Cluster Documentation| Johanna-Laina Fischer (jfischer)

Log On: (ssh) logonname@uscms1.fltech-grid3.fit.edu
enter password
(will be in home directory)

Daily Commands:

condor_q | less
jobs in que, if held or running, idle jobs, size, when submitted, who submitted them, name of job, id for job
to exit press q
top

df -h
partition memory
df --total
total memory
man df for total commands
who
who is logged in, when, where

sam tests : http://dashb-cms-sam.cern.ch/dashboard/request.py/latestresultssmry?siteSelect3=T3&serviceTypeSelect3=vo&sites=T3_US_FIT&services=CE&services=SRMv2&tests=1301&tests=133&tests=111&tests=6&tests=1261&tests=76&tests=64&tests=20&tests=281&tests=882&exitStatus=all

CE: Computing Element
SRMv2: Storage Element

gratia: http://myosg.grid.iu.edu

Contacts:

Bockjoo Kim: CMS software, HyperNews at UF
CMS Software Problems
Samir Needs specific version, email Bockjoo
bockjoo@phys.ufl.edu
Yujun Wu: Network Stuff, Systems Analyist? at UF
Network Problems, usually FIT's problem, but he can help
yujun@phys.ufl.edu
HyperNews: (Mailing List)
Grid Problem
OSG Storage
Mailing Lists

What Things Mean:
BestMan: Berlkeley Storage Manager, allows communication with local storage from the grid
PhEDEx: Physics Experiment Data Exports, transfer of data files, handles anything we import or export out of cluster

Sam Tests: tells us what is working/not working, tell us if CRAB jobs will run or not tells us about PhEDEx (able to transfer something into/out of site)

gratia: Shows us use of cluster

NAS: Network Attached Storage, machine that is attached to the network that has storage on it, not with the grid, storage over network

GUMS: Grid User Management System, a site tool for resource Authorization that addresses the function of mapping grid certificates to local identities

NFS: Network File System, allows a user on a client computer to access files over a network in a manner similar to how local storage is accessed

RAID: Redundant Array of Inexpensive Disks, technology that allows computer users to achieve high levels of storage reliability from low-cost and less reliable PC-class disk-drive components, via the technique of arranging the devices into arrays for redundancy

Most common RAIDs:

RAID 0: Striping feature, the data will be split block by block between the two hard disks.

RAID 1: Mirroring gives, as with striping this setup uses two hard disk drives to produce a single logical drive. Mirroring gives added security for your data at the cost of storage space.

RAID 5: (we use) Uses Mirroring and/or Striping, provides a very redundant fault tolerance in addition to performance advantages allowing data to be safeguarded while only sacrificing the equivalent of one drive's space. RAID-5 requires at least three hard drives of the same size

RAID 6: (we use) Data is striped across several physical drives and dual parity is used to store and recover data. Minimum of 4 disks. Usable capacity is always 2 less than the number of available disk drives in the RAID set.

RAID 10: Combines RAID 0 striping and RAID 1 mirroring. This level provides the improved performance of striping while still providing the redundancy of mirroring.

Raid Efficiency (Table): http://www.pcguide.com/ref/hdd/perf/raid/levels/comp-c.html

DD: Programs to test the speed of the cluster, more actually how long stuff takes, sends packets to write and read documents and times

IPerf: more theoretically what we should be capable of, setup client and server, measures capabiltiy between them, can do it on two different protocals

TCP: better for sending a document (makes sure all pieces get there)

UDP: doesn't check if its getting there okay, lets us know jitter (bad, dont want jitter, variation and time of packets arriving) and packets lost

Registering Proxy every month

on twiki?
Dr. Hohlmann Twiki account

March 23, 2010
Change Tau's operating system from Red Hat to Ubuntu:
Ctl+Alt+F1 "switches between windows" (used for "out of range" error message)
Backup Samir's CMS files:
http://www.grape-info.com/doc/linux/root/backup.html
Backup: tar cvf /tmp/CMSBackup.tar \
/home \
/var/spool/mail \
/etc/mail \
/etc/passwd \
/etc/shadow \
/etc/group
Restore: cd /
tar xvpf /tmp/backupaccount.tar

ls / - top folder
boot, where things boot
lib, shared libraries
home, your home directory

find command: find [/home (directory you want to find things in] –name "*[name of thing you are looking for]*"
asterisk use if you do not know the name that well (almost like a keyword search)

man [command name]: manual for commands, how to work them, flags
help: list of commands

scp CMSBackup.tar jfischer@uscms.fltech-grid3.fit.edu:~
if error "temporary failure in name resolution", means no internet connection

For Samir's Backup:
tar cvzf /tmp/CMSBackup.tar.gz \
/home \
/var/spool/mail \
/etc/mail \
/etc/passwd \
/etc/shadow \
/etc/group
scp CMSBackup.tar.gz jfischer@uscms.fltech-grid3.fit.edu:~

To shutdown in Root:
shutdown –a –t time now

March 24, 2010
/dev – devices
list of things, usb, partitions
plug in drive
find which got "renamed"

mount/dev/devicename/mnt/usb
	if mnt/usb does not exist
		mkdir mnt/usb
 in /mnt/usb
	copy CMS file by: cp CMSBackup.tar.gz
on Tau's monitor, if signal is not found,
	Ctl+Alt+F1
Samir's CMS files backed up onto external hard drive (Seagate)

Cluster Fiesta! - Chicken Enchiladas
	http://www.foodnetwork.com/recipes/tyler-florence/chicken-enchiladas-recipe/index.html

March 25, 2010
Redhat to Ubuntu
	CD in first, then boot up computer
		Original CD had problems
		Created new CD:
			download from: http://www.ubuntu.com/GetUbuntu/download
		How to burn to a CD, do next week
			https://help.ubuntu.com/community/BurningIsoHowto

*to reboot computer if already logged on, type reboot in the command line

April 1, 2010

Installing Ubuntu
Ubuntu CD into drive
To reboot, Ctl+Alt+Del

F2 from startup continually - enter setup screen

Priority to boot from CD/BIOS
Enter password:

What every system admin should know:
http://www.cyberciti.biz/tips/top-linux-monitoring-tools.html

April 8, 2010

Installing Ubuntu take 2
Computer does not recognize CD, recognized Windows CD
CD would boot on Xenia's laptop
Problem - could be that Ubuntu is on a DVD, Tau too old to recognize DVD
Solution - we need to burn a CD! However, the downloader we already have is for a CD, no need to do extra searching :D
?Wipe computer - delete partition (Patrick's magical CD)?: did not need to do
Burned a ***CD*** and checked disk integrity (any problems on disk: no errors found
Ubuntu on machine
Next Task is to put Samir's CMS files onto computer again:
	In Terminal
		cd /media/BACKUPDRIVE

tar xzvf CMSBackup.tar.gz

April 13, 2010

Need to put Samir's CMS stuff on the computer, errors occurred
Put CMSuser onto Tau:
name: cmsuser
password:
Tracks onto Tau: John Stevens will come Wednesday at 1:00 pm

April 14, 2010

Reinstalled Ubuntu, problems with partitions

April 15, 2010

ReReinstalled Ubuntu

Cluster Fiesta Questions for Patrick:
Map of the Cluster

- How to calculate Wall hours:
  - on Condor
    - Condor_userprio-allusers
    - Only since installing new version of condor'
  - On Gratia
- Rocks: Appliances to auto install nodes and post install scripts
  - Where are they
    - See Xenia's Node Changes
  - Would they ever need to be fixed or updated
    - See Xenia's Node Changes
- Basic Hardware Diagram: where? up to date?
  - Patrick's Presentation (April, Up to date)
- Diagram of workings - where, up to date
  - Patrick sent (Wiki?)
- What is XFS
  - In kernel, only if it breaks will it need breaking
  - High-performance journaling file system
  - Good for large files
  - 8 billion Giga bytes
  - Max volume size is 16^
  - Needed for PhEdeX
- Distributed vs. Parallel computing: based off message passing
  - We have distributed: (one CPU or user divides into multiple CPUs but they do not rely on each other, no "talking')
  - Parallel: two cores doing two or more things while talking to each other, pass messages (multiple CPU's: rely on each other, talk to each other)
- What are universes? How many? Difference between them?
  - Standard: No one really uses it
    - Periodic saving of jobs
    - Remote System Calls: If we don't have a very good network file system ("Condor internal network thing") we have NFS so we don't have to worry.
  - Vanilla: individual Grid job

        - Any UNIX executable
        - No Condor Checkpointing
    - Grid: Don't need to worry, users worry
- Stats for Hardware: Companies/Good Numbers/Meshing with other systems
    - RAID: We have documentation
    - NAS: must be designed, find out what we need get from Silicon Mechanics, they have configuring pages
    - Video Cards: We have documentation
    - Monitors: We have documentation
    - Mice: We have documentation
    - Mother Board: We have documentation
    - Key Boards: We have documentation
    - RAM: We have documentation
    - CPU: We have documentation
    - Nodes: We have documentation
    - Other…
- Software Packages, will we need more (updates)
    - Updates on Condor, Rocks OS

April 20, 2010

Sudo – run as root with root permissions

Problem? – Tau's root had no permissions.

Changed account permissions after sudo for root did not work to move Samir's CMS Backup files onto Tau failed.
Tried to reboot, got "Grub" – something wrong with Ubuntu? Grub file corrupted?
Used Patrick's magic "wiping disk", going to need to reinstall Ubuntu
Cannot put Tracks onto Tau until Ubuntu is finally working on Tau
Patrick's advice: chuck Tau, too old, too problematic

Need to get a CERN account: (http://it-dep.web.cern.ch/it-dep/comp-usage/#New people at CERN without a current CERN computing account)?

CMS account?
DOE account?

April 22, 2010 (last day of work for semester)

Magic wiping disk:

To do for next semester:
Tau:
Ubuntu: Grub?
Change user allowances
CMSuser account
Tracks
Samir's Data onto Tau

May 1, 2010(Cluster Fiesta)

Cluster Fiesta Questions for Patrick:

- Map of the Cluster
  - How to calculate Wall hours
  - Rocks: Appliances to auto install nodes and post install scripts
    - Where are they
    - Would they ever need to be fixed or updated
      - How?
  - Basic Hardware Diagram - where, up to date
  - Diagram of workings - where, up to date
  - What is XFS?
  - Distributed vs. Parallel computing?
  - What are universes? How many? Difference between them?

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  - Stats for Hardware: Companies/Good Numbers/Meshing with other systems
    - RAID
    - NAS
    - Video Cards
    - Monitors
    - Mice
    - Mother Board
    - Key Boards
    - RAM
    - CPU
    - Nodes
    - Other…
  - Software Packages, will we need more (updates)
    - From whom or where
    - What kind (i.e. size, capabilities…)