LF NETWORKING

vFW CNF Use Case Evolution

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23.06.2020

Agenda

- Brief Introduction

- CNF Story (Dublin/ElAlto)

- vFirewall CNF Use Case details

- Demo/Video

- Further improvements possible for G Release

- Questions/Comments

Brief introduction

- vFW use case has been introduced since Amsterdam release
- In Casablanca upgraded to vFWCL to indicate Closed Loop functionality it featured
- Branched out to several other use cases presenting distinct ONAP features
- Since Dublin release, new vFW use case presented → vFW installed on Kubernetes
  - Application converted into Helm Chart composed of docker and VM based deployments interconnected with OVN networks
- **VFW CNF CDS Use Case delivered in Frankfurt release**
  - **additional changes and improvements over Dublin's CNF vFW**
  - **includes CDS and GR API integration**

vFirewall CNF Use Case
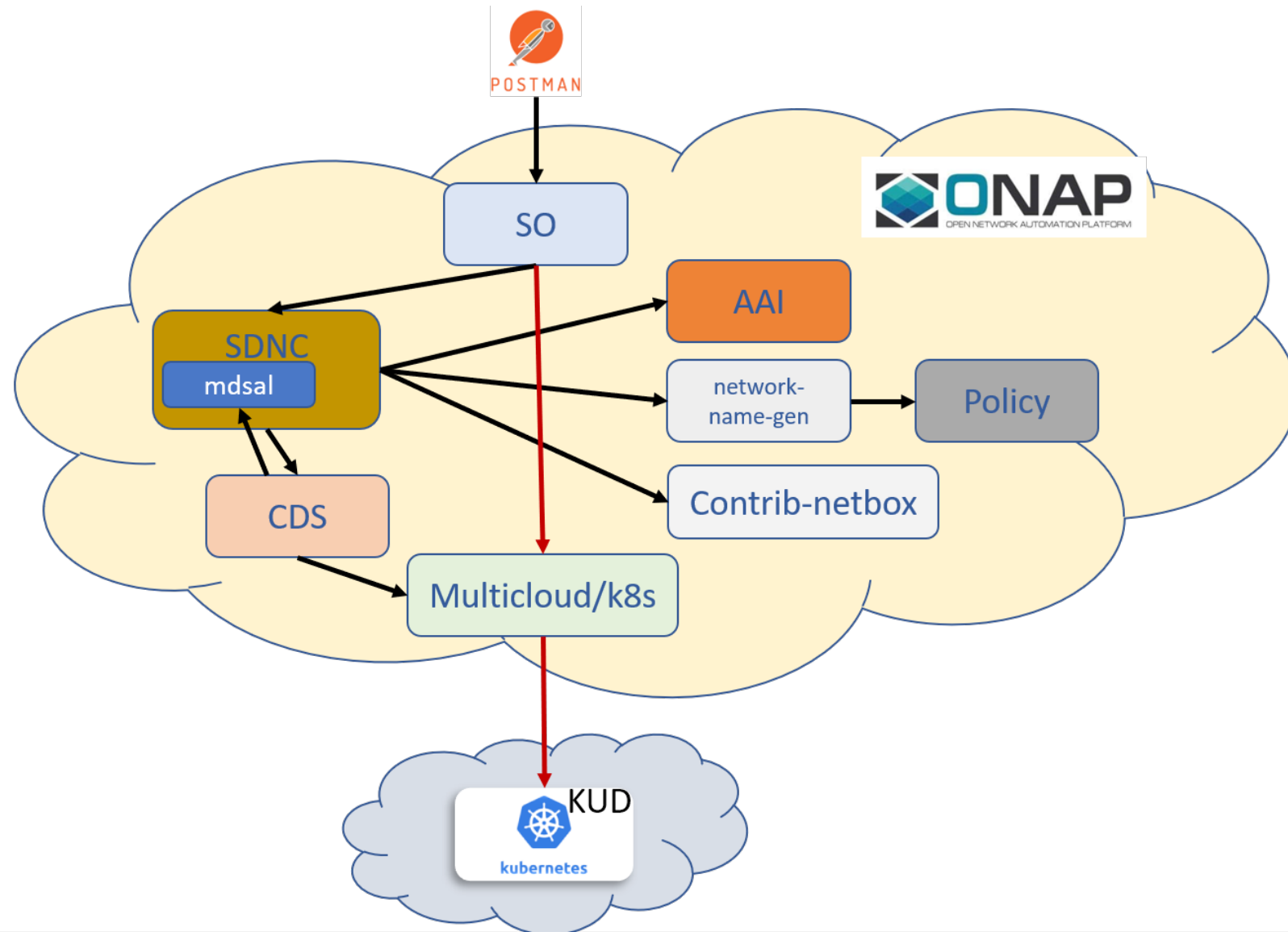
- Documentation
  - ONAP Readthedocs
- Onboarding Package
  - demo.git -> heat -> vFW_CNF_ CDS
  - Helm packages
  - CDS Blueprint
  - Automation scripts
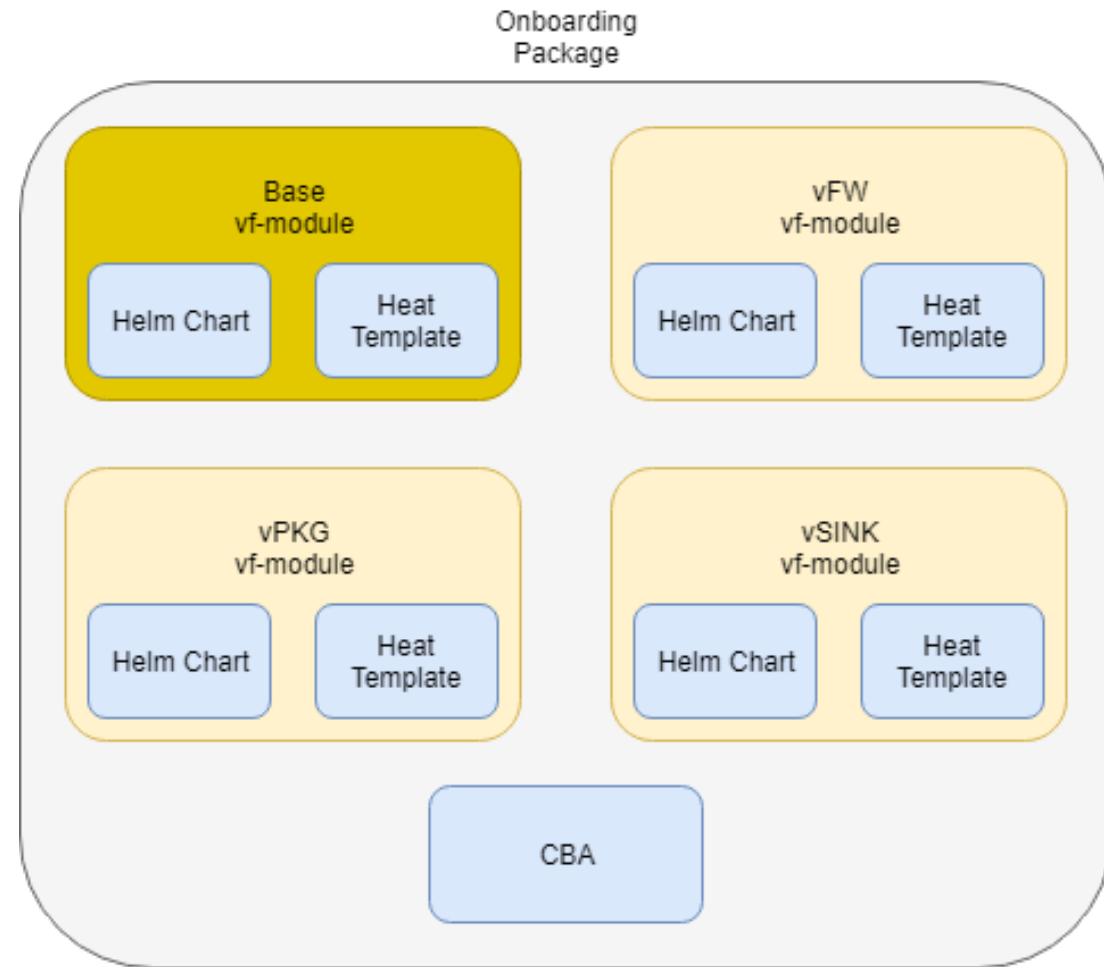- Related Jira tickets
  - INT-1184
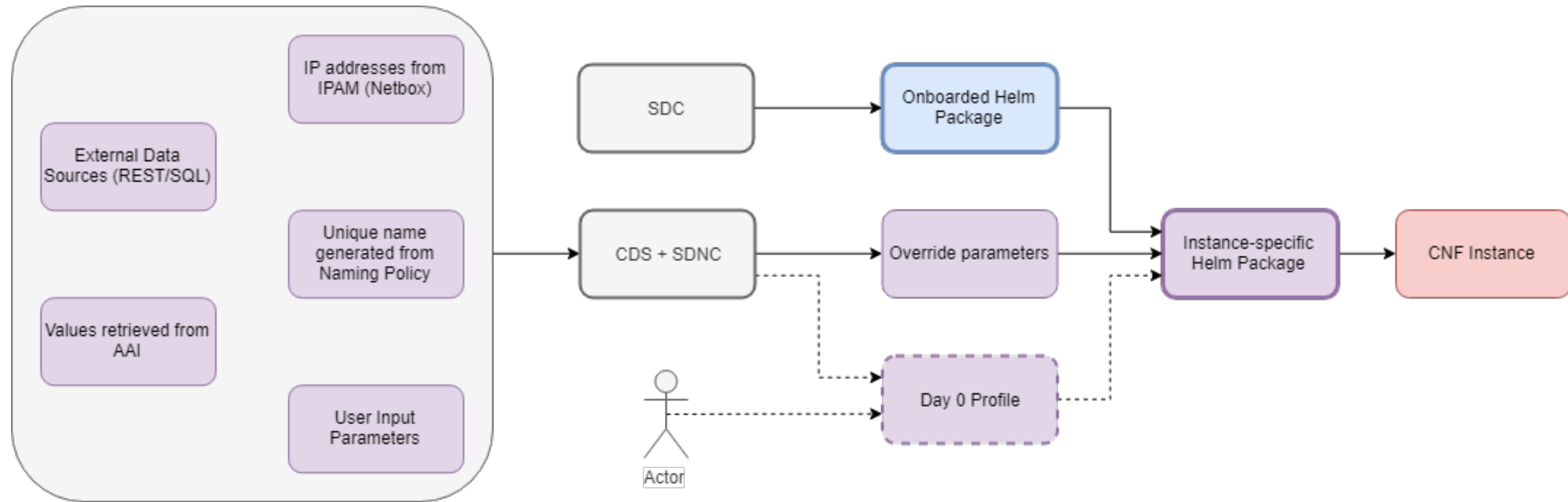 - REQ-182

vFirewall CNF Use Case prerequisites

- ## Kubernetes cluster to deploy vFW on
  - Due to specific requirements not every cluster is able to run vFW
  - KUD platform is suggested to be used (virtlet, ovn4nfv, multus preinstalled)

- ## Presence of required AAI entries and relationships
  - Customer, Owning Entity, Platform, Project and Line of Business – can be common across usecases, currently automated by robot's **demo-k8s.sh init** helper
  - Cloud Region, Complex, Tenant and Availability Zone – related to ***cloud region*** where application will be deployed, that is K8s cluster
  - Service and Customer's Service Subscription – specific for Network Service

- ## Kubeconfig file allowing access to K8s cluster uploaded into k8splugin

vFirewall CNF Use Case modeling

- vFW CNF is imported into SDC as Heat Onboarding Packages (**OP**)

- Compared to vFW CNF Dublin usecase, CNF is decomposed into **4 Vf-Modules** to resemble division in original vFW VNF

- **"Dummy" Heat files still required** for proper Vf-Modules visibility inside ONAP

- **Helm charts** in OP are described as "CLOUD_TECHNOLOGY_SPECIFIC_ARTIFACT" types.
  - each one **associated with one dummy Heat**

- **OP includes CBA** Model
  - automatically classified in SDC as "CONTROLLER_BLUEPRINT_ARCHIVE"
  - distributed automatically to CDS

Onboarding Package

Base vf-module — Helm Chart, Heat Template

vFW vf-module — Helm Chart, Heat Template

vPKG vf-module — Helm Chart, Heat Template

vSINK vf-module — Helm Chart, Heat Template

CBA

vFirewall CNF Use Case Parameters sources

vFirewall CNF Use Case instantiation

- K8s Plugin's major changes since Frankfurt

  - Instantiation of CNF without prior profile (Day 0 configuration object) upload

  - Helm override parameters can be provided in time of CNF instantiation

  - K8splugin's internal naming aligned with Vf-Module model IDs from ONAP

    → No need for custom user-params sent from SO to K8s Plugin to refer helm charts

- Change from a'la carte (VNF_API) Instantiation flow to Macro (GR_API) with CDS

  - Reduced number of CNF instantiation steps

    → Now Network Service is created with a single request compared to separate Service, V(C)NF and Vf-Modules instantiations

  - CDS resource-assignment used instead of previous SDNC-Preload

    → Utilized name generation and IP address resolution capability of SDNC

    → Multiple CNF vFW instances deployed on single K8s cluster without "hiccups"

    → CNF profile (Day 0 config) created and uploaded by CDS – optional resource-assignment step

    → Optional Helm package enrichment with modification of Helm package content

vFirewall CNF Use Case Postman Collection

Initial ONAP setup (AAI)

Create
- PUT   1. Create Customer
- PUT   2. Create Owning Entity
- PUT   3. Create Platform
- PUT   4. Create Project
- PUT   5. Create Line of Business

Check
- GET   List Customers
- GET   List Owning Entities
- GET   List Platforms
- GET   List Projects
- GET   List Lines of Business

Distribution verification (CDS/K8splugin)
- GET   [CDS] List CBAs
- GET   [CDS] CBA Download
- GET   [K8splugin] List Resource Bundle Definitions

K8s Cloud region registration (AAI/Multicloud)

Create
- PUT   1. [AAI] Create Complex
- PUT   2. [AAI] Create Cloud Region
- PUT   3. [AAI] Create Complex-Cloud Region relationship
- PUT   4. [AAI] Create Service
- PUT   5. [AAI] Create Service Subscription
- PUT   6. [AAI] Create Cloud Tenant
- PUT   7. [AAI] Create Availability Zone
- POST   1. [K8splugin] Upload Connectivity Info

Check
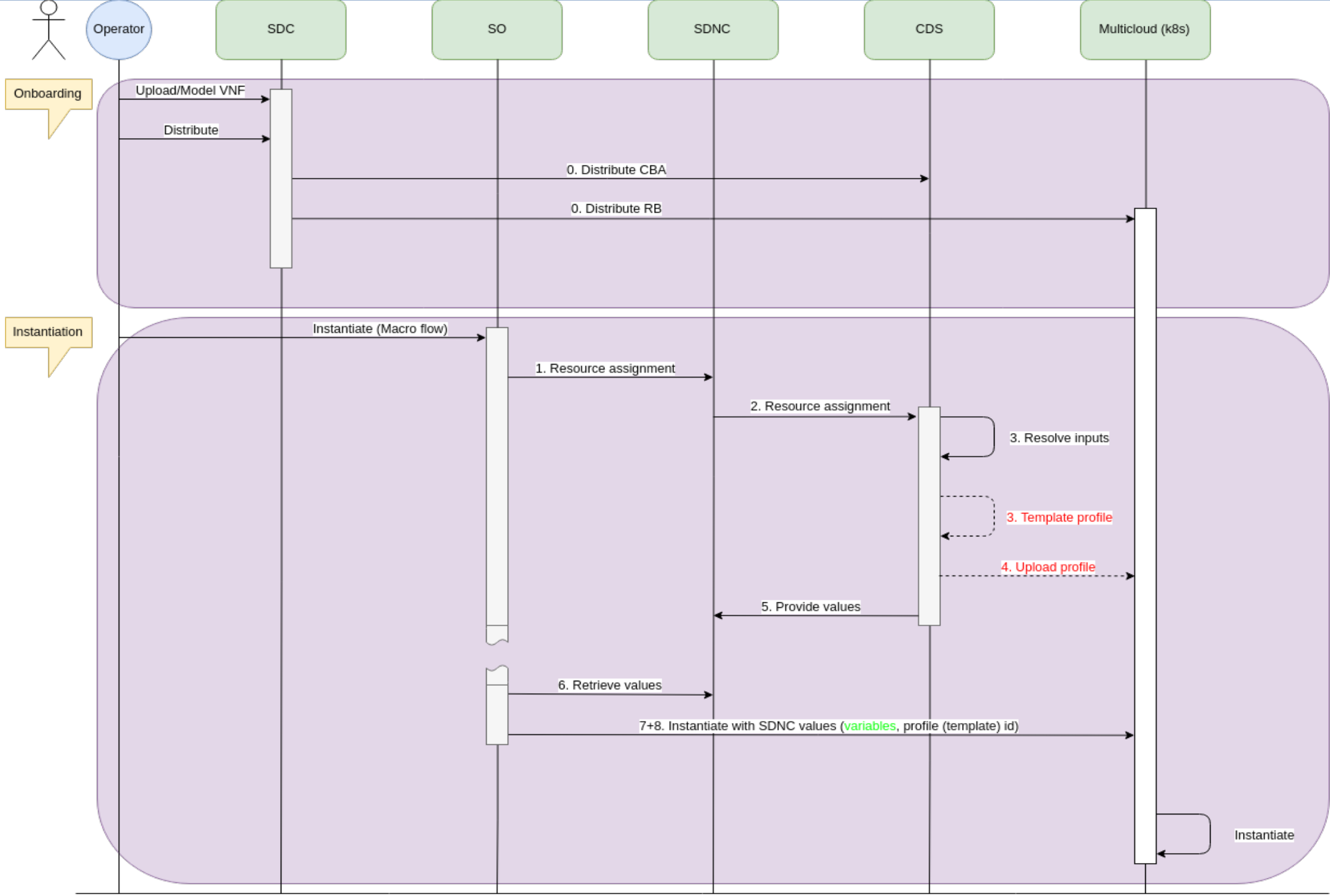- GET   [AAI] List Complexes
- GET   [AAI] List Cloud Regions
- GET   [AAI] List Cloud Region's Tenants
- GET   [AAI] List Cloud Region's AvZones
- GET   [AAI] List Services
- GET   [AAI] List Customers Subscriptions
- GET   [K8splugin] Get Cloud Region
- GET   [SO] Catalog DB Cloud Sites

LCM (SDC/SO)
- GET   1. [SDC] Catalog Service
- GET   2. [SO] Catalog DB Service xNFs
- POST   3. [SO] Self-Serve Service Assign & Activate
- GET   4. [SO] Infra Active Requests
- DEL   5. [SO] Service Delete
- POST   6. [SO] Self-Serve Service Assign & Activate - Second

Instantiation verification (AAI/SDNC/K8splugin)
- GET   [AAI] List Service Instances
- GET   [SDNC] GR-API MD-SAL Services
- GET   [AAI] Show Service Instance
- GET   [SDNC] GR-API MD-SAL Service
- GET   [SDNC] GR-API MD-SAL VNFs
- GET   [AAI] Show VNF Instance
- GET   [SDNC] GR-API MD-SAL VNF
- GET   [AAI] List VF-Modules
- GET   [AAI] List vServers <Empty>
- GET   [K8splugin] List Instances

Onboarding

Operator → SDC: Upload/Model VNF
Operator → SDC: Distribute
SDC → CDS: 0. Distribute CBA
SDC → Multicloud (k8s): 0. Distribute RB

Instantiation

Operator → SO: Instantiate (Macro flow)
SO → SDNC: 1. Resource assignment
SDNC → CDS: 2. Resource assignment
CDS: 3. Resolve inputs
CDS: 3. Template profile
CDS → Multicloud (k8s): 4. Upload profile
CDS → SDNC: 5. Provide values
SO → SDNC: 6. Retrieve values
SO → Multicloud (k8s): 7+8. Instantiate with SDNC values (variables, profile (template) id)
Multicloud (k8s): Instantiate

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Demo/Video

Further improvements possible for G Release

- vFW CNF Use Case Improvements
  - Automate repetitive actions with robot scripts to reduce manual overhead
  - Fully automate usecase and include in ONAP Daily CI
  - Update usecase with Closed Loop functionality present in original vFWCL
  - Use Modern VID UI for triggering Macro instantiation flow
- REQ-341 - ONAP CNF orchestration Enhancements
  - Native Helm package orchestration in SO → improved CNF modeling (no need for dummy Heat templates) + Enabler for CNF data in AAI
  - K8s instantiated resource status monitoring and improved synchronization with AAI
- Opportunity for new use case
  - Heterogenous VNF + CNF Service
  - Simplified application (no need of custom k8s addons) instantiable on any k8s cluster

Dedicated Session

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Questions/Comments