DDN | The “Big” In Big Data

WOS INFINITE MEMORY ENGINE™

800%

Paypal accelerates stream processing and fraud analytics by 8x with DDN, saves $100Ms.

PayPal

1TB/s

The world’s fastest file system, to power the US’s fastest supercomputer, is powered by DDN.

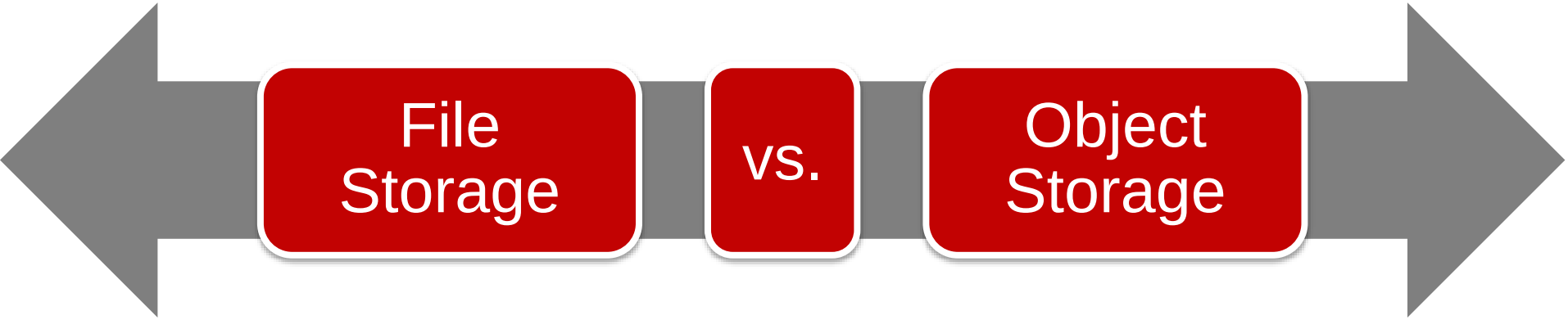
OAK RIDGE National Laboratory

Tier 1

Tier1 CDN accelerates the world’s video traffic using DDN technology to exceed customer SLAs.

Level (3)℠ COMMUNICATIONS

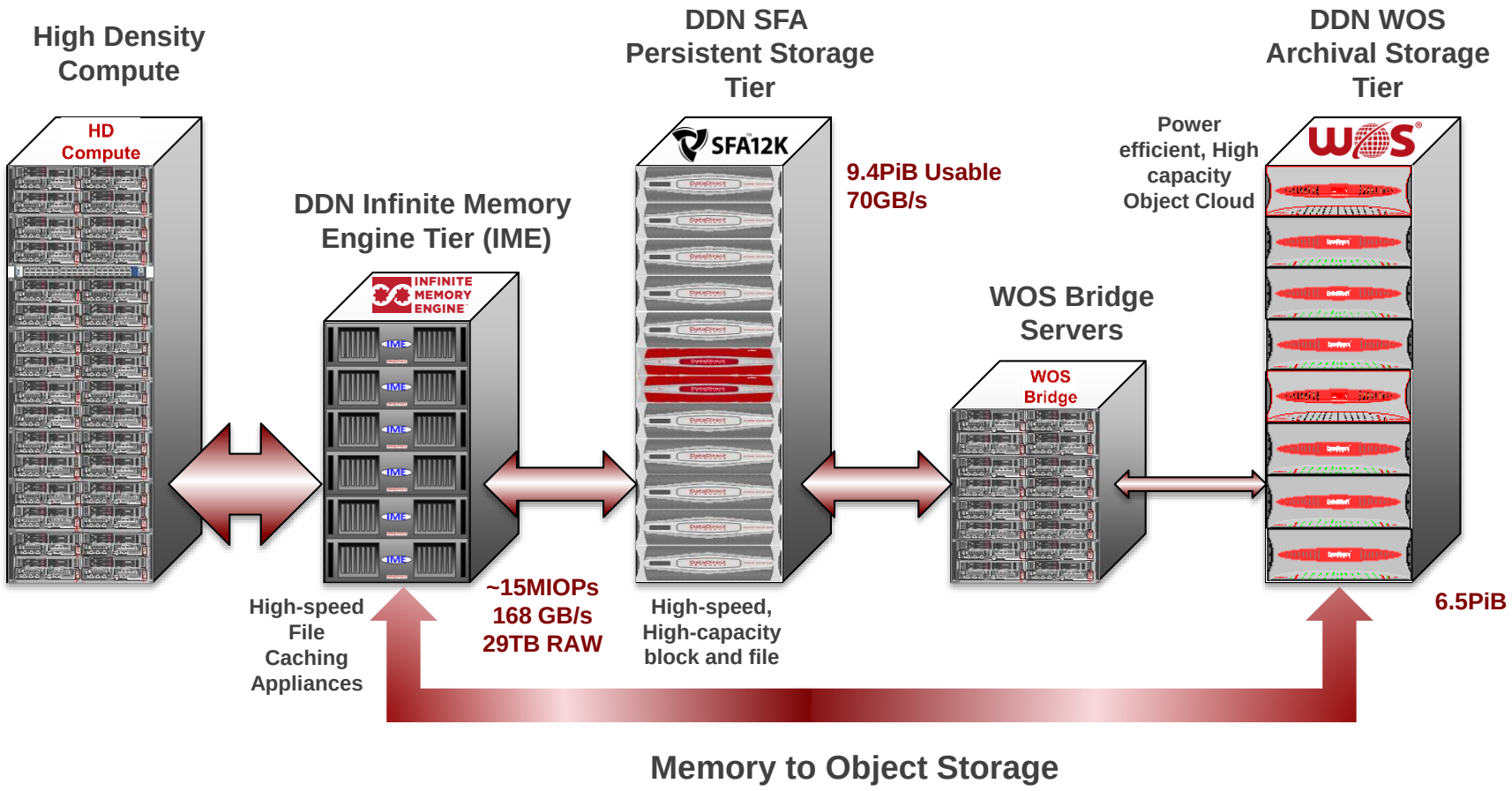
File vs. Object Storage



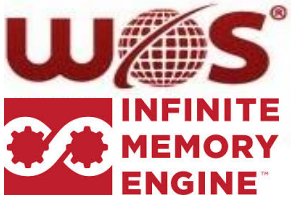
- Billions of Files
- Amendable Data
- Locking Mechanisms
- File System Hierarchy
- Complex to Scale
- **TCO increases exponentially**

- Trillions of Objects
- Immutable Data
- No Locking Mechanisms
- One Storage Pool, Object ID's
- Scales Uniformly & Simply
- **TCO decreases at scale**

Future Storage Vision



Typical HPC I/O Stack View

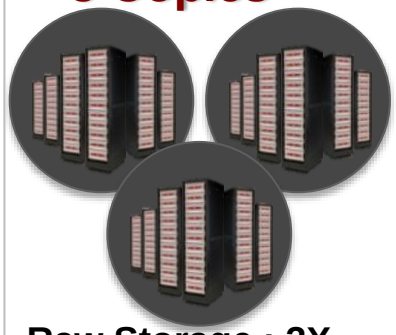


Application	Users of the I/O stack (scientific application, operating system shells, …) that dictate use cases (the programing, data, and execution models)
Application I/O Interfaces	POSIX, netCDF / PnetCDF, HDF5, MPI-IO
I/O Middleware	MPI, I/O Forwarding
Parallel File System	GPFS, Lustre, PVFS2
Block or Object Storage	SFA, S2A, WOS

WOS 360: Complete Choice of Protection Schemes

WOS INFINITE MEMORY ENGINE

3 Copies



Raw Storage : 3X

- Performance
- Efficiency
- Reliability
- Scalability

Use Case:

- Small files, low latency, high IOPS

Local Copy OA

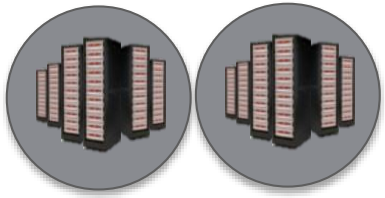
Raw Storage: 1.25X

- Performance
- Efficiency
- Reliability
- Scalability

Use Case:

- Low cost local centralized storage

Replicated OA



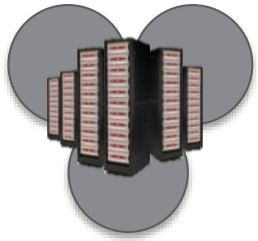
Raw Storage: 2.5X

- Performance
- Efficiency
- Reliability
- Scalability

Use Case:

- High throughput, streaming media, collaboration

Global OA



Raw Storage: <1.88X

- Performance
- Efficiency
- Reliability
- Scalability

Use Case:

- Archives

Packaging Models

Evolution or revolution?

Gateway

- Min 5 Metanodes
- Max 10 MN at first
- 2 WOS Core min

- More appropriate for large site and flexible setup
- Scale independently Capacity & Namespace

Embedded

- Min 3 WOS7000 Chassis
- All in one (S3+Core)

- More appropriate for simplicity and small to medium side.
- Scale NS and Capacity linearly

Software

- RPM based
- Linux/Intel Chassis
- Minimum of 10 drives.

- No More Appliance

Still under development, subject to change
Representation is simplified