

Setting Up and Maintaining a T3

*Just presenting talking points
Don't expect much substance*

- Motivation for being a T3
- Requirements
- Storage – CMS is expected to have lots of data
- Batch systems – Condor, LSF, PBS, SGE
- Cluster Management
- Security

Setting Up and Maintaining a T₃

- Why set up a T₃?
 - Want to run CMSSW to being a full T₃?
 - Are there alternatives?
 - Want to import data?
 - Is anyone just importing data and then using their local resources to analyze data?
 - PhEDEx – Is this the only game in town
 - What about conditions? SQUID?
 - Want to share resources?
 - You like pain?

Setting Up and Maintaining a T3

- What are the requirements to be a T3?
 - Number of compute nodes
 - Sites range from a few to lots of cores
 - Disk space
 - Lots of variation here are well
 - Network connection
 - Probably want Gb for data import, plenty of T3s with 100Mb
 - General thought is there are no requirements nor expectations for USCMS Tier3.

Setting Up and Maintaining a T₃

- Components of a T₃ – What do really need?
 - Compute element
 - Storage Element
 - PhEDEx
 - GUMS/grid map file
 - SQUID/Frontier server
 - CMSSW
- Dedicated services nodes?
 - Issues with combining services on a node?
- Batch systems – Which and Why?
 - OSG Supported batch systems:
 - Condor – Most widely used and supported batch system
 - LSF – Comments from users
 - PBS – Comments from users
 - SGE – My favorite. Not as supported as others.

Setting Up and Maintaining a T3

- Storage options:
 - Simple NFS System – Storage devices and symbolic links
NFS – Network Storage Systems and symbolic links
 - Complex RAID systems
 - Lustre
http://wiki.lustre.org/index.php/Main_Page
 - GPFS
<http://www-03.ibm.com/systems/software/gpfs/index.html>
 - Distributed Filesystems:
 - Hadoop – See Tier 2 talks at this meeting
 - Xrootd – See Tier 3 storage talk at this meeting