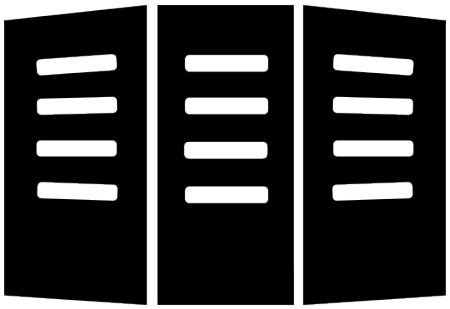
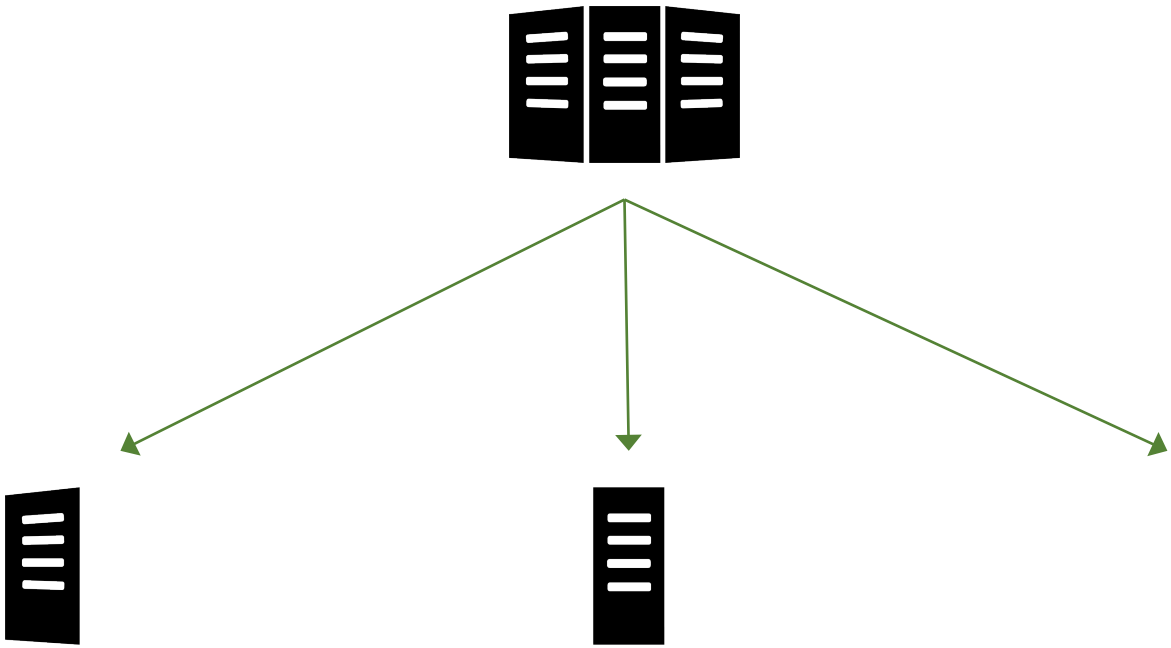


LBRN – HPC systems : CCT, LSU

HPC systems @ CCT & LSU



LSU HPC

- Philip
- SuperMike-II
- SuperMIC

LONI HPC

- Eric
- Qeenbee2

CCT HPC

- Delta

LSU HPC

- Philip

3 Compute Nodes	• Two 2.93 GHz Quad Core Nehalem Xeon 64-bit Processors • 96GB 1066MHz Ram • 146GB HD • 10/100/1000 Ethernet network interface • Red Hat Enterprise Linux 5
32 Compute Nodes	• Two 2.93 GHz Quad Core Nehalem Xeon 64-bit Processors • 24GB 1333MHz Ram • 146GB HD • 10/100/1000 Ethernet network interface • Red Hat Enterprise Linux 5
1 Login Node	• Two 2.93 GHz Quad Core Nehalem Xeon 64-bit Processors • 48GB 1066MHz Ram • 146GB HD • 10/100/1000 Ethernet network interface • Red Hat Enterprise Linux 5
Cluster Storage	190TB DDN storage running Lustre

LSU HPC

- SuperMike-II

2 Interactive Nodes	• Two 2.6 GHz 8-Core Sandy Bridge Xeon 64-bit Processors • 64GB 1666MHz Ram • 500GB HD • 40 Gigabit/sec Infiniband network interface • 1 Gigabit Ethernet network interface • Red Hat Enterprise Linux 6
382 Compute Nodes	• Two 2.6 GHz 8-Core Sandy Bridge Xeon 64-bit Processors • 32GB 1666MHz Ram • 500GB HD • 40 Gigabit/sec Infiniband network interface • 1 Gigabit Ethernet network interface • Red Hat Enterprise Linux 6
50 Compute Nodes	• Two 2.6 GHz 8-Core Sandy Bridge Xeon 64-bit Processors • Two NVIDIA M2090 GPUs • 64GB 1666MHz Ram • 500GB HD • 40 Gigabit/sec Infiniband network interface • 1 Gigabit Ethernet network interface • Red Hat Enterprise Linux 6
8 Compute Nodes	• Two 2.6 GHz 8-Core Sandy Bridge Xeon 64-bit Processors • 256GB 1666MHz Ram • 500GB HD • 40 Gigabit/sec Infiniband network interface • 1 Gigabit Ethernet network interface • Red Hat Enterprise Linux 6
Cluster Storage	• 400 TB DDN Lustre High-Performance disk • 2 TB NFS-mounted /home disk storage

LSU HPC

- **SuperMIC**

1 Login Node	• Two 2.8GHz 10-Core Ivy Bridge-EP E5-2680 Xeon 64-bit Processors • One Intel Xeon Phi 7120P Coprocessors • 128GB DDR3 1866MHz Ram • 1TB HD • 56 Gigabit/sec Infiniband network interface • 10 Gigabit Ethernet network interface • Red Hat Enterprise Linux 6
360 Compute Nodes	• Two 2.8GHz 10-Core Ivy Bridge-EP E5-2680 Xeon 64-bit Processors • Two Intel Xeon Phi 7120P Coprocessors • 64GB DDR3 1866MHz Ram • 500GB HD • 56 Gigabit/sec Infiniband network interface • 1 Gigabit Ethernet network interface • Red Hat Enterprise Linux 6
20 Hybrid Compute Nodes	• Two 2.8GHz 10-Core Ivy Bridge-EP E5-2680 Xeon 64-bit Processors • One Intel Xeon Phi 7120P Coprocessors • One NVIDIA Tesla K20X 6GB GPU with GPUDirect Support • 64GB DDR3 1866MHz Ram • 500GB HD • 56 Gigabit/sec Infiniband network interface • 1 Gigabit Ethernet network interface • Red Hat Enterprise Linux 6
Cluster Storage	• 840TB Lustre High-Performance disk • 5TB NFS-mounted /home disk storage

LONI HPC

- **Queenbee2**

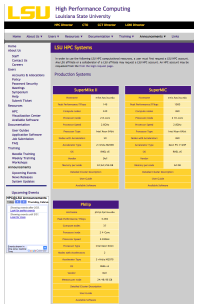
480 Compute Nodes	• Two 10-core 2.8 GHz E5-2680v2 Xeon processors. • 64 GB memory • 500 GB HDD • 2 NVIDIA Tesla K20x GPU's
16 Compute Nodes	• Two 10-core 2.8 GHz E5-2680v2 Xeon processors. • 64 GB memory • 500 GB HDD • 2 Intel Xeon Phi 7120P's
4 Visualization Nodes	• Two 10-core 2.8 GHz E5-2680v2 Xeon processors. • Two NVIDIA Tesla K40 GPU's • 128 GB memory • 500 GB HDD
4 Big Memory Nodes	• Four 12-core 2.6 GHz E7-4860v2 Xeon processors. • 1.5 TB memory • Two 1 TB HDD's
1 Login Node	• Two 10-core 2.8 GHz E5-2680v2 Xeon processors • 128 GB Ram • Two 1 TB HDD's • 1 NVIDIA K20X GPU
Cluster Storage	• 2.8 PB Lustre file system

LONI HPC

- Eric

128 Compute Nodes	• Two 2.33 GHz Quad Core Xeon 64-bit Processors • 8 GB Ram • 10 Gb/sec Infiniband network interface • 10/100/1000 Ethernet network interface • Red Hat Enterprise Linux 4
1 Interactive Nodes	• Two 3.00 GHz Quad Core Xeon 64-bit Processors • 8 GB Ram • 10/100/1000 Ethernet network interface • Red Hat Enterprise Linux 4
Cluster Storage	• 2.3 TB of local storage • 12 TB Lustre filesystem

Getting Account



LSU HPC

- Philip
- SuperMike-II
- SuperMIC

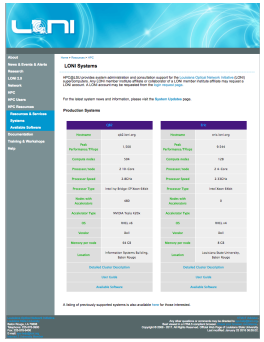
- LSU affiliated account
- XSEDE Portal

  Extreme Science and Engineering Discovery Environment

LONI HPC

- Eric
- Qeenbee2

- LONI



CCT HPC

- Delta

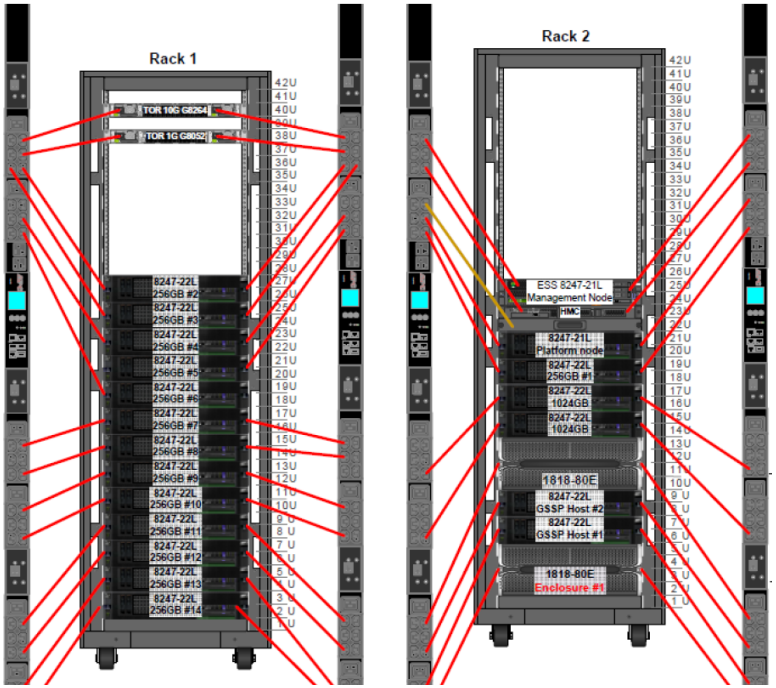
- Delta webpage

CCT

- **Delta**

The Delta cluster consists of 17 nodes in total: 1 head node and 16 compute nodes. The PCM head node and compute nodes are all Power8 822Ls.
There are two classes of compute nodes in this cluster:

- 2 Fat Nodes, consisting of 1TB memory and many disks
- 14 Thin Nodes, consisting of 256GB memory and fewer disks



CCT

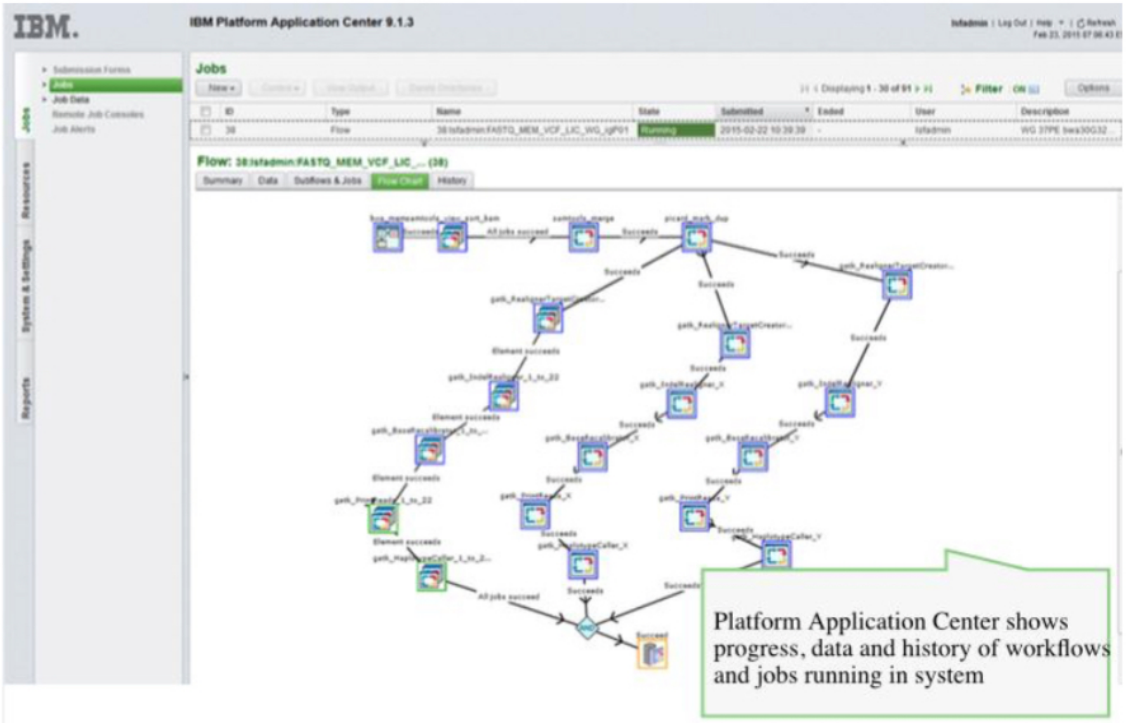
- **Delta (account & allocation)**

  - In order to get access to Delta resources, user must create a Delta account.
  - Account is able to request through *https://delta.cct.lsu.edu/*
  - To apply, the principal investigator (PI) must be a researcher or educator at Louisiana based institution.
  - All allocation request are reviewed by the Delta Resource Allocation Committee(**DRAC**).
  - A user may apply for one of following allocation types.
    - **Startup** : The fastest way to get started on Delta, Startup allocations require minimum documentation, are reviewed all year long, and are valid for one year.
    - **Research** : Research allocation requests are reviewed quarterly and require more formal documentation. Research allocations will be granted for one year and may be renewed or extended.
    - **Storage** : Upto 10GB space per PUIs only for data store purpose. It will be granted 6 months period initially, and able to extend based on request and the decision of DRAC.
  - Job can be submitted through SAC, http://delta-lsf.cct.lsu.edu:8080/
  - All user account holders are asked to acknowledge their use of Delta resources in any resulting research publications or reports by including the following statement:

"Portions of this research were conducted with high performance computational resources provided by the Center for Computation & Technology (https://delta.cct.lsu.edu/)."

CCT

- **Delta (SAC)**
  - Spectrum Application Center
  - GUI Interface to create graph based workflow
  - Provides a web portal interface to SPM(Spectrum Process Manager) workflows
  - Educates PIs and their students through visual monitoring of workflows



CCT

- **Delta (SAC)**
  - Customized workflow is able to provide to users
  - Uploading data can be a trigger to submit jobs
  - Web-based real-time dashboard for monitoring global workloads and resources, including resource usage reporting.