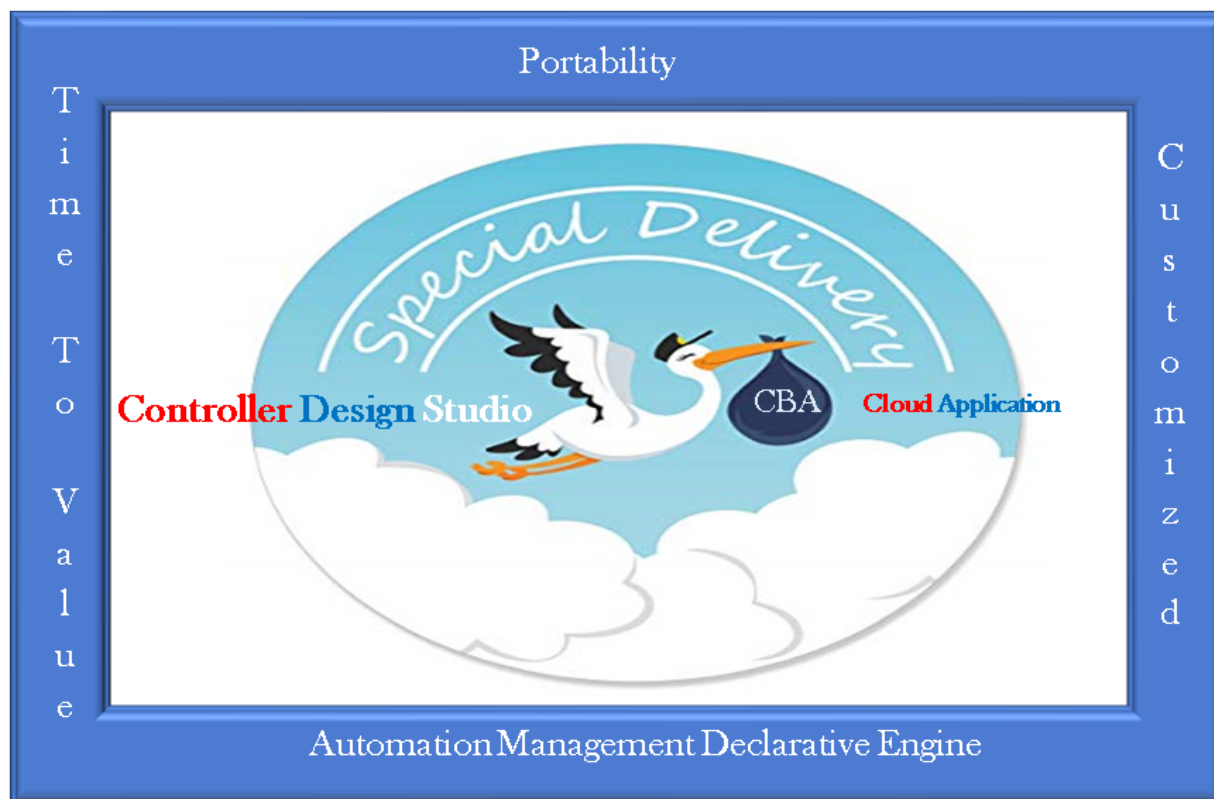


E2E Automation vFW w/ CDS Use Case - ONAP-03-Run Time- Video Demo for vDNS CDS Dublin

Introduction — **UNDER CONSTRUCTION**

The purpose of this page is to describe the vFW use case instantiation using the Controller Design Studio in ONAP Dublin Release.



What's new:

We can see from the demo that now we don't need to perform SDNC Preloading to instantiate the service. The VNF naming and IP addressing will be auto assigned.

Also, we can see that a configuration is generated and save in CDS DB via the new ConfigAssignBB.

And later during the instantiation process, the configuration is deployed on the VF module by CDS via the new ConfigDeployBB.

Run Time Execution

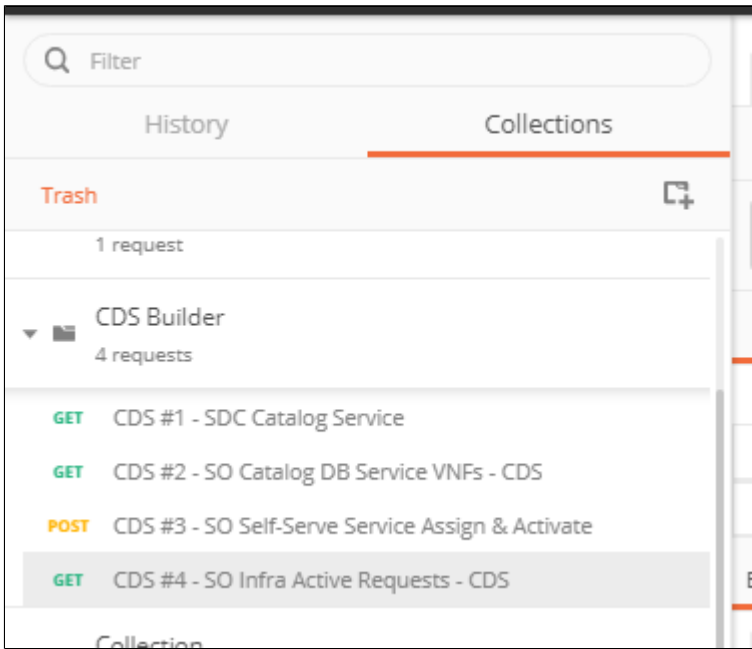
Video demo of the vFW instantiation — **TBD**

[blocked URL](#)

Summary of the video demo

Before running the instantiation, we need to distribute the vFW service model in ONAP.

Then, we can use a [Postman collection](#) as shown in the video that has 3 Rest Calls and some code to automate the instantiation of the vFW use case:

<ul style="list-style-type: none">• 1st Rest call will give us the service model details like UUID, Invariant UUID, and Service Model Name.	
<ul style="list-style-type: none">• 2nd Rest call will give us the VNF and VF Module details.	
<div><p>STEP CDS2: Expose SO Catalog API</p><p>SO Catalog DB is NOT exposed by default, you will need something like the command below to be able to send the CDS #2 rest call to SO Catalog and get back the service VNF model details.</p><pre>kubectl -n onap expose pod onap-so-so-catalog-db-adapter-56d9cc554b-9fszd --type=LoadBalancer</pre></div>	
<ul style="list-style-type: none">• 3rd Rest call will pull the details from the 1st and 2nd calls, and build the SO Service Assignment and Activation request.	
<ul style="list-style-type: none">• I added a 4th Rest call in the collection that will pull the request id from the 3rd call coming from SO, and will show us the status of the requests, so we can track the progress, and see if it completes successfully.	

Stack creation in Openstack —TBD

We can see the final stack created in Openstack, and the final network topology below.

Environment preparation for the Postman Collection:

In order to run the Postman collection correctly, we need to create 3 environment variables in Postman:

- cds-service-model: This is the name of the service model distributed by the robot script, you can find it by running CDS #1 call once and looking for the VNF that has today's date and time.
- cds-instance-name: This is the name of the service instance we will instantiate.
- k8s: This is our ONAP Load Balancer IP Address.

Also, we need to update our IaaS Openstack parameters in the **body** of the SO Service Instantiation Rest call CDS#3:

- lcpCloudRegionId : the cloud-region name
- tenantId : the tenant id
- public_net_id : the public network id in Openstack
- onap_private_net_id : the private network id in Openstack, we need this as this is not created by the auto assignment service
- onap_private_subnet_id : and the private subnet id
- pub_key : the public key to be put on the VMs
- image_name : Ubuntu 16 image name
- flavor_name : flavor
- sec_group : security group that will be applied to the VMs

SO Workflow BBs

After the Service Instantiation Rest Call to SO, we can see that SO decomposes the service into 1 VNF + 4 VF Modules, and SO created 18 Building Blocks that will be executed to instantiate the use case.

In the video above we can see the BBs as they progressing, until the full workflow is completed, and in the video shows the stack as it comes up in Openstack.

SO BPMN Logs

Results of the Postman Rest calls:

Below the output of the calls shown in the video:

Output of CDS #1 - SDC Service Catalog

REQUEST:

GET /sdc/v1/catalog/services

RESPONSE:

```
{
  {
    "uuid": "ad40aa27-b3fe-4fc3-8755-ebb1494f5913",
    "invariantUUID": "fa3a6aa5-c77d-4b94-b300-9b7a2eb21627",
    "name": "cds-svc-99",
    "version": "1.0",
    "toscaModelURL": "/sdc/v1/catalog/services/ad40aa27-b3fe-4fc3-8755-ebb1494f5913/toscaModel",
    "category": "Network Service",
    "lifecycleState": "CERTIFIED",
    "lastUpdaterUserId": "jm0007",
    "distributionStatus": "DISTRIBUTED"
  }
}
```

Output of CDS #2 - SO Service VNFs

REQUEST:

GET /ecomp/mso/catalog/v2/serviceVnfs?serviceModelName=cds-svc-99

RESPONSE:

```
{
  "serviceVnfs": [
    {
      "modelInfo": {
        "modelName": "cds-vnf-99",
        "modelUuid": "a44d59b8-91b4-4692-8c29-e0088c901cc6",
        "modelInvariantUuid": "fd41f747-122d-45b9-87fd-2a6d7d434728",
        "modelVersion": "1.0",
        "modelCustomizationUuid": "6409e9d9-a469-4546-a7b4-e508ecc1e77f",
        "modelInstanceName": "cds-vnf-99 0"
      },
      "toscaNodeType": "org.openecomp.resource.vf.CdsVnf99",
      "nfFunction": null,
      "nfType": null,
      "nfRole": null,
      "nfNamingCode": null,
      "multiStageDesign": "false",
      "resourceInput": null,
      "vfModules": [
        {
          "modelInfo": {
            "modelName": "CdsVnf99..base_template..module-0",
            "modelUuid": "dd43a4cb-2123-4213-a76a-38638507eb7f",
            "modelInvariantUuid": "a22c3514-028e-4ed9-9bd8-9dda79d35278",
            "modelVersion": "1",
            "modelCustomizationUuid": "b0421854-bebb-455b-a96f-33db5640b60a"
          },
          "isBase": true,

```

```

        "vfModuleLabel": "base_template",
        "initialCount": 1,
        "hasVolumeGroup": false
    },
    {
        "modelInfo": {
            "modelName": "CdsVnf99..vpkg..module-1",
            "modelUuid": "b4283579-8e0f-4de4-8eed-8640a24f3625",
            "modelInvariantUuid": "dbad0645-3c57-4f2e-8a47-887c125b7ae0",
            "modelVersion": "1",
            "modelCustomizationUuid": "1339d96b-0347-4c53-a1f2-923482aa71ec"
        },
        "isBase": false,
        "vfModuleLabel": "vpkg",
        "initialCount": 0,
        "hasVolumeGroup": false
    },
    {
        "modelInfo": {
            "modelName": "CdsVnf99..vlb..module-2",
            "modelUuid": "d8ed100e-9c1d-4b37-a17f-0a300e5096c7",
            "modelInvariantUuid": "3174d161-c832-4b58-ac46-1fc30f40030c",
            "modelVersion": "1",
            "modelCustomizationUuid": "3df8956d-601f-4312-a5f1-f186f7ad98d4"
        },
        "isBase": false,
        "vfModuleLabel": "vlb",
        "initialCount": 0,
        "hasVolumeGroup": false
    },
    {
        "modelInfo": {
            "modelName": "CdsVnf99..vFW..module-3",
            "modelUuid": "776f80d3-3e18-40c5-adc9-36061fcb452c",
            "modelInvariantUuid": "80cbf0f3-a80a-4b9b-a9ec-63006c0be349",
            "modelVersion": "1",
            "modelCustomizationUuid": "3c2235ff-cbe5-4037-9470-614c069aa334"
        },
        "isBase": false,
        "vfModuleLabel": "vFW",
        "initialCount": 0,
        "hasVolumeGroup": false
    }
}
]
}
]
}

```

Output of CDS #3 - SO Service Assign & Activate

```

REQUEST:
POST /onap/so/infra/serviceInstantiation/v7/serviceInstances
{
  "requestDetails": {
    "subscriberInfo": {
      "globalSubscriberId": "Demonstration"
    },
    "requestInfo": {
      "suppressRollback": false,
      "productFamilyId": "a9a77d5a-123e-4ca2-9eb9-0b015d2ee0fb",
      "requestorId": "adt",
      "instanceName": "cds-test",
      "source": "VID"
    },
    "cloudConfiguration": {
      "lcpCloudRegionId": "fr2",
      "tenantId": "6270eaa820934710960682c506115453",

```

```

    "cloudOwner": "CloudOwner"
  },
  "requestParameters": {
    "subscriptionServiceType": "vFW",
    "userParams": [
      {
        "Homing_Solution": "none"
      },
      {
        "service": {
          "instanceParams": [
            ],
          "instanceName": "cds-test",
          "resources": {
            "vnfs": [
              {
                "modelInfo": {
                  "modelName": "cds-vnf-99",
                  "modelVersionId": "a44d59b8-91b4-4692-8c29-e0088c901cc6",
                  "modelInvariantUuid": "fd41f747-122d-45b9-87fd-2a6d7d434728",
                  "modelVersion": "1.0",
                  "modelCustomizationId": "6409e9d9-a469-4546-a7b4-e508ecc1e77f",
                  "modelInstanceName": "cds-vnf-99 0"
                },
                "cloudConfiguration": {
                  "lcpCloudRegionId": "fr2",
                  "tenantId": "6270eaa820934710960682c506115453"
                },
                "platform": {
                  "platformName": "test"
                },
                "lineOfBusiness": {
                  "lineOfBusinessName": "LOB-Demonstration"
                },
                "productFamilyId": "a9a77d5a-123e-4ca2-9eb9-0b015d2ee0fb",
                "instanceName": "cds-vnf-99 0",
                "instanceParams": [
                  {
                    "onap_private_net_id": "olc-private",
                    "onap_private_subnet_id": "olc-private",
                    "pub_key": "ssh-rsa AAAAB3NzaClyc2EAAAADAQABAAQCs84Cy8+qi
/jvucay0BwFtOq3ian0ulTXFGxkZcZCR0N48j88pbHJaEqb9e25MAsrFH+7EtB9Kd5nbBThEL
/i0AyHXnDsc800q0sqlLcfLo3SGSsurkrNoRofHboJ5Hn+N9SlWN5FCQGbTx1w3rjqR4LasAI6XxH9xpXSFyyge6ysVXH0cYaz8sg98nFZa1fPJR9
L8COjZvF+EYudub2RC5HVyV
/sx7bliNF09JwQh6dulabG4G7ZDjTicYwYp21iq52UzWU28RVcAyY6AQZJu21HLdsr8fPvyewZpC5EqGsxI1G609m9G/dURRKwYfez
/f2ATzpn5QjEX7LrLWBM8r Generated-by-Nova",
                    "image_name": "Ubuntu 16.04",
                    "flavor_name": "n2.cw.standard-2",
                    "sec_group": "olc-open",
                    "install_script_version": "1.4.0-SNAPSHOT",
                    "demo_artifacts_version": "1.4.0-SNAPSHOT",
                    "cloud_env": "openstack",
                    "public_net_id": "olc-public",
                    "aic-cloud-region": "fr2"
                  }
                ],
                "vfModules": [
                  {
                    "modelInfo": {
                      "modelName": "CdsVnf99..base_template..module-0",
                      "modelVersionId": "dd43a4cb-2123-4213-a76a-38638507eb7f",
                      "modelInvariantUuid": "a22c3514-028e-4ed9-9bd8-9dda79d35278",
                      "modelVersion": "1",
                      "modelCustomizationId": "b0421854-bebb-455b-a96f-33db5640b60a"
                    },
                    "instanceName": "CdsVnf99..base_template..module-0",
                    "instanceParams": [
                      {
                        "sec_group": "olc-open",
                        "public_net_id": "olc-net"
                      }
                    ]
                  }
                ]
              }
            ]
          }
        }
      ]
    }
  }
}

```

```

    ]
  },
  {
    "modelInfo": {
      "modelName": "CdsVnf99..vpkg..module-1",
      "modelVersionId": "b4283579-8e0f-4de4-8eed-8640a24f3625",
      "modelInvariantUuid": "dbad0645-3c57-4f2e-8a47-887c125b7ae0",
      "modelVersion": "1",
      "modelCustomizationId": "1339d96b-0347-4c53-alf2-923482aa71ec"
    },
    "instanceName": "CdsVnf99..vpkg..module-1",
    "instanceParams": [
      {
        "sec_group": "olc-open",
        "public_net_id": "olc-net"
      }
    ]
  },
  {
    "modelInfo": {
      "modelName": "CdsVnf99..vlb..module-2",
      "modelVersionId": "d8ed100e-9c1d-4b37-a17f-0a300e5096c7",
      "modelInvariantUuid": "3174d161-c832-4b58-ac46-1fc30f40030c",
      "modelVersion": "1",
      "modelCustomizationId": "3df8956d-601f-4312-a5f1-f186f7ad98d4"
    },
    "instanceName": "CdsVnf99..vlb..module-2",
    "instanceParams": [
      {
        "sec_group": "olc-open",
        "public_net_id": "olc-net"
      }
    ]
  },
  {
    "modelInfo": {
      "modelName": "CdsVnf99..vFW..module-3",
      "modelVersionId": "776f80d3-3e18-40c5-adc9-36061fcb452c",
      "modelInvariantUuid": "80cbf0f3-a80a-4b9b-a9ec-63006c0be349",
      "modelVersion": "1",
      "modelCustomizationId": "3c2235ff-cbe5-4037-9470-614c069aa334"
    },
    "instanceName": "CdsVnf99..vFW..module-3",
    "instanceParams": [
      {
        "sec_group": "olc-open",
        "public_net_id": "olc-net"
      }
    ]
  }
]
}
}
},
{
  "modelInfo": {
    "modelVersion": "1.0",
    "modelVersionId": "ad40aa27-b3fe-4fc3-8755-ebb1494f5913",
    "modelInvariantId": "fa3a6aa5-c77d-4b94-b300-9b7a2eb21627",
    "modelName": "cds-svc-99",
    "modelType": "service"
  }
}
},
{
  "aLaCarte": false
},
{
  "project": {
    "projectName": "Project-Demonstration"
  },
  "owningEntity": {
    "owningEntityId": "67f2e84c-734d-4e90-ale4-d2ffa2e75849",

```

```

    "owningEntityName": "OE-Demonstration"
  },
  "modelInfo": {
    "modelVersion": "1.0",
    "modelVersionId": "ad40aa27-b3fe-4fc3-8755-ebb1494f5913",
    "modelInvariantId": "fa3a6aa5-c77d-4b94-b300-9b7a2eb21627",
    "modelName": "cds-svc-99",
    "modelType": "service"
  }
}
}

RESPONSE:
{
  "requestReferences": {
    "requestId": "f804a2b6-0e0d-49c4-bd67-7ba3ec0694b3",
    "instanceId": "1a0fbd43-0ab6-4d67-99f4-14a890505a8d",
    "requestSelfLink": "http://84.39.39.120:30277/orchestrationRequests/v7/f804a2b6-0e0d-49c4-bd67-7ba3ec0694b3"
  }
}

```

Output of CDS #4 - SO Active Infra Requests

REQUEST:
GET /infraActiveRequests/f804a2b6-0e0d-49c4-bd67-7ba3ec0694b3

```

RESPONSE:
{
  "clientRequestId": null,
  "action": "createInstance",
  "requestStatus": "COMPLETE",
  "statusMessage": "Macro-Service-createInstance request was executed correctly.",
  "rollbackStatusMessage": null,
  "flowStatus": "Successfully completed all Building Blocks",
  "retryStatusMessage": null,
  "progress": 100,
  "startTime": "2019-06-07T03:15:07.000+0000",
  "endTime": "2019-06-07T03:18:41.000+0000",
  "source": "VID",
  "vnfId": "1bed94d9-9a12-458a-b891-7c04796b5af4",
  "vnfName": null,
  "vnfType": null,
  "serviceType": null,
  "aicNodeClii": null,
  "tenantId": "6270eaa820934710960682c506115453",
  "provStatus": null,
  "vnfParams": null,
  "vnfOutputs": null,
  "requestBody": "{\r\n  \"requestDetails\": {\r\n    \"subscriberInfo\": {\r\n      \"globalSubscriberId\": \"Demonstration\"\r\n    },\r\n    \"requestInfo\": {\r\n      \"suppressRollback\": false,\r\n      \"productFamilyId\": \"a9a77d5a-123e-4ca2-9eb9-0b015d2ee0fb\",\r\n      \"requestorId\": \"adt\",\r\n      \"instanceName\": \"cds-test\",\r\n      \"source\": \"VID\",\r\n      \"cloudConfiguration\": {\r\n        \"lcpCloudRegionId\": \"fr2\",\r\n        \"tenantId\": \"6270eaa820934710960682c506115453\",\r\n        \"cloudOwner\": \"CloudOwner\"\r\n      },\r\n      \"requestParameters\": {\r\n        \"subscriptionServiceType\": \"vFW\",\r\n        \"userParams\": {\r\n          \"Homing_Solution\": \"none\"\r\n        },\r\n        \"service\": {\r\n          \"instanceParams\": {\r\n            \"instanceName\": \"cds-test\",\r\n            \"resources\": {\r\n              \"vnfs\": {\r\n                \"modelInfo\": {\r\n                  \"modelName\": \"cds-vnf-99\",\r\n                  \"modelVersionId\": \"a44d59b8-91b4-4692-8c29-e0088c901cc6\",\r\n                  \"modelInvariantId\": \"fd41f747-122d-45b9-87fd-2a6d7d434728\",\r\n                  \"modelVersion\": \"1.0\",\r\n                  \"modelCustomizationId\": \"6409e9d9-a469-4546-a7b4-e508ecc1e77f\",\r\n                  \"modelInstanceName\": \"cds-vnf-99 0\"\r\n                },\r\n                \"cloudConfiguration\": {\r\n                  \"lcpCloudRegionId\": \"fr2\",\r\n                  \"tenantId\": \"6270eaa820934710960682c506115453\"\r\n                },\r\n                \"platform\": {\r\n                  \"platformName\": \"test\"\r\n                },\r\n                \"lineOfBusiness\": {\r\n                  \"lineOfBusinessName\": \"LOB-Demonstration\"\r\n                },\r\n                \"productFamilyId\": \"

```

```
a9a77d5a-123e-4ca2-9eb9-0b015d2ee0fb\",\\r\\n                                \\\"instanceName\\\": \\\"cds-vnf-99 0\\\",
\\r\\n                                \\\"instanceParams\\\": {\\r\\n                                {\\r\\n                                \\\"
onap_private_net_id\\\": \\\"olc-private\\\",\\r\\n                                \\\"onap_private_subnet_id\\\": \\\"olc-private\\\",
\\r\\n                                \\\"pub_key\\\": \\\"ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQCs84Cy8+qi
/jvucay0BwFtOq3ian0ultXFGxkZcZCR0N48j88pbHJaEqb9e25MAsrfH+7EtB9Kd5nbBThEL
/i0AyHXnDsc800q0sqlLcfLo3SGSsurkrNoRofHboJ5Hn+N9S1WN5FCQGbTx1w3rjqR4LasAI6XxH9xpXSFyyge6ysVXH0cYaZ8sg98nFZalfPJR9
L8C0jZvF+EYudub2RC5HVyV
/sx7bliNfo9JwQh6dulabG4G7DjTicYwYp21iq52UzWU28RVcAyY6AQZJu21lHLdsr8fPvyewZpC5EqGsxlI6G09m9G/dURRkWyfez
/f2ATzpn5QjEX7LrLWBM8r Generated-by-Nova\\\",\\r\\n                                \\\"image_name\\\": \\\"Ubuntu 16.04\\\",
\\r\\n                                \\\"flavor_name\\\": \\\"n2.cw.standard-2\\\",\\r\\n                                \\\"sec_group\\\": \\\"olc-
open\\\",\\r\\n                                \\\"install_script_version\\\": \\\"1.4.0-SNAPSHOT\\\",\\r\\n                                \\\"
demo_artifacts_version\\\": \\\"1.4.0-SNAPSHOT\\\",\\r\\n                                \\\"cloud_env\\\": \\\"openstack\\\",
\\r\\n                                \\\"public_net_id\\\": \\\"olc-public\\\",\\r\\n                                \\\"aic-cloud-region\\\": \\\"
fr2\\\"\\r\\n                                }\\r\\n                                },\\r\\n                                \\\"vfModules\\\":
{\\r\\n                                {\\r\\n                                \\\"modelInfo\\\": {\\r\\n                                {\\r\\n                                \\\"modelName\\\":
\\\"CdsVnf99..base_template..module-0\\\",\\r\\n                                \\\"modelVersionId\\\": \\\"dd43a4cb-2123-4213-a76a-
38638507eb7f\\\",\\r\\n                                \\\"modelInvariantUuid\\\": \\\"a22c3514-028e-4ed9-9bd8-9dda79d35278\\\",
\\r\\n                                \\\"modelVersion\\\": \\\"1\\\",\\r\\n                                \\\"modelCustomizationId\\\": \\\"
b0421854-bebb-455b-a96f-33db5640b60a\\\"\\r\\n                                },\\r\\n                                \\\"instanceName\\\":
\\\"CdsVnf99..base_template..module-0\\\",\\r\\n                                \\\"instanceParams\\\":
{\\r\\n                                {\\r\\n                                \\\"sec_group\\\": \\\"olc-
open\\\",\\r\\n                                \\\"public_net_id\\\": \\\"olc-net\\\"\\r\\n                                }
\\r\\n                                }\\r\\n                                },\\r\\n                                {\\r\\n                                \\\"
modelInfo\\\": {\\r\\n                                {\\r\\n                                \\\"modelName\\\": \\\"CdsVnf99..vpkg..module-1\\\",
\\r\\n                                \\\"modelVersionId\\\": \\\"b4283579-8e0f-4de4-8eed-8640a24f3625\\\",
\\r\\n                                \\\"modelInvariantUuid\\\": \\\"dbad0645-3c57-4f2e-8a47-887c125b7ae0\\\",
\\r\\n                                \\\"modelVersion\\\": \\\"1\\\",\\r\\n                                \\\"modelCustomizationId\\\": \\\"
1339d96b-0347-4c53-alf2-923482aa71ec\\\"\\r\\n                                },\\r\\n                                \\\"instanceName\\\":
\\\"CdsVnf99..vpkg..module-1\\\",\\r\\n                                \\\"instanceParams\\\": {\\r\\n
{\\r\\n                                \\\"sec_group\\\": \\\"olc-open\\\",\\r\\n                                \\\"public_net_id\\\": \\\"
olc-net\\\"\\r\\n                                }\\r\\n                                },
\\r\\n                                {\\r\\n                                \\\"modelInfo\\\": {\\r\\n                                {\\r\\n                                \\\"modelName\\\": \\\"
CdsVnf99..vlb..module-2\\\",\\r\\n                                \\\"modelVersionId\\\": \\\"d8ed100e-9c1d-4b37-a17f-
0a300e5096c7\\\",\\r\\n                                \\\"modelInvariantUuid\\\": \\\"3174d161-c832-4b58-ac46-1fc30f40030c\\\",
\\r\\n                                \\\"modelVersion\\\": \\\"1\\\",\\r\\n                                \\\"modelCustomizationId\\\": \\\"
3df8956d-601f-4312-a5f1-f186f7ad98d4\\\"\\r\\n                                },\\r\\n                                \\\"instanceName\\\":
\\\"CdsVnf99..vlb..module-2\\\",\\r\\n                                \\\"instanceParams\\\": {\\r\\n
{\\r\\n                                \\\"sec_group\\\": \\\"olc-open\\\",\\r\\n                                \\\"public_net_id\\\": \\\"
olc-net\\\"\\r\\n                                }\\r\\n                                },
\\r\\n                                {\\r\\n                                \\\"modelInfo\\\": {\\r\\n                                {\\r\\n                                \\\"modelName\\\": \\\"
CdsVnf99..vFW..module-3\\\",\\r\\n                                \\\"modelVersionId\\\": \\\"776f80d3-3e18-40c5-adc9-
36061fcb452c\\\",\\r\\n                                \\\"modelInvariantUuid\\\": \\\"80cbf0f3-a80a-4b9b-a9ec-63006c0be349\\\",
\\r\\n                                \\\"modelVersion\\\": \\\"1\\\",\\r\\n                                \\\"modelCustomizationId\\\": \\\"
3c2235ff-cbe5-4037-9470-614c069aa334\\\"\\r\\n                                },\\r\\n                                \\\"instanceName\\\": \\\"
CdsVnf99..vFW..module-3\\\",\\r\\n                                \\\"instanceParams\\\": {\\r\\n
{\\r\\n                                \\\"sec_group\\\": \\\"olc-open\\\",\\r\\n                                \\\"public_net_id\\\": \\\"
olc-net\\\"\\r\\n                                }\\r\\n                                },
\\r\\n                                }\\r\\n                                },\\r\\n                                },\\r\\n                                \\\"modelInfo\\\": {\\r\\n                                {\\r\\n
\\\"modelVersion\\\": \\\"1.0\\\",\\r\\n                                \\\"modelVersionId\\\": \\\"ad40aa27-b3fe-4fc3-8755-ebb1494f5913\\\",\\r\\n                                \\\"
modelInvariantId\\\": \\\"fa3a6aa5-c77d-4b94-b300-9b7a2eb21627\\\",\\r\\n                                \\\"modelName\\\": \\\"cds-svc-99\\\",
\\r\\n                                \\\"modelType\\\": \\\"service\\\"\\r\\n                                }\\r\\n                                },\\r\\n                                },\\r\\n                                \\\"aLaCarte\\\": false\\r\\n                                },\\r\\n                                \\\"project\\\": {\\r\\n                                {\\r\\n                                \\\"projectName\\\": \\\"Project-Demonstration\\\"\\r\\n
},\\r\\n                                \\\"owningEntity\\\": {\\r\\n                                {\\r\\n                                \\\"owningEntityId\\\": \\\"67f2e84c-734d-4e90-ale4-d2ffa2e75849\\\",\\r\\n                                \\\"
owningEntityName\\\": \\\"OE-Demonstration\\\"\\r\\n                                },\\r\\n                                \\\"modelInfo\\\": {\\r\\n                                {\\r\\n                                \\\"modelVersion\\\": \\\"1.0\\\",
\\r\\n                                \\\"modelVersionId\\\": \\\"ad40aa27-b3fe-4fc3-8755-ebb1494f5913\\\",\\r\\n                                \\\"modelInvariantId\\\": \\\"
fa3a6aa5-c77d-4b94-b300-9b7a2eb21627\\\",\\r\\n                                \\\"modelName\\\": \\\"cds-svc-99\\\",\\r\\n                                \\\"modelType\\\": \\\"
service\\\"\\r\\n                                }\\r\\n                                }\\r\\n                                }\",
    \"responseBody\": null,
    \"lastModifiedBy\": \"CamundaBPMN\",
    \"modifyTime\": \"2019-06-07T03:18:41.000+0000\",
    \"requestType\": null,
    \"volumeGroupId\": null,
    \"volumeGroupName\": null,
    \"vfModuleId\": null,
    \"vfModuleName\": null,
    \"vfModuleModelName\": null,
    \"aaiServiceId\": null,
    \"aicCloudRegion\": \"fr2\",
    \"callbackUrl\": null,
    \"correlator\": null,
    \"serviceInstanceId\": \"1a0fbd43-0ab6-4d67-99f4-14a890505a8d\",
```



```

"serviceInstanceName": "cds-test",
"requestScope": "service",
"requestAction": "createInstance",
"networkId": null,
"networkName": null,
"networkType": null,
"requestorId": "adt",
"configurationId": null,
"configurationName": null,
"operationalEnvId": null,
"operationalEnvName": null,
"instanceGroupId": null,
"instanceGroupName": null,
"requestUrl": "http://84.39.39.120:30277/onap/so/infra/serviceInstantiation/v7/serviceInstances",
"requestURI": "f804a2b6-0e0d-49c4-bd67-7ba3ec0694b3",
"_links": {
  "self": {
    "href": "http://84.39.39.120:31323/infraActiveRequests/f804a2b6-0e0d-49c4-bd67-7ba3ec0694b3"
  },
  "infraActiveRequests": {
    "href": "http://84.39.39.120:31323/infraActiveRequests/f804a2b6-0e0d-49c4-bd67-7ba3ec0694b3"
  }
}
}

```

Service Instance in SDNC MDSAL (attached in file here [vFW_sdnc_mdsal.txt](#), as it's too big for the a collapsable code block).

Service Instance in AAI

REQUEST:

GET /aai/v11/business/customers/customer/Demonstration/service-subscriptions/service-subscription/vFW/service-instances/service-instance/1a0fbd43-0ab6-4d67-99f4-14a890505a8d?depth=all

RESPONSE:

```
{
  "service-instance-id": "1a0fbd43-0ab6-4d67-99f4-14a890505a8d",
  "service-instance-name": "cds-test",
  "environment-context": "General_Revenue-Bearing",
  "workload-context": "Production",
  "model-invariant-id": "fa3a6aa5-c77d-4b94-b300-9b7a2eb21627",
  "model-version-id": "ad40aa27-b3fe-4fc3-8755-ebb1494f5913",
  "resource-version": "1559877521769",
  "selflink": "restconf/config/GENERIC-RESOURCE-API:services/service/1a0fbd43-0ab6-4d67-99f4-14a890505a8d
/service-data/service-topology/",
  "orchestration-status": "Active",
  "relationship-list": {
    "relationship": [
      {
        "related-to": "project",
        "related-link": "/aai/v11/business/projects/project/Project-Demonstration",
        "relationship-data": [
          {
            "relationship-key": "project.project-name",
            "relationship-value": "Project-Demonstration"
          }
        ]
      },
      {
        "related-to": "owning-entity",
        "related-link": "/aai/v11/business/owning-entities/owning-entity/67f2e84c-734d-4e90-ale4-
d2ffa2e75849",
        "relationship-data": [
          {
            "relationship-key": "owning-entity.owning-entity-id",
            "relationship-value": "67f2e84c-734d-4e90-ale4-d2ffa2e75849"
          }
        ]
      },
      {
        "related-to": "generic-vnf",
        "related-link": "/aai/v11/network/generic-vnfs/generic-vnf/1bed94d9-9a12-458a-b891-
7c04796b5af4",
        "relationship-data": [
          {
            "relationship-key": "generic-vnf.vnf-id",
            "relationship-value": "1bed94d9-9a12-458a-b891-7c04796b5af4"
          }
        ],
        "related-to-property": [
          {
            "property-key": "generic-vnf.vnf-name",
            "property-value": "fr2_ONAP-NF_20190607T031522008Z"
          }
        ]
      }
    ]
  }
}
```

Generic VNF in AAI

REQUEST:

GET {{AAI}}/aai/v11/network/generic-vnfs/generic-vnf/1bed94d9-9a12-458a-b891-7c04796b5af4?depth=all

RESPONSE:

```
{
  "vnf-id": "1bed94d9-9a12-458a-b891-7c04796b5af4",
  "vnf-name": "fr2_ONAP-NF_20190607T031522008Z",
  "vnf-type": "cds-svc-99/null",
  "service-id": "a9a77d5a-123e-4ca2-9eb9-0b015d2ee0fb",
  "prov-status": "NVTPROV",
  "operational-status": "out-of-service-path",
  "orchestration-status": "Active",
  "in-maint": false,
  "is-closed-loop-disabled": false,
  "resource-version": "1559877519020",
  "model-invariant-id": "fd41f747-122d-45b9-87fd-2a6d7d434728",
  "model-version-id": "a44d59b8-91b4-4692-8c29-e0088c901cc6",
  "model-customization-id": "6409e9d9-a469-4546-a7b4-e508eccle77f",
  "selflink": "restconf/config/GENERIC-RESOURCE-API:services/service/1a0fbd43-0ab6-4d67-99f4-14a890505a8d
/service-data/vnfs/vnf/1bed94d9-9a12-458a-b891-7c04796b5af4/vnf-data/vnf-topology/",
  "relationship-list": {
    "relationship": [
      {
        "related-to": "service-instance",
        "related-link": "/aai/v11/business/customers/customer/Demonstration/service-subscriptions
/service-subscription/vFW/service-instances/service-instance/1a0fbd43-0ab6-4d67-99f4-14a890505a8d",
        "relationship-data": [
          {
            "relationship-key": "customer.global-customer-id",
            "relationship-value": "Demonstration"
          },
          {
            "relationship-key": "service-subscription.service-type",
            "relationship-value": "vFW"
          },
          {
            "relationship-key": "service-instance.service-instance-id",
            "relationship-value": "1a0fbd43-0ab6-4d67-99f4-14a890505a8d"
          }
        ],
        "related-to-property": [
          {
            "property-key": "service-instance.service-instance-name",
            "property-value": "cds-test"
          }
        ]
      },
      {
        "related-to": "line-of-business",
        "related-link": "/aai/v11/business/lines-of-business/line-of-business/LOB-Demonstration",
        "relationship-data": [
          {
            "relationship-key": "line-of-business.line-of-business-name",
            "relationship-value": "LOB-Demonstration"
          }
        ]
      },
      {
        "related-to": "platform",
        "related-link": "/aai/v11/business/platforms/platform/test",
        "relationship-data": [
          {
            "relationship-key": "platform.platform-name",
            "relationship-value": "test"
          }
        ]
      },
      {
        "related-to": "tenant",
        "related-link": "/aai/v11/cloud-infrastructure/cloud-regions/cloud-region/CloudOwner/fr2/tenants
/tenant/6270eaa820934710960682c506115453",
        "relationship-data": [
```

```

        {
            "relationship-key": "cloud-region.cloud-owner",
            "relationship-value": "CloudOwner"
        },
        {
            "relationship-key": "cloud-region.cloud-region-id",
            "relationship-value": "fr2"
        },
        {
            "relationship-key": "tenant.tenant-id",
            "relationship-value": "6270eaa820934710960682c506115453"
        }
    ],
    "related-to-property": [
        {
            "property-key": "tenant.tenant-name",
            "property-value": "0750178182_Sandbox1"
        }
    ]
},
{
    "related-to": "cloud-region",
    "related-link": "/aai/v11/cloud-infrastructure/cloud-regions/cloud-region/CloudOwner/fr2",
    "relationship-data": [
        {
            "relationship-key": "cloud-region.cloud-owner",
            "relationship-value": "CloudOwner"
        },
        {
            "relationship-key": "cloud-region.cloud-region-id",
            "relationship-value": "fr2"
        }
    ],
    "related-to-property": [
        {
            "property-key": "cloud-region.owner-defined-type",
            "property-value": "OwnerType"
        }
    ]
}
]
},
"vf-modules": {
    "vf-module": [
        {
            "vf-module-id": "a0e238aa-d219-4918-b269-66fef4add4ae",
            "vf-module-name": "fr2_ONAP-NF_20190607T031522008Z_vpkg_Expansion_001",
            "heat-stack-id": "fr2_ONAP-NF_20190607T031522008Z_vpkg_Expansion_001/2725c65d-9af3-4d60-89c6-41ceae9767ac",
            "orchestration-status": "Active",
            "is-base-vf-module": false,
            "resource-version": "1559877459250",
            "model-invariant-id": "dbad0645-3c57-4f2e-8a47-887c125b7ae0",
            "model-version-id": "b4283579-8e0f-4de4-8eed-8640a24f3625",
            "model-customization-id": "1339d96b-0347-4c53-a1f2-923482aa71ec",
            "module-index": 0,
            "selflink": "restconf/config/GENERIC-RESOURCE-API:services/service/1a0fbd43-0ab6-4d67-99f4-14a890505a8d/service-data/vnfs/vnf/1bed94d9-9a12-458a-b891-7c04796b5af4/vnf-data/vf-modules/vf-module/a0e238aa-d219-4918-b269-66fef4add4ae/vf-module-data/vf-module-topology/"
        },
        {
            "vf-module-id": "c4a88399-7a7d-48d7-b010-f79b85a4306c",
            "vf-module-name": "fr2_ONAP-NF_20190607T031522008Z_base_template_Base_001",
            "heat-stack-id": "fr2_ONAP-NF_20190607T031522008Z_base_template_Base_001/e6441f43-5ac7-4010-8f6b-ab25811a77f3",
            "orchestration-status": "Active",
            "is-base-vf-module": true,
            "resource-version": "1559877455593",
            "model-invariant-id": "a22c3514-028e-4ed9-9bd8-9dda79d35278",
            "model-version-id": "dd43a4cb-2123-4213-a76a-38638507eb7f",
            "model-customization-id": "b0421854-bebb-455b-a96f-33db5640b60a",

```

```

      "module-index": 0,
      "selflink": "restconf/config/GENERIC-RESOURCE-API:services/service/1a0fbd43-0ab6-4d67-99f4-14a890505a8d/service-data/vnfs/vnf/lbed94d9-9a12-458a-b891-7c04796b5af4/vnf-data/vf-modules/vf-module/c4a88399-7a7d-48d7-b010-f79b85a4306c/vf-module-data/vf-module-topology/"
    },
    {
      "vf-module-id": "c00aec40-e2fe-4b77-9762-058986c43473",
      "vf-module-name": "fr2_ONAP-NF_20190607T031522008Z_vFW_Expansion_001",
      "heat-stack-id": "fr2_ONAP-NF_20190607T031522008Z_vFW_Expansion_001/3dc085e0-d094-4484-8e91-8e925c9982f4",
      "orchestration-status": "Active",
      "is-base-vf-module": false,
      "resource-version": "1559877466668",
      "model-invariant-id": "80cbf0f3-a80a-4b9b-a9ec-63006c0be349",
      "model-version-id": "776f80d3-3e18-40c5-adc9-36061fcb452c",
      "model-customization-id": "3c2235ff-cbe5-4037-9470-614c069aa334",
      "module-index": 0,
      "selflink": "restconf/config/GENERIC-RESOURCE-API:services/service/1a0fbd43-0ab6-4d67-99f4-14a890505a8d/service-data/vnfs/vnf/lbed94d9-9a12-458a-b891-7c04796b5af4/vnf-data/vf-modules/vf-module/c00aec40-e2fe-4b77-9762-058986c43473/vf-module-data/vf-module-topology/"
    },
    {
      "vf-module-id": "fc93d9d3-741b-4ae9-8981-a20310f20bbe",
      "vf-module-name": "fr2_ONAP-NF_20190607T031522008Z_vlb_Expansion_001",
      "heat-stack-id": "fr2_ONAP-NF_20190607T031522008Z_vlb_Expansion_001/d6ec42fb-30d2-4e01-b669-6f5f88c71309",
      "orchestration-status": "Active",
      "is-base-vf-module": false,
      "resource-version": "1559877463154",
      "model-invariant-id": "3174d161-c832-4b58-ac46-1fc30f40030c",
      "model-version-id": "d8ed100e-9c1d-4b37-a17f-0a300e5096c7",
      "model-customization-id": "3df8956d-601f-4312-a5f1-f186f7ad98d4",
      "module-index": 0,
      "selflink": "restconf/config/GENERIC-RESOURCE-API:services/service/1a0fbd43-0ab6-4d67-99f4-14a890505a8d/service-data/vnfs/vnf/lbed94d9-9a12-458a-b891-7c04796b5af4/vnf-data/vf-modules/vf-module/fc93d9d3-741b-4ae9-8981-a20310f20bbe/vf-module-data/vf-module-topology/"
    }
  ]
}

```

Run Time Flow Diagram

Main reference for CDS sequence flows is here : [Instantiation - SDN-C Generic Resource API \(Enhancement\)](#)

Run Time Troubleshooting

To monitor or to troubleshoot the vFW instantiation with CDS in Dublin, we can check several ONAP component logs, as described below:

Check ONAP Logs

```
#Some commands to quickly check the CDS processing.
#If you like these commands, you can create aliases, so you can quickly call them anytime.
#E.g.: alias l-sdnc='kubectl -n onap exec -it onap-sdnc-sdnc-0 -- cat /var/log/onap/sdnc/karaf.log'
#Author: abdelmuhaimeen.seaudi@orange.com

#Check SDNC Logs:
kubectl -n onap exec -it onap-sdnc-sdnc-0 -- cat /var/log/onap/sdnc/karaf.log
kubectl -n onap exec -it onap-sdnc-sdnc-0 -- tail -f /var/log/onap/sdnc/karaf.log

#Check SO Openstack Adapter Logs:
kubectl -n onap get pods | grep so-openstack | grep Running | cut -f1 -d" " | xargs -i kubectl -n onap exec {} --
-- cat /app/logs/openstack/debug.log
kubectl -n onap get pods | grep so-openstack | grep Running | cut -f1 -d" " | xargs -i kubectl -n onap exec {} --
-- tail -f /app/logs/openstack/debug.log

#Check SO BPMN Logs:
kubectl -n onap get pods | grep so-bpmn | grep Running | cut -f1 -d" " | xargs -i kubectl -n onap exec {} --
cat /app/logs/bpmn/debug.log
kubectl -n onap get pods | grep so-bpmn | grep Running | cut -f1 -d" " | xargs -i kubectl -n onap exec {} --
tail -f /app/logs/bpmn/debug.log

#Check CDS Blueprint Processor Logs:
kubectl -n onap get pods | grep blueprints-processor | grep Running | cut -f1 -d" " | xargs -i kubectl -n onap
logs
kubectl -n onap get pods | grep blueprints-processor | grep Running | cut -f1 -d" " | xargs -i kubectl -n onap
logs {} -f

#Check Netbox Logs:
kubectl -n onap get pods | grep netbox-app | grep Running | cut -f1 -d" " | xargs -i kubectl -n onap logs
kubectl -n onap get pods | grep netbox-app | grep Running | cut -f1 -d" " | xargs -i kubectl -n onap logs {} -f

#Check Naming Service Logs:
kubectl -n onap get pods | grep name-gen | grep Running | cut -f1 -d" " | xargs -i kubectl -n onap logs
kubectl -n onap get pods | grep name-gen | grep Running | cut -f1 -d" " | xargs -i kubectl -n onap logs {} -f
```