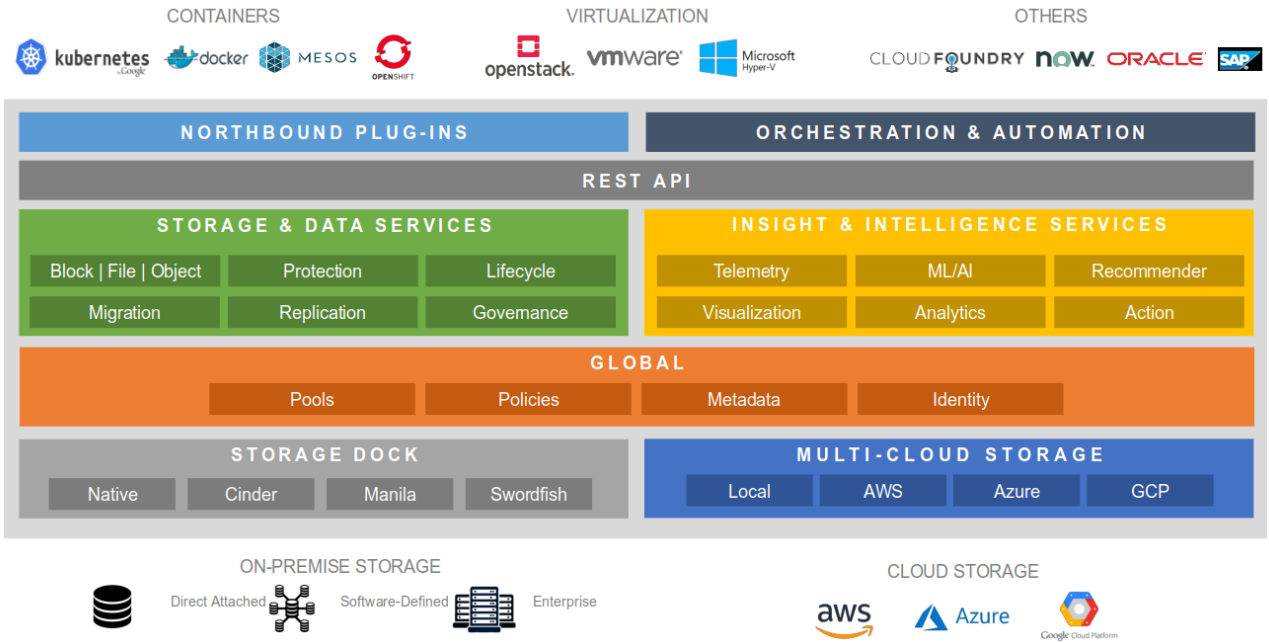
The OpenSDS POC UseCase

OpenSDS Architecture and Project

OpenSDS: Open Intelligent Data Life Cycle Management



❖ **SUSHI**
The Northbound Plug-ins Project

Common plug-ins to enable OpenSDS storage services for cloud and application frameworks

❖ **HOTPOT**
The Storage Controller Project

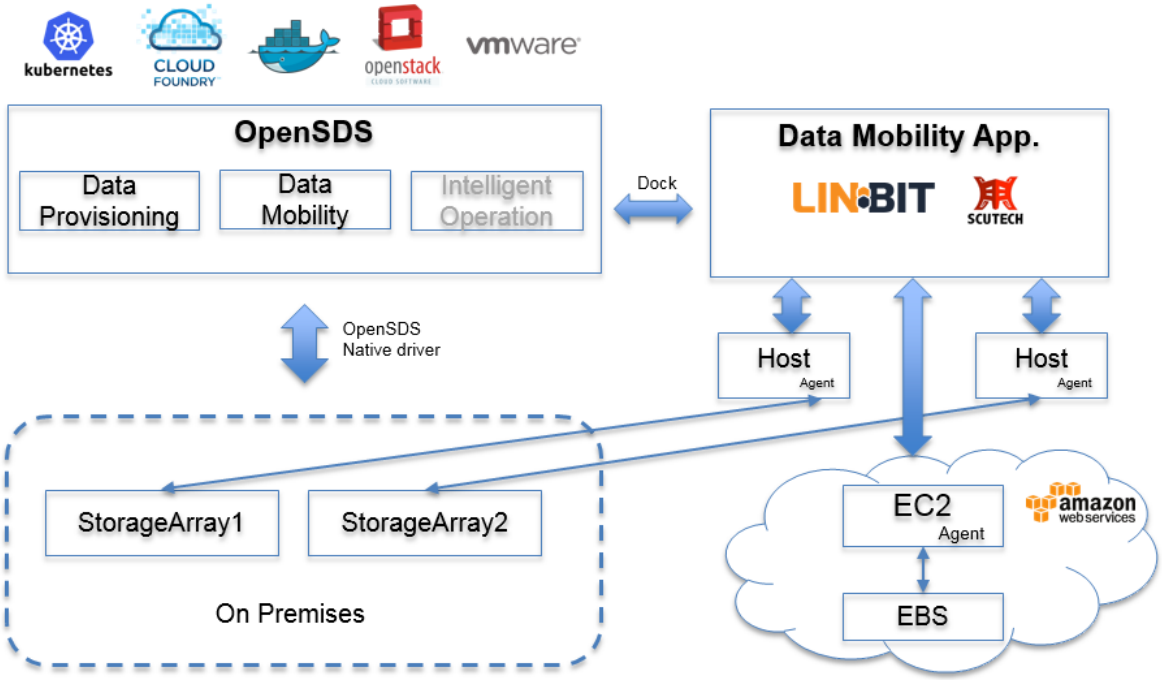
Single control for block, file, and object services across storage on premise and in clouds

❖ **Gelato**
The Multi-Cloud Project

Policy based multi-cloud data control to enable data mobility across clouds

HUAWEI

OpenSDS Use Cases



Data Provisioning

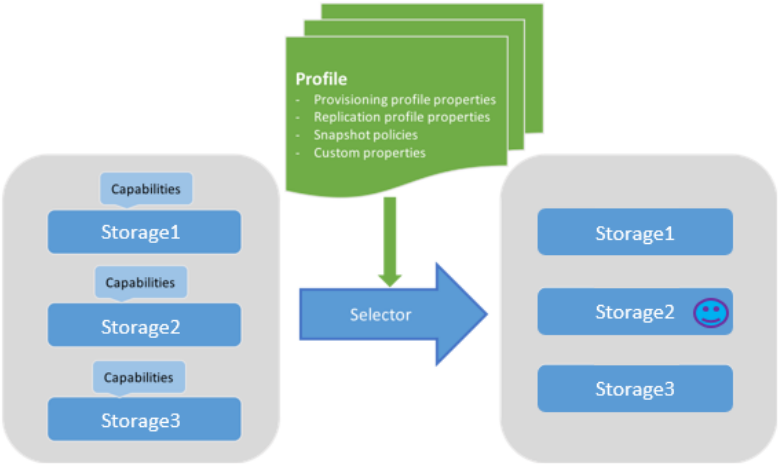
1. Intelligent Storage Profile
2. Container Storage Service
3. Multi-Apps. Data Service

Data Mobility

1. Data Protection in Cloud
2. Array-based Replication
3. Host-based Replication
4. Multi-Cloud Data Mobility

1. Intelligent Storage Profile

Profile Capabilities Mapping



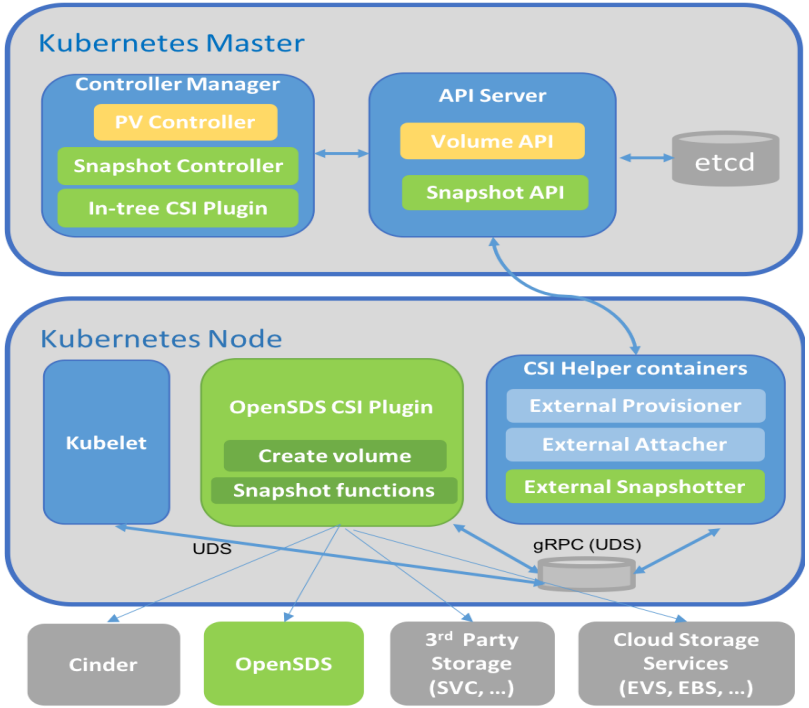
Use case steps：

1. Discovery and display storage arrays:
   - Storage1：SSD, IOPS:800465, FC
   - Storage2：NL-SAS, IOPS:7000, iSCSI
2. Create profile with some capabilites
   - Name: webapp-profile
   - AccessProtocol: iSCSI
   - DiskType: NL-SAS
3. Apply for volume based on “webapp-profile”:
   - Name: webapp-volume
   - Size: 10G
   - Profile: webapp-profile

Expected results：

Select Storage2 to create a volume named “webapp-volume”.

Container Storage Service （CSI）



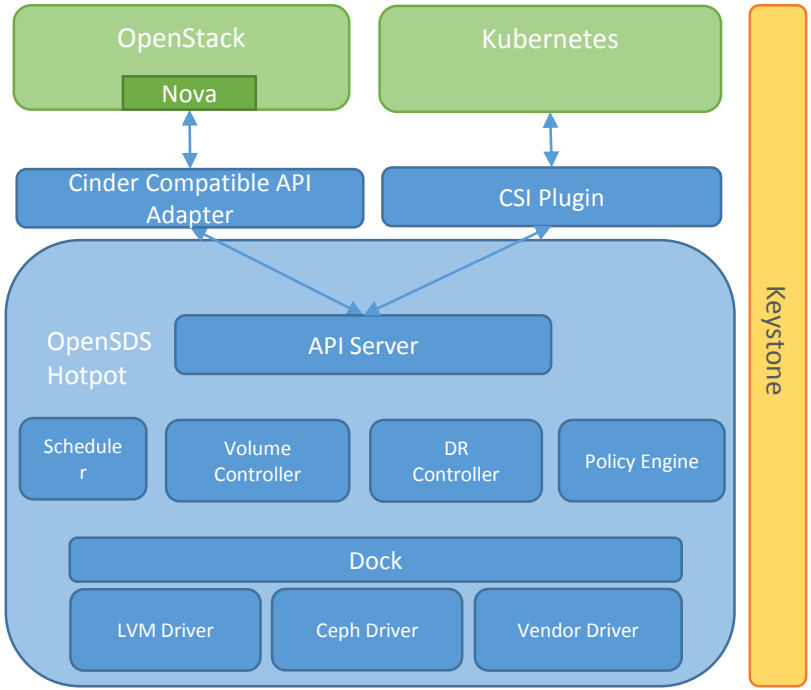
Use case steps：

1. Create profile with some parameters:
   - Name: webapp-profile
   - AccessProtocol: iSCSI
   - DiskType: NL-SAS
2. Create Storage Class in kubernetes:
   - StorageClass:
     - Name: webapp-sc
     - Provisioner: csi-opensdsplugin
     - Parameters:
       - Profile: webapp-profile
3. Create a pod named “nginx” whose PVC is based on the storage class “webapp-sc”.

Expected results：

A volume is allocated from OpenSDS and attached to “nginx” pod.

Multi-Apps. Data Service(OpenStack & Container)



Use case steps：

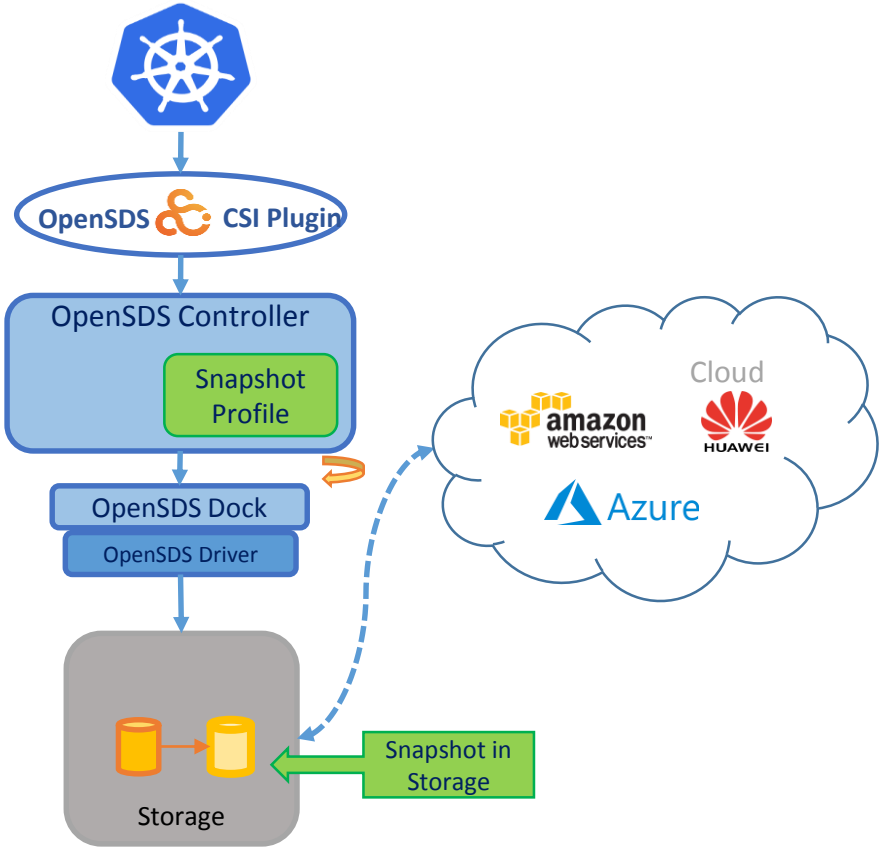
1. Provisioning for OpenStack:
   a. Create volume “my-openstack-volume” using Cinder Command.
   b. Create Nova instance and attach volume “my-openstack-volume” to it.

2. Provisioning for Kubernetes:
   a. Create Storage Class in kubernetes:
      - StorageClass:
        - Name: webapp-sc
        - Provisioner: csi-opensdsplugin
        - Parameters:
          - Profile: webapp-profile
   b. Create a pod named “nginx” whose PVC is based on the storage class “webapp-sc”.

Expected results：

1. A volume is allocated from OpenSDS and attached to OpenStack nova instance.
2. A volume is allocated from OpenSDS and attached to Kubernetes pod.

Data Protection in Multi-Cloud



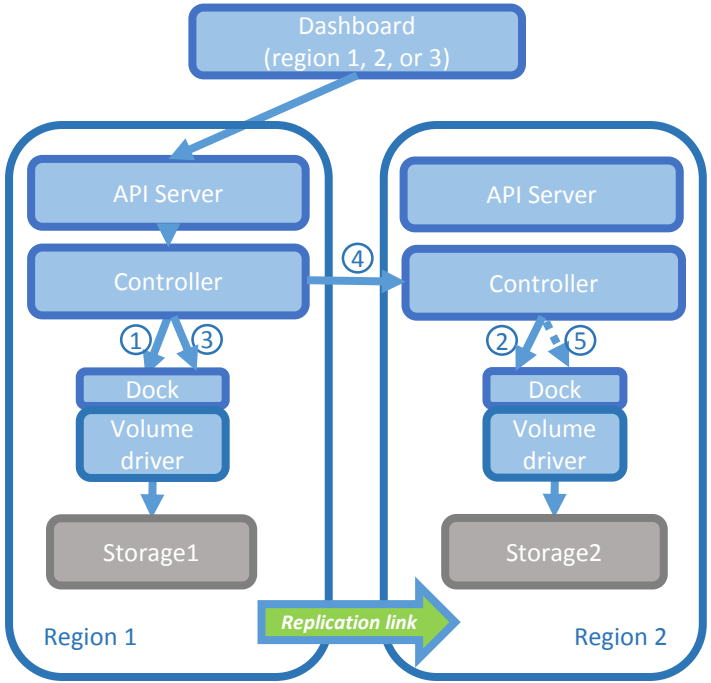
Use case steps：

1. Create Storage Class in kubernetes:
   - StorageClass:
     - Name: webapp-sc
     - Provisioner: csi-opensdsplugin
     - Parameters:
       - Profile: webapp-profile
2. Create Snapshot Class in Kubernetes
   - VolumeSnapshotClass:
     - Name: csi-opensds-snapclass
     - Snapshotter: csi-opensdsplugin
     - Parameters:
       - Profile: upload-snapshot-profile
3. Create a pod named “nginx” whose PVC is based on the storage class “webapp-sc”.
4. Create snapshot for PVC:
   a. OpenSDS will create a snapshot
   b. OpenSDS uploads snapshot to cloud.
5. Create PVC from snapshot:
   a. OpenSDS downloads snapshot from cloud
   b. OpenSDS create a volume from snapshot

Expected results：

1. A volume is allocated from OpenSDS and attached to pod.
2. A volume is recovered from snapshot across cloud.

Array-Based replication Scenario



Scenario: Homogeneous Storage Replication

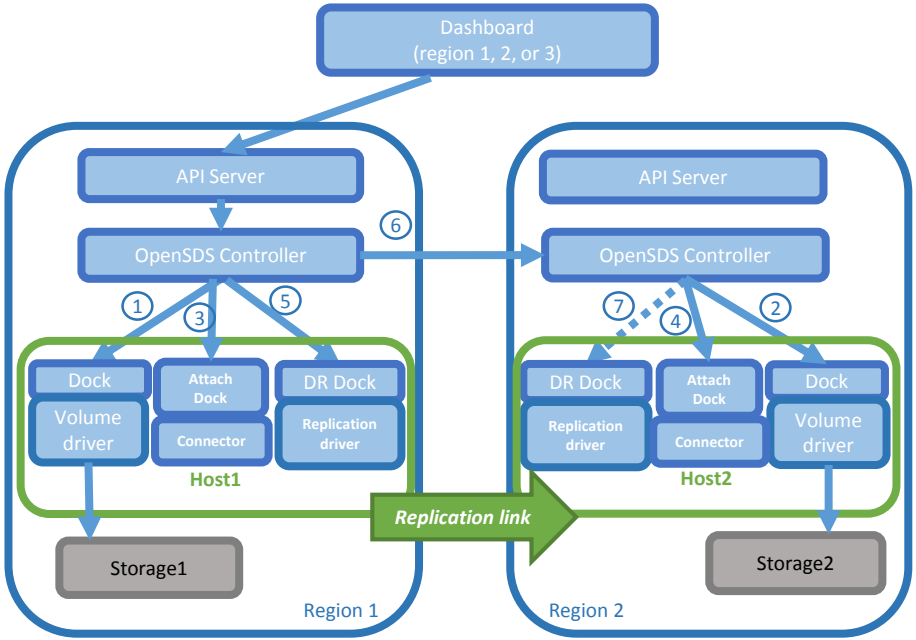
Use case steps:

1. Creates Volume
   a. Creates source volume
   b. Controller 2 create target volume
2. Create Replication
   a. Creates source replication
   b. Controller 2 creates entry in db
3. Write “Hello World” in source volume
4. Execute replication

Expected result：

1. There is “Hello World” in target volume

Host-Based replication Scenario



Scenario: heterogeneous Storage Replication

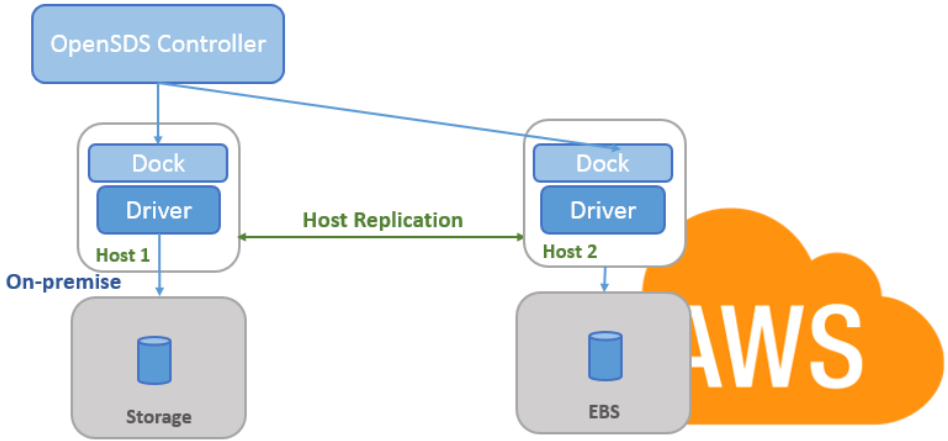
Use case steps:

1. Create Volume
   a. Controller 1 creates source volume
   b. Controller 2 creates target volume
2. Create Replication
   a. Attach source volume to Host 1
   b. Attach target volume to Host 2
   c. Controller 1 creates source replication
   d. Controller 2 creates entry in db
3. Write “Hello World” in source volume

Expected result：

1. There is “Hello World” in secondary volume

Multi-Cloud Data Mobility



Scenario: Data flow from On-premise to public cloud(AWS)

Use case steps:

1. Create Volume
   a. Create source volume in OpenSDS
   b. Attach source volume to Host 1
   c. Create target EBS volume
   d. Create an ECS and attach target volume to it
2. Create Replication across cloud
   a. Controller 1 creates source replication
   b. Controller 2 creates entry in db
3. Write “Hello World” in source volume

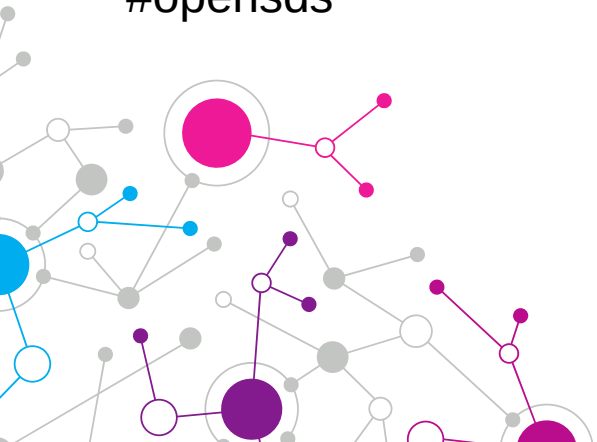
Expected result：

1. There is “Hello World” in target volume

Thank You

@opensds_io

#opensds



OpenSDS