

WLCG Tier2 at TIFR

LHC Physics Workshop
21-27 October 2009, Mumbai

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Outline

- Site description
- Resources
- User access/Tier3
- Performance
- Summary and conclusion

IndiaCMS-TIFR, Some facts

- A facility for the CMS user community in India
- Located at TIFR, started in June 2005
- Assigned to the Asia-Pacific ROC at ASGC
- About 50 physicists/users accross India
- 6 Groups - BARC (Mumbai), Delhi Univ, Panjab Univ (Chandigarh), Visva-bharati (Santiniketan), TIFR-EHEP, TIFR-HECR
- 5 FTE to manage the site

Site Resources - CPUs

- CPU – 360 cores
- 45 servers with Dual CPU, Quad core
- Intel 5355 @2.66GHz
- 2GB RAM per processor core
- Total Specint_base2000 = (45x2700)
- 72GB HDD (10K RPM SAS)
- HEPSpec2006 of each server ~ 80 (total 3600)

Site Resources - Storage

- One Storage Element with gLite-DPM + SRM
- 335 TB storage in 18 DPM Disk Pools nodes
- Each disk pool node:
 - Dual Intel 5430 (quad core), 16GB RAM
 - 4 & 1Gig network ports
 - 24 x 1TB HDD (SATA 7200), RAID6
 - Read/Write 800GB/s 500GB/s
 - 4U rackmountable chassis
- GsiFTP for WAN, RFIO for LAN access.

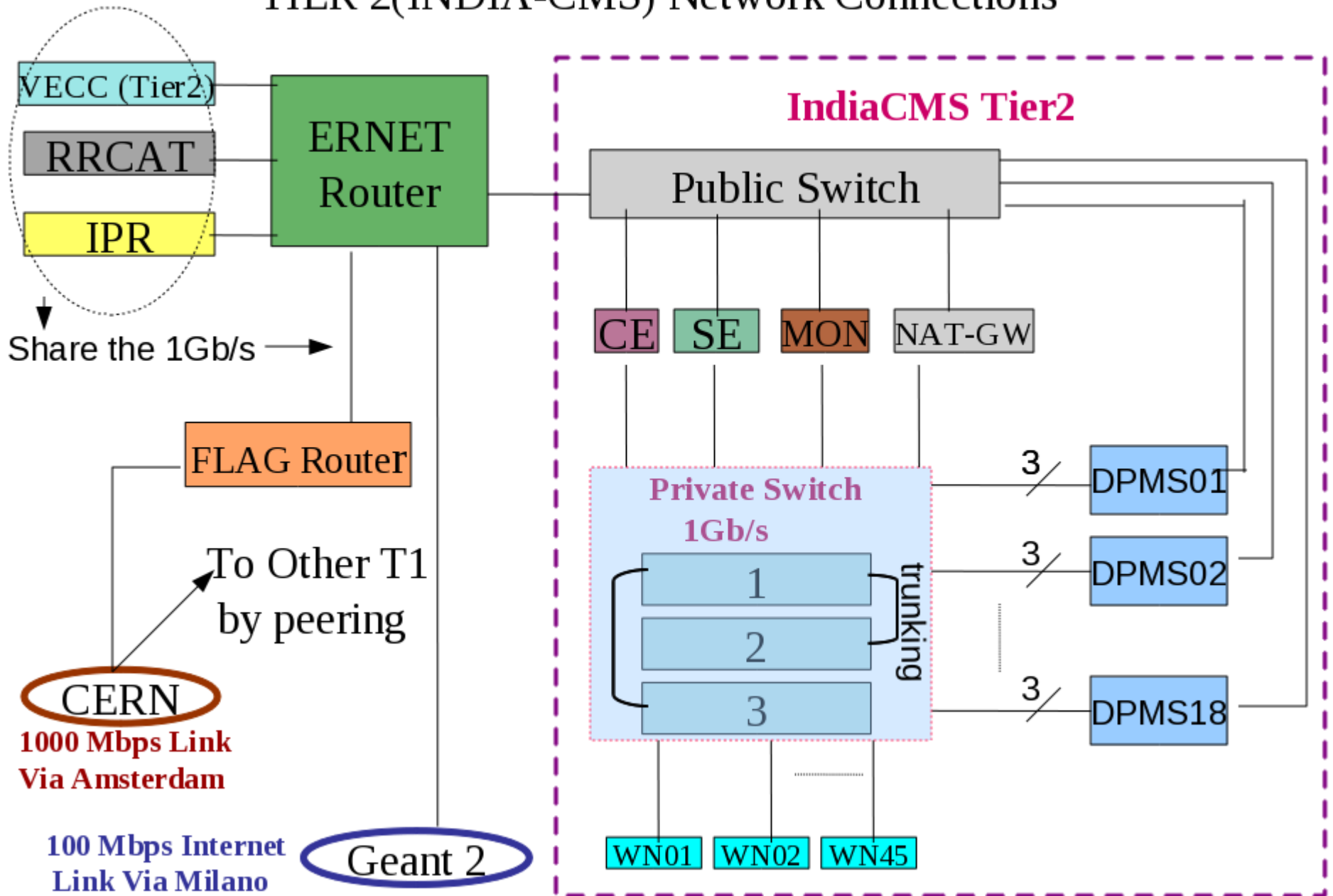
Largest DPM?

Second Largest T2 in CMS
by size of SE

Site Resources - Network

- 1Gb/s LAN fabric
- Multiple 1Gb/s connections between disk servers and worker nodes – better downloads
- 1Gb/s WAN to the seven CMS T1
 - 1Gb/s point to point to CERN
 - 1Gb/s to other T1, by peering with GEANT
- 100 Mb/s Internet, via GEANT

TIER 2(INDIA-CMS) Network Connections



Planned Additions to resources

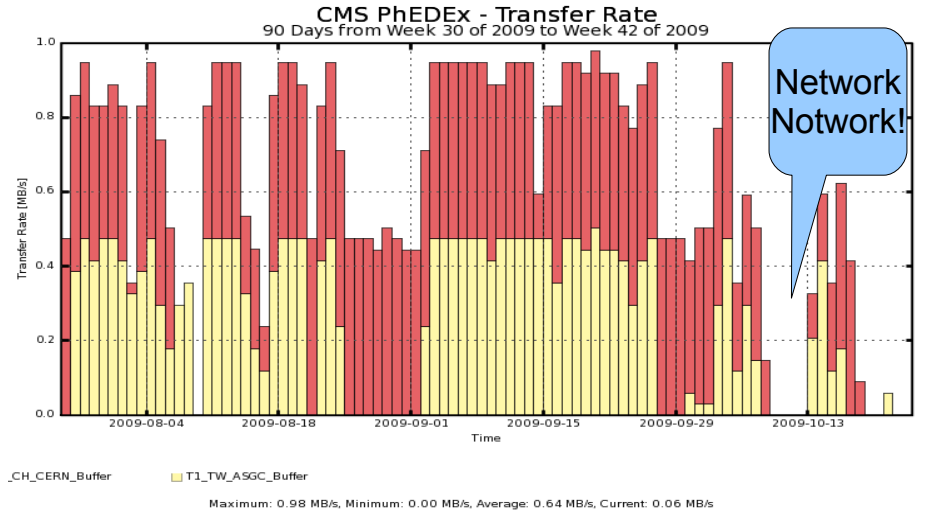
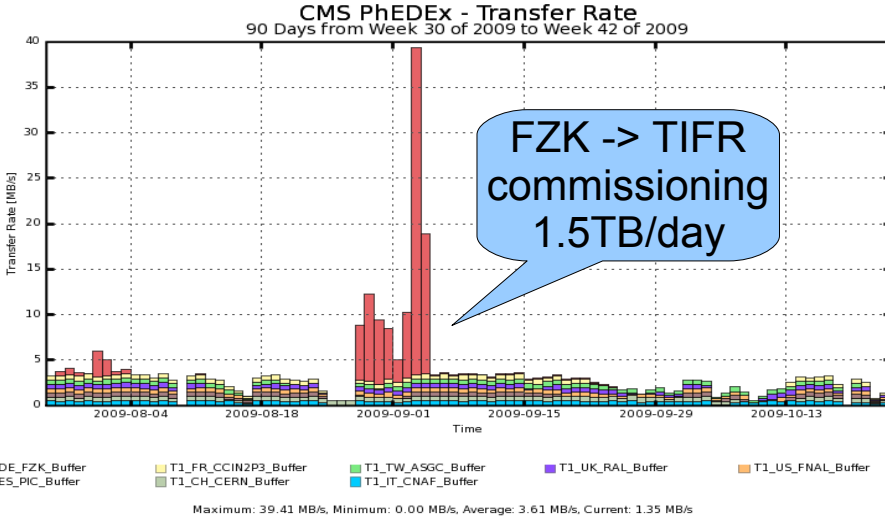
- Better servers for SE, CE, MON, Frontier-Squid
- Worker nodes CPU
 - 23 servers, 200 cores, Nehalem CPU's
 - each server ~100 HEPSpec2006
- Storage:
 - 240 TB
 - specs similar to earlier 24 TB disk servers, but with better performance.
- ETA: Jan 2010

PhEDEx Rate Plots

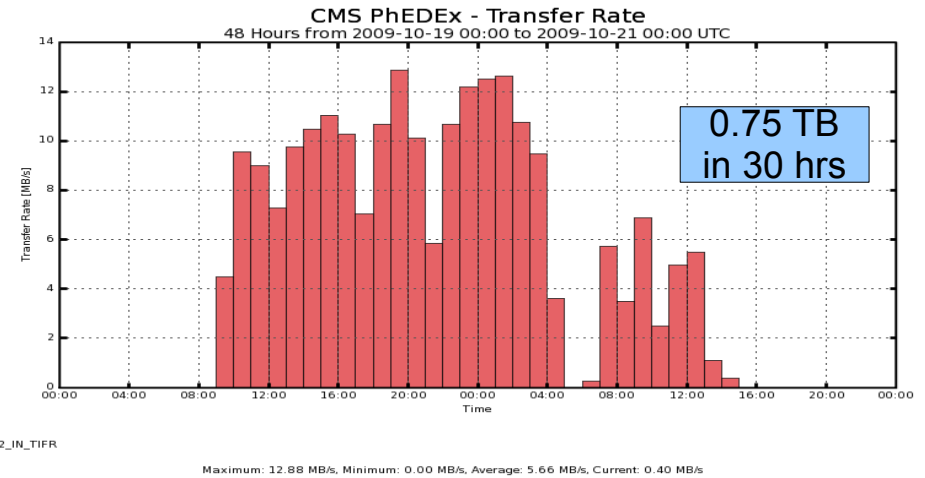
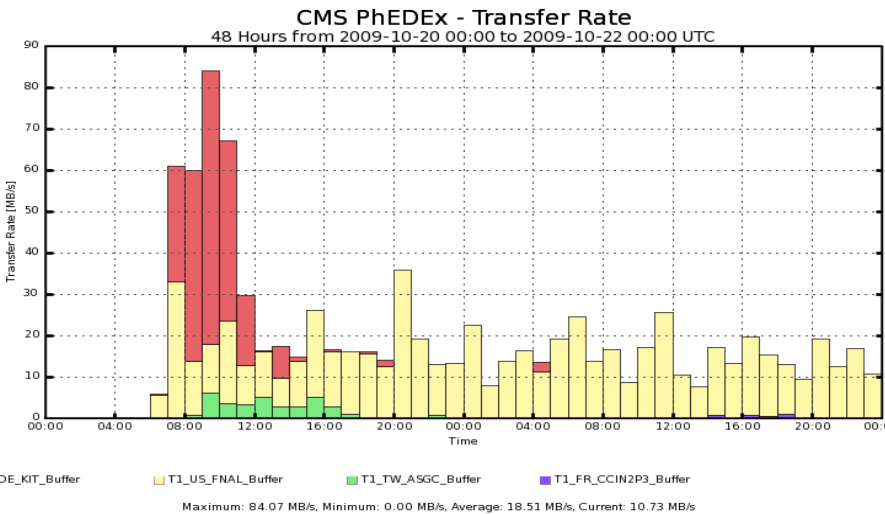
Downlink

Uplink

Debug



Prod

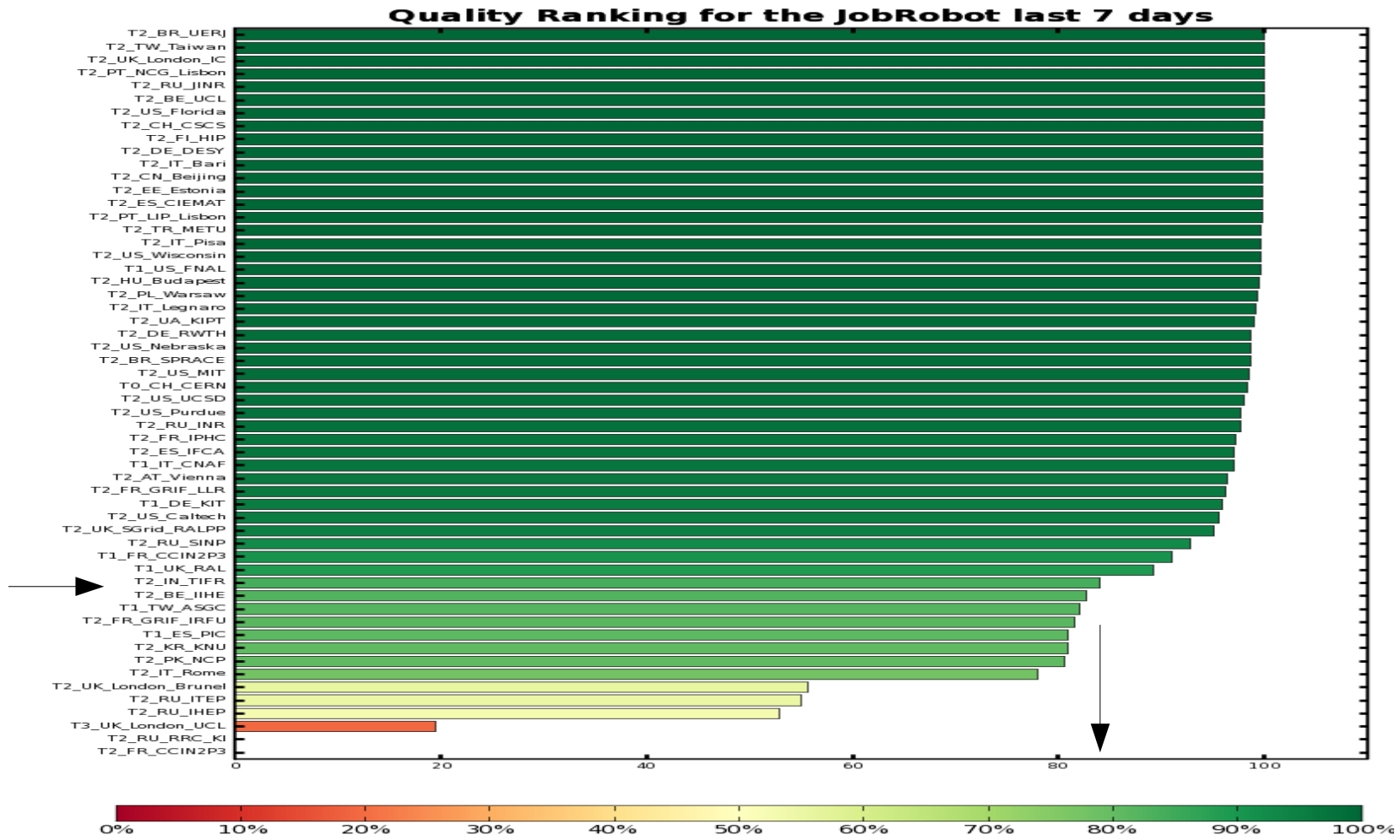


User access to Tier2

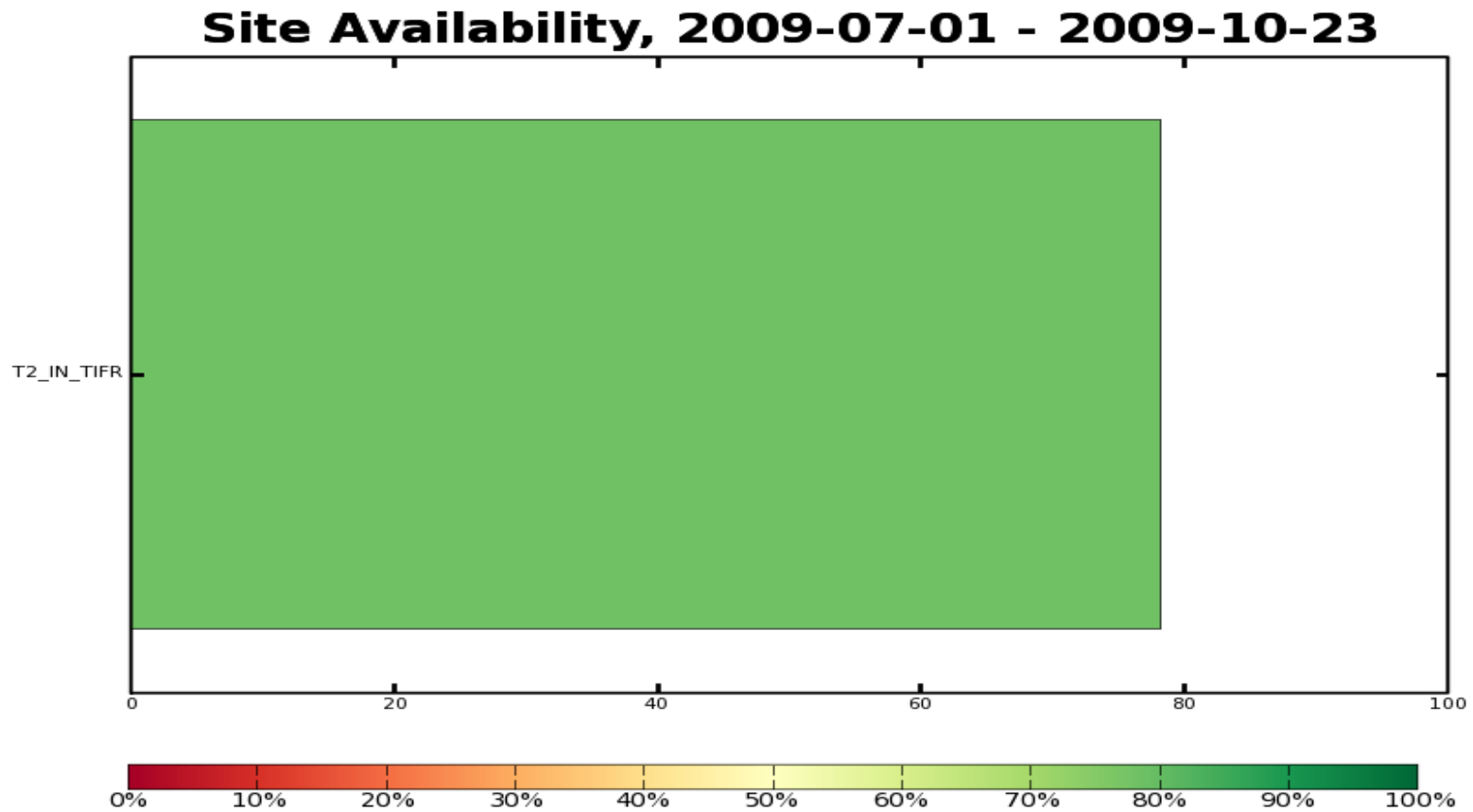
“Attached“ Tier3

- One high end server as UI
- Directly connected to the Tier2 LAN
 - faster access to Storage, using RFIO
- 20TB local disk space
- AFS client
- User Space: Directories in /cms/user area created in the Tier2 storage
- Soon: dedicated job slots to make it a better Tier3

Site Availability - JobRobot



Site Availability – CMS SAM Tests



Some conclusions

- Site availability around 80%, by CMS tests
- Much better by GStat tests (faster recovery)
- Network issues, tests by DANTE right now
- Some local weak points identified
- Job Slot occupancy needs to be ramped up
 - work harder for reliability/availability
 - become member of physics groups
- Users to start using seriously

THANK YOU !

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Rajesh Babu MUDA
Nagaraj PANYAM
Prashant SHINGADE
Makrand SIDDHABHATTI