


Computing Facilities at TIFR: Past and Present

Nagaraj Panyam, TIFR

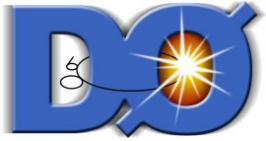
Outline

- Compute Facilities in Dept. Of HEP
 - D0
 - CMS
 - INO
 - Elsewhere in TIFR
- 

D0 DataGrid as in March 2003



Dzero MCFarm/SAMGrid Site at TIFR



- ~110 job slots (100SI2K)
- 4TB storage in RAID6
- SAMGrid middleware
- Bandwidth 4 Mbps, upped to 34Mbps





: MC Prod by TIFR

MC Production Geographic Distribution

Events Last Year:

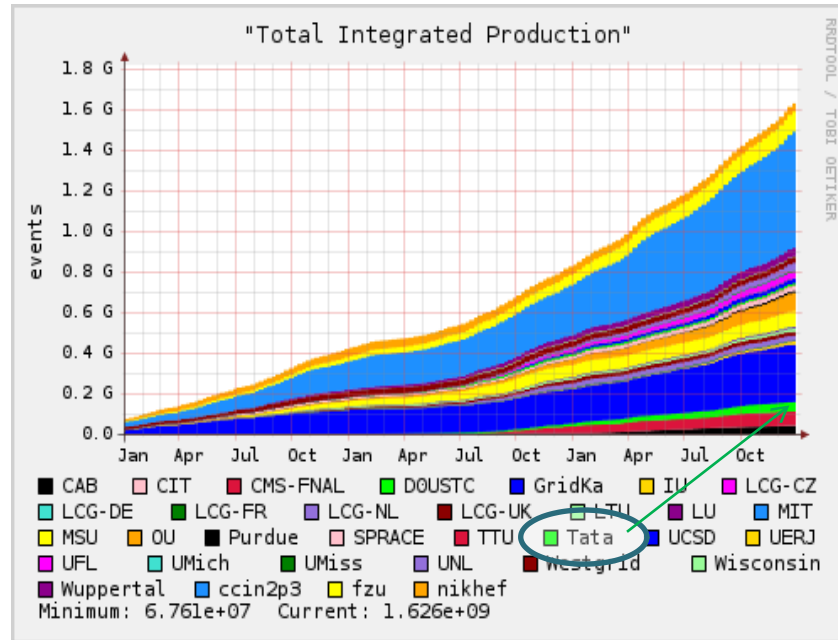
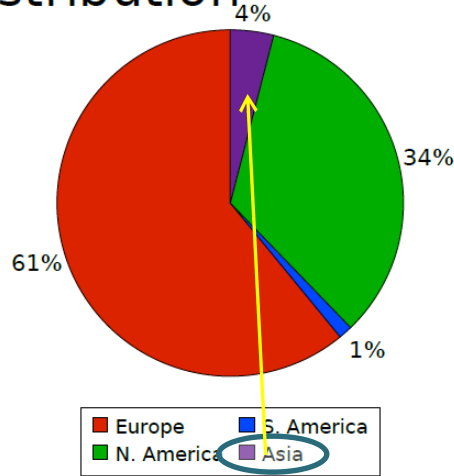
Europe 483M

N. America 232M

Asia 34M

S. America 11M

(2008/01/01 - 2009/01/01)



March 26, 2009

DZero MC Production

Joel Snow

CHEP 2009 Prague

36



Joel Snow, proceedings of CHEP09 (Prague)

INDIACMS Tier II at TIFR (2007 -)

Growth of IndiaCMS Tier2

IndiaCMS Tier2: SE with ~400TB (DPM), CE with ~350 job slots, 1Gps to CERN

March 2009

Federation Information			
Tier ^	Country ^	Federation Name ^	Accounting Name ^
Tier 2	India	TIFR, Mumbai	IN-INDIACMS-TIFR

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600 + 1000 more cpu core
1.7 PB extra storage capacity

2019

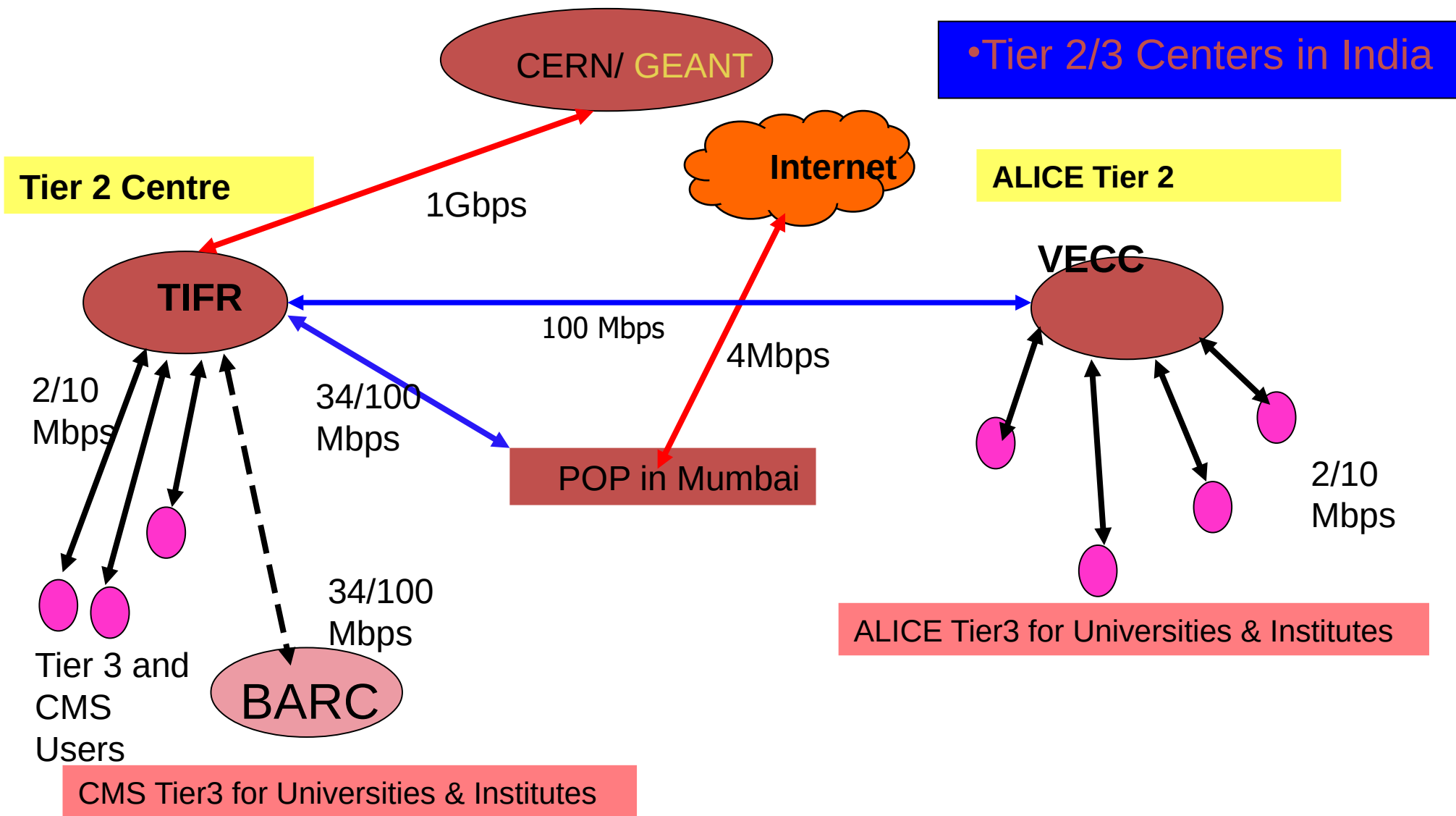
Installed Capacities						
Year: 2019	Month: 8					
Infrastructure ^	Site Name ^	Physical CPU ^	Logical CPU ^	HEPSPEC06 ^	Disk (GB) ^	Tape (GB) ^
EGI	INDIACMS-TIFR	108	1,312	13,120	0	0
Total		108	1,312	13,120	0	0

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Federation Pledges										
Year: 2019										
Pledge Type ^	ALICE ^	% of Req. ^	ATLAS ^	% of Req. ^	CMS ^	% of Req. ^	LHCb ^	% of Req. ^	SUM ^	% of Req. ^
CPU (HEP-SPEC06)					35,000	4%			35,000	4%
Disk (Tbytes)					3,000	4%			3,000	4%

Showing 1 to 2 of 2 entries

From a report made in March 2009



DAE/DST/ERNET: Geant link operational since August 2006

28 Feb 2020

Nagaraj Panyam
DUNE ND discussion meeting, TIFR

India-CMS Network, today

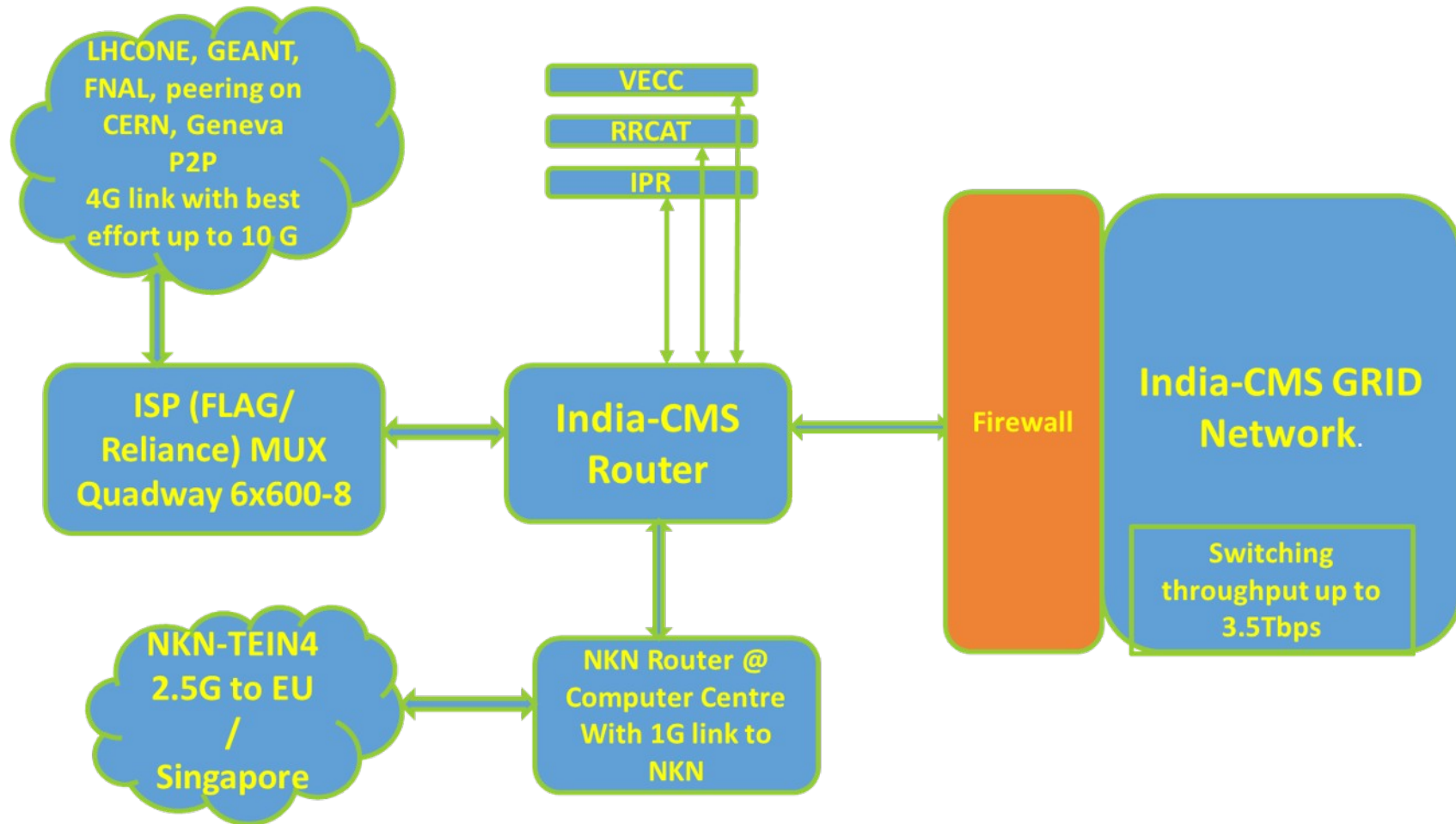
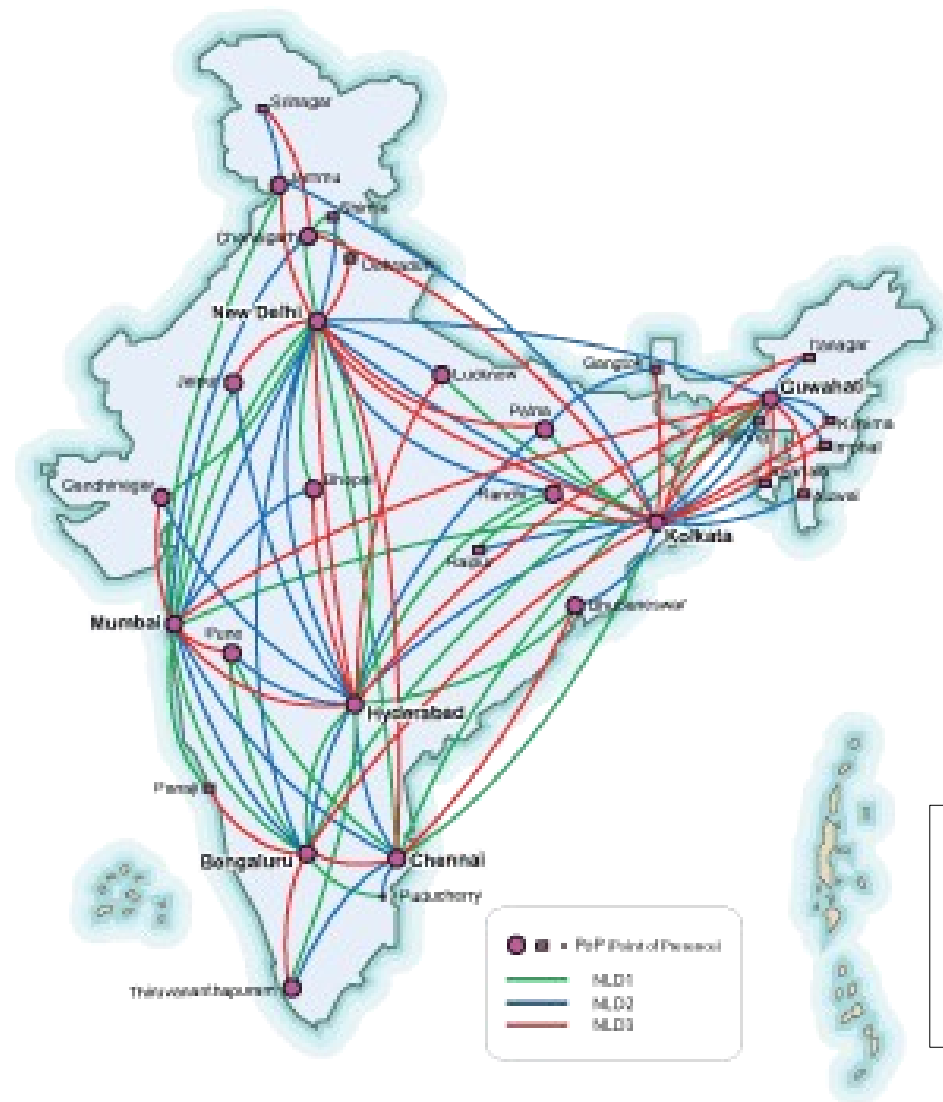


Image source: IndiaCMS website

NKN – National Knowledge Network



- Govt of India
- Pan-India network
- ~1600 educational & research institutions

Multiple 10G Connecting all the State Capitals
Gigabit Connectivity to all the 640 Districts

Image source: NKN website

INO Simulation Cluster

- Some of the “D0 Farm” compute nodes became the Simulation Cluster for INO, still in use!
 - Facility for ~28 INO Collaboration member institutions
 - ~ 25 PhDs, many more currently using
- Neutrino physics, simulation and mini-ICAL data analysis
- Purchase order placed for (~0.95M USD)
 - 8 compute nodes
 - 512 CPU cores (in form of 32 core AMD EPYC 7551)
 - 6 GB RAM per core, 2TB NVMe , 25GbE NIC
 - 1260TB storage (raw HDD)
 - Expected delivery before 31 March
 - Expect to be fully operational 3 weeks after delivery

TIFR's Compute resources

- Common HPC Facility in TIFR Mumbai Campus
 - 20 compute nodes
 - Intel Xeon Gold 6130 2.1GHz, 32Core
 - 96GB Memory
 - 1 GPU node
 - NVIDIA Tesla V100 16GB GPU 1
 - Intel Xeon Gold 6130 2.1GHz, 32Core
 - 96GB Memory
 - Approx 60TB storage
- GROMACS, Rosetta, VMD, NAMD, Corsika,Rebound, Mesa, Gadget-2, Gaussian, Turbomole, Root-Cern, Matlab, BigStick, WIEN2K

TIFRH and other departments have their own compute facilities, including a BlueGene P

Our departmental colleagues of GRAPES experiment actually build their own compute servers

THANK YOU!