Thor's Hammer is the first version of a supercomputer system based on the Red Storm architecture, a new Massively Parallel Processor (MPP) computer design that will scale from a single cabinet and relatively few processors to hundreds of cabinets and thousands of processors.

The system uses high production volume commodity processors combined with a very high performance 3-D mesh interconnect to produce high parallel efficiency on a broad spectrum of scientific and engineering applications and has an excellent price/performance ratio.

Red Storm architecture and the Thor's Hammer machine are being developed jointly by Cray, Inc., and the Department of Energy's (DOE) National Nuclear Security Administration's (NNSA) Sandia National Laboratories.

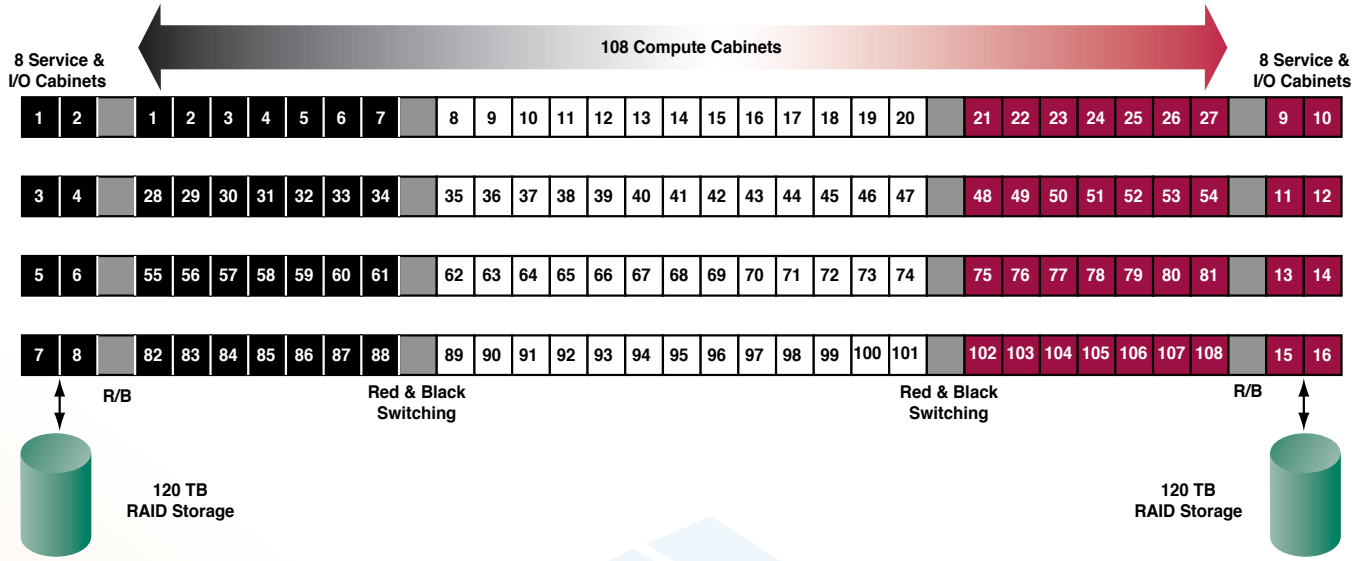
Thor's Hammer will be installed at Sandia National Laboratories in Albuquerque, NM, in the summer of 2004.

The installation at Sandia will operate in a dual network—classified (Red) and unclassified (Black)—configuration. The machine can be rapidly reconfigured to make all the compute nodes classified, all the compute nodes unclassified, or, in normal operation, three-quarters of the compute nodes available to either of the two networks and one-quarter of the machine available to the other network.

National Nuclear Security Administration

Sandia National Laboratories

THOR'S HAMMER
RED STORM



SANDIA RED STORM SYSTEM FACTS:

- 40+ teraOPS theoretical peak performance
- 108 compute node cabinets, 16 service and I/O node cabinets, and 16 Red/Black switch cabinets
- 10,368 compute node processors, 256 + 256 service and I/O node processors
- AMD Opteron™ processor
- 10 terabytes of DDR memory
- 240 terabytes of disk storage
- Linux/Catamount Operating Systems
- Approximately 3000 ft² including disk systems
- <2.0 megawatts of power and cooling

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