SHARE Orlando 2026
IBM WSC z/OS System Programmer Hot Topics

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Member of z/OS Development Resiliency core team, IBM ZStack Resiliency team
WSC IBM Z Resiliency, IBM Z HW and z/OS Performance, z/OS and sysplex SME

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SHARE roles: SHARE z/OS System Programmer IBM Co-Track Leader ,SHARE Performance Track Leader

Agenda

- *Announcements*
- *Simplification & AI & Best Practices*
- *Best Practices/Proven Practices – Common missing items seen in Resiliency Workshops/HC /z/OS & Sysplex focus Client Engagements*
- *IBM z HW Items – Items selected related to IBM z17*
- *z/OS 3.2 updates*
- *Critical Resources*

WSC Engagements – Infrastructure , z/OS and sysplex

Around 60 Resiliency focus client engagements in 2.5 years in different service formats

- ❑ IBM Z Resiliency Workshops
- ❑ Standalone Infrastructure, z/OS and sysplex Health Check (combined with IBM Z Resiliency workshop)
- ❑ IBM Z and z/OS performance analysis (sometimes combined with above all)
- ❑ WSC-wide HC – Infrastructure,z/OS and sysplex part
- ❑ Architectural guidance

and other specific topic-oriented engagements which are not counted in are:
IBM Z HW implementation guidance from z/OS perspective, z/OS and sysplex updates, z/OS upgrade,z/OS components, sysplex new and old features' guidance, GDPS updates, Performance & Capacity Management guidance...

Common findings share in best practices part of this presentation

This SHARE: Today 8:00 am Up Your Resiliency Game With Feedback from WSC (Infrastructure and wider scope)

z/OS Support Summary

Release	z13 Z13s WdfM	z14 ZR1 WdfM	z15 T01 T02 WdfM	Z16 A01 A02	Z17 ME1	End of Service	Extended Defect Support
z/OS V2.3	X	X	X	X[3]		9/22	9/25[2]
z/OS V2.4	X	X	X	X	X[3]	9/24	9/27[2]
z/OS V2.5	X	X	X	X	X	9/26[1]	9/29[2]
z/OS 3.1		X	X	X	X	9/28[1]	9/31[2]
z/OS 3.2[4]			X	X	X	9/30[1]	9/33[2]

Notes:

[1] - All statements regarding IBM's plans, directions, and intent are subject to change or withdrawal without notice.

[2] - Extended support dates are projected and are subject to change or withdrawal without notice.

[3] – Toleration Support only

[4] – General Availability is planned for 9/30/2025

WdfM - Server has been withdrawn from Marketing

Legend

Defect support provided with IBM Software Support Services for z/OS
Generally supported

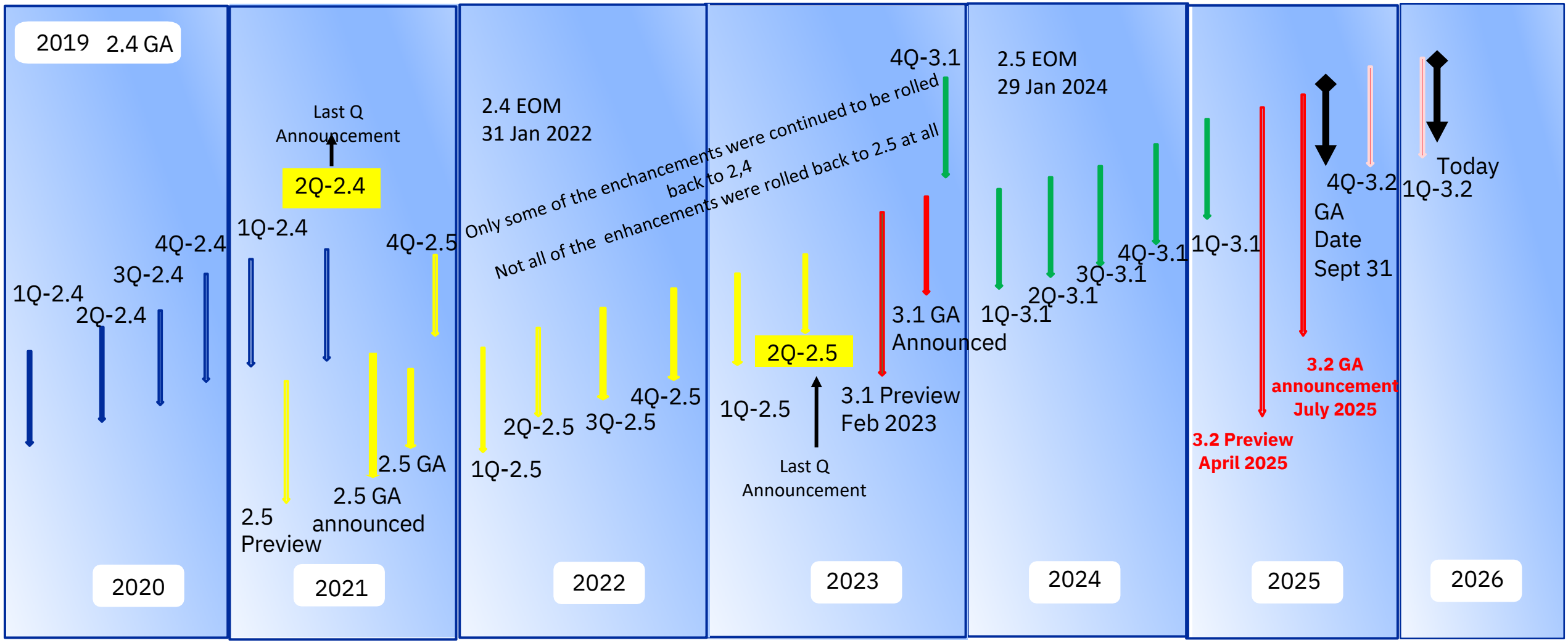
z17 ME1

z/OS V2.4 only has toleration support for z17 + PTFs (Must have IBM Software Support Services offering purchased)

z/OS Continuous Delivery

How can I continue to get the latest enhancements ? ? What is the 'NEW' benefit of being in current release!!!

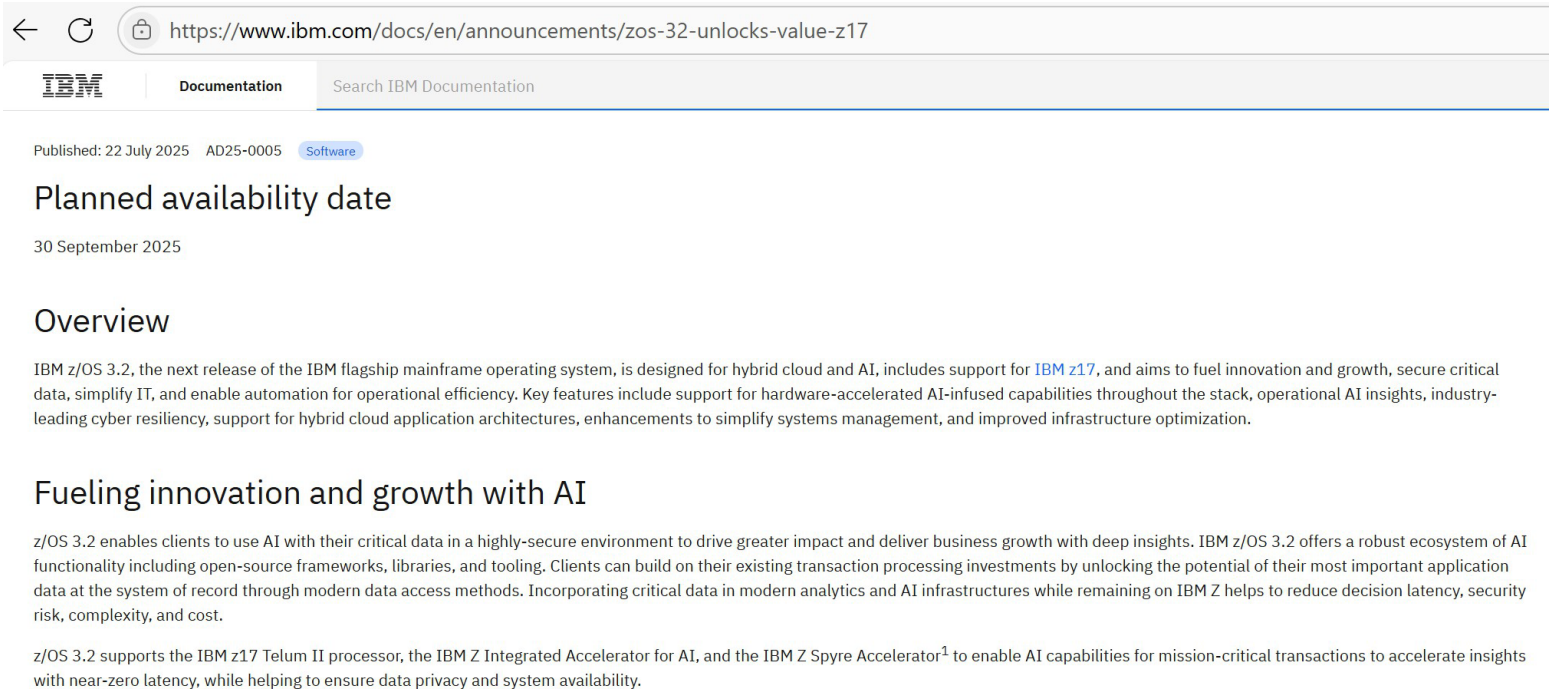
Time to review z/OS version upgrade strategy and move forward to being in current release if it is not already reviewed



z/OS 3.2 Announcements

IBM z/OS 3.2 Preview Announcement — 8 April 2025

IBM z/OS 3.2 GA Announcement — 22 July 2025


https://www.ibm.com/docs/en/announcements/zos-32-unlocks-value-z17

IBM | Documentation | Search IBM Documentation

Published: 22 July 2025 AD25-0005 Software

Planned availability date

30 September 2025

Overview

IBM z/OS 3.2, the next release of the IBM flagship mainframe operating system, is designed for hybrid cloud and AI, includes support for IBM z17, and aims to fuel innovation and growth, secure critical data, simplify IT, and enable automation for operational efficiency. Key features include support for hardware-accelerated AI-infused capabilities throughout the stack, operational AI insights, industry-leading cyber resiliency, support for hybrid cloud application architectures, enhancements to simplify systems management, and improved infrastructure optimization.

Fueling innovation and growth with AI

z/OS 3.2 enables clients to use AI with their critical data in a highly-secure environment to drive greater impact and deliver business growth with deep insights. IBM z/OS 3.2 offers a robust ecosystem of AI functionality including open-source frameworks, libraries, and tooling. Clients can build on their existing transaction processing investments by unlocking the potential of their most important 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.

z/OS 3.2 supports the IBM z17 Telum II processor, the IBM Z Integrated Accelerator for AI, and the IBM Z Spyre Accelerator[1] to enable AI capabilities for mission-critical transactions to accelerate insights with near-zero latency, while helping to ensure data privacy and system availability.

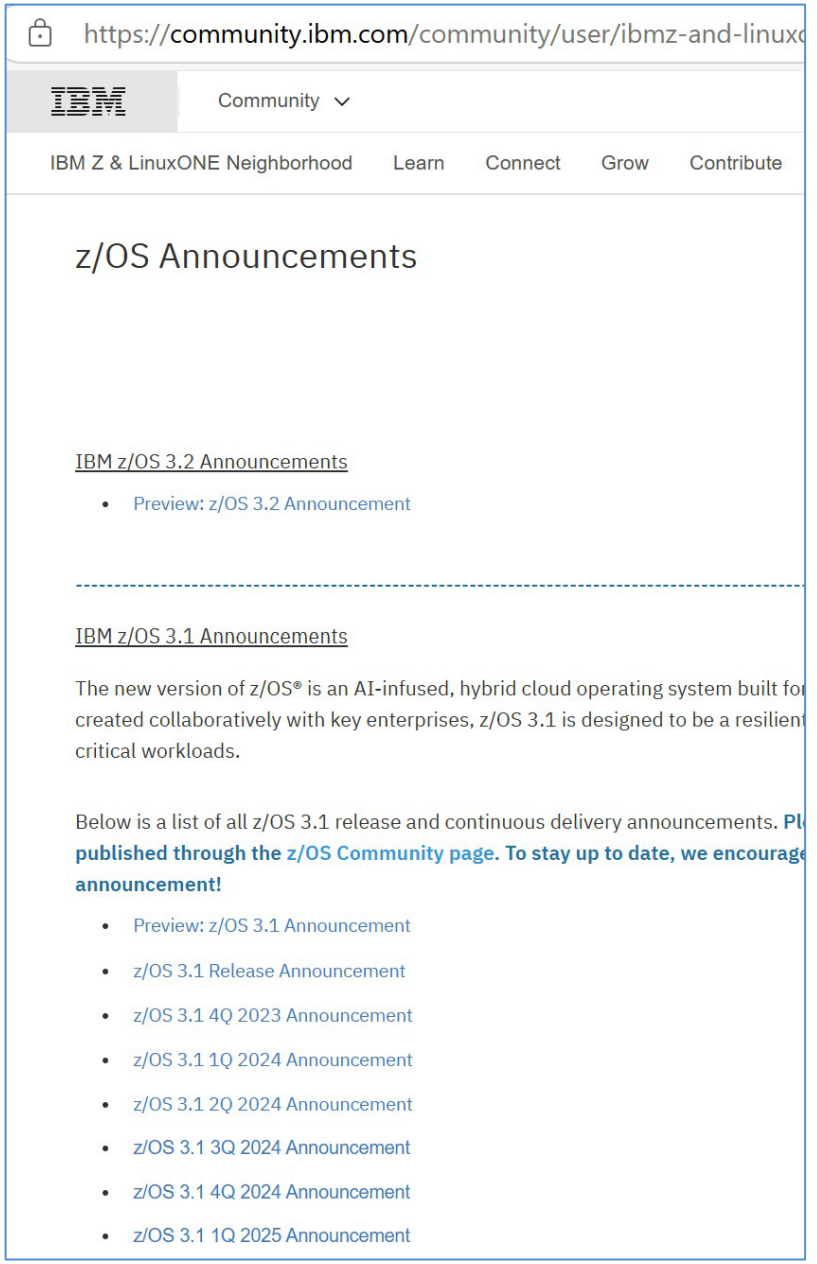
Preview and Release announcements are in general announcement websites but they also have link in z/OS Community Page

All previous announcements can be found out in this link

All z/OS Quarterly CD announcements can be found in z/OS Community Page. Please subscribe!

IBM Continuous Delivery Model Announcement

IBM z/OS Continuous Delivery Redpaper


https://community.ibm.com/community/user/ibmz-and-linux

IBM | Community

IBM Z & LinuxONE Neighborhood | Learn | Connect | Grow | Contribute

z/OS Announcements

IBM z/OS 3.2 Announcements

- Preview: z/OS 3.2 Announcement

IBM z/OS 3.1 Announcements

The new version of z/OS® is an AI-infused, hybrid cloud operating system built for
created collaboratively with key enterprises, z/OS 3.1 is designed to be a resilient
critical workloads.

Below is a list of all z/OS 3.1 release and continuous delivery announcements. Pl
published through the z/OS Community page. To stay up to date, we encourage
announcement!

- Preview: z/OS 3.1 Announcement
- z/OS 3.1 Release Announcement
- z/OS 3.1 4Q 2023 Announcement
- z/OS 3.1 1Q 2024 Announcement
- z/OS 3.1 2Q 2024 Announcement
- z/OS 3.1 3Q 2024 Announcement
- z/OS 3.1 4Q 2024 Announcement
- z/OS 3.1 1Q 2025 Announcement

z/OS Version & CD Announcement Letters

IBM z/OS 3.12 4Q 2025 enhancements	20 Nov 2025
IBM z/OS 3.2 GA Announcement Preview z/OS 3.2	22 July 2025
IBM z/OS 3.1 1Q 2025 enhancements	8 March 2025
IBM z/OS 3.1 4Q 2024 enhancements	18 Feb 2025
IBM z/OS 3.1 3Q 2024 enhancements	19 Nov 2024
IBM z/OS 3.1 2Q 2024 enhancements	24 Sep 2024
IBM z/OS 3.1 1Q 2024 enhancements	24 June 2024
IBM z/OS 3.1 4Q 2023 enhancements	27 Feb 2024
z/OS 3.1 GA Date : 29 September 2023	21 Dec 2023
IBM z/OS 3.1 GA Announcement	8 Aug 2023
Preview: IBM z/OS 3.1	28 Feb 2023
IBM z/OS V2.5 2Q 2023 enhancements	20 Jun 2023
IBM z/OS V2.5 1Q 2023 enhancements	21 Mar 2023
IBM z/OS V2.5 4Q 2022 enhancements	15 Nov 2022
IBM z/OS V2.5 3Q 2022 enhancements	20 Sep 2022
IBM z/OS V2.5 2Q 2022 enhancements	21 Jun 2022
IBM z/OS V2.5 1Q 2022 enhancements	15 Mar 2022
IBM z/OS V2.5 4Q 2021 enhancements	23 Nov 2021
z/OS 2.5 GA Date : 30 September 2021	

IBM Continuous Delivery Model Announcement IBM z/OS Continuous Delivery Redpaper

z/OS 3.2 GA Date : 30 September 2025

Announcements in IBM z & LinuxOne -z/OS Community Page

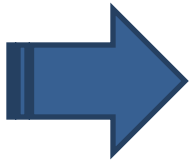
Now , all Z/OS Quarterly CD announcements can be found in z/OS Community Page . Please subscribe!

All previous announcements can be found out in this link

Common finding & recommendation

Several clients' z/OS version upgrade strategy has not been changed aligning with z/OS Continues Delivery Strategy

Same approach continued



Review your z/OS upgrade strategy

The difference between versions are not as high as it used to be

z/OS N-1 with latest RSU level , it is close to z/OS N

Leverage the new functions that are actually planned for z/OS N+1

Get benefit from z/OS Continues Delivery Strategy which is there since z/OS 2.4.

z/HW Related Announcements

Common Question : Where can I find the life cycles of IBM z Servers?
How can I find the upgrade path ?

Answer : https://www.ibm.com/support/pages/node/6354755

Updated 19 th November 2025

IBM Mainframe Life Cycle History

Machine			Dates					Years		
Type	Model	Family	ANN	GA	HW WDFM	LIC WDFM	EOS	ANN to GA	GA to HW WDFM	HW WDFM to EOS
9175	ME1	z17	April 8, 2025	June 18, 2025				0.2		
3932	A02	z16 A02	April 4, 2023	May 17, 2023				0.1		
3931	A01	z16	April 5, 2022	May 31, 2022	December 31, 2025	December 31, 2026		0.2	3.6	
8562	T02	z15 T02	April 14, 2020	May 15, 2020	June 30, 2024	June 30, 2025		0.1	4.1	
8561	T01	z15	September 12, 2019	September 23, 2019	December 31, 2023	December 31, 2024		0.0	4.3	
3907	ZR1	z14 ZR1	April 10, 2018	May 31, 2018	September 30, 2021	September 30, 2022		0.1	3.3	
3906	M0n	z14	July 17, 2017	September 13, 2017	June 30, 2021	June 30, 2022		0.2	3.8	
2965	Nnn	z13s	February 16, 2016	March 10, 2016	June 30, 2019	June 30, 2020	December 31, 2024	0.1	3.3	5.5
2964	Nnn	z13	January 14, 2015	March 9, 2015	June 30, 2019	June 30, 2020	December 31, 2024	0.1	4.3	5.5
2828	Hnn	zBC12	July 23, 2013	September 20, 2013	December 31, 2016	December 31, 2017	December 31, 2023	0.2	3.3	7.0
2827	Hnn	zEC12	August 28, 2012	September 19, 2012	December 31, 2016	December 31, 2017	December 31, 2023	0.1	4.3	7.0

IBM Mainframe Life Cycle History

IBM z15 T01 LIC withdrawn was DEC 31 2024.
IBM z16 WDFM date is Dec 2025 and LIC WDFM is Dec 2026

Latest Statement Of Directions for z/OS announcement – 16 February 2026

Statements of direction: z/OS - IBM Documentation

Strategic initiative to help simplify the z/OS user experience - IBM Project Polaris

IBM intends to deliver a simplified z/OS user experience based on the needs of next-generation mainframe professionals and adapted to how they learn, work, and develop new skills.

By integrating AI-driven insights and enabling the use of industry-aligned tooling, the new z/OS user experience is designed to make z/OS more intuitive and accessible, while preserving the unique value and capabilities of z/OS. IBM Project Polaris will consist of a stream of early technical preview shipments that will be made available for experimental access to new and enhanced functions.

We are working with z/OS development team related to addressing z/OS and sysplex best practices (z/OS development resiliency core team)

Last z/OS release to provide support for X11R4

z/OS 3.2 is planned to be the last z/OS release to provide support for the X Window System interface V11R4 and Motif version 1.1 (X11R4). All z/OS applications that use X11R4 should migrate to X11R6.

Discontinuance of support for First Failure Support Technology (FFST)

IBM intends that z/OS 3.2 is the last z/OS release FFST will be supported . FFST is a diagnostic tool available on z/OS. The original intent of FFST was to provide notification and first failure data capture for software events. However, in many cases the diagnostic information captured by FFST was limited and additional problem recreation and data collection were required. In addition, advances in system reliability and other diagnostic tooling have rendered FFST unnecessary in modern environments.

z/OS Continuous Delivery – New Function Subscription

z/OS embraces continuous delivery through new function APARs
- Get weekly emails when APARs close with My Notification: start at https://www.ibm.com/support/entry/portal/support
- Look on the web, updated monthly: https://www-03.ibm.com/systems/z/os/zos/installation/zosnfapars.html

New Function APARs for the z/OS Platform

z/OS Library

When new function APARs are introduced in the IBM service stream, you can find them here collected in a convenient reference format. Use this information to review the latest enhancements from IBM and determine which ones to implement.

The APAR information is collected in the following files:

You can see the APAR details directly with one click

File name	Description
mvsstore.zosnewfu.html	New function APARs for the past 12 months (HTML)
mvsstore.zosallfu.html	New function APARs for the past five years (HTML)
mvsstore.zosnewfu.csv	New function APARs for the past five years (CSV)

Subscribe

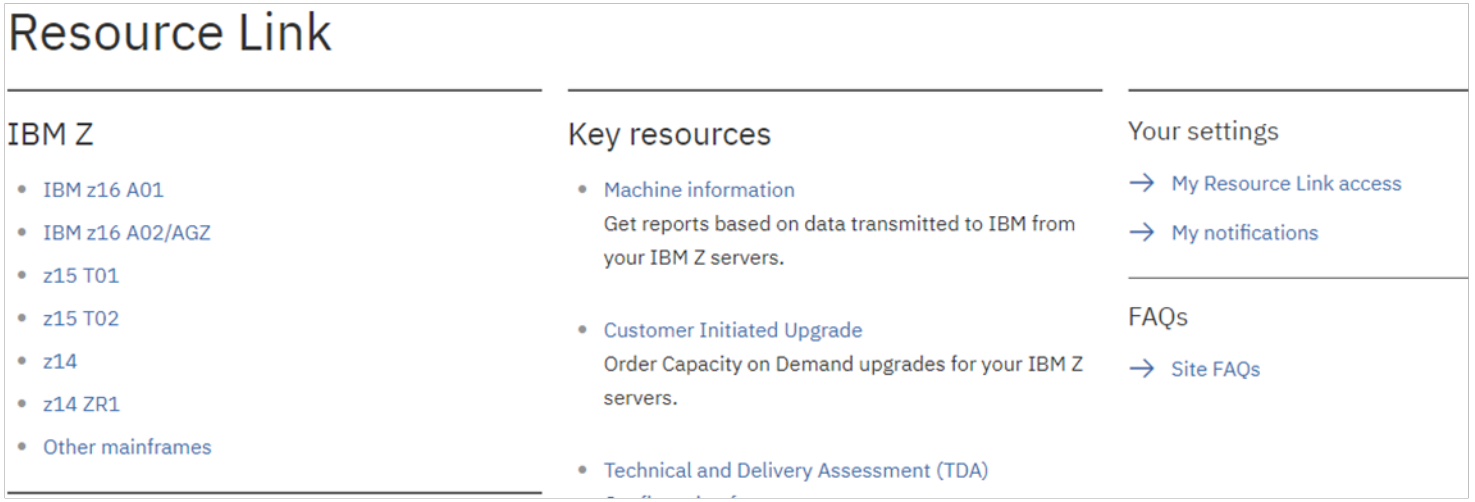
- *z/OSMF,SDSF,DFSMS are one of the first implementers of CD.*
- All z/OS Components are participating in CD!

My Notification – Subscription by HW & SW Products/Solutions

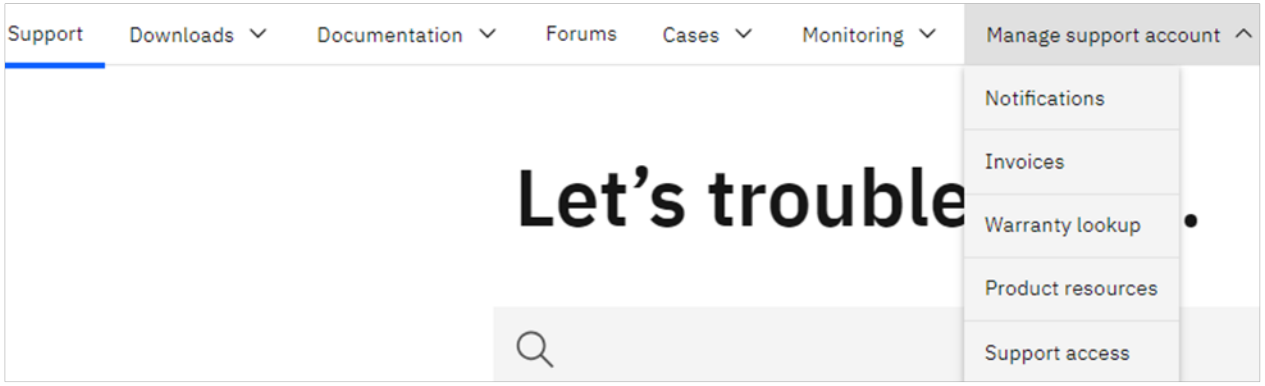
You can get notifications related to SW & HW Announcements , product updates ,alerts and more ...

Here is just two options to do this:

1)



2)

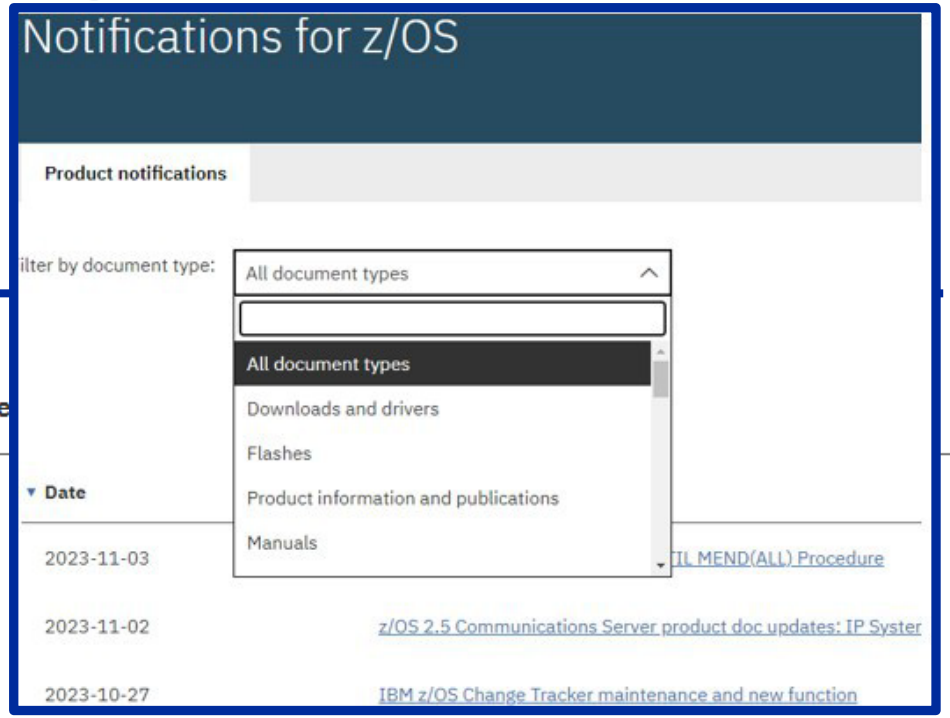


My Notification – Subscription by HW & SW Products/Solutions

- You can choose which HW/SW products to subscribe out of mnay HW/SW entries

❑ z/OS

XML Toolkit for z/OS	→ View	Links	Edit	— Unsubscribe
z/OS (all current and future products)	→ View	Links	Edit	— Unsubscribe
z/OS Change Tracker	→ View	Links	Edit	— Unsubscribe
IBM z16 (3931-A01)	→ View	Links	Edit	— Unsubscribe
IBM z16 (3932-A02)	→ View	Links		



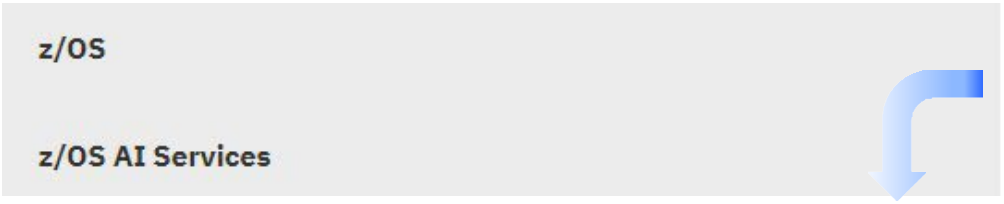
❑ All Announcements

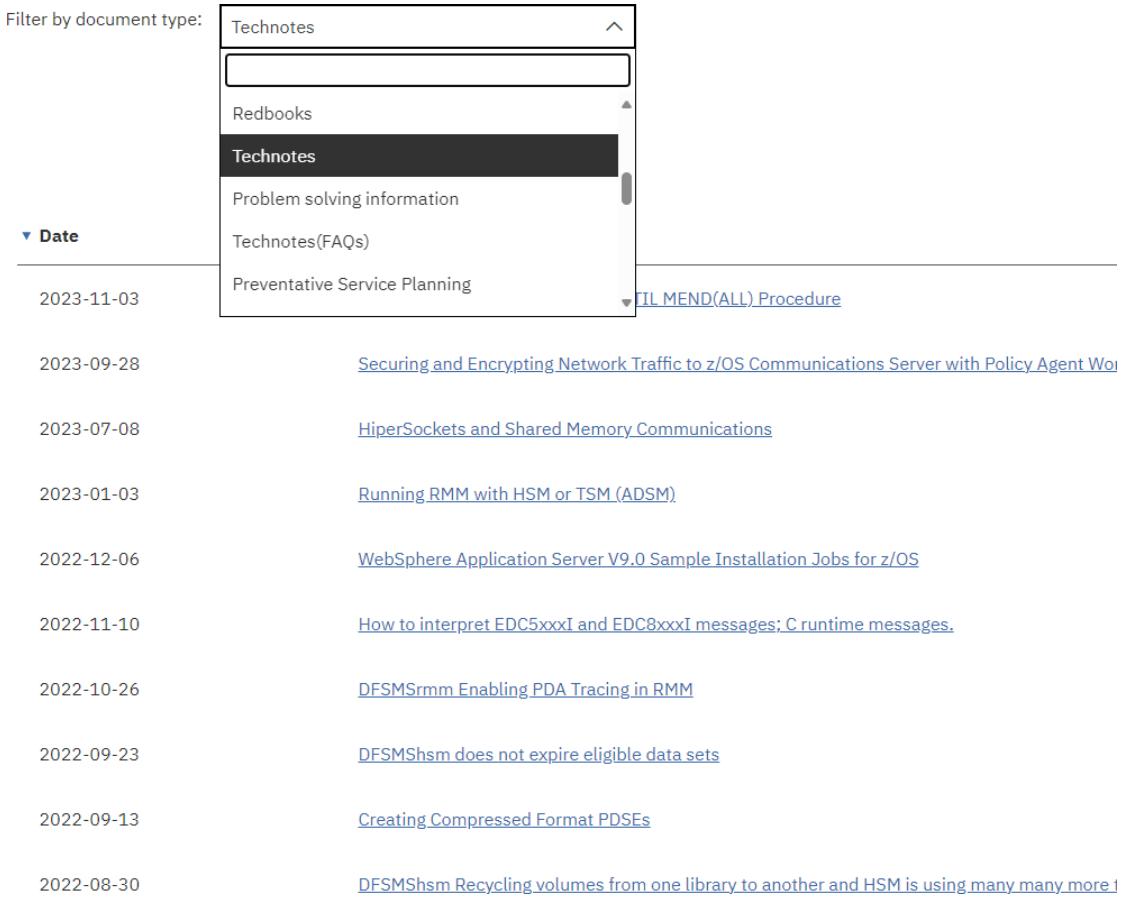
▲ Product	Notifications	RSS/Atom fe
All Announcements	→ View	Links

For just announcements you can use above 2 options or directly from link

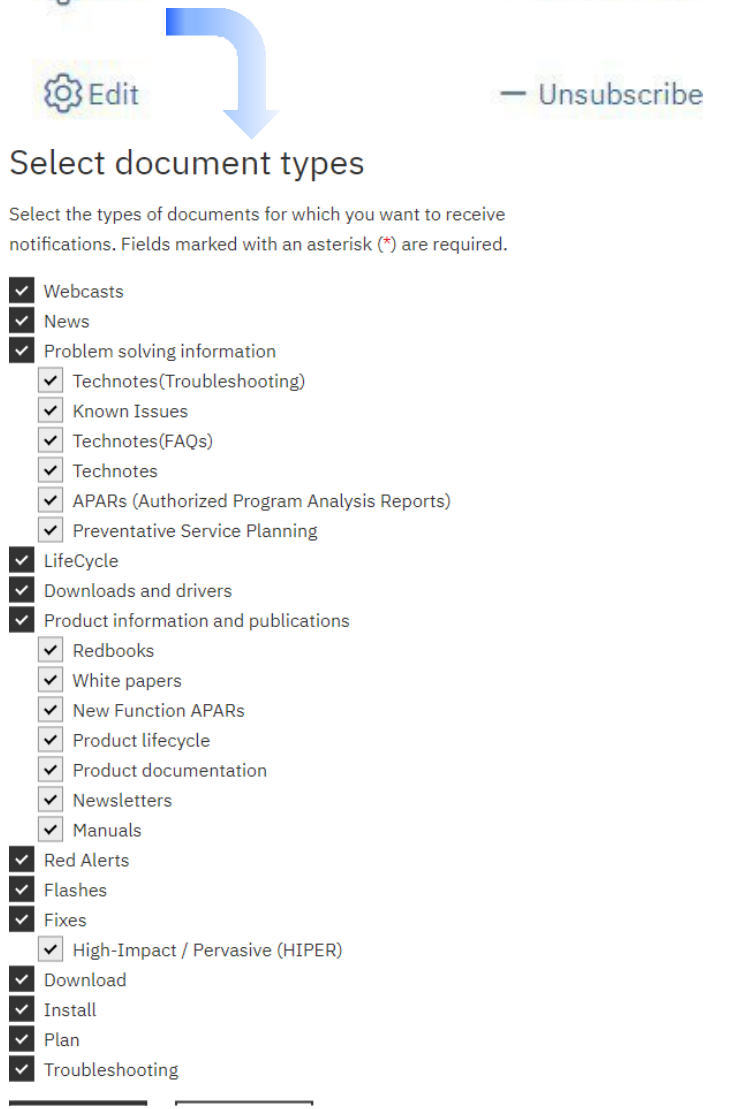
My Notification – Subscription by HW & SW Products/Solutions

- Via 'view' option – historical entries can be seen filtered by doc type





- Via 'Edit' option - Control your subscription



Technotes

z/OS mysupport website z/OS -> Recent technical notes

Recent technical notes

View recent articles to assist with product information, support policies, and common issues.

View all technical notes

Opened	Title
Feb 20, 2026	DFSMShsm: Resolving intermettent ARC1806E RC10 messages when adding/removing volumes from a Copy Pool and Copy Pool Backup Storage Group
Feb 03, 2026	OpenSSH connections might fail if using network load-balancing utilities
Jan 08, 2026	ABEND002 RC5 when HSM processes a PDS data set.
Nov 27, 2025	DFSMShsm in contention in SMSVSAM ASID for SMSVSAM major / HSM.xCDS minor name as well as ARCENQG major / ARCCAT minor name in DFSMShsm ASID
Oct 30, 2025	DB2 SLB (system level backup) which invokes DFSMShsm FRBACKUP fails with ABEND522.
Oct 29, 2025	While setting up DFSMShsm TCT, ARC1605I is surfaced in response to SETSYS CLOUD(NAME(defined_cloud_name) CDACREDS)
Oct 24, 2025	ABENDU4093 RSN90 running two POSIX(ON) applications in parallel in a TSO or ISPF Split Screen environment
Sep 04, 2025	ADDING A NEW SYSTEM TO SMSPLEX
Aug 29, 2025	Using the DB2 Serialization Error Exit in SMS Management Class Transition Criteria with DFSMShsm
Aug 26, 2025	Collecting Documentation for various issues within DFSMShsm

IBM z Content Solutions Center

Single Engaging place for everything you need to understand and use functions and products!

https://www.ibm.com/support/z-content-solutions/

Automation & Management

- ServerPac Installation Using z/OSMF
- IBM z/OS Change Tracker
- Red Hat Ansible Certified Content for IBM Z
- Software update with z/OSMF
- z/OS Management Services Catalog

Modernization

- Automating and shift-left testing for z/OS hybrid applications
- Continuous delivery and deployment
- Continuous integration for the hybrid cloud developer experience
- Discover and plan for z/OS hybrid applications
- EzNoSQL for z/OS
- IBM Z and Cloud Modernization Stack
- IBM Z Distribution for Zowe
- Z Digital Integration Hub
- z/OS Cloud Data Access
- z/OS Connect
- z/OS Container Platform
- z/OS Container Extensions (zCX)
- zCX Foundation for Red Hat OpenShift

Optimization

- Cloud Infrastructure Center
- Cloud Provisioning and Management for z/OS
- Integrated Accelerator for zEDC
- Journey to LinuxONE
- Journey to sustainability with IBM LinuxONE
- Resilience
- System Recovery Boost
- Tailored Fit Pricing for IBM Z

Security

- ServerPac Installation Using z/OSMF
- IBM z/OS Change Tracker
- Red Hat Ansible Certified Content for IBM Z
- Software update with z/OSMF
- z/OS Management Services Catalog

Prediction

- AI Infusion into z/OS
- Spyre Accelerator for IBM Z And LinuxONE
- IBM Open Data Analytics for z/OS
- Journey to AI on IBM Z and LinuxONE
- Journey to open data analytics
- Machine Learning for IBM z/OS

Currently in IBM z Content Solutions

C3 (Comprehensive Content Collections)

The following **comprehensive content collections (c3s)** provide all of the product documentation for a function in one place. When there is a content solution associated with a c3, the title of the c3 is a link to the content solution homepage.

https://www.ibm.com/docs/en/zos/3.1.0?topic=z-content-solutions

https://www.ibm.com/docs/en/zos/2.5.0?topic=z-content-solutions

Content solutions help you get started and provide a single location for all of the technical content about the function, including videos, workflows, articles, and more.

This is pdf version of IBM z Content Solutions' function/solution specific docs.

Title	Abstract Link	PDF Link	Last Updated
Cascading FlashCopy	Abstract	PDF	September 2023
Cloud Provisioning and Management	Abstract	PDF	September 2023
Infusing AI into IBM z/OS	Abstract	PDF	December 2023
Integrated Accelerator for zEDC	Abstract	PDF	September 2023
JES2 Email Delivery Services	Abstract	PDF	September 2023
JES2 Small Environment and NOTIFY Enhancements	Abstract	PDF	September 2023
Pervasive Encryption for IBM Z	Abstract	PDF	September 2023
RACF Support for IBM Z Multi-Factor Authentication (IBM MFA)	Abstract	PDF	September 2023
Remote Pair FlashCopy for XRC	Abstract	PDF	September 2023
System Recovery Boost	Abstract	PDF	December 2023
Tailored Fit Pricing for IBM Z	Abstract	PDF	January 2024
Validated Boot for z/OS	Abstract	PDF	November 2023
z/OS Compliance Data Collection	Abstract	PDF	September 2023
z/OS Container Extensions	Abstract	PDF	December 2023
z/OS Trusted Key Entry Workstation (TKE)	Abstract	PDF	September 2023
z/OS Workload Interaction Correlator	Abstract	PDF	September 2023

IBM z/OS 3.2: A highly securable and scalable operating system for running mission-critical applications

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.

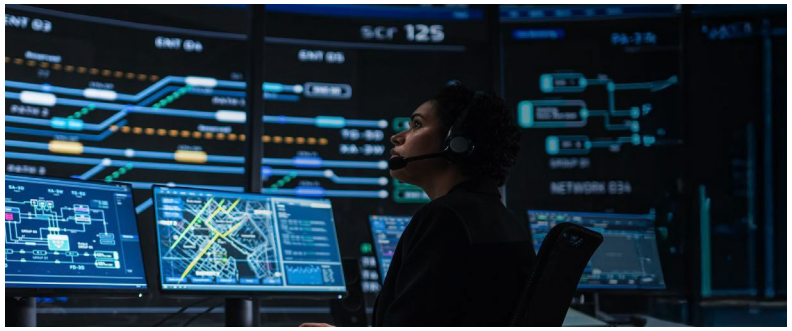
3.2 Overview

AI-infus ion

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

IBM z17 (9175) Model ME1 Functions & Features & IBM z16 (3931) Model A01 Functions & Features

z17

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

Channel Subsystem scalability
- Up to six (6) Channel Sub Systems (CSSs)
- 4 Subchannel Sets per LCSS

IBM Z Integrated Accelerator for AI

HiperDispatch Enhancements

Hardware Instrumentation Services (CPUMF)

New machine instructions

IBM Flexible Capacity for Cyber Resilience

IBM System Recovery Boost

Integrated I/O Architecture (DPU)

IBM Spyre AI Accelerator (4Q2025)

Network Express

BCPii support for z/OS Identity Mapping

Power Consumption Reporting

TFP for Hardware
- Workload Classification
- Replacement Capacity

z17	z16
• 2 CP chips on a Dual Chip Module (DCM), 5.5 GHz • L1 Private 128K instruction & 128K data • L2 Shared 36 MB / core, 270 MB effective shared • 10 x Private/Shared 36 MB L3 caches	• 2 CP chips on a Dual Chip Module (DCM), 5.2 GHz • L1 Private 128K i & 128K d • L3 Shared 32 MB / core, 192 MB effective shared
684 GB HSA, 64 TB maximum, 16 TB per drawer	256 GB HSA, 40 TB maximum, 10 TB per drawer
Max coupling CHPIDs per CEC of all types: 384 8 subchannels for IC CHPID	Max coupling CHPIDs per CEC – 384 7 subchannels for IC CHPID
ICA-SR 2.0 for short-reach coupling • 4 CHPIDs/port for CS5 • Same limits as z15/z16 with 48 adapters/96 ports.	ICA-SR 1.1 Max ICA SR per CEC 48 adapters/96ports (same as z15)
Coupling Express3 LR 10Gb/25Gb optics for long-reach • 4 CHPIDs/port for CL5/CL6 • 32 adapters, 64 ports per CEC	Coupling Express2 LR 10Gb (CX6-DX) PCIe adapter
CF Level 26 • Parallel Sysplex scalability, virtualization, consolidation, and density enhancements. • Removal of support for CF Flash Memory an d CF images using dedicated GP processors.	CF Level 25 • Retry buffers for cache and lock commands • Cache residency time metrics • Scalability improvements • CF Request latency/performance improvements
10 GbE and 25 GbE RoCE Express 3 SR and LR (CX6-DX)	10 GbE and 25 GbE RoCE Express 3 SR and LR (CX6-DX)
zHyperLink® Express 2.0 • Maximum 16 Adapters /32 ports	zHyperLink® Express1.1 • Maximum 16 Adapters /32 ports
FICON Express 32 -4P	FICON Express 32S
OSA Express7S 1.2 1/10/25 Gb	OSA Express7S 1.2 1/10/25 Gb
Crypto Express8S	Crypto Express8S

z16

One hardware model,
Five Features, 1-4
19” Frame System

Up to 85 user partitions, 32 TB per partition,
200 CPUs/zIIPs/IFLs per partition, up to 224 Pus

Up to 16 TB per z/OS LPAR with z/OS V2.5

Channel Subsystem scalability
- Up to six (6) Channel Sub Systems (CSSs)
- 4 Subchannel Sets per CSS

IBM Z Integrated Accelerator for AI

HiperDispatch Enhancements

Hardware Instrumentation Services (CPUMF)

New machine instructions

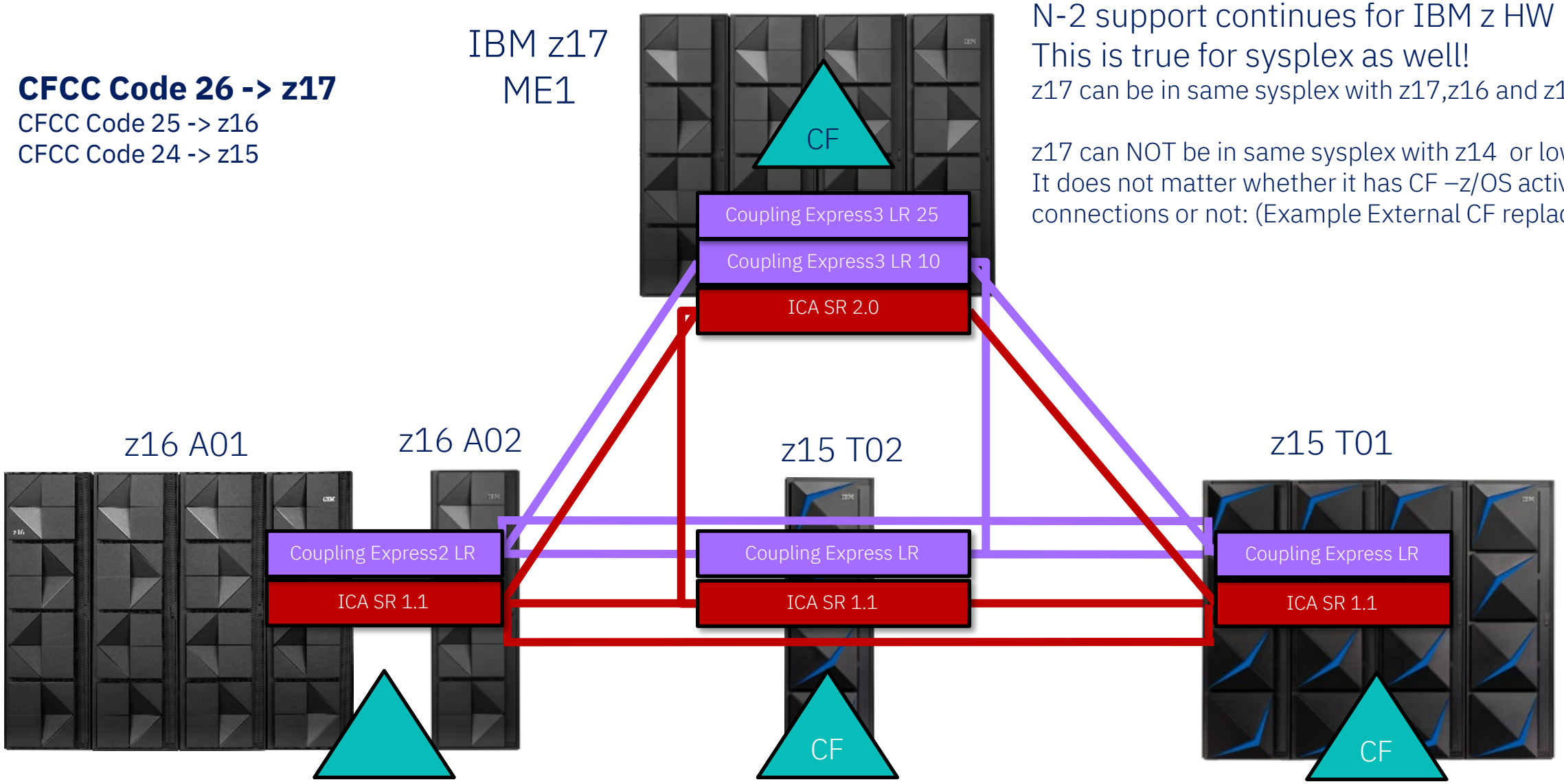
IBM Flexible Capacity for Cyber Resilience

IBM System Recovery Boost

z/OS Validated Boot

IBM z17 Coexistence

CFCC Code 26 -> z17
CFCC Code 25 -> z16
CFCC Code 24 -> z15

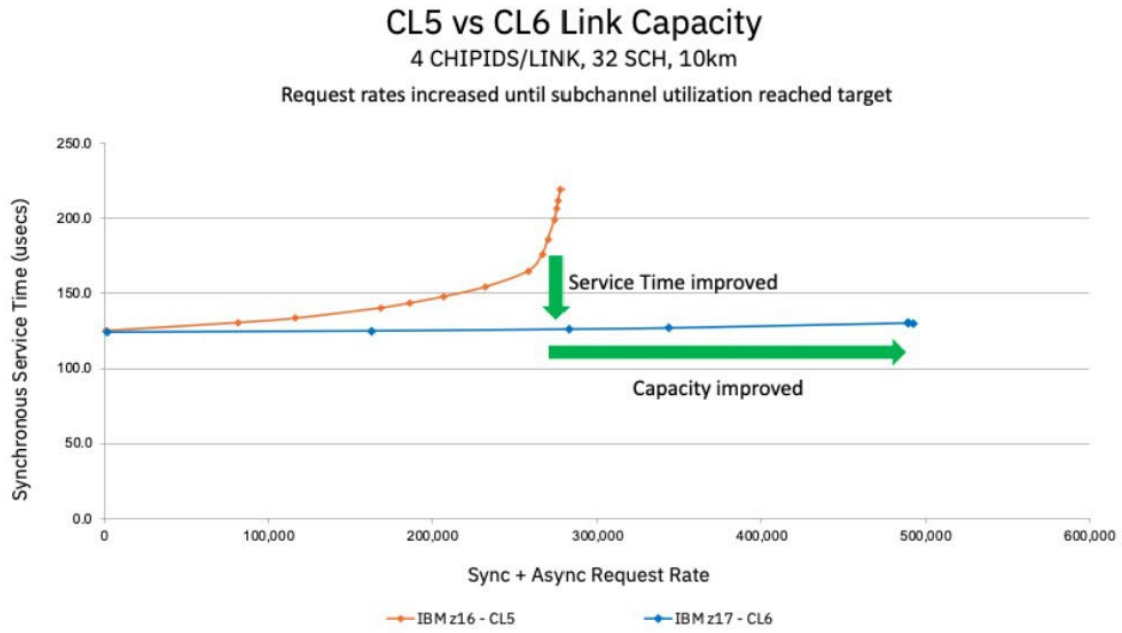


N-2 support continues for IBM z HW
This is true for sysplex as well!
z17 can be in same sysplex with z17,z16 and z15

z17 can NOT be in same sysplex with z14 or lower models. It does not matter whether it has CF –z/OS active connections or not: (Example External CF replacement)

IBM z17 – CF Improvements

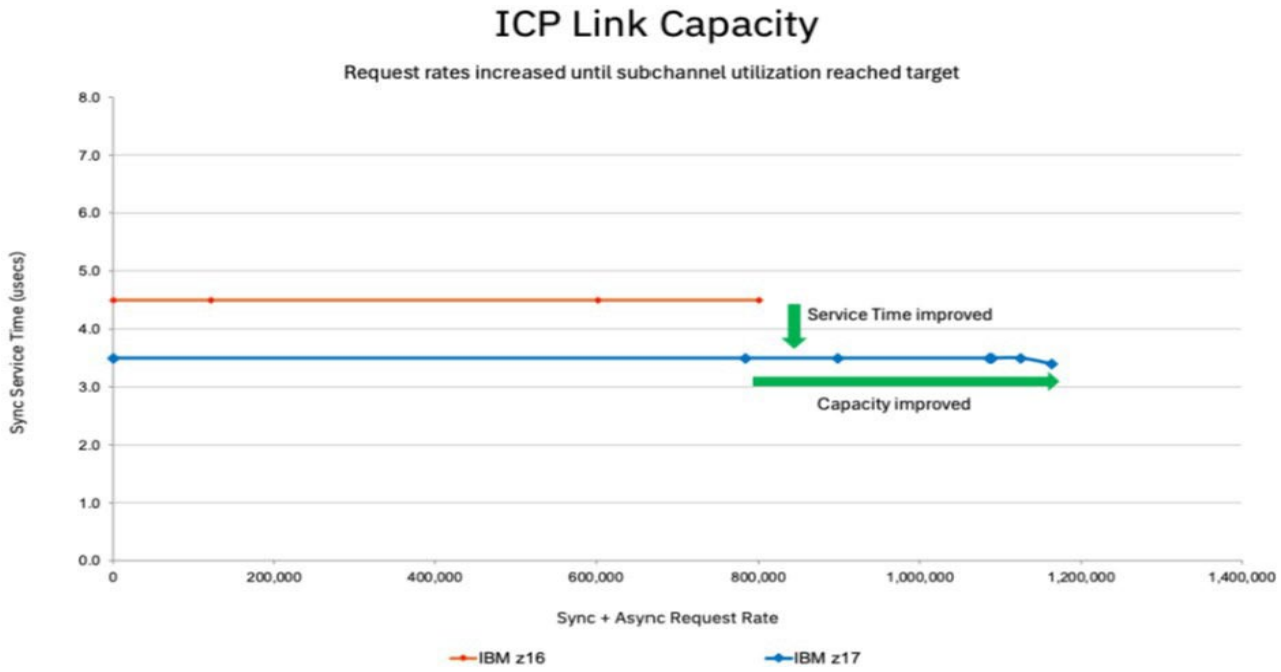
Coupling Express3 Long-Reach adapters with 25Gb optics (CL6) connecting IBM z17 systems improve coupling link capacity by up to 2x with improved service time compared to Coupling Express2 Long-Reach adapters with 10Gb optics (CL5) connecting IBM z16 systems.



DISCLAIMER
Measurements were done with an IBM internal workload generating a representative mix of coupling facility requests. Configuration: two Sysplexes, each with one z/OS partition with 40 general CPs and a coupling facility image with 8 ICFs. Measured using 4 chpids, 32 subchannels per chpid, over a 10km link. When configured to use 25Gb optics, the CE3 LR (CL6) adapter will be incompatible with existing CE LR and CE2 LR (CL5) links on previous machines. The amount of

improvement will vary based on distance, workload, and configuration.

Internal Coupling Peer (ICP) links on IBM z17 provide up to 40% more capacity compared to ICP links on IBM z16, coming from a combination of improved service time and an additional hardware buffer.

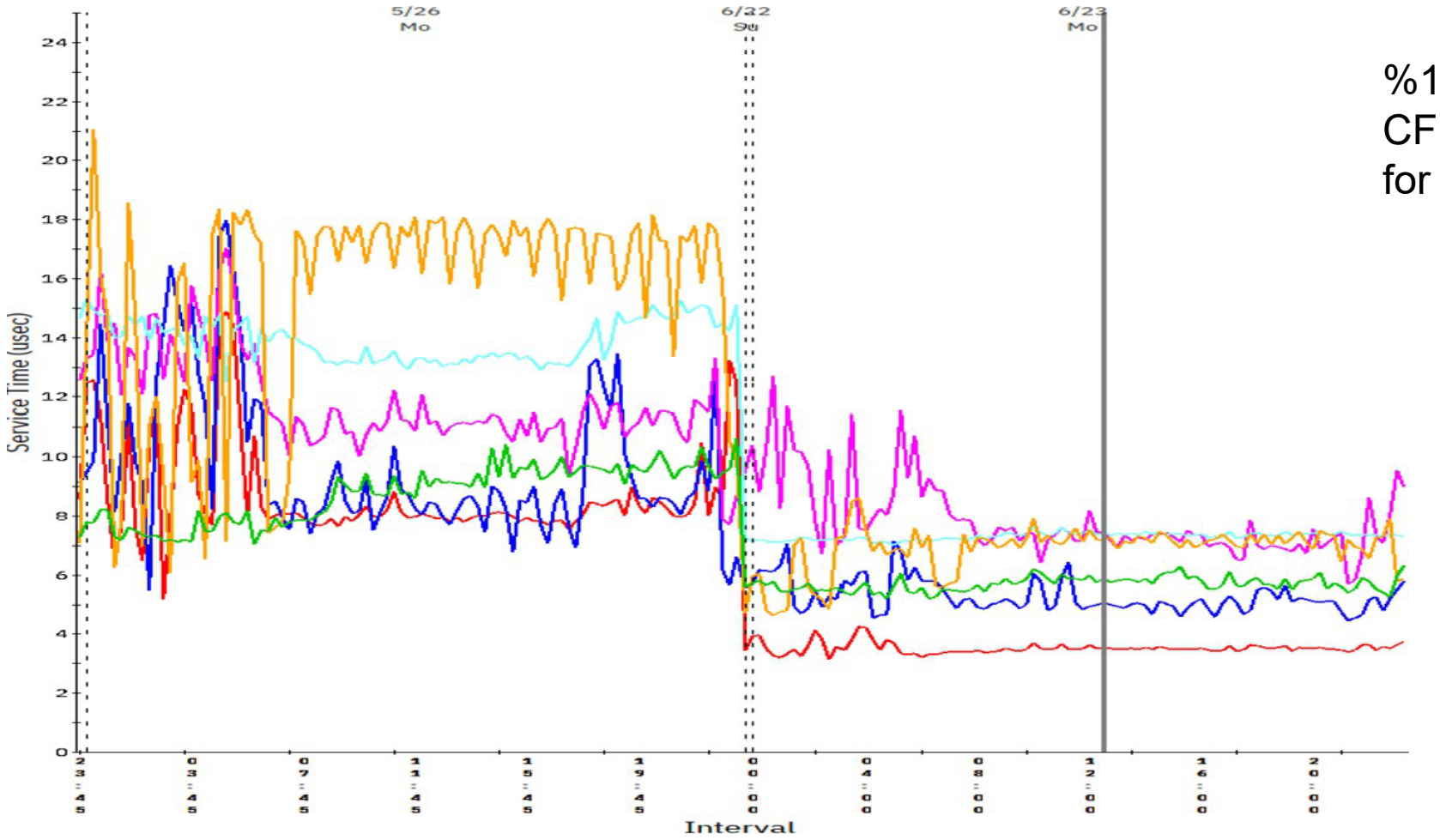


DISCLAIMER
Measurements were done with an IBM internal workload generating a representative mix of coupling facility requests on an IBM z17 running on a single Sysplex with one z/OS partition with 8 general CPs and a coupling facility image with 8 dedicated ICFs running a varied number of requests, and on an IBM z16 running on a single Sysplex with one z/OS partition with 7 general CPs and a coupling facility image with 8 ICFs running a varied number of requests. Measured with 1 ICP link. ICP links on IBM z17 provide an additional 8th hardware buffer. The amount of improvement will vary based on workload and configuration.

- **7 → 8 ICP buffers per CHPID**
- **Technology Currency**
  - **Coupling Express3 CX6-LX with 10Gb/25Gb optics for long-reach coupling -new CL6 link type**
  - **ICA SR 2.0 for short-reach coupling**

Changes in real client data after moving from CL5 to CS5

- Client was using long distance CF adapters (CL5) for short distance connection
- They moved from CL5 to CS5 after my recommendation. Here is how sync service times improved
- This is not a complex item but 4 client of 40 is quite a number based on my recent engagements.



%10 of the clients used
CF Long Distance Adapters
for actual short distance

ICA SR **Protocol Efficiency Improvements** NEW with z16

IBM Integrated Coupling Adapter CA SR 1.1 (ICA SR 1.1)

reduced service time

- Short range links
  - Up to 150 meters
- Link type:CS5 (2 ports)
- PCIe gen3 x8 (up to 8 Gb/second)
- 8 primary send buffers/channel
- 4 channels/port
- Max 48 adapters (96 ports)

New Coupling Express LR Adapter with **more throughput** NEW with z16

Coupling Express2 LR (CE LR)

more throughput

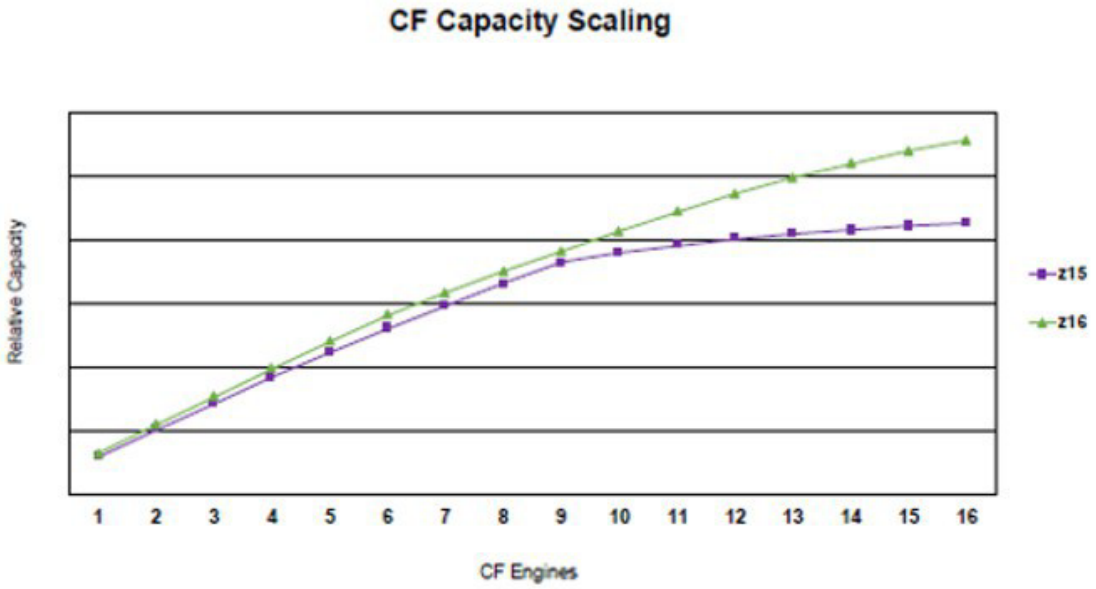
- Long range links
  - Up to 10 km unrepeated
  - Up to 100 km with qualified DWDM
- Link type: CL5 (2 ports)
- 10Gb Ethernet (1x)
- 32 primary send buffers/channel
  - Can use 8 at shorter distances
- 4 channels/port
- Max 32 adapters (64 ports)

Maximum of 384 coupling CHPIDs (of all types) per CEC

ICA SR coupling link protocol efficiency improvements
- > Reduced Service Time
New Coupling Express2 LR coupling links
–> More throughput

For clients moving from z15 to z17, reminder of the improvements in CF Adapters and CFCC code.

- IBM z16 provides improved CF processor scalability for CF images compared to IBM z15
- Processing and dispatching enhancements that result in meaningful scaling of effective throughput up to the limit of 16 ICF processors.



Common issue : HMC LPAR User error protection not used – z15 and above

- Available since z15.HMC user profile protection capabilities protects clients from outages caused by human errors while using HMC tasks .
- Clients can customize/enable added protection against user errors for LPAR targets
  - Client create Userid customization
    - Userid configured for 'view only'
    - Userid limited to CPCs / LPARs that are Non-Production
    - Userid limited to Non-disruptive tasks
  - Object Grouping
    - Organize objects (CPCs, LPARs) into Groups for clearer recognition of use
  - Object Locking
    - Lock all LPARs / CPCs from any disruptive task
    - Limit which Userids have the authorization to Lock/Unlock task
  - Task Confirmations
    - Basic Default confirmation pop-up for all tasks performed.
    - Customize individual Client Created Userid to enable **Disruptive Userid/Password** confirmation
    - Customize individual Client Created Userid userid/password confirmation for additional requirement to **add text input** (i.e., OS name to be affected)

- REASON of not using : ‘Not aware of it’

z17 HMC Dual Control

Dual Control Design Highlights

Dual control adds an extra layer of security for critical tasks on the HMC.

Dual control enabled tasks require another level of verification from an approver before they can be run.

Dual Control Target per User Role
- Object and
- Task

Dual Control Approver per User Role
- Any User Role for task/object authorization control
- Can also create special User Role with list of specific users for DC approval

Dual Control Management Execution Requests for Approval
- Run by requester restricted to time window in the future
- Run by requester
  - No time window restriction
- Run immediately
  - Automatically without requester further involvement
- Run on a specific date and time

Dual Control CPCs supported (Requires z17 HMC 2.17.0)
- z17 CPC (no restrictions)
- z16 & z15 CPCs
  - Should remove Single Object Operations in any role applied to a User under Dual Control
  - *Perform Model Conversion (Capacity on Demand)* & *Change LPAR Cryptographic Controls* tasks not available for HMC 2.17.0 z16 & z15 targets

Dual Control external interfaces (UIs, WS APIs, BCPii v2, IBM HMC Mobile)

IBM z17 - Dedicated low-latency Integrated Accelerator for AI

Centralized on-chip accelerator shared by all cores

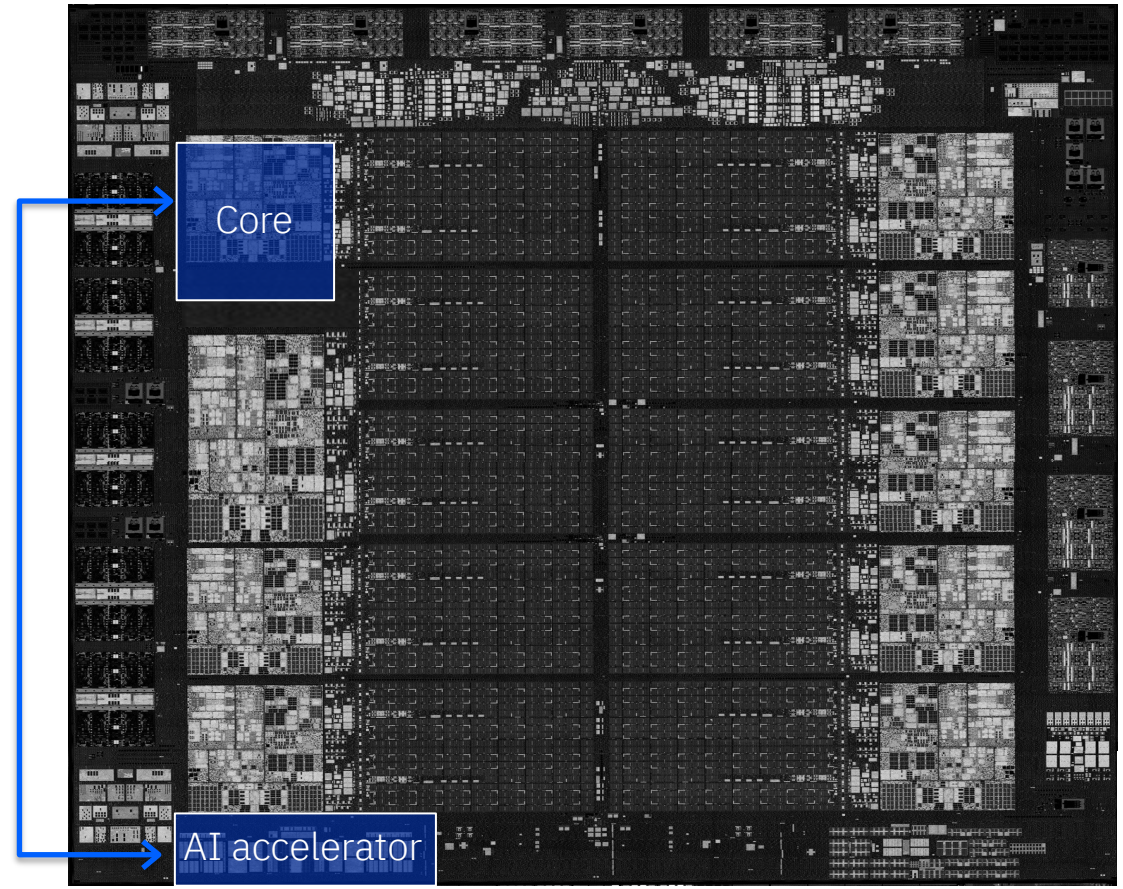
With IBM z16, process up to 3.5 million inference requests per second with 1ms response time using a Credit Card Fraud Detection model

Very low and consistent inference latency and scalable capacity

New Function with the z17

- Transform function between different data layouts/types
- Gaussian Error Linear Unit function
- NNPA instruction can be dispatched to any available accelerator in a drawer

Every CP chip has one Integrated Accelerator for AI built-in



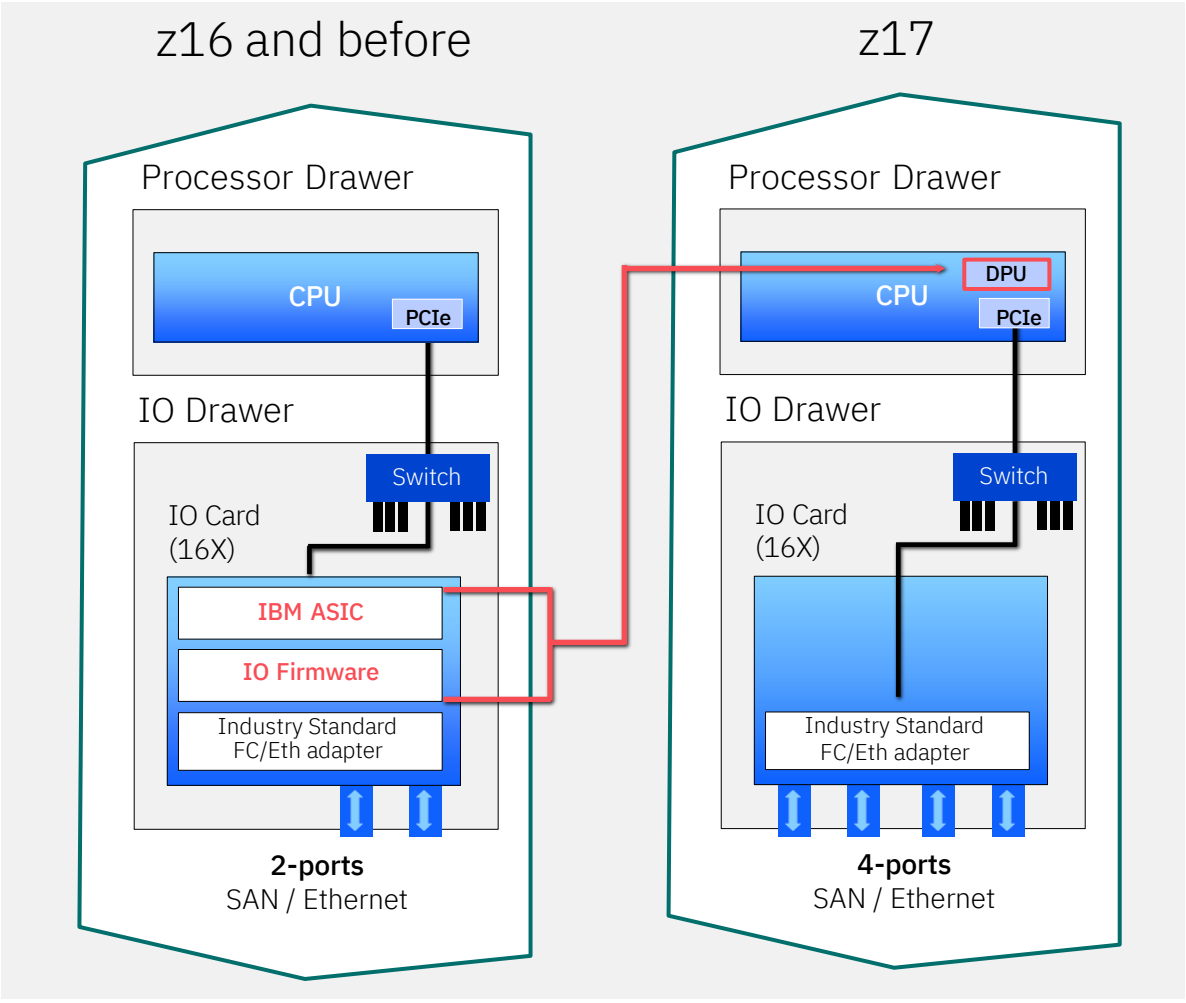
The IBM Spyre™ Accelerator is available for Z17 as of 28 October 2025

IBM z17 I/O Infrastructure

The I/O firmware stack has evolved on ASICs platforms over the past 30 years. In our next-gen system, we are pulling that I/O ASIC functionality, across the PCI bus, and into the mainframe processor chip – much like the on-chip AIU engine in IBM z16, and the on-chip compression acceleration engine in IBM z15.

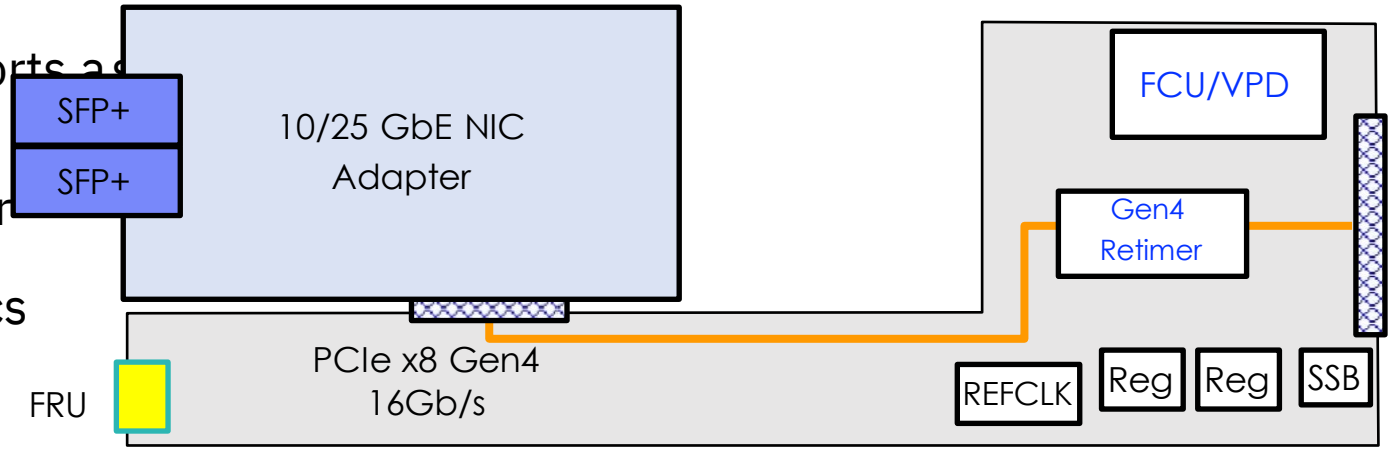
This will allow IBM Z® to:

- Provide better I/O RAS
- Use higher I/O density (4-port FICON® cards and converged network adapter)
- Be agile in delivery of new I/O feature function every generation. We always put out a new processor chip, so we get a chance to innovate on the I/O each time, versus once every ~10 years



IBM z17 Networking Express Card

- Common Hardware adapter for OSH/RoCE/Coupling.
- The Network Express card is considered an OSA card even though it can perform RoCE I/O because it is not associated with a Resource Group (PSP) unlike RoCE adapters.
- Details
  - CHPID type: OSH(10GbE,25GbE)
  - PCIe Function: NETH(10GbE/25GbE)
    - Adapters can be configured with both ports a
      OSH/NETH
    - Single mode (LR) or multimode (SR) fiber
    - Small form factor pluggable (SFP+) optics
    - LC Duplex
  - Two ports each
    - 1 PCHID/CHPID
  - Networking Express does NOT auto-negotiate to a slower speed.



Network Express SR 10G - FC: 0524
Network Express LR 10G – FC: 0525
Network Express SR 25G – FC: 0526
Network Express LR 25G – FC: 0527

z17 Network Express Cards

- Network Express card
  - Single card supports both OSA (for enhanced QDIO) and RoCE communications
  - New OSH CHPID for OSA EQDIO and new FID type NETH for RoCE support in z/OS Communications Server support
  - New Network Express cards are highly recommended to be used in z17:

    On new built z17 systems, new Network Express 10G/25G cards should be used, with the exception of the following limited cases where OSAExp7S 1.2 should be used:
    * OSAExp7S 1.2 1G for OSC CHPID type (connection to console)
    * OSAExp7S 1.2 10G/25G if using
      - o z/OS 2.4
      - o zVM Vswitch Layer3
      - o VSE

  - Network Express cards have numerous advantages over the previous OSAExp7S:

❑ Better RAS, latency and performance
❑ Lower power consumption
❑ Double the number of ports, which helps to reduce the number of cards, together with the new FICON, enabling space and energy savings.

IBM z17 Networking Express Card

Networking Summary

How to determine how many Networking Express ports to order?

- Order at least the number of ports equal to the greater of:
  - Current number of OSA ports
  - Current number of RoCE Ports

z/OS 2.5 and Higher
z/VM 7.3 and Higher

For general Networking:

- Use Networking Express Adapters for 10/25 GbE communication
  - CHPID: OSH

For OSA-ICC communication:

- Use OSA Express 7S 1.2 GbE
  - CHPID: OSC

For SMC-R communication:

- Use Networking Express Adapters for 10/25 GbE communication
  - FID: NETH
  - z/OS only
  - Recommended to limit SMC-R to 16 VFs per port
  - Must use the same PCHID as the paired OSH

z/OS 2.4 or lower

For general Networking:

- Use OSA Express 7S 1.2 10/25/GbE
  - CHPID: OSD

For OSA-ICC communication:

- Use OSA Express 7S 1.2 GbE
  - CHPID: OSC

For SMC-R communication:

- Use Networking Express Adapters for 10/25 GbE communication
  - FID: NETH
  - Recommended to limit SMC-R to 16 VFs per port

Linux

For general Networking:

- Use Networking Express Adapters for 10/25 GbE communication
  - FID: NETH
  - Limited to 127 VFs per port

Note: z/VM supports NETH for guest exploitation only

Remove of Legacy capacity on demand automation API command

In 2022 , we published a SOD :
Capacity on Demand (CoD) legacy automation: IBM z16 is planned to be the last server family to support Legacy CoD unique/record type automation interfaces. Clients should begin migrating to the new CoD flexible record structure interface. Prior to the IBM z10, automation interfaces for CoD were unique for each record type. The IBM z10 introduced new automation interfaces for CoD, which used flexible record structures that could apply to any CoD temporary record, and attributes of temporary capacity records are returned as an XML structure

This is the implementation of that SOD. **IBM z16 was the last IBM Z server family to support legacy Capacity on Demand (CoD) unique record type automation interfaces.**

HWMCA_ACTIVATE_CBU_COMMAND should be changed to HWMCA_ADD_CAPACITY_COMMAND
HWMCA_ACTIVATE_OOCOD_COMMAND should be changed to HWMCA_ADD_CAPACITY_COMMAND

HWMCA_ADD_CAPACITY_COMMAND is the command that has been published long time ago and should be used for capacity on demand record of every type.

Z Hardware Support (z17)

Tailor Fit Pricing for Hardware for zIIPs (Workload Classification Pricing)

- Scale new workloads on z/OS with optimized TCO with the agility of cloud-like pricing for zIIP capacity
- Unlock a pool of always-on subscription zIIP capacity for AI inferencing on z/OS, zCX Classic and zCX for OpenShift workloads
- Consumption-based pricing delivers greater agility to be able to meet the dynamic demands of new workloads
- Does not require Tailor Fit Pricing for Software as a pre-requisite

Tailored Fit Pricing for Hardware, with workload classification

New technology on IBM z17 enables z/OS to automatically classify, measure, and price workloads distinctly.

Classification	New workloads are automatically assigned to a workload class: *AI inference workload* | *z/OS Container Extensions workload*
Measurement	Each workload class's consumption is distinctly measured and reported.
Pricing	Optimized TCO for AI and zCX workloads with Tailored Fit Pricing for Hardware and new workload classification technology.

Use cases

AI inference

Leverage real-time, high-performance AI capabilities while keeping data secure and processing workloads efficiently.

z/OS Container Extensions

Run Linux-based applications natively in z/OS to modernize workloads while keeping data and applications close to core systems.

zCX for OpenShift

Extend OpenShift container orchestration to z/OS environments, enabling hybrid cloud and Kubernetes-based modernization.

z17 Upgrade Material

Check for these : IBM z17 Model ME1 - IBM Documentation

- ✓ IBM z17 Technical Guide (Redbook)
- ✓ IBM z17 Technical Reference (Redbook)
- ✓ IBM z17 Configuration Setup (Redpaper) IBM z17 Configuration Setup
- ✓ **IBM z17 PR/SM Guide Book (Resourcelink- now IBM Documentation website)** IBM Z and LinuxOne: PR/SM Planning Guide
- ✓ IBM z17 Installation Planning Book (Resourcelink – now IBM Documentation website)
- ✓ IBM z17 IOCP Guide (Resourcelink - now IBM Documentation website)
- ✓ **IBM z17 HMC , SE User Guides (Resourcelink - now IBM Documentation website)**
- ✓ IBM z Connectivity Handbook (Redbook)
- ✓ **Resourcelink IBM z17 Customer Exception Letter**
- ✓ CPU Measurement Facility Extended Counters Book (Resourcelink- now IBM Documentation website)
- ✓ **IBM z Functional Matrix Redpaper** (Look for new version of this one : IBM Z Functional Matrix)

- ✓ ***z/OS z17 Upgrade Workflow for z/OSMF***, provided with APAR **OA66926** on V2.5 and higher
  - Only contains the z/OS steps for upgrading to z17
  - 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.
  - Updates will be marked with FIXCAT IBM.Device.Server.z17-9175.RequiredService

- ✓ ***z/OS z17 Upgrade Workflow Exported*** format
  - Single flat file, HTML format, to be found on IBM Documentation website
  - For those that don’t wish to use z/OSMF, but no interactive assistance
  - Identical content to the z/OS z17 Upgrade Workflow for z/OSMF

IBM z17 – Where to find which feature is supported via PTF or base

Which z17 features and functions are supported by which z/OS release and whether via PTF or base. (Fixcats have it all)
In addition to our presentations , these are mentioned in related zHW PR/SM book. This table will be updated for z/OS 3.2.
IBM z17 PR/SM Planning Guide Chapter 1 has table : IBM Z and Linux One: PR/SM Planning Guide

Support for z17	z/OS 2.4	z/OS 2.5	z/OS 3.1
Base support[1,2]	PTF	PTF	PTF

Support for z17	z/OS 2.4	z/OS 2.5	z/OS 3.1
Processors: The maximum number of processors that can be configured per server: For the IBM z17 Model ME1 (9175): • Up to 208 processors can be configured as CPs, zIIPs, IFLs, ICFs, or optional SAPs • The sum of CPs and zIIPs configured in a single z/OS LPAR cannot exceed: – 208 on z/OS 2.4 or later in non-SMT mode – 128 cores/256 threads on z/OS 2.4 or later in SMT mode	Yes	Yes	Yes
Two-way simultaneous multithreading (SMT) for zIIPs, IFLs, or SAPs.	Yes	Yes	Yes
Up to 40 TB of Redundant Array of Independent Memory (RAIM) per server	Yes	Yes	Yes
Up to 16 TB per z/OS LPAR through usage of the 2 GB large frame area (LFAREA).[3]	No	Yes	Yes
Up to 4 TB per z/OS LPAR	Yes	Yes	Yes
Channel subsystems: The maximum number of channel subsystems (CSS) that can be configured per server. For the IBM z17 Model ME1 (9175) • Up to six channel subsystems • Four subchannel sets per CSS	Yes	Yes	Yes
HiperDispatch enhancements	Yes	Yes	Yes
IBM Z Integrated Accelerator for AI	PTF	PTF	PTF
Crypto Express8S toleration	PTF	PTF	PTF
Crypto Express8S support of Quantum Safe algorithms	PTF	PTF	PTF
OSA Express7S 1.2 1G/10G/25G	Yes	Yes	Yes
ICA-SR 2.0 for short-reach coupling: • 4 CHPIDs/port for CS5 • 48 adapters, 96 ports per CPC	PTF	PTF	PTF
Coupling Express3 LR 10Gb/25Gb optics for long-reach coupling: • 4 CHPIDs/port for CL5/CL6 • 32 adapters, 64 ports per CPC	PTF	PTF	PTF

Support for z17	z/OS 2.4	z/OS 2.5	z/OS 3.1
Support for 384 coupling CHPIDs and 64 ICP internal coupling channels	PTF	PTF	PTF
10 GbE and 25 GbE RoCE Express 3 SR and LR (CX6-DX)	PTF	PTF	PTF
FICON® Express32G • FICON Express32G LX • FICON Express32G SX	Yes	Yes	Yes
Hyperlink® Express 2.0 • Maximum of 16 adapters / 32 ports	Yes	Yes	Yes
IBM Flexible Capacity for Cyber Resilience	Yes	Yes	Yes
New IBM z17 instructions (assembly language support)	PTF	PTF	PTF
CPU measurement facility (CPU MF) new extended counters	PTF	PTF	PTF
z/OS BCPii and HMC/SE enhanced security	No	No	PTF
Workload level sustainability and power consumption reporting	No	No	PTF
Workload Classification Pricing	No	PTF	PTF
Replacement capacity records for Tailored Fit Pricing for IBM Z Hardware (TFP-HW)	No	PTF	PTF
SCRT replacement capacity reporting	PTF	PTF	PTF
Integrated I/O architecture: • Network Express • Enhanced QDIO	No	PTF	PTF
ICSF clear key HMAC support through CPACF	No	PTF	PTF
IBM Z Deep Neural Network (zDNN) support for new NNDA instructions	No	PTF	PTF
IBM Open XL C/C++ for z/OS	No	Web	Web

Support for z17	z/OS 2.4	z/OS 2.5	z/OS 3.1

Notes:

1. For z/OS 2.4 systems, this support requires the purchase of an extended support contract for IBM Software Support Services, plus PTFs.
2. To obtain the base support PTFs, use the required service fix categories (FIXCATs). For the IBM z17 Model ME1, use FIXCAT value IBM.Device.Server.z17-9175.RequiredService plus the FIXCATs for earlier processors

   Exploitation of many functions is provided by PTFs. To obtain the PTFs for new functions, use the appropriate exploitation fix category (FIXCATs). For the IBM z17 Model ME1, use the following FIXCAT value:

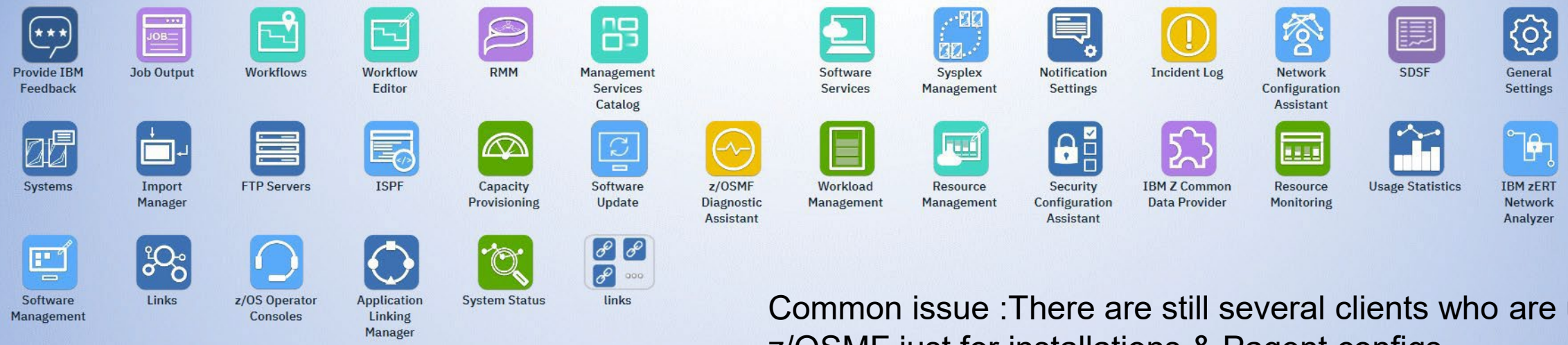
   • IBM.Device.Server.z17-9175.RecommendedService

   Recommended service PTFs are fixes that are recommended by IBM Support. To obtain the PTFs for recommended service, use the appropriate fix category (FIXCATs), as follows:

   • IBM.Device.Server.z17-9175.Exploitation
   • For the IBM z17 Model ME1, use the following FIXCAT value: IBM.Device.Server.z17-9175.RecommendedService
3. Starting with z/OS 2.5, z/OS supports an architectural limit of 16 terabytes (TB) of processor storage per LPAR. If more than 4 terabytes (4 TB) is defined to a z/OS LPAR, all memory beyond 4 TB is taken from the 2 GB large frame area. For information about the large frame area and the associated LFAREA parameter, see z/OS MVS Initialization and Tuning Reference. Earlier supported releases of z/OS support up to 4 TB of processor storage per LPAR.

z/OS 3.2

Special About z/OSMF



Common issue :There are still several clients who are using z/OSMF just for installations & Pagent configs

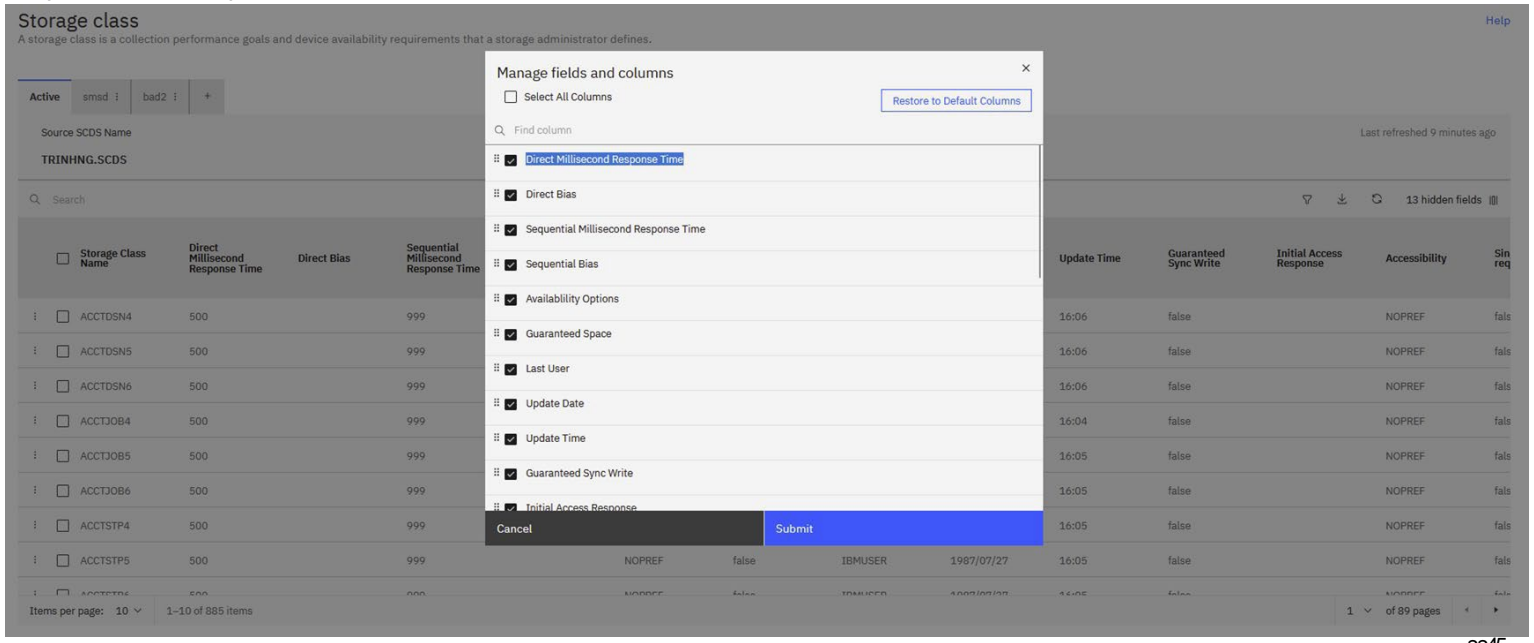
Security Configuration Assistant (SCA since 2.4 GA) Software Update (Since 2.4CD)
Service Management Catalog (Since CD 4Q2021) DFRMM Plug-in (Since 2.4 GA)
WLM Policy Advisor
Sofware Management – Must be used for z/OS 3.1 Install CFRM Policy Editor with CF Sizer (Resourcelink alternate will be removed 4Q2026)
AI Control Interface for z/OS (AICI) (New in z/OS 3.1)
z/OS Upgrade Workflow Discovery Function (New in z/OS 3.1)
Storage Management Plug-in (New in z/OS 3.2)

z/OSMF is your cockpit for managing z/OS!!!
Please Don't miss this!

z/OSMF Storage Management Plug-In (z/OS 3.2)

- New user interface for DFSMS Storage Management (as a future alternative to ISMF)
  Instead of ISPF Panels using zOSMF for SMS (System Managed Storage) configuration management
- Storage Management REST API updates:
  - Ability to specify a Source Control Data Set
  - New API to retrieve Automatic Class Selection (ACS) routine source
- SMS changes to save and retrieve ACS routine source
  - ACS source saved to configuration when translated/validated on new release
  - Console command to export the saved source (if available) to a sequential dataset or pds member

This is one part of a simplification journey and it is also a foundation for automation



How to register existing SMPE CSIs to z/OSMF

z/OSMF makes thing easier to do a SW update / apply maintenance.

We can do it easy if SMP/Es are manageable with z/OSMF ? What about products that we did not use z/OSMF to install. How can I use z/OSMF to manage those ?

z/OSMF has many advantages but how I can use this capability for my existing CSI datasets / installed products?
How can we define a SW instance for existing installed SW in SW Management z/OSMF Plug-in ?

It is easy !. Follow the few steps:

1) Open the Software Management Task in z/OSMF
2) On the SW Management main panel Click ‘Software Instances’
3) On the Sofware Instance pane click Actions - > Add
4) Give a name and optionally write description
5) Enter System and Global CSI name of the existing /installed product
6) Select one or more zones and click Finish!

Common Assumption

1) I did not install my products with z/OSMF , I can not get benefit from z/OSMF capabilities and can not use SW update task . Let me install new versions via z/OSMF then I can start using those. These are not in my interest for now, since I did not install any product via z/OSMF yet.

Wrong!. You can register your current SMP/E CSI and start managing products via z/OSMF which also includes seeing EOS dates from z/OSMF and all other nice items like SW update , applying maintenance from z/OSMF SW update plug-in

SDSF Updates (z/OS 3.1)

```
MENU 3.1      WSCZPLEX   SYSB
AND INPUT ===>
NAME        Description
AD          Address space diagnostic
APF         APF data sets
AS          Address space memory
BPXO        OMVS options
CF          Coupling facilities
CFC         CF connections
CFD         Couple data sets
CFS         CF structures
CFSA        CF structure activity
CK          Health checker
CS          Common storage subpools
CSR         Common storage remaining
DA          Active users
DASH        Dashboard
DEV         Device activity
DYNX        Dynamic exits
EDT         Eligible device table
ELOG        Event log
EMCS        Extended consoles
ENC         Enclaves
ENQ         Enqueues
ENQC        Enqueue contention
ENQD        Enqueued data sets
FS          File systems
GT          Generic tracker
H           Held output queue
HELP        SDSF help facility
I           Input queue
INIT        Initiators
JC          Job classes
JES         Job entry subsystems
JG          Job groups
JRG         JES resource groups
JRI         JES resource information
JRJ         JES resource by job
JRJC        JES class resource limit
```

```
MENU 3.1      WSCZPLEX   SYSB
AND INPUT ===>
NAME        Description
LINE        Lines
LLS         Link list sets
LNK         Link list data sets
LOG         System log
LPA         Link pack data sets
LPAR        Logical partitions
LPD         Link pack directory
MAS         Members in the MAS
MEM         Memory contents
MFD         Module fetch data sets
MFJ         Module fetch jobnames
MFM         Module fetch statistics
NA          Network activity
NC          Network connections
NODE        Nodes
NS          Network servers
O           Output queue
PAG         Page data sets
PARM        Parmlib data sets
PC          PC routines
PLEX        Sysplex information
PPT         Program properties
PR          Printers
PROC        Proclib data sets
PROD        Product enablement
PS          Processes
PUN         Punches
RAC         RACF classes
RACG        RACF groups
RACO        RACF options
RACP        RACF profiles
RACU        RACF users
RDR         Readers
REPC        WLM report classes
RES         WLM resources
RGRP        WLM resource groups
```

```
MENU 3.1      WSCZPLEX   SYSB
AND INPUT ===>
NAME        Description
RM          Resource monitor
RMA         Resource monitor alerts
SE          Scheduling environments
SMFD        SMF data sets
SMFO        SMF options
SMFS        SMF subsystems
SMSG        SMS storage groups
SMSV        SMS volumes
SO          Spool offload
SP          Spool volumes
SR          System requests
SRVC        Service classes
SSI         Subsystem information
ST          Status of jobs
SVC         SVC routines
SYM         System symbols
SYS         System information
SYSP        System parameters
UCB         Unit control blocks
ULOG        User session log
VMAP        Virtual storage map
WKLD        WLM workloads
WLM         WLM policy data
XCFA        XCF application servers
XCFM        XCF groups and members
XCFP        XCF signaling paths
```

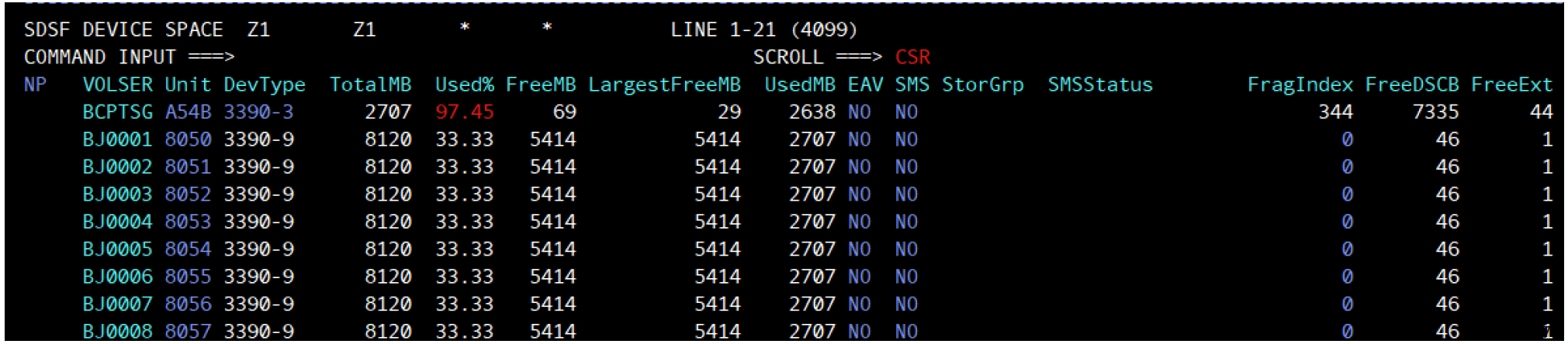
98 main panels in z/OS 3.1

(z/OS 3.1)

CF	Coupling facilities	**RAC**	RACF classes
CFSA	CF structure activity	**RACG**	RACF groups
EDT	Eligible device table	**RACO**	RACF options
ELOG	Event log	**RACP**	RACF profiles
JRG	JES resource groups	**RACU**	RACF users
JRJC	JES class resource limit	**SMFD**	SMF data sets
LPAR	Logical partitions	**SMFO**	SMF options
MFD	Module fetch data sets	**SMFS**	SMF subsystems
MFJ	Module fetch jobnames	**UCB**	Unit control blocks
MFM	Module fetch statistics	**XCFA**	XCF application servers
PLEX	Sysplex information	**XCFP**	XCF signaling paths
PPT	Program properties		
PROD	Product enablement		

SDSF new functions in z/OS 3.2

AW	Address space WLM class	Jobs
CAT	Catalog data sets	System
CMO	Common memory objects	Memory
DEVS	Device space	Devices
FXE	Function Registry	System
JRU	JES resource by userid	JES
MFP	Module fetch paths	Program
NAP	Network port activity	Network
RACD	RACF data sets	Security
RACF	RACF information	Security
RACR	RACF RRSF nodes	Security
RLOG	RACF log	Log
SMFL	SMF log streams	Measure
SMFR	SMF real time resources	Measure



SRM Lock Contention Relief – z/OS 3.2

Many SRM services and timed algorithms run concurrently on a z/OS system and are serialized by the SRM lock.
The higher the number of processors and concurrent transactions on a system, the more the SRM lock becomes a major source of contention. Thus, SRM lock contention relief is a major contribution to optimized z/OS performance.

Instrumentation of SRM revealed that one of the timed algorithms which gets control every millisecond is one of the major originators of the contention because it holds the SRM lock rather long. This algorithm controls service class period switching for all address spaces and enclaves. Detailed analysis of this algorithm showed that for enclaves additional data collection is done which is not required for assessing a period switch.

Restructuring of the algorithm and reducing the enclave code path to the purpose of period switching results in significantly improved performance and, consequently, less SRM lock contention. The higher the enclave load, the more noticeable the impact will be.

To assess a period switch for enclaves, SRM algorithm IRARMWM2 is using common code which is also used for collection of enclave's resource consumption data. This shared code performs many tasks not required for the mere purpose of period switch detection.

To considerably shorten the path length, IRARMWM2 does no longer use common logic but carries out only the calculations required for its actual purpose

RMF monitor III, RMF Monitor I SDELAY Reports

Common issue: GRS ENQ contention is not monitored

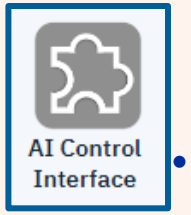
AI Framework For z/OS 3.1

New in z/OS 3.1 & improved in z/OS 3.2

The AI Framework consist of

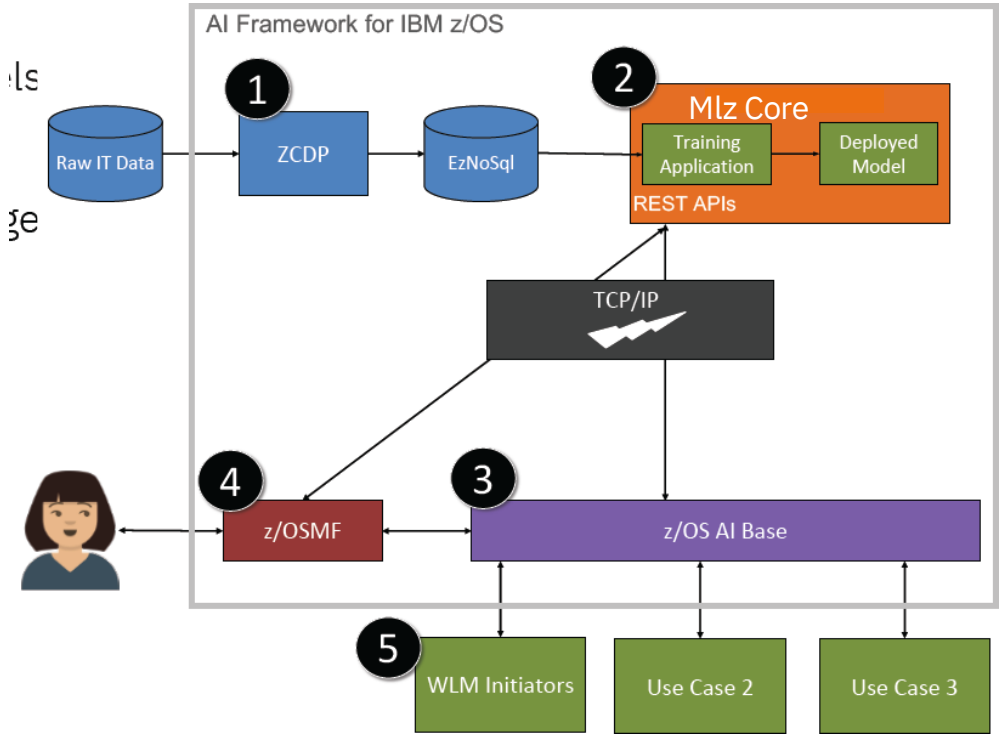
- Data collection engine (Included in new **AI System Services** Product)
- AI model server (Included in new **AI System Services** Product)
- AI base component (New **AI Base Component AIB** in z/OS **)**

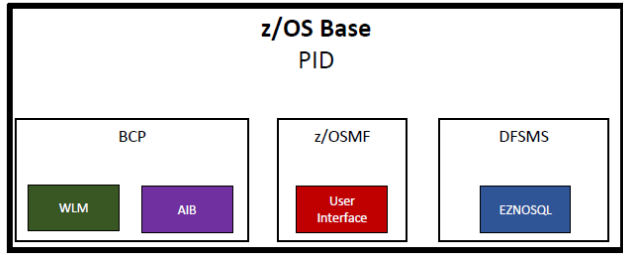
- New **z/OSMF workflows** for configuration of the AI framework.

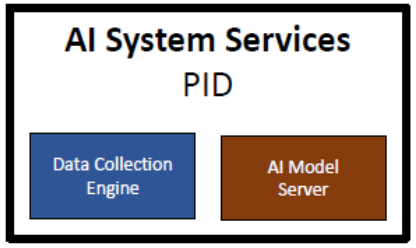


- A modern user interface, and providers that can plug into the framework for expandable future use cases. (New z/OSMF Plug-in)

- The z/OSMF AI Control Interface task has been enhanced to introduce data visualization to compare the number of active batch initiators managed by WLM to the initiators predicted by AI in simulation mode. (z/OS 3.1 CD 2Q 2024)







- z/OS 3.1 contains enhancements to WLM as first exploiter of AI Framework
- AI-Powered WLM, designed to **intelligently predict upcoming batch workload** and react accordingly for optimized system resources is **the first to leverage the AI System Services**.

AIB can register to ARM (z/OS 3.1 CD 4Q 2024)

Share your ideas , which use cases will be the most useful one for you!

Share your ideas, for simplification

Share your ideas for anything related to z/OS

[IBM Z Hardware and Operating Systems Ideas Portal]

Shape the future of IBM!

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Post your ideas

1. Post an idea.
2. Get feedback from the IBM team and other customers to refine your idea.
3. Follow the idea through the IBM Ideas process.

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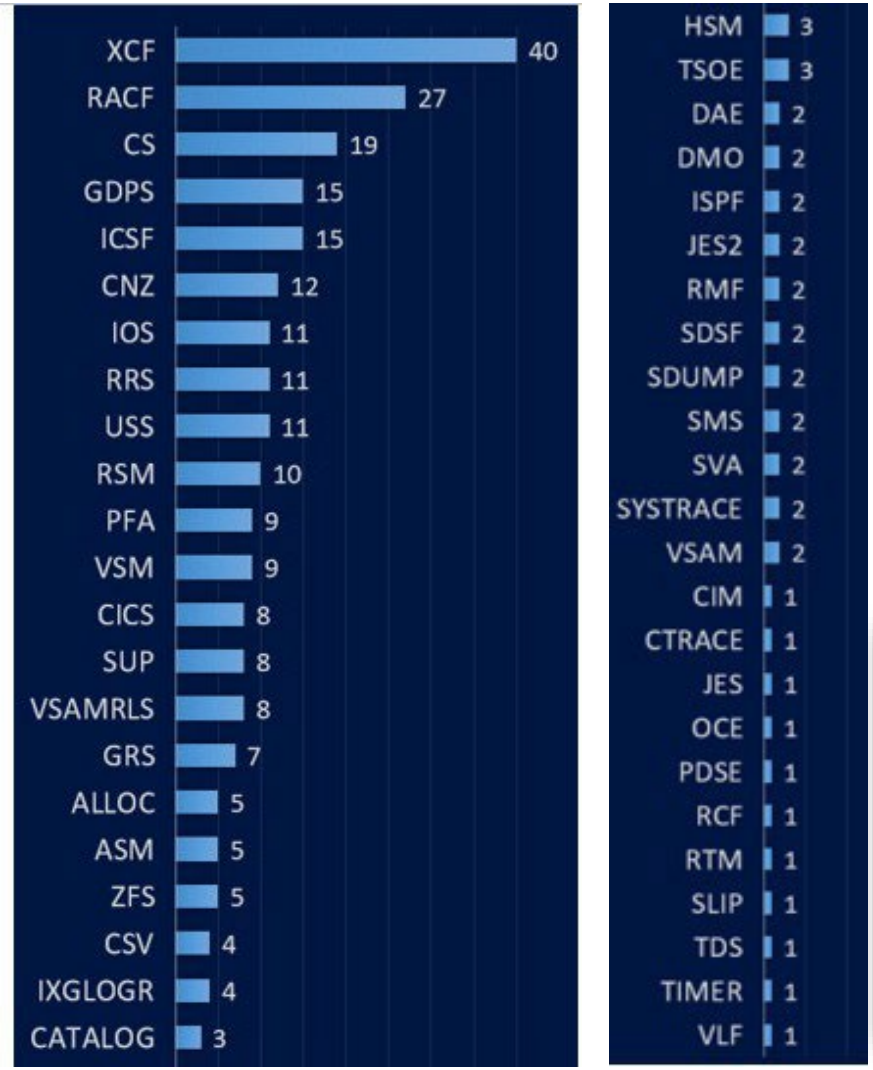
ideasibm@us.ibm.com - Use this email to suggest enhancements to the Ideas process or request help from IBM for submitting your Ideas.

Common issues: z/OS Health Checker

Of Health Checks Group By Owner



Close to 300 Base Health Checks exist that will help you improve your resiliency.

How to Print Health Checks Information in Batch Mode

SYS1.SAMPLIB(Hzsprint)

```
//HZSPRINT EXEC PGM=HZSPRNT,TIME=1440,REGION=0M,PARMDD=SYSIN
//SYSIN DD *
CHECK(*,*) ,EXCEPTIONS
//SYSOUT   DD SYSOUT=A,DCB=(LRECL=256)
```

CHECK(*,*)	Shows all HCs
CHECK(*,*), EXCEPTIONS	Shows HCs with exceptions

Common Issues : Questions to ask

1. Are you tracking IBM.Function.Health Checker fixcat ?
2. Are you monitoring HC alerts ? Do you have automation for HC alerts ?
3. When did you last check your policy to make sure you activated back HCs temporary deactivated before?
4. Did you deactivate or decrease the priority of critical HC – I know let me check that later -?
5. What is the default setting for new HCs according to your policy ?

New Health Checks

New in z/OS 3.2:

USS_ENVIRONMENT **WLM_SCLASS_SYSSTC**
WLM_OPT_PARM_CPENABLE

New in z/OS 3.1 Base and with CDs:
WLM_SCLASS_SYSSTC (OA62316) CD 1Q-2026 (z/OS V2R5 and z/OS 3.1)
ZFS_CACHE_PERFORMANCE(APAR OA63911, applies to z/OS 3.1 and V2R5) **CD 1Q-2026**
ZFS_EXCEPTIONS (APAR OA63911, applies to z/OS 3.1 and V2R5) **CD 1Q-2026**
ICSF_CLEAR_KEYS
ICSF_STATUS
IXGLOGR_LOCALBUFFERUSAGE (APAR OA64676, applies to z/OS V2R5 and z/OS 3.1)
RSM_FREEMAINEDFRAMES
SUP_ASVT_ABOVE_16M

Changed in z/OS 3.1:

RACF_PASSWORD_CONTROLS (added password phrase interval) VSAMRLS_QUIESCE_STATUS (APAR OA64048)

Changed in z/OS V2R5:

RACF_SENSITIVE_RESOURCES
XCF_TCLASS_CLASSLEN

- If you have statements that suppresses these new HCs, you can not see exceptions. Do not code statements to suppress by default.
- Update your check customization for modified IBM Health Checker for z/OS checks.
- Changes that IBM makes to the checks provided by IBM Health Checker for z/OS can affect any updates you might have made.

New in z/OS V2R5:
VSM_CheckRegionLoss
RACF_ADDRESS_SPACE
RACF_ERASE_ON_SCRATCH
RACF_PROTECTALL_FAIL
RACF_PTKTDATA_CLASS
RACF_SYSPLEX_COMMUNICATION
IOS_ENDPOINT_SECURITY_LCUPATHS
ZOSMIGV2R5_NEXT_CS_OSADLH
ZOSMIGV2R5_NEXT_CS_LSA
ZOS31MIG_SSH_CONFIG(APAR OA65071 applies to z/OS V2R4 and V2R5)
ZOS31MIG_SSHD_CONFIG(APAR OA65071 applies to z/OS V2R4 and V2R5)

Common issues : SRB middleware stop/restart is not used

z/OS System Recovery Boost Summary

Stage	Boost Class[2]	Description	Duration	Usage	Trigger
1	IPL Boost and Shutdown Boost z15, z16	IPL / Startup ShutDown GDPS® Enhancements[3] Standalone Dump	60 minutes At most 30 mins N/A Dump time or max 60 mins	Once per LPAR Once per LPAR N/A Speed boost only	IPL PROC IEASDBS GDPS Script IPL SADMP
2	Recovery Process z15, z16	Sysplex Partitioning Recovery CF Structure Recovery CF DataSharing Member Recovery Hyperswap Recovery	2 mins 1 min per structure 1 min per lock structure 2 mins	30 mins in 24 hours per eligible LPAR Shared Among Invocations Only 2 Reserved zIIPs brought online	Automatic Automatic Automatic Automatic
3	Recovery Process z16	SVC DUMP Middleware Start/Stop/Recycle Hyperswap load boost	2 mins[1] 5 mins 2 mins		CHNGDUMP RPBMINSZ= WLM Policy Automatic

[1] In order to see a benefit from zIIP Boost, you will need to turn on dump optimization, via the CHNGDUMP SET,SDUMP,OPTIMIZE=YES command.
[2] WLM will implicitly set all single-period importance 1 or 2 work as CPU Critical for all boost classes for duration of boost
[3] GDPS provides configuration and orchestration parallelization, no SRB related activities

New in Z17 : Dynamic I/O Activation SRB

SRB Enhancements

Boosts are: 1. Speed: subcap can run fullcap 2. zIIP: allowing workload onto zIIPs On by default in IEASYSxx BOOST=SYSTEM	SMP/E FIXCAT IBM.Function.SystemRecoveryBoost										
	z16 and z17										
	z15							z16 and z17			
	System Recovery Boost			Recovery Process Boost* at MCL P46602.005 for IBM z15 Driver 41C (Bundle S29)				Recovery Process Boost*			
	IPL Startup	Standalone Dump (no zIIP boost)	Shutdown	Sysplex Partitioning – planned or unplanned removal	CF Structure Recovery – rebuild or duplex	CF Datasharing Member Recovery-disconnect or failure from locking resources	Planned/Unplanned HyperSwap	SVC Dump	STC start/restart	HyperSwap configuration load	Dynamic I/O Activate
Intended Duration	60 min	60 min	30 min	2 min	1 min	1 min	2 min	2 min	5 min	2 min	2 min
Basis of use	Auto	Auto	`S IEASDBS`	Auto	Auto	Auto	Auto	`CHNGDUMP SET,SDUMP, RPBMINSZ` threshold	WLM service definition `BOOST` attribute	Auto	Auto
z/OS 2.3	PTF	PTF	PTF	PTF	PTF	PTF	PTF				
z/OS 2.4	PTF	PTF	PTF	PTF	PTF	PTF	PTF	PTF	PTF	PTF	
z/OS 2.5	PTF	PTF	PTF	PTF	PTF	PTF	PTF	PTF	PTF	PTF	
z/OS 3.1	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	PTF
z/OS 3.2	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

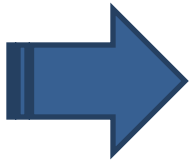
*Recovery Process Boost limited to 30 min per day per LPAR in aggregate. In V2.4 and higher, can be enabled or disabled with `S IEASRB,CLASS=RP,REQ=DISABLE|ENABLE`

GDPS provides configuration and orchestration parallelization in GDPS V4R2 and higher.

Common finding & recommendation

%80 of the clients did not implement SRB middleware support

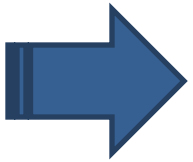
Reason:
Not aware of.
One of the two function that requires action related to SRB



Implement SRB middleware stop/restarts

%80 of the clients did not implement SRB dump support

Reason:
Not aware of.
One of the two function that requires action related to SRB



Implement SRB dump support

Best Practices/Proven Practices

Summary of Common Issues

- z/OS, Sysplex and subsystem best practices / functions that impacts directly resiliency have not been implemented
  Check Appendix for list of majority of the ‘z/OS and sysplex best practices’

Several best practices are not implemented, Common issues with % of frequency in all studies

- %95 z/OS Health checker exceptions not integrated into monitoring process. HC severities are lowered.
- %90 XCF functions : CFLRMGMT and several others not used.
- %80 SRB middleware stop/restart not used (WLM policy update), SRB dump support not implemented
- %80 SSDP not implemented
- %80 ARM is not used and/or automation product is not registered to ARM
- %90 XCFCNFXX Logr monitoring not active
- %20 Traces are left active
- %80 VSMBESTFITCSA(YES) not coded
- USEV1R19Rules(YES) coded
- SWBSTORAGE(ATB) not used
- %95 VTOC_USE_ZHPF not used
- %10 , Long distance CF Adapter used for short distance
- %70 CF Performance not monitored, reported, tracked
- %50 Memory ‘minimum available frame queue’ not monitored
- %80 CF Dump size is 2M default
- %20 SMF98s not collected, %100 WIC is not used although it can be

z/OS & Sysplex Best Practices – Some parts from the list

Component	Type	Best Practice
BCP	Setup	Reserved memory defined for all production LPARs
BCP	Setup	Capture Ratio not less than 85%
BCP	Setup	FirstReference Page Fault above 100000 needs investigation
DFSMS/CATALOG	Setup	Master Catalog (No Shared Master Catalog)
DFSMS/CATALOG	Setup	Master Catalog (Only data sets required for IPL)
DFSMS/CATALOG	Setup	Master Catalog (RACF protected to prevent data sets from being cataloged in master (no HLQ)
DFSMS/CATALOG	Setup	User Catalogs: Multiple user catalogs (separation by application / how big)
DFSMS/CATALOG	Setup	User Catalogs:IMBED/REPLICATE Removed
DFSMS/CATALOG	Setup	Correct/Consistent Catalog Share options (nonshared 3,3 shared 3,4)
DFSMS/CATALOG	Setup	VLF instead of ISC
DFSMS/CATALOG	Setup	VSAM/RLS Catalog Sharing (V2.1) (master catalog is not elligible)
DFSMS/OAM	Setup	CBR* messages monitored and automated
DUMP	Setup	Non-HyperSwap volumes
DUMP	Setup	AUTOIPL
DUMP	Setup	PDUU Usage for Large Dumps MVS Diagnose has part for Best Practices for Large Dumps
GRS	Setup	Put automation to set CNS(GRS CONTENTION NOTIFICATION SYSTEM) to high weighted/priority system and not a GDPS-K
GRS	Setup	Monitor GRS ENQ
HCD/IODF	Setup	UCB(Sufficient UCBs for Growth)
HCD/IODF	Setup	UCB(Subchannel Sets (1,2,3) (PAVs, PPRC Secondaries, GM FlashCopy, Tertiary))
Infrastructure-DASD	Setup	UCB(EAV (Extended Address Volumes – 1up to TB))
JES2	Setup	RACF Facility Profile. (JES.EMERGNCY.<subsys>)
JES2	Setup	LOGON Procedures, setup, tested.
JES2	Setup	Security (Password or Secure Signon)
JES2	Setup	w/TCP/IP – Application Transparent TLS (AT-TLS) - RACF
JES3	Setup	JES3plus or migrate to JES2 as of z/OS 3.1 no longer JES3
PFA	Setup	Use PFA (Predictive Failure Analysis)
RTD	Setup	Use Run Time Diagnostics (RTD)

z/OS & Sysplex Best Practices – Some parts from the list

Component	Type	Best Practice
SYSPLEX	Setup	Applications do not contain localtime differences in flow of decisions
SYSPLEX	Setup	CF non_volatile set
SYSPLEX	Setup	Structure non_volatile location
SYSPLEX	Setup	SFM active
SYSPLEX	Setup	ARM (automatic restart manager) active
SYSPLEX	Setup	Enough memory in each CF LPAR to handle all workload in one LPAR incase of LPAR failure/subsystem failure
SYSPLEX	Setup	HMC LPAR user error protection/ z17 Dual Control
SYSPLEX	Setup	Latest CFCC Code -Latest zHW model (Technology usage)
SYSPLEX	Setup	System Status Detection Partitioning Protocol (SSDPP) enabled * XCF CDS Formated (z/OS 3.1 Requirement as well) ITEM NAME(SSTATDET) NUMBER(1) * BCPii Enabled * Default FDI / Spin settings
SYSPLEX	Setup	Lock Structure False Lock Contention %
SYSPLEX	Setup	Subchannel utilization /Subchannel Busy
SYSPLEX	Setup	Primary/Alternate CDS allocated on different storage subsystems or boundaries (For GDPS customers follow GDPS recommendations: prim in prim box alternate in secondary box and not PPRCed)
SYSPLEX	Setup	Failure isolation required structure setup as failure isolated (external CF or SM duplexed)
SYSPLEX	Setup	Spare LPARs defined in IODF in each CEC to handle workload incase of CEC failure /LPAR failure
SYSPLEX	Setup	z/OS limits -maxproc,ASID, memory enough to handle workload incase of any LPAR failure
SYSPLEX	Setup	Track Sync /Async Conversion (Heuristic and non-heuristic)
SYSPLEX	Setup	At least 3 Physical CF connectivity (if 1 fails there will be no SPOF)
SYSPLEX	Setup	Path Busy / Path utilization
SYSPLEX	Setup	CICSPlex
SYSPLEX	Setup	DVIPA
SYSPLEX	Setup	Sysplex Distributor
SYSPLEX	Setup	DDF workloads (Be aware of Critical pain points/monitor/control)
SYSPLEX	Setup	VTAM Generic Resources
SYSPLEX	Setup	MQ Shared Queues
SYSPLEX	Setup	IMS Shared Queues
SYSPLEX	Setup	Dynamic workload management (WLM)
SYSPLEX	Setup	CF Connectivity SPOF
WIC	Setup	Use WIC (Free for RMF or zADG licensed) Install APARs for subsystems SMFPRMXX WIC parm and setup - More SMF98s
WLM	Setup	WLM definitions ready for spare subsystem STCs (Additional CICS, etc..)
z/OSMF	Setup	z/OSMF all capabilities/plug-ins are configured and in use.
ZFS	Setup	Shared ZFS ,SYSPLEX(YES)
ZFS	Setup	Use Shared zFS

z/OS & Sysplex Best Practices – Some parts from the list

Component	PARM-Member	Type	Best Practice
DUMP	ADYSETXX	PARM	SVCDUMP suppress duplicate dumps - use DAE
DUMP	ADYSETXX	PARM	SYSMDUMP suppress duplicate dumps - use DAE
ALLOC	ALLOCXX	PARM	TIOT(64)
ALLOC/DFSMS	ALLOCXX	PARM	SYSTEM TAPELIB_PREF(BYDEVICES)
ALLOC/GRS	ALLOCXX	PARM	MEMDSENQMGMT(ENABLE)
ALLOC/HSM	ALLOCXX	PARM	IEFBR14_DELMIGDS (NORECALL)
ALLOC/HSM	ALLOCXX	PARM	SYSTEM BATCH_RCLMIGDS(PARALLEL)
ALLOC/JES2	ALLOCXX	PARM	SWBSTORAGE(ATB)
BCP	AUTOROO	PARM	Reply to WTOR during NIP – IEASYS00 AUTOR=00 (Default)
SYSPLEX	CLOCKXX	PARM	STPMODE(YES)
SYSPLEX	CLOCKXX	PARM	STPZONE(YES)
SYSPLEX	COUPLEXX	PARM	CLEANUP 15/
SYSPLEX	COUPLEXX	PARM	DUPLEXCF16
SYSPLEX	COUPLEXX	PARM	DUPLEXCFDIAG
SYSPLEX	COUPLEXX	PARM	CFLCRMGMT
SYSPLEX	COUPLEXX	PARM	CFSTRQMON
SYSPLEX	COUPLEXX	PARM	CRITIALPAGING (HyperSwap)
SYSPLEX	COUPLEXX	PARM	MSGISO
SYSPLEX	COUPLEXX	PARM	XTCSIZE (V2.4 XCF Managed TCLASS)
SYSPLEX	COUPLEXX	PARM	CFMONOPAVOID (v2.4)
SYSPLEX	COUPLEXX	PARM	XTCSIZE=ENABLED
DFSMS	DEVSUPXX	PARM	NON_VSAM_XTIOT=YES moves the XTIOT above the line.
DFSMS	DEVSUPXX	PARM	ENABLE(VTOC_USE_ZHPF)

z/OS & Sysplex Best Practices – Some parts from the list

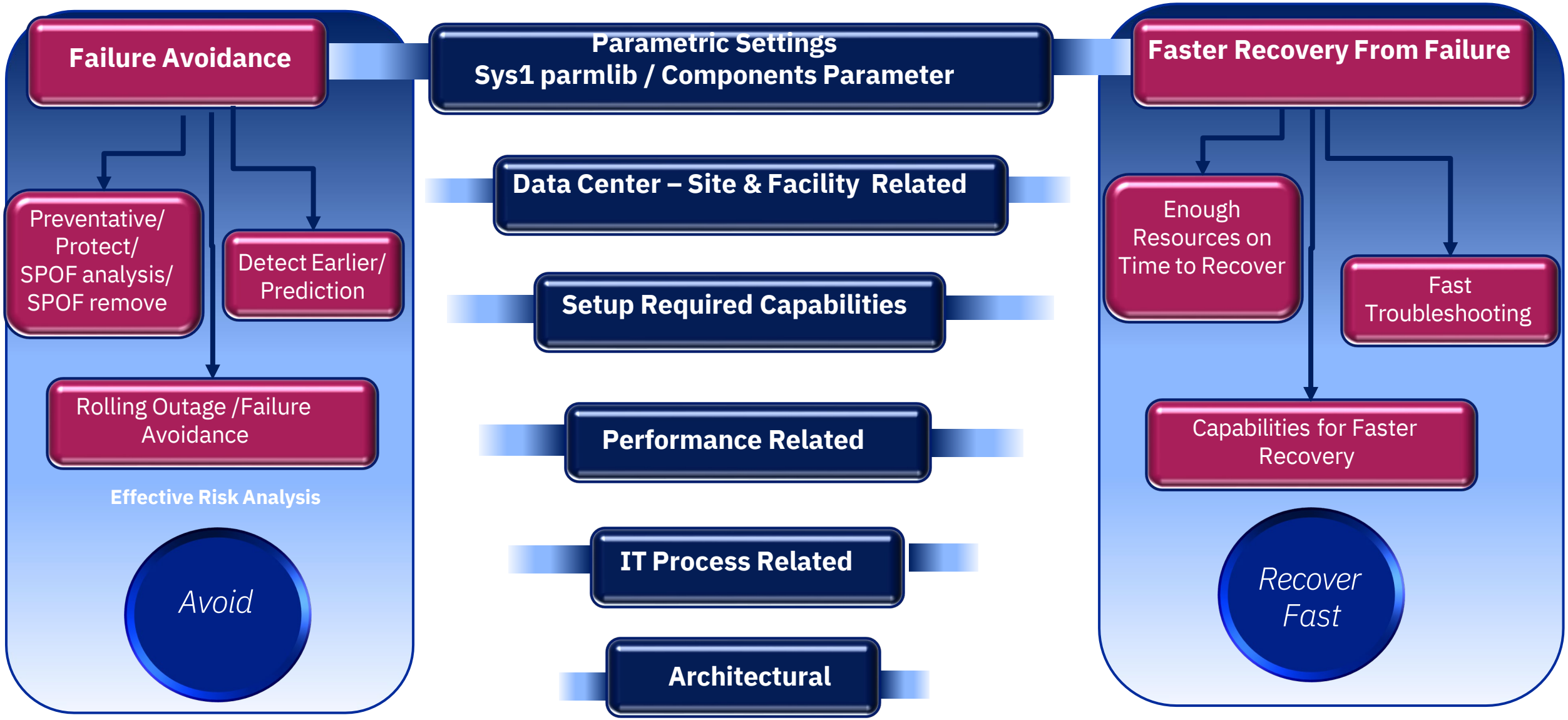
Component	PARM-Member	Type	Best Practice
BCP	DIAGXX	PARM	AUTOIPL SADMP() MVS()
BCP	DIAGXX	PARM	REUSASID(YES)
BCP	DIAGXX	PARM	ASCBV31(YES) as of 3.2
RSM/VSM	DIAGXX	PARM	ALLOWUSERKEYCSA(NO)
RSM/VSM	DIAGXX	PARM	VSM BESTFITCSA(YES)
RSM/VSM	DIAGXX	PARM	RUCSA (0M)
RSM/VSM	DIAGXX	PARM	USEZOSV1R9RULES(NO)
RSM/VSM	DIAGXX	PARM	FREEMAINEDFRAMES(YES) and FF31HIGH(YES)
GRS	GRSCNFXX	PARM	AUTHQLVL(2)
GRS	GRSCNFXX	PARM	SYNCHRES(YES)
GRS	GRSCNFXX	PARM	GRSQ(CONTENTION)
GRS/DFSMS/CATALO(	GRSRNLXX	PARM	SYSIGGV2 / SYSZVVDS / SYSVTOC RESERVEs converted to ENQ (GRS RNL)
DFSMS/DFSORT	ICEPRMxx	PARM	EXPMAX set, EXPOLD=0 also watch out for memory usage
IOS	IECIOSXX	PARM	Path Recovery Enabled for CU
IOS	IECIOSXX	PARM	CAPTUCB = YES
IOS	IECIOSXX	PARM	FICON STATS (YES)
IOS	IECIOSXX	PARM	HYPERPAV Enabled
IOS	IECIOSXX	PARM	XPAV (SuperPAVs – z14)
IOS	IECIOSXX	PARM	MIDAW Enabled
IOS	IECIOSXX	PARM	zHPF = YES
IOS	IECIOSXX	PARM	ZHYPERLINK,OPER=READ
IOS	IECIOSXX	PARM	HyperWrite (YES)
BCP	IEFSSNXX	PARM	BEGINPARALLEL
DFSMS/SMS	IGDSMSXX	PARM	FAST_VOLSEL(ON)
DFSMS/RLS	IGDSMSXX	PARM	RLS_MaxCFFeatureLevel(A) - cache all CI sizes
SMF	SMFPRMXX	PARM	SMF Recording Flooding Enabled (FLOODPOL FLOOD=ON)
SMF	SMFPRMXX	PARM	EMPTYEXCPSEC(SUPPRESS)
SMF	SMFPRMXX	PARM	DDCONS(NO)
SMF	SMFPRMXX	PARM	SMF30COUNT
SMF	SMFPRMXX	PARM	MEMLIMIT(nnn)

z/OS & Sysplex Best Practices – Some parts from the list

Component	Type	Best Practice
BackupProcess	Process	System Back-ups of all System Volumes (Daily,Weekly,Monthly)
BackupProcess	Process	DFSMShsm Backups
BackupProcess	Process	Backups Replicated Offsite
DFSMS/CATALOG	Process	User Catalogs: Extent Monitor enabled -NotifyExtent parm in IGGCATXX
DFSMS/CATALOG	Process	BACKUP Catalogs - Master Daily ,multiple times
DFSMS/CATALOG	Process	BACKUP Catalogs - USERCATs – ALL Daily, multiple times
DFSMS/CATALOG	Process	DIAGNOSE/EXAMINE with backup
DFSMS/CATALOG	Process	CATALOG Recovery Tool (ICFRU – part of z/OS 1.7)
DFSMS/DSS-SDM	Process	DSS DEFRAG should be executed when volume is offline to other systems
DFSMS/PDSE	Process	Automate V SMS,PDSE(1),ANALYSIS on IGW038A for contention monitoring
DUMP	Process	Standalone Dump Created & Tested
DUMP	Process	Use of IEADMCXX
z/OS Health Checker	Process	Get IBM.Function. HealthChecker Fixcat and apply missing ones as part of periodic maintenance process
z/OS Health Checker	Process	z/OS HC messages monitored and automated
z/OS Maintenance	Process	Old libraries deleted or maintained with RSU process
z/OS Maintenance	Process	z/OS version upgrade strategy with CD strategy in mind
z/OS Maintenance	Process	Review security portal for CVE
z/OS Maintenance	Process	Apply Maintenance at least 4 times a year
z/OS Maintenance	Process	Track HIPERs(at least weekly),error sysmods (Automate Receive Holdata)
z/OS Maintenance	Process	Apply HIPER ptfs,Error Resolvers ,RSUs
z/OS Maintenance	process	Automate HOLD data receive process (1 job run once in a week)
z/OS Maintenance	Process	Check z/OS maintenance strategy white paper
z/OS management	Process	Userid for resourcelink more than one person
z/OS management	Process	Subscribe to My notitification
z/OS management	Process	Make sure all ptfs in Driving system requires fixcat installed before installing z/OS using z/OSMF (common issue)
z/OS management	Process	Aware of IBM z CC ,C3 websites, IBM z Trial, new function APAR website
z/OS Management	Process	Subscribe to IBM Z Community Page

Resiliency

Approach that can be used by a z/OS system programmer for achieve Resiliency



Highlights of IBM Z Stack Innovations in Resiliency

Faster recovery when failures occur

- System Recovery Boost(All functions,including MiddleWare stop/restart support, Dump support)
- z/OS Automatic Restart Manager(ARM)
- Sysplex Failure Management,CFLRMGMT XCF Function
- System Status Detection Partitioning Protocol
- External CF, CF System/User Managed Duplexing
- zHyperLink (VSAM Verify) , DFHSM Dataset (z/OS & zFS File) Backup
- RLS Catalog , PDSESHARING(EXTENDED)
- z/OS AutoIPL
- IBM Z Backup Resiliency, DB2 advance recovery,IMS FDBR
- Flexible Capacity,CBU
- DVIPA,Sysplex Dynamic Workload Routing (Sysplex Distributor...)
- CICSPLEX,DB2,IMS Datasharing,MQ Queue Sharing
- z/OS IOS CU Recovery
- Z16 CF Improved IFCC Handling
- IBM Z Cyber Vault

Failure Avoidance

- z/OS Blocked Workload Support
- GRS Contention Analysis
- XCF Message Isolation, CFMONOPAVOID
- Message Flood Automation
- SMF Flood Automation
- Capacity Provisioning
- XCFCNFXX- LOGR Services Monitor
- Auto-WTOR Response
- IBM TST, IBM ZBURST
- Cyber Resiliency,
- IBM Thread detection for z/OS(TDz)
- IBM Concert For Z
- TFP-HW
- HMC LPAR Error Protection
- Z17 HMC Dual Control

React faster to workload fluctuations

- zHyperLink,zHyperwrite,DFSMS Striping
- FICON 32S
- Capacity Provisioning Manager
- TFP-HW, OOCoD
- Hiperdispatch
- More Memory (Larger Buffer Pools, GBPs…)

Improved workload scaling

- Hiperdispatch • Shared zFS • Z17 Performance improvements
- zHyperLink, zHyperwrite,Read from Secondary, zEDC
- JVMS pause-less garbage collection
- FICON 32S,z17 CL6 Throughput improvements
- Large Page Support, RLS Catalog
- CICPLEX,DB2,IMS Datasharing, MQ Queue Sharing
- XTCSIZE, zOS V1R10 VSM algorithm improvements,V1R8 RSM
- Sysplex Distributor, VSAM RLS 2 Lock Structures
- z16 CF Adapter Performance Improvements
- z16 CFCC Code Scalability Enhancements
- DFSMS Extended Addresability, DFSMS Striping

Concurrent maintenance

- Software coexistence and rolling IPLs
- z/OS concurrent maintenance, Fixcats
- Dynamic I/O Reconfiguration
- HyperSwap

Problem Determination and Data Capture

- Run Time Diagnostics(RTD)
- Dump cmd Parmlib members (IEADMCxx)
- AutoIPL w/Standalone Dump
- z/OSMF Incident Log
- SMF Logstreams (Performance & Scalability)
- zWorkload Information Correlator (zWIC)
- zWorkload Information Navigator (zWIN)
- New SMF Records & Fields

Preventative / Real-Time Insight

- z/OS Health Checker
- Predictive Failure Analysis (PFA)
- IBM Z Anomaly Analytics (IZAA now part of IBM Concert for Z)
- IBM Concert For Z
- IBM Z Operational Log and Data Analytics
- Heartbeat Monitoring – Omegamon, RMFMON, Intellimagic, OpenTelemetry

And many more…

z/OS Workload Interaction Correlator (WIC)

z/OS Workload Interaction Correlator enables z/OS components and middleware to generate cost-effective and enriched summary data. In z/OS 3.1:

Clients on z/OS V2.4 or later with an RMF license or z/OS V2.5 or later with an ADG license are entitled to use the z/OS Workload Interaction Correlator at no additional charge. (CD 4Q2021)

For more information on this entitlement and to view IBM recommended best practices for proactive problem diagnosis, see this IBM Best Practice: Always Collect Correlator SMF Records flash.

z/OS Workload Interaction Correlator support for z/OS Workload Interaction Navigator Inspector enables subject matter experts to **proactively identify workload anomalies so they have an opportunity to diagnose and address these anomalies before workload impacts, critical situations, and outages occur.** Correlator enables Inspector analysis over the last 8 weeks to transform activity anomalies with context into anomaly signatures and correlate and prioritize them based on workload resilience risk.

z/OS component exploitation of z/OS Workload Interaction Correlator has been extended to include I/O Supervisor (IOS), providing clients with 5-second synchronized, micro-summary, enriched I/O data. This enhancement provides subject matter experts, using IBM z/OS Workload Interaction Navigator, the insights needed to reactively diagnose and proactively avoid I/O-related workload impacts, critical situations, and outages.

If you collect SMF98s
Even if you do not have zWIN
IBM can analyze those in case of a critical complex issues

Record Provider	SMF Record Type.Subtype	Min Hardware Requirements	Min Software Requirements	License Requirements
z/OS Supervisor	98.1	None	z/OS 2.2 with APAR OA55887 z/OS 2.3 with APAR OA57165 z/OS 2.4 or 2.5 with APAR OA62268	None
CICS	98.1024	z14	z/OS 2.3 with APAR OA57165 z/OS 2.4 or above with APAR OA62268 CICS 5.4 or above with APAR PH16392	Correlator[1]
IMS	98.1025	z14	z/OS 2.3, IMS 15 with APAR PH15062	Correlator[1]
Db2	100.n*	None	Db2 v12 with APAR PH18658	None

* Indicates all SMF record subtypes

[1] Indicates an IBM z/OS Workload Interaction Correlator license is required to generate this Correlator record. With Correlator Entitlement, customers running z/OS 2.4 and above with a Resource Monitor Facility (RMF) license or z/OS 2.5 with an Advanced Data Gatherer (ADG) license are entitled to a Correlator license at no additional cost. Otherwise, customers must purchase a separate Correlator license to generate this Correlator record.

Collect SMF 98 records

↓

New Best Practice

Speed up your recovery time

Fast Recovery (MTTR)

- SRB (System Recovery Boost)
- z/OS ARM (Automatic Restart Manager)
- Sysplex Failure Management (SFM)
- SSD (System Status Detection Partitioning Protocol)
- CF System/User Managed Structure Duplexing
- SSI Begin Parallel usage
- z/OS AutoIPL
- SMF DDCONS(NO)
- All functions that will speed up cpu /IO/Memory
  TFP-HW
  zHyperlink (VSAM Verify, DB MQ Log Access)
  zHiperwrite
  zHPF
  zHPF_VTOC_Enable
  Automated OOCoD / CPM

- GDPS Solutions
- Subsystem Related Configuration Options for
- CF Structure duplexing
- CF structure failure isolation
- Improved IPL time

- Faster Troubleshooting items
  Dump options (SRB, OPTIMIZE=YES)
  Using PDUU
  RTD, zWIC

MTTR : IPL Duration (Shutdown/Start Duration)

Common Question:

We often get request about how to improve Shutdown/Start up durations : Swaps or DR recovery related (RTO)
Whether it is about DR or swaps , it is very critical to improve these durations
I am actually very happy to get those type of questions , we love when our clients work on improving their platform!

- Do you peridicly study the flow your LPARs start /stop process times ?
- In order to improve first analysis need to be done.
- From NIP to time ready for getting workload , write down in detail which process starts –ends and duration
- Start with the step that took the most time but look at all steps : Example : 1+1+1+1+1+1+1 … it can become 10 minutes as total
    - Automate your startup/shutdown
    - Get rid of unnecessary warning messages
    - Implement SRB
    - Use begin parallel to initialize subsystems in parallel (IEFSSNXX)
    - Use SMF DDCONS(NO)
    - Use IPCS VERBX BLSAIPST command to see more granurally process times during NIP (IPLSTATS report)
    - Check and analyze your subsystem specific best practices to improve start/shutdown times

Information about the elapsed time spent in the various modules that make up the IPL
process is stored in a control block that can be formatted using the IPCS VERBX BLSAIPST MAIN command.

SMFPRMXX Best Practices

- Implement SMF Logstream – Use multiple logstream for z/OS, DB2,CICS,MQ
- Enable SMF Recording Flooding FLOODPOL FLOOD=ON
- Use EMPTYEXCPSEC SUPPRESS
- DDCONS(NO)
- Collect SMF 98s Hftintvl needs to be set
- Collect 113s. CPU MF counters.
- Replace 255 with 2047 . Use notype instead of type to catch new SMF records
- Consider using SMF30COUNT
- Enable WIC (if you have RMF or z/OS ADG license)

CF Related Items

Some common issues seen:

- Not Load Balanced CF workload.
- CF Structure duplexing not implemented
- Not monitoring CF structure service times closely and periodicly
- Very small CF Dump Size
- Failure isolation not considered
- Not enough CF connectivity between CF and LPARs
- Highly shared CF CHPIDs (Which causes path busy condition and delays in response)
- Not using critical XCF functions
- Not using SFM or not setting SFM correctly (Ex: CFSTRHANGTIME not used) See next slide

SHARE DC: Top 10 Tips for Managing Coupling Facilities and Sysplex Availability
From IBM WSC Client Experiences

Do not wait for a CF /structure/ connectivity… failure to occur, in order to learn how to recover from failure and which setup/ parameters will survive you or decrease your MTTR !

Consider using DR test environment to do several sysplex recovery tests.

SHARE Kansas 2024 session deck : Sysplex Recovery Scenarios brought to light by IBM zPET and WSC
Reach out to us if you like to learn more…

IXGCNF00

Use of IXGCNF00 to update logger customization parameter to monitor several critical items

IXGCNFxx contains statements that can be used to control the following functions when z/OS system logger starts or is restarted on the initializing system within the sysplex.

- ✓ Create IXGCNF00 using sample in SYS1.SAMPLIB
- ✓ Specify parameters as follows
  - MONITOR OFFLOAD
  - WARNALLOC(30)
  - ACTIONALLOC(60)
  - MONITOR OFFLOAD
  - WARNRECALL(60)
  - ACTIONRECALL(120)
  - MONITOR LSPRIMARY
  - CONSUMPTIONALERT(ALLOW)
  - MANAGE HYPERWRITE
  - ALLOWUSE(YES)
  - MANAGE LOGRCDS
  - ALLOWACCESS(YES)
  - USECDSTYPE(LOGR)

Troubleshooting Best Practices

Best practices for Large Stand-Alone Dump (Tech note TD103286) . z/OS Problem Management Book

https://www.ibm.com/docs/en/zos/3.1.0?topic=overview-best-practices-large-stand-alone-dump

Use of PFA and RTD

Configuring Correct size for MAXSPACE

Testing Stand-Alone Dump Procedure

Get benefit from z/OSMF incident log

Consider using OPTIMIZE=YES Dump option

Common Issues : Questions to ask

1. Use PDDU for sending data to IBM ?
2. Use SRB for Dumps if you are running z16 ?
4. Use Quiesce=NO for dump options
5. Is your Standalone Dump ready and did you test it ? Not tested Standalone procedure.
6. AutoIPL with Standalone dump
7. Large DS usage for Standalone Dump
8. RTD not being used

Best Practices : DIAGXX member

Check for your DIAGXX member and consider using these settings where appropriate

DIAGXX Parmlib Member	Directly or Indirectly related HC that exists
AUTOIPL	SVA_AUTOIPL_DEFINED,SVA_AUTOIPL_DEV_VALIDATION
CBLOC VIRTUAL31	SUP_ASVT_ABOVE_16M, SUP_LCCA_ABOVE_16M
REUSASID(YES)	IEA_ASIDS
VSM BESTFITCSA(YES)	VSM_CSA_LARGEST_FREE
RUCSA (0M)	VSM_RUCSA_THRESHOLD
USEZOSV1R9RULES(NO)	
FREEMAINEDFRAMES(YES) and FF31HIGH(YES)	RSM_FREEMAINEDFRAMES

→ Minimizes (E)CSA fragmentation

→ Merge DQEs

https://www.ibm.com/support/pages/apar/OA46291 . FF31HIGH was added in z/OS 2.3 and extended the functionality to high private and LSQA as well.

z/OS 3.1 default is best practice.

Best Practices : ALLOCXX

Check for your ALLOCXX member and consider using these settings where appropriate

ALLOCXX Parmlib Member

IEFBR14_DELMIGDS (NORECALL)
SYSTEM BATCH_RCLMIGDS(PARALLEL)
SWBSTORAGE(ATB)
MEMDSENQMGMT(ENABLE)
TIOT(64)

Set SWBSTORAGE(ATB) to enable SWBs for dynamically allocated data sets that are eligible to be allocated in 64-bit storage

Change in test environment and test to ensure there is no adverse impact

SWBSTORAGE(SWA) is the default setting

- Indicates that SWBs will be created in 24 or 31 bit storage, according to the SWA definition in use by the job
- Defines whether Scheduler Work Blocks (SWBs) for dynamically allocated data sets are eligible to be placed in 64-bit storage.

Best Practices : DEVSUPXX

VTOC_USE_ZHPF is disabled by default. Consider using this nice capability, Review and set ENABLE(VTOC_USE_ZHPF)

zHPF is there for many years.

This enables the system to read or write VTOC DSCB records, using zHPF.

High Performance FICON for System Z (zHPF) I/O technology has been used for many years to improve the performance of data set I/O for sequential, partitioned, and VSAM data sets.

Enhancements in DFSMS extend the use of zHPF to VTOC (volume table of contents) I/O done by CVAF and Fast VTOC/VVDS (FVV) services and are designed to provide significant reduction of connect time for applications that sequentially read the entire VTOC. In addition, updates to the VTOC may also use zHPF. Support is available on z/OS V2R3 and above with APAR OA58111.

Consider enabling fast volume selection to reduce allocation times where appropriate

- Review the FAST_VOLSEL parameter
- Change FAST_VOLSEL(ON) to enable

Default value is FAST_VOLSEL(OFF)

- FAST_VOLSEL enables faster execution of SMS volume selection
- When SMS has rejected 100 volumes for insufficient free space, message IGD17294I will be issued that SMS has entered fast selection. During fast selection, SMS only looks at the volume statistics in the catalog, not the volume itself, and excludes volumes that don't have sufficient space.

- There are some reasons that the volume statistics might not accurately reflect the actual free space, but the time reduction can be significant

Best Practices : IECIOSXX

IECIOSXX item	Default Value	Directly or Indirectly related HC that exists
MIH using Self-Description Data	N/A	GDPS_CHECK_DASDMIH
I/O Timing Enabled	Disabled	
Path Recovery Enabled for CU	DEVICE	
CAPTUCB = YES	YES	IOS_CAPTUCB_PROTECT
FICON STATS (YES)	YES	
HYPERPAV	NO	
XPAV (SuperPAVs – z14+)	NO	
MIDAW	YES	IOS_MIDAW
zHPF	Disabled	
ZHYPERLINK,OPER=READ	NONE	
HyperWrite	YES	

Best Practices : IECIOSXX

Set RECOVERY PATH_SCOPE=CU to enable path recovery for all devices.

- The default is PATH_SCOPE=DEVICE
- The SETIOS RECOVERY command can be used to change the parameter dynamically,

Automate message IOS080I to alert operations and systems of potential I/O related problems.

- Integrate into existing monitoring and alerting processes and open a problem ticket.

If zHyperWrite is enabled , set RECOVERY PATH_SCOPE=CU,PATH_INTERVAL=1,THRESHOLD=4

- This is needed to avoid the continuous bypassing zHyperWrite and re-enabling. The DASD ERP does not take the path offline to the PPRC secondary devices

- Path recovery is typically performed one device at a time – when a error occurs on one device, only that device is processed. Errors on other devices that share common hardware are processed independently. This can have an adverse affect on application performance since the application is delayed while the system performs path recovery and retries the original I/O request. If the application is accessing multiple devices that share a failing or malfunctioning hardware component, additional delays may occur.

- z/OS 1.13 introduced a new recovery parameter to improve channel path recovery to be more proactive in removing a failing path from all devices rather than on a device-by-device basis.

IBM Z Stack Optimization & Performance Improvement Capabilities

There are several but just sharing some common critical milestones

Deep Dive Performance Management

- ✓ **RMF, RMF PM , RMF Data Portal**
- ✓ **z/OS 3.1 RMF Monitor III Graphana Plug-in**
- ✓ SMF Log stream
- ✓ IZAA/IZOLDA– SMF log stream real-time SMF formatting
- ✓ Thousands of data for Capacity Planning Process
- ✓ Intellimagic,Omegamon Monitoring Suit,Instana
- ✓ Tools to analyze detailed Transaction Performance Data (CICS Performance Analyzer)
- ✓ More performance fields in SMF records

More Memory Usage in more efficient way

- ✓ Increases in new z/OS release & zHW model
- ✓ DB2 Group Buffer Pool Usage
- ✓ IMS OSAM Buffers
- ✓ DFSORT memory object support
- ✓ z/OS 3.1 Dedicated Memory
- ✓ Large Page Support for DB2,WAS,IMS
- ✓ Large Page support for all z/OS components

Efficient Workload Creation

- ✓ CICS Treadsafe
- ✓ DB2 High Performance DBAT

Improved workload balancing/management

- ✓ Sysplex Distributor ServerWLM
- ✓ WLM Managed JES2 Initiators
- ✓ AI assist WLM Managed JES2 Initiator(z/OS 3.1)
- ✓ WLM Cpu-Critical
- ✓ WLM Policy Advisor(z/OS 3.1,3.2)
- ✓ BLockWorkload Support

z/OS - Improved performance

z/OS 3.2 SRM Lock Contention Reduction,
Track and improve Uncaptured CPU-Time
Improved RSM management…

CPU Resource Control

Softcap, Hardcap, Absolute Capping,Group capping,Capacity Provising Manager (CPM)

IBM z HW (Be in current model)

- ✓ Newest Cache Architecture
- ✓ Faster Processors
- ✓ CF Level 25 CFCC Code improvements scalability
- ✓ z16 ICA Short Distance Protocol Enhancements Response time improvement
- ✓ z16 New ICA Long Distance CF Adapter for more throughput
- ✓ z17 CF Adapter performance improvements
- ✓ OOCoD, CBU, TFP-HW, z16 Flexible Capacity
- ✓ z17 Workload Classification
- ✓ Integrated Accelerator for zSORT (z15+)
- ✓ Integrated Accelerator for zEDC (z15+)
- ✓ Integrated Accelerator for AI (z16+)
- ✓ System Recovery Boost
- ✓ z/OS IEAOPT CPENABLE

Solutions for SQL Optimization & Data Transfer

IDAA,DB2 AI for z/OS,CDC

New HW Instructions Usage

COBOL Compiler
Arch/Tune/Optimize Parms
SIIS tracking
Uncaptured CPUtime metrics
Chip Topology Metrics
SMF 113 CPU MF
SMF 98 High Frequency
SMF 99 WLM

zIIP Usage

- ✓ Java zIIP eligible
- ✓ Phyton zIIP eligible
- ✓ RMF DDS zIIP eligible in z/OS 3.1
- ✓ DB2 DBM1 /MSTR AS zIIP usage
- ✓ Track IIPCPtime
- ✓ zIIP SMT usage

Highest Performance I/O

- ✓ zHyperWrite,zHyperLink
- ✓ zHPF,MIDAW
- ✓ zHPF VTOC Support
- ✓ FICON 32S
- ✓ SuperPAV/HyperPAV
- ✓ More SAP I/O Processors,
- ✓ z17+ DPU

SFM (Sysplex Failure Management) Policy Settings: Best/Proven Practices

CFSTRHANGTIME (SFM Policy)
Specifies the time interval, in seconds, that a coupling facility structure connector can remain unresponsive before the system takes action to relieve a hang in a structure-related process Default: NO Value : 900

MEMSTALLTIME(SFM Policy)
Number of seconds after which XCF is to take action to resolve XCF signaling stall conditions. MEMSTALLTIME(n), N=n seconds. Default is NO,then N=MAX(FDI, 120 seconds). Value: 300

Confail(SFM Policy)
It indicates whether SFM is to handle signaling connectivity failures for the sysplex. Default: Yes Value: Yes

PROMPT(SFM Policy)
Do not specify, use Isolatetime instead.

SSUMLIMIT(SFM Policy)
Indicates the length of time a system can remain in the state of not updating the heartbeat and sending signals(the amount of time a system will remain in a “semi-sick” state) Once the SSUMLIMIT has been reached the specified action will be initiated against the system (Isolatetime(0))
Default: None Value: 900

ISOLATETIME(SFM Policy)
Use Isolatetime(0) . Default is proven practice.
Tells that the system is to immediately partition an unresponsive system

Implement System Status Detection Partition Protocol (SFM with BCPii)
XCF exploits BCPii services to Detect failed systems, Reset systems Improved availability by reducing duration of sympathy sickness,Eliminate manual intervention in more cases, Potentially prevent human error that can cause data corruption

SHARE KC : ‘Sysplex Failure Recovery Scenarios in 2024 Brought to Light by IBM zPET and WSC’

SFM Policy parameter CFSTRHANGTIME

Specifies the time interval, in seconds, that a coupling facility structure connector can remain unresponsive before the system takes action to relieve a hang in a structure-related process

Where: It is set in SFM Policy.
Default Value : NO
How to check the value: ‘D XCF,C ‘ command

NO means that the system will not take automatic action to relieve the hang. If the connector does not provide the required response, you must take manual action to allow the affected structure-related process to continue. It may be necessary to terminate the unresponsive connector.

Best practice is set it to 900.

```
-D XCF,C
IXC357I  05.34.07  DISPLAY XCF 588
SYSTEM Z1 DATA
   INTERVAL   OPNOTIFY     MAXMSG    CLEANUP      RETRY   CLASSLEN
        165        170       2000         20        100        956

   SSUM ACTION  SSUM INTERVAL  SSUM LIMIT     WEIGHT  MEMSTALLTIME
       ISOLATE             0          60         10           600

   CFSTRHANGTIME
            900

   DEFAULT USER INTERVAL:    165
   DERIVED SPIN INTERVAL:    165
   PARMLIB USER OPNOTIFY: +    5

   MAX SUPPORTED CFLEVEL: 25

   MAX SUPPORTED SYSTEM-MANAGED PROCESS LEVEL: 26
```

SHARE KC :
‘Sysplex Failure Recovery Scenarios in 2024 Brought to Light by IBM zPET and WSC’

Sysplex Failure related items CoupleXX : Best/Proven Practices

Cleanup (CoupleXX member)
Cleanup interval is the maximum number of seconds allowed for members of a group to clean up their processing before the system is put into a wait state. Value: 15 (Also default)

MSGISO (Default Enabled)
XTCSIZE (Default enabled)

FDI (CoupleXX member)
User Interval Value : 165
Spin Interval Value : 165
User OpNotify Value : 3

Critical Paging (CoupleXX member)
It protects critical pages from being paged out when system is experiencing a critical real frame shortage(31-bit CS, Critial for paging defined ASes including all Dses,PLPA) Important requirement for GDPS clients
Default: Disabled Value: Enable

CFLCRMGMT(CoupleXX)
CFRM LossConn Recovery management is enhancement of MSGBASED protocol and it enhances average CF LOSSCONN recovery time by processing CF structures serially, rather than in parallel during loss of CF connectivity.
Default: Disabled Value: Enable

DUPLEXCFDIAG(CoupleXX member)
When the completion of a duplexed coupling facility request is delayed, software and hardware problem determination data is to be collected. (Cases where coupling facility might break duplexing for the structure that is associated with the delayed command)
Default: Disabled Value: Enable

CFSTRQMON (CoupleXX)
CF requests that are delayed longer than expected trigger messages that warn of a potential problem. (IXL053E, IXL054I, IXL055I, and IXL056I)
Default: Disabled Value: Enable

CFMONOPAVOID (CoupleXX)
CF informs to z/OS when the structure is consuming a disproportionate share of CF resources. That z/OS instance responds to the CF notification by limiting CFrequests for that structure until the monopolization condition clears. Default: Disabled Value: Enable

Statement of Directions 1/2

z/OS 3.2 is the last release to support or include:

MICR/OCR

z/OS 3.2 is planned to be the last release to support MICR/OCR function

The TSO/E Information Center Facility

z/OS 3.2 is planned to be the last release to support TSO/E Information Center Facility. Modern alternatives exist for much of the function, some of which is available from z/OSMF, Zowe, and IBM online documentation.

The Common Information Model (CIM) server

z/OS 3.2 is planned to be the last z/OS release to include the CIM server. All z/OS software that depends on a CIM server running on z/OS will need to be upgraded to remove the dependency.

Online Test Executive Program (OLTEP)

z/OS 3.2 is planned to be the last release to include the OLTEP which was used to run diagnostics against I/O devices. Current devices include diagnostic programs built into their firmware making OLTEP unnecessary.

Quick start and warm start IPLs

z/OS 3.2 is planned to be the last release to support quick start and warm start IPL types. Only cold start IPLs will be supported, which are IPLs with CLPA specified, resulting in the pageable link pack area (PLPA) being reloaded/rebuilt and virtual input/output (VIO) data set pages being cleared. A quick start is an IPL that specified CVIO to clear VIO data set pages but not reload PLPA. A warm start is an IPL that does not reload PLPA and preserves journaled VIO data sets. The IEASYSxx PARMLIB keywords CLPA will be implicit for all IPLs. Additionally, because warm starts are no longer supported, virtual input/output (VIO) journalling will no longer be supported. The IEASYSxx PARMLIB keyword VIODSN will be ignored.

LNKLSTxx and IEAAPFxx parmlib members

z/OS 3.2 is planned to be the last release to support the LNKLSTxx and IEAAPFxx parmlib members. For many years now, the preferred specification for the linklist and the authorized program facility has been the PROGxx parmlib member.

Virtual equals real (V=R) jobs

z/OS 3.2 is planned to be the last release to support V=R jobs. V=R jobs are programs that require real and virtual memory addresses to be equivalent. ADDRSPC=REAL keyword on the EXEC or JOB JCL statements will no longer be supported. IEASYSxx PARMLIB keyword REAL will be ignored and default to zero. IEASYSxx PARMLIB keyword VRREGN will be ignored. Systems that already specify or default to REAL=0 are not affected. The Generic Tracker Facility and SMF 30 records can be used to identify jobs that use ADDRSPC=REAL.

Change the default location for DASD and Tape Unit Control Blocks (UCBs)

z/OS 3.2 is planned to be the last release in which the default location for DASD and Tape UCBs is in 24-bit storage (LOCANY=NO). In a future release, IBM intends to change the default location for DASD and Tape UCBs to be in 31-bit storage (LOCANY=YES).

Statement of Directions 2/2

z/OS 3.2 is the last release to support or include:

z/OS Discovery and Auto-Configuration (zDAC)

z/OS 3.2 is planned to be the last z/OS release in which IBM intends to support z/OS Discovery and Auto-Configuration (zDAC).

Dynamic Channel-Path Management (DCM)

z/OS 3.2 is planned to be the last z/OS release in which IBM intends to support DCM. z/OS processing will no longer detect, manage, or show current status of dynamic channel paths. IBM will be providing a migration health check to assist in the determination of the usage of DCM.

The ability to disable HYPERPAV mode

z/OS 3.2 is planned to be the last z/OS release in which IBM intends to support the ability to select traditional PAV operation mode (use of HYPERPAV=NO). Removal of the ability to disable HYPERPAV will have no effect on DASD devices that are not HyperPAV capable. IBM will be providing a migration health check to assist in the determination of usage of HYPERPAV=NO.

Deprecated CMS, SSL APIs, SSLv2 and SSLv3 protocols

z/OS 3.2 is planned to be the last release to support the deprecated CMS, SSL APIs, SSLv2 and SSLv3 protocols. The Internet Engineering Task Force (IETF) deprecated SSL V2.0 in 2011 and SSL V3.0 in 2015. All z/OS System SSL and AT-TLS applications will need to change to use the newer protocols, and all z/OS System SSL applications that make use of the deprecated APIs will need to be changed to use the corresponding newer APIs. These APIs are documented in the z/OS Cryptographic Services within the Deprecated Secure Socket layer (SSL) APIs and the Certificate Management Services (CMS) API reference chapters.

DFSMSdfp Checkpoint/Restart

z/OS 3.2 is planned to be the last release to support DFSMSdfp Checkpoint/Restart. The intent is not to require changes to applications with regards to usage of the CHKPT macro. Usage of the CHKPT macro is intended to be syntax checked and ignored. Any remaining z/OS software that still depends on checkpoint/restart capability may need to be redesigned to remove the dependency on checkpoint/restart. Updates to allow identification of usage of checkpoint/restart are planned to be available with the Generic Tracker Facility. z/OS continues to provide job restart processing, which works on a step basis as well as capabilities like Transactional VSAM which may provide the basis for solutions that could replace checkpoint/restart.

Intellimagic and IZPCA SOD : IBM Z IntelliMagic Vision for z/OS 1.1.2 adds critical support for IBM z17 technology - IBM Documentation

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BACKUP SLIDES

IBM z/OS Container Platform (zOSCP) 1.1

March 6 2024 Announcement

IBM z/OS Container Platform (zOSCP) 1.1

A new product offering that utilizes industry-standard open source technologies to build and run containerized z/OS UNIX applications natively on z/OS. The product delivers a container runtime and the utilities to build, run and manage containers on z/OS. For more information on leveraging zOSCP as part of your digital transformation journey,

https://www.ibm.com/products/zos-container-platform

The IBM z/OS® Container Platform is designed to enable users to realize the benefits of a cloud native development strategy.

Run containers natively on IBM z/OS gaining the benefits of industry-standard open source container technologies while also taking advantage of the security, reliability and performance benefits of IBM Z.

SHARE KC session : “Digging Deeper on z/OS Container Platform” Wed, 2:30pm

March 6 2024 Announcement

IBM z/OS Container Platform (zOSCP) 1.1

z/OS Container Platform (zOSCP) [5655-MC3]

- New container orchestration support for the management of containerized z/OS UNIX applications running natively on z/OS to address the challenges that arise as enterprises embrace modern application development, utilizing container technology as part of their digital transformation strategy.
    - **Application Modernization and Co-location**
        - Run containerized z/OS UNIX applications on z/OS to modernize existing workloads and build new applications
    - **Industry-standard cloud technologies**
        - Based on industry-standard open-source technologies such as an OCI container runtime, Kubernetes container orchestration and more
    - **Container images**
        - IBM-provided “base” images to utilize for building your own container images on the IBM Container Registry
- A new unpriced program product, available to all z/OS licensees, with optional Service & Support available

(CD 1Q24 (2.5) - OA66262, OA66266, OA66267, OA66268, OA66269, OA66270, OA66361, OA66362, OA66363, OA66364, OA66365, OA66366)

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MTTR : IPL Duration (Shutdown/Start Duration)

Code BEGINPARALLEL (IEFSSNXX parameter) statement to reduce IPL time

- SUBSYS statements that follow the BEGINPARALLEL statement are invoked in parallel to reduce the amount of time it takes for all subsystems to initialize

- All statements before BEGINPARALLEL are invoked serially
- ***Must be coded after the SMS subsystem is started***
- *Ensure any subsystem that cannot be started in parallel are placed ahead of the BEGINPARALLEL statement*
- All statements placed after BEGINPARALLEL are invoked in parallel

```
 SUBSYS  SUBNAME(SMS)
         INITRTN(IGDSSIIN)
         INITPARM('ID=01,PROMPT=DISPLAY')
 SUBSYS  SUBNAME(JES2)
         PRIMARY(YES)
BEGINPARALLEL
 SUBSYS  SUBNAME(OAM1)
         INITRTN(CBRINIT)
 SUBSYS  SUBNAME(LOGR)
         INITRTN(IXGSSINT)
 SUBSYS  SUBNAME(RACF)
         INITRTN(IRRSSI00)
         INITPARM('@,M')
 SUBSYS  SUBNAME(ATRR)
 SUBSYS  SUBNAME(OMVS)
 SUBSYS  SUBNAME(INGE)
 SUBSYS  SUBNAME(ERLM)
 SUBSYS  SUBNAME(BP01)
 SUBSYS  SUBNAME(CICS)
 SUBSYS  SUBNAME(CICX)
```

Set FREEMAINEDFRAMES and FF31HIGH to YES

Freemainedframes in DIAG00 member.

This feature was available starting with z13 HW. After feature was available , errors found out and via alert it was recommended to turn it off. We think this is the reason of having this OFF specifically.
This problem solved long time ago and it is default for long time ago and considered as best practice. There is also a new z/OS HC alert in z/OS 3.1 to recommend to set these to YES.
Related notes : https://www.ibm.com/support/pages/apar/OA46291
https://www.ibm.com/support/pages/apar/OA46291

- Intended to reduce the number of IPTE instructions issued on z HW starting with z13 and support for later zHWs.
- This instruction invalidates the virtual to real association when a page of storage is released.
- Because it must signal every processor in the configuration, IPTE can run slow on z13 with lots of CPUs
- Now when a page of storage is released by FREEMAIN or STORAGE RELEASE, it might not actually be freed in the traditional sense i.e., the storage will continue to be backed by real frames even while “free.”
- The default is YES and it is best practice.
- Setting both to YES will improve unnecessary instructions and improve performance.

Set FREEMAINEDFRAMES and FF31HIGH to YES

Shared in APAR doc:
With z13 : OA46291: NEW FUNCTION - IMPROVE PERFORMANCE THROUGH IPTE AVOIDANCE
2016 closed date.

Real storage management changes to reduce the number of IPTE instruction invocations on z13 hardware for improved performance.

The IPTE instruction is used to invalidate the virtual to real association when pages of storage are Freemained (Storage Released) or paged. This instruction requires signalling all other processors within the system and does not scale well with the number of cpus on z13 hardware. This apar is taken to reduce the number of IPTE instructions issued when pages of region private storage are Freemained.

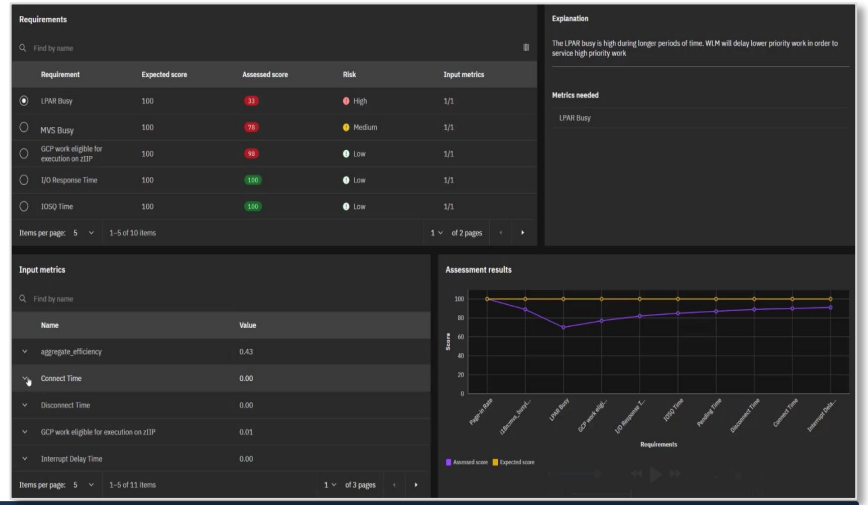
z/OS Announcements

IBM Z & IBM Concert

October 2024 Announcement

[IBM Concert delivers risk and resilience support for IBM Z applications - IBM Documentation]

IBM Concert: Solution for simplifying and optimizing application management and IT Operations with generative AI-driven insights, now supports select IBM Z use cases. With this integration, hybrid SecOps teams can better understand and assess risk associated with application performance degradations, manage enterprise compliance more holistically, and accelerate change-related troubleshooting to become more resilient.



- Visualize and mange IBM Z infrastructure resilience with data imported from IntelliMagic Vision for z/OS
- Manage IBM Z certificate compliance with data imported from Ansible Automation Platform for z/OS
- Generate IBM Z SBOMs to assist with change-related troubleshooting and ensure resilience & compliance using data from IBM Dependency Based Build

Get ready to hear more in future…

z/OS Announcements

New no-charge products included with z/OS orders
IBM SDK for Phyton, ZOAU, Open Enterprise Foundation for z/OS

July 1st 2024 Announcement

IBM Open Enterprise SDK for Python, IBM Z Open Automation Utilities (ZOAU), and IBM Open Enterprise Foundation for z/OS are available on July 1st , 2024, as bypassable requisites for z/OS 3.1.

As part of the optional z/OS products, these offerings are available at a no-cost license with no-cost Software Subscription and Support (S&S).

Effective on July 1st, 2024, both Open Enterprise SDK for Python S&S (5655-PYS) and Z Open Automation Utilities S&S (5698-PAS) are reduced to no cost.

If you are interested in adding these products separately outside of the new streamlined z/OS 3.1 order flow, then you can request them via 5698-PA1 (IBM Z Open Automation Utilities), 5655-PYT (IBM Open Enterprise SDK for Python) and 5655-OEF (IBM Open Enterprise Foundation for z/OS).

For more product-related information, find the corresponding webpages for Open Enterprise SDK for Python, Open Enterprise Foundation for z/OS, and Z Open Automation Utilities (ZOAU).

SHARE Cleveland. : Several sessions related to Python

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March 6th 2024 Announcement

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SHARE DC sessions : “End to End Demo Of z/OS Container Platform’
‘What’s New and Exciting with Containerised Software on z/OS Container Platform’
‘Configuring the z/OS Container Platform’

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March 6 2024 Announcement

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Summary of z/OS Some CD Announcements

IBM z/OS 3.1 1Q 2025 enhancements

- Semeru 21 Migration : -> Semeru 17 (EOM) on October 6th, 2025 (EOS) on September 30, 2026.
- zCX Sysplex Distributor Support for OpenShift Container Platform (OCP)
- z/OS UNIX File System Health Checker -> OA67191 (Open) Detect missing directories that can lead to mount failures during IPL, commands...
- Multiple VIPA ranges for z/OS Container Platform (zOSCP)

IBM z/OS 3.1 4Q 2024 enhancements

- z/OSMF Desktop enhancements.-> Show more informational attributes of data sets and jobs, save data sets with specific encoding, and compare the uncatalogued data sets.
- z/OS Data Gatherer Enhancements -> Mon III data accessible via z/OS Data Gatherer Monitor III REST services
- Base Component for IBM z/OS (AIB) Enhancements. -> AIB can now register to ARM (Automatic Restart Manager)
- EzNoSQL Python API support. -> In addition to C or Java, Python API support is available
- TLS 1.3 Support for Transparent Cloud Tiering (TCT). -> Latest TLS version support
- z/OS Container Extensions (zCX) 2.0 Enhancements. -> Support for dynamic VIPA network communication and ElasticSearch containers
- SMFLIM enhancements. -> (OA66028) New attribute to modify region limit for both above and below the line storage
  A stop processing attribute that allows for more granular control over the matching of the REGION rules is available.
  Additions to the existing filter REQMEMLIMIT to provide more control over matching the source of the MEMLIMIT value.

IBM z/OS 3.1 3Q 2024 enhancements

- z/OS DFSMS enhancements. -> Ability to convert a newly allocated encrypted data set to non-encryption during the first open
- Cloud Data Access (CDA) enhancements. -> Enhancement to ensure the validity of the data being sent to an S3 Cloud provider
- z/OS BCPii enhancements. -> (OA62934) console messages when it loses communication with a CPC, re-establishing, stopping attempts
  Display BCPII command enhancement to show status of the communication
- IBM Customized Offerings Driver enhancement. -> Updates to include a subset of a z/OS V2.5, including selected functions in z/OSMF and IBM 64-bit SDK for z/OS Java