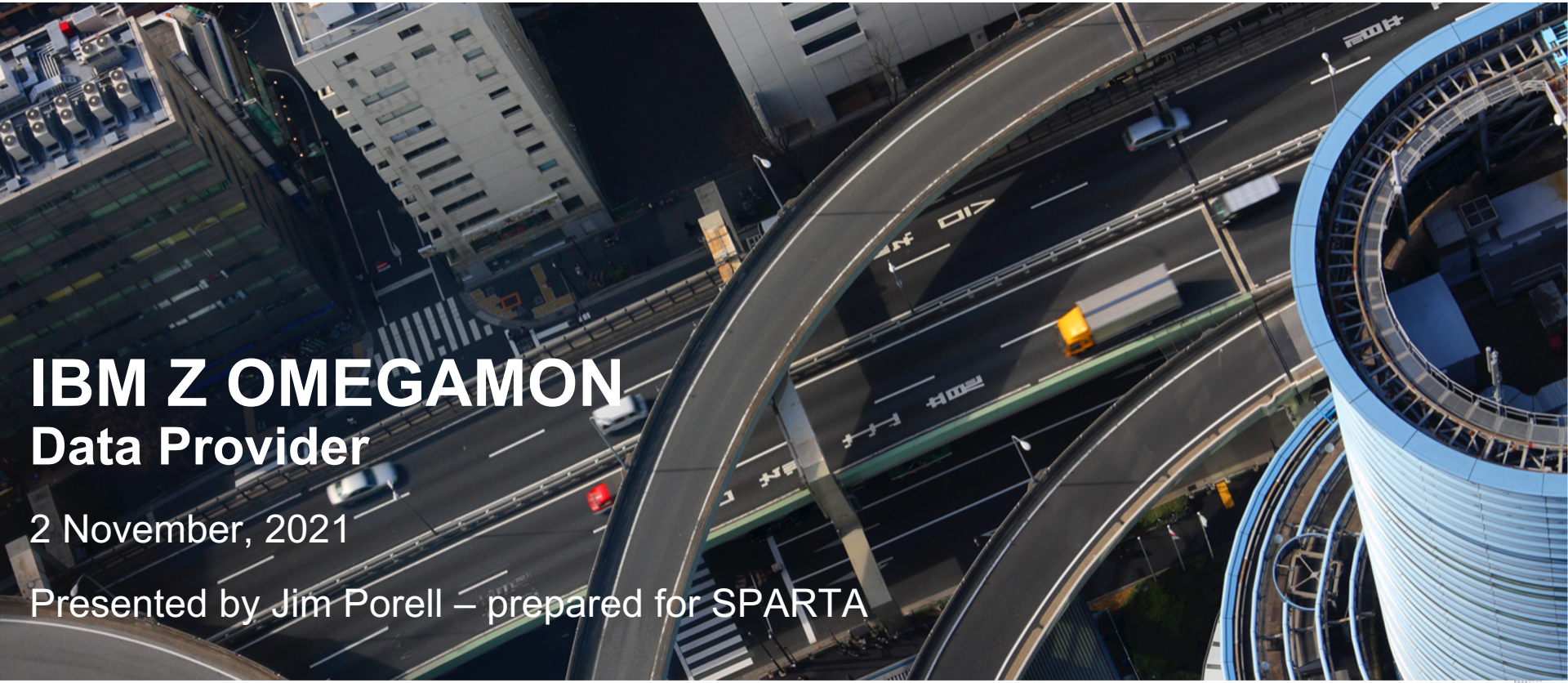

IBM Z OMEGAMON
Data Provider

2 November, 2021

Presented by Jim Porell – prepared for SPARTA

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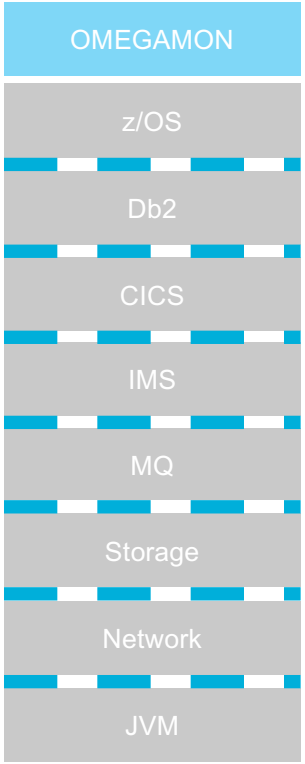
Overview

- Background: There is a wealth of subsystem data available within the OMEGAMON family.
- Businesses are looking to leverage analytics, artificial intelligence and machine learning to automate processes and take action from the myriad of operational data available within their enterprises.
- The goal of ODP is to “unlock” that data and make it available in industry standard, self describing formats that can be quickly consumed by a wide variety of Analytics applications

Customer challenges



- **System complexity and scale** – hundreds of CICS, Db2, IMS regions cannot be easily monitored – overcoming silos with a single and centralized point of control is required
- **Application complexity and (r)evolution** – application teams want access to information about transaction performance to help identify and solve problems
- **Shrinking skills base** – traditional monitors are perceived as too complicated and overwhelming for new hires wanting to learn the mainframe
- **Management pressure** – want visibility to the mainframe, by integrating mainframe ops with the business and distributed ops dashboards that they have today
- Not just in the context of System z, but **end to end needs of their hybrid application** infrastructure

☺ In effect, customers want to wrest back **control** of their data and **analyze** it where and how they want

Introducing OMEGAMON Data Provider

Providing (serving) OMEGAMON data (as it is created) in a format that is easy to understand, and consume using your preferred technology stack, for example an analytics platform such as Elastic, Grafana or Splunk, as well as IZOA and Watson AIOps.

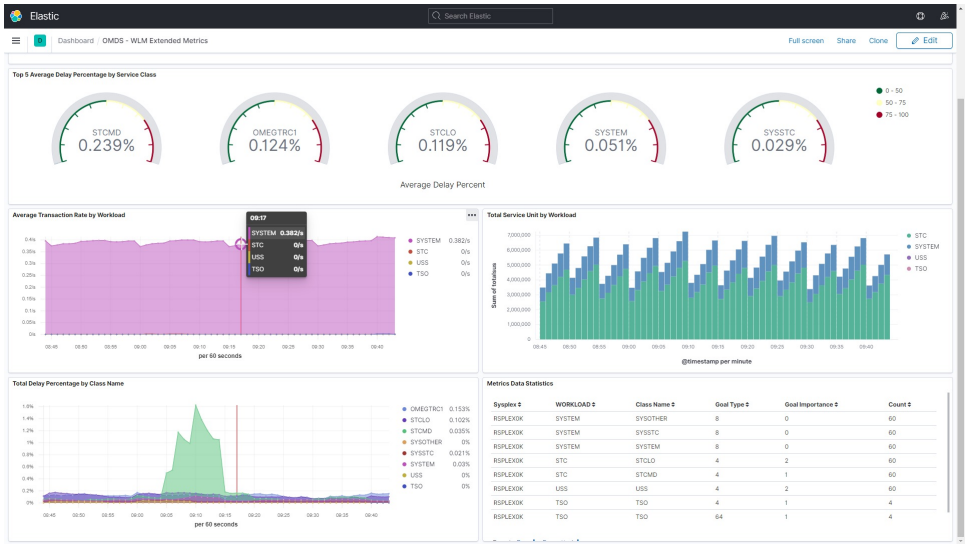
- Data served in an industry standard, self-describing format
- Control over where data goes and how it's used
- Understand and control the cost of managing that data
- A technology stack that permits:
  a) A level of redundancy so that a failure can minimize or avoid data loss
  b) An extensible topology that can support a single or hundreds of systems
- Central point to configure and administer
- Up and running within 2 hours

- OMEGAMON Data Provider forwarding mechanism
- Architectural flexibility, it's all Java, runs on:
  - z/OS for control and security reasons (including containers), or
  - Distributed for cost-control
- Data is sourced from attribute groups – familiar and well-defined
- Highly configurable – you decide what to forward and how often
- Sample "starter" dashboards for Elastic

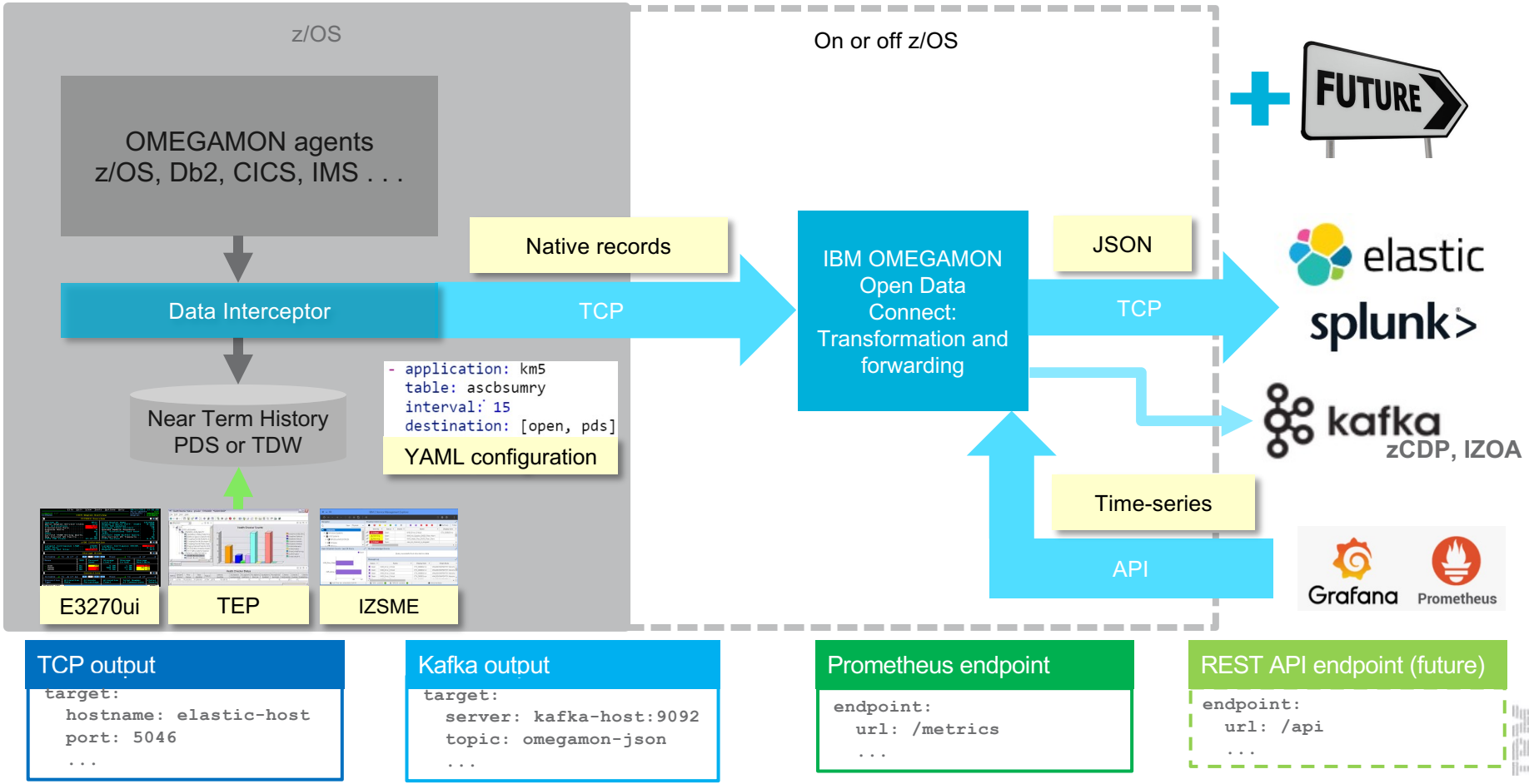
History of OMEGAMON Data Provider technology

Developed originally within Fundi which is now Rocket Perth Lab. Customers requested streaming data to popular analytics platforms. Now that code has been expanded so it can be reused consistently by all these products. Here is the order of release:

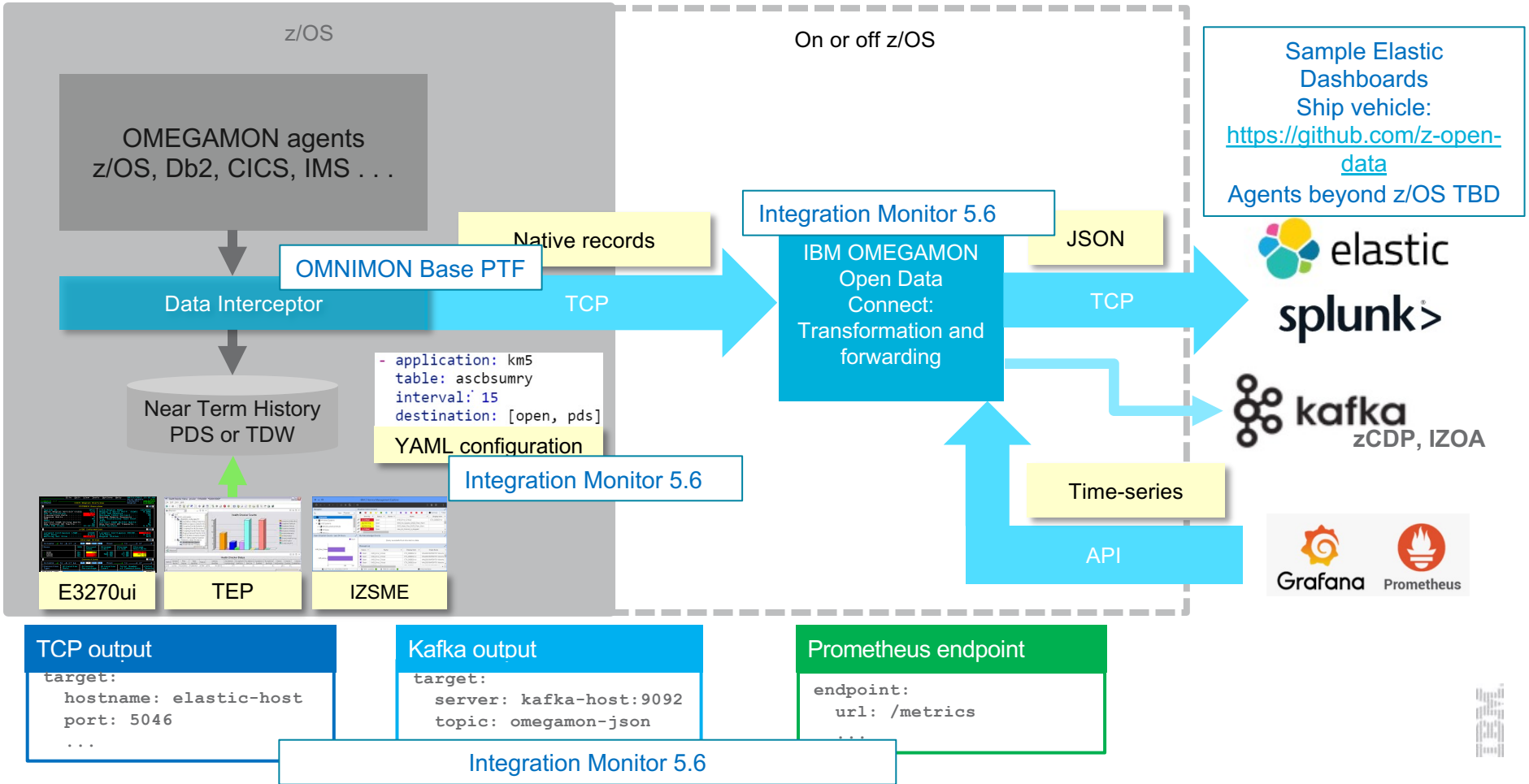
1. Transaction Analysis Workbench
2. IMS Connect Extensions
3. CICS Performance Analyzer
4. OMEGAMON Data Provider



Architecture – overview



Architecture – overview



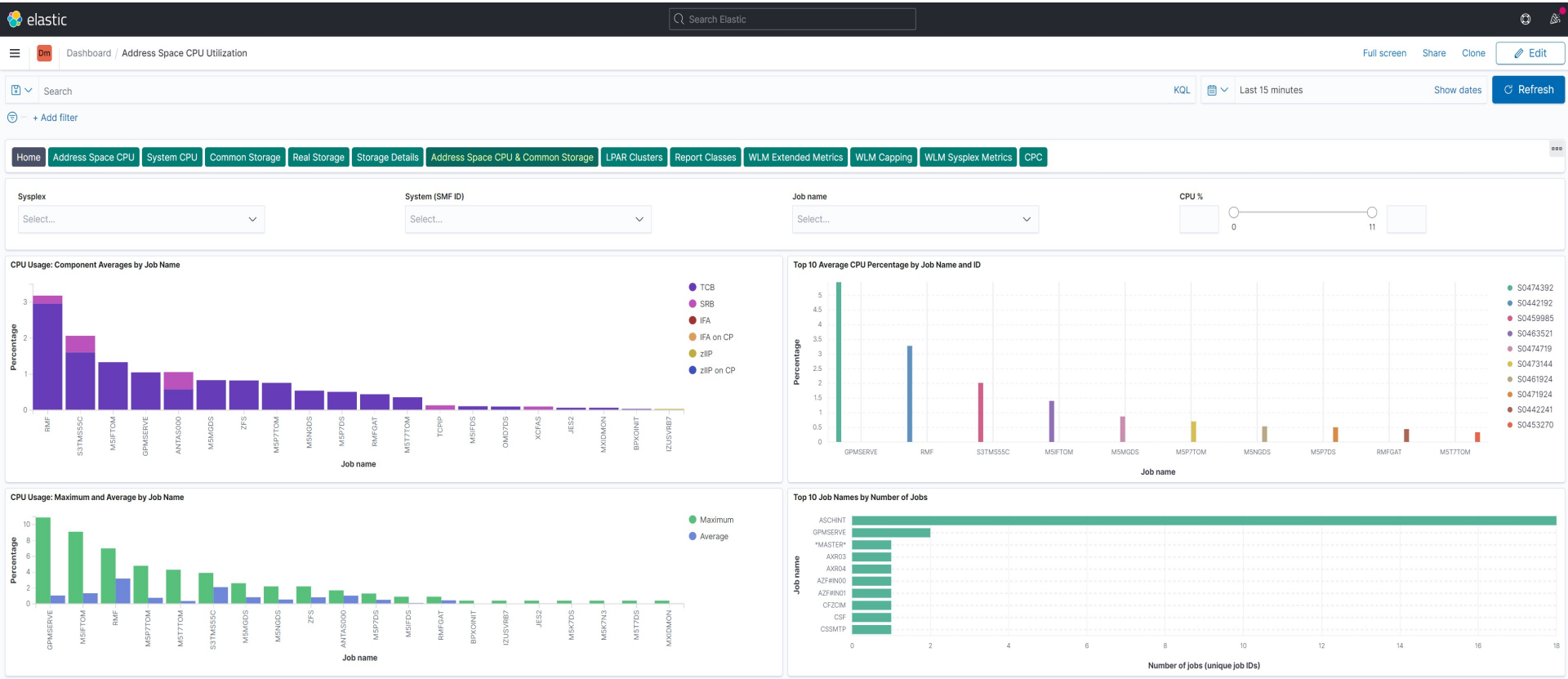
What makes this different from alternatives

RMF and SMF Data alone vs. OMEGAMON Data Provider

- Time frame: What's it worth to identify issues faster?
  - RMF and SMF may be delayed by up to 15 minutes
  - OMEGAMON data will arrive in real time
- Volume of data - What does it cost to ingest data in products like Splunk?
  - RMF and SMF create more raw data
  - OMEGAMON summarizes data and should produce a lower volume
- Correlation of events - How easy is it to find subsystem relationships at a transaction level?
  - RMF and SMF don't correlate data records, though they are timestamped
  - OMEGAMON will provide correlation across subsystem records
- Software cost – what additional price is there for this capability?
  - OMEGAMON Open Data will be included as part of the SMSz and IZMS monitoring suites at no charge.

Demonstration

- Sample elastic dashboards – OMEGAMON for z/OS



Attribute group tables – used by the samples

Attribute group fields are explained in the IBM Documentation

These are examples of the OMEGAMON Monitor for z/OS 5.6 tables that can be shared

ascpuutil	Address Space CPU Utilization
asgnwait	Address Space Bottlenecks
km5jes	KM5 JES Information
km5msucap	KM5 License Manager MSU WLM Cap
km5wlmclpx	WLM Class Sysplex Metrics
km5wlmclrx	WLM Class Raw Extended Metrics
lpclust	LPAR Clusters
m5ascputlh	Address Space CPU Utilization History
m5stgcdth	Common Storage Utilization History
m5stgdeth	KM5 Storage Details History
m5stgfdth	Real Storage Utilization History
m5stgsumh	KM5 Storage Summary History
mplxcpcsum	KM5 CPC Summary
mrptcls	Report Classes
syscpuutil	System CPU Utilization

Elastic

Search Elastic

Dashboard / OMDS - WLM Extended Metrics

Full screen | Share | Clone | Edit

Search | Show dates | Refresh

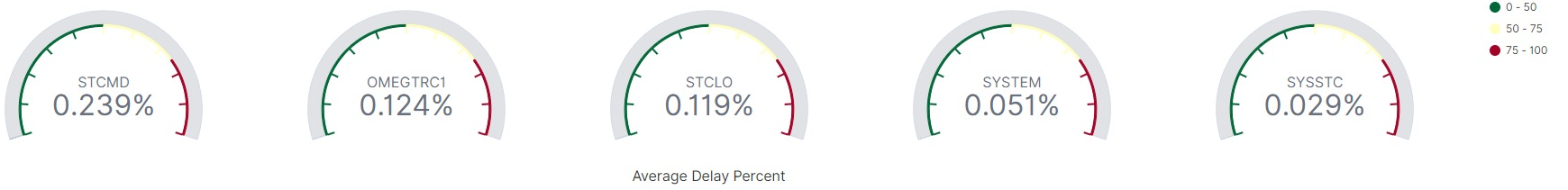
sysplexnam: RSPLEX0K | + Add filter

Proof-of-concept dashboard in Kibana showing
WLM Class Sysplex Metrics attributes
(table KM5WLMCLPX)
from OMEGAMON for z/OS, 5.6

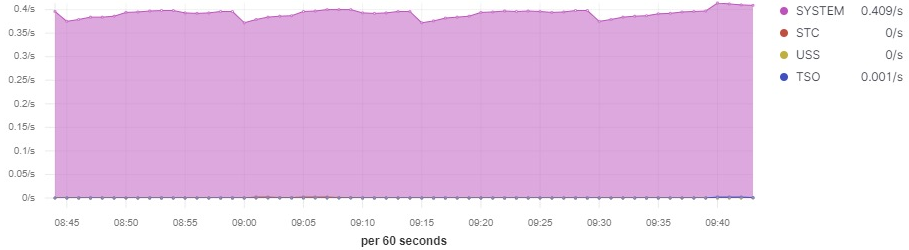
Controls

Sysplex: RSPLEX0K

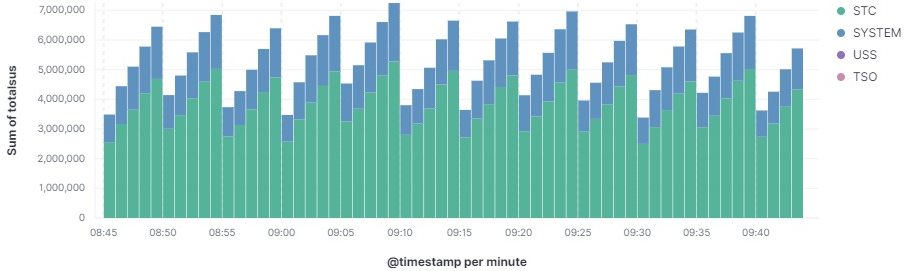
Top 5 Average Delay Percentage by Service Class



Average Transaction Rate by Workload



Total Service Unit by Workload



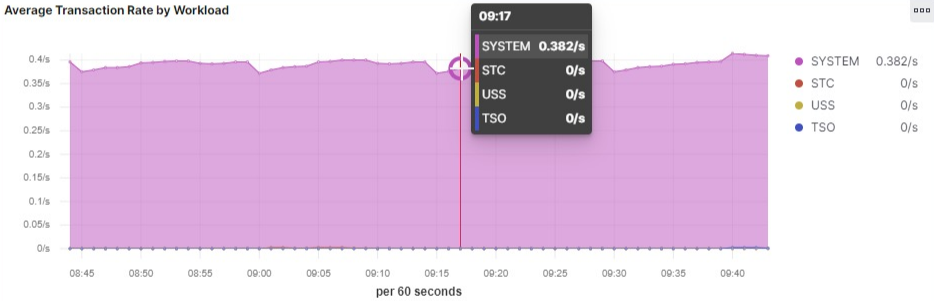
Total Delay Percentage by Class Name

Metrics Data Statistics

Sysplex	WORKLOAD	Class Name	Goal Type	Goal Importance	Count
RSPLEX0K	SYSTEM	SYSOTHER	8	0	60
RSPLEX0K	SYSTEM	SYSSTC	8	0	60

Top 5 Average Delay Percentage by Service Class

Average Transaction Rate by Workload



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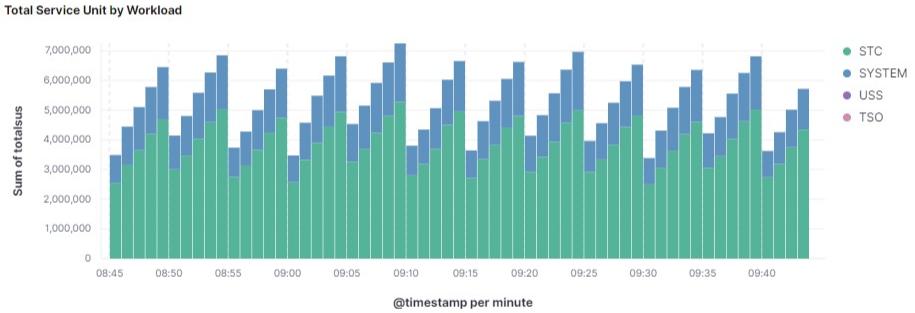
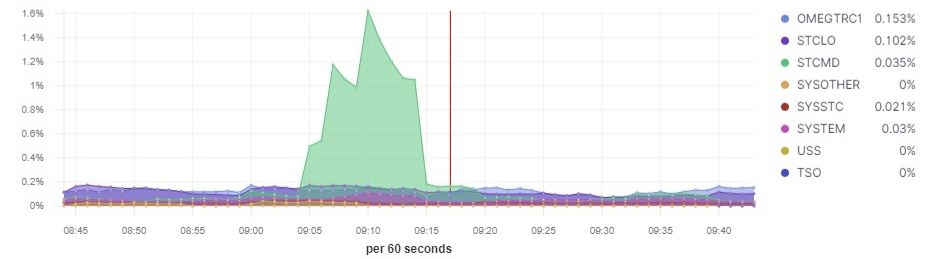


Total Delay Percentage by Class Name



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RSPLEX0K	SYSTEM	SYSSTC	8	0	60
RSPLEX0K	SYSTEM	SYSTEM	8	0	60
RSPLEX0K	STC	STCLO	4	2	60
RSPLEX0K	STC	STCMD	4	1	60
RSPLEX0K	USS	USS	4	2	60
RSPLEX0K	TSO	TSO	4	1	4
RSPLEX0K	TSO	TSO	64	1	4

Grafana dashboard

- Leveraging the metrics API to feed Prometheus

Deliverables as part of OM Integration Monitor 5.6

Code

- Premium function included in suites (SMSz V2 and IZMS) via FMID added to Integration Monitor 5.6
  - No additional charge
  - Enabling PTF in OMNIBASE: OA62052/UJ06872
- For customers that buy OMEGAMON agents as standalone products, upgrade to the suite is possible with a “true-up” that considers what you’ve already paid to reduce the suite price.
- Leverage Config Manager to upgrade to suite, if necessary.
- ODP install in under 2 hours after that.

Dashboards

- Sample Elastic dashboards can be delivered in the following ways:
  - Docker image downloaded from Github. Includes some sample data
  - Separately, requiring the customer to install Elastic or use their own instance – on a GitHub repo or ZIP file
  - https://github.com/z-open-data
- Proposal: Create Open Mainframe Project Community
  - Goal: Enable customers to share their most popular and useful dashboards with one another.
  - We’ve created new “views” in under an hour that would take months to add into the OMEGAMON products.

Documentation

- User’s Guide PDF
- Installation and customization
- Instruction on using the dashboards – very minimal and included in the github repo
- Preparing Elastic and Splunk to receive data
- Describing the Prometheus API and Grafana usage

YAML configuration – thoughts?

- The configuration requirements for OMEGAMON Open Data are considerable – are you comfortable with a different approach to PARMGEN and UI's?
- YAML has become the de facto standard for modern product configuration
- Simple and extensible – as new requirements emerge, the YAML can easily absorb new options

```yaml
broker:
  name: OM-prod-broker

collection:
  - product: km5
    table: jobsumry
    interval: 1
    destination: [open, pds]
    fields:
    - lpar: {EQ: [SYS1, SYS2, SYS3]}
    - cputime: {GT: 1.0}
    - jobname
    - program

target:
  - name: splunk
     hostname: 10.117.198.102
     port: 15046
```

The filtering of LPAR and CPUTIME is a future concept
Not part of the first offering. All other parts are accurate.

Thank you!