Subject: FNAL Tier-1 and Tier-2 Transfers
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As promised for today's meeting, here is the first pass of the FNAL to and from Tier2
transfer goals for 2006.

-Ian

In the CMS computing model the Tier-1 to Tier-1 transfers are reasonably small.   The
Tier-1 centers are used for re- reconstruction of events so Reconstructed events from
some samples and analysis objects from all samples are replicated between Tier-1
centers.

FNAL Transfer goals in 2006 for Tier-1 to Tier-1.   All numbers are expected to be
disk to disk.

Transfers expected to be managed with PhEDEx.

Goal for Tier-1 to Tier-1 transfers
FNAL -> One Tier-1 1TB per day February 2006
FNAL -> Two Tier-1's 1TB per day each March 2006
FNAL -> 6Tier-1 Centers 1TB per day each July 2006
FNAL -> One Tier-1 4TB per day July 2006
FNAL -> Two Tier-1s 4TB per day each November 2006

Transfers in the computing model to the Tier-2 centers are larger.   Imports are
performed from a limited number of Tier-2 centers performing simulation that needs to
be archived at the Tier-1 and backing up to tape user data from supported Tier-2
centers.   Exports are performed to all Tier-2 centers

CTDR estimate for aggregate rate from FNAL to all Tier-2 centers in 2008 is 3.5Gb/s
sustained
CDTR estimate for aggregate rate for import rate to FNAL from simulation and supported
Tier-2 centers 3.5Gb/s sustained

Goal in 2006 is 800Mb/s into FNAL from US Tier-2s
Goal is 2006 is 800Mb/s total to all Tier-2s

Currently CMS has 13 Tier-2 centers capable of receiving data at reasonable scale.
20 Tier-2s are predicted by the end of the 2006

Import Rates
1 US Tier-2 -> FNAL 2TB per day February 2006
2 US Tier-2 -> FNAL 2TB per day each March 2006
All US Tier-2s -> FNAL 1TB per day each July 2006 (7TB per day)
2 US Tier-2 -> FNAL 5TB per day November 2006 (10TB per day)

Export Rates
FNAL -> 20% of Tier-2 centers 1TB per day each February 2006 (3TB per day total)
FNAL -> 50% of Tier-2 centers 1TB per day each July 2006 (10TB per day total)
FNAL -> 20% of Tier-2 centers 5TB per day each November 2006 (20TB per day total)