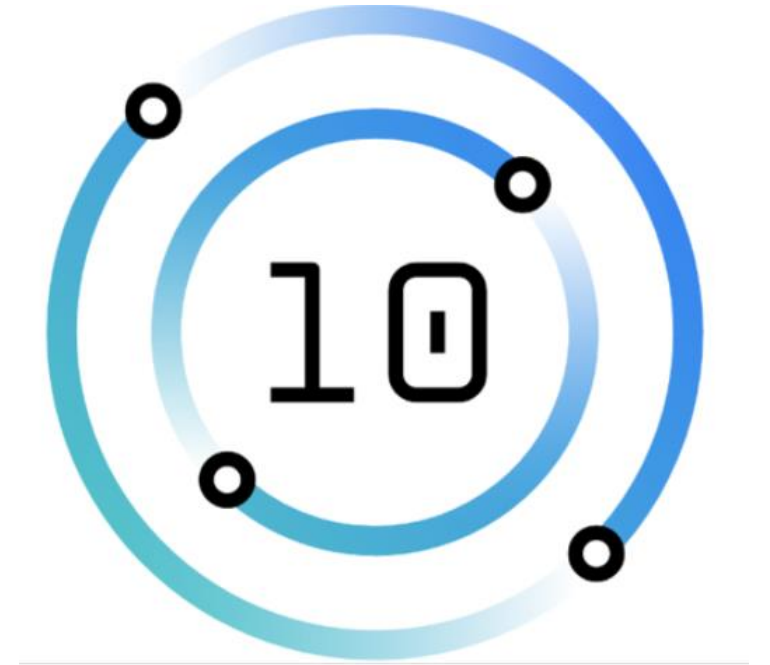# IBM Power Platform

From Core to Cloud to Edge:
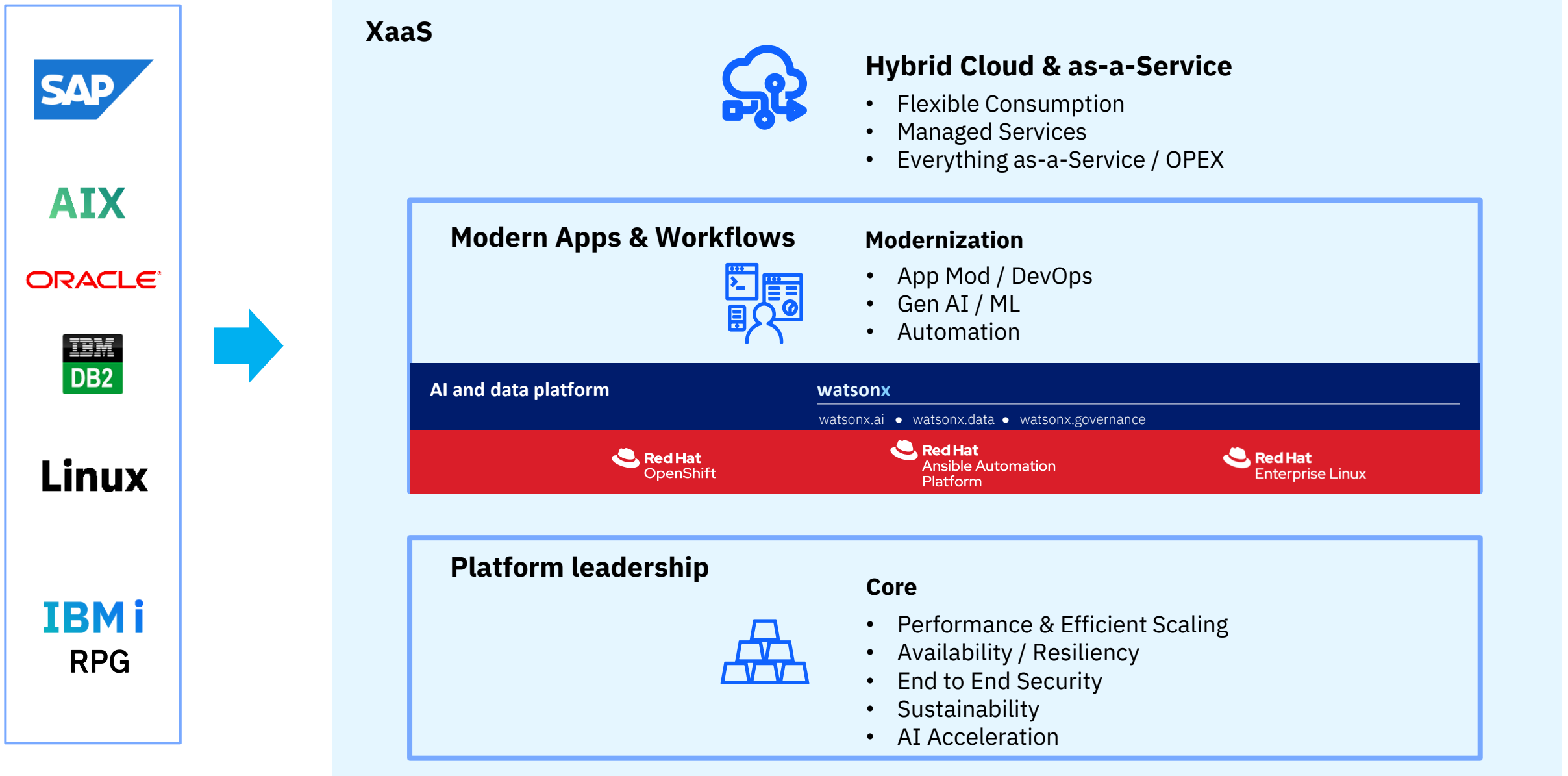
Status og nyheter

Espen Skarpsno
Technical Specialist – Storage and Power
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September 2024

Meanwhile in x86 and virtualization...
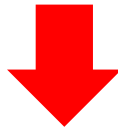
techradar pro

Some AMD EPYC server CPUs have a serious security flaw, so patch now

News By Sead Fadilpašić published November 15, 2023

A recently discovered AMD EPYC flaw allows for privilege escalation

https://www.techradar.com/pro/security/some-amd-epyc-server-cpus-have-a-serious-security-flaw-so-patch-now

spiceworks

Intel and AMD Chips Found Vulnerable to Data Theft

Intel and AMD have sold billions of such vulnerable chips over the past decade, particularly affecting the security of servers.

https://www.spiceworks.com/it-security/data-security/news/intel-and-amd-chips-found-vulnerable-to-data-theft/

COMPUTERWORLD

Killing VMware

Ever since Broadcom completed its acquisition of VMware last November, customers have been navigating the fallout — and they're not happy.

By Steven J. Vaughan-Nichols
Computerworld | FEB 23, 2024 11:10 AM PST

https://www.computerworld.com/article/3713242/killing-vmware.html

techradar pro

VMware customers are jumping ship as Broadcom sales continue - here's where they're moving to

News By Craig Hale published March 4, 2024

Many ex-VMware customers are going open-source

https://www.techradar.com/pro/vmware-customers-are-jumping-ship-as-broadcom-sales-continue-heres-where-theyre-moving-to

The Register®

Intel emits patch to squash chip bug that lets any guest VM crash host servers

Sapphire Rapids, Alder Lake, Raptor Lake chip families treated for 'Red

https://www.theregister.com/2023/11/14/intel_outofband_patch/

The self-created risk in Broadcom's big VMware kiss-off

Arise, the new Migration Nation

Rupert Goodwins   Mon 26 Feb 2024 | 10:15 UTC

https://www.theregister.com/2024/02/26/opinon_column_broadcom_vmware/

THE NEW STACK

Why Broadcom Is Killing off VMware's Standalone Products

VMware's roots are everywhere, and pulling them up is going to unearth a lot of dirt. The acquisition seriously changes the relationship customers will have with the new version of the company going forward.

Jan 23rd, 2024 11:59am by Chris J. Preimesberger

https://thenewstack.io/why-broadcom-is-killing-off-vmwares-standalone-products/

Delivering Cloud-to-Edge Excellence on Scale-Out Systems

New

Edge Computing	Mainstream Computing		Core Computing		Cloud Computing
• Up to 8 cores and 256 GB memory footprints • Reduced IT footprint • Fully active, static servers	• Up to 16 cores and 2TB memory footprints • Up to 32% perf/price increase vs. P9 • Fully active, static servers • Lower technical requirements and competitive deals		• Up to 48 cores and 8TB memory footprints • Up to 1.4x system performance vs. P9 • Dynamic Capacity consumption with CUoD and PEP2.0 • Value-driven solutions and higher technical standards		• Unlimited cores and memory • Dynamic Capacity • Computing aaS
S1012 9028-21B	**S1014** 9105-41B	**S1022s** 9105-22B	**S1022 & L1022** 9105-22A / 9786-22H	**S1024 & L1024** 9105-42A / 9786-42H	**PowerVS**
• 1-socket, 2U, half-wide • Up to 8 cores per system • 1, 4, 8 SMT8 cores/socket • 4 ISDIMM slots • 256 GB memory • 4 PCIe HHHL slots (All Gen5) • 4 NVMe U.2 bays • Max of 6.4 TB of internal storage • Optional Internal RDX Media Bay • Rack and Tower form factors	• 1-socket, 4U • Up to 24 cores per system • 4, 8, 24 SMT8 cores/socket • 8 DDIMM slots • 1 TB memory • 5 PCIe FHHL slots (4 Gen5) • 16 NVMe U.2 bays • Max of 102.4 TB of internal storage • Optional Internal RDX Media Bay • Rack and Tower form factors	• 1,2-socket, 2U • Up to 16 cores per system • 4, 8 SMT8 cores/socket • 16 DDIMM slots • 2 TB memory • 10 PCIe HHHL slots (8 Gen5) • 8 NVMe U.2 bays • Max of 51.2 TB of internal storage	• 1,2-socket, 2U • Up to 40 cores per system • 12, 16, 20 SMT8 cores/socket • 32 DDIMM slots • 4 TB memory • 10 PCIe HHHL slots (8 Gen5) • 8 NVMe U.2 bays • Max of 51.2 TB of internal storage • L1022: max 25% of cores with other OS	• 1,2-socket, 4U • Up to 48 cores per system • 12, 16, 24 SMT8 cores/socket • 32 DDIMM slots • 8 TB memory • 10 PCIe FHHL slots (8 Gen5) • 16 U.2 NVMe bays • Max of 102.4 TB of internal storage • Optional Internal RDX Media Bay • L1024: max 25% of cores with other OS	• Delivered aaS off-premise • Unlimited cores • Unlimited memory • Unlimited storage and I/O • Add-on backup services including VTL

AIX   **IBM i**   **Linux**   **Red Hat OpenShift**

All **Power VM** based servers

New IBM Power S1012 System

- New base system design to explore an alternate approach toward both existing and new use cases.

- It is a one-socket, 2U height, half-rack width, equipped with a 1, 4, or 8-core eSCM module, up to 256GB of memory, up to 6.4TB internal storage, 4 PCIe slots, and optional RDX.

- It is offered in two form factors:

  - A rack-mounted option utilizing a bare-metal enclosure.

  - A deskside-mounted option that is 54% smaller than S1014.

- 3-year warranty systems with available value-added support services through Power Expert Care offerings.

- Dual system density unlocks possibilities for architecture best practices approach without compromising on space

Flexibility on Initial Order Configurations

The S1012 introduces an innovative, compact, but flexible design with powerful, secure, and reliable capabilities. It is offered in two form factors and shipped in different set-ups that best suit your customers:

Rack-mounted Options

S1012 Tower

Filler + S1012

- For requirements fully covered by one S1012 system in the first months or year, with a ready-to-go expansion provisioned.
- The 2nd bay of the enclosure comes with a filler to avoid dust and inaccurate airflow through the rack.
- 2nd bay can be further occupied by another S1012 if needed with no impact to the existing system.

S1012 + S1012

- For adopting infrastructure best practices such as high availability, advanced remote management.
- For opportunities to expand the footprint beyond its current workload, i.e., with a focus on AI and container-based apps, open-source databases.

RDX + S1012

- For a backup architecture relying on Tapes, the 2nd bay of the enclosure can be filled with an RDX drive.
- Although it sits externally to the system, it provides an internal RDX-like performance through a direct-attach connection at the back of the enclosure.

- Reliable and secure computing capacity in places without racking or datacenter-like infrastructure.
- The tower desk-side enclosure fits one S1012 system and an optional RDX Tape Drive. It has a door lock function, an outside op-panel, a dust filter, and low, office-level acoustics certification.

Rack-to-Tower and Tower-to-Rack conversions are supported when the 4-core processor module is configured. The 1-core processor module is supported only on the Tower form factor. The 8-core processor module is supported only on the rack-mounted form factor

Main Use Cases for S1012

IBM i P05 & P10

- Security for mission-critical data running on IBM i
- Reduce IT footprint in ROBO/back-office
- Attractive price point comparable to Power9
- Improved SLAs to business area/local operation

Small Apps and DBs

- Increase availability and performance: up to 2.5x more performance per core vs. P8
- Lower concerns with data privacy and data loss
- Support app modernization in small spaces

Cloud-to-Near Edge & AI

- Built-in AI acceleration w/o purchasing, maintaining, or noise disturbance of GPUs
- Enhanced data security and remote management capabilities
- Data Lifecycle Management
- Manufacturing equipment management with IoT
- Suitable for Small Language Models and Vision Models

IBM i Subscription Term Licensing

IBM i Licensing Options as of May 7, 2024
Effective May 7, 2024, clients who acquire new specific IBM Power10 processor-based servers at IBM i P05 and P10 software tiers will have the following IBM i Licensing options:
- Acquire or renew IBM i Subscription Term licenses, or
- Convert IBM i non-expiring licenses to IBM i Subscription Term license at a lower-priced subscription term option.
    - Active SWMA on the donor is required.
    - Transfer of IBM i non-expiring licenses is not supported.
    - Conversion pricing applies for 3-year, 4-year, 5-year Subscription Terms.

The specific IBM Power10 processor-based servers at IBM i P05 and P10 software are:
- IBM Power S1012 (9028-21B) 1-core or 4-core processor (P05 software tier)
- IBM Power S1014 (9105-41B) 4-core processor (P05 software tier)
- IBM Power S1014 (9105-41B) 8-core processor (P10 software tier)
- IBM Power S1022 (9105-22A) (P10 software tier)
- IBM Power S1022s (9105-22B) (P10 software tier

April 2, 2024 announcement: Conversion pricing is announced

DDR5 and other Hardware Enhancements – July 9th Announcement

Effective 7/19/2024

- New DDR5 memory DDIMM available on the IBM Power10 servers
- New NVMe Enterprise and Mainstream SSD PCIe4 U.2 modules
- New PCIe 4-port 1 GbE Adapter available on IBM Power10 scale-out servers
- PCIe4 4-Port 25/10/1 GbE RoCE SFP28 Adapter with SR-IOV support now available on all Power10 servers
- NED24 NVMe Expansion Drawer – Multipath enablement
- PCIe3 SAS Tape/DVD Adapter Quad-port 6Gb x8 for support with AIX only
- Support for LTO-5, -6 tapes in addition to LTO-7, -8, and -9 tapes with PCIe3 12Gb x8 SAS Tape HBA Adapter

Effective 8/13/2024

- 2-NVMe backplane U.2 (15mm) Flash drive bays
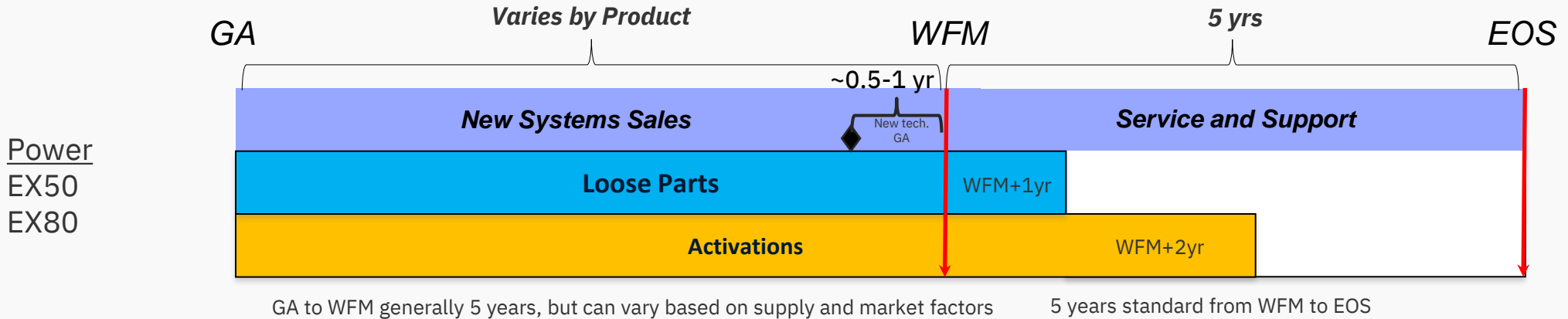
Other Announcements:

- Hardware withdrawal - IBM Power 9 Activation features (Effective – 12/31/2024)
- Expert Labs Standard Offering default attached to E1050 and E1080 (Effective - 7/9/2024)
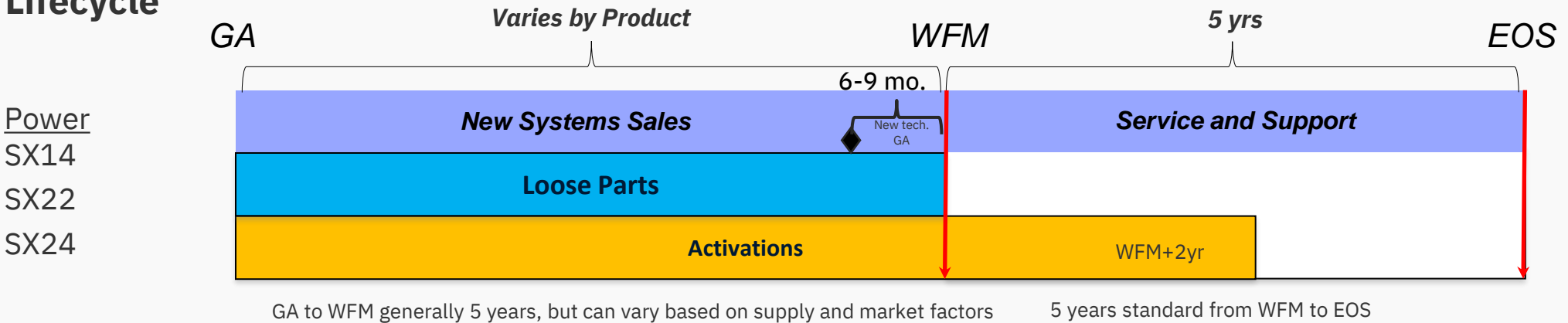
Power Systems Life Cycle

HE and MR Lifecycle

GA — Varies by Product — WFM — 5 yrs — EOS

~0.5-1 yr

Power EX50 EX80

- New Systems Sales | New tech. GA | Service and Support
- Loose Parts | WFM+1yr
- Activations | WFM+2yr

GA to WFM generally 5 years, but can vary based on supply and market factors

5 years standard from WFM to EOS

SCO Lifecycle

GA — Varies by Product — WFM — 5 yrs — EOS

6-9 mo.

Power SX14 SX22 SX24

- New Systems Sales | New tech. GA | Service and Support
- Loose Parts
- Activations | WFM+2yr

GA to WFM generally 5 years, but can vary based on supply and market factors

5 years standard from WFM to EOS

Post EOS Support - Service Extensions will be offered in lieu of Hardware Maintenance Agreements or Expert Care
- Separate pricing and more limited coverage
- Coverage is based on several factors, including availability of parts, skills, etc.
- Contracts available in one-year increments
- Per Call pricing will be increased
- Exceptions for price and contract length will be limited only granted in rare circumstances

GA General Availability
WFM Withdrawal From Marketing
EOS End of Support

Accelerate AI Efficiently with IBM Power10 Technical Innovation

On-Chip AI acceleration
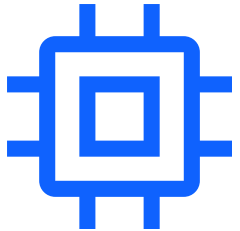
Per Core: 4x MMA* & 8x SIMD**

- Accelerate Matrix & Vector Math operations in the processor without GPUs.
- Minimize data movement from processor to GPU and vice-versa.
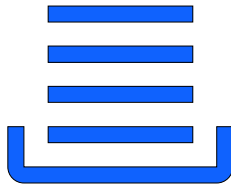- Lower quantization for improved performance.

Large Memory & Cache

TBs Main memory per core

- Store large AI models (like LLMs), large datasets (higher batch sizes), multiple AI models (parallel inferencing) in single memory (1TB-16TB).
- Large cache (4x) to speed up execution.

Highly Parallel

4x more Threads per core

- Provides up to 8 threads per core (4x vs. Intel)
- Run parallel jobs for AI inferencing
- Improve throughput

Enterprise Server Design

Lower CO2 footprint

- Same work with lower energy usage
- Consolidate more workloads due to higher guaranteed utilization

*MMA: Matrix Math Accelerator
** SIMD: Single-Instructionn Multiple-Data

Improved On-processor AI Acceleration

– 24 TOPS per chip
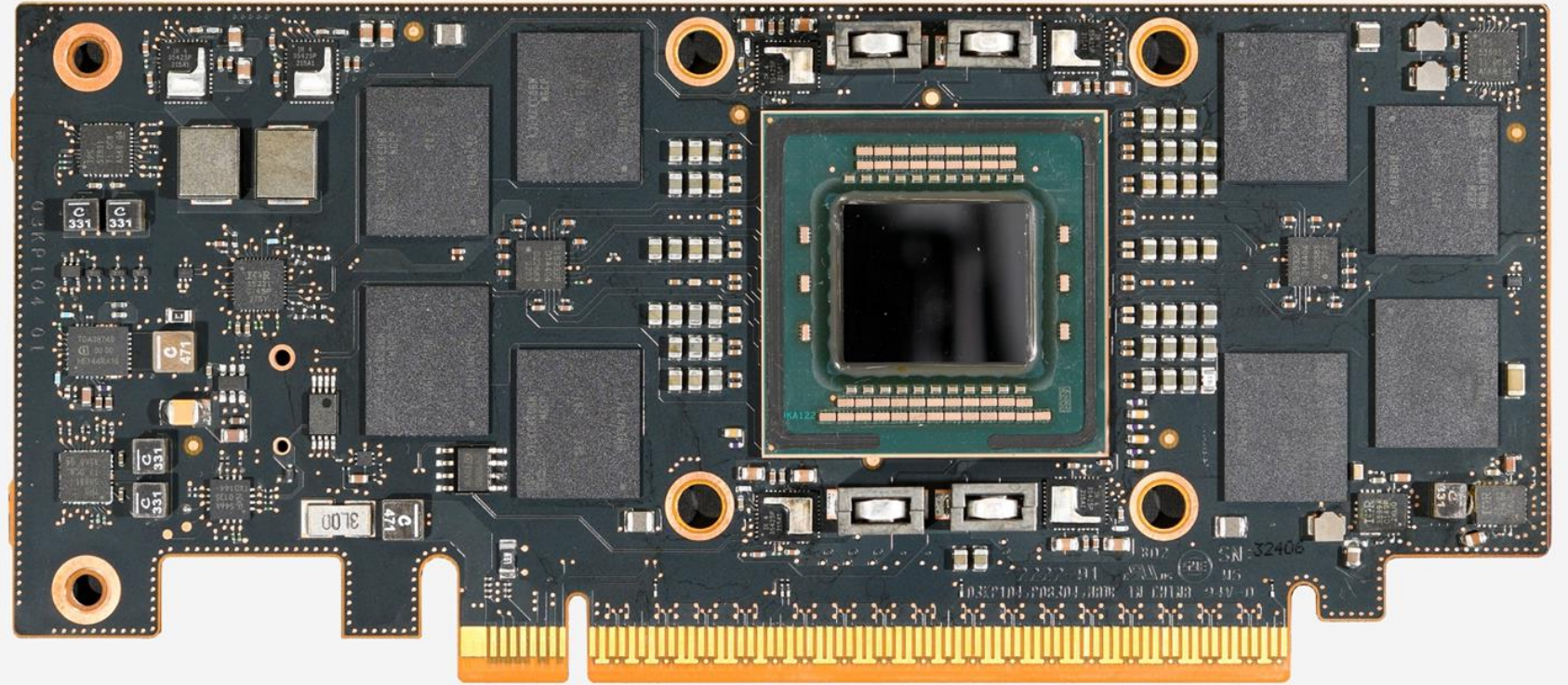– 192 TOPS per drawer
– 768 TOPS per system

– Integrated as a CISC instruction
– Remote AI accelerator
– Support for LLM compute primitives
– Int8, FP16 datatypes
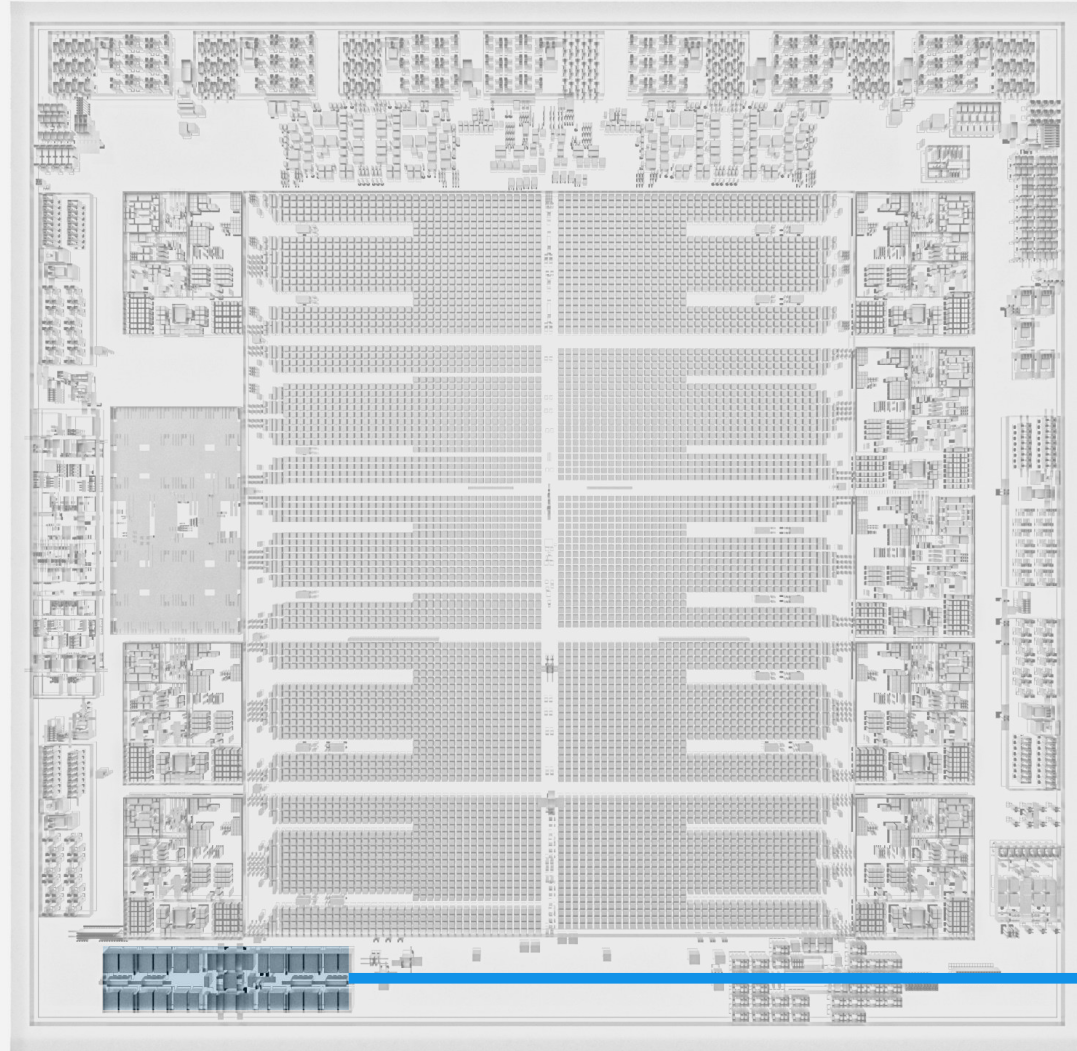
AI accelerator

IBM Spyre™ Accelerator PCIe attached card

- 300+ TOPS
- 75W PCIe gen5 x16 adapter
- 128BGB of LPDDR5 memory

All projections are based on preview hardware.

IBM Power10 Servers

2x S1012
4 core
2x 2port 1/10/25GbE
2x 2port 32Gb FC

128GB
RAM

~500k NOK

All Cores can run
Linux,IBM i & AIX

2,7-4x Performance pr
core vs x86

IBM Power10 Servers

New DDR5
819GB/s per socket
Total 1,6TB/s per server

10

L1022 2TB
40 core (2x 20core)
2x 2port 1/10/25GbE
2x 2port 32Gb FC

DDR5 RAM

750k NOK

Inkl 5år 24/7
PowerVM Hardware Hypervisor
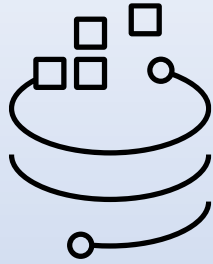
25% Cores can run IBM i & AIX

2,7-4x Performance pr core vs x86
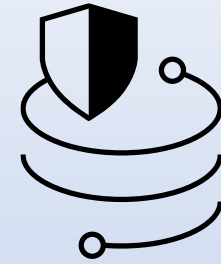
3-4x More bang for your bucks

IBM Storage

|	Storage for Data and AI	Storage for Hybrid Cloud	Storage for Data Resilience
Software	IBM Storage Scale IBM Storage Ceph	IBM Storage Fusion	IBM Storage Defender IBM Storage Insights
Hardware	IBM Storage Scale System IBM Cloud Object Storage	IBM Storage Fusion HCI System	IBM Storage FlashSystem | DS8000 | Tape | Networking

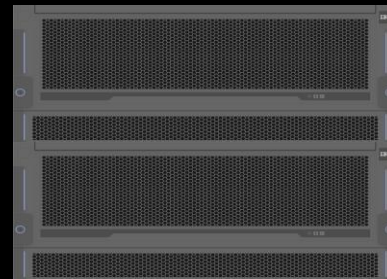# IBM Storage Today...

Including Data Lake functionality

Public Hybrid Private

New 1Q2023

New 4Q2023

IBM Storage Ready Nodes

IBM Storage Ceph

IBM Cloud Object Storage
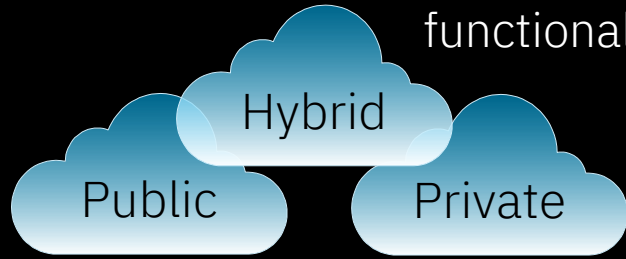
TS6000

File/Object

IBM Storage Scale

ESS 6000

Up to **310GB/s**

New 1Q2024

ESS 3500
All Flash Models

Up to **91GB/s**

NL-SAS Expansions

Block

IBM Storage FlashSystem

809%
More IOPS/Watt compared to other vendors

FlashSystem 9500

Up to **8M IOPS**

0.05ms Latency

FlashSystem 7300

Up to **3.5M IOPS**

0.05ms Latency

New 2Q2024

FlashSystem 5300

Up to **2.5M IOPS**

0.05ms Latency

New 1Q2024

IBM **FlashCore** Modules **Gen4**

4.8TB, 9.6TB, 19.2TB, and 38.4TB
SLC to QLC with AI
PCI Gen 4

Compression, QSC-encryption
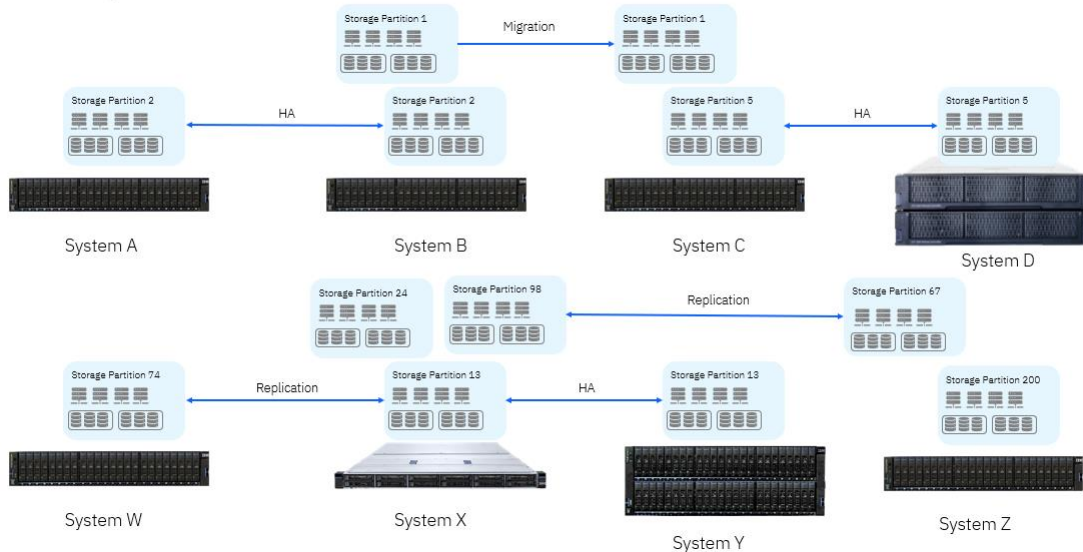& ransomware detection
with no performance impact

IBM Storage Virtualize 8.7.0 Technical Update

- RFA Announce – 8.7.0 – June 4, 2024
- eGA – 8.7.0 – June 14, 2024
- pGA – There is no hardware associated with this release

8.7.0 is an LTS Release. This means that it will get planned patches and updates until 8.7.0.x code goes EOS. Non-LTS releases will follow until the next LTS release.

|

Async DR

Introduced previously, Policy-Based Replication provides a simple to use, high performance DR solution

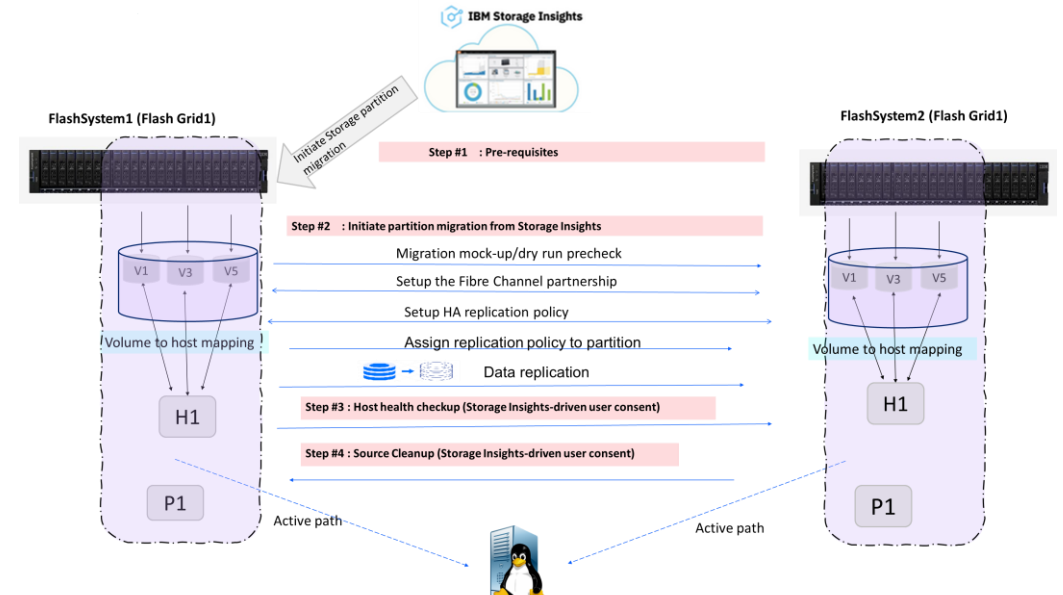–vVol 2.0 replication enabled

HA

New Policy-Based High Availability provides high throughput, low latency HA with no single point of failure

Coming 2H24

Policy-Based HA + DR for enterprise three-site replication

8.7.0 is the final release that supports legacy Remote Copy features like Global Mirror, Metro Mirror and HyperSwap.

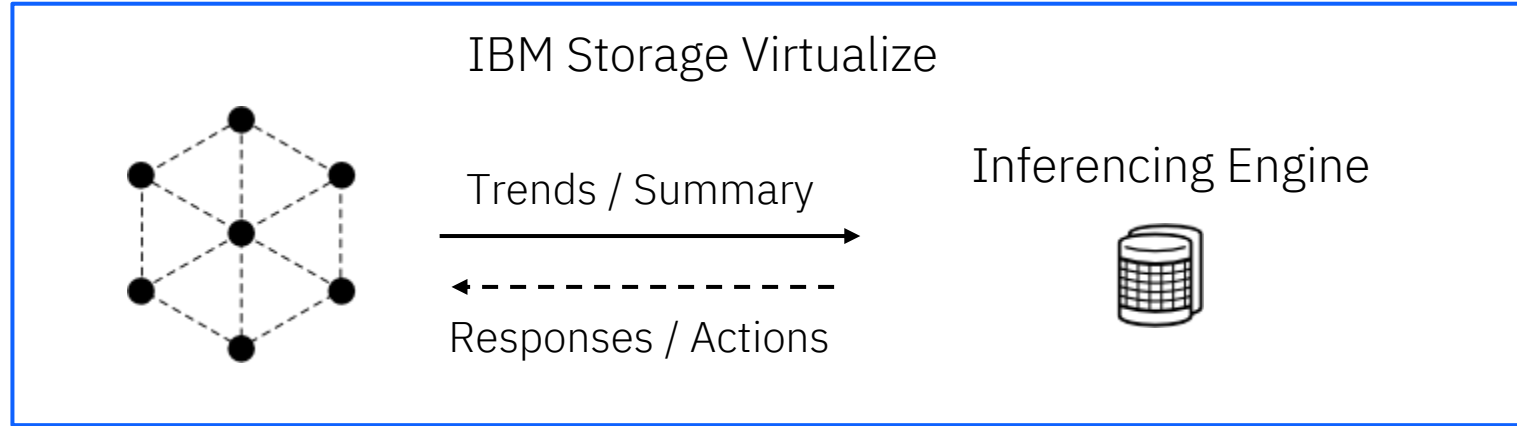# Ransomware Monitoring Architectural Overview

Brought to you by:
IBM Research
IBM Storage Virtualize
IBM FlashCore
IBM Storage Insights Pro

IBM Storage Virtualize

Inferencing Engine

Granular data analytics

Volume Statistics

Trends / Summary

Responses / Actions
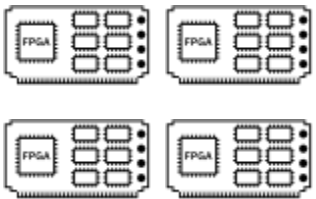
33

Ex: Create SGC Snap
to limit scope

Show Real-Time Data And Trends

Learn From Data

IBM FlashCore Modules

External Tools

Storage Insights

Qradar SOAR / Defender

Responses / Actions

IBM Fusion, two offerings

Customer Apps

 IBM Cloud Paks

Data	Integration	Security	Cloud Satellite
Business automation	Watson AIOps	Network automation	

 Databases

Cassandra	MongoDB	RabbitMQ
Elastic search	PostgreSQL	Spark

 Off the shelf

Pega   Mulesoft

TIBCO

 Custom apps

Home grown

Offering

Fusion software

Data services for stateful OpenShift applications

Container-native data services platform for Red Hat OpenShift and IBM Cloud Paks

Access data anywhere with a secure global data platform that is simple to deploy, secure, and operate.

Get started

Install services
To take advantage of all the features and functions of IBM Spectrum Fusion, we recommend that you get started by installing additional services.

View services →

Storage management

CSI provisioning made easy
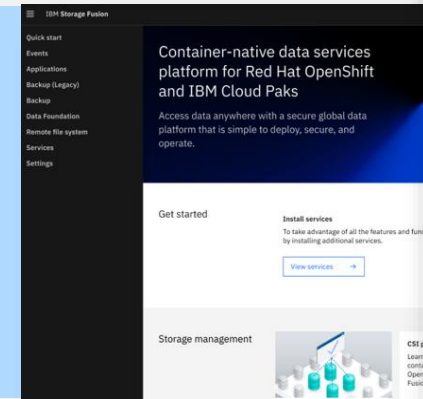Learn how to maximize your container workloads in OpenShift and IBM Spectrum Fusion.

Consistent experiences

- APIs
- Fusion console
- Data protection
- Disaster Recovery
- Fusion Data Foundation (FDF)

Fusion HCI

Integrated Application Platform for OpenShift

Built on

OPENSHIFT

Deployments

aws	Microsoft Azure	IBM Cloud	vmware	IBM Z	IBM Power	Bare metal
AWS EBS	Azure block	Persistent disk IBM block	SAN, vSAN	DS8K	FlashSystems	Server-attached drives

Hyper-Converged Infrastructure for OpenShift

Switches, servers, storage

Fuel Your AI
at the ultimate
IBM learning event

IBM TechXchange Conference
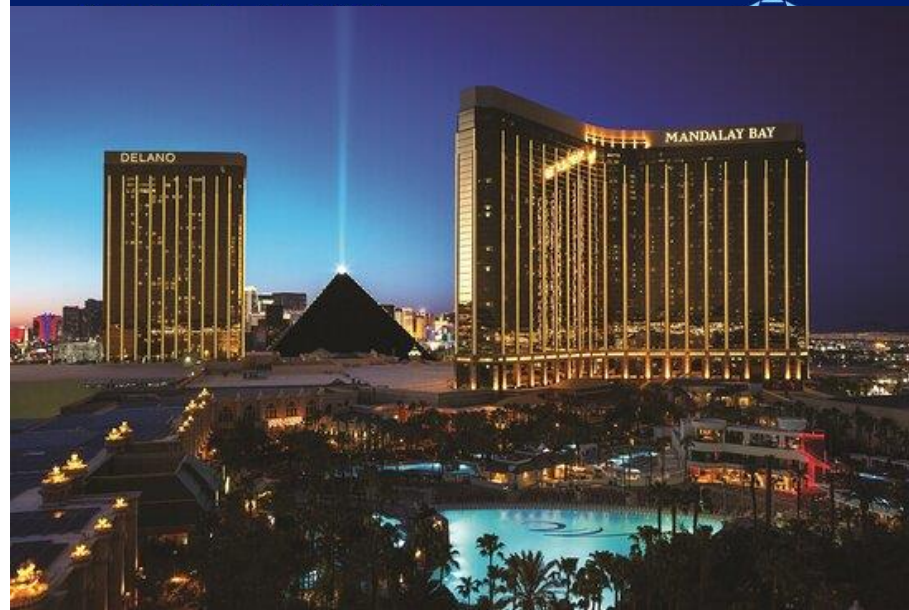
October 21-24, 2024

Mandalay Bay – Las Vegas

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View session catalog →

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https://ow.ly/mNHe50T7pes

Join COMMON at IBM TechXchange Conference 2024

Save 30% on Registration (link in Description)

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