



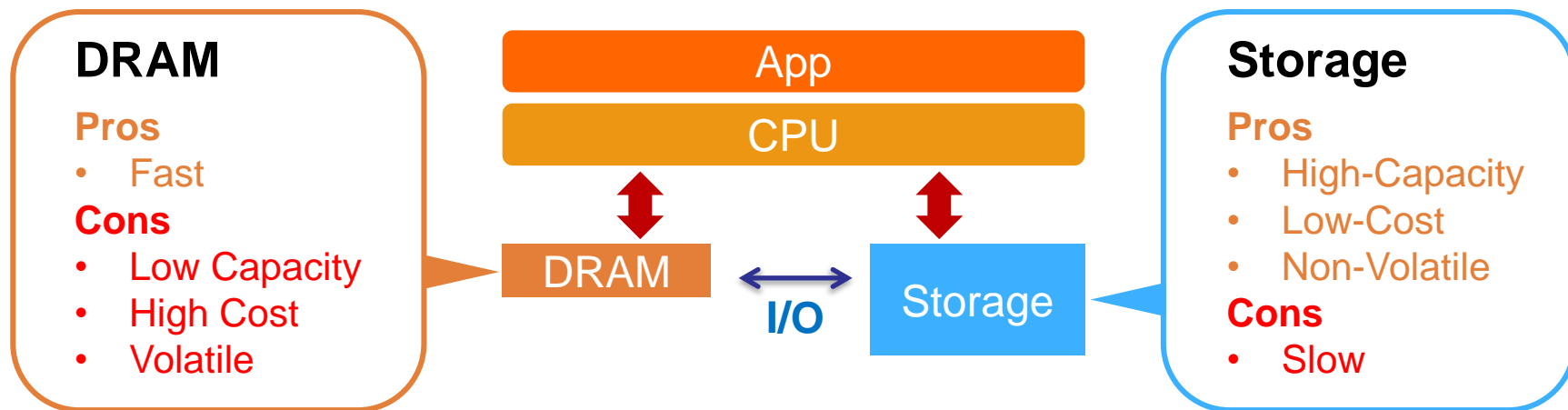
Introducing Big Memory

Charles Fan
Co-founder & CEO
MemVerge



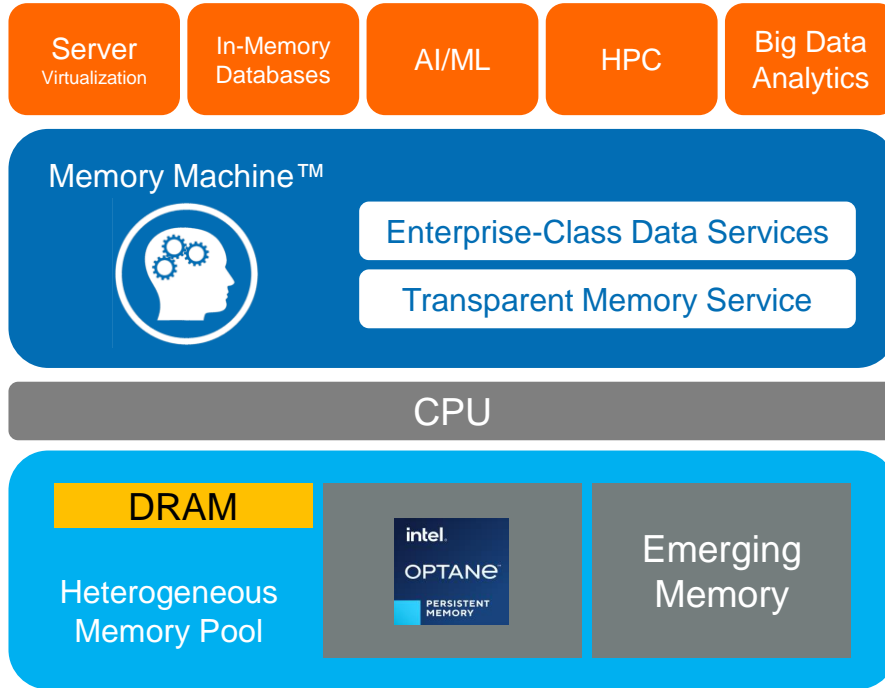
The Memory-Storage Dichotomy: A Fundamental Bottleneck

Apps Run in DRAM



Memory Machine™

Big Memory without Compromises



Higher Performance

- Elimination of Storage I/O
- Solves Data-Greater-than-Memory Problem

Lower Cost

- Higher Consolidation Ratio
- DRAM-like Performance

Persistence On-demand

- ZeroIO™ In-Memory Snapshot
- Higher Productivity
- Higher Availability

No Application Change!

Top 3 Use Cases Today

Cloud
Infrastructure



Databases

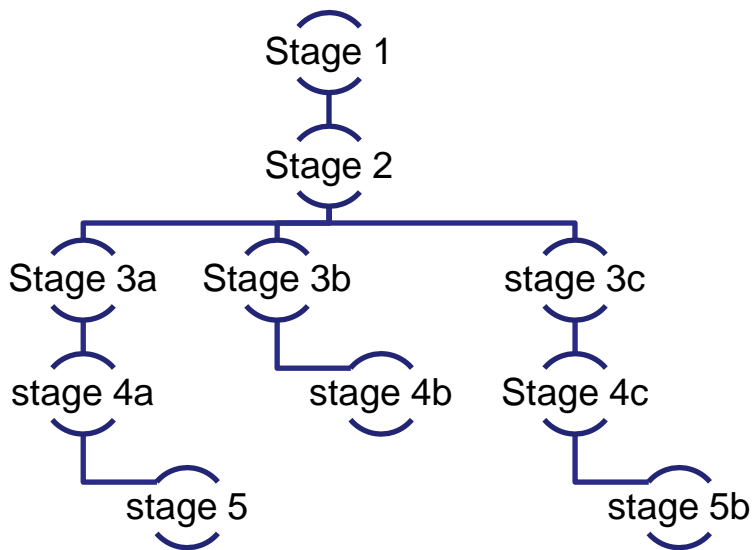


Genomics



Genomics

Single Cell RNA Sequencing extensively used in COVID-related research. For example: Ren et. al.: "COVID-19 immune features revealed by a large-scale single cell transcriptome atlas", Cell, Feb 3, 2021



Workload Attributes

- Large datasets
- Multi-stage pipeline
- Requires frequent checkpoints of intermediary stage results
- Frequent Rollbacks to tune parameters
- Branching to support what-if analyses

Pain Points

- Checkpoint to disk and rollback extremely time-consuming
- Data loss risk
- Computation memory intensive

Big Memory for HPC Workbench

Big Memory Solution

Accelerating Time-to-Discovery for Genomic Research
Turn-key | Enables largest memory footprint | 2x pipeline throughput

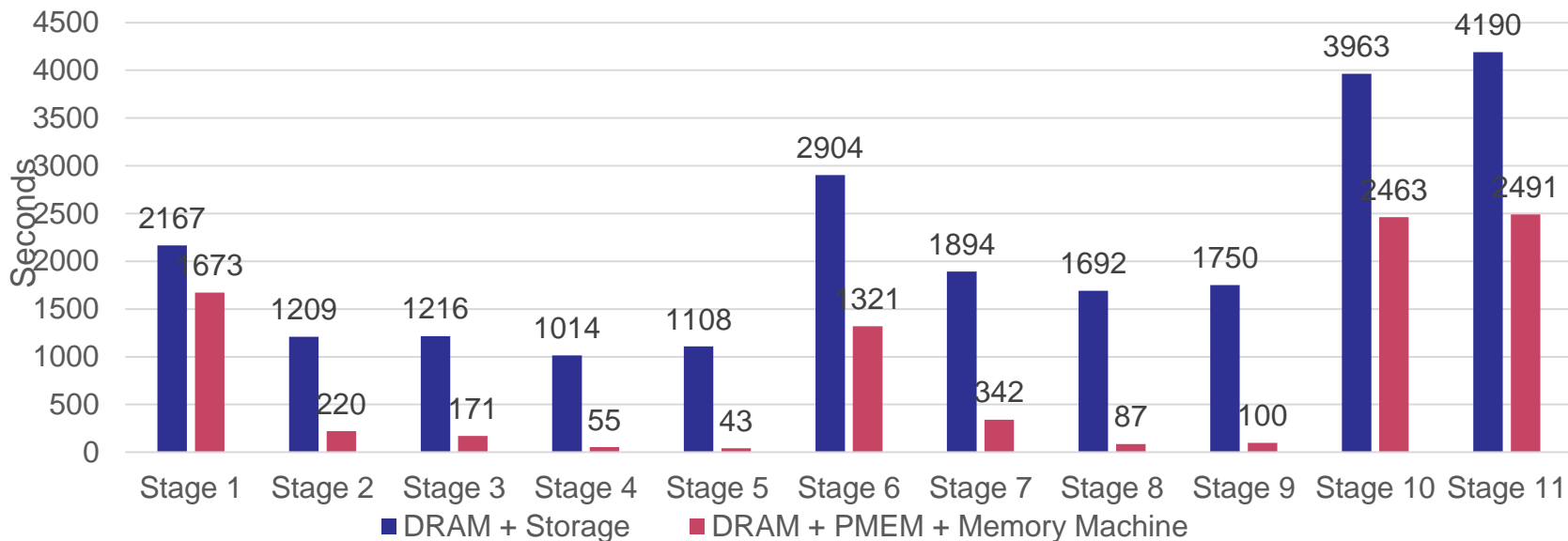
Integrated on the Big Memory Workbench



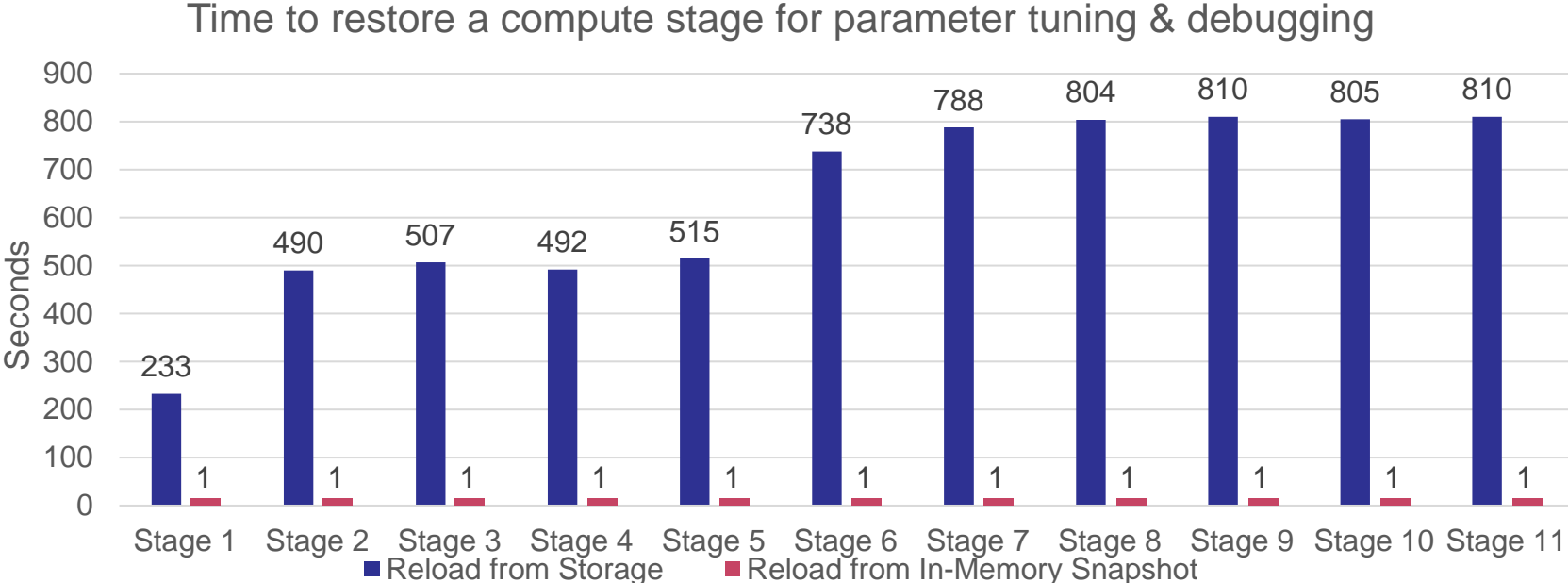
Overall Execution Time

Mouse Cell Atlas (GSE108097), 176 Samples, Matrix Size 31787 x 813348

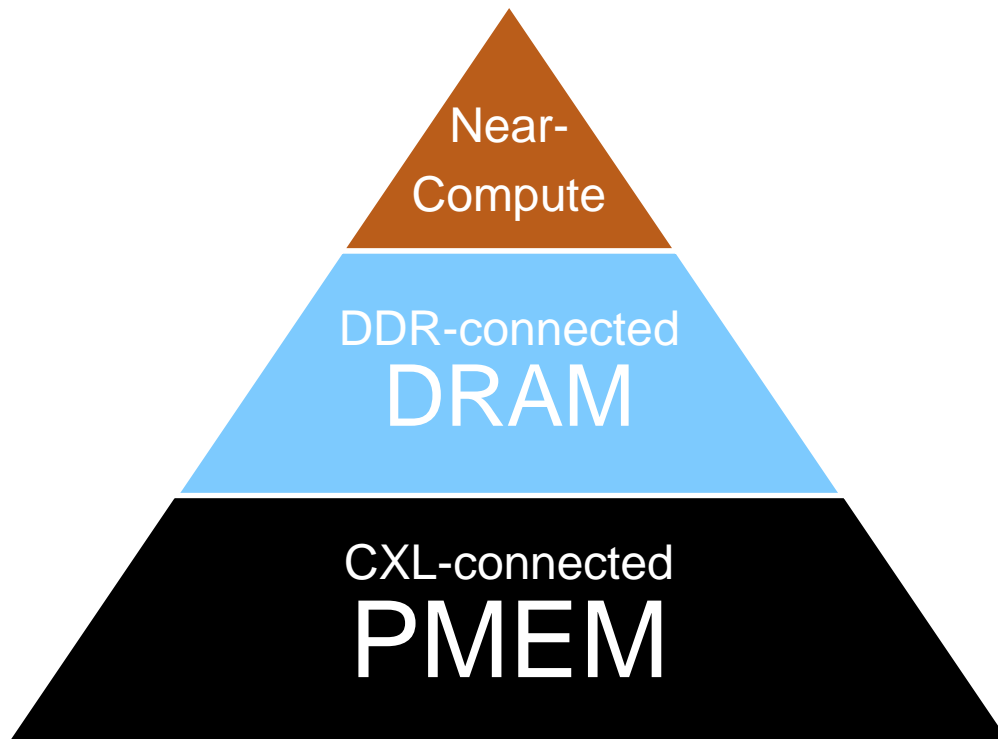
Execution time of each analysis stage: compute + storage IO or in-memory snapshot



Time to Restore a Compute Stage



The Future of Big Memory



Big Memory for Biosciences

May 27, 2021

8:00am to 12:00pm PT

Register free at: <http://bit.ly/hpcuserforum>

Dr. Chris Kang
Head of Bioinformatics
Analytical Biosciences



Dr. Rafael Aldana
Product Application Director
Sentieon



Dr. Michael J. McManus
Life Sciences Architect
Intel

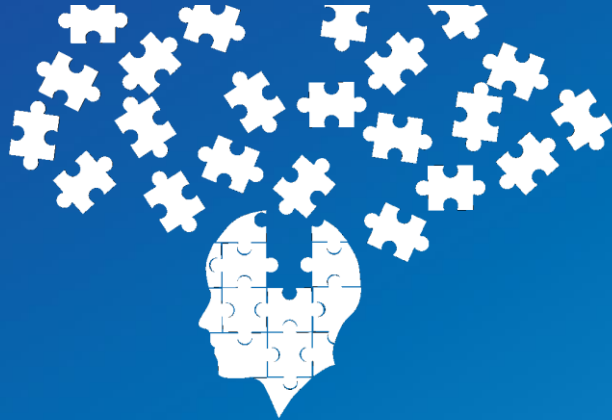


Andrey Kudryavtsev
HPC Storage Architect
Intel



Dr. Charles Fan
CEO
MemVerge





Memorize the Future...

