E06: IBM Storage Scale für Daten und AI & NVIDIA GPUs

IBM Storage Scale Days 2025 DE

March 18th – 20th, 2025 | Heidelberg, Germany

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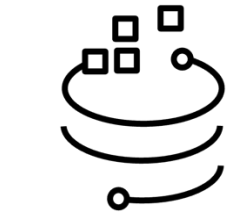
Disclaimer



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The AI “Data Vulcan”

Data is crucial for **training** AI models. The quality and quantity of training data sets are crucial to the accuracy and effectiveness of machine learning models. The more diverse and representative the data is, the better the model can generalize and perform on new, unseen data.

Source: Mercedes-Benz

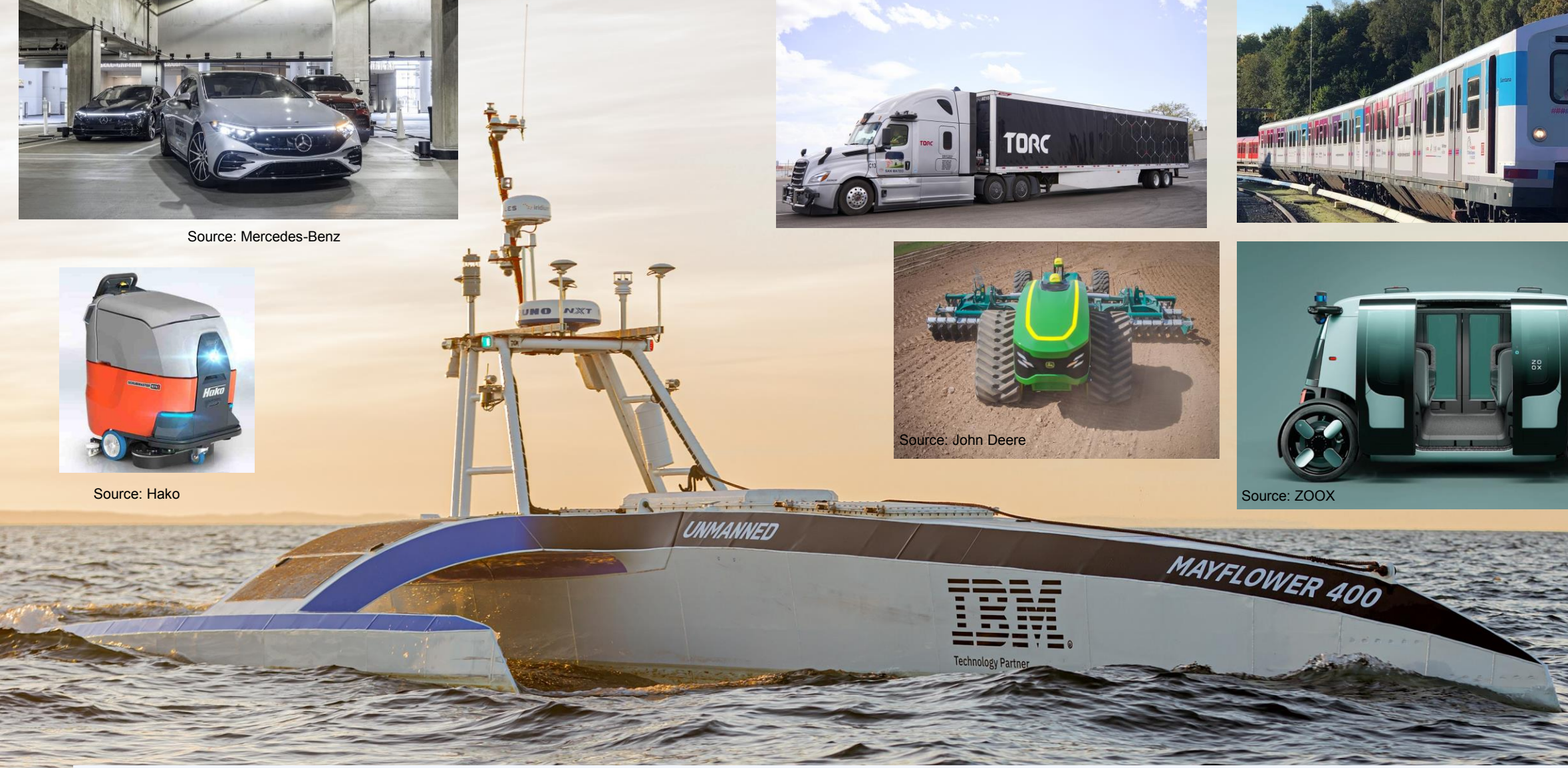
Source: Hako

Source: TORC

Source: Digital Railways

Source: John Deere

Source: ZOOX



Autonomous Systems (AS) are everywhere impacting how we live, work, play, purchase goods and services, how we socialize, and even our commutes.

AV Data Management Challenges for AI and Hybrid Cloud

- Data ingest and preparation cycles are too time consuming
- Many silos of infrastructure for various analytics use cases
- Multiple copies of the same data without a single source of truth
- Need to securely manage and protect data provenance for repeatability
- Need for global accessibility (hybrid cloud) and collaboration

Reproducible + Efficient + Resilient

Source: IBM

Development and Testing Autonomous Vehicles at Scale

Frank Kraemer (kraemerf@de.ibm.com)

IBM

On-Road Mass Data Recording

Smart Data Logger Technology (AI triggered).
Visualization & Data analysis.
Fast data cleaning.
Data enrichment & Pre-annotation.

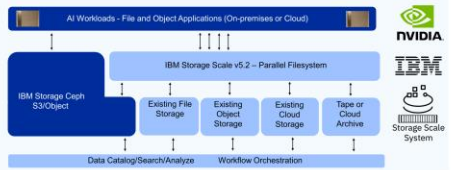
Cloud Adjacent Data Ingest @Colocation

Significantly increase data ingest and pre-processing.
Lower costs to move data in and out of cloud.
Low-latency access to data between clouds.

OPENSHIFT
IBM Ceph

Highspeed Data Services for AI training with NVIDIA SuperPOD

Global Data Platform for large AI workflows.
NVIDIA GPUDirect Support.
Parallel Access to all data (Infiniband & RoCE).
Ultimate Performance (310 GB/sec read per node).
Client-side direct access.
Automated data acceleration and remote data access.
Multi-site/Multi-vendor Caching Services.
Policy based data placement and reduction.
Engineered for performance and efficiency.



Data for Hardware-in-the-Loop (HIL) Testing

dSPACE

Optimize Test Case Execution with minimal cloud egress fees.
Support many communication protocols to connect.
Optimized for comprehensive and scalable testing.

Long Term Data Archiving

IBM

Secure and durable S3 object storage classes.
Low cost and low energy archive of data.
Long term retention, compliance, and digital preservation.

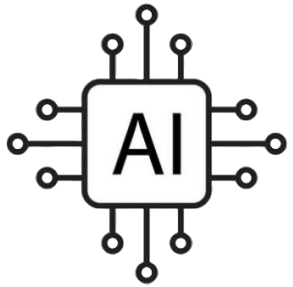
IBM

#1
On-Road Mass Data Recording

#2
Data Preparation Selection, Labeling

#3
Data Services for large scale AI training w/GPUs

#4
HIL & SIL Testing



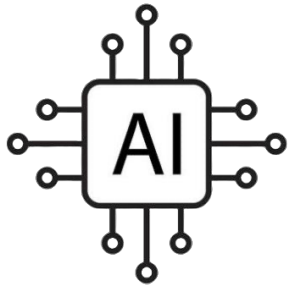
IBM

Q: How long will it take to train an LLM model like GPT-3 ?

A: See Paper https://arxiv.org/pdf/2005.14165.pdf

How much memory is required? GPT-3 requires **175 billion** parameters.

- Two bytes per parameter **(FP16)** means the total memory required is **350 GB**.
- Four bytes per parameter **(FP32)** means we need **700 GB** of memory.



Training LLMs is computationally intensive

GPT-3 Training Time on NVIDIA A100 GPUs

	Time to train 300B tokens in days (A100) – BF16			
	800 GPUs (5x DGX SuperPod)	480 GPUs (3x DGX SuperPod)	160 GPUs (1x DGX SuperPod)	64 GPUs (8x DGX A100)
GPT-3: 126M	0.07	0.12	0.37	0.92
GPT-3: 5B	0.8	1.3	3.9	9.8
GPT-3: 20B	3.6	6	18.1	45.3
GPT-3: 40B	6.6	10.9	32.8	82
GPT-3: 175B	28	46.7	140	349.9

x days (24h)

Dev Teams are faced with **data challenges** to scale AI

1 - There's more data

Exploding data growth

The aggregate volume of data stored is set to grow over 250% in the next 5 years.

2 - In more locations

Multiple locations, clouds, applications and silos

82% of enterprises are inhibited by data silos.

3 - In more formats

Documents, images, video

80% of time is spent on data cleaning, integration and preparation.

4 - With less quality

Stale and inconsistent

82% of enterprises say data quality is a barrier on their data integration projects.

IBM **G**lobal **D**ata **P**latform helps to unlock the full potential of AI

Storage Scale & Storage Scale Systems

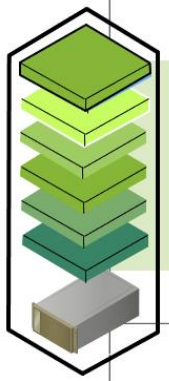
IBM

NVIDIA DGX BasePOD validated storage partner

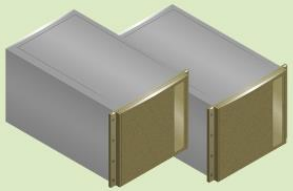
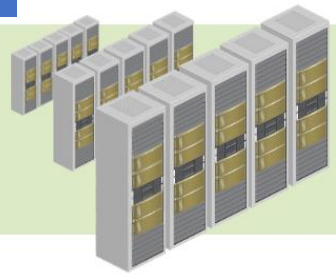
- NVIDIA Base Command supported, includes Kubernetes (K8) platform (static/dynamic storage provision).
- Simple building blocks – scalable seamless storage upgrade path as needs grow from 1st DGX to AI CoE DGX SuperPOD
- NVIDIA MagnumIO (GDS) acceleration
- Faster, simplified deployments and upgrades with Ansible automation.

NVIDIA DGX SuperPOD validated storage partner

- Leading parallel performance on enterprise storage (6-9s availability)
- Global Data Platform: automate AI workflows: ingest to inference, high-performance object, multi-site, multi-vendor & hybrid cloud
- Data Economics – Eliminate copies and transparently tier
- Trusted, global enterprise level support and services.
- Successful deployments across the globe



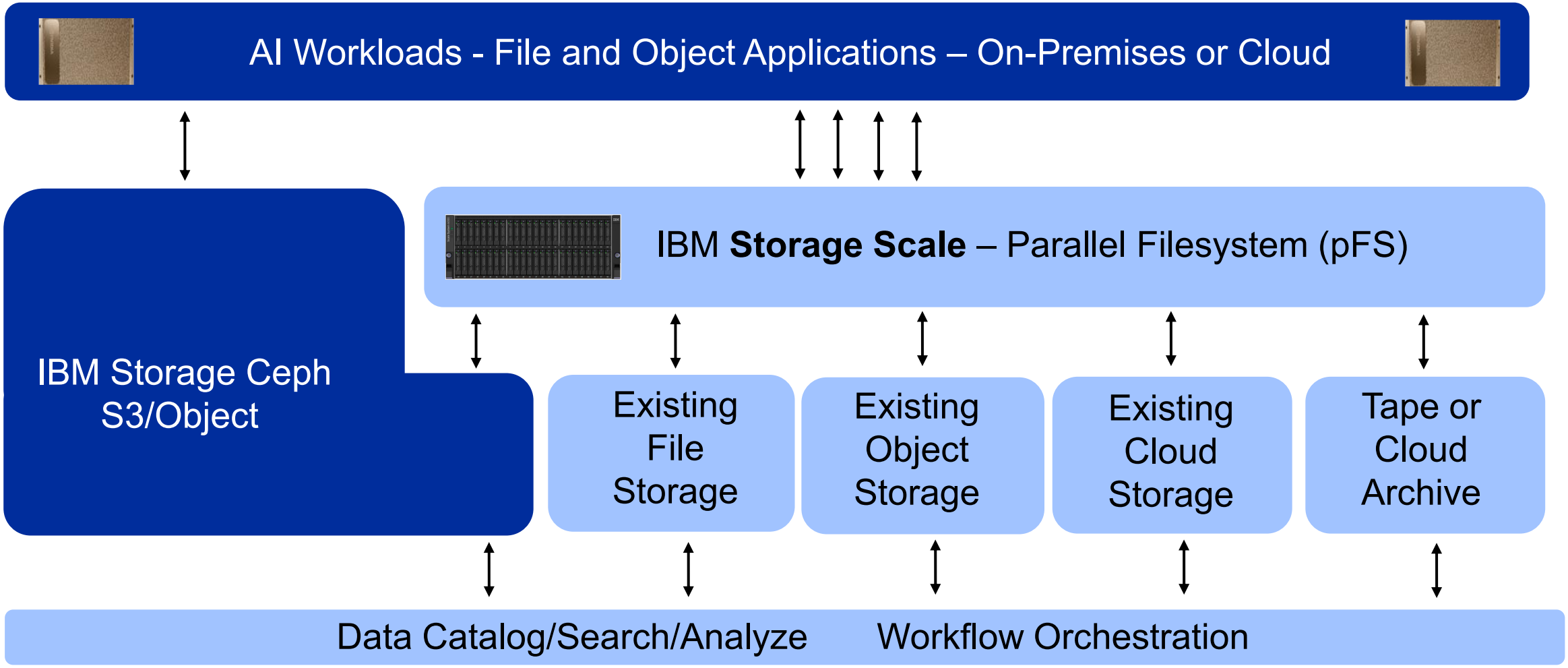
DGX Platform powers every step in your AI journey

	1 Day One your 1st DGX systems	2 Scaled Infrastructure DGX BasePOD	3 AI CoE DGX SuperPOD	4 AI Hybrid Cloud DGX Cloud
			 DIGITAL REALTY EQUINIX	 DIGITAL REALTY EQUINIX
Software capabilities that help you grow your AI platform	Base Command		Base Command Platform	

	• NVIDIA AI Enterprise:
	  • Pre-trained models, optimized frameworks
	  • Accelerate data prep tasks
	  • Customize/fine-tune pre-trained models
	  • Optimize/accelerate inference
	• Kubernetes or Slurm scheduling
	• Add/manage DGX within your existing compute infrastructure
	• Run Jupyter notebooks
	• Cloud-based private registry
	• Accelerate storage & network IO
	• Fully optimized OS stack
			In addition to the features on the left:
			• Base Command Platform:
			  • Simplify developer workflow
			  • Dataset management
			  • Batch processing
			  • Monitoring	

IBM **G**lobal **D**ata **P**latform (GDP) based on **Storage Scale**

Unifying Unstructured Data for AI workloads



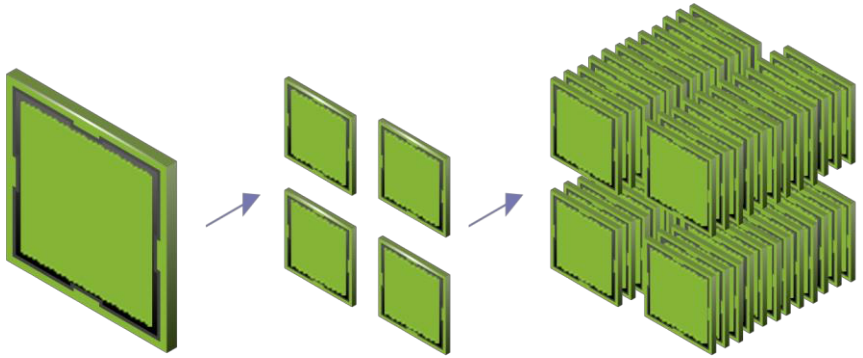
Blog: https://community.ibm.com/community/user/storage/blogs/david-wohlford1/2023/10/26/ibm-announces-the-ultimate-way-to-build-a-global-d

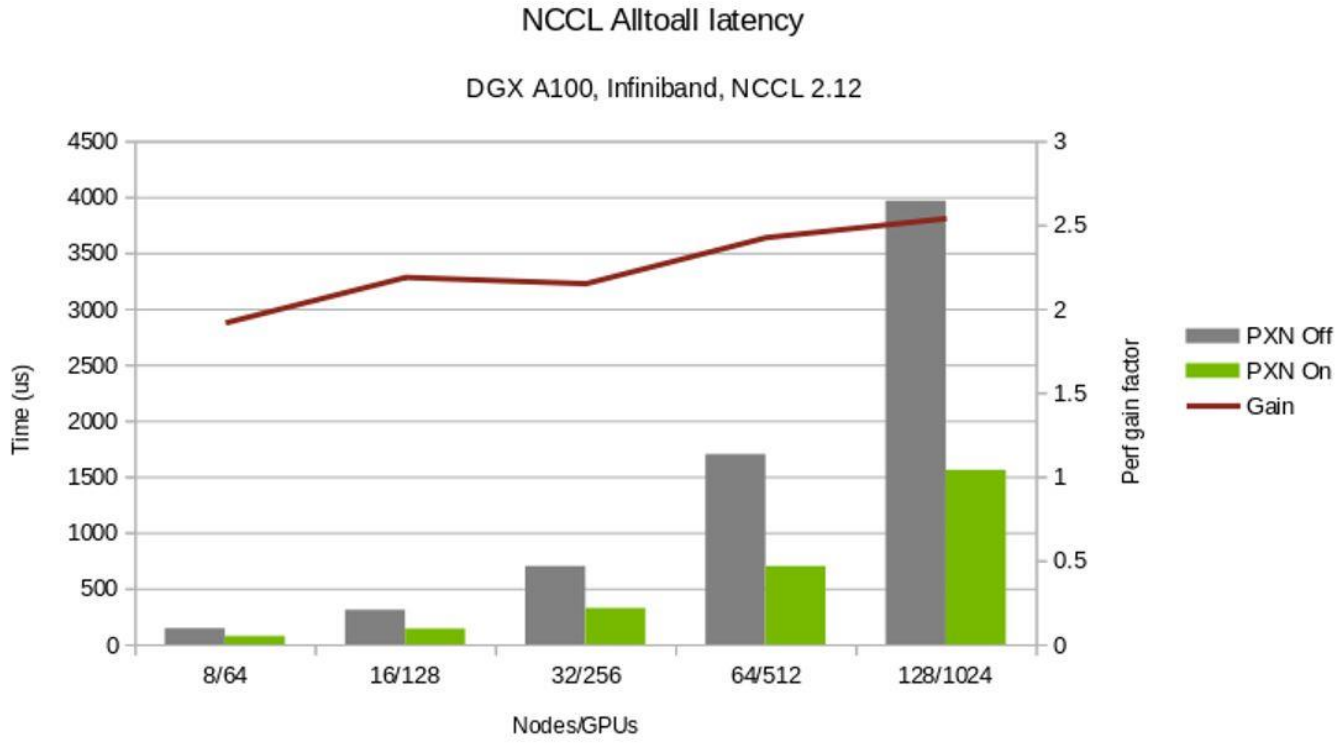
NVIDIA Collective Communications Library (NCCL)

NCCL provides fast collectives over multiple GPUs

The NVIDIA Collective Communication Library (NCCL) implements multi-GPU and multi-node communication primitives optimized for NVIDIA GPUs and Networking. NCCL provides routines such as **all-gather, all-reduce, broadcast, reduce, reduce-scatter as well as point-to-point send and receive** that are optimized to achieve high bandwidth and low latency over PCIe and NVLink high-speed interconnects within a node and over NVIDIA Mellanox Network across nodes.

https://developer.nvidia.com/nccl





NVIDIA GPUDirect RDMA and GPUDirect Storage

Enhancing Data Movement and Access for GPUs

GPUDirect RDMA is a technology in NVIDIA GPUs that enables direct data exchange between GPUs and a third-party peer device using PCI Express.

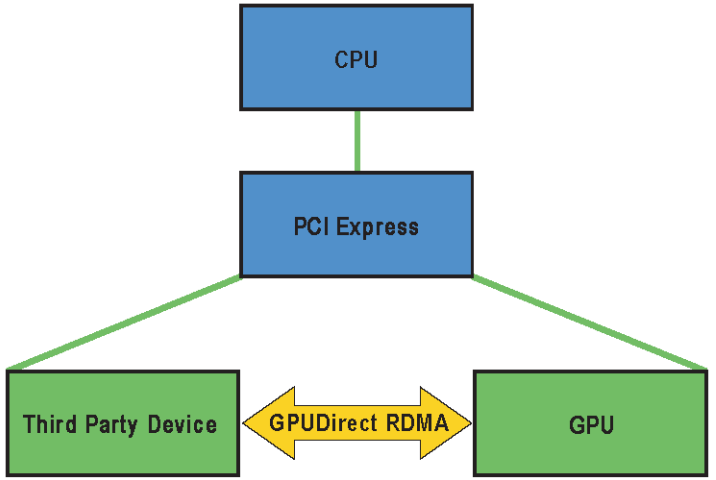
GPUDirect Storage (GDS) enables a direct data path between local or remote storage. GDS leverages direct memory access (DMA) transfers between GPU memory and storage, which avoids a bounce buffer through the CPU. This direct path increases system bandwidth and decreases the latency and utilization load on the CPU. To support GPUDirect RDMA, a user space CUDA APIs and kernel mode drivers are required.

https://docs.nvidia.com/cuda/gpudirect-rdma/

NVIDIA CERTIFIED

NVIDIA-Certified Systems

IBM 6000 GPUDirect Storage



NVIDIA

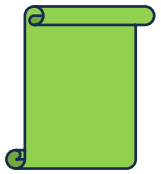
A100 / H100 / GH200 / GB200

Nvidia DGX **SuperPOD** & DGX **BasePOD**

Enhancing Data Movement and Access for GPUs

NVIDIA DGX SuperPOD is AI data center infrastructure that enables IT to deliver performance—without compromise—for every user and workload. As part of the NVIDIA DGX platform, **DGX SuperPOD** offers leadership-class accelerated infrastructure and scalable performance for the most challenging AI workloads, with industry-proven results.

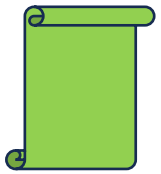
https://www.nvidia.com/en-us/data-center/dgx-superpod/



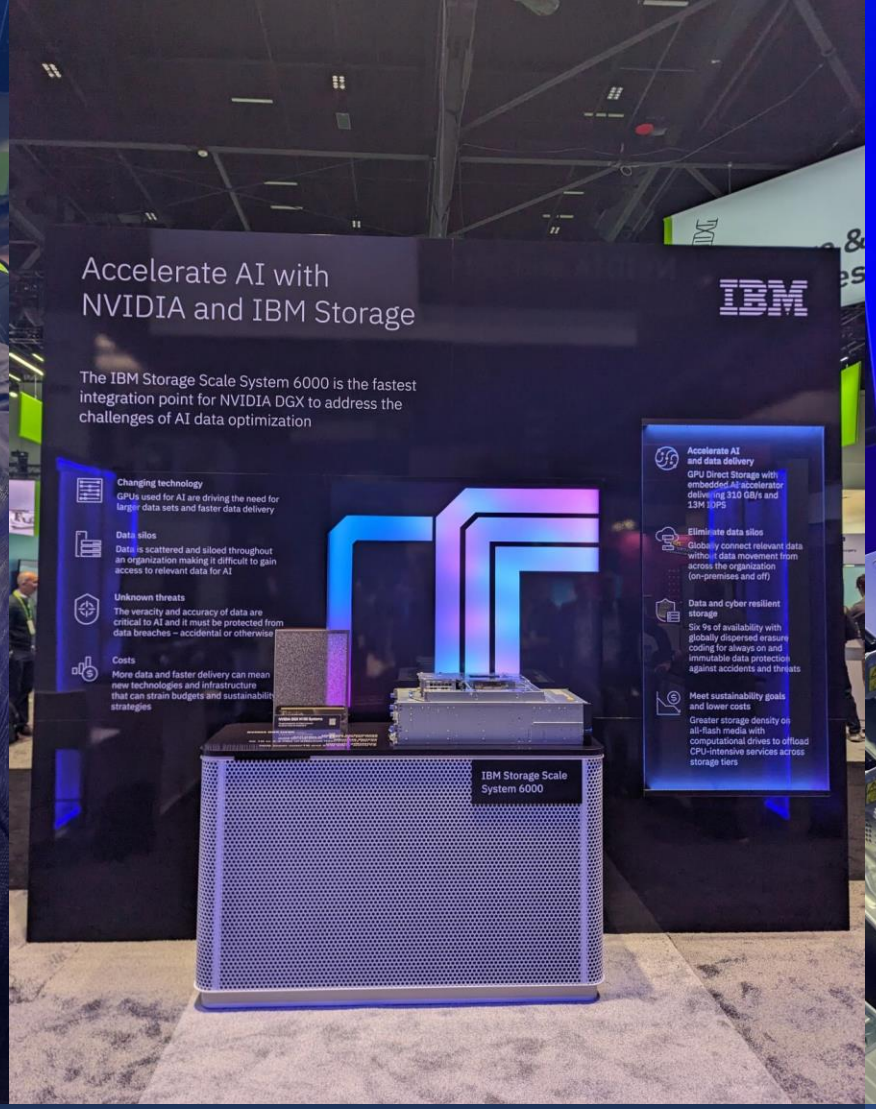
NVIDIA-Certified Systems

NVIDIA DGX BasePOD AI is powering mission-critical use cases in every industry—from healthcare to manufacturing to financial services. As part of the NVIDIA DGX platform, **NVIDIA DGX BasePOD** provides the critical foundation on which business transformation is realized and AI applications are born.

https://www.nvidia.com/en-us/data-center/dgx-basepod/



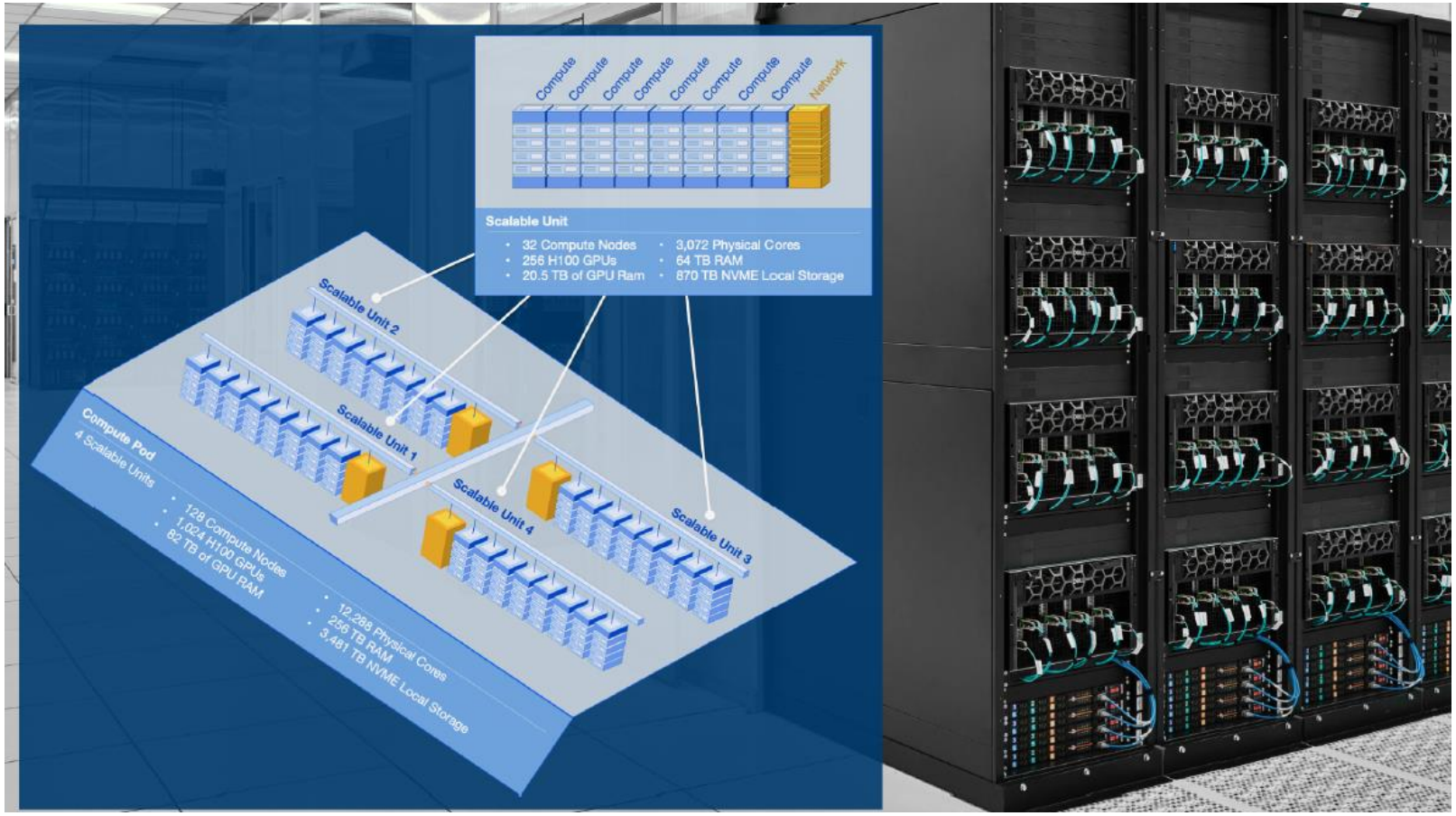
NVIDIA-Certified Systems



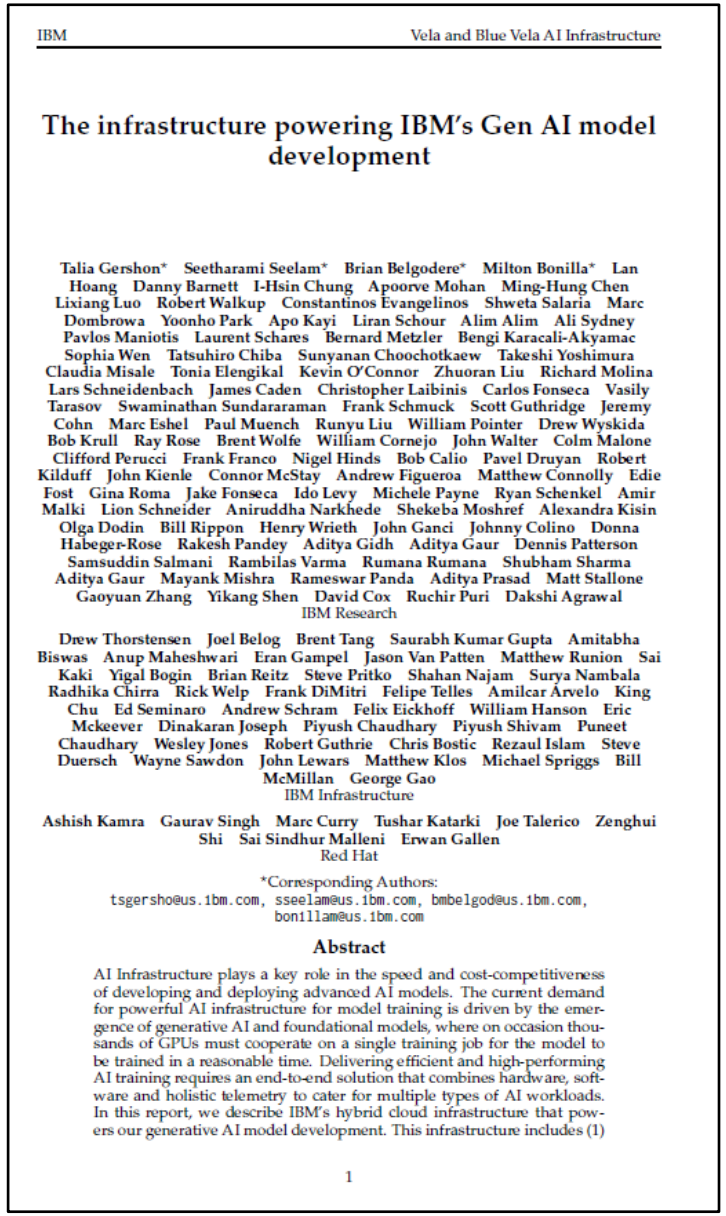
Jensen @ IBM booth Nvidia GTC 2024 with IBM 6000

IBM Blue Vela AI Supercomputer (Compute)

Blue Vela AI supercomputer is based on NVIDIA reference HGX Platform guidelines.
Dell PowerEdge XE9680 nodes each with 8x NVIDIA H100 GPUs (80 GB HBM)



IBM's AI supercomputer:
https://research.ibm.com/blog/vela-ai-supercomputer-updates



IBM Vela and Blue Vela AI Infrastructure

The infrastructure powering IBM's Gen AI model development

Talia Gershon* Seetharami Seelam* Brian Belgodere* Milton Bonilla* Lan Hoang Danny Barnett I-Hsin Chung Apoorve Mohan Ming-Hung Chen Lixiang Luo Robert Walkup Constantinos Evangelinos Shweta Salaria Marc Dombrowa Yoonho Park Apo Kayi Liran Schour Alim Alim Ali Sydney Pavlos Maniotis Laurent Schares Bernard Metzler Bengi Karacali-Akyamac Sophia Wen Tatsuhiro Chiba Sunyanan Choochotkaew Takeshi Yoshimura Claudia Misale Tonia Elengikal Kevin O'Connor Zhuoran Liu Richard Molina Lars Schneidenbach James Caden Christopher Laibinis Carlos Fonseca Vasily Tarasov Swaminathan Sundararaman Frank Schmuck Scott Guthridge Jeremy Cohn Marc Eshel Paul Muench Runyu Liu William Pointer Drew Wyskida Bob Krull Ray Rose Brent Wolfe William Cornejo John Walter Colm Malone Clifford Perucci Frank Franco Nigel Hinds Bob Calio Pavel Druyan Robert Kilduff John Kienle Connor McStay Andrew Figueroa Matthew Connolly Edie Fost Gina Roma Jake Fonseca Ido Levy Michele Payne Ryan Schenkel Amir Malki Lion Schneider Aniruddha Narkhede Shekeba Moshref Alexandra Kisin Olga Dodin Bill Rippon Henry Wrieth John Ganci Johnny Colino Donna Habeger-Rose Rakesh Pandey Aditya Gidh Aditya Gaur Dennis Patterson Samsuddin Salmani Rambilas Varma Rumana Rumana Shubham Sharma Aditya Gaur Mayank Mishra Rameswar Panda Aditya Prasad Matt Stallone Gaoyuan Zhang Yikang Shen David Cox Ruchir Puri Dakshi Agrawal
IBM Research

Drew Thorstensen Joel Belog Brent Tang Saurabh Kumar Gupta Amitabha Biswas Anup Maheshwari Eran Gampel Jason Van Patten Matthew Runion Sai Kaki Yigal Bogin Brian Reitz Steve Pritko Shahan Najam Surya Nambala Radhika Chirra Rick Welp Frank DiMitri Felipe Telles Amilcar Arvelo King Chu Ed Seminaro Andrew Schram Felix Eickhoff William Hanson Eric Mckeever Dinakaran Joseph Piyush Chaudhary Piyush Shivam Puneet Chaudhary Wesley Jones Robert Guthrie Chris Bostic Rezaul Islam Steve Duersch Wayne Sawdon John Lewars Matthew Klos Michael Spriggs Bill McMillan George Gao
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Abstract

AI Infrastructure plays a key role in the speed and cost-competitiveness of developing and deploying advanced AI models. The current demand for powerful AI infrastructure for model training is driven by the emergence of generative AI and foundational models, where on occasion thousands of GPUs must cooperate on a single training job for the model to be trained in a reasonable time. Delivering efficient and high-performing AI training requires an end-to-end solution that combines hardware, software and holistic telemetry to cater for multiple types of AI workloads. In this report, we describe IBM's hybrid cloud infrastructure that powers our generative AI model development. This infrastructure includes (1)

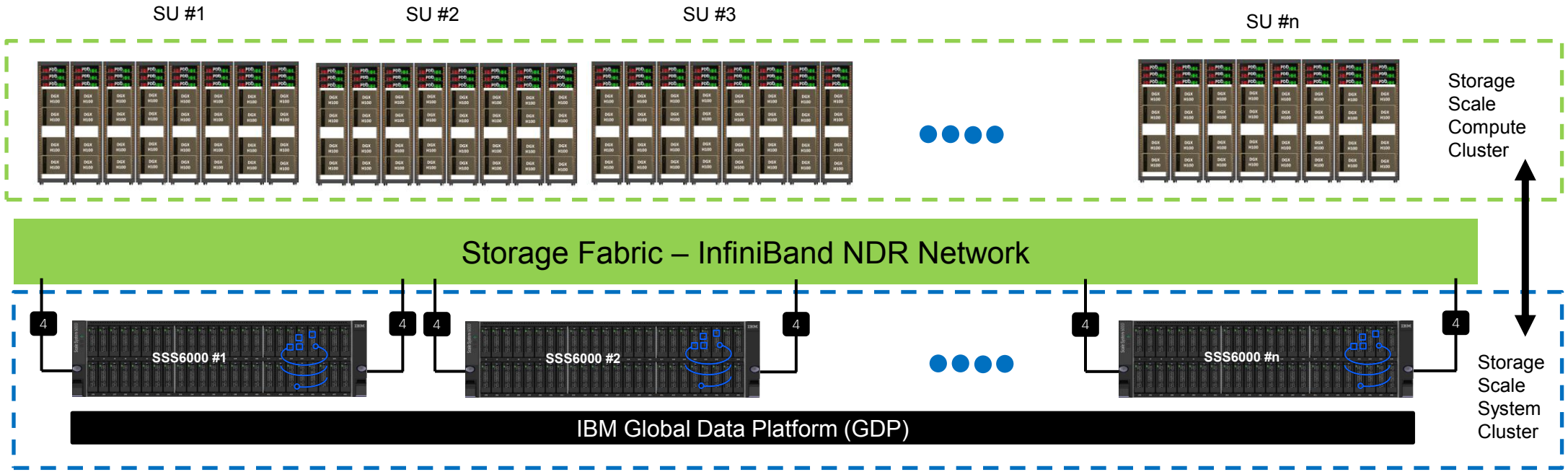
https://arxiv.org/abs/2407.05467

IBM Blue Vela AI Supercomputer (Storage)

- AI Supercomputer scalable up to 5000 H100 HGX Systems
- Phase #2 will have 20 Scalable Units (SU)
- 32x SSS6000 planned for Phase #2
- NVIDIA NDR Network Fabric for both Compute and Storage
- Enterprise AI Service
- Training LLM Models with 100B+ Parameters
- Linear scaling of performance and capacity

The key I/O operation in AI training is **re-read**. It is not just that data is read, but it must be reused again and again due to the iterative nature of AI training.

Write performance is important as AI models grow and time-to-train, writing checkpoints is necessary for fault tolerance. The size of checkpoint files can be terabytes in size.



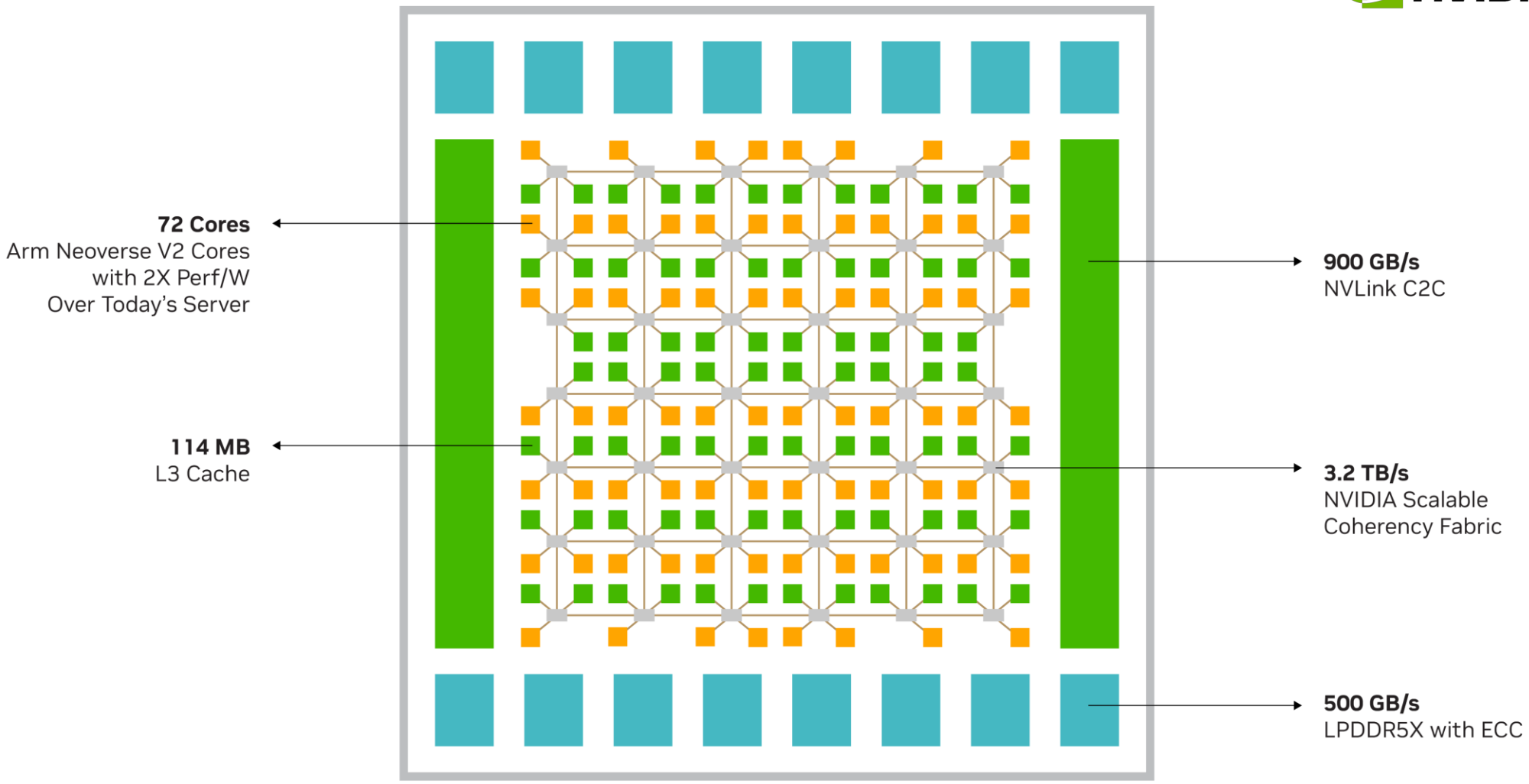
https://docs.nvidia.com/dgx-superpod/reference-architecture-scalable-infrastructure-h100/latest/storage-architecture.html

NVIDIA GPU Family + Networking + Storage4AI

x64 (CPU) **H**opper (GPU)
Grace (CPU) **H**opper (GPU)

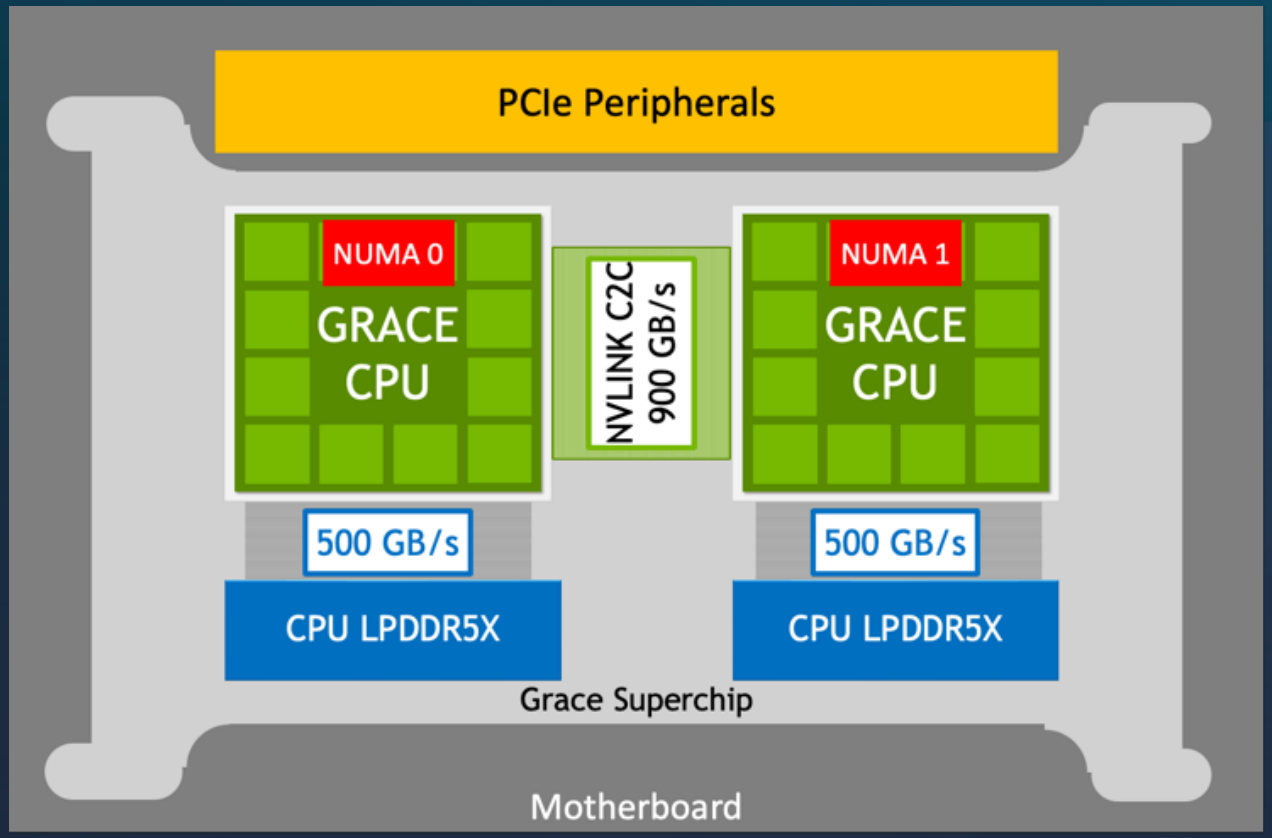
	2021	2023	2024	2025	2026	
NVIDIA GPU	A100	**H100**	**GH200NVL**	GB200NVL	VR200NVL	ARM64 (Training + Inference)
			GH200	GB100	VR100	ARM64 (Inference)
			H200	B100	R100	Intel/AMD x86-64 (Training + Inf)
			L40S	B40	R40	Intel/AMD x86-64 (Inference)
NVIDIA Networking	Quantum		400G	800G	1600G	Infiniband (IB) Networking
	Spectrum-X		400G	800G	1600G	Ethernet Networking (RoCE)
IBM Storage	3500 NVMe	3500 Hybrid	3500 SED	3500 NDR/CX-7		IBM ESS Storage System https://www.ibm.com/downloads/cas/R0Q1DV1X
		6000 NVMe	6000 Hybrid	6000 FCM 4.0	6000 PerfPool	IBM Storage Scale System https://www.ibm.com/downloads/cas/JBVQYVXB

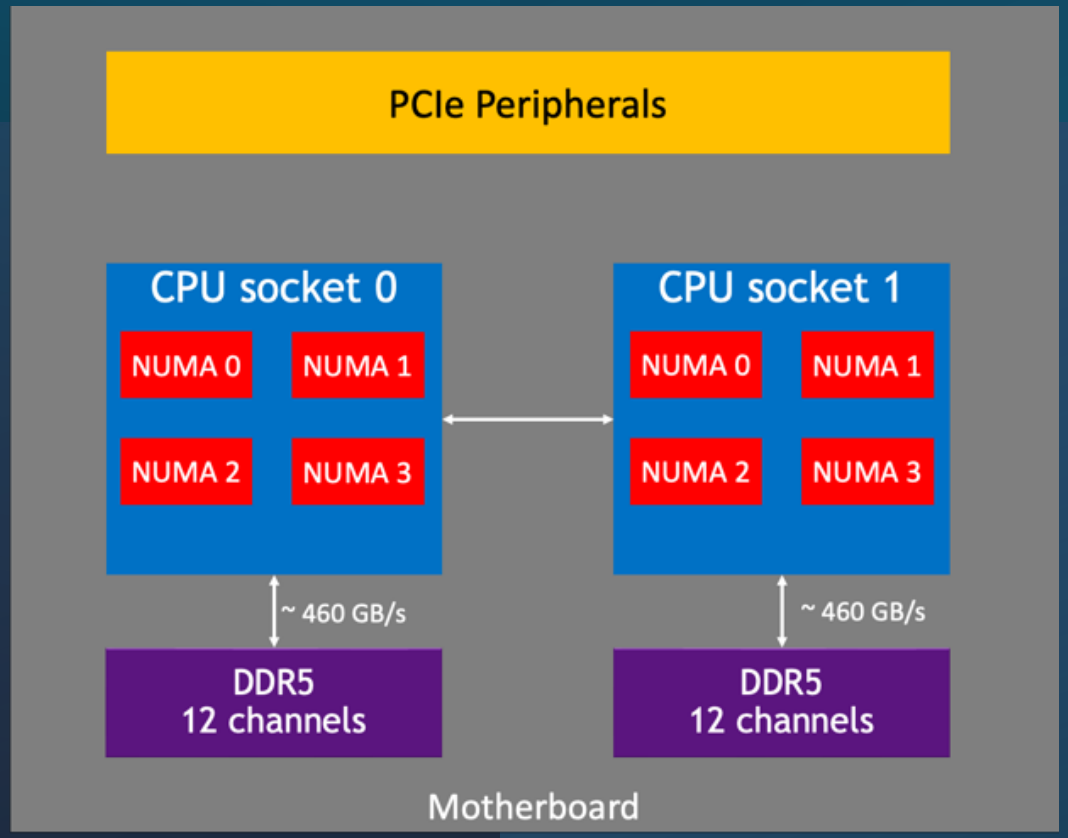
NVIDIA GRACE CPU Architecture



https://developer.nvidia.com/blog/nvidia-grace-cpu-integrates-with-the-arm-software-ecosystem/

NVIDIA GRACE SuperChip





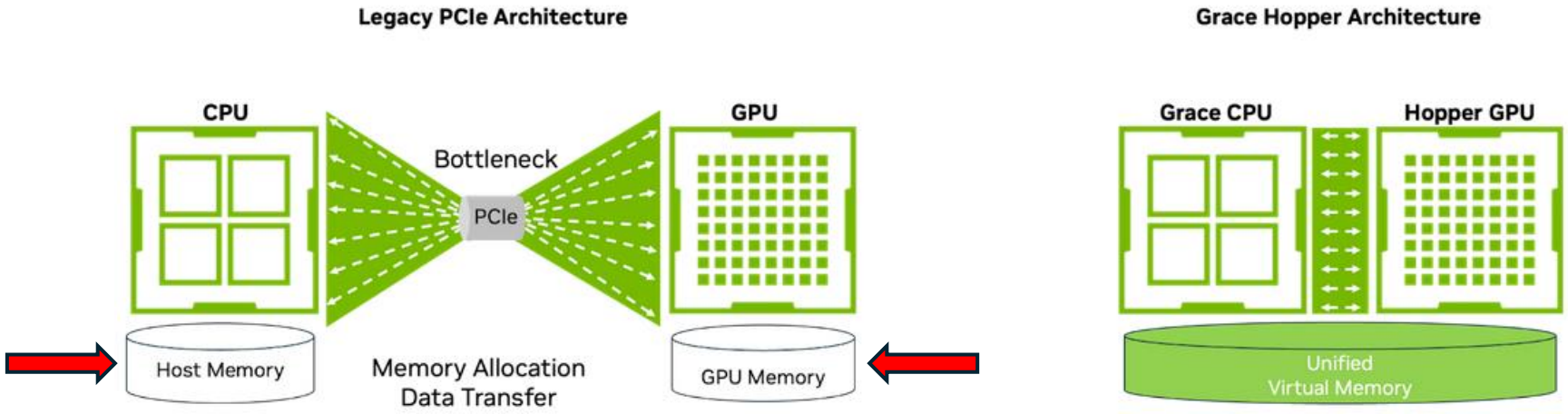
https://developer.nvidia.com/blog/nvidia-grace-cpu-superchip-architecture-in-depth/

NVIDIA GH200 Grace Hopper (GH) Architecture

Grace CPU optimized for massive memory bandwidth and efficiency. It's based on **ARM** architecture and designed to work closely with the Hopper GPU.

Hopper GPU is designed for AI and HPC, featuring advanced capabilities like support for the new Transformer Engine, which is crucial for training large AI models.

The architecture uses NVLink-C2C technology to connect the Grace CPU and Hopper GPU directly, allowing them to **share memory and data** seamlessly. This tight integration leads to significant improvements in performance, efficiency, and scalability, especially for data-intensive applications like AI model training and scientific simulations.



NVIDIA's **NVLink-C2C** (Chip-to-Chip) is a high-speed, low-latency interconnect technology designed to link multiple chips directly, such as GPUs, CPUs, or custom accelerators, on the same board. It enables faster communication between these components, reducing bottlenecks and improving overall system performance, particularly in high-performance computing and AI workloads.

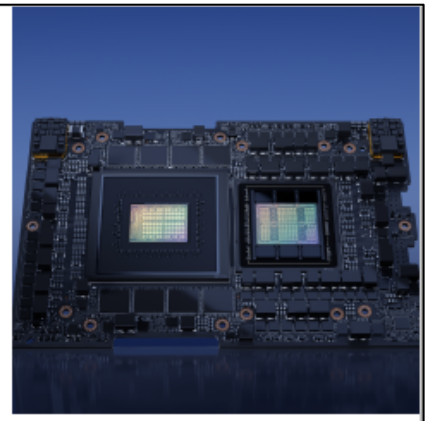
https://www.nvidia.com/en-us/data-center/grace-hopper-superchip/

Datasheet

NVIDIA

NVIDIA GH200 Grace Hopper Superchip

The breakthrough accelerated CPU for large-scale AI and high-performance computing (HPC) applications.



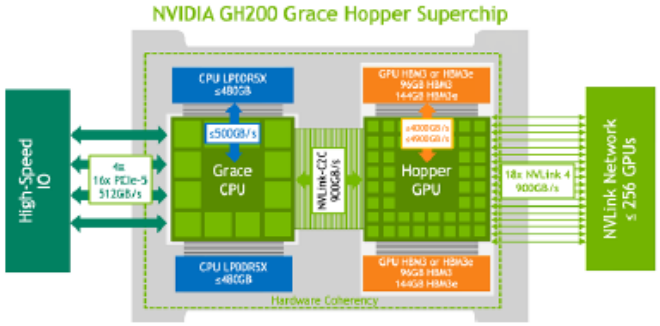
The World's Most Versatile Computing Platform

The NVIDIA Grace Hopper™ architecture brings together the groundbreaking performance of the NVIDIA Hopper™ GPU with the versatility of the NVIDIA Grace™ CPU in a single superchip, connected with the high-bandwidth, memory-coherent NVIDIA® NVLink® Chip-2-Chip (C2C) interconnect.

NVIDIA NVLink-C2C is a memory-coherent, high-bandwidth, and low-latency interconnect for superchips. The heart of the GH200 Grace Hopper Superchip, it delivers up to 900 gigabytes per second (GB/s) of total bandwidth, which is 7X higher than PCIe Gen5 lanes commonly used in accelerated systems. NVLink-C2C enables applications to oversubscribe the GPU's memory and directly utilize NVIDIA Grace CPU's memory at high bandwidth. With up to 480GB of LPDDR5X CPU memory per GH200 Grace Hopper Superchip, the GPU has direct access to 7X more fast memory than HMB3 or almost 8X more fast memory with HBM3e. GH200 can be easily deployed in standard servers to run a variety of inference, data analytics, and other compute and memory-intensive workloads. GH200 can also be combined with the NVIDIA NVLink Switch System, with all GPU threads running on up to 256 NVLink-connected GPUs and able to access up to 144 terabytes (TB) of memory at high bandwidth.

Key Features

- 72-core NVIDIA Grace CPU
- NVIDIA H100 Tensor Core GPU
- Up to 480GB of LPDDR5X memory with error-correction code (ECC)
- Supports 96GB of HBM3 or 144GB of HBM3e
- Up to 624GB of fast-access memory
- NVLink-C2C: 900GB/s of coherent memory



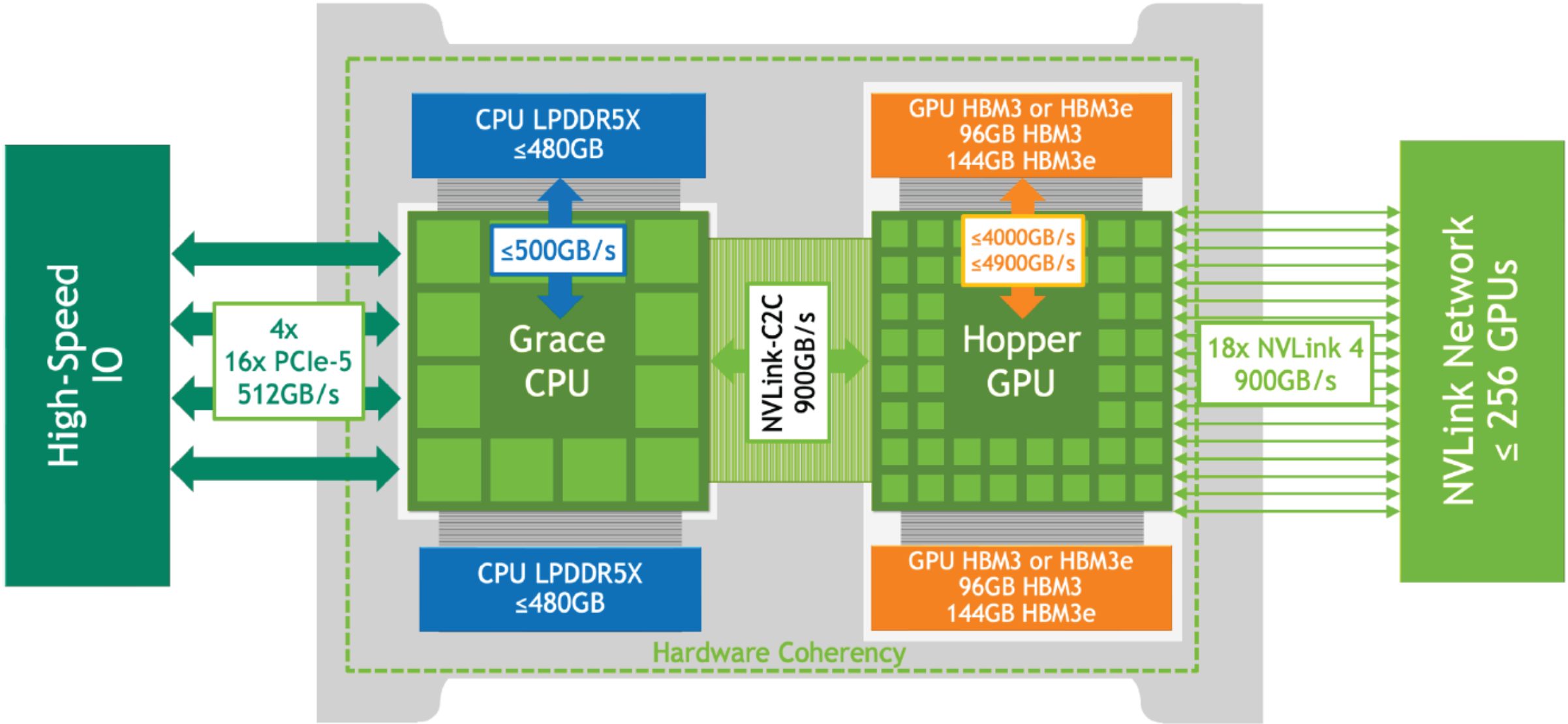
NVIDIA Grace Hopper GH200 Superchip Architecture

The NVIDIA Grace Hopper Superchip architecture brings together the performance of the **NVIDIA Hopper GPU** with the of the **NVIDIA Grace CPU**, connected with a high bandwidth and memory coherent NVIDIA NVLink Chip-2-Chip (C2C) interconnect in a single chip, and support for the new NVIDIA NVLink Switch System.

NVLink-C2C enables applications to oversubscribe the GPU's memory and directly utilize NVIDIA Grace CPU's memory at high bandwidth. With up to **512 GB of LPDDR5X CPU** memory per Grace Hopper Superchip, the GPU has direct high-bandwidth access to 4x more memory than what is available with HBM. Combined with the NVIDIA NVLink Switch System, all GPU threads running on up to 256 NVLink-connected GPUs can now access up to 150 TB of memory at high bandwidth. Fourth-generation NVLink enables accessing peer memory using direct loads, stores, and atomic operations, enabling accelerated applications to solve larger problems.

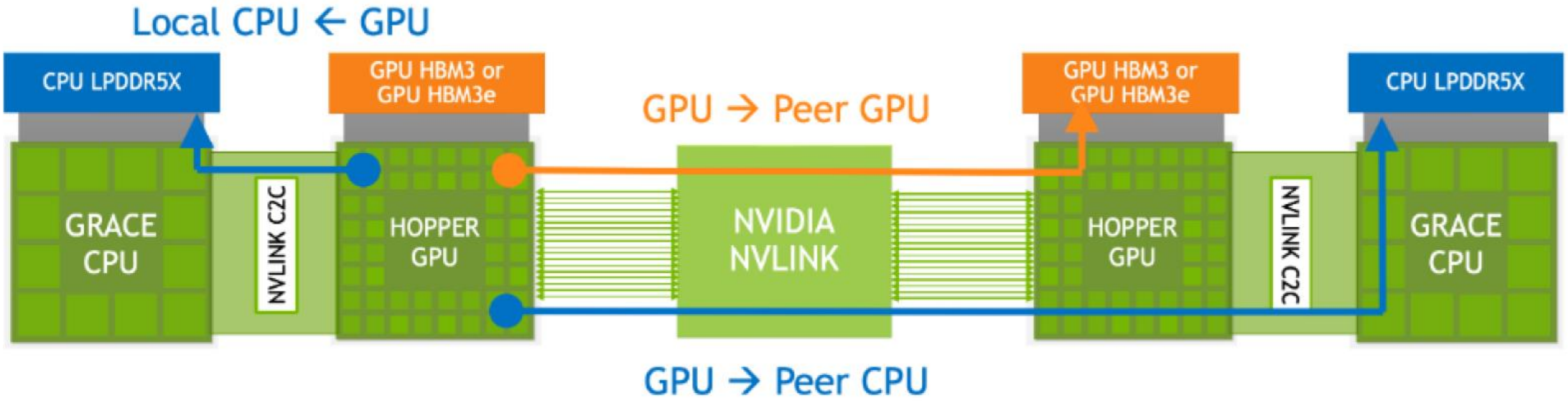
https://resources.nvidia.com/en-us-grace-cpu/nvidia-grace-hopper-2

NVIDIA GH200 Grace Hopper Superchip

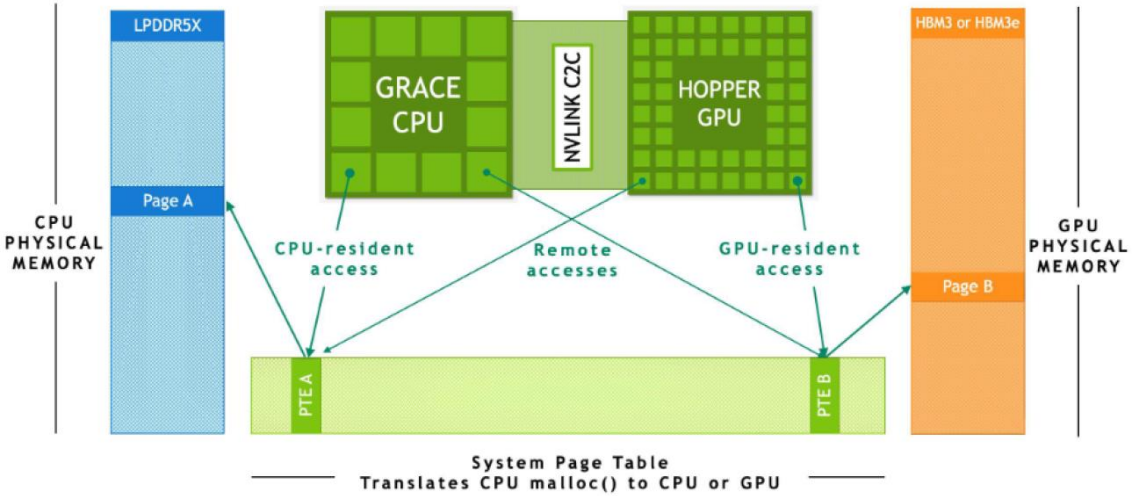


Source: https://resources.nvidia.com/en-us-grace-cpu/nvidia-grace-hopper

Accelerating AI Applications with Extended GPU Memory



The Extended GPU Memory (EGM) feature over the high-bandwidth NVLink-C2C enables GPUs to access all the system memory efficiently. EGM provides up to 19.5 TBs system memory in a multi-node NVSwitch-connected system.



Source: https://developer.nvidia.com/blog/nvidia-grace-hopper-superchip-architecture-in-depth/

NVIDIA GPU Family + Networking + Storage4AI

Grace (CPU) **B**lackwell (GPU)
Vera (CPU) **R**ubin (GPU)

	2021	2023	2024	2025	2026	
NVIDIA GPU	A100	H100	H200	B100	R100	Intel/AMD x86-64 (Training + Inf)
			GH200	GB100	VR100	ARM64 (Inference)
			GH200NVL	**GB200NVL**	VR200NVL	ARM64 (Training + Inference)
	GPU		L40S	B40	R40	Intel/AMD x86-64 (Inference)
NVIDIA Networking	Quantum		400G	800G	1600G	Infiniband (IB) Networking
	Spectrum-X		400G	800G	1600G	Ethernet Networking (RoCE)
IBM Storage	3500 NVMe	3500 Hybrid	3500 SED	3500 NDR/CX-7		IBM ESS Storage System https://www.ibm.com/downloads/cas/R0Q1DV1X
		6000 NVMe	6000 Hybrid	6000 FCM 4.0	6000 PerfPool	IBM Storage Scale System https://www.ibm.com/downloads/cas/JBVQYVXB

Datasheet

NVIDIA

NVIDIA Blackwell

The engine of the new industrial revolution.

Breaking Barriers in Accelerated Computing

The NVIDIA Blackwell architecture introduces groundbreaking advancements for generative AI and accelerated computing. The incorporation of the second-generation Transformer Engine, alongside the faster and wider NVIDIA NVLink™ interconnect, propels the data center into a new era, with orders of magnitude more performance compared to the previous architecture generation. Further advances in NVIDIA Confidential Computing technology raise the level of security for real-time LLM inference at scale without performance compromise. And Blackwell's new decompression engine combined with Spark RAPIDS™ libraries deliver unparalleled database performance to fuel data analytics applications. Blackwell's multiple advancements build upon generations of accelerated computing technologies to define the next chapter of generative AI with unparalleled performance, efficiency, and scale.

Key Offerings

- NVIDIA GB200 NVL72
- NVIDIA HGX B200

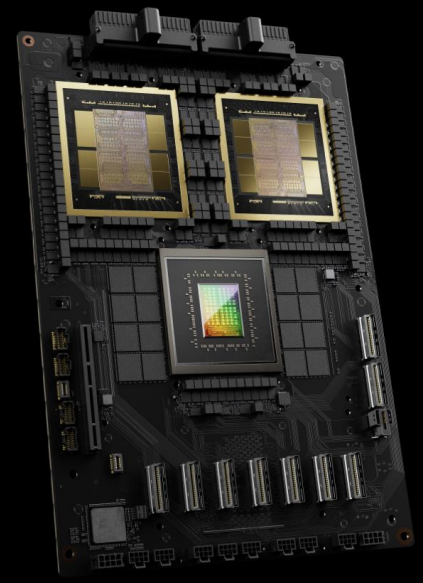
NVIDIA GB200 NVL72

Powering the New Era of Computing

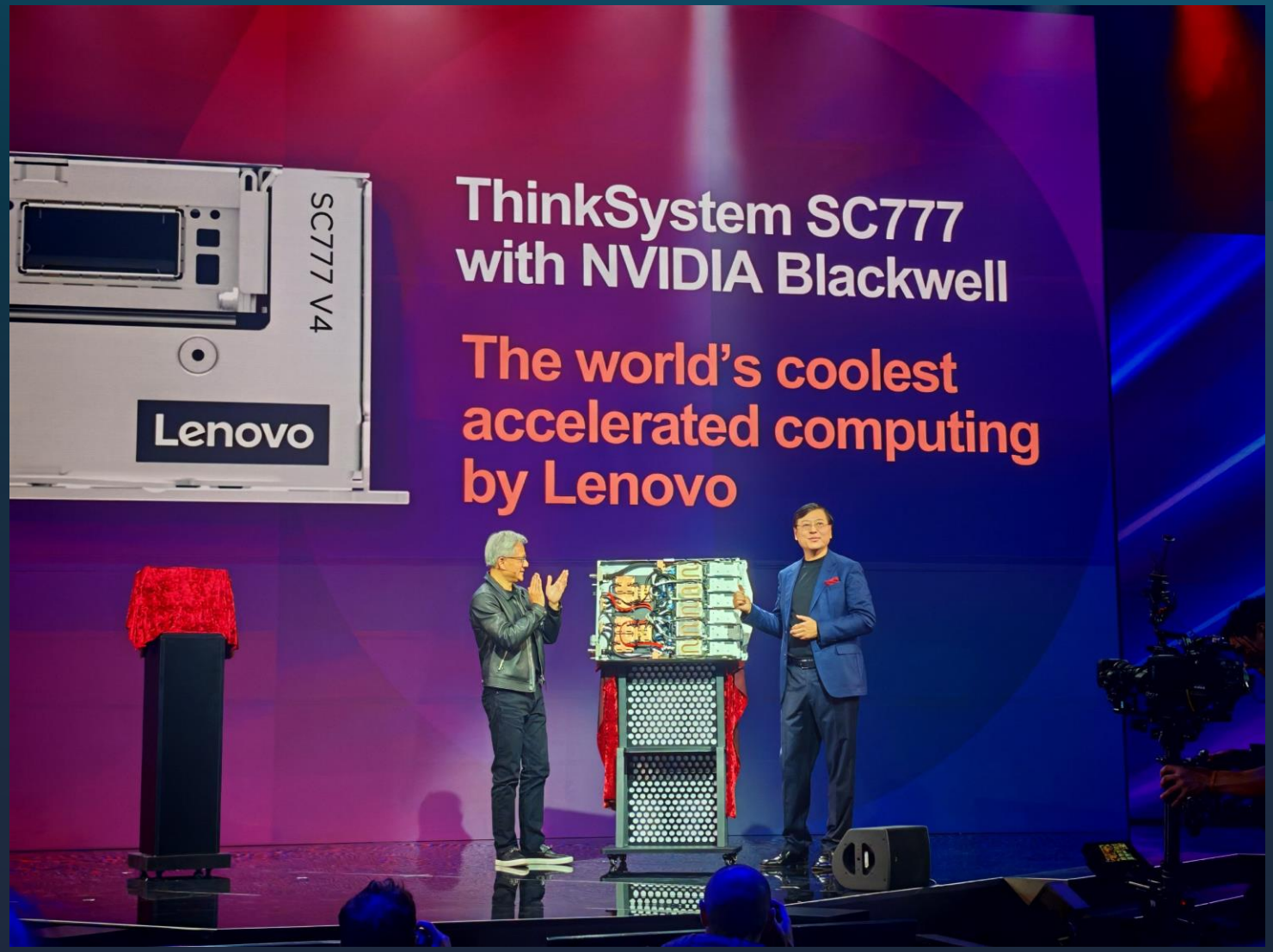
NVIDIA

NVIDIA Grace Blackwell GB200 Superchip Architecture

The NVIDIA GB200 NVL72 connects 36 GB200 Grace Blackwell Superchips with 36 Grace CPUs and 72 Blackwell GPUs in a rack-scale design. The GB200 NVL72 is a liquid-cooled solution with a 72-GPU NVLink domain that acts as a single massive GPU—delivering 30X faster real-time inference for trillion-parameter large language models.



NVIDIA GB200 Grace Blackwell Superchip



https://www.nvidia.com/en-us/data-center/gb200-nvl72/

CoreWeave Partners with **IBM** to Deliver New AI Supercomputer for IBM **Granite Models**

YORKTOWN HEIGHTS, N.Y. – **January 15, 2025** – CoreWeave, the AI Hyperscaler, today announced its plans to deliver one of the first NVIDIA GB200 Grace Blackwell Superchip-enabled AI supercomputers to IBM, equipped with **NVIDIA GB200 NVL72** systems, interconnected with NVIDIA Quantum-2 InfiniBand networking. IBM will use CoreWeave's highly performant, reliable, and resilient cloud platform to train the next generations of its Granite models, IBM's open source, enterprise-ready series of AI models that deliver state-of-the-art performance relative to model size while maximizing safety, speed, and cost-efficiency for enterprise use cases.

The supercomputer will leverage **IBM Storage Scale System 6000**, which is combined with NVMe flash technology to deliver high-performance storage for AI, data analytics, and other demanding workloads. As part of this agreement, CoreWeave customers can access the IBM Storage platform within CoreWeave's dedicated environments and AI cloud platform.

https://newsroom.ibm.com/2025-01-15-coreweave-partners-with-ibm-to-deliver-new-ai-supercomputer-for-ibm-granite-models
https://www.coreweave.com/blog/coreweave-becomes-the-first-cloud-provider-with-generally-available-nvidia-gb200-nvl72-instances

IBM Storage Scale System 6000
GPUDirect enabled NVMe Storage

Redpaper:

IBM Storage Scale System 6000 with NVIDIA DGX SuperPOD **Deployment Guide**

IBM Redbook REDP-5746-00

Authors: Chris Maestas, Ana Gabriela Iturbe Desentis, Phillip Gerrard, Kiran Ghag, Nikhil Khandelwal, Matthew Klos, John Lewars, Jesus Daniel Munoz Lopez, Roger E. Sanders, Sanjay Sudam, Lindsay Todd and Joanna Wong

https://www.redbooks.ibm.com/redpapers/pdfs/redp5746.pdf

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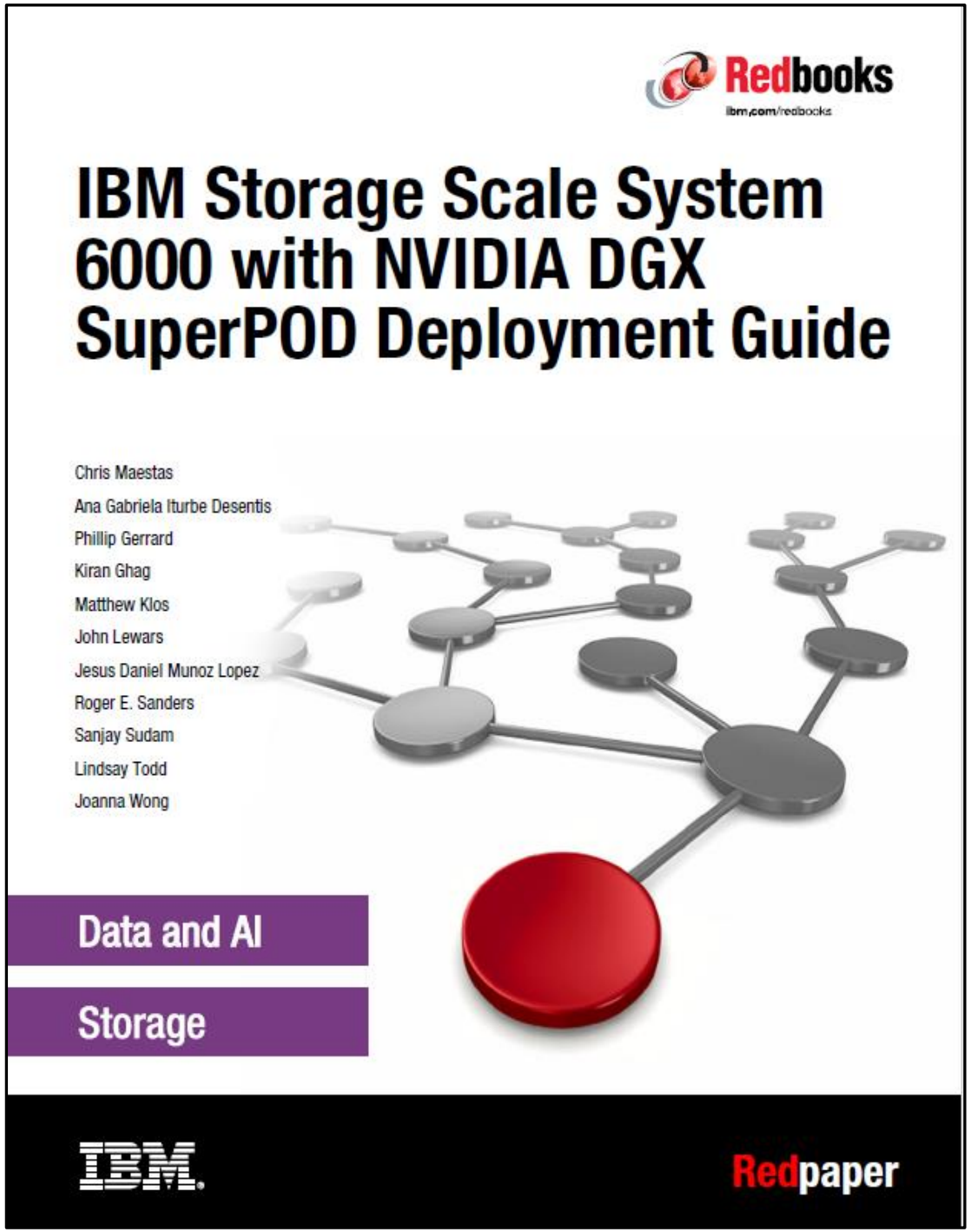


IBM Global Data Platform (GDP) for AI

https://www.ibm.com/downloads/cas/NO6AGVVK

- Data Access Services (DAS) with multi-protocol performance that connects directly to your file and object applications with multiple parallel paths.
- Data Caching or Core Services (AFM) that provide global connectivity from multiple data sources and multiple locations to bring together data from IBM and non-IBM storage environments.
- Data Management Services with policy automation that transparently helps mange the flow of data and take much of the complexity out of day-to-day data management.
- Data Security Services that provide cyber secure automation to ensure your data is protected and safe and quickly recoverable when needed.

IBM Storage Scale System is designed to optimize, secure and unlock AI data

Why IBM Storage for AI?

Reliability & Data Durability. Zero Data loss. Self-healing. Autonomic failure domains.

Data Security & Governance. Encryption. Regulatory compliance.

Scalability. On-demand horizontal scaling. Autonomic re-balancing. Non-disruptive. Tiering support.

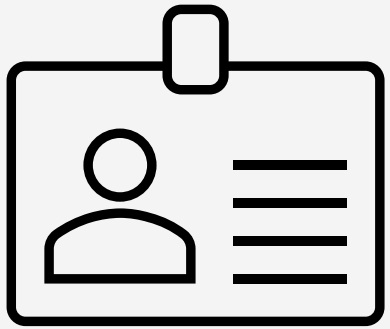
CapEx Efficiency. Runs on low-cost standard technology servers. NVMe and/or HDDs.

OpEx Efficiency. Easy deployment, upgrades and maintenance via Ansible automation.

Flexibility & Universal. Object, File, and Block access protocols.

Hybrid Cloud. Having seamless access to data on-prem and on-cloud providers.

Thank you



Frank Kraemer (IBM)
mailto:kraemerf@de.ibm.com

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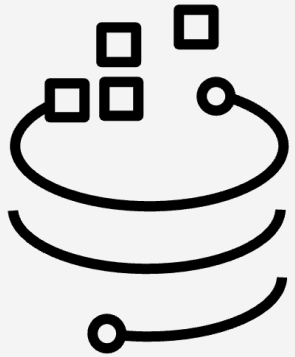
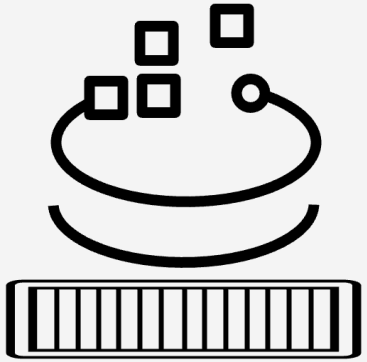


Storage Scale



Storage Scale System