Debugging the Ceph RESTful Interface

The `radosgw` daemon is a Ceph client that sits between the Ceph cluster and HTTP clients. It includes its own web server, Beast, which supports HTTP and HTTPS.

In case of errors, you should consult the log file in the `/var/log/ceph/` folder.

To log to a file, set the `log_to_file` parameter to `true`. You can update the location of the log file and the log level by using the `log_file` and `debug` parameters, respectively. You can also enable the `rgw_enable_ops_log` and `rgw_enable_usage_log` parameters in the Ceph configuration database to log each successful RADOS Gateway operation and the usage, respectively.

```
[ceph: root@node /]# ceph config set client.rgw \
log_file /var/log/ceph/ceph-rgw-node.log
[ceph: root@node /]# ceph config set client.rgw log_to_file true
[ceph: root@node /]# ceph config set client.rgw debug_rgw 20
[ceph: root@node /]# ceph config set client.rgw rgw_enable_ops_log true
[ceph: root@node /]# ceph config set global rgw_enable_usage_log true
```

Verify the debugging logs using the `radosgw-admin log list` command. This command provides a list of the log objects that are available. View log file information using the `radosgw-admin log show` command. To retrieve the information directly from the log object, add the `--object` parameter with the object ID. To retrieve the information on the bucket at the timestamp, add the `--bucket`, `--date`, and `--bucket-id` parameters, which refer to the bucket name, the timestamp, and the bucket ID.

Common RADOS Gateway Issues

The most common error in RADOS Gateway is time skew between the client and the RADOS Gateway because the S3 protocol uses date and time for signing each request. To avoid this problem, use NTP on both Ceph and client nodes.

You can verify issues on RADOS Gateway request completion by looking for HTTP status lines in the RADOS Gateway log file.

The RADOS Gateway is a Ceph client that stores all of its configuration in RADOS objects. The RADOS PGs holding this configuration data must be in the `active+clean` state. If the state is not `active+clean`, then Ceph I/O requests will hang if the primary OSD becomes unable to serve data, and HTTP clients will eventually time out. Identify the inactive PGs with the `ceph health detail` command.

Troubleshooting CephFS

A CephFS Metadata Server (MDS) maintains a cache shared with its clients, FUSE, or the kernel so that an MDS can delegate part of its cache to clients. For example, a client accessing an inode can locally manage and cache changes to that object. If another client also requests access to the same inode, the MDS can request that the first client update the server with the new metadata.

To maintain cache consistency, an MDS requires a reliable network connection with its clients. Ceph can automatically disconnect, or evict, unresponsive clients. When this occurs, unflushed client data is lost.

When a client tries to gain access to CephFS, the MDS requests the client that has the current capabilities to release them. If the client is unresponsive, then CephFS shows an error message