



Tata Institute of Fundamental Research
टाटा मूलभूत अनुसंधान संस्थान

T2_IN_TIFR Site Report

The 9th Asian Tier Center Forum
University of Tsukuba

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Overview



Compute node



Storage node

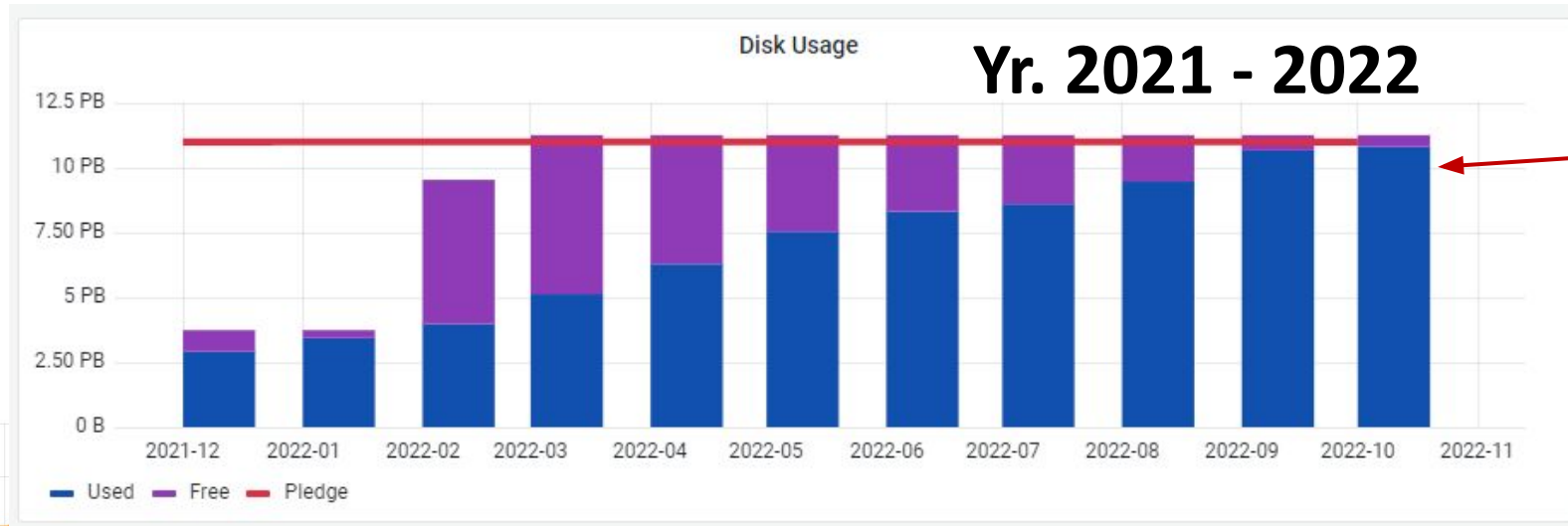


Firewall and switches

- **Facility**
 - Two data-center rooms
 - 150KW UPS + 15 min. of power backup and 220KW Isolation transformer
 - Dedicated Fire Suppression System
 - 17TR centralized + 11TR in-Row cooling
- **Hardware**
 - 18 Racks, more than 300 servers
 - 2U Twin configuration compute nodes
 - 4U - 53 storage nodes with RAID 6
 - **2 disk servers are gone bad**
 - 3 GPU nodes (with 8 x Nvidia v100 card and additional 12 different cards)
 - All are dual stack compatible
- **Network:**
 - 2 x 10 Gbps WAN Link (sharing with VECC T2 grid)

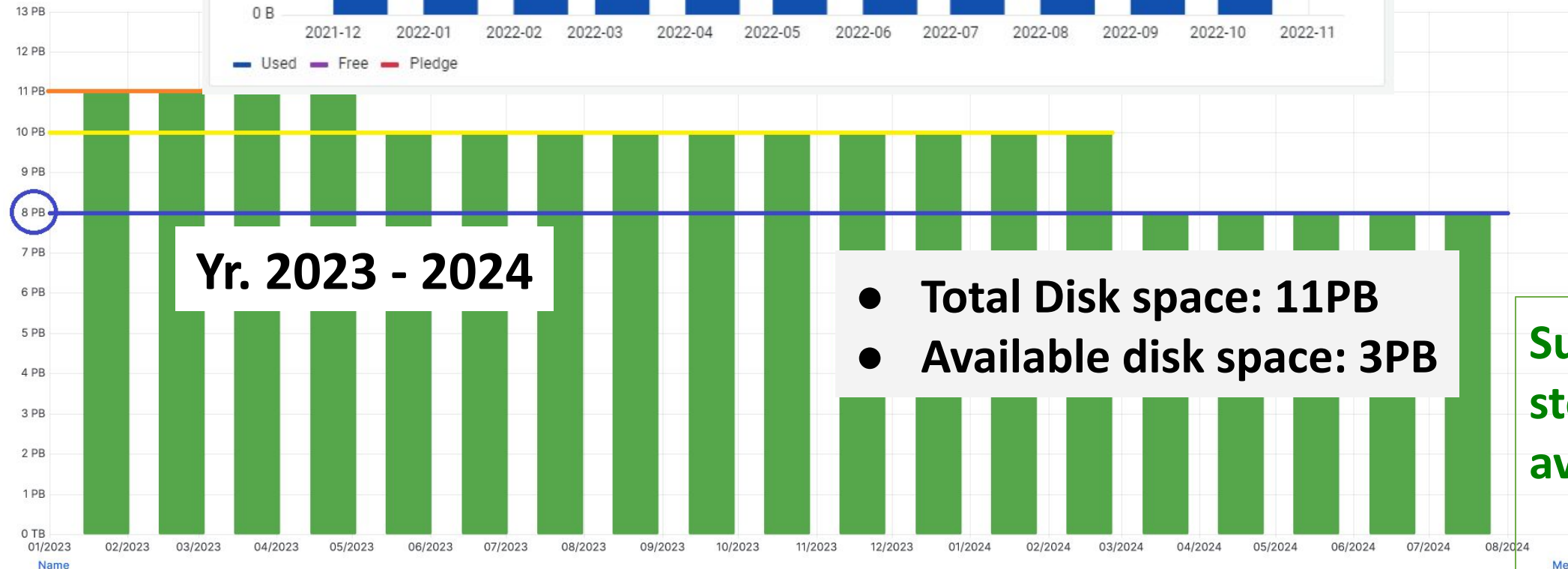


Historical disk utilization



Almost 100% utilization

Disk space usable by CMS



Sufficient storage is available

Current Disk Space Usages

Pool groups of PoolManager

PoolGroup	Total Space/MB	Free Space/MB	Precious Space/MB	Layout (precious/sticky/cache/free)
default	10459018997	4638124753	0	

Pool group default

Cell View	Space Usage	Request Queues
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CellName	DomainName	Total Space/MB	Free Space/MB	Precious Space/MB	Layout (precious/sticky/cache/free)
dpmpool2_001	poolsDomain_dpms01_dpmpool2	19070954	11412152	0	
dpmpool2_002	poolsDomain_dpms01_dpmpool2	19070962	11476832	0	
dpmpool2_003	poolsDomain_dpms01_dpmpool2	19070961	11182531	0	
dpmpool2_004	poolsDomain_dpms01_dpmpool2	20025505	12319251	0	
dpmpool2_005	poolsDomain_dpms02_dpmpool2	28607299	15922317	0	
dpmpool2_006	poolsDomain_dpms02_dpmpool2	28608798	16832973	0	
dpmpool2_007	poolsDomain_dpms02_dpmpool2	28607896	16054125	0	
dpmpool2_008	poolsDomain_dpms02_dpmpool2	28607904	15738834	0	
dpmpool2_009	poolsDomain_dpms02_dpmpool2	28607963	14905140	0	
dpmpool2_010	poolsDomain_dpms02_dpmpool2	28607881	15372983	0	
dpmpool2_011	poolsDomain_dpms02_dpmpool2	28607896	15157652	0	
dpmpool2_012	poolsDomain_dpms02_dpmpool2	28608768	15346319	0	
dpmpool2_013	poolsDomain_dpms02_dpmpool2	28608134	16233525	0	
dpmpool2_022	poolsDomain_dpms04_dpmpool2	24793297	10191979	0	
dpmpool2_023	poolsDomain_dpms04_dpmpool2	24793327	10188426	0	
dpmpool2_024	poolsDomain_dpms04_dpmpool2	24793187	11308255	0	
dpmpool2_025	poolsDomain_dpms04_dpmpool2	24793304	10118968	0	

- Current appearing storage is 10.45 PB
- 550 TB is missing due to the two server failures
- Services are running fine on remaining 51 storage servers.
- Nearly 15 storage servers are required to be replaced

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

Site Capacity

*TB: Tera Byte **TR: Ton of Refrigeration

Federation	Year	Storage		CPU		Available Cooling (TR)**
		Pledge (TB)*	CMS % req.	Pledge (CPU cores)	CMS % req.	
T2	2024-26	11000	~ 7.70%	14000	~ 6.41%	28TR
T2	2022-23	11000	~ 11%	14000	~ 11%	28TR
T2	2021	11000	11.96%	14000	13.08%	28TR
T2	2020	3000	6.41%	3500	3.50%	28TR
T2	2019	3000	3.85%	3000	3.50%	28TR

Federation	Country	Tier	Pledge Type	Year	CMS	CMS % of req
IN-INDIACMS-TIFR	India	2	CPU	2025	140000	7.37 %
IN-INDIACMS-TIFR	India	2	Disk	2025	11000	6.29 %
Federation	Country	Tier	Pledge Type	Year	CMS	CMS % of req

Local T3

- Dedicated T3 condor cluster for user analysis
- Total 2000 Job slots
- Single entry points
- ~600 TB Dedicated storage
- Dedicated GPU resources

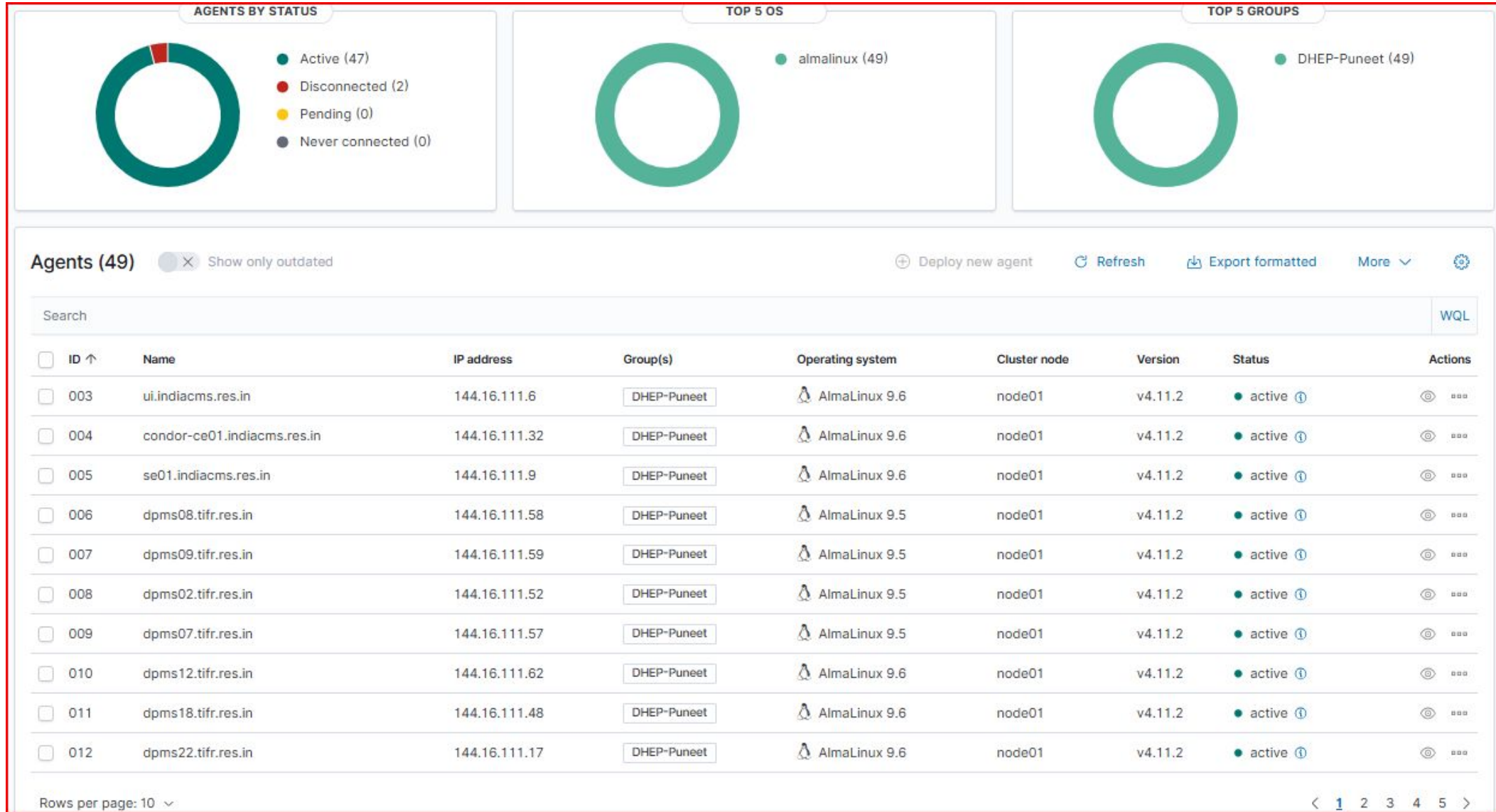
Challenges and updates

- Interrupted fundings (grid project is approved for next 5 years)
- Old hardwares are demanding an upgrade
- Limited manpower
- Vulnerability mitigation in network and servers
- Improving monitoring
- Continuously working on security enhancement

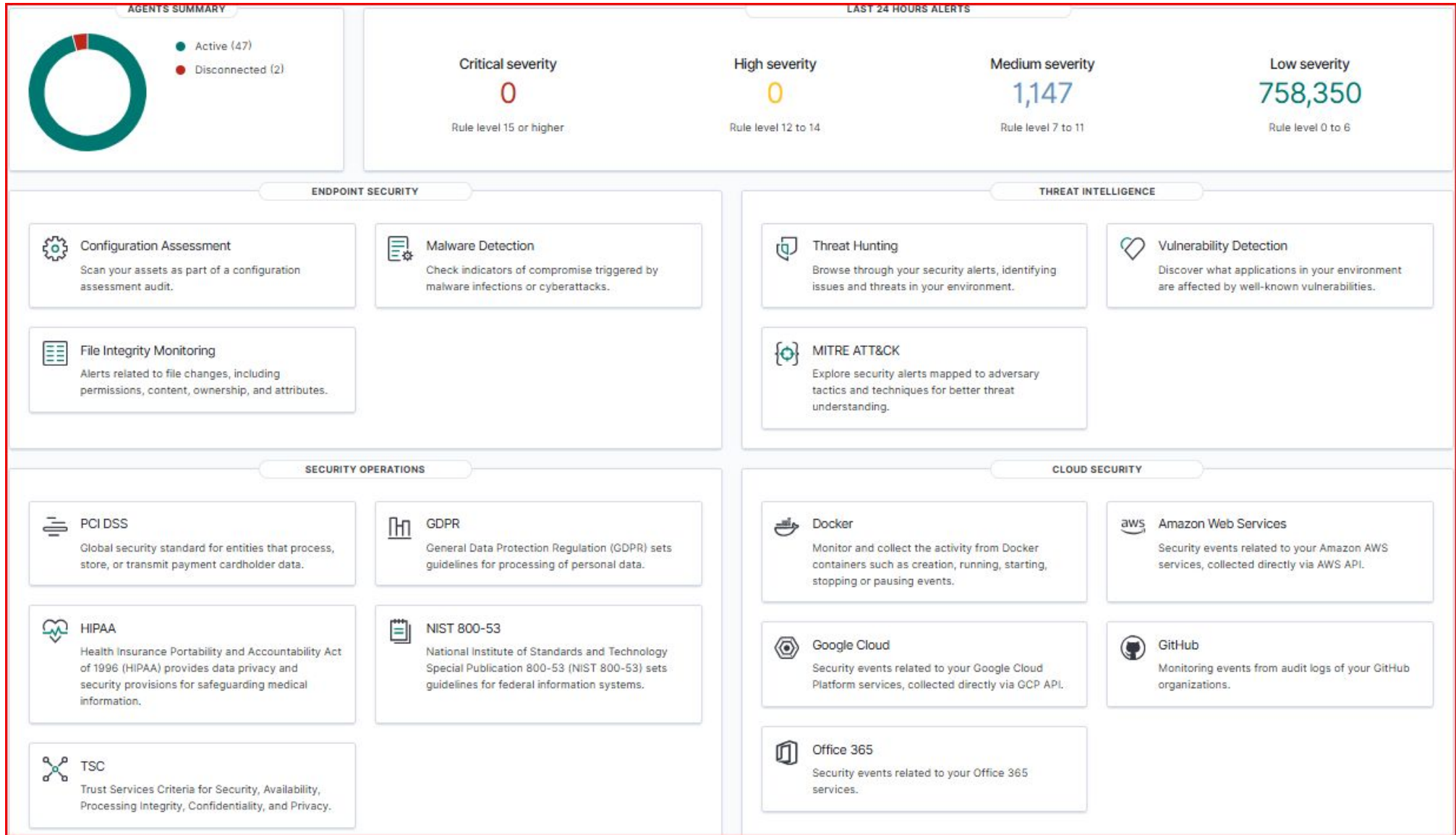
Security tightening

- **Server Level**
 - ssh-key based login from trusted sources
 - Security hardening at kernel level
 - Enhancement of firewall policies
- **Network Level**
 - Betterment of network policies for both ingress and egress traffic
 - Disabling of less security protocols and access via secured protocol
 - Maintaining of latest stable firmware

Monitoring - SIEM agent



Monitoring - SIEM agent



Monitoring - Services

Current Network Status

Last Updated: Tue Jul 22 16:38:37 IST 2025
 Updated every 90 seconds
 Nagios® Core™ 4.4.14 - www.nagios.org
 Logged in as nagiosadmin

[View History For all hosts](#)
[View Notifications For All Hosts](#)
[View Host Status Detail For All Hosts](#)

Host Status Totals

Up	Down	Unreachable	Pending
1	0	0	0
All Problems		All Types	
0		1	

Service Status Totals

Ok	Warning	Unknown	Critical	Pending
21	1	0	2	0
All Problems		All Types		
3		24		

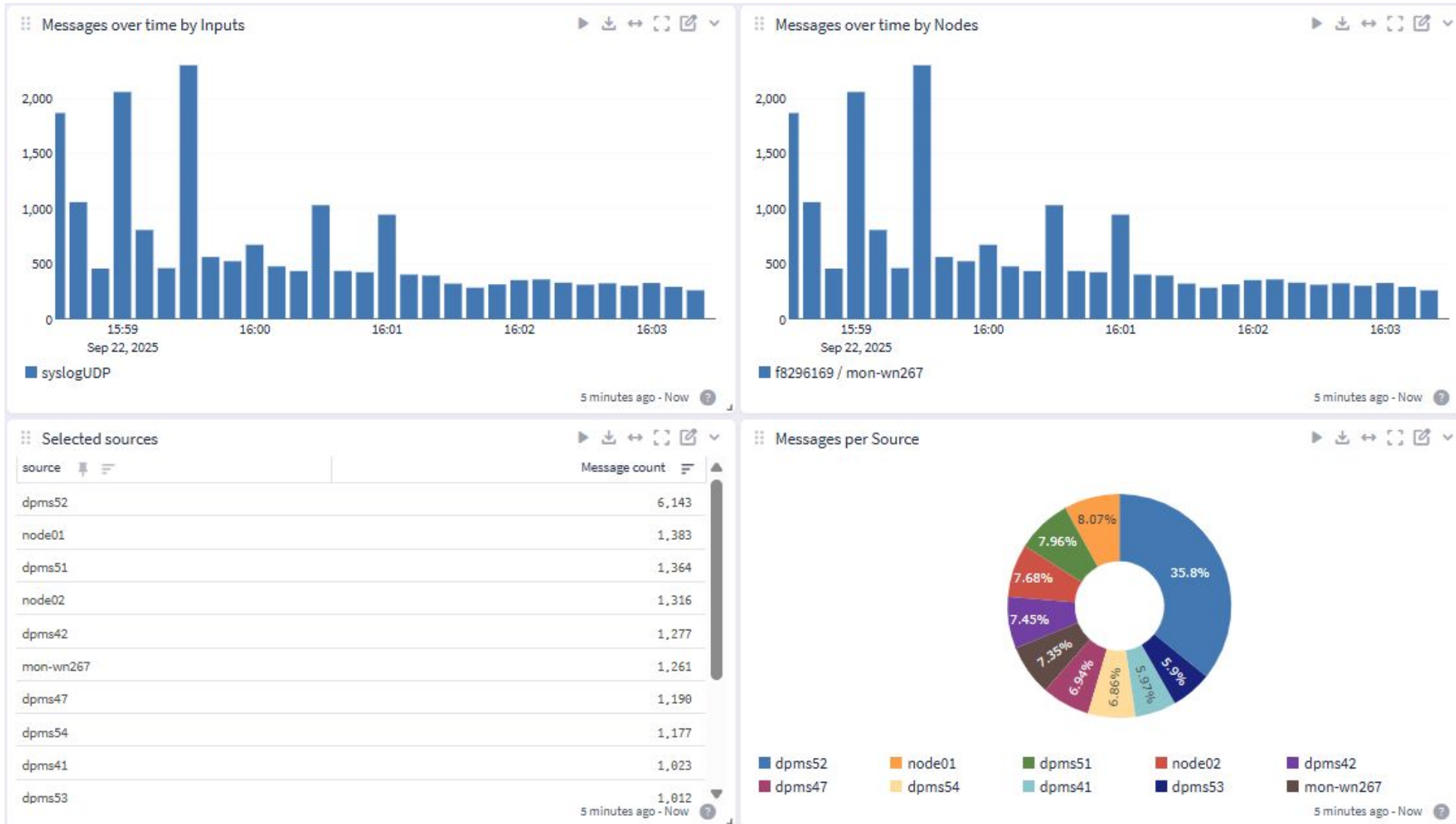
Service Status Details For All Hosts

Limit Results:

Host	Service	Status	Last Check	Duration	Attempt	Status Information
localhost	Current Load	OK	07-22-2025 16:37:24	0d 2h 46m 13s	1/4	OK - load average: 0.50, 0.64, 0.44
	Current Users	OK	07-22-2025 16:33:36	22d 1h 45m 16s	1/4	USERS OK - 0 users currently logged in
	DHCP Must Not Respond on port 67	OK	07-22-2025 16:33:47	21d 1h 55m 45s	1/4	OK - No DHCP offer on ens1 (expected)
	FTP Must Not Respond	OK	07-22-2025 16:33:59	21d 2h 10m 7s	1/4	OK - No FTP response from 192.168.2.77:21 (expected)
	HTTP on port 40012	WARNING	07-22-2025 16:34:11	21d 0h 43m 55s	4/4	HTTP WARNING: HTTP/1.1 403 Forbidden - 6035 bytes in 0.001 second response time
	IMAP Must Not Respond	OK	07-22-2025 16:34:22	21d 1h 55m 29s	1/4	OK - No IMAP response from 192.168.2.77:143 (expected)
	IPMI must not run	OK	07-22-2025 16:34:34	20d 23h 8m 6s	1/4	OK: IPMI is not accessible at 192.168.2.77 (expected)
	Installed Package - fail2ban	CRITICAL	07-22-2025 16:37:35	1d 0h 16m 2s	4/4	(Return code of 13 for service 'Installed Package - fail2ban' on host 'localhost' was out of bounds)
	Installed Packages - NRPE	OK	07-22-2025 16:34:45	1d 0h 43m 52s	1/4	NRPE v4.1.2
	NNTP - not running	OK	07-22-2025 16:35:08	20d 23h 17m 40s	1/4	OK: NNTP service is not running on 192.168.2.77:119 (expected)
	NNTPS - not running	OK	07-22-2025 16:35:19	20d 23h 17m 27s	1/4	OK: NNTP service is not running on 192.168.2.77:563 (expected)
	NRPE responding on port 5668	OK	07-22-2025 16:35:31	21d 0h 44m 0s	1/4	NRPE v4.1.2
	NT/SMB Must Not Respond	OK	07-22-2025 16:35:43	21d 1h 45m 13s	1/4	OK - No NT/SMB response from 192.168.2.77:445 (expected)
	NTP Check - samay1.nic.in	OK	07-22-2025 16:34:22	0d 7h 24m 15s	1/4	NTP OK: Offset 0.01236045361 secs, stratum best:2 worst:2
	NTP Check - samay2.nic.in	OK	07-22-2025 16:34:30	0d 7h 24m 7s	1/4	NTP OK: Offset -0.005656838417 secs, stratum best:2 worst:2
	POP Must Not Respond	OK	07-22-2025 16:36:17	21d 1h 44m 57s	1/4	OK - No POP response from 192.168.2.77:110 (expected)
	Ping Must Fail	OK	07-22-2025 16:36:30	21d 2h 20m 32s	1/4	OK - Ping failed to 192.168.2.77 (expected)
	Root Partition	OK	07-22-2025 16:36:40	22d 1h 43m 24s	1/4	DISK OK - free space: / 85408 MiB (83.45% inode=100%):
	SMTP	OK	07-22-2025 16:36:52	5d 7h 21m 58s	1/4	SMTP OK - 0.027 sec. response time
	SNMP Must Not Respond	OK	07-22-2025 16:37:04	21d 1h 45m 13s	1/4	OK - No SNMP response from 192.168.2.77 (expected)
	SSH Must Not Respond on port 22	OK	07-22-2025 16:37:15	21d 1h 44m 57s	1/4	OK - No SSH response from 192.168.2.77:22 (expected)
	Swap Usage	OK	07-22-2025 16:37:26	22d 1h 42m 9s	1/4	SWAP OK - 100% free (20479 MB out of 20479 MB)
	Total Processes	CRITICAL	07-22-2025 16:37:50	13d 5h 48m 54s	4/4	PROCS CRITICAL: 435 processes with STATE = RSZDT
	Var Partition	OK	07-22-2025 16:38:13	13d 3h 36m 30s	1/4	DISK OK - free space: /var 258373 MiB (83.37% inode=100%):

Results 1 - 24 of 24 Matching Services

Monitoring - Logs



Monitoring - custom event definitions

Title	Description	Priority	Last Matched	Status	Scheduling	Actions
Alert - new "KVM" package installation		3	Never	enabled	Runs every 2 minutes, searching within the last 5 minutes.	Share More
Alert - new package installation		3	6 days ago	enabled	Runs every 3 minutes, searching within the last 5 minutes.	Share More
Alert - package uninstallation / remove		2	4 days ago	enabled	Runs every 5 minutes, searching within the last 5 minutes.	Share More
Detected 'Failed'		2	a few seconds ago	enabled	Runs every 5 minutes, searching within the last 5 minutes.	Share More
Detected IOC IP 111.118.188.100		3	Never	enabled	Runs every 3 minutes, searching within the last 5 minutes.	Share More
Detected IOC IP 141.94.96.144		3	Never	enabled	Runs every 3 minutes, searching within the last 5 minutes.	Share More
Detected IOC IP 141.94.96.195		3	Never	enabled	Runs every 4 minutes, searching within the last 5 minutes.	Share More
Detected IOC IP 141.94.96.71		3	Never	enabled	Runs every 5 minutes, searching within the last 5 minutes.	Share More
Detected IOC IP 5.78.111.62		3	Never	enabled	Runs every 5 minutes, searching within the last 5 minutes.	Share More
Detected IOC URL site008.dwservice.net		3	Never	enabled	Runs every 3 minutes, searching within the last 5 minutes.	Share More
Detected IOC VM "Proxmox"		3	Never	enabled	Runs every 3 minutes, searching within the last 5 minutes.	Share More
Detected IOC VM "virt-qemu"		3	Never	enabled	Runs every 3 minutes, searching within the last 5 minutes.	Share More
Detected IOC agent "DwAgent"		3	Never	enabled	Runs every 2 minutes, searching within the last 5 minutes.	Share More

Email Alert

Wazuh notification - (se01.indiacms.res.in) any - Alert level 9



From Wazuh <devmail@cwazuh.tifr.res.in> on 17-09-2025 14:33

[Details](#) [Headers](#)

Wazuh Notification.
2025 Sep 17 09:02:48

Received From: (se01.indiacms.res.in) any->wazuh-agent
Rule: 202 fired (level 7) -> "Agent event queue is 90% full."
Portion of the log(s):

```
group: DHEP-Puneet
wazuh: Agent buffer: '90%'.
level: 90%
```

--END OF NOTIFICATION

Wazuh Notification.
2025 Sep 17 09:02:48

Received From: (se01.indiacms.res.in) any->wazuh-agent
Rule: 203 fired (level 9) -> "Agent event queue is full. Events"
Portion of the log(s):

```
group: DHEP-Puneet
wazuh: Agent buffer: 'full'.
level: full
```

--END OF NOTIFICATION

Wazuh notification - (dpms44.indiacms.res.in) any - Alert level 7



From Wazuh <devmail@cwazuh.tifr.res.in> on 22-09-2025 12:49

[Details](#) [Headers](#)

Wazuh Notification.
2025 Sep 22 07:19:27

Received From: (dpms44.indiacms.res.in) any->syscheck
Rule: 550 fired (level 7) -> "Integrity checksum changed."
Portion of the log(s):

```
group: DHEP-Puneet
File '/etc/grid-security/certificates/2923b3f9.r0' modified
Mode: scheduled
Changed attributes: mtime
Old modification time was: '1758241029', now it is '1758435727'
```

Attributes:

- Size: 747
- Permissions: rw-r--r--
- Date: Sun Sep 21 06:22:07 2025
- Inode: 619577
- User: root (0)
- Group: root (0)
- MD5: 3614359d380631a400f6af1efc71823
- SHA1: c0cb5a72c135a25246a1df02fb0b0c437f3b3f2
- SHA256: aecadd6dedf82acd645ab55f5cc7dfcb082787f57ac6a25876aa3996a75081e0

--END OF NOTIFICATION

Graylog: Detected IOC package "Crypto"



From graylog@indiacms.res.in on 16-09-2025 11:59

[Details](#) [Headers](#) [Plain text](#)

Event Definition

Title	Detected IOC package "Crypto"
Description	
Type	aggregation-v1

Event

Alert Replay	http://192.168.2.77:9000/alerts/01K58KQCF2K04A4NGNDQSADP9E/replay-search
Timestamp	2025-09-16T11:55:55.000+05:30
Message	Detected IOC package "Crypto"
Source	mon-wn267
Key	
Priority	3
Alert	true
Timestamp Processing	2025-09-16T11:55:55.000+05:30
Timerange Start	
Timerange End	
Source Streams	00000000000000000000000000000001
Fields	

Backlog (Last messages accounting for this alert)

```
{index=graylog_7, message=se01 dracut[21680]: drwxr-xr-x 3 root root 0 Jun 11 21:33 etc/crypto-policies,
fields={gl2_accounted_message_size=345, gl2_receive_timestamp=2025-09-16 06:25:56.007, level=7,
gl2_remote_ip=192.168.2.4, gl2_remote_port=46093, gl2_message_id=01K58K719R0Y2JAV2FFY1G49AS,
gl2_source_input=686e1f2ffb4da3314d603403, gl2_processing_timestamp=2025-09-16 06:25:56.007,
full_message=15>Sep 16 11:55:55 se01 dracut[21680]: drwxr-xr-x 3 root root 0 Jun 11 21:33 etc/crypto-policies,
facility_num=1, gl2_source_node=f8296169-9d0d-4695-a468-51a18dcca30f, facility=user-level,
gl2_processing_duration_ms=0, id=009ec383-92c6-11f0-8884-248a07ff0260,
timestamp=2025-09-16T11:55:55.000+05:30, source=se01, stream_ids=[00000000000000000000000000000001]}
```

** PROBLEM Service Alert: localhost/NTP Check - samay2.nic.in is UNKNOWN **



From nagios@indiacms.res.in on 17-07-2025 20:37

[Details](#) [Headers](#)

***** Nagios *****

Notification Type: PROBLEM

Service: NTP Check - samay2.nic.in
Host: localhost
Address: 192.168.2.77
State: UNKNOWN

Date/Time: Thu Jul 17 20:37:57 IST 2025

Additional Info:

check_ntp_time: Invalid hostname/address - samay2.nic.in

Summary

- Replacing the old hardwares will improve site AR
- Getting the AMC and vendor support may fulfill the gap of skilled manpower requirement
- Continuous enhancement in security hardening
- Pushing the site in **Production** is the main priority

Thank You !