Phoenix Shared Compute Cluster

Featuring the following batch processing frameworks

HTCondor (high-throughput compute workloads)
SLURM (Simple Linux Utility for Resource Management)

User prepares job script,
submits job to slurm controller daemon

SLURM Workflow
HTCondor Workflow

User prepares code in submit file, along with Condor Universe (Standard, Vanilla, Parallel)

- Users job submitted with condor_submit, enters queue
- Master node locates suitable resources in Condor pool
- Job is dispatched to node(s) to execute

Condor master nodes run condor_master, scheduler, and negotiator

SLURM master nodes run slurmctld and slurmdbd

- Slurmctld responsible for scheduling job
- Scheduler allocates nodes and performs resource management
- Communicates with slurmd on compute nodes for job dispatching and execution

SLURM Workflow Diagram

Private Network
Dataflow, backend processing

Headnodes / NFS Server
/hpcdata1 /hpcapp1

Login headnodes
Compute Nodes

NFS Storage

Compute nodes
Dell C8220/2950
Cisco UCS B200 M3
IBM x3650 M4

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HPC/HTC Workflow Diagram 0716