

# Southwest Tier 2 Center Status Report

U.S. ATLAS Tier 2 Workshop - UTA  
Mark Sosebee for the SWT2 Center

December 8, 2006



# Overview

The Southwest Tier 2 Center is a collaboration between the University of Texas at Arlington (UTA) and the University of Oklahoma (OU)

Personnel:

- ❑ UTA: Kaushik De, Patrick McGuigan, Victor Reece, Mark Sosebee
- ❑ OU: Karthik Arunachalam, Horst Severini, Pat Skubic, Joel Snow (LU)

# UTA CC Hardware Configuration

- ❑ 160 compute nodes:
  - Dual Xeon EM64T, 3.2 GHz, 4GB RAM, 160 GB disk
- ❑ 8 front-end nodes:
  - Dual Xeon EM64T, 8GB RAM, 73 GB SCSI RAID 1
- ❑ 16 TB SAN storage (IBRIX):
  - 80 x 250 GB SATA disks
  - 6 I/O servers, 1 management server
- ❑ 16 TB potential in compute nodes

# UTA CC



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# UTA DPCC Hardware Configuration

- ❑ Shared resource with CSE department
- ❑ 75 compute nodes:
  - Dual Xeon 2.4-2.6 GHz
  - 2 GB RAM
  - 60-80 GB local disks
- ❑ 45 TB among 10 NFS servers (IDE RAID)
- ❑ Typically ~100 ATLAS production queue slots

# OCHEP Hardware Configuration

- ❑ 40 compute nodes:
  - Dual Xeon EM64T, 3.2 GHz, 4GB RAM, 160 GB Disk
- ❑ 2 front-end nodes:
  - Dual Xeon EM64T, 8GB RAM, 73GB SCSI Raid 1
- ❑ 4 TB SAN storage (IBRIX):
  - 20 x 250 GB SATA disks
  - 2 I/O servers, 1 management server
- ❑ 4 TB potential in compute nodes

# Additional OU Resources

- ❑ Old OSCER cluster, boomer:
  - 135 dual Xeon nodes, 2 GHz
  - 5 TB storage
  - Used for DØ MC production & data processing
- ❑ New OSCER cluster, topdawg:
  - 512 dual Xeon EM64T nodes, 3.2 GHz
  - 10 TB storage
  - Used for ATLAS Tier 2 & DØ computing as available

# Network Connectivity

## □ UTA:

- Gigabit link to the North Texas Gigapop
- OC12 from NTG to Houston peering site (I2)
- Future: LEARN / NLR

## □ OU:

- Campus backbone 10 Gbps
- Connection to NLR via OneNet
- OU → OneNet & OneNet → NLR 10 Gbps capable
  - Currently setup for 2 Gbps
- Traffic to/from most HEP end points already routed through NLR



# UTA CC / IBRIX

- ❑ Scaling issues were observed with IBRIX when the number of running jobs exceeded ~ 150
  - Lost files
  - One segment server becomes a “hot-spot”
- ❑ IBRIX tech support recommended:
  - Upgrade software to v2
  - Reconfigure storage – one large filesystem rather than two
- ❑ Software upgraded at the end of August
- ❑ Performance much improved – all CPU’s now in production

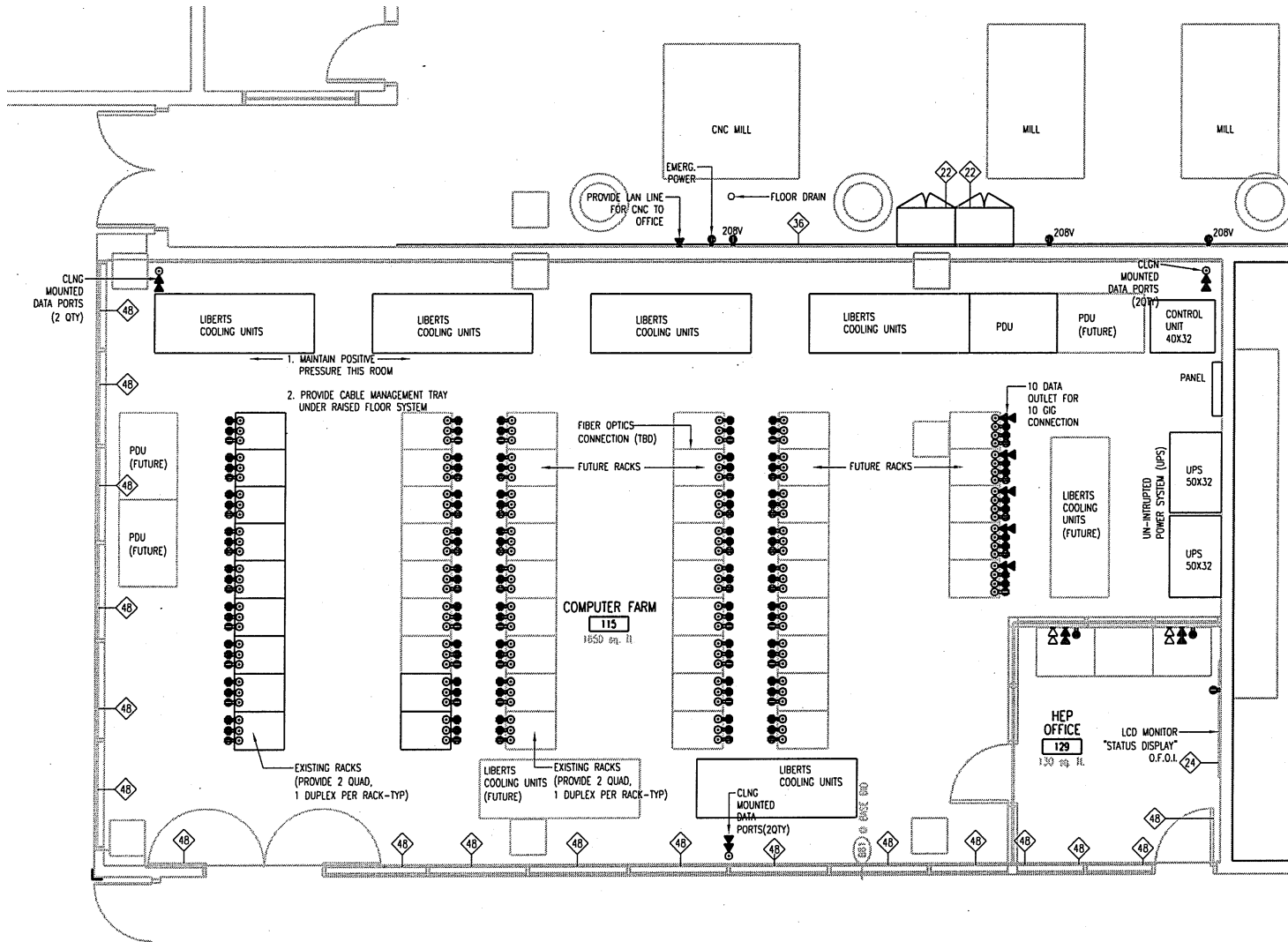
# Analysis for Regional Users

- ❑ Two workshops have been held at UTA (March & May) to promote physics analysis for ATLAS groups in the SWT2 region
- ❑ Participants: UTA OU, UNM, Langston, SMU, UT Dallas, LTU
- ❑ Bi-weekly video / phone meetings
- ❑ See: <http://indico.cern.ch/categoryDisplay.py?categId=885>

## Other Activities / Future Plans at SWT2

- ❑ Ongoing effort devoted to DQ2 deployment, testing, and upgrades
- ❑ SC4 dCache setup – it worked, with a couple of caveats. Learned much about the system for potential future deployments
- ❑ Start utilizing new OSCER cluster (topdawg)
  - ❑ ATLAS remote DDM operations successful
  - ❑ Awaiting production status
  - ❑ DØ SAMGrid jobs already certified & running
- ❑ Discussions underway with hardware vendors for next phase of cluster – weighted toward large storage (~50 TB, ~100 cpu's)

# Machine Room: UTA CPB



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# Conclusion

- ❑ SWT2 is operational and performing well
- ❑ Next hardware purchase early 2007 – Chemistry & Physics building at UTA
- ❑ Large topdawg cluster at OU will be used as available for ATLAS computing
- ❑ Supporting regional analysis – “best effort”
- ❑ <http://www.atlas-swt2.org/twiki/bin/view/SWT2/WebHome>