



ceph

Multi Cluster and Protocol visibility with new Ceph Dashboard

Ankush Behl - IBM

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- Engineering Manager in IBM
- 10 year experience in storage Management tooling
- **3 years** with Ceph
- Experience with K8S storage, Openshift and Gluster storage



Agenda

- **Why Ceph Dashboard Matters?**
- **What's New in Tentacle?**
- **Deep Dive:**
 - Multi-cluster Dashboard
 - Management Gateway with OAuth2
 - RGW Automation & Sync Policies
 - Tiering, Rate Limiting & Account Control
 - SMB/NFS Protocol Support
 - Monitoring Dashboards (Application, NVMe, CephFS, SMB)
- **Road Ahead (Futures)**
- **Q&A**



Why Ceph Dashboard Matters?



Ceph is Growing in Complexity

- Multi-cluster, multi-protocol (NFS, SMB, NVMe)
- Trying to provide Ease-of-use

Operators Need a Unified View

- Make it unified workflow
- Making experience easy for administrators/users

Dashboard = Monitoring Ceph cluster

- Visualize health, performance, and capacity
- Looking at Ceph Health status and Alerts that are being triggered

Ceph Dashboard



ceph

- Dashboard
- Multi-Cluster
- Cluster
- Block
- Object
- File
- Observability
- Administration

Details

Cluster ID
9a4c48c2-cea3-11ef-a501-5254009ccf27

Orchestrator
cephadm

Ceph version
19.3.0-6692-gd6d49c93 squid (dev)

Cluster API
<https://192.168.100.100:8443/api-docs>

Telemetry Dashboard Inactive
<https://telemetry-public.ceph.com/>

Inventory

3 Hosts	3 ✓
3 Monitors	3 ✓
2 Managers	1 ✓ 1 !
6 OSDs	6 ✓
6 Pools	6 ✓
161 PGs	161 ✓

Status

View alerts

Cluster !

Alerts 0 1 1

! **CephadmDaemonFailed**
A daemon managed by cephadm is no longer active. Determine, which daemon is down with 'ceph health detail'. You may start daemons with the 'ceph orch daemon start' command.
Active since: 2 days ago

! **CephHealthWarning**
The cluster state has been HEALTH_WARN for more than 15 minutes on cluster 9a4c48c2-cea3-11ef-a501-5254009ccf27. Please check 'ceph health detail' for more information.
Active since: 2 days ago

Capacity

8.19%
of 30 GiB

Used: 2.5 GiB
Warning: 85%
Danger: 95%

Cluster Utilization

Last 1 hour

Used Capacity (RAW)
2.5 GiB used of 30 GiB

IOPS
Reads : 0
Writes : 0

OSD Latencies
Apply : 0 ms
Commit : 0 ms

Client Throughput
Reads : 0 B/s
Writes : 0 B/s

Metric	Value
Used Capacity (RAW)	2.5 GiB
Total Capacity	30 GiB
IOPS (Reads)	0
IOPS (Writes)	0
OSD Latency (Apply)	0 ms
OSD Latency (Commit)	0 ms
Client Throughput (Reads)	0 B/s
Client Throughput (Writes)	0 B/s

What's New in Tentacle?

Ceph Dashboard – Tentacle Highlights

Multi-Cluster Management & Monitoring

- Switch between clusters using a single dashboard view
- Multi-cluster overview from Grafana

Object (RGW) Enhancements

- Object replication automation
- Granular sync policy support(Per- bucket Replication)
- Storage class tiering
- S3 account management
- Per-user & bucket rate limiting

Management Gateway with OAuth2

- OAuth2-based SSO for centralized, secure access



What's New in Tentacle?

File (CephFS) Improvements

- SMB management
- NFS UX update

Monitoring Dashboards

- Multi-cluster Monitoring
- Application-level monitoring
- NVMe, and CephFS dashboards



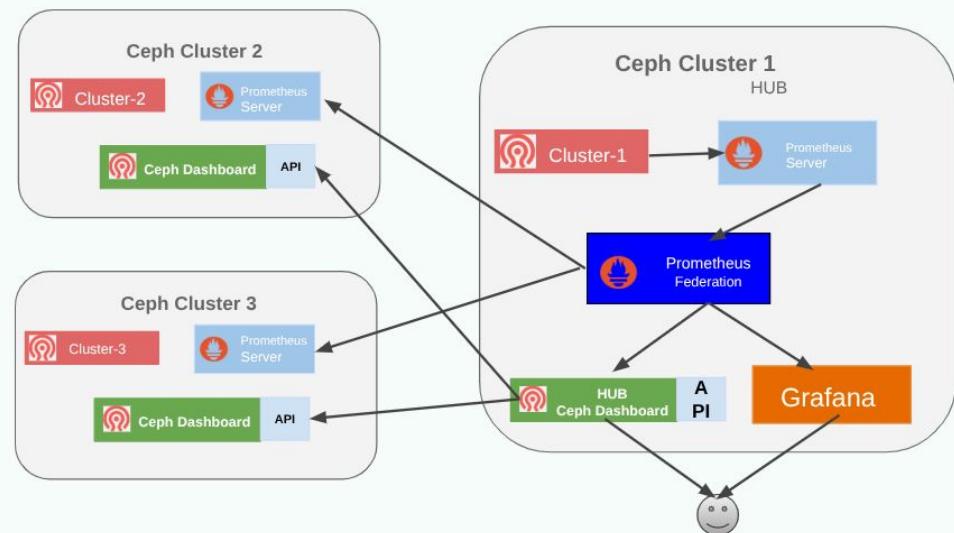
Multi-Cluster Management & Monitoring

Multi-Cluster Management & Monitoring

Many organization which are using ceph have multiple Ceph clusters setup, each with its own Grafana, Prometheus, Ceph Dashboard, and Alertmanager. This makes it challenging for administrators to monitor and manage resources efficiently, as they must constantly switch between different dashboards.

Key Features

- Monitoring of multiple Clusters
- Alerting of multiple clusters
- Day 2 - Management of individual Ceph Cluster using single Ceph Dashboard UI
- Automated Replication setup for different storage protocol



Multi-Cluster Management - Overview

Dashboard Multi-Cluster Overview Manage Clusters Cluster Block Object File Observability Administration

Clusters Alerts Connection Errors Hosts Capacity

1b661e08-37d4-11f0-a06c-525400c59e06 - local-cluster - admin

English ? Settings User

2 3 4

0 2

14.32% of 20 GiB

Used: 2.9 GiB Warning: 95% Danger: 99%

Capacity

Top 5 Cluster Utilization Last 1 hour

Capacity

Cluster Name	Connection	Status	Alerts	Version	Usage	Pools	Hosts	OSDs
1b661e08-37d4-11f0-a06c-525400c59e06	CONNECTED	WARN	5	20.3.0-486-gd9060d7c tentacle (dev - RelWithDebInfo)	27%	13	1	2

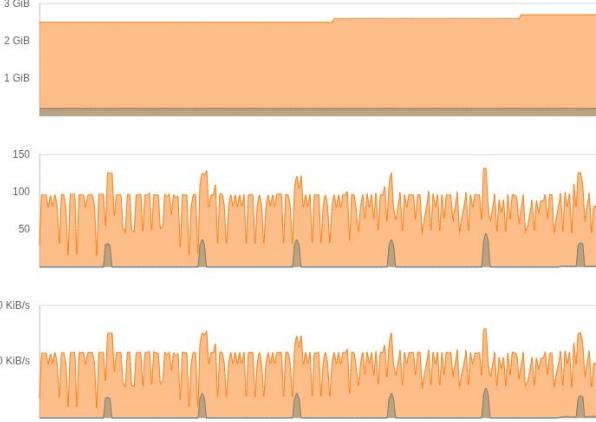
IOPS

Throughput

100 Kib/s

50 Kib/s

3 GiB 2 GiB 1 GiB





Multi-Cluster Management - Cluster List

ceph

1b661e08-37d4-11f0-a06c-525400c59e06 - local-cluster - admin

English ⓘ 🔍 ⚙️ 🌐 🛡️ 🛠️

Multi-Cluster / Manage Clusters

Clusters List

Search

Connect +

Alias	Connection	FSID	URL	User	Token expires
demoCluster	CONNECTED	11ef9aac-37d4-11f0-bd08-525400f63d1e	https://192.168.100.110:8443	admin	13 days 9 hours 38 minutes
local-cluster	CONNECTED	1b661e08-37d4-11f0-a06c-525400c59e06	https://192.168.100.100:8443	admin	N/A

Items per page: 10 | 1-2 of 2 items | 1 of 1 page

Dashboard Multi-Cluster Overview Manage Clusters Cluster Block Object

Overview Users Buckets Topics Tiering Multi-site Gateways NFS Configuration

File File Systems NFS SMB

Observability

Administration Services Upgrade Ceph Users Manager Modules

ceph-dashboard-core (Channel) ... 📺 Reminder: Next Step ... Ceph Da... 📁 Recent 🖥️ ankushbehl@li-15ccdd94c-36ae-... 🖥️ mgr/dashboard: Creating Ceph... 🖥️ Ceph Dashboard: Multi-Cluster ... 🖥️ mgr/dashboard: Replace all Boo...

Multi-Cluster Management - Demo

Ceph Dashboard Ceph Dashboard +

Not secure https://192.168.100.100:8443/#/dashboard

Apps IBM Globalizati... Cryptocurrency BlueJeans Net... search - Findin... Home - Grafana Learning Mana... About Us prima-rha.itos... Customer Port... Blackfyre - Cre... English All Bookmarks

ceph

Dashboard Multi-Cluster Cluster Block Object File Observability Administration

Details

Cluster ID 80c5e4e4-3532-11f0-ac2f-525400eebaeb

Orchestrator cephadm

Ceph version 20.3.0-315-ga7be1ff9 tentacle (dev)

Cluster API https://192.168.100.100:8443/api-docs

Telemetry Dashboard Inactive https://telemetry-public.ceph.com/

Status

⚠ Cluster

View alerts

Alerts 1

⚠ CephHealthWarning The cluster state has been HEALTH_WARN for more than 15 minutes on cluster 80c5e4e4-3532-11f0-ac2f-525400eebaeb. Please check 'ceph health detail' for more information.

Active since: A day ago

Capacity

2.29% of 10 GiB

Used: 233.8 MiB Warning: 85% Danger: 95%

Inventory

Host	1
Monitor	1
Manager	1
OSDs	2
Pools	7

Cluster Utilization

Last 1 hour

Used Capacity (RAW) 339.8 MiB used of 10 GiB

IOPS

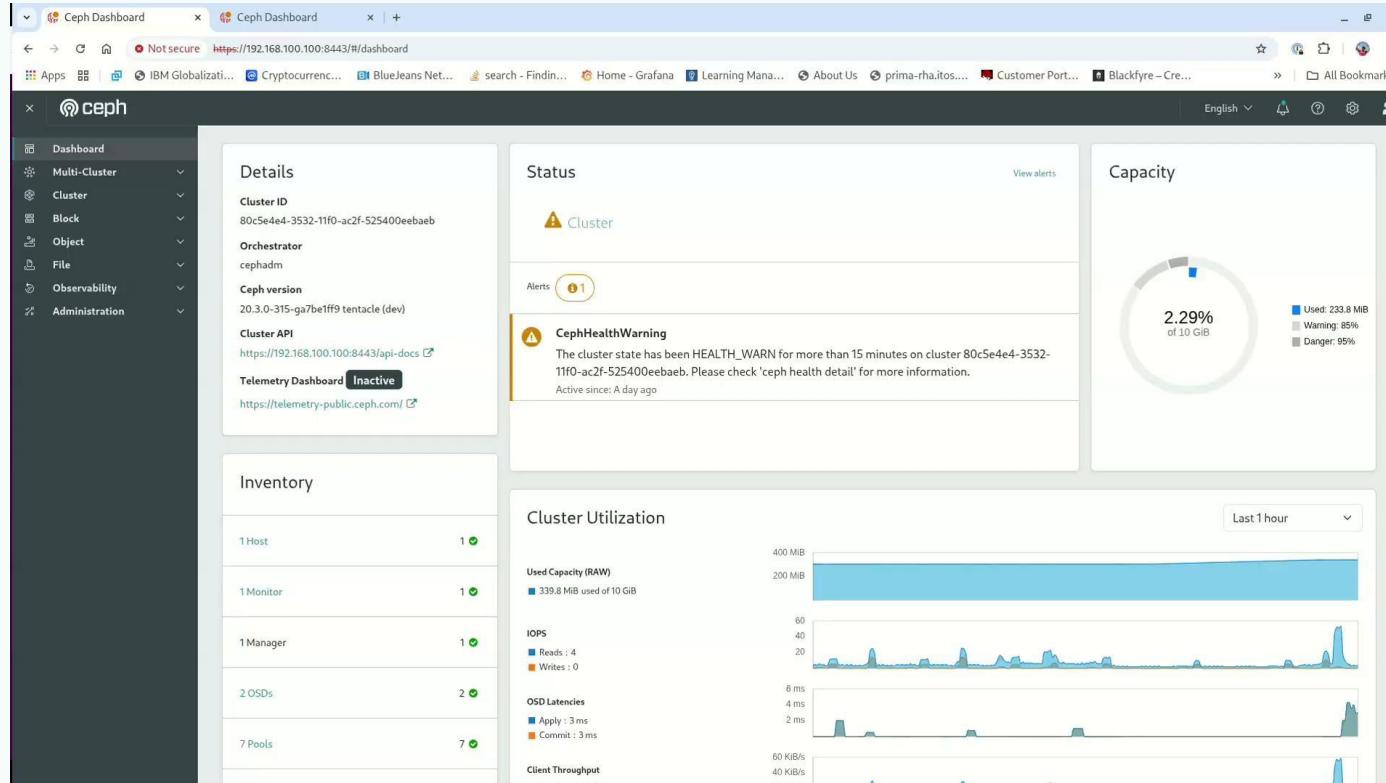
Reads : 4 Writes : 0

OSD Latencies

Apply : 3 ms Commit : 3 ms

Client Throughput

60 KB/s 40 KB/s





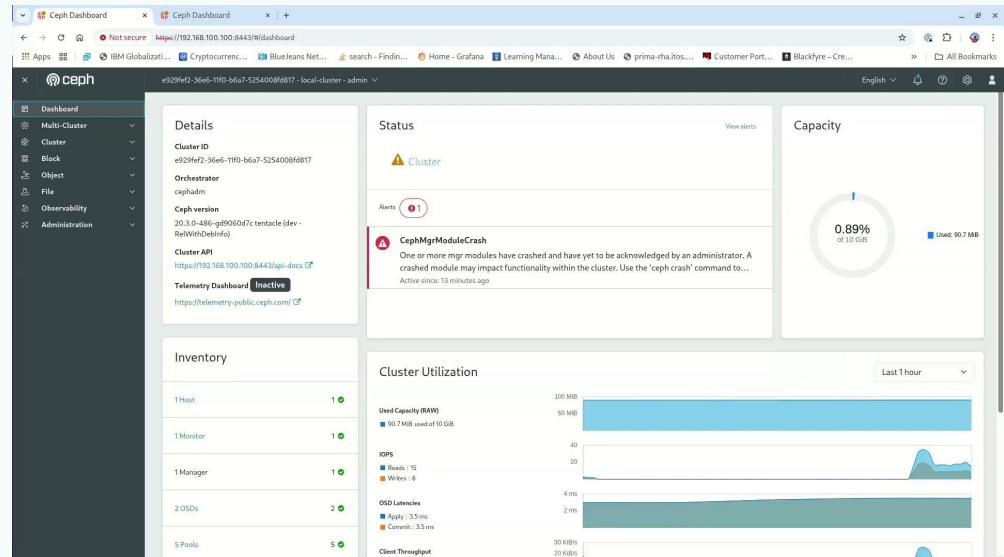
Object(RGW) Enhancements

Object - Replication Automation

Object Multi-site replication in Ceph can be complex to setup, involving realm, zones, zonegroups, and sync policies. We've simplified this with an intuitive, wizard-based UI workflow which reduces operational overhead, ensuring reliable replication, and making the process faster and less error-prone.

Key Features

- Existing setups can be converted into object replication.
- New multi-site replication configurations can be created from scratch.
- If clusters are connected in a multi-cluster setup, the entire process is automated for the user.
- In standalone setups, a token is provided that can be copied and pasted into the peer cluster for configuration.



Blog: <https://ceph.io/en/news/blog/2024/rgw-multisite-replication-wizard/>

Object - Replication Automation - Multi-site



Object / Multi-site / Configuration

Configuration Sync Policy

Setup Multi-site Replication + Migrate + Import + Export +

Topology Viewer

default default master

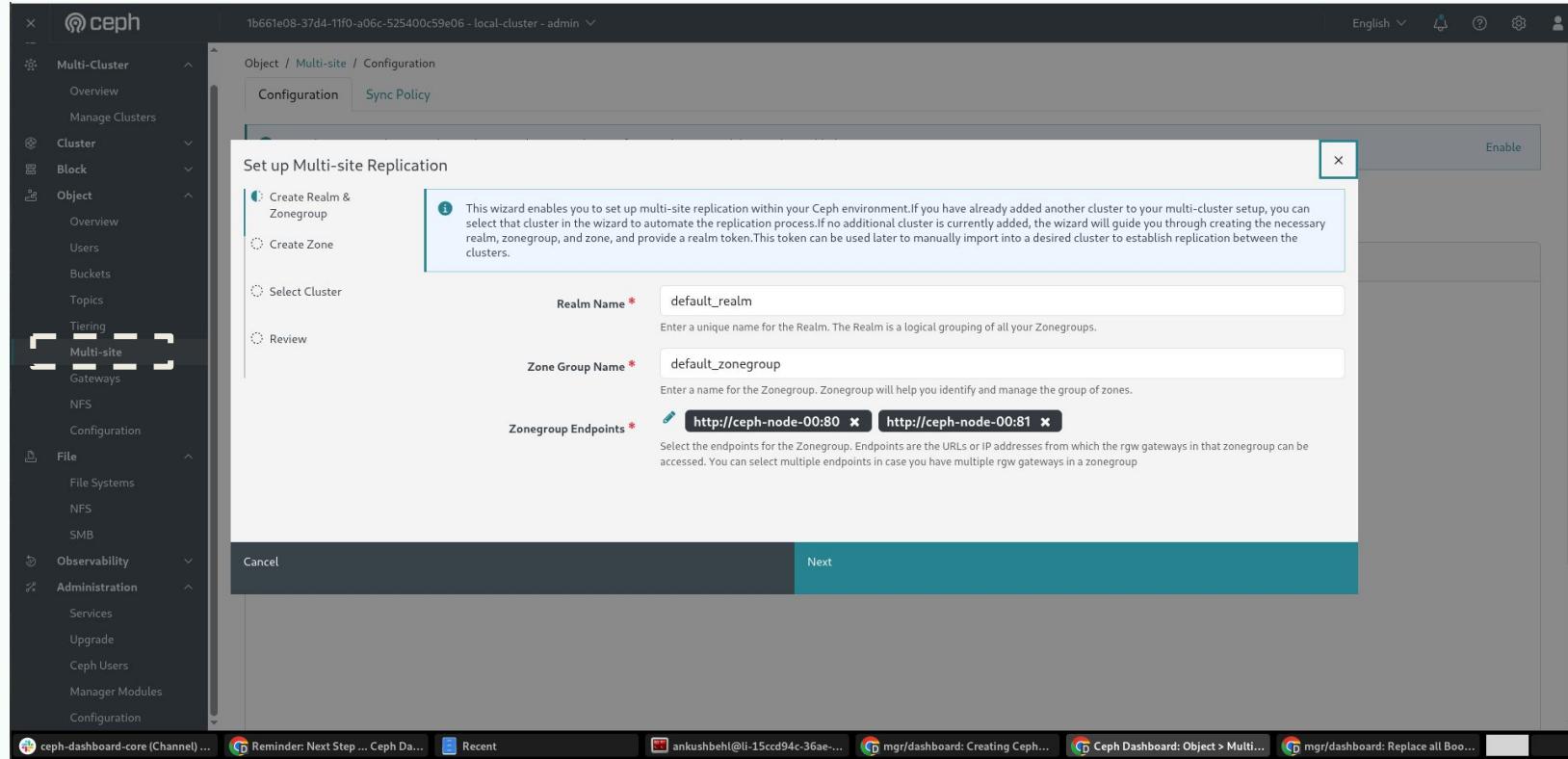
default default master

File Observability Administration

Settings

A screenshot of the Ceph Object Storage interface. The left sidebar is dark with white text, showing a tree structure with 'Object' expanded, 'Multi-site' selected, and other options like 'Dashboard', 'Multi-Cluster', 'Cluster', 'Block', 'File', 'Observability', and 'Administration'. The main content area has a light gray background. At the top, it says 'Object / Multi-site / Configuration'. Below that are two tabs: 'Configuration' (which is active, indicated by a blue dashed border) and 'Sync Policy'. Underneath are four buttons: 'Setup Multi-site Replication' (with a '+' sign), 'Migrate' (with a '+' sign), 'Import' (with a '+' sign), and 'Export' (with a '+' sign). Below these buttons is a section titled 'Topology Viewer' with a header 'default' and two sub-sections, each also labeled 'default' and 'master'. At the bottom of the page is a navigation bar with 'File', 'Observability', and 'Administration' links, and a 'Settings' button in the bottom right corner.

Object - Replication Automation - Wizard



The screenshot shows the Ceph dashboard interface with a dark theme. The left sidebar contains navigation links for Multi-Cluster, Cluster, Object, Tiering, Multi-site, File, Observability, Administration, and various sub-options like Overview, Manage Clusters, Create Realm & Zonegroup, Create Zone, Select Cluster, Review, and Sync Policy.

The main content area displays the "Object / Multi-site / Configuration" screen. A modal window titled "Set up Multi-site Replication" is open. The modal includes an informational text block about the wizard's purpose, fields for "Realm Name" (set to "default_realm"), "Zone Group Name" (set to "default_zonegroup"), and "Zonegroup Endpoints" (list containing "http://ceph-node-00:80" and "http://ceph-node-00:81"). The "Next" button at the bottom of the modal is highlighted in blue.

The browser's address bar shows the URL "1b661e08-37d4-11f0-a06c-525400c59e06 - local-cluster - admin". The bottom status bar shows several tabs and notifications, including "ceph-dashboard-core (Channel) ...", "Reminder: Next Step ... Ceph Da...", "Recent", "ankushbehl@li-15ccd94c-36ae-...", "mgr/dashboard: Creating Ceph...", "Ceph Dashboard: Object > Multi...", and "mgr/dashboard: Replace all Boo...".

Object - Replication Automation - Step 2 & 3

Set up Multi-site Replication

- Create Realm & Zonegroup
- Create Zone
- Select Cluster
- Review

Zone Name * Enter a unique name for the Zone. A Zone represents a distinct data center or geographical location within a Zonegroup.

Zone Endpoints * Select the endpoints for the Zone. Endpoints are the URLs or IP addresses from which the rgw gateways in that zone can be accessed. You can select multiple endpoints in case you have multiple rgw gateways in a zone

Username * Specify the username for the system user.

ⓘ This user will be created automatically as part of the process, and it will have the necessary permissions to manage and synchronize resources across zones.

[Back](#) [Next](#)

Set up Multi-site Replication

- Create Realm & Zonegroup
- Create Zone
- Select Cluster
- Review

Replication Cluster * Choose the cluster where you want to apply this multisite configuration. The selected cluster will integrate the defined Realm, Zonegroup, and Zones, enabling data synchronization and management across the multisite setup.

ⓘ Before submitting this form, please verify that the selected cluster has an active RGW (Rados Gateway) service running.

Replication Zone Name * Replication zone represents the zone to be created in the replication cluster where your data will be replicated.

[Skip](#) [Back](#) [Next](#)

Object - Replication Automation - Step 4

Set up Multi-site Replication

Create Realm &
Zonegroup

Realm Name: default_realm

Create Zone

Zonegroup Name: default_zonegroup

Select Cluster

Zonegroup Endpoints: http://ceph-node-00:80, http://ceph-node-00:81

Review

Zone Name: default_zone

Zone Endpoints: http://ceph-node-00:80, http://ceph-node-00:81

Username: default_system_user

Selected Replication Cluster: 11ef9aac-37d4-11f0-bd08-525400f63d1e

Replication Zone Name: new_replicated_zone

Back

Configure Multi-Site

Object - Replication Automation - Progress

Object / Multi-site / Configuration

Configuration Sync Policy

Please restart all Ceph Object Gateway instances in all zones to ensure consistent multisite configuration updates. [Cluster->Services](#)

Setup Multi-site Replication + Create Realm + Import + Export +

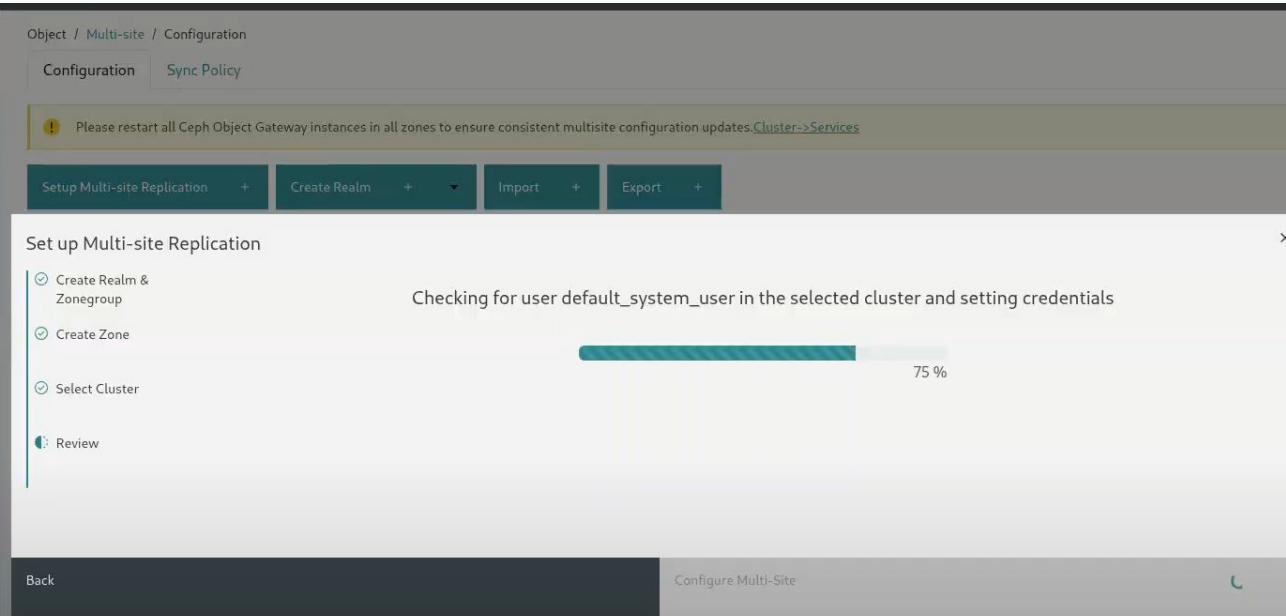
Set up Multi-site Replication

Checking for user default_system_user in the selected cluster and setting credentials

75 %

Create Realm & Zonegroup
Create Zone
Select Cluster
Review

Back Configure Multi-Site



Object - Replication Automation - Final Result



Primary Site

Object / Multi-site / Configuration

Configuration Sync Policy

Setup Multi-site Replication + Create Realm + Import + Export +

Topology Viewer

- default_realm default
 - default_zonegroup default master
 - default_zone default master
 - new_replicated_zone secondary-zone
- default default master
- default default master

This screenshot shows the 'Topology Viewer' section of the Ceph Object Storage interface. It displays a hierarchical tree of replication groups. Under 'default_realm', there is a 'default_zonegroup' node with two children: 'default_zone' (status: master) and 'new_replicated_zone' (status: secondary-zone). Below 'default_realm' is another 'default' node with two children: 'default' (status: master) and 'default' (status: master). The 'master' status is indicated by a green button, while 'secondary-zone' is indicated by an orange button.

Secondary Site

Object / Multi-site / Configuration

Configuration Sync Policy

Setup Multi-site Replication + Create Realm + Import + Export +

Topology Viewer

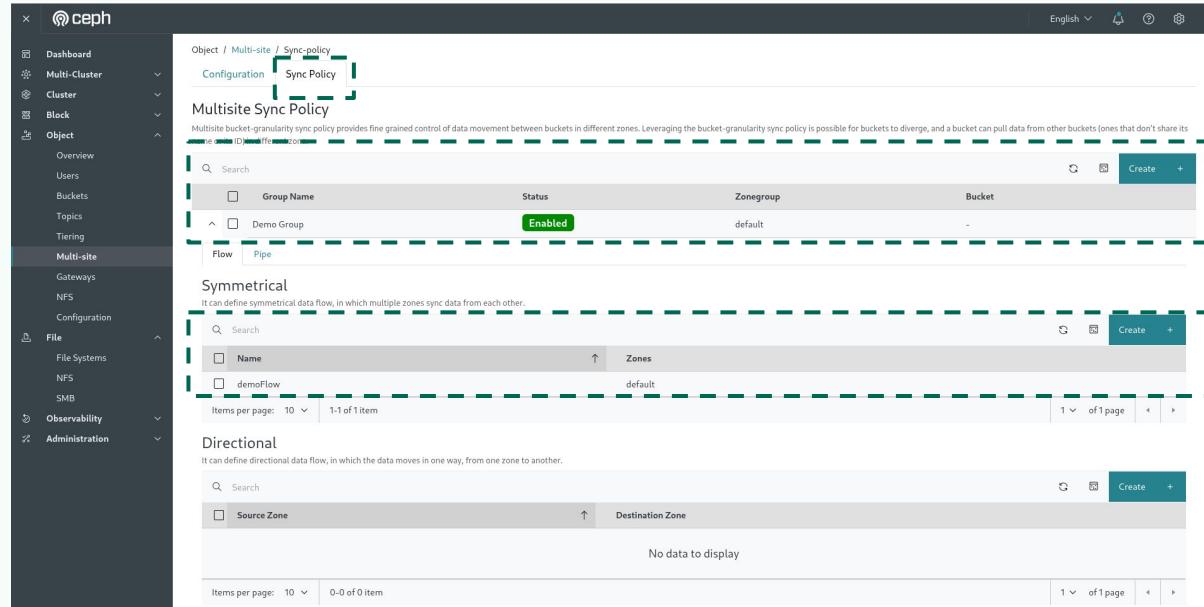
- default_realm
 - default_zonegroup master
 - default_zone master secondary-zone
 - new_replicated_zone
- default default master
- default default master

This screenshot shows the 'Topology Viewer' section of the Ceph Object Storage interface on the Secondary Site. The structure is identical to the Primary Site's screenshot. The 'default_zonegroup' node under 'default_realm' has a child 'default_zone' node with a 'secondary-zone' status (orange button). The other nodes ('new_replicated_zone', 'default', and 'default') all have 'master' status (green buttons).

Object- Granular Sync Replication Policy

Object - Granular Sync Policy Replication

Ceph's bucket-level granular sync policies offer more precise control—such as replicating specific buckets instead of entire zones—but have traditionally been complex and cumbersome to manage using CLI commands.



The screenshot shows the Ceph RGW Multisite Sync Policy Dashboard. The left sidebar navigation includes: Dashboard, Multi-Cluster, Cluster, Block, Object (selected), Overview, Users, Buckets, Topics, Tiering, Multi-site (selected), Gateways, NFS, Configuration, File (selected), File Systems, NFS, SMB, Observability, and Administration. The main content area displays the 'Sync Policy' tab under 'Multisite Sync Policy'. It includes sections for 'Symmetrical' and 'Directional' data flows, each with search, create, and edit functions. A note states: 'Multisite bucket-granularity sync policy provides fine grained control of data movement between buckets in different zones. Leveraging the bucket-granularity sync policy is possible for buckets to diverge, and a bucket can pull data from other buckets (ones that don't share its zone ID) across zones.'

Groups: Hold data flow and pipe rules within a sync policy.

Data Flow: Can be **symmetrical** (bi-directional) or **directional** (one-way) between zones.

Pipes: Connect specific buckets and zones to data flows, defining what and how to sync.

Blog: <https://ceph.io/en/news/blog/2025/rgw-multisite-sync-policy-dashboard/>

Object - Granular Sync Policy Replication

Pipe

Multisite Sync Policy

Multisite bucket-granularity sync policy provides fine grained control of data movement between buckets in different zones. Leveraging the bucket-granularity sync policy is possible for buckets to diverge, and a bucket can pull name or its ID in different zone.

Search

<input type="checkbox"/>	Group Name	Status	Zonegroup	Bucket
<input type="checkbox"/>	Demo Group	Enabled	default	-

Flow Pipe

Pipe

A pipe defines the actual buckets that can use these data flows, and the properties that are associated with it.

Search

<input type="checkbox"/>	Name	Source Zone	Destination Zone	Source Bucket	Destination Bucket
<input type="checkbox"/>	demo pipe	*	*	*	*

Items per page: 10 1-1 of 1 item

Items per page: 10 1-1 of 1 item

Object - Granular Sync Policy Replication

Selected Object Gateway: test.ceph-node-00.fiwbae (default)

Object / Buckets / Create

Create Bucket

Name (required)

Owner (required)

-- Select a user --

Object Locking
Store objects using a write-once-read-many (WORM) model to prevent objects from being deleted or overwritten for a fixed amount of time or indefinitely. Object Locking works only in versioned buckets.

Enable
Enables locking for the objects in the bucket. Locking can only be enabled while creating a bucket.

Encryption

Enable
Enables encryption for the objects in the bucket. To enable encryption on a bucket you need to set the configuration values for SSE-S3 or SSE-KMS. To set the configuration values [Click here](#)

Replication

Enable
Enables replication for the objects in the bucket.

Info A bi-directional sync policy group will be created by the dashboard along with flows and pipes. The pipe id will then be used for applying the replication policy to the bucket.

Bucket Level Replication

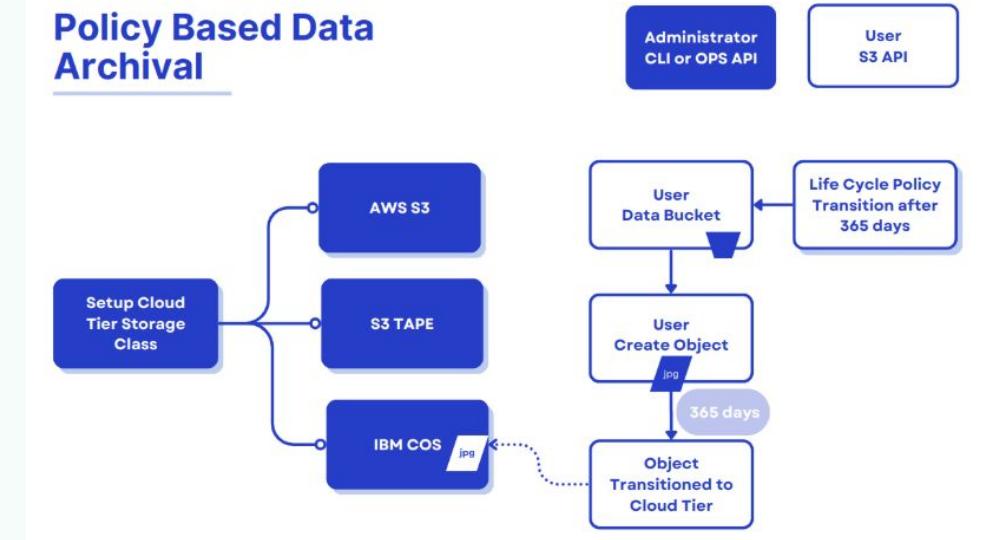
Object- Cloud Tiering

Object - Cloud Tiering

Ceph Object(RGW) supports object storage tiering, allowing seamlessly moves data between high-performance and archival tiers across on-prem and cloud environments.

Dashboard Features

- Create/List/Delete Cloud Tiering storage class
- Manage policy based archival for object in bucket
- Monitoring Lifecycle status



Object - Cloud Tiering - Create



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Object / Tiering / Create

Create Tiering Storage Class

All fields are required, except where marked optional.

Zone Group Name: default

Placement Target: default-placement

Storage Class Name:

Target Region: e.g., us-east-1

Target Endpoint: e.g., http://ceph-node-00.com:80

Target Access Key:

Target Secret Key:

Target Path:

Target Path refers to the storage location (e.g., bucket or container) in the cloud where data will be stored.

Advanced

! RGW service would be restarted after creating the storage class.

Cancel Create Tiering Storage Class

Object / Tiering

A storage class for tiering defines the policies for automatically moving objects between different storage tiers.

Storage Class	Zone Group	Placement Target	Target Region	Target Endpoint
demostorageclass	default	default-placement	default	http://192.168.100.110:80

Details

Target Path ⓘ	demobucket
Access key ⓘ	*****  
Secret key ⓘ	*****  
Host Style ⓘ	path
Multipart Minimum Part Size ⓘ	33554432
Multipart Sync Threshold ⓘ	33554432
Retain Head Object ⓘ	false

Items per page: 10 ▾ 1-1 of 1 item 1 ▾ of 1 page ▶

Object - Cloud Tiering - Screenshot

Owner Used Capacity Capacity Limit % Objects Object Limit %

Create Tiering configuration
All fields are required, except where marked optional.

Rule Name

Unique identifier for the rule. The value cannot be longer than 255 characters.

Storage Class

-- Select the storage class --

The storage class to which you want the object to transition.

Choose a configuration scope

Apply to all objects in the bucket Limit the scope of this rule to selected filter criteria

Status

Enabled Disabled

Number of days

60

Select the number of days to transition the objects to the specified storage class. The value must be a positive integer.

Cancel Create

Object - Cloud Tiering - Screenshot



Selected Object Gateway: test.ceph-node-00.flwbae (default)

Object / Buckets

Name	Owner	Used Capacity	Capacity Limit %	Objects	Object Limit %	Number of Shards
demo-account-user-bucket	RGW48272048850033856	0 B	No Limit	0	No Limit	11
demobucket	demo-user	0 B	No Limit	0	No Limit	11

Tiering Configuration

Configure a bucket tiering rule to automatically transition objects between storage classes after a specified number of days. Define the scope of the rule by applying it globally or to objects with specific prefixes and tags.

Name	Days	Storage class	Status
demorule	1	demosorageclass	Enabled

Items per page: 10 | 1-1 of 1 item

Items per page: 10 | 1-2 of 2 items

English ▾

Object Bucket Details Policies Tiering Edit Tiering Delete

Object - Cloud Tiering - Screenshot



demobucket demo-user 0 B No Limit

Details Policies Tiering

Bucket policy

Lifecycle

JSON XML

```
{ "LifecycleConfiguration": { "Rule": [ { "ID": "demorule", "Prefix": null, "Status": "Enabled", "Transition": { "Days": "1", "StorageClass": "demostorageclass" } } ] } }
```

Lifecycle progress

COMPLETE Sat, 24 May 2025 19:15:02 GMT

Replication policy

```
{ "Role": "" }
```

Grantee

Bucket Owner Everyone

ACL

Items per page: 10 | 1-2 of 2 items

Lifecycle progress

COMPLETE

Sat, 24 May 2025 19:15:02 GMT

Object - Cloud Tiering - Demo



Fri May 23 19:07:23

0:00 47%

Ceph Dashboard

Not secure https://192.168.100.100:8443/#/dashboard

Apps IBM Globalizat... Cryptocurrenc... BlueJeans Net... search - Findin... Home - Grafana Learning Mana... About Us prima-rha.itos... Customer Port... Blackfyre - Cre...

All Bookmarks English

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Details

Cluster ID
1b661e08-37d4-11f0-a06c-525400c59e06

Orchestrator
cephadm

Ceph version
20.3.0-486-gd9060d7c tentacle (dev - RelWithDebInfo)

Cluster API
<https://192.168.100.100:8443/api-docs>

Telemetry Dashboard Inactive
<https://telemetry-public.ceph.com/>

Status

View alerts

Cluster

Alerts (1) (1)

CephMgrModuleCrash
One or more mgr modules have crashed and have yet to be acknowledged by an administrator. A crashed module may impact functionality within the cluster. Use the 'ceph crash' command to...
Active since: 40 minutes ago

CephHealthWarning
The cluster state has been HEALTH_WARN for more than 15 minutes on cluster 1b661e08-37d4-11f0-a06c-525400c59e06. Please check 'ceph health detail' for more information.

Capacity

0.89% of 10 GiB
Used: 90.3 MiB

Inventory

1 Host	1
1 Monitor	1
1 Manager	1
2 OSDs	2

Cluster Utilization

Last 1 hour

Used Capacity (RAW)
90.3 MiB used of 10 GiB

IOPS
Reads : 57
Writes : 38

OSD Latencies
Apply : 3.33 ms
Commit : 3.33 ms

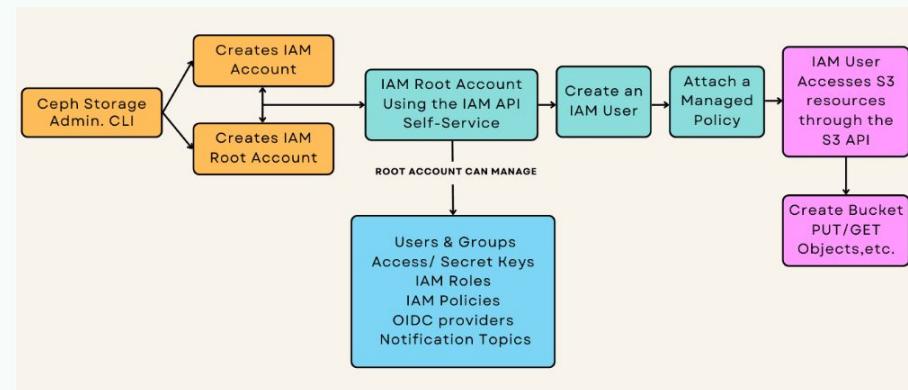
Object- S3 Account Management

Object - S3 Account Management

Ceph now supports AWS-compatible IAM accounts, enabling secure, self-service multitenancy for object storage. This feature empowers tenants to manage their own resources while reducing administrative effort.

Dashboard Features

- Create/List/Edit/Delete Account
- Add user to account
- Migrate an existing User into an Account
- Account Stats/Quota Management
- Creating a bucket into an account
- Migrating an existing bucket to an account



S3 Account Management - Account CRUD



Selected Object Gateway: test.ceph-node-00.flwbae (default)

Object / Accounts

Users Accounts Roles

User Accounts

Administrators can assign unique credentials to users or applications, enabling granular access control and enhancing security across the cluster.

Name	Tenant	Account id	Email address	Max users	Max roles	Max groups	Max. buckets	Max access keys
demo-ceph-days		RGW48272048850033856		1000	1000	1000	1000	4

Search

Create +

⋮

Edit

Delete

Account quota

Key	Value
Enabled	No
Maximum objects	-
Maximum size	-

Items per page: 1-3 of 3 items 1 of 1 page ⏪ ⏩

Bucket quota

Key	Value
Enabled	No
Maximum objects	-
Maximum size	-

Items per page: 1-3 of 3 items 1 of 1 page ⏪ ⏩

Items per page: 10 1-1 of 1 item 1 of 1 page ⏪ ⏩

S3 Account Management - Account CRUD



ceph

Object / Accounts / Create

Create Account

Account Name (required)

Tenant

Email

Buckets Mode

Custom

Max. buckets (required)

 - +

Users Mode

Custom

Max. users (required)

 - +

Roles Mode

Custom

Max. roles (required)

 - +

Groups Mode

Custom

Max. groups (required)

 - +

Access Mode

Custom

Max. access keys (required)

 - +

Account Quota

Set quota on account owned by users.

 Enabled

Bucket Quota

Set quota on buckets owned by an account.

 Enabled

Cancel

Create Account

S3 Account Management - User CRUD



Selected Object Gateway: test.ceph-node-00.flwbae (default)

Object / Users

Users Accounts Roles

Search

Username	Tenant	Account name	Full name	Email address	Suspended	Max. buckets	Capacity Limit %	Object Limit %
dashboard			Ceph Dashboard			1000	No Limit	No Limit
demo-account-user		demo-ceph-days	DemoAccountUser			1000	No Limit	No Limit

Create +

Keys

Search

Username	Type
demo-account-user	S3

Show +

Items per page: 10 1-1 of 1 item 1 of 1 page

Details

Tenant

User ID	demo-account-user
Username	demo-account-user
Full name	DemoAccountUser
Suspended	No
System user	No
Maximum buckets	1000

Account Details

Account ID	RGW48272048850033856
Name	demo-ceph-days
Tenant	-
User type	Account root user

S3 Account Management - User CRUD



Selected Object Gateway: test.ceph-node-00.flwbae (default)

Object / Users / Create

Create User

Link Account

demo-ceph-days

Account membership is permanent. Once added, users cannot be removed from their account.
Ownership of all of the user's buckets will be transferred to the account.

Account Root user
The account root user has full access to all resources and manages the account. It's recommended to use this account for management tasks only and create additional users with specific permissions.

User ID (required)

Show Tenant

Full name (required)

Email address

Maximum buckets

Custom

1000

Suspended
Suspending the user disables the user and subuser.

System user
System users are distinct from regular users; they are used by the RGW service to perform administrative tasks, manage buckets and objects

S3 key

S3 Account Management - Bucket Linking



ceph

Selected Object Gateway: test.ceph-node-00.firebaseio (default)

Object / Buckets / Create

Create Bucket

Name (required)
Name...

Owner (required)
demo-account-user

Object Locking
Store objects using a write-once-read-many (WORM) model to prevent objects from being deleted or overwritten for a fixed amount of time or indefinitely. Object Locking works only in versioned buckets.
 Enable
Enables locking for the objects in the bucket. Locking can only be enabled while creating a bucket.

Encryption
 Enable
Enables encryption for the objects in the bucket. To enable encryption on a bucket you need to set the configuration values for SSE-S3 or SSE-KMS. To set the configuration values Click here

Replication
 Enable
Enables replication for the objects in the bucket.
A bi-directional sync policy group will be created by the dashboard along with flows and pipes. The pipe id will then be used for applying the replication policy to the bucket.

Tags
Tagging provides a way to categorize storage
Add tag +

Selected Object Gateway: test.ceph-node-00.firebaseio (default)

Object / Buckets

Name	Owner	Used Capacity	Capacity Limit %	Objects	Object Limit %	Number of Shards
demo-account-user-bucket	RGW48272048850033856	0 B	No Limit	0	No Limit	11

Details Policies Tiering

Versioning Suspended

Encryption Disabled

Replication Disabled

MFA Delete Disabled

Index type Normal

Placement rule default-placement

Last modification time 25/05/25 12:14 AM

Bucket quota

Enabled No

Locking

Enabled No

Bucket Rate Limit

Enabled No

Maximum Read Ops -

Maximum Write Ops -

Maximum Read Bytes -

Maximum Write Bytes -

Object - S3 Account Management - Demo



x ceph

- Dashboard
- Multi-Cluster
- Cluster
- Block
- Object
- File
- Observability
- Administration

Details

Cluster ID
1b661e08-37d4-11f0-a06c-525400c59e06

Orchestrator
cephadm

Ceph version
20.3.0-486-gd9060d7c tentacle (dev - RelWithDebInfo)

Cluster API
<https://192.168.100.100:8443/api-docs>

Telemetry Dashboard Inactive
<https://telemetry-public.ceph.com/>

Inventory

1 Host	1 ✓
1 Monitor	1 ✓
1 Manager	1 ✓
2 OSDs	2 ✓
7 Pools	7 ✓

Status

View alerts

⚠ Cluster

Alerts 1 1

⚠ **CephMgrModuleCrash**
One or more mgr modules have crashed and have yet to be acknowledged by an administrator. A crashed module may impact functionality within the cluster. Use the 'ceph crash' command to...
Active since: 7 hours ago

⚠ **CephHealthWarning**
The cluster state has been HEALTH_WARN for more than 15 minutes on cluster 1b661e08-37d4-11f0-a06c-525400c59e06. Please check 'ceph health detail' for more information.

Capacity

19.32% of 10 GiB

Used: 1.9 GiB
Warning: 85%
Danger: 95%



Cluster Utilization

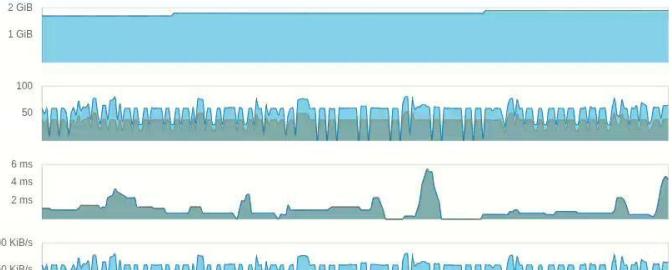
Last 1 hour

Used Capacity (RAW)
1.9 GiB used of 10 GiB

IOPS
Reads : 65
Writes : 39

OSD Latencies
Apply : 4.33 ms
Commit : 4.33 ms

Client Throughput
100 kB/s
50 kB/s



Object - Per User/Bucket Rate Limiting

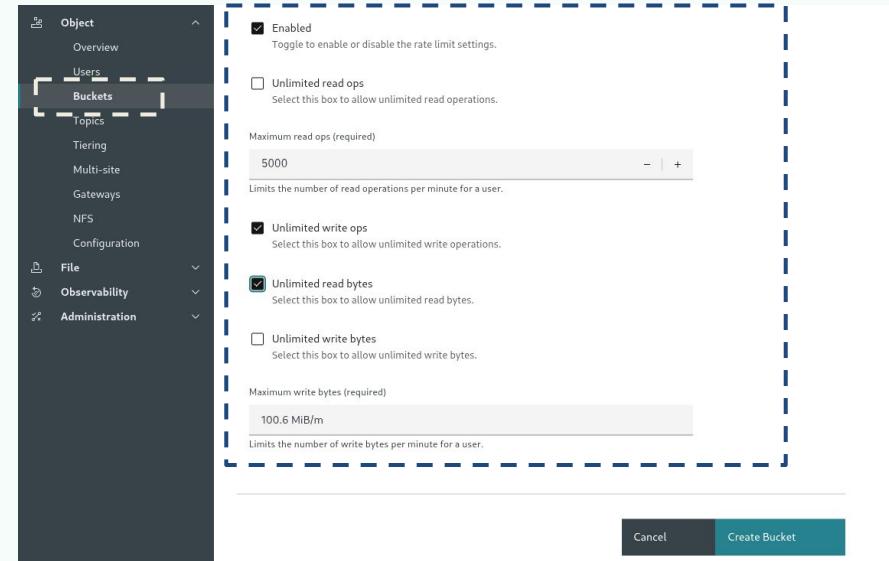
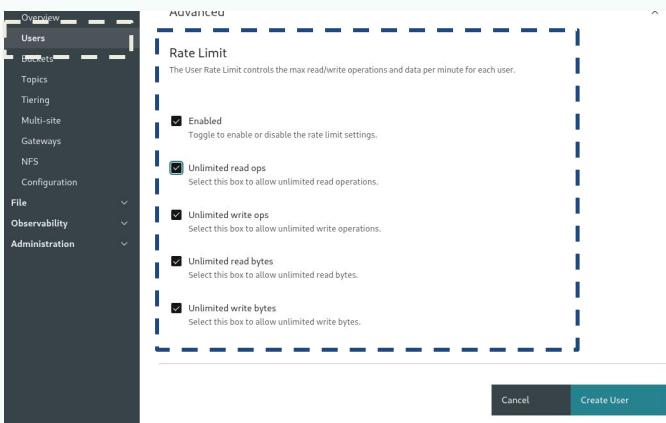
Ceph Dashboard now supports RGW **rate limiting** at a **per-user** and **per-bucket** level, allowing administrators to control traffic and protect backend resources from overuse or abuse.

Dashboard Features:

- Individual users
- Specific buckets

Configure:

- **Request rate** (e.g., Read, Write)
- **Bandwidth limits** (Read, Write in bytes/sec)





Management Gateway With OAuth2

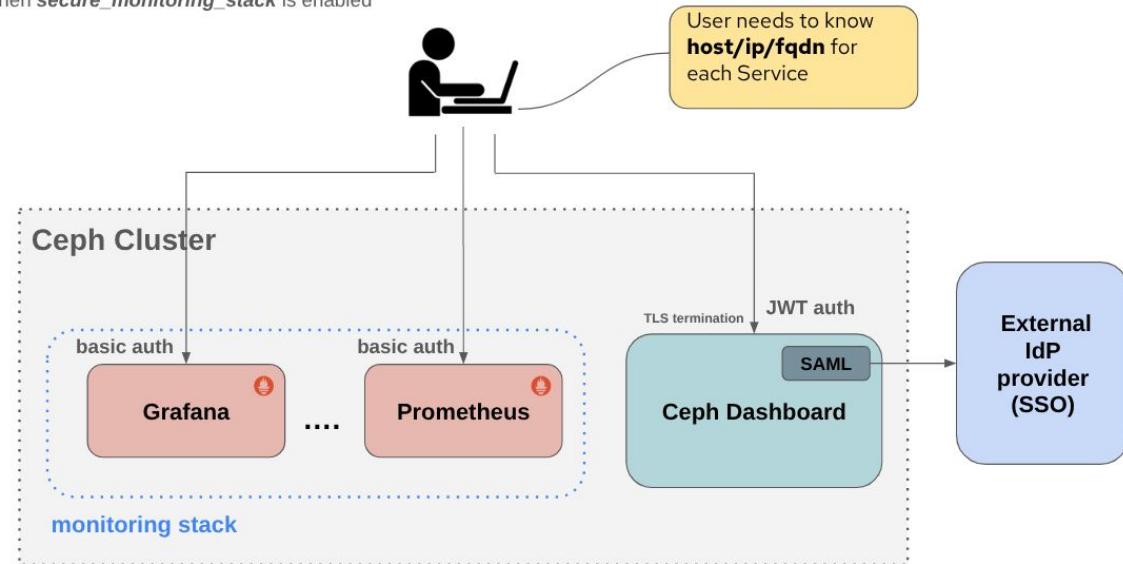
Management Gateway with OAuth2

Ceph introduces a new service called **Management Gateway** to unify access to management services, now enhanced with **OAuth 2.0** for secure, standards-based authentication.

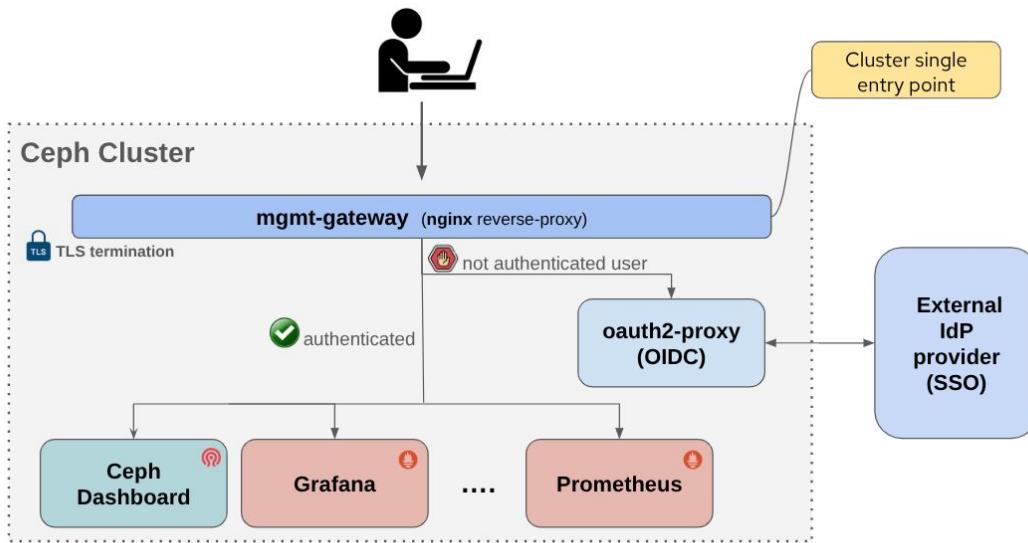
Disadvantages of the legacy System

- Users has to know the ip:port for every monitoring service
- SSO support is reduced to SAML (and for Dashboard only)
- Only basic-auth and different user/password is needed for each service
- No Uniform authentication
- No high-availability support for monitoring

* when *secure_monitoring_stack* is enabled



Management Gateway with OAuth2



Advantages of the new architecture

- Single entry-point to all the cluster services
- Modern SSO support based on OIDC protocol (possibility of MFA, better security, etc)
- Uniform SSO authentication across all the cluster monitoring services
- Modern SSO infrastructure suited for modern hybrid environments
- Monitoring high-availability support



File (CephFS) Improvements

File - SMB Management



Ceph now supports managing **SMB (Server Message Block)** shares directly through the Dashboard, simplifying file share setup

Dashboard Features:

- Creating SMB Cluster
- Managing users
 - Standalone user Management
 - Active Directory Management
- Create, Modify, Delete SMB Shares
- Overview Dashboard

A screenshot of the Ceph Dashboard interface. The left sidebar shows navigation categories like Dashboard, Multi-Cluster, Cluster, Block, Object, File, File Systems, NFS, SMB, Observability, Administration, Services, Upgrade, Ceph Users, Manager Modules, and Configuration. The main content area has a header "File / SMB / Cluster" with tabs for Cluster, Active Directory, Standalone, and Overview. A dashed blue box highlights the "Cluster" tab. Below this, there's a section titled "Clusters" with a sub-section "Shares". The "Shares" table has columns for ID, Name, File System, Path, Subvolume group, Subvolume, and Provider. One entry is shown: DemoShare, DemoShare, demo, //.../, demosvg, demoSV, samba-vfs. At the bottom of the table are pagination controls: "Items per page: 10" and "1-1 of 1 item".

ID	Name	File System	Path	Subvolume group	Subvolume	Provider
DemoShare	DemoShare	demo	//.../	demosvg	demoSV	samba-vfs

File - SMB Management - Create Cluster

ceph

Dashboard

Multi-Cluster

Cluster

Block

Object

File

File Systems

NFS

SMB

Observability

Administration

- Services
- Upgrade
- Ceph Users
- Manager Modules
- Configuration

File / SMB / Cluster / Create

Create Cluster

Cluster Name (required)

Unique identifier

Authentication Mode (required)

User

Active-directory authentication for domain member servers and User authentication for Stand-alone servers configuration.

Standalone user access resources

demouser

Add user group + Create user group

Service specifications

Cancel Create Cluster

File - SMB Management - User Management



x ceph

File / SMB / Standalone / Create

Create Users and groups access resource

Upload Users and Groups
only .json and .yaml files are supported

Add from file

Users and groups access resource name

Unique identifier

Linked to cluster (optional)

-- List of clusters --

This resource may only be used with the linked cluster and will automatically be removed when the linked cluster is removed.

Username Password

Add User +

Add Group +

Cancel Create Users and groups access resource

x ceph

File / SMB / Active Directory / Create

Create Active directory (AD) access resource

Active directory access resource name

Unique identifier

Username

Password

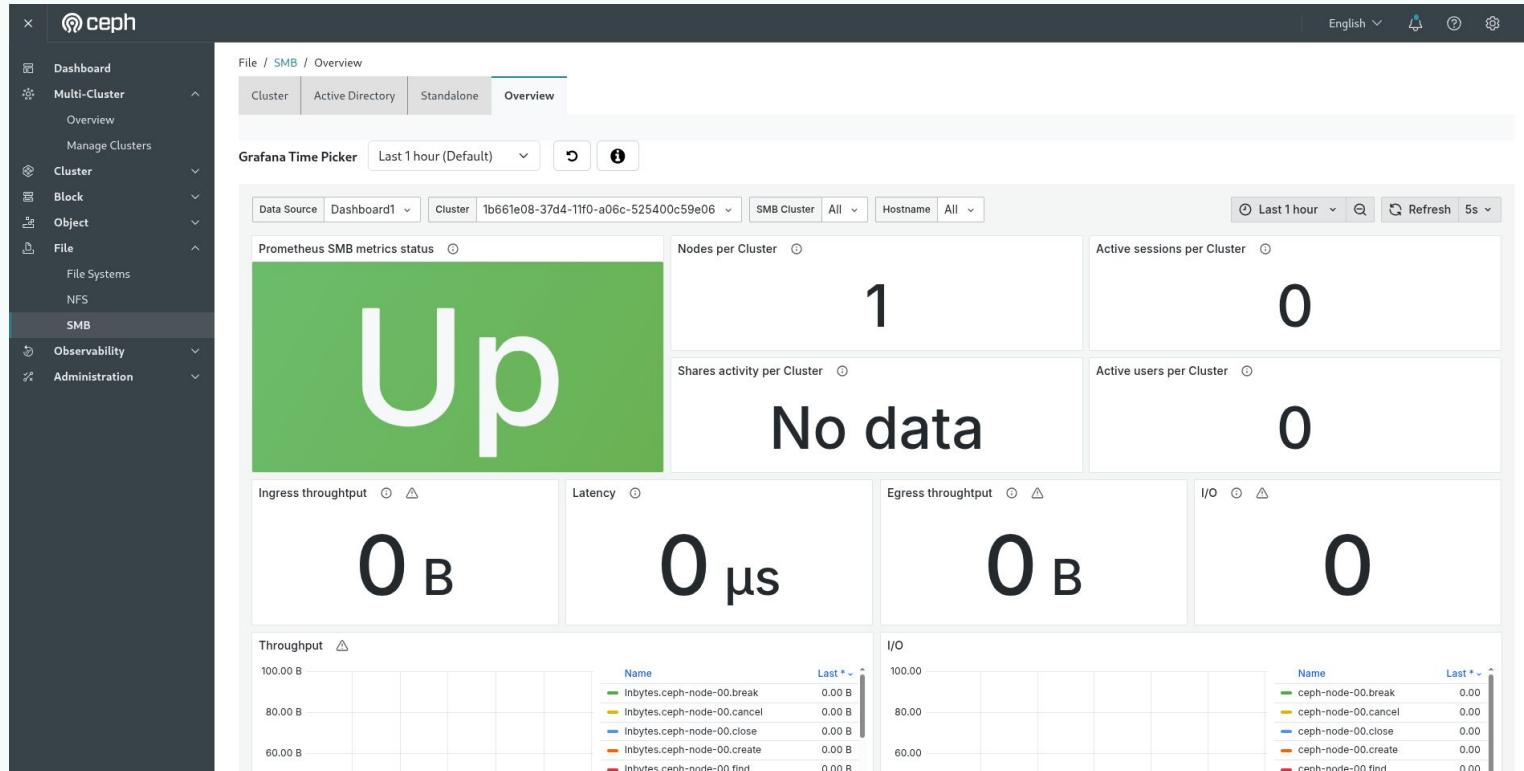
Linked to cluster (optional)

-- List of clusters --

This resource may only be used with the linked cluster and will automatically be removed when the linked cluster is removed.

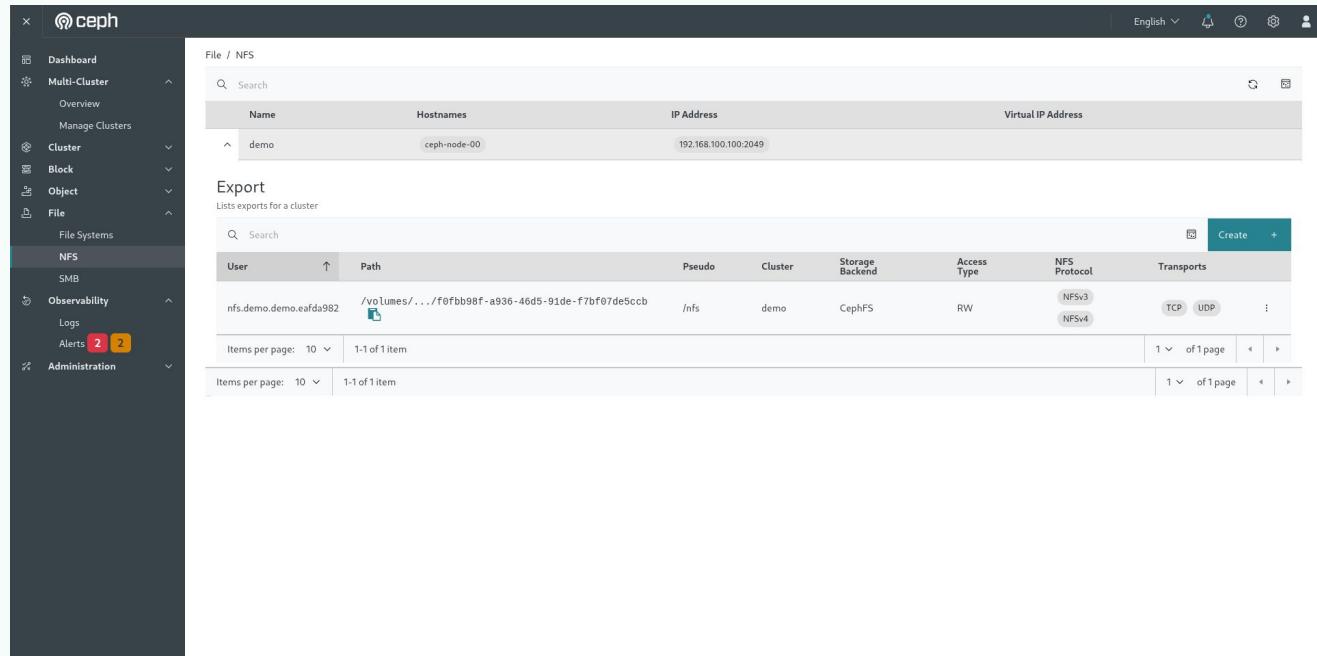
Cancel Create Active directory (AD) access resource

File - SMB Management - Monitoring



File - NFS UX update

Ceph Dashboard now offers a unified interface for managing both **SMB** and **NFS** file shares, streamlining file service provisioning for diverse client environments.



The screenshot shows the Ceph Dashboard interface with the NFS section selected. The left sidebar includes options for Dashboard, Multi-Cluster, Cluster, Block, Object, File, File Systems, NFS, SMB, Observability (Logs, Alerts), and Administration. The main area displays a table for NFS exports. The table has columns for Name, Hostnames, IP Address, and Virtual IP Address. One entry is shown: demo, ceph-node-00, 192.168.100.100:2049. Below this is an 'Export' section with a search bar and a table for listing exports for a cluster. This table includes columns for User, Path, Pseudo, Cluster, Storage Backend, Access Type, NFS Protocol, and Transports. One row is listed: nfs.demo.demo.eafda982, /volumes/.../f0fb898f-a936-46d5-91de-f7bf07de5ccb, /nfs, demo, CephFS, RW, NFSv3 (selected), NFSv4, TCP, UDP. At the bottom, there are pagination controls for items per page (10) and a note that 1-1 of 1 item is displayed.

Dashboard Features

NFS management now mirrors
SMB structure of Clusters ->
Exports/Shares

GUI-driven, consistent setup for
both protocols



Monitoring Dashboards

Multi-Cluster Monitoring

Home > Dashboards > Ceph - Multi-cluster

Q Search or jump to... ctrl+k

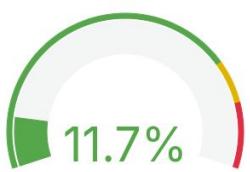
Data Source: default cluster: All Export Share Sign in

Browse Dashboards Last 1 hour Refresh 30s

Clusters

Status	Details												
Healthy	Warning												
0	2												
<table border="1"> <thead> <tr> <th>Cluster</th> <th>Status</th> <th>Version</th> <th>Capacity Used</th> </tr> </thead> <tbody> <tr> <td>1b661e08-37d4-11f0-a06c-525400c59e06</td> <td>Warning</td> <td>ceph version 20.3.0-486-gd9060d7c (d9060d7c4ff1; 2.24 GiB)</td> <td></td> </tr> <tr> <td>11ef9aac-37d4-11f0-bd08-525400f63d1e</td> <td>Warning</td> <td>ceph version 20.3.0-486-gd9060d7c (d9060d7c4ff1; 108 MiB)</td> <td></td> </tr> </tbody> </table>		Cluster	Status	Version	Capacity Used	1b661e08-37d4-11f0-a06c-525400c59e06	Warning	ceph version 20.3.0-486-gd9060d7c (d9060d7c4ff1; 2.24 GiB)		11ef9aac-37d4-11f0-bd08-525400f63d1e	Warning	ceph version 20.3.0-486-gd9060d7c (d9060d7c4ff1; 108 MiB)	
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Overview

Cluster Count 2	Capacity Used  11.7%	Total Capacity 20 GiB	OSDs 4	Hosts 2	Client IOPS Write 115 ops/s Read 174 ops/s	OSD Latencies Apply 1 ms Commit 1 ms
Alert Count 6	Total Used  2 GiB	Capacity Prediction No data	Pools 18	Client Bandwidth Write 174 KiB/s Read 205 B/s	Recovery Rate 0 B/s	

Alerts

Status	Alerts															
Critical	<table border="1"> <thead> <tr> <th>Name</th> <th>Cluster</th> <th>State</th> <th>Severity</th> <th>name</th> </tr> </thead> <tbody> <tr> <td>CephMgrModuleCrash</td> <td>1b661e08-37d4-11f0-a06c-525400c59e06</td> <td>firing</td> <td>critical</td> <td>RECENT_MGR_MODULE_CRASH</td> </tr> <tr> <td>CephadmDaemonFailed</td> <td>1b661e08-37d4-11f0-a06c-525400c59e06</td> <td>firing</td> <td>critical</td> <td>CEPHADM_FAILED_DAEMON</td> </tr> </tbody> </table>	Name	Cluster	State	Severity	name	CephMgrModuleCrash	1b661e08-37d4-11f0-a06c-525400c59e06	firing	critical	RECENT_MGR_MODULE_CRASH	CephadmDaemonFailed	1b661e08-37d4-11f0-a06c-525400c59e06	firing	critical	CEPHADM_FAILED_DAEMON
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CephadmDaemonFailed	1b661e08-37d4-11f0-a06c-525400c59e06	firing	critical	CEPHADM_FAILED_DAEMON												
Warning																

Application Overview



Home > Dashboards > Ceph - Application Overview

Cluster 1b661e08-37d4-11f0-a06c-525400c59e06 Application Object Pools All

Last 6 hours Refresh 30s

Application (Object)

Cluster Capacity

9.99 GiB

Capacity Used

Object 531 KiB

Filesystem 212 KiB

IOPS (Object - All) ▲

Write	41.6
Read	62.6

Throughput (Object - All) ▲

Write	34.1
Read	64.1 K

Application Alerts

State	Labels	Created
Firing	alertname: CephadmDaemonFailed, name: CEPHADM_FAILED_DAEMON, oid: 1.3.6.1.4.1.50495.1.2.1.1.1, severity: critical, +4 common labels	2025-05-25 02:13:28
Firing	alertname: CephHealthWarning, severity: warning, +4 common labels	2025-05-25 01:28:33
Pending	alertname: CephMgrModuleCrash, name: RECENT_MGR_MODULE_CRASH, oid: 1.3.6.1.4.1.50495.1.2.1.6.1, severity: critical, +4 common labels	2025-05-25 02:13:33
Firing	alertname: CephPGsHighPerOSD, name: TOO_MANY_PGS, severity: warning, +4 common labels	2025-05-25 02:13:35

Pool Overview

Pool Name	Application	Type	Quota	Stored	Usable Free	Quota Bytes	% Used	IOPS	Bandwidth
default.rgw.buckets.data	Object	replica:1	No	0.00 B	6.92 GiB	0 B	0.00%	0.00	0.00 B/s
default.rgw.buckets.index	Object	replica:1	No	14.04 KiB	6.92 GiB	0 B	0.00%	0.44	450.56 B/s
default.rgw.meta	Object	replica:1	No	6.25 KiB	6.92 GiB	0 B	0.00%	0.00	0.00 B/s
default.rgw.control	Object	replica:1	No	0.00 B	6.92 GiB	0 B	0.00%	0.00	0.00 B/s
default.rgw.log	Object	replica:1	No	508.94 KiB	6.92 GiB	0 B	0.01%	73.46	45.12 kB/s

Total used capacity

512 KiB

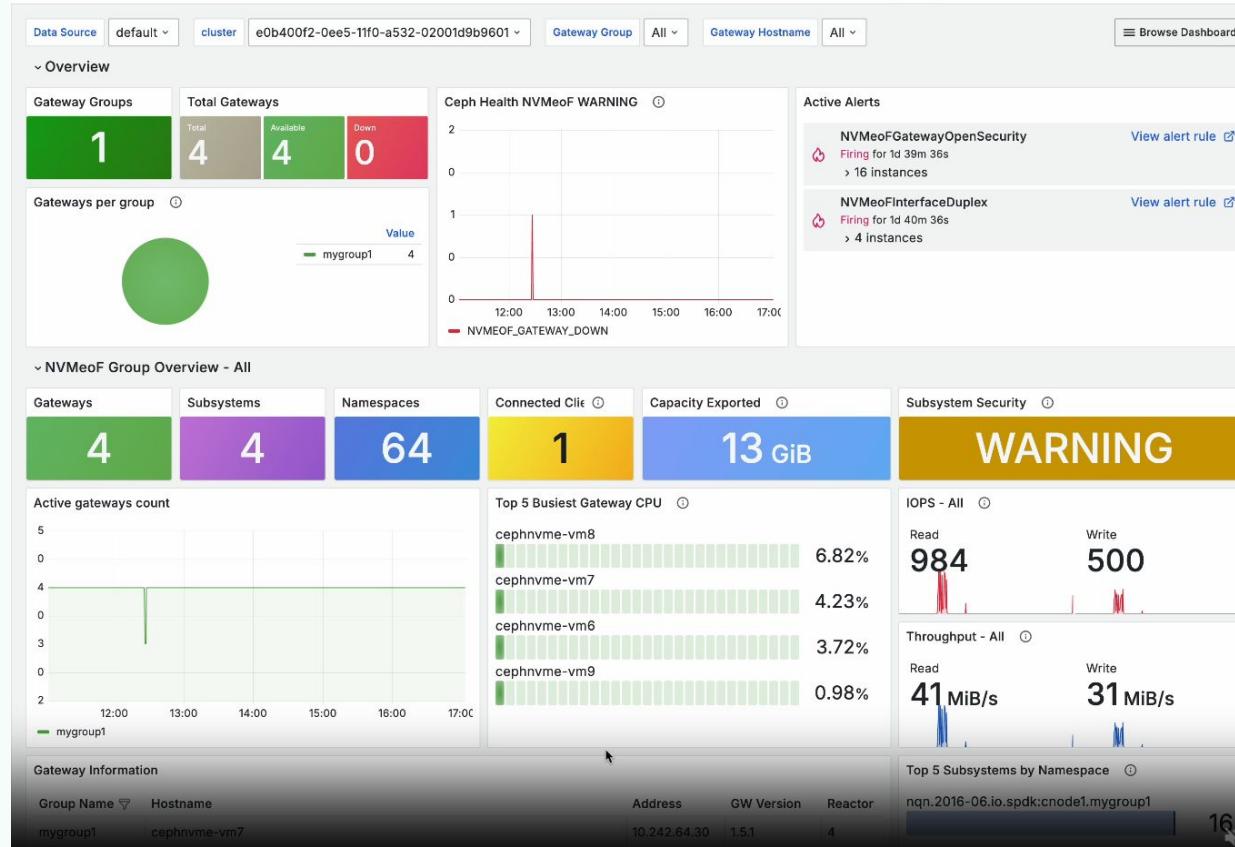
Name: default.rgw.log Last: 509 KiB

IOPS ▲

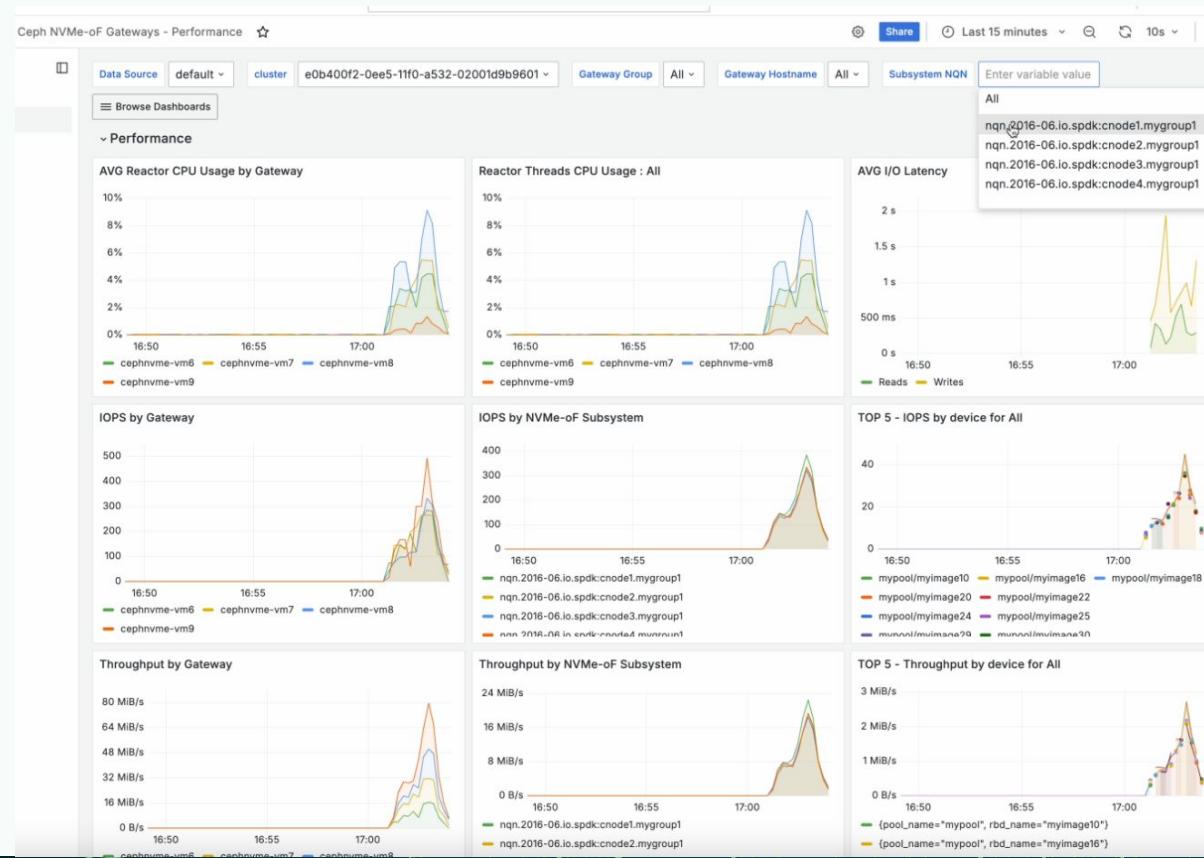
30 K

Name: default.rgw.log - Reads Last: 74.7

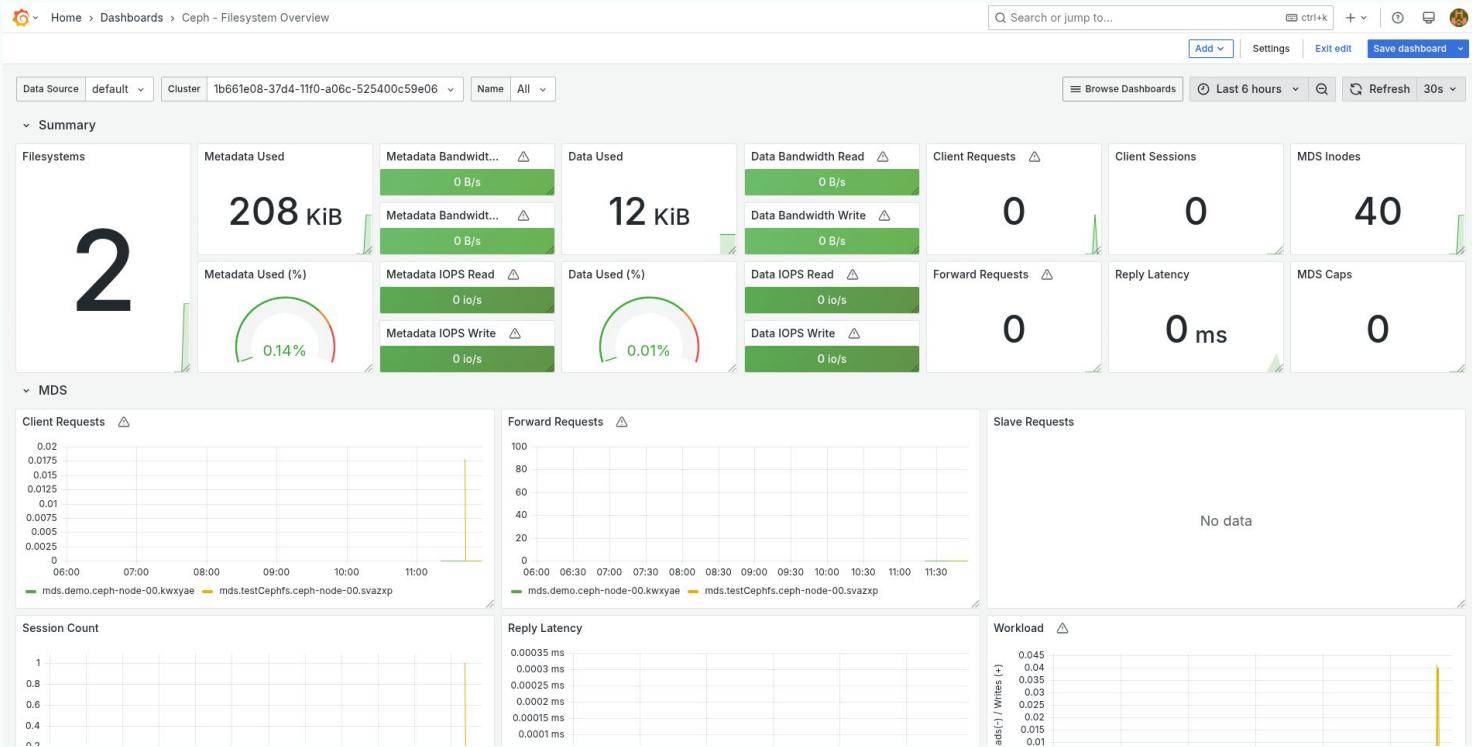
NVMe Overview



NVMe Performance



Ceph Filesystem Overview





ceph

Future

$\geq 20.x$



Futures

Focus Area

- Usability
- Overview
- Troubleshoot
- Scalability
- Monitoring & Alerting

Usability

- Nvmeof workflow
- Multi- tenancy
- S3 Storage Browser
- Cluster level Visualization. Similar to <https://tracker.ceph.com/issues/50980>
- Install workflow - expand to be improved more
- Logging/progress

Overview

- What is using my data ? What application is using my data ?
- Users need fine tuning as well - filters
- Overview from all the perspectives - snapshot of everything, pool based, and specific resource
- Details, panels and graphs

Troubleshoot

- Notification management: Improvements in notifications area
- Same notifications keep coming again and again
- Need to silence, unsubscribe
- Have a dedicated page for notifications and tasks
- Keep track on ongoing/historic tasks
- A Centralized API for notification management.

Futures

Scalability

- Scalability at 10k and beyond - API level changes ??
- We can prioritize those endpoints and fix them up to stabilize for now... That should fix some of the issues.
By the order of priority, it'd be
 1. Dashboard page
 2. Hosts page
 3. Alerts page
- <https://tracker.ceph.com/issues/68418>
- Making dashboard part of the core
 - Dashboard and API's outside the ceph container
 - Growing concern on the addition of more and more modules causing load on the host and mgr itself. (volumes, balancer etc)
- Host page
 - Even with server side pagination it breaks now for 000's of OSDs
 - Skeleton states (bug)Dashboard

Monitoring

- Cleanup for alerts
- RGW metrics
- Cephfs metrics
- Customizing Alerts from UI
- Runbooks for alerts
- Loki , promtail also occupy lots of space - needs design - being discussed.
- Log data retention
- Better Alert grouping

How to contribute

- Virtual **meetings**:
 - Ceph **Developer Monthly** (Wednesday)
 - Ceph **Users + Devs** Monthly
- As a **user**:
 - Getting help:
 - ceph-users@lists.ceph.com,
 - Slack [#ceph-dashboard](#)
 - Reporting issues or requesting features: tracker.ceph.com
- As a **developer**:
 - dev@ceph.io
 - github.com/ceph



Questions?



Thank you!