

UTA Site Report

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Introduction

- UTA's conversion to ATLAS experiment is complete
 - Kaushik De is co-leading Panda development
 - A partner of ATLAS SW Tier 2 is at UTA
 - Phase I implementation at UTACC completed and running
 - Phase II implementation begun
 - MonALISA based OSG Panda monitoring implemented
 - ➔ Allow OSG sites to show up on the LHC Dashboard
- HEP group working with other discipline in shared use of existing computing resources
 - Interacting with the campus HPC community



UTA DPCC

- UTA HEP-CSE + UTSW Medical joint project through NSF MRI
- Primarily participating in ATLAS MC production and reprocessing
- Other disciplines also use this facility
 - Biology, Geology, UTSW medical, etc
- Hardware Capacity
 - Linux system
 - 197 CPU's of mixture of P4 Xeon 2.4 – 2.6 GHz
 - Total disk: 76.2TB
 - Total Memory: 1GB/CPU
 - Network bandwidth: 68Gb/sec
 - Additional equipment will be purchased (about 2 more racks)
 - 3 IBM PS157 Series Shared Memory system
 - 8 1.5GHz Power5 processors
 - 32 GB RAM
 - 6 140GB Internal Disk drives
 - 1 2Gb fibre Channel Adapter
 - 2 Gigabit Ethernet Nics



UTA – DPCC

- 100 P4 Xeon 2.6GHz CPU = 260 GHz
- 64TB of IDE RAID + 4TB internal
- NFS File system

- Total CPU: 462 GHz
- Total disk: 76.2TB
- Total Memory: 168Gbyte
- Network bandwidth: 68Gb/sec

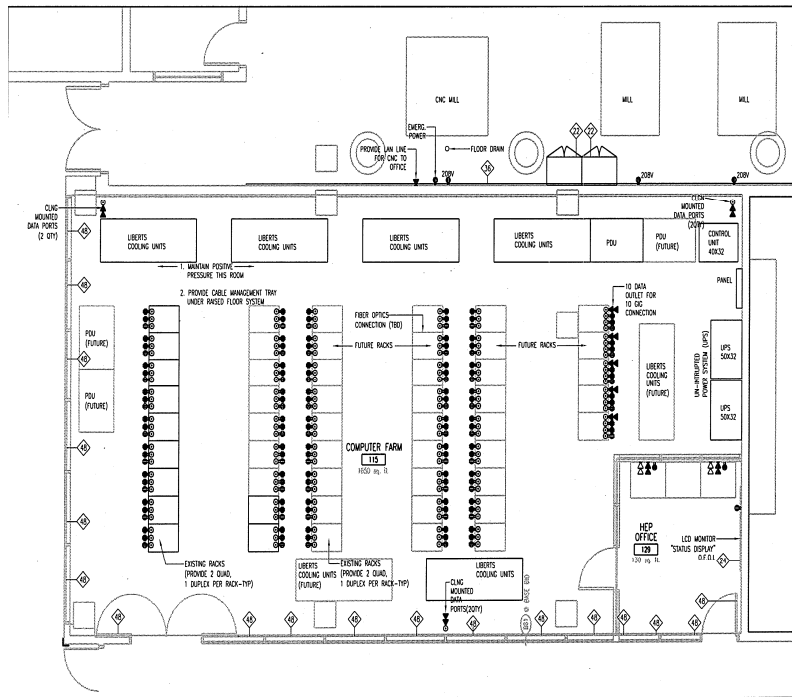
- HEP – CSE Joint Project
- DØ+ATLAS
- CSE Research

- 84 P4 Xeon 2.4GHz CPU = 202 GHz
- 5TB of FBC + 3.2TB IDE Internal
- GFS File system

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SWT2

- Joint effort between UTA, OU, LU and UNM
- Phase I completed and is up and running
- Purchase for Phase II completed
 - Awaiting for to Dell to come and put them together



2000ft² in the new building
Designed for 3000 computers

JTAS
JAS TA

SWT2 Phase I Equipment

- Existing Equipment
 - 160 Node Cluster installed at Arlington Regional Data Center (ARDC), formerly UTA Computing Center (UTACC)
- Latest Purchase
 - 50 Node Cluster to be installed on campus in new Chemistry and Physics Building
 - Installation target 5/07



Installed Equipment

- 160 Node cluster (Dell SC1425)
 - 320 cores (3.2GHz Xeon EM64T)
 - 2GB RAM/core
 - 160GB SATA local disk drive
- 8 Head Nodes (Dell 2850)
 - Dual 3.2 GHz Xeon EM64T
 - 8GB RAM
 - 2x 73GB (RAID1) SCSI Storage
- 16TB Storage System
 - Direct Data Networks S2A3000 system
 - 80x250GB SATA drives
 - 6 I/O servers
 - IBRIX Fusion file system
 - Dedicated internal storage network (Gigabit Ethernet)



SWT2 Phase II Purchase

- 50 node cluster (SC 1435)
 - 200 Cores (2.4GHz Dual Opteron 2216)
 - 8GB RAM (2GB/core)
 - 80 GB SATA disk
- 2 Head nodes
 - Dual Opteron 2216
 - 8 GB RAM
 - 2x73GB (RAID1) SAS Drives
- 75 TB (raw) Storage System
 - 10xMD1000 Enclosures
 - 150x500GB SATA Disk Drives
 - 8 I/O Nodes
 - DCache will be used for aggregating Storage



Network Capacity

- Had DS3 (44.7MBits/sec) till late 2004
- Increased to OC3 (155 MBits/s) early 2005
- OC12 as of early 2006
- Expected to be connected to NLR (10GB/s) through LEARN anytime (<http://www.tx-learn.org/>)
 - \$9.8M (\$7.3M for optical fiber network) state of Texas funds approved in Sept. 2004
- LEARN network available to DFW area
 - Need to connect the last few miles



LEARN Status

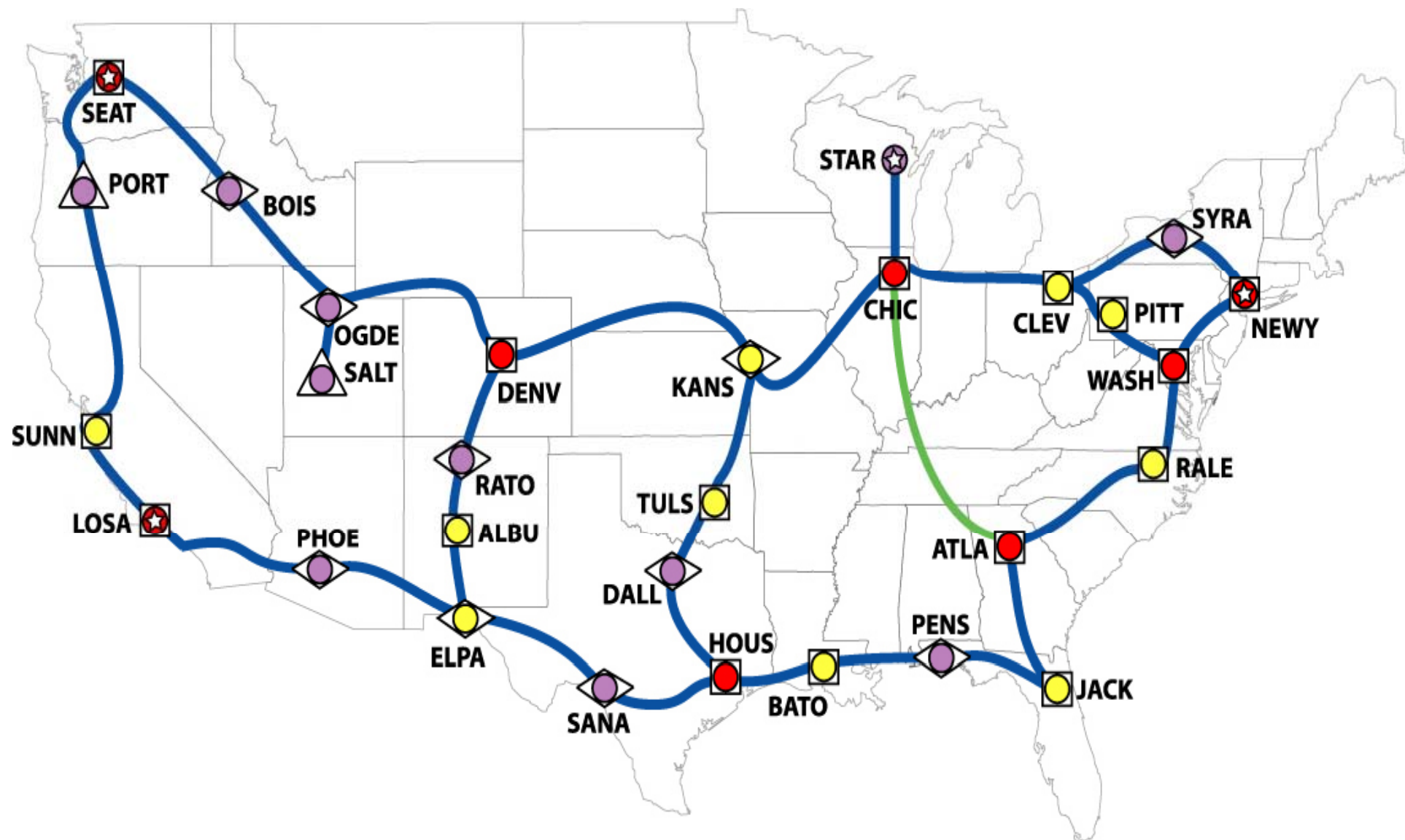


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— NLR-owned fiber

— Managed Wave

● NLR WaveNet, FrameNet and PacketNet PoP

● NLR WaveNet and FrameNet PoP

● NLR WaveNet Pop

□ PoP for primary connection point by a member (MetaPop)

◇ PoP needed for signal regeneration requirements,
can also be used as secondary connection by a member

△ PoP established by NLR for members' regional needs

☆ Pop established at exchange points

Software Development Activities

- MonALISA based ATLAS distributed analysis monitoring
 - A good, scalable system
 - Server implemented at UTA
 - Modification to Panda pilot completed
 - ATLAS-OSG sites are on the LHC Dashboard
- Sudhamsh integrated well into Panda related project
 - Working on distributed data handling
- Started looking into the Linux Application on Windows (the LAW project)
 - To bring in enormous amount of available resources



ATLAS DA Dashboard

- LCG sites report to One MonALISA service and one repository
 - CERN colleagues implemented an ATLAS DA dashboard
- OSG Sites different
 - Extremely democratic → Each site has its own MonALISA server and repository
 - An Apmon developed for each job to report to MonALISA server at UTA
 - Not utilizing the democratic configuration OSG has yet
 - MonALISA server responds when prompted by the Dashboard
- Code implementation completed and ATLAS OSG sites are on LHC Dashboard

CSE Student Exchange Program

- Joint effort between HEP and CSE
 - David Levine is the primary contact at CSE
- A total of 10 CSE MS Students each have worked in SAM-Grid team
 - Five generations of the student
 - This program ended as of Aug. 31, 2006
- New program with BNL on a trial stage
 - First set of two students started working summer 2006
 - Participating in ATLAS Panda projects
 - One additional student on Panda on OSG project
 - First generation is completing their tenure
 - Participating in pilot factory and panda monitoring development



Conclusions

- UTA's transition from DØ to ATLAS is completed
- ATLAS-OSG sites are on the LHC Dashboard
 - Our proposal for MonALISA based DA monitoring adopted as the initial direction for ATLAS monitoring system
- Participating in distributed data handling software development and improvement
- Actively participating in ATLAS CSC analyses
- Network capacity of 10GB/s to come anyday
- Working closely with HiPCAT for State-wide grid activities
- Looking into the LAW project

