

# z/OS Academy

## Test on IBM zSystems Correlator & Navigator

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# Agenda

## Performance Testing Overview

- Why Performance Testing Matters on z/OS

- Personas

- KPI Common Patterns

- Detecting Transient Workload Performance Issues

## Correlator Data Generation

- Navigator Reactive Performance Diagnosis and Demo

- Navigator Proactive Performance Diagnosis and Demo

- Navigator Proactive Change Verification and Demo

- What can Navigator tell you about your workload?

# Performance Testing Overview

Evaluates speed, responsiveness, and stability for anything in a computer for a workload using Key Performance Indicators (KPIs)

- E.g. throughput, response time, and CPU time

Iterative process that:

- Measures workload
- Makes a change
- Measures workload
- Compares KPIs between measurements

Start: simulated, production-like, repeatable workload

End: production, variable workload.



# Why Performance Testing Matters on z/OS

Crit-sits and outages are costly to clients and IBM, both willing to invest building technology and growing skills to avoid and mitigate them

Subject Matter Experts (SMEs) want tools and techniques to reduce the time required to diagnose and mitigate active crit-sits and outages

SMEs want to proactively identify and diagnose workload resilience risks, so they have an opportunity to diagnose and mitigate them before they cause a crit-sit or outage

2020 IBM z Design Council (zDC) ranked “improved stack-wide monitoring and problem determination” as the second highest priority for z/OS

Market Development and Insights (MD&I) 2020 Systems and Cloud Buyer Behavior Study, the 71% said top-rated investment priority was “ensuring continuous operations for critical business services”.

MD&I survey on the resilience market space, 69% of respondents said they’re planning to increase or significantly increase their investment in IT resilience.

# Personas



## Tasks, Responsibilities and Key Jobs

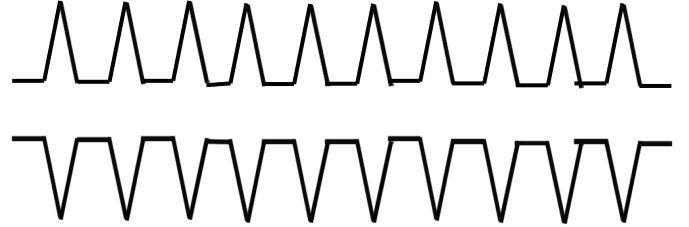
- Troubleshooting to ensure smooth operations of their system and that performance meets their business SLAs. Constantly battles against increased workload and performance bottlenecks to minimize operational costs.
- Handles any complex problems that operations team can not directly solve.
- Helps in the automation and creation of runbooks for the resolution to common problems by operations team without his assistance.
- Jim is responsible for the management of one or more key z systems subsystems, such as CICS or IMS. Ensuring applications are deployed correctly and operating to best possible level.
- Jim also performs problem determination when an issue related to system performance is reported to him.
- It's important to Jim to resolve problem as quickly as possible.

# KPI Common Patterns

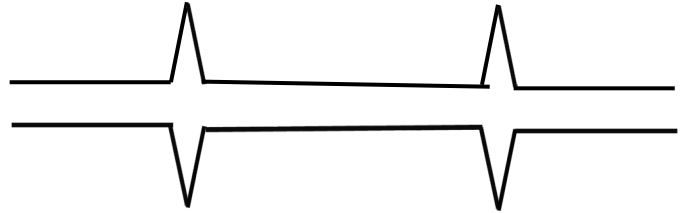
Flat line



Frequent significant peaks or valleys

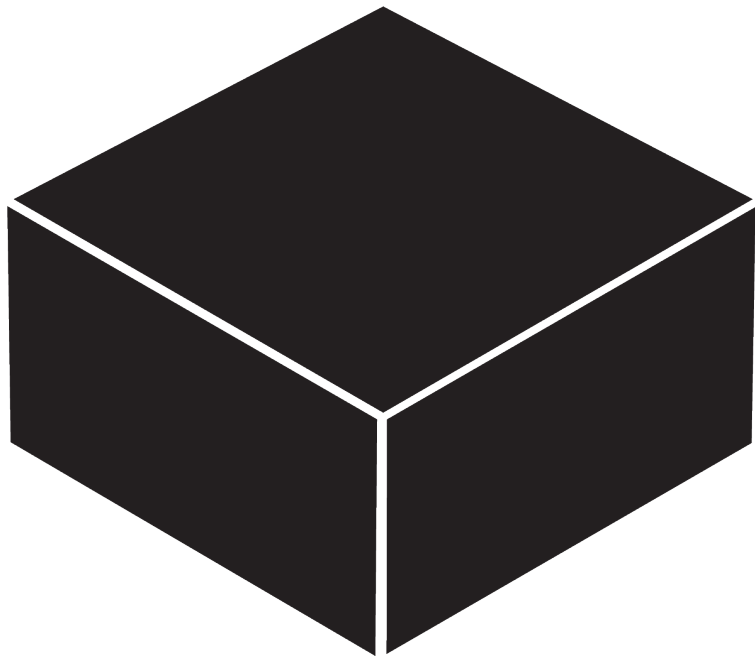


Transient significant peaks or valleys



More frequent data generation sharpens the KPI pattern, but often increases CPU and analysis costs

# Diagnosing Transient Workload Performance Issues Difficult



The workload is a black box because its data is:

## Noisy

Many workload components generate significant data -- inconsequential to the reported problem

Too Summarized – Overview data (e.g. 15/30 minute interval), averages lose transient issues

Too Detailed – Frequent per event data – cannot see forest for the trees

## Siloed

Single-component data generation and analysis - one puzzle piece at a time

Manual cross-silo correlation

## Costly

Recreates to collect new data or doc

Detail data requires a lot of CPU and storage to collect and analyze

Requires subject matter experts interpret results



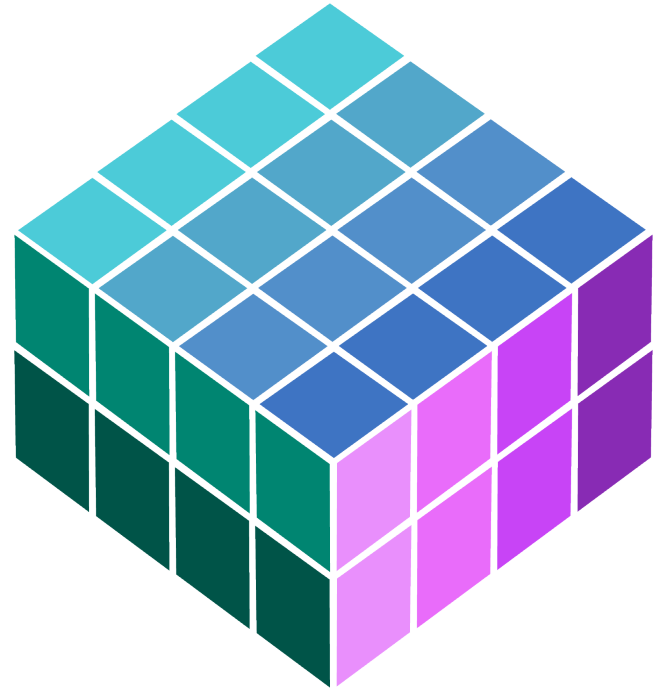
# Correlator Data Generation

IBM z/OS Workload Interaction Correlator enables z/OS components and middleware silos to generate **5-second** synchronized **micro-summary**, **exceptionalism** **enriched data**

[Correlator Entitlement](#) allows clients with an RMF license running z/OS 2.4 and above to **generate Correlator records at no additional charge.**

[IBM Flash](#) recommends all clients collect all available Correlator SMF records

In a variety of IBM z/OS workload benchmark environments, generating **IBM Correlator records did not measurably increase z/OS CPU overhead.**



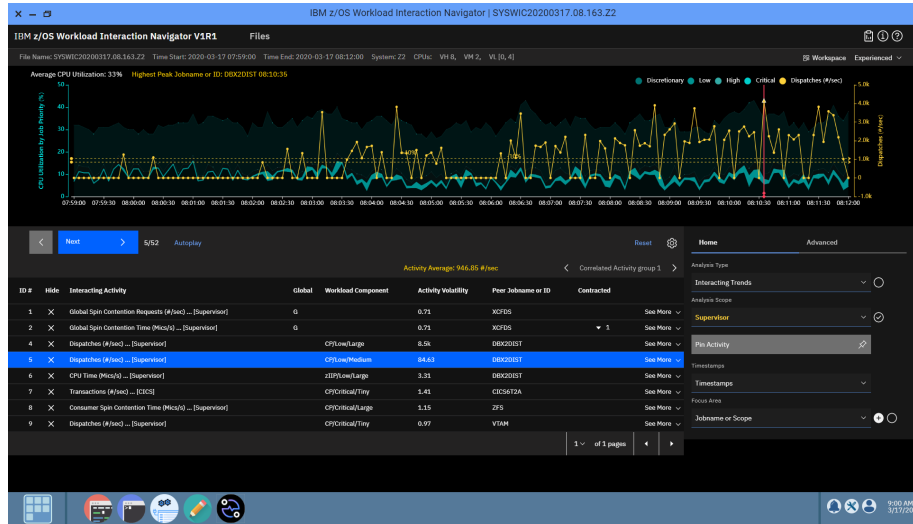
# Navigator Reactive Performance Diagnosis



IBM z/OS Workload Interaction Navigator delivers **Direct Intelligence** by identifying substantive *client specific* anomalies with context, and temporally correlating them across z/OS and Middleware silos, for a single system and across sysplex members, with **only 15 minutes** of Correlator data

Delivers prioritized and contextualized Problem Root Cause Insights

Help diagnose complex outages and crit-sits



Runs as an application in the IBM Z Distribution for Zowe™



Take a test drive with [Navigator zTrial](#)

# Navigator Demo

# Navigator Proactive Change Verification

Presents run-time execution differences between 2 up to 15-minute measurement intervals – best for similar workloads

- Best for, response time, and CPU time

Compare Correlator data before and after any change

DevOps rapid deployment of new applications

- Validate in test and production

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Software upgrades and maintenance

- New z/OS or middleware release
- z/OS or middleware service

Hardware upgrades and maintenance

- New machine
- Hardware service

# Navigator Proactive Change Verification Demo

# What can Navigator tell you about your workload?

Contact your IBM Representative to start a “Rapid POC” to:

1. Collect Correlator data from your environment
2. Have IBM experts analyze your Correlator data and playback the results
3. Uncover the power of the Navigator and see what it can do for you

# Questions?

# References

- [IBM Flash Recommends All Clients Collect All Available Correlator records](#)
- [IBM z/OS Workload Interaction Correlator Announce](#)
- [IBM z/OS Workload Interaction Correlator Entitlement Announce](#)
- [IBM z/OS Workload Interaction Navigator Announce](#)
- [IBM z/OS Workload Interaction Navigator Marketplace](#)
- [IBM Systems Magazine: Improve Workload Resilience With z/OS Workload Interaction Correlator and z/OS Workload Interaction Navigator](#)
- [Navigator Whitepaper](#)
- [Correlator / Navigator Introduction Video](#)
- [Navigator Single Interval Demo](#)
- [z/OS Workload Interaction Navigator zTrial](#)