



Tata Institute of Fundamental Research  
टाटा मूलभूत अनुसंधान संस्थान

## CMS Tier-2 TIFR, India Site Report of T2\_IN\_TIFR

**The 7th Asian Tier Center Forum**  
**Jeju Island, Republic of Korea**  
**Nov 1 - 3, 2023**

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# Basic Information

- 18 Racks, more than 300 servers
- Servers are fully compatible with both IPv4 and IPv6
- 2 x 8 Gbps WAN Link (sharing with VECC T2 grid)
- 150KVA UPS + 20 min. of power backup and 220KVA Isolation transformer
- UPS panel: which is a common place to control and distribute power supply

- Dedicated Fire Suppression System
- 17TR centralized + new 11TR in-Row cooling
- 2U Twin configuration compute nodes
- 4U - 53 storage nodes with RAID 6
- 3 GPU nodes with 8 x Nvidia v100 card and additional 12 different cards
- Two commissioning sites in production environment along with dedicated T3

Local site etf

state	Host	Icons	OK	Wa	Un	Cr	Pd
UP	condor-ce01.indiacms.res.in		14	0	0	0	0
UP	cream-ce02.indiacms.res.in		14	0	0	0	0
UP	se01.indiacms.res.in		25	0	5	4	0

T2 storage Head Node (HN)

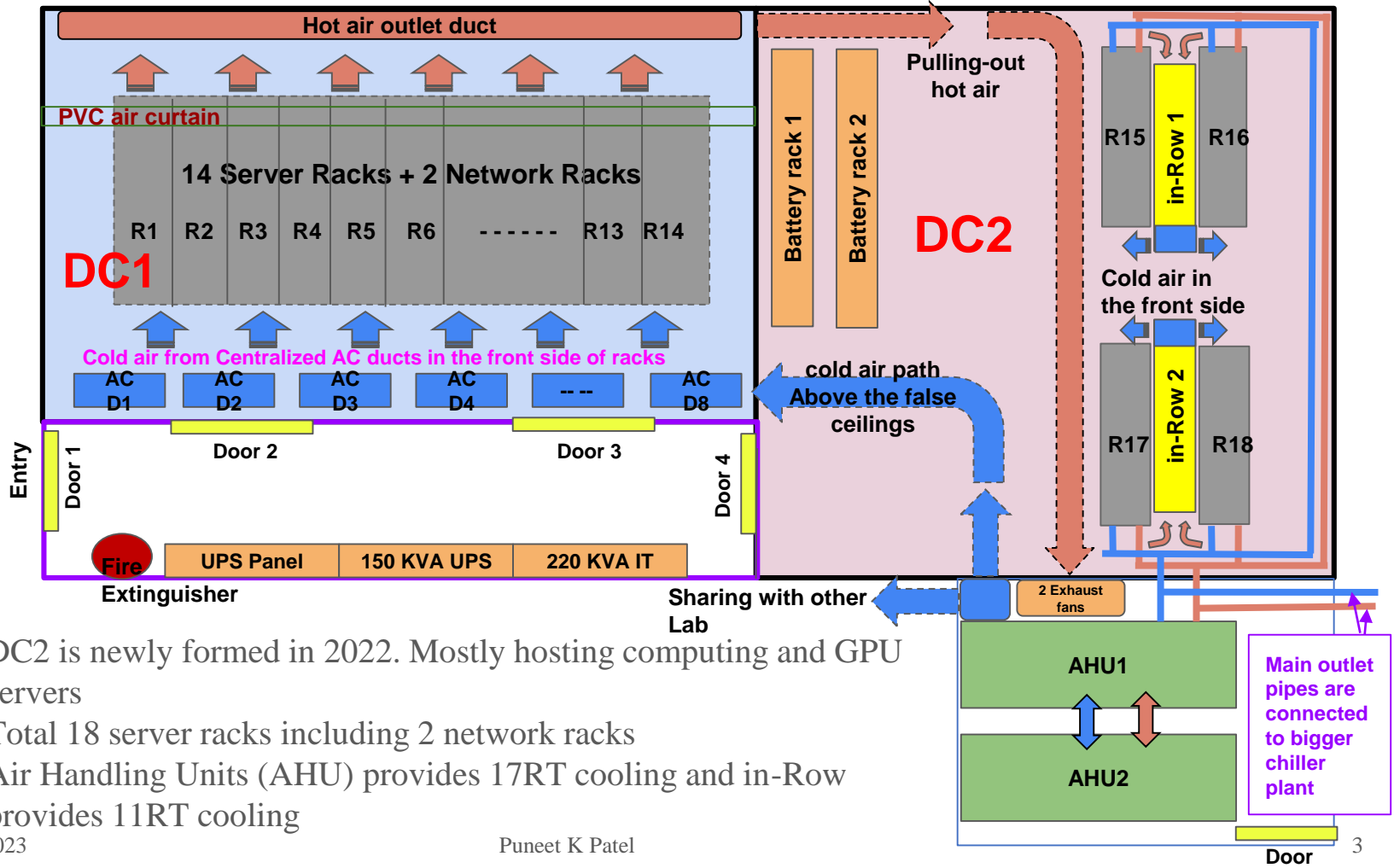
T3 computing HN

T2 computing HN

- **New tests have been added**
- **Not affecting site performances**

Experiment Site Name	RC Site	State	Country	VO name	Tier level	Status
<a href="#">T2_IN_TIFR</a>	INDIACMS-TIFR	ACTIVE	India	cms	2	production
<a href="#">T3_IN_TIFRCloud</a>	T3_IN_TIFRCloud	ACTIVE	India	cms	3	production

# DC Layout



- DC2 is newly formed in 2022. Mostly hosting computing and GPU servers
- Total 18 server racks including 2 network racks
- Air Handling Units (AHU) provides 17RT cooling and in-Row provides 11RT cooling

# H/W resources - Storage and Computing

Type of nodes	Number	Rack size	Storage capacity	CPU cores on each node (HT enabled)	Memory in GB (each node)	Commissioning Year
Storage nodes	31	4U	~ 9 PB	64C@2.8GHz - AMD EPYC 7282	256 - DDR4	2019 - 2022
Storage nodes	9	4U	~ 1.8 PB	32C@2.10GHz - Intel E52620 40C@2.20GHz - Intel 4114	128 -DDR4	2017 - 2018
Storage nodes	5	4U	~ 1 PB	24C@2.4GHz - Intel	192 - DDR3	2016
Storage nodes	5	4U	~ 320 TB	16C@2.53GHz - Intel Xeon E5630	96	2015
Storage nodes	12	4U	~ 800TB	8C to 12C@2.3GHz - Intel	32	2012 - 2014
Storage nodes	8	4U	~ 200TB	8C@2.4GHz - Intel	24	2009 - 2011
Computing Nodes	96	2U4N	2 x 480GB SSD for OS	128C@2.35GHz - AMD EPYC 7452	256 - DDR4	2019 – 2022
Computing Nodes	16	2U4N	2 x 480GB SSD for OS	56C@2.3GHz – Intel	128 - DDR3	2017
Computing Nodes	~ 70	2U4N	SATA / SSD drives for OS	16C – 48C@2.0GHz - Intel	2GB per core	2012 - 2016

# H/W resources - GPU

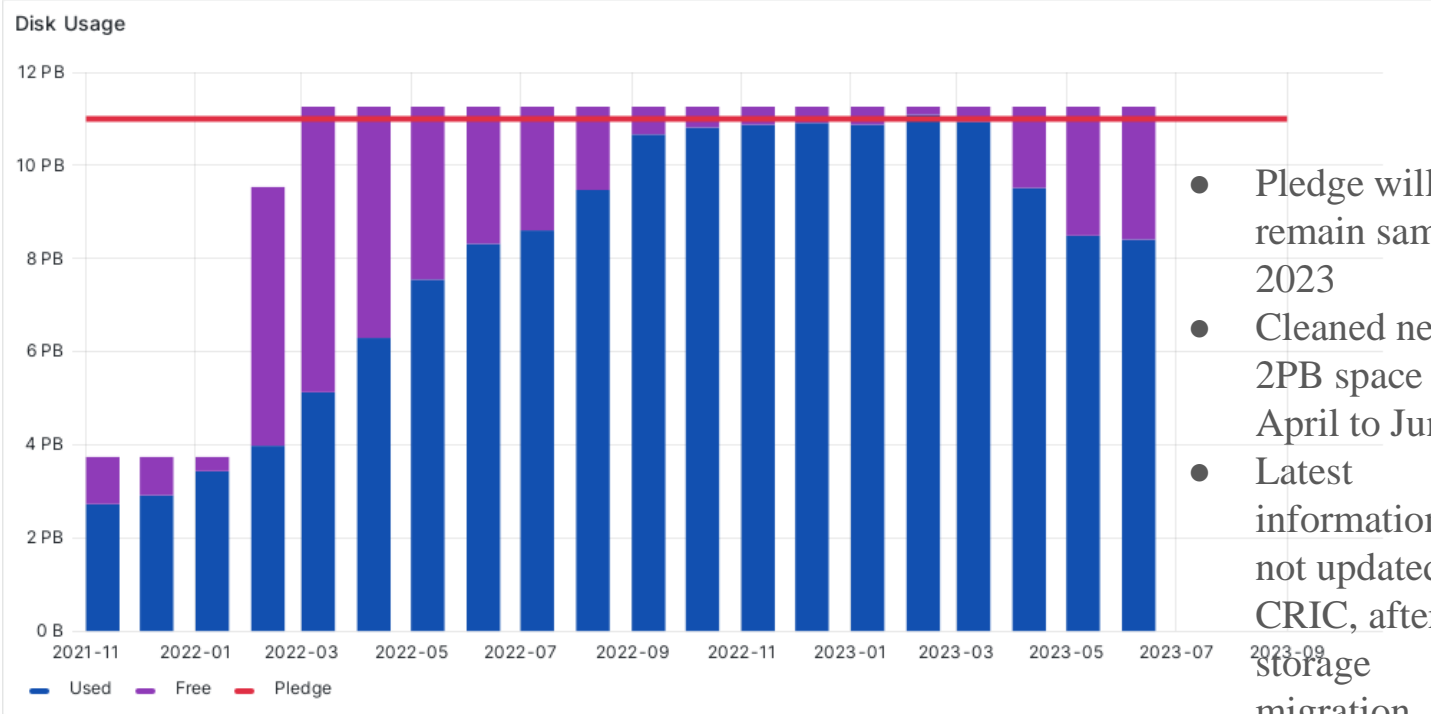
Type of nodes	Number	Rack Size	Storage capacity	CPU cores on per node (HT enabled)	Memory in GB (per node)	GPU Card per node	Commissioning Year
GPU nodes	1	4U	2 x 512GB NVME for OS	72C@2.30GHz - Intel Xeon Gold 6140	128 - DDR4	7 x Nvidia Tesla V100 card - 32GB - NVLink	2019
			2 x 400GB SSD for scratch			1 x Nvidia Tesla V100 card - 16GB - NVLink	2017
GPU nodes	2	4U	2 x 480GB SSD for OS	32C@2.3GHz - Intel Scalable Processor 5218	192 - DDR4	1 x Quadro RTX 6000 - 24GB 2 x RTX 2080 Ti - 11GB 1 X Nvidia Tesla4 - 16GB 2 x AMD Radeon7 16GB	2017

# H/W resources

## Application Servers:

- Name Resolution Services - Domain Name System (DNS) - Dual servers - parent DNS provider is ERNET India
- Storage - dCache - Single Head node and Multiple Disk Nodes
- Computing workload manager - HTCondor-CE - Single HN and Multiple WNs
- Proxy Services - CERN Frontier Squid - Dual server
- ARGUS Authentication service - Single server
- APEL accounting - Single Server
- Bandwidth Tester - PerfSonar - Single Server

# Pledge Resources



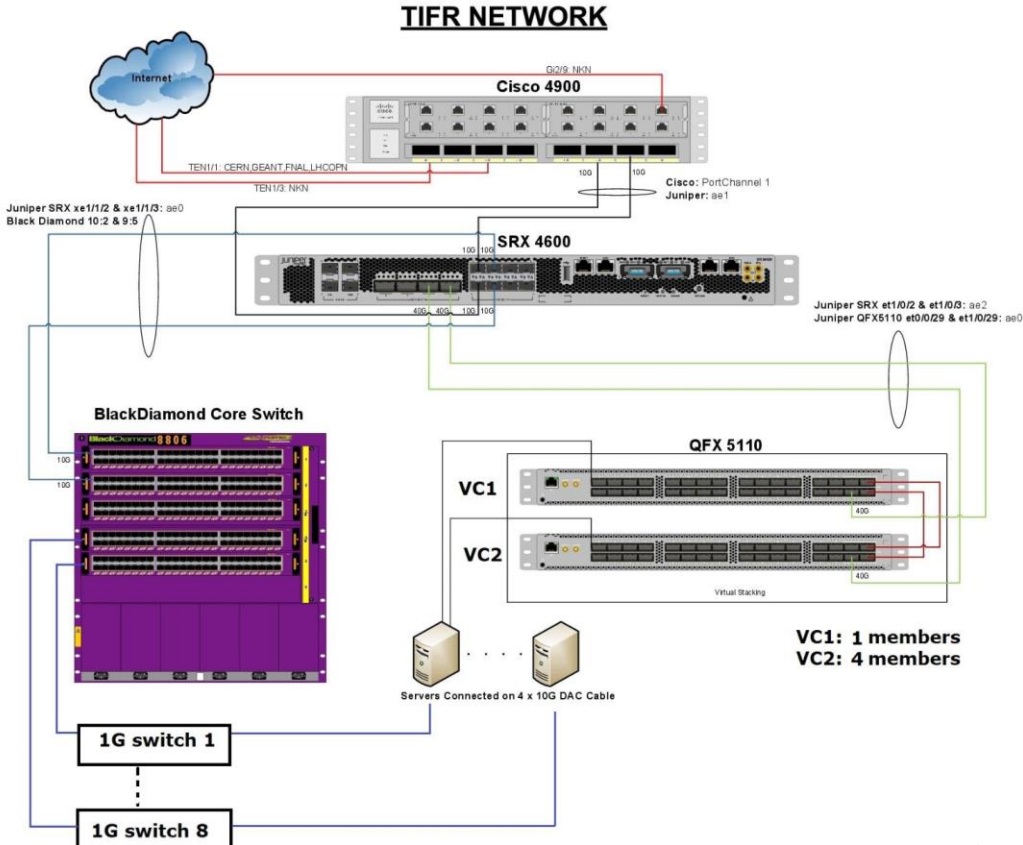
- Pledge will remain same till 2023
- Cleaned nearly 2PB space during April to June
- Latest informations are not updated in CRIC, after storage migration.

Following up in GGUS ticket: 163728

Federation	Country	Tier	Pledge Type	Year	CMS	CMS % of req	% of req
IN-INDIACMS-TIFR	India	2	CPU	2023	140000	10.37 %	10.37 %
IN-INDIACMS-TIFR	India	2	Disk	2023	11000	9.40 %	9.40 %

**Pledges provided by VOs - CMS**

# Network Connectivity - Local Network



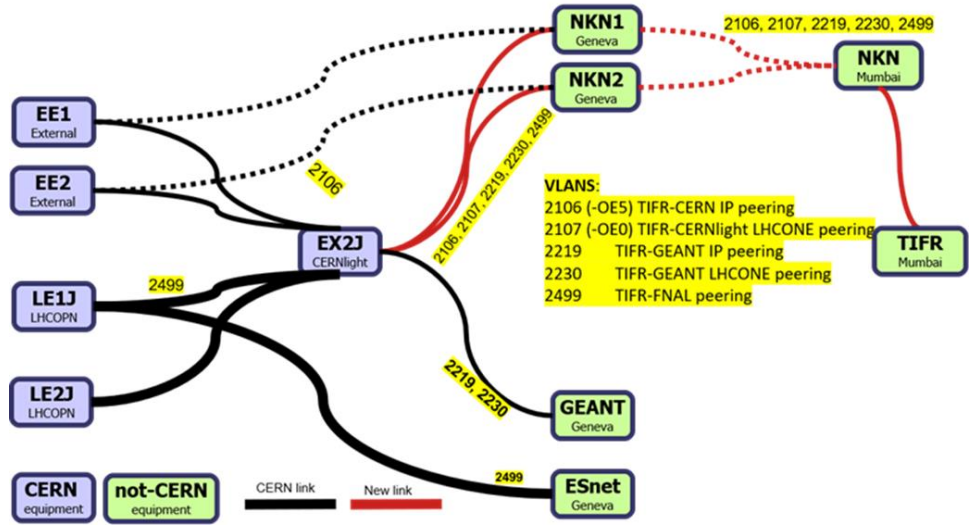
- Connections flow:

**NKN - CC - LIU - Cisco - SRX - BD - QFX - DC1 and DC2**

- SRX hosts IPv6 configuration
- BD hosts IPv4 configurations
- Using 40G to 10G DAC or AOC cables for 10G connectivity
- BD has both 10G and 1G ports
- Using different VLANs for public, private and IPMI
- Virtual Chassis (VC2) expended to DC2



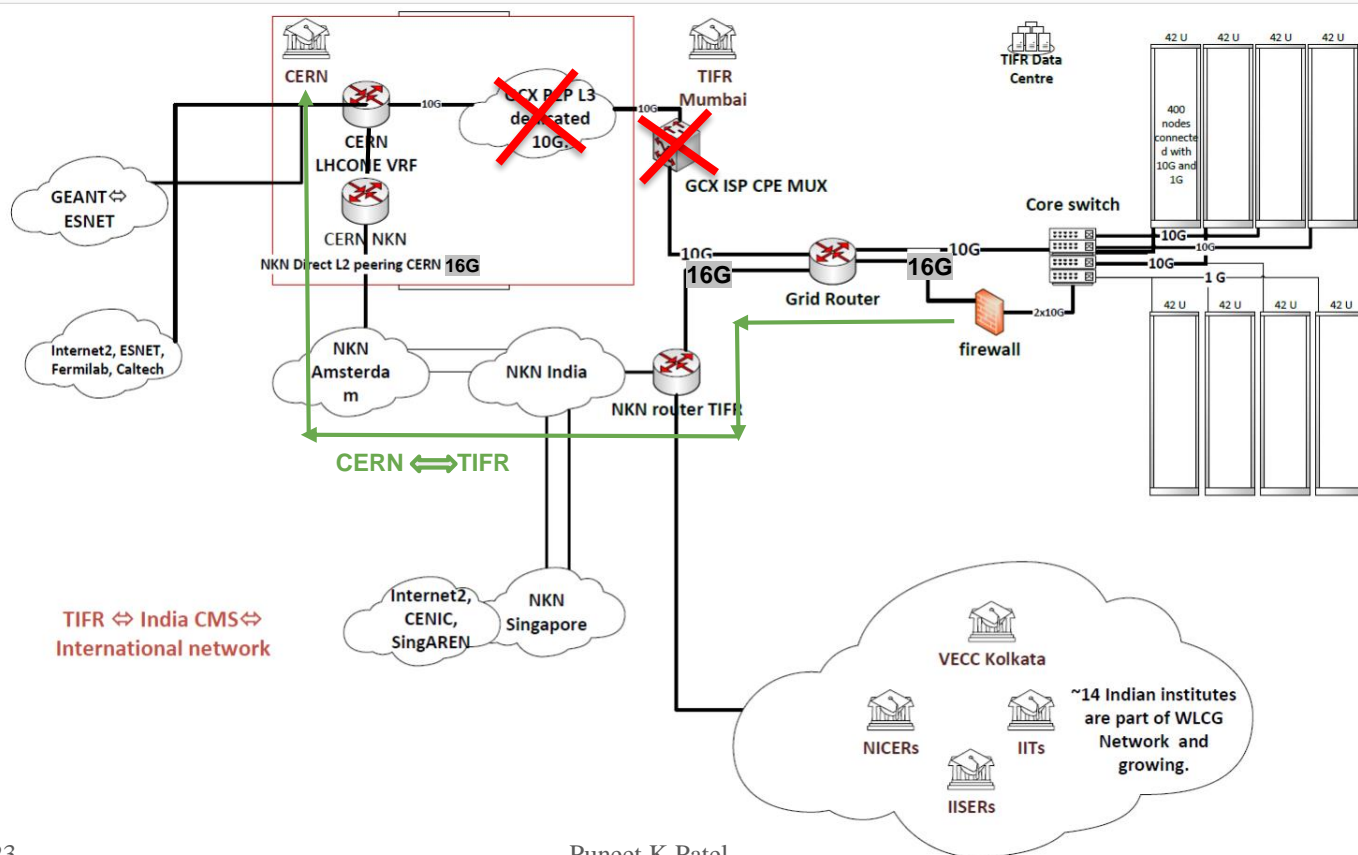
# Network Connectivity – WAN link



- 1Gbps dedicated P2P link from TIFR ↔ CERN (2009)
- Upgraded to 2G in 2012
- Upgraded to 4G in 2014
- Implemented fall back path using 10G shared TEIN link to Amsterdam (2015)
- CERN P2P link Upgraded to 8G (2015)
- Implemented LHCONE peering and L3VRF over NKN, all collaborating Indian institutes (2015 - 2016)

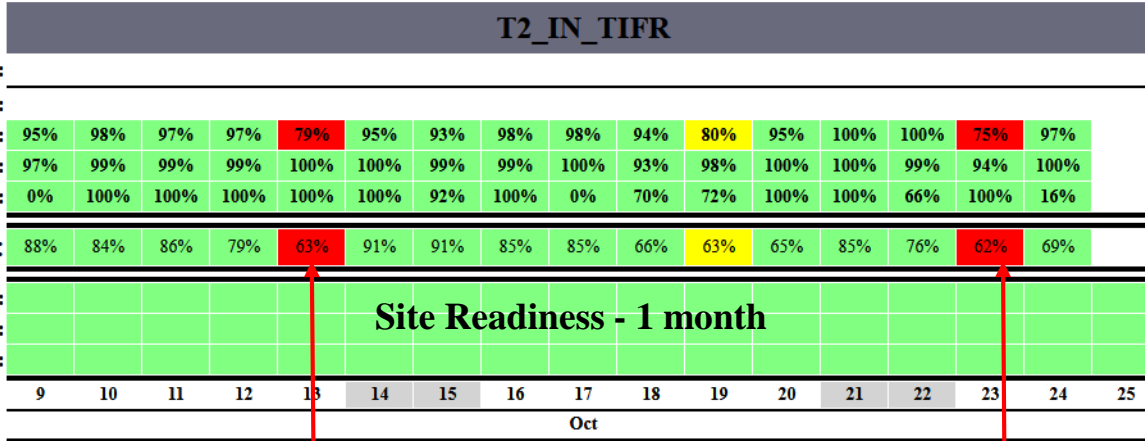
- Upgraded to full 10G dedicated circuit till CERN (2017)
- NKN implemented CERN PoP with 10G link (2018)
- At present (8G + 8G ) active links to LHC network
- NKN L3 peerings to USA via Singapore and Amsterdam
- Network for Run IV ⇒ Requested / Expected from NKN ~40G, Mumbai to Geneva
- Other indian institutes are connected to TIFR via NKN Mumbai

# Network Connectivity – WAN link



# Site Status

Site ↑	Availability	Reliability
T2_IN_TIFR	<p><b>Last 90 days</b></p>	
T3_IN_TIFRCloud		

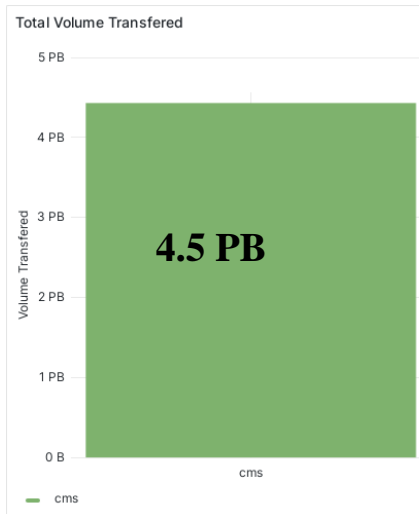
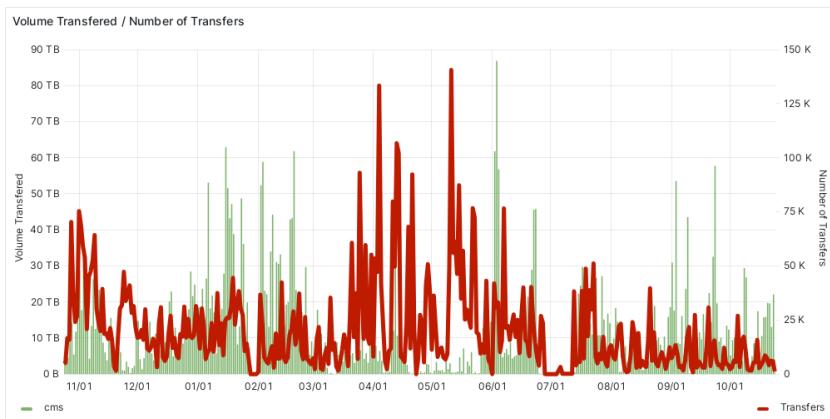


Storage node went down

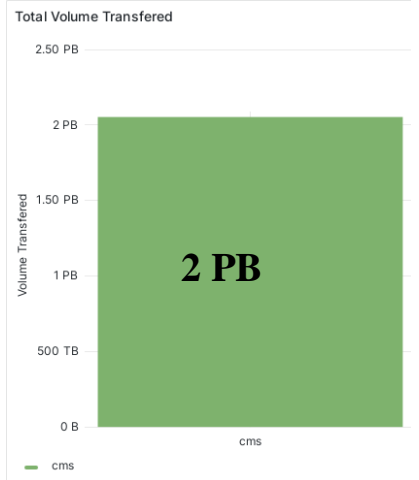
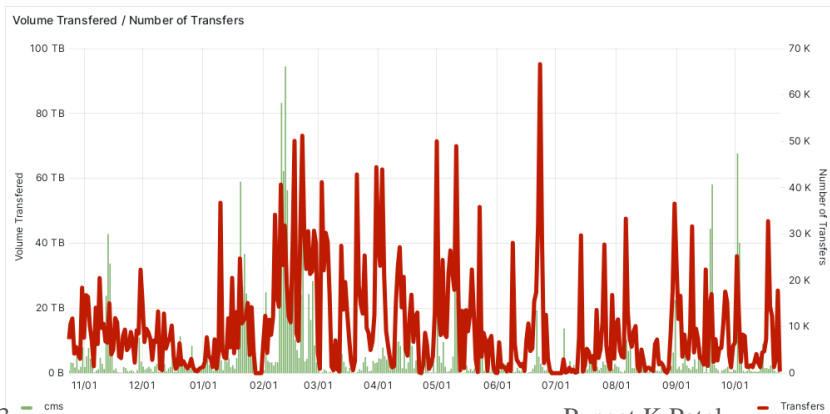
Tests failed while updating configuration in storage

# Data transfer - FTS - last 1 yr.

## Inbound

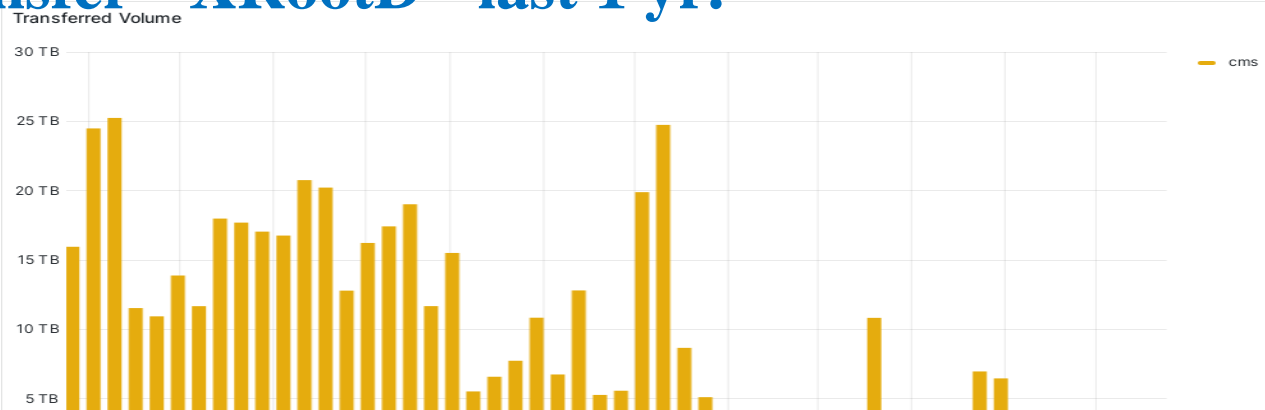


## Outbound

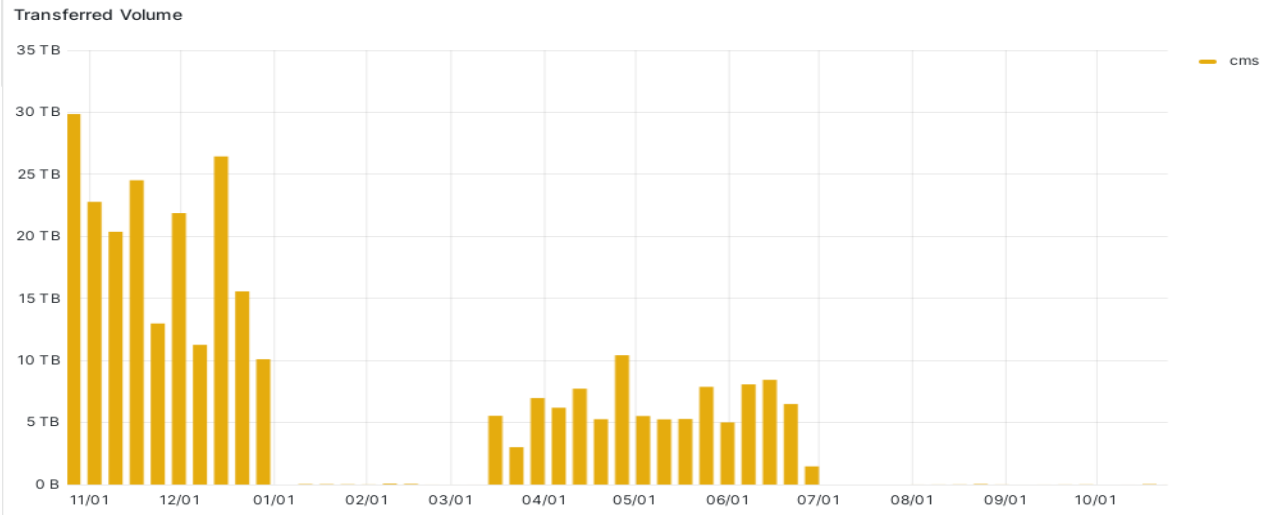


# Data transfer - XRootD - last 1 yr.

**Inbound**



**Outbound**



# Monitoring

GGUS ticketing System: <https://ggus.eu>

ETF Monitoring: <https://etf-cms-prod.cern.ch>

Grafana: <https://monit-grafana.cern.ch>

Squid Proxy: <http://wlcg-squid-monitor.cern.ch>

EGI ARGO monitoring: <https://egi.ui.argo.grnet.gr/>

PerfSonar: <http://repos.indiacms.res.in>

APEL Synchronization: [http://goc-accounting.grid-support.ac.uk/rss/INDIACMS-TIFR\\_Sync.html](http://goc-accounting.grid-support.ac.uk/rss/INDIACMS-TIFR_Sync.html)

Web access of Storage: <http://se01.indiacms.res.in/dpm/indiacms.res.in/>

The screenshot shows the CMS Monitoring dashboard. At the top, there's a search bar and navigation links. The main content area includes a 'Welcome to the CMS Monitor' message, navigation tabs for different services (CMSSDT, CMSWEB, CRAB, Jobs, P&R, etc.), and a central panel for 'ARGO' monitoring. Below this, there's a 'CMS-TIFR' section with a 'Dashboard' and 'Reports' view. A table titled 'Local site eff' shows the status of various hosts. To the right, there are two line graphs: 'Daily' Graph (5 Minute Average) and 'Weekly' Graph (30 Minute Average), both showing request rates over time.

state	Host	Icons	OK	Wa	Un	Cr	Pd
UP	condor-ce01.indiacms.res.in		14	0	0	0	0
UP	cream-ce02.indiacms.res.in		14	0	0	0	0
UP	se01.indiacms.res.in		25	0	5	4	0

ATCF7, N

GGUS - the Helpdesk

Ticket search engine

Ticket ID?

Support Unit

Status?  open states

Concerned VO?  cms

Notified site

CMS SU  all

CMS Site  T2\_IN\_TIFR

creation date  any

17 Apr 2017

18 Apr 2017

UNTOUCHED SINCE

perfSONAR Toolkit on repos.indiacms.res.in

repos.indiacms.res.in at 144.16.111.26, 2406:f00:9::1b

Organization: T2\_IN\_TIFR

Address: Mumbai, Maharashtra 400005 IN (map)

Administrator: Puneet Patel (puneet.patel@tifr.res.in)

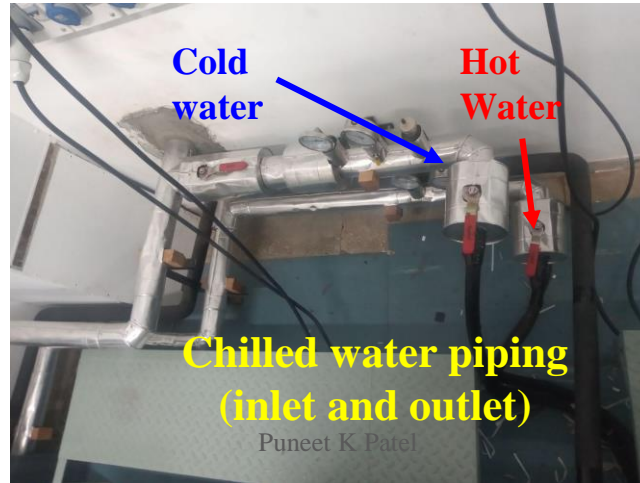
## APEL Synchronisation Test

- A comparison is made between your local APEL database, and the data that you have published to the GOC.
- Major differences are flagged with FAIL.
- Information about APEL APEL Wiki
- Contact: apel-admins [at] stfc.ac.uk
- lastBuild : 2023-10-29 16:14:56.12

INDIACMS-TIFR				
Record Start	Record End	Record Count In Your Database	Record Count What You Published	Synchronisation Status
2023-10-01	2023-10-29	58227	58206	OK [last published 0 days ago: 2023-10-29 ]
2023-09-01	2023-09-30	91235	91235	OK
2023-08-01	2023-08-31	52619	52619	OK
2023-07-01	2023-07-31	29936	29936	OK
2023-06-02	2023-06-30	42083	42083	OK

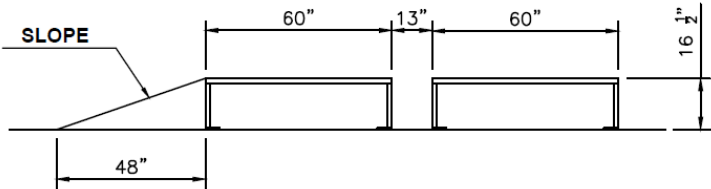
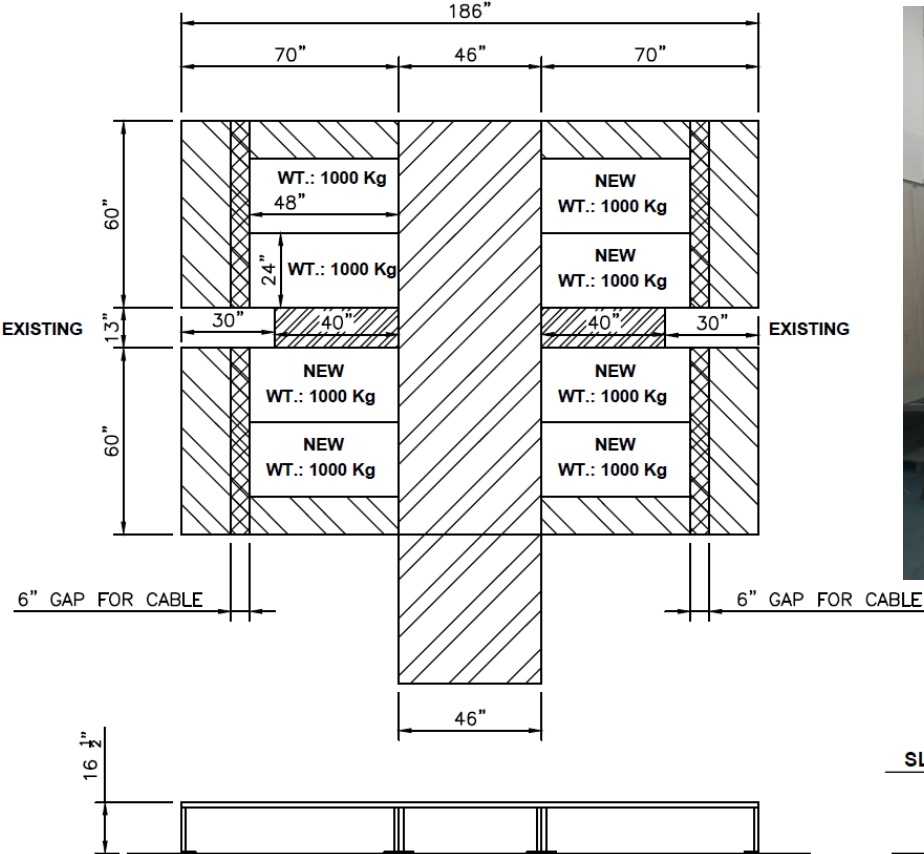
# Cooling: In-Row Chiller units

- Two in-Row units in DC2
- It can handle servers load with 30KVA capacity per units
- DC2 is hosting only computing and GPU servers for better cooling





# Cooling : in-house stand





# Contributions

- Working configurations of HTCondor and dCache are available in Github:  
[https://gitlab.cern.ch/ppatel/T2\\_IN\\_TIFR/-/tree/master/HTCondor](https://gitlab.cern.ch/ppatel/T2_IN_TIFR/-/tree/master/HTCondor) & [https://gitlab.cern.ch/bjashal/t2/-/tree/master/Prod\\_dcache\\_T2\\_IN\\_TIFR](https://gitlab.cern.ch/bjashal/t2/-/tree/master/Prod_dcache_T2_IN_TIFR)
- Hosted HSF-India training at TIFR during May 1-5, 2023  
(<https://indico.cern.ch/event/1254939/>)
- ICFA Instrumentation school (ICFA2023), Feb 12-25, 2023
- Celebrating a decade of the Higgs symposium, June 6-10, 2022
- **upcoming HSF-India workshop Dec 18-22, 2023 at NISER Bhubaneswar, India**  
(<https://indico.cern.ch/event/1328624/>)

# Storage migration - DPM to dCache

## Need of storage migration ?

- Main driving force behind DPM (design, development, evolution and support) - CERN IT department - last 15 yrs.
- DPM end of life support is summer 2024 (enforced migration - till summer 2023)
- No new patches or bug fix with after EOL
- Can't raise any GGUS ticket to dpm team
- Need of better storage technology to sustain the increased performance
- Requirement of long term support and sustainability

## Available Options:

1. **EOS Open Storage (EOS)**
2. **dCache**
3. **Storage Resource Manager (StoRM)**
4. **XrootD/CEPHFS**
5. **The Dynamic Federations system (Dynafed)**

# Storage migration - DPM to dCache

## Most suitable option for us - dCache

- Distributed architecture, supports heterogeneous server, provides single virtual filesystem tree
- Both DPM and dCache storage implementations can use posix filesystem to store files. Because storage backend is same (and although directory layout differs)
- DPM and dCache use database (MySQL vs PostgreSQL) to store file namespace (LFN catalogue)
- Migration can be done just by importing data from DPM in the dCache catalog
- Migration from DPM to dCache is just slightly more complex - database structure is completely different

### DPM migration and decommission (INDIACMS-TIFR)

#### Detailed Description:

Dear Site Administrators,As announced in several occasions, the DPM support is going to end in June 2023.We would like to ask you to start the plans for migrating your DPM server to a different storage solution.You can choose the storage technology you prefer, based on your expertise and the needs of the users' communities you support.Currently in UMD the following storage technologies are available: dCache, Storm, EOS, XrootD.In case you choose to move to dCache, the DPM team provided a script and a guide for the migration:<https://twiki.cern.ch/twiki/bin/view/DPM/DpmDCache>It is recommended to update the DPM to dmlite 1.15.2-7 version prior starting with the migrationThe recommended dcache version to install is the latest golden release: 7.2.xPlease let us know your plans.We use this ticket to track the progress of the migration/decommission of your current DPM server.Best regards,EGI Operations

# Storage migration - DPM to dCache

## Whole migration can be done in three steps:

1. DPM is in consistent state and fix potential issues - can be done when DPM is online (No downtime)
  - Pre-upgrade steps:
    - Backup of existing MySQL database
    - Upgraded dmlite version with 1.15.2-15: provides migration tools
    - Upgrade dpm to latest version on both head node and disk node
  - This dbck consistency updates can be done in four steps
    - lost-and-dark-show
    - dpm-dbck
    - pool-file
    - fill-checksum
2. Dump DPM namespace and configuration - when DPM is offline (downtime required)
  - Generate DPM migration dumps
  - New package installation for migration tools
  - Stop all dpm services and generate layout files for all nodes

Migration Guide: <https://twiki.cern.ch/twiki/bin/view/DPM/DpmDCache>

# Storage migration - DPM to dCache

3. Import namespace data in dCache database and distribute generated dCache configuration files - **downtime required**

- Proceed if and only if everything is fine in previous steps - important
- Install of dCache packages and PostgreSQL
- Create database structure and user
- Import data from existing MySQL database to PostgreSQL

# Storage migration - DPM to dCache

## dCache service

### dCache in-built monitoring

- Monitoring is enabled on port 2288
- Cell services and Pool usages status are precise and effective way to identify errors
- Exploring other functionality

<b>Quick Finder</b>			
<a href="#"><u>Cell Services</u></a>	<a href="#"><u>Pool Usage</u></a>	<a href="#"><u>Tape Transfer Queue</u></a>	<a href="#"><u>Detailed Tape Transfer Queue</u></a>
<a href="#"><u>Pool Transfer Queues</u></a>	<a href="#"><u>Action Log</u></a>	<a href="#"><u>Pool Selection Configuration</u></a>	
<b>Status</b>		<b>Various Queues</b>	
<a href="#"><u>Cell Services</u></a>	Availability and response times of pools and major services	<a href="#"><u>Tape Transfer Queue</u></a>	Data Transfer Queue from Tape to dCache disks.
<a href="#"><u>Pool Usage</u></a>	Pool Space Usage (total,used,cached,sticky)	<a href="#"><u>Pool Mover Queues</u></a>	Mover and mover queues per pool.
<a href="#"><u>Pool Groups</u></a>	Pool groups	<a href="#"><u>Active Transfers (Text)</u></a>	List of active transfers.
		<a href="#"><u>Queue Histograms</u></a>	Transfer and Tape Restore histograms (Module not installed)
<b>Statistics</b> <i>Module not installed</i> Puneet K Patel		<b>Configuration/Setup</b>	

# Storage migration - DPM to dCache

## dCache in-built monitoring

### Services

CellName	DomainName	RP	TH	Ping	Creation Time	Version
GFTP-dpms01	doorsDomain-dpms01	0	36	3 msec	10/23 14:00:49	8.2.10(8.2.10)
GFTP-dpms02	doorsDomain-dpms02	0	3	3 msec	11/01 03:15:30	8.2.10(8.2.10)
GFTP-dpms03	doorsDomain-dpms03	0	49	3 msec	10/23 14:00:38	8.2.10(8.2.10)
GFTP-dpms04	doorsDomain-dpms04	0	63	3 msec	10/23 14:00:43	8.2.10(8.2.10)
GFTP-dpms05	doorsDomain-dpms05	0	41	3 msec	10/23 14:00:37	8.2.10(8.2.10)
GFTP-dpms06	doorsDomain-dpms06	0	65	5 msec	10/23 14:00:42	8.2.10(8.2.10)
GFTP-se01	doorsDomain	0	100	15 msec	10/23 14:05:30	8.2.10(8.2.10)
NFS-se01	nfs-se01Domain	0	123	8 msec	10/23 14:05:22	8.2.10(8.2.10)
PnfsManager	centralDomain	0	24	18 msec	10/23 14:06:00	8.2.10(8.2.10)
PoolManager	centralDomain	0	55	15 msec	10/23 14:06:04	8.2.10(8.2.10)
SRM-se01	srmDomain	0	65	10 msec	10/23 14:05:22	8.2.10(8.2.10)
SpaceManager	centralDomain	0	5	5 msec	10/23 14:06:04	8.2.10(8.2.10)
SrmManager	srmmanagerDomain	0	23	12 msec	10/23 14:05:22	8.2.10(8.2.10)
WebDAV-U-se01	doorsDomain	0	43	15 msec	10/23 14:05:24	8.2.10(8.2.10)
WebDAV-dpms01	doorsDomain-dpms01	0	16	9 msec	10/23 14:00:41	8.2.10(8.2.10)

# Storage migration - DPM to dCache

## dCache in-built monitoring

### Disk Space Usage

CellName	DomainName	Total Space/MiB	Free Space/MiB	Precious Space/MiB	Layout (precious/sticky/available/free)
dmpool2_001	poolsDomain_dpms01_dmpool2	18916398	588416	0	
dmpool2_002	poolsDomain_dpms01_dmpool2	18935579	425819	0	
dmpool2_003	poolsDomain_dpms01_dmpool2	18935060	411275	0	
dmpool2_004	poolsDomain_dpms01_dmpool2	19352838	470242	0	
dmpool2_005	poolsDomain_dpms02_dmpool2	27040764	7948316	0	
dmpool2_006	poolsDomain_dpms02_dmpool2	27285434	6978296	0	
dmpool2_007	poolsDomain_dpms02_dmpool2	27083410	8425221	0	
dmpool2_008	poolsDomain_dpms02_dmpool2	27285241	8284067	0	
dmpool2_009	poolsDomain_dpms02_dmpool2	27254388	6908346	0	
dmpool2_010	poolsDomain_dpms02_dmpool2	27194913	6874081	0	
dmpool2_011	poolsDomain_dpms02_dmpool2	27276479	6948730	0	
dmpool2_012	poolsDomain_dpms02_dmpool2	27190422	6782060	0	
dmpool2_013	poolsDomain_dpms02_dmpool2	27162266	8191315	0	
dmpool2_014	poolsDomain_dpms03_dmpool2	45133	2831	0	
dmpool2_015	poolsDomain_dpms03_dmpool2	55616	2831	0	
dmpool2_016	poolsDomain_dpms03_dmpool2	23388964	6541934	0	
dmpool2_017	poolsDomain_dpms03_dmpool2	23546013	6418589	0	
dmpool2_018	poolsDomain_dpms03_dmpool2	23359296	7253350	0	
dmpool2_019	poolsDomain_dpms03_dmpool2	23381726	6539071	0	
dmpool2_020	poolsDomain_dpms03_dmpool2	23448383	7413137	0	
dmpool2_021	poolsDomain_dpms03_dmpool2	23466846	7476819	0	
dmpool2_022	poolsDomain_dpms04_dmpool2	23422539	6522573	0	
dmpool2_023	poolsDomain_dpms04_dmpool2	23541794	7131212	0	
dmpool2_024	poolsDomain_dpms04_dmpool2	23513140	6470246	0	
dmpool2_025	poolsDomain_dpms04_dmpool2	23490552	6593647	0	
dmpool2_026	poolsDomain_dpms04_dmpool2	23562394	6569405	0	
dmpool2_027	poolsDomain_dpms04_dmpool2	23564094	6571318	0	
dmpool2_028	poolsDomain_dpms04_dmpool2	23555768	6424523	0	
dmpool2_029	poolsDomain_dpms04_dmpool2	23541342	7146836	0	
dmpool2_030	poolsDomain_dpms04_dmpool2	23441112	7268687	0	



# Storage migration - DPM to dCache

## Migration status of WLCG sites

	A	B	C	D	E	F	G	H	I	J	K	L
1	Tickets on GGUS: <a href="#">list</a>			in progress	12	dCache	28	XrootD/CEPHFS	4			
2	Total	57		on hold	5	EOS	9	xrootd	1			
3				SOLVED	37	Decommissioned	8	Dynafed	2			
4				UNSOLVED	1							
5	<b>NGI</b>	<b>Site Name</b>	<b>Hostname</b>	<b>ticket</b>	<b>Status</b>	<b>Tech chosen</b>	<b>Note</b>					
6	ROC_LA	ATLAND	<a href="#">atlandse.fis.puc.cl</a>	<a href="#">158783</a>	in progress		testing new hardware on 15/3. Pinged on Apr, May, June and Aug					
7	ROC_Asia/Pacific	Australia-ATLAS	<a href="#">agh3.atlas.unimelb.edu.au</a>	<a href="#">158784</a>	UNSOLVED	Dynafed	site suspended due to hardware problems.					
8	ROC_Asia/Pacific	Australia-T2	<a href="#">b2se.mel.coep.org.au</a>	<a href="#">158785</a>	in progress	Dynafed	Apr 19th: they are on track to for our Dynafed object-store SE to go into production for the Belle					
9	NGI_FRANCE	AUVERGRID	<a href="#">cirigridse01.univ-bpclermont.fr</a>	<a href="#">158786</a>	SOLVED	Decommissioned						
10	NGI_CHINA	BEIJING-LCG2	<a href="#">ccsrm.ihep.ac.cn</a>	<a href="#">158787</a>	in progress	EOS	Jul 27th: EOS installed, webdav tests are failing... pinged 9/Oct/23					
11	NGI_BG	BG05-SUGrid	<a href="#">se01.grid.uni-sofia.bg</a>	<a href="#">158788</a>	in progress	EOS	Oct 6th: asked... pinged on 9/10/23					
12	NGI_HU	BUDAPEST	<a href="#">grid143.kfki.hu</a>	<a href="#">158789</a>	SOLVED	dCache	they fixed some possible authz issues, see also <a href="https://ggus.eu/index.php?mode=ticket_info&amp;ti">https://ggus.eu/index.php?mode=ticket_info&amp;ti</a>					
13	ROC_LA	CBPF	<a href="#">se03.cat.cbpf.br</a>	<a href="#">158790</a>	SOLVED	Decommissioned						
14	NGI_IT	CIRMMP	<a href="#">se-enmr.cerm.unifi.it</a>	<a href="#">158791</a>	SOLVED	dCache	storage accounting to be configured					
15	NGI_IT	CNR-ILC-PISA	<a href="#">gridse.ilc.cnr.it</a>	<a href="#">158792</a>	SOLVED	dCache						
16	NGI_PL	CYFRONET-LCG2	<a href="#">se01.grid.cyfronet.pl</a>	<a href="#">158793</a>	in progress	EOS	May 26th: We currently have an EOS instance running in our testing environment. Current plan					
17		CYFRONET-LCG2	<a href="#">se02.grid.cyfronet.pl</a>									
18		CYFRONET-LCG2	<a href="#">se03.grid.cyfronet.pl</a>									
19	AfricaArabia	DZ-01-ARN	<a href="#">se01.grid.arn.dz</a>	<a href="#">158794</a>	SOLVED	Decommissioned						
20	NGI_SK	FMPHI-UNIBA	<a href="#">lcmdpmsse.dnp.fmph.uniba.sk</a>	<a href="#">158795</a>	SOLVED	dCache	found stuck replica - log: /tmp/dpm-dbck.log:09 Jan 14:53:30 [INFO][dbck:343] found stuck repl					
21	NGI_GRNET	GR-07-UI-HEPLAB	<a href="#">grid02.physics.uoi.gr</a>	<a href="#">161530</a>			Apr 12th: ticket just opened, Apr16th and June13th pinged. no response! pinged on 9/10/23 site					
22	NGI_FRANCE	GRIF	<a href="#">lpnse1.in2p3.fr</a>	<a href="#">158796</a>	in progress	EOS	Sept 11th: all the main VOs (LHC VOs), and complex systems have been fully migrated from DI					
23		GRIF	<a href="#">polgrid4.in2p3.fr</a>									
24		GRIF	<a href="#">node12.datagrid.cea.fr</a>									
25		GRIF	<a href="#">grid05.lal.in2p3.fr</a>									
26	NGI_IT	GRISU-UNINA	<a href="#">grisu.se.scope.unina.it</a>	<a href="#">158797</a>	SOLVED	Decommissioned	Apr 5th: the site decommission process has been started, ending in May 2023.					
27	NGI_GPNFT	HG-02-IASA	<a href="#">se01.marie.hellasgrid.gr</a>	<a href="#">158798</a>	SOLVED	Decommissioned	Jun 15th: SE removed					

<https://docs.google.com/spreadsheets/d/1KDVAJ9JzlycA3Wrz1iY2fQxZndWdAezFnLaDAXlPUs/edit#gid=0>

# Storage migration - DPM to dCache

## Migration status of WLCG sites

	A	B	C	D	E	F	G	H	I	J	K	L											
1	Tickets on GGUS: <a href="#">list</a>			in progress		12 dCache		28 XrootD/CEPHFS	4														
2	Total	57		on hold		5 EOS		9 xrootd	1														
3				SOLVED		37 Decommissioned		8 Dynafed	2														
4																							
5	NGI	Site Name	<div style="border: 2px solid black; padding: 5px;"> <h3 style="text-align: center;">Statistics per status/reply</h3> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Solved</td> <td style="text-align: right;">37</td> </tr> <tr> <td style="text-align: center;">In progress</td> <td style="text-align: right;">12</td> </tr> <tr> <td style="text-align: center;">On hold</td> <td style="text-align: right;">5</td> </tr> <tr> <td style="text-align: center;">total</td> <td style="text-align: right;">54</td> </tr> <tr> <td colspan="2" style="text-align: center;">* 2 suspended sites (no tkt sent)</td> </tr> </table> </div>									Solved	37	In progress	12	On hold	5	total	54	* 2 suspended sites (no tkt sent)			
Solved	37																						
In progress	12																						
On hold	5																						
total	54																						
* 2 suspended sites (no tkt sent)																							
6	ROC_LA	ATLAND																					
7	ROC_Asia/Pacific	Australia-ATLAS																			ry, June and Aug		
8	ROC_Asia/Pacific	Australia-T2																			st-store SE to go into production for the Belle		
9	NGI_FRANCE	AUVERGRID																					
10	NGI_CHINA	BEIJING-LCG2										inged 9/Oct/23											
11	NGI_BG	BG05-SUGrid																					
12	NGI_HU	BUDAPEST										<a href="https://ggus.eu/index.php?mode=ticket_info&amp;tik">ps://ggus.eu/index.php?mode=ticket_info&amp;tik</a>											
13	ROC_LA	CBPF																					
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16	NGI_PL	CYFRONET-LCG2										ing in our testing environment. Current plan											
17		CYFRONET-LCG2																					
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22	NGI_FRANCE	GRIF	<a href="mailto:lpnse1.in2p3.fr">lpnse1.in2p3.fr</a>	158796	in progress	EOS						Sept 11th: all the main VOs (LHC VOs), and complex systems have been fully migrated from DI											
23		GRIF	<a href="mailto:polgrid4.in2p3.fr">polgrid4.in2p3.fr</a>																				
24		GRIF	<a href="mailto:node12.datagrid cea.fr">node12.datagrid cea.fr</a>																				
25		GRIF	<a href="mailto:grid05.lal.in2p3.fr">grid05.lal.in2p3.fr</a>																				
26	NGI_IT	GRISU-UNINA	<a href="mailto:grisuse.scope.unina.it">grisuse.scope.unina.it</a>	158797	SOLVED	Decommissioned	Apr 5th: the site decommission process has been started, ending in May 2023.																
27	NGI_GPNFT	HG-02-IASA	<a href="mailto:ce01.marie.hellasgrid.gr">ce01.marie.hellasgrid.gr</a>	158798	SOLVED	Decommissioned	Jun 15th: SE removed																

<https://docs.google.com/spreadsheets/d/1KDVAJ9JzlycA3Wrz1iY2fQxZndWdAezFnLaDAXiPUs/edit#gid=0>

ATCF7, Nov 1-3, 2023

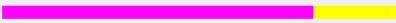
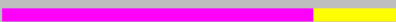
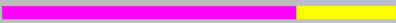
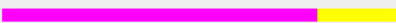

Puneet K Patel

# Challenge and improvements

- Expended DC to adjacent room - now it is DC1 + DC2 - for better cooling

## Disk pool error in storage nodes

- Pool restart required: **Internal repository error**
- Pool disabled: **Meta data lookup failed and a pool restart is required**
- Pool disabled: **file could not be opened; failed to read the file**
- Pool disabled: **I/O test failed**
- ls: cannot access /disk04: **Input/output error**
- **Currently resetting the nodes to resolve this issue - temporary**
- **Looking for permanent solution for these errors**

dmpool2_345	poolsDomain_dpms55_dmpool2	26143370	5464422	0	
dmpool2_346	poolsDomain_dpms55_dmpool2	26151806	5440078	0	
dmpool2_347	poolsDomain_dpms55_dmpool2	[99]	Pool disabled: Meta data lookup failed and a pool restart is required: (JE 7.5.11) Environment must be closed, caused by: com.sleepycat.je.EnvironmentFailureException: Environment invalid because of previous exception: (JE 7.5.11) /disk04/dcache/dmpool2_347/meta Latch timeout. com.sleepycat.je.log.LogBufferPool_FullLatch currentThread: Thread[pool-87-thread-3,5,dmpool2_347-threads] currentTime: 1696766943260 exclusiveOwner: Thread[Checkpointner,5,dmpool2_347-threads] UNEXPECTED_STATE_FATAL: Unexpected internal state, unable to continue. Environment is invalid and must be closed.		
dmpool2_348	poolsDomain_dpms55_dmpool2	26138484	6574030	0	
dmpool2_349	poolsDomain_dpms55_dmpool2	26222581	5246076	0	
dmpool2_350	poolsDomain_dpms55_dmpool2	26220228	4720167	0	

# Summary

- One of the largest Tier-2 center in CMS, which is part of global CMS resources.
- Having dedicated Tier3, which is supporting more than 90+ active users from collaborating indian institutes
- Organizing and hosting both national and international events of Physics Analysis, computing based etc.
- Funding agencies are supportive. New funds will help in site upgradation (power, cooling, space and servers) and functioning.
- Best efforts to get 40 Gbps connectivity. Requests are under discussion with ISP

**Thank you**