HOW ONAP ORCHESTRATES A CNF TO STARLINGX

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Contents

Overview

This is a detailed How-To document to illustrate how users could leverage ONAP to orchestrate CNF to STARLINGX 3.0 instance.

The general deployment topology is depicted as diagram below:
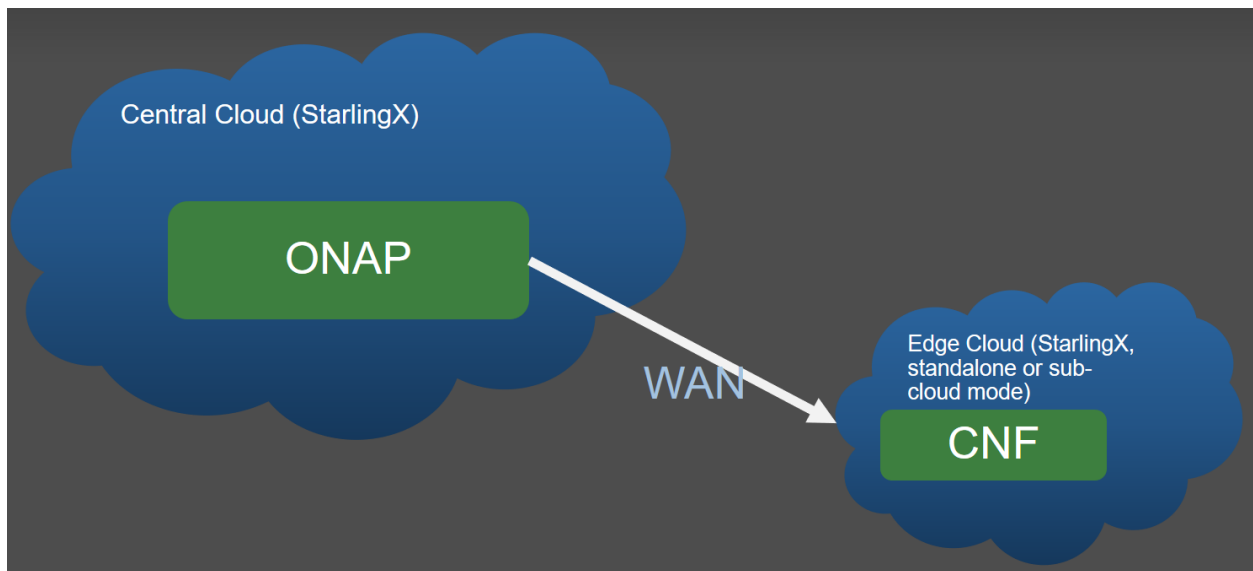
Diagram 1: ONAP and the cloud hosting it, STARLINGX, CNF topology

The comprehensive workflow consists of following phases:

> Phase 1: STARLINGX 3.0 installation and provisions
>
> Phase 2: CNF development and validation
>
> Phase 3: ONAP installation and provisions
>
> Phase 4: Register STARLINGX instance to ONAP
>
> Phase 5: CNF onboarding and service design
>
> Phase 6: Service Instantiation hence CNF instantiation and validation
>
> Phase 7: Service deletion hence CNF deletion

Phase 1: STARLINGX installation and provisions

STARLINGX (19.12 or later version) installation could be Duplex, and Standard type. STARLINGX Distributed Cloud mode is also supported.

Note: AIO Simplex is insufficient for ONAP deployment due to the limitation of maximum 110 pods per worker node

Due to CNF requiring multiple networking plane, the STARLINGX must be provisioned with:

- Datanetwork backend by SRIOV netdevice (at least 2 vlan ID to support 2 network planes of the cFW use case)
    - In case This SRIOV netdevice is not available, host netdevice passthrough could be used as well.
    - veth pair could also be used for demonstration purpose, with constraint that all pods should be scheduled to the same worker node
- Hugepage-2M: 512x2M for each NUMA node for worker nodes
- Dedicated Tenant and user with admin role
- Kubernetes service account with clusterrolebindings and privileges to operate various resource, including namespace, etc.

Phase 2: CNF development and validation

The CNF should be developed and validated over STARLINGX 3.0 directly (without ONAP's orchestration)

The example CNF is containerized Firewall use case (referred as cFW in context below):

https://gerrit.onap.org/r/gitweb?p=multicloud/k8s.git;a=tree;f=starlingx/demo;h=44ab83ca5c5c9f01082695
b1aa9a6e71fdaeec20;hb=HEAD

It consists of 3 pods, connected through 2 network planes. The topology is depicted as below:
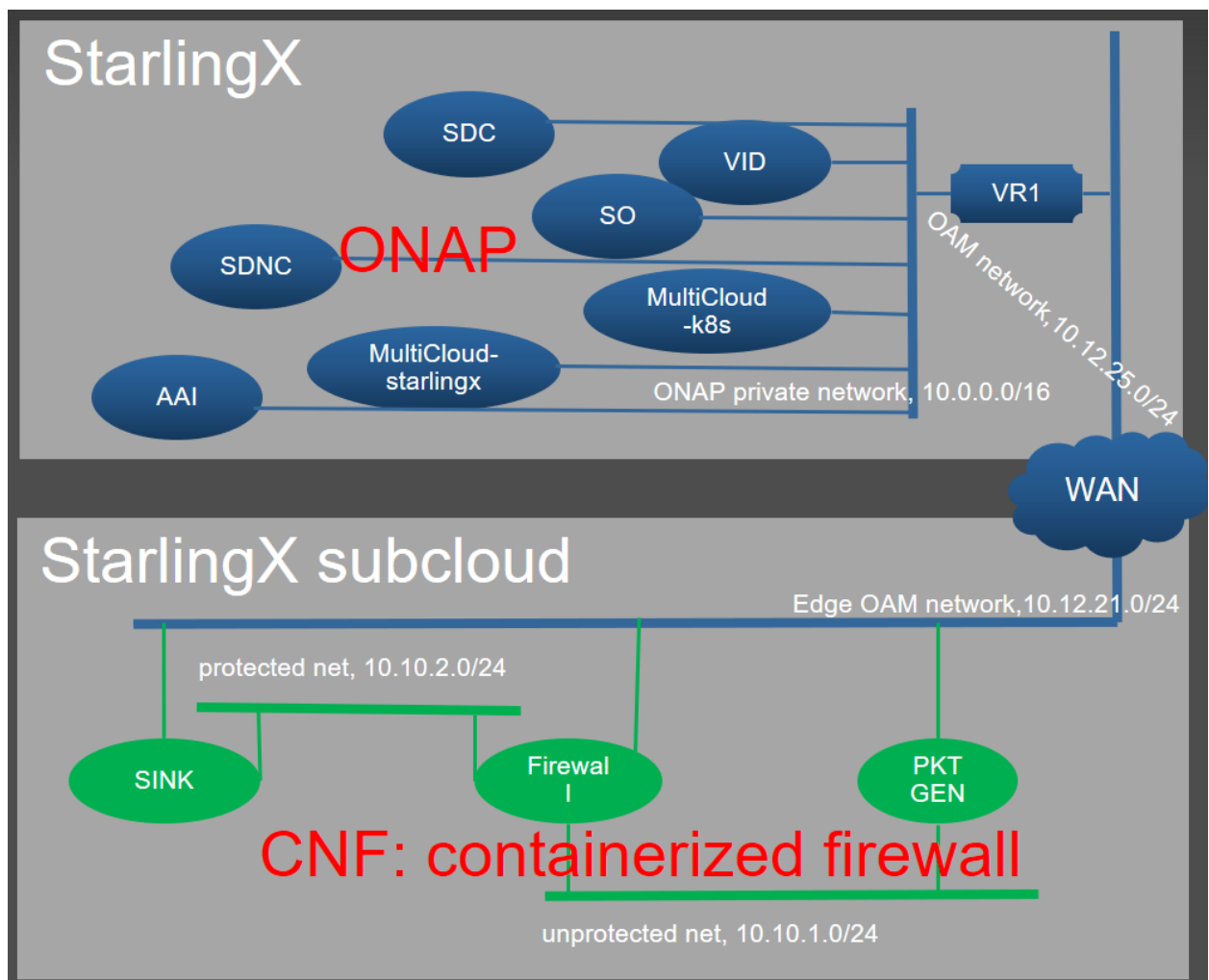
Diagram2: ONAP and cFW components

Use helm to validate the CNF,e.g. cFW:

   $ git clone "https://gerrit.onap.org/r/multicloud/k8s"

$ cd k8s/starlingx/demo

```
$ helm install firewall-sriov -n cfw1
```

To validate of the deployed cFW, monitoring the traffic over SINK pod with your browser (Chrome, Firefox) to open following url (replace NODE_IP with any worker node IP of the STARLINGX instance): http://$NODE_IP:30667/

You should observe traffic diagram likes below:
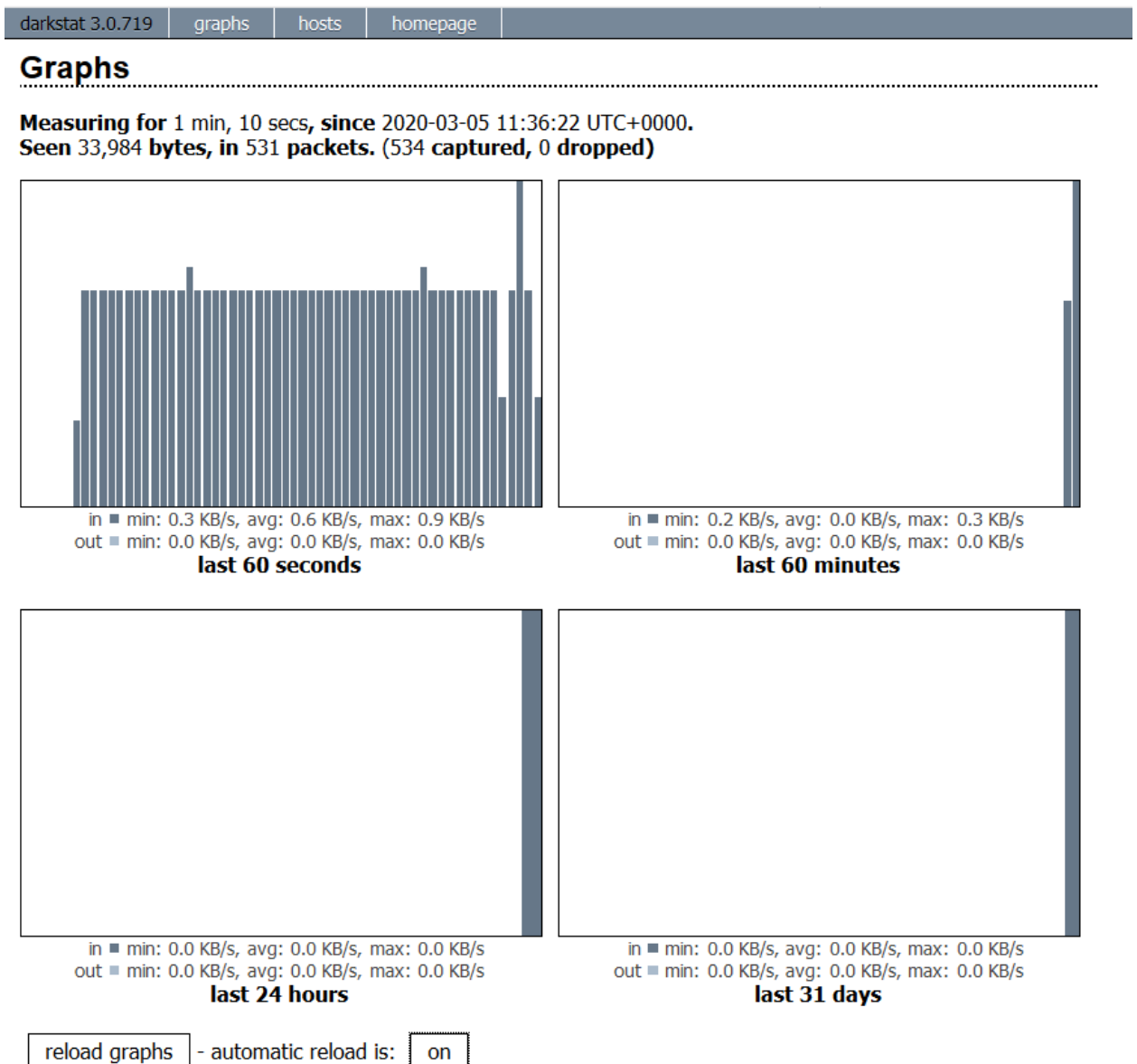
Snapshot 1: sink traffic monitor page

Phase 3: ONAP installation and provisions

Deploy ONAP instance with el alto release, with overrides to update multicloud services

Deploy the ONAP instance over STARLINGX

STARLINGX can also host ONAP. Due to kubernetes version difference , the upstream ONAP oom charts will be updated with following aspects:

1) Change the API versions (for deployment, statefulset, etc.) to "apps/v1".
2) Use StorageClass "nfs" (by stable/nfs-server-provisioner) for PVC requiring ReadWriteMany access mode.
3) Use default StorageClass "general" (by ceph rbd-provisioner) for PVC without requiring ReadWriteMany access mode.
4) Fixing bug

The changes above introduce so many patches to oom charts, for now, they are maintained over the forked oom repos:

https://github.com/biny993/oom/tree/elalto-starlingx3

https://github.com/biny993/aai-oom/tree/elalto-starlingx3

https://github.com/biny993/testsuite-oom/tree/elalto-starlingx3

Note: The resource usage by ONAP installation with default override values (https://github.com/biny993/oom/blob/elalto-starlingx3/integration-override.yaml) :

CPU: 11 cores; Memory: 32GB, Persistence Volume: 80GB

Step 1) Deploy nfs-server-provisioner

Create ServiceAccount:

    kubectl -n default create sa ben

    kubectl create clusterrolebinding ben-admin --clusterrole cluster-admin --serviceaccount default:ben

Clone the helm charts:

```
git clone https://github.com/helm/charts.git
cd charts
```

Change the default values as below:

```
diff --git a/stable/nfs-server-provisioner/values.yaml b/stable/nfs-server-provisioner/values.yaml
index 6da0e1327..8c75f4788 100644
--- a/stable/nfs-server-provisioner/values.yaml
+++ b/stable/nfs-server-provisioner/values.yaml
@@ -35,7 +35,7 @@ service:
  externalIPs: []

 persistence:
- enabled: false
+ enabled: true

  ## Persistent Volume Storage Class
  ## If defined, storageClassName: <storageClass>
@@ -47,7 +47,7 @@ persistence:
  # storageClass: "-"

  accessMode: ReadWriteOnce
- size: 1Gi
+ size: 180Gi

 ## For creating the StorageClass automatically:
 storageClass:
@@ -77,11 +77,11 @@ storageClass:

 ## For RBAC support:
 rbac:
- create: true
+ create: false

  ## Ignored if rbac.create is true
  ##
- serviceAccountName: default
+ serviceAccountName: ben

 resources: {}
  # limits:
@@ -95,4 +95,13 @@ nodeSelector: {}

 tolerations: []

-affinity: {}
```

```
    +affinity:
    + nodeAffinity:
    +   requiredDuringSchedulingIgnoredDuringExecution:
    +     nodeSelectorTerms:
    +     - matchExpressions:
    +       - key: kubernetes.io/hostname
    +         operator: In
    +         values:
    +         - controller-0
    +         - controller-1
```
now apply the helm charts:
    cd stable
    helm install nfs-server-provisioner --namespace=default --name nfsserver1 -f nfs-server-provisioner/values.yaml

check the storageclass "nfs":

    $ kubectl get pods -n default
    NAME   READY STATUS   RESTARTS AGE
    nfsserver1-nfs-server-provisioner-0   1/1   Running 0   6d14h

    $ kubectl get sc
    NAME   PROVISIONER   AGE
    general (default)   ceph.com/rbd   75d
    nfs   cluster.local/nfsserver1-nfs-server-provisioner 8d

Step 2) Prepare namespace for ONAP deployment

    ### ssh to STARLINGX controller node, perform following commands:

    kubectl create ns onap

    source /etc/platform/openrc

    cat <<EOF > rbd-namespaces.yaml
    classes:
    - additionalNamespaces: [default, kube-public, onap]
      chunk_size: 64
      crush_rule_name: storage_tier_ruleset
      name: general
      pool_name: kube-rbdkube-system
      replication: 1
      userId: ceph-pool-kube-rbd
      userSecretName: ceph-pool-kube-rbd
```

```
EOF

system helm-override-update --values rbd-namespaces.yaml platform-integ-apps rbd-provisioner
kube-system

system application-apply platform-integ-apps
```

Step 3) Deploy ONAP with integration override values

```
### clone the following repo to local host, then copy it to STARLINGX controller node

  git clone --recurse-submodules https://github.com/biny993/oom.git -b elalto-starlingx3

  tar -zcvf oom-elalto-starlingx3.tgz oom
  scp oom-elalto-starlingx3.tgz sysadmin@<STARLINGX OAM IP>:~/

### login to STARLINGX controller node,  perform following command over STARLINGX controller
node
  helm serve &

  tar -zxvf oom-elalto-starlingx3.tgz
   cd oom
   rsync -avt kubernetes/helm/plugins ~/.helm/
   sed -i "/\^enabled:/a\     echo sleep 30s\n     sleep 30s" ~/.helm/plugins/deploy/deploy.sh
   sed -i 's/for subchart in \*/for subchart in aaf cassandra mariadb-galera dmaap */'
  ~/.helm/plugins/deploy/deploy.sh

   cd kubernetes
   make all
   cd ..

   helm deploy dev local/onap -f ./kubernetes/onap/resources/environments/public-cloud.yaml -
  f ./integration-override.yaml --namespace onap

   rsync -avt kubernetes/helm/plugins ~/.helm/
```

Step 4) Verify and checkpoints

check statefulset, all should be ready

```
$ kubectl -n onap get sts
```

check jobs, all should be completed
```
$ kubectl -n onap get jobs.batch
```

Check pods states, all pods should be either in completed or running state, except the following one:

```
$ kubectl -n onap get pod
 dev-aai-aai-graphgraph-67fdb7db7f-p8sxf          0/1    ImagePullBackOff  0      30m
```

Check PVC, all PVC should be in bound state

```
$ kubectl -n onap get pvc
```

Attachement 7: Dump ONAP components status

ONAP provisions: Update SO configurations

(Note, this step can be skipped in case ONAP is deployed with approach 2 above)

----ONAP SO VNF Adapter Rest API endpoint version shall be set to version "v2"

```
$ kubectl -n onap get configmap | grep so-so-bpmn-infra-app-configmap

$ kubectl -n onap edit configmap dev-so-so-bpmn-infra-app-configmap

### in the section "vnf", modify the rest endpoint:

    vnf:

      endpoint: http://so-openstack-adapter.onap:8087/services/VnfAdapter

      rest:

-        endpoint: http://so-openstack-adapter.onap:8087/services/rest/v1/vnfs

+        endpoint: http://so-openstack-adapter.onap:8087/services/rest/v2/vnfs

    volume-groups:

      rest:

        endpoint: http://so-openstack-adapter.onapg:8087/services/rest/v1/volume-groups


$ kubectl get po -n onap |grep bpmn-infra

$ kubectl -n onap delete pod dev-so-so-bpmn-infra-65945c685d-cfw92

### check if pods restarted

$ kubectl -n onap get po | grep so-so
```

ONAP Health Check

$ cd oom/kubernetes/robot/

$ ./ete-k8s.sh onap health

Please refer to the example output of ONAP health check: [Attachment 5: Example output of ONAP Health Check](#)

ONAP provisions: Populate demonstration data

$ cd oom/kubernetes/robot/

$ ./demo-k8s.sh onap init

Now wait about half an hour for completion of the demo data population: [Attachement 6: Example output of populating ONAP demo data](#)

In case of failure of init script, you may need populate necessary data , by curl command, refer to [Tip 2: Postman collections](#) for help curl commands in postman collection: requests 0,1,2,3,4, and populate demo VNFs by: $ ./demo-k8s.sh onap distribute

Access to ONAP portals

Update hosts with following entries: <e.g. assume 10.12.6.76 is a k8s cluster node IP>

10.12.6.76 portal.api.simpledemo.onap.org

10.12.6.76 vid.api.simpledemo.onap.org

10.12.6.76 sdc.api.fe.simpledemo.onap.org

10.12.6.76 sdc.api.be.simpledemo.onap.org

10.12.6.76 sdc.workflow.plugin.simpledemo.onap.org

10.12.6.76 sdc.dcae.plugin.simpledemo.onap.org

10.12.6.76 portal-sdk.simpledemo.onap.org

10.12.6.76 policy.api.simpledemo.onap.org

10.12.6.76 aai.api.sparky.simpledemo.onap.org

10.12.6.76 cli.api.simpledemo.onap.org

10.12.6.76 msb.api.discovery.simpledemo.onap.org

10.12.6.76 msb.api.simpledemo.onap.org

10.12.6.76 clamp.api.simpledemo.onap.org

10.12.6.76 so.api.simpledemo.onap.org

10.12.6.76 sdnc.api.simpledemo.onap.org

10.12.6.76 so-monitoring

Use a browser (Chrome, Firefox) to open the following URL, and input username/password:

https://portal.api.simpledemo.onap.org:30225/ONAPPORTAL/login.htm

Here is the list of users with roles, passwords defaults to "demo123456!":

Role	User ID	Password	
designer	cs0008	demo123456!	
tester	jm0007	demo123456!	
governance Rep	gv0001	demo123456!	
ops	op0001	demo123456!	
admin	demo	demo123456!	

Note 1: The first time to access applications of ONAP portal might end up with certification error, to workaround that, you need browse the following urls and add them as security exceptions.

1, https://sdc.api.fe.simpledemo.onap.org:30207/sdc1/portal#!/adminDashboard

2, https://vid.api.simpledemo.onap.org:30200/vid/welcome.htm

Note 2: in case that so-monitoring GUI fails to show up, use browser to open the following url directly:
http://so-monitoring:30224/

Phase 4: Register STARLINGX instance to ONAP

Registering STARLINGX to ONAP demands following information and multiple manual steps via curl command or postman:

- Keystone endpoint URL for OpenStack API access, along with Project(Tenant) name, Domain name, User ID, Password
- Tiller endpoint URL and Service account Token for Kubernetes API access
- Figure out a cloud region ID, e.g. Cloud Owner = WRCP2, Cloud Region ID = STXRegionOne

Step 1: Create a SO Cloud Site

```
$ kubectl -n onap get pod | grep mariadb-galera

$ kubectl -n onap exec -ti dev-mariadb-galera-mariadb-galera-0 sh

        mysql --user=so_admin --password=so_Admin123

        USE catalogdb

        select * from cloud_sites;

        INSERT INTO cloud_sites(ID, REGION_ID, IDENTITY_SERVICE_ID, CLOUD_VERSION, CLLI,
ORCHESTRATOR) values("STXRegionOne", "STXRegionOne", "DEFAULT_KEYSTONE", "2.5",
"My_Complex", "multicloud");

        select * from cloud_sites;

        quit

$ exit
```

Step 2: Create an AAI Cloud Region along with complex

Post following RestAPI to Create AAI Complex :

```
$ curl -X PUT \

https://aai.api.sparky.simpledemo.onap.org:30233/aai/v16/cloud-
infrastructure/complexes/complex/My_Complex \
```

```
-H 'Accept: application/json' \

-H 'Authorization: Basic QUFJOkFBSQ==' \

-H 'Cache-Control: no-cache' \

-H 'Content-Type: application/json' \

-H 'Real-Time: true' \

-H 'X-FromAppId: jimmy-postman' \

-H 'X-TransactionId: 9999' \

-d '{

 "physical-location-id": "My_Complex",

 "data-center-code": "example-data-center-code-val-5556",

 "complex-name": "My_Complex",

 "identity-url": "example-identity-url-val-56898",

 "physical-location-type": "example-physical-location-type-val-7608",

 "street1": "example-street1-val-34205",

 "street2": "example-street2-val-99210",

 "city": "Beijing",

 "state": "example-state-val-59487",

 "postal-code": "100000",

 "country": "example-country-val-94173",

 "region": "example-region-val-13893",

 "latitude": "39.9042",

 "longitude": "106.4074",

 "elevation": "example-elevation-val-30253",

 "lata": "example-lata-val-46073"

}' –k
```

For **standalone** STARLINGX instance (compared to sub-cloud of STARLINGX Distributed Cloud), post following RestAPI request to ONAP MSB endpoint via curl command or postman (replace those placeholder marked by <>):

```
$ CLOUD_OWNER=WRCP2

$ CLOUD_REGIONID=STXRegionOne

$ curl -X PUT \

https://aai.api.sparky.simpledemo.onap.org:30233/aai/v16/cloud-infrastructure/cloud-regions/cloud-region/${CLOUD_OWNER}/${CLOUD_REGIONID} \

-H 'Accept: application/json' \

-H 'Authorization: Basic QUFJOkFBSQ==' \

-H 'Cache-Control: no-cache' \

-H 'Content-Type: application/json' \

-H 'Postman-Token: 8b9b95ae-91d6-4436-90fa-69cb4d2db99c' \

-H 'Real-Time: true' \

-H 'X-FromAppId: jimmy-postman' \

-H 'X-TransactionId: 9999' \

-d '{

  "cloud-owner": "WRCP2",

  "cloud-region-id": "STXRegionOne",

  "cloud-type": "openstack",

  "owner-defined-type": "t1",

  "cloud-region-version": "starlingx",

  "complex-name": "My_Complex",

  "cloud-zone": "CloudZone",

  "sriov-automation": false,

  "identity-url": "",
```

"cloud-extra-info":"{\"openstack-region-id\":\"RegionOne\",\"k8s-apiserver\":\"https://<starlingx controller IP>:6443\",\"k8s-apitoken\":\"<service account token>\"}",

    "relationship-list": {

      "relationship": [

        {

          "related-to": "complex",

          "relationship-label": "org.onap.relationships.inventory.LocatedIn",

          "related-link": "/aai/v16/cloud-infrastructure/complexes/complex/My_Complex",

          "relationship-data": [

            {

              "relationship-key": "complex.physical-location-id",

              "relationship-value": "My_Complex"

            }

          ]

        }

      ]

    },

  "esr-system-info-list": {

    "esr-system-info": [

      {

        "esr-system-info-id": "55f97d59-6cc3-49df-8e69-926565f00055",

        "service-url": "http://<starlingx controller IP>:5000/v3",

        "user-name": "<OpenStack username>",

        "password": "<Openstack user pass>",

        "system-type": "VIM",

        "ssl-insecure": true,

        "cloud-domain": "Default",

```
            "default-tenant": "<OpenStack Project/Tenant name, e.g. onap-sb-01>"

        }

    ]

  }

}' -k
```

For **sub-cloud** of STARLINGX Distributed Cloud, post following RestAPI request to ONAP MSB endpoint via curl command or postman (replace those placeholder marked by <>):

```
CLOUD_OWNER=WRCP2

CLOUD_REGIONID=STXRegionOne

OPENSTACK_REGIONID=Alameda-0000


curl -X PUT \

https://aai.api.sparky.simpledemo.onap.org:30233/aai/v16/cloud-infrastructure/cloud-regions/cloud-region/${CLOUD_OWNER}/${CLOUD_REGIONID} \

-H 'Accept: application/json' \

-H 'Authorization: Basic QUFJOkFBSQ==' \

-H 'Cache-Control: no-cache' \

-H 'Content-Type: application/json' \

-H 'Postman-Token: 8b9b95ae-91d6-4436-90fa-69cb4d2db99c' \

-H 'Real-Time: true' \

-H 'X-FromAppId: jimmy-postman' \

-H 'X-TransactionId: 9999' \

-d '{

    "cloud-owner": "WRCP2",

    "cloud-region-id": "STXRegionOne",

    "cloud-type": "openstack",
```

    "owner-defined-type": "t1",

    "cloud-region-version": "starlingx",

    "complex-name": "My_Complex",

    "cloud-zone": "CloudZone",

    "sriov-automation": false,

    "identity-url": "",

     "cloud-extra-info":"{\"openstack-region-id\":\"Alameda-0000\",\"k8s-apiserver\":\"https://<starlingx sub-cloud public OAM IP>:6443\",\"k8s-apitoken\":\"<service account token>\",\"isystem\": {\"software_version\": \"19.12\"} }",

      "relationship-list": {

         "relationship": [

            {

               "related-to": "complex",

               "relationship-label": "org.onap.relationships.inventory.LocatedIn",

               "related-link": "/aai/v16/cloud-infrastructure/complexes/complex/My_Complex",

               "relationship-data": [

                  {

                     "relationship-key": "complex.physical-location-id",

                     "relationship-value": "My_Complex"

                  }

               ]

            }

         ]

   },

"esr-system-info-list": {

   "esr-system-info": [

      {

        "esr-system-info-id": "55f97d59-6cc3-49df-8e69-926565f00055",

```
        "service-url": "http://<System Controller public OAM IP>:5000/v3",

        "user-name": "<OpenStack username>",

        "password": "<Openstack user pass>",

        "system-type": "VIM",

        "ssl-insecure": true,

        "cloud-domain": "Default",

        "default-tenant": "<OpenStack Project/Tenant name, e.g. onap-sb-01>"

      }

    ]

  }

}' -k
```

Step 3: Trigger MultiCloud registration process:

```
$ curl -X POST \

https://msb.api.discovery.simpledemo.onap.org:30283/api/multicloud-
starlingx/v1/${CLOUD_OWNER}/${CLOUD_REGIONID}/registry \

-H 'Accept: application/json' \

-H 'Cache-Control: no-cache' \

-H 'Content-Type: application/json' -k
```

Step 4: associate subscription with Cloud Region

Create Customer if necessary (e.g. democustomer1) :

```
      $ curl -k --location --request PUT
'https://aai.api.sparky.simpledemo.onap.org:30233/aai/v16/business/customers/customer/democustomer1'
\

      --header 'Authorization: Basic QUFJOkFBSQ==' \

      --header 'X-FromAppId: AAI' \
```

```
--header 'Accept: application/json' \

--header 'Content-Type: application/json' \

--header 'X-TransactionId: 808b54e3-e563-4144-a1b9-e24e2ed93d4f' \

--data-raw '{

    "global-customer-id": "democustomer1",

    "subscriber-name": "democustomer1",

    "subscriber-type": "INFRA"

}'
```

Step 4: Add service type "cfw-k8s":

```
$ curl -k --location --request PUT 'https://aai.api.sparky.simpledemo.onap.org:30233/aai/v16/service-design-
and-creation/services/service/cfw-k8s' \

        --header 'Authorization: Basic QUFJOkFBSQ==' \

        --header 'X-FromAppId: AAI' \

        --header 'Accept: application/json' \

        --header 'X-TransactionId: 808b54e3-e563-4144-a1b9-e24e2ed93d4f' \

        --header 'Content-Type: application/json' \

        --data-raw '{

        "service-id": "cfw-k8s",

        "service-description": "cfw-k8s"

        }'


        $ curl -k --location --request PUT
'https://aai.api.sparky.simpledemo.onap.org:30233/aai/v16/business/customers/customer/democustomer1/
service-subscriptions/service-subscription/cfw-k8s' \

        --header 'Authorization: Basic QUFJOkFBSQ==' \

        --header 'X-FromAppId: AAI' \
```

```
--header 'Accept: application/json' \

--header 'Content-Type: application/json' \

--header 'X-TransactionId: 808b54e3-e563-4144-a1b9-e24e2ed93d4f' \

--data-raw '{

  "service-id": "cfw-k8s"

}'
```

Step 5: Associate subscription to Cloud Region:

```
$ curl -k --location --request PUT
'https://aai.api.sparky.simpledemo.onap.org:30233/aai/v16/business/customers/customer/democustomer1/
service-subscriptions/service-subscription/cfw-k8s/relationship-list/relationship' \

--header 'Authorization: Basic QUFJOkFBSQ==' \

--header 'X-FromAppId: AAI' \

--header 'Accept: application/json' \

--header 'Content-Type: application/json' \

--header 'X-TransactionId: 808b54e3-e563-4144-a1b9-e24e2ed93d4f' \

--data-raw '{

  "related-to": "tenant",

  "related-link": "/aai/v16/cloud-infrastructure/cloud-regions/cloud-
region/WRCP2/STXRegionOne/tenants/tenant/fd32fdd20ff5467ebef2de63468eb2e4",

  "relationship-data": [

    {

      "relationship-key": "cloud-region.cloud-owner",

      "relationship-value": "WRCP2"

    },

    {

      "relationship-key": "cloud-region.cloud-region-id",
```

```
          "relationship-value": "STXRegionOne"

      },

      {

          "relationship-key": "tenant.tenant-id",

          "relationship-value": "fd32fdd20ff5467ebef2de63468eb2e4"

      }

    ],

    "related-to-property": [

      {

          "property-key": "tenant.tenant-name",

          "property-value": "onap-sb-01"

      }

    ]

}'
```

Phase 5: CNF onboarding and service design

Refer to Phase 2, which develops and validates the CNF (cFW in this case), the following steps should be followed to onboard it to ONAP for service design.

Step 1: create a tar ball for the CNF helm chart

```
$ cd k8s/starlingx/demo

$ CNF_NAME=" cfwsriov1"

$ CNF_ARTIFACT_NAME="${CNF_NAME}_cloudtech_k8s_charts.tgz"

$ tar -czvf $CNF_ARTIFACT_NAME    firewall-sriov/
```

Step 2: Wrap helm chart tar ball into a dummy heat template artifact

Copy the attachment files here: base_dummy.yaml , base_dummy.env
then apply following commands:

```
$ cat <<EOF> MANIFEST.json

{

  "name": "",

  "description": "",

  "data": [

    {

      "file": "base_dummy.yaml",

      "type": "HEAT",

      "isBase": "true",

      "data": [

        {
```

```
          "file": "base_dummy.env",

            "type": "HEAT_ENV"

        }

      ]

    },

    {

      "file": "$CNF_ARTIFACT_NAME",

      "type": "CLOUD_TECHNOLOGY_SPECIFIC_ARTIFACTS"

    }

  ]

}

EOF
```

```
$ zip ${CNF_NAME}_vsp.zip base_dummy.env base_dummy.yaml MANIFEST.json $CNF_ARTIFACT_NAME
```

Now you have the VSP artifact named 'cfwsriov1_vsp.zip' ready for onboarding to SDC

Step 3: Onboard the VSP artifact 'cfwsriov1_vsp.zip' into ONAP SDC

Browser open URL: https://portal.api.simpledemo.onap.org:30225/ONAPPORTAL/login.htm

Open SDC application from ONAP portal, onboard the artifact "cfwsriov1_vsp.zip" as VSP, import it as a VF 'Cfwsriov1' (follow the instructions: https://docs.onap.org/en/elalto/guides/onap-user/design/vfcreation/index.html) .

Create Service 'cfwsvc1' and add the VF 'cfwsriov1'', test the service model, approve it, and distribute it (follow the instructions: https://docs.onap.org/en/elalto/guides/onap-user/design/service-design/index.html).

Phase 6: Service Instantiation hence CNF instantiation and validation

Once the service 'cfwsvc1' is distributed, you can instantiate it through VID application of ONAP portal.

Refer to https://docs.onap.org/en/elalto/submodules/vid.git/docs/instantiate.html for detailed instruction

Step 1, Create service instance

Create service instance 'cfw1' from service model 'cfwsvc1', make sure you select "VNF_API(old)" from the VID index page,

Then browse Service Models, select "cfwsvc1", click "deploy" button, assign name with 'cfw1'

Step 2, Add node instance 'cfw1vf1' for service instance 'cfw1'

Add node instance 'cfw1vf1' for service instance 'cfw1', click the menu "add node instance" to add generic vnf: 'cfw1vf1': input the generic vnf name, select the cloud region: WRCP2_STXRegion, and the tenant 'onap-sb-01', then click confirm button , wait for its completion

Step 3, Preload VNF topology

Preload VNF topology for VF Module 'cfw1vf1vfmsriov1' via curl command or postman

```
$ curl -k --location --request POST
'https://sdnc.api.simpledemo.onap.org:30267/restconf/operations/VNF-API:preload-vnf-topology-operation'
\
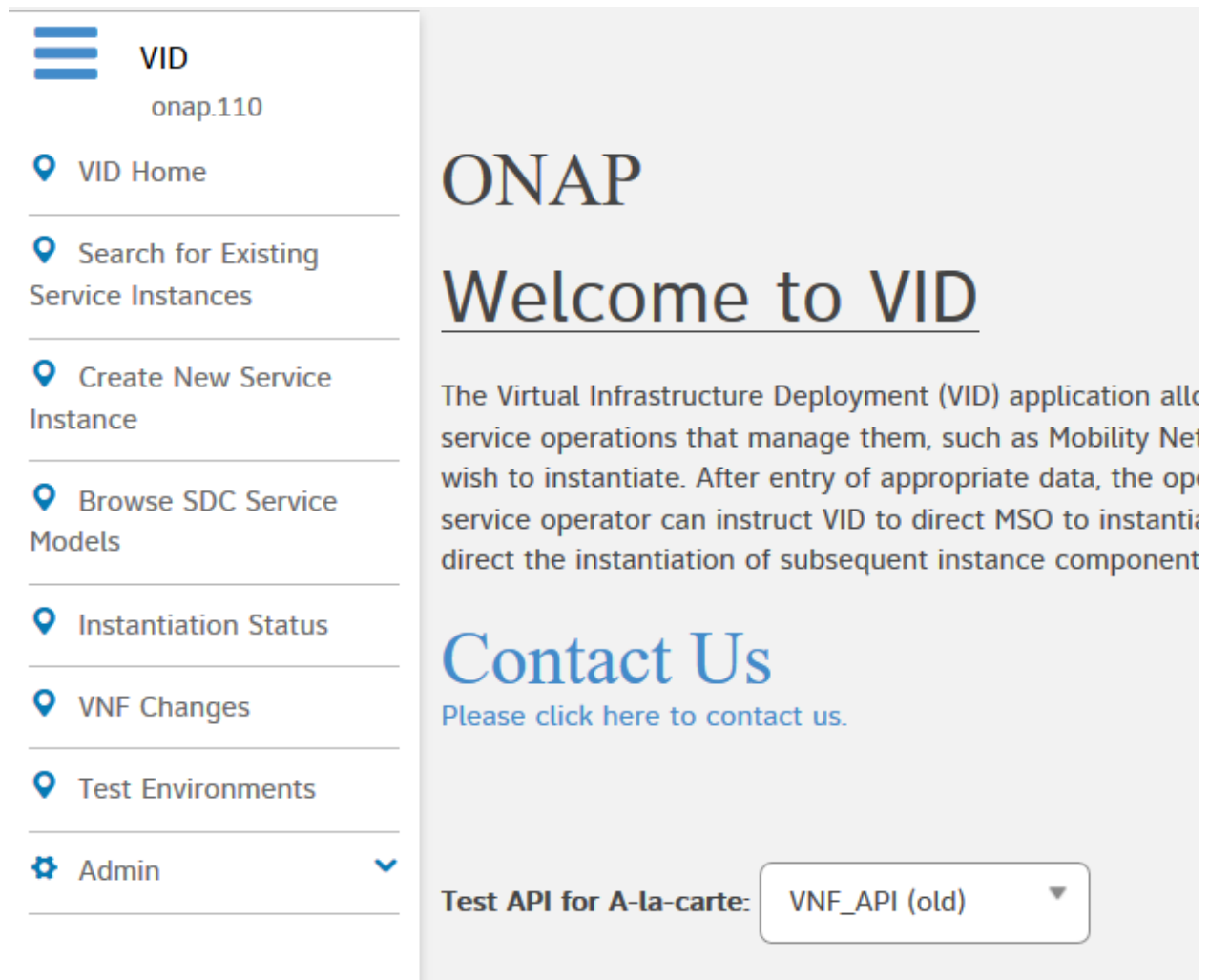
        --header 'Accept: application/json' \

        --header 'Content-Type: application/json' \

        --header 'X-TransactionId: 0a3f6713-ba96-4971-a6f8-c2da85a3176e' \

        --header 'X-FromAppId: API client' \

        --header 'Authorization: Basic
YWRtaW46S3A4Yko0U1hzek0wV1hsaGFrM2VIbGNzZTJnQXc4NHZhb0dHbUp2VXkyVQ==' \

        --data-raw '{

          "input": {

            "request-information": {

              "notification-url": "onap.org",

              "order-number": "1",

              "order-version": "1",

              "request-action": "PreloadVNFRequest",

              "request-id": "test"

            },

            "sdnc-request-header": {

              "svc-action": "reserve",

              "svc-notification-url": "http:\/\/onap.org:8080\/adapters\/rest\/SDNCNotify",

              "svc-request-id": "test"
```

```
            },

        "vnf-topology-information": {

            "vnf-assignments": {

                "availability-zones": [],

                "vnf-networks": [],

                "vnf-vms": []

            },

            "vnf-parameters": [],

            "vnf-topology-identifier": {

                "generic-vnf-name": "cfw1vf1",

                "generic-vnf-type": "cfwsvc1/cfwsriov1 0",

                "service-type": "4ed97904-f3bc-48d9-a729-561dd9f83262",

                "vnf-name": " cfw1vf1vfmsriov1'",

                "vnf-type": "Cfwsriov1..base_dummy..module-0"

            }

        }

      }

    }'
```

Check the following example about how to populate the VNF topology request body:

Snapshot 3: populate VNF Topology request data, generic VNF and service type

Snapshot 4: populate VNF Topology request data, VF module part

Note, do not click "Confirm" button until runs to step 5 below.

Step 4, prepare supplement data file

Prepare override_values.yaml which override the helm charts' values, encode the file content and put it into supplemental1.json for VF Module 'cfw1vf1vfmsriov1'

```
$ cat << EOF > override_values.yaml

global:
```

```yaml
      unprotectedNetProviderVlan: 29

      protectedNetProviderVlan: 30

      nodeAffinity:

        - label:

            labelkey: sriovdp

            op: In

            labelvalues:

              - enabled

        - label:

            labelkey:  kube-cpu-mgr-policy

            op: In

            labelvalues:

              - static

EOF
```

```
$ OVERRIDE_VALUES_YAML_BASE64=`cat override_values.yaml | base64 -w 0`
```

```
$ cat <<EOF > supplemental1.json
[
 {
   "name": "definition-name",
   "value": "Cfwsriov1..base_dummy..module-0"
 },
 {
   "name": "definition-version",
   "value": "1"
 },
```

```
    {

      "name": "profile-name",

      "value": "p1"

    },

    {

      "name": "template_type",

      "value": "heat"

    },

    {

      "name": "override_values_yaml_base64",

      "value": "$OVERRIDE_VALUES_YAML_BASE64"

    }

  ]

  EOF
```

Step 5, Add VF Module

Add VF Module 'cfw1vf1vfmsriov1' for node instance 'cfw1vf1'

From the popup dialog window, input the VF module name, select the cloud region: WRCP2_STXRegion, and the tenant 'onap-sb-01', check on the following options:

- SDN-C Pre-Lload
- Upload Supplementary Data file

Then upload the file 'supplemental1.json', click "confirm" button to start the VF module creation process and wait for its completion. This process will orchestrate cFW helm charts to STARLINGX instance. Hence you can check if the workload is deployed over STARLINGX instance with kubectl commands as well.

Step 6: validate the CNF deployment

Execute kubectl to check if deployments are there, check the pods status

```
$ kubectl get deployments -o wide --all-namespaces |grep firewall
```

```
$ kubectl get pods -o wide --all-namespaces |grep firewall
```

Monitor the traffic over SINK pod via browser: http://$NODE_IP:30667/ , you should observe the traffic statistics from the page. Refer to snapshot 1 for details.

Phase 7: Service deletion hence CNF deletion

With VID application GUI, Navigate to the deployed service instance 'cfw1' , delete VF module first, then delete node instance, then delete service.

Attachments

Attachment 1: integration-override.yaml

```yaml
global:

  repository: nexus3.onap.org:10001

  pullPolicy: IfNotPresent

robot:

  enabled: true

  flavor: large

  appcUsername: "appc@appc.onap.org"

  appcPassword: "demo123456!"

  openStackKeyStoneUrl: "<keystone endpoint, e.g. http://10.12.25.2:5000>"

  openStackPublicNetId: "<tenant network UUID for public access,e.g. 971040b2-7059-49dc-b220-
4fab50cb2ad4>"

  openStackTenantId: "<tenant ID of openstack user, e.g. 0e148b76ee8c42f78d37013bf6b7b1ae>"

  openStackUserName: "<tenant username, e.g. demo>"

  openStackUserDomain: "Default"

  openStackProjectName: "VIM"

  ubuntu14Image: "<glance image name for ubuntu14, e.g. ubuntu-14-04-cloud-amd64>"

  ubuntu16Image: "<glance image name for ubuntu16, e.g. ubuntu-16-04-cloud-amd64>"

  openStackPrivateNetId: "eda70926-a53f-458c-a621-40a64e72643d"

  openStackPrivateSubnetId: "4ef0889a-406f-488b-934e-52b3ad6aef3a"

  openStackPrivateNetCidr: "10.0.0.0/16"

  openStackSecurityGroup: "aa534410-959e-4c40-9480-b3ae5ec1d8d8"

  openStackOamNetworkCidrPrefix: "10.0"

  dcaeCollectorIp: "10.12.6.149"

  kubernetesExternalIp: "10.12.6.149"

  vnfPubKey: "<public key for ssh access to vnf>"
```

```yaml
demoArtifactsVersion: "1.6.0-SNAPSHOT"

demoArtifactsRepoUrl: "https://nexus.onap.org/content/repositories/releases"

scriptVersion: "1.6.0-SNAPSHOT"

nfsIpAddress: "10.12.6.253"

config:

  openStackEncryptedPasswordHere: "bbaef6cd76625ab9eb60deedeae7dbb9"

  openStackSoEncryptedPassword: ""

so:

  enabled: true

  so-catalog-db-adapter:

    config:

      openStackUserName: "<tenant username, e.g. demo>"

      openStackKeyStoneUrl: "<keystone endpoint, e.g. http://10.12.25.2:5000>"

      openStackEncryptedPasswordHere: ""

  so-bpmn-infra:

    config:

appc:

  enabled: true

  replicaCount: 3

  config:

    enableClustering: true

    openStackType: "OpenStackProvider"

    openStackName: "OpenStack"

    openStackKeyStoneUrl: "<keystone endpoint, e.g. http://10.12.25.2:5000/v2.0>"

    openStackServiceTenantName: "VIM"

    openStackDomain: "Default"

    openStackUserName: "<tenant username, e.g. demo>"
```

```yaml
      openStackEncryptedPassword: "<tenant user password>"
  mariadb-galera:
    liveness:
      initialDelaySeconds: 180
      periodSeconds: 60
sdnc:
  enabled: true
  replicaCount: 3
  config:
    enableClustering: true
  mariadb-galera:
    liveness:
      initialDelaySeconds: 180
      periodSeconds: 60
aai:
  enabled: true
  liveness:
    initialDelaySeconds: 120
  aai-data-router:
    liveness:
      initialDelaySeconds: 120
  aai-sparky-be:
    liveness:
      initialDelaySeconds: 120
  aai-spike:
    liveness:
      initialDelaySeconds: 120
```

```yaml
  aai-cassandra:
    replicaCount: 3
    liveness:
      periodSeconds: 120
    readiness:
      periodSeconds: 60
portal:
  enabled: true
  portal-cassandra:
    liveness:
      periodSeconds: 120
    readiness:
      periodSeconds: 60
vid:
  enabled: true
aaf:
  enabled: true
cassandra:
  enabled: true
  liveness:
    periodSeconds: 120
  readiness:
    periodSeconds: 60
clamp:
  enabled: true
cli:
  enabled: true
```

```yaml
consul:
  enabled: true
contrib:
  enabled: true
dcaegen2:
  enabled: false
dmaap:
  enabled: true
  dmaap-dr-prov:
    mariadb:
      liveness:
        initialDelaySeconds: 180
        periodSeconds: 60
esr:
  enabled: true
log:
  enabled: false
  log-logstash:
    replicaCount: 1
sniro-emulator:
  enabled: true
oof:
  enabled: true
  oof-has:
    music:
      music-cassandra:
        replicaCount: 3
```

```yaml
        liveness:

          periodSeconds: 120

        readiness:

          periodSeconds: 60

    music-tomcat:

      replicaCount: 1

mariadb-galera:

  enabled: true

  liveness:

    initialDelaySeconds: 180

    periodSeconds: 60

modeling:

  enabled: true

  mariadb-galera:

    liveness:

      initialDelaySeconds: 180

      periodSeconds: 60

msb:

  enabled: true

multicloud:

  enabled: true

  image: onap/multicloud/framework:1.5.1

  multicloud-starlingx:

    image: onap/multicloud/openstack-starlingx:1.5.5

  multicloud-k8s:

    image: onap/multicloud/k8s:0.5.0

nbi:
```

```yaml
    enabled: false

policy:

  enabled: true

pomba:

  enabled: false

sdc:

  enabled: true

  sdc-cs:

    liveness:

      periodSeconds: 120

    readiness:

      periodSeconds: 60

  sdc-be:

    liveness:

      initialDelaySeconds: 120

      periodSeconds: 120

      timeoutSeconds: 15

    readiness:

      initialDelaySeconds: 120

      periodSeconds: 120

      timeoutSeconds: 15

  sdc-fe:

    livenessProbe:

      initialDelaySeconds: 120

      periodSeconds: 120

      timeoutSeconds: 15

    readinessProbe:
```

```
      initialDelaySeconds: 120

      periodSeconds: 120

      timeoutSeconds: 15

uui:

  enabled: false

vfc:

  enabled: false

  mariadb-galera:

    liveness:

      initialDelaySeconds: 180

      periodSeconds: 60

vnfsdk:

  enabled: false

cds:

  enabled: true
```

Attachment 2: onap-oom-lite.env

```
parameters:


  ubuntu_1804_image: <glance image name for ubuntu16, e.g. ubuntu-18.04>


  apt_proxy: ""

  docker_proxy: nexus3.onap.org:10001


  nfs_vm_flavor: m1.lm.xlarge

  k8s_vm_flavor: m1.lm.xlarge
```

orch_vm_flavor: m1.lm.medium

public_net_id: <tenant network UUID for public access,e.g. 971040b2-7059-49dc-b220-4fab50cb2ad4>

oam_network_cidr: 10.0.0.0/16

oam_ext_network_cidr: 10.100.0.0/16

integration_gerrit_branch: master

helm_deploy_delay: 30s

integration_override_yaml: >
 global:
  repository: __docker_proxy__
  pullPolicy: IfNotPresent
 robot:
  enabled: true
  flavor: large
  appcUsername: "appc@appc.onap.org"
  appcPassword: "demo123456!"
  openStackKeyStoneUrl: "<keystone endpoint, e.g. http://10.12.25.2:5000>"
  openStackPublicNetId: "__public_net_id__"
  openStackTenantId: "${OS_PROJECT_ID}"
  openStackUserName: "${OS_USERNAME}"
  openStackUserDomain: "${OS_USER_DOMAIN_NAME}"
  openStackProjectName: "${OS_PROJECT_NAME}"
  ubuntu14Image: "<glance image name for ubuntu14, e.g. ubuntu-14-04-cloud-amd64>"

```yaml
ubuntu16Image: "<glance image name for ubuntu16, e.g. ubuntu-16-04-cloud-amd64>"

openStackPrivateNetId: "__oam_network_id__"

openStackPrivateSubnetId: "__oam_subnet_id__"

openStackPrivateNetCidr: "__oam_network_cidr__"

openStackSecurityGroup: "__sec_group__"

openStackOamNetworkCidrPrefix: "10.0"

dcaeCollectorIp: "__k8s_01_vm_ip__"

kubernetesExternalIp: "__k8s_01_vm_ip__"

vnfPubKey: "<public key for ssh access to vnf>"

demoArtifactsVersion: "1.6.0-SNAPSHOT"

demoArtifactsRepoUrl: "https://nexus.onap.org/content/repositories/releases"

scriptVersion: "1.6.0-SNAPSHOT"

nfsIpAddress: "__nfs_ip_addr__"

config:

  openStackEncryptedPasswordHere: "${OS_PASSWORD_ENCRYPTED_FOR_ROBOT}"

  openStackSoEncryptedPassword: "${OS_PASSWORD_ENCRYPTED}"

so:

 enabled: true

 so-catalog-db-adapter:

  config:

   openStackUserName: "${OS_USERNAME}"

   openStackKeyStoneUrl: "<keystone endpoint, e.g. http://10.12.25.2:5000/v2.0>"

   openStackEncryptedPasswordHere: "${OS_PASSWORD_ENCRYPTED}"

appc:

 enabled: true

 replicaCount: 3

 config:
```

```yaml
      enableClustering: true

      openStackType: "OpenStackProvider"

      openStackName: "OpenStack"

      openStackKeyStoneUrl: "<keystone endpoint, e.g. http://10.12.25.2:5000/v2.0>"

      openStackServiceTenantName: "${OS_PROJECT_NAME}"

      openStackDomain: "${OS_USER_DOMAIN_NAME}"

      openStackUserName: "${OS_USERNAME}"

      openStackEncryptedPassword: "${OS_PASSWORD}"

    mariadb-galera:

     liveness:

       initialDelaySeconds: 180

       periodSeconds: 60

 sdnc:

   enabled: true

   replicaCount: 3

   config:

     enableClustering: true

   mariadb-galera:

    liveness:

      initialDelaySeconds: 180

      periodSeconds: 60

 aai:

   enabled: true

   liveness:

     initialDelaySeconds: 120

   aai-data-router:

    liveness:
```

```yaml
      initialDelaySeconds: 120
    aai-sparky-be:
      liveness:
        initialDelaySeconds: 120
    aai-spike:
      liveness:
        initialDelaySeconds: 120
    aai-cassandra:
      replicaCount: 3
      liveness:
        periodSeconds: 120
      readiness:
        periodSeconds: 60
portal:
  enabled: true
  portal-cassandra:
    liveness:
      periodSeconds: 120
    readiness:
      periodSeconds: 60
vid:
  enabled: true
aaf:
  enabled: true
cassandra:
  enabled: true
  liveness:
```

```yaml
      periodSeconds: 120
    readiness:
      periodSeconds: 60
clamp:
  enabled: true
cli:
  enabled: true
consul:
  enabled: true
contrib:
  enabled: true
dcaegen2:
  enabled: false
dmaap:
  enabled: true
  dmaap-dr-prov:
    mariadb:
      liveness:
        initialDelaySeconds: 180
        periodSeconds: 60
esr:
  enabled: true
log:
  enabled: false
  log-logstash:
    replicaCount: 1
sniro-emulator:
```

```yaml
    enabled: true
  oof:
   enabled: true
   oof-has:
    music:
      music-cassandra:
       replicaCount: 3
       liveness:
         periodSeconds: 120
       readiness:
         periodSeconds: 60
      music-tomcat:
       replicaCount: 1
  mariadb-galera:
   enabled: true
   liveness:
     initialDelaySeconds: 180
     periodSeconds: 60
  modeling:
   enabled: true
   mariadb-galera:
    liveness:
      initialDelaySeconds: 180
      periodSeconds: 60
  msb:
   enabled: true
  multicloud:
```

```yaml
    enabled: true

    image: onap/multicloud/framework:1.5.1

    multicloud-starlingx:

      image: onap/multicloud/openstack-starlingx:1.5.5

    multicloud-k8s:

      image: onap/multicloud/k8s:0.5.0

nbi:

  enabled: false

policy:

  enabled: true

pomba:

  enabled: false

sdc:

  enabled: true

  sdc-cs:

    liveness:

      periodSeconds: 120

    readiness:

      periodSeconds: 60

  sdc-be:

    liveness:

      initialDelaySeconds: 120

      periodSeconds: 120

      timeoutSeconds: 15

    readiness:

      initialDelaySeconds: 120

      periodSeconds: 120
```

```
      timeoutSeconds: 15

  sdc-fe:

   livenessProbe:

     initialDelaySeconds: 120

     periodSeconds: 120

     timeoutSeconds: 15

   readinessProbe:

     initialDelaySeconds: 120

     periodSeconds: 120

     timeoutSeconds: 15

 uui:

  enabled: false

 vfc:

  enabled: false

  mariadb-galera:

   liveness:

     initialDelaySeconds: 180

     periodSeconds: 60

 vnfsdk:

  enabled: false

 cds:

  enabled: true
```

Attachment 3: base_dummy.yaml

#================LICENSE_START===

heat_template_version: 2016-10-14

description: Heat template to deploy dummy VNF

parameters:

 dummy_name_0:

  type: string

  label: name of vm

  description: Dummy name

 vnf_id:

  type: string

  label: id of vnf

  description: Provided by ONAP

 vnf_name:

  type: string

  label: name of vnf

  description: Provided by ONAP

 vf_module_id:

  type: string

```
    label: vnf module id

    description: Provided by ONAP


  dummy_image_name:

    type: string

    label: Image name or ID

    description: Dummy image name


  dummy_flavor_name:

    type: string

    label: flavor

    description: Dummy flavor


resources:

 dummy_0:

  type: OS::Nova::Server

  properties:

   name: { get_param: dummy_name_0 }

   image: { get_param: dummy_image_name }

   flavor: { get_param: dummy_flavor_name }

   metadata: { vnf_name: { get_param: vnf_name }, vnf_id: { get_param: vnf_id }, vf_module_id:
{ get_param: vf_module_id }}
```

Attachment 4: base_dummy.env

```
parameters:
```

vnf_id: PROVIDED_BY_ONAP

vnf_name: PROVIDED_BY_ONAP

vf_module_id: PROVIDED_BY_ONAP

dummy_name_0: dummy_1_0

dummy_image_name: dummy

dummy_flavor_name: dummy.default

Attachment 5: Example output of ONAP Health Check

oom/kubernetes/robot$ ./ete-k8s.sh onap health > h.1

oom/kubernetes/robot$ cat h.1

```
Starting Xvfb on display :90 with res 1280x1024x24
Executing robot tests at log level TRACE
==============================================================================
Testsuites
==============================================================================
Testsuites.Health-Check :: Test that ONAP components are available via basi...
==============================================================================
Basic A&AI Health Check                              | PASS |
------------------------------------------------------------------------------
Basic AAF Health Check                               | PASS |
------------------------------------------------------------------------------
Basic AAF SMS Health Check                           | PASS |
------------------------------------------------------------------------------
Basic APPC Health Check                              | FAIL |
ConnectionError: HTTPSConnectionPool(host='appc.onap', port=8443): Max retries exceeded with
url: /restconf/operations/SLI-API:healthcheck (Caused by
NewConnectionError('<urllib3.connection.VerifiedHTTPSConnection object at 0x7f90095faad0>:
Failed to establish a new connection: [Errno -2] Name or service not known',))
------------------------------------------------------------------------------
Basic CLI Health Check                               | FAIL |
ConnectionError: HTTPConnectionPool(host='cli.onap', port=8080): Max retries exceeded with url:
/ (Caused by NewConnectionError('<urllib3.connection.HTTPConnection object at
0x7f900445f190>: Failed to establish a new connection: [Errno -2] Name or service not known',))
------------------------------------------------------------------------------
Basic CLAMP Health Check                             | FAIL |
```

ConnectionError: HTTPSConnectionPool(host='clamp.onap', port=8443): Max retries exceeded
with url: /restservices/clds/v1/healthcheck (Caused by
NewConnectionError('<urllib3.connection.VerifiedHTTPSConnection object at 0x7f9004d21710>:
Failed to establish a new connection: [Errno -2] Name or service not known',))

Basic DCAE Health Check | FAIL |
ConnectionError: HTTPConnectionPool(host='dcae-healthcheck.onap', port=80): Max retries
exceeded with url: /healthcheck (Caused by
NewConnectionError('<urllib3.connection.HTTPConnection object at 0x7f9004467bd0>: Failed to
establish a new connection: [Errno -2] Name or service not known',))

Basic DMAAP Data Router Health Check | PASS |

Basic DMAAP Message Router Health Check | PASS |

Basic DMAAP Bus Controller Health Check With Basic Auth | PASS |

Basic External API NBI Health Check | FAIL |
ConnectionError: HTTPConnectionPool(host='nbi.onap', port=8080): Max retries exceeded with
url: /nbi/api/v4/status (Caused by NewConnectionError('<urllib3.connection.HTTPConnection
object at 0x7f9004d21a10>: Failed to establish a new connection: [Errno -2] Name or service not
known',))

Basic Log Elasticsearch Health Check | FAIL |
ConnectionError: HTTPConnectionPool(host='log-es.onap', port=9200): Max retries exceeded with
url: / (Caused by NewConnectionError('<urllib3.connection.HTTPConnection object at
0x7f900445f210>: Failed to establish a new connection: [Errno -2] Name or service not known',))

Basic Log Kibana Health Check | FAIL |
ConnectionError: HTTPConnectionPool(host='log-kibana.onap', port=5601): Max retries exceeded
with url: / (Caused by NewConnectionError('<urllib3.connection.HTTPConnection object at
0x7f90061a7110>: Failed to establish a new connection: [Errno -2] Name or service not known',))

Basic Log Logstash Health Check | FAIL |
ConnectionError: HTTPConnectionPool(host='log-ls-http.onap', port=9600): Max retries exceeded
with url: / (Caused by NewConnectionError('<urllib3.connection.HTTPConnection object at
0x7f9004d2ef90>: Failed to establish a new connection: [Errno -2] Name or service not known',))

Basic Microservice Bus Health Check | PASS |

Basic Multicloud API Health Check | PASS |

Basic Multicloud-pike API Health Check | PASS |

Basic Multicloud-starlingx API Health Check | PASS |

Basic Multicloud-titanium_cloud API Health Check | PASS |

Basic Multicloud-vio API Health Check | PASS |

Basic Multicloud-k8s API Health Check | PASS |

Basic OOF-Homing Health Check | FAIL |
ConnectionError: HTTPSConnectionPool(host='oof-has-api.onap', port=8091): Max retries
exceeded with url: /v1/plans/healthcheck (Caused by
NewConnectionError('<urllib3.connection.VerifiedHTTPSConnection object at 0x7f9004441090>:
Failed to establish a new connection: [Errno -2] Name or service not known',))

Basic OOF-SNIRO Health Check | FAIL |
ConnectionError: HTTPSConnectionPool(host='oof-osdf.onap', port=8698): Max retries exceeded
with url: /api/oof/v1/healthcheck (Caused by
NewConnectionError('<urllib3.connection.VerifiedHTTPSConnection object at 0x7f9004441e50>:
Failed to establish a new connection: [Errno -2] Name or service not known',))

Basic OOF-CMSO Health Check | FAIL |
ConnectionError: HTTPSConnectionPool(host='oof-cmso.onap', port=8080): Max retries exceeded
with url: /cmso/v1/health?checkInterfaces=true (Caused by
NewConnectionError('<urllib3.connection.VerifiedHTTPSConnection object at 0x7f9004badad0>:
Failed to establish a new connection: [Errno -2] Name or service not known',))

Basic Policy Health Check | FAIL |
ConnectionError: HTTPSConnectionPool(host='drools.onap', port=6969): Max retries exceeded
with url: /healthcheck (Caused by
NewConnectionError('<urllib3.connection.VerifiedHTTPSConnection object at 0x7f9004456450>:
Failed to establish a new connection: [Errno -2] Name or service not known',))

Basic Pomba AAI-context-builder Health Check | FAIL |
ConnectionError: HTTPConnectionPool(host='pomba-aaictxbuilder.onap', port=9530): Max retries
exceeded with url: /aaicontextbuilder/health (Caused by
NewConnectionError('<urllib3.connection.HTTPConnection object at 0x7f9004be3e10>: Failed to
establish a new connection: [Errno -2] Name or service not known',))

Basic Pomba SDC-context-builder Health Check | FAIL |
ConnectionError: HTTPConnectionPool(host='pomba-sdcctxbuilder.onap', port=9530): Max retries
exceeded with url: /sdccontextbuilder/health (Caused by
NewConnectionError('<urllib3.connection.HTTPConnection object at 0x7f90043eb110>: Failed to
establish a new connection: [Errno -2] Name or service not known',))

Basic Pomba Network-discovery-context-builder Health Check | FAIL |
ConnectionError: HTTPConnectionPool(host='pomba-networkdiscoveryctxbuilder.onap',
port=9530): Max retries exceeded with url: /ndcontextbuilder/health (Caused by
NewConnectionError('<urllib3.connection.HTTPConnection object at 0x7f90043eb410>: Failed to
establish a new connection: [Errno -2] Name or service not known',))

Basic Pomba Service-Decomposition Health Check | FAIL |

ConnectionError: HTTPConnectionPool(host='pomba-servicedecomposition.onap', port=9532): Max retries exceeded with url: /service-decomposition/health (Caused by NewConnectionError('<urllib3.connection.HTTPConnection object at 0x7f90043f2b10>: Failed to establish a new connection: [Errno -2] Name or service not known',))

Basic Pomba Network-Discovery-MicroService Health Check | FAIL |
ConnectionError: HTTPSConnectionPool(host='pomba-networkdiscovery.onap', port=9531): Max retries exceeded with url: /health (Caused by NewConnectionError('<urllib3.connection.VerifiedHTTPSConnection object at 0x7f9004407090>: Failed to establish a new connection: [Errno -2] Name or service not known',))

Basic Pomba Pomba-Kibana Health Check | FAIL |
ConnectionError: HTTPSConnectionPool(host='pomba-kibana.onap', port=5601): Max retries exceeded with url: / (Caused by NewConnectionError('<urllib3.connection.VerifiedHTTPSConnection object at 0x7f9004441fd0>: Failed to establish a new connection: [Errno -2] Name or service not known',))

Basic Pomba Elastic-Search Health Check | FAIL |
ConnectionError: HTTPConnectionPool(host='pomba-es.onap', port=9200): Max retries exceeded with url: / (Caused by NewConnectionError('<urllib3.connection.HTTPConnection object at 0x7f9004414290>: Failed to establish a new connection: [Errno -2] Name or service not known',))

Basic Pomba Sdnc-Context-Builder Health Check | FAIL |
ConnectionError: HTTPConnectionPool(host='pomba-sdncctxbuilder.onap', port=9530): Max retries exceeded with url: /sdnccontextbuilder/health (Caused by NewConnectionError('<urllib3.connection.HTTPConnection object at 0x7f90043eb650>: Failed to establish a new connection: [Errno -2] Name or service not known',))

Basic Pomba Context-Aggregator Health Check | FAIL |
ConnectionError: HTTPConnectionPool(host='pomba-contextaggregator.onap', port=9529): Max retries exceeded with url: /health (Caused by NewConnectionError('<urllib3.connection.HTTPConnection object at 0x7f900439db10>: Failed to establish a new connection: [Errno -2] Name or service not known',))

Basic Portal Health Check | PASS |

Basic SDC Health Check   (DMaaP:UP)
| PASS |

Basic SDNC Health Check | PASS |

Basic SO Health Check | PASS |

Basic UseCaseUI API Health Check | FAIL |
502 != 200

Basic VFC catalog API Health Check | FAIL |
502 != 200

```
-----------------------------------------------------------------------
Basic VFC emsdriver API Health Check              | FAIL |
502 != 200
-----------------------------------------------------------------------
Basic VFC gvnfmdriver API Health Check            | FAIL |
502 != 200
-----------------------------------------------------------------------
Basic VFC huaweivnfmdriver API Health Check         | FAIL |
502 != 200
-----------------------------------------------------------------------
Basic VFC jujuvnfmdriver API Health Check         | FAIL |
502 != 200
-----------------------------------------------------------------------
Basic VFC multivimproxy API Health Check          | FAIL |
502 != 200
-----------------------------------------------------------------------
Basic VFC nokiav2driver API Health Check          | FAIL |
502 != 200
-----------------------------------------------------------------------
Basic VFC nslcm API Health Check                  | FAIL |
502 != 200
-----------------------------------------------------------------------
Basic VFC resmgr API Health Check                 | FAIL |
502 != 200
-----------------------------------------------------------------------
Basic VFC vnflcm API Health Check                 | FAIL |
502 != 200
-----------------------------------------------------------------------
Basic VFC vnfmgr API Health Check                 | FAIL |
502 != 200
-----------------------------------------------------------------------
Basic VFC vnfres API Health Check                 | FAIL |
502 != 200
-----------------------------------------------------------------------
Basic VFC workflow API Health Check               | FAIL |
502 != 200
-----------------------------------------------------------------------
Basic VFC ztesdncdriver API Health Check          | FAIL |
502 != 200
-----------------------------------------------------------------------
Basic VFC ztevnfmdriver API Health Check          | FAIL |
502 != 200
-----------------------------------------------------------------------
Basic VID Health Check                            | PASS |
-----------------------------------------------------------------------
Basic VNFSDK Health Check                         | FAIL |
ConnectionError: HTTPConnectionPool(host='refrepo.onap', port=8702): Max retries exceeded
with url: /onapapi/vnfsdk-marketplace/v1/PackageResource/healthcheck (Caused by
```

NewConnectionError('<urllib3.connection.HTTPConnection object at 0x7f90042c86d0>: Failed to establish a new connection: [Errno -2] Name or service not known',))

Basic Holmes Rule Management API Health Check | FAIL |
502 != 200

Basic Holmes Engine Management API Health Check | FAIL |
502 != 200

Basic Multicloud-fcaps API Health Check | PASS |

Basic Modeling genericparser API Health Check | FAIL |
502 != 200

Basic CDS Health Check | FAIL |
ConnectionError: HTTPConnectionPool(host='cds-blueprints-processor-http.onap', port=8080):
Max retries exceeded with url: /api/v1/execution-service/health-check (Caused by
NewConnectionError('<urllib3.connection.HTTPConnection object at 0x7f9004bc8750>: Failed to
establish a new connection: [Errno -2] Name or service not known',))

Testsuites.Health-Check :: Test that ONAP components are available... | FAIL |
61 critical tests, 19 passed, 42 failed
61 tests total, 19 passed, 42 failed
==
Testsuites | FAIL |
61 critical tests, 19 passed, 42 failed
61 tests total, 19 passed, 42 failed
==
Output: /share/logs/0000_ete_health/output.xml
Log: /share/logs/0000_ete_health/log.html
Report: /share/logs/0000_ete_health/report.html

Attachement 6: Example output of populating ONAP demo data

```
$ ./demo-k8s.sh onap init

Number of parameters:

2

KEY:

init

++ kubectl --namespace onap get pods

++ sed 's/ .*//'
```

++ grep robot

+ POD=dev-robot-robot-65cd75cc96-r9xqc

++ dirname ./demo-k8s.sh

+ DIR=.

+ SCRIPTDIR=scripts/demoscript

+ ETEHOME=/var/opt/ONAP

+ '[' ']'

++ kubectl --namespace onap exec dev-robot-robot-65cd75cc96-r9xqc -- bash -c 'ls -1q /share/logs/ | wc -l'

+ export GLOBAL_BUILD_NUMBER=1

+ GLOBAL_BUILD_NUMBER=1

++ printf %04d 1

+ OUTPUT_FOLDER=0001_demo_init

+ DISPLAY_NUM=91

+ VARIABLEFILES='-V /share/config/robot_properties.py'

+ kubectl --namespace onap exec dev-robot-robot-65cd75cc96-r9xqc -- /var/opt/ONAP/runTags.sh -V /share/config/robot_properties.py -d /share/logs/0001_demo_init -i InitDemo --display 91

Starting Xvfb on display :91 with res 1280x1024x24

Executing robot tests at log level TRACE

==

Testsuites

==

Testsuites.Demo :: Executes the VNF Orchestration Test cases including setu...

==

Initialize Customer And Models | PASS |

Initialize SO Openstack Identity For V3 | PASS |

Testsuites.Demo :: Executes the VNF Orchestration Test cases inclu... | PASS |

2 critical tests, 2 passed, 0 failed

2 tests total, 2 passed, 0 failed

==

Testsuites | PASS |

2 critical tests, 2 passed, 0 failed

2 tests total, 2 passed, 0 failed

==

Output: /share/logs/0001_demo_init/output.xml

Log: /share/logs/0001_demo_init/log.html

Report: /share/logs/0001_demo_init/report.html

Attachement 7: Dump ONAP components status

```
$ kubectl -n onap get sts
    NAME                        READY   AGE
    dev-aaf-aaf-sms-quorumclient       3/3    41m
    dev-aaf-aaf-sms-vault           1/1    41m
    dev-cassandra-cassandra          3/3    41m
    dev-consul-consul-server         3/3    29m
    dev-dmaap-dbc-pg              2/2    39m
    dev-dmaap-dmaap-dr-db           2/2    39m
    dev-dmaap-dmaap-dr-node          1/1    39m
    dev-dmaap-message-router         1/1    39m
    dev-dmaap-message-router-kafka      3/3    39m
    dev-dmaap-message-router-zookeeper   3/3    39m
    dev-mariadb-galera-mariadb-galera    3/3    40m
    dev-multicloud-multicloud-k8s-etcd   1/1    26m
    dev-multicloud-multicloud-k8s-mongo  1/1    26m
    dev-sdnc-nengdb              1/1    23m
    dev-sdnc-sdnc               3/3    23m
    dev-vid-vid-mariadb-galera        1/1    21m

$ kubectl -n onap get jobs.batch
    NAME                    COMPLETIONS  DURATION  AGE
    dev-aaf-aaf-sms-preload          1/1      3m19s    41m
    dev-aaf-aaf-sshsm-distcenter       1/1      40s     41m
```

```
dev-aaf-aaf-sshsm-testca              1/1      56s     41m
dev-aai-aai-graphadmin-create-db-schema  1/1         109s    30m
dev-aai-aai-traversal-update-query-data  1/1      4m3s    30m
dev-portal-portal-db-config           1/1      8m11s   25m
dev-sdc-sdc-be-config-backend         1/1      17m     24m
dev-sdc-sdc-cs-config-cassandra       1/1      2m44s   24m
dev-sdc-sdc-dcae-be-tools             1/1      22m     24m
dev-sdc-sdc-es-config-elasticsearch   1/1      2m21s   24m
dev-sdc-sdc-onboarding-be-cassandra-init  1/1       2m49s   24m
dev-sdc-sdc-wfd-be-workflow-init      1/1      2m56s   24m
dev-sdc-sdc-dbinit-job                1/1      25s     23m
dev-sdnc-sdnc-dbinit-job              1/1      25s     23m
dev-so-so-mariadb-config-job          1/1      15s     22m
dev-vid-vid-galera-config             1/1      51s     21m

$ kubectl -n onap get pod
   NAME                                   READY  STATUS      RESTARTS  AGE
   dev-aaf-aaf-cass-85c487dfb5-9vqdn              1/1   Running      0      41m
   dev-aaf-aaf-cm-796979df57-p8t8f                1/1   Running      0      41m
   dev-aaf-aaf-fs-74b94d67fb-s6vrq                1/1   Running      0      41m
   dev-aaf-aaf-gui-79f5584b44-82t7s               1/1   Running      0      41m
   dev-aaf-aaf-locate-7d6b56ff64-7g55p            1/1   Running      0      41m
   dev-aaf-aaf-oauth-78cd4f9cd9-sz9vz             1/1   Running      0      41m
   dev-aaf-aaf-service-5cf9c4fdf4-lsv6w           1/1   Running      0      41m
   dev-aaf-aaf-sms-7855754576-2r5pb               1/1   Running      0      41m
   dev-aaf-aaf-sms-preload-b2hrn                  0/1   Completed    0      41m
   dev-aaf-aaf-sms-quorumclient-0                 1/1   Running      0      41m
   dev-aaf-aaf-sms-quorumclient-1                 1/1   Running      0      41m
   dev-aaf-aaf-sms-quorumclient-2                 1/1   Running      0      41m
   dev-aaf-aaf-sms-vault-0                 2/2   Running      1      41m
   dev-aaf-aaf-sshsm-distcenter-jbwqs             0/1   Completed    0      41m
   dev-aaf-aaf-sshsm-testca-6qgx4                 0/1   Completed    0      41m
   dev-aai-aai-7744d85957-qwhwd                   1/1   Running      0      30m
   dev-aai-aai-babel-5cb45654f4-5vwqj             2/2   Running      0      30m
   dev-aai-aai-data-router-b98c775c6-cqsbv         2/2   Running      0      30m
   dev-aai-aai-elasticsearch-5cb6b5f588-tcscq     1/1   Running      0      30m
   dev-aai-aai-graphadmin-5597fc59b8-s28lv         2/2   Running      0      30m
   dev-aai-aai-graphadmin-create-db-schema-8fq9c      0/1   Completed    0      30m
   dev-aai-aai-graphgraph-67fdb7db7f-p8sxf         0/1   ImagePullBackOff  0      30m
   dev-aai-aai-modelloader-77bb578995-l5zrt         2/2   Running      0      30m
   dev-aai-aai-resources-6879867dc4-dc84h          2/2   Running      0      30m
   dev-aai-aai-schema-service-66499c6fd9-ltl8z      2/2   Running      0      30m
   dev-aai-aai-search-data-7d78b7bffd-bf4pb         2/2   Running      0      30m
   dev-aai-aai-sparky-be-94f6b77d6-qjznm           2/2   Running      0      30m
   dev-aai-aai-traversal-6d75c9c9f5-qk5ff          2/2   Running      0      30m
   dev-aai-aai-traversal-update-query-data-t6d8b      0/1   Completed    0      30m
   dev-cassandra-cassandra-0                 1/1   Running      0      41m
   dev-cassandra-cassandra-1                 1/1   Running      0      37m
   dev-cassandra-cassandra-2                 1/1   Running      0      35m
```

```
dev-consul-consul-9bfcd7669-qxldh                      1/1    Running       0      29m
dev-consul-consul-server-0                        1/1    Running        0     29m
dev-consul-consul-server-1                        1/1    Running        0     28m
dev-consul-consul-server-2                        1/1    Running        0     28m
dev-dmaap-dbc-pg-0                          1/1   Running        0      39m
dev-dmaap-dbc-pg-1                          1/1   Running        0      39m
dev-dmaap-dbc-pgpool-857685c9bd-lfv5r              1/1    Running        0       39m
dev-dmaap-dbc-pgpool-857685c9bd-mmzsl               1/1    Running        0       39m
dev-dmaap-dmaap-bc-56f7b66ff9-sgpvx                1/1    Running        0       39m
dev-dmaap-dmaap-dr-db-0                       1/1    Running        0      39m
dev-dmaap-dmaap-dr-db-1                       1/1    Running        0      38m
dev-dmaap-dmaap-dr-node-0                      2/2    Running        0      39m
dev-dmaap-dmaap-dr-prov-69746cf966-2kwb7            2/2    Running        0      39m
dev-dmaap-message-router-0                      1/1    Running        0      39m
dev-dmaap-message-router-kafka-0                  1/1    Running        0      39m
dev-dmaap-message-router-kafka-1                  1/1    Running        0      39m
dev-dmaap-message-router-kafka-2                  1/1    Running        0      39m
dev-dmaap-message-router-mirrormaker-6cc59dd8cd-9gglb  1/1    Running        0       39m
dev-dmaap-message-router-zookeeper-0                1/1    Running        0      39m
dev-dmaap-message-router-zookeeper-1                1/1    Running        0      39m
dev-dmaap-message-router-zookeeper-2                1/1    Running        0      39m
dev-mariadb-galera-mariadb-galera-0              1/1    Running        0      40m
dev-mariadb-galera-mariadb-galera-1              1/1    Running        0      39m
dev-mariadb-galera-mariadb-galera-2              1/1    Running        0      38m
dev-msb-kube2msb-86cdf8db6c-z5wkm                1/1    Running        0       27m
dev-msb-msb-consul-fc98d9574-9d2hd                1/1    Running        0       27m
dev-msb-msb-discovery-6bf79d47dd-gpqtk              2/2    Running        0       27m
dev-msb-msb-eag-8596f7b584-pgmq7                 2/2    Running        0       27m
dev-msb-msb-iag-75774ff4bf-mfn6x                 2/2    Running        0       27m
dev-multicloud-multicloud-6bd7767884-ljkb6            2/2    Running        0       26m
dev-multicloud-multicloud-azure-7bd74b7697-tpzhs      2/2    Running        0     26m
dev-multicloud-multicloud-fcaps-596b58945-7sj8t        3/3    Running        0      26m
dev-multicloud-multicloud-k8s-6dc84c5679-h2h2f        2/2    Running        2      26m
dev-multicloud-multicloud-k8s-etcd-0              1/1    Running        0      26m
dev-multicloud-multicloud-k8s-mongo-0              1/1    Running        0      26m
dev-multicloud-multicloud-lenovo-6dfb58c96c-qj228      2/2    Running        0      26m
dev-multicloud-multicloud-pike-77b578cf96-ld2tw        2/2    Running        0      26m
dev-multicloud-multicloud-starlingx-77fb6984b-x6xbw    3/3    Running        0      26m
dev-multicloud-multicloud-vio-68f89576bb-c6cvw        2/2    Running        0      26m
dev-multicloud-multicloud-windriver-7f886b8787-shjqt   3/3    Running        0      26m
dev-portal-portal-app-7778b4c6c4-7mkhp              2/2    Running        0      25m
dev-portal-portal-cassandra-7949bff6f6-kp7ph          1/1    Running        0      25m
dev-portal-portal-db-5bb5dbf8dc-n2nzh               1/1    Running        0      25m
dev-portal-portal-db-config-lqn9h                 0/2    Completed      0      25m
dev-portal-portal-sdk-7fb88c57c-pbz88              2/2    Running        0      25m
dev-portal-portal-widget-7c944bf9b-2mwtw            1/1    Running        0      25m
dev-portal-portal-zookeeper-bf44d644f-d76jh           1/1    Running        0      25m
dev-robot-robot-65cd75cc96-r9xqc                  1/1    Running        0      24m
```

```
dev-sdc-sdc-be-855ff6b44-jz5wh                      2/2   Running     0     24m
dev-sdc-sdc-be-config-backend-9b5gd                 0/1   Completed   0     24m
dev-sdc-sdc-cs-config-cassandra-nvhj7               0/1   Completed   0     24m
dev-sdc-sdc-dcae-be-5744545b65-wb5lw                2/2   Running     0     24m
dev-sdc-sdc-dcae-be-tools-pjrlc                     0/1   Completed   0     3m52s
dev-sdc-sdc-dcae-dt-689997dfd6-bg62s                2/2   Running     0     24m
dev-sdc-sdc-dcae-fe-5488765bbf-tb6kk                2/2   Running     0     24m
dev-sdc-sdc-dcae-tosca-lab-7b4b46dc67-wcj22         2/2   Running     0     24m
dev-sdc-sdc-es-5c9788797-2wtw8                      1/1   Running     0     24m
dev-sdc-sdc-es-config-elasticsearch-ggpvv           0/1   Completed   0     24m
dev-sdc-sdc-fe-68964747d5-zwxsn                     2/2   Running     0     24m
dev-sdc-sdc-kb-655f754957-cwkg8                     1/1   Running     0     24m
dev-sdc-sdc-onboarding-be-7656998885-kgbgs          2/2   Running     0     24m
dev-sdc-sdc-onboarding-be-cassandra-init-jrg9h      0/1   Completed   0     24m
dev-sdc-sdc-wfd-be-5884945bbb-q6wxh                 1/1   Running     0     24m
dev-sdc-sdc-wfd-be-workflow-init-bvz4g              0/1   Completed   0     24m
dev-sdc-sdc-wfd-fe-6b85c4d87f-5npqq                 2/2   Running     0     24m
dev-sdc-nengdb-0                                    1/1   Running     0     23m
dev-sdnc-network-name-gen-7cf8b96dc4-ckmvw          1/1   Running     0     23m
dev-sdnc-sdnc-0                                     2/2   Running     0     23m
dev-sdnc-sdnc-1                                     2/2   Running     0     23m
dev-sdnc-sdnc-2                                     2/2   Running     0     23m
dev-sdnc-sdnc-ansible-server-587d8ffdfb-zk6m6       1/1   Running     0     23m
dev-sdnc-sdnc-dbinit-job-6bft2                      0/1   Completed   0     23m
dev-sdnc-sdnc-dgbuilder-846dc6856-76cvb             1/1   Running     0     23m
dev-sdnc-sdnc-dmaap-listener-6bbc5bbd84-lbs66       1/1   Running     0     23m
dev-sdnc-sdnc-ueb-listener-6bd57b7f8-hqnnd          1/1   Running     3     23m
dev-so-so-58b5bd7f6-dctxd                           1/1   Running     0     22m
dev-so-so-bpmn-infra-58c79778f6-g85bw               1/1   Running     0     22m
dev-so-so-catalog-db-adapter-84d9d75df-ms82j        1/1   Running     0     22m
dev-so-so-mariadb-config-job-2vrt9                  0/1   Completed   0     22m
dev-so-so-monitoring-549567c8fd-m7jrz               1/1   Running     0     22m
dev-so-so-openstack-adapter-6b9f76cf45-gvrf8        1/1   Running     0     22m
dev-so-so-request-db-adapter-7898f95f4f-22ksx       1/1   Running     0     22m
dev-so-so-sdc-controller-5b69c5fbdf-ffwln           1/1   Running     0     22m
dev-so-so-sdnc-adapter-76464f9cf4-96z6s             1/1   Running     0     22m
dev-so-so-vfc-adapter-cf9854c5b-26xq9               1/1   Running     0     22m
dev-so-so-vnfm-adapter-6ff57c9b9-q94fb              1/1   Running     0     22m
dev-vid-vid-757cb484f5-bxp68                        2/2   Running     0     21m
dev-vid-vid-galera-config-vrjsx                     0/1   Completed   0     21m
dev-vid-vid-mariadb-galera-0                        1/1   Running     0     21m
```

$ kubectl -n onap get pvc
```
NAME                                        STATUS  VOLUME                CAPACITY
ACCESS MODES  STORAGECLASS  AGE
cassandra-data-dev-cassandra-cassandra-0            Bound   pvc-14f03b91-57fc-
41d1-952f-ac1e56612fe7  2Gi   RWO       general   41m
```

```
cassandra-data-dev-cassandra-cassandra-1                          Bound   pvc-384b7492-1fbe-
4c3b-a7d7-8742e0b84abc 2Gi    RWO       general    38m
cassandra-data-dev-cassandra-cassandra-2                          Bound   pvc-4784401a-ca30-
4ca7-9c16-12efdc885383 2Gi    RWO       general    35m
dev-aaf-aaf-cass-pvc                              Bound   pvc-8ff2b9a7-82d2-41be-9b87-
5c1df1e4175e 20Gi    RWO       general    41m
dev-aaf-aaf-config-pvc                            Bound   pvc-985a9d65-1b42-41ac-bc4d-
41fd1ca6feeb 2Gi    RWX       nfs       41m
dev-aaf-aaf-hello-pvc                             Bound   dev-aaf-aaf-hello-pv
40M    RWX       nfs       41m
dev-aaf-aaf-sms                                   Bound   pvc-3d475666-6218-4922-84c7-
1df24538941a 1Gi    RWO       general    41m
dev-aaf-aaf-sms-quorumclient                      Bound   pvc-c027d313-f829-467c-
bd76-90ff3f7ac8d0 10Mi    RWX       nfs       41m
dev-aaf-aaf-sms-vault                             Bound   pvc-fc830bd3-92fc-433e-baae-
fc7f9a198079 2Gi    RWO       general    41m
dev-aaf-aaf-sshsm-data                            Bound   pvc-c3a4d829-7dde-4386-9535-
803a55a81a37 10Mi    RWO       general    41m
dev-aaf-aaf-sshsm-dbus                            Bound   pvc-bd829e56-ee80-421c-9792-
e65afd7a7f61 10Mi    RWO       general    41m
dev-aaf-aaf-sshsm-distcenter                      Bound   pvc-bec97275-d4af-4b19-8b56-
e70b4e5006a6 10Mi    RWX       nfs       41m
dev-aaf-aaf-status-pvc                            Bound   pvc-23a07d9f-0195-47b7-af68-
d62d55769eee 2M    RWX       nfs       41m
dev-dmaap-dbc-pg-data-dev-dmaap-dbc-pg-0          Bound   pvc-199d62d7-6902-
45b6-9087-ae01d55e13cd 1Gi    RWO       nfs       39m
dev-dmaap-dbc-pg-data-dev-dmaap-dbc-pg-1          Bound   pvc-637a50dc-69f1-
4c6a-b81f-0754ff8eced3 1Gi    RWO       nfs       39m
dev-dmaap-dmaap-dr-db                             Bound   pvc-bbbd729d-ee79-4ddc-9e07-
badc553464df 1Gi    RWO       general    39m
dev-dmaap-dmaap-dr-db-data-dev-dmaap-dmaap-dr-db-0          Bound   pvc-ef35fd56-
a1ae-48d5-a5f6-b8f723557011 1Gi    RWO       general    39m
dev-dmaap-dmaap-dr-db-data-dev-dmaap-dmaap-dr-db-1          Bound   pvc-8b25dd54-
3a7f-4216-91d4-96986d2a9246 1Gi    RWO       general    38m
dev-dmaap-dmaap-dr-node-event-logs-pvc-dev-dmaap-dmaap-dr-node-0      Bound   pvc-
3f108efa-37c6-4d17-ab49-991651528aab 1Gi    RWO       general    39m
dev-dmaap-dmaap-dr-node-spool-data-pvc-dev-dmaap-dmaap-dr-node-0      Bound   pvc-
da3b7074-e8b8-49cf-b935-8e2fad7d7d4b 1Gi    RWO       general    39m
dev-mariadb-galera-mariadb-galera                 Bound   pvc-6c930af8-26e8-434c-
8569-9cbe6541b45b 2Gi    RWO       general    40m
dev-mariadb-galera-mariadb-galera-data-dev-mariadb-galera-mariadb-galera-0  Bound   pvc-
b6381754-d614-4a0c-a5c5-91927632b1f6 2Gi    RWO       general    40m
dev-mariadb-galera-mariadb-galera-data-dev-mariadb-galera-mariadb-galera-1  Bound   pvc-
f6930394-d56a-44a3-9f04-34ac7821b068 2Gi    RWO       general    39m
dev-mariadb-galera-mariadb-galera-data-dev-mariadb-galera-mariadb-galera-2  Bound   pvc-
c0022aed-e374-4ec8-a13d-ce487a6d8a96 2Gi    RWO       general    38m
dev-multicloud-multicloud-k8s-etcd-data-dev-multicloud-multicloud-k8s-etcd-0  Bound   pvc-
da164d94-1f38-4610-84b5-6e504aad6bc9 1Gi    RWO       general    26m
```

Name	Status	Volume	Capacity	Access Modes	StorageClass	Age
dev-multicloud-multicloud-k8s-mongo-data	Bound	pvc-5650aea3-643a-4dc5-9c32-77b319154997	1Gi	RWO	general	26m
dev-multicloud-multicloud-windriver	Bound	pvc-2fc129d6-129f-4b4e-8bb1-6f38c53fa425	5Gi	RWO	general	26m
dev-portal-portal-cassandra	Bound	pvc-3544fb81-7ad4-4441-b940-2bf388cba448	2Gi	RWO	general	25m
dev-portal-portal-db	Bound	pvc-5634d597-dd46-48d6-9e65-c26b8b975eaa	2Gi	RWO	general	25m
dev-robot-robot	Bound	pvc-a7eff314-abd6-4caf-b760-782486cae333	2Gi	RWX	nfs	25m
dev-sdc-sdc-es	Bound	pvc-5a7554bd-7ce2-4f41-b99c-e2cb42c55ccd	2Gi	RWO	general	24m
dev-sdc-sdc-onboarding-be-cert	Bound	pvc-9400daf5-5d19-4216-9ca9-73be724bcfac	10Mi	ROX	general	24m
dev-sdnc-nengdb	Bound	pvc-c28b2ff2-8b30-4fd2-85b9-9603bfa56fb4	2Gi	RWO	general	23m
dev-sdnc-nengdb-data-dev-sdnc-nengdb-0	Bound	pvc-5593360e-a862-4ace-ab18-c5ebfbe7d8c6	2Gi	RWO	general	23m
dev-sdnc-sdnc-mdsal-dev-sdnc-sdnc-0	Bound	pvc-7e04d9ad-a47d-4772-80bc-795af24ad88c	1Gi	RWO	nfs	23m
dev-sdnc-sdnc-mdsal-dev-sdnc-sdnc-1	Bound	pvc-121b2cb7-7b04-4aee-a57a-58aeeed359f3	1Gi	RWO	nfs	23m
dev-sdnc-sdnc-mdsal-dev-sdnc-sdnc-2	Bound	pvc-cd35b783-0ec5-4a3b-9504-7abe0fea74a1	1Gi	RWO	nfs	23m
dev-sdnc-sdnc-pvc-certs	Bound	pvc-c26ca8d3-eba4-40a7-b025-31ede7a95751	50Mi	RWX	nfs	23m
kafka-data-dev-dmaap-message-router-kafka-0	Bound	pvc-5c8a5d7b-fceb-47eb-ad06-087c2d55b351	2Gi	RWO	nfs	39m
kafka-data-dev-dmaap-message-router-kafka-1	Bound	pvc-13d14c61-e000-4e4d-a5ef-b5a5e674e2f2	2Gi	RWO	nfs	39m
kafka-data-dev-dmaap-message-router-kafka-2	Bound	pvc-04b36e03-de9e-4b5c-a255-b5fdd3d4f638	2Gi	RWO	nfs	39m
zookeeper-data-dev-dmaap-message-router-zookeeper-0	Bound	pvc-e81f3e06-3d49-49bb-a45f-5cf34a5c8253	2Gi	RWO	general	39m
zookeeper-data-dev-dmaap-message-router-zookeeper-1	Bound	pvc-dc529ac4-9625-4c65-8abe-979c6020b504	2Gi	RWO	general	39m
zookeeper-data-dev-dmaap-message-router-zookeeper-2	Bound	pvc-dd482df9-8087-4d57-af8f-6607d6dcc86f	2Gi	RWO	general	39m

Debug Tips

Tip 1: Tear down ONAP instance:

helm list |grep dev
helm del --purge dev-aaf dev-aai dev-cassandra dev-consul dev-dmaap dev-msb dev-multicloud
dev-portal dev-robot dev-sdc dev-sdnc dev-so dev-vid dev-mariadb-galera dev

kubectl -n onap get jobs.batch | cut -d ' ' -f1 | xargs kubectl delete jobs.batch

kubectl -n onap get pvc | cut -d ' ' -f1 | xargs kubectl delete pvc

Tip 2: Postman collections

Postman imports following collection and environment to postman:

https://github.com/biny993/oom/tree/elalto-starlingx3/postman

Postman Requests	Intention	Involved Environment Variables
0,Get Example Cloud-Regions	Validate the postman connection to ONAP AAI service	ONAP_SERVICE_IP must be set with K8S IP for accessing ONAP services
1,declare Owning-Entity in AAI	Declare Owning entity	
2,Declare platform	Declare platform	
3,Declare lineOfBusiness	Declare line of business	
4,Declare project	Declare project	
5, Create a Complex	Create a Complex to AAI	CLOUD_COMPLEX must be set appropriately
6, Create a Cloud-Region	Create a Cloud Region to AAI	CLOUD_OWNER, CLOUD_REGIONID, K8S_APISERVER, K8S_APITOKEN, OS_REGION_ID, OS_AUTH_URL, OS_USERNAME, OS_PASSWORDOS_PROJECT_NAME must be set appropriately
7, Register To Multicloud	Trigger MultiCloud Registration process for a Cloud Region	
8, Get a k8s connectivity-info	Check if k8s endpoint is registered to multicloud-k8s service	
9, Create a Customer	Create a subscription customer	global-customer-id must be set appropriately
10, Create service type	Create service type	global-service-type must be set appropriately
11, Put a Customer subscription	Create customer subscription	
12, Put a Customer subscription relationship	Associate customer with subscription	

13, preload for VFmodule	Preload VNF topology to SDNC	gvnf_instance_name, gvnf_model_name, service_instance_uuid, vfmodule_instance_name, vfmodule_model_name must be set appropriately