vFW CNF Use Case Evolution

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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 Readthedsocs

• Onboarding Package
  - demo.git -> heat -> vFW_CNFMF_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
vFirewall CNF Use Case Parameters sources

External Data Sources (REST/SQL)
- IP addresses from IPAM (Netbox)
- Unique name generated from Naming Policy
- Values retrieved from AAI
- User Input Parameters

SDC

Onboarded Helm Package

CD3 + SDNC

Override parameters

Instance-specific Helm Package

CNF Instance

Actor

Day 0 Profile
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

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

- **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 VNFI Instance
  - GET [SDNC] GR-API MD-SAL VNF
  - GET [AAI] List VF-Modules
  - GET [AAI] List vServers <Empty>
  - GET [K8splugin] List Instances
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
Questions/Comments