

# Simplified Db2 observability for DevOps

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Session 2AZ



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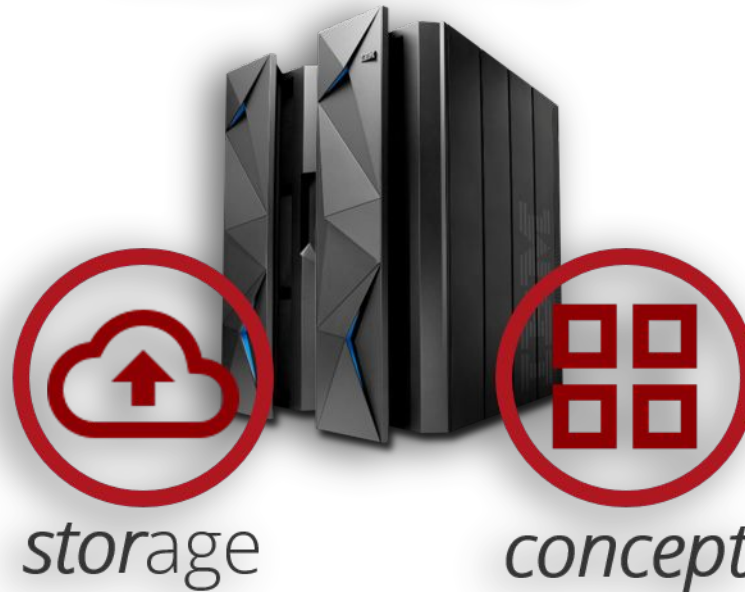
Supporting



## *mainframe*

msc has provided expertise for enterprise storage and solutions for **over 15 years**.

We maintain an **extensive product portfolio** to cater for a spectrum of requirements.



Partners with APM Vendors like Datadog, Splunk and IBM(Instana) to provide support for mainframe-inclusive observability.

Our software solutions promote the **modernization, standardization & integration** of mainframe technology.

Our engineers continuously scout for technologies that provide **sustainable value**.

# Agenda

- DevOps
- APM as a DevOps tool
- Observability and Telemetry
- Traces, spans and metrics
- Open-source observability framework: OpenTelemetry
- Mainframe-inclusive observability
  - Db2 use cases



# DevOps

Software delivery performance metric	Elite	High	Medium	Low
<b>📅 Deployment frequency</b> For the primary application or service you work on, how often does your organization deploy code to production or release it to end users?	On-demand (multiple deploys per day)	Between once per week and once per month	Between once per month and once every 6 months	Fewer than once per six months
<b>🕒 Lead time for changes</b> For the primary application or service you work on, what is your lead time for changes (i.e., how long does it take to go from code committed to code successfully running in production)?	Less than one hour	Between one day and one week	Between one month and six months	More than six months
<b>🕒 Time to restore service</b> For the primary application or service you work on, what percentage of changes to production or released to users result in degraded service (e.g., lead to service impairment or service outage) and subsequently require remediation (e.g., require a hotfix, rollback, fix forward, patch)?	Less than	Less than	Between	More than

Today's topic: Observability, touches on the 'Monitor' link in the DevOps tool chain which impacts Time To Restore, Change Fail Rate and Reliability metrics of SDO performance. Let's take a closer look at monitoring, observability and telemetry.

For the primary application or service you work on, what percentage of changes to production or released to users result in degraded service (e.g., lead to service impairment or service outage) and subsequently require remediation (e.g., require a hotfix, rollback, fix forward, patch)?				
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# Application Performance Monitoring

## Main functional dimensions<sup>1</sup>:

- Front-end monitoring
- Application discovery, tracing and diagnostics (ADTD)
- Analytics

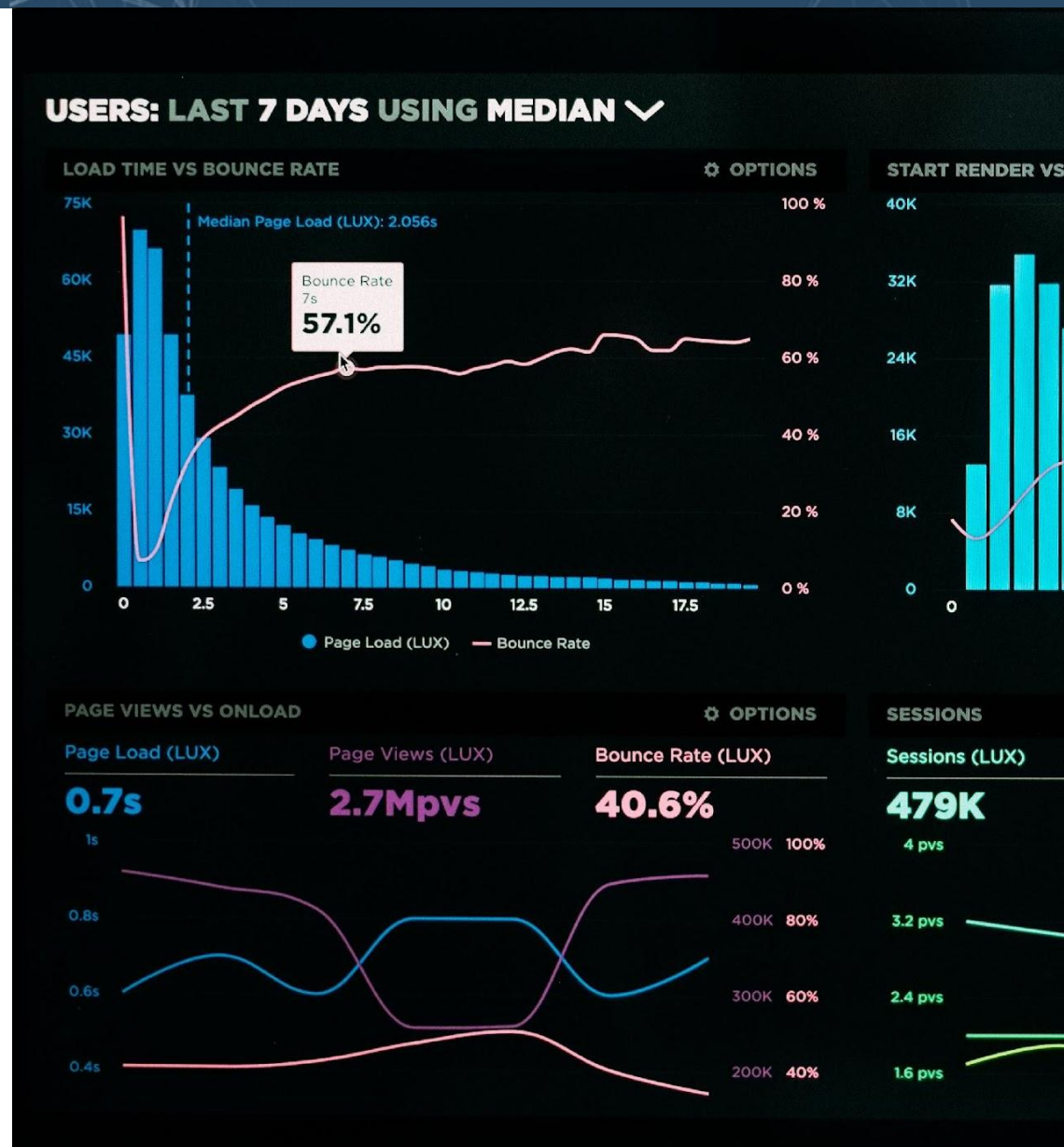


## Prioritizing Gartner's APM Model

## APM has evolved:

- Monitoring is only a single capability of APM
- Low configuration overhead has become vital because user don't wait months setting up before value can be observed
- We can now ask questions

1. Gartner APM definition - Magic Quadrant for Application Performance Monitoring 2020



# Pillars of Observability

There are three pillars that are needed for observability. More data is always better, but without these, it will be difficult to get the benefits of observability:



## Logs/events

Immutable records of discrete events that happen over time



## Metrics

Numbers describing a particular process or activity measured over intervals of time



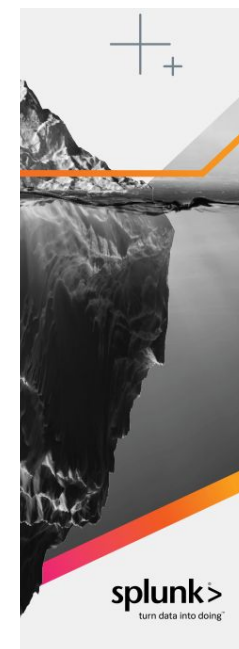
## Traces

Data that shows, for each invocation of each downstream service, which instance was called, which method within that instance was invoked, how the request performed, and what the results were



## Context

Information that helps the user understand the context of the problem, such as what they need to know to solve the problem fast, how to reduce downtime by related data to the problem, and how to solve the problem with one click. It also includes the effects of deployments on the system.



# Telemetry is key to observability

- APM vendors create agents which are installed on hosts or integrated into applications.
- APM agents create and send telemetry to the APM server (on-premise or SaaS).
- The APM server processes the telemetry to provide monitoring and observability to users
- Challenges:
  - Each APM vendor has their own proprietary agent, creating proprietary telemetry
  - Users are dependent on vendors providing support for their entire stack





# Open-source observability framework

- [Cloud Native Computing Foundation\(CNCF\) Project](#)
- Has broad industry support and adoption from cloud providers, vendors and end users
- Enables APM Vendor neutrality and multi-purpose observability
- Support metrics, logs and tracing



## **REFERENCE ARCHITECTURE**

## APM Traces

- Traces depict service requests and their underlying application interactions.
- With traces, users get a visual depiction of a transactions workflows, latency and errors

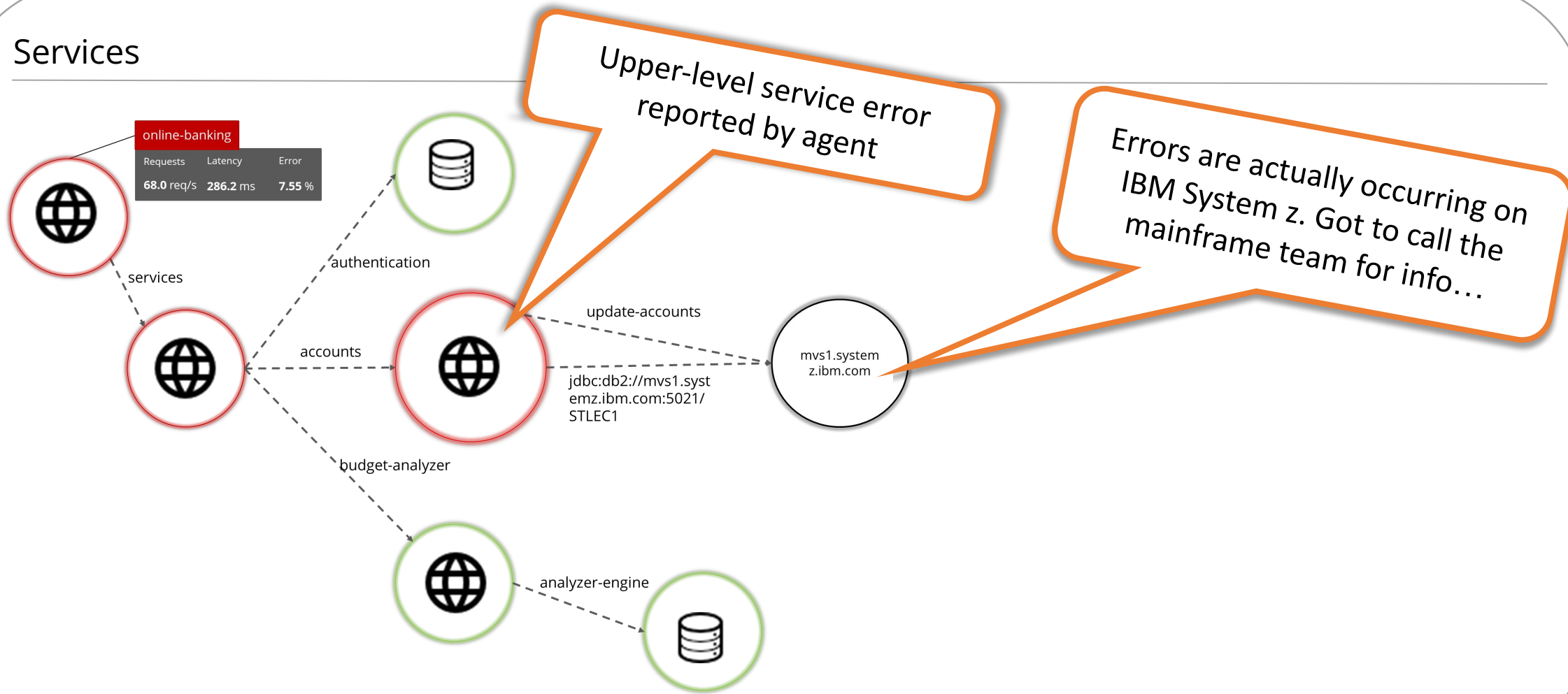


## APM with mainframe

- There are very few APM vendors that provide sufficient mainframe support.
  - Support is decreasing further as on-premise APM solutions are being withdrawn from market.
- Cost is much higher for APM tools that support mainframe
  - License costs
  - Running CPU costs
- Mainframe-backed organizations typically ignore their mainframe observability requirements so that visibility can be achieved on all other tiers of the business
- DevOps rely heavily on Mainframe SMEs who have access to specialized System Z tools to help resolve incidents and analyze service performance.

# So what's the problem?

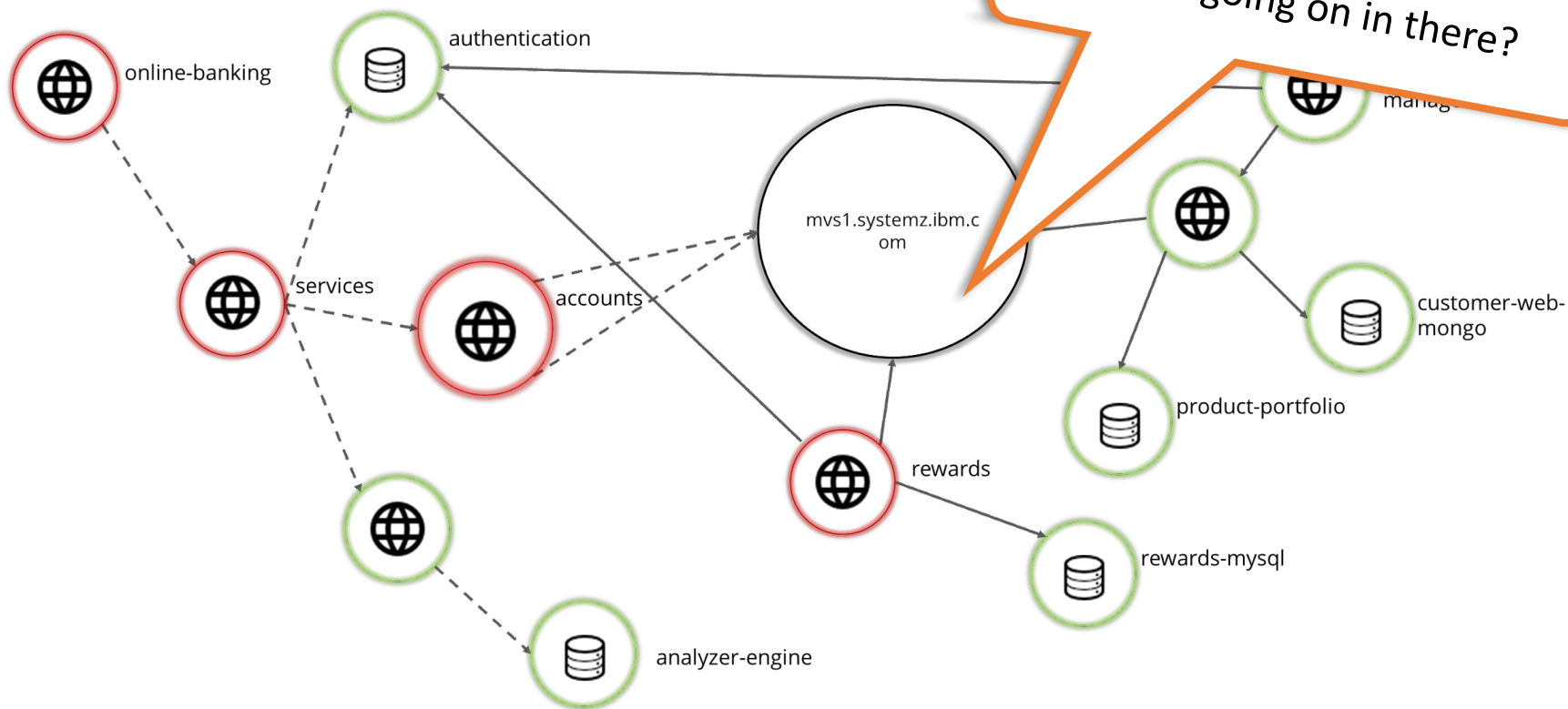
## Services





# Mainframe fulfils a central role

## Services



# The value of mainframe-inclusive observability

- Improve mean time-to-restore
- DevOps can
  - amalgamate mainframe performance data to service performance analysis
  - make better decisions about improving services or reducing cost
  - analyse problems and determine whether the root-cause stems from mainframe systems and applications
- Mainframe SMEs get mainframe identifiers, performance and resource utilization within the context of the business services that generate mainframe workloads
  - speed up escalated root-cause analysis that requires specialized tools
  - enable shared knowledge and common understanding



# The value of vendor-neutral mainframe observability

- Integrate mainframe performance data into the tools your DevOps, ITOPs and/or SREs utilize
  - In many organizations the monitoring landscape is composed of multiple tools, products and open-source software
- Increase visibility into how mainframes perform for the business
- Reduce time spent collecting and sending reports to application through continuous integration
- Geared towards future monitoring standards:
  - Gartner's 2020 Magic Quadrant for Application Performance Monitoring predicts that 50% of new cloud-native application monitoring will use open-source instrumentation instead of proprietary agents to improve interoperability by 2025

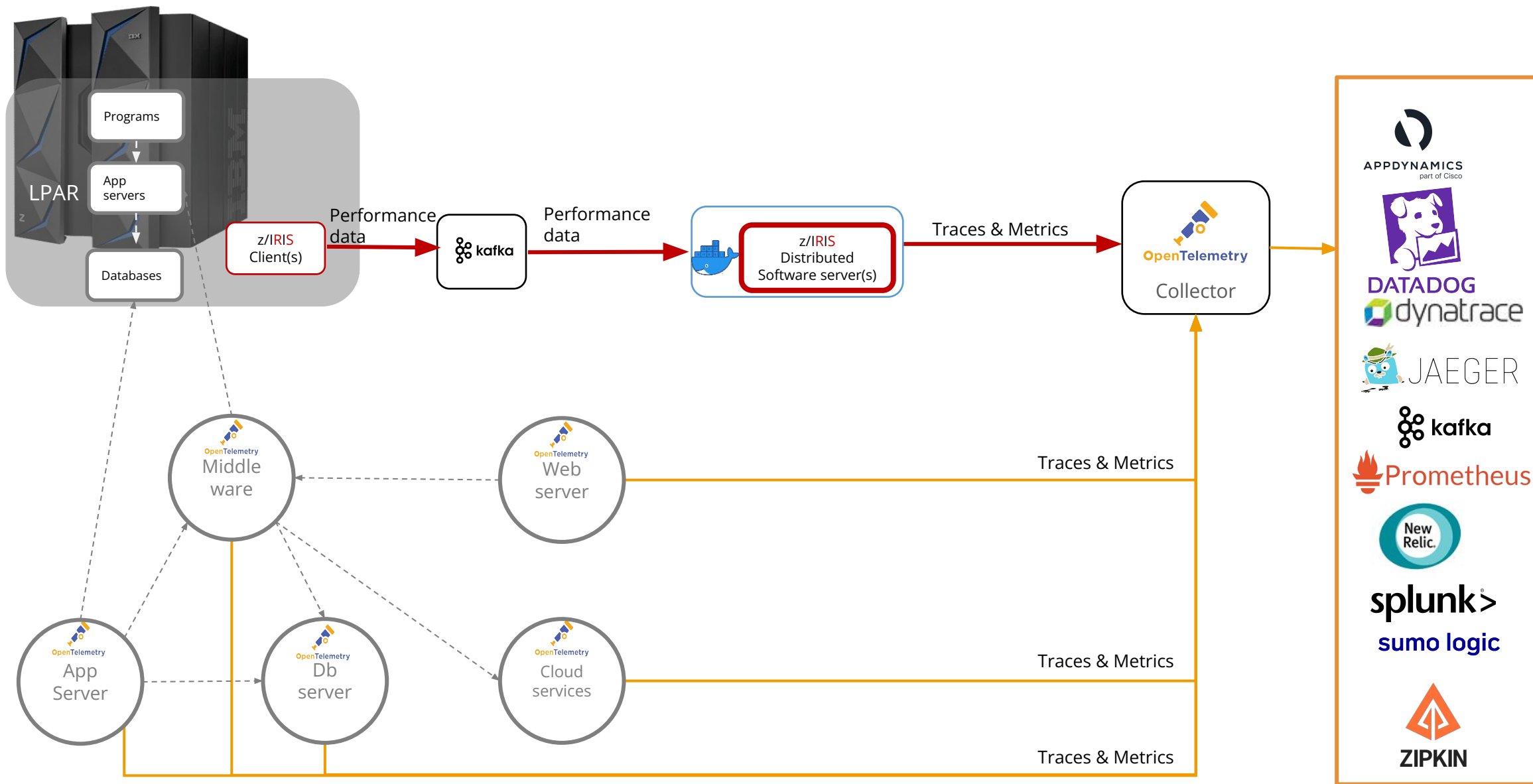


# Db2 for z/OS observability

- IFCIDs provide information about performance, errors, resource utilization and more..
- Currently locked away in z/OS and only available to Db2 administrators and/or Sysprogs
- Could be transformed into traces and metrics and sent to APM products
- Demonstrate mainframe-inclusive observability

DEMO  
TIME





# Stay in touch

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z/IRIS Documentation

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