Argonne NATIONAL LABORATORY

High-Performance Computing Resources

The U.S. Department of Transportation (USDOT) has established its only high-performance computing and engineering analysis research facility at Argonne National Laboratory to provide applications support in key areas of applied research and development for the USDOT community.

Background

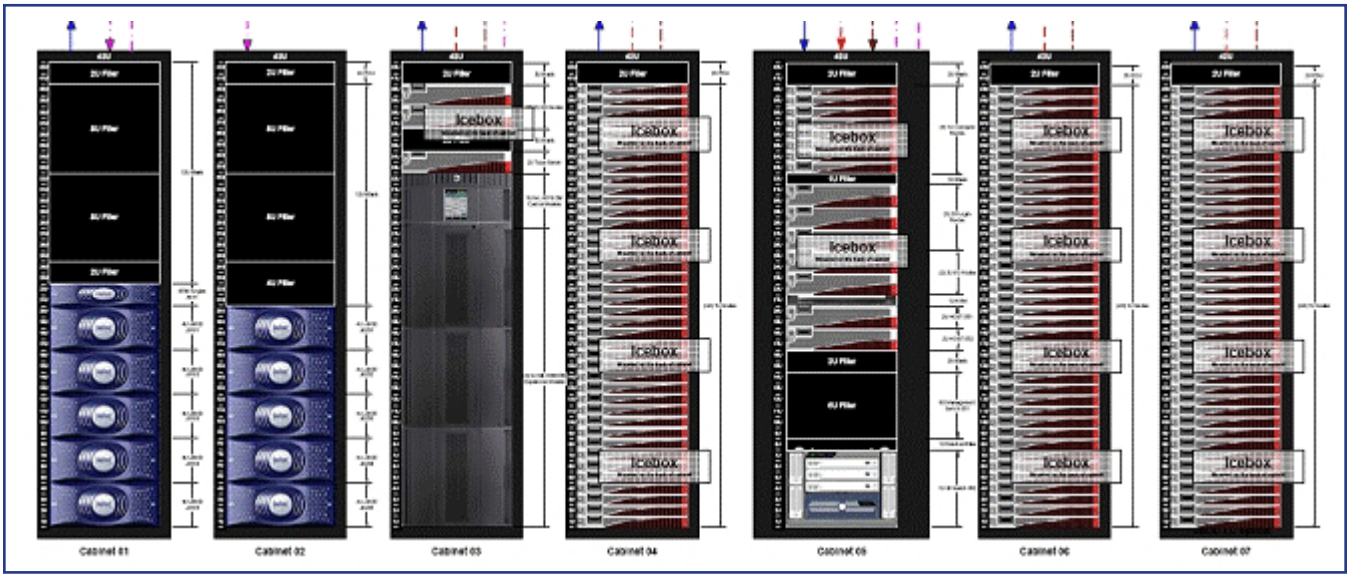
Argonne's Transportation Research and Analysis Computer Center (TRACC) features a state-of-the-art massively parallel computer system, advanced scientific visualization capability, high-speed network connectivity, and modern engineering analysis software.

The TRACC cluster is connected to Argonne's network by a 10Gb/s uplink, and to the Internet through Argonne's multiple 2.4Gb links. For applications demanding even higher bandwidth, TRACC is connected through Argonne to Internet2, to which 94% of USDOT University Transportation Centers have access.

TRACC's Cluster

The TRACC cluster consists of:

- 128 compute nodes, each with
  - 2 dual-core AMD 2240 Opteron CPUs
  - 200 GB of local scratch space
  - 4 GB of RAM
  - 1 InfiniBand DDR interconnect
- 3 login nodes, each with
  - 2 dual-core AMD 2240 Opteron CPUs
  - 180 GB of local scratch space
  - 8 GB of RAM
  - 1 InfiniBand DDR interconnect



Configuration of the TRACC Cluster

DEPARTMENT OF TRANSPORTATION UNITED STATES OF AMERICA

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- High-performance GPFS file system, consisting of
  - 4 I/O nodes
  - 1 DDN storage storage controller
  - 480 500 GB hard drives
  - 180 TB formatted capacity
- Foundry SX 800 Gigabit Ethernet switch connected to Argonne's network with a 10 Gigabit fiber link
- SilverStorm 9120 InfiniBand switch

All nodes are connected to one another with both Gigabit Ethernet and Infiniband, and all nodes run Red Hat Enterprise Linux 4.5. TRACC also provides users with the Intel and Pathscale C/C++ and Fortran compilers and Scali MPI libraries, as well as all standard Linux development tools.

For Users

Desktop virtualization is available to users, enabling them to interact with the cluster from a remote location. The NoMachine NX server is installed on the cluster, and the NoMachine NX client is available at no cost to the user – providing an efficient and easy way to view models, develop and modify input files, and display computational results.

For futher information, contact

Jon Bernard

TRACC Senior High-Performance Computing System Administrator

630.578.4250

jbbernar@anl.gov