Keystone Federated Swift: Getting the Most Out of your Object Storage in a Federated Environment

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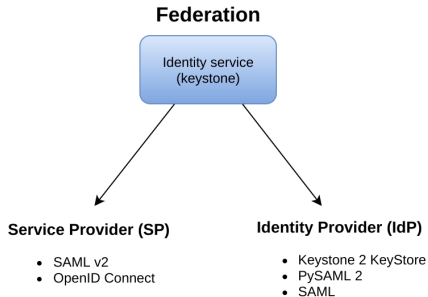mtreinish@kortar.org
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https://github.com/mtreinish/swift-keystone
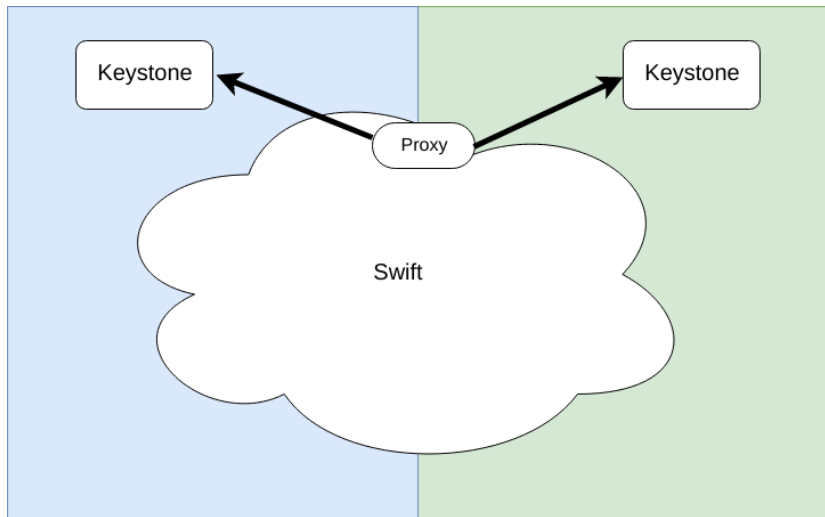
Why Keystone Federation?

- ▶ Decouple OpenStack services and identity management
- ▶ Enable sharing of resources between multiple OpenStack deployments
- ▶ Can use an external identity provider or keystone to keystone

Federation

Identity service
(keystone)

Service Provider (SP)
- SAML v2
- OpenID Connect

Identity Provider (IdP)
- Keystone 2 KeyStore
- PySAML 2
- SAML

Keystone with Swift

- Swift is an end-to-end object storage solution
- Supports multiple auth middlewares
- Differentiate each auth middleware by different reseller prefixes
- Leverages authtoken and keystoneauth middleware for swift to use keystone for auth

False Federation
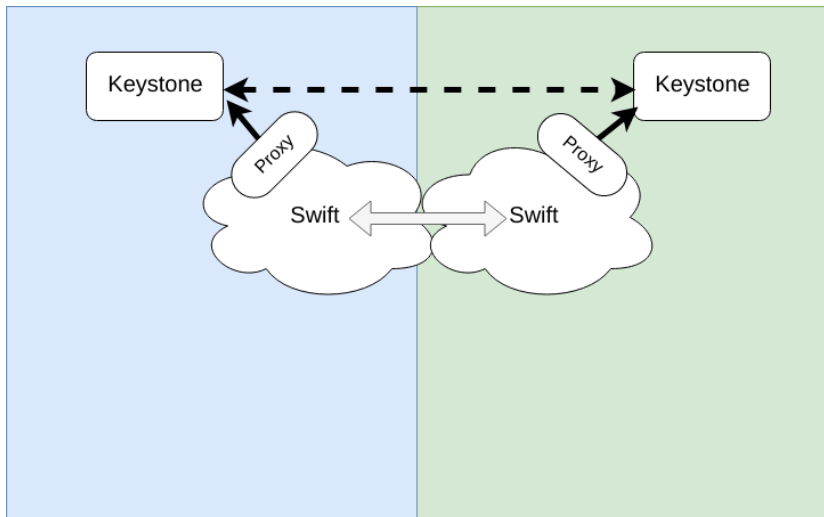
False Federation Pipeline
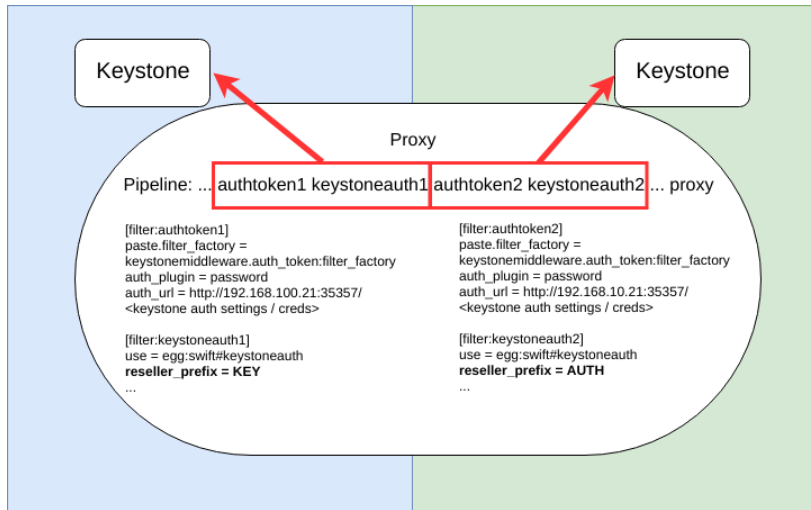
Pros/Cons of False Federation

Advantages:

- Simple to setup

Disadvantages:

- Each authtoken middleware will attempt to auth the token
- Potential High latency
- Needs keystoneauth patches to work

Separate Swift Clusters

Pros/Cons of Separate Clusters

Advantages:

- Resource isolation
- Offers a great deal of deployment flexibility
- Low swift auth latency (swift only talks to local keystone)

Disadvantages:

- Complexity of configuration
- Double mapping (idp $\leftrightarrow$ keystone, keystone $\leftrightarrow$ swift)
- Container sync latency (waiting for container sync to sync the objects)

Global Swift Cluster
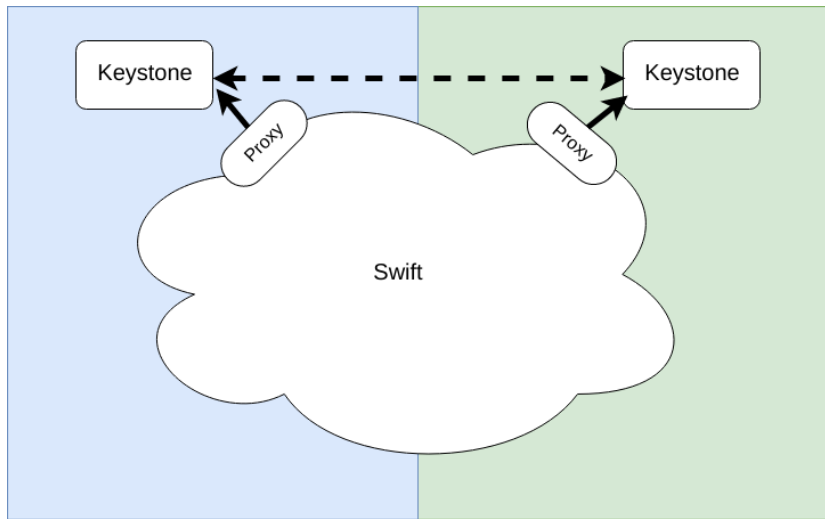
Pros/Cons of Global Swift Cluster

Advantages:

- Only maintain single swift cluster
- Low swift auth latency (swift only talks to local keystone)
- Access to same set of objects from any service provider

Disadvantages:

- Complex configuration
- Double mapping (idp $\leftrightarrow$ keystone, keystone $\leftrightarrow$ swift)

Where to get more information

- Blog Post Series: https://oliver.net.au/?p=335
- openstack-dev ML: openstack-dev@lists.openstack.org
- Details on Keystone Federation:
  http://www.gazlene.net/demystifying-keystone-federation.html
- Keystone federation mapping documentation:
  https://docs.openstack.org/keystone/pike/advanced-topics/federation/mapping_combinations.html
- These Slides: https://github.com/mtreinish/swift-keystone