System Software for Post Petascale Data Intensive Science

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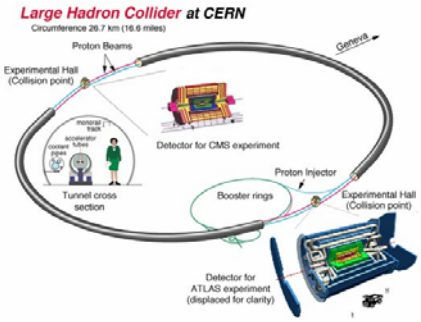
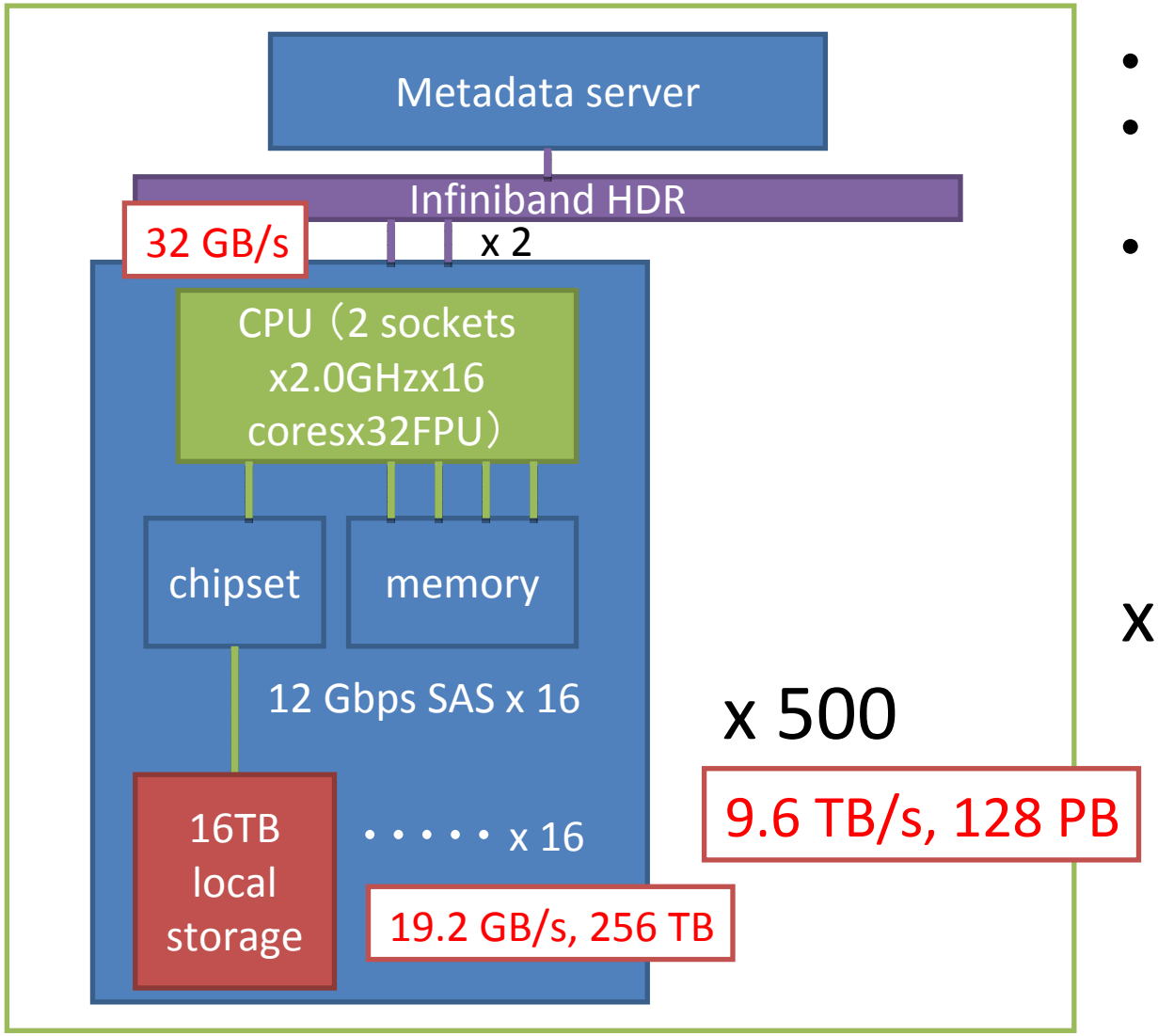
- Objective
  - Develop scale-out file system architecture and software
  - Target snapshot, 1 Exabyte, 100 TB/s, five years later
- Research topics
  - Distributed file system
    - I/O performance scale-out to tens of thousands I/O servers by utilizing access locality
    - Metadata server clustering to scale the metadata performance out
  - Compute node OS
    - File system kernel driver, client caching, operation offload to surplus cores
  - Runtime for Data-Intensive Computing
    - Efficient runtime of workflow execution, MapReduce, and MP IO for the scale-out distributed file system



Target Scale-out Storage Architecture



- 5 years later snapshot
- Non-uniform but scale-out storage
- Develop system software stacks to achieve maximum I/O performance for data-intensive science

x 10

96 TB/s, 1.28 EB