IME® Infinite Memory Engine
HPC Burst Buffer & Application Accelerator

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Even Building the World’s Fastest PFS . . .
Will NOT Fix These I/O Challenges

PFS Locking

Storage Latency

Fragmented I/O Patterns

Out of Core Data

PFS are not designed for today’s mixed I/O & ensembles
HDD seek times & network traversing add latency
Mal-aligned apps slow down the PFS & entire cluster
Many datasets are too big for expensive DRAM

No matter how many HDDs you add to a PFS, you can’t break I/O bottlenecks without a burst buffer
IME: A Burst Buffer & Way, Way, Way Beyond

Cache is only the beginning. Right out of the box, IME does so much more . . .

- **BURST BUFFER**
  - Most cost & space efficient way to provision peak performance

- **DRAM EXTENDER**
  - No dataset is too big with TBs or even PBs of fast, cost efficient NVMe

- **APP OPTIMIZER**
  - Dynamically aligns mal-formed I/O into striped writes without code mods

- **PFS ACCELERATOR**
  - Finally breaks POSIX locking bottleneck with instant open/close
IME - The New I/O Acceleration Architecture

An active I/O tier, inserted between compute and PFS

DDN IME software virtualizes NVMe SSDs into a single pool of shared memory that accelerates I/O, PFS & Applications.
The Next I/O Provisioning Revolution:
DDN Decouples Physical Storage from Compute Resources!

BEFORE

EVERTHING IS OVERPROVISIONED

Too Many:
COMPUTE NODES
DISKS,
NETWORKING
NODES, ARRAYS,
ADMIN, H/W

AFTER

A LOT MORE SPEED TO THE APPLICATION & A LOT LESS COMPONENTS

Much Fewer:
COMPUTE NODES
DISKS,
NETWORKING
NODES, ARRAYS,
ADMIN, H/W
Thank You!

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