### **LTU Site Report**

Dick Greenwood Louisiana Tech University

> DOSAR II Workshop at UT-Arlington March 30-31, 2005



LTU Site Report Dick Greenwood

#### LTU & CCT Computing Resources

	CPU(GHz)	Storage (TB)	People
LTU	33 GHz	0.8	1F+1PD+1GA+1UG
CCT (Helix)	128*2* 2 GHz	0.1	
People:			

Dick Greenwood: Institutional Rep.

Joe Steele: Researched/researching LHC Grid analysis tools (ADA, ARDA, etc.), D0SAR representative in data reprocessing group, Certifying data file merging for all of D0's remote reprocessing

farms, Updating SamGrid documentation.

Chandra : High Availability Computing research (with Box); system manager.

Sunitha Polam: CS Grad. Student => graduated

Michael Bryant: former system manager => will help run farm



#### SAM-Grid Execution Site Components



## SamGrid Execution Site: Itu-cct Sam Station: Itu.cct.lsu.edu

- Operating as Samgrid site since Dec. 2005
- Installed 200 GB additional Storage to Itu-cct
- Plagued with timeout problems
  - Limited to 24 simultaneous batch jobs
  - Installed 1Gbit ethernet card but not working yet.



## Personnel Using LaTech IAC (CAPS) Linux Cluster

- At present:
  - D0 Group
    - Lee Sawyer, Dick Greenwood (IAC Rep.), Joe Steele, Julie Kalk
  - Jefferson Lab Group (GO, Qweak Experiments)
    - Kathleen Johnston, Neven Simicevic, Steve Wells, Tony Forest
- Other users
  - Box Leangsuksun, LaTech CS





### Status of CAPS Site

- Caps10, our local SAMGrid head node and SAM station, is slowly being upgraded with the latest products and configured accordingly. Has been neglected caps10 because focus more powerful samgrid facility ltu-cct.
- Caps10 is being configured to match Itu-cct'sconfiguration since it will be much easier to maintain two identical SAMGrid head nodes. Hope to have caps10 operational within the next month or so.
- Our four Windy worker nodes (Dual Xeon 2.2/2.8GHz) have been added to an OSCAR 4.2 cluster running CentOS-3 (i386). The Windy cluster is a 12 Gigaflop compute cluster with 9GB of total RAM. While the Windy cluster is small, it is still quite useful for small D0 requests and local research.
- Condor is being used as the cluster batch scheduler instead of Torque/PBS.
- Plan to move HA-OSCAR in the near future in order to provide highly available computing resources.
- Along with the Windy cluster, we also have two AMD Opteron 2.0GHz testing nodes that are not a part of the cluster. After trying both i386 and x86\_64 versions of Debian and CentOS-3/4, we found that only CentOS-3 x86\_64 would install on these two nodes and thus decided to make them standalone testing nodes. We would eventually like to see these nodes become a part of the Windy cluster.

30MAR06



### Current Status of HA Research by Box Leangsuksun on CAPS Cluster

# Details can be obtained from http://xcr.cenit.latech.edu/grid



### Grid-enabled Beowulf cluster with Fault Tolerant Job Queue

- Ease of installation and HAenabled cluster based on HA-OSCAR
- Grid enabled package VDT based.
- HA-OSCAR from Box's group at LaTech U.
  - HA and HPC clustering techniques to enable critical HPC infrastructure Self-
  - configuration Multi-head Beowulf system
  - HA-enabled HPC Services: Active/Hot Standby





# Cluster-aware Grid package #1Integrated within OSCAR package installer

à.	Refresh Table	Download Selec	cted Packages
ackage Name	2 Class	Version	Repository
VDT	third-party	1.3.9-1	User Specif
nformation	Provides Conflicts Red	uires Packager	
Information	Provides Conflicts Red	uires Packager ble of grid middleware that can be	easily installed and



### Cluster-aware Grid package #2

Package Name	Class	Location/Version
ODA	core	OSCAR 1.31-1
Opium	included	OSCAR 1.6-1
perl-Qt	core	OSCAR 3.0.9b2-2
pfilter	included	OSCAR 1.705-2
PVM	included	OSCAR 3.4.5+4-2
System Installation Suite	core	OSCAR 3.5.3-3oscar
VDT	third-party	OPD 1.3.9-1
formation <u>Provides</u> <u>Conflicts</u> ne Virtual Data Toolkit (VDT) is an ension figured. <u>Display of information</u>	Requires Packager emble of grid middleware about the package selec	that can be easily installed and ted above



### Cluster-aware Grid package #3

<b>v</b> (	Configuration for VDT	X
	Configuration for VDT	
	Configuring VDT Options	
Тур	e of installation:	
	Grid Client	
<b> </b>	One onen	
	Setup the Simple Certificate Authority (Simple-CA)	
-	Install the PBS jobmanager for Globus (jobmanager-pbs)	
	Default Configuration Cancel Save	



### **Current status**

- Support OSCAR 4.2.1 and HA-OSCAR 1.1
  - Grid enabled package Demo-ready
  - Fault Tolerant Job Queue based on Torque/openPBS and LAM/MPI
    - Self-healing with auto checkpoint/restart both queued and running jobs
- Details can be obtained from http://xcr.cenit.latech.edu/grid



# LTU Plans

- "Small" site should continue taking MC production requests
- Participate in the development of the Louisiana Optical Network Initiative (LONI) with its 10GB/sec connectivity to the National Lambda Rail.
- The NLR POP in Baton Rouge has not been affected (the route runs from Baton Rouge to Houston).
- The awarding of the local LONI loops is a bottleneck with all of the purchasing/bid requirements: resolved at LTU.
- Commence collaborating with SW Tier 2 on ATLAS
  analysis

