

IBM z17 News / Overview

Advanced AI
where it matters
most



[zExpertenforum Oktober z17 News](#)

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IBM

IBM Z – Naming for IBM z17

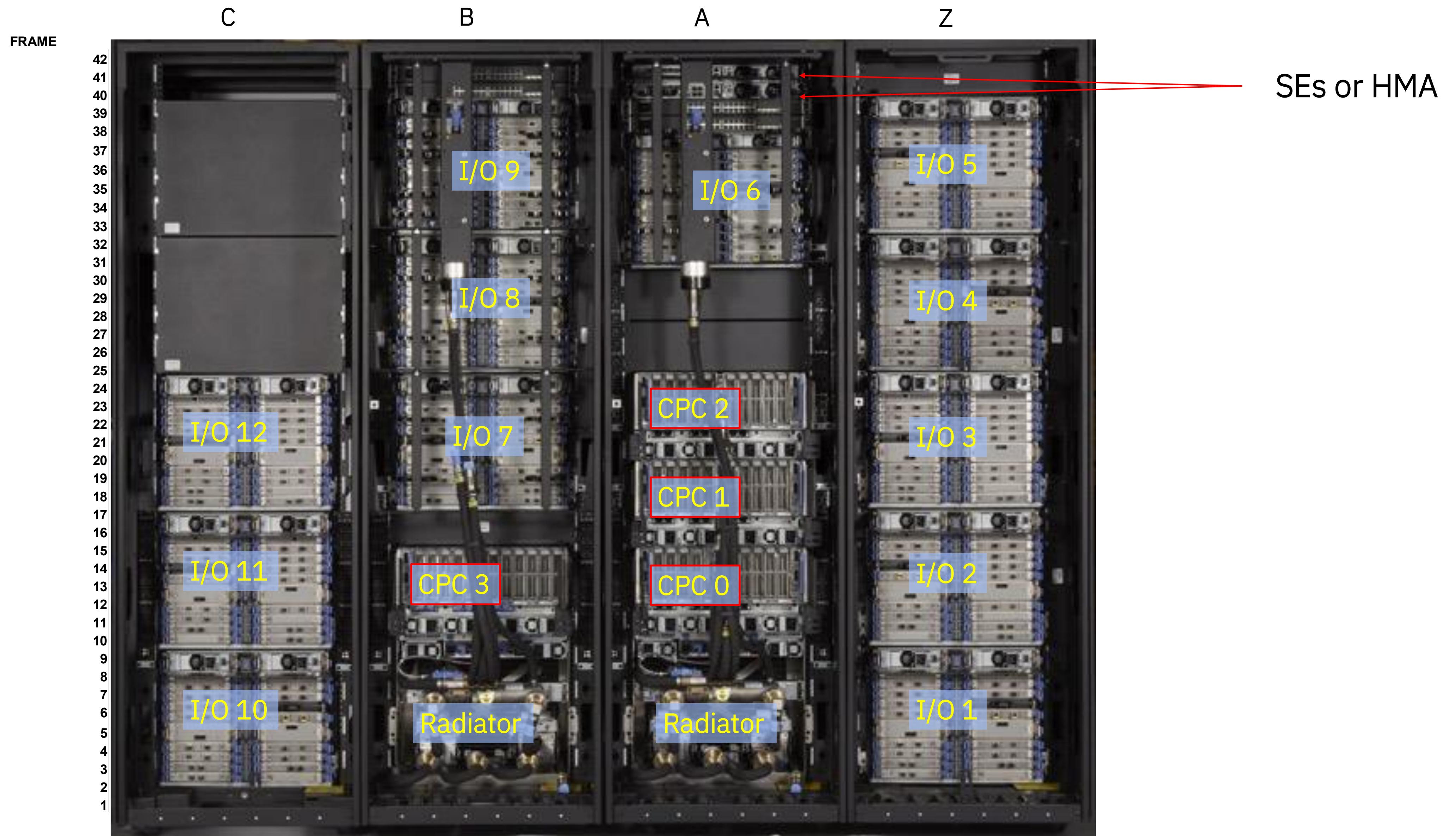
Brand Name:	IBM
Product Class:	IBM mainframe
Family Name:	IBM Z®
Model and Processor Capacity Features:	ME1, Features: Max43, Max90, Max136, Max183, Max208
Machine Type:	9175



IBM z17 4-frame



IBM z17 ME1, rear view



IBM z17 system highlights

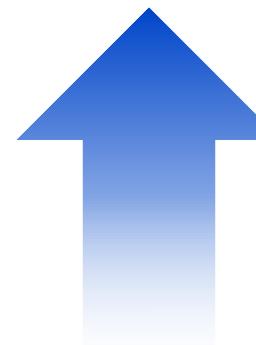


- 1-4 , 19" frames
- 208 customer cores
- IBM Telum II processor
- Improved I/O subsystem
- Less weight & floor space



11% more performance

Single thread performance vs IBM z16



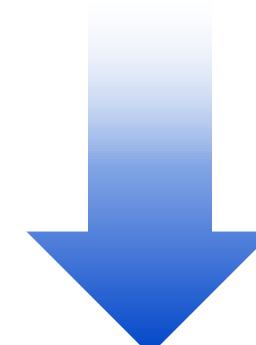
15-20% capacity growth

vs IBM z16



60% more memory

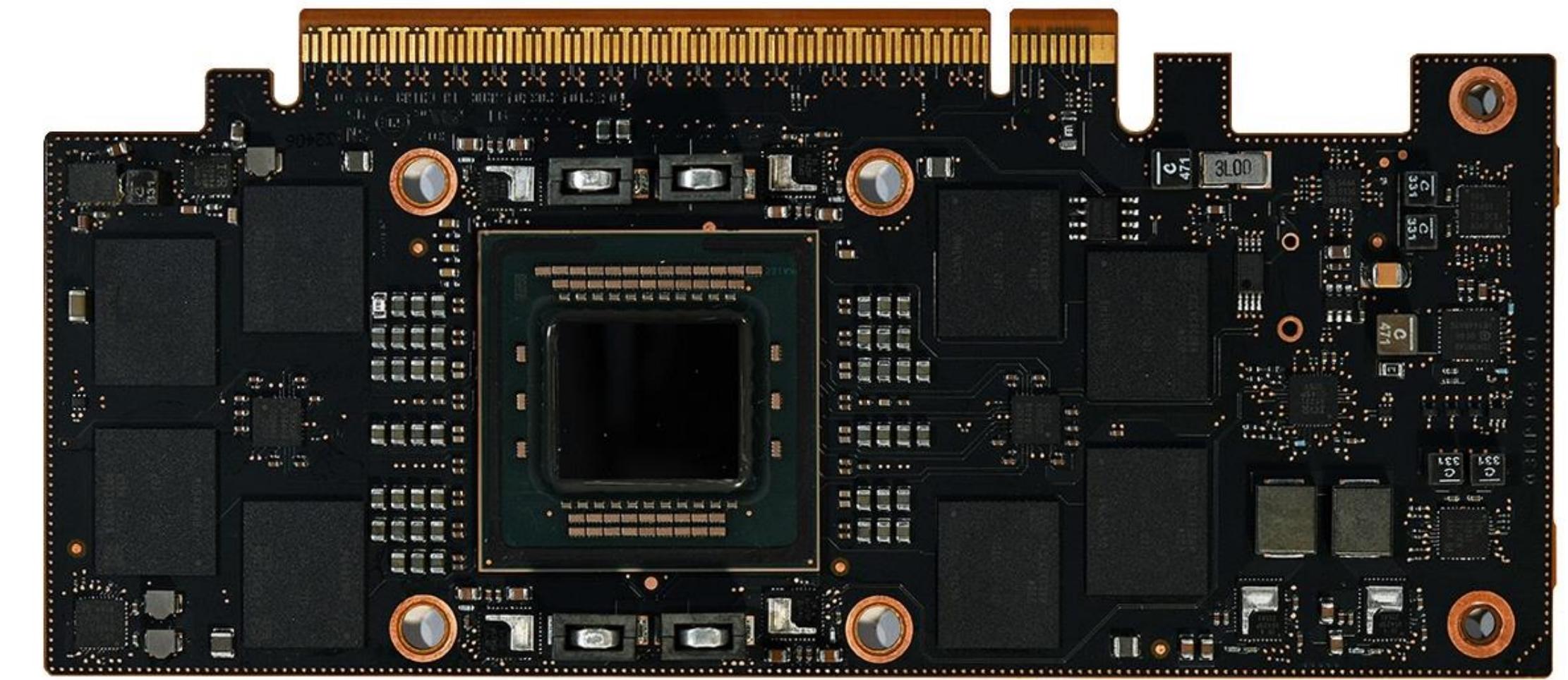
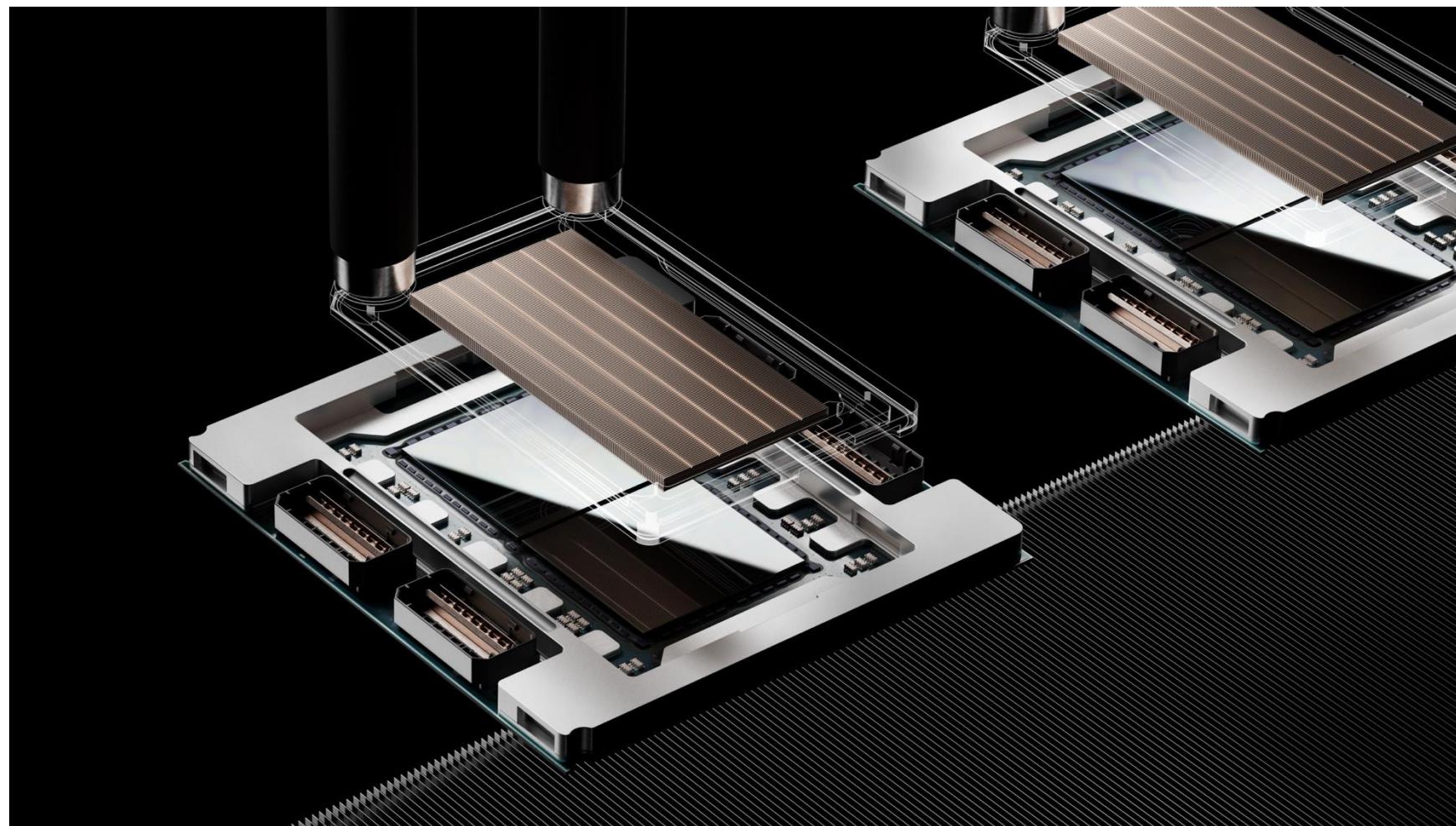
Up to 64 TB memory



19% less power

than IBM z16

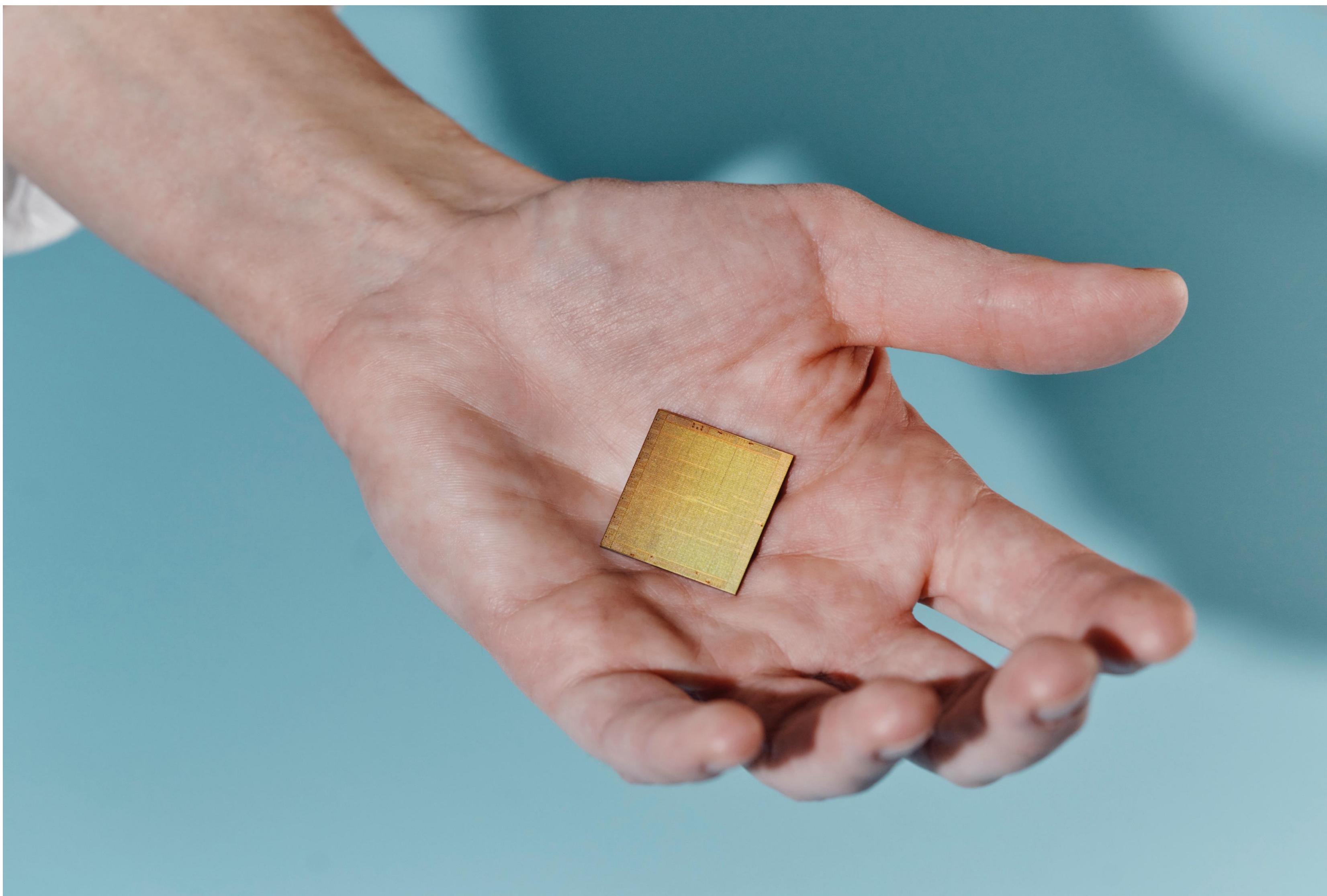
IBM Telum II Processor and Spyre Accelerator



IBM Telum II Dual Chip Module (DMC)

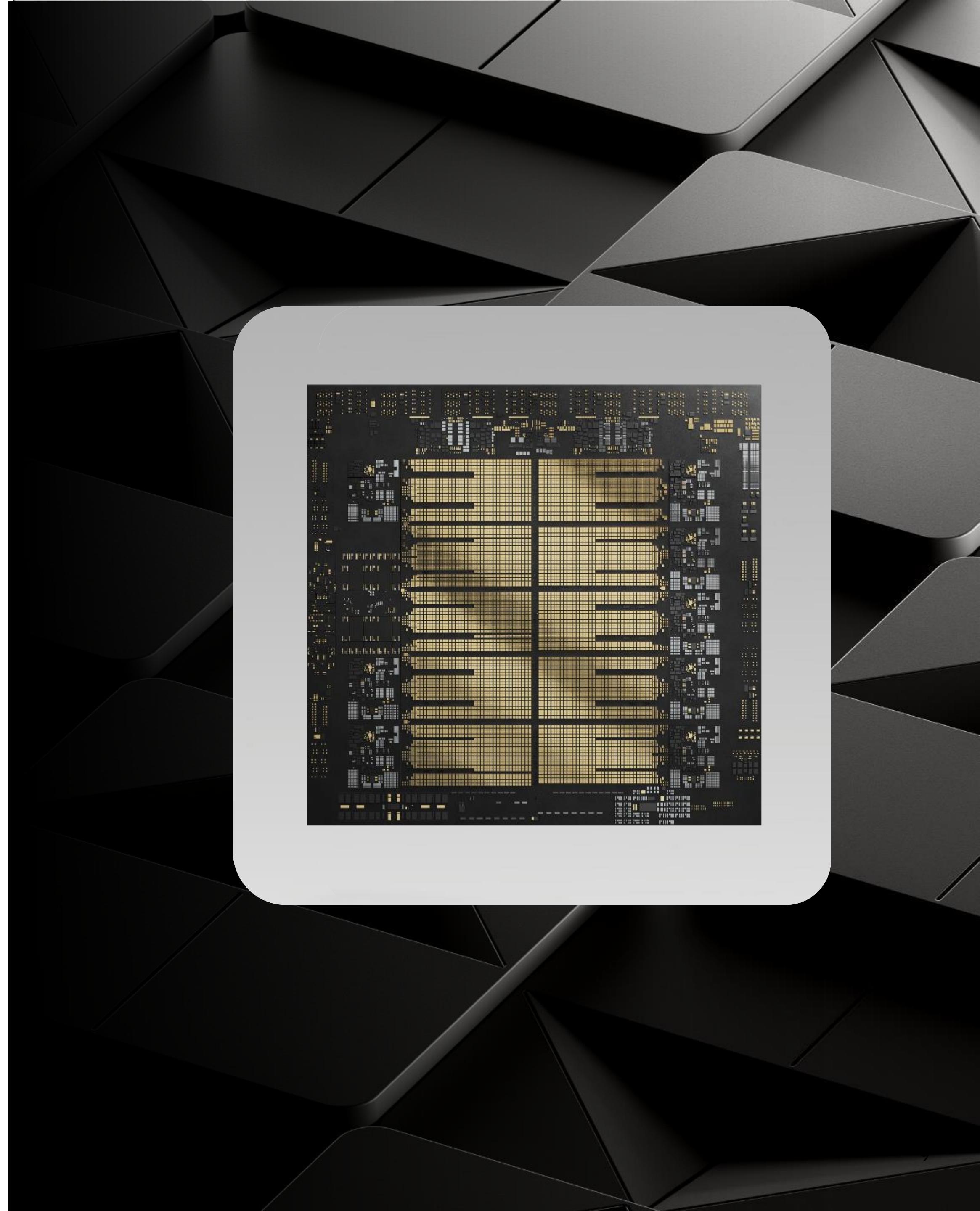


Telum II Chip in hand



IBM Telum II Processor

- 5nm technology, 5.5GHz
- 8 cores with 20% area reduction and improved microprocessor power management
- 40% more cache per core
- 24.1 Miles (39 KM) of wire per chip
- 43.0 Billion (Milliarden) transistors
- **NEW:** On-chip Data Processing Unit (DPU):
Increased I/O performance with 70% reduction in power for I/O management, RAS, reduced latency
- 2nd-gen AI Accelerator for high-speed inferencing with fine tuning
- 8x dedicated AI processing per core



IBM Telum II™ Processor

10 - 36MB L2s

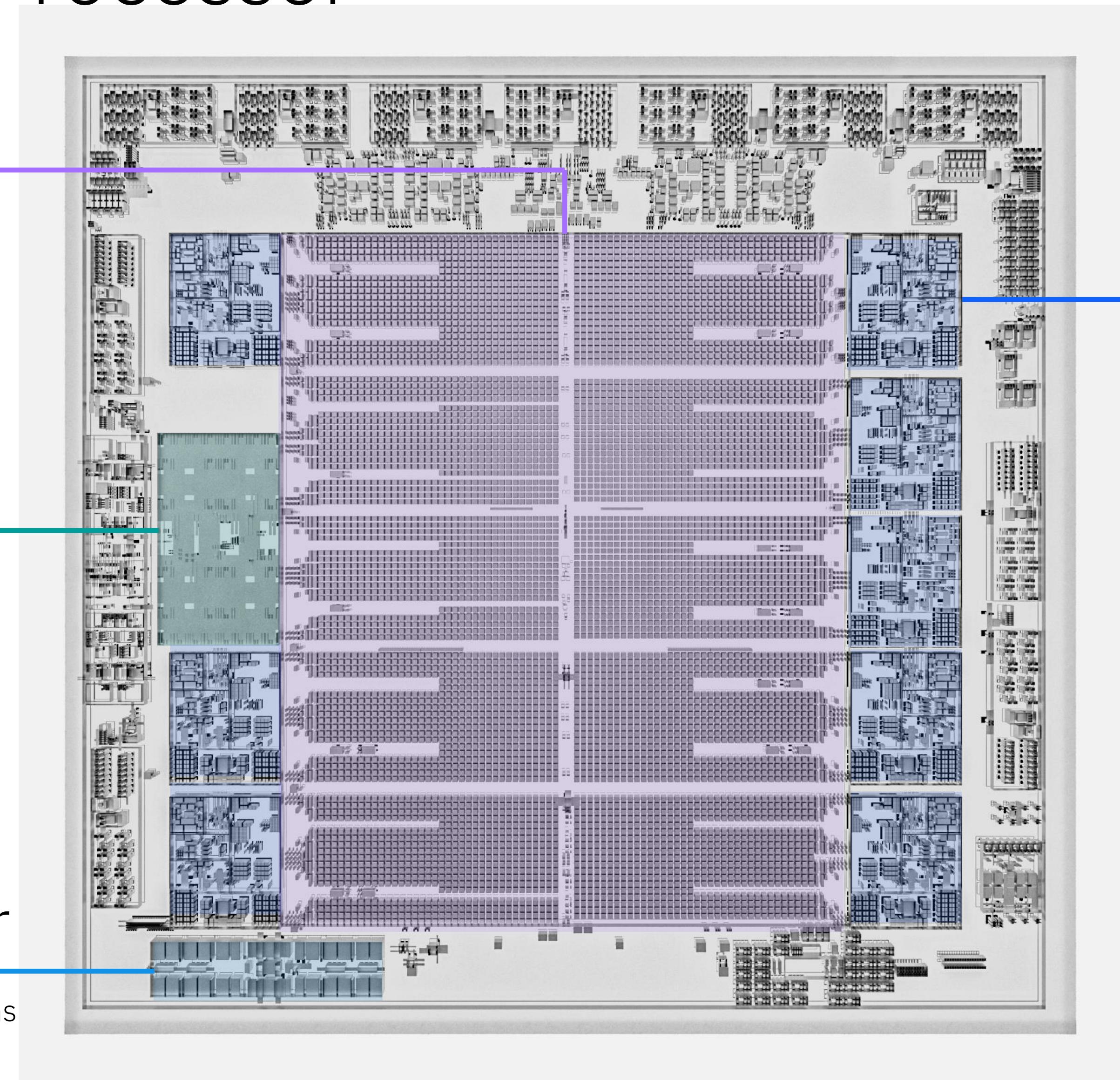
40% more cache per core over z16

I/O DPU

A redesigned I/O subsystem resulting in power and data center footprint reduction

2nd Gen AI accelerator

Improved quantization and matrix operations
8x accelerators available per core



8 - 5.5GHz cores

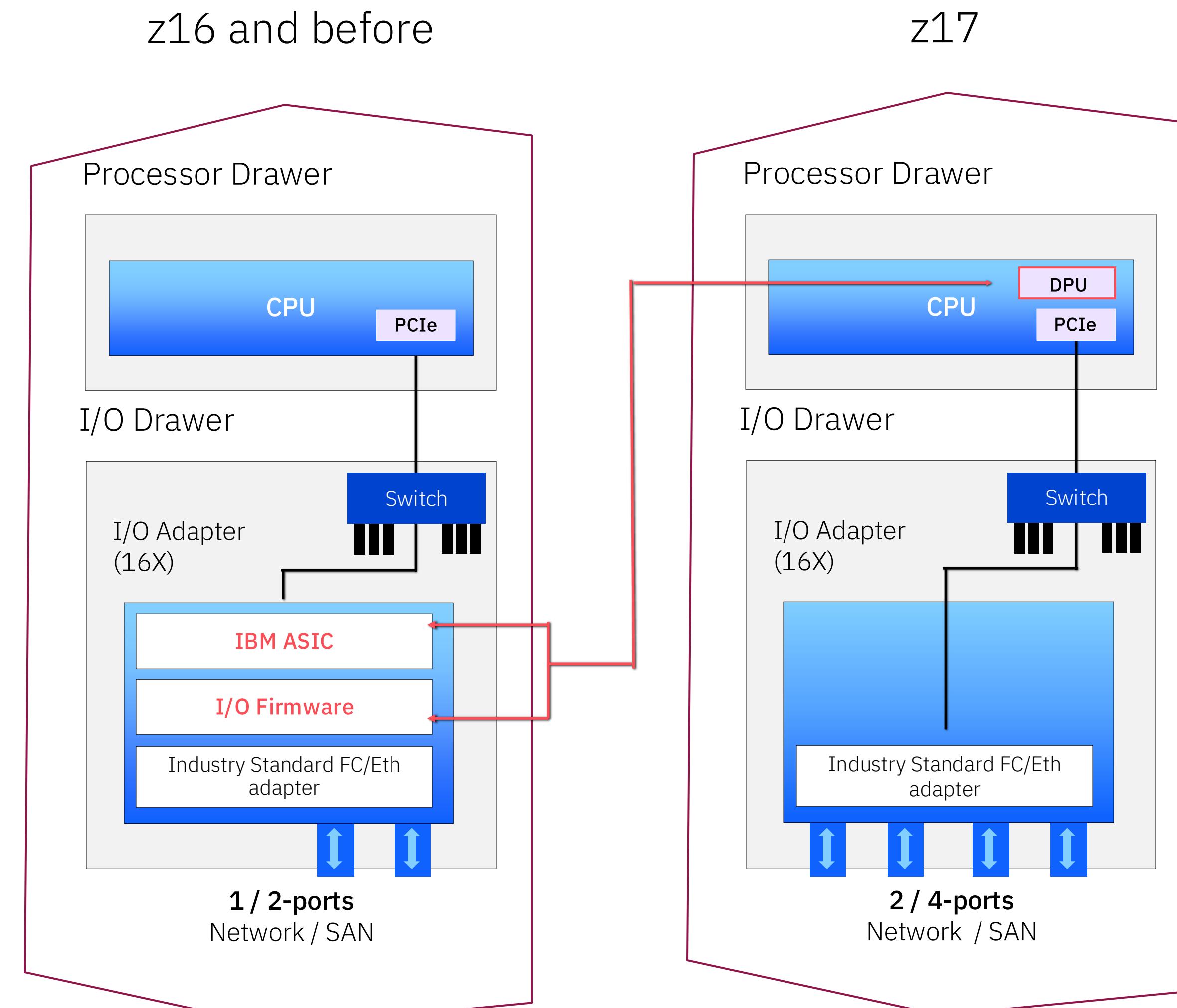
+11% Single thread performance
20% area reduction and 15% power reduction

Process up to **450 billion (Milliarden)** inference operations per day
with **1 ms** response time, a **50%** increase over z16

IBM z17 vs. z16

	z16	z17	z17 differentiation
Processor Chip	7nm technology 5.2G Hz 8 cores per chip 18.8 Miles of wire per chip 22.5B transistors	5nm technology 5.5 GHz 8 cores per chip 24.1 Miles of wire per chip 43B transistors	20% core processor area reduction 15% power reduction +11% single thread performance
Capacity	200 cores	208 cores	+12-20% capacity
Cache	32MB L2 256MB virtual L3 2GB virtual L4	36MB L2 360MB Virtual L3 2.8GB virtual L4	+40% cache growth
Total system memory	4U DDR4 DDIMM 40TB max memory	4U DDR5 DDIMM 64TB max memory	+60% system memory growth
On-chip AI acceleration	Telum	Telum II	More AI processing per chip Up to 8x on-chip AI processors available per CPC drawer
Off-chip PCIe Accelerator card	N/A	Spyre AI accelerator chip 32 Gen AI-ready cores on extended adapters 75W PCIe gen5 x16 adapter Up to 48 adapters per system	Available only on z17
System I/O	Off-chip I/O processing	On-processor chip I/O DPU	70% Reduced power for I/O management Double density with new FICON Express 32G (4-port) Double density with converged Network Express adapter (2-port)

IBM z17 I/O - Next-gen I/O Infrastructure

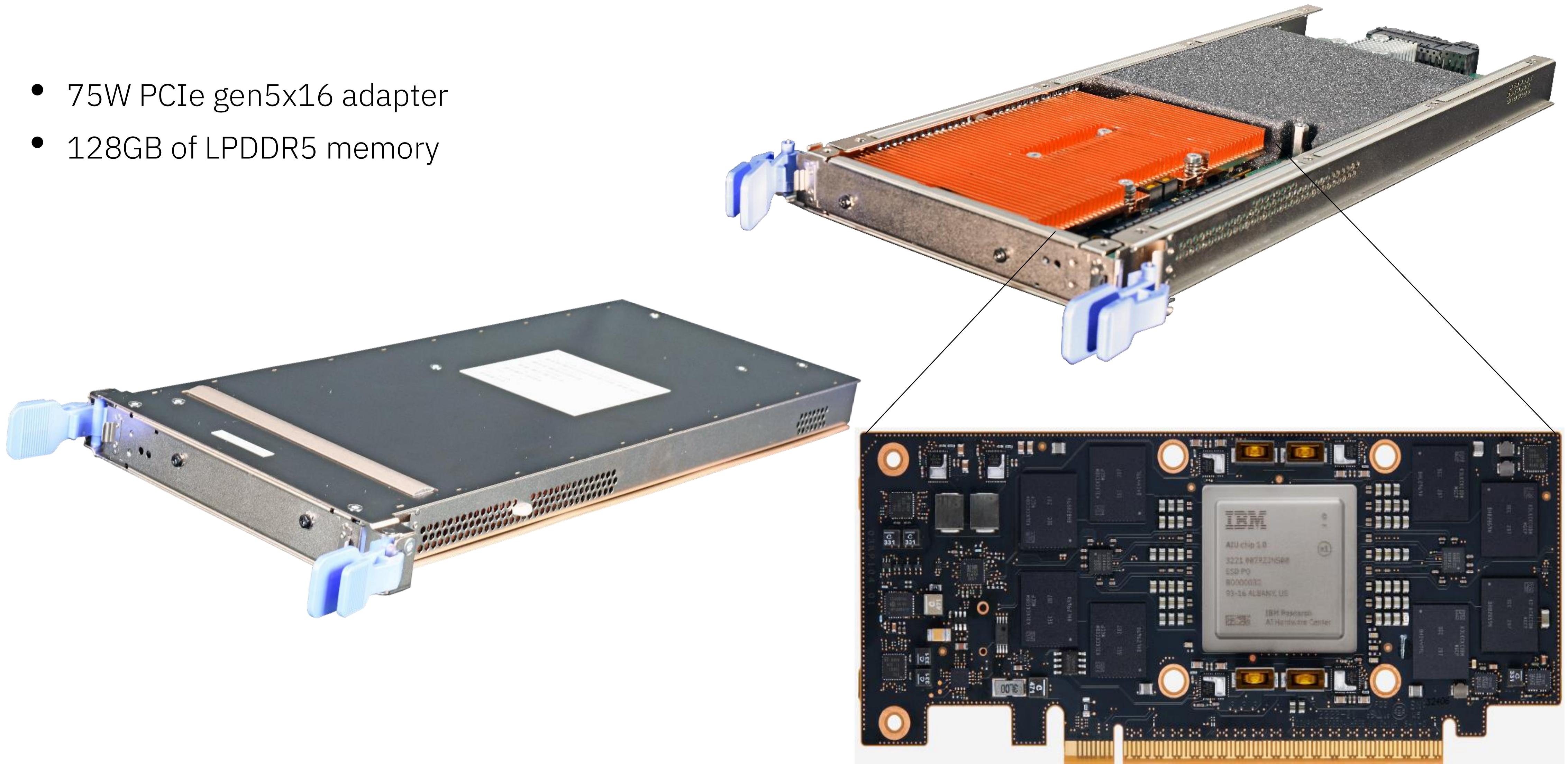


IBM z17 - New Build (NB) I/O Features

Description	Feature Code	Ports	Max Features	Comments- CHPID Types
<ul style="list-style-type: none">• IBM Spyre AI Reserve Slot• Spyre AI Adapter	<ul style="list-style-type: none">• 0061• 0463	N/A	48	Sets of 8
FICON Express32-4P LX	0387	4	96	FC, FCP
FICON Express32-4P SX	0388	4	96	FC, FCP

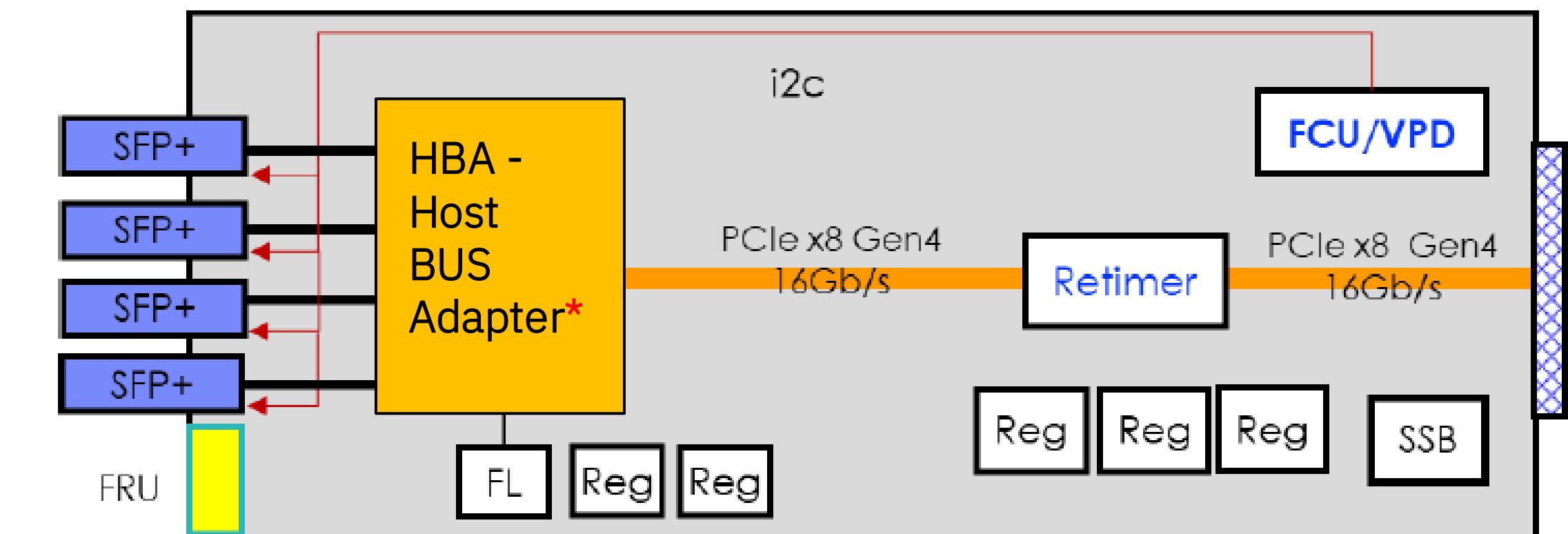
IBM z17 Artificial Intelligence Accelerator (Spyre)

- 75W PCIe gen5x16 adapter
- 128GB of LPDDR5 memory



New FICON / FCP Express32-4P –(4 Ports)

- CHPID types supported: FICON (FC) and FCP
- Four PCHIDs/CHPIIDs
- NO mixed CHPIDs for same card – only FC or FCP
- Supports EDIF / FCES
- Auto-negotiates to 8, 16, or 32 Gbps
- Negotiation to 2 or 4 Gbps NOT supported (Switch needed)
- Max. 96 features per system- total: 384 CHNs
- 10KM LX - 9-micron single mode fiber
 - Unrepeated distance - 10 kilometers (6.2 miles)
 - Receiving device must also be LX
- SX - 50- or 62.5-micron multimode fiber
 - Distance variable with link data rate and fiber type
 - Receiving device must also be SX



HBA is used to translate PCIe to FC protocol

IBM z17 - New Build (NB) I/O Features

Description	Feature Code	Ports	Max Features	Comments - CHPID Types (FID Types)
ICA SR2.0	0216	2	48	CS5
Coupling Express3 LR 10GB	0498	2	32	CL5
Coupling Express3 LR 25GB	0499	2	32	CL6
Network Express SR 10G	0524	2	48	OSH / NETH
Network Express LR 10G	0525	2	48	OSH / NETH
Network Express SR 25G	0526	2	48	OSH / NETH
Network Express LR 25G	0527	2	48	OSH / NETH

Network / OSA on IBM Z today

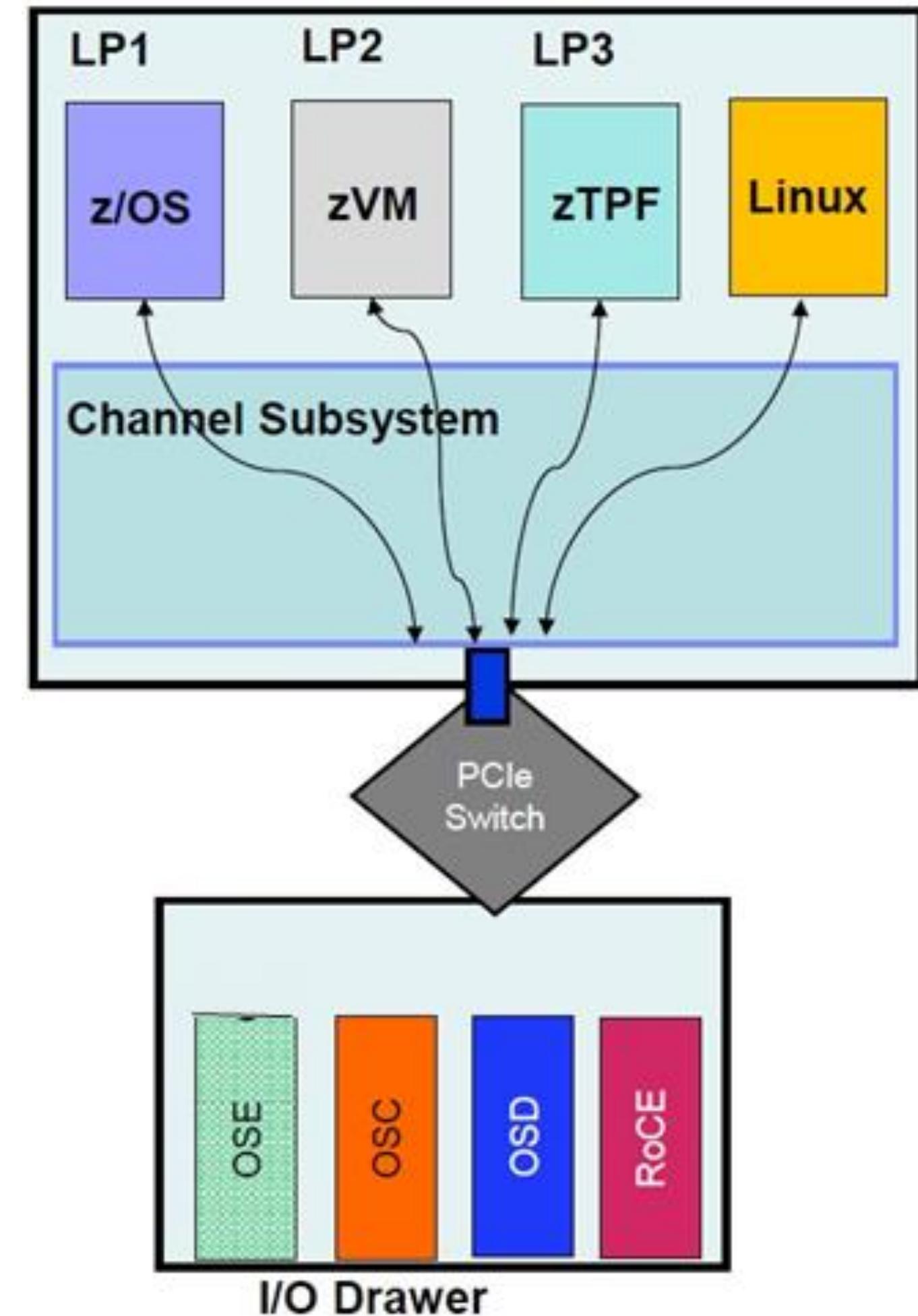
IBM Z currently has multiple unique functions that ultimately result in some protocol flowing over an Network link.

Each requires a unique channel type (with unique protocol driver) for a separate physical port:

- OSD – general TCP/IP, UDP, etc.
- OSC – Console controller functionality
- RoCE RDMA capability used in SMC-R protocol
- OSE¹ SNA (LSA) and TCP/IP (LCS) 1- IBM z17 does not support OSE

Considering redundancy requirements and bandwidth for each protocol shared across all LPARs, the current system Networking design can require many:

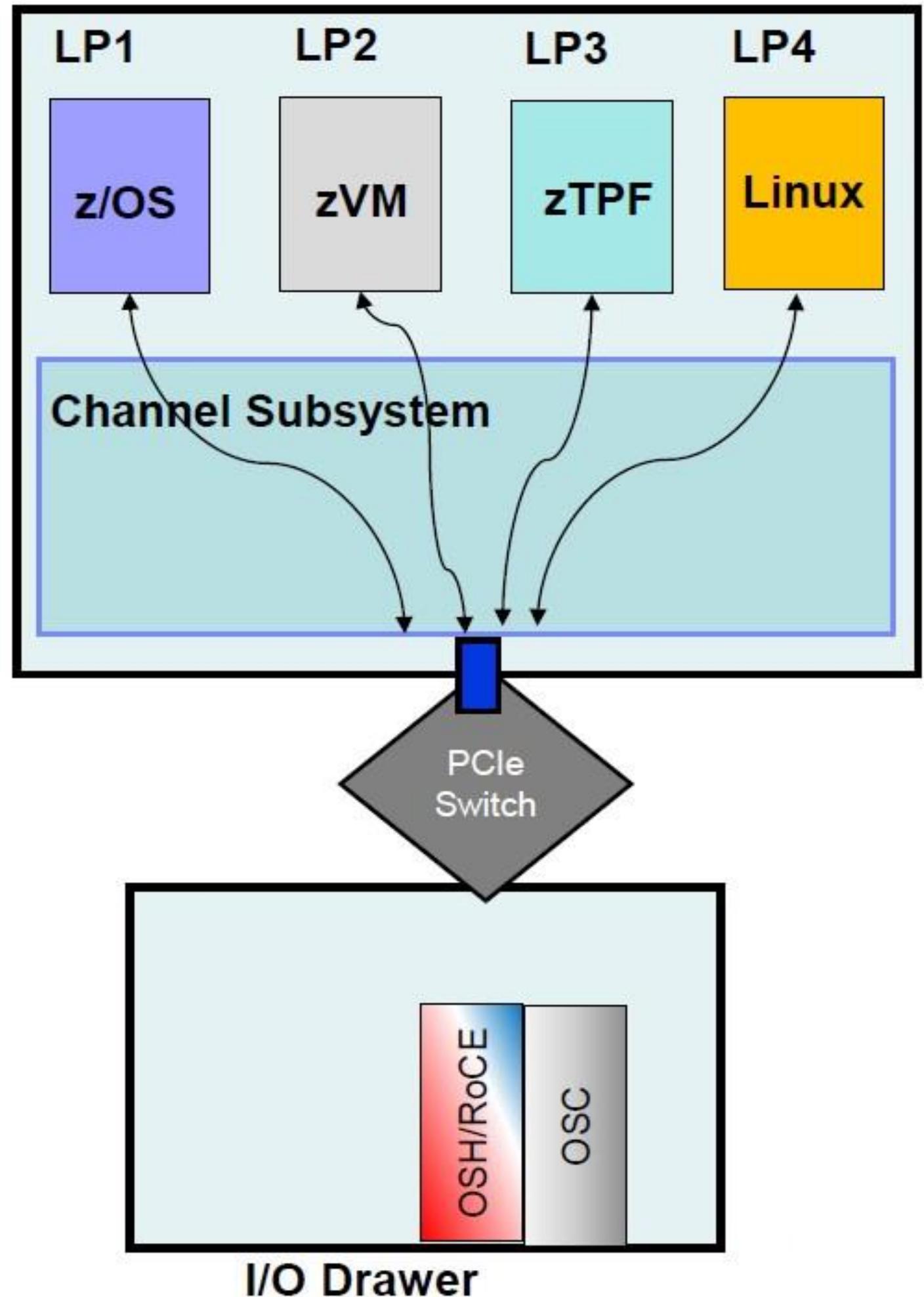
- I/O card slots
- Switch ports



Converged Multi-Function Network Adapter – Network Express

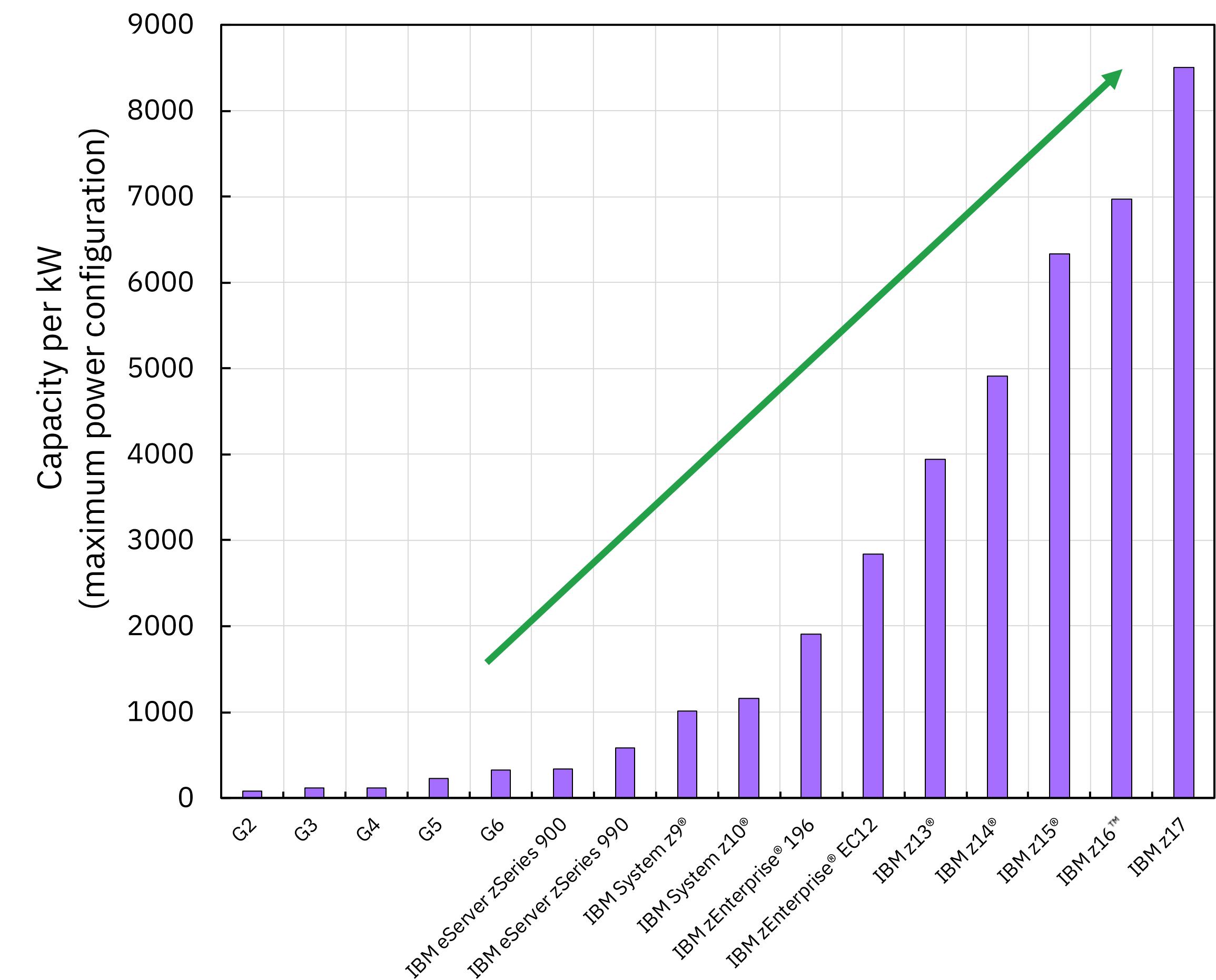
- A single port on the new adapter can simultaneously have two ‘personalities’:
 - **OSH** using the new Enhanced QDIO protocol capability
 - **NETH** for SMC-R RDMA or Linux native usage (TCP/IP, etc.)
- Each port can be configured to provide support for a single host protocol (EQDIO or native PCIe) or combination of host protocols
- Each entity can be independently manipulated (configured/deconfigured), affecting the underlying components of that entity (CHPIDs or FIDs)

Note: at GA1 CHPID type OSC requires an OSA Express7S 1.2 GbE SX/LX



IBM Z: continuous energy efficiency improvements & ESG focus

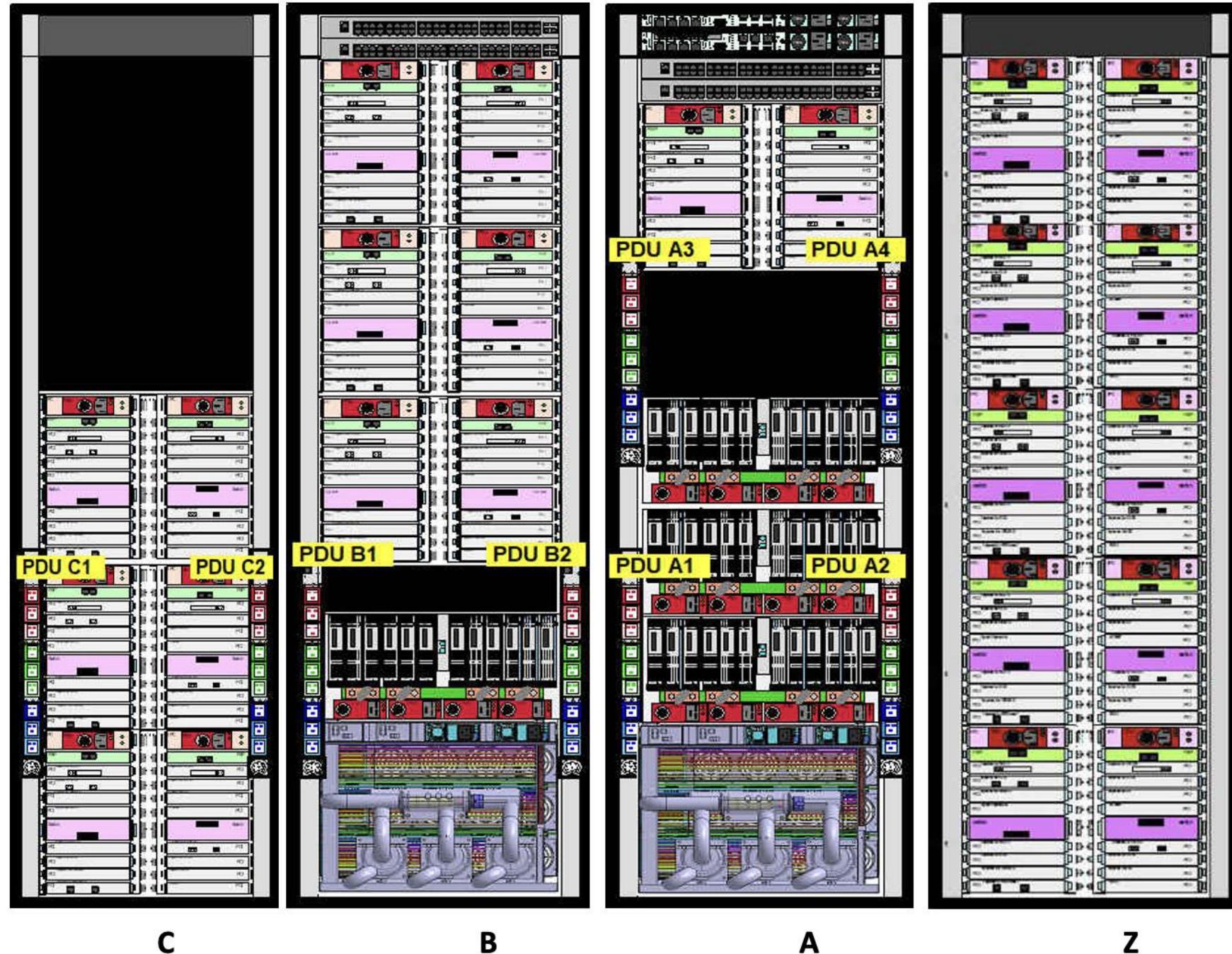
- 115X increased total capacity per kW over the last 15 generations
- IBM z17 reduces power consumption, weight, footprint compared to previous generations while increasing overall compute and capacity
- Lifecycle sustainability focus across every aspect including chip, prefilled coolant, packaging



Generation to generation power efficiency

A large IBM z17 enables more AI inferencing capability with lower power and a smaller data center footprint than a similarly configured IBM z16.

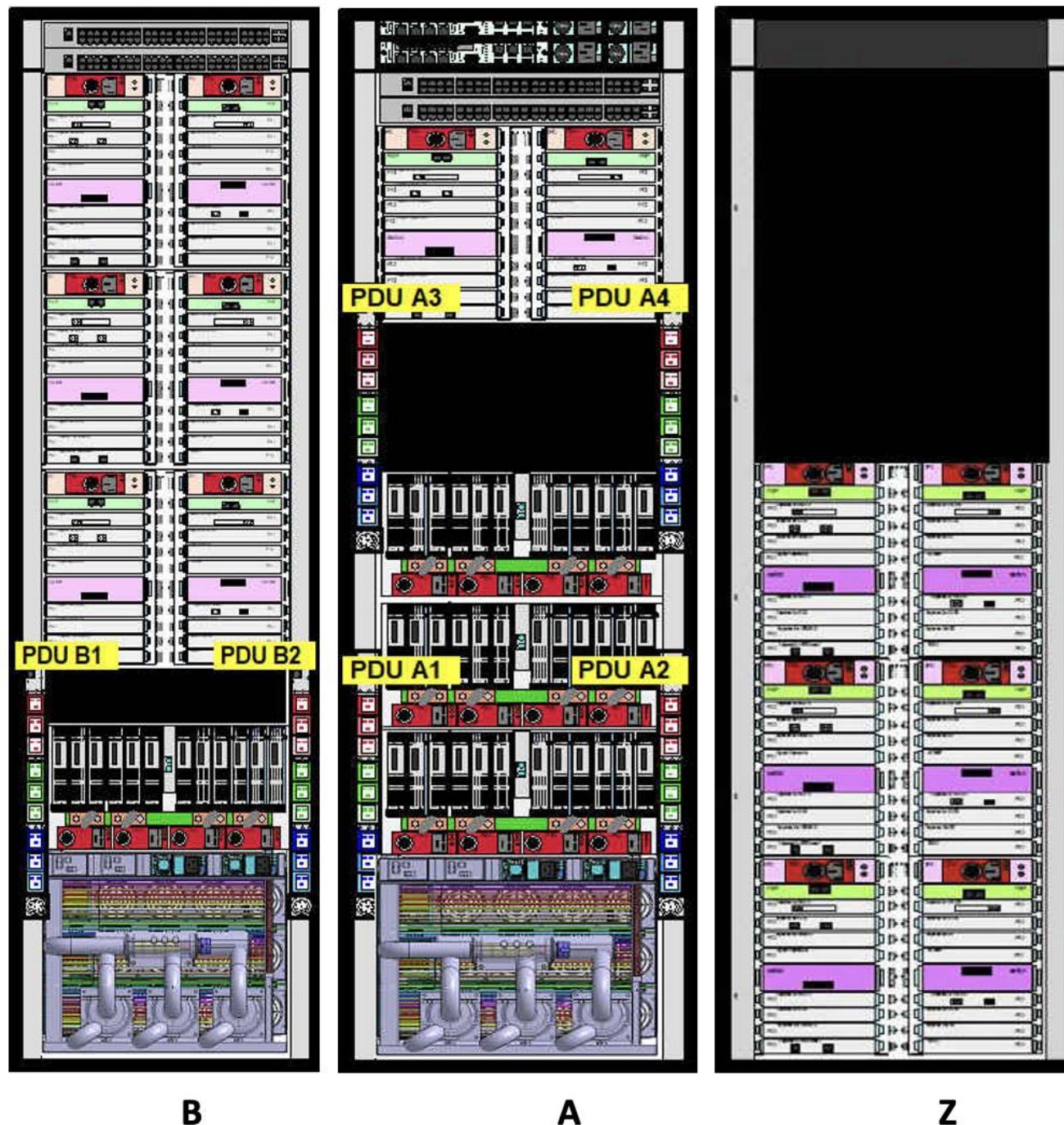
IBM z16 Max200



Large z16 system

- 19,612 W
- 4 frames
- 8 power line cords

IBM z17 Max 208

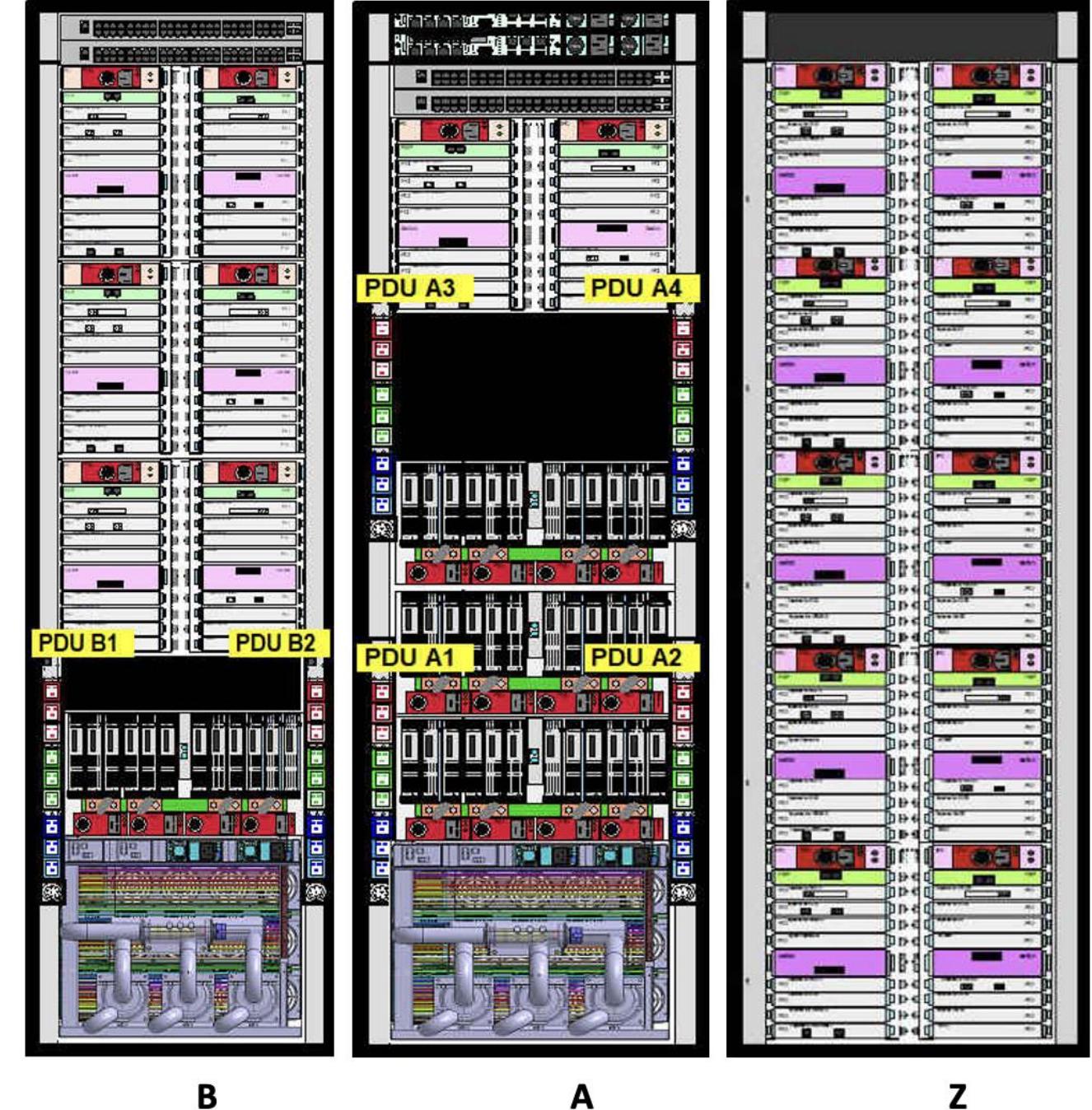


Similar large z17 system

- 14,918 W (-24%)
- 3 frames
- 6 power line cords

Increased capabilities with **14% less power** and **25% smaller footprint** than similar z16

IBM z17 Max 208 + 40 Spyre



Similar large z17 system w/ **40 Spyre**

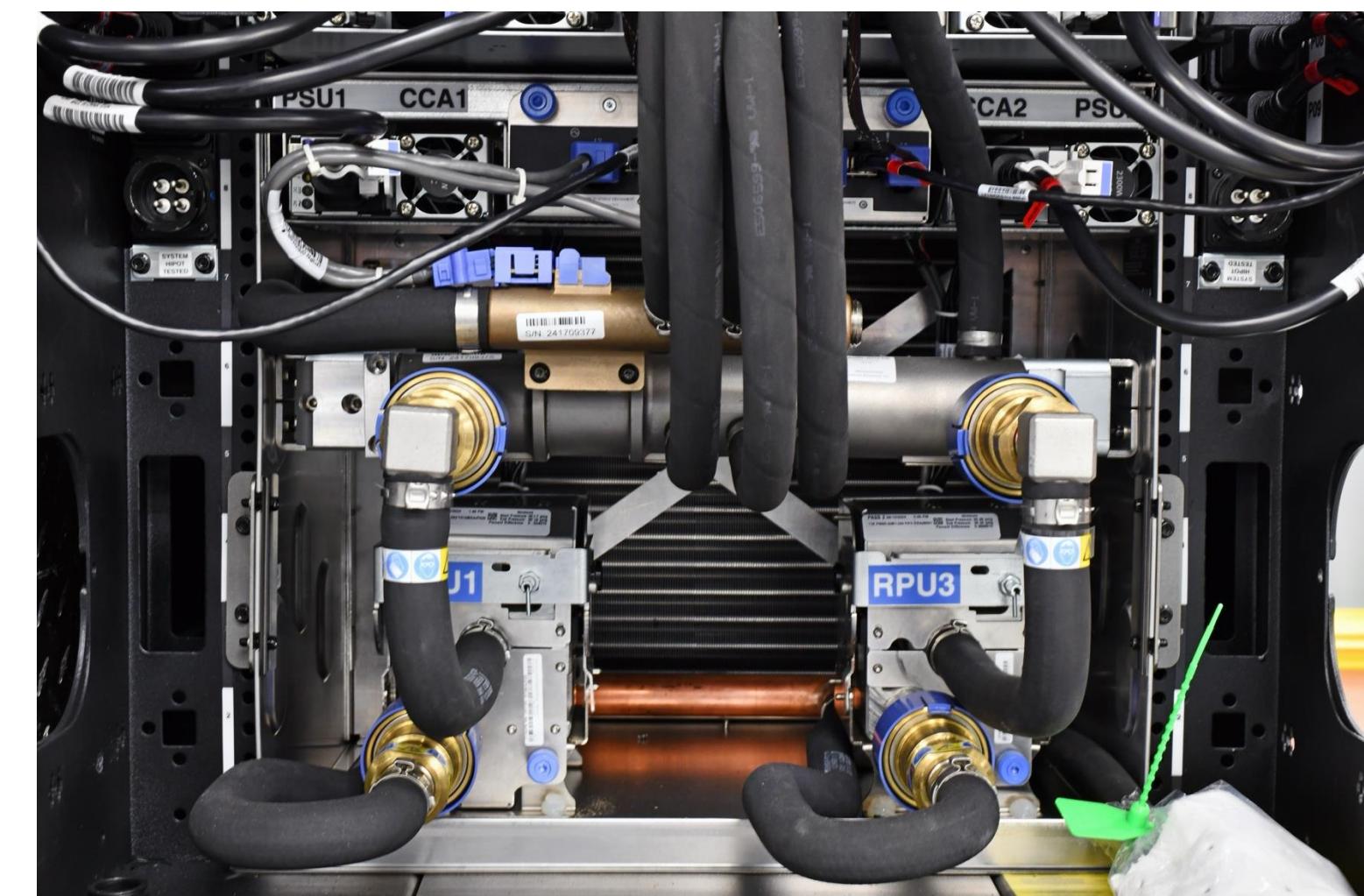
- 18,450 W (-6%)
- 3 frames
- 6 power line cords

Significant AI inferencing capability with **3% less power** and **25% smaller footprint** than similar z16

Cooling

Cooling is similar to z16

- N+1 redundancy on fans (and their controls)
- N+1 redundancy on coolant pumps with N+2 cooling fan assembly
 - N+2 on coolant sensors



No fill and drain tool – (Not required with the Propylene Glycol Cooling)



IBM z17 Coupling Connectivity and Coexistence

IBM z17 ME1 (9175) ICA
SR2.0 and CE3 LR



Coupling Express3 LR (CE3 LR)* 10G
10/100 km , 25G 10/100 km
IBM z17, IBM z16, IBM z15 to another
IBM z17, IBM z16, IBM z15 Connectivity
ONLY

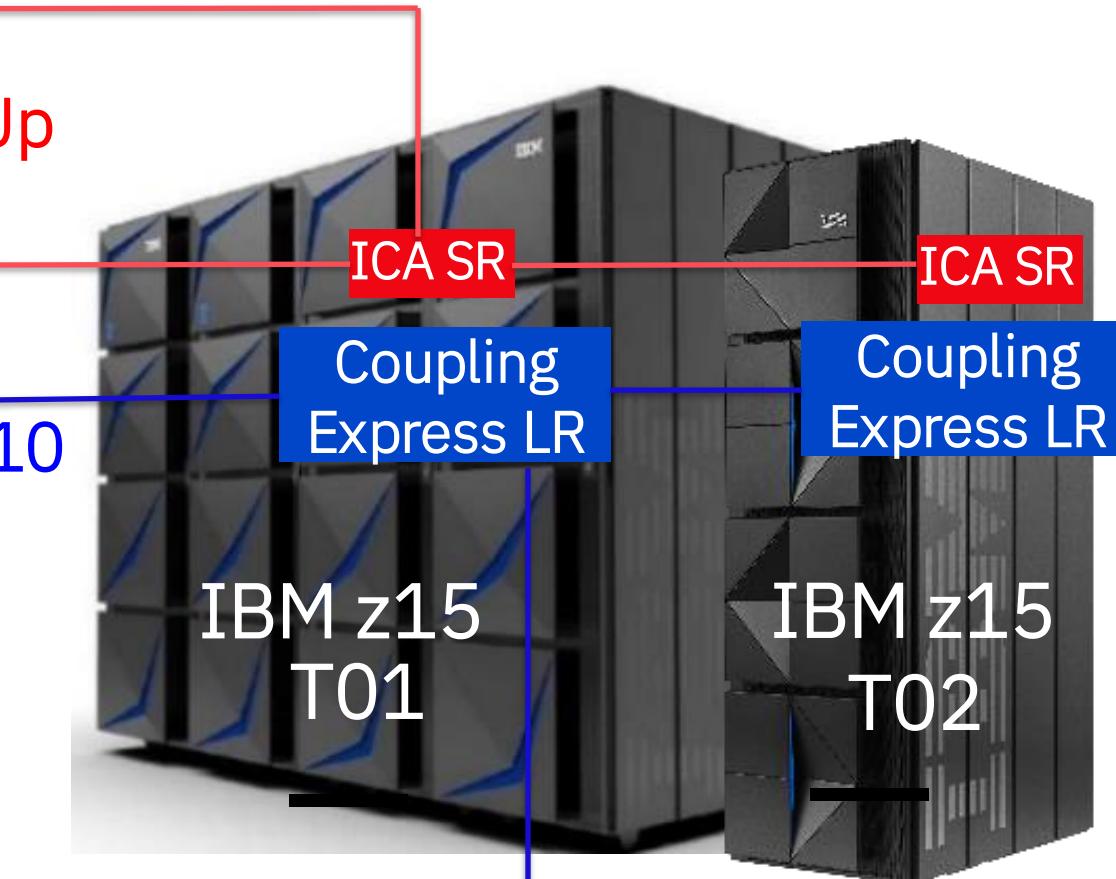
IC (Internal Coupling Link)
Only supports IC-to-IC connectivity

IBM z15 Coupling Express LR and IBM z16 Coupling Express2 LR
cannot be carried forward to IBM z17

IBM z16 A01.A02 (3931 and 3932)
ICA SR1.1 and CE2 LR



IBM z15 T01.T02 (8561 and 8562)
ICA SR and CE LR



Integrated Coupling Adapter (ICA SR, ICA SR1.1,
ICA SR 2.0 – 8GBps up to 150 m
IBM z17, IBM z16, IBM z15 to another IBM z17,
IBM z16, IBM z15 Connectivity ONLY

IBM z14, IBM z14 ZR1 and older systems
Not supported in the same Parallel Sysplex or
STP CTN with IBM z17

Note: The link data rates do not represent the performance of the
links. The actual performance is dependent upon including latency
through the adapters, cable lengths, and the type of workload

Driver 61 / Version 2.17.0 (HMC/SE)

- HMC support to n-2 only
 - z14 no longer supported
 - same as SYSPLEX support
- Note:
 - HMC Driver 61 / Ver. 2.17.0 can be loaded on
 - z17 HMA (Hardware Management Appliance – 2 HMC / 2 SE)
 - IBM z16 HMA
 - IBM z15 HMA
 - Standalone HMC (Tower & Rack: no longer supported)

Machine Family	Machine Type	Firmware Driver	SE Version
IBM z17	9175	61	2.17.0
IBM z16	3931, 3932	51	2.16.0
IBM z15	8561, 8562	41	2.15.0

IMPORTANT

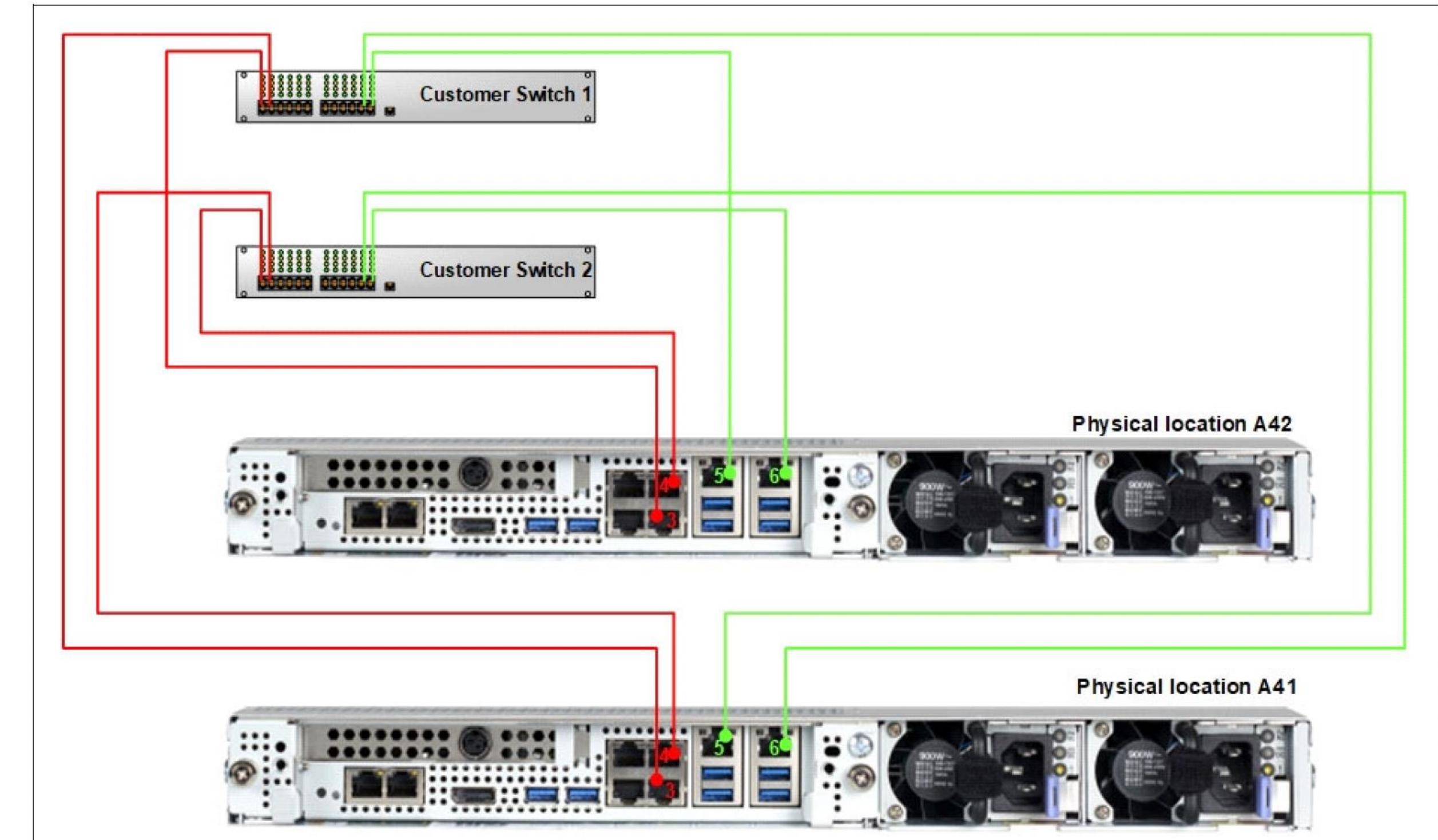
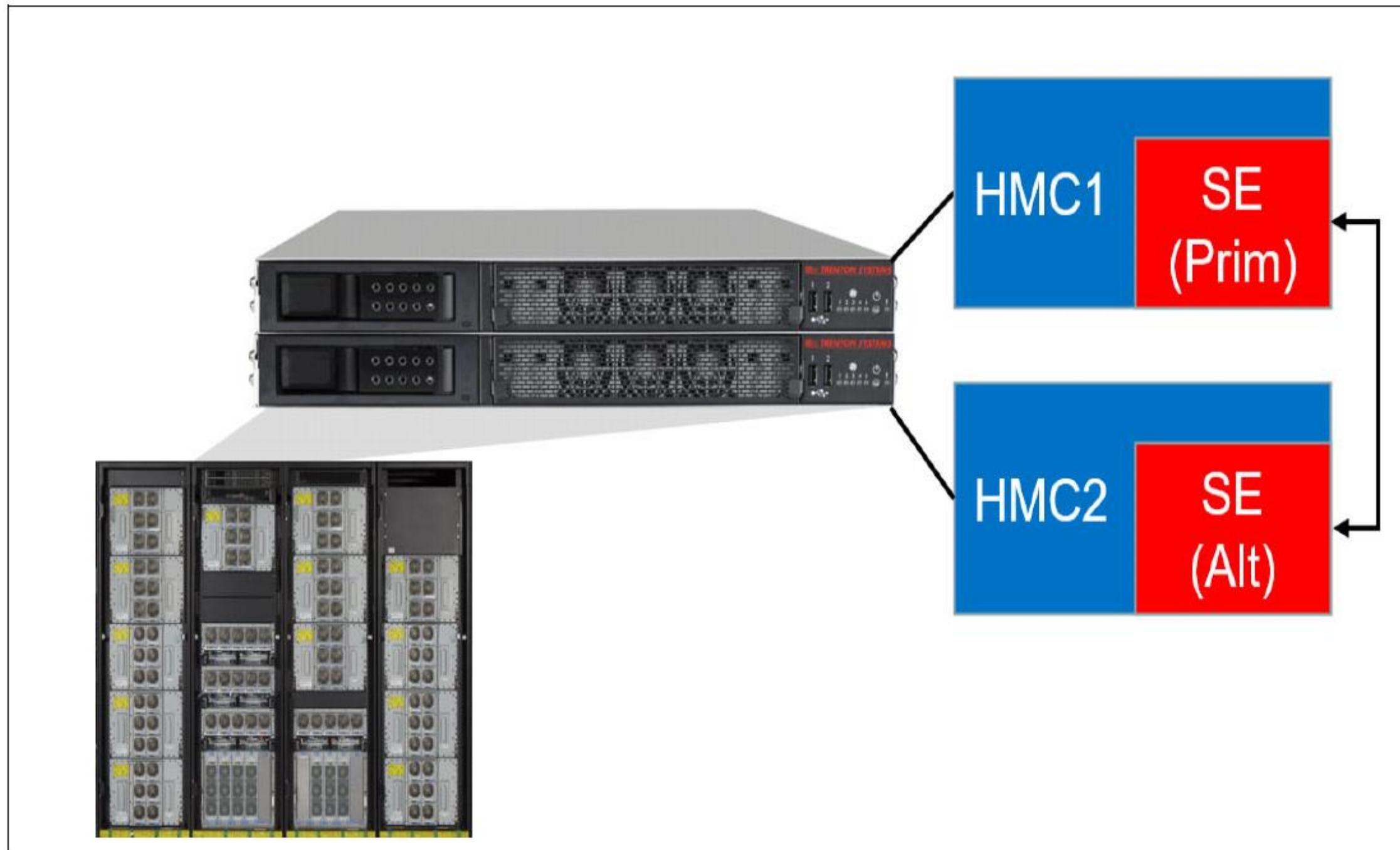
- Minimum 1 HMA per Data Center
- Maximum 2 HMAs per Data Center
- IBM z17 with SE only is available

What is an HMA?

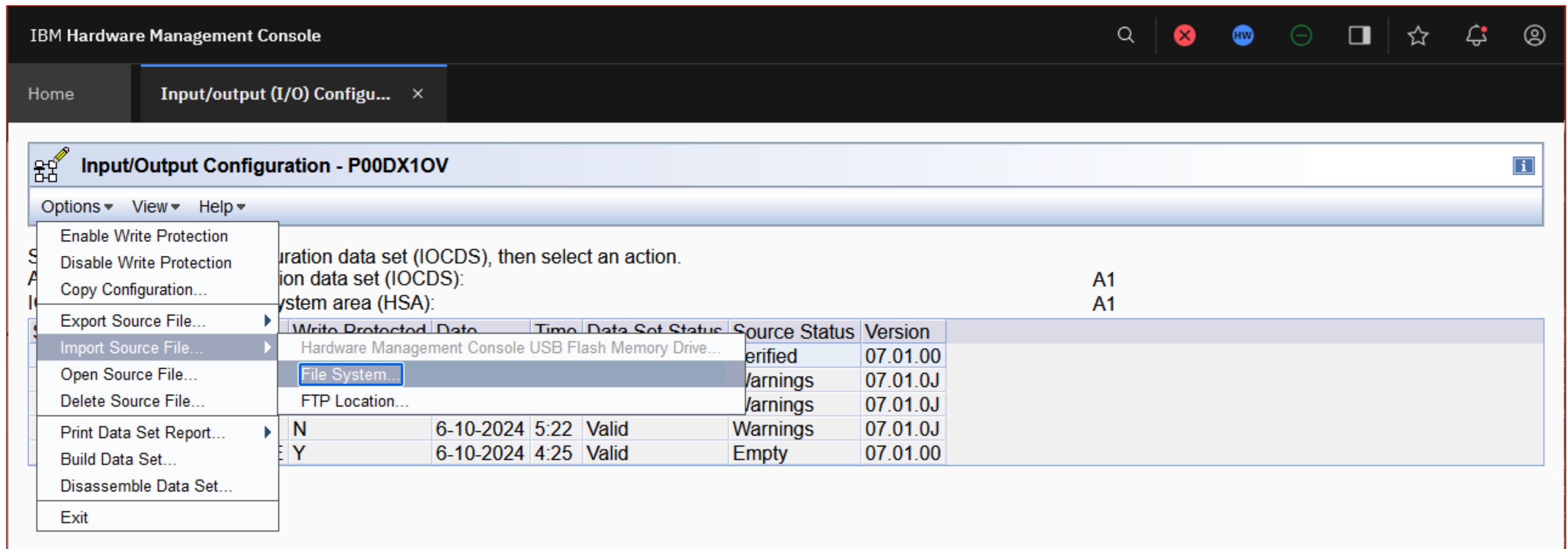
Hardware Management Appliance

HMA is an Appliance feature consist of:

- Two HMCs
- Two SEs
- Each HMC and SE has own 2 physical Network Ports which has to be connected to a customer provided Switch
- The SE runs virtual on the HMC -> if HMC must be restarted also the SE will be restarted.



Import/Export Remote File System



IBM Hardware Management Console

Home Input/output (I/O) Configu... x

Input/Output Configuration - P00DX10V

Options View Help

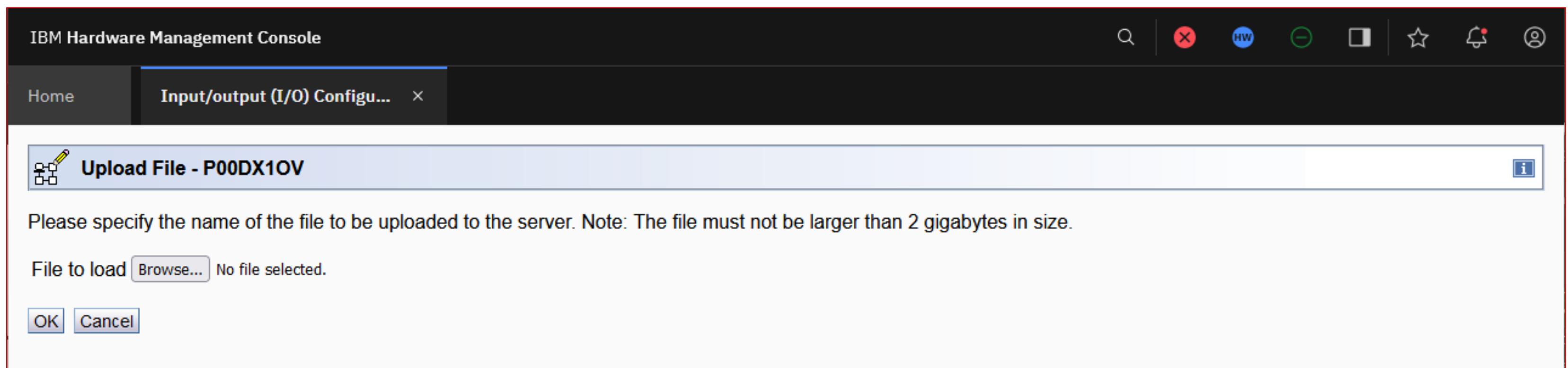
Enable Write Protection
Disable Write Protection
Copy Configuration...
Export Source File... ▶ Import Source File... ▶ Open Source File... Delete Source File...
Print Data Set Report... Build Data Set... Disassemble Data Set...
Exit

Configure data set (IOCDS), then select an action.

ion data set (IOCDS):
ystem area (HSA):

Write Protected	Date	Time	Data Set Status	Source Status	Version
N	6-10-2024	5:22	Valid	Verified	07.01.00
Y	6-10-2024	4:25	Valid	Warnings	07.01.0J
				Warnings	07.01.0J
				Empty	07.01.00

A1 A1



IBM Hardware Management Console

Home Input/output (I/O) Configu... x

Upload File - P00DX10V

Please specify the name of the file to be uploaded to the server. Note: The file must not be larger than 2 gigabytes in size.

File to load No file selected.

OK Cancel

Provide option to import/export files directly from/to client workstation remotely connecting to the HMC Addresses

- USB access to HMA HMC in the Data Center
- Complexity of SFTP/FTPS
- Secure connection

Import/Export Remote File System

Import/Export from Remote Browsing File System

As with Driver 61/Version 2.17.0, only HMAs are supported; most clients will use the HMC via remote connections. For the tasks listed below, Import/Export from Remote Browsing File System is supported:

- ▶ Fibre Channel Endpoint Security
- ▶ Secure Boot Certificate Management
- ▶ Certificate Management
- ▶ System Input/Output Configuration Analyzer
- ▶ Analyze Console Internal Code
- ▶ Change Console Internal Code
- ▶ FCP Configuration
- ▶ Audit log Scheduled Operations
- ▶ Export/Import IOCDS
- ▶ Save/Restore Customizable Console Data
- ▶ Crypto Configuration
- ▶ View/Archive Security Logs
- ▶ Advanced Facilities
- ▶ OSA Advanced Facilities
- ▶ Crypto UDX configuration
- ▶ Transmit Service Data
- ▶ Transmit VPD
- ▶ Import Secure Execution Keys
- ▶ Export/Import Profiles
- ▶ Reassign HMC
- ▶ Manage Firmware Features
- ▶ System I/O Configuration Analyzer
- ▶ Perform Model Conversion

Security Enhancements: Dual Control

Dual Control Value Proposition

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.

Requirements/Value

- Industry or Company Security Standard
- User action error protection
 - Unintended activation of a wrong active LPAR
- Fraud Protection (most likely insider)
 - Misuse of Crypto
 - Security Attack (take down one or more LPARs)
- Financial Protection or Workload Performance Degradation
 - Capacity on Demand (eg. On/Off Capacity on Demand)
 - User mistake or Fraud protection

Dual Control Design Highlights

Dual Control definitions in User Management roles

- Optionally assigned to users

Dual Control available to z17, z16, z15 using HMC 2.17.0

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

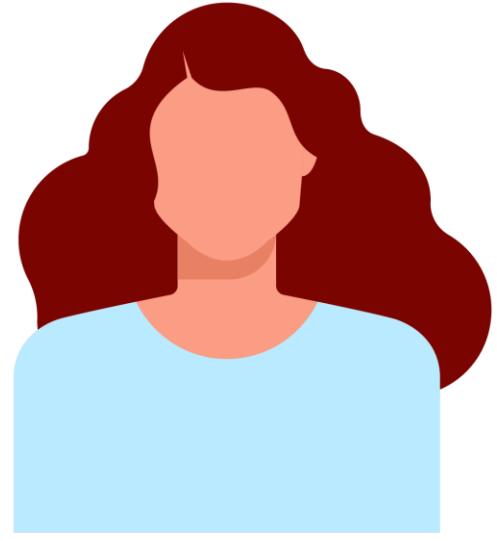
- Run by requester restricted to time window in the future
- Run by requester
 - No time window restriction
- Run immediately
 - Automatically without requester further involvement
- Run on a specific date and time

Dual Control CPCs supported (Requires z17 HMC 2.17.0)

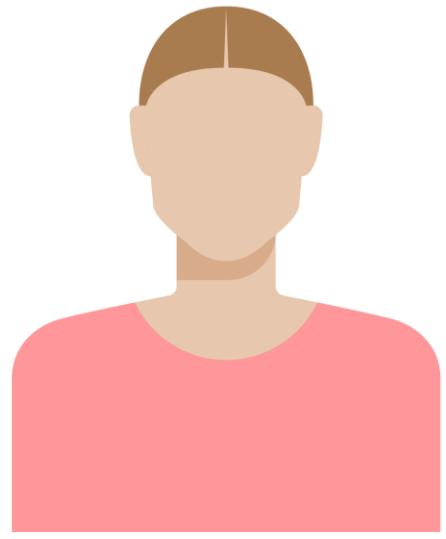
- z17 CPC (no restrictions)
- z16 & z15 CPCs
 - Should remove Single Object Operations in any role applied to a User under Dual Control
 - *Perform Model Conversion (Capacity on Demand) & Change LPAR Cryptographic Controls* tasks not available for HMC 2.17.0 z16 & z15 targets

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

Primary user personas

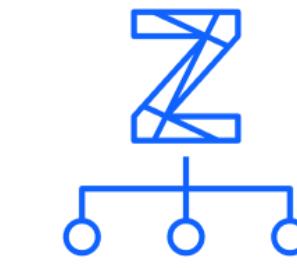


Noëmi
Junior system administrator



Marco
Security administrator

Daniel
Experienced system administrator



Hardware management



Security

Dual control set-up for the deactivate task



Marco selects the objects that should be enabled for dual control with the deactivate task

IBM Hardware Management Console

Home User management New role

New Role

Dual control

Marco selects the objects that should be enabled for dual control with the deactivate task

Create a task and object mapping

Task Objects by type Specific objects Objects by group Summary

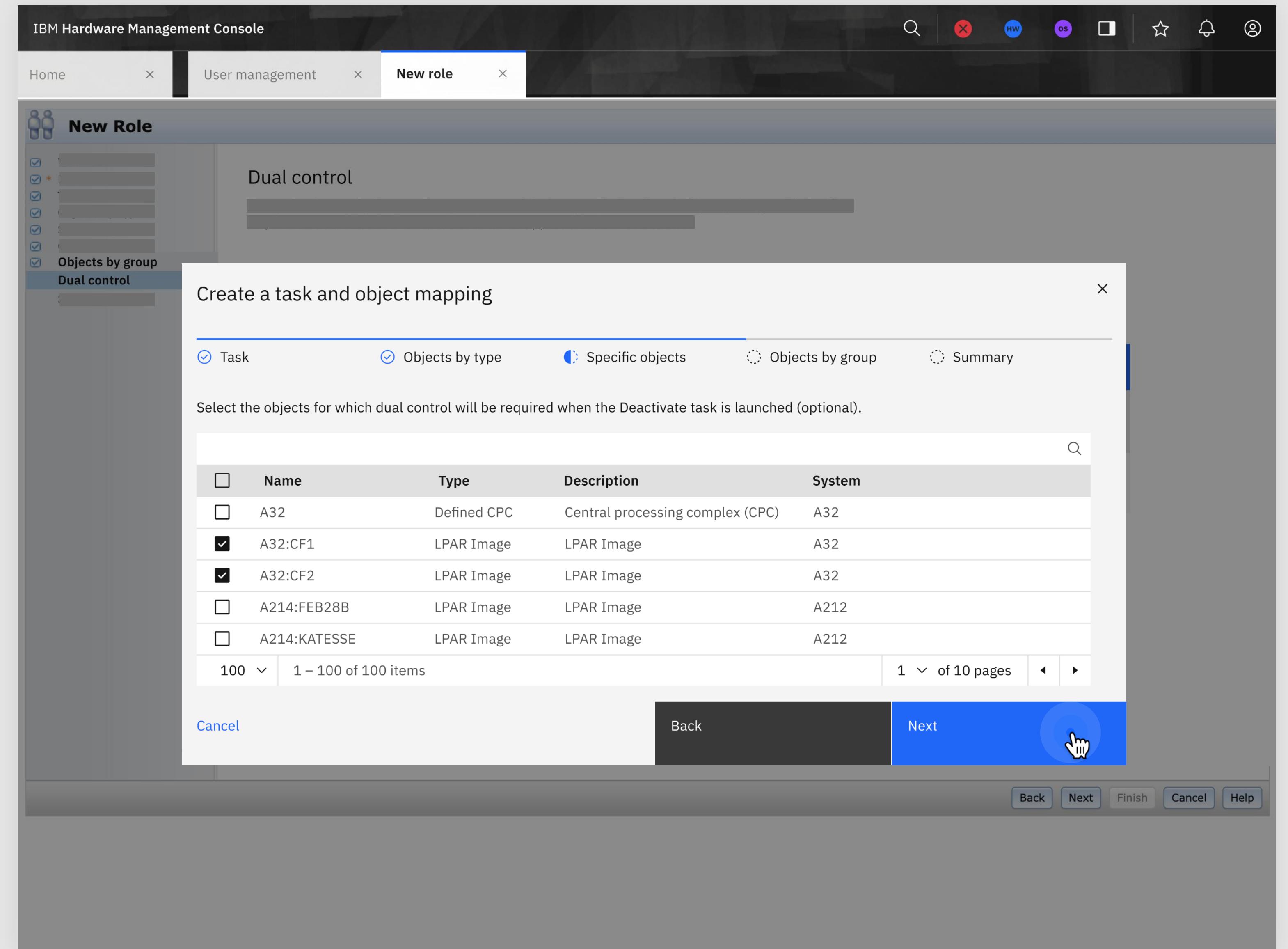
Select the objects for which dual control will be required when the Deactivate task is launched (optional).

<input type="checkbox"/>	Name	Type	Description	System
<input type="checkbox"/>	A32	Defined CPC	Central processing complex (CPC)	A32
<input checked="" type="checkbox"/>	A32:CF1	LPAR Image	LPAR Image	A32
<input checked="" type="checkbox"/>	A32:CF2	LPAR Image	LPAR Image	A32
<input type="checkbox"/>	A214:FEB28B	LPAR Image	LPAR Image	A212
<input type="checkbox"/>	A214:KATESSE	LPAR Image	LPAR Image	A212

100 1 – 100 of 100 items 1 of 10 pages

Cancel Back Next

Back Next Finish Cancel Help



Defining approver permissions



Once all the tasks and object mappings are defined, Marco selects the roles of the users that should have approver permissions for the designated task and object mappings.

IBM Hardware Management Console

Home User management New role

New Role

Dual control

An optional security feature that you can enable for specified task and object mappings which will require a second level of verification from an approver before being run.

Enable for tasks and objects

Select the task and object mappings to enable for dual control.

Add task and object mapping +

Task	Objects by type	Specific objects	Objects by group
Deactivate		A32:CF1, A32:CF2	

Approver permissions

Select which roles should have dual control approver permissions for the above task and object mappings.

Anyone with this role other than the requester

Operator tasks

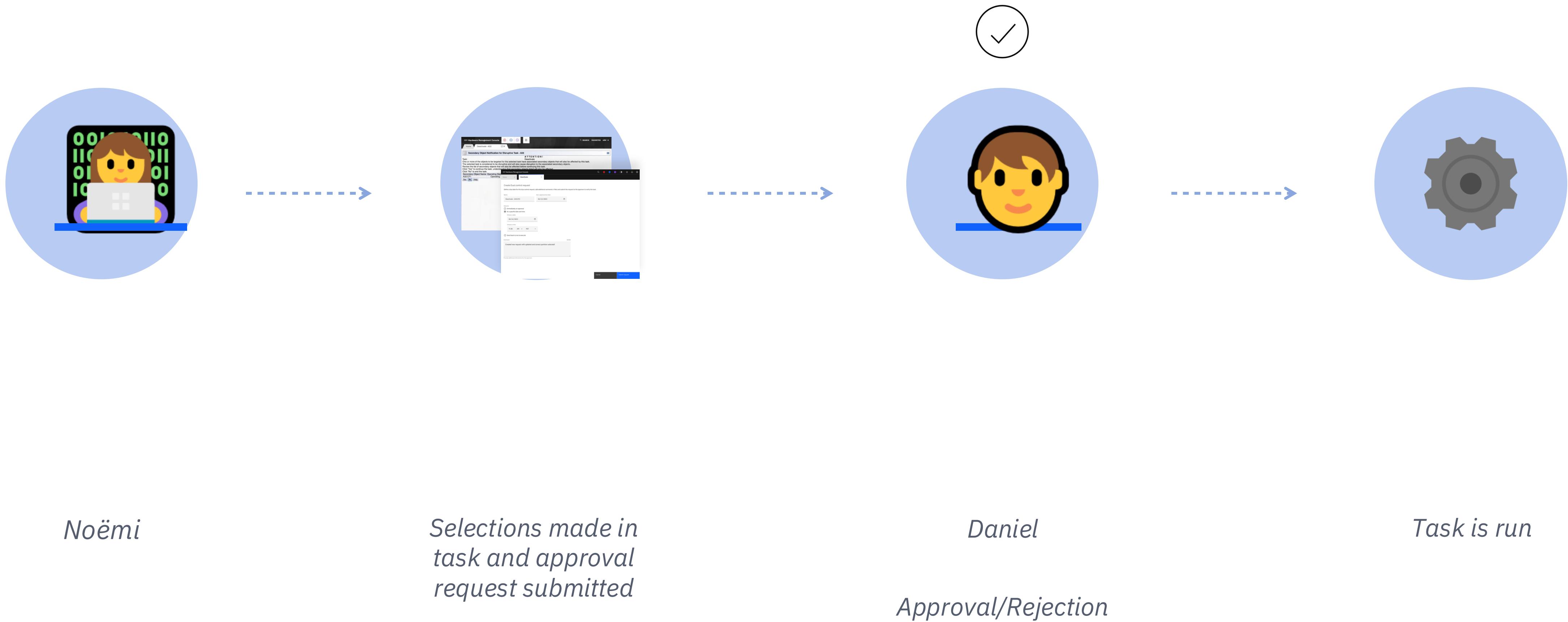
Jr system programmer tasks

System programmer tasks

Sr system programmer tasks

Back Next Finish Cancel Help

Dual Control Task use touch points



In task



Noëmi sees that this is a *dual control enabled task and object mapping*

Once she has made her selections and is done within task, she *creates a dual control request*

IBM Hardware Management Console

Home Deactivate - A32:CF1  

 **Disruptive Task Confirmation : Deactivate - A32:CF1** 

 **Dual control enabled** This task requires dual control in order to run the action. [Learn more about dual control](#)

Attention: The Deactivate task is disruptive.

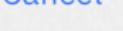
Executing the Deactivate task may adversely affect the objects listed below. Review the confirmation text for each object before continuing with the Deactivate task.

Objects that will be affected by the Deactivate task

System Name	Type	OS Name	Status	Confirmation Text	Confirmation Status
A32:CF1	Image		Not operating	<input type="text"/>	

Do you want to execute the Deactivate task?

Type the password below for user "adal" then click "Yes".

  Create dual control request  

Submitting a dual control request



Noëmi selects an *approval due date*, and that the Deactivate should run immediately after it's approved.

She submits the request

IBM Hardware Management Console

Home User Management Deactivate - A32:CF1

Create dual control request

This task requires approval before you can run it. Create a dual control request that includes an approval due date and instruction that indicates how you want to proceed after receiving an approval. You can also provide a description of the request, and comments for the approvers.

Request name Approval due date

Deactivate - A32_CF1 09/25/2024

Description (optional) 57/1024

Deactivation of the CF1 partition per direction from BDV.

Instructions for running the approved task

Run immediately i
 Run at a specific date and time i
 Run the task manually i

Comment (optional) 81/1024

Please approve this deactivate request as discussed in planning meeting with BDV.

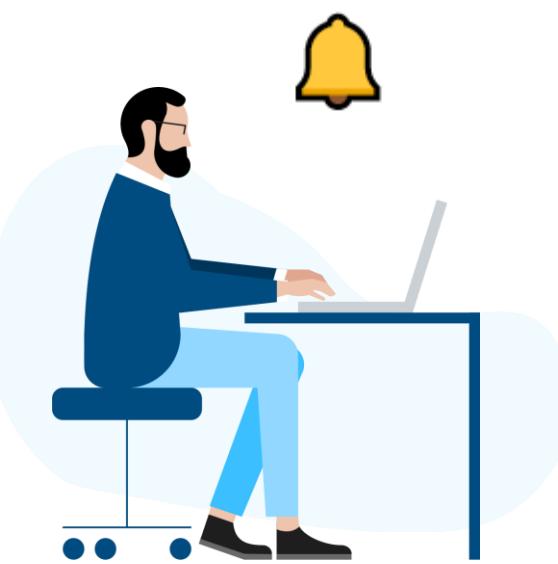
Help Cancel Submit request

GUIDANCE

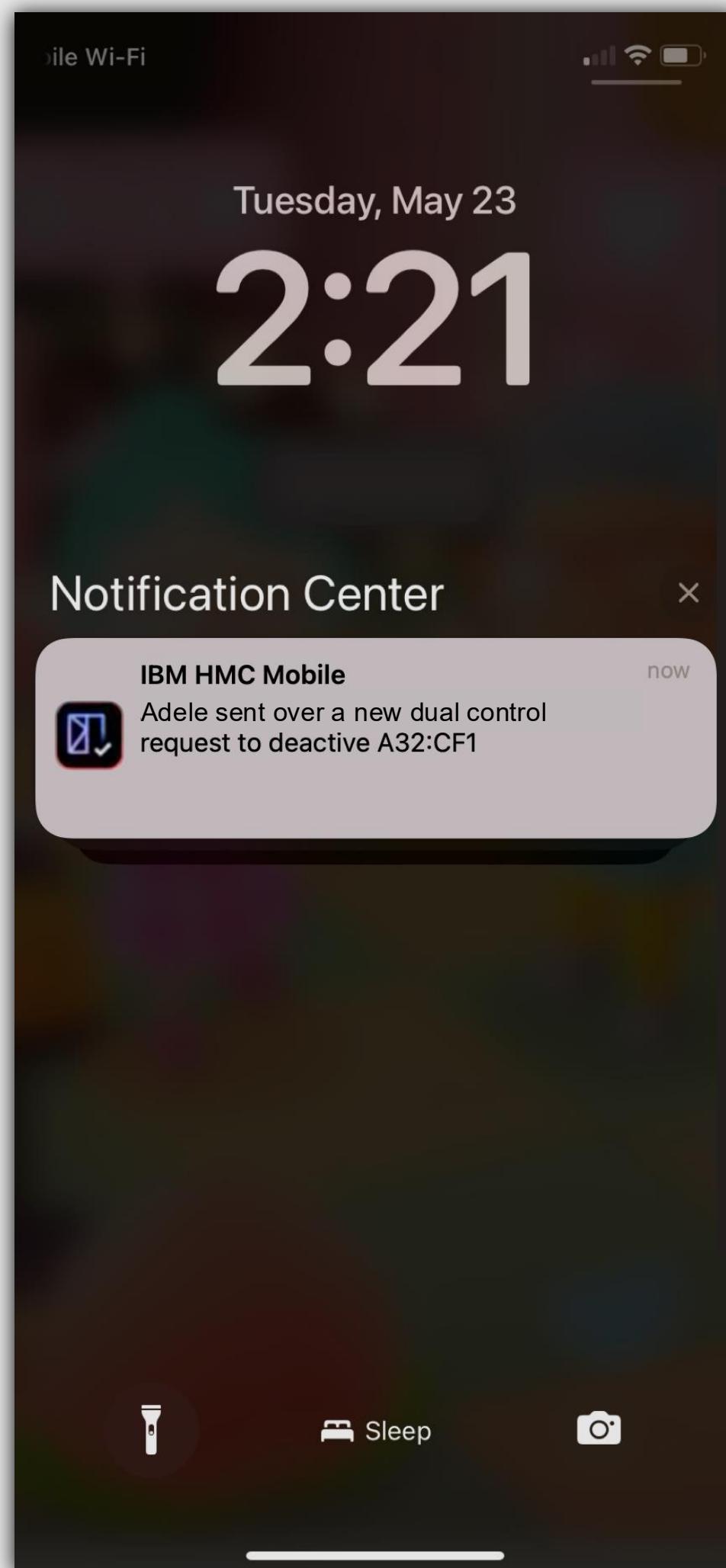
After you send the request, reviewers are notified and either approve or deny the request. You can track the status of your request through the Dual Control Management task.

If your request is approved, the task is run according to the instruction that you select.

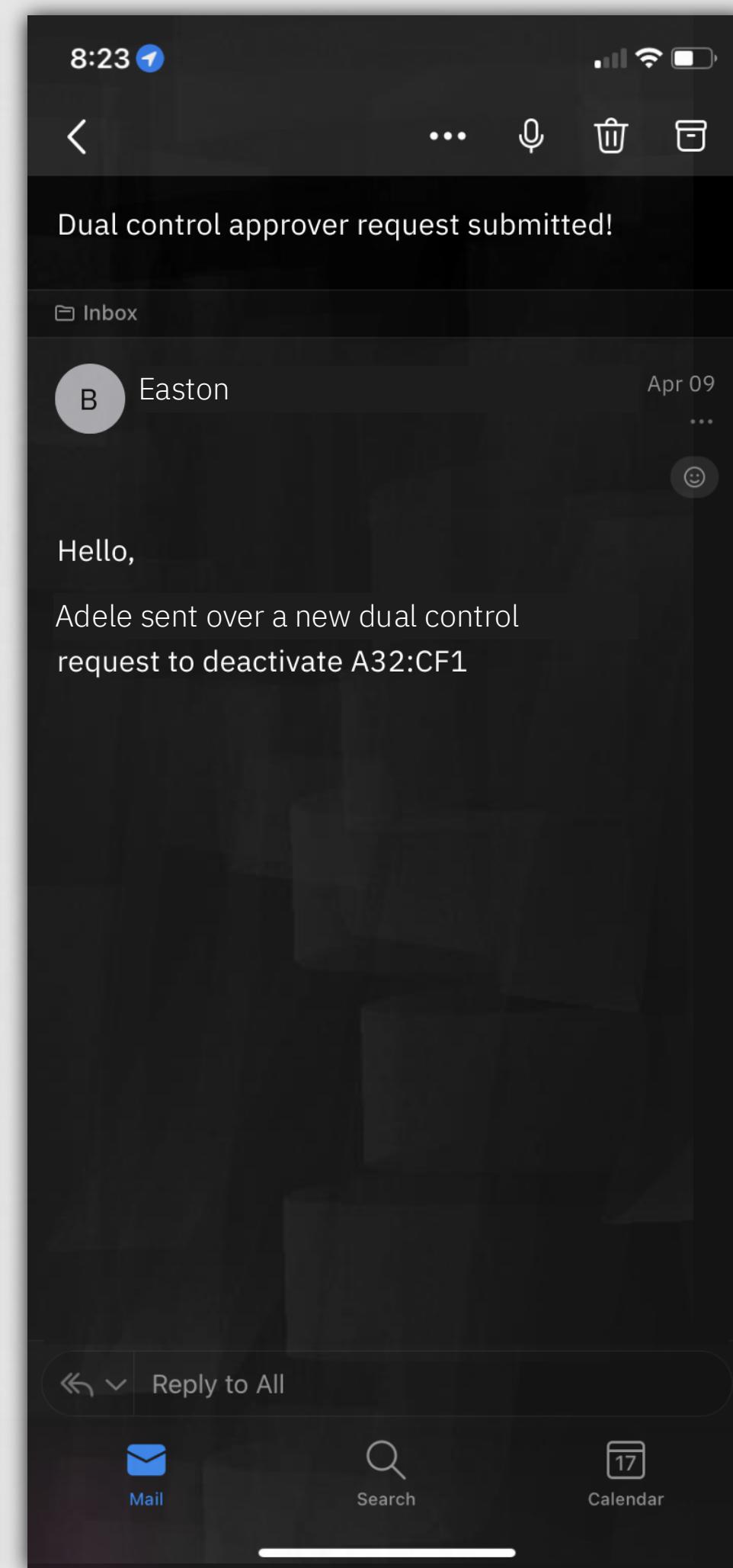
Approver notified of dual control request



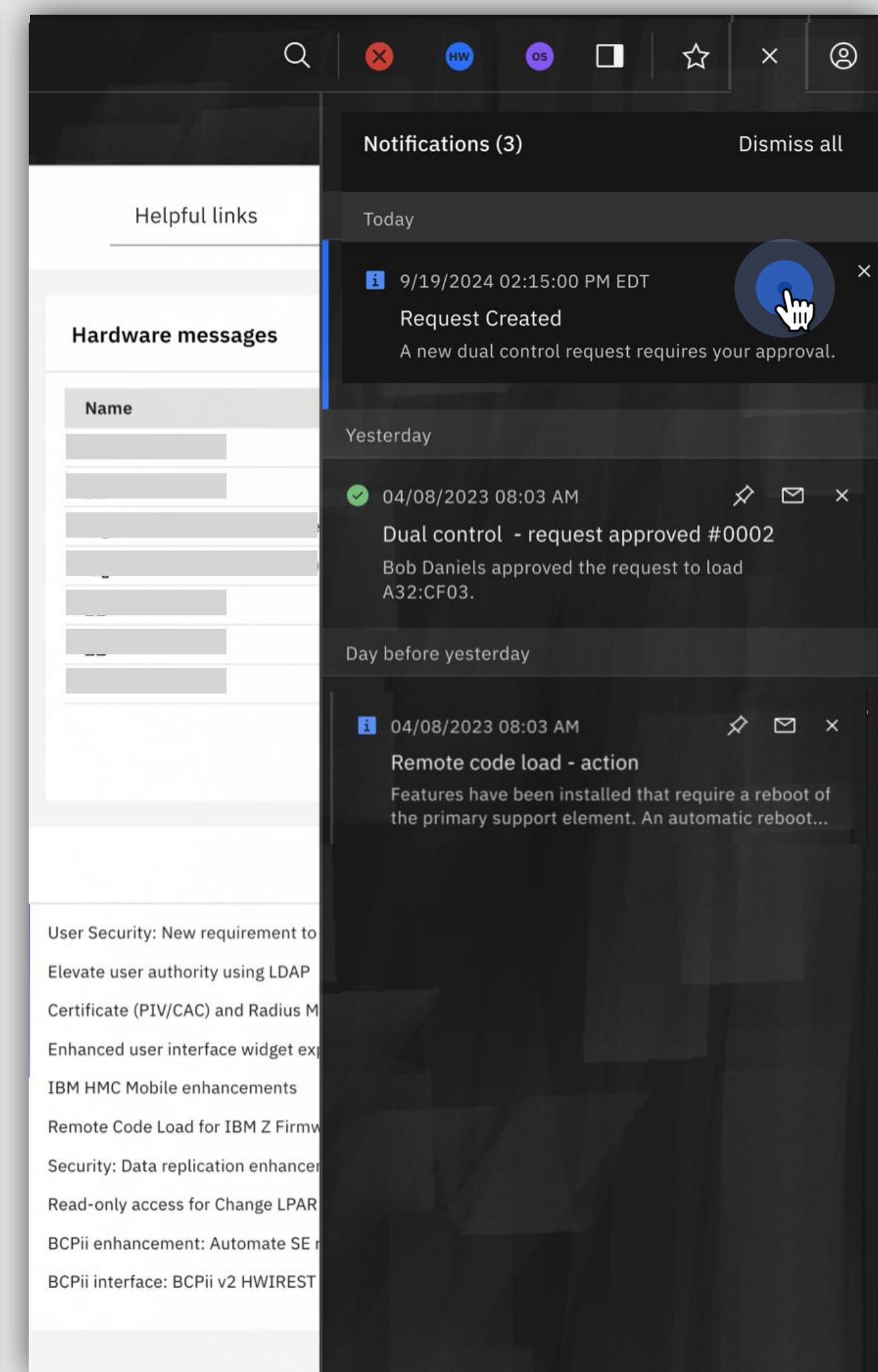
Daniel, a dual control approver, is notified of the request via mobile, email, APIs, BCPii, and the notification panel in the HMC



HMC Mobile



Email



Notification/Alert panel

Approver reviews the request



Daniel reviews the request and sees that Noëmi selected the wrong partition to deactivate. He clicks reject.

IBM Hardware Management Console

Home Dual Control Managem... ×

[← Return to dual control requests](#)

! **Disruptive** Approval of this request might result in the disruption of partition operations.

Name: #0152 Deactivate - A32_CF1

Description: Deactivation of the CF1 partition per direction from BDV.

Request information

Task: Deactivate	Target(s): CF1	Approval due: 9/25/24	Approver(s): Not assigned
Requester: adal	Request sent: 9/19/24, 2:16:40 PM EDT	Run: Scheduled	Immediately on approval

[Assign myself](#) +

History

adal created the request.
9/19/24, 2:16:40 PM EDT

Comments

adal commented.
9/19/24, 2:16:28 PM EDT

Please approve this deactivate request as discussed in planning meeting with BDV.

Comment 0/1024

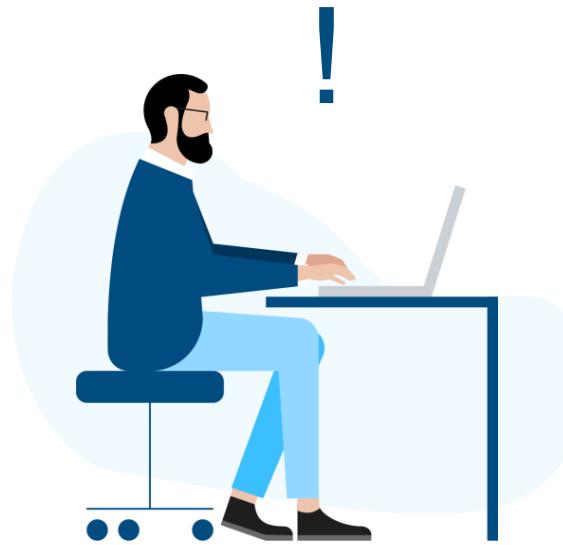
Write comment

Add comment

Help Reject Approve

37

Approver rejects the request



Daniel writes a comment to explain why it was rejected

IBM Hardware Management Console

Home Dual Control Managem...

[← Return to dual control requests](#)

! **Disruptive** Approval of this request might result in the disruption of partition operations.

Name: #0152 Deactivate - A32_CF1
Description: Deactivation of the CF1 partition per direction from BDV.

Request information

Task: Deactivate	Target(s): CF1	Approval due: 9/25/24	Approver(s): Not assigned
Requester: adal			

Reject request

Add any additional comments to describe reason for rejection.

The partition you selected is incorrect! It should be CF2 on A32.

Cancel Reject

Comment: 0/1024

Write comment

Add comment

Help Reject Approve

Notified of rejection, launches the dual control management task



Noëmi
is notified that her request has been
rejected so she launches the dual
control management task and clicks
into request card to view details

The screenshot shows the 'Dual control management' interface. At the top, there is a notification bar with the title 'Notifications (4)' and a 'Dismiss all' button. The notification for 'Request Rejected' is highlighted, showing a red circular icon with a minus sign, the date '9/19/2024 02:16:40 PM EDT', the message 'Request Rejected', and the detail 'Dual control request, "Deactivate - A32:CF1", has been rejected by easton.' Below the notification is a search bar labeled 'Search requests'.

The main area is divided into three columns: 'Open' (1 request), 'Approved' (1 request), and 'Closed' (80 requests). The 'Approved' column contains a card for request #0112 Load - B32_ZOS, which was sent by dcuser1 on 9/5/24, 5:21:14 PM EDT, approved by dcadmin, and is set to run manually after approval. The 'Closed' column contains a card for request #0152 Deactivate - A32_CF1, which was sent by adal on 9/19/24, 2:16:40 PM EDT, approved by eric.weinmann@us.ibm.com, and is set to run immediately on approval. A blue circular callout with a hand cursor is pointing to the 'Rejected' status of the deactivated request.

Realizing mistake



Noëmi reads Daniels's comment about selecting the wrong partition. She proceeds to submit a new request

IBM Hardware Management Console

Home Dual Control Managem... [Edit](#) [X](#)

[← Return to dual control requests](#)

Rejected

Name
#0152 Deactivate - A32_CF1

Description
Deactivation of the CF1 partition per direction from BDV.

Request information

Task	Deactivate	Target(s)	CF1	Approver(s)	eric.weinmann@us.ibm.com	Requester	adal
Request sent	9/19/24, 2:16:40 PM EDT	Run	<input checked="" type="checkbox"/> Scheduled Immediately on approval				

History

adal created the request.
9/19/24, 2:16:40 PM EDT

eric.weinmann@us.ibm.com rejected the request.
9/20/24, 2:53:09 PM EDT

Comments

adal commented.
9/19/24, 2:16:28 PM EDT

Please approve this deactivate request as discussed in planning meeting with BDV.

eric.weinmann@us.ibm.com commented.
9/20/24, 2:53:09 PM EDT

The partition you selected is incorrect! It should be CF2 on A32.

Comment 0/1024

Write comment

Add comment

Submitting new request



Noëmi makes her selections once again and ensures she has selected the correct partition to deactivate. She then submits the new request

IBM Hardware Management Console

Home Activate - A32:CF2

Create dual control request

This task requires approval before you can run it. Create a dual control request that includes an approval due date and instruction that indicates how you want to proceed after receiving an approval. You can also provide a description of the request, and comments for the approvers.

Request name: Activate - A32_CF2

Approval due date: 09/25/2024

Description (optional): Deactivation of the CF2 partition per direction from BDV.

Instructions for running the approved task:

- Run immediately ⓘ
- Run at a specific date and time ⓘ
- Run the task manually ⓘ

Comment (optional): Please approve the deactivate request as discussed in the planning meeting with BDV.

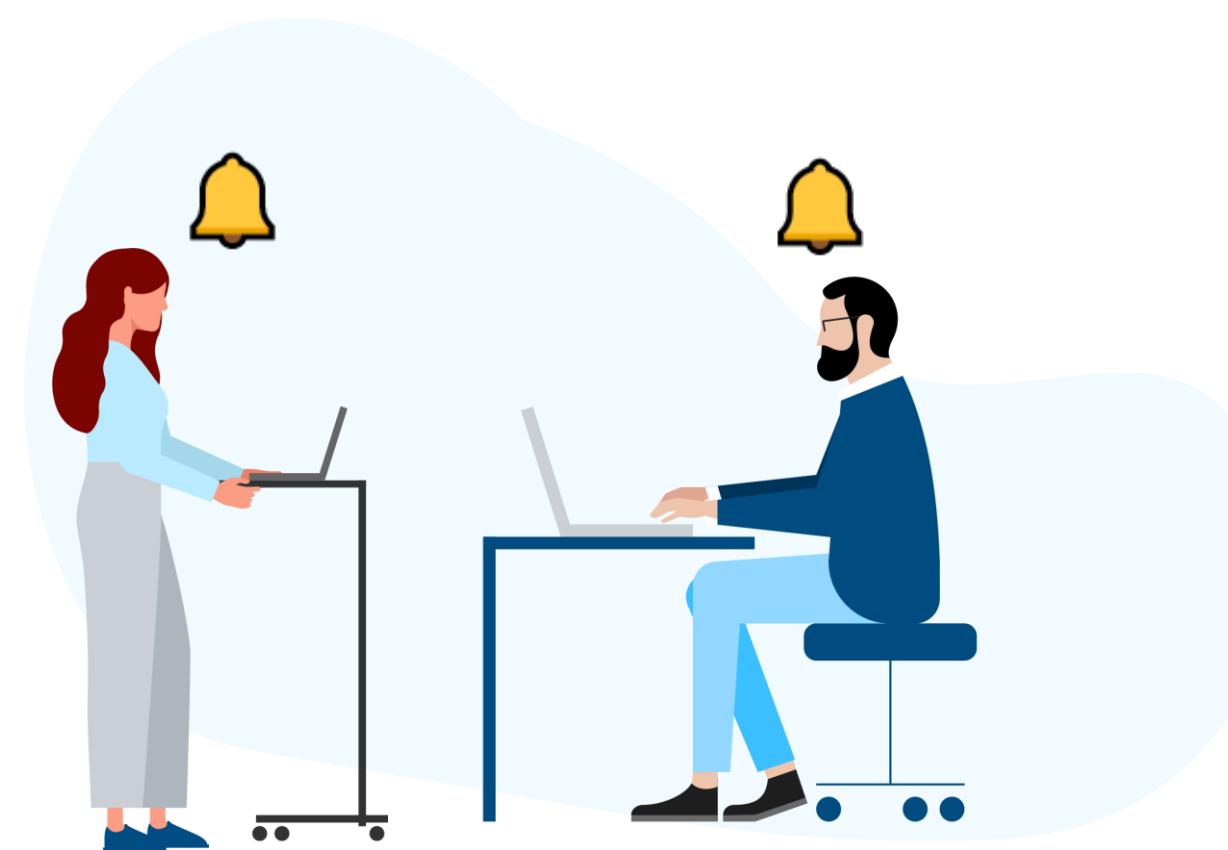
Help Cancel Submit request

GUIDANCE

After you send the request, reviewers are notified and either approve or deny the request. You can track the status of your request through the Dual Control Management task.

If your request is approved, the task is run according to the instruction that you select.

Deactivate is run and both Noëmi and Daniel are notified



IBM Hardware Management Console

Home ×

Dashboard ×

Systems Management

Custom Groups

HMC Management

Service Management

Tasks Index

Dashboard

Systems health

Systems		630
×	☒	Systems
×	☒	Partitions
✓	☒	Adapters

Unacceptable status ×

No power	300
Service required	300
Communications not active	20
Service	10

Hardware messages

Name
☒ S202B (12)
☒ SETR70 (2)
☒ Optical network and system (1)
☒ Fibre channel network (1)
☒ R31 (1)
☒ S15 (4)
☒ HMC1 (1)

Frequently used tasks

- Change Password
- User Management
- Configure Data Replication
- Activate
- Archive Security Logs
- Load

What's new



Security: Secure boot enhancements
Verify that a boot program originates from a trusted source and has not been tampered with. Import and manage certificates used for validation.

User Security: New requirement to

Elevate user authority using LDAP

Certificate (PIV/CAC) and Radius M

Enhanced user interface widget ex

IBM HMC Mobile enhancements

Remote Code Load for IBM Z Firmw

Security: Data replication enhance

Read-only access for Change LPAR

BCPii enhancement: Automate SE

BCPii interface: BCPii v2 HWIREST

Notifications (4) Dismiss all

Today

✓ 9/19/2024 02:17:01 PM EDT Request Run Successful Dual control request "Deactivate - A32-CF2" has completed successfully.

i 9/19/2024 02:17:00 PM EDT Request Running Dual control request "Deactivate - A32-CF2" has started running.

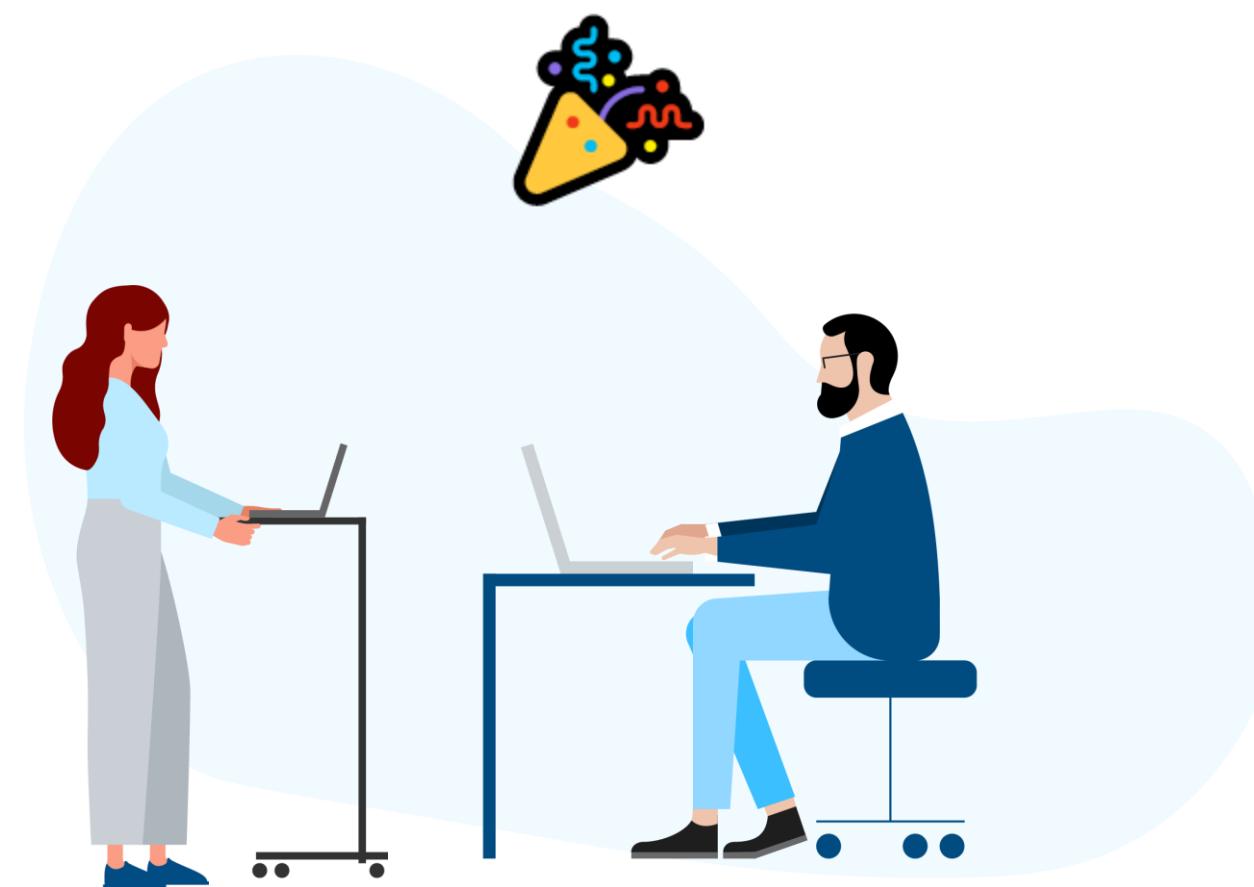
Yesterday

i [Redacted]

Day before yesterday

✓ [Redacted]

Noemi and Daniel are review the results



← Return to dual control requests

Successful

Name
#0160 Deactivate - A32 CF2

Description
Deactivation of the CF2 partition per direction from BDV.

Edit

Request information

Task Deactivate	Target(s) CF2	Approver(s) eric.weinmann@us.ibm.com	Requester adal
Request sent 9/23/24, 2:12:08 PM EDT	Run Successful 9/12/24, 5:01:09 PM EDT		

History

adal created the request.
9/23/24, 2:12:08 PM EDT

eric.weinmann@us.ibm.com approved the request.
9/23/24, 2:14:44 PM EDT

Deactivate has started.
9/23/24, 2:14:44 PM EDT

Deactivate has completed.
A32:CF2 is in a deactivated state.
9/23/24, 2:14:45 PM EDT

Comments

adal commented.
9/23/24, 2:12:08 PM EDT

Please approve the deactivate request as discussed in the planning meeting with BDV.

adal commented.
9/23/24, 2:13:37 PM EDT

Created a new request with the updated and correct partition CF2 selected!

Comment
0/1024

Dual Control Summary

01

Role-based task and object enablement

Security Administrators can enforce controls on which tasks & objects & users require Dual Control, and which users are granted permission to approve a Dual Control request.

Enable for tasks and objects

Select the task and object mappings to enable for dual control.

Task	Objects by type	Specific objects	Objects by group
Load		A32:LPAR1, A32:LPAR2	

Approver permissions

Select which roles should have dual control approver permissions for the above task and object mappings.

- Anyone with this role other than the requester
- Operator tasks
- Jr system programmer tasks
- System programmer tasks
- Sr system programmer tasks

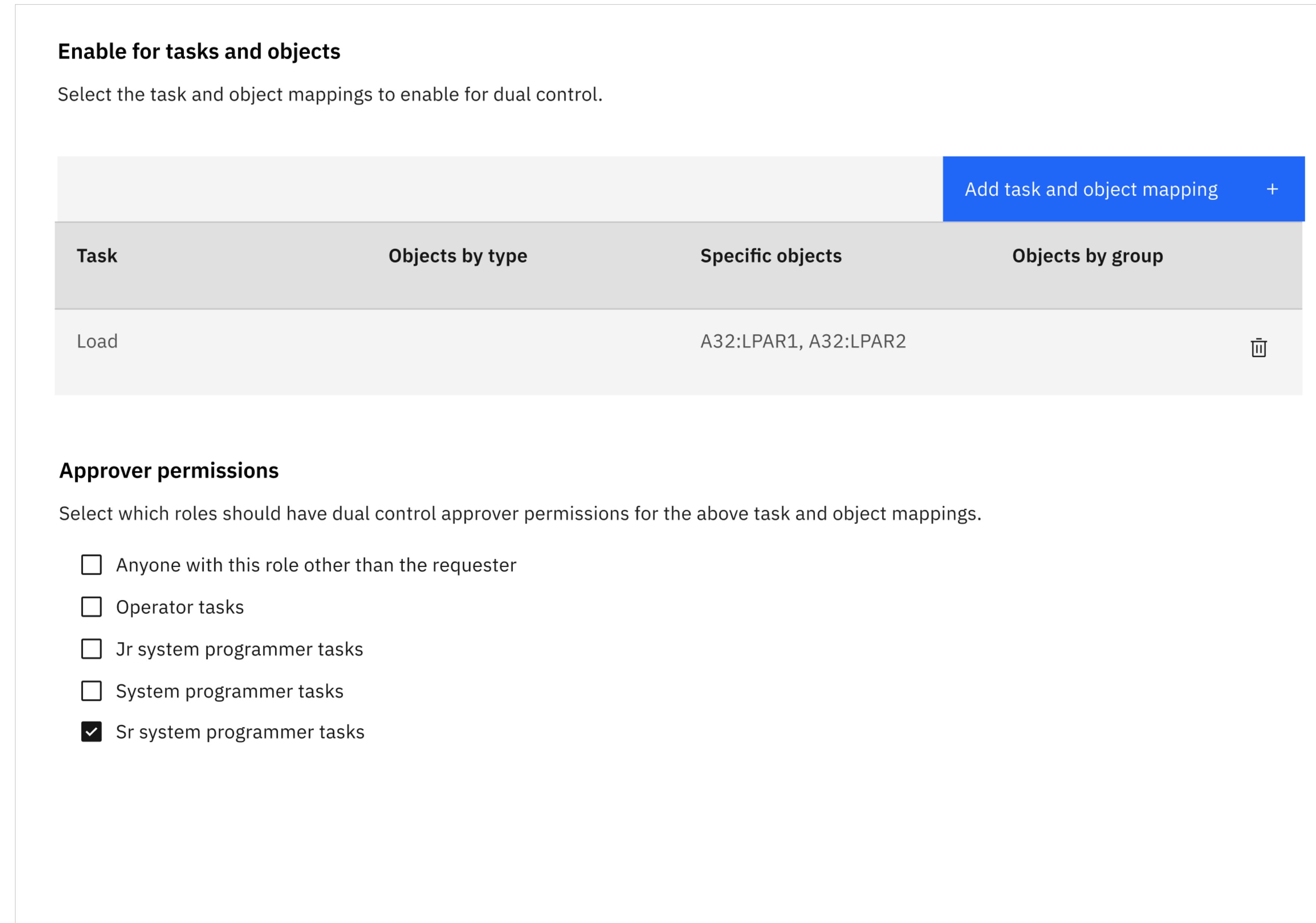


Image: Task and object mappings selection, approver permissions

Dual Control Summary

02

Flexible request options

Users can submit Dual Control requests for supported tasks with different run options:

- Run immediately
- Run at specific date and time
- Run manually by requester
- Run manually by requestor restricted to a time window

IBM Hardware Management Console

Home Load - A32:CF2 ×

Create dual control request

The task you have launched requires dual control and will need approval prior to execution. Please define an approval due date and when/how the request should execute if it is approved. You may also add a description or comment to provide additional information to the reviewers.

Request name	Approval due date
Load - A32:CF2	09/23/2024 calendar icon
Description (optional)	0/1024
Instructions for running the approved task	
<input type="radio"/> Run immediately info icon	
<input type="radio"/> Run at a specific date and time info icon	
<input checked="" type="radio"/> Run the task manually info icon	
<input checked="" type="checkbox"/> Restrict running task within time window	
Start date	Start time
mm/dd/yyyy calendar icon	hh:mm AM EDT
End date	End time
mm/dd/yyyy calendar icon	hh:mm AM EDT

Image: Task to be run by requestor restricted to a time window

GUIDANCE

After you send the request, reviewers are notified and either approve or deny the request. You can track the status of your request through the dual control management task.

If your request is approved, the task is run according to the instruction that you select.

Dual Control Summary

03

Real-time notifications

Users are notified about the status of a dual control requests on the HMC, and through external methods (emails, HMC mobile notifications, APIs) to get as close to real-time visibility as possible.

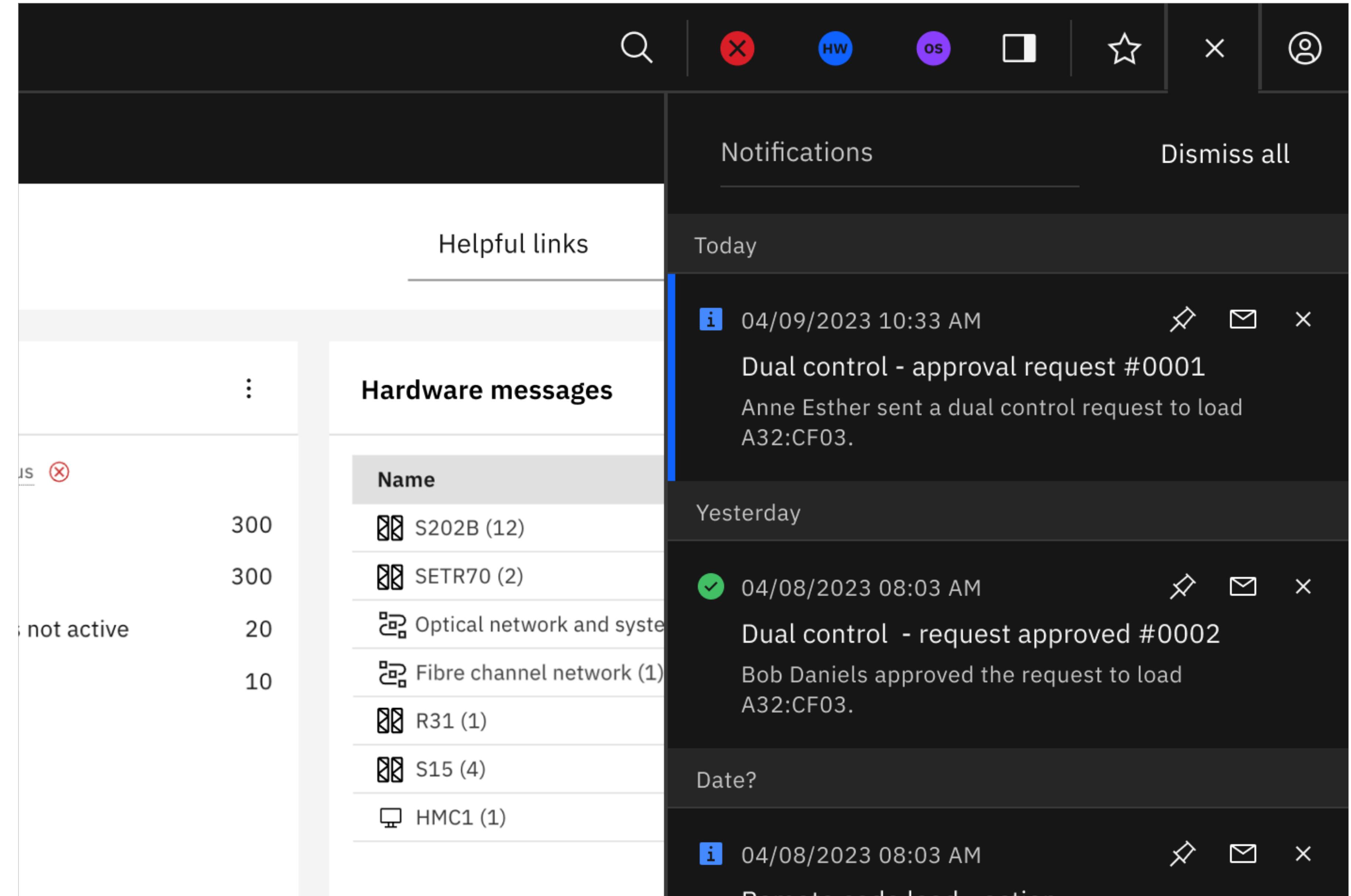


Image: Notifications panel on the HMC

Dual Control Summary

04

Request management and tracking

Requestors and approvers track the status of Dual Control requests in the Dual control management task.

The screenshot shows the 'Dual control management' task in the IBM Hardware Management Console. The task is organized into three columns: 'Open' (1 request), 'Approved' (1 request), and 'Closed' (73 requests). Each column displays a list of requests with their details.

Open (1 request):

- #0158 Activate - A32_CF22

Requester: eric.weinmann@us.ibm.com
Approval due: Today
Run: Not assigned

Request sent: 9/23/24, 12:23:58 PM EDT
Status: Scheduled
Run: Immediately on approval

Approved (1 request):

- #0112 Load - B32_ZOS

Requester: dcuser1
Approver: dcadmin
Status: Approved

Request sent: 9/5/24, 5:21:14 PM EDT
Run: Manual
Status: After approval

Closed (73 requests):

- #0160 Deactivate - A32 CF2

Requester: adal
Approver: eric.weinmann@us.ibm.com
Status: Approved

Request sent: 9/23/24, 2:12:08 PM EDT
Run: Failed
Status: 9/23/24, 2:14:45 PM EDT

- #0159 Activate - A32_CF22

Requester: adal
Approver: eric.weinmann@us.ibm.com
Status: Approved

Request sent: 9/23/24, 12:24:55 PM EDT
Run: Failed
Status: 9/23/24, 12:25:11 PM EDT

- #0152 Deactivate - A32_CF1

Requester: adal
Approver: eric.weinmann@us.ibm.com
Status: Rejected

Request sent: 9/19/24, 2:16:40 PM EDT
Run: Scheduled
Status: Immediately on approval

- #0157 Load - LCST3T40_T13CHP51

Requester: dcuser1
Approval due: Past
Run: Not assigned

Request sent: 9/19/24, 4:25:41 PM EDT
Run: Manual
Status: After approval

Image: Dual control management task kanban board

Dual Control Summary

05

Approver autonomy

Approvers can assign themselves to requests. They are provided with supporting information to make an accurate judgement to approve or reject a Dual Control request. Key information is:

- Requestor and approver information
- Task inputs
- History of events
- Comments
- Approval due date
- Run options
- Run time window

The screenshot shows the IBM Hardware Management Console Dual Control Management interface. The top navigation bar includes 'Home' and 'Dual Control Managem...'. A yellow warning box at the top states: 'Disruptive Approval of this request might result in the disruption of partition operations.' The main content area is divided into several sections:

- Approved**: Shows the request details: Name: #0112 Load - B32_ZOS, Description: -.
- Request information**: Details the task as 'Load', target as 'ZOS', approver as 'dcadmin', and requester as 'dcuser1'. It also shows the request was sent on 9/5/24, 5:21:14 PM EDT, and the run option is 'Manual' (checkbox checked, 'After approval' radio button selected).
- Inputs**: Lists CPC (B32), Image (ZOS), Force (true), Options (Normal), Load Address (04801), Load Parameters (4813SI), Device Type (ECKD), and IPL Type (CCW). It also shows Load (OS) and Time-out Value (60).
- History**: Shows the request was created by 'dcuser1' on 9/5/24, 5:21:14 PM EDT, and approved by 'dcadmin' on 9/5/24, 5:21:27 PM EDT.
- Comments**: Shows a comment icon and the message 'No comments. Add comments to share information.' A text input field for writing a comment is present.

Image: Dual control request review page

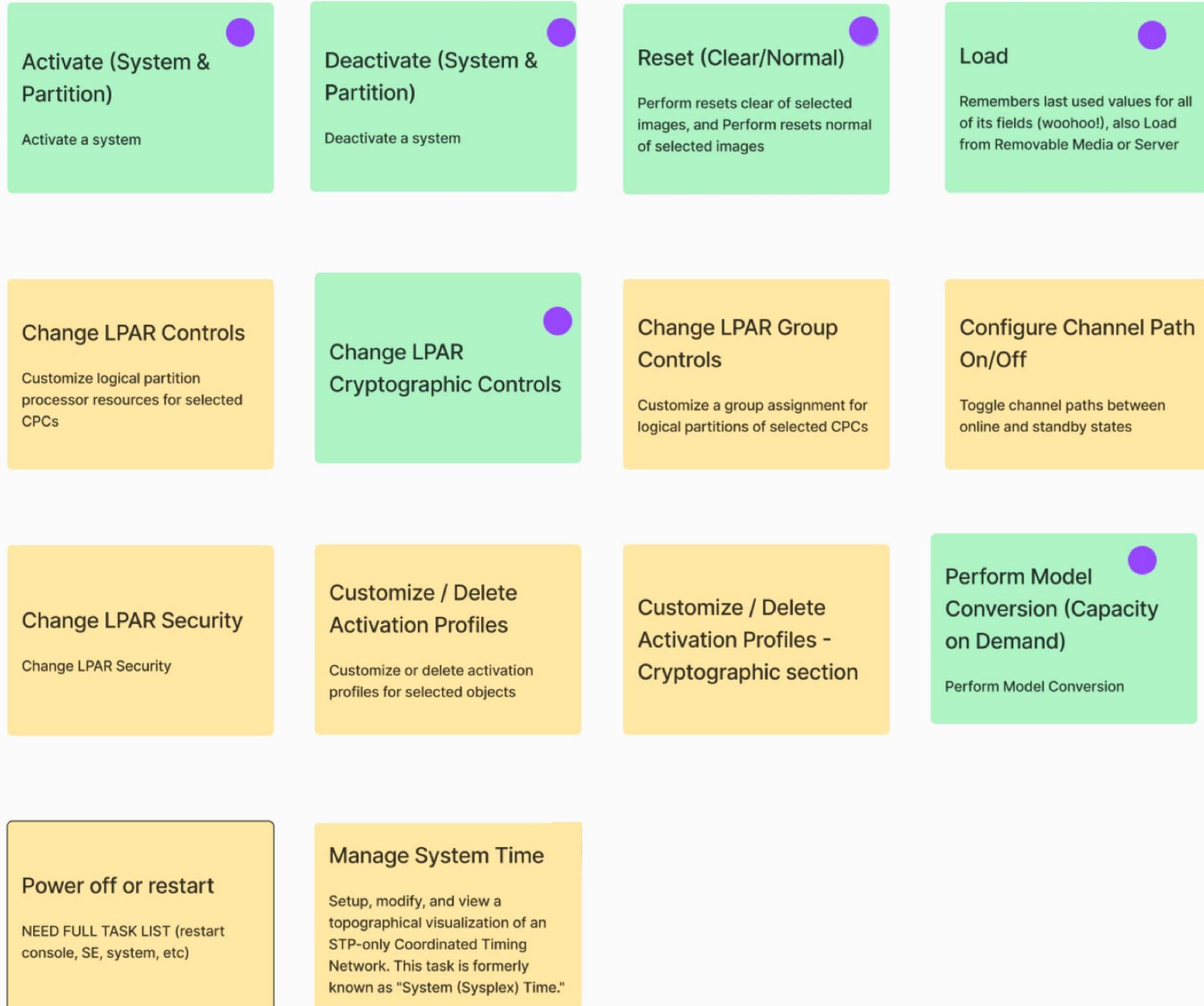
Dual Control

Dual Control Task List

Supported tasks

- Activate
- Deactivate
- Stop (DPM)
- Reset
- Load
- Change LPAR Cryptographic controls
- Perform Model Conversion

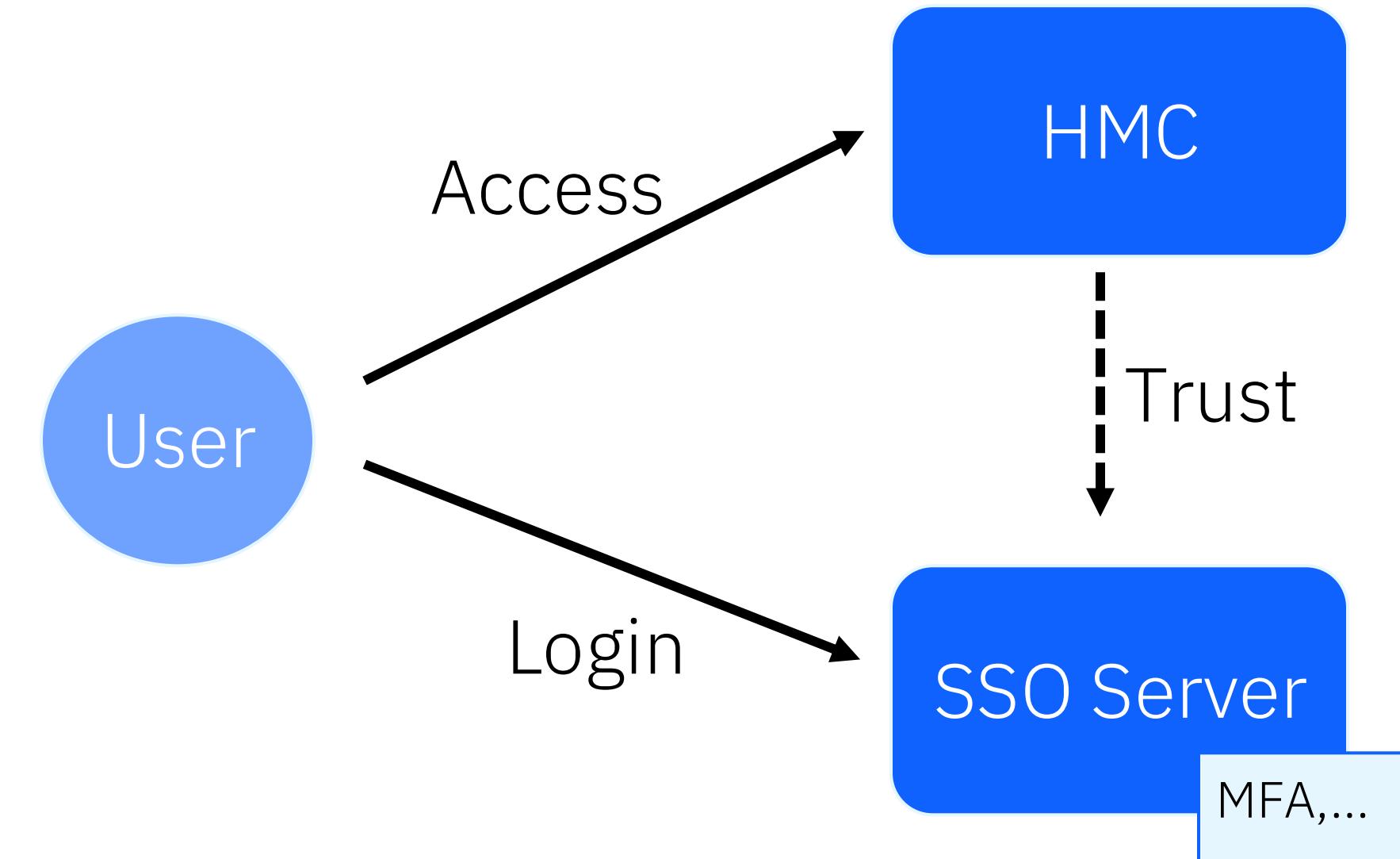
Customer prioritized task list



Single Sign On

Single Sign On (SSO)

- New authentication method for the HMC/SE
- HMC/SE never knows the user's credentials
- Allows for users to use existing credentials from other services on the HMC/SE
- OpenID Connect (OIDC) is the technology used
- **Note:**
 - SSO server provides the MFA support



Network Time Security

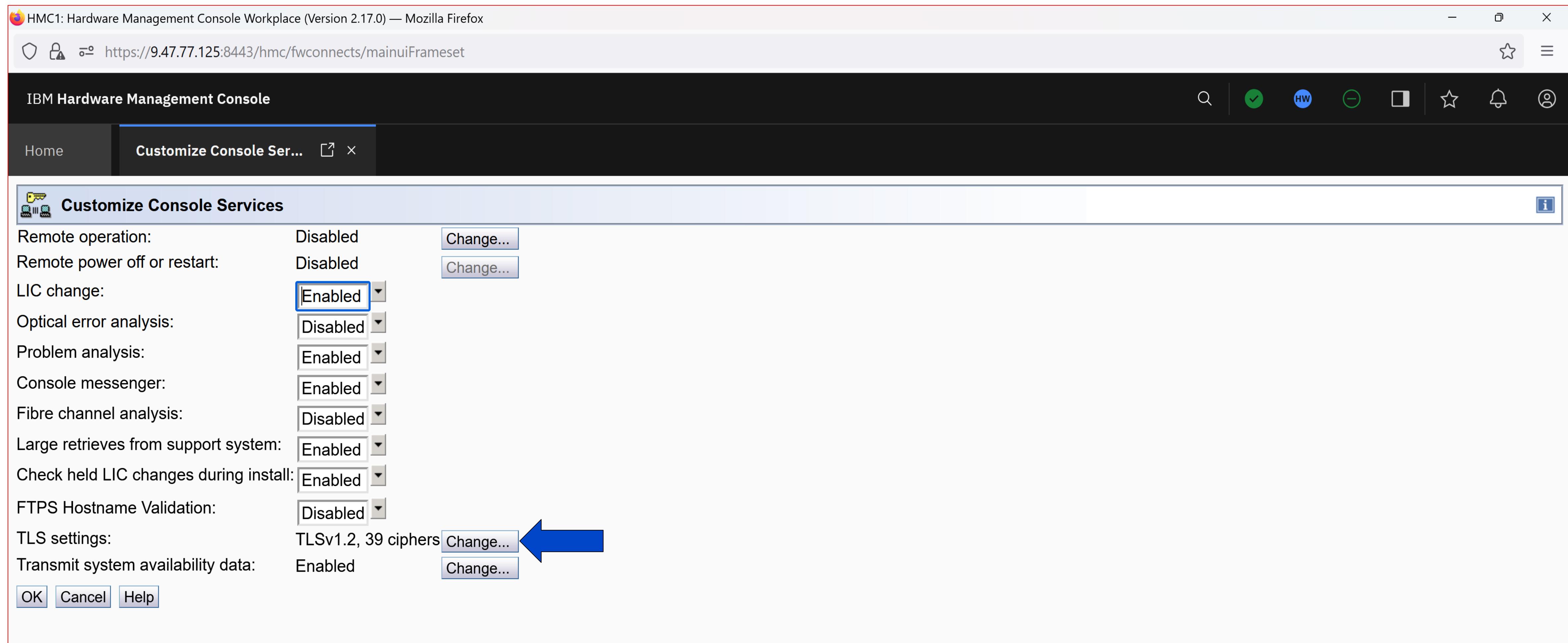
Network Time Security (NTS) And Other Enhancements

- HMC Manage System Time task Enhancements
 - Configure External Time Source (ETS) action
 - Support for 3 Network Time Protocol (NTP) servers
 - Support for 2 Precision Time Protocol (PTP) servers
 - Support for Mixed Mode (use of both NTP and PTP servers in parallel)
 - Manage CTN Certificates STP action
 - Allow use of certificates for **secure NTS NTP communications** between the CPC and configured ETS(es)
 - HMC Customize Console Date\Time task
 - NTP NTS support for HMC ↔ External Time Source connections
 - PTP Communication support
 - Multicast & **Unicast (new)**

TLS Cipher Suite Configuration

Cipher Suites Filtering per TLS

- Single Customize Console Services sub-task, Configure TLS Settings => mapped to Cipher Suites
 - Individual cipher suite shown for management based on Minimum TLS level



HMC1: Hardware Management Console Workplace (Version 2.17.0) — Mozilla Firefox

IBM Hardware Management Console

Home Customize Console Ser... Change... X

Customize Console Services

Remote operation: Disabled Change...

Remote power off or restart: Disabled Change...

LIC change: Enabled Change...

Optical error analysis: Disabled Change...

Problem analysis: Enabled Change...

Console messenger: Enabled Change...

Fibre channel analysis: Disabled Change...

Large retrieves from support system: Enabled Change...

Check held LIC changes during install: Enabled Change...

FTPS Hostname Validation: Disabled Change...

TLS settings: TLSv1.2, 39 ciphers Change... ←

Transmit system availability data: Enabled Change...

OK Cancel Help

TLS 1.2 Filtered Ciphers

HMC1: Hardware Management Console Workplace (Version 2.17.0) — Mozilla Firefox

https://9.47.77.125:8443/hmc/fwconnects/mainuiFrameset

IBM Hardware Management Console

Home Customize Console Ser... □ ×

Configure TLS Settings

Specify the TLS settings for the console including "Remote Browser", "Web Services API HTTP Server" or "Single Object Operation" connections into the console.

Minimum TLS protocol version: **TLSv1.2**

TLS Cipher Suites:

--- Select Action ---

Select	Name	Protocols	Description
<input checked="" type="checkbox"/>	TLS_AES_256_GCM_SHA384	TLSv1.3	Authentication with 256 bit AES_GCM cipher and SHA-384 hashing.
<input checked="" type="checkbox"/>	TLS_AES_128_GCM_SHA256	TLSv1.3	Authentication with 128 bit AES_GCM cipher and SHA-256 hashing.
<input checked="" type="checkbox"/>	TLS_CHACHA20_POLY1305_SHA256	TLSv1.3	ChaCha20 stream cipher and Poly1305 message authenticator and SHA-256 hashing
<input checked="" type="checkbox"/>	TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384	TLSv1.2	ECDHE key exchange and ECDSA authentication with 128 bit AES_GCM cipher and SHA-384 ha
<input checked="" type="checkbox"/>	TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256	TLSv1.2	ECDHE key exchange and ECDSA authentication with 128 bit AES_GCM cipher and SHA-256 ha
<input checked="" type="checkbox"/>	TLS_ECDHE_ECDSA_WITH_CHACHA20_POLY1305_SHA256	TLSv1.2	ECDHE key exchange and ECDSA authentication with ChaCha20 stream cipher and Poly1305 m
<input checked="" type="checkbox"/>	TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384	TLSv1.2	ECDHE key exchange and RSA authentication with 256 bit AES_CBC cipher and SHA-384 hashir
<input checked="" type="checkbox"/>	TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA256	TLSv1.2	ECDHE key exchange and RSA authentication with ChaCha20 stream cipher and Poly1305 mess
<input checked="" type="checkbox"/>	TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256	TLSv1.2	ECDHE key excha
<input checked="" type="checkbox"/>	TLS_DHE_RSA_WITH_AES_256_GCM_SHA384	TLSv1.2	DHE key exchange
<input checked="" type="checkbox"/>	TLS_DHE_RSA_WITH_CHACHA20_POLY1305_SHA256	TLSv1.2	DHE key exchange
<input checked="" type="checkbox"/>	TLS_DHE_DSS_WITH_AES_256_GCM_SHA384	TLSv1.2	DHE key exchange
<input checked="" type="checkbox"/>	TLS_DHE_RSA_WITH_AES_128_GCM_SHA256	TLSv1.2	DHE key exchange
<input checked="" type="checkbox"/>	TLS_DHE_DSS_WITH_AES_128_GCM_SHA256	TLSv1.2	DHE key exchange
<input checked="" type="checkbox"/>	TLS_ECDHE_ECDSA_WITH_AES_256_CBC_SHA384	TLSv1.2	ECDHE key excha
<input checked="" type="checkbox"/>	TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA384	TLSv1.2	ECDHE key excha
<input checked="" type="checkbox"/>	TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA256	TLSv1.2	ECDHE key excha

Total: 49

HMC1: Hardware Management Console Workplace (Version 2.17.0) — Mozilla Firefox

https://9.47.77.125:8443/hmc/fwconnects/mainuiFrameset

IBM Hardware Management Console

Home Customize Console Ser... □ ×

TLS 1.3 Filtered Ciphers

Change and RSA authentication with ChaCha20 stream cipher and Poly1305 message authenticator

HMC1: Hardware Management Console Workplace (Version 2.17.0) — Mozilla Firefox

https://9.47.77.125:8443/hmc/fwconnects/mainuiFrameset

IBM Hardware Management Console

Home Customize Console Ser... Q ✓ HW

 **Configure TLS Settings**

Specify the TLS settings for the console including "Remote Browser", "Web Services API HTTP Server" or "Single Object Operation" connections into the console.

Minimum TLS protocol version: **TLSv1.3**

TLS Cipher Suites:

--- Select Action ---

Select	Name	Protocols	Description
<input checked="" type="checkbox"/>	TLS_AES_256_GCM_SHA384	TLSv1.3	Authentication with 256 bit AES_GCM cipher and SHA-384 hashing.
<input checked="" type="checkbox"/>	TLS_AES_128_GCM_SHA256	TLSv1.3	Authentication with 128 bit AES_GCM cipher and SHA-256 hashing.
<input checked="" type="checkbox"/>	TLS_CHACHA20_POLY1305_SHA256	TLSv1.3	ChaCha20 stream cipher and Poly1305 message authenticator and SHA-256 hashing
<input checked="" type="checkbox"/>	TLS_EMPTY_RENEGOTIATION_INFO_SCSV		Not a true cipher suite and cannot be negotiated

Total: 4

Default Ciphers

OK Cancel Help

Complete HMC User configuration
replication to SEs

HMC User Data Replicated to SE

➤ Strategy

- Provide ability to manage all user data in a single place, i.e., the HMC

➤ Existing support

- Standard HMC user definitions are replicated to managed SEs
- Clients can utilize these HMC user definitions to logon locally to the SE

➤ What's changing?

- HMC defined user patterns and templates including LDAP Server definitions are now replicated to managed SEs
- Clients can utilize these HMC definitions to logon locally to the SE with pattern-based users
- Recommend doing all HMC User Data definitions (not just users) only on HMC, no User Mgmt on SE

Quantum-Resistant Password Hashing

Local Users Quantum-Resistant Password Hashing

- With z17, quantum-resistant hashing algorithm applied to storage of local users passwords
 - Prior to z17, local user password hashing used, but with z17, now it's quantum-resistant
 - **Note:** HMC/SE are also closed appliances with no access and additionally have an encrypted SSD
- User recommendation: define HMC Users on one HMC & allow replication to other HMCs and to SEs
- Implications of z17 HMC Local users replicated to other HMC/SE levels
 - z17 HMCs/SEs: none
 - z16/z15 HMCs/SEs
 - HMCs => [HMC Data Replication of User Profile Data](#) will be blocked until MCL/Opt In for new quantum-resistant
 - MCL Bundle: z16 – H31, z15 – H62
 - Must also Opt in ==> see next chart
 - SEs
 - For SE local console logon (not Single Object Operations), HMC user/password is normally authenticated to connected HMC
 - If no connection to HMC, SE local console logon would fail until Quantum Resistant MCL (z16 - S44, z15 – S98)/Opt In for new quantum-resistant
- **Note:** HMC LDAP or SSO authenticated users are not affected by this change

Quantum-Resistant Password Hashing – Opt In

The screenshot shows two panels of the IBM HMC interface. The left panel displays the 'Customize Console Services' configuration page. The right panel shows a modal dialog for enabling quantum-resistant password protection.

Customize Console Services (Left Panel):

- Remote operation: Disabled (Change...)
- Remote power off or restart: Disabled (Change...)
- LIC change: Enabled (dropdown)
- Optical error analysis: Disabled (dropdown)
- Problem analysis: Enabled (dropdown)
- Console messenger: Enabled (dropdown)
- Fibre channel analysis: Disabled (dropdown)
- Large retrieves from support system: Enabled (dropdown)
- Check held LIC changes during install: Enabled (dropdown)
- Minimum TLS version: TLSv1.2 (dropdown)
- Transmit system availability data: Enabled (Change...)
- Quantum-resistant password protection: Disabled (Change...)

Customize Console Services (Right Panel):

ACT50211

Enable quantum-resistant password protection

Quantum-resistant password protection is required to replicate with Driver 61 (2.17.0) and later HMCs

Are you sure you want to enable quantum-resistant password protection?

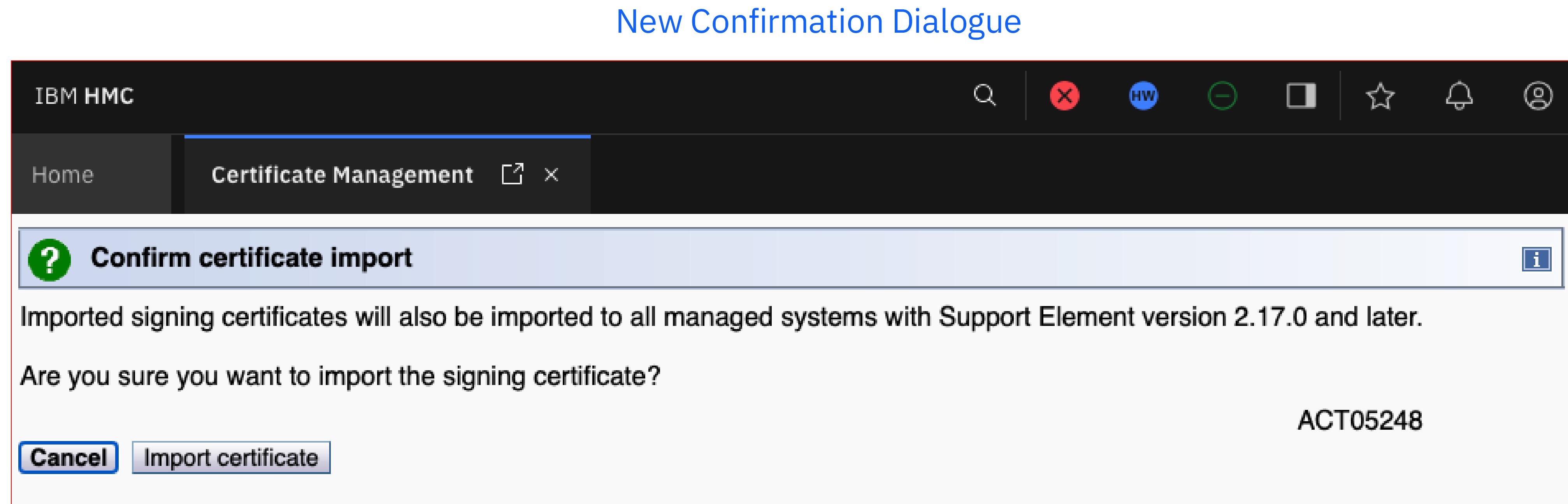
- * Data replication will fail for HMCs which are not enabled
- * User profile data cannot be restored to HMCs which are not enabled
- * Quantum-resistant password protection cannot be disabled

A blue arrow points from the 'Change...' button for 'Quantum-resistant password protection' in the left panel to the 'Change...' button in the right panel modal dialog.

Replicate HMC Certificates to SE

Replicate HMC Certificates to SE

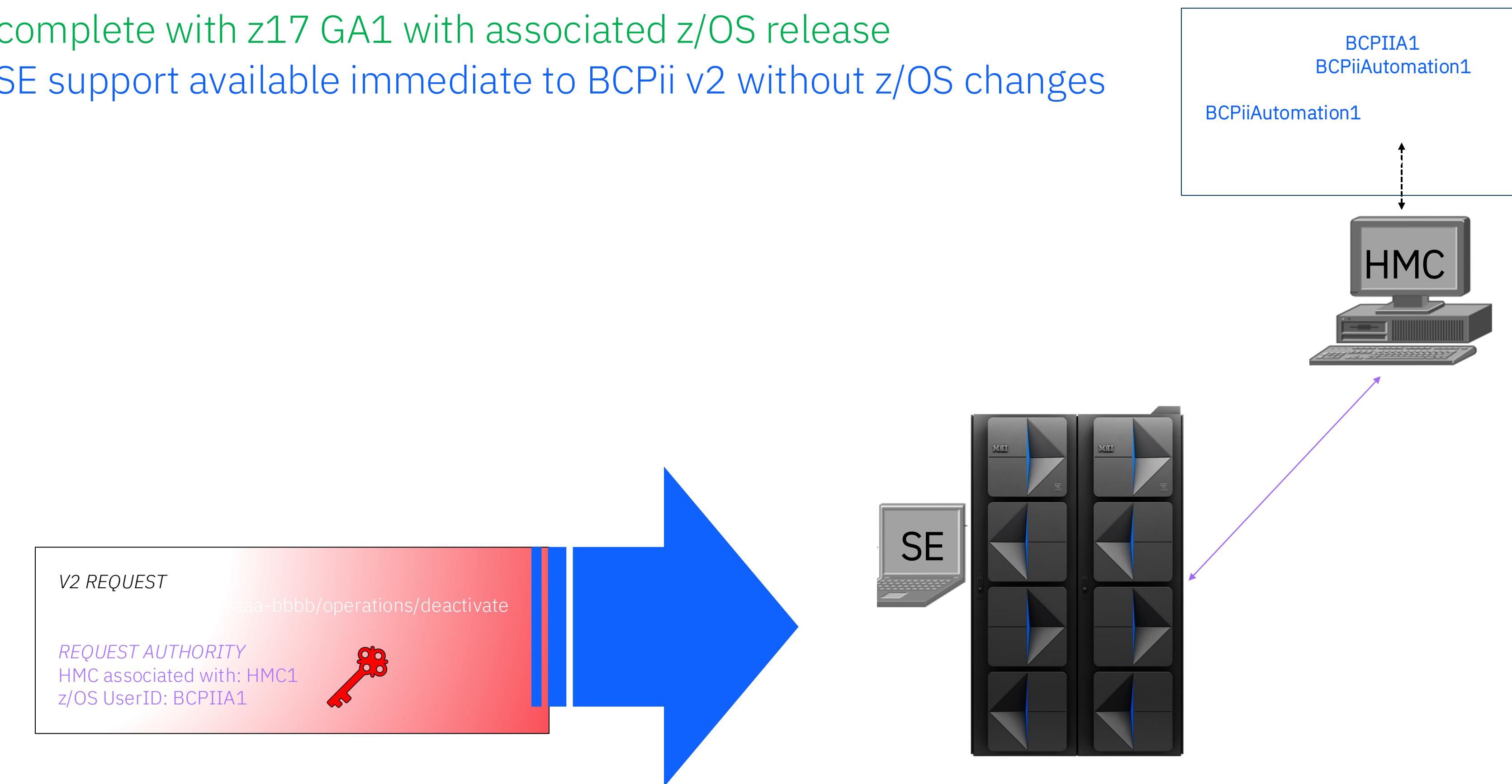
- Certificates imported to the [HMC Certificate Management task](#) will also be imported to managed IBM z17 SEs.
 - Certificates deleted from the Certificate Management task will also be deleted from managed IBM z17 SEs.
 - If multiple HMCs are managing the same SE, certificate is only deleted if no other HMC has that certificate imported.
 - If the HMC and SE stop communicating, certificates associated with that HMC are removed from the SE until communications are reestablished.
- Tasks/Options that can take advantage of this enhancement include:
 - LDAP
 - MFA
 - Remote Syslog Server
 - FTPS



BCPii Enhancements/SOD

BCPii v2 Enhanced Security, HMC Target, Async support

- BCPii HWIREST/v2 will pass the z/OS USER ID to SE/HMC via signed JSON Web Token (JWT)
 - *z/OS user mapped/limited to HMC user task/object permissions*
- Enhanced Security plus
 - *HMC Target support*
 - *BCPii HWIREST/v2 Asynchronous Notification support*
- BCPii HWIREST/v2 Infrastructure fully complete with z17 GA1 with associated z/OS release
 - All new HMC WebServices APIs HMC/SE support available immediate to BCPii v2 without z/OS changes



Configuring an HMC for BCPii Targeting

- The HMC needs to be configured to validate a JWT and map the z/OS BCPii ID to an HMC user
 - Import bcpii-authorization certificate used to validate JWT signature to HMC
 - Associate the certificate(s) with a BCPii to HMC user mapping
- The *Authorize BCPii Access* sub-task can be launched from *Customize Console Services*

The diagram illustrates the workflow for configuring BCPii targeting on an HMC. It shows three main screens: 1. The 'Customize Console Services' page, where 'BCPii authorizations' is set to 'Enabled'. 2. The 'Authorize BCPii Access' sub-task, which lists an existing authorization named 'bcpiiuid_auth' that maps the BCPii user 'bcpiiuid' to the HMC user 'bcpiiuid_cert'. 3. The 'Edit Authorization' configuration page, which provides details on users, certificates, and a review summary. A large arrow points from the first screen to the second, indicating the transition from configuration to task execution.

IBM HMC

Home Customize Console Ser... ×

Customize Console Services

Remote operation: Disabled Change...

Remote power off or restart: Disabled Change...

LIC change: Enabled

Optical error analysis: Disabled

Problem analysis: Enabled

Console messenger: Enabled

Fibre channel analysis: Disabled

Large retrieves from support system: Enabled

Check held LIC changes during install: Enabled

FTPS Hostname Validation: Disabled

TLS settings: TLSv1.2, 39 ciphers Change...

Transmit system availability data: Enabled Change...

BCPii authorizations: Enabled Change...

OK Cancel Help

IBM HMC

Home Customize Console Ser... ×

Authorize BCPii Access

Authorize BCPii users to securely access HMC Web Services APIs.

Authorizations

Search authorizations Add authorization +

	Name	Description	Users	Certificates
<input type="checkbox"/>	bcpiiuid_auth	-	bcpiiuid	bcpiiuid_cert

Close **Help**

IBM HMC

Home Customize Console Ser... ×

Edit Authorization

General

Users

Certificates

Review summary

Users

Define the BCPii users authorized to access Web Services APIs.

BCPii users

Add user +

BCPii user name	HMC user or template name
bcpiiuid	hmcuser

SOD for BCPii v1/SNMP Deprecation

- z17 addresses BCPii v2 limitation on Asynchronous Notifications
- There will be no further feature enhancements in BCPii v1
 - Nor for the HMC/SE SNMP automation interface
- All future feature enhancements will only be for HMC/SE WS APIs & BCPii v2

- Above Translation: BCPii v1 & SNMP are being deprecated
 - BCPii v1 & SNMP are available or allowed; would recommend developing migration plan once a client has a z17 CPC
 - From Google:
 - A functionality that is deprecated is likely to be removed in the future, hence it is not advisable to use it.
 - Deprecated functional items are usually replaced or updated with newer versions.
 - IBM has no roadmap target to remove BCPii v1 [\(yet\)](#)
 - IBM also has no timeline to remove HMC/SE SNMP support [\(yet\)](#)

IBM z17 Redbooks and other interesting links

April 8th, 2025 – New and Updated Redbooks

- [IBM z17 Technical Introduction, SG24-8580](#)
- [IBM z17 Technical Guide, SG24-8579](#)
- [IBM z17 Connectivity Handbook, SG24-5444-22](#)

April 8th, 2025 – Updated Redpaper

- [IBM Z Functional Matrix, REDP-5157-08](#)

Jun 18th, 2025 – New and updated Redbook materials:

- [IBM z17 Configuration Setup, SG24-8581](#)
- [IBM Z Time Synchronization Implementation Guide, SG24-8480-02](#)

IBM z17 other interesting links

- [IBM z17 interactive 3D Demo](#)
- [THIS is how IBM makes servers That cannot fail](#)



Technology outlook for IBM Z

