CNF failover by ONAP CDS and Policy

Linux Foundation Networking - 2022 Jan
Akos Leiter, Attila Hegyi, Peter Fazekas
11-01-2022
Agenda

Overview
Demo architecture
Demo
Overview

• UPF failure is detected by ONAP
• ONAP starts failover:
  • New UPF instance is deployed to a second K8S cluster
  • Faulty instance is deleted
Demo scenario overview
Namespace-to-namespace failover

Failover: Deployment of new instance after original failed, deletion of failed instance

0. DEPLOY (prerequisite)
1. SEND VES
2. READ VES
3. TRIGGER POLICY
4. SO ACTOR
5. VF SCALE OUT
6. CDS ACTOR
7. VF SCALE IN
8. VF DELETE*

*: in a production scenario the UPF will probably be not deleted, but repaired
Components

UPF with minimal configuration

Workflows:
- VNF remains but different VF modules
  - Scale out / scale in
  - These are supported with SO actor in Policy
    - Add / remove VF modules
  - Use case: delete / reinstantiate complete VF
    - VF is single VF module
  - Using scale out / in allows more general use cases

Custom microservices for the use case

VESEMU
- Manually trigger a failure message to DMaaP
- Incorporates the necessary payload to further processing

AA
- Reads the relevant DMaaP topic
- Sends onset to Policy (via DMaaP)
Policy for failover

Drools operational policy with two operations

SO-Actor
- Built in vf-module scaleOut operation
- In Frankfurt it had its limitations
- Operation for scaleIn is not implemented correctly

CDS actor:
- Operation to call any CDS workflow
- We implemented the vf-module scaleIn in CDS
Policy for failover
Drools operational policy – CDS actor

We had experimented with the CDS actor:
• Can trigger any custom CDS workflow
• Sending a gRPC execution request with:
  • `service-instance-id` and `vnf-id`
  • additional `payload` defined in the policy
• We implemented a `scaleIn` CDS workflow with Kotlin execution:
  • Collecting information from AAI
  • Determine vf-module to delete
  • Send a vf-module delete request to SO
Q&A so far?