

Casablanca Platform Enhancements to Support 5G Use Case

Summary of Planned Enhancement Areas

5G Use Case Team

June 14, 2018

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, Target Software Management
- Optimization of the deployed 5G network
 - Edge Analytics to Support 5G Network Optimization
 - Enhance DCAE for near real-time (order of seconds) streaming performance data collection
 - Enhance DCAE for Bulk performance data collection
 - ~~Introduce Real-time streaming analytic platform~~ (*cannot be implemented due to resources*)
 - OOF enhancements for optimal placement of edge resources

5G/PNF Plug and Play Enhancements

TOPIC	DESCRIPTION
PNF Registration Handler (PRH) enhancements	Define a New VES Event Domain for PNF registration with the corresponding support in DCAE VES Collector, DMaaP and PRH
SO Workflow enhancements	Enhance SO to support model driven dedicated workflow for PNF elements
Service Configuration Enhancements	Add needed artifacts in CCSDK to support Radio / Microwave configuration, PNF discovery and registration support
Security enhancements	Authentication and Certificate support for PNF, including registration event and data collection (fault and performance)
Modeling enhancements	Enhance ONAP information and data model to fully support 5G PNF elements, including inheritance and PNF sharing characteristic
PNF onboarding and packaging	Define PNF Package, PNF package validation and onboarding enhancements

Service Configuration Enhancements

TOPIC	DESCRIPTION
Enhance CDT tool to support 5G and integrate into SDC	Integrate App-C focused CDT tool into SDC and enhance it to support 5G network elements and integrate with L1-7 GNFC
Capture and Verify PNF Software version	Enhance GNFC to capture and verify PNF software version, Enhance A&AI to store PNF Software version
PNF & CU Application Level Configuration	Generate a single ONAP controller persona from CCSDK (called GNFC) to support various 5G network elements (Layer 1 through 7 configuration and management)
Lifecycle management Support	Enhance change management and Close Loop Automation (CLAMP) to support 5G PNF / VNFs

PERFORMANCE ANALYSIS – Bulk PM

TOPIC	DESCRIPTION
Bulk performance measurement (PM) data collection	Enhance DCAE VES collection layer to support periodic (e.g. every 5 to 15 minutes) bulk data collection from VNFs and PNFs. Support both file-based collection and mapping to VES Events for chosen file content

PERFORMANCE ANALYSIS – High Volume PM

TOPIC	DESCRIPTION
High Volume and Near Real-time streamed data collection of Performance measurements	Enhance DCAE performance measurement (PM) data collection to support near real-time (order of seconds) data. Introduce a high-volume VES collector using a persistent connection (TCP socket), support a new data encoding (GPB). Distribute DCAE collection at the cloud edge (for scalability)

Optimization Framework Enhancements

TOPIC	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.
Optimization problem formulation	Ability to model the problem as a constrained optimization problem, that is driven by policies – Potential use case examples: formulation of optimization problems at various levels: Customer (e.g. provisioning), Service (e.g. slice optimization), Network (e.g. Routing, problems at the network planning level), Infrastructure (e.g. Placement) & Resource (e.g. License)
Optimization problem solving	Ability to use and deploy appropriate analytics, algorithms and solvers to solve the problem in acceptable time frames at various levels: Customer, Service (e.g. Slice Optimization Analytics), Network (e.g. SON network planning analytics), Infrastructure (e.g. Placement) & Resource

PERFORMANCE ANALYSIS – DDS

TOPIC	DESCRIPTION
High Volume, Near Real-time streamed data collection using connection-less pub-sub mechanism	Enhance DCAE performance measurement (PM) data collection to support near real-time (order of seconds) data. Introduce a high-volume VES collector using a connectionless pub/sub mechanism (DDS technology), support a new data encoding (GPB). Distribute DCAE collection at the cloud edge (for scalability)



DCAE Input Jun 29, 2018 – Vijay Venkatesh Kumar “this cannot be committed for R3 due to resource constraints”



ONAP

OPEN NETWORK AUTOMATION PLATFORM

Thank You!