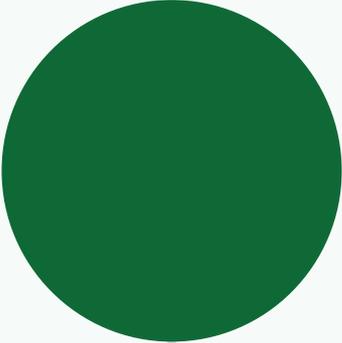




# Multi Cluster and Protocol visibility with new Ceph Dashboard

Ankush Behl - IBM



## Ankush Behl

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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

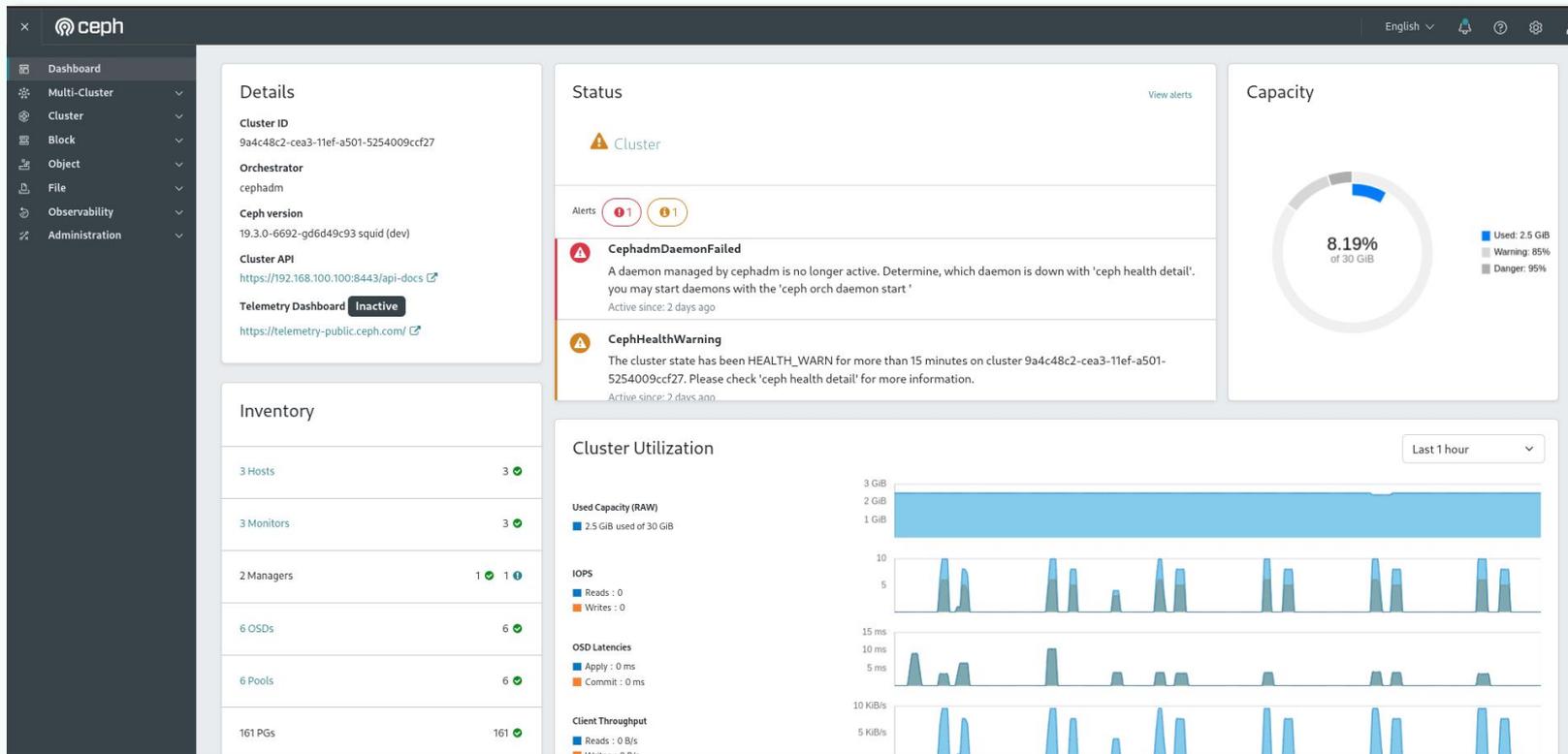
## Operators Need a Unified View

- 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



# 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

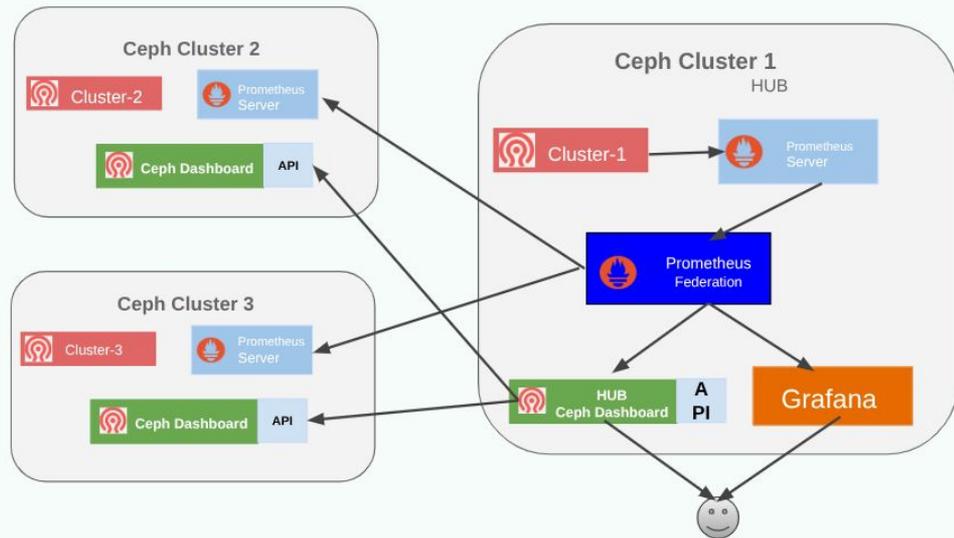
# Multi-Cluster Management & Monitoring



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



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

English

### Clusters

⚠️ 2

### Alerts

⚠️ 3  
⚠️ 4

### Top 5 Cluster Utilization

Last 1 hour

#### Capacity

- 1b661e08-37d4-11f0... : 2.7 GiB
- 11ef9aac-37d4-11f0... : 197.6 MiB

#### IOPS

- 1b661e08-37d4-11f0... : 81
- 11ef9aac-37d4-11f0... : 1

#### Throughput

- 1b661e08-37d4-11f0... : 48.44 KiB/s
- 11ef9aac-37d4-11f0... : 977.89 B/s

### Connection Errors

0

### Hosts

2

### Capacity

14.32% of 20 GiB

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

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

ceph-dashboard-core (Channel) ... Reminder: Next Step ... Ceph Da... Recent ankushbehl@li-15ccd94c-36ae... mgr/dashboard: Creating Ceph... Ceph Dashboard - Google Chrome mgr/dashboard: Replace all Boo...

# Multi-Cluster Management - Cluster List



The screenshot displays the Ceph Multi-Cluster Management interface. The left sidebar contains a navigation menu with categories like Dashboard, Multi-Cluster, Cluster, Block, Object, File, Observability, and Administration. The main content area is titled 'Multi-Cluster / Manage Clusters' and features a 'Clusters List' section. A search bar is present above a table of clusters. The table lists two clusters: 'demoCluster' and 'local-cluster', both with a 'CONNECTED' status. The table columns include Alias, Connection, FSID, URL, User, and Token expires. A 'Connect' button is visible in the top right of the table area. The bottom of the image shows a Windows taskbar with several open applications.

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

# Multi-Cluster Management - Demo



The screenshot displays the Ceph Dashboard interface. The browser address bar shows the URL <https://192.168.100.100:8443/#/dashboard>. The dashboard is organized into several sections:

- Details:** Cluster ID: 80c5e4e4-3532-11f0-ac2f-525400eebaeb; Orchestrator: cephadm; Ceph version: 20.3.0-315-ga7bef1f9 tentacle (dev); Cluster API: <https://192.168.100.100:8443/api-docs>; Telemetry Dashboard: **Inactive** (<https://telemetry-public.ceph.com/>).
- Status:** Shows a warning icon and "Cluster" status. 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:** A donut chart showing 2.29% of 10 GiB used (233.8 MiB). Legend: Used: 233.8 MiB, Warning: 85%, Danger: 95%.
- Inventory:** A table listing cluster components:

Component	Count	Status
1 Host	1	✓
1 Monitor	1	✓
1 Manager	1	✓
2 OSDs	2	✓
7 Pools	7	✓
- Cluster Utilization:** A series of charts for the 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:** (Chart showing throughput over time).

# Object(RGW) Enhancements

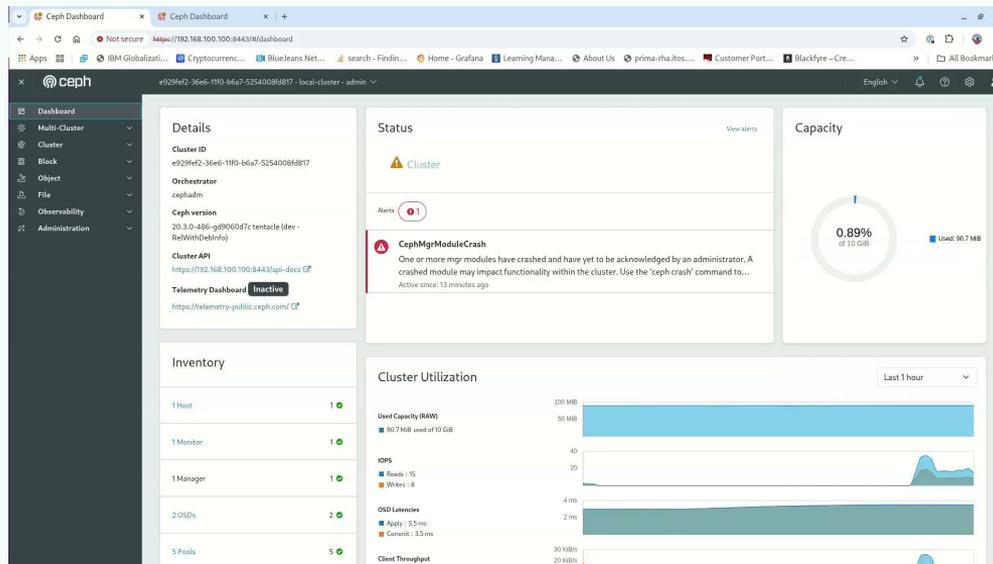
# Object - Replication Automation



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

Settings

# Object - Replication Automation - Wizard



The screenshot shows the Ceph Object Multi-site Configuration Wizard. The main window is titled "Object / Multi-site / Configuration" and has tabs for "Configuration" and "Sync Policy". A modal dialog titled "Set up Multi-site Replication" is open, showing a progress indicator with steps: "Create Realm & Zonegroup" (selected), "Create Zone", "Select Cluster", and "Review".

**Set up Multi-site Replication**

**1 Create Realm & Zonegroup**

**2 Create Zone**

**3 Select Cluster**

**4 Review**

**Info:** This wizard enables you to set up multi-site replication within your Ceph environment. If you have already added another cluster to your multi-cluster setup, you can select that cluster in the wizard to automate the replication process. If no additional cluster is currently added, the wizard will guide you through creating the necessary realm, zonegroup, and zone, and provide a realm token. This token can be used later to manually import into a desired cluster to establish replication between the clusters.

**Realm Name \*** default\_realm  
Enter a unique name for the Realm. The Realm is a logical grouping of all your Zonegroups.

**Zone Group Name \*** default\_zonegroup  
Enter a name for the Zonegroup. Zonegroup will help you identify and manage the group of zones.

**Zonegroup Endpoints \*** `http://ceph-node-00:80` `http://ceph-node-00:81`  
Select the endpoints for the Zonegroup. Endpoints are the URLs or IP addresses from which the rgw gateways in that zonegroup can be accessed. You can select multiple endpoints in case you have multiple rgw gateways in a zonegroup.

Buttons: Cancel, Next, Enable

Taskbar: ceph-dash-board-core (Channel) ... Reminder: Next Step ... Ceph Da... Recent ankushbehl@li-15ccd94c-36ae... mgr/dashboard: Creating Ceph... Ceph Dashboard: Object > Multi... 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.

**i** 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.

**i** 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

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

Checking for user default\_system\_user in the selected cluster and setting credentials

75 %

Back Configure Multi-Site

# Object - Replication Automation - Final Result



## Primary Site

The screenshot shows the Ceph Object Multi-site Configuration interface for the Primary Site. The left sidebar contains a navigation menu with items: Dashboard, Multi-Cluster, Cluster, Block, Object, Overview, Users, Buckets, Topics, Tiering, Multi-site (highlighted), Gateways, NFS, Configuration, File, Observability, and Administration. The main content area is titled "Object / Multi-site / Configuration" and has tabs for "Configuration" and "Sync Policy". Below the tabs are buttons for "Setup Multi-site Replication", "Create Realm", "Import", and "Export". The "Topology Viewer" section displays a hierarchical tree structure:

- default\_realm (default)
- default\_zonegroup (default, master)
- default\_zone (default, master) - highlighted with a blue border and edit/delete icons
- new\_replicated\_zone (secondary-zone)
- default (master)
- default (master)

## Secondary Site

The screenshot shows the Ceph Object Multi-site Configuration interface for the Secondary Site. The left sidebar contains a navigation menu with items: Dashboard, Multi-Cluster, Cluster, Block, Object, Overview, Users, Buckets, Topics, Tiering, Multi-site (highlighted), Gateways, NFS, Configuration, File, Observability, and Administration. The main content area is titled "Object / Multi-site / Configuration" and has tabs for "Configuration" and "Sync Policy". Below the tabs are buttons for "Setup Multi-site Replication", "Create Realm", "Import", and "Export". The "Topology Viewer" section displays a hierarchical tree structure:

- default\_realm
- default\_zonegroup (master)
- default\_zone (master, secondary-zone)
- new\_replicated\_zone
- default (default, master)
- default (default, master)

# 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.

Object / Multi-site / Sync-policy

Configuration Sync Policy

### 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 data from other buckets (ones that don't share its zone ID) if necessary.

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

Flow Pipe

### Symmetrical

It can define symmetrical data flow, in which multiple zones sync data from each other.

Name	Zones
<input type="checkbox"/> demoFlow	default

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

### Directional

It can define directional data flow, in which the data moves in one way, from one zone to another.

Source Zone	Destination Zone
-------------	------------------

No data to display

Items per page: 10 0-0 of 0 item 1 of 1 page

**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.

**i** 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

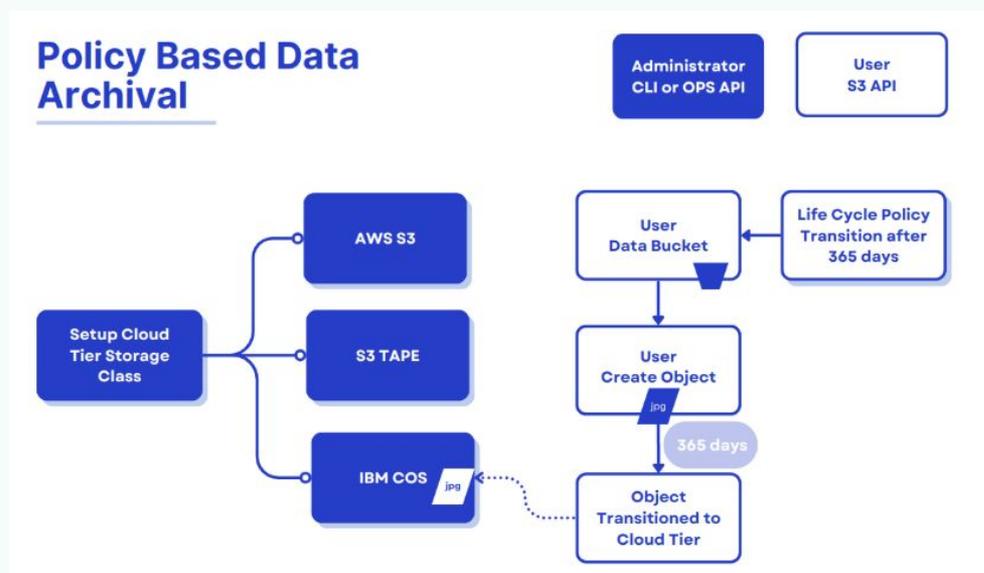
# Object- Cloud Tiering

# 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



ceph

Dashboard

Multi-Cluster

Cluster

Block

Object

Overview

Users

Buckets

Topics

**Tiering**

Multi-site

Gateways

NFS

Configuration

File

Observability

Administration

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  
The region of the remote cloud service where storage is located.

Target Endpoint: e.g. http://ceph-node-00.com:80  
The URL endpoint of the remote cloud service for accessing storage.

Target Access Key: \_\_\_\_\_  
To view or copy your access key, go to your cloud service's user management or credentials section, find your user profile, and locate the access key. You can view and copy the key by following the instructions provided.

Target Secret Key: \_\_\_\_\_  
To view or copy your secret key, go to your cloud service's user management or credentials section, find your user profile, and locate the access key. You can view and copy the key by following the instructions provided.

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.

Search [Create](#) +

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

# 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



The screenshot displays the Ceph Object Gateway web interface. The left sidebar contains navigation options: Dashboard, Multi-Cluster, Cluster, Block, Object (selected), Topics, Tiering, Multi-site, Gateways, NFS, Configuration, File, Observability, and Administration. The main content area shows the 'Object / Buckets' view for the 'test.ceph-node-00.fiwbae (default)' gateway. A table lists buckets: 'demo-account-user-bucket' (Owner: RGW48272048850033856, Used Capacity: 0 B, Capacity Limit: No Limit, Objects: 0, Object Limit: No Limit, Number of Shards: 11) and 'demobucket' (Owner: demo-user, Used Capacity: 0 B, Capacity Limit: No Limit, Objects: 0, Object Limit: No Limit, Number of Shards: 11). The 'Tiering' tab is selected for 'demobucket', showing a 'Tiering Configuration' table with one entry: 'demorule' (Storage class: demostorageclass, Days: 1, Status: Enabled). A context menu is open over the 'demorule' entry, showing options: Edit, Tiering, and Delete. The bottom of the interface shows pagination controls for the tiering rules table.

Selected Object Gateway: test.ceph-node-00.fiwbae ( 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	demostorageclass	Enabled

# Object - Cloud Tiering - Screenshot



demobucket demo-user 0B 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

Items per page: 10 1-2 of 2 items

Lifecycle progress

**COMPLETE**

Sat, 24 May 2025 19:15:02 GMT

# Object - Cloud Tiering - Demo



The screenshot displays the Ceph Dashboard interface. The top navigation bar includes the Ceph logo and a sidebar menu with options like Dashboard, Multi-Cluster, Cluster, Block, Object, File, Observability, and Administration. The main content area is divided into several sections:

- Details:** Shows Cluster ID (1b661e08-37d4-11f0-a06c-525400c59e06), Orchestrator (cephadm), Ceph version (20.3.0-486-gd9060d7c), and Cluster API (https://192.168.100.8443/api-docs).
- Status:** Displays a yellow warning icon for the cluster. Alerts include 'CephMgrModuleCrash' (one or more mgr modules have crashed) and 'CephHealthWarning' (the cluster state has been HEALTH\_WARN for more than 15 minutes).
- Capacity:** A circular gauge shows 0.89% of 10 GiB used, with 90.3 MB used.
- Inventory:** Lists 1 Host, 1 Monitor, 1 Manager, and 2 OSDs, all with green checkmarks indicating they are online.
- Cluster Utilization:** Three line graphs show Used Capacity (RAW) at 90.3 MB, IOPS (Reads: 57, Writes: 38), and OSD Latencies (Apply: 3.33 ms, Commit: 3.33 ms) over the last hour.

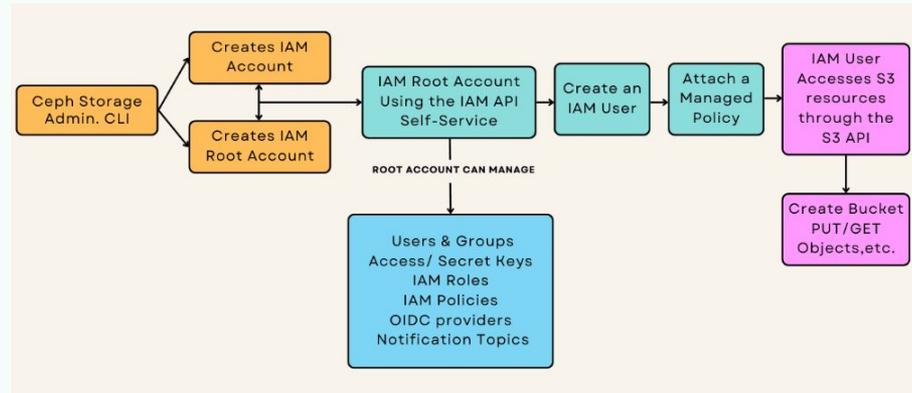
# Object- S3 Account Management

# 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



ceph

English

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

Search

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

Account quota

Key	Value
Enabled	No
Maximum objects	-
Maximum size	-

Items per page: 1-3 of 3 Items

Bucket quota

Key	Value
Enabled	No
Maximum objects	-
Maximum size	-

Items per page: 1-3 of 3 Items

Items per page: 10 1-1 of 1 Item

1 of 1 page

Edit Delete

Create +

# S3 Account Management - Account CRUD



Object / Accounts / Create

## Create Account

Account Name (required)

Tenant

Email

Buckets Mode Max. buckets (required)

Custom  - | +

Users Mode Max. users (required)

Custom  - | +

Roles Mode Max. roles (required)

Custom  - | +

Groups Mode Max. groups (required)

Custom  - | +

Access Mode Max. access keys (required)

Custom  - | +

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



ceph

English

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

Keys

Search

Username	Type
demo-account-user	S3

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



× ceph

- Dashboard
- Multi-Cluster
- Cluster
- Block
- Object
  - Overview
  - Users**
  - Buckets
  - Topics
  - Tiering
  - Multi-site
  - Gateways
  - NFS
  - Configuration
- File
- Observability
- Administration

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

Dashboard  
Multi-Cluster  
Cluster  
Block  
Object  
Overview  
Users  
Buckets  
Topics  
Tiering  
Multi-site  
Gateways  
NFS  
Configuration  
File  
Observability  
Administration

Selected Object Gateway: test.ceph-node-00.fwbae ( 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.

**3** 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.fwbae ( default )

Object / Buckets

Q Search

Name	Owner	Used Capacity	Capacity Limit %	Objects	Object Limit %	Number of Shards	
demo-account-user-bucket	ROW4827204880033856	0 B	No Limit	0	No Limit	11	1

Details Policies Tiering

Versioning: Suspended

Encryption: Disabled

Replication: Enabled

MFA Delete: Disabled

Index type: Normal

Placement rule: default-placement

Last modification time: 25/3/25 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



The screenshot displays the Ceph dashboard interface with the following sections:

- 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:**
  - Cluster health: ! Cluster
  - Alerts: 1 Critical, 1 Warning
  - 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:**
  - Used: 1.9 GiB
  - Warning: 85%
  - Danger: 95%
  - Current usage: 19.32% of 10 GiB
- Inventory:**

1 Host	1	✓
1 Monitor	1	✓
1 Manager	1	✓
2 OSDs	2	✓
7 Pools	7	✓
- 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: 50 KIB/s

# Object - Per User/Bucket Rate Limiting

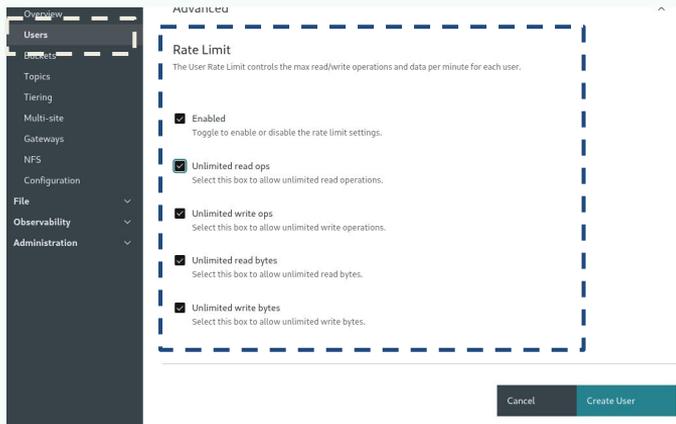
Ceph Dashboard now supports RGW **rate limiting** at a **per-user** and **per-bucket** level, allowing administrators to control traffic and protect backend resources from overuse or abuse.

## Dashboard Features:

- Individual users
- Specific buckets

## Configure:

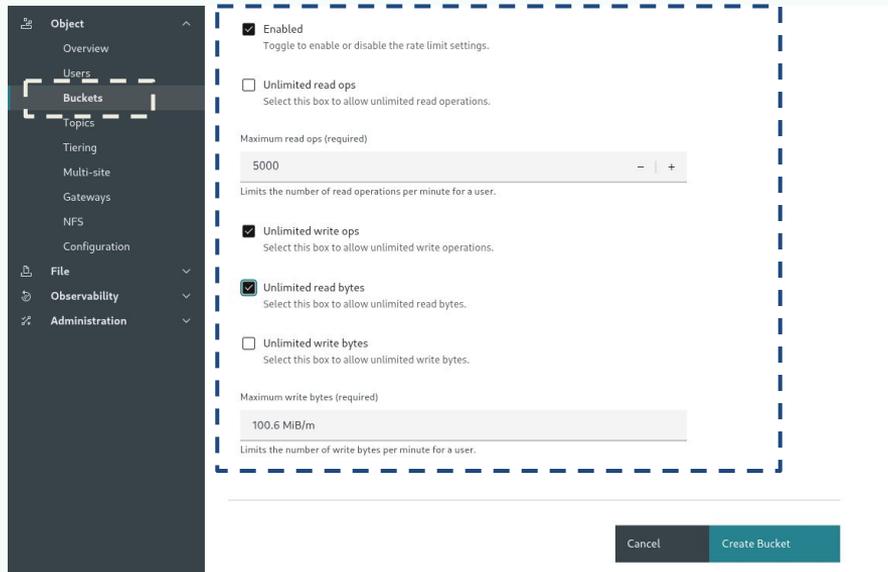
- **Request rate** (e.g., Read, Write)
- **Bandwidth limits** (Read, Write in bytes/sec)



**Rate Limit**  
The User Rate Limit controls the max read/write operations and data per minute for each user.

- Enabled**  
Toggle to enable or disable the rate limit settings.
- Unlimited read ops**  
Select this box to allow unlimited read operations.
- Unlimited write ops**  
Select this box to allow unlimited write operations.
- Unlimited read bytes**  
Select this box to allow unlimited read bytes.
- Unlimited write bytes**  
Select this box to allow unlimited write bytes.

Cancel Create User



**Object**

- Overview
- Users
- Buckets**
- Topics
- Tiering
- Multi-site
- Gateways
- NFS
- Configuration

**File**

- Observability
- Administration

**Enabled**  
Toggle to enable or disable the rate limit settings.

**Unlimited read ops**  
Select this box to allow unlimited read operations.

Maximum read ops (required)  
5000  
Limits the number of read operations per minute for a user.

**Unlimited write ops**  
Select this box to allow unlimited write operations.

**Unlimited read bytes**  
Select this box to allow unlimited read bytes.

**Unlimited write bytes**  
Select this box to allow unlimited write bytes.

Maximum write bytes (required)  
100.6 MiB/m  
Limits the number of write bytes per minute for a user.

Cancel Create Bucket



# Management Gateway

With OAuth2

# Management Gateway with OAuth2

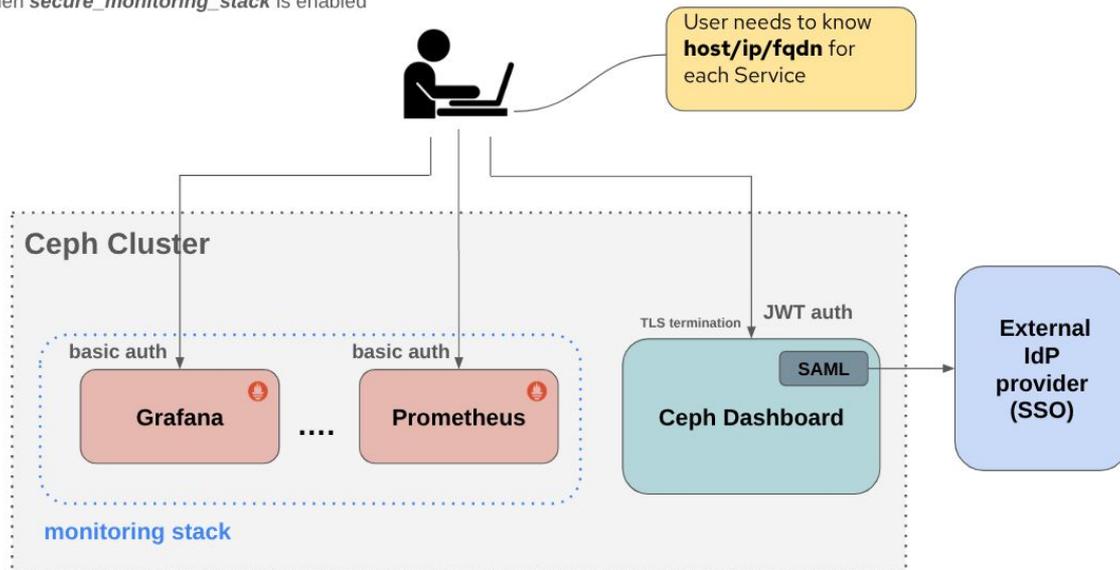


Ceph introduces a new service called **Management Gateway** to unify access to management services, now enhanced with **OAuth 2.0** for secure, standards-based authentication.

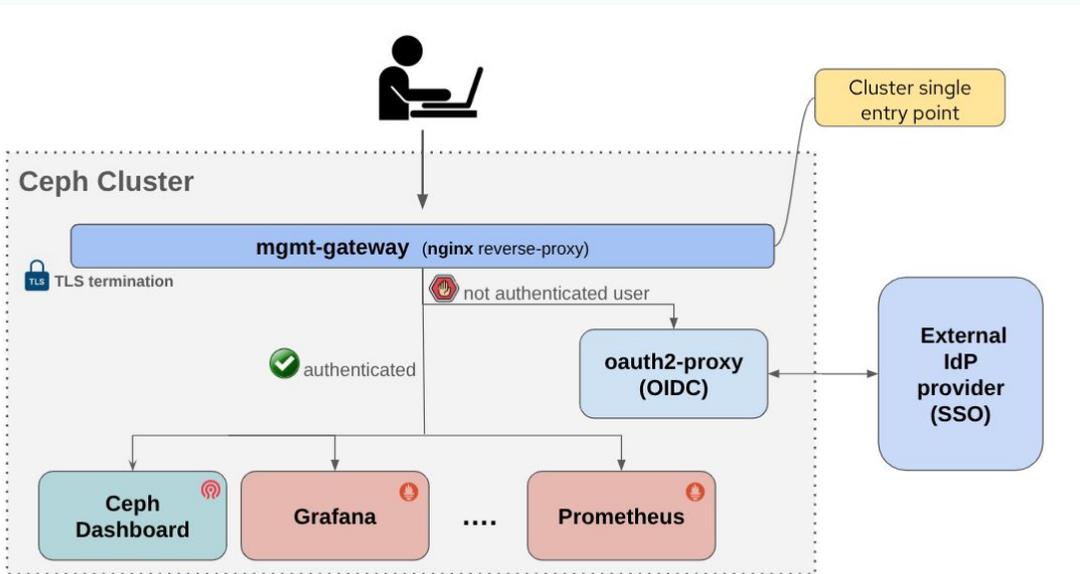
## Disadvantages of the legacy System

- 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

The screenshot shows the Ceph Dashboard interface. The left sidebar contains a navigation menu with categories like Dashboard, Multi-Cluster, Cluster, Block, Object, File, Administration, and Services. The 'File' category is expanded, showing 'File Systems', 'NFS', 'SMB', and 'Observability'. The 'SMB' option is selected, leading to the 'File / SMB / Cluster' page. This page has tabs for 'Cluster', 'Active Directory', 'Standalone', and 'Overview'. The 'Cluster' tab is active, displaying a 'Clusters' section with a 'Create cluster +' button and a table of clusters. Below this is a 'Shares' section with a 'Create +' button and a table of shares. The 'Shares' table has columns for ID, Name, File System, Path, Subvolume group, Subvolume, and Provider. The table contains one entry: DemoShare, DemoShare, demo, //.../, demosvg, demoSV, samba-vfs.

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



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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](#)

ceph

File / SMB / Active Directory / Create

## Create Active directory (AD) access resource

Active directory access resource name

Unique identifier

Username

Password

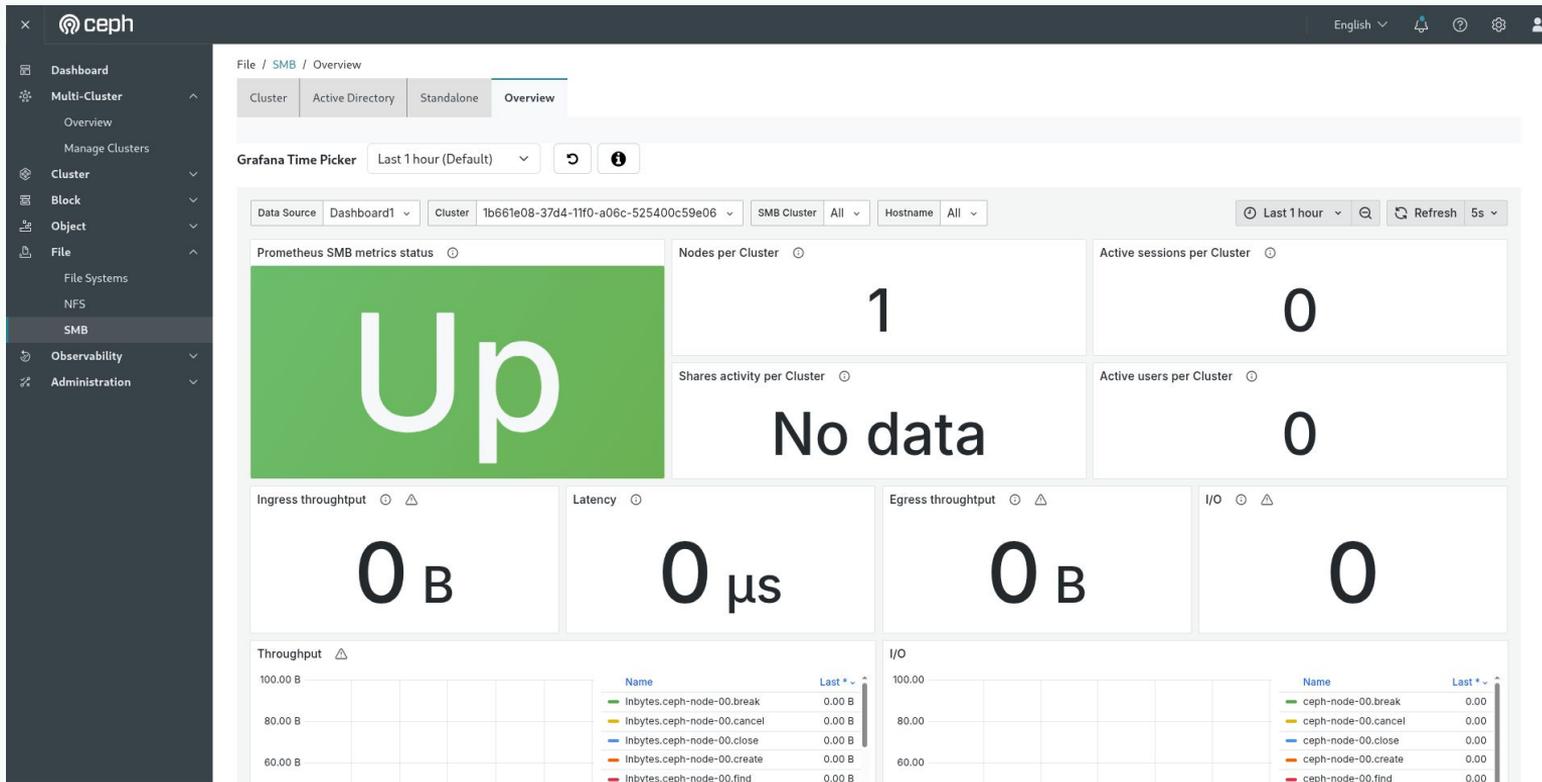
Linked to cluster (optional)

-- 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.

## Dashboard Features

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

GUI-driven, consistent setup for both protocols

The screenshot shows the Ceph Dashboard interface for managing NFS exports. The left sidebar contains navigation options: Dashboard, Multi-Cluster, Cluster, Block, Object, File, File Systems, NFS, SMB, Observability, and Administration. The main content area is titled 'File / NFS' and includes a search bar and a table of exports. Below the table, there is a detailed view of an export for the user 'nfs.demo.demo.eafda982'.

Name	Hostnames	IP Address	Virtual IP Address
demo	ceph-node-00	192.168.100.100:2049	

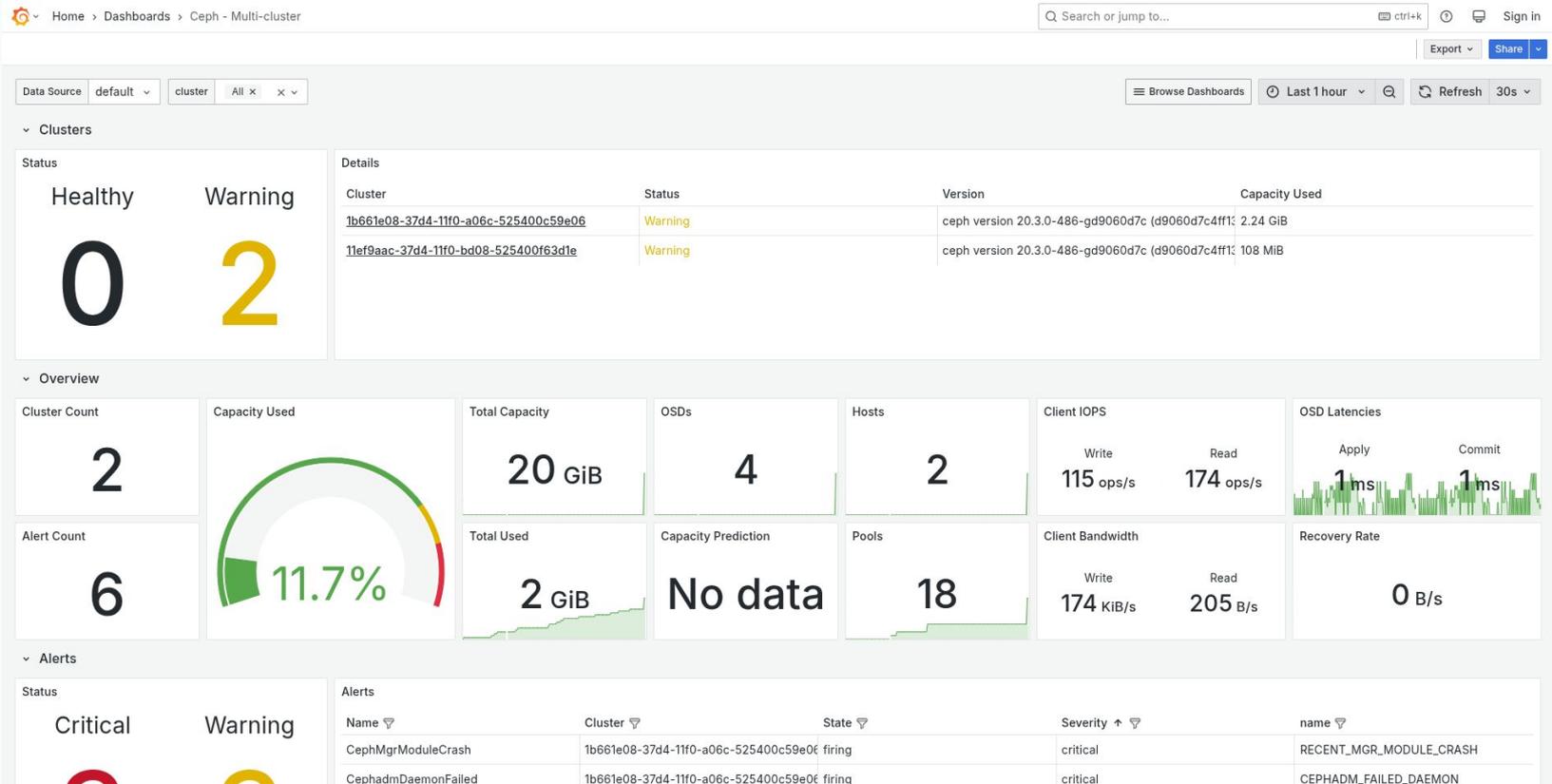
  

User	Path	Pseudo	Cluster	Storage Backend	Access Type	NFS Protocol	Transports
nfs.demo.demo.eafda982	/vo/Lumes/.../f0fbb98f-a936-46d5-91de-f7bf07de5ccb	/nfs	demo	CephFS	RW	NFSv3 NFSv4	TCP UDP



# Monitoring Dashboards

# Multi-Cluster Monitoring



# Application Overview



Home > Dashboards > Ceph - Application Overview

Search or jump to...

ctrl+k

Sign in

Export Share

datasource Dashboard1 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

cluster=1b661e08-37d4-11f0-a06c-525400c59e06

State	Labels	Created
Firing	alertname CephadmDaemonFailed name CEPHADM_FAILED_DAEMON old 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 old 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	451.12 kB/s

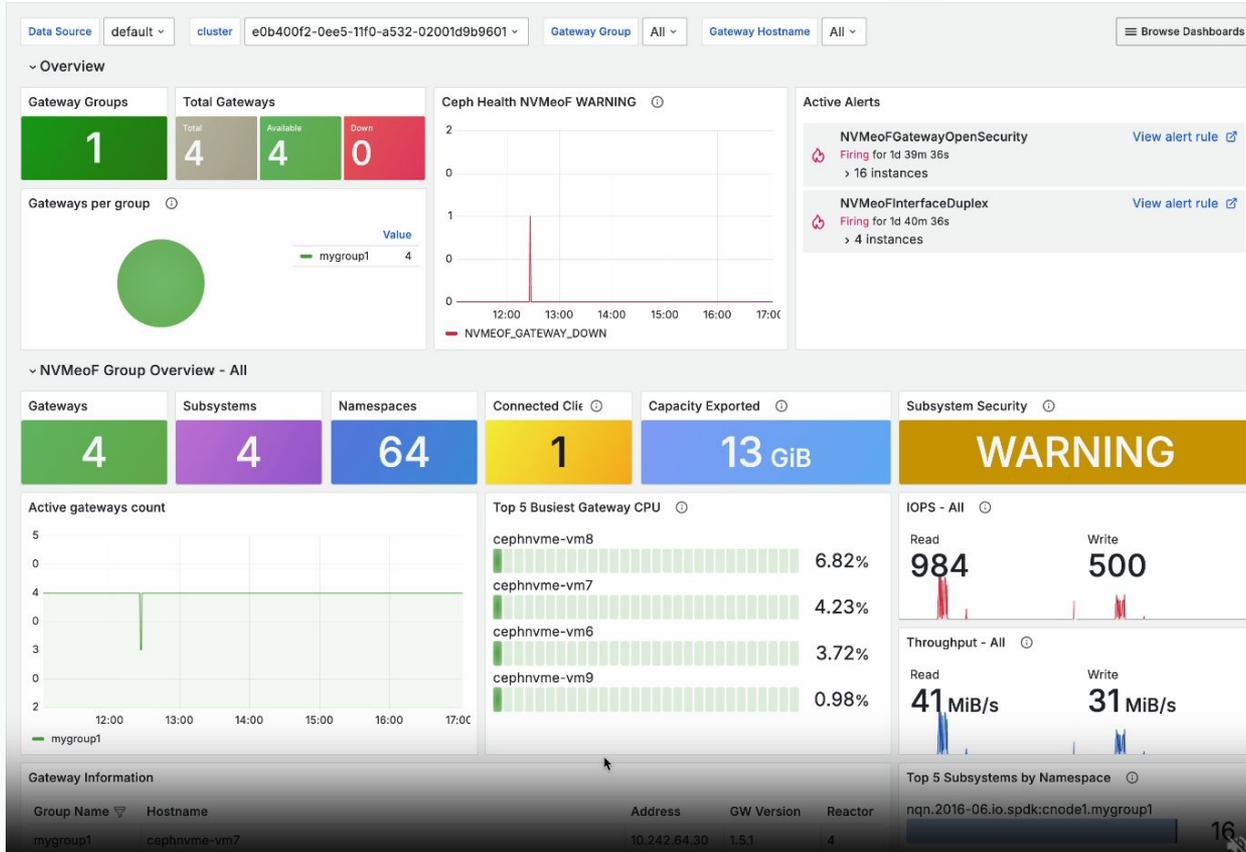
## Total used capacity



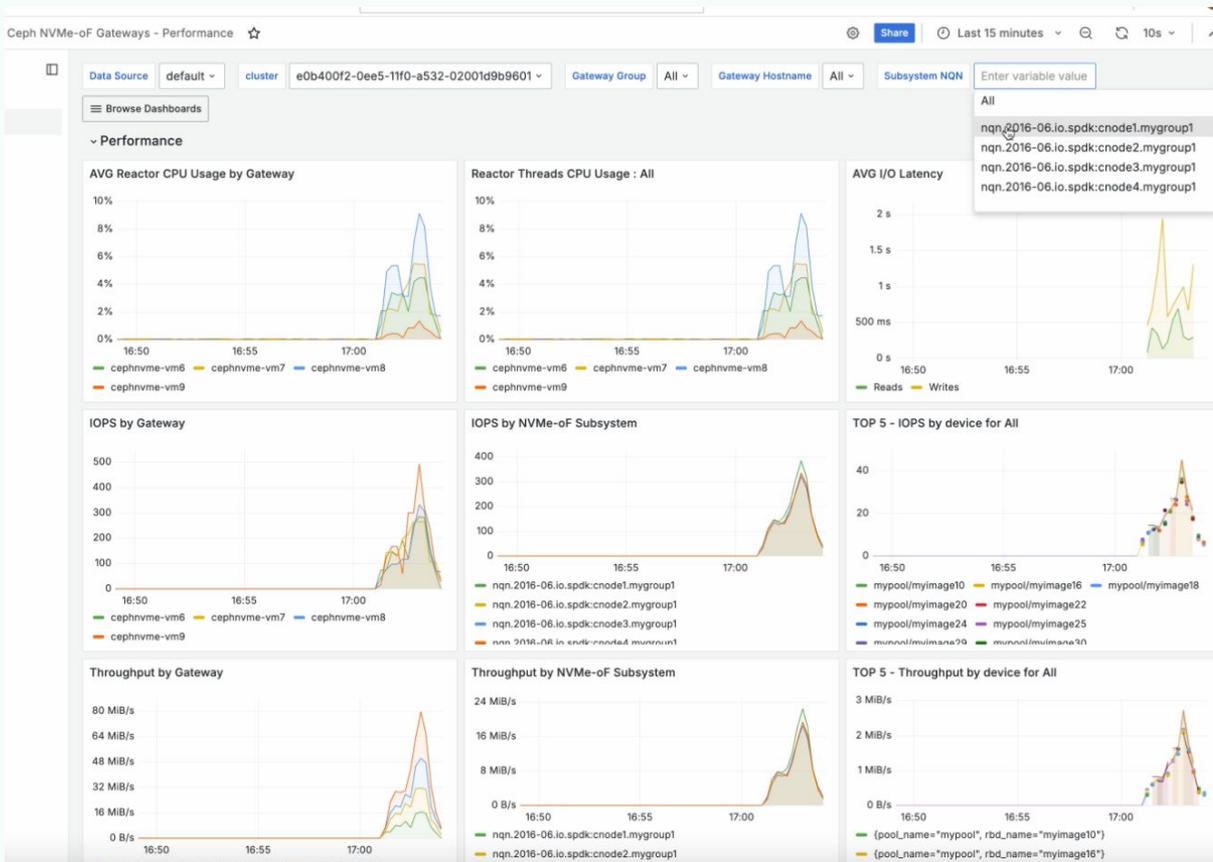
## IOPS



# NVMe Overview



# NVMe Performance







# Future

$\geq 20.x$



## 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.

## 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](mailto:ceph-users@lists.ceph.com),
    - Slack [#ceph-dashboard](#)
  - Reporting issues or requesting features: [tracker.ceph.com](https://tracker.ceph.com)
- As a **developer**:
  - [dev@ceph.io](mailto:dev@ceph.io)
  - [github.com/ceph](https://github.com/ceph)



# Questions?



Thank you!