NFV modelling, composition and chaining in cloudified 5G systems

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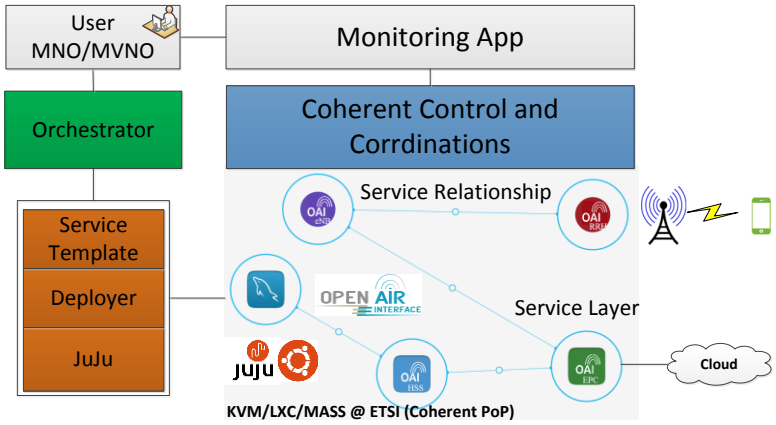
The NFV revolution is full of the promise of flexibility and speed for the network operators but also numerous challenges given the complex environment it creates. Service-level modelling approach to NFV enables higher-level of orchestration and makes business decisions very clearly and simply through the underlying model. In contrast with traditional configuration management systems which focus on machines, a model encapsulates the relationships, scale, data types, communication services, lifecycles, resources, and constraints required to deploy atomic and composite network functions in virtualized mobile infrastructure. Through modelling, a reference service-specific topology can be built that defines standard interfaces interconnecting the VNFs and deployment architecture with machine constraints and network spaces while retaining the flexibility to change the network service definition on the fly. Therefore, such a reference service architectural model can be standardized to tailor the resulted network slice to a particular use case.

The objective of this demonstration is to showcase part of the achievement of the H2020-COHERENT project under the 5GPPP umbrella [1]. This is based on a use case execution and presentation that will bridge the gap between the telecom providers and the cloud worlds by creating an integrated network service based on the services and technologies. In particular, we show that a fully 3GPP approach is able to bring the required flexibility in splitting, chaining, and placement of RAN functions while meeting the real-time deadlines imposed by mobile networks. We further demonstrate a high-level of orchestration through a service-level modelling approach to NFV.

In this demonstration, we show how to model a cloud-RAN service topology, manage the lifecycle, and change the service template definition on the fly based on the OpenAirInterface 5G platform orchestrated by Canonical JuJu framework [2,3]. Service instances can be efficiently scaled in/out overtime to meet the workload demand. In particular we demonstrate the ability to deploy a realworld LTE/LTE-A network with the following blueprint :



References :

[1] **http://www.ict-coherent.eu/**
[2] **http://www.openairinterface.org/**
[3] **https://jujucharms.com/q/oai**