The HDF Group

ILLINOIS INSTITUTE OF TECHNOLOGY

Wednesday, June 1st 2022

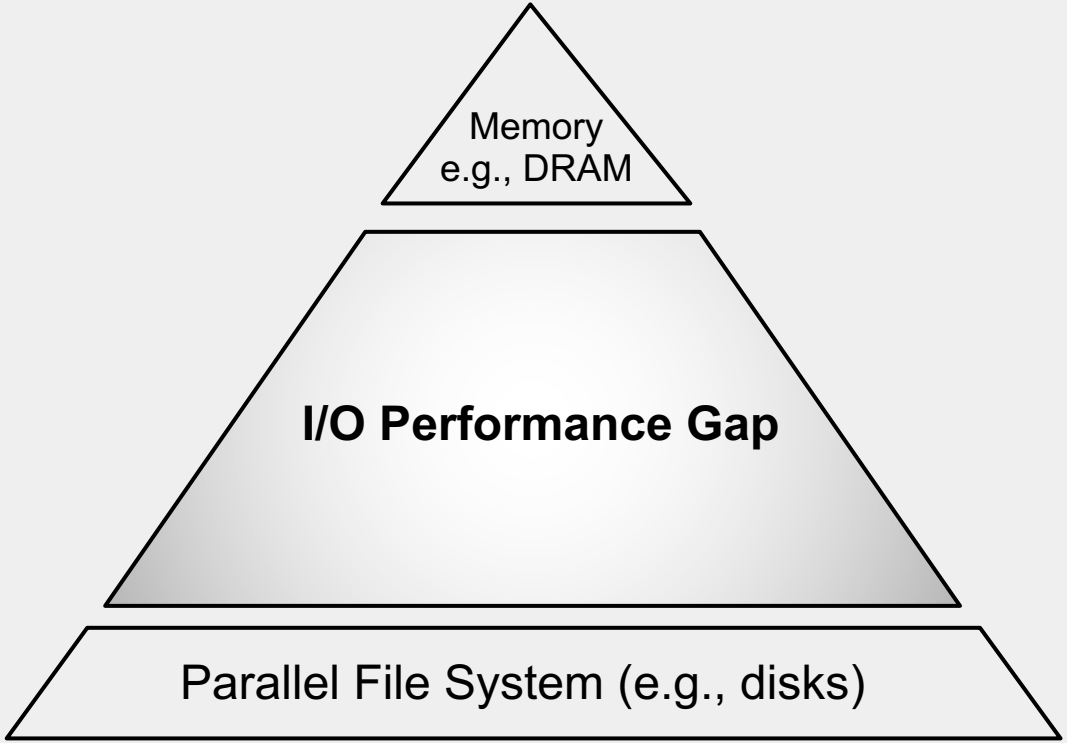
Lightning Talk

Agenda

- A motivating example
- Hermes overview
- Roadmap

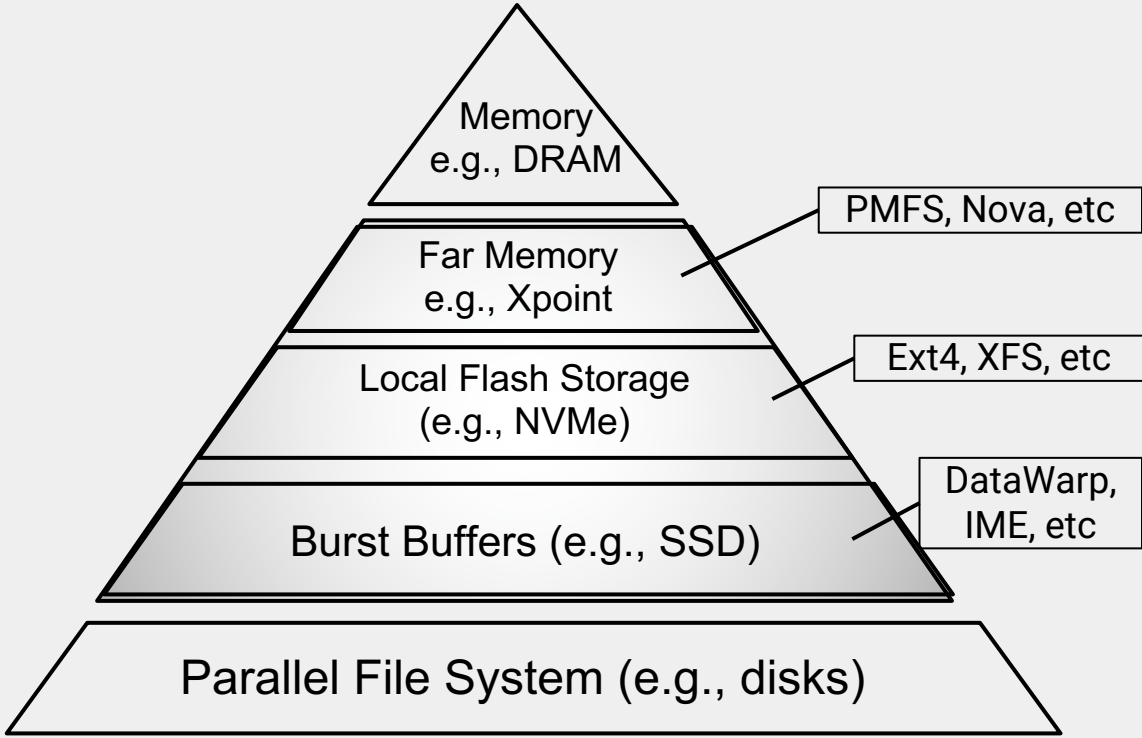
Example

- Write once workload
  - Compute phase
  - Slow I/O phase



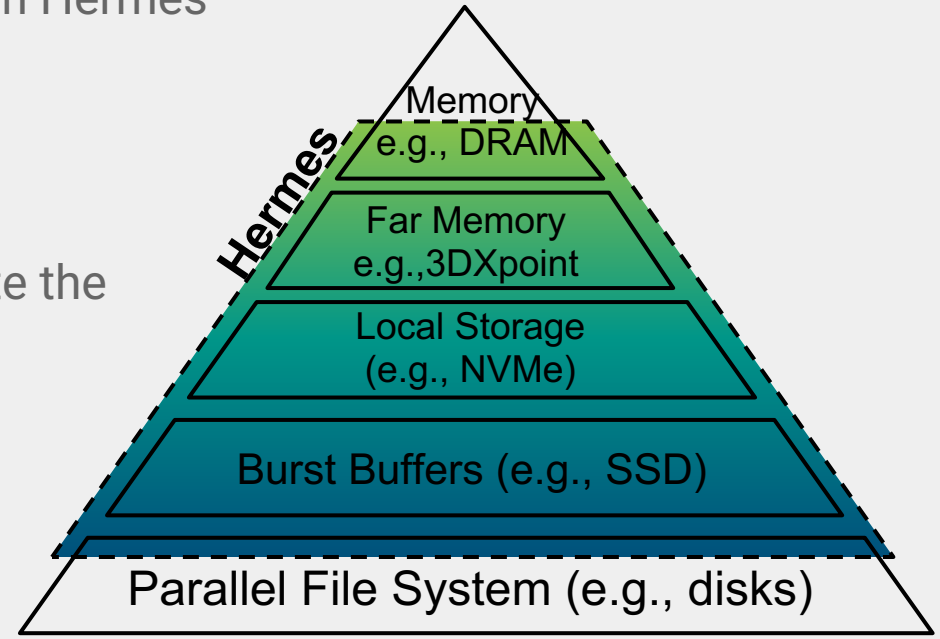
The Problem

- Ideal solution: write to fast media and async flush to PFS
- Must rewrite app
  - Have to update it every time new hardware is added.
- The presence of multiple tiers of storage should be transparent to applications.



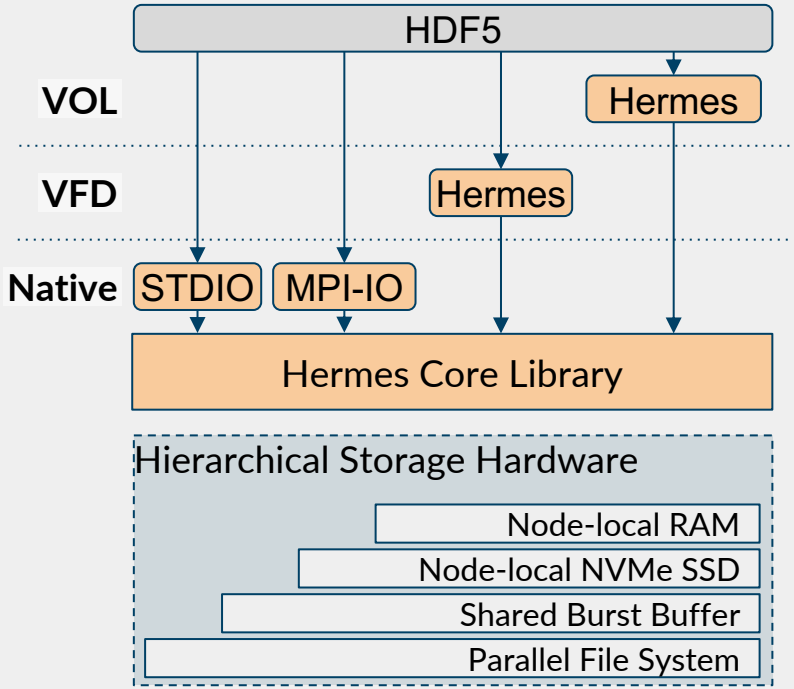
Solution

- Two steps to run an existing app with Hermes
  - LD_PRELOAD a Hermes “adapter” library
  - Write a Hermes configuration file
- Set HERMES_WRITE_ONLY=1
  - Async I/O
- When new hardware is added, update the configuration file.



Hermes Adapter Layer

- Hermes Adapters
  - STDIO
  - POSIX
  - MPI-IO (MPICH only)
  - Hermes HDF5 VFD
  - Hermes HDF5 VOL (coming soon)



Hermes C++ API

- Write new code with complete control of hierarchical buffering.
- Can add and remove hardware resources by changing the configuration file.
- Simple API
  - Put
  - Get
  - Delete

Roadmap

- Currently in Beta.
- Monthly release schedule
  - Alternating bug-fix releases with feature releases
- Feature complete this month.
- Applications and scalability testing over the Summer.
- Version 1.0 in October.
- Github repo: https://github.com/HDFGroup/hermes
- Getting started guide: https://github.com/HDFGroup/hermes/wiki/1.-Getting-Started

Multi-Tiered
Distributed I/O
Buffering System

Learn more
tinyurl.com/hermes-buffering

https://github.com/HDFGroup/hermes

Thank you.

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