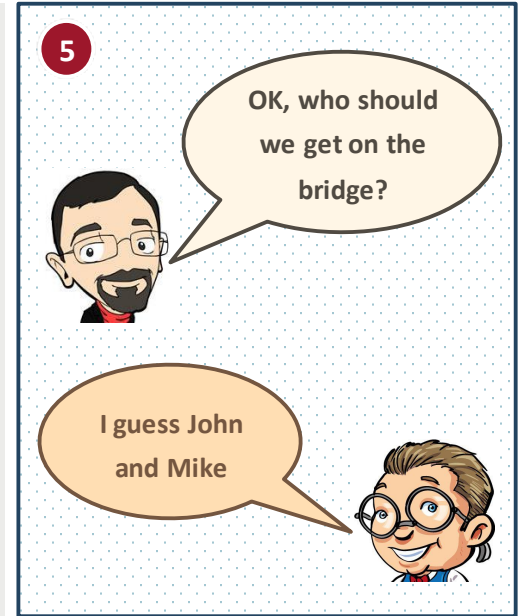
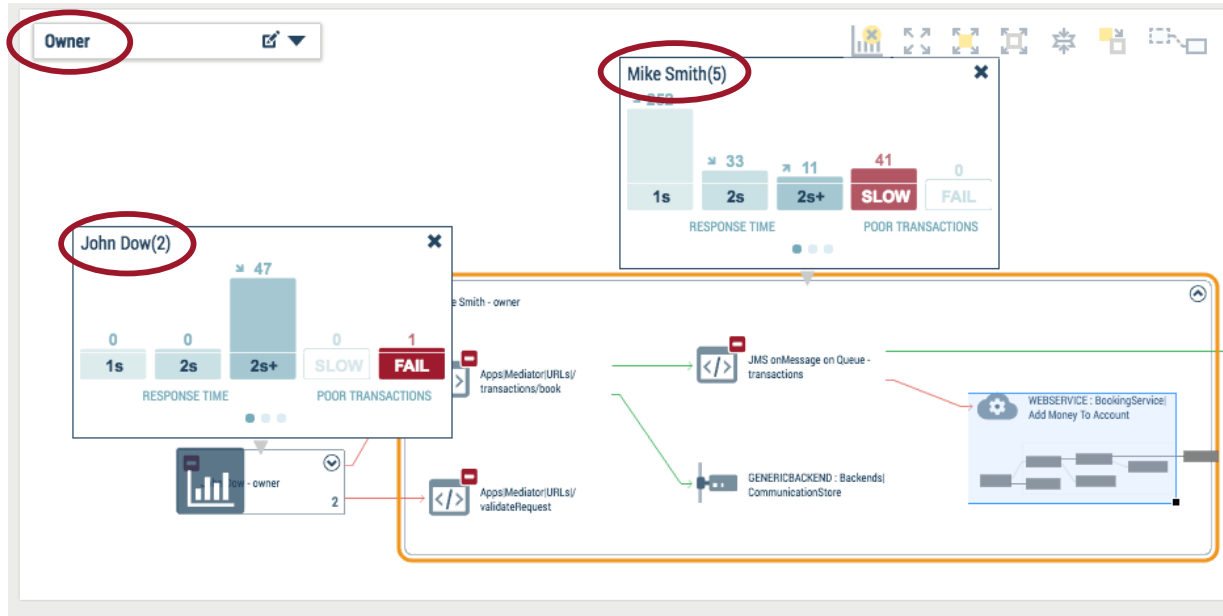
Frontend JMS onMessage on Queue - accounts
experienced Unstable Response Times, Alerts

4

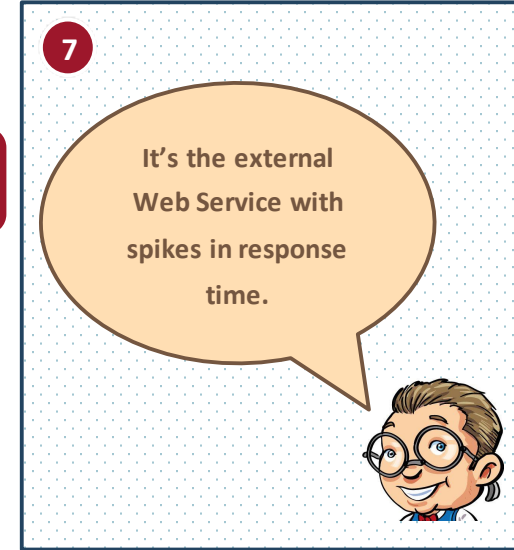
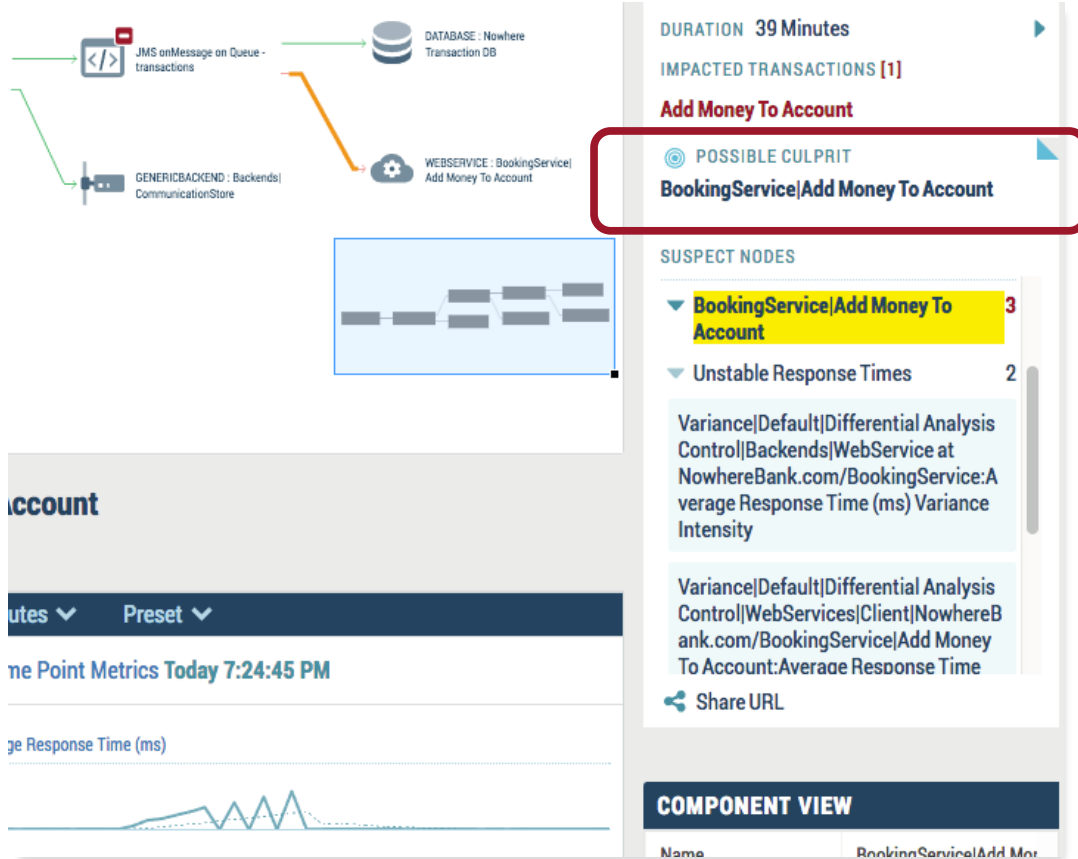
But all are showing
the Booking
Service WebService
with unusual
response times.



A normal day in production...

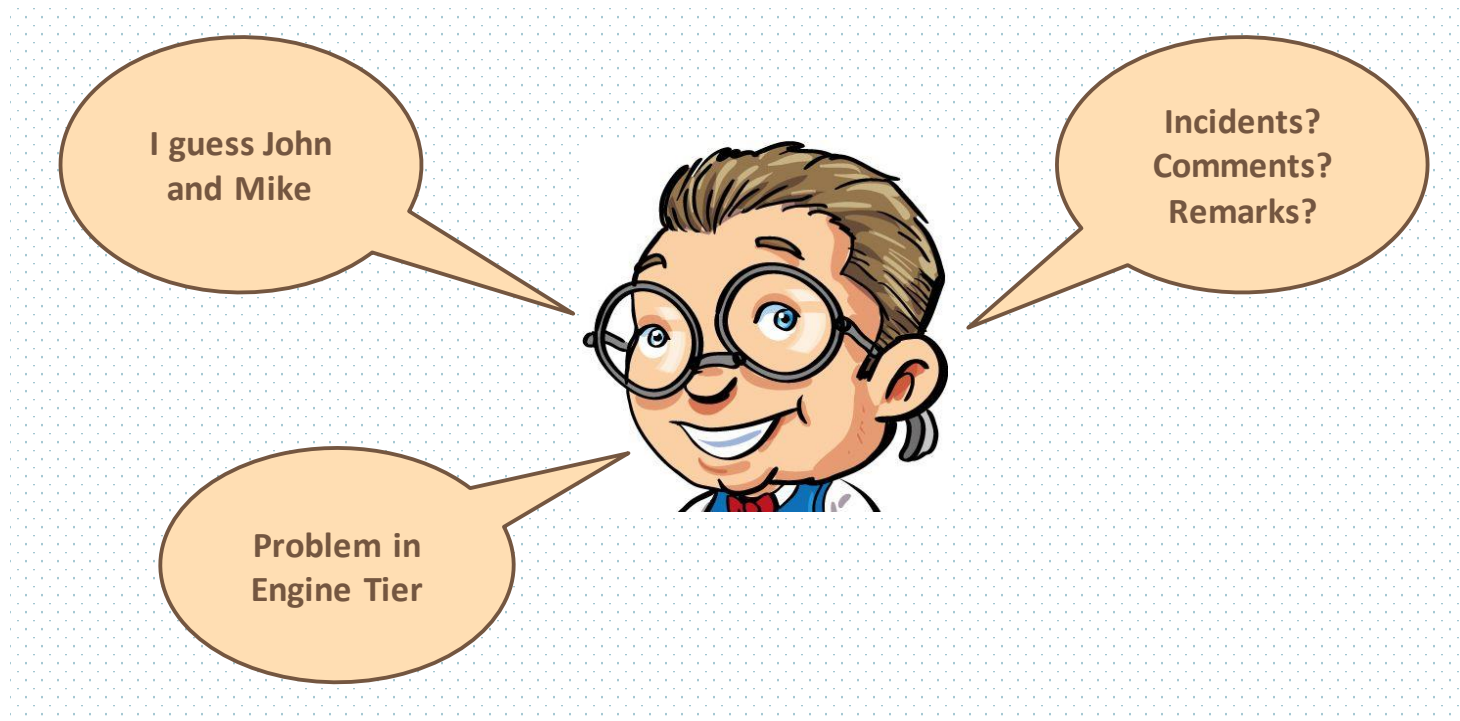


A normal day in production...

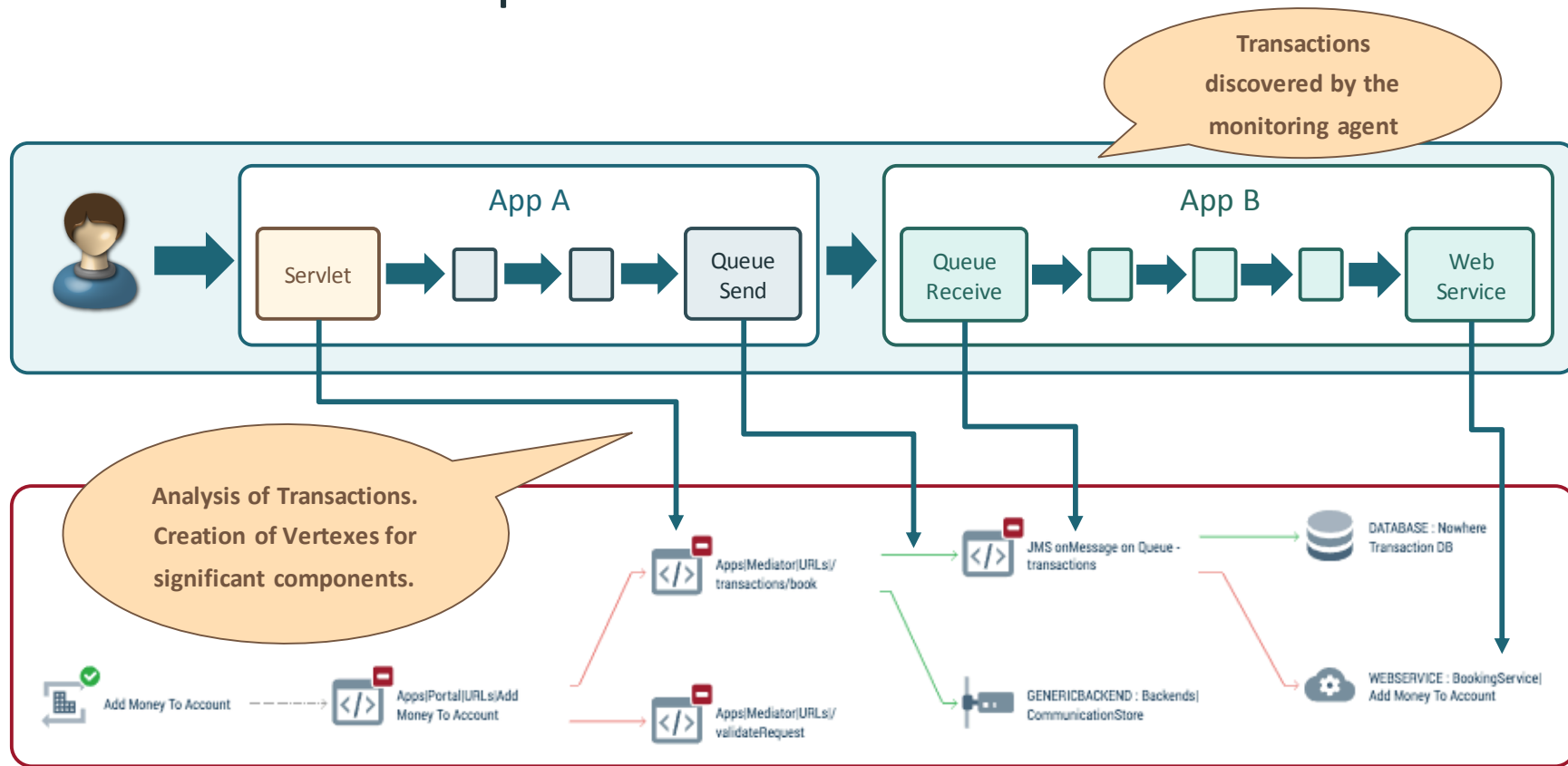


Attributes and Perspectives – Multiple Views on an application component

Transactional Map

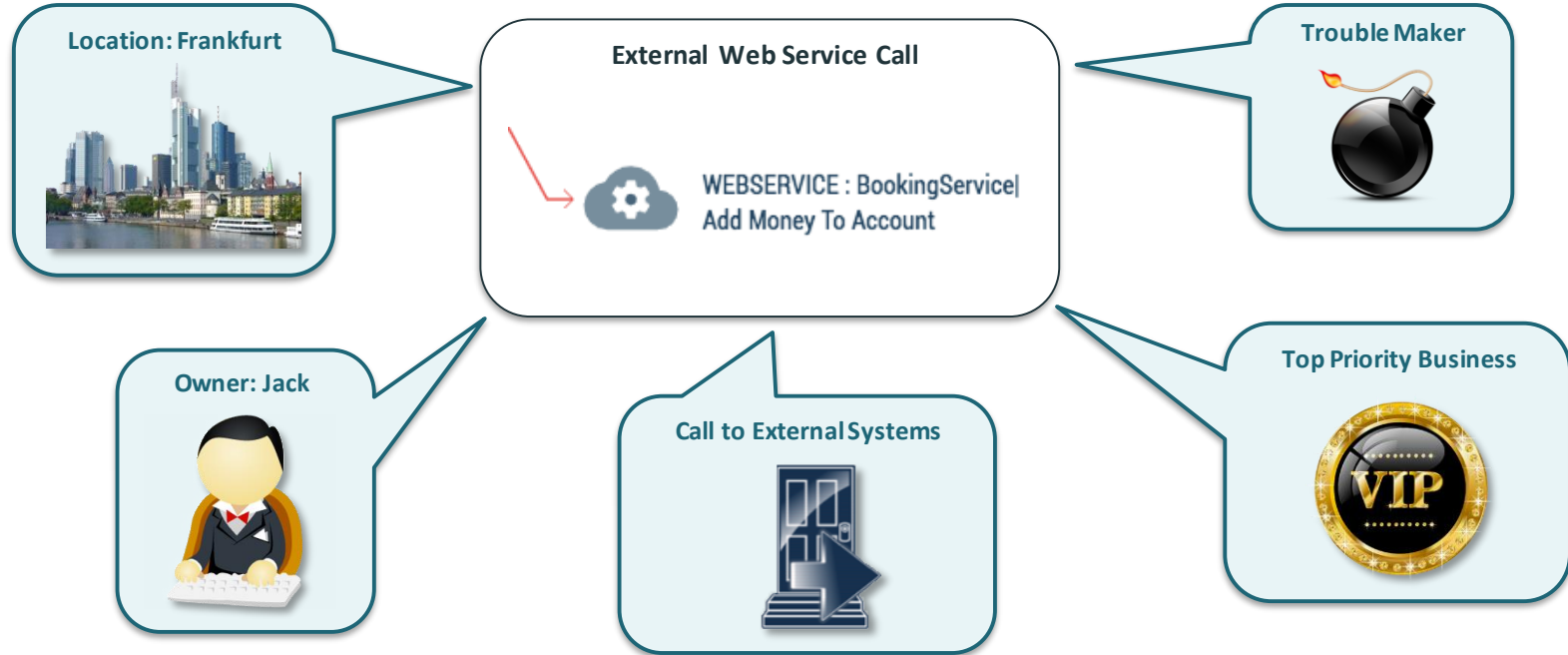


Transactional Map



Team Center – Attributes and Perspectives

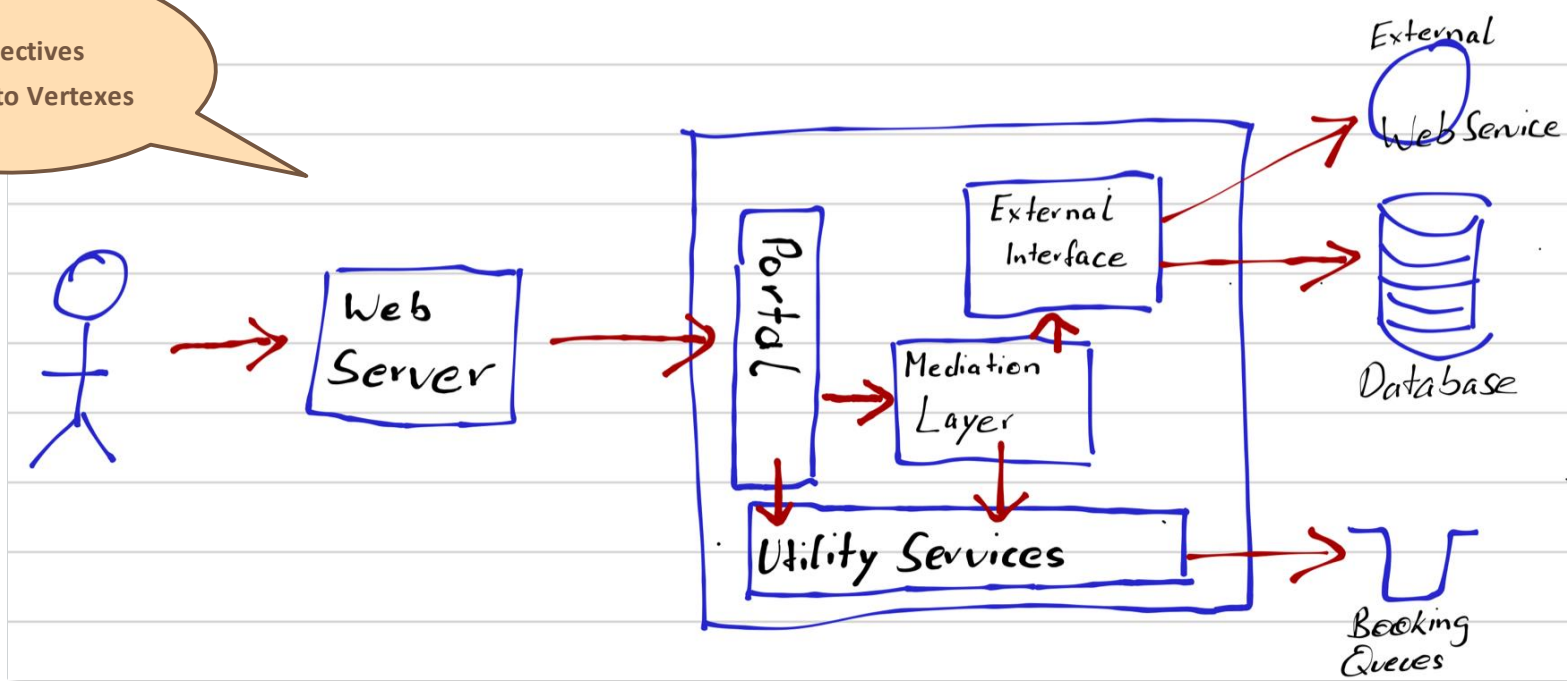
Multiple angles to look at a system



Team Center – Attributes and Perspectives

Everything starts with a sketch

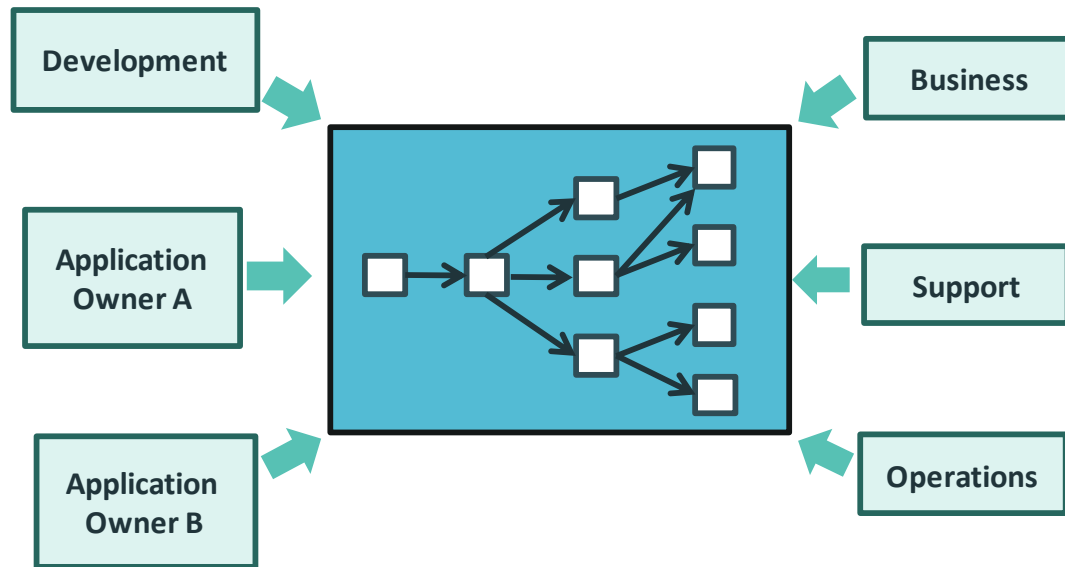
Perspectives
assigned to Vertexes



The Power Of Perspectives

Serving multiple Stakeholders

- APM Team
Center with the strength to look at your environment from multiple angles



Team Center – Attributes and Perspectives

Perspectives – The Smart “Group BY”

Use Grouping
levels by defined
attributes

Create a Perspective

?

Define levels:

1 Application

2 Incidents

3 owner

Add another attribute

Perspective name:

Support analysis

☒ Perspective is public

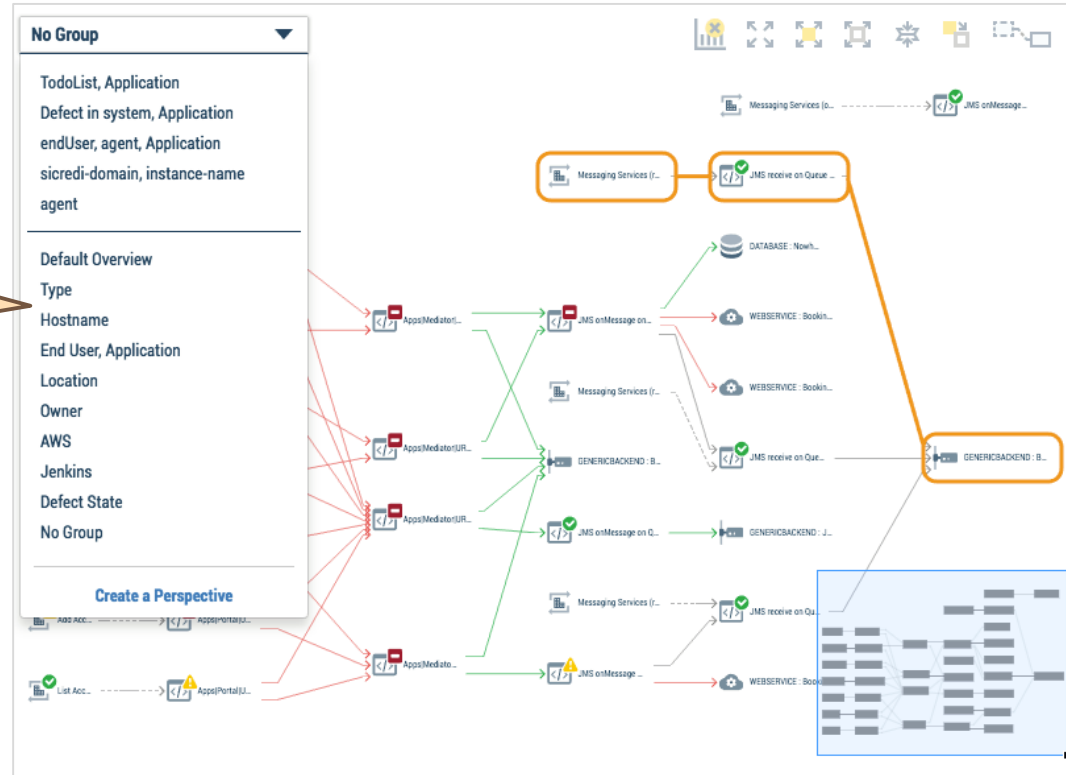
Save

Cancel

Team Center – Attributes and Perspectives

Perspectives – The Smart “Group BY”

Multiple
different Out Of
The Box
Perspectives





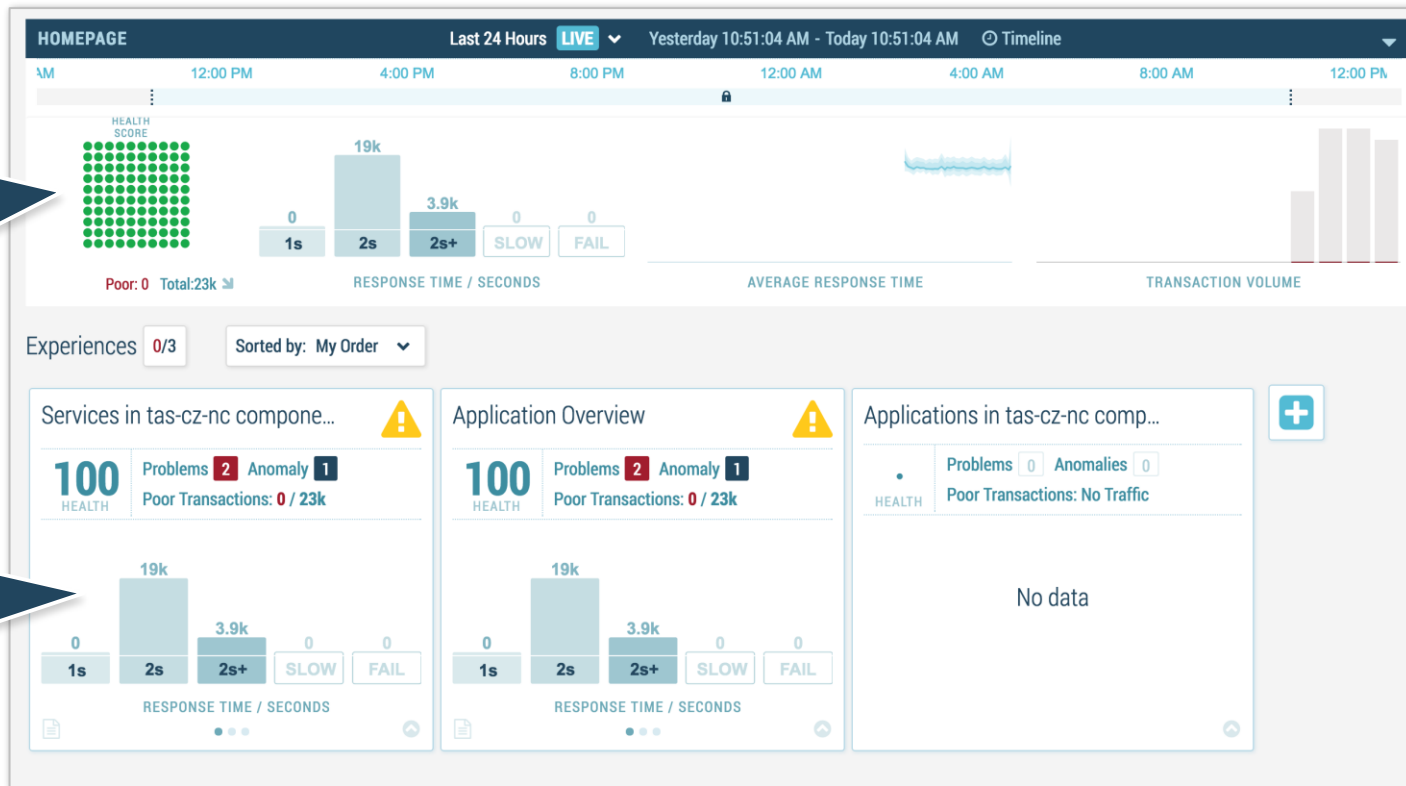
Focus on the Transaction

Focus on the Transaction

Home Screen

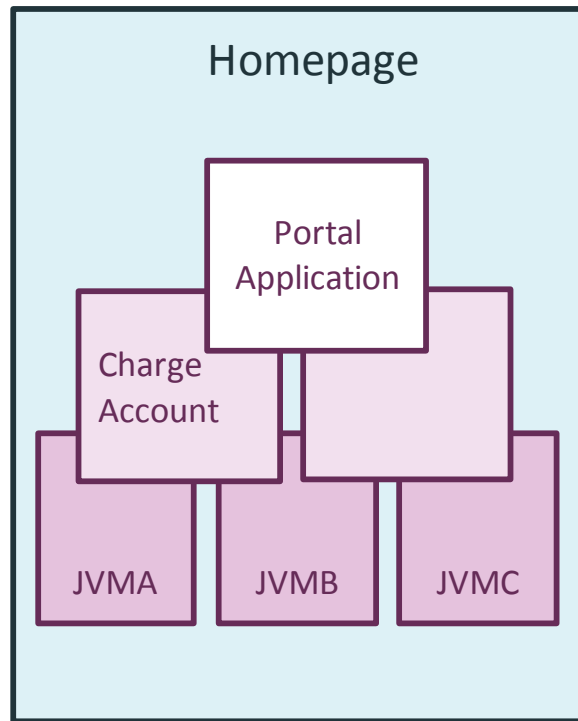
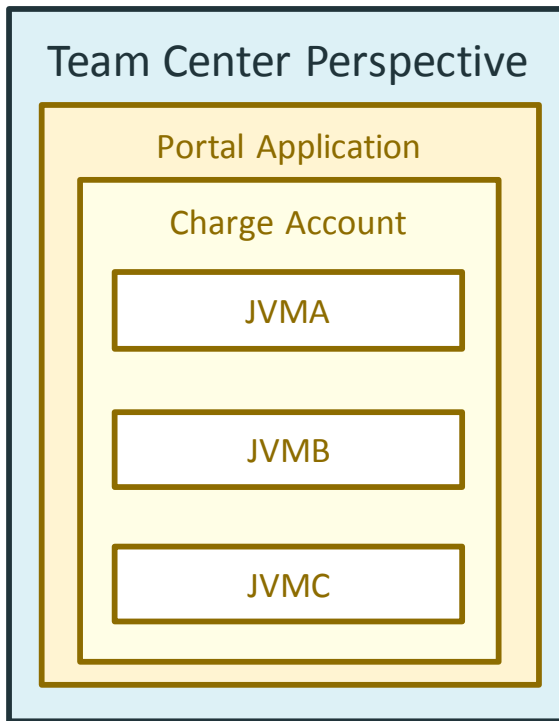
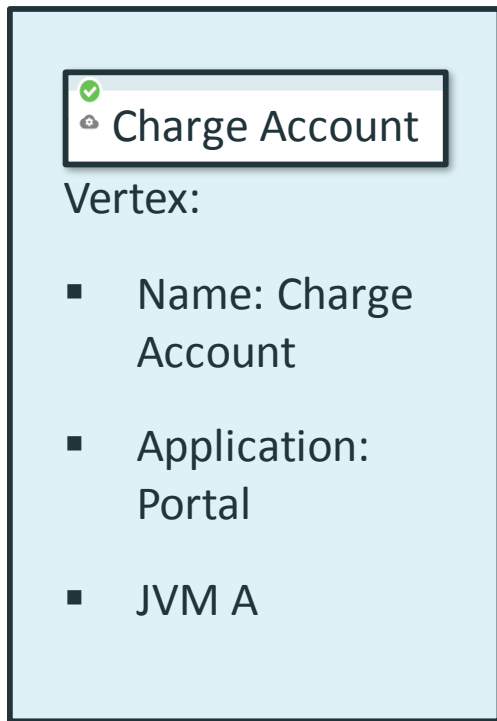
Overall Health information across all Experiences

All status information on Experiences



Triage And Diagnose Apps

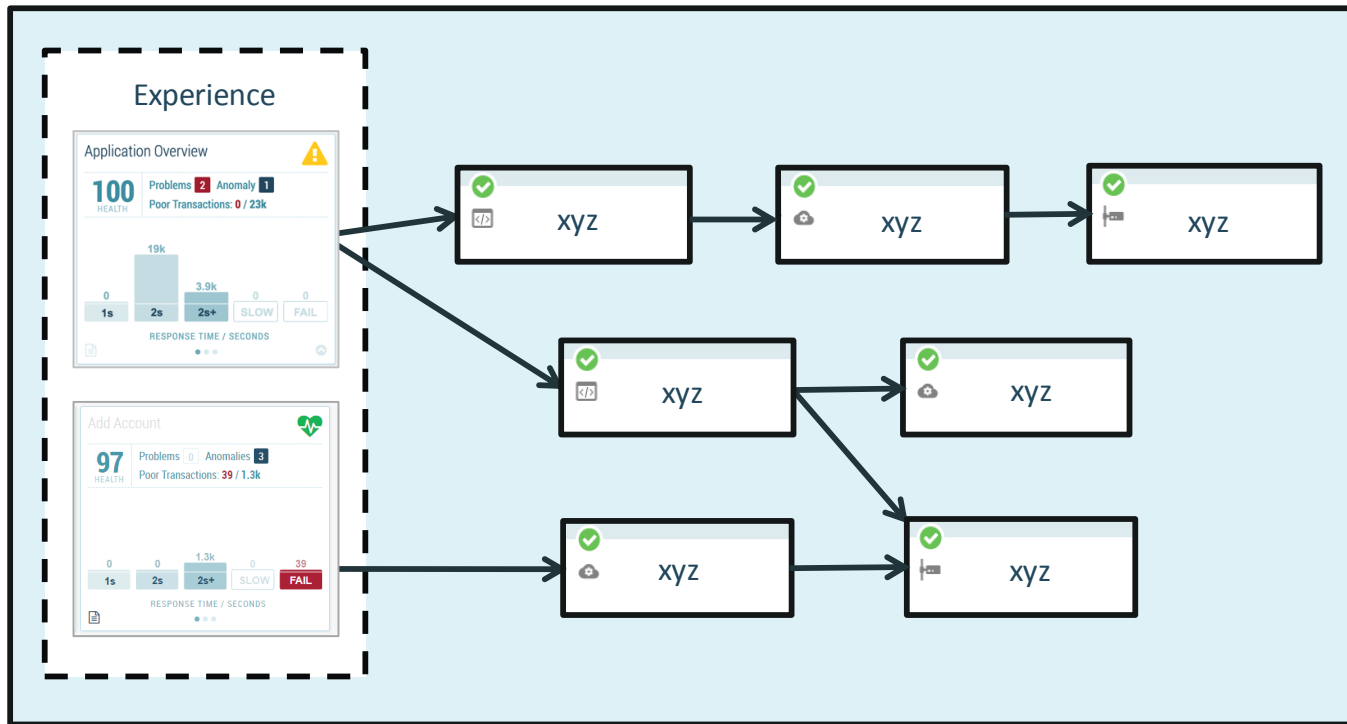
Introducing the new Home Screen



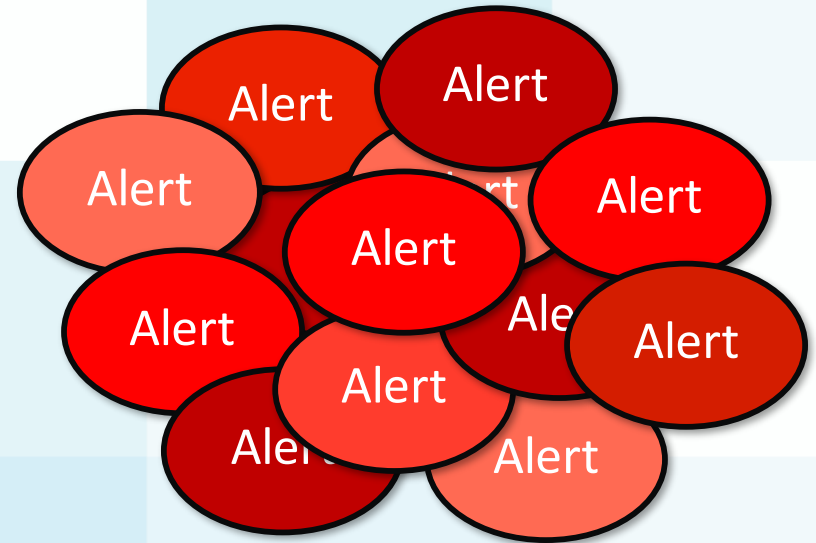
Triage And Diagnose Apps

Experience vs. Problem vs. Anomaly

- Experiences
 - most left components
 - Transaction start components



Application Triage Redefined



Application Triage Redefined

DURATION 39 Minutes

IMPACTED TRANSACTIONS [1]

Add Money To Account

POSSIBLE CULPRIT

BookingService|Add Money To Account

SUSPECT NODES

▼ **BookingService|Add Money To Account** 3

7

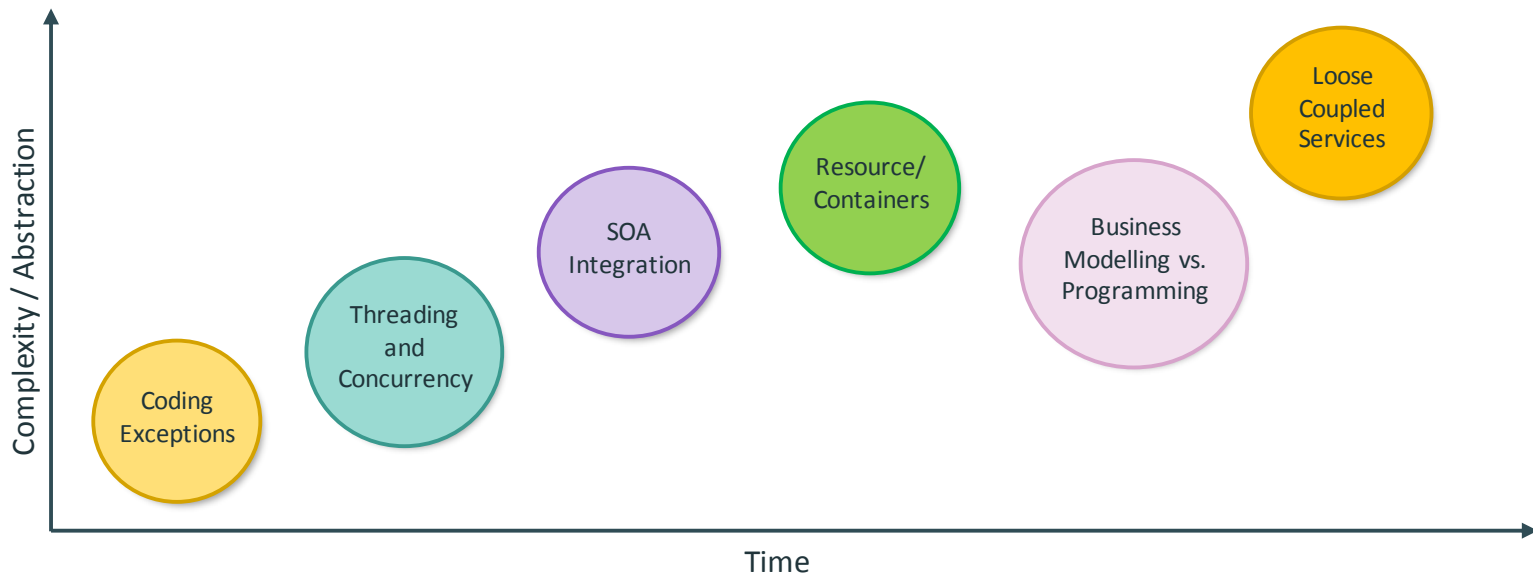
It's the external Web Service with spikes in response time.



Triage And Diagnose Apps

Evolution of Problems

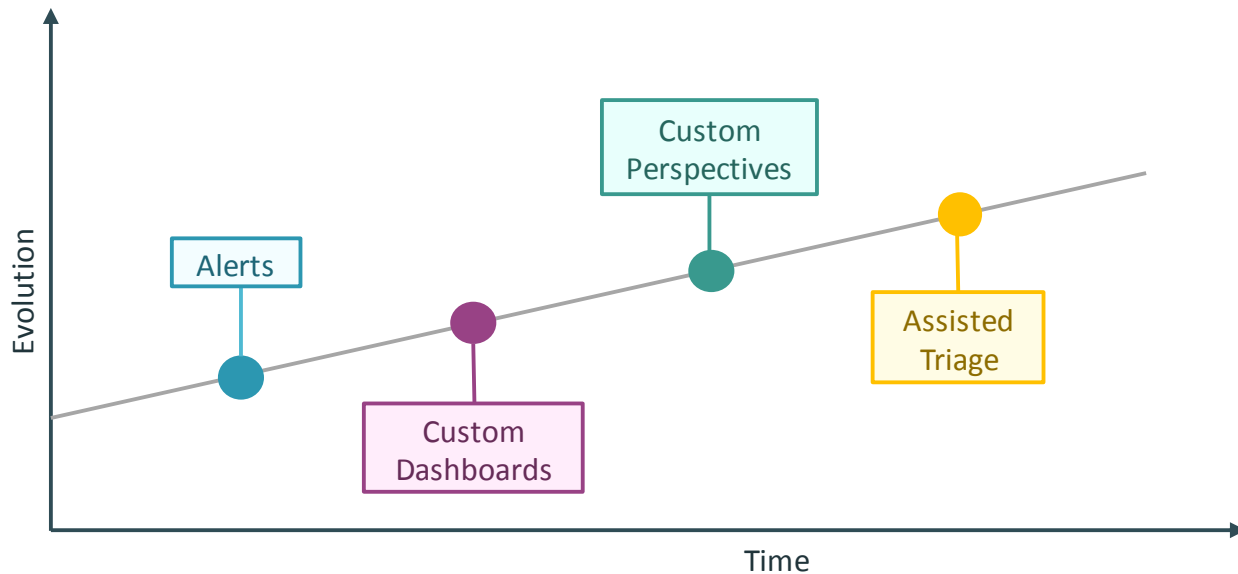
- Problems in the history of APM have changed significantly
- The time when the slowest component is no longer the root cause



Triage And Diagnose Apps

Evolution of Problems requires an Evolution of APM

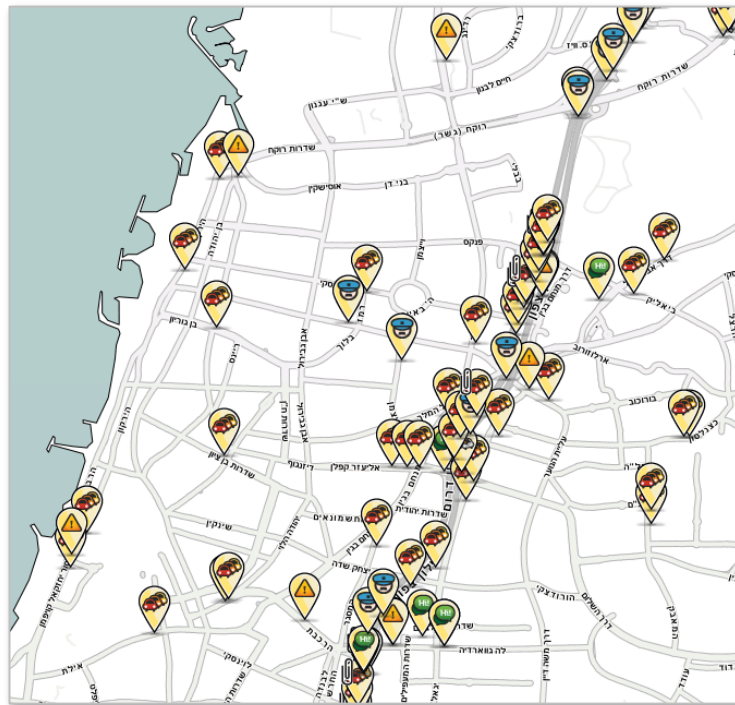
- APM evolution in sync with Problem evaluation
- CA APM designs and develops to face the Problems of tomorrow



Triage And Diagnose Apps

Assisted Triage Problem vs. Anomaly

- Many road blocks, traffic jams, construction sites
- Will it affect me?
- How does it affect me on my trip?
- Does it even make sense to step into the car?



Triage And Diagnose Apps

Next generation problem analysis.

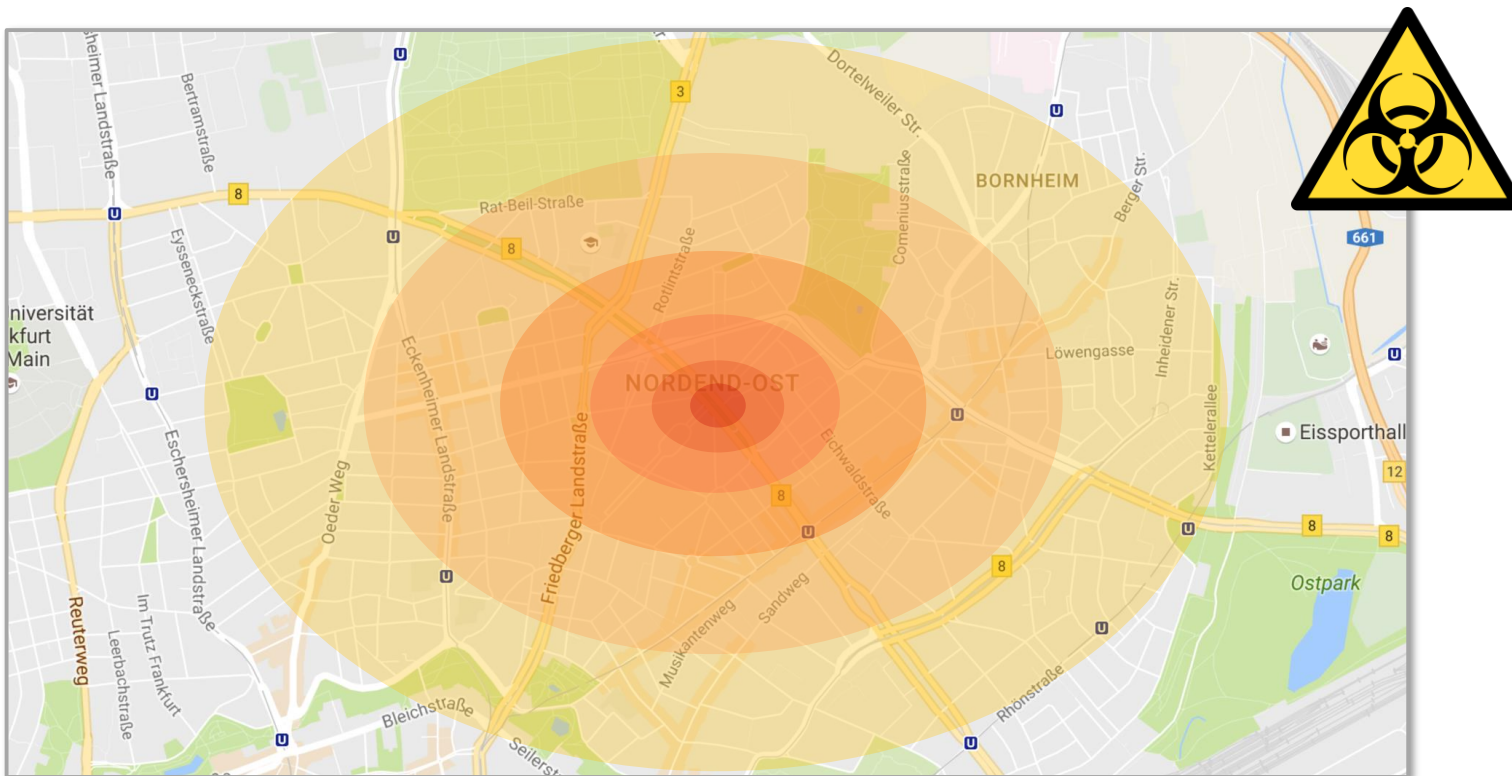


We expect some trouble on our way.
“Affected transactions on my route”

We expect 7 minutes delay on our trip compared to usual

Triage And Diagnose Apps

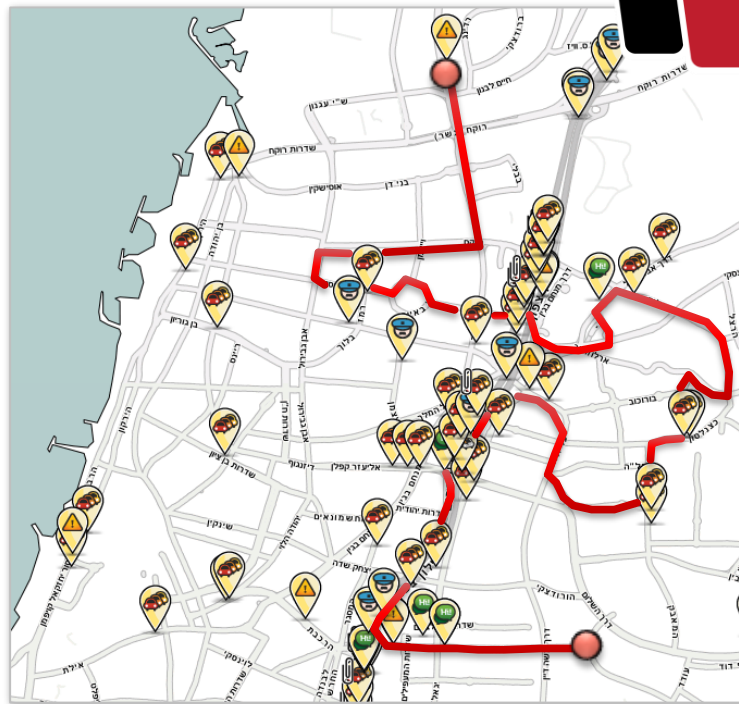
Damage of the Outbreak



Triage And Diagnose Apps

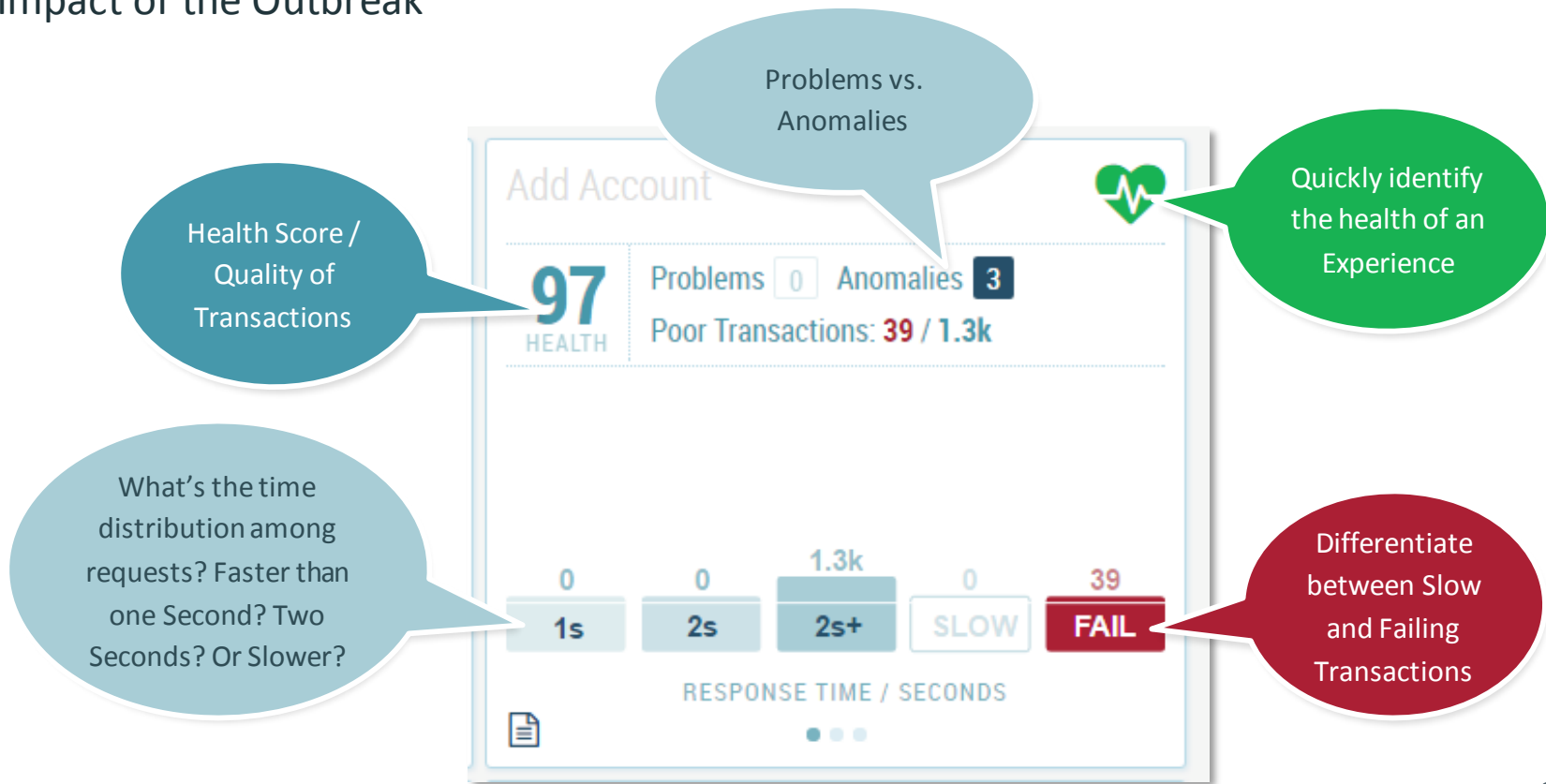
Isolate - Focus on the problem route

- Isolate problem transaction.
- Focus on problem TRANSACTIONS
- How does one problem indicating component affect End-to-End transactions



Triage And Diagnose Apps

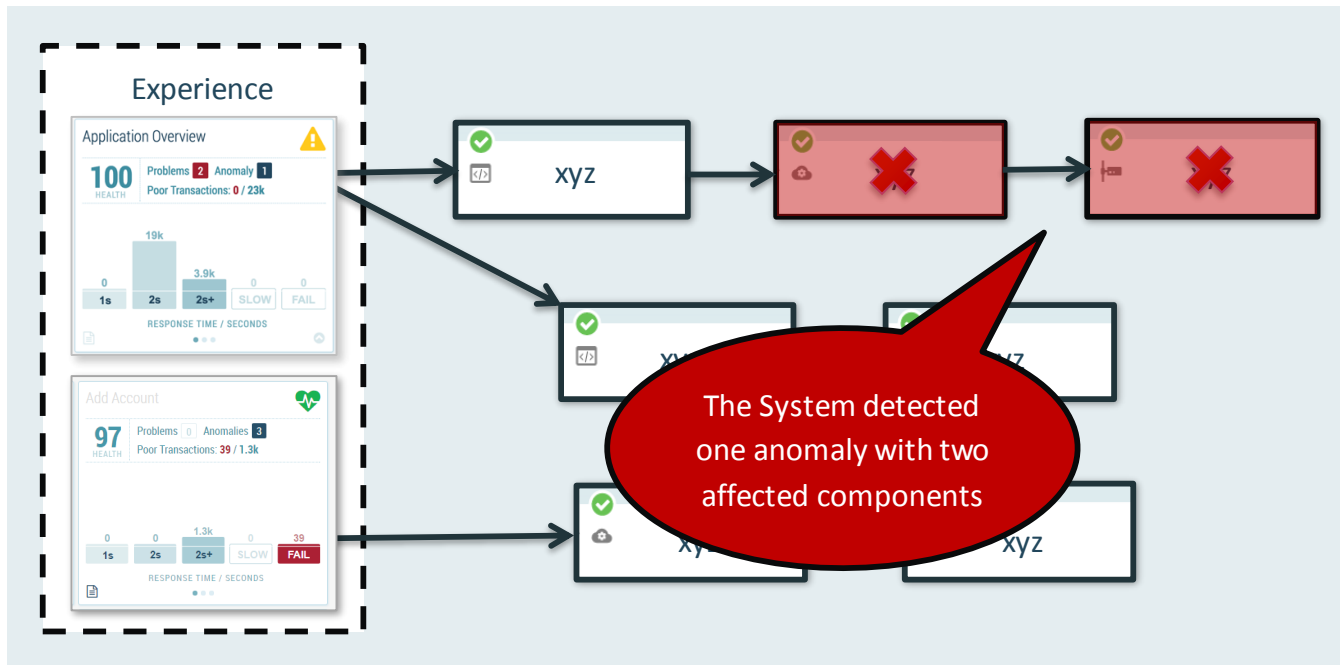
Impact of the Outbreak



Triage And Diagnose Apps

Experience vs. Problem vs. Anomaly

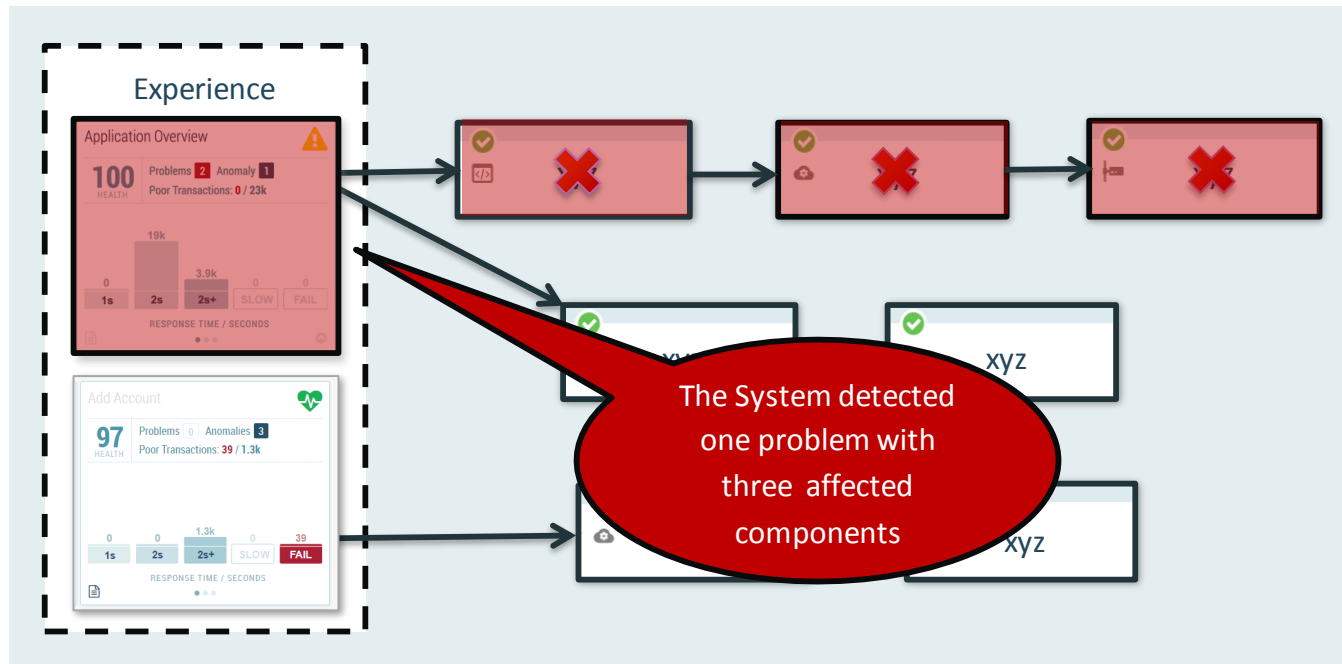
- Two components with problems identified
- No Experience affected



Triage And Diagnose Apps

Experience vs. Problem vs. Anomaly

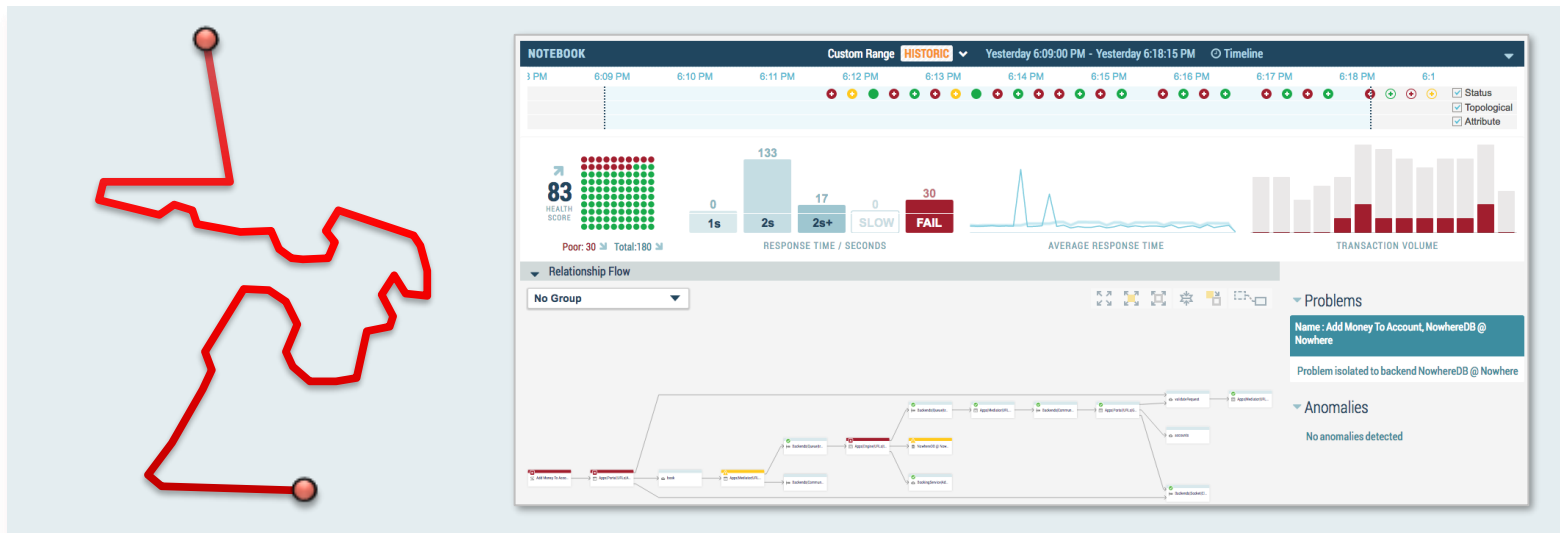
- Once an Experience shows errors, its identified as Problem



Triage And Diagnose Apps

Notebook – Isolating data

- The Notebook to isolate transactions End to End
- Focus on problem components and resolve related transactions
- Compare transactions, performance metrics



Notebook – Isolating data

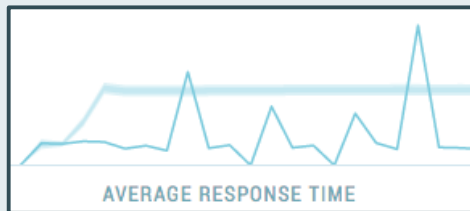


Speed Problem Resolution With Assisted Triage

Problem Triggers

Problem
Triggers

Differential Analysis



Assisted
Triage
Evidence

Stall Events

Error at 15:08:51.377 (15 Oct 2016)

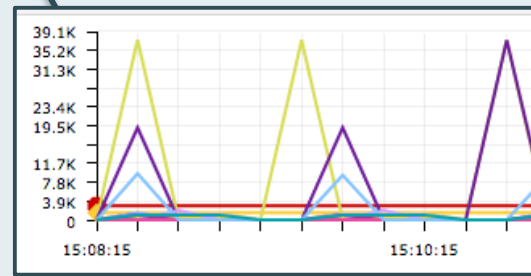
- Frontends|Apps|Engine|URLs|transactions (0 ms)
 - Class: wily.field.banking.communication.QueueMessageListener\$QueueRunner
 - DataCreationType: 0
 - Error Message: Stalled Transaction
 - Is dynamic: false
 - Is temporary: false
 - Method: run
 - Method Descriptor: (JV)
 - Resource Name: Frontends|Apps|Engine|URLs|transactions
 - Thread Group Name: main
 - Thread Name: QueueRunner
 - Trace ID: 1476536966723:20636
 - Trace Type: ErrorSnapshot

Error Events

Error at 15:13:45.547 (15 Oct 2016)

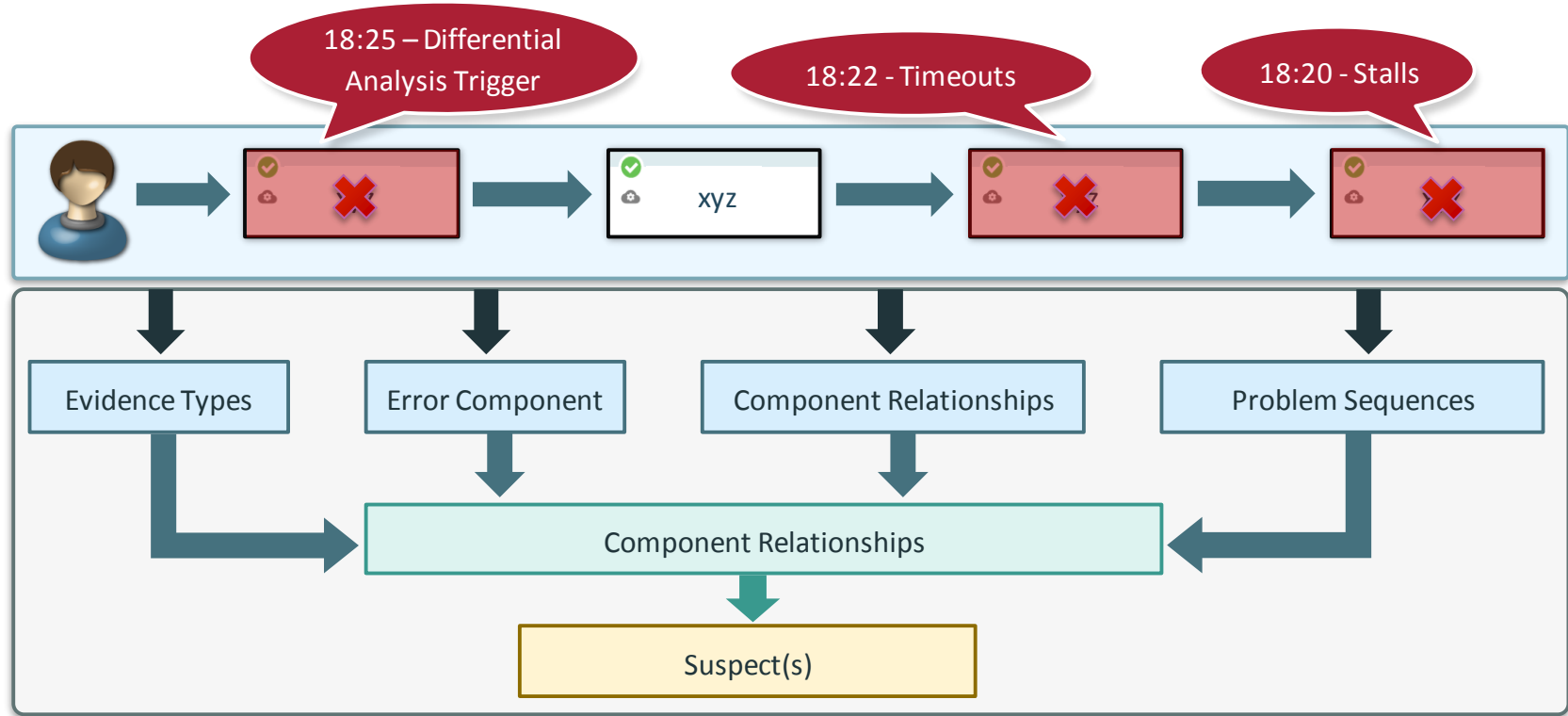
- Frontends|Apps|Engine|URLs|transactions (0 ms)
 - Class: wily.field.banking.communication.QueueMessageListener\$QueueRunner
 - DataCreationType: 0
 - Error Message: Backends|NowhereDB @ Nowhere[SQL|SELECT|Query|addCreditTransaction: java.sql.SQLException: DB Credit Insert error for Account 2
 - Is dynamic: false
 - Is temporary: false
 - Method: run
 - Method Descriptor: (JV)
 - Resource Name: Frontends|Apps|Engine|URLs|transactions
 - Thread Group Name: main
 - Thread Name: QueueRunner
 - Trace ID: 1476537229348:20940
 - Trace Type: ErrorSnapshot

Alert Breach



Triage And Diagnose Apps

Assisted Triage



Triage And Diagnose Apps

Answer with the right information

The screenshot shows a system monitoring dashboard with a call flow diagram on the left and a 'PROBLEMS' panel on the right. Callouts are placed over the interface to highlight key information for triage and diagnosis.

Callouts:

- How are transactions affected?** Points to the call flow diagram.
- Root Cause** Points to the 'CULPRIT APPLICATION NAME' field in the PROBLEMS panel.
- When did it happen?** Points to the 'DURATION' field in the PROBLEMS panel.
- Which components in the system are affected?** Points to the 'IMPACTED TRANSACTIONS' field in the PROBLEMS panel.
- Problem application** Points to the 'CULPRIT APPLICATION NAME' field in the PROBLEMS panel.
- Give me the evidences?** Points to the 'POSSIBLE CULPRIT' section in the PROBLEMS panel.

Call Flow Diagram:

```
graph LR; Client[Client - endUser 1] --> Portal[Portal - applicationName 1]; Portal --> Mediator[Mediator - applicationName 3]; Mediator --> Messaging[Messaging Services (onMessage)Queues... 2]; Messaging --> DB[(DATABASE : Nowhere Transaction DB)];
```

PROBLEMS Panel:

- CULPRIT APPLICATION NAME** Messaging Services (onMessage)Queues|transactions
- Internal component** BookingService|Add Money To Account experienced Unstable Response Times, Alerts
- DURATION** 50 Minutes
- IMPACTED TRANSACTIONS [1]** Add Money To Account
- POSSIBLE CULPRIT** BookingService|Add Money To Account
- SUSPECT NODES**
 - BookingService|Add Money To Account 3
 - Unstable Response Times 2
- Variance|Default|Differential Analysis Control|Backends|WebService at NowhereBank.com/BookingService: Average Response Time (ms) Variance Intensity**
- Variance|Default|Differential Analysis Control|WebServices|Client|NowhereBank.com/BookingService|Add Money To Account**

Q@A



Andreas Reiss

Sr. Principal Eng. Serv. Architect

Andreas.reiss@ca.com

