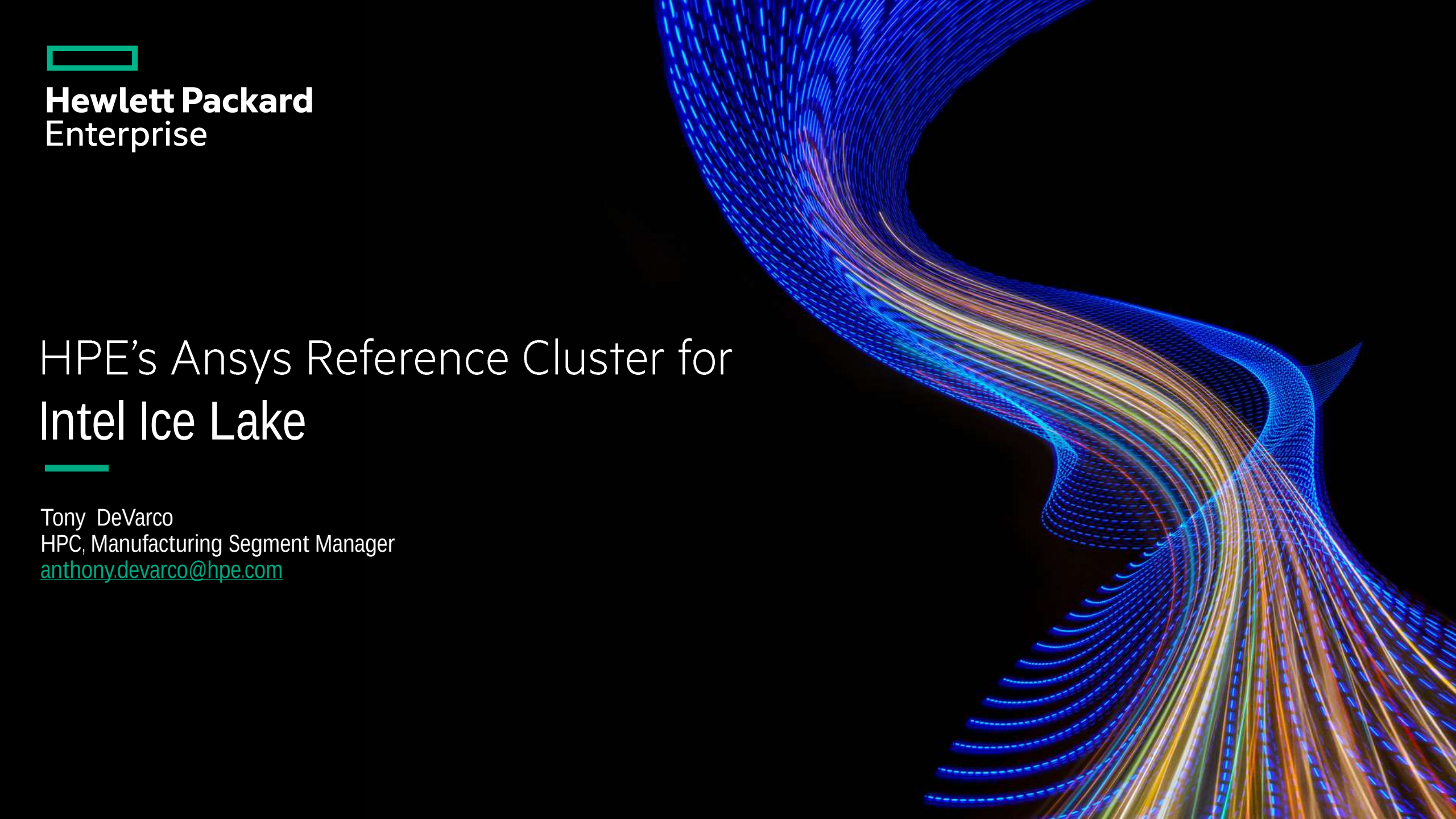


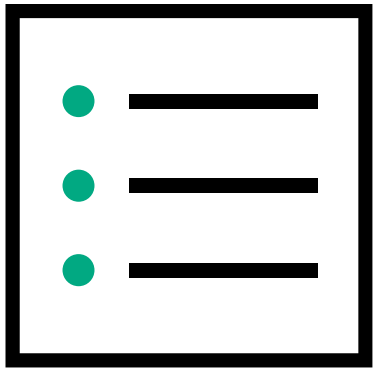
Hewlett Packard Enterprise

HPE's Ansys Reference Cluster for Intel Ice Lake

Tony DeVarco
HPC, Manufacturing Segment Manager
anthony.devarco@hpe.com

CONTENT

- HPE's ANSYS Reference Cluster (Intel ICE LAKE)
- HPE Parallel File System Storage for scale-out of the clusters



ANSYS FLUENT/CFX/LS-DYNA: HPE APOLLO 2000 GEN10 STARTER CLUSTER (INTEL)

Server Options:

- Either 1 ProLiant DL360 Gen10 head node (external) or a single XL170r (within the Apollo 2000 chassis)
- 2-4 ProLiant XL170r Gen10 1U compute servers

Apollo 2000 Gen10 chassis

- Processors: 64 cores per compute node using the Intel® Xeon® Platinum 8358 2.6 GHz processors
- Up to 256 cores with four compute nodes using the Intel Xeon Platinum 8358
- Local scratch one 480GB NVME SSD drive
- 1 x HDR100 HCA
- HPE iLO Advanced
- 2x 3000W Hot Plug Power Supply

Memory for the Cluster

- Compute nodes: 512GB
- Head node 128GB

Cluster Interconnect:

- 10Gigabit Ethernet or InfiniBand (jobs scaling greater than two nodes HDR InfiniBand is recommended)

Operating Environment:

- RedHat Enterprise Linux 7.9 or above
- SUSE Linux Enterprise Linux 12 SP4 or above
- Windows Server 2019 (or 2019 for latest version)

Ansys Workloads:

- Suited for Fluent up to ~260M cells
- Suited for CFX up to 74M to 260M nodes

HPE Apollo 2000 Gen10 Plus System front view with multiple storage options

HPE Apollo 2000 Gen10 Plus System real view with up to 4 hot-pluggable dual-processor servers per chassis for maximum density and flexibility

NOTE: All memory channels need to be filled and be filled with equal amounts of RAM. If not, you could see up to a 40% decrease in performance. Please file an ANSYS service request to help refine your configuration workflow before making a purchase.

Apollo 2000 Gen10 Plus system QuickSpecs

ANSYS MECHANICAL: HPE APOLLO 2000 GEN10 STARTER CLUSTER (INTEL)

Server Options:

- Either 1 ProLiant DL360 Gen10 head node (external) or a single XL170r (within the Apollo 2000 chassis)
- 2-4 ProLiant XL170r Gen10 1U compute servers

Apollo 2000 Gen10 chassis

- Processors: 64 cores per compute node using the Intel® Xeon® Platinum 8358 2.6 GHz processors
- Up to 256 cores with four compute nodes using the Intel Xeon Platinum 8358
- 2 RAID0 1TB NVME write intensive SSD drives for local scratch
- 1 x HDR100 HCA
- HPE iLO Advanced
- 2x 3000W Hot Plug Power Supply

HPE Apollo 2000 Gen10 Plus System front view with multiple storage options

HPE Apollo 2000 Gen10 Plus System rear view with up to 4 hot-pluggable dual-processor servers per chassis for maximum density and flexibility

Memory for the Cluster

- Compute nodes: 1,024GB
- Head node 128GB

Cluster Interconnect:

- 10Gigabit Ethernet or InfiniBand (jobs scaling greater than two nodes HDR InfiniBand is recommended)

Operating Environment:

- RedHat Enterprise Linux 7.9 or above
- SUSE Linux Enterprise Linux 12 SP4 or above
- Windows Server 2019 (or 2019 for latest version)

Ansys Workloads:

- Suited for Mechanical up to 80M to 550M DOF depending on solver used

NOTE: All memory channels need to be filled and be filled with equal amounts of RAM. If not, you could see up to a 40% decrease in performance. Please file an ANSYS service request to help refine your configuration workflow before making a purchase.

Apollo 2000 Gen10 Plus system QuickSpecs

ANSYS PLATFORM AND LINUX OS SUPPORT ICE LAKE

Intel:

- Intel Ice Lake is supported on RHEL 7.9 and above or SUSE 12 SP5 and above

*https://www.ansys.com/content/dam/it-solutions/platform-support/ansys-platform-support-strategy-plans-june-2021.pdf

HPE PARALLEL FILE SYSTEM STORAGE FOR LARGER AMD OR INTEL CLUSTERS

If your HPE cluster to run Ansys solvers scales beyond a couple Apollo 2000 Gen 10 Chassis, you will want to consider a shared parallel storage system from HPE starting at below $50K including 3 year support for hardware and software.

Highlights

- HPE Parallel File System Storage is the first & only HPC/AI storage system that embeds the leading parallel file system in the enterprise – IBM Spectrum Scale (Formally Know As: GPFS) – without capacity-based licensing.
- We have a unique licensing model for the file system that enables us to "bake" the software license for the file system into the hardware of the HPE ProLiant DL325 Gen10 Plus-based storage servers.
- It allows you to build a shared external file system for your Ansys cluster with as little as 12 storage drives (NVMe SSD or SAS HDD) in 4 rack units – scaling up to 2,048 drives in 128 rack units

Minimum starter configuration

Functionality

Multi-protocol scalable file service with simultaneous access to a common set of data (POSIX, NFS, SMB, Object, HDFS, S3)
Facilitate data access with a global namespace, massively scalable file system, quotas and snapshots, data integrity and availability, and filesets
Simplify management with GUI
Improved efficiency with QoS and compression
Create optimized tiered storage pools based on performance, locality, or cost
Simplify data management with Information Lifecycle Management (ILM) tools that include policy-based data placement and migration
Enable worldwide data access using Active File Management (AFM) asynchronous replication
Asynchronous multi-site Disaster Recovery
Transparent Cloud Tiering (TCT)
Protect data with native software encryption and secure erase, NIST compliant and FIPS certified
File audit logging for compliance
Watch folder for monitoring folders, filesets, and inode spaces for file accesses

HPE Parallel File System Storage QuickSpecs