

IBM z/OS 3.2

*Unlocking the potential of critical application
data through hybrid cloud and AI-infused
capabilities*

z/OS 3.2

Messaging and themes overview

IBM z/OS 3.2 unlocks the potential of critical application data through hybrid cloud and AI-infused capabilities

IBM z/OS 3.2, the next release of its flagship operating system for IBM Z, is designed for hybrid cloud and AI, including support for IBM z17, new AI-infused capabilities, and enhancements to simplify IT management. With IBM z17, the next release of z/OS is intended to fuel innovation and growth, secure clients' most important data, and automate and improve operational efficiency.

3.2 Overview



AI-infusion

Drive greater impact and deliver business growth with deep insights by using secure AI on critical data

Transforming for Efficiency

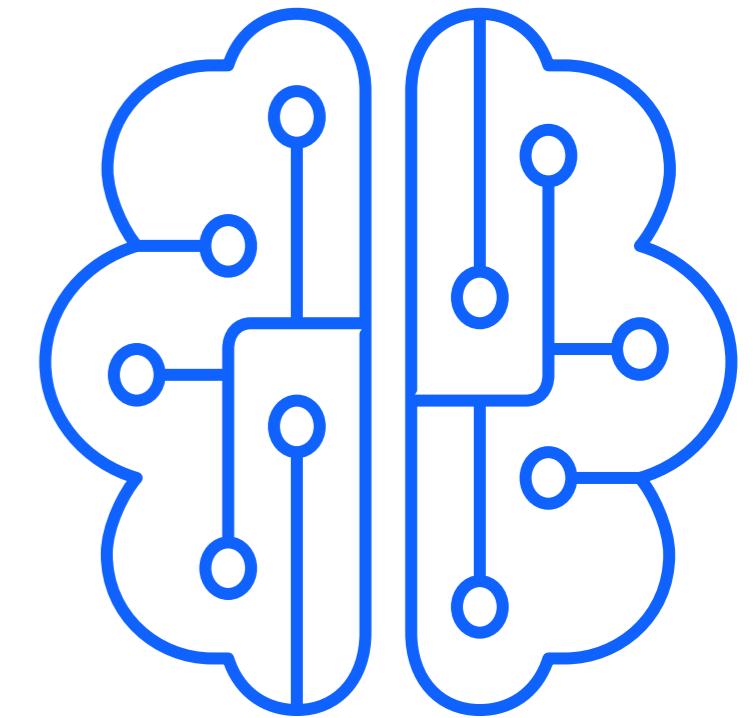
Leverage industry standard technology to efficiently build, deploy, and manage workloads

Cyber Resiliency

Strengthen security posture and leverage cyber resiliency capabilities to safeguard data

AI Infused z/OS

Drive greater impact and deliver business growth with deep insights by using secure AI to unlock the potential of critical data



Hardware AI Support

z/OS support for Telum II, IBM Z Integrated Accelerator for AI, and Spyre AI Accelerator to enable *AI capabilities for mission-critical transactions* to accelerate insights with near-zero latency, while ensuring data privacy and system availability.

AI Ecosystem Support

A robust ecosystem of AI functionality including *IBM AI Toolkit for IBM Z and IBM LinuxONE* and *IBM Db2 Analytics Accelerator*. Leverage *AI Framework for z/OS* to predict optimal packet batching providing a reduction in networking CPU utilization.

Predictive Insights via Python APIs

EzNoSQL Python APIs for sophisticated data analysis and predictive modeling for z/OS and core business applications, extracting value from critical data to derive predictive business insights.

Modern Access Methods via OAM REST APIs

DFSMS Object Access Methods (OAM) modernize access and management of unstructured data on z/OS, while allowing distributed environments simple access to core business data through industry standard *REST APIs*.

Transforming and Automating for Efficiency

Gain transparent, trustworthy insights, and leverage intelligent automation to efficiently manage z/OS and simplify technology infrastructures



Workload Manager (WLM) Policy Advisor

Significantly reduce technical complexity and skill requirements with guidance and recommendations through new *Workload Manager (WLM) Policy Advisor* functionality.

PARMLIB REST APIs Management Simplification

Greatly simplify the management of *PARMLIB* by driving automatic and consistent syntax validation of many z/OS PARMLIB members using *REST APIs*, reducing risks of errors with little skill or effort needed.

Software Update Installation Automation

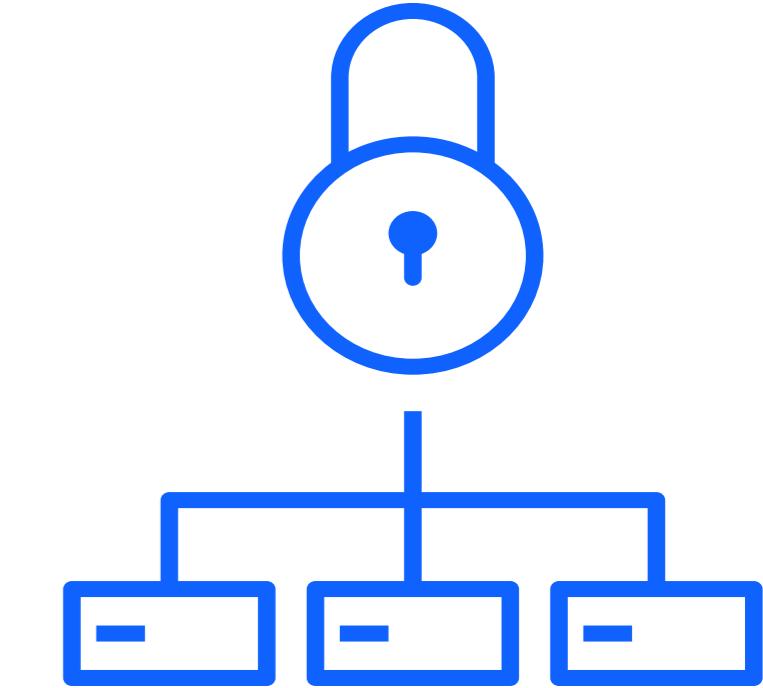
Enable the *automation of software update installations* with a new set of *REST APIs* added to the *z/OSMF Software Update application*, as well as implement a new application link that can instantly start a software update install process for an identified PTF from an external application.

Storage Management UI & REST APIs

A new set of *REST APIs and user interfaces* for storage management to create a consistent and intuitive interface to perform *z/OS storage management* tasks, reducing manual steps, skills, and time needed for new users to be productive.

Cyber Resiliency

Protect mission critical data by leveraging quantum-safe cryptography, pervasive encryption, integrity scanning, and simplified security management to discover security posture insights.



Pervasive Encryption Journey continues

Granular data set encryption support for several data types, along with support to move data without decrypting and uncompressed to progress the quantum-safe, pervasive encryption journey.

Threat Detection for z/OS Ecosystem Support

Ecosystem support for *IBM Threat Detection for z/OS* (TDz) to enable the use of data access-based threat detection AI, with *RACF userid containment*, to provide an additional mitigation option against potential cyberthreats.

Cryptographic Algorithms & Centralized Certificates

Stronger *crypto in-flight updates* on z/OS and provide *RACF-centralized digital certificates* with multiple altnames, to better serve emerging industry standards at scale.

Communications Server Sysplex Distributor

IBM z/OS Communications Server Sysplex Distributor technology to distribute work across multiple z/OS *Container Extensions* (zCX) instances, providing higher availability, scalability, and improved resilience to Linux containers on z/OS.

z/OS 3.2

Features and capabilities

AI on z/OS

With z/OS 3.2, we continue to infuse AI and analytic solutions into the operating system. Intelligent automation and recommendations provide valuable data insights and reduce skill requirements for system management.

Including:

- AI Framework for IBM z/OS
- *AI Infused Network Outbound Packet Batching
- z/OSMF WLM Policy Advisor

* 4Q25 target delivery

AI on z/OS 3.2

AI INFRASTRUCTURE

Enable AI on z/OS by installing **AI Framework for IBM z/OS**.

Use AI Control Interface (AICI), z/OSMF plugin, to manage AI functionalities on z/OS.

AI FUNCTIONALITIES

AI Powered WLM Initiator Management

Predict upcoming batch workloads and start up initiators proactively to optimize system resources and eliminate manual effort.

- AICI [Visualization of AI simulation*](#) boosts confidence in enabling AI for a specific batch service class.

[**AI Infused Network Outbound Packet Batching***](#)

Predict optimal outbound packet batching times to optimize the communications between the TCP/IP stack and the OSA (initially OSD only) network interface, providing a reduction in networking CPU costs with minimal impact to transaction latency.

[*New functionality;](#) Network packet batching intelligence is expected to be available 4Q2025.

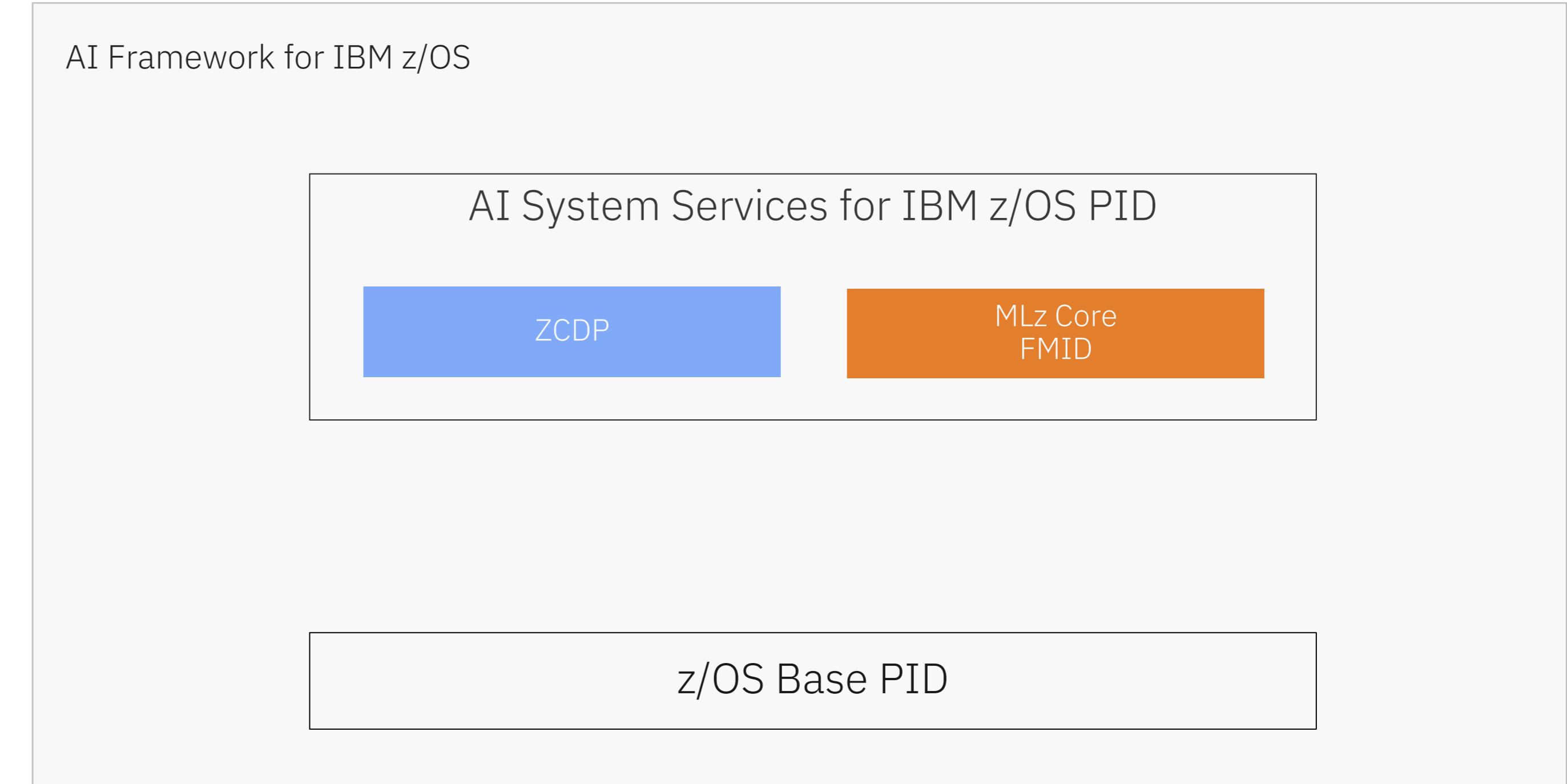
AI Framework | configuration

z Common Data Provider (ZCDP) and Machine Learning for Z (MLz) are supporting components of the AI Framework stack

To configure AI Framework, download zero-priced

[AI System Services for z/OS 1.2](#)
product (5655-164) from ShopZ.

If [AI System Services for z/OS 1.1](#) is installed, use upgrade workflow to apply the latest release.

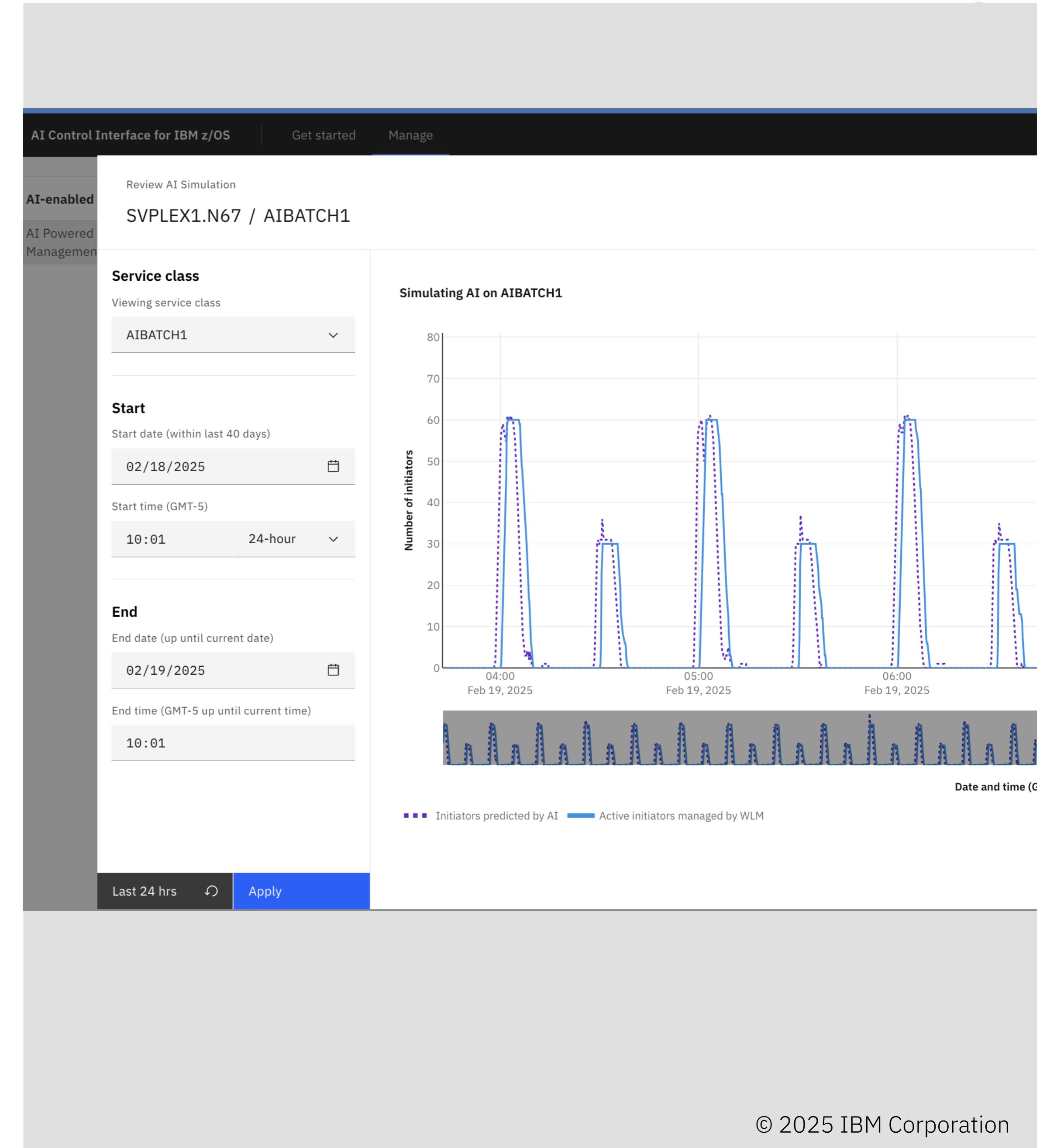


AI Powered WLM Initiator Management

- AI provides WLM with knowledge about upcoming workload
- Fosters proactive start and faster ramp up of WLM initiators
- AI modes available at batch service class level: *disable*, *enable* and *simulate*

Simulation mode visualization helps to:

- build confidence with AI model
- determine if AI uncovers patterns in workload
- explore AI decisions



AI Powered WLM Initiators | Simulation mode visualization

AI Control Interface for IBM z/OS Get started Manage   

AI-enabled tools (1) <
AI Powered Workload Management ✓

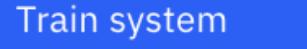
AI Powered Workload Management / N67 / ← →

N67

Shown are **service classes** for **N67** that you can enhance with an AI model for **Initiator Management**.

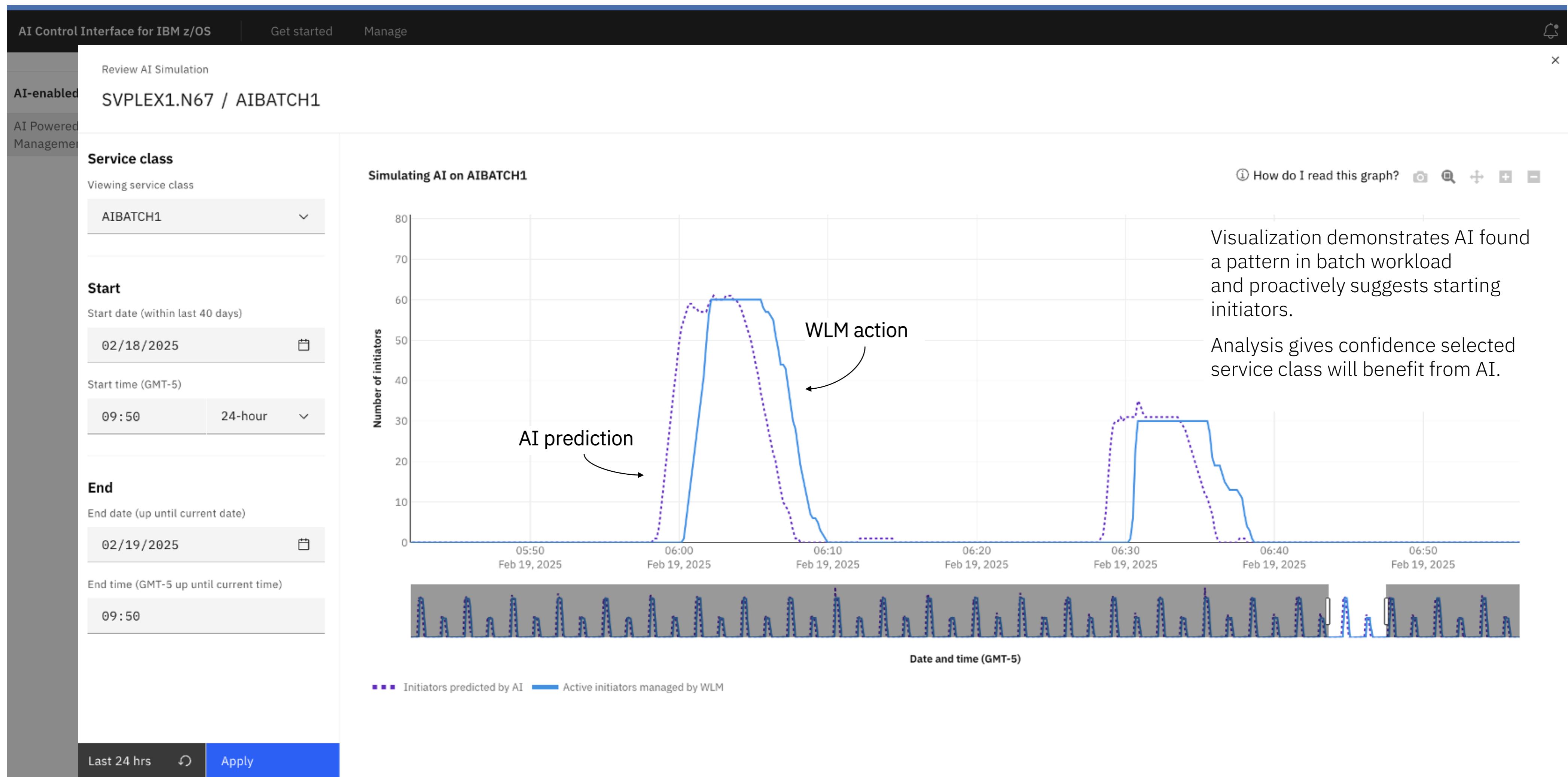
Last trained: Feb 17, 2025, 5:51:36 PM Last refreshed: Feb 19, 2025, 9:57:59 AM

Service class (batch work)	Training status	AI performance metrics	AI mode	Actions
AIBATCH1	Trained	Review results	Simulating	⋮
AIBATCH2	Trained	Review results	Simulating	⋮
AIBATCH3	Trained	Review results	Simulating	⋮
AIBATCH4	Trained	Not applicable	Enabled	⋮
AIBATCH5	Trained	Not available	Disabled	⋮

Search   



AI Powered WLM Initiators | Simulation mode visualization

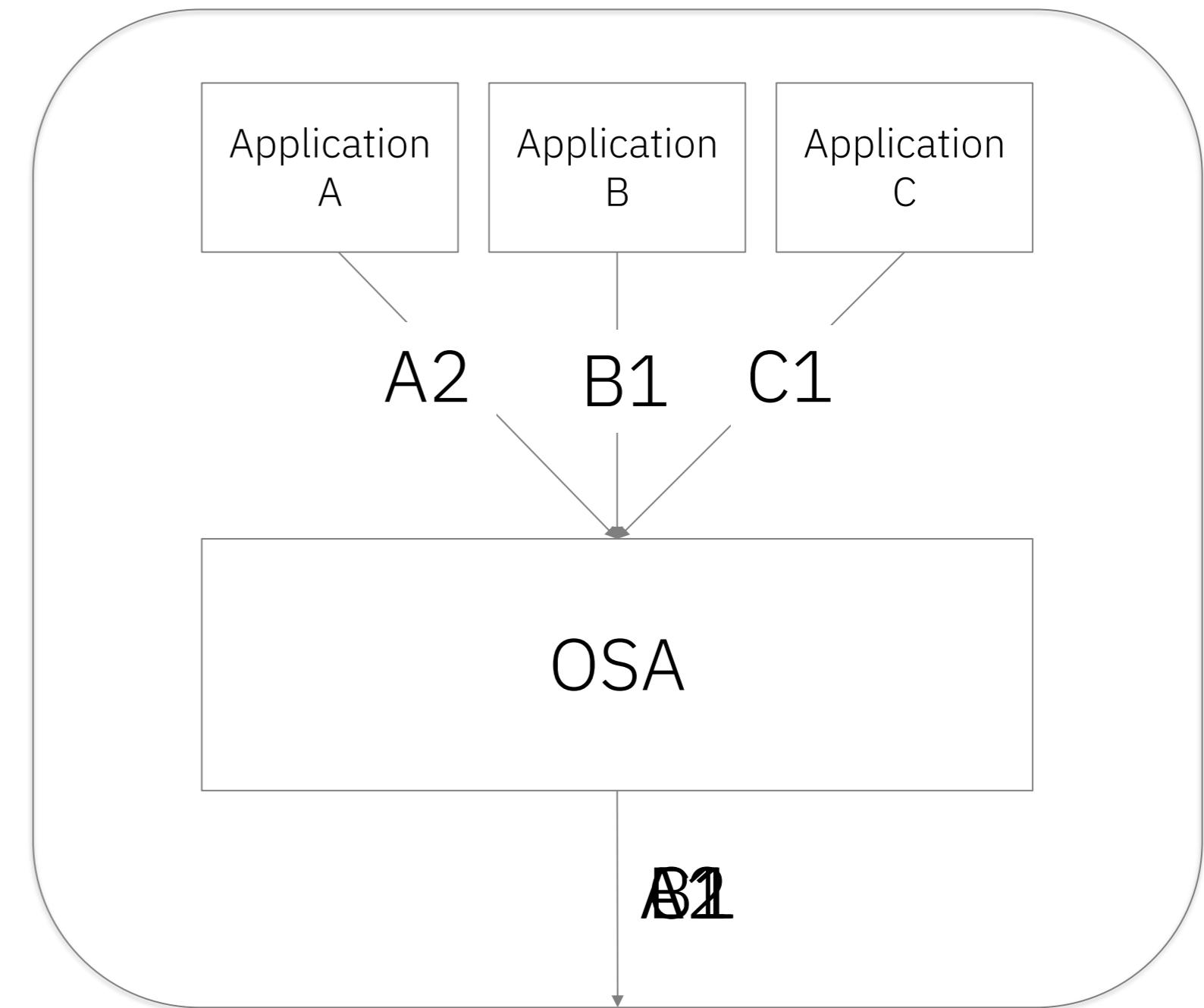


Network Packet Batching

Current User Experience

As data sent by applications is processed by TCP/IP stack, network interface is signaled

- Each interaction with network interface incurs some CPU consumption



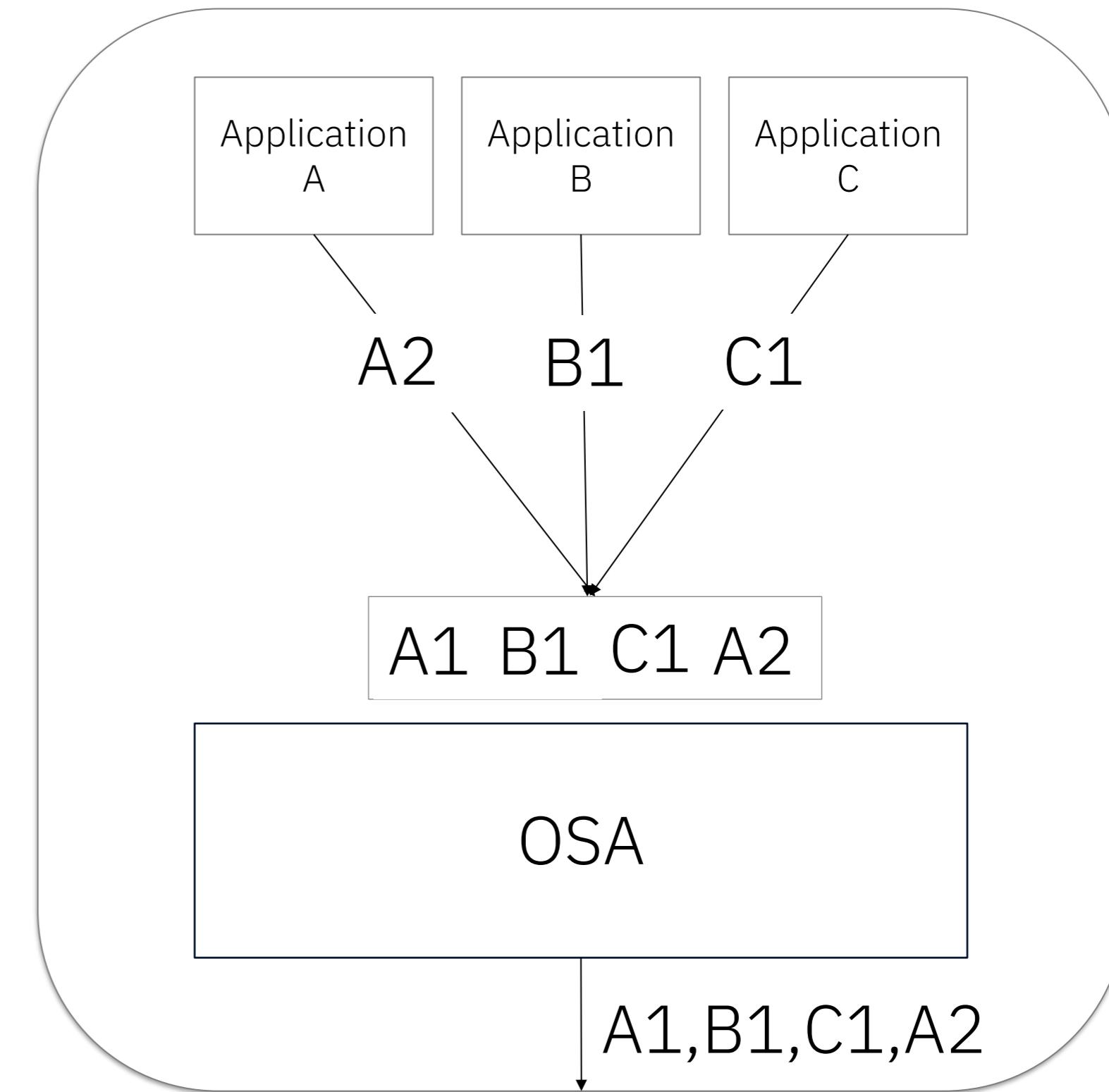
AI Infused Network

Outbound Packet Batching

With **AI Infused Network Outbound Packet**

Batching, as data sent by applications is processed by TCP/IP stack, queue packets destined to same network interface and signal network interface with the batch of packets.

- **Reducing interactions** with network interface should reduce network CPU consumption.



WLM Policy Advisor

WLM Policy Advisor

Best practices and guidance for policy configuration

A view in the WLM z/OSMF plugin that:

- analyzes your WLM policy and SMF performance data
- investigates improvement areas based on performance data
- provides guidance and recommendations to improve existing policies
- assists new users in understanding WLM policies and impacts

The screenshot shows the 'IBM WLM Policy Advisor' interface with the title 'Policy Advisor - CAPPROV'. The main area is titled 'WLMPOL01 / Overview'. It displays 'Loaded performance data' with details: Datasets loaded (WLM.WLMPA.PET.DT230309.SMF723), Service policy (WLMPOL01), Systems (J90), and Dates (2023-03-09). Below this is a 'Recommendations' section with tabs for 'Service classes' (14) and 'Classification rules' (1). A note states: 'What do these findings mean? Unused: The service class is not referenced by any classification rule and is therefore considered unused.' A table lists service classes with their findings and recommendations:

Service class	Workload	Service class periods	Findings	Recommendation
C225%001	CICS	1	Unused	Review and remove
CI0001	CICS	1	Unused	Review and remove
CI1V60	CICS	1	Unused	Review and remove

Overview page

WLM Policy Advisor

Best practices and guidance for policy configuration

z/OS 3.2 WLM Policy Advisor:

1. delivers an improved user experience
2. provides support for uploading multiple SMF data sets
3. informs which service classes should be reviewed first
4. exposes service class periods that need to be redefined
5. offers insights on the classification rules improvement
6. improves Performance Index analysis view

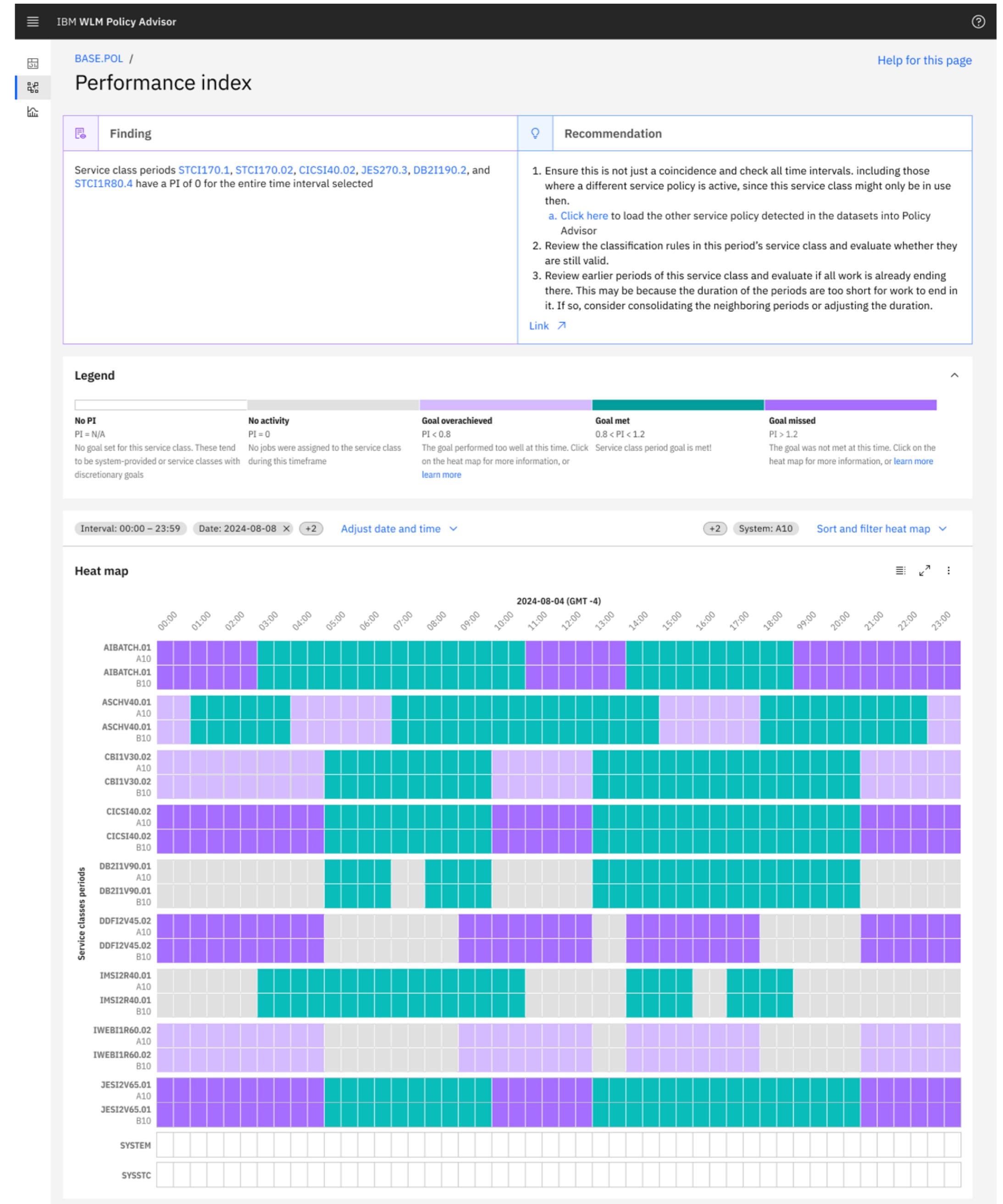
The screenshot shows the 'Policy Advisor - CAPPROV' window. At the top, it displays the service definition 'CAPPROV', description 'zPET: CapProvisioning SD Backup', last modified date 'Thu Nov 28 09:47:58 GMT 2024', and last modified by 'flraig'. On the left, a sidebar lists options: 'Search and select datasets' (selected), 'Select a service policy', 'Select systems', 'Select dates', and 'Verify selected record parameters'. The main area contains a search bar with the query 'wlm.wlmpa.pet.*' and a 'Search' button. Below the search bar is a list of selected datasets: 'WLM.WLMPA.PET.D2303AB.SMF723' and 'WLM.WLMPA.PET.DT230309.SMF723'. A message at the bottom of this list states: 'To use Policy Advisor, you must load SMF 72.3 performance data that was gathered while the selected WLM service definition was active on your system.' At the bottom right of the main area is a blue 'Scan SMF data' button.

Multiple SMF data sets upload

WLM Policy Advisor

Performance Index View

1. PI heatmap enables system-to-system comparison
2. Enhanced filtering and sorting
3. Integrated Findings and Recommendations
4. Improved User Experience and navigation



OS Management Simplification

z/OS 3.2 continues to embrace industry standards to optimize and simplify technology infrastructures and operations with modernized applications and APIs to consistently build, deploy, manage, and automate the management of the operating system to help guide the next generation of system programmers.

Including:

- z/OSMF
- Sysplex Management
- z/OSMF Desktop
- Workflows
- APIs
- IBM z/OS Change Tracker
- z/OSMF ServerPac and Upgrade Workflows
- z/OSMF Ansible Collection

z/OS Management Facility (z/OSMF)

A modern web-browser based management console for z/OS

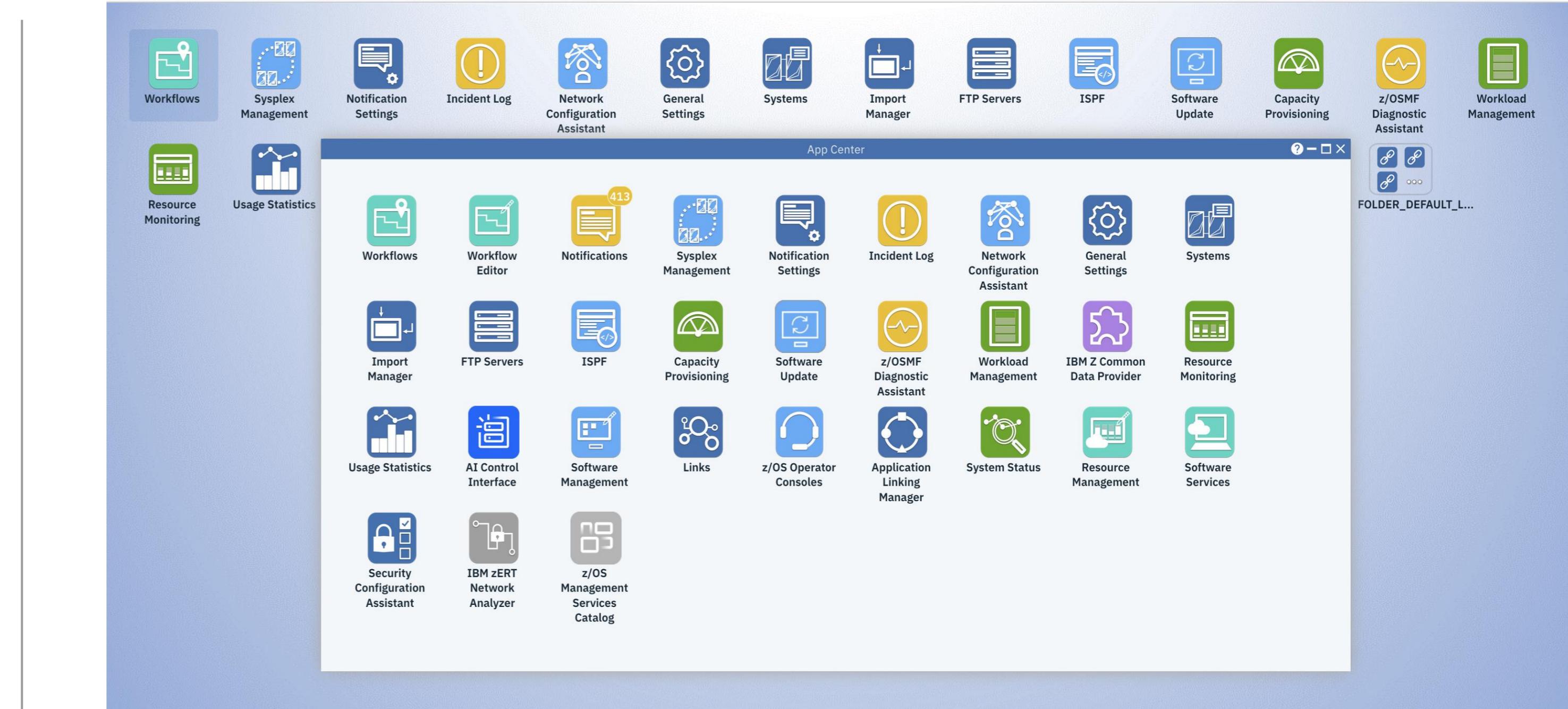
**z/OSMF Trials
currently available!**

z/OSMF helps system programmers more easily manage and administer a mainframe system by simplifying day to day operations and administration of z/OS system.

More than just a graphical UI, z/OSMF addresses the needs of a diversified skilled workforce:

- Automated tasks and APIs help reduce the learning curve and improve productivity.
- Embedded active user assistance to guide you through tasks and helps provide simplified operations.

For more information, visit [the z/OSMF One Stop Hub](#) 



With z/OS 3.2, the range of enhancements include:

- z/OSMF Desktop enhancements to perform data set and z/OS Unix file actions on a remote system in a different sysplex, as well as greater dataset and member attributes now shown.
- New APIs to simplify the management of PARMLIB by driving automatic and consistent syntax validation, and new REST APIs to enable the automation of software update installations
- z/OSMF Software Update now displays a list of received PTFs and associated source IDs, both from which a user can select one or more for installation.

New REST API for Parmlib Management

Greatly simplify the management of Parmlib

New REST API to help simplify the management of parmlib by driving automatic and consistent syntax validation of many z/OS parmlib members.

- The new z/OSMF Parmlib Management plugin is a common parser that is able to understand the syntax format description of several parmlib members, no matter how different the syntax format is
- An end user can validate the syntax of most z/OS parmlib member types (38 different types in first release) with a single REST API, without needing to understand the syntax format

Use cases include:

- Validate syntax of a specific member for a Parmlib type.
- Content of Parmlib member can be attached directly in the request body or specified via data set & member parameters
- Validate active members of a specific Parmlib based on specified LOADxx.
- Validate active members of all supported Parmlib based on specified LOADxx.

Example 1: Validate active members of BPXPRMxx based on active LOADxx
Request URL: PUT https://zosmfHost/zosmf/parmlib/v1/**BPXPRM**/validate
Response:

```
{  
    "result": "failed",  
    "numberOfMembers": 5,  
    "numberofFailedMembers": 1,  
    "parmlibDatasets": [  
        {  
            "volser": "CMNST1",  
            "dataset": "USER.PLX6.TFIX.PARMLIB"  
        },  
        {  
            "volser": "CMNST1",  
            "dataset": "USER.V3R1.PARMLIB"  
        },  
        {  
            "volser": "CMNST1",  
            "dataset": "USER.PLX6.PARMLIB"  
        },  
        {  
            "volser": "CMNST1",  
            "dataset": "SVT.COMMON.PARMLIB"  
        },  
        {  
            "volser": "CMNSTC",  
            "dataset": "SYS1.PARMLIB"  
        }  
    "details": {  
        "BPXPRMxx": [  
            {  
                "member": "BPXPRMST",  
                "dataset": "SVT.COMMON.PARMLIB",  
                "specifiedVia": [  
                    "SYS0.IPLPARM(LOAD16)",  
                    "USER.PLX6.PARMLIB(IEASYMX6)",  
                    "USER.PLX6.PARMLIB(IEASYSX6)"  
                ],  
                "validationResult": "success"  
            }  
        ]  
    }  
}
```

How many active members we found

Parmlib data sets

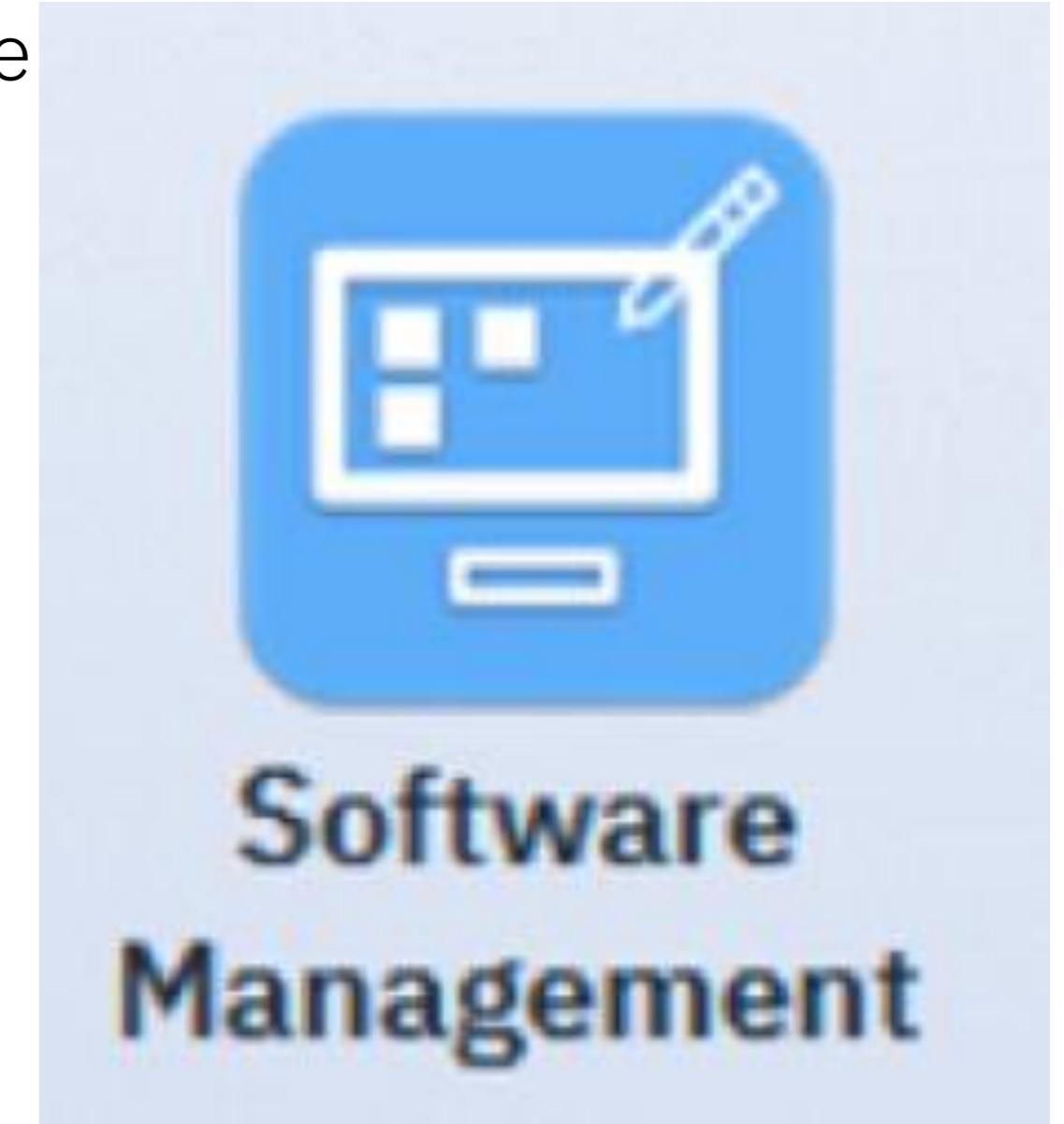
Active member & its Data set

Parmlib chain

z/OSMF Software Management

Installation of z/OS 3.2 via z/OSMF Portable Software Instance

- z/OS 3.2 continues to use z/OSMF for a simplified installation path
 - Manages allocation and placement of data sets, cataloging, and deployment in z/OSMF Software Management
 - Customization and verification is done in z/OSMF Workflows
 - Data set merge and disconnect master catalog on driving system
 - Remove temporary catalog aliases are supported
 - Add new Master Catalog and re-using existing user catalogs
 - REST APIs to run missing critical updates, missing FIXCAT updates, and software update search, and installing fixes.
 - Sample Ansible playbooks are available for these functions from the `ibm_zosmf` collection.
 - A new UUID fetchable from a running z/OS can be used to locate the corresponding SW Instance on an active system
- IBM (and participating major ISVs) deliver z/OSMF Portable Software Instances as a common installation method for z/OS stack software
 - IBM z/OS, IMS, Db2, and CICS Transaction Server and associated products, all can be installed with z/OSMF today. CBPDO remains available.

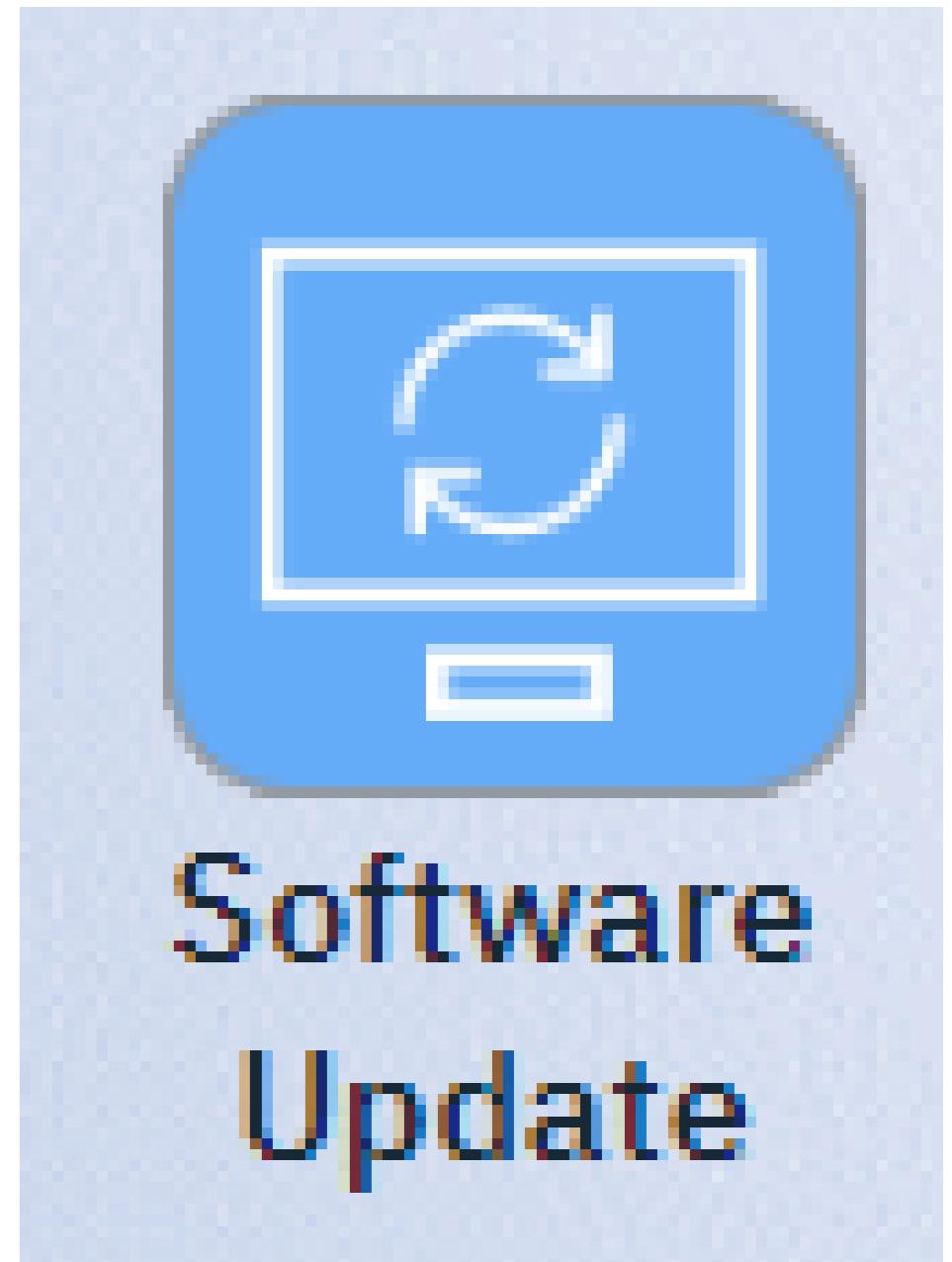


z/OSMF Software Update

Install corrective, recommended, and functional updates to your system

z/OSMF Software Update now supports three updated use cases for Install Corrective Updates:

- 1. Install by name.** Install individual software updates to fix a problem.
- 2. Install by Source ID.** Install a group of updates by their Source ID. All software updates that are recommended by software vendors are pre-selected.
- 3. Install by Fix Category.** Install software updates to support new hardware, software, or functions identified with a SMP/E FIXCAT.



New REST APIs for z/OS 3.2

Enable the automation of software update installations with a new set of REST APIs, as well as a new application link that can instantly start a software update install process for an identified PTF from an external application:

- **Start** a software update process
- **Retrieve** the status of a software update process
- **Resume** a suspended software update process
- **Cancel** a software update process
- **Copy** the output for a completed software update process



z/OS Upgrade Workflows

Upgrade to z/OS 3.2 and IBM z17 easily

IBM is making continual enhancements to z/OS Upgrades to making upgrading to the latest release easier by reducing manual steps.

- z/OSMF z/OS 3.2 *Upgrade Workflow* ***is part of and is serviced with z/OS***
 - Use ***z/OS 3.2 Upgrade Workflow*** directly from your z/OS system in /usr/lpp/bcp/upgrade.
- ***z17 Upgrade Workflow*** has been separated from the z/OS Upgrade Workflows and is also shipped in the same location.
 - Find the Workflow update PTFs with SMP/E FIXCATs ***IBM.Coexistence.z/OS.3.2*** or ***IBM.Device.Server.z17-9175.RequiredService***
- New enhancements for z/OS Upgrade Workflows:
 - Assistance with coexistence service verification
 - Help with identifying those upgrade actions already performed during the service cycle
 - Step ordering is now chronological

Depending on whether you are upgrading to z/OS 3.2 from V2.5 or 3.1, or upgrading to IBM z17, simply select the workflow that applies to your upgrade path and open it in z/OSMF to begin the upgrade process. Continued enhancements still allow for discovering functions used, tailoring information specific to your system, and verification of many upgrade action.



z/OSMF Ansible collection “ibm_zosmf”

Red Hat Ansible Certified Content for IBM Z

The IBM z/OSMF Ansible collection provides a simple and consistent experience for Ansible users to drive z/OSMF REST APIs for z/OS operations and automation.

The “ibm_zosmf” collection drives z/OSMF REST APIs, including:

- Drive a z/OSMF workflow to complete, Delete a workflow instance, Query workflow status, etc.
- Provision or deprovision a z/OS middleware/software instance, start or stop the software instance, etc.
- Security validation based on SCA
- Security fix/provision based on SCA
- Software query, reports, and installing fixes, based on z/OSMF Software Management
- Run missing critical updates, missing FIXCAT updates, and software update search
- A new UUID fetchable from a running z/OS to locate the corresponding SW Instance on an active system
- The ability to automate the installation of specified software updates on software instances and zones.



Available on both the [Ansible Galaxy](#) and [Red Hat Ansible Automation Hub](#)

IBM z/OS Change Tracker

Software solution for system management

z/OS Change Tracker is a comprehensive configuration change management tool for tracking, controlling, and comparing changes in software across the z/OS platform to achieve a more secure, resilient IT system.

IBM z/OS Management Facility
z/OSMF

Welcome to z/OS

The highly secure, scalable and resilient enterprise operating system for the IBM z Systems mainframe.

z/OS USER ID

z/OS PASSWORD

LOG IN

Shop

IBM Support

z Systems Redbooks

z/OSMF Home Page

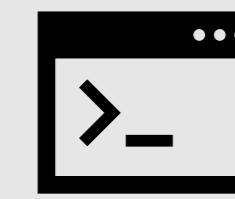
WSC Flashes and Techdocs

z/OS Home Page

IBM z/OS documentation

Home page

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Real-time, system-wide change tracking & control for system libraries



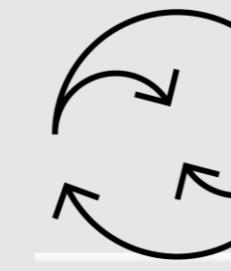
Identify and protect against undesired configuration changes



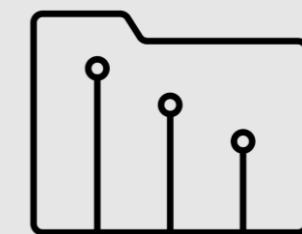
A 90-day self-service trial is now available via APAR PH51954



Compare data sets and volumes to quickly find member-level changes, additions, and deletions



Member-level backups and recovery for rollbacks with automatic data set versioning



Comprehensive reports on system configuration changes to satisfy audit and compliance requirements.



Application Modernization

z/OS 3.2 is designed for clients to leverage industry standard technology to increase development velocity and modernize their applications with new environments and APIs to consistently build, deploy, and manage workloads, both Linux and z/OS, across a hybrid cloud environment:

Including:

- z/OS Container Extensions (zCX)
- zCX Foundation for Red Hat OpenShift
- Network file system (NFS)
- Union file system (UFS)
- Proc file system
- z/OS file system (zFS)
- COBOL-Java interoperability for Db2
- IBM Semeru 21 support
- z/OS UNIX System Services

z/OS Container Extensions

Run Linux containerized workloads on z/OS

z/OS Container Extensions provides a virtual appliance for running Linux on Z workloads on z/OS 3.2:

- The **same binary** container images that run on Linux on Z under z/VM or KVM will run in zCX
- No porting is typically required from Linux on Z

Scalable to:

- Up to 64 servers per z/OS image
- Up to 1 TB of guest memory per server
- Up to 245 virtual devices per server
- Disk devices up to 1TB each
- Up to 1000 containers per server
- zIIP eligibility - 98%+ zIIP offload in lab measurements

zCX Standard is now available at no additional charge with z/OS 3.2!



IBM zCX Foundation for Red Hat OpenShift (zCX for OpenShift)

Run Red Hat OpenShift on z/OS using zCX

Enterprise-ready Kubernetes	Inherit Disaster Recovery	Operational management consistent with z/OS	Co-location (off platform)
<p>zCX for OpenShift leverages Red Hat OpenShift, which is an enterprise-ready Kubernetes container platform built for an open hybrid cloud strategy. It provides a consistent application platform to manage hybrid cloud, multi-cloud, and edge deployments.</p>	<p>zCX Foundation for Red Hat OpenShift benefits from z/OS Qualities of Service (QoS) and provides automatic, integrated restart capabilities for site failures (using z/OS DR/GDPS).</p>	<p>zCX Foundation for Red Hat OpenShift has consistent operational management that is in line with z/OS, making it a seamless integration to leverage zCX Foundation for Red Hat OpenShift in your current z/OS environment.</p>	<p>zCX Foundation for Red Hat OpenShift provides the opportunity to co-locate certain applications and workloads closer to z/OS. This allows applications accessing z/OS data to be as close as possible and help minimize network latency.</p>

With z/OS 3.2, clients can benefit from sysplex distributor support for highly available, load-balancing solutions, running on top of zCX Foundation for Red Hat OpenShift.

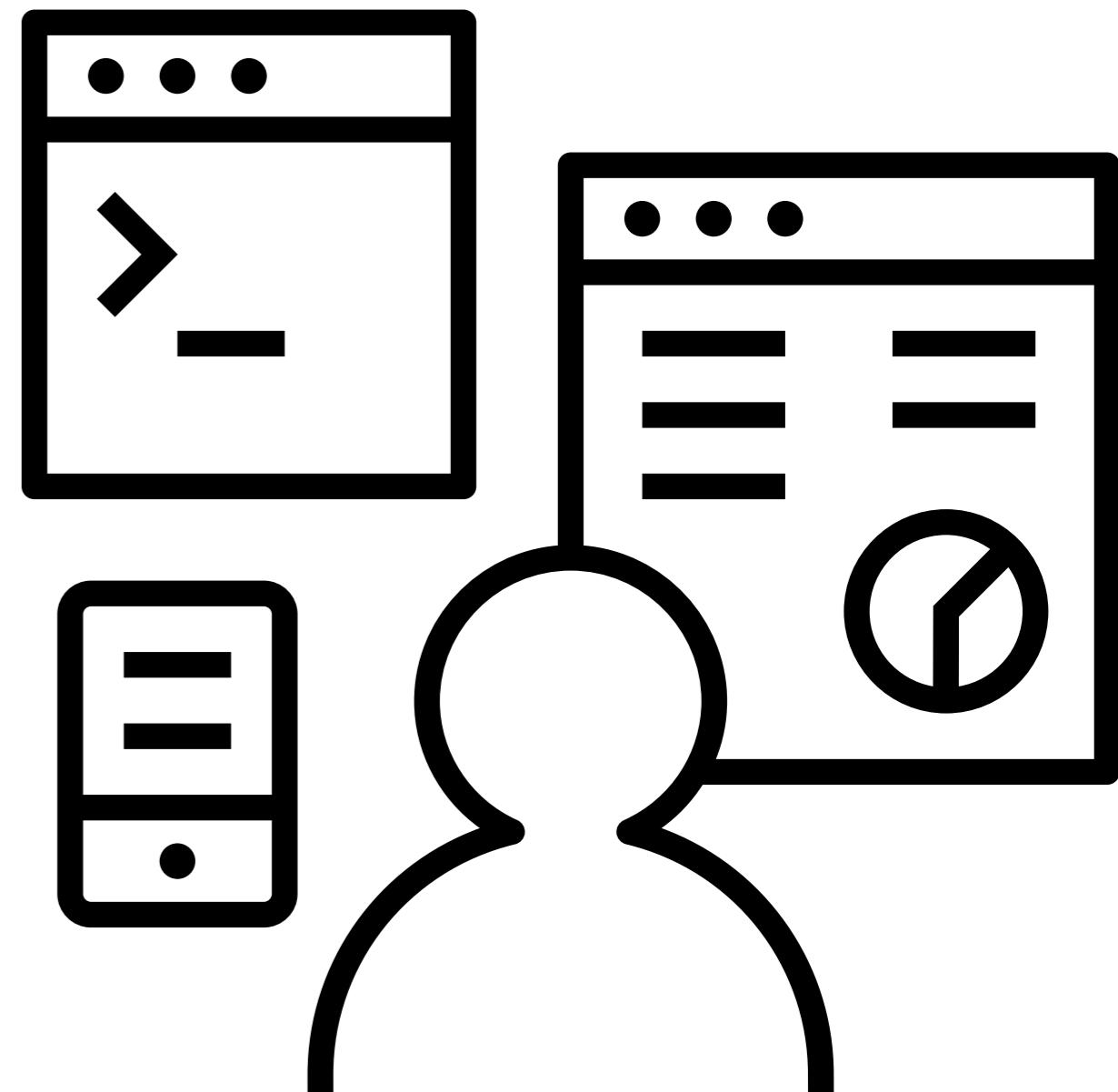


For more information, visit [the zCX for OpenShift content solution](#) page.

COBOL-Java Interoperability

Modernize existing high-level language applications, such as COBOL/Java™ interoperability, with support to manage parallel 31-bit and 64-bit addressing modes within the same address space.

This enables application developers with full application transparency, simplifying enterprise application modernization.



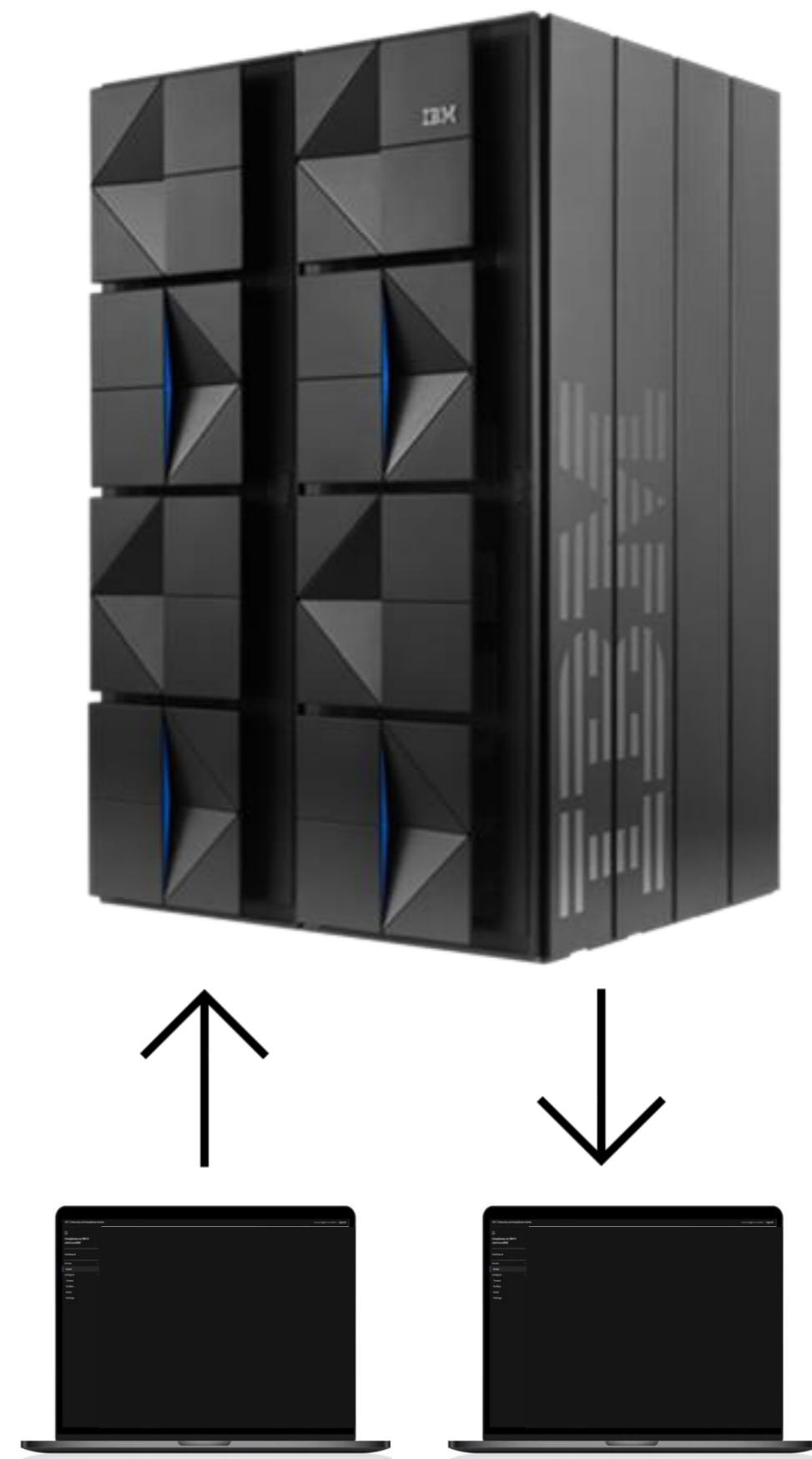
With z/OS 3.2:

- IBM Semeru Runtime Certified Edition for z/OS, version 21, is the latest Java SDK release on z/OS, delivering a high performance Java runtime and development kit that supports Java 21 Standard Edition specification.
- In addition, z/OS Language Environment has introduced a framework called Java Interlanguage Batch (JIB) that allows for the sharing of a Db2 connection in a 31/64-bit (COBOL/Java) interoperability environment, for applications invoked in batch, with transactional integrity as part of a single Unit of Work (UOW).
- As clients embark on their hybrid cloud and AI journey on IBM z/OS, Semeru 21 enables clients to use the latest Java language features, improved performance, and enhanced security for their workloads on-premise and across cloud platforms.

Network File System (NFS) for z/OS

z/OS 3.2 has provided enhancements to both the NFS server and NFS client support, including:

- Enhanced security by providing non-interactive login without specifying a password on the command line. With this new support, the **mvslogin** command can now load login information from netrc files or do a password-less certificate-based login using x509 certificates.
- The z/OS NFS server has been enhanced to allow the unmounting of mountpoints on a per NFS client basis.
- The z/OS NFS server **modify** operator command and the **nfsstat** utility have both been enhanced to display the file system IDs of mount points.



Union File System (UFS)

z/OS 3.2 has provided a UFS that works on top of other file systems:

- It enables a user to obtain a merged view of one or more directories.
- Gives a single coherent and unified view of files and directories.

Union file systems are used extensively by containers.

- They allow many containers to use one image without having to make multiple copies, thereby saving on disk space.

Rather than porting, this UFS is purposefully built for and integrated into z/OS.

Proc File System

z/OS 3.2 has provided the Proc file system, a virtual file system in that presents information about processes and other system information in a hierarchical file-like structure:

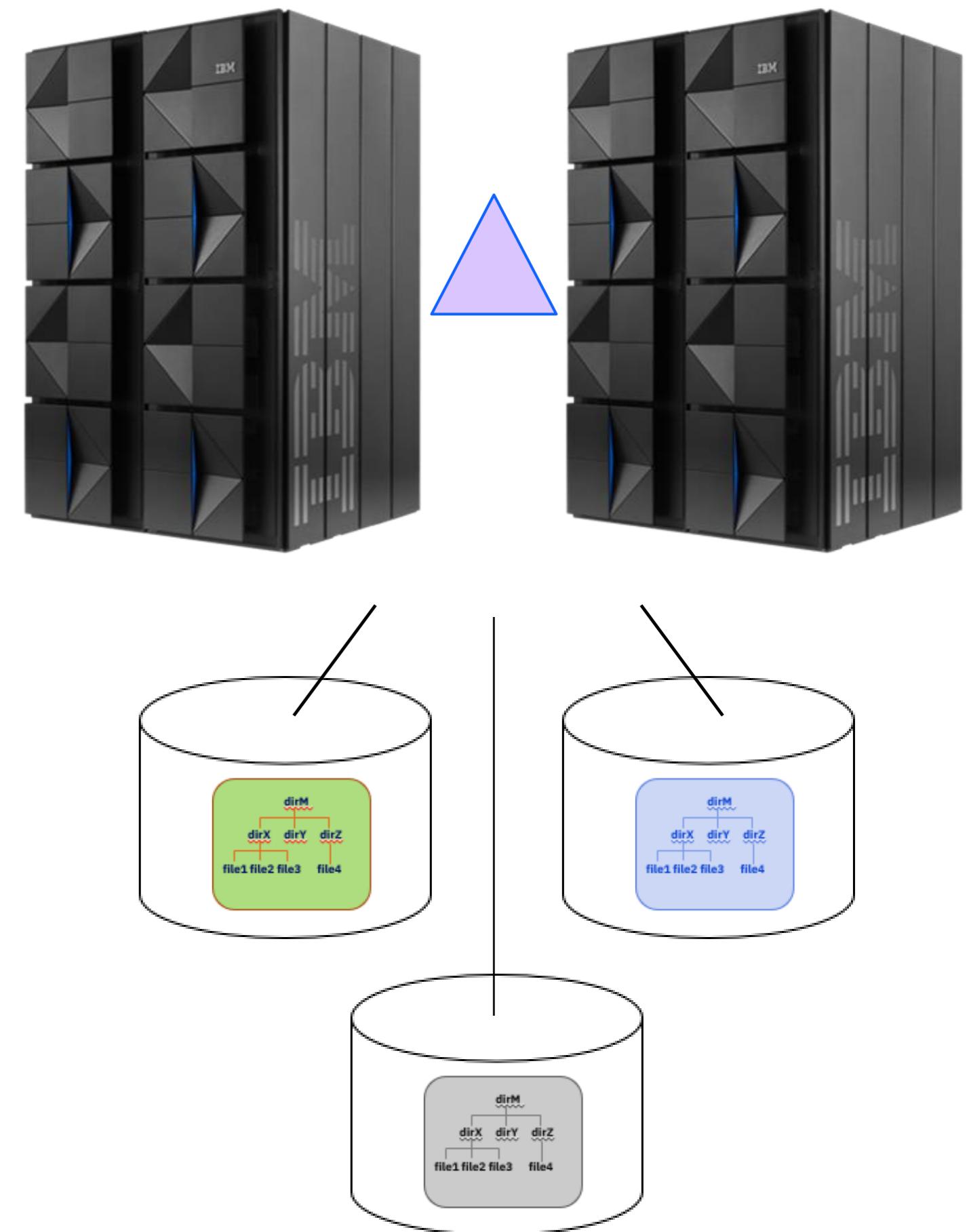
- This idea is an extension of the UNIX concept of viewing everything as a file or in a directory
- Implemented as a read-only file system, providing a more convenient and standardized method for dynamically accessing process data.

Rather than porting, the proc file system is purposefully built for and integrated into z/OS.

z/OS File System (zFS)

z/OS 3.2 has provided multiple enhancement to the zFS shrink function (DASD space reclamation) that satisfy customer requirements. These include:

- The ability to shrink zFS file systems that are mounted read-only and to shrink zFS file system that are not mounted.
- Multiple zFS file systems can be shrunk using wild-carding capability (similar to many other zFS administration tasks)
- The ability to specify disk space requirements for the file system after the shrink action.



z/OS UNIX System Services

z/OS 3.2 has provided a significant number of new callable services (APIs) available in the C and assembler languages and the Linux concept of namespaces for isolation and virtualization:

- Many of these APIs are part of a new Unix Standard or are available as part of a modern Linux distribution and useful for any new application being ported or written to the z/OS UNIX environment.
- z/OS UNIX has implemented the PID, IPC, UTS and Mount namespaces, primarily exploited by containers.

z/OS 3.2 has also provided new utilities:

- **ldd**: A purpose-built utility to display shared object file dependencies for executables. Modeled after its UNIX/Linux counterpart, it helps in debugging and validating library dependencies when moving executables across systems. This utility is specifically designed to work with Language Environment and the Program Management Binder on z/OS.
- **lsns, nsenter, unshare**: Utilities that help manage namespaces
- **flock** and **shlock**: Utilities that locks from within shell scripts or from the command line.

Finally, z/OS 3.2 provides a new File System Health Check that allows customers to set up their z/OS UNIX file system and directory structure according to IBM best practices, whether the system is part of a sysplex or not.

Security

z/OS delivers functionality to protect mission-critical data by leveraging quantum-safe cryptography, pervasive encryption, integrity scanning, and simplified security management to uncover security posture insights. With additional simplification enhancements and compliance support, z/OS 3.2 enables clients in leveraging functions such as the following:

- z/OS Authorized Code Scanner and Monitor
- Integrated Cryptographic Service Facility (ICSF)
- Resource Access Control Facility (RACF)
- Data Set Encryption Support
- z/OS Encryption Readiness Technology (zERT)

IBM z/OS Authorized Code Scanner (zACS) and Monitor

Authorized (critical) code needs a purpose-built scanner

IBM z/OS provides, as an optional priced feature, an authorized code scanner of Program Call (PC) and Supervisor Call (SVC) routines for development and test environments.

The scanner searches for potential vulnerabilities

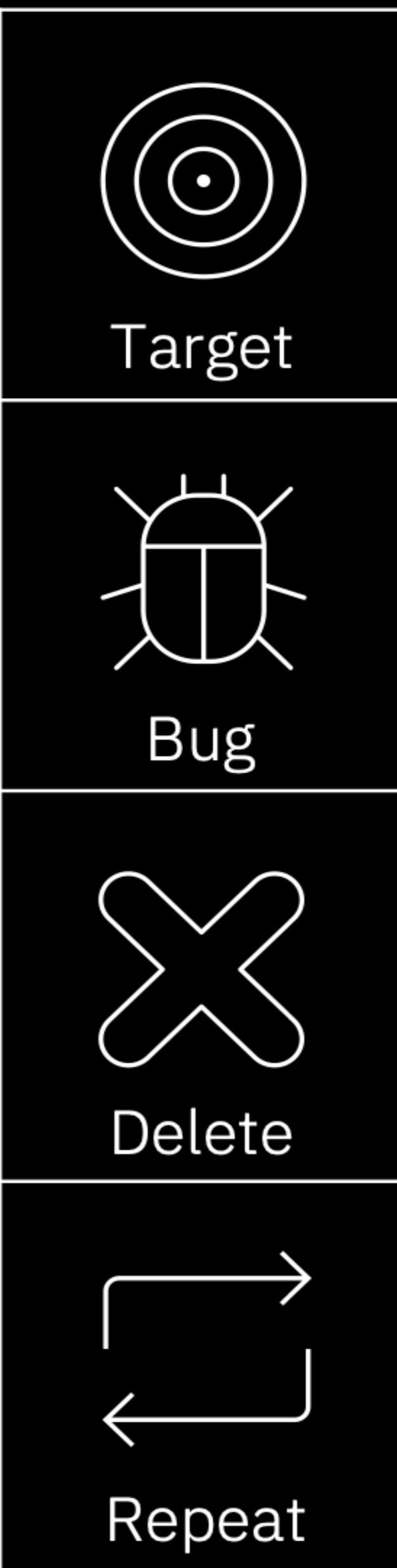
This scanner is designed to prevent unauthorized callers from being incorrectly granted an authorized state by detecting potential vulnerabilities in these routines with diagnostic information for remediation, as needed. This helps avoid potential compromise to the system integrity & security of the z/OS platform.

z/OS Authorized Code Monitor (zACM)

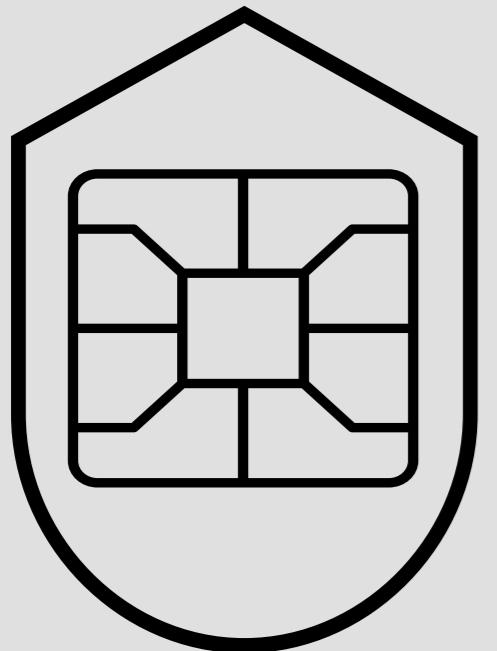
The system integrity monitor is now available, as a non-disruptive tool for production systems, examining ABENDs from z/OS recovery processing and reporting on potential vulnerabilities found there for remediation as needed.

zACS DDName scanning and AC(1) TSO vector

z/OS 3.2 provides expanded capabilities for integrity scanning of AC(1) load modules via batch processing and when invoked from a TSO/E environment.



Integrated Cryptographic Service Facility (ICSF)



With z/OS 3.2, a crypto administrator can leverage new CPACF capabilities in the z17 processor as well as provide NIST standard quantum-safe algorithms for application development.

When running on an IBM z17, ICSF will exploit new CPACF instructions for Hash-based Message Authentication Code (HMAC) processing. In addition, the CPACF has been updated to provide improved performance for SHA-3 hashing.

Improved memory management of internal control structures will relieve storage constraints when running with key usage and key life cycle auditing enabled.

When running with a crypto coprocessor loaded with the CCA Release 8.4 firmware, ICSF can provide NIST approved quantum-safe public key algorithms ML-KEM and ML-DSA for key encapsulation and digital signatures, respectively.

ICSF has been updated to support an EP11 coprocessor running in FIPS 140-2 compliant mode, providing PKCS#11 application programmers access to a FIPS certified hardware security module.

ICSF enables the generation and use of 8192-bit RSA keys and the ability to export AES PIN protection keys for interoperability with other crypto providers.

Resource Access Control Facility (RACF)

Centralization of digital certificates



RACF RACDCERT LIST Support of Multiple Altnames

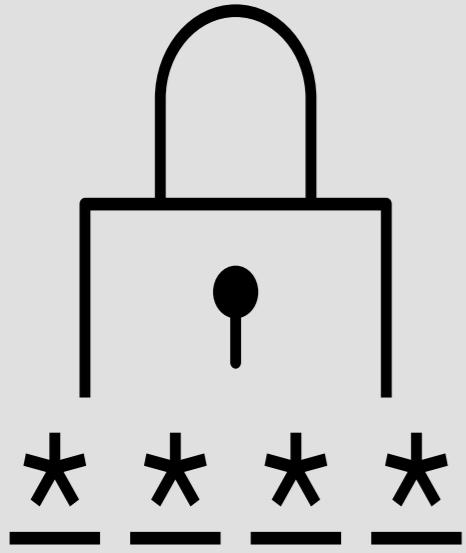
The RACF RACDCERT command allows installations to display information about digital certificates managed in RACF key rings. RACDCERT certificate listing commands are enhanced to display more certificate details including multiple subject alternative names and the subject and authority key identifiers.

RACF RACDCERT Certificate Generation Support of Multiple Altnames

The RACDCERT GENREQ command allows installations to create certificate signing requests from RACF-managed certificates. The RACDCERT GENCERT command allows RACF administrators to create certificates that can specify multiple subject alternate names of the same type – IP address, domain name, email address, and URI – within the certificate to secure actions to a server reachable through multiple access methods.

Resource Access Control Facility (RACF)

Continuing to strengthen defense-in-depth and password security



RACF User Quarantine

RACF delivers userid containment functionality, an extension of userid revocation processing, which is intended to fulfill the quarantine function described in the statement of direction found at [\[https://www.ibm.com/docs/en/announcements/statement-direction-security-zos\]](https://www.ibm.com/docs/en/announcements/statement-direction-security-zos)

RACF Password Enveloping

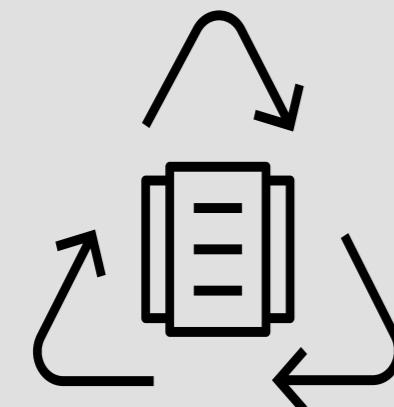
RACF supports stronger quantum safe signing and encryption algorithms for password envelopes, which now support synchronized password and password phrase changes across the enterprise.

RACF LDAPBIND Password Protection Updates

RACF provides functions for encrypting and decrypting passwords for external servers and provide an option for quantum-safe AES encryption.

Resource Access Control Facility (RACF)

Securing data with resiliency and disaster recovery functionality



Supporting the pervasive encryption journey



OPERCMDS support for the RACF RVARY command

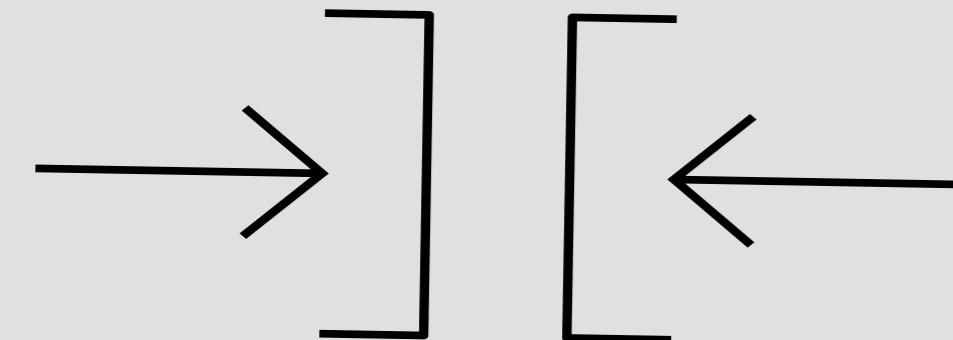
The RVARY command is used to manage RACF database configurations and requires an operator prompt to authorize specific operations if the RACF database is inaccessible during recovery situations. RACF is enhanced to provide authorization using resources in the OPERCMDS class, including scenarios where the RACF database is inactive, significantly mitigating the need for operator prompts. If the user is unauthorized or the OPERCMDS profile cannot be accessed, RACF falls back to the existing operator prompt.

RACF provides more granular control for encryption of PDSE and sequential, basic and large format, data sets with the RACF DATASET profile ENCRYPTTYPES option.

To learn more about Pervasive Encryption, including helpful instructions about how to get started, see the IBM Z Pervasive Encryption content solution web page: <https://www.ibm.com/support/z-content-solutions/pervasive-encryption/>

Resource Access Control Facility (RACF)

Continued efforts for constraint relief



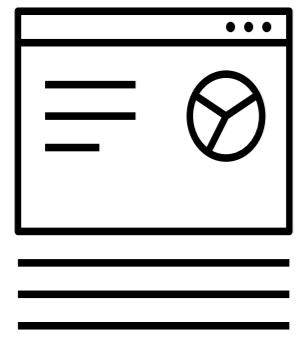
RACF support for 31-bit third-party ACEEs

Support in the DIAGxx member of SYS1.PARMLIB can be used to direct RACF to allocate 3rd-party ACEEs in 31-bit memory, thus providing 24-bit virtual storage constraint relief in many environments. Allocation in 31-bit memory should not be activated in production until it has been confirmed that none of the AMODE24 applications and exits reference the ACEE3PTY field.

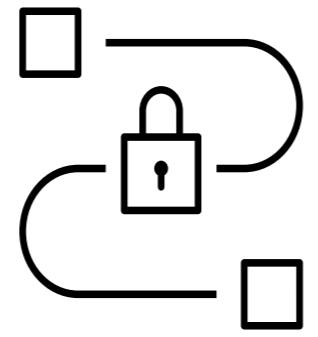
RACF subsystem address space support for REUSASID=YES on the START command

The RACF subsystem now specifies REUSASID=YES on its internal start command such that the ASID is available for reuse when the address space is stopped, helping to alleviate a system-wide constraint on ASID values. Customers should add REUSASID=YES to their manual or automated start commands for the RACF address space.

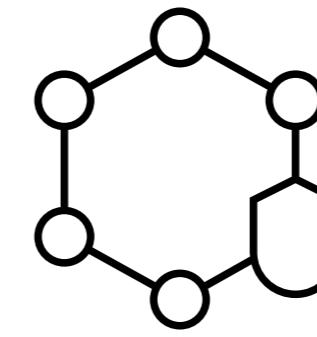
z/OS Encryption Readiness Technology (zERT)



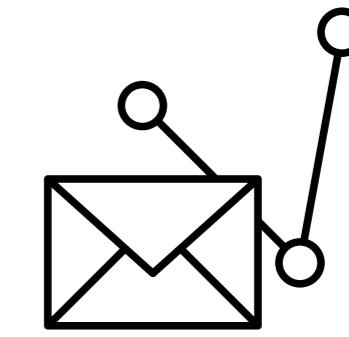
The zERT Network Analyzer z/OSMF plugin for z/OS 3.2 is enhanced to streamline its Db2 for z/OS database access for import and when binding Db2 for z/OS packages.



z/OS Communications Server 3.2 has enhanced zERT to easily distinguish between TLS/SSH connections (successful and failed) and unprotected connections and provide all the information necessary to ensure that the network traffic is protected per network policy.



zERT can recognize and report new SSH cryptographic attributes and supports new SSH key exchange methods and new SSH key types. zERT policy-based enforcement allows specification of the new key exchange methods on zERT SSH rules.



The z/OS email client, CSSMTP, supports the SMTP AUTH command, allowing mail servers to authenticate the originator of email. This is intended to satisfy regulatory compliance and ensure interoperability with email servers requesting client authentication.

Cyber Resiliency

High-performing infrastructure components that can help to achieve heightened levels of service availability, reduce or eliminate the impact of disruptions, improve capabilities for diagnosing and recovering from anomalous behavior, and support business continuity throughout the enterprise

Including:

- Resource Measurement Facility (RMF)
- z/OS Workload Interaction Correlator (zWIC)
- Improved z/OS RTM Recovery Processing
- Improved Path Related Error Recovery
- System Recovery Boost Enhancements
- BCPii Enhancements

Resource Measurement Facility (RMF)

With RMF, a new modern Grafana- based user interface now supports both Monitor III Metrics and Reports. The user interface enables threshold configuration for various metrics and alerting. With thresholding functionality, the users can achieve better metric visualization to get insights into anomalous behavior.

Alerting capabilities support proactive management by defining actions based on one or more metrics from RMF and other sources. The user may access the Grafana interface directly or through the existing z/OSMF RMF plug-in.

In addition, the DDS server has been enhanced and designed to increase security and performance. It is now 64-bit, zIIP-enabled and output is in JSON format.



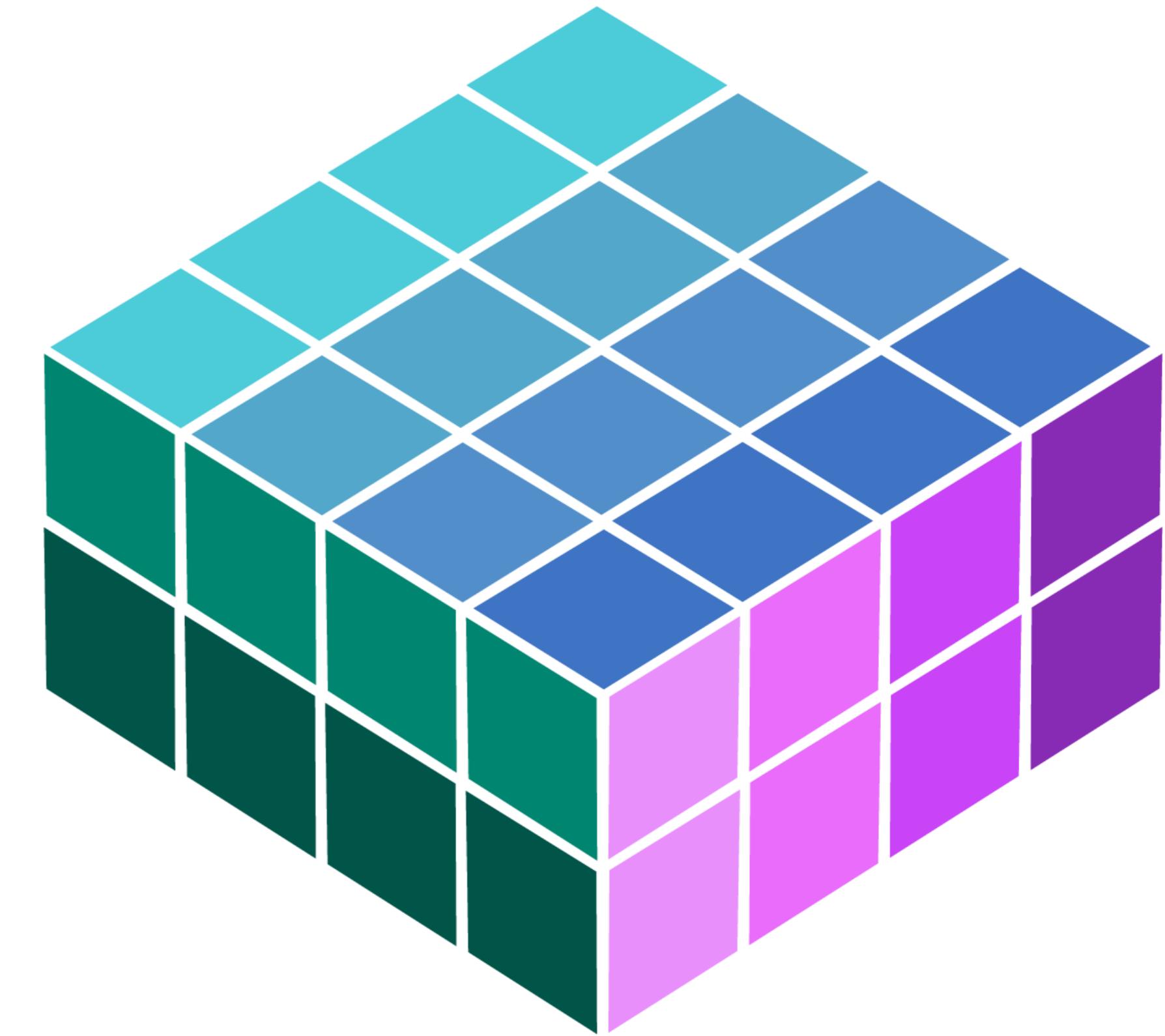
New Modern UI: Timeline Visualization with Grafana

Additional continuous delivery enhancements include:

- WLMGL report enhancements to support AI-infused WLM batch initiators
- CPU and WLMGL report enhancements for power consumption reporting
- Service class and Service Class Period reports enhanced to support Implicit CPU Protection
- The PAGING Postprocessor Report has been enhanced to include Dedicated Memory metrics

z/OS Workload Interaction Correlator

- Enables z/OS components and middleware silos to generate purpose built, 5-second synchronized, micro-summary, exceptionalism enriched data.
 - IBM Threat Detection for z/OS raises alerts for anomalous data accesses with z/OS DFSMS Correlator data
 - IBM z/OS Workload Interaction Navigator reactively identifies and proactively avoids workload impacts, critical situations, and outages using z/OS Supervisor, IOS, Db2, CICS, IMS Correlator data
- Generating IBM Correlator records **does not measurably increase the z/OS CPU overhead.**



Entitled through [RMF](#) and
Threat Detection for z/OS!

RTM Recovery Process Improvements

Decrease the likelihood of an ungraceful address space termination due to out of 24- or 31-bit storage conditions.

- Rather than causing an ungraceful memory termination which skips task-level recovery, out of 24- or 31-bit private virtual storage conditions will now CANCEL an address space to bring it down gracefully, allowing task-level recovery to run rather than just relying on the Memory Termination Resource managers to recover resources.
 - » Lowers the potential for data corruption and service instability
 - » Increases system stability

Path Related Error Recovery

Improved efficiency of z/OS I/O channel path recovery

- Streamlined processing when removing faulty paths from devices within control units
- Reduced impact on current workloads and the overall system due to less I/O and quicker removal of the faulty path
- Only in effect when RECOVERY PATH_SCOPE=CU is specified

System Recovery Boost Enhancements

- Provide new Recovery Process boost acceleration for boosting *Dynamic I/O Activate* processing when running on z16 and later hardware
- Enhance SRB messages and SMF records to contain the PROC/STEP/PGM associated with middleware startup boosts, as well as other additional information about the boosts
- Improve the intersection between boost processing for zIIPs and explicit customer actions to bring zIIP processors online – If a transient boost zIIP processor is explicitly configured online, that processor will be marked as a "normal" (non-transient-boost) zIIP so that it remains online at the end of the boost
- Provide improved programmatic APIs for identifying transient boost zIIPs

BCPii Enhancement

z/OS BCPii automatically reestablishes lost communications

- More proactive in reestablishing lost communication with a monitored CPC
- BCPii will issue console messages when it loses communication with a CPC, re-establishes communication with a CPC, or has stopped attempting to regain communication with a CPC
- Delivers support for a new DISPLAY BCPII system command that can be used to obtain the current communication status between BCPii and available CPCs

Data Serving and Storage

z/OS 3.2 is designed to create a resilient, modern infrastructure that integrates and shares mainframe assets with cloud-based applications, unlocking the potential of essential mainframe application data at the system of record through modern data access methods.

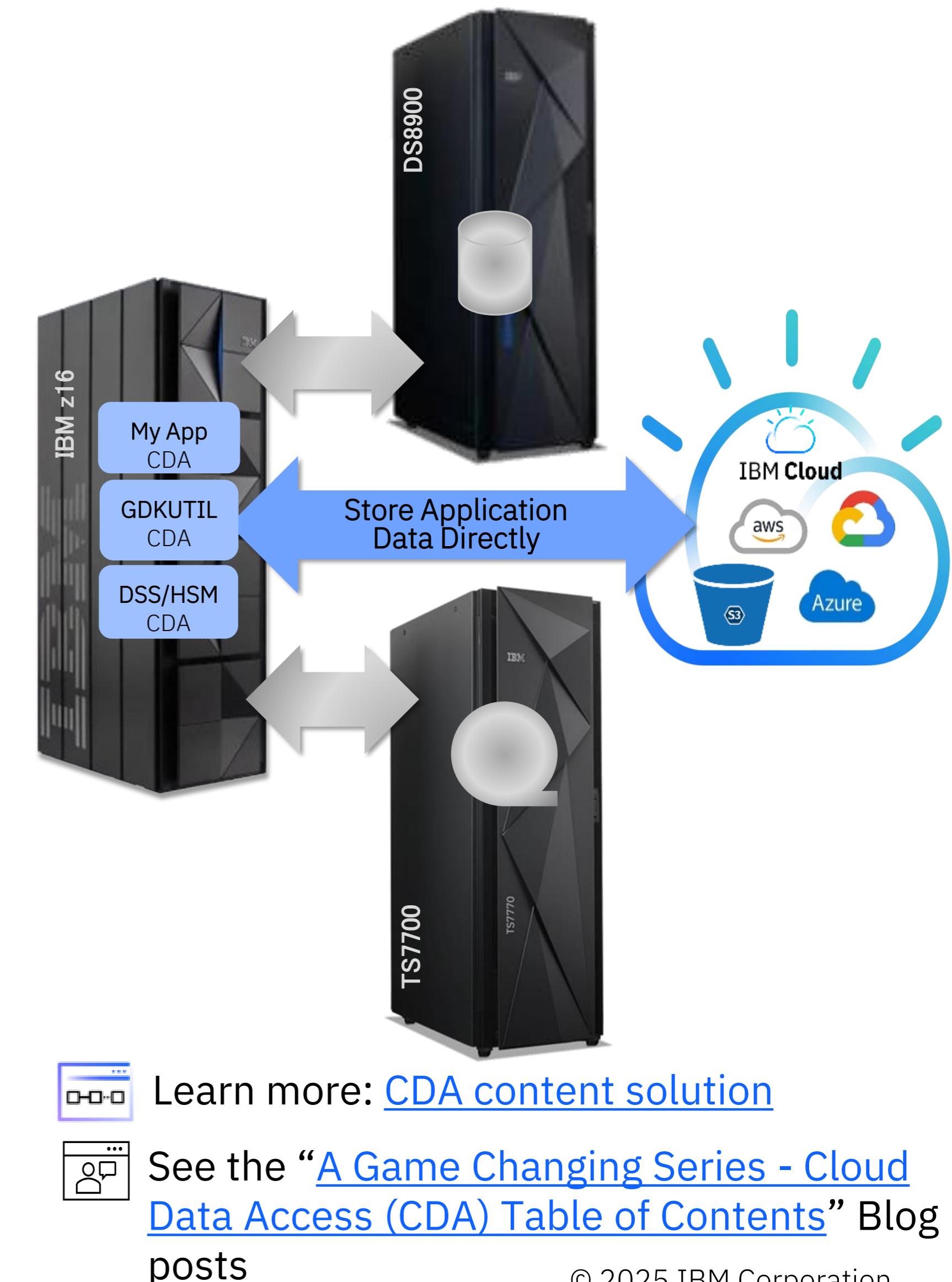
Incorporating critical data in modern analytics and AI infrastructures while remaining on IBM Z, helps to reduce decision latency, security risk, complexity, and cost.

- Enabling hybrid cloud workloads
- AI Infused z/OS - Modern APIs
- Simplifying Systems Management

Enabling hybrid cloud workloads

Cloud object storage enables a low-cost storage tier that's easily accessible and provides a simple mechanism to share data

- **Cloud Data Access (CDA) “Method”** provides a simple method to store and share any z/OS data directly onto cloud object storage:
 - Leverage S3/ Cloud Object Storage as another tier for z/OS applications.
 - Simplified application development and flexibility with a single API to interact with various Cloud Object Storage providers.
 - Simplified data sharing— reduce and/or eliminate ETL.
 - **New with z/OS 3.2** - simplified download of an object to a z/OS data set
 - Support for more sequential data sets, like DSS backups, and VSAM data set types, Entry Sequenced (ESDS) and Key Sequenced (KSDS)
- **New with z/OS 3.2** - DFSMSdss (DSS) and DFMSHsm (HSM) exploit CDA APIs to provide a storage vendor-agnostic direct-to-cloud solution to seamlessly back up and migrate z/OS data straight to the cloud.
- **GDKUTIL** utility downloads or uploads between cloud objects and z/OS using S3 APIs:
 - Invoked through JCL.
 - Supported data set types include UNIX files, sequential data sets (includes **RECFM=U**), PDS or PDS/E members, GDG versions, **VSAM KSDS**, and **VSAM ESDS**.
 - ***New with z/OS 3.2**



AI Infused z/OS - Modern APIs

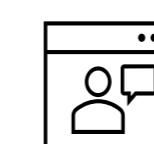
Easily create and access JSON databases with EzNoSQL APIs

- EzNoSQL APIs enable applications to create NoSQL key:value databases, based on open standard JSON file format, directly on z/OS, which can then be accessed in real-time, at scale, and with transactional consistency.
 - Integrated base z/OS solution, leveraging VSAM RLS, provides a comprehensive set of C, Java, and **Python APIs**, as well as **COBOL** language support, to take advantage of the scalability, security, resiliency, and performance provided by z/OS.
 - Users can connect to a flexible and easily maintainable EzNoSQL database directly from COBOL, allowing applications to share NoSQL data between Python, Java, C, assembler, and COBOL programs.
 - Full data sharing from multiple application instances running on different processors.
 - Simplified application development by removing the need to code for data consistency (no horizontal scaling or auto-sharding).
 - Simplified data base administration by removing the need to manage additional servers for horizontal scaling.

NoSQL for z/OS



Learn more: [EzNoSQL content solution](#)

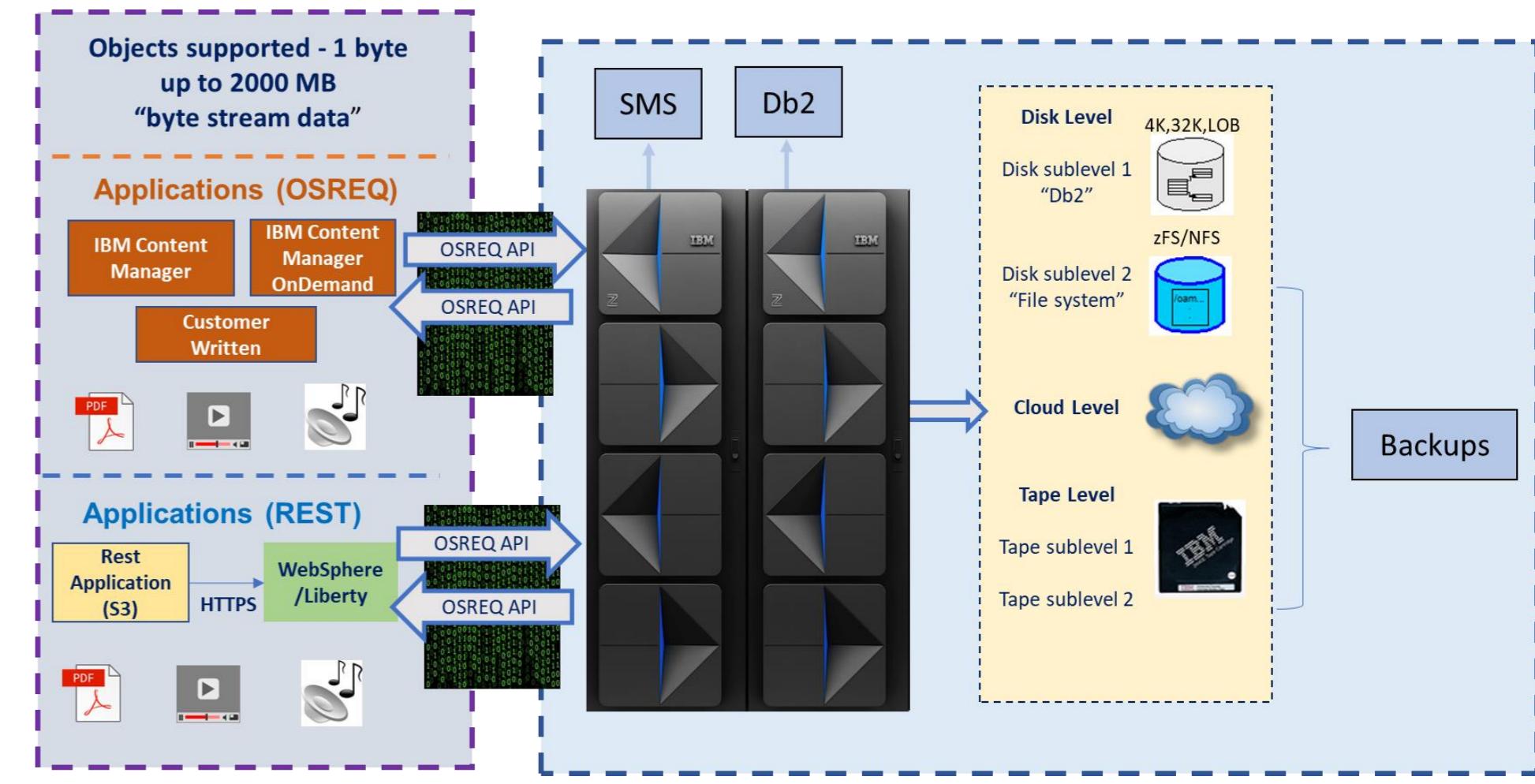


See the "["NoSQL for z/OS? Even EZer!" Blog](#)" post

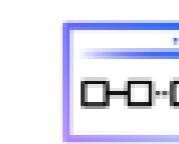
Modern OAM REST APIs

Modernized access and management of unstructured data on z/OS with Object Access Method (OAM) REST APIs

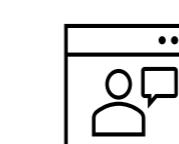
- **New with z/OS 3.2** - OAM provides a REST API for storing, retrieving, deleting, querying, and changing management characteristics of unstructured (object) data.
 - Leverage industry standard interfaces, similar to Amazon S3, allowing REST applications to access existing OAM managed object data on z/OS.
 - Designed to easily add new applications and/or transition existing OAM applications to REST.
 - Regardless of how the objects are stored, either through REST or through the native HLASM API, they're fully accessible by either API .
 - New REST front end interfaces with OAM's existing support and data managed by OAM is kept on z/OS.
 - Users can modernize their access and management of unstructured data on z/OS, while allowing distributed environments simple access to core business data through industry standard REST APIs.



"Great enhancement to improve the OAM subsystem to make it ready for the future." - Sponsor User



Learn more: [OAM Application Programmer's Reference](#)



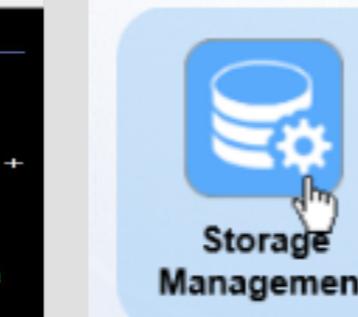
See the ["OAM Objects with a Simple Twist -- Take a REST"](#) Blog post

Simplifying Systems Management



Karla
Senior Storage Administrator

ISMF PRIMARY OPTION MENU - z/OS DFSMS V3 R1
Selection or Command ==> -
More: +
0 ISMF Profile
1 Data Set
2 Volume
3 Management Class
4 Data Class
5 Storage Class
6 Storage Group
7 Automatic Class Selection
8 Control Data Set
9 Aggregate Group
10 Library Management
11 Enhanced ACS Management
C Data Collection
G Report Generation
L List
P Copy Pool
R Removable Media Manager
Use HELP Command for Help; Use END Command or X to Exit.
04/028



Data class name	Update date	Update time	Initial load	Last user
ACCTDSN4	08/25/1987	08:27	RECOVERY	USERS
ACCTDSN5	08/25/1987	08:27	RECOVERY	USERS
ACCTDSN6	08/25/1987	08:27	RECOVERY	USERS
ACCTDSN7	08/25/1987	08:27	RECOVERY	USERS
ACCTDSN8	08/25/1987	08:27	RECOVERY	USERS



Elsa
Early Tenure Storage Administrator

"The usability of the current ISMF solution is hard to use and involves a lot of hidden tricks that early tenure employees don't understand."

- Sponsor User

z/OSMF Storage Management Plug-in APIs and GUI

New with z/OS 3.2 - Provide enhanced storage management REST APIs and new z/OSMF user interface for storage management to create a consistent and intuitive tool for early tenure storage administrators to perform z/OS storage management tasks, reducing manual steps, skills, and time needed for new users to be productive.

- **View the SMS (System Managed Storage) configuration via z/OSMF**
 - The beginning of a simplification journey and a foundation for automation
- **Storage Management REST API updates**
 - Ability to specify a Source Control Data Set (SCDS)
 - New API to retrieve Automatic Class Selection (ACS) routine source

Dashboard & Navigation

Starting view is the dashboard. Multiple configurations can be viewed by adding them with the plus icon.

Storage Class Name	Direct Millisecond Response Time	Direct Bias	Sequential Millisecond Response Time	Sequential Bias	Availability Options	Guaranteed Space	Last User	Update Date	Update Time	Guaranteed Sync Write	Initial Access Response	Accessibility	Sync req
ACCTDSN4	500	999	NOPREF	false	IBMUSER	1987/07/27	16:06			NOPREF		fails	
ACCTDSN5	500	999	NOPREF	false	IBMUSER	1987/07/27	16:06			NOPREF		fails	
ACCTDSN6	500	999	NOPREF	false	IBMUSER	1987/07/27	16:06			NOPREF		fails	
ACCTDBA	500	999	NOPREF	false	IBMUSER	1987/07/27	16:04			NOPREF		fails	
ACCTDOB5	500	999	NOPREF	false	IBMUSER	1987/07/27	16:05			NOPREF		fails	
ACCTDOB6	500	999	NOPREF	false	IBMUSER	1987/07/27	16:05			NOPREF		fails	
ACCTSTP4	500	999	NOPREF	false	IBMUSER	1987/07/27	16:05			NOPREF		fails	
ACCTSTP5	500	999	NOPREF	false	IBMUSER	1987/07/27	16:05			NOPREF		fails	
ACCTSTP6	500	999	NOPREF	false	IBMUSER	1987/07/27	16:05			NOPREF		fails	

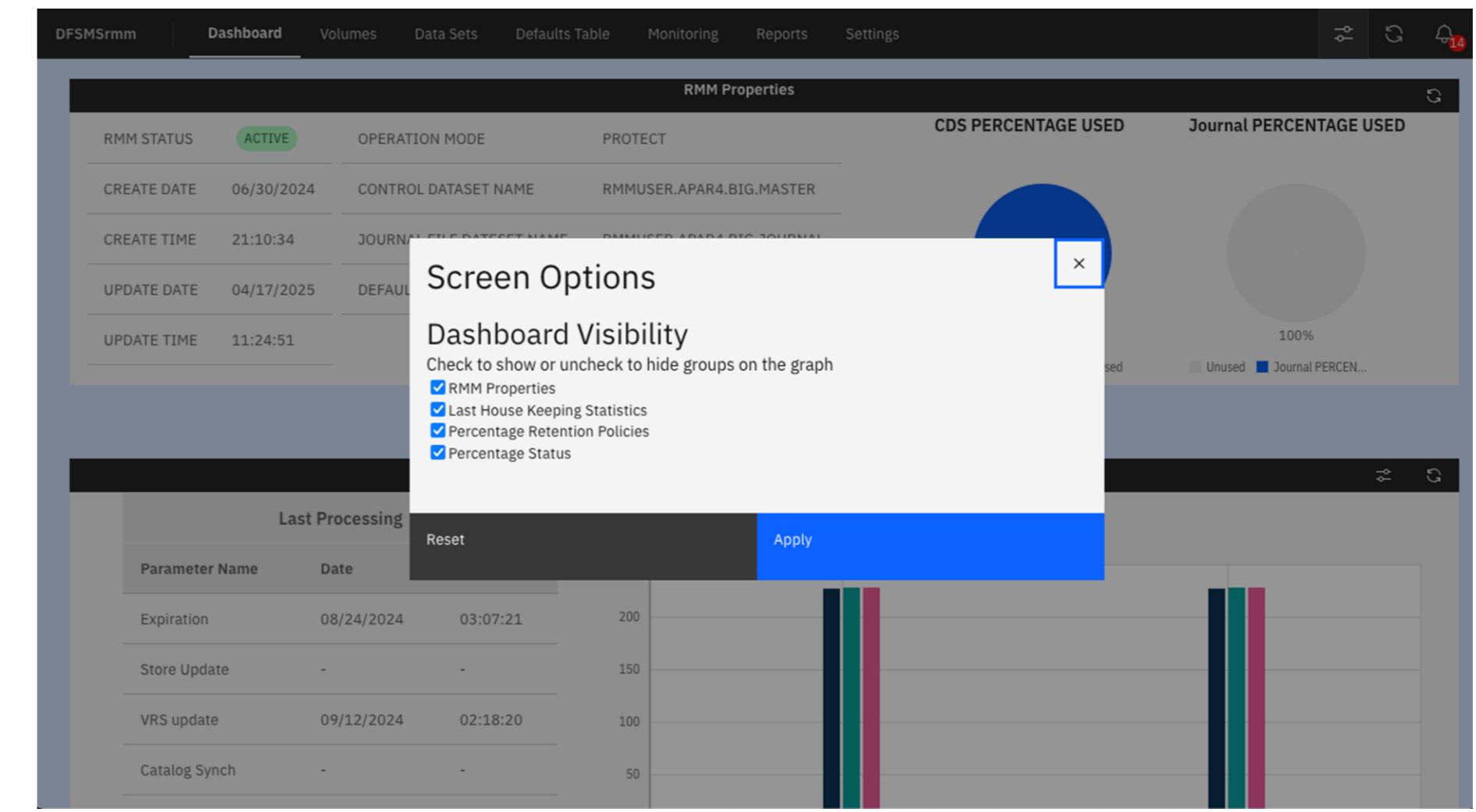
Table Views

SMS constructs in the configuration are displayed as tables.

Simplifying Systems Management

z/OSMF DFSMSrmm (RMM) Plug-in

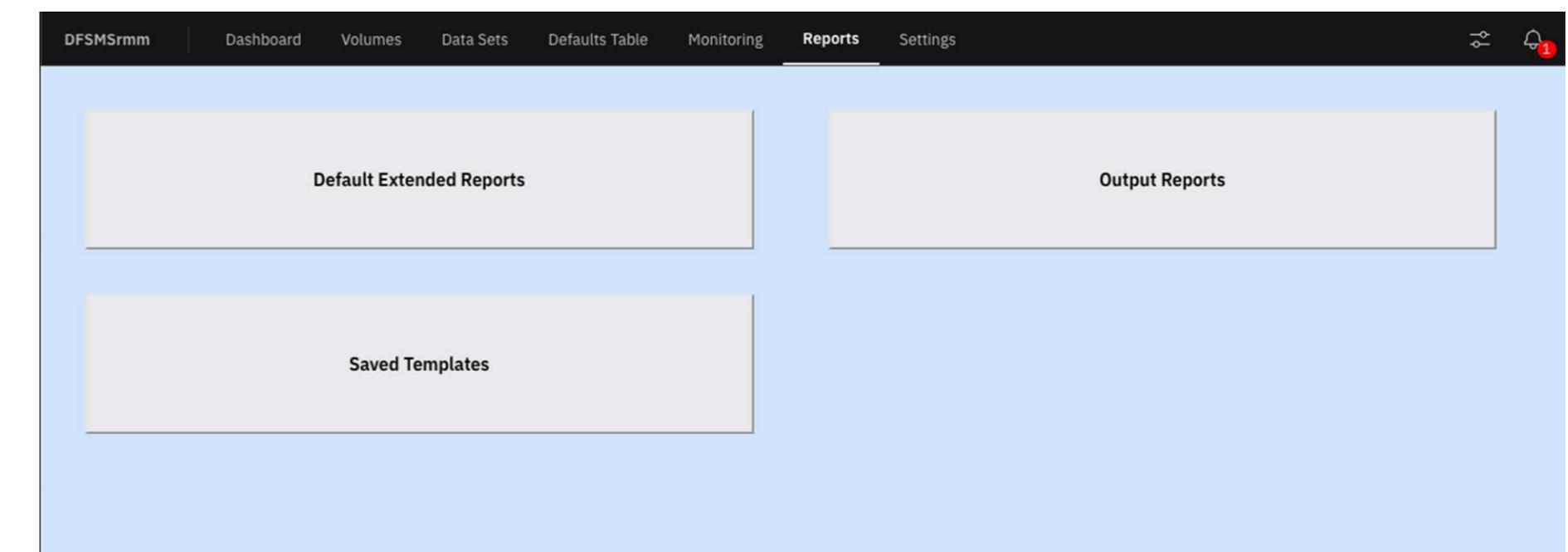
- Support for a modern graphical user interface via a z/OSMF plugin that augments the existing TSO and ISPF dialog support.
- **New with z/OS 3.2** - Customizable, at-a-glance, Dashboard view.
 - Provides information on the RMM address space and subsystem.
 - Designed to reduce manual steps required to perform RMM management tasks.
- **New with z/OS 3.2** - Ability to generate, view, and download RMM extended reports based on shared templates.
 - Brings an existing RMM feature panel to the z/OSMF plugin.
 - Provides a modern, flexible interface designed for ease of use and to potentially save time when creating reports.



Dashboard

Screen Options view to show available widgets:

- RMM Properties
- Last House Keeping Statistics
- Percentage Retention Policies
- Percentage Status



Report Generator

New section within the plugin, bringing an RMM feature panel to z/OSMF:

- Default reports
- Output (previously generated) reports
- Saved templates

RMM currently supplies 15 default reports.

Default Extended Reports		
Report Name	Report Title	Report Actions
EDGGR01	Scratch tapes by volume serial	EDIT SUBMIT
EDGGR02	List of SCRATCH Volumes by Dataset Name	EDIT SUBMIT
EDGGR03	Inventory List by Volume serial	EDIT SUBMIT
EDGGR04	Inventory List by Dataset Name	EDIT SUBMIT
EDGGR06	Inventory of Volumes by Location	EDIT SUBMIT
EDGGR07	Inventory of Dataset by Location	EDIT SUBMIT
EDGGR08	Inventory of Bin by Location	EDIT SUBMIT
EDGGR09	Datasets in Loan Location	EDIT SUBMIT
EDGGR10	Volumes in Loan Location	EDIT SUBMIT
EDGGR11	List MultiVolume and MultiFile Sets	EDIT SUBMIT

Foundational support

z/OS 3.2 supports the performance and optimization of z/OS supported hardware and supports functions that enforce the scalability, availability, network efficiency, and general simplification of the operating system:

Including:

- JES2 policy enhancements
- Assembler exit mitigation
- Virtual Storage improvements
- Performance, scalability, and reliability improvements
- Storage hardware support
- IBM Z Systems processor hardware support

Foundational Support

- **JES2 policy enhancements**
 - Improvements for JCL job policy type, and extended attributes and actions for policy use
- **Assembler exit mitigation**
 - SMFLIM improvements
- **Virtual Storage improvements**
 - Move System Logger dataspaces to high virtual memory
 - Data Gatherer 64-bit memory exploitation
 - 24-bit VSCR improvements moving some Nucleus and LPA modules to 31-bit memory
- **Performance, scalability, and reliability improvements**
 - FRR Stack size increase
 - SRM lock contention avoidance
 - Dynamic I/O Activate scalability improvements
 - Reduced CPU consumption during Hyperswap events
 - Support to move ASCBs from 24-bit to 31-bit memory
 - SVC Dump data capture improvements
 - Health Checks to identify usage of functions planned for future removal
- **Storage hardware support**
 - Multi-Target Global Mirror support
 - Support for DS8K R10/G10 storage
 - Cascaded incremental resync support
 - Support for DS8K hardware compression
 - Removal of XRC support
- **IBM Z Systems processor hardware support**
 - SLIP TEND support to identify usage of transactional execution (planned for future removal)
 - See additional hardware details below

z/OS 3.2

IBM Z Systems Hardware support

z/OS support summary

	zEC12 zBC12 WdfM	z13 Z13s WdfM	z14 z14 ZR1 WdfM	z15 T01 z15 T02 WdfM	z16 A01 z16 A02	IBM z17	End of Service	Extended Defect Support (1)
z/OS V2.3¹	X	X	X	X	X		9/22 (*)	9/25 (*)
z/OS V2.4	X	X	X	X	X	X	9/24 (*)	9/27 (*)
z/OS V2.5		X	X	X	X	X	9/26 (*)	9/29 (*)
z/OS 3.1			X	X	X	X	9/28 (*)	9/31 (*)
z/OS 3.2				X	X	X	9/30 (*)	9/33 (*)

Notes:

(1) The IBM Software Support Services offering provides the ability for customers to purchase extended defect support service for those z/OS releases which are end of service.

(*) Planned. All statements regarding IBM's plans, directions, and intent are subject to change or withdrawal without notice.

WdfM – Server has been withdrawn from Marketing

Legend	IBM Software Support Services required for z/OS support
	Supported
	Not supported

Z Hardware Support

IBM z17 (9175) Model ME1 Functions & Features

One hardware model, Five Features, 1-4 19" Frame System, Maximum 8 cores/chip, 2 chips/DCM 1 integrated I/O accelerator/chip. 5.4Ghz.
Up to 85 user partitions, 32 TB per partition, 208 CPUs/zIIPs/IFLs per partition, up from 200. • Up to 16 TB per z/OS LPAR as of z/OS V2.5
•2 CP chips on a Dual Chip Module (DCM), 5.4 GHz •L1 Private 128K instruction & 128K data •L2 Shared 36 MB / core, 270 MB effective shared •10 x Private/Shared 36 MB L3 caches
684 GB HSA, 64 TB maximum, 16 TB per drawer
Channel Subsystem scalability •Up to six (6) Channel Sub Systems (CSSs) • 4 Subchannel Sets per LCSS
HiperDispatch Enhancements
IBM Z Integrated Accelerator for AI
Hardware Instrumentation Services (CPUMF)
New machine instructions
Network Express
Crypto Express8S
OSA Express7S 1.2 1/10/25 Gb



(z/OS support in blue)

Integrated I/O architecture (including Enhanced QDIO)
ICA-SR 2.0 for SR coupling • 4 CHPIIDs/port for CS5 • Same limits as z15/z16 with 48 adapters/96 ports.
Coupling Express3 LR 10Gb/25Gb optics for LR • 4 CHPIIDs/port for CL5/CL6 • 32 adapters, 64 ports per CEC
CF Level 26 • Parallel Sysplex scalability, virtualization, consolidation, and density enhancements. • Removal of support for CF Flash Memory and CF images using dedicated GP processors.
Max coupling CHPIIDs per CEC of all types: 384
10 GbE and 25 GbE RoCE Express 3 SR and LR (CX6-DX)
FICON Express 32 and FICON Express16SA
zHyperLink® Express 2.0 • Maximum 16 Adapters /32 ports
IBM Flexible Capacity for Cyber Resilience
TFP for Hardware • Workload Classification • Replacement Capacity
Power Consumption Reporting

Where to find all the upgrade information for z/OS on the z17

- **z/OS z17 Upgrade Workflow**, provided as a PTF on V2.4 and higher
 - Only contains the z/OS steps for upgrading to new z17 hardware
 - Installs into the /usr/lpp/bcp/upgrade directory, file z17_zOS_Upgrade_Workflow.xml
 - Recommended format as z/OSMF offers interactive assistance and will run associated health checks.
- At General Availability: A PTF is provided and it is marked with FIXCAT
IBM.Device.Server.z17-9175.RequiredService
- All the information you need to upgrade z/OS to support z17 is provided in the z/OS z17 Upgrade Workflow.
 - In that workflow, all the PTF FIXCATs are clearly documented, with steps to run the SMP/E REPORT MISSINGFIX command, to assist you in knowing if you are positioned for z17.
 - In that workflow, requirements and any restrictions are also covered.
 - The z/OS z17 Upgrade Workflow is supported by the IBM Support organization.

Fix Categories (FIXCATs) for z17 PTFs:

- There will be no PSP buckets created for IBM z17!
 - **Notification provided via [IBM Support note](#) in April 2024.**
- Base support is provided by PTFs identified by:
 - **IBM.Device.Server.z17-9175.RequiredService**
- Exploitation of many functions is provided by PTFs identified by:
 - **IBM.Device.Server.z17-9175.Exploitation**
- Recommended service is identified by:
 - **IBM.Device.Server.z17-9175.RecommendedService**
- **To avoid potential sysplex coexistence issues, these PTFs must be installed on all z/OS systems in the sysplex prior to a z17 being used anywhere in the sysplex.**

Fixes that are required to run z/OS on the z17 ME1 servers. You must have these PTFs installed.

Fixes that are required to exploit the capabilities of the z17 ME1 server. Only necessary to install if you are exploiting the function.

Fixes that are recommended to run z/OS on the z17 ME1 server. They represent fixes that have been recommended by IBM Service. It is recommended that you review and install these PTFs.

Summary: z/OS Support for IBM z17

Release	IBM.Device.Server.z17-9175. RequiredService		IBM.Device.Server.z17-9175.Exploitation										Max Mem/ LPAR
	Base Support	Integrated I/O architecture: Measurements, and Network Express feature	Workload Classification Pricing	Workload–level sustainability and power consumption reporting	z/OS BCPii and HMC/SE hardened security	CPU Measurement Facility	z17 Assembler Support	Replacement Capacity Records for TFP-HW	25Gb Long Distance Coupling (CL6)	ICSF clear key HMAC support via CPACF	zDNN support for new NNDA instructions	IBM Open XL C/C++ Exploitation	
z/OS 2.4 ^{SS}	P	P							P				4
z/OS 2.5	P	P				P	P	P	P	P	P	P	16
z/OS 3.1	P	P				P	P	P	P	P	P	P	16
z/OS 3.2	P	P				P	Y	Y	Y	Y	Y	P	16

SS IBM Software Support Services required for z/OS support

W A web deliverable is required, available from <https://www.ibm.com/products/xl-cpp-compiler-zos>

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IBM TechXchange Webinar

Unlock the potential of critical application data through hybrid cloud and AI-infused capabilities

Tuesday, July 29th, 2025 @1PM EDT

Abstract:

IBM plans to release [z/OS 3.2](#), the next version of its flagship operating system for IBM Z, in the third quarter of 2025. z/OS 3.2 is designed for hybrid cloud and AI, including support for [IBM z17](#), new AI-infused capabilities, and enhancements to simplify IT management. With IBM z17, the next release of z/OS is intended to fuel innovation and growth, secure clients' most important data, and automate and improve operational efficiency.

[Register here](#)

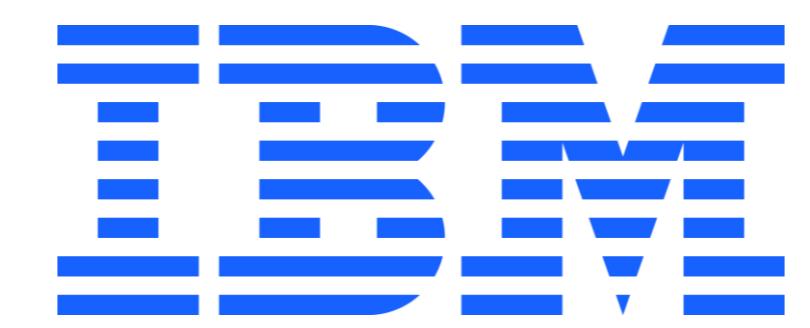
Key Speakers:



Dave Surman, IBM
DE, z/OS Core Technology –
Parallel Sysplex



Marna Walle, IBM
Senior Technical Staff Member, z/OS System
Install



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z/OS Required Support for IBM z17

Provide supports for

- Machine type 9175, model ME1 (and ML1)
- z/OS V2.4 and higher.

FixCat: IBM.Device.Server.z17-9175.RequiredService

Required Support	High Level Description
Base Support: I/O Configuration Program (IOCP) and Hardware Configuration Definition (HCD)	<p>Includes support for:</p> <ul style="list-style-type: none">• z17 IBM Z Integrated Accelerator for AI.• New Coupling Express3 LR 25Gb feature (CL6). New Coupling Express3 LR 10Gb feature (CL5).• New OSH CHPID for z/OS Communications Server support for Network Express adapters.• New NETH PCIe function for ethernet including RoCE.• Up to 4 CHPIPs/port per physical coupling link for both ICA SR (CS5) and CE3 LR (CL5/CL6).• More coupling CHPIPs per CEC to 384.• Expects at least 8 (up from 7) subchannels/devices per ICP CHPID.
z17 Integrated I/O Architecture: Measurements	<ul style="list-style-type: none">• z17 has an entirely new I/O hardware and architecture model for both storage and networking. The new design moves processor and memory closer, which transforms I/O operations to allow workloads to grow and scale.• Adds new channel measurement characteristics and channel utilization counts for new Channel Measurement Groups (CMG) 4 and 5.<ul style="list-style-type: none">• z/OS WLM provides support in the Channel Path Measurement Block (IRACPMB).• z/OS Data Gatherer extends its data collection for Channel Measurement Groups 4 and 5 for SMF 73 records and Monitor III channel data table (ERBCPDG3).
z17 Integrated I/O Architecture: Network Express Feature	<ul style="list-style-type: none">• Network Express allows RoCE and OSA networking features to converge into a single network feature.<ul style="list-style-type: none">• Reducing cost for physical networking resources (drawer I/O slots, adapters, ports, cables, switch port).• z17 SMC-Rv2 support requires OSH and NETH CHPID types must be converged on the same PCHID/port, with matching interface statements.• Network Express supports Enhanced QDIO (EQDIO) architecture, allowing z/OS Communications Server to interact with hardware using optimized operations, to allow growing I/O rates.<ul style="list-style-type: none">• EQDIO builds the foundation for the introduction of advanced Ethernet and networking capabilities, which support IBM Z Hybrid Cloud Enterprise users.
Parallel Sysplex (Coupling)	<ul style="list-style-type: none">• z17 servers support active participation in the same Parallel Sysplex, and connection with IBM z16 A01 & A02 and IBM z15 T01 & T02.<ul style="list-style-type: none">• This is both a direct CEC-CEC connectivity requirement, as well as anywhere in the sysplex regardless of direct or indirect connectivity.• Use of Integrated Coupling Adapter (ICA SR) or Coupling Express LR (CE LR) coupling links required.<ul style="list-style-type: none">• Ensure all Required PTFs are installed on all z/OS images in the sysplex before introducing a z17 server into the sysplex, either as a z/OS or CF image.• Also ensure all necessary sysplex z/OS z17 Exploitation PTFs are installed on all z/OS images in the sysplex before using an exploitation function in the sysplex, which affects either a z/OS or CF image.

z/OS Exploitation Support for IBM z17

Provide supports for

- Machine type 9175, model ME1 (and ML1)

FixCat: IBM.Device.Server.z17-9175.Exploitation

Exploitation Support	High Level Description
z17 Assembler Support	<ul style="list-style-type: none">• By default (unless locally customized), the assembler uses the OPTABLE(UNI) universal operation code table.<ul style="list-style-type: none">• This defines the mnemonics for instructions up to the latest supported z/Architecture level.• Exploitation support for HLASM 1.6 (all z/OS releases), adding the new mnemonics for z17.• These mnemonics may collide with the names of Assembler macro instructions you have.• It is safer to assemble using an OPTABLE option which matches the current highest target hardware level.
CPU Measurement Facility	<ul style="list-style-type: none">• For every server generation, the hardware adds, removes, and moves extended counters in the CPU Measurement Facility (CPU/MF).• Date Gathering CPU MF Counters is an industry “best practice” that offers IBM Z Systems Processor Capacity Planning.<ul style="list-style-type: none">• Capture on pre-z17 (“before”) server to determine your LSPR workload.• Capture on z17 (“after”) server.• Having the “before” and “after” can allow you to validate your achieved z17 processor performance, and provide insights for new features and functions.
z/OS BCPII and HMC/SE hardened security	<ul style="list-style-type: none">• z/OS BCPII is being enhanced to support server-based authorization with JSON Web Tokens, JWT.• This enhancement allows the application to issue operations previously not available, including asynchronous notification support, interaction with Dynamic Partition Manager CECs, User Management operations, and more.
Workload-level sustainability and power consumption reporting	<ul style="list-style-type: none">• CEC-level and LPAR-level power consumption information is provided for z17.• Power consumption information is available to be gathered every 10 seconds.<ul style="list-style-type: none">• However, your SMF interval will control how often it is reported.
Workload Classification Pricing	<ul style="list-style-type: none">• Workload Classification Pricing enables classification of programs and collection metrics to allow for price differentiation on z/OS.• Examples of workload classes might be: Traditional General Purpose (GP) business workloads, Traditional zIIP-eligible work, AI inferencing work, etc.

z/OS Exploitation Support for IBM z17 (Cont'd)

Provide supports for
• Machine type 9175, model ME1 (and ML1)
FixCat: IBM.Device.Server.z17-9175.Exploitation

Exploitation Support	High Level Description
Replacement Capacity Records	<ul style="list-style-type: none">z17 support Replacement Capacity Records for Tailored Fit Pricing for IBM Z Hardware (TFP-HW).z/OS WLM provides updates to support the model-replacement capacity values. In addition to existing values, now includes:<ul style="list-style-type: none">The model, model-permanent, and model-temporary capacity identifier and ratings.
25Gb Long Distance Coupling (CL6)	<ul style="list-style-type: none">z17 has a new channel path type CL6 (Coupling Express3 25Gb LR, Coupling-over-RoCE).This is intended to provide significantly higher throughput for coupling links at distance.
ICSF clear key HMAC support via CPACF	<ul style="list-style-type: none">Clear key HMAC acceleration via CP Assist for Cryptographic Functions (CPACF).ICSF changes clear key HMAC requests internally to use the new CPACF instruction when running on z17.
Deep learning library (zDNN) IBM Z Integrated Accelerator for AI (zAIU)	<ul style="list-style-type: none">zDNN is that deep learning library. This specialized-function-assist instructions are intended to provide performance improvements for specific operations in software libraries, utilities, or operating system services.<ul style="list-style-type: none">zDNN is supported on IBM z16, but there are new APIs and z17-aware optimizations which require z17.z17 has updated Neural Network Processor Assist (NNPA) instructions.
Open XL C/C++	<ul style="list-style-type: none">z17 support will be added in the next release of the Open XL C/C++ compiler.As in the past, the z/OS XL C/C++ compiler, included as a priced feature of z/OS, will not be updated with the support mentioned above.<ul style="list-style-type: none">XL C/C++ supports up to z15 HW instructions with ARCH(13).Programs compiled with XL C/C++ will run on z17.