3/27/2009
Came in at 8am and rebooted the frontend.

Reloaded squid onto /opt/Squid in order to fix the autostart and home dir mount conflict for dfrontier. Seems to be working great now.

Had stale NFS handle problems with home directories. Fixed by switching autofs from direct NAS home dir mount to automount from existing /mnt/nas0 NFS mount to /home/<user>. I figure this will reduce the number of NFS streams on the frontend, which could have potentially overloaded NFS (unlikely) or autofs (more likely). Had to reload and restart autofs.

3/30/2009
Installing 2.6.29 kernel on dev-0-0 and then XFS on large partition. Will move rhoch home dir to /sandbox and export it to cluster.
Done!

4/5/09

Dr Wood asked for locate to also search nfs mounted directories. Editing the file /etc/cron.daily/mlocate.cron

Includes:
```
#!/bin/sh
nodevs=$(< /proc/filesystems awk '$1 == "nodev" { print $2 }')
renice +19 -p $$ >/dev/null 2>&1
/usr/bin/updatedb -f "$nodevs"
```

Replace nodevs line with
```
nodevs=$(< /proc/filesystems awk '$1 == "nodev" && $2 !~ "nfs" && $2 != "autofs" { print $2 }')
```

4/10/09

N-th attempt to finish installing the python software that Dr O needs. Mostly pyfits and pyminuit2. Getting library error using method in the email Chris sent me.

Installed numpy in both the standard location and /share/apps/PythonApps

Getting discouraged...

4/21/09

mwood requests that his job be allowed to restart from idle - it exceeded the available disk on the compute node slot. condor_qedit may be used to reset attributes on jobs in

the queue.

condor_qedit <jobid> DiskUsage 0

Looked into getting full Tier 3 status, PhEDEx, etc

Updating the VDT to latest version (1.10.1v).

Latest version screwed up edg-mkgridmap - had to paste from old one.

5/14
Testing to see if I can reproduce CEMon issue with older VDT.

5/19
We got our PhEDEx registration info
Another switch died

6/4
Updated host certificates: hostcert, hostkey, rsvcert, rsvkey, httpcert, httpkey

To update the certificates, request new ones, following the OSG guide
https://twiki.grid.iu.edu/twiki/bin/view/ReleaseDocumentation/GetGridCertificates
Make sure to follow the guide to retrieve the certificates, not the command in the email.

Also, PRIMA/GUMS was accidentally activated which confused the authentication
system. To fix this, remove the following files:
/etc/grid-security/prima-authz.conf
/etc/grid-security/gsi-authz.conf

6/10
Attempting to solve the User creation dilemma - autofs is supposed to mount the user
home directory to /home/<user> but the system doesn't appear to be set up correctly,
especially since user data is now stored on /mnt/nas0/home and not /export/home as is
the rocks default.
Plan to write a script to automate user creation once the issue is corrected.

It appears that the useradd script cannot copy the necessary Shell files from /etc/skel
into the home directory if it is already created... this is a strange feature that I haven't
been able to disable. If necessary I will have to copy the files manually. So the current
process is as follows:
1. useradd -c "Full Name" -n <user>
2. Create home directory and chown to new user
3. Add autofs entry to /etc/auto.home (it should really do this by itself...)
4. Copy /etc/skel files to home dir and chown
5. Set temp password, expire it
6. rocks sync config and users

Will also enforce secure passwords.

6/11

Installed video driver on himali's machine - full graphics and a bit faster

Attempting to write script.

Completed user add script. Need to set strict password requirements.

The following example shows how to enforce the following password rules:

    * Minimum length of password must be 8 (minlen=8)
    * Minimum number of lower case letters must be 1 (lcredit=-1)
    * Minimum number of upper case letters must be 1 (ucredit=-1)
    * Minimum number of digits must be 1 (dcredit=-1)
    * Minimum number of other characters must be 1 (ocredit=-1)

To setup these password restrictions, edit the /etc/pam.d/system-auth file and add/change the following pam_cracklib arguments:

password   requisite   /lib/security/$ISA/pam_cracklib.so retry=3 minlen=8 lcredit=-1 ucredit=-1 dcredit=-1 ocredit=-1

Not enforced if you are root...

Enforced length of 8, 1 lowercase letter, 1 uppercase letter, and 1 digit

6/15

Bestman installed correctly, the following configuration works:

$VDT_LOCATION/vdt/setup/configure_bestman --user daemon --server y --cert /etc/grid-security/containercert.pem --key   /etc/grid-security/containerkey.pem --http-port   8080 --https-port   8443 --enable-gateway --with-allowed-paths="/mnt/nas0/OSG/BeStMan" --with-tokens-list "CMSDATA[desc:CMSDATA][5000]" --with-transfer-servers gsiftp://uscms1.fltech-grid3.fit.edu

$VDT_LOCATION/vdt/setup/configure_gratia --probe gridftp-transfer --report-to gratia-osg-transfer.opensciencegrid.org:8881 --probe-cron --site-name FLTECH

GSIFTP validation failing, possibly due to a voms proxy issue on my part, since I am not sure I am authorized. But exploring all possibilities. Problem seems to originate with GridFTP and not Bestman.

6/16
Looks like we lost a rack - probably a switch again!
Yep, the new switch died.

Bestman validates correctly for my user (uscms01) but RSV is having trouble with it.
Still it should work for the grid.

6/19
Updating VDT to 1.10.1y for an important BeStMan update - now at 2.2.1.2.i6 which
apparently fixes a directory creation bug with srm-copy.
Had the Tier 3 EVO today, will coordinate with Rob Snihur about getting PhEDEx
running.

SRM validation is functional on RSV - had to have the field set in config.ini:
srm_webservice_path = srm/v2/server

6/22
Look for switches

Installing PhEDEx... following Malina's guide

Installing Phedex - following Bockjoo's instruction - much better!
srm://uscms1.fltech-grid3.fit.edu:8443/srm/v2/server?SFN=/mnt/nas0/OSG/BeStMan/c
ms will be the physical filename for CMS.

Will be creating a storage.xml configuration - old one was UF's and should be thrown
away. Bockjoo wrote one for us - it is at
http://cmssw.cvs.cern.ch/cgi-bin/cmssw.cgi/COMP/SITECONF/T3_US_FIT/PhEDEx/sto
rage.xml?revision=1.2&view=markup

Following instructions on
https://twiki.cern.ch/twiki/bin/view/CMS/PhedexAdminDocsInstallation#SoftwareInstall to
install. Having dependency issues.

To use CVS in /home/phedex/SITECONF

Add:
:pserver:anonymous@cmscvs.cern.ch/cvs_server/repositories/CMSSW AA_:yZZ3e
to ~/.cvspass

Run:
export

CVSROOT=:pserver:anonymous@cmscvs.cern.ch/cvs_server/repositories/CMSSW
cvs co SITECONF/T3_US_FIT

That will put the SITECONF in the home directory.

6/25
Using Bockjoo's hacked bootstrap install script (to install the CMS apt) from last year...
found it in the /home/phedex directory. Installing Phedex...

Following
https://twiki.cern.ch/twiki/bin/view/CMS/PhedexAdminDocsInstallation#Necessary_Read
ing

Should use a long term proxy I think - using my grid certificate. Need to renew this every
month! See:
https://twiki.cern.ch/twiki/bin/view/CMS/PhedexAdminDocsInstallation#Long_Term_Prox
y

Following the site is good... however the start script is wrong, use the following:
./PHEDEX/Utilities/Master -config SITECONF/T3_US_FIT/PhEDEx/Config start

I pasted the encrypted scripts from Phedex admins into my account on pford... they
gave me three portions of text to put into
/home/phedex/SITECONF/T3_US_FIT/PhEDEx/DBParam, this made PhEDEx work!
However the FileExport agent is not functioning - investigating...

Problem is the presence of an MSS (tape storage) configuration - but it is disabled -
weird.

6/29

Both FileExport and FileDownload (T1) have the MSS error and crash.
Trying to add more template config files to see if it will disable itself.

Removed the ignore lines... PhEDEx works! Reconfiguring to disable the FileDownload
agents in FTS and activating FileDownload agent in SRM.

Need to start load tests...

Added a debug instance.
Added to SRMDownload: -protocols 'srmv2','srm'

Changed production_srm_stageout to prod_srm_stageout to be within 20 characters - it
caused the database error (in storage.xml).

Job still failing to run - might be looking for the wrong version of SRM (since SRM_PATH is set)

6/30

Trying to upload config files to CVS so Bockjoo can help me debug.

****DO NOT UPLOAD DBParam****

cvs add PhEDEx/Config.Prod PhEDEx/Config.Debug PhEDEx/FileDownloadSRMVerify PhEDEx/FileDownloadDelete PhEDEx/FileDownloadVerify PhEDEx/ConfigPart.Common PhEDEx/ConfigPart.Export PhEDEx/ConfigPart.SRMDownload PhEDEx/ConfigPart.FTSDownload

whoisdoing=_your_cern_lxplus_account_name_
cd SITECONF/T3_US_FIT
export CVS_RSH=/usr/bin/ssh
export CVSROOT=:ext:${whoisdoing}@cmscvs.cern.ch:/cvs_server/repositories/CMSSW
emacs PhEDEx/storage.xml
emacs JobConfig/site-local-config.xml
cvs commit # this will take you to enter your modification comment maybe it is a vi editor
on exit of the cvs commit editor you will be asked your cern account password
if successful, it will be gibberish and say "...Karma exceeds... blah blah"..

Getting added to write list for CVS SITECONF

To fix PhEDEx issue looks like I have to modify the FileDownloadSRMVerify and FileDownloadDelete files to use Bestman SRM.
Using UMD site as example.
http://cmssw.cvs.cern.ch/cgi-bin/cmssw.cgi/COMP/SITECONF/T3_US_UMD/PhEDEx/FileDownloadSRMVerify?view=markup
http://cmssw.cvs.cern.ch/cgi-bin/cmssw.cgi/COMP/SITECONF/T3_US_UMD/PhEDEx/FileDownloadDelete?view=markup

Same errors - possibly due to SRM v1 being activated (managerv1). Disabling it indicates further errors.
Possibly webservice_path is still wrong.

7/1

Disabling auto reinstallation of compute nodes on hard reboot - causing too many issues.

New switches are acting up - not letting nodes kickstart. Investigating...

Greg bruno suggests that flow control is the issue, and I should force half duplex for the installation kernel on compute nodes.
Having trouble with PXE boot - this method is not working.

7/2

Back to PhEDEx... tried adding -access_latency=ONLINE to the arguments of srmcp in SRMDownload - same error. Sent job log to Bockjoo.
Got Yujun's PhEDEx config file for Bestman.

New Start/stop of phedex command is:
./PHEDEX/Utilities/Master -config SITECONF/T3_US_FIT/PhEDEx/Config.Debug stop

7/6

PXE network boot IS working - but only on functioning switches. Due to the new switch completely blocking all DHCP requests, it will not allow PXE installation and therefore the nodes will not get new kernel arguments except by manual input. The new switch completely refuses to allow DHCP with the frontend.
Going to try playing with the settings of the Cisco switch.

LOL it looks like setting the Smartport to "Router" instead of "Switch" allows DHCP!
Massive boost in speed! First rack of nodes are installing now.

To update ganglia, restart /etc/init.d/gmetad and /etc/init.d/gmond
MIGHT have to restart httpd as well.

Also with PXE working we can set the boot action of the nodes remotely!!!

Also using eth0 (onboard gigabit ethernet) instead of eth2 (PCI gigabit card), could be contributing to the increased speed.

I still don't have write access to CVS.

7/10

Tried different site configurations including srmcp_t3.py and srmcp_wrapper (from UMD).
srmcp_t3.py does not work.

srm-copy-wrapper needs a few add-ons from Nebraska, they install under python2.3 but the default python is python2.4 - need to figure out how to install the stuff under /usr/lib/python2.4

7/13

Attempting to install the T3 srmcp manually via rpm.
http://t2.unl.edu/store/rpms/SL4/x86_64/srmcpT3-0.1-1.noarch.rpm
Still not working

Attempting to use srmcopy_wrapper from the UF installation.
Getting directory/file doesn't exist error - wrapper is not making directories properly.
Yujun suggests using -mkdir flag - a feature of the latest Bestman version, to automatically create sub-directories. I knew of this for a while and updated the version accordingly a while ago... I thought it was automatic.
Not quite working... tried calling the createpath subroutine in the wrapper...
Nope
The -mkdir flag will only create a single subdirectory - emailed Alex Sim (developer of Bestman) to see if this is intended.

7/14

Trying a new wrapper script from Yujun using srm-mkdir.

7/15

New wrapper is good, but the createpath subroutine is not being called, even though srmls is returning 1 to the if statement. Debugging...
Still not sure why this doesn't work, but in any case it seems that a failure of an SRM call causes an automatic escape. May try to utilize mkdir -p to recursively create the right directories for the job, rather than srm-mkdir. This may not work properly since the user needs to be uscms01.

It seems we are also getting an authentication failure with FNAL, but not with UF.

7/20

Trying to install and configure bestman directly from
https://codeforge.lbl.gov/frs/?group_id=54
Using configuration...

```
./configure \
        --enable-full-mode \
        --with-replica-storage-path=/mnt/nas0/OSG/BeStMan/cache \
        --with-replica-storage-size=5000000 \
        --with-globus-tcp-port-range=40000,40200 \
        --with-http-port=8080 \
        --with-https-port=8443 \
        --with-eventlog-path=/mnt/nas0/OSG/BeStMan/log \
        --with-cachelog-path=/mnt/nas0/OSG/BeStMan/log \
    --enable-sudofsmng \
```

```
        --with-java-home=/usr/java/jdk1.6.0_10 \
        --with-srm-owner=daemon \
        --with-certfile-path=/etc/grid-security/containercert.pem \
        --with-keyfile-path=/etc/grid-security/containerkey.pem
```

This option not needed in Full management mode
```
        --with-tokens-list="CMSDATA[desc:CMSDATA][path:/mnt/nas0/OSG/BeStMan][5
000000]" \
```


Error on startup - need to reset the JAVA_HOME to the newest version location - hopefully it doesn't interfere with OSG. Doing this in /etc/profile.
Working now... to set startup correctly:
ln -s /opt/bestman/sbin/SXXbestman /etc/rc3.d/S97bestman
Can do:
/etc/rc3.d/S97bestman start/stop/check

Was still getting the "not supported under gateway mode" error. Removed -pushmode flag and it worked. Pushmode tells the source to "push" the file to the target, which obviously has issues with a gateway -> full mode transfer.

Command:
srm-copy
srm://srmb.ihepa.ufl.edu:8443/srm/v2/server?SFN=/crn/scratch/phedex/data/loadtest/store/PhEDEx_LoadTest07/LoadTest07_Debug_Florida/LoadTest07_Florida_70
srm://uscms1.fltech-grid3.fit.edu:8443/srm/v2/server?SFN=/mnt/nas0/OSG/BeStMan/cms/loadtestUF -debug -proxyfile /home/phedex/gridcert/proxy.cert

Trying PhEDEx with new bestman system (made sure to change the srm-copy location in the wrapper script.

Oops... token should cover the whole BeStMan storage directory, not cms subdirectory. That caused inaccessible directory errors.

Still getting forbidden directory errors! WTF!

Going to try gateway mode again...

```
configure \
--enable-gateway-mode \
--with-http-port=8080 \
--with-https-port=8443 \
--with-globus-tcp-port-range=40000,40200 \
--enable-sudofsmng \
--with-java-home=/usr/java/jdk1.6.0_10 \
```

--with-tokens-list="CMSDATA[desc:CMSDATA][path:/mnt/nas0/OSG/BeStMan][5000000]" \
--with-eventlog-path=/mnt/nas0/OSG/BeStMan/log \
--with-srm-owner=daemon \
--with-certfile-path=/etc/grid-security/containercert.pem \
--with-keyfile-path=/etc/grid-security/containerkey.pem

Oops, wrapper script does not need proxyfile in the arguments.

Trying:

srm-copy srm://cmssrm.fnal.gov:
8443/srm/managerv2?SFN=/11/store/PhEDEx_LoadTest07/LoadTest07_Prod_FNAL/LoadTest07_FNAL_35 srm://uscms1.fltech-gr
id3.fit.edu:8443/srm/v2/server?SFN=/mnt/nas0/OSG/BeStMan/cms/store/PhEDEx_LoadTest07/LoadTest07_Debug_
US_FNAL/US_FIT/1/LoadTest07_FNAL_35_kD0ffXDr2NYof1g9_1 -debug -proxyfile
/home/phedex/gridcert/proxy.cert -mkdir

This command throws SRM_NOT_SUPPORTED which was expected since it's SRM to SRM transfer - need to go to full mode.
However the srm-mkdir works fine, indicating that the problem is authentication with Phedex and not Bestman.

Next step is to try getting full mode to work again.

Still the same issues, bestman full gives forbidden error, but Phedex still gives authentication error - this indicates the problem is with Phedex.

Giving replica directory its own subdirectory (cache) to avoid bestman complaining about access.
This worked! Although we are getting the following error now for srm-copy only:

SRM-CLIENT*SOURCEURL[0]=srm://cmssrm.fnal.gov:8443/srm/managerv2?SFN=/11/
store/PhEDEx_LoadTest07/LoadTest07_Prod_FNAL/LoadTest07_FNAL_35
SRM-CLIENT*TARGETURL[0]=srm://uscms1.fltech-grid3.fit.edu:8443/srm/v2/server?S
FN=/mnt/nas0/OSG/BeStMan/cms/store/PhEDEx_LoadTest07/LoadTest07_Debug_US
_FNAL/US_FIT/1/LoadTest07_FNAL_35_kD0ffXDr2NYof1g9_1
SRM-CLIENT*FILE_STATUS[0]=SRM_FAILURE
SRM-CLIENT*EXPLANATION[0]=remote prepareToGet(null) failed.Reason:SRM
Authentication failed

Probably an issue with grid authentication.

For:

srm-copy
srm://srmb.ihepa.ufl.edu:8443/srm/v2/server?SFN=/crn/scratch/phedex/data/loadtest/store/PhEDEx_LoadTest07/LoadTest07_Debug_Florida/LoadTest07_Florida_70
srm://uscms1.fltech-grid3.fit.edu:8443/srm/v2/server?SFN=/mnt/nas0/OSG/BeStMan/cms/loadtestUF -debug -proxyfile /home/phedex/gridcert/proxy.cert

Error:
SRM-CLIENT*SOURCEURL[0]=srm://srmb.ihepa.ufl.edu:8443/srm/v2/server?SFN=/crn/scratch/phedex/data/loadtest/store/PhEDEx_LoadTest07/LoadTest07_Debug_Florida/LoadTest07_Florida_70
SRM-CLIENT*TARGETURL[0]=srm://uscms1.fltech-grid3.fit.edu:8443/srm/v2/server?SFN=/mnt/nas0/OSG/BeStMan/cms/loadtestUFdir/loadtestUF
SRM-CLIENT*FILE_STATUS[0]=SRM_FAILURE
SRM-CLIENT*EXPLANATION[0]=Third party transfer failed.
Reason:java.lang.RuntimeException: java.io.EOFException

7/31

Rob Snihur tells me that he got PhEDEx load tests working under the new Bestman environment on gateway mode. I will work with him to solve this.
No more wrapper script!

Going back to gateway mode... using the same configuration as before.

Right!

Phedex will not work without some kind of wrapper script. So I went back to the old method (srm-copy wrapper) but used a -3partycopy flag which worked in manual SRM copy tests with UF! However, still have an authentication error with FNAL - and this is because I am not registered with the CMS VO yet. I have done this, and next week I should be moved through the system so that I can get another proxy and hopefully that error will be gone.

8/3

It is now monday and it looks like my VO membership is a go, no more authentication errors!

Testing phedex...
(Manual srm-copy command gives a broken pipe error - also strangely an

srm_not_supported error, but I don't think this is an issue. I will try phedex.

Not working...
I changed to the BestManVerify script and changed everything to srm/v2/server (as is necessary for bestman), but I get a very random srm not supported error. I tried a few different options (including -3partycopy) but was getting a gsiftp timeout error. Still, this is progress, and I am hoping we can get this completely solved at the workshop in indiana - The Bestman lead dev will be there, as well as several tier 3 admins and others with experience with phedex.

8/6
OSG Workshop!

Going to install GUMS on the CE, and upgrade CE to 1.2

Installing GUMS under /opt/osg-gums
Ok can't do it until we install OSG1.2

Installing OSG in /opt/osg-1.2 (symlink to /opt/osg) - will put gums in the same directory.
WN-client in /opt/osg-wn-1.2 (symlink to /opt/osg-wn)

Need to set $OLD_VDT_LOCATION to get old configuration.

Doesn't work very well...
Needed to fill in the missing pieces of extracted-config.ini manually as it was causing errors in validation. Done this.

To fix gridmapfile for now... copy into edg-mkgridmap.conf:
gmf_local   /opt/osg/edg/etc/grid-mapfile-local
and copy the grid-mapfile-local from old install into /opt/osg/edg/etc

Need to fix the ports issue a la Malina

Need to:
Install/Configure GUMS:
Following the twiki... need to change ports again to 7443
Also had to do:
ln -s /var/lib/mysql/mysql.sock /opt/osg-1.2/vdt-app-data/mysql5/var/mysql.sock

Ok, need to modify the script gums-add-mysql-admin to include -p flag in the $MYSQLPARAM so that it will prompt for password.

Just in case...
found MySQL password "STGXWURSFIS"

Might have to change more ports to 7443:
$VDT_LOCATION/gums/config/gums-client.properties
/etc/grid-security/prima-authz.conf

Caused error: Failed to start container: Container failed to initialize [Caused by: Address already in use]

Tomorrow set up Bestman from VDT

Networking Workshop!

Suite of tools to diagnose slowdown or outage.
Move 3 times further away - get 3 times less throughput, problem...

8/7
Storage Element Workshop!

Will install bestman from the VDT.

Aside:
https://twiki.grid.iu.edu/bin/view/ReleaseDocumentation/BestmanGatewayXrootdHandsOn
https://twiki.grid.iu.edu/bin/view/ReleaseDocumentation/GratiaTransferProbe

Gateway mode at OU

Going to install using normal apache ports, and put bestman on another machine (nas-0-0 or dev-0-0)

So gums...
following:
https://twiki.grid.iu.edu/bin/view/ReleaseDocumentation/FullPrivPreConfig

So...
To add manual user, have to create MANUAL group and set up account mapping.

To add a VO and map it to a single user - set up a group (e.g. cms) in Account Mappers then go to Group to Account mappings and set the VO groups to the account mapper group you just created.

This is an alternative to Pool mapping (hundreds of user accounts).

Next... trying to change all the ports to 7443 and install bestman temporarily on VDT

NOTE!!!!
Make sure there's nothing running after vdt-control -off otherwise bad stuff happens

GUMS messes up the port change... cannot have bestman on the CE. Will put it on the Development node with phedex.

8/10

They are going to be changing my FIT email... will screw up grid stuff.