

Casablanca Platform Enhancements to Support 5G Use Case

Summary of Planned Enhancement Areas (TSC Review)

5G Use Case Team

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Contributors:

Supporting Companies









And Others





High Level Objectives for Casablanca:

- Deployment of the hybrid 5G Radio Network (PNFs & VNFs)
 - Complete PNF Support
 - Platform Enhancements to Deploy Edge PNF & Virtual Radio Network Functions (e.g. CU)
 - PNF PlugNplay, Configuration Enhancements, Performance Analysis & Optimization
- Optimization of the deployed 5G network
 - OOF enhancements for optimal placement of edge resources
 - Edge Analytics to Support 5G Network Optimization
- Support for Modeling, Creation & Management of Network Slice
 - Design & Lifecycle Management of Slice & Slice Subnet Instances



PNF PnP Enhancements

TOPIC	ICON	DESCRIPTION
PNF Registration Handler (PRH) Improvements		New VES Event domain for PNF registration with corresponding support in VES collector, DMaaP and PRH.
SO Workflow enhancements		Introduction of dedicated 5G use case work-flow
Service Configuration Improvement		Service configuration improvements from APP-C/SDN-R to PNF after PNF registration to PRH
Security Enhancements		Authentication, Certificates, User name & password and intra-ONAP security.
Modeling enhancements		Modeling enhancements to support 5G PNF in ONAP. Inheritance, and PNF characteristics for sharing. Focusing on PNF connectivity. PNF-SDK.
PNF Onboarding / Package		Defining <i>PNF Onboarding Package</i> . Extending framework to work with PNFs. Defining PNF Package framework.

Service Configuration Enhancements

TOPIC	ICON	DESCRIPTION
CDT Integration to SDC		<i>Configuration Design Tool</i> (CDT) which provides a GUI to build artifacts to be used by APP-C (using Tosca models) to configure Templates incorporated into SDC.
PNF Software Version Checking		Reporting PNF S/W version to ONAP controller (SDN-R) & A&AI. Demonstrate the PNF S/W version has been updated in A&AI.
PNF & CU Application Level Configuration		Enhancements for SDN-R. Single Persona to control/create 5G PNFs (NE).
Life-Cycle Management Support		Change management and CLAMP for life-cycle support for PNF.




PERFORMANCE ANALYSIS & OPTIMIZATION

TOPIC	ICON	DESCRIPTION
Bulk Performance Measurements (PM) Collection		Performance Measurements Collection with ONAP. Development and evolution of event collection through VES collector.
High Volume & Real-Time Performance Measurements (RTPM) Collection		Performance Measurements Collection for Real-Time collection from PNF for sub-minute intervals (configurable). Introduces a High-Volume VES collector for high-volume data management (in DCAE) using a persistent connection. Introduces new data encoding (GPB). Distributed collection at cloud edge (for scalability).

Optimization Framework Enhancements

TOPIC	ICON	DESCRIPTION
Optimal placement of vNF		Placement of Mobility Virtual Network Elements (CUs) across the highly distributed edge clouds is a fundamental requirement. Service Providers must also optimize the performance of the 5G RAN in real-time.
Slice optimization problem formulation		Ability to model the problem as a constrained optimization problem, closely tied up policies
Slice optimization problem solving		Ability to use appropriate algorithms and solvers to solve the problem in acceptable time frames.
SON - problem formulation		Ability to formulate SON problems as constrained optimization problems, policy driven. Potential use cases - (1) Energy optimization (2) Load balancing
SON - problem solving		Ability to use appropriate algorithms and solvers to solve the problem in acceptable time frames.
		Impacted systems: SO, Policy, AAI, DCAE, MultiCloud (possibly), SDN-R

Modeling & Management of Network Slice (Proposed)

TOPIC	ICON	DESCRIPTION
Design/SDC Enhancements For Modeling		<ul style="list-style-type: none">– Design/SDC Enhancements For Modeling– Multiple Allotted Resources Per Service– Nested Allotted Resources Per Service– Service Hierarchy
SO Workflow enhancements		To Support Slice Model/Hierarchy
Controller & Inventory Enhancements		To Support Slice Model/Hierarchy
Note:		<p>Domain Models For Slicing – From SDOs are not mature & have not been standardized; however, the identified enhancements will be needed when Operators implement slices as models become available (whether using vendor-specific or standardized models)</p> <p>With the identified enhancements implemented in the Casablanca timeframe, we hope to have vendor/operator implementations post-Casablanca</p> <p>This still allows for slicing work/demonstrations (on existing networks using existing ONAP capabilities)</p>



ONAP

OPEN NETWORK AUTOMATION PLATFORM

Thank You!