

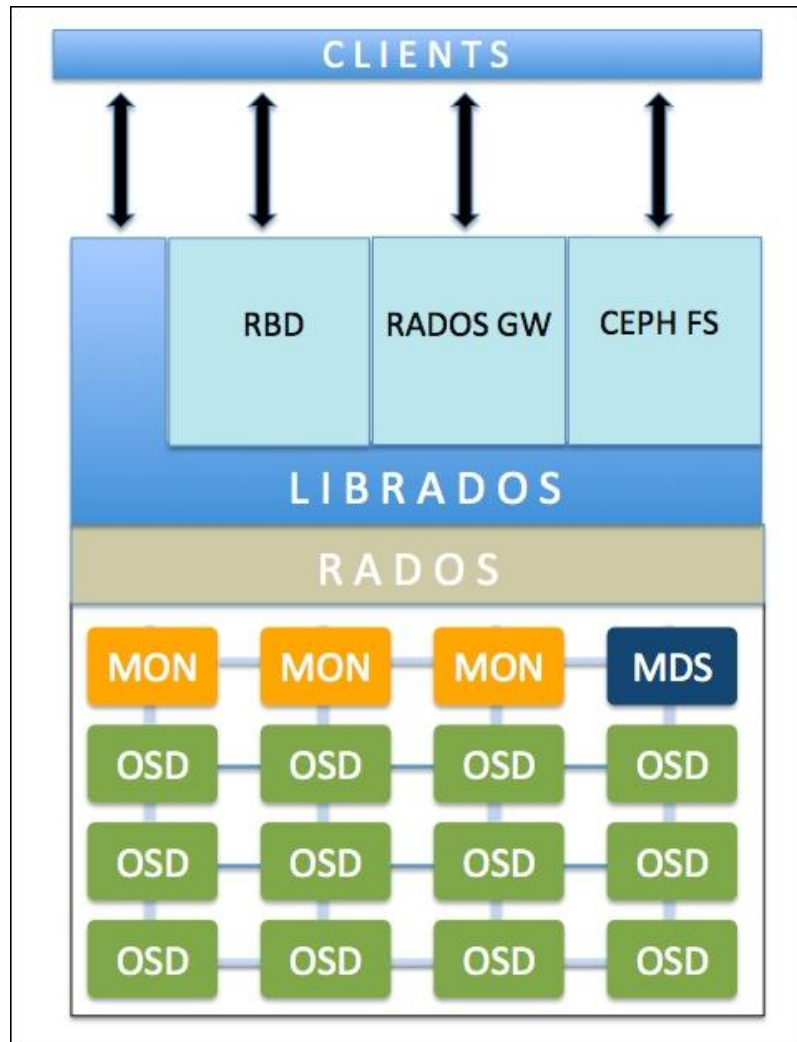
Ceph RGW-Prefetching

Ali R., Amin M., Bissenbay D.

Ceph

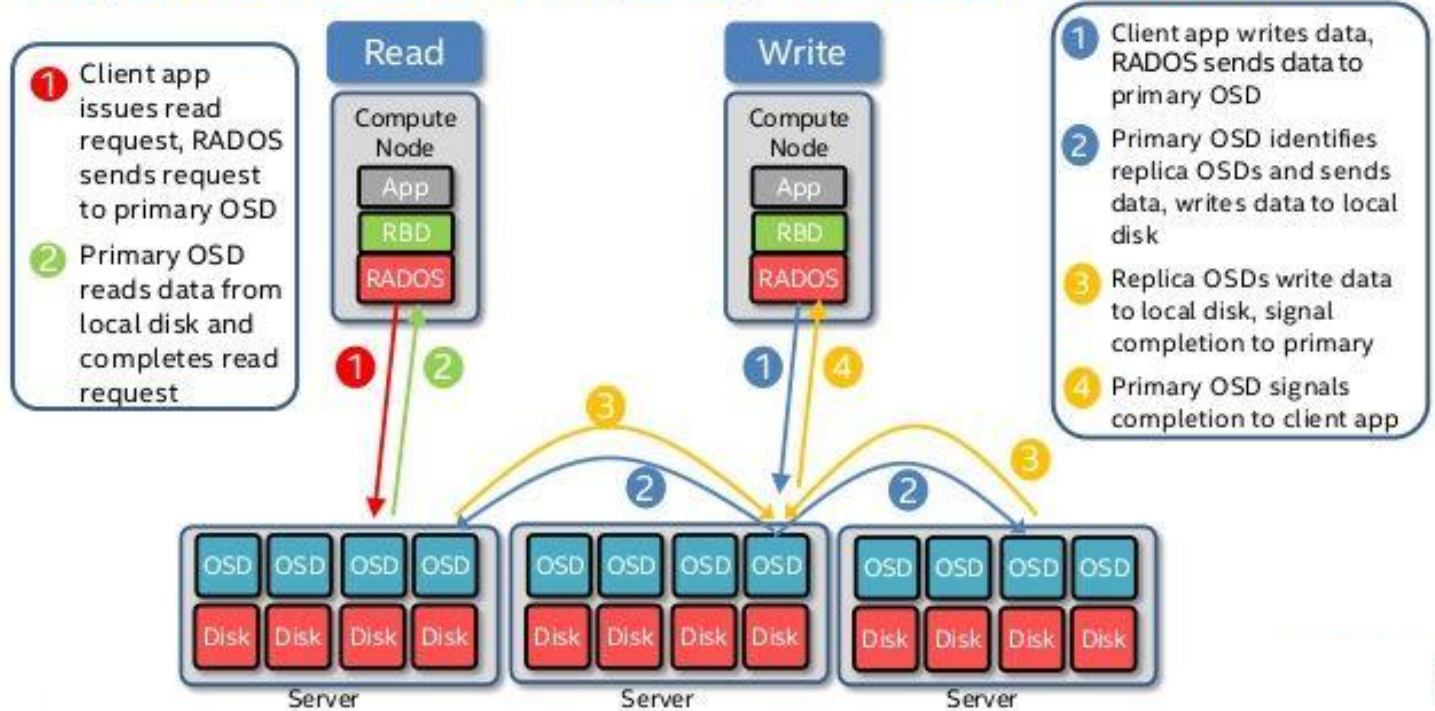
- A distributed storage systems
- Open source
- Provides interfaces for object, block and file level storage
- Scalable to the exabyte level
- Replicates data and makes it fault-tolerant (default 3 replicas)

Ceph Architecture



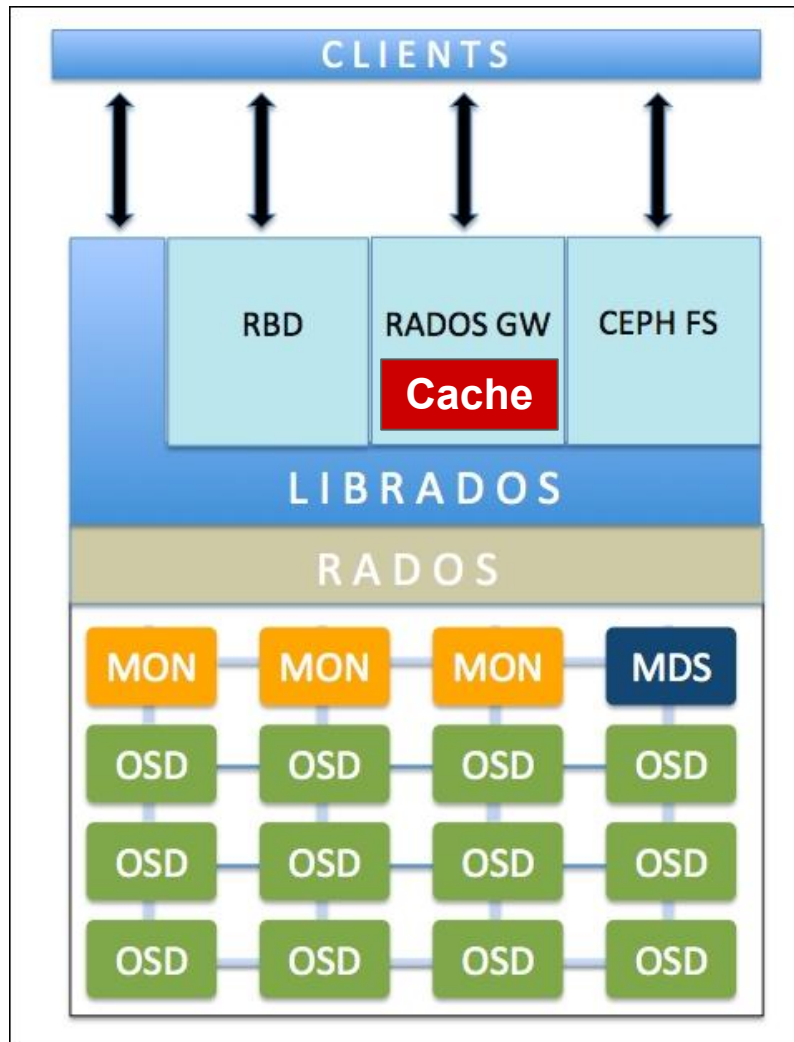
Ceph Flow

Object Store Daemon (OSD) Read and Write Flow



What is our project?

- Develop a prefetching mechanism and add it to the existing caching layer
- Implementing another API functions to expose the prefetching mechanism to the users
- Developing evaluating mechanism for the system (testing)



What we are going to implement?

- Prefetching mechanism:
 - Intercepting Ceph user requests to decide which file is requested and which blocks should be prefetched
 - Using Ceph functions to read files (data blocks) from OSDs to the cache
- New Ceph API functions:
 - Users should be able to prefetch data manually
 - Users should be able to check the cache content
- Evaluation
 - We need to make sure that prefetching is working correctly
 - Devise a method to check the performance of cache and prefetching system

Sprint 1

CEPH-RGW-PREFETCHI... SPRINT 1 31 JAN 2019-14 FEB 2019



100%



16 total points

16 completed points

0 open tasks

8 closed tasks



0 iocaine doses

USER STORY

✕ #1 Writing Proposal
8 points



CLOSED



Not assigned

#3 Meeting with Ugur and basic understanding of Ceph



Not assigned

#4 Writing Proposal

NEEDS INFO



Sprint 1

CEPH-RGW-PREFETCHI... SPRINT 1 31 JAN 2019-14 FEB 2019

100%

16 total points

16 completed points

0 open tasks

8 closed tasks

0 iocaine doses

USER STORY				CLOSED	NEEDS INFO
<div><div>✕</div><div>#2 Basic Logistics</div><div>8 points</div><div>+</div><div></div></div>	<>	<>	<>	<div><div><div></div><div>Not assigned</div></div><div>#5 Meeting with Red Hat Team</div><div><div><div></div><div>Not assigned</div></div><div>#6 Setup Slack</div><div><div><div></div><div>Not assigned</div></div><div>#7 Setup Trello Board</div><div><div><div></div><div>Not assigned</div></div><div>#8 Setup IRC channel</div><div><div><div></div><div>Not assigned</div></div><div>#9 Getting familiar with Openstack</div></div></div></div></div></div>	><

Burn down chart for Sprint 1

CEPH-RGW-PREFETCHI... SPRINT 1 31 JAN 2019-14 FEB 2019



100% ∨ 16 total points

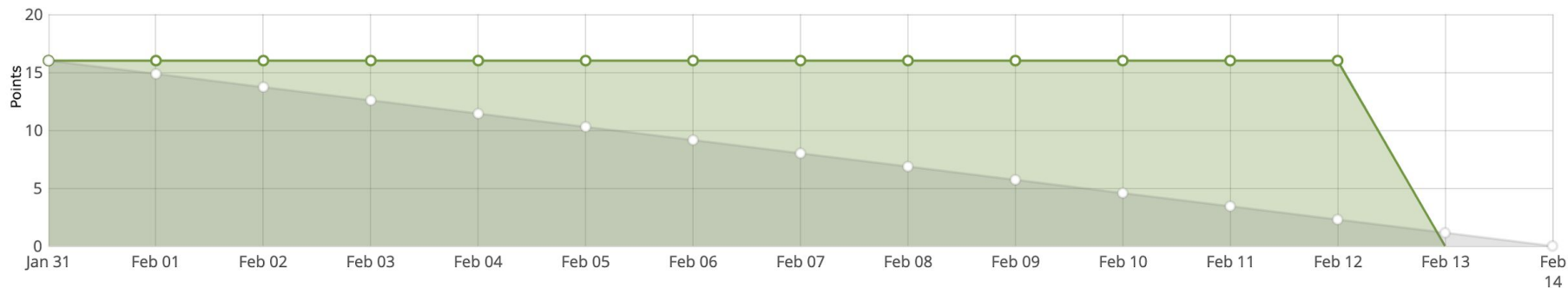
16 completed points

0 open tasks

8 closed tasks



0 iocaine doses



Progress so far ...

- VMs set up on OpenStack
 - Three VM machines
 - Centos 7
- Infrastructure is ready
 - Ceph is built
- Next step:
 - Adding cache system to the existing Ceph
 - Understanding Ceph code
 - Implementing first API functions