

HPE Innovation Day

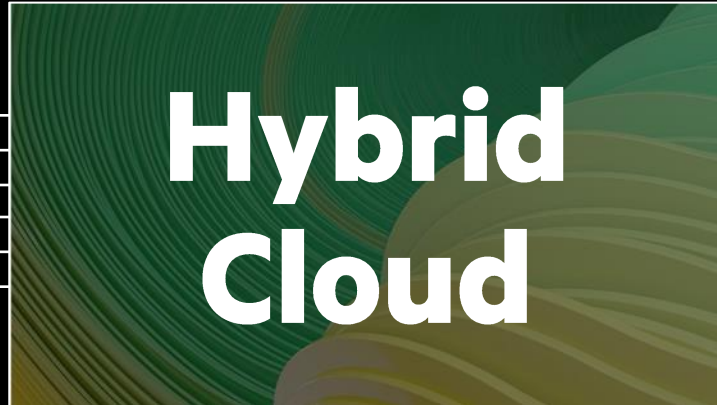
Data: the foundation in the world of AI

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HPE



Data | Sustainability | Security



TODAY'S REALITY



**IT environments
are more complex
than ever before**

**Competitive pressure
and business
demands are higher**

**Specialized skills
are more difficult to
acquire and retain**

**Security
threats are
more prevalent
and costly**

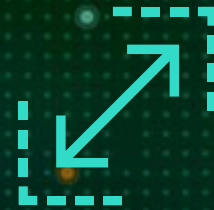
**Compliance
requirements are
more stringent**



Hybrid cloud by design



Cloud Experience
Everywhere



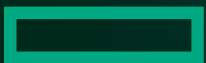
Agility &
Flexibility



Visibility &
Control



Simplified &
Automated



ENTERPRISE ORGANIZATIONS ARE LOOKING FOR A COMPETITIVE EDGE

Transaction Processing

Complete End-User transaction

Structured Data

BLOCK STORAGE

Creating Insights

Understand the End-User behavior

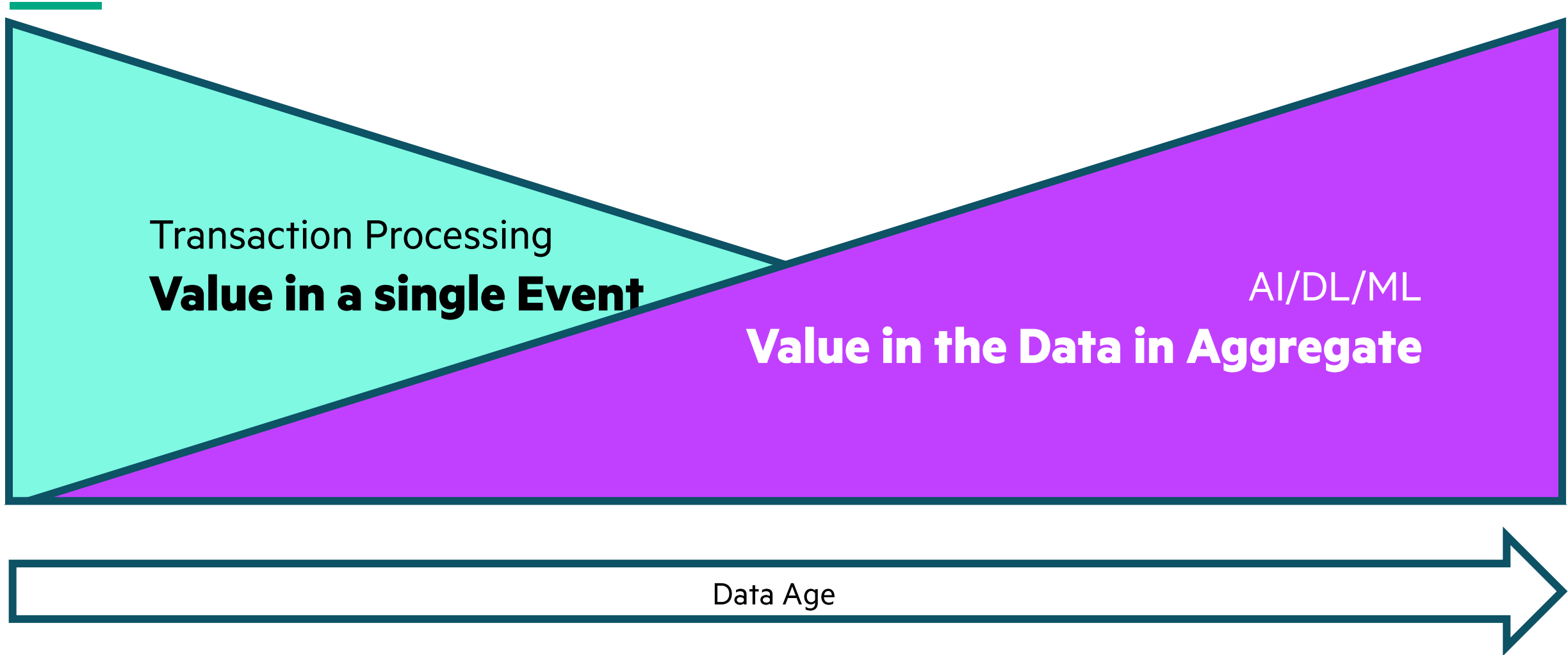
Unstructured Data

FILE & OBJECT STORAGE



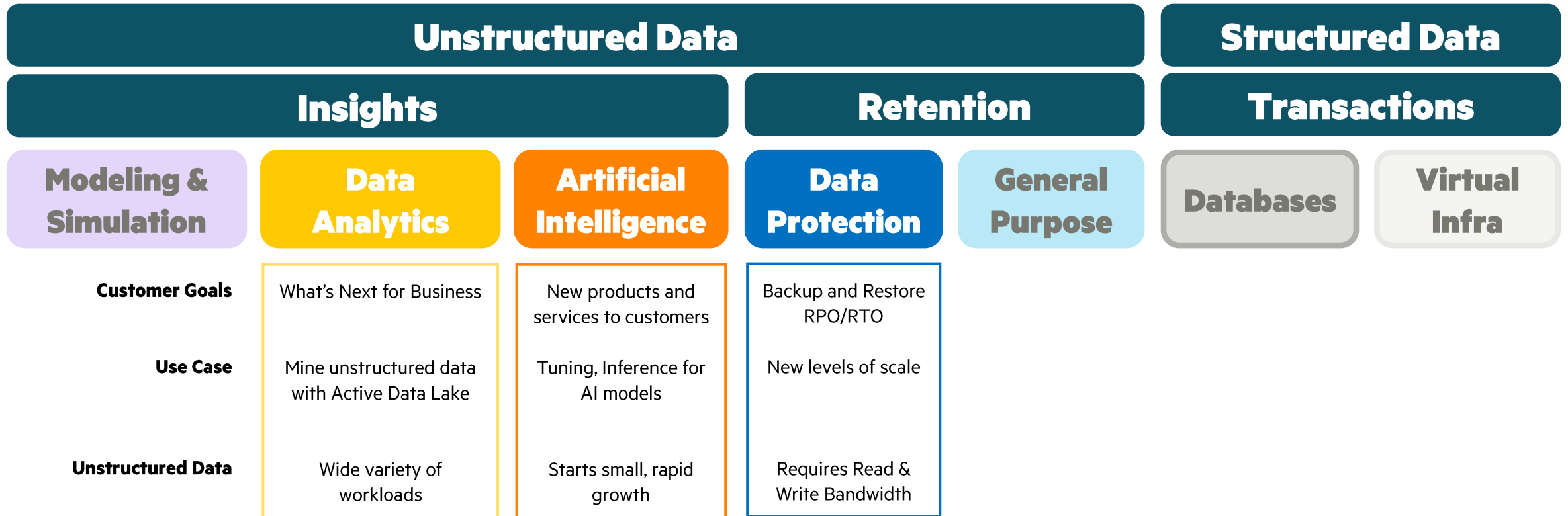
Data is the new Oil/Gold – make your data AI ready

Machine Learning dramatically changes the long-term value of data.

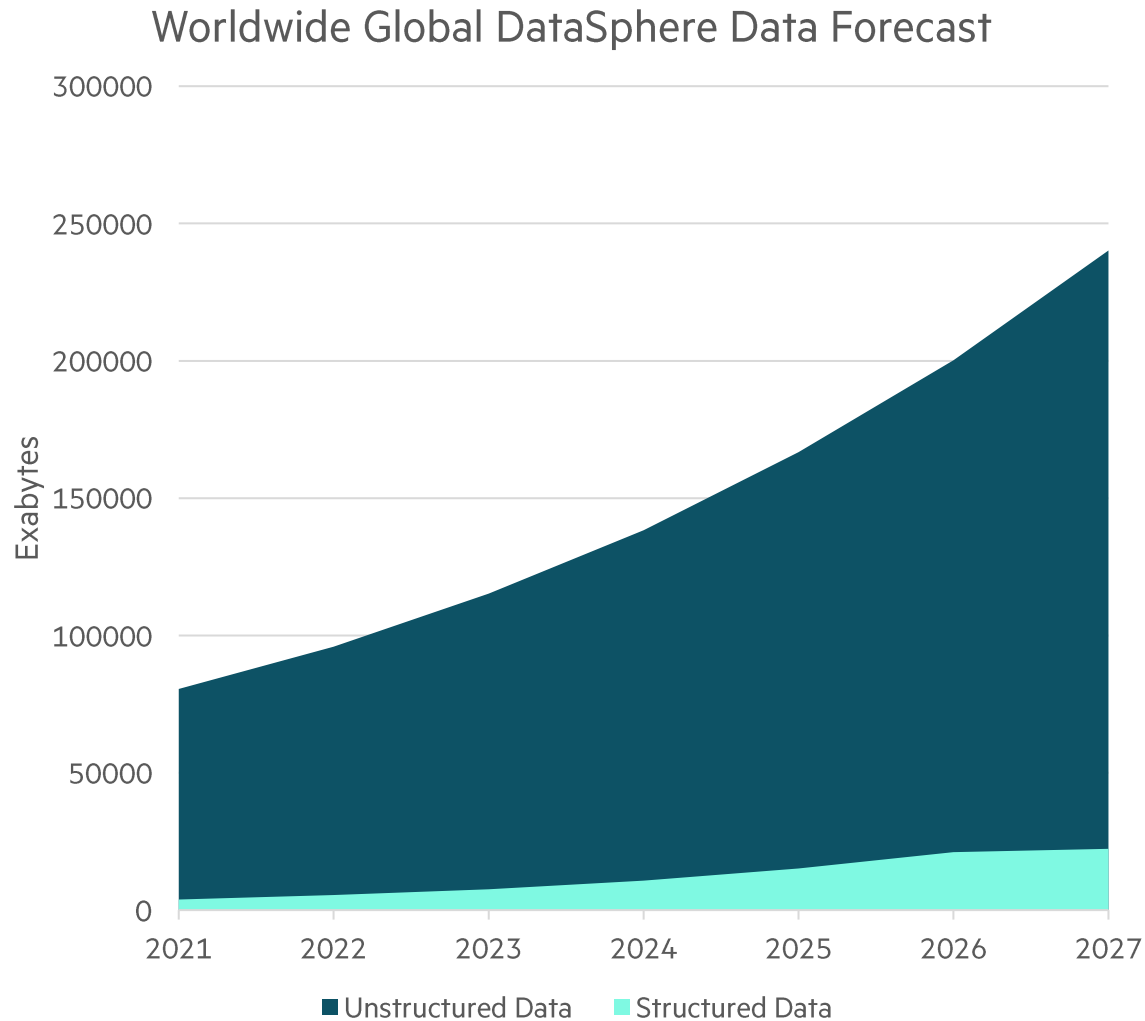


Customer Challenges

The future of business will be won by the organizations that can easily and effectively extract value from data.
This is driving investment in AI & Analytics.



Why Unstructured Data?



Customer Challenges with Unstructured Data

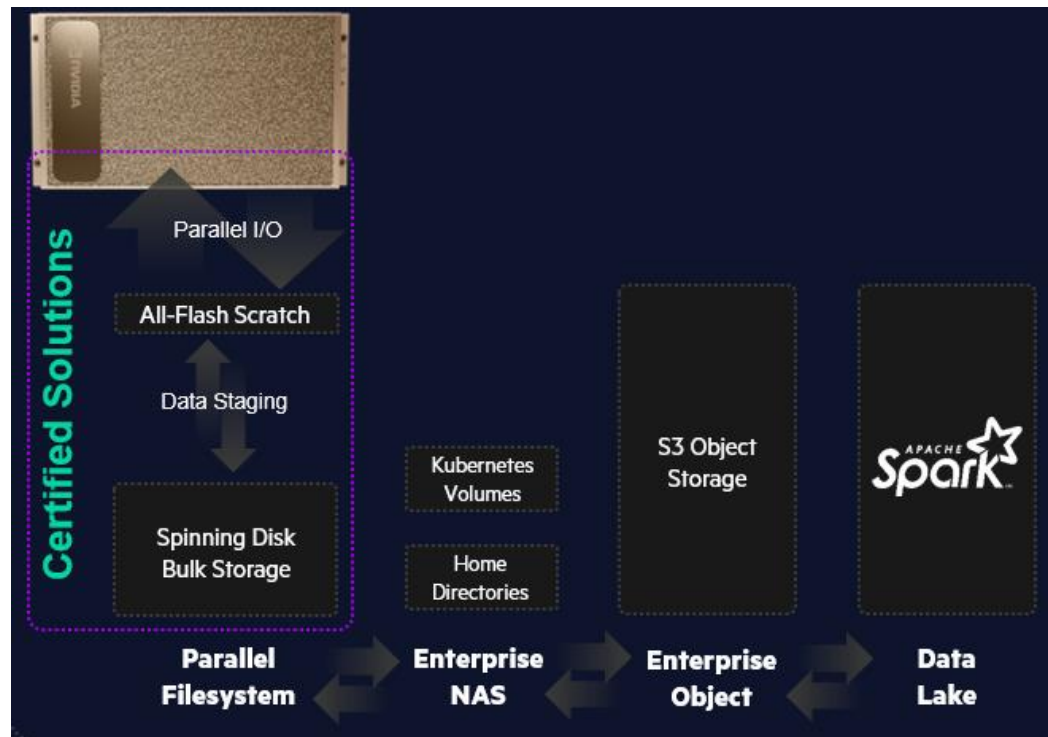
- **Volume:** Unstructured data growth is relentless, IDC estimates that by 2025 there will be 175 Zettabytes with 80% of that data as unstructured.
- **Velocity:** Data is widely distributed across edge, hybrid and public clouds, management, understanding locality and keeping this data secure, private, governed and available for users is increasingly difficult.
- **Variety:** Data is one of three types, structured, semi structured and unstructured, The key challenges with the latter two types of data is that it is not bound to the same rules as structured data. Customers are looking for new tools to better understand a wider variety of data.
- **Veracity:** Is the data trustworthy and accurate? Are you able to protect the data? Do you understand the lineage of the content and are you able to assess the risk against sensitive information within internal confidential data assets?

Traditional approach

Data in buckets

- S3 Object Storage
- Home Directories
- K8s Volumes

→ Staging & Scratch



Bring your data to AI



Better approach

Combine your data

- Data multi protocol available
- Secure
- Fast
- Efficient
- Easy
- At scale

Bring AI to your data



Wat zien we

- Data Centers → Centers of Data
- Verschuiving belangrijkheid van data
 - Nieuwste data → Oudere & nieuwe data
 - Omvang neemt toe
 - Data gravity – waar staat de data, waar wordt deze gemaakt en verwerkt
 - Data governance
 - Cyber dreiging neemt toe
- Verschuiving van type data
 - Gestructureerd → Ongestructureerd
- Uitdagingen
 - Hoe de data te gebruiken
 - Hoe de data veilig te stellen
 - Hoe de data te herstellen



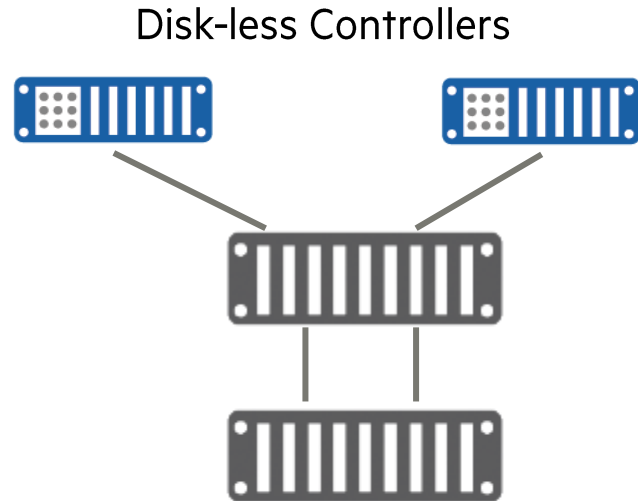
En verder

- Verschuiving naar S3 voor ongestructureerde data
 - Betere beveiliging
 - Eenvoudige schaling
- Ongestructureerd wordt sneller door nieuwe toepassingen:
 - Voorheen: backup, archief, home shares
 - Nu ook: AI, ML, meer BI, snelle recovery
 - AI/ML: Feed the beast (GPU-Direct; NFS; S3)
 - Cyber recovery: high-performance analyse & recovery
 - S3 – immutability & security
- Huidige oplossingen:
 - S3 Cheap & deep
 - File based – S3 bolt-on
 - Object based – File bolt-on
 - Traditionele architecturen

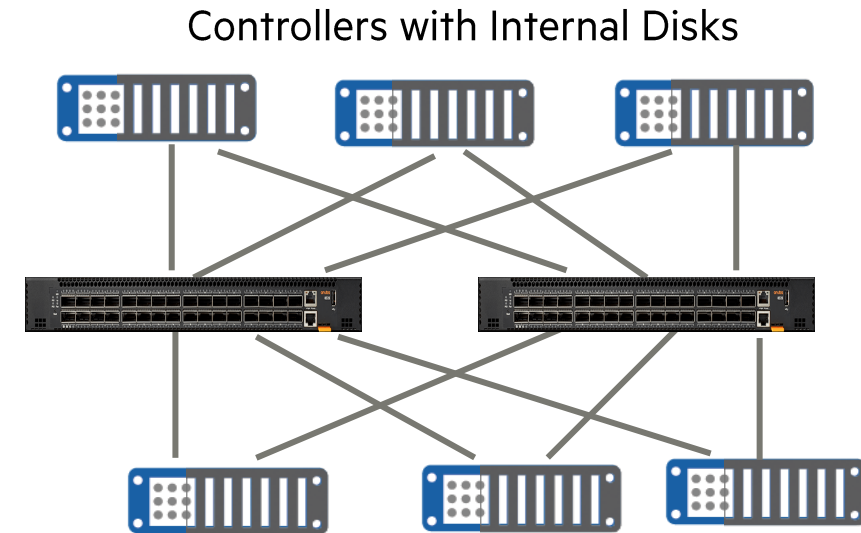


Conventional Storage Architectures

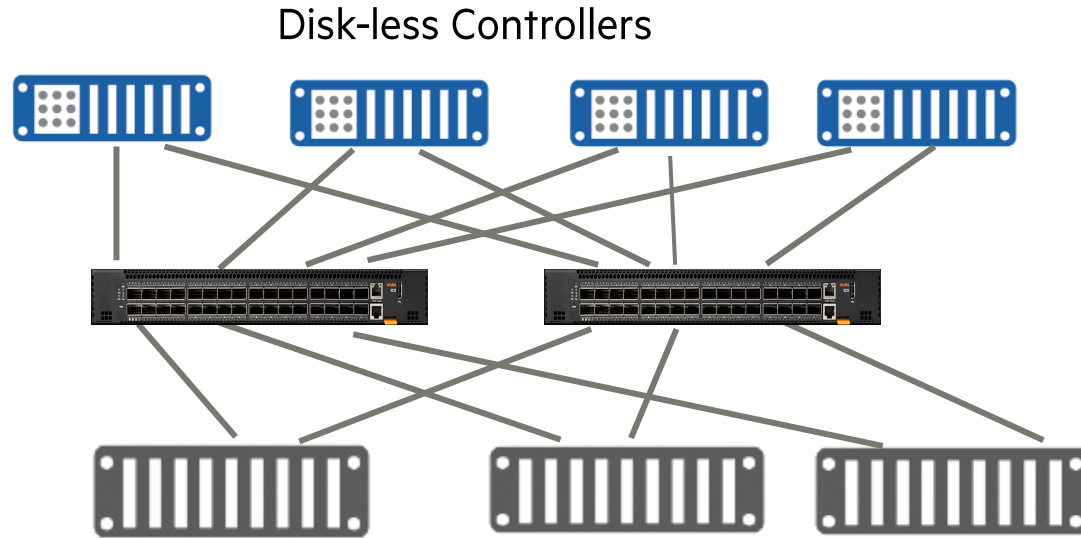
Dual-controller



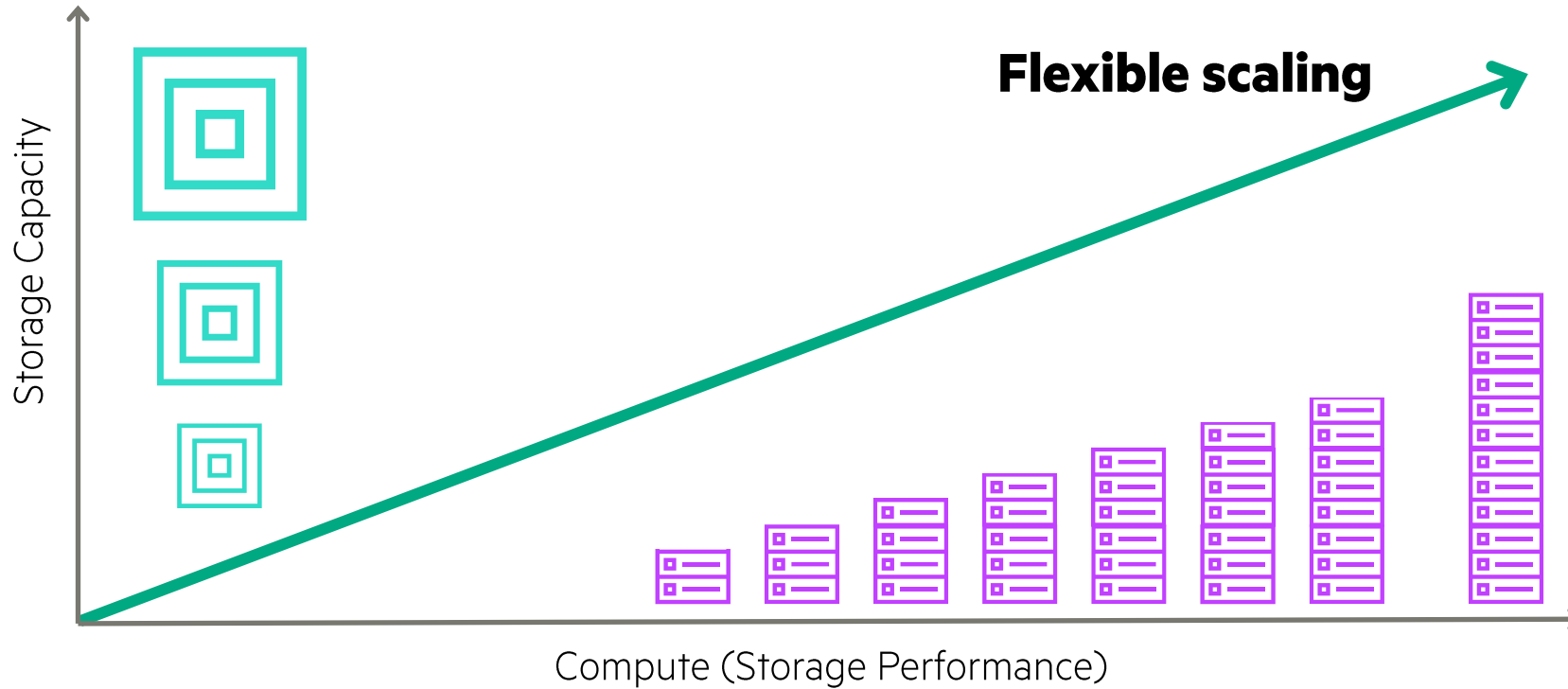
Shared-Nothing



HPE Alletra MP: Disaggregated Shared Everything Architecture



Independently scale performance and capacity

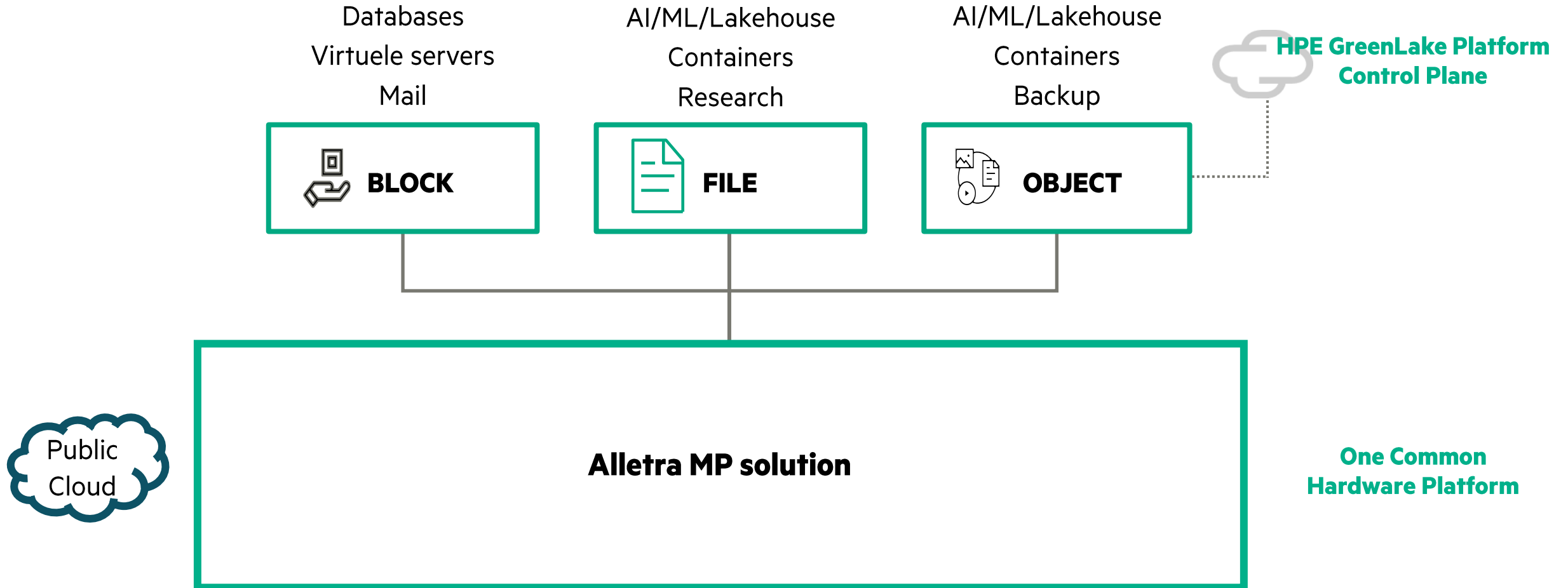


No overprovisioning

Add only what's needed

Upgrade transparently

The Future of HPE Storage – sinds midden 2023



Voordelen Disaggregated Shared Everything architectuur

- Schaal performance los van capaciteit
- Hoge performance densiteit
- Ultieme low latency – All NVMe & RDMA
- Stateless controllers – meerdere failures mogelijk
- Efficiënte opslag

- Generieke hardware bouwblokken – Alletra MP
 - Standaard componenten (CPUs, OCP Adapters, geen dedicated hardware)
 - Innovatie, schaal- en kostenvoordeel



Unified Management

The screenshot displays the HPE GreenLake Data Services Cloud Console. At the top left, the HPE GreenLake logo is shown next to the user identifier 'HPENL'. The navigation menu includes 'Home', 'Services', and 'Devices'. On the right side of the header, there are icons for a grid, help, and a document. Below the header, the page title 'Data Services Cloud Console' is displayed, accompanied by notification and user profile icons. The main content area features a large heading 'Welcome to Data Services Cloud Console' and a grid of eight service cards. Each card includes a title, a brief description, and a 'Launch' button. The services are: Data Ops Manager (simplify storage management), Block Storage (simple and easy to provision), File Storage (file-based storage), Object Service (simple and easy to provision), Disaster Recovery (recover in minutes), CloudPhysics (analyze data center infrastructure), Private Cloud Business Edition (global lifecycle management), and Private Cloud AI (turnkey AI private cloud). A vertical 'Send Feedback' button is located on the right edge of the console area.

HPE GreenLake HPENL ▾

Home Services Devices

Data Services Cloud Console

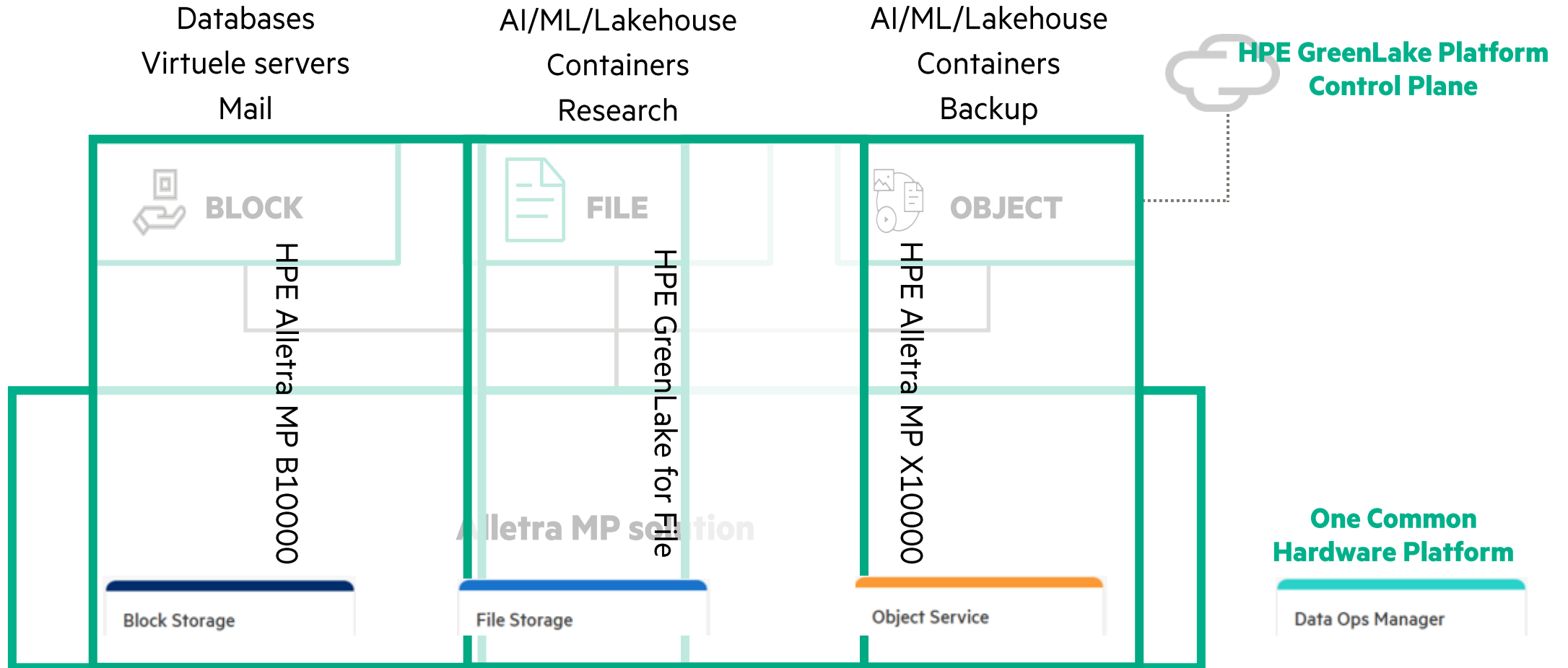
Welcome to Data Services Cloud Console

- Data Ops Manager**
Simplify storage management at scale with fleet-wide management and monitoring.
[Launch](#)
- Block Storage**
Simple and easy to provision, protect, and manage block storage that meets your application needs.
[Launch](#)
- File Storage**
File-based storage accessed through standard file serving protocols.
[Launch](#)
- Object Service**
Simple and easy to provision, protect, and manage object storage that meets your application needs.
[Launch](#)
- Disaster Recovery**
Recover in minutes to a point just seconds before with always-on replication for virtual machines.
[Launch](#)
- CloudPhysics**
Quickly analyzes your data center infrastructure to reveal cost and performance optimizations.
[Launch](#)
- Private Cloud Business Edition**
Global Lifecycle Management of infrastructure and virtualization resources.
[Launch](#)
- Private Cloud AI**
A turnkey AI private cloud, co-engineered with NVIDIA.
[Launch](#)

Send Feedback



The Future of HPE Storage – sinds midden 2023



Block & Object from small to large

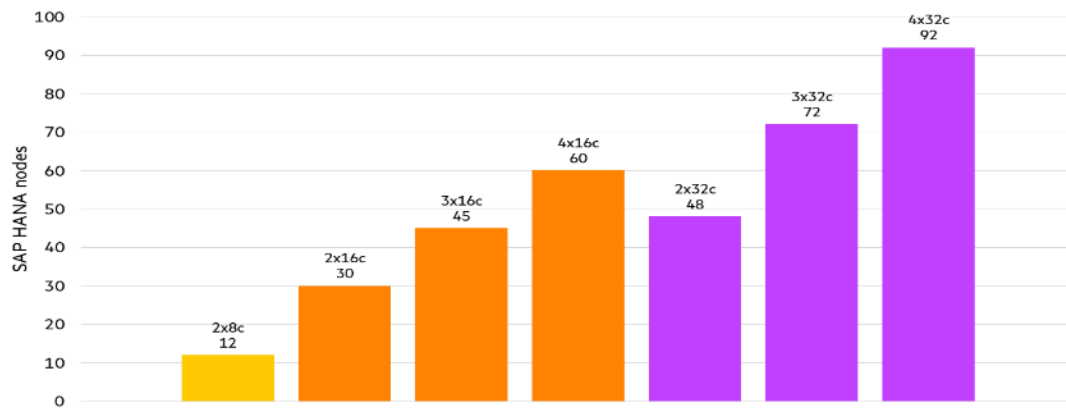
Alletra MP B10000 – Block

- Small
 - 2 node – switchless
 - 8TB – 1.7PB
- Large
 - 8 node – switched
 - 8TB – ~10PB

Alletra MP X10000 – Unstructured

- Small
 - 3 node – switched
 - 46TB – ~50PB
- Large
 - 32 node – switched
 - 46TB – ~50PB

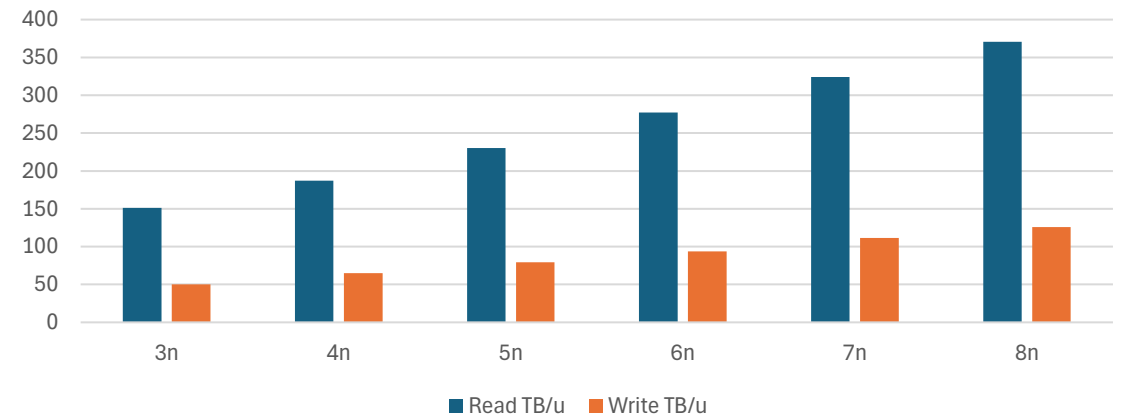
SAP HANA Certified Node Count per Array



<https://www.sap.com/dmc/exp/2014-09-02-hana-hardware/en/LN/#/solutions?filters=vdeCertifiedStorage>

Confidential | Authorized | 5

Performance R1



■ Read TB/u ■ Write TB/u

Use cases and workloads for unstructured data – MP X10000

ONE solution

for data-intensive workloads,
modern applications, and
data management at scale

HPE Alletra Storage MP X10000

High speed S3-compatible active data lakes

Rapid restore from backup

Storage performance sensitive
cloud native app development



EASING THE BURDEN ON IT

The right

SKILLS & RESOURCES

at the right time

Simplified, centralized

INSIGHTS

to effectively manage across
edge to cloud

An agile

AS-A-SERVICE

experience to accelerate the
digital agenda

SECURITY & COMPLIANCE

tools and expertise to
reduce risk

Thank you for joining **HPE Innovation Day!**

We value your feedback – would you please rate our event? →




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