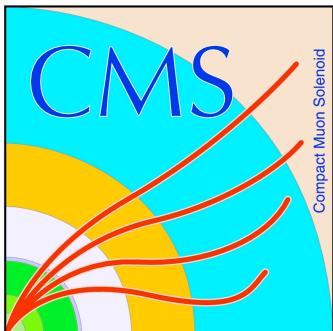


Tier-3s



Tier-3s

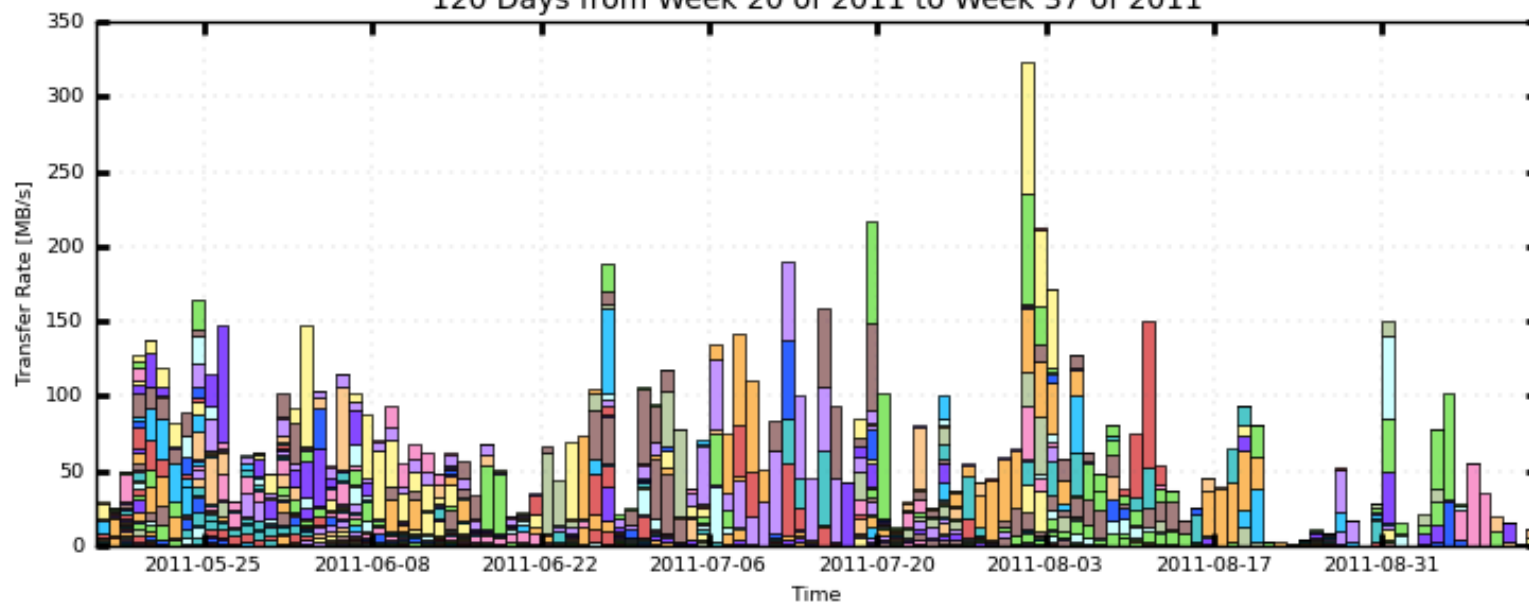
- ▶ Tier-3s have typically had a vague definition in CMS
 - ▶ Basically anything that was not a Tier-2 was classified as a Tier-3
 - ▶ Contained the facilities that did not have official obligations to CMS
 - ▶ Harder to plan against
 - ▶ Controlled by their local communities
- ▶ Huge variation
 - ▶ Sizes range from a few desktops up to facilities that are as large as Tier-2s
 - ▶ Functionality runs from being able to run CMSSW to being a fully functional grid node

Tier-3s by the Numbers

- ▶ There are 59 sites registered in the site DB as being Tier-3s
 - ▶ More than the Tier-2 sites registered
 - ▶ Half are in the US
- ▶ ~30 have received data with PhEDEx during the last 6 months
 - ▶ Requires a functional SE and a PhEDEx node to support the site
- ▶ 27 have received CRAB jobs in the last week

Tier-3

CMS PhEDEx - Transfer Rate
120 Days from Week 20 of 2011 to Week 37 of 2011



- T1_US_FNAL_Buffer to T3_FR_IPNL
- T1_US_FNAL_Buffer to T3_US_TAMU
- T1_US_FNAL_Buffer to T3_US_TTU
- T2_US_Nebraska to T3_US_Colorado
- T2_US_Wisconsin to T3_US_FNALLPC
- T1_US_FNAL_Buffer to T3_US_Minnesota
- T1_IT_CNAF_Buffer to T3_US_FNALLPC
- T1_DE_KIT_Buffer to T3_US_FNALLPC
- T2_US_UCSD to T3_US_Colorado
- T1_US_FNAL_Buffer to T3_US_UCD
- T1_IT_CNAF_Buffer to T3_US_TAMU
- T1_IT_CNAF_Buffer to T3_IT_Bologna
- T1_FR_CCIN2P3_Buffer to T3_US_FNALLPC
- T2_DE_RWTH to T3_US_FNALLPC
- T2_CH_CSCS to T3_CH_PSI
- T1_TW_ASGC_Buffer to T3_US_FNALLPC
- T2_US_UCSD to T3_US_FNALLPC
- T2_US_Purdue to T3_US_Colorado
- T1_US_FNAL_Buffer to T3_US_Colorado
- ... plus 112 more

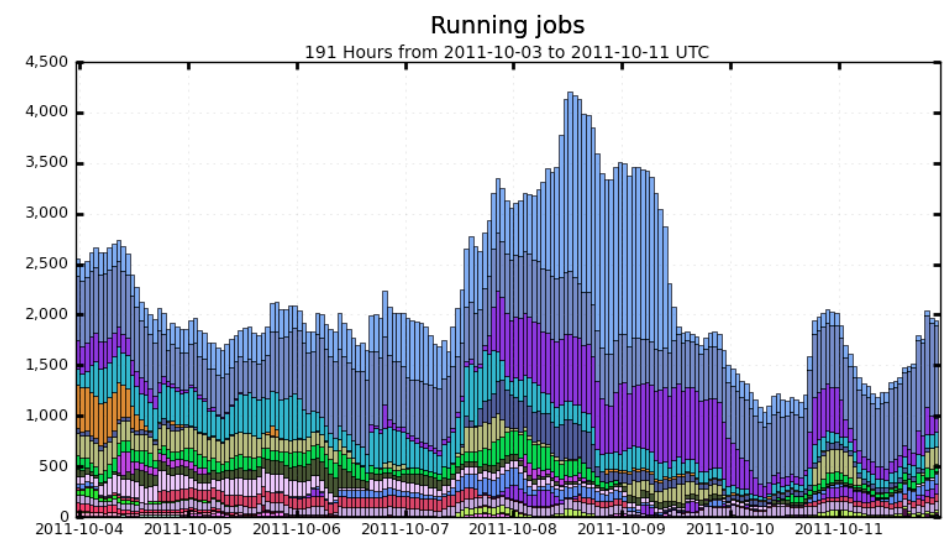
Maximum: 323.20 MB/s, Minimum: 0.08 MB/s, Average: 71.63 MB/s, Current: 11.68 MB/s

► This is about 10% of the average traffic to Tier-2s

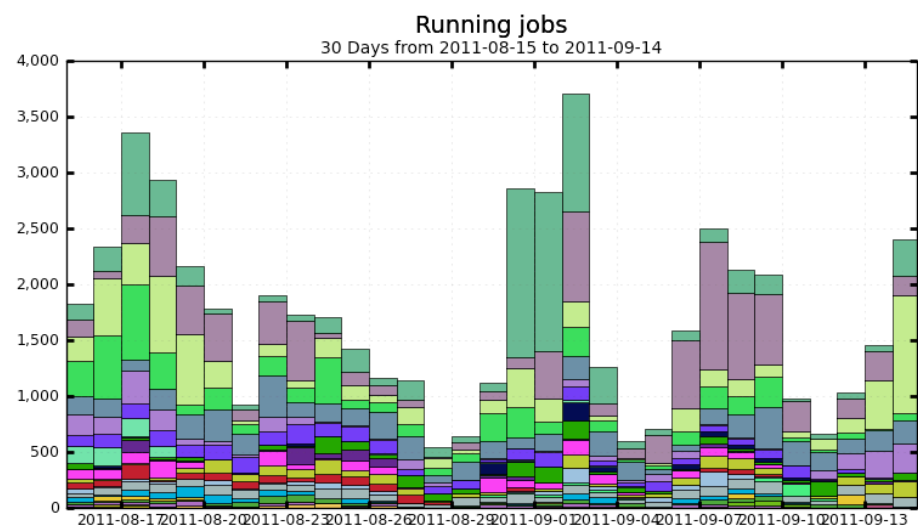
Tier-3 Jobs

► Tier-3 Activities

► About 10-15% of the analysis computing, but additional resources



Maximum: 4,205 , Minimum: 1,036 , Average: 2,189 , Current: 1,940



Maximum: 3,711 , Minimum: 543.00 , Average: 1,726 , Current: 2,402

Tier-3 Monitoring

Site View Home

http://dashb-ssb.cern.ch/dashboard/request.py/siteviewhome

CMS Dashboard PhEEx CCS Apple CDS Agendas - CMS PHP iCalend...sionTracker CMS Production page Apple .Mac News (2,569) Apple (133) SWInteg

Status	Site Name	Status	Site Name	Status	Site Name
	T3_BY_NCPHEP		T3_IT_Padova		T3_US_Colorado
	T3_CH_PSI		T3_IT_Perugia		T3_US_Cornell
	T3_CN_PKU		T3_IT_Trieste		T3_US_FIT
	T3_CO_Uniandes		T3_MX_Cinvestav		T3_US_FNALLPC
	T3_DE_Karlsruhe		T3_NZ_UOA		T3_US_FNALXEN
	T3_ES_Oviedo		T3_TW_NCU		T3_US_FSU
	T3_FR_IPNL		T3_TW_NTU_HEP		T3_US_JHU
	T3_GR_Demokritos		T3_UK_London_QMUL		T3_US_Kansas
	T3_GR_IASA		T3_UK_London_RHUL		T3_US_Minnesota
	T3_GR_Ioannina		T3_UK_London_UCL		T3_US_NotreDame
	T3_IT_Bologna		T3_UK_SGrid_Oxford		T3_US_OSU
	T3_IT_Firenze		T3_UK_ScotGrid_ECDF		T3_US_Omaha
	T3_IT_MIB		T3_UK_ScotGrid_GLA		T3_US_Princeton

Tier-3s

- ▶ About half of the Tier-3s are functioning like small Tier-2s
 - ▶ Transferring data and accepting grid jobs
 - ▶ Also routinely monitored
 - ▶ Presents a support challenge
 - ▶ Both locally and centrally to CMS these are centers without obligations to CMS, but are reducing our load
- ▶ The other half are in various stages of commissioning or are functioning as local facilities
 - ▶ Submitting sites and running independently

Evolution

- ▶ Looking at a variety of directions for Tier-3s
 - ▶ Improving the documentation and community support
 - ▶ We've done some opportunistic production, but still an area for increases
 - ▶ Looking at xrootd access to data from a distance to avoid locally transferred data
- ▶ Trying to maximize the contribution of Tier-3s which is analysis processing above the central system, while trying to minimize the support load for the sites and central operations