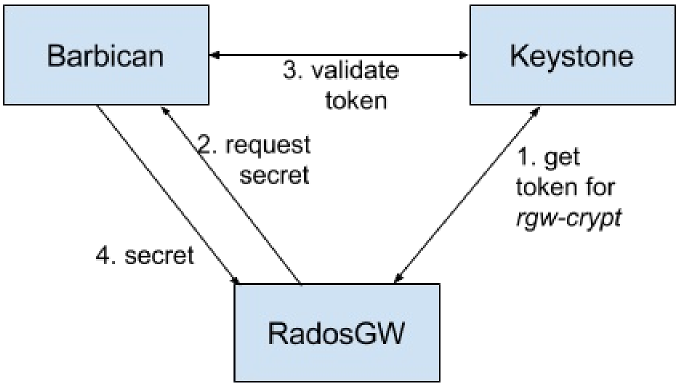
OPENSTACK BARBICAN INTEGRATION

OpenStack Barbican can be used as a secure key management service for Server-Side Encryption.



1. Configure Keystone
2. Create a Keystone user
3. Configure the Ceph Object Gateway
4. Create a key in Barbican

CONFIGURE KEYSTONE

Barbican depends on Keystone for authorization and access control of its keys.

See OpenStack Keystone Integration.

CREATE A KEYSTONE USER

Create a new user that will be used by the Ceph Object Gateway to retrieve keys.

For example:

```
user = rgwcrypt-user
pass = rgwcrypt-password
tenant = rgwcrypt
```

See OpenStack documentation for Manage projects, users, and roles.

CREATE A KEY IN BARBICAN

See Barbican documentation for How to Create a Secret. Requests to Barbican must include a valid Keystone token in the X-Auth-Token header.

Example request:

```
POST /v1/secrets HTTP/1.1
Host: barbican.example.com:9311
Accept: */*
Content-Type: application/json
X-Auth-Token: 7f7d588dd29b44df983bc961a6b73a10
Content-Length: 299

{
    "name": "my-key",
    "expiration": "2016-12-28T19:14:44.180394",
    "algorithm": "aes",
    "bit_length": 256,
    "mode": "cbc",
    "payload": "6b+WOZ1T3cqZMxgThRcXAQBrS5mXKdDUphvpxptl9/4=",
    "payload_content_type": "application/octet-stream",
    "payload_content_encoding": "base64"
}
```

Response:

```
{"secret_ref": "http://barbican.example.com:9311/v1/secrets/d1e7ef3b-f841-4b7c-90b2-b7d90ca2d
```

In the response, `d1e7ef3b-f841-4b7c-90b2-b7d90ca2d723` is the key id that can be used in any SSE-KMS request.

This newly created key is not accessible by user `rgwcrypt-user`. This privilege must be added with an ACL. See How to Set/Replace ACL for more details.

Example request (assuming that the Keystone id of `rgwcrypt-user` is `906aa90bd8a946c89cdff80d0869460f`):

```
PUT /v1/secrets/d1e7ef3b-f841-4b7c-90b2-b7d90ca2d723/acl HTTP/1.1
Host: barbican.example.com:9311
Accept: */*
Content-Type: application/json
X-Auth-Token: 7f7d588dd29b44df983bc961a6b73a10
Content-Length: 101

{
    "read":{
    "users":[ "906aa90bd8a946c89cdff80d0869460f" ],
    "project-access": true
    }
}
```

Response:

```
{"acl_ref": "http://barbican.example.com:9311/v1/secrets/d1e7ef3b-f841-4b7c-90b2-b7d90ca2d723
```

CONFIGURE THE CEPH OBJECT GATEWAY

Edit the Ceph configuration file to add information about the Barbican server and Keystone user:

```
rgw barbican url = http://barbican.example.com:9311
rgw keystone barbican user = rgwcrypt-user
rgw keystone barbican password = rgwcrypt-password
```

When using Keystone API version 2:

```
rgw keystone barbican tenant = rgwcrypt
```

When using API version 3:

```
rgw keystone barbican project
rgw keystone barbican domain
```