5G-ready applications in Matilda
Network and Computing Slice Deployment Platform

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Design and implement a holistic 5G end-to-end services operational framework tackling the lifecycle of design, development and orchestration of 5G-ready applications and network services over virtual and physical infrastructure, following a unified programmability model and a set of control abstractions.
Slice Intent

SliceIntentIdentifier
- The descriptive identifier of an Intent that is submitted by the Vertical Orchestrator to the Telco Provider

ServiceMeshIdentifier
- The descriptive identifier of the vertical application. It will be used by the repository for indexing purposes

Constraints
- The element that encapsulates various constraints that have to be satisfied by the Telco Provider

LogicalFunctions
- This element encapsulates some logical functions that can be satisfied by the Telco Provider using VNF forwarding graphs

ExposedInterface
- It can refer to a single port or a range of ports that serves this interface. One Interface can be Access or Core Type

InterfaceIdentifier
- The descriptive identifier of the target Component interface that is required

GraphLink
- The element that encaptulates the required dependencies of other components

ComponentIdentifier
- The descriptive identifier of a dependency between two Components

Configuration
- The element that encapsulates the information that is required for deploying or managing a Component

Volume
- The element that encapsulates the volume that should be provided to the component during instantiation

MinimumExecutionRequirements
- The element that encapsulates the requirements that have to be met by the component
Telecom Service Provider Platform

MATILDA 5G Operations Support System
- Slicing Northbound Module
- Resource Selection Optimizer Module
- Network Service Manager and NFV Convergence Layer
- OSS Core Module

Based on SDGE

Configuration persistency layer
Prometheus Monitoring persistency layer

NFV Orchestrator
Open Source MANO

Wide-Area Infrastructure Manager

Virtual Infrastructure Manager
OpenStack

SDN Wide-Area Network Controller

OPEN DAYLIGHT

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Slice Intent/materialization REST interface towards the Vertical Application Orchestrator(s)
It coordinates the work of all the other building blocks in the Telecom layer platform to set up and to properly configure base 4/5G network services, network slices, and edge computing resources.
In charge of providing optimization and reinforcement policies/algorithms to be executed in the OSS.
Provides a level of abstraction for the flexible and high-level management of the complete lifecycle orchestration of network services, VNFs and PNFs instantiated in the 5G infrastructure.
Manages and monitors the wide-area communication resources, creates network overlays to be used and provides information on which resources (e.g., VIMs, PNFs, etc.) can be selected in the distributed 5G infrastructure to create slices/services in order to satisfy vertical application performance requirements.
In charge of managing the lifecycle of the network services composing the base 4/5G services, and of the ones provided to slices in a shared or isolated fashion. The NFVO is also in charge of Day-2 operations for PNFs (e.g., g/eNodeBs).
Interconnects the control agents of the SDN devices in the wide-area network for monitoring and configuration purposes.
**NS Blueprint** is an abstraction for producing the Network Service descriptors and generating the deployment and graph creation procedures. It provides a single, high-level network template with a pre-determined set of optional/mandatory capabilities.
NFV Convergence Layers

Blueprints & Creation of Network Service Descriptors

Blueprints & Day-2 Configurations

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DEMO DESCRIPTION: Step 0 – OS INIT

OS-1

DC-1

INTERNET

OS-2

DC-2

OS-3

DC-3

WAN

Offline control network (VNFs & PNFs control)

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DEMO DESCRIPTION: Step 1 – BOOTSTRAP

OpenFlow 1.3 network

WAN

Offline control network (VNFs & PNFs control)
DEMO DESCRIPTION: Step 2 – Configuration

OS-1

OS-2

One default APN

OS-3

EPC

DC-1

bypass

DC-2

bypass

DC-3

bypass

INTERNET

P2P VXLANs

WAN

Offline control network (VNFs & PNFs control)
DEMO DESCRIPTION: Step 3 – SLICE MATERIALIZATION

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DEMO TIME

PHEW

FINALLY, IT'S DEMO TIME
Thanks for your Attention

Any Question?