



*Made possible by grants
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Open Storage Network Seminar Series
Command Center
January 21, 2021

NSF grants

1747552

1747493

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1747483

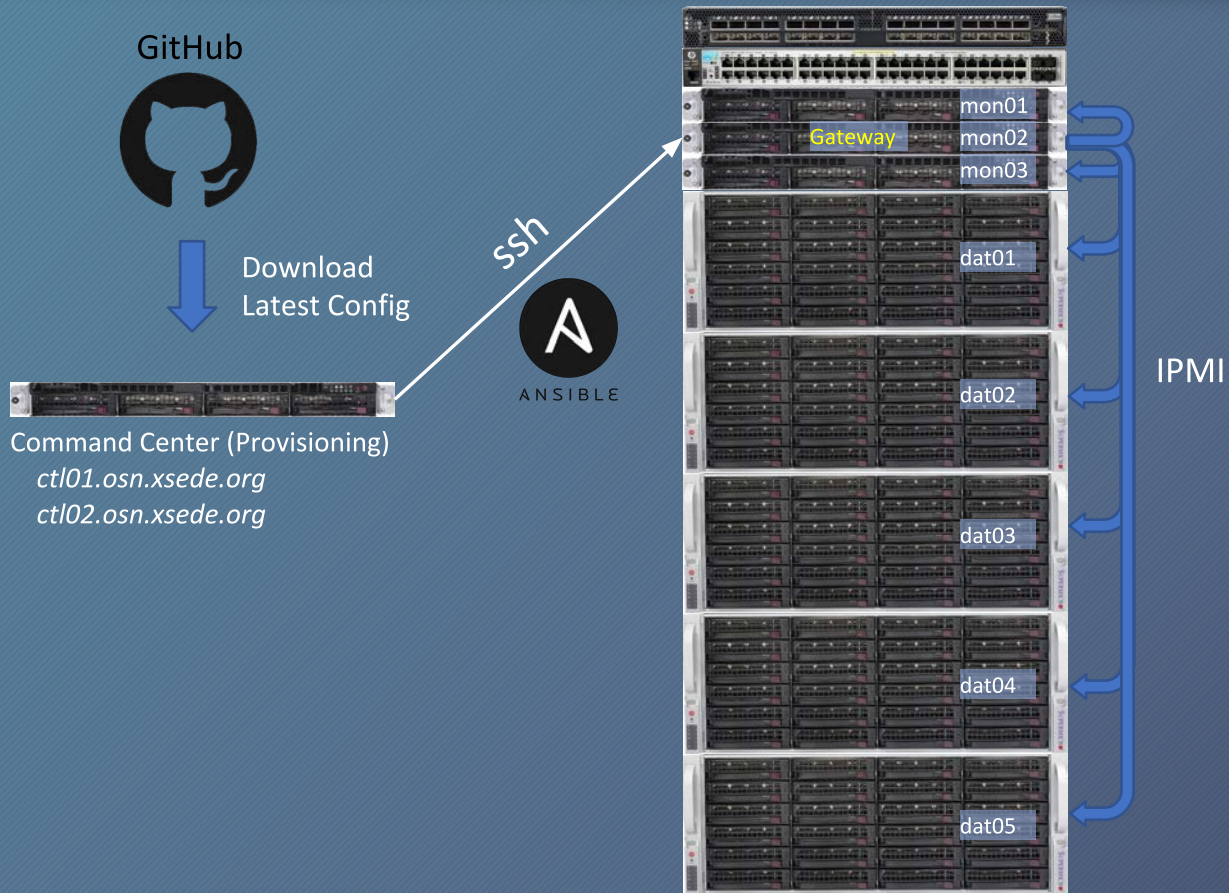
OSN Command Center

- Collection of services hosted on servers at MGHPCC and JHU
 - Pod provisioning and Software Install/Update
 - Bootstrap - Bare metal to functioning storage appliance
 - Software install/updates - Ongoing Ceph and community software distribution
 - Monitoring and Alerting
 - Telegraf, Influx, Grafana (TIG) stack, Slack
 - Web Applications
 - Storage Portal
 - Website

Pod provisioning and Software Install/Update

Bootstrap, software install, lifecycle

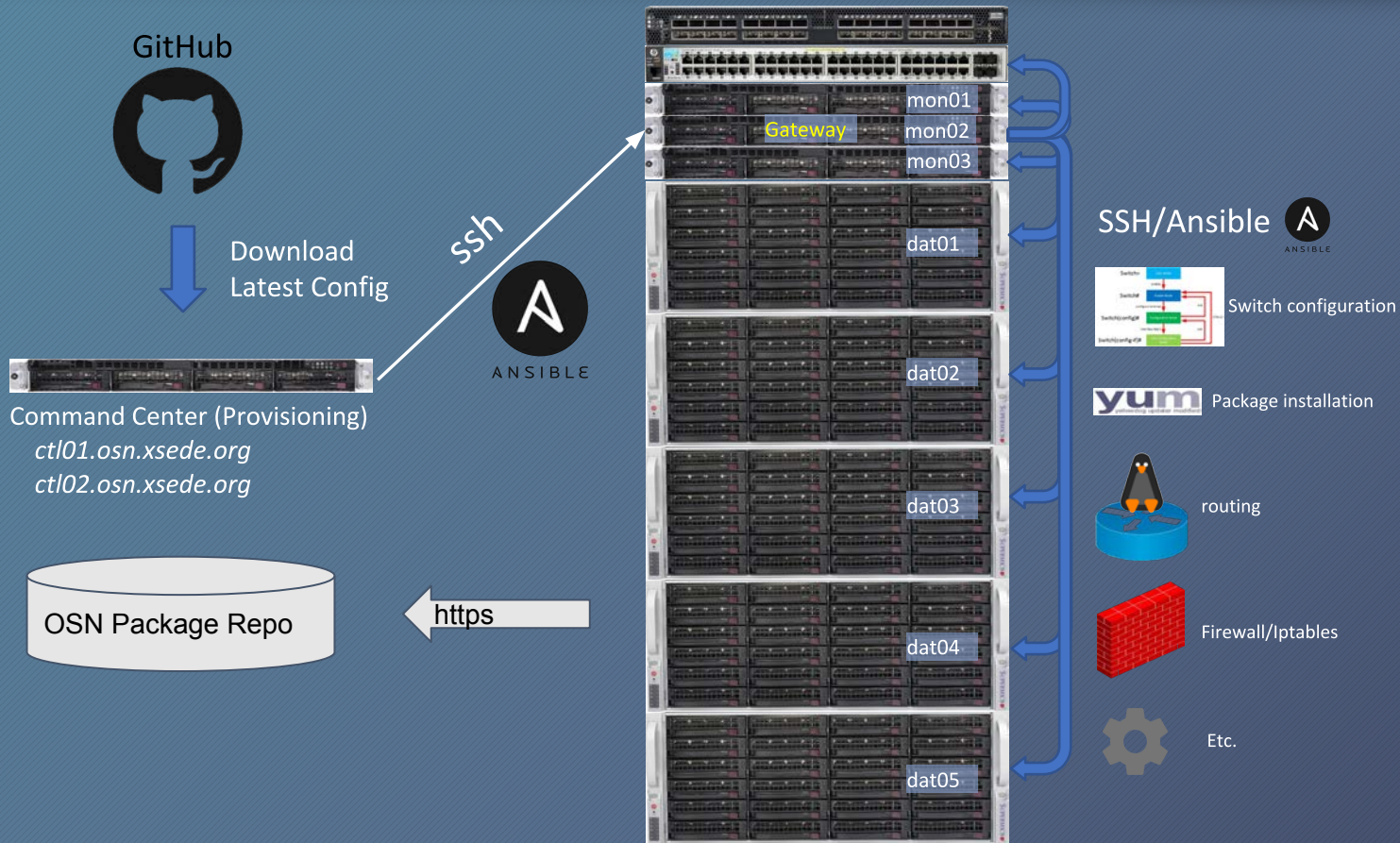
Provisioning - Bootstrap



Command Center – OSN Admin

1. Bootstrap nodes via ansible from command center
 1. Configs pulled from project GitHub repo
 2. Images pushed to gateway node
 3. IPMI / PXE used to bootstrap remaining nodes

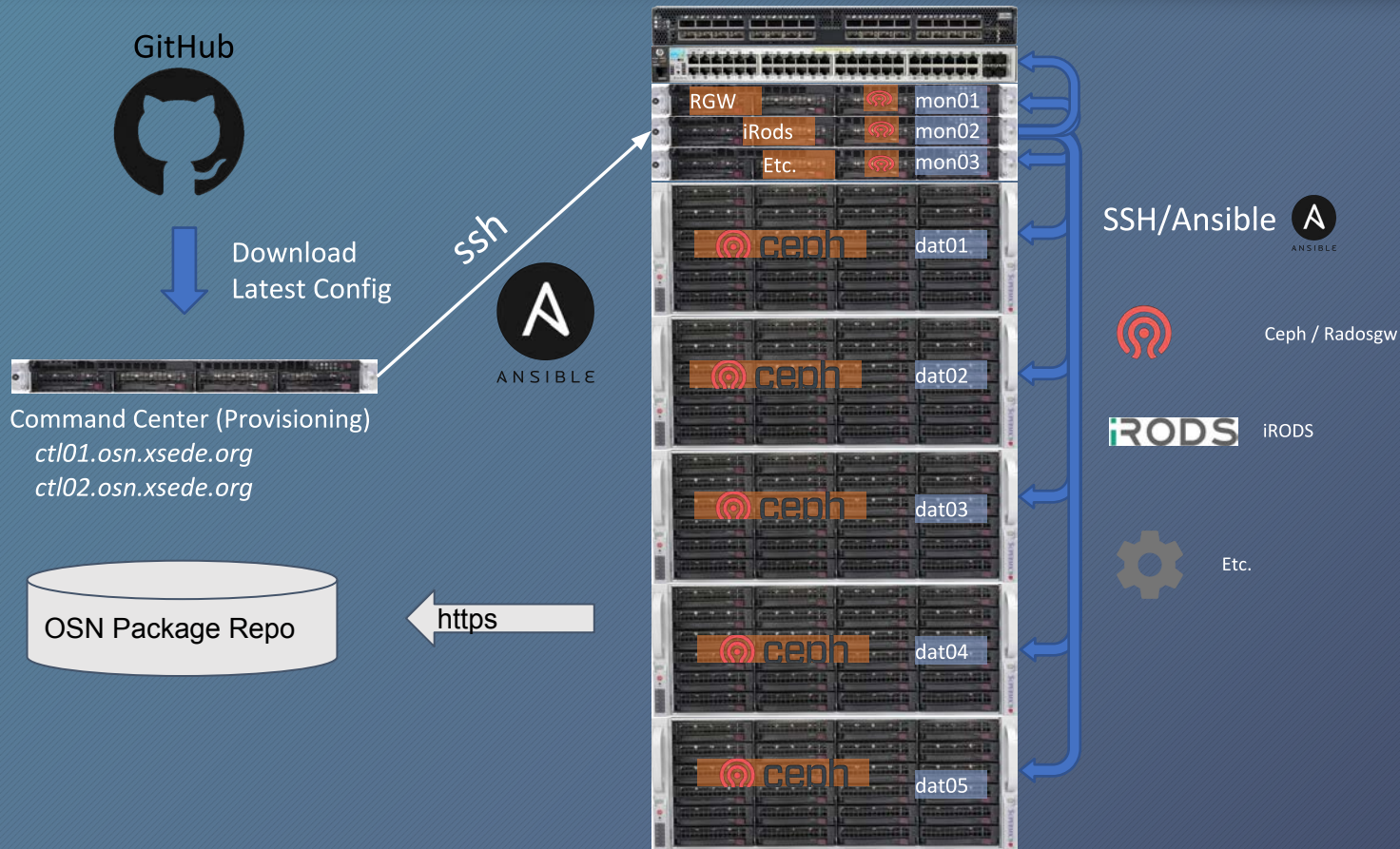
Provisioning - System



Command Center – OSN Admin

1. Bootstrap nodes via ansible from command center
 1. Configs pulled from project GitHub repo
 2. Images pushed to gateway node
 3. IPMI / PXE used to bootstrap remaining nodes
2. **Execute baseline system services installation**

Provisioning - Software

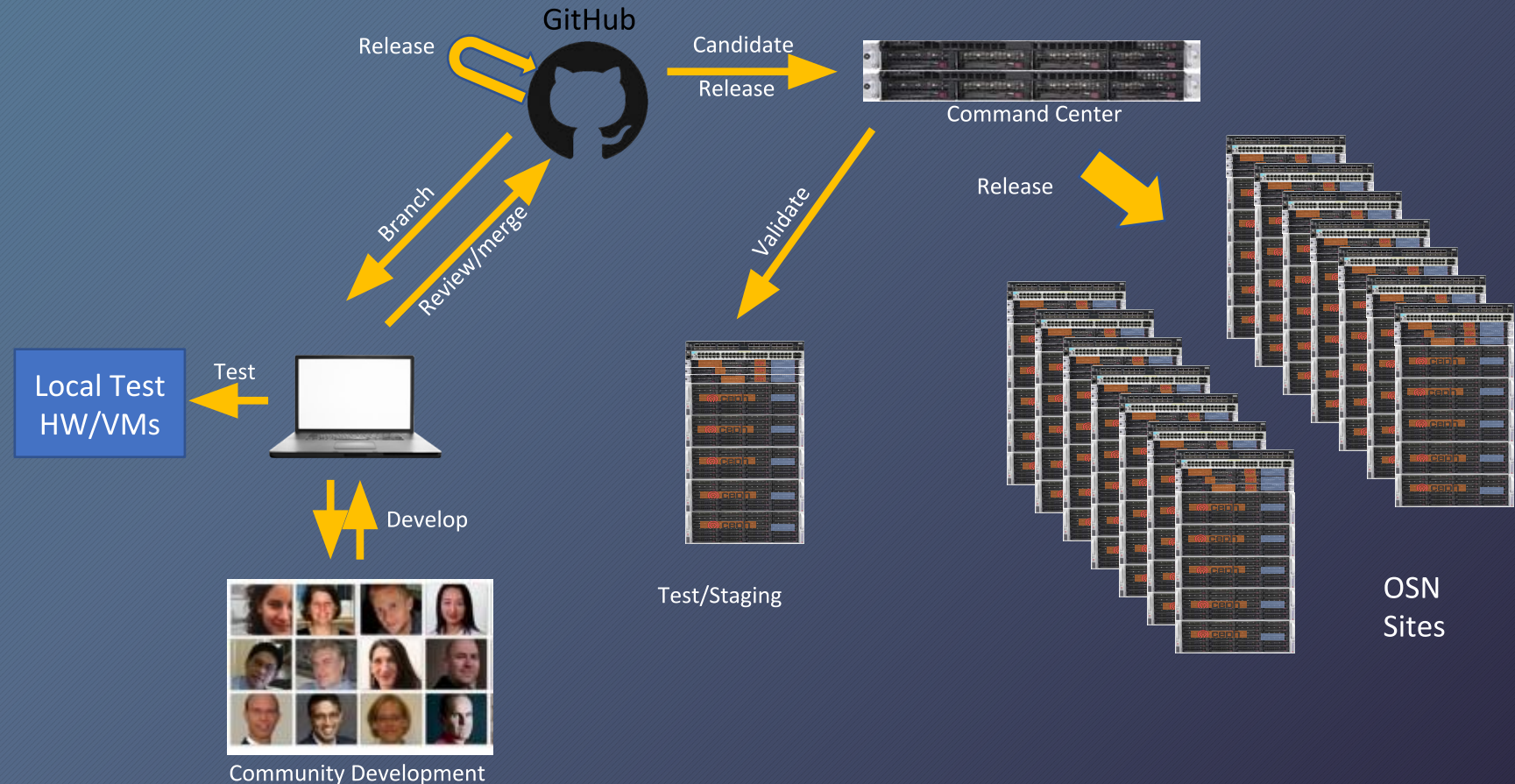


Command Center – OSN Admin

1. Bootstrap nodes via ansible from command center
 1. Configs pulled from project GitHub repo
 2. Images pushed to gateway node
 3. IPMI / PXE used to bootstrap remaining nodes
2. Execute baseline system services installation
3. Provision Software
 1. storage system (Ceph)
 2. User service stack (Rgw, iRods, etc.)

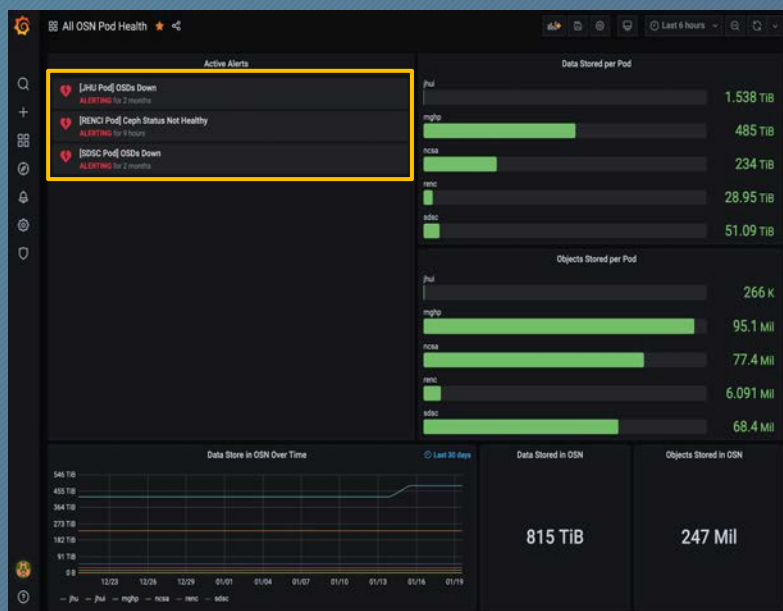
Lifecycle: Software Configuration and Maintenance

- Developer checks out a bugfix/feature branch
- Modify, debug, and test locally
- Trial deployment on a single pod
- Implementation team review and approval
- Branch is merged to main branch for deployment in next update

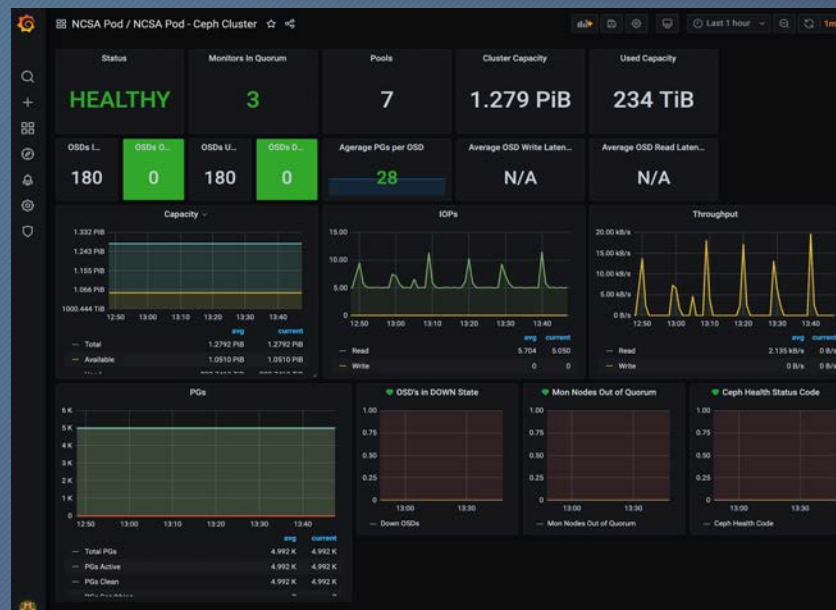


Monitoring and Alerting

Monitoring - Telegraf, InfluxDb, Grafana



Dashboard



Pod Ceph



Pod Hardware

Alerting - Slack

The screenshot displays a Slack workspace with a sidebar on the left and a main chat area on the right. The sidebar includes a search bar, a list of channels (including #osn-alerts), and a section for direct messages and apps. The main chat area shows a conversation in the #osn-alerts channel. The channel header indicates 8 members. The chat history shows several messages from the OSN Alerts app, grouped by date. The messages are as follows:

- Tuesday, January 12th**
 - [OK] [MGHPCC Pod] OSDs Down (Grafana v7.1.1 · Jan 12th)
 - OSN Alerts APP: 9:55 PM
 - [OK] [MGHPCC Pod] Ceph Status Not Healthy
 - [OK] [MGHPCC Pod] Ceph Status Not Healthy (Grafana v7.1.1 · Jan 12th)
- Wednesday, January 13th**
 - OSN Alerts APP: 2:54 PM
 - [Alerting] [RENCI Pod] Ceph Status Not Healthy
 - [Alerting] [RENCI Pod] Ceph Status Not Healthy
 - Ceph Health Code 2 (Grafana v7.1.1 · Jan 13th)
- Thursday, January 14th**
 - OSN Alerts APP: 9:37 PM
 - [OK] [RENCI Pod] Ceph Status Not Healthy
 - [OK] [RENCI Pod] Ceph Status Not Healthy (Grafana v7.1.1 · Jan 14th)
- Today**
 - OSN Alerts APP: 4:48 AM
 - [Alerting] [RENCI Pod] Ceph Status Not Healthy
 - [Alerting] [RENCI Pod] Ceph Status Not Healthy
 - Ceph Health Code 2 (Grafana v7.1.1 · Today at 4:48 AM)
 - OSN Alerts APP: 1:49 PM
 - [OK] [RENCI Pod] Ceph Status Not Healthy
 - [OK] [RENCI Pod] Ceph Status Not Healthy (Grafana v7.1.1 · Today at 1:49 PM)

The bottom of the screen shows a message input field for the #osn-alerts channel, with a toolbar for formatting and sending messages.

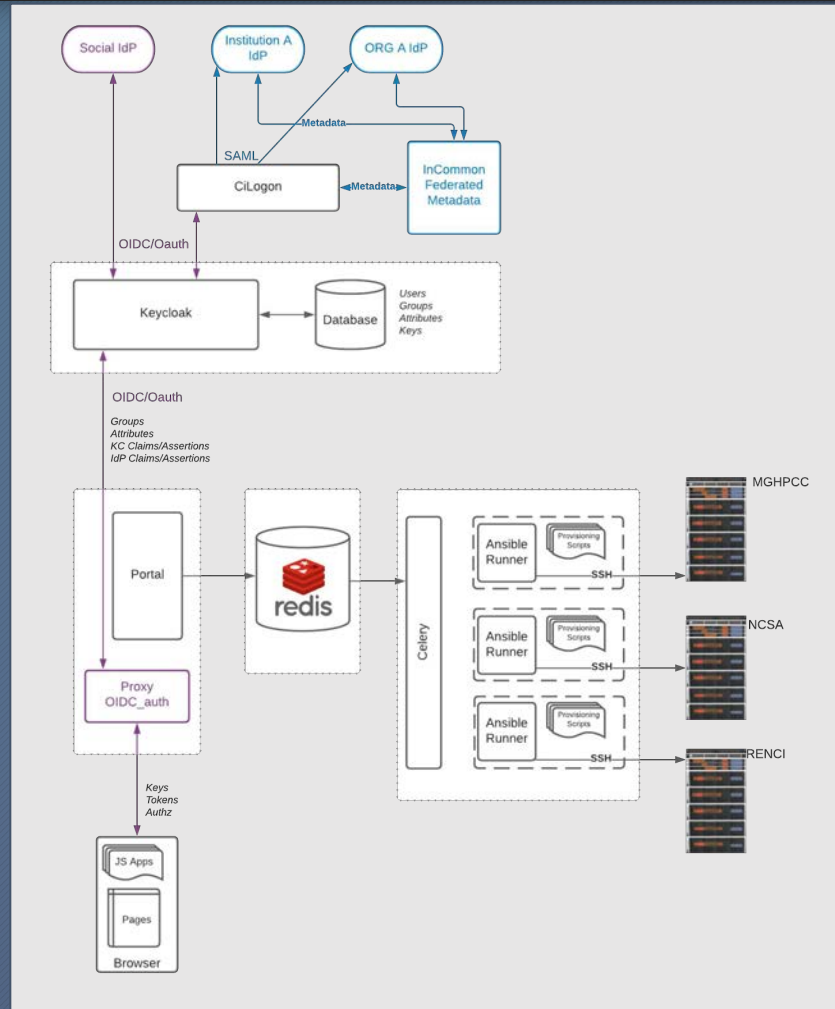
Web Applications

Storage Portal and Website

Storage Portal - Architecture

Four User Communities:

- End User
- Data Manager
- Data Curator
- OSN Administrator



Storage Portal- End User / Key Distribution

Storage Portal Home

Jim Culbert (james.culbert@gmail.com) ▾

Storage Management Portal

Welcome to the storage management site.

You are a member of the projects shown below.

You may manage groups that you are a datamanager for.

- TWOSIGMA

You have access to the following keys.

Type	Bucket	Access	Secret
read/write	https://mghe.osn.xsede.org/twosigma1		

Storage Portal - End User Data Access

Storage Portal Home Admin James Culbert (culbertj@mit.edu)

Ceph Bucket Explorer

twosigma1

Show 25 entries Search:

Select	Object	Last Modified	Timestamp	Class	Size
☐	.README.swo	4 months ago	2020-09-25 13:45:46	Standard	12 KB
☐	.README.swp	4 months ago	2020-09-25 13:45:46	Standard	12 KB
☐	README	4 months ago	2020-09-25 13:45:46	Standard	1 KB
☐	trace.aaaa	4 months ago	2020-09-25 16:19:11	Standard	18 GB
☐	trace.aaad	4 months ago	2020-09-25 16:13:46	Standard	18 GB
☐	trace.aaaa	4 months ago	2020-09-25 16:21:43	Standard	18 GB
☐	trace.aaaf	4 months ago	2020-09-25 16:18:10	Standard	18 GB
☐	trace.aaaah	4 months ago	2020-09-25 16:10:19	Standard	18 GB
☐	trace.aaaaj	4 months ago	2020-09-25 19:38:09	Standard	18 GB
☐	trace.aaaaj	4 months ago	2020-09-25 18:33:03	Standard	18 GB
☐	trace.aaaam	4 months ago	2020-09-25 18:49:58	Standard	18 GB
☐	trace.aaam	4 months ago	2020-09-25 20:36:50	Standard	18 GB
☐	trace.aaaf	4 months ago	2020-09-25 18:27:40	Standard	18 GB
☐	trace.aaav	4 months ago	2020-09-25 21:01:38	Standard	18 GB
☐	trace.aaaw	4 months ago	2020-09-25 22:11:43	Standard	18 GB
☐	trace.aaaz	4 months ago	2020-09-25 20:23:30	Standard	18 GB
☐	trace.aaab	4 months ago	2020-09-25 22:25:42	Standard	18 GB
☐	trace.aaab	4 months ago	2020-09-25 22:15:08	Standard	18 GB

Built-in Object Browser

MGHPCC OSN - mghpccadmin

MGHPCC OSN - mghpccadmin

/twosigma1

filename	Size	Modified
trace.aaacn	19.5 GB	9/26/20, 5:59 PM
trace.aaacm	19.5 GB	9/26/20, 5:46 PM
trace.aaaci	19.5 GB	9/26/20, 5:18 PM
trace.aaack	19.5 GB	9/26/20, 3:50 PM
trace.aaacj	19.5 GB	9/26/20, 5:49 PM
trace.aaaci	19.5 GB	9/26/20, 3:29 PM
trace.aaach	19.5 GB	9/26/20, 2:21 PM
trace.aaacg	19.5 GB	9/26/20, 5:24 PM
trace.aaacf	19.5 GB	9/26/20, 1:44 PM
trace.aaace	19.5 GB	9/26/20, 4:24 PM
trace.aaacd	19.5 GB	9/26/20, 12:30 PM
trace.aaacc	19.5 GB	9/26/20, 11:38 AM
trace.aaacb	19.5 GB	9/26/20, 1:49 PM
trace.aaaca	19.5 GB	9/26/20, 12:17 PM
trace.aaabz	19.5 GB	9/26/20, 12:31 PM
trace.aaaby	19.5 GB	9/26/20, 9:59 AM
trace.aaabx	19.5 GB	9/26/20, 9:46 AM
trace.aaabw	19.5 GB	9/26/20, 9:38 AM
trace.aaabv	19.5 GB	9/26/20, 8:59 AM
trace.aaabu	19.5 GB	9/26/20, 9:44 AM
trace.aaabt	19.5 GB	9/26/20, 7:40 AM
trace.aaabs	19.5 GB	9/26/20, 7:10 AM
trace.aaab	19.5 GB	9/26/20, 6:50 AM

54 Files

Cloud Storage GUI Client

rcclone

Last login: Fri Jan 15 12:02:30 on ttys008

You have mail.

culbertj@jims-MBP ~ % rclone config

Current remotes:

Name	Type
NESETEST	s3
NESE_TEST_BUCKET_1	s3
cnh-project	s3
darwin-mghpcc	s3
minio1	s3
osn-mghp	s3
osn-ncsa	s3

e) Edit existing remote
n) New remote
d) Delete remote
r) Rename remote
c) Copy remote
s) Set configuration password
q) Quit config
e/n/d/r/c/s/q

Cloud Storage Command Line Client

Storage Portal - Datamanager

Project Information: TWOSIGMA

Project Members

Username	Lastname	Firstname	Email	Role	
james.culbert@gmail.com	Culbert	Jim	james.culbert@gmail.com	member	Remove
culbertj@mit.edu	Culbert	James	culbertj@mit.edu	datamanager	Remove

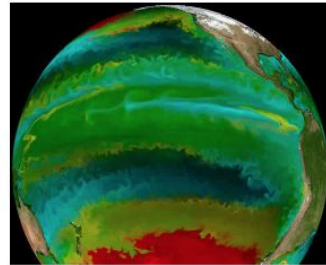
[Add a user to this project](#)

Project Keys

Type	Bucket	Access	Secret	Visible
rgw_rw	https://mghp.osn.xsede.org/twosigma1	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX	☒

Storage Portal - Data Curator

<<Title>>
<<Brief description>>
<<Size>>
<<Creation and last modified dates>>
<<Contact information>>
<<Access (e.g. open, requires license, etc.)>>
<<Digital Object Identifier (if available)>>



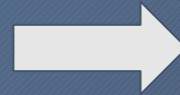
Request access
(for protected data)



<<Download links for preconfigured data access tools>>



Landing Page Template



Terra Fusion Slice

The Terra Basic Fusion dataset is a fused dataset of the original Level 1 radiances from the five Terra instruments.

Terra is the flagship satellite of NASA's Earth Observing System (EOS). It was launched into orbit on December 18, 1999 and carries five instruments. These are the Moderate-resolution Imaging Spectroradiometer (MODIS), the Multi-angle Imaging SpectroRadiometer (MISR), the Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER), the Clouds and Earth's Radiant Energy System (CERES), and the Measurements of Pollution in the Troposphere (MOPITT).

Created 12/20/2018
Updated 03/21/2019

Anonymous access, Creative Commons Level 0

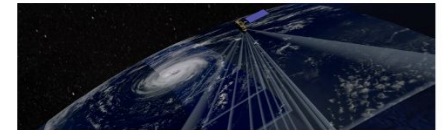
[doi:10.1109/TGRS.2016.253872](https://doi.org/10.1109/TGRS.2016.253872)

Rclone Config

Cyberduck Config

OSN Browser

Third Party



Landing Page Instance

Storage Portal

Home

Admin

James Culbert (culbertj@mit.edu)

Create Project

Project Name (required)

Vander Cryo-EM

Description (required)

Microscope storage for Dr. Vander group

(250 characters max.)

Create Project



Storage Portal

Home

Admin

James Culbert (culbertj@mit.edu)

Create Project Bucket

OSN Pod (required)

mghpgw

Bucket Name (required)

cryo1

Bucket Size (TB) (required)

50

Read type (required)

☒ Anonymous

☐ Authenticated

Project (required)

Vander Cryo-EM

Create Bucket

Storage Portal

Home

Admin

James Culbert (culbertj@mit.edu)

Buckets

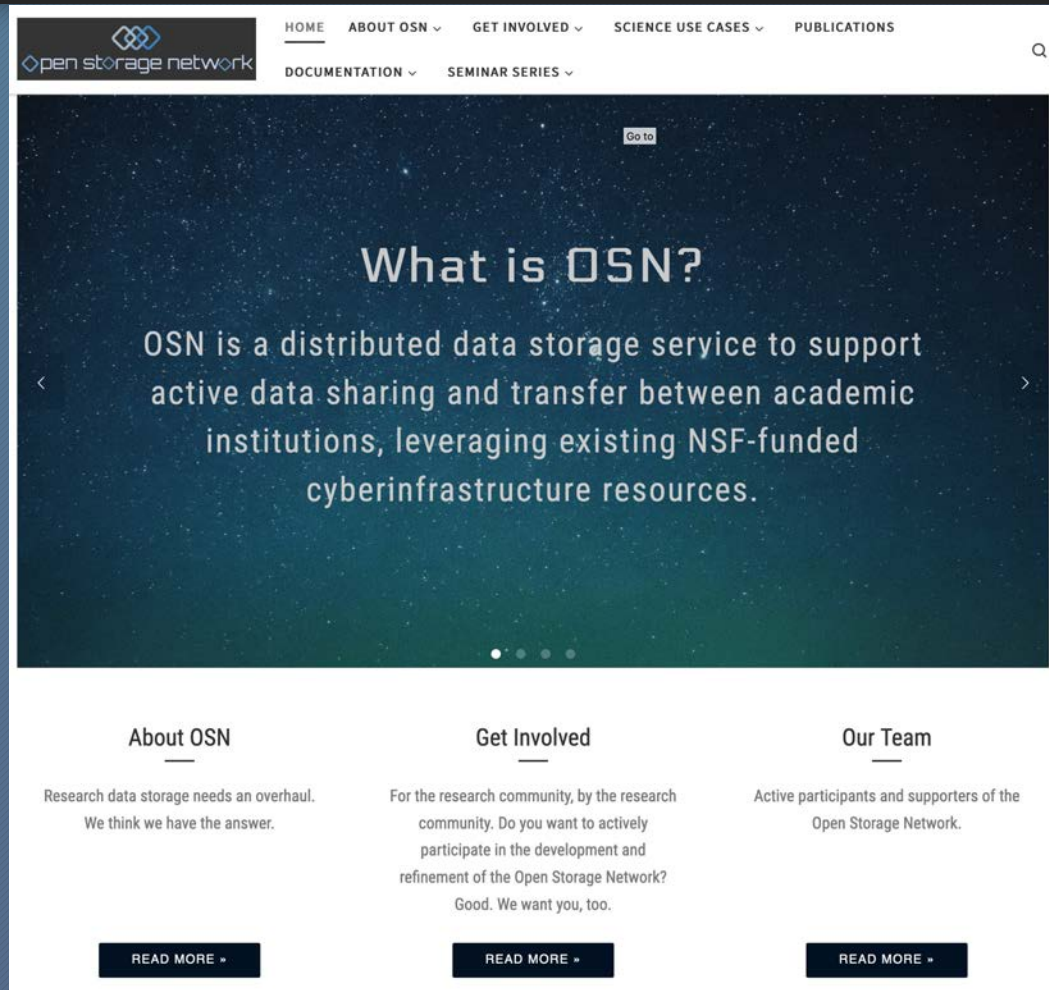
Note that removing a bucket unlinks it from all projects but does not delete it from the OSN node. The bucket must be manually deleted from the cluster.

[Create New Bucket](#)

Queued Bucket Tasks	Status
All tasks processed	

Bucket	
https://mghp.osn.xsede.org/cnh-bucket-1	Remove
https://renc.osn.xsede.org/fabric01	Remove
https://minio.mghpcc.org:9000/jmio	Remove

Website



Questions

Jim Culbert

Director of IT Services

MGHPCC

culbertj@mghpcc.org