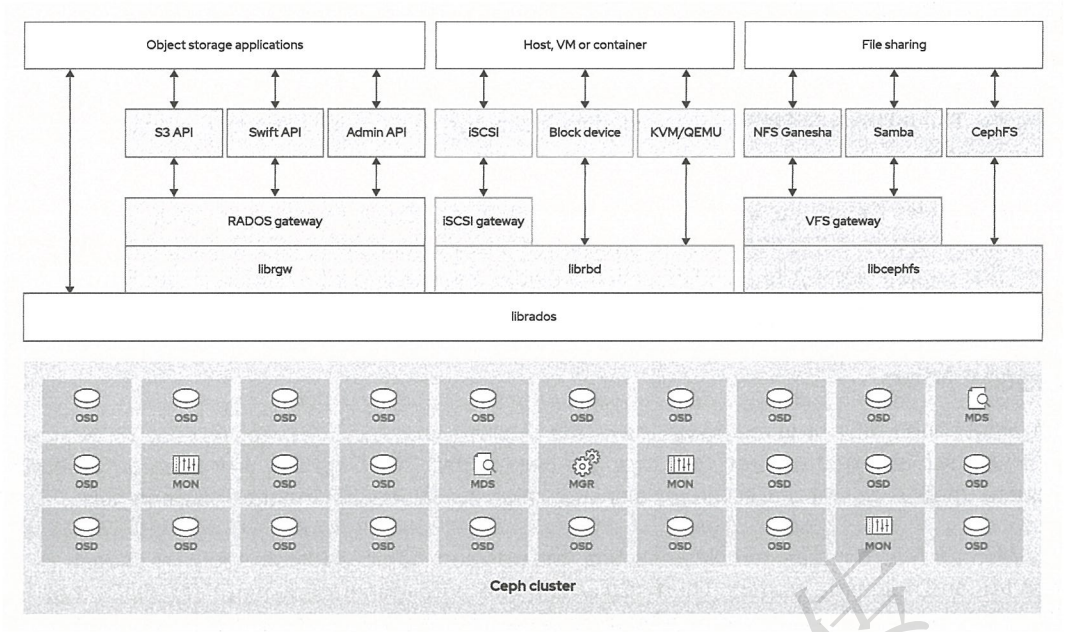

Figure 1.1: Ceph components

Ceph Native API (`librados`)

The foundational library that implements the other Ceph interfaces, such as Ceph Block Device and Ceph Object Gateway, is `librados`. The `librados` library is a native C library that allows applications to work directly with RADOS to access objects stored by the Ceph cluster. Similar libraries are available for C++, Java, Python, Ruby, Erlang, and PHP.

To maximize performance, write your applications to work directly with `librados`. This method gives the best results to improve storage performance in a Ceph environment. For easier Ceph storage access, instead use the higher-level access methods that are provided, such as the RADOS Block Devices, Ceph Object Gateway (RADOSGW), and CephFS.

RADOS Block Device

A *Ceph Block Device (RADOS Block Device or RBD)* provides block storage within a Ceph cluster through RBD images. Ceph scatters the individual objects that compose RBD images across different OSDs in the cluster. Because the objects that make up the RBD are on different OSDs, access to the block device is automatically parallelized.

RBD provides the following features:

- Storage for virtual disks in the Ceph cluster
- Mount support in the Linux kernel
- Boot support in QEMU, KVM, and OpenStack Cinder

Ceph Object Gateway (RADOS Gateway)

Ceph Object Gateway (RADOS Gateway, RADOSGW, or RGW) is an object storage interface that is built with `librados`. It uses this library to communicate with the Ceph cluster and writes to OSD processes directly. It provides applications with a gateway with a RESTful API, and supports two interfaces: Amazon S3 and OpenStack Swift.