




THOR Computing Facility at Alberta



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CDF Canada Collaboration Meeting 2003

THOR Computing Centre

- Origin: ATLAS EF prototype development
- Present: cost effective capacity + parallel computing
- Multi-disciplinary
 - Particle Physics (experimental/theoretical) 
 - Symbolic Computation
 - Plasma Physics
 - Cosmology and Astrophysics
 - Biophysics

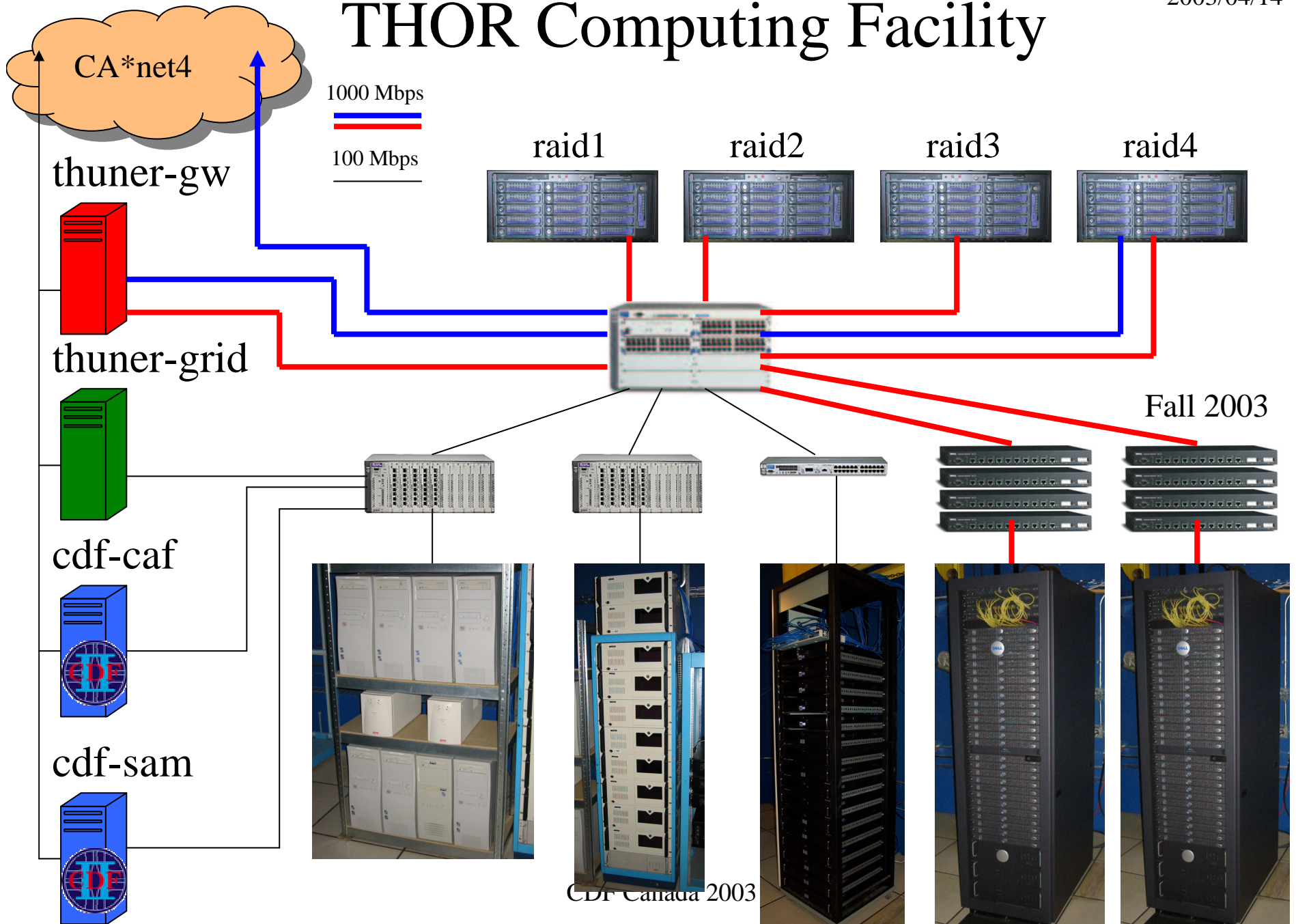
Compute Hardware

- 102 nodes (2 master, 4 storage, 96 compute): 205 CPU
- Head-master node (thuner-gw)
 - Dual Intel PIII 1266 MHz cpu, 1 GB RAM
- Worker nodes
 - Intel PIII 450/500/550/600/700/800/1000/1266/1400 MHz
 - AMD Athlon MP 1800+/2100+
 - RAM: 256/512/1024 MB
- THOR @ Alberta [147 cpu]
- MAGNI (Son of THOR) @ CERN [58 cpu]
- Fall 2003: + 25 nodes (50 cpu)

Primary Data Storage

- Master Node
 - 154 GB locally attached SCSI disk
- RAID5 Disk Arrays
 - 2 x 0.50 TB IDE RAID5 (8 x 72 GB)
 - 1 x 0.56 TB IDE RAID5 (8 x 80 GB)
 - 1 x 1.30 TB IDE RAID5 (12 x 120 GB)
 - journaling file system (ext3)
- Tape Storage
 - 42 slot DDS-2 tape carousel
 - LTO 100/200 GB (CNS ADSM/Tivoli Backup Service)

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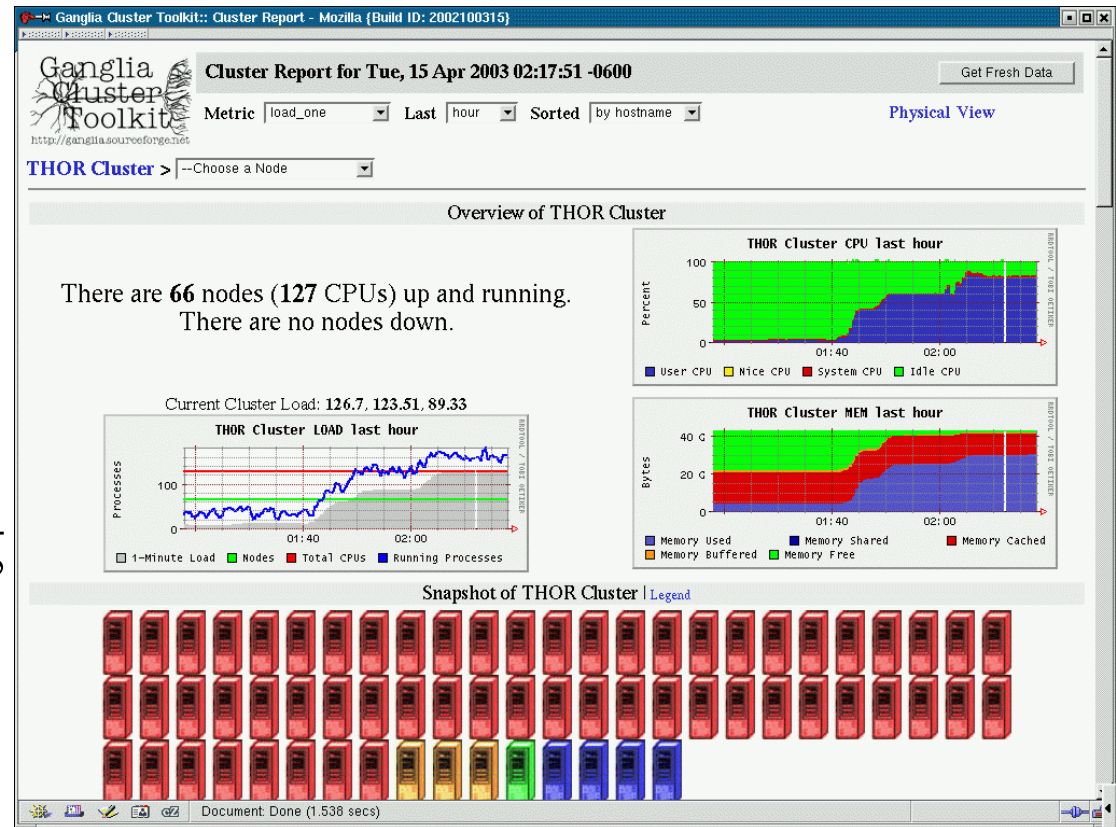


THOR System Software

- OS Configuration
 - RedHat Linux 7.3
- Batch Scheduler Interface
 - OpenPBS (Portable Batch System) 2.3.16
- Cluster Firewall
 - NAT via IPtables
- Grid Infrastructure
 - Globus Toolkit GT 2.2.4 (thuner-gw, thuner-grid)

Cluster Monitoring

- General Monitoring
 - GANGLIA
 - OpenNMS
 - Im_sensors *
- Network Monitoring
 - MRTG
 - IEPM-BW *



CDF Environment

- CDF Software Installation
 - Currently installed: release 4.9.1
 - Updating this week to include 4.9.1hpt3
 - Integration and development releases will soon be added to software server (thuner-sw)
- MC Productions (runMC / TRGSim++_MC)
 - Approx. 2.3×10^6 simulated events to date

Alberta CDF CAF

- abcaf (cdf-caf.phys.ualberta.ca)
 - Fully kerberized gateway system
- Hardware
 - Dual PIII 450 MHz , 512 MB RAM
 - RH 7.3 + FNAL ups/upd products
- Test configuration of fbsng on head-node
- debugging/testing installation this week

Alberta CDF SAM

- Monitoring/Execution/Submission site
- SAM Station (cdf-sam.phys.ualberta.ca)
 - Fully kerberized system
- Hardware
 - Dual PIII 450 MHz cpu, 512 MB RAM
 - RH7.3 + FNAL ups/upd products
- Installation and testing this week and next
- Follow-up with JIM installation/configuration