

# Getting More Intelligence from Your Mainframe: A Look at z IT Operations Analytics Solutions



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# Agenda

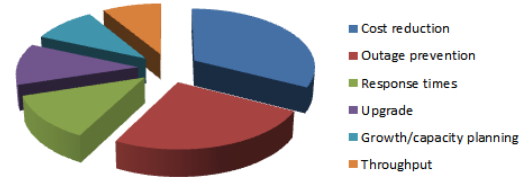
- Overview of analytics
- Our portfolio
- Product capabilities
- Q&A



# Industry trends

- Costs and outages are top of mind for clients

- A recent survey of z Systems clients showed **cost reduction** and **outage prevention** as the top 2 factors where they want to focus operational efforts



- Interest in IT Operations Analytics is on the rise

- Market dynamics show growth in IT Operations Analytics (ITOA) and decline in IT Operations Monitoring (ITOM), shifting from pure ITOM to an ITOM+ITOA hybrid



- SaaS is a growing consumption model

- Cloud-based delivery is **growing 4x faster** than on-premise delivery
- **60% of z Systems clients** foresee their company adopting some form of cloud-based tooling **between now and 2018**



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# Our Portfolio



# IT Operations Analytics Solutions on z Systems

“Insight to action in half the time”

## Optimization

- IBM Capacity Mgmt Analytics.
- **NEW** - IBM z Operational Insights (SaaS)

- Capacity Management
- Software cost analysis
- Enterprise resource and workload optimization
- SME insights in cloud (SaaS)

## Investigate and Automate

- **NEW** - IBM Operations Analytics for z Systems
- **NEW** - IBM Common Data Provider for z/OS

- Log Analytics
- Domain insights and expert advice
- Alert notification and automation
- Unified data collection for logs and SMF

## Predict

- **NEW** - IBM zAware (Anomaly Detection)
- IBM Operations Analytics – Predictive Insights

- Pro-Active Outage Avoidance
- Predict Problems before occurrence
- Log anomaly detection

On Premise

Hybrid

Cloud



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# IBM Operations Analytics for z Systems v3.1

New

## Reduce Operational Cost, Bring Analytics to your Data, Smarter IT Service Management with Rapid Time to Value

- **New Problem Insights View**
  - Consolidated view across the system for root cause analysis
- **z/OS Security Insight Pack**
  - See patterns of security incidents by user or resource
- **Analyze critical operations data**
- **Includes zAware Software Appliance**
  - Advanced machine learning to detect abnormal system behavior

### Insurance industry client example

- Experienced an application outage that resulted in the team working **around the clock for 29 hours**
- After the issue was resolved, the logs were captured and sent to IBM lab for analysis using IBM Operations Analytics for z Systems
- **Within minutes**, the IBM team was able to focus in on the root cause of problem and find the relevant PTF to resolve the issue

[ibm.biz/ioazlivedemo](https://ibm.biz/ioazlivedemo)



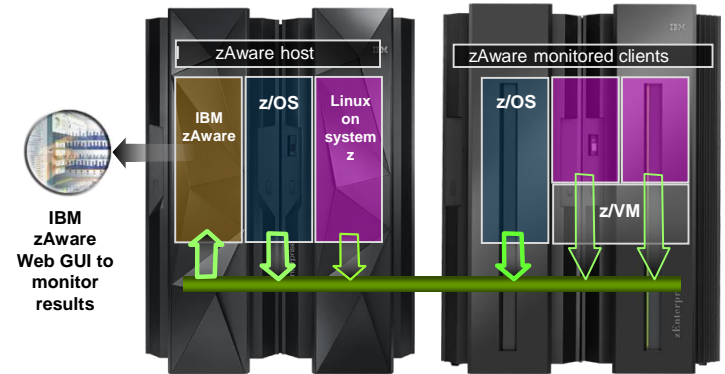
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# IBM zAware v3.1

New

## Cognitive infrastructure to detect anomalous systems behavior in near real-time

- **New Software Appliance Delivery**
  - Deploy and launch within minutes
- **Enhanced Proactive Anomaly Detection**
  - Act before there is a service outage via email notification
- **New Historical View**
  - See the history of an anomalous message in order to accelerate problem resolution
- **Integrated with IBM Operations Analytics**
  - Launch directly to logs in the context of an anomaly



Monitors z/OS and Linux on z images running natively or as a guest

[ibm.biz/ioazlivedemo](http://ibm.biz/ioazlivedemo)





# IBM Common Data Provider for z Systems 1.1: Real Time Access to Analytics

New

A single source for all operational data streamed to the analytics platform of choice

- Simple to install, configure and use
  - Multiple data sources
  - Flexible output options
  - Write to any destination
  - Streaming SMF and log data
- Built in filtering to control data volumes

- **CDP** provides consumable, near real time operational data
- **Built to improve the ability to manage the growing complexity of data requests**
- **Tivoli Decision Support for z/OS** customers can write their SMF data directly to IDAA

## Reduce Risk to you Business:

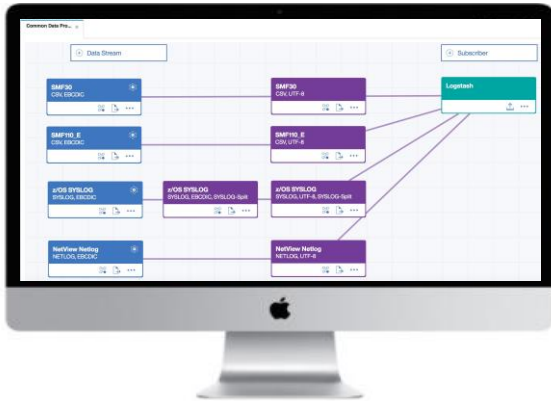
Detect threats with your Security products using live streaming data

## Optimize Costs and Efficiencies:

Feed all IT Operations data to analytical engines from a single product

## Prevent Impact to Your Operation:

Proactive Analysis of data in near Real Time as an early warning

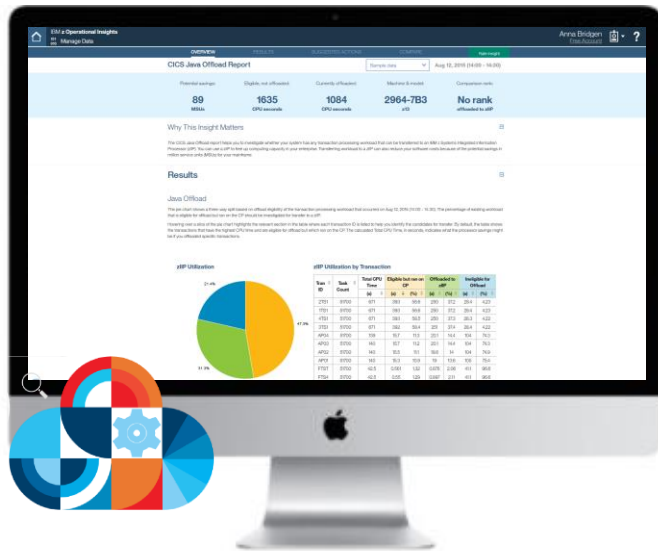


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# Breaking new ground in the Cloud with IBM z Operational Insights (SaaS)

New

Expert cost & performance insights for z Systems in minutes. Just add operational data.



- IT Service Management software, delivered as SaaS, addresses key pain points:

- z Systems **performance** & running **costs**
- Pressure on staff availability & SME **skills**
- **Time-to-value** of traditional on-premise tooling

- Analytics on z operational data, with embedded IBM expertise

- ‘CICS Essentials’, with intent to expend across subsystems

- Try IBM zOI for yourself at [ibm.biz/try-zoi](https://ibm.biz/try-zoi)

- Potential benefits quantified upfront
- Tailored recommended actions
- First-in-kind comparisons to other users
- Built on expertise from z performance SMEs
- Clean, modern web browser-based interface
- Easy value assessment – free SaaS trial



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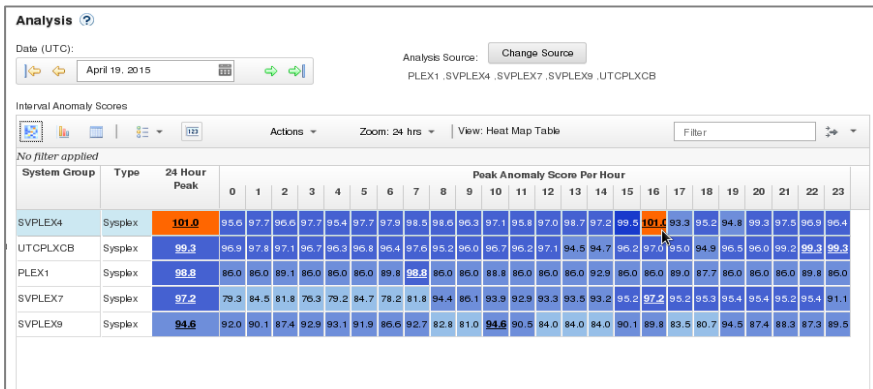
# Product Capabilities

## IBM Operations Analytics for z Systems



# IBM Operations Analytics for z Systems V3.1

## Problem Insights and Anomaly Identification ... Understanding the unknown



### NEW in V3.1:

- Inclusion of **IBM zAware v3.1** anomaly detection with **Problem Insights**
- Rapid analysis of vast amounts of data, and **even more data types**
- New **z/OS Security Audit Events** Insight Pack
- Use in conjunction with NEW **Common Data Provider v1.1**

### Key Values:

- *Built-in IBM expertise to predict issues instead of waiting for failure, for **fewer outages***
- *Analyze & intelligently search ops data with anomaly detection, for **faster root cause analysis** and Mean Time to Recovery*

<http://ibm.biz/ioazlivedemo>



# Problem Insights

- Automatically surfaces important messages found in the log data.
- Provides easy to read problem summary and suggested actions for problem resolution.
- Displays Anomaly Interval scores from IBM zAware.

IBM Operations Analytics - Log Analysis

Getting Started x Problem Insights New Search x + Add Search

## Problem Insights

Sysplexes

CB@PLEX2 5 CB@PLEX1 3

Showing Data for: Last Hour Refresh

### Problem Insights and Suggested Actions

## results found

Severity	Sysplex	System	Interval Score	Subsystem	Time	Problem Summary	Count	Suggested Actions	Evidence
Error	CB@PLEX2	CB8B	80.5	WebSphere Application Server	01/17/16 18:28:15:000	The WebSphere Application Server for z/OS daemon address space has ended abnormally.	4	?	<a href="#">BBOO0009E</a>
Error	CB@PLEX2	CB8B	98.4	WebSphere Application Server	01/17/16 18:28:15:000	WebSphere Application Server for z/OS failed in a context service.	3	?	<a href="#">BBOO0005E</a>
Warning	CB@PLEX2	CB8C	70.2	DB2	01/13/16 14:48:36		1	?	<a href="#">DSNT376I</a>
Error	CB@PLEX2	CB8D	60.0	Network	01/12/16 16:35:32		196	?	<a href="#">EZ23308E</a>
Error	CB@PLEX2		84.3	Security	01/12/16 19:13:45	... the system protection mechanisms	2	?	<a href="#">IBRH04E</a>

Total number of Problem Insights found per Sysplex

Count of this message over the timeframe

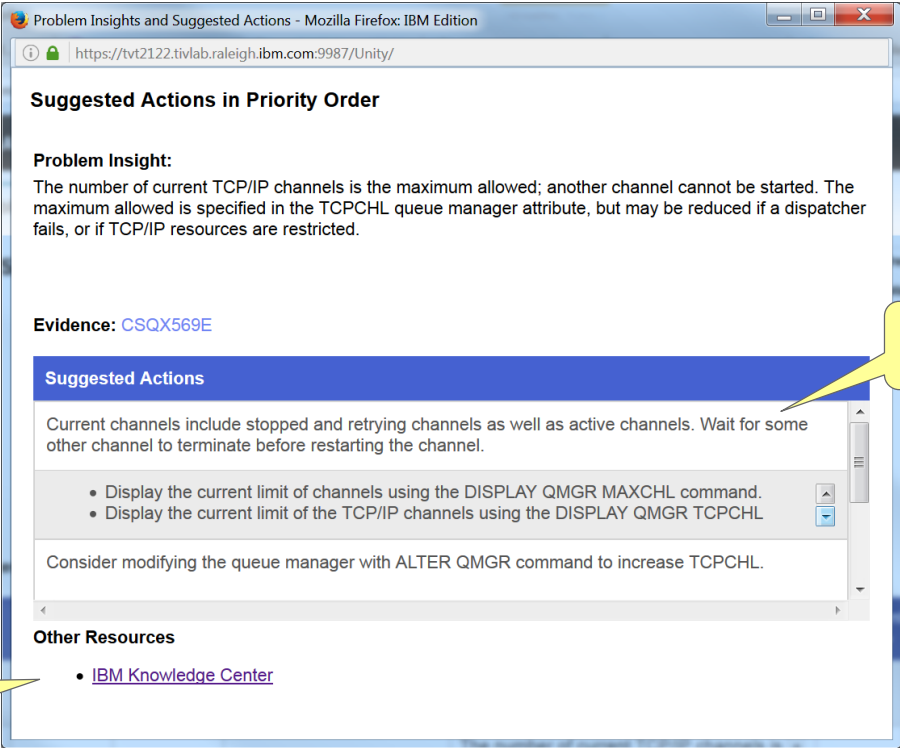
Link to search for this message in this time period

Interval Score column shows anomaly score for the last time the problem occurred on this system

Click to show the suggested actions for this message

# Suggested Actions

- The Suggested Actions are presented as a pop-up window.



The screenshot shows a Mozilla Firefox browser window titled "Problem Insights and Suggested Actions - Mozilla Firefox: IBM Edition". The address bar shows the URL "https://vt2122.tivlab.raleigh.ibm.com:9987/Unity/". The main content area is titled "Suggested Actions in Priority Order". Under "Problem Insight:", it states: "The number of current TCP/IP channels is the maximum allowed; another channel cannot be started. The maximum allowed is specified in the TCPCHL queue manager attribute, but may be reduced if a dispatcher fails, or if TCP/IP resources are restricted." Under "Evidence:", it shows "CSQX569E". A blue header "Suggested Actions" is followed by a text block: "Current channels include stopped and retrying channels as well as active channels. Wait for some other channel to terminate before restarting the channel." Below this is a list of actions: "• Display the current limit of channels using the DISPLAY QMGR MAXCHL command." and "• Display the current limit of the TCP/IP channels using the DISPLAY QMGR TCPCHL". A note says "Consider modifying the queue manager with ALTER QMGR command to increase TCPCHL." Under "Other Resources", there is a link to "IBM Knowledge Center".

Suggested Actions to investigate/resolve the issue

Link to the Knowledge Center for this message ID



# IBM Support Portal based Expert Advice

Search for expert advice with the click of a button

Launch from client or server side

The screenshot displays the IBM Operations Analytics - Log Analysis interface. On the left, a sidebar shows a search dashboard with a list of insight packs, including 'ExpertAdvice' and 'IBMSupportPortal-ExpertAdvice'. A blue arrow points from the 'IBMSupportPortal-ExpertAdvice' search result to a detailed technical note on the right. The note, titled 'PM52132: DFHSM0131 CICS SHORT ON STORAGE BELOW THE LINE CDSA CONTAINS KESTK24E STORAGE FOR DFHTIEM', includes a 'Fix is available' section and an 'Error description' section. A yellow callout box at the bottom left states: 'All IBM support site documents that reference messages from search results'.

Launch to Tech Note

All IBM support site documents that reference messages from search results

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# Product Capabilities

## IBM zAware

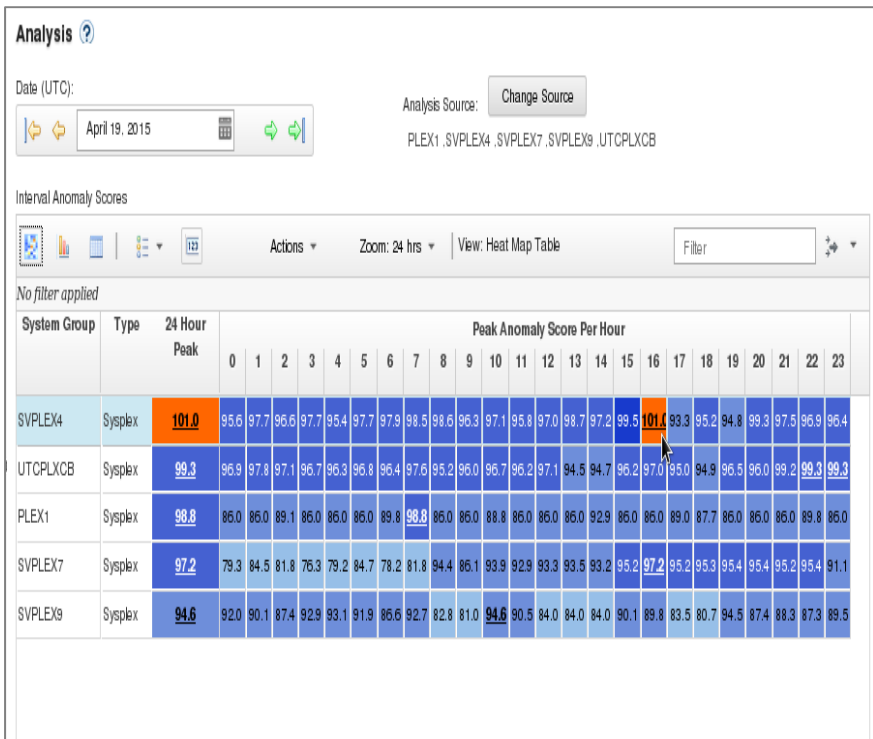




# IBM zAware v3.1 Software Appliance

(included in IOAz v3.1)

## IBM zAware v3.1... Benefits from Anomaly Identification



### NEW in V3.1:

- **Anomaly** detection with z/OS and Linux for z message logs
- Improved consumability with zAware delivered as a **software appliance feature** with IBM Operations Analytics for z systems
- Proactive outage avoidance with email Alerts for identified anomalies
- View the **history of an anomalous message** for faster problem resolution
- Launch in Context into logs in the context of the Anomaly for quick message id search

### Key Values:

- *Built-in IBM expertise to provide proactive outage avoidance instead of waiting for failure to happen; thus **fewer outages***
- *Improve problem determination intelligently using anomaly detection on IT operational data for **better Mean Time to Recovery***



# Integration between IOAz and zAware

- zAware interval anomaly scores link back into zAware

Current Analysis > Interval View

### Interval View for System UTCPLXCB.CB8A

Date (UTC): July 27, 2016  
Time interval (UTC): 02:20 — 02:30

System date: (UTC -4) July 26, 2016  
System time interval: (UTC -4) 22:20 — 22:30

Analysis source: UTCPLXCB.CB8A  
Interval anomaly score: 99.5

Analysis source type: z/OS  
Analysis interval (minutes): 10

Number of unique message IDs: 40  
Analysis group: UTCPLXCB.CB8A

Messages

Actions: View Message Summary, Search Logs, IOA

Score	Contribut Score	Status	Count	Rules Status	Time Line	ID	Message Example
<input checked="" type="checkbox"/>	1.000	8.128	new	1	None	██████████	CNZ4100I 18.07.10 CONSOLE DISPLAY 973
<input checked="" type="checkbox"/>	1.000	8.128	new	1	None	██████████	IEE114I 18.17.23 2012.122 ACTIVITY 312
<input type="checkbox"/>	1.000	8.128	new	1	None	██████████	IEE200I 18.17.23 DISPLAY ASM 308
<input type="checkbox"/>	1.000	8.128	new	2	None	██████████	ISG343I 18.07.25 GRS STATUS 981

Total: 46 Selected: 2

Select message and Launch to IOA/Search

IBM Operations Analytics - Log Analysis

Getting Started | Problem Insights | New Search | Add Search

## Problem Insights

Syplexes

Problem Insights and Suggested Actions

488 results found

Severity	Time	System	Severity Score	Substatus	Time	Time Line	ID	Message Example
Low	08:00:00	CSB0	8.12	System Application Server	18.07.10	██████████	CNZ4100I	18.07.10 CONSOLE DISPLAY 973
Low	08:00:00	CSB0	8.12	System Application Server	18.17.23	██████████	IEE114I	18.17.23 2012.122 ACTIVITY 312
Warning	08:00:00	CSB0	7.5	System Application Server	18.17.23	██████████	IEE200I	18.17.23 DISPLAY ASM 308
Low	08:00:00	CSB0	8.12	System	18.07.25	██████████	ISG343I	18.07.25 GRS STATUS 981



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# Product Capabilities

## IBM Common Data Provider for z Systems



# IBM Common Data Provider

The **Common Data Provider (CDP)** was driven by customer requests to address the growing Operational Analytics requirement.

The CDP provides:

- A **single source for z/OS Operational Data** in a flexible, consumable format both on and off platform
- Near **real-time data feed** of SMF data and log data
- Single interface that is **easy to configure and use**
- The **product is OTC** so data collection is **NOT** ingestion based
- Read once - write many
- **Multiple destinations** in different formats for different consumers
- Batch data collection also available for deep dive analysis or to control CPU consumption
- **Documented protocols and formats** for sending and consuming data are provided, enabling data ingestion to widely used Industry Analytics Platforms or Enterprise-specific solutions for access and analysis

## Vision and Purpose

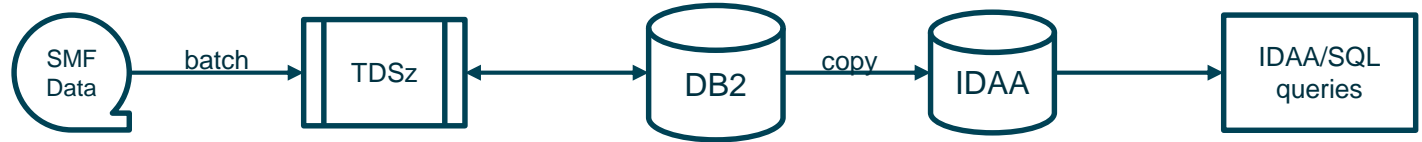
- An interactive framework for combining multiple views of the same data to provide a deeper understanding of the Enterprise



# Maximize Existing Investments

**IBM DB2 Analytics Accelerator** IBM Tivoli Decision Support for z/OS (TDSz) customers can leverage their existing reporting systems by loading TDSz data direct in to the IDAA

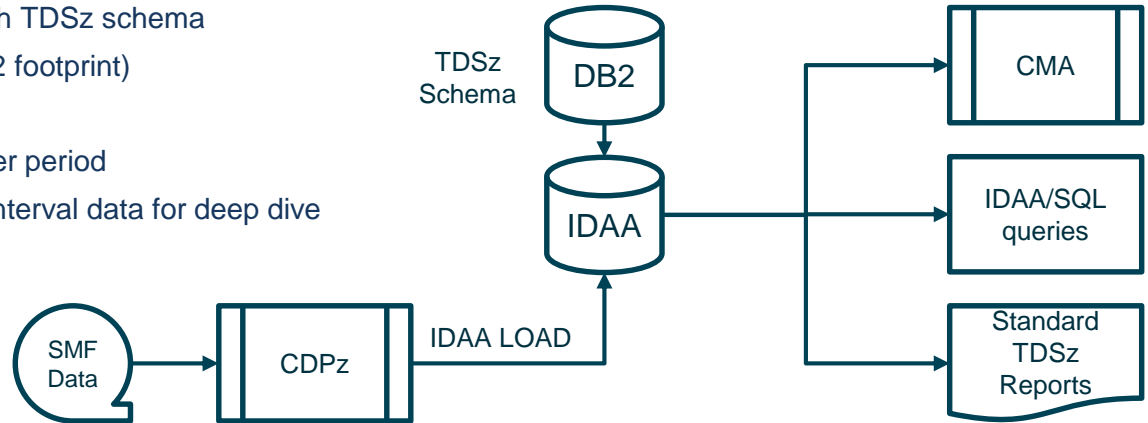
**Today: TDSz and IDAA** Copy from DB2 to IDAA. Time consuming and expensive



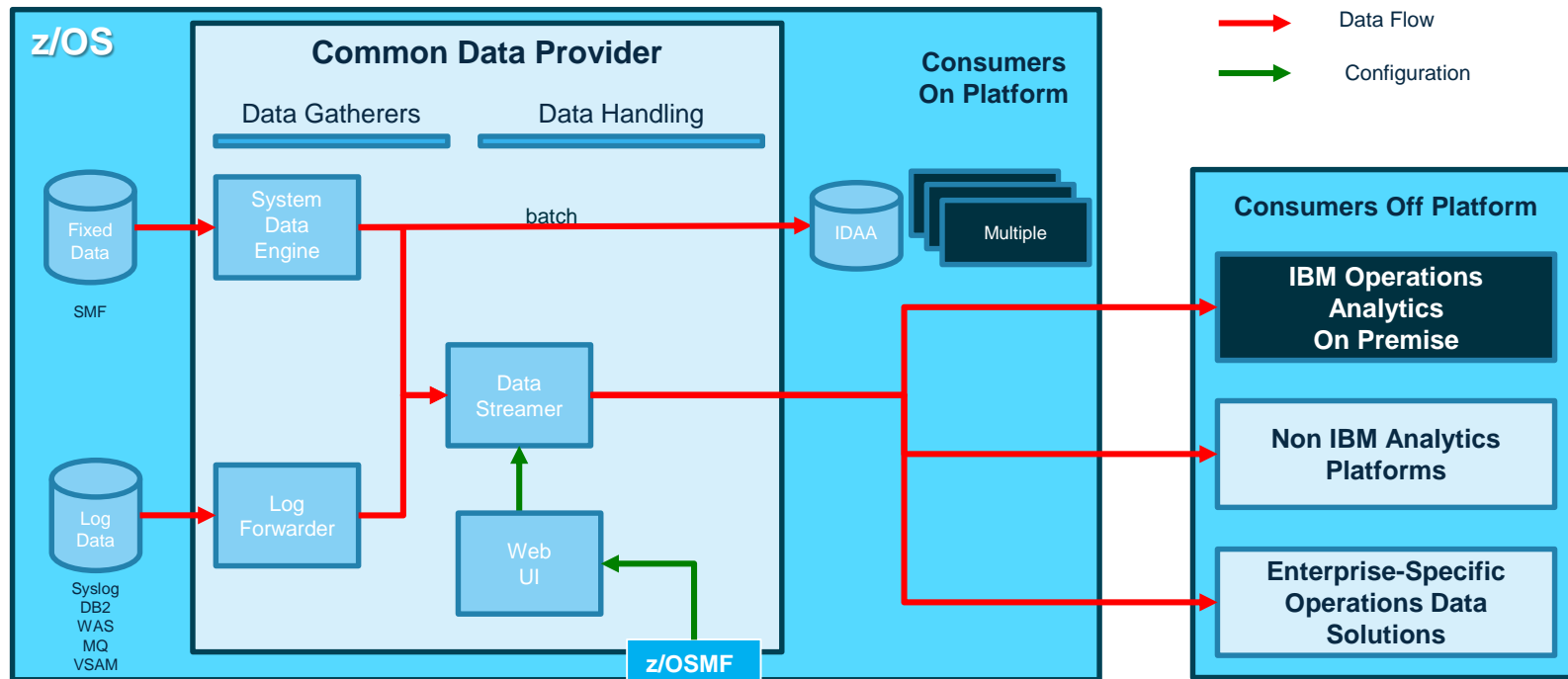
**CDP Solution:** Direct load to IDAA with TDSz schema

- Direct load of TDSz SMF data to IDAA with TDSz schema
- No data lands in DB2 tables (reduced DB2 footprint)
- Saves CPU on copy and aggregation
- Allows you to keep more data over a longer period
- Ability to store and query timestamp and interval data for deep dive
- No need to change reporting systems

**Save time and money**



# Common Data Provider Architecture



## Three main component types

- Data Gatherers – flexible, customizable, efficient
- Data Streamer – controls data formats and destinations
- User Interface – simple intuitive configuration



# Data Gatherers

## System Data Engine

- Based on 30+ years of engineering
- Designed to collect and process SMF data
- No DB2 prereq – installed and usable within hours
- Data can remain unprocessed or unpacked into a readable, consumable format
- Formats the data into multiple formats for ease of ingestion (eg CSV or DB2 LOAD format)
- Supports all standard IBM SMF types
- Supports multiple sources of SMF data – archive, logstream or direct from the new SMF Buffer api in near real time
- Has built-in filtering to control data types and volumes

## Log Forwarder

- Gathers a variety of log data and some VSAM file formats for Analytics Engines
- Additional log support planned through ongoing continuous delivery
- Custom log types can be added and any dataset can be streamed giving great flexibility



# Streaming Live Data

**The Data Streamer** controls the destination and format of the Operations Data

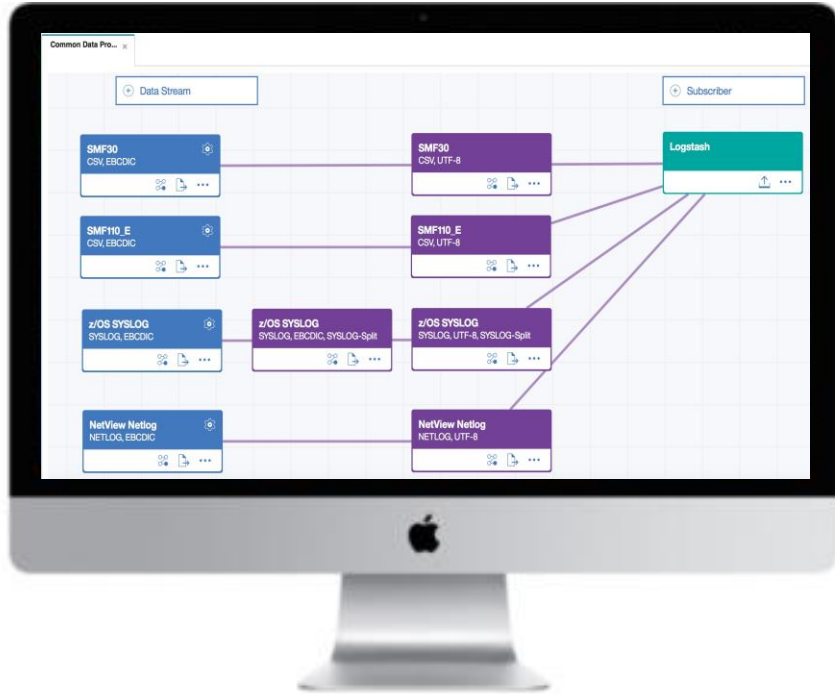
- Receives data from the gatherers
- Splits and Annotates the log data into individual messages for ingestion into analytic engines
- Transforms data messages into the right format for the destination platform (eg UTF-8 and other code pages)
- Transport mechanism is TCP/IP – available as TSL for additional security
- Data sent in json wrapper for ingestion by Logstash for storage and analysis
- Extendable to other platforms like ELK and SPLUNK
- Streams data both on and off platform
- ziiP enabled for cost savings (pure Java)





# Web Configuration Tool

The data sources, transformation and destinations are managed and controlled through a simple user interface



## Plug-in for z/OSMF

Menu driven to configure:

- Data streams and their sources
- Any transformation requirements
- Output format
- Destination (on or off platform)

Security

- Push Based model
- Host-based policy controls subscribers and data sources
- Policy can be secured by RACF for total control of data and subscribers



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# Product Capabilities IBM z Operational Insights



# Imagine a world with...

...a simple, intuitive tool,  
which requires no installation,  
analyzes your z operational data,  
identifies potential efficiency improvements,  
shows the estimated cost savings upfront,  
allows you to compare your environment to others in the z community,  
and provides suggested next steps to improve.



# Trying zOI is a simple process

You can try zOI for free at [ibm.biz/try-zoi](https://ibm.biz/try-zoi)

- Explore the **user interface**
- View **sample reports** without uploading any data
- Try **uploading your own data**, and view results in one free report

## A simple guide:

### 1. Sign up to z Operational Insights

Sign up in seconds at [ibm.biz/try-zoi](https://ibm.biz/try-zoi) using your existing IBM id (or quickly create one)

### 2. Collect your operational data

Collect and extract up to 750MB of SMF data (e.g. CICS SMF110 for the 'CICS Essentials' pack)

### 3. Securely upload your operational data

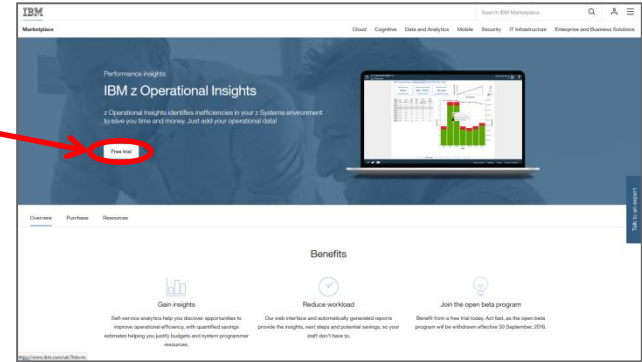
Your data is uploaded securely using SSL, and encrypted at rest in our database

The data you upload is similar to that you'd send us to help deal with a PMR

We remove any custom fields and keep only the data needed for analysis

### 4. View results & act for improved efficiency

Visualize your potential savings and how you compare to other users, and see actionable next steps to help you improve



[Product tour video at:  
https://ibm.biz/zoi-quickstart](https://ibm.biz/zoi-quickstart)



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# IBM zOI - Product Editions

Free	CICS Essentials Pack
View sample reports, and test drive zOI with your own data	Benefit from access to a rounded set of optimization reports for the CICS subsystem
\$0.00 USD	\$3,000.00 USD per month per user
<a href="#">Try Free Edition</a>	<a href="#">Purchase Now</a>
Try CICS Abend Analysis with your own data. View sample reports of other insights.	Access a range of CICS reports including: CICS Region CPU Constraints CICS Abend Analysis CICS Threadsafe CICS Java Offload
Upload 20 datasets per month	Upload 250 datasets per month
1 user	1 user
Forum-based support	IBM support

With further subsystem coverage planned for future



CICS  
DB2  
MQz  
IMS  
zStorage  
...



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# Client Feedback

- Over 200 users from over 175 companies worldwide
- Participation from all over the globe
- "Operational Insights is a great tool that can be used to promote the benefit of modern capabilities to help drive operational efficiency improvements"
  - - Technical Architect, leading healthcare company



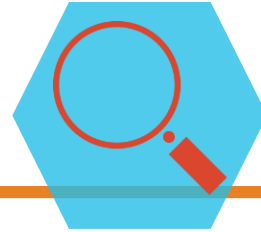
# Unbeatable time to value

• ***“very easy to use and effective tool”***

• – Latin American Bank



**5%**  
CPU savings



identified  
within  
**minutes**





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# zOI Home page




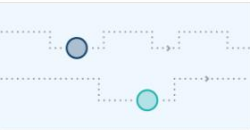

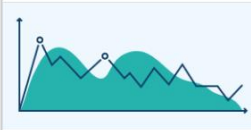

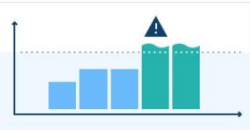



https://zoi.mybluemix.net/#/home

IBM z Operational Insights  
101 Manage Data 010

Alan Smith  
Paid Account



Getting started with z Operational Insights.

<p><b>CICS Abend Analysis</b></p> <p>Available</p> 	<p><b>CICS Java Offload</b></p> <p>Available</p> 	<p><b>CICS Region CPU Constraints</b></p> <p>Available</p> 	<p><b>CICS Threadsafe</b></p> <p>Available</p> 
<p><b>CICS Response Time Analysis</b></p> <p>Idea</p> 	<p><b>CICS Workload Profile</b></p> <p>Idea</p> 	<p><b>DB2 REAL Memory Usage</b></p> <p>Idea</p> 	<p><b>IMS Buffer Pool Efficiency</b></p> <p>Idea</p> 
<p><b>Log Analytics</b></p> <p>Idea</p> 	<p><b>MQ Buffer Pool Optimization</b></p> <p>Idea</p> 	<p><b>z/OS LPAR Insights</b></p> <p>Idea</p> 	



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# zOI CICS Java Offload

<https://zoi.mybluemix.net/#/javaOffload>

 IBM z Operational Insights Alan Smith  
 101 Manage Data Paid Account

OVERVIEW   **RESULTS**   SUGGESTED ACTIONS   COMPARE   Rate insight

## CICS Java Offload Report

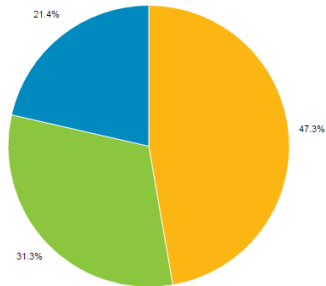
Sample data ▼ Aug 12, 2015 (14:00 - 14:30)

### Java Offload

The pie chart shows a three-way split based on offload eligibility of the transaction processing workload that occurred on Aug 12, 2015 (14:00 - 14:30). The percentage of existing workload that is eligible for offload but ran on the CP should be investigated for transfer to a zIIP.

Hovering over a slice of the pie chart highlights the relevant section in the table where each transaction ID is listed to help you identify the candidates for transfer. By default, the table shows the transactions that have the highest CPU time and are eligible for offload but which ran on the CP. The calculated Total CPU Time, in seconds, indicates what the processor savings might be if you offloaded specific transactions.

zIIP Utilization



zIIP Utilization by Transaction

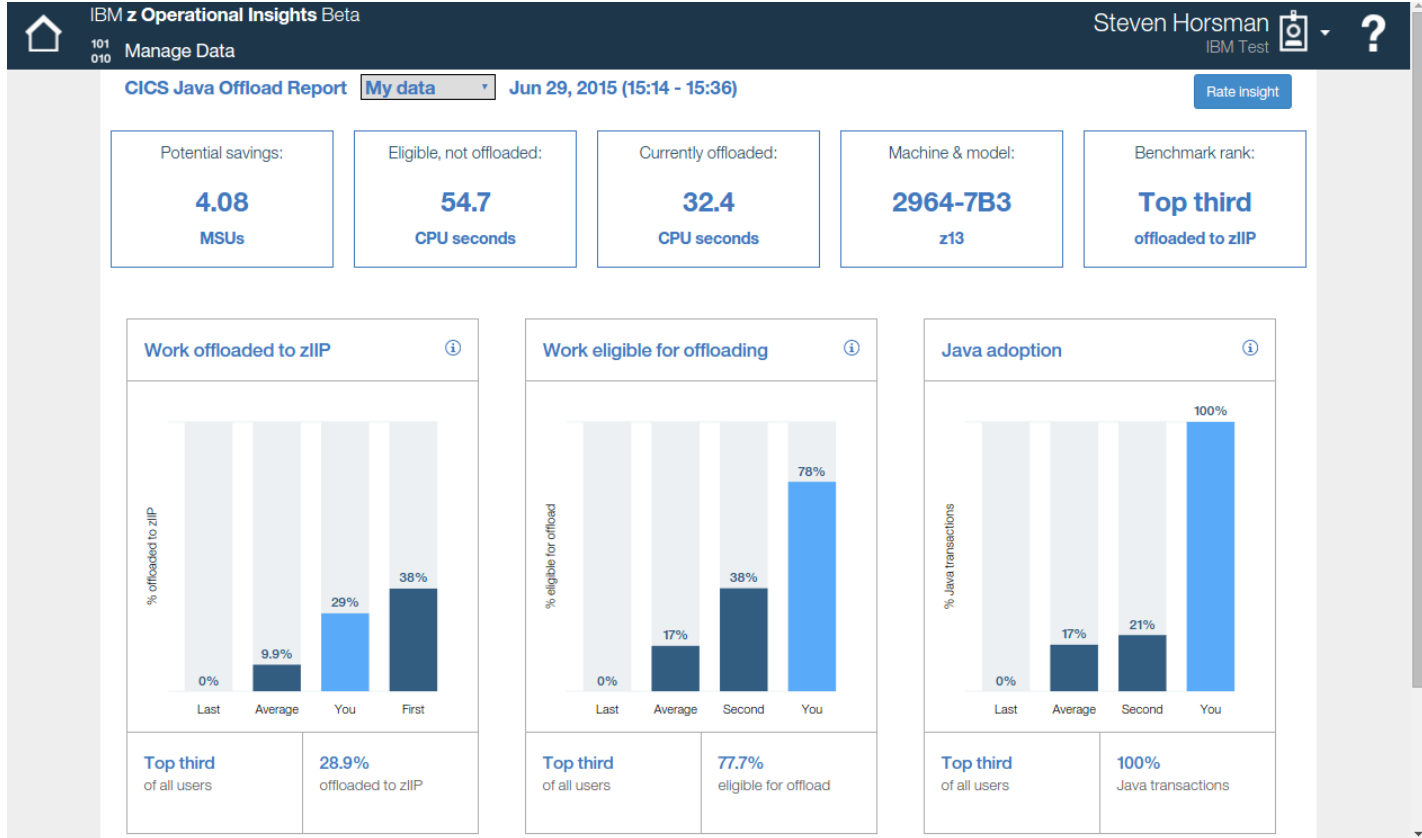
Tran ID	Task Count	Total CPU Time		Eligible but ran on CP		Offloaded to zIIP		Ineligible for Offload	
		(s)	(%)	(s)	(%)	(s)	(%)	(s)	(%)
ZTS1	51700	671	393	58.6	250	37.2	28.4	4.23	
1TS1	51700	671	393	58.6	250	37.2	28.4	4.23	
4TS1	51700	671	393	58.5	250	37.3	28.3	4.22	
3TS1	51700	671	392	58.4	251	37.4	28.4	4.22	
AP04	51700	139	15.7	11.3	20.1	14.4	10.4	74.3	
AP03	51700	140	15.7	11.2	20.1	14.4	10.4	74.3	
AP02	51700	140	15.5	11.1	19.6	14	10.4	74.9	
AP01	51700	140	15.3	10.9	19	13.6	105	75.4	
FTST	51700	42.5	0.561	1.32	0.878	2.06	41.1	96.6	
FTS4	51700	42.5	0.55	1.29	0.897	2.11	41.1	96.6	
FTS3	51700	42.6	0.541	1.27	0.883	2.07	41.1	96.7	
FTS2	51700	42.5	0.529	1.25	0.902	2.12	41.1	96.6	
4HE2	51700	11.8	0.0223	0.19	0.0807	0.686	11.7	99.1	
2HE2	51700	11.7	0.0221	0.189	0.0828	0.709	11.6	99.1	
1HE2	51700	11.6	0.0207	0.178	0.0765	0.657	11.6	99.2	
3HE2	51700	11.7	0.0206	0.176	0.0754	0.644	11.6	99.2	
<b>Total:</b>		<b>3460</b>	<b>1635</b>	<b>47.3</b>	<b>1084</b>	<b>31.3</b>	<b>741</b>	<b>21.4</b>	

### Suggested Actions

The data that you provided shows what percentage of your workload is zAAP eligible for offload to a zIIP, and of that work how much is actually offloaded. If you can offload the remaining eligible workload you will save MSUs on your monthly charge, assuming you have provided peak data.



# zOI Benchmarking



# CICS Threadsafe

https://zoi.mybluemix.net/#/threadsafe

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OVERVIEW RESULTS SUGGESTED ACTIONS COMPARE Rate insight

## CICS Threadsafe Report

Sample data

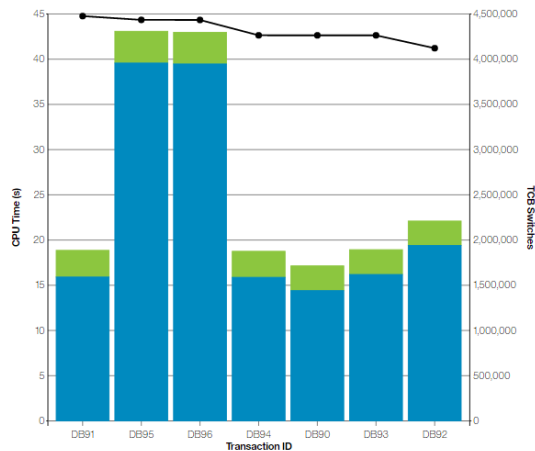
Feb 20, 2015 (15:00 - 16:00)

Number of Transactions

### CPU Analysis

The bar chart shows the CPU time, in seconds, by transaction ID for the top 7 transactions that are identified with high TCB switching usage that occurred on Feb 20, 2015 (15:00 - 16:00). Hovering over a bar in the chart highlights the corresponding section in the table, where each transaction ID is listed to help you identify the candidates that need to be analyzed. The calculated CPU Savings indicates what the processor savings might be if the transaction is made threadsafe.

CPU Time by Transaction

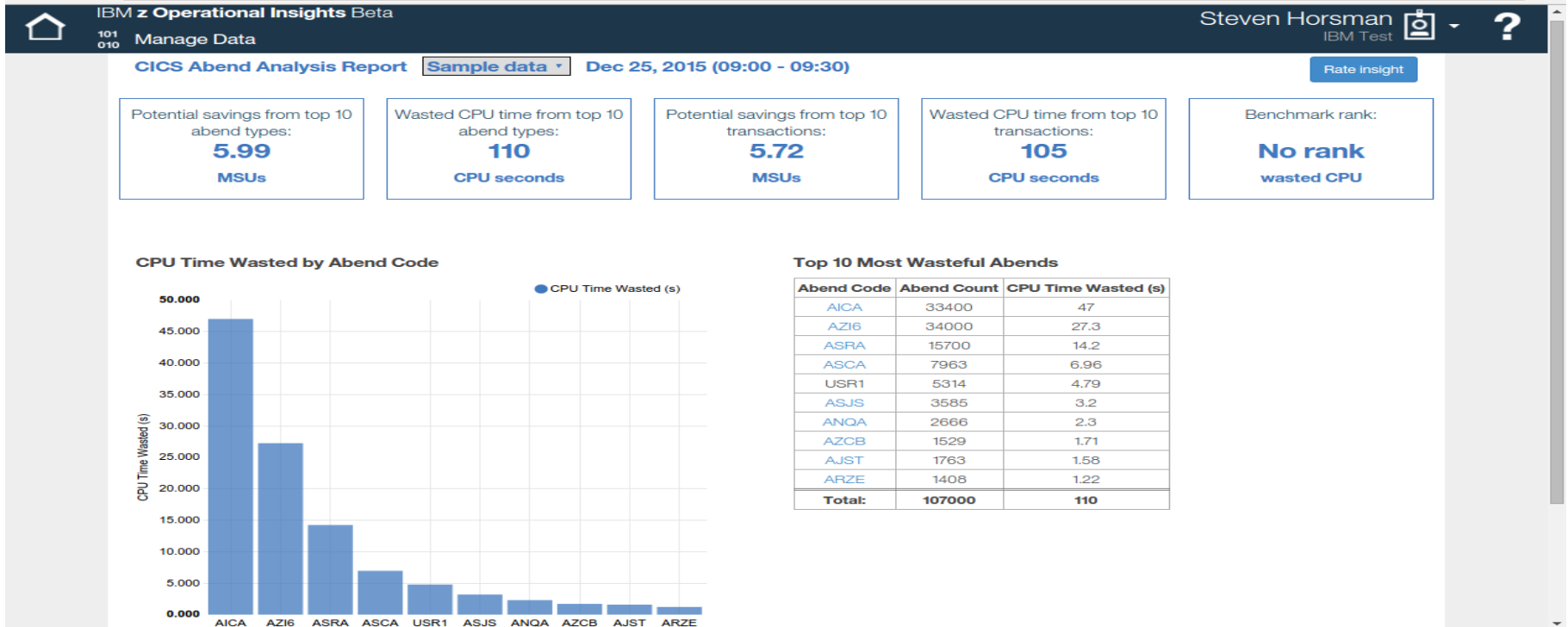


Top 7 Transactions by CPU Time

Tran ID	Task Count	TCB Switches	QR CPU Time	Total CPU Time	CPU Savings (s)	CPU Savings (%)
DB91	10600	4.48m	2.95	18.9	9.48	50.3
DB95	10600	4.43m	3.51	43.1	9.4	21.8
DB96	10600	4.43m	3.5	43	9.39	21.9
DB94	10600	4.26m	2.88	18.8	9.03	48.2
DB90	10600	4.26m	2.74	17.1	9.03	52.7
DB93	10600	4.26m	2.74	18.9	9.03	47.7
DB92	10600	4.12m	2.71	22.1	8.73	39.5



# CICS Abend Analysis



# CICS CPU Region Constraints

https://zo.mybluemix.net/#/cpuConstraint

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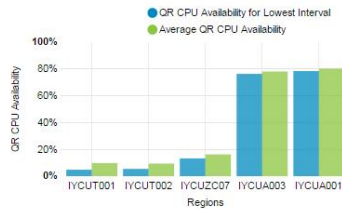
CICS Region CPU Constraints Report Sample data Aug 22, 2016 (14:00 - 14:30)

## LPAR Constraints

IBM recommends that regions with a QR CPU to Dispatch Ratio (QR CPU Availability) **below 70%** should be investigated for LPAR constraints. On Aug 22, 2016 (14:00 - 14:30) **3 regions** were potentially LPAR constrained.

**ICYUT001** was the lowest performing region, so we recommend starting the analysis there, and capturing data for a new analysis after any changes.

### 5 Regions with Lowest QR CPU Availability



### 5 Regions with Lowest QR CPU Availability

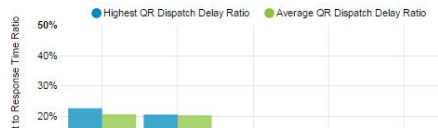
Region	QR CPU Availability for Lowest Interval (%)	Average QR CPU Availability (%)	Average Transaction QR Dispatch Time (ms)	Average Transaction QR CPU Time (ms)	Average Response Time (ms)	Average Suspend Time (ms)	Suspend (%)	Task Count
ICYUT001	4.8	9.77	0.631	0.0617	1140	1140	99.9	19700
ICYUT002	5.4	9.37	0.658	0.0616	1130	1129	99.9	19800
ICYUCZ07	13.3	16.2	0.145	0.0235	20.6	20.4	99.3	302000
ICYUA003	76.3	78.1	2.12	0.424	1293	1291	99.8	9517
ICYUA001	78.4	80.2	2.06	0.417	1194	1192	99.8	9916

## QR Constraints

IBM recommends that regions with a QR Dispatch Delay Ratio **above 10%** should be investigated for QR constraints. On Aug 22, 2016 (14:00 - 14:30) **3 regions** were potentially QR constrained.

**ICYUCZ07** was the lowest performing region, but there are LPAR constraints, so we recommend addressing these constraints before focusing on the QR constraints.

### 5 Regions with Highest QR Dispatch Delay Ratio



### 5 Regions with Highest QR Dispatch Delay Ratio

Region	Highest QR Dispatch Delay Ratio (%)	Average QR Dispatch Delay Ratio (%)	Average QR Dispatch Delay Time (ms)	Average Response Time (ms)	Task Count
ICYUCZ07	22.6	20.6	0.128	20.6	302000
ICYUT002	20.5	20.3	0.937	1130	19800
ICYUT001	15.3	15.1	0.913	1140	19700



# Thank You



Outthink status quo.



# z IT Operations Analytics Announcements

## Predictive analytics for proactive outage prevention

- **NEW: IBM Operations Analytics for z Systems v3.1**
  - The new release which now includes IBM zAware v3.1 as a software appliance
  - NEW: Inclusion of **IBM zAware v3.1** can now provide IOAz program insights with **anomaly detection** for faster problem determination and better proactive outage avoidance paired with **comprehensive root cause analysis** that provides recommended actions.
  - <http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?subtype=ca&infotype=an&apname=iSource&supplier=897&letternum=ENUS216-373>

## Operational efficiency, delivered in the cloud

- **NEW: IBM z Operational Insights** (z SaaS offering)
  - Cloud-based analytics with **embedded expertise from performance experts**
  - Just upload data to populate reports crafted by IBM performance experts
  - Get estimated savings, expert recommendations for actions, and comparisons to other users
  - <http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?subtype=ca&infotype=an&apname=iSource&supplier=897&letternum=ENUS216-220>

## IT Analytics your way: Smarter data handling

- **NEW: IBM Common Data Provider for z/OS v1.1**
  - A **single source** for z/OS Operational Data in a flexible, consumable format both on- and off-platform
  - Can supply data to IBM analytics solutions, as well as other analytics platform targets
  - Can supply faster DB2AA and IDAA loading of valuable z Systems data

