Guilin release - functional requirements proposed list

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 - Support for Containerized Network Function orchestration through ONAP service orchestrator
 - Key Contacts Seshu Kumar Mudiganti Srinivasa Addepalli Lukasz Rajewski
 - Executive Summary Provide CNF orchestration support through integration of K8s adapter in ONAP SO
 - Business Impact -Enables operators and service providers to orchestrate CNFs based services along with the VNFs and PNFs
 - Business Markets All operators and service providers that are intended to use the CNFs along with PNFs / VNFs
 - Funding/Financial Impacts Reduction in the footprint of the ONAP for CNF support by reusing the existing components.
 - Organization Mgmt, Sales Strategies -There is no additional organizational management or sales strategies for this requirement outside of a service providers "normal" ONAP deployment and its attendant organizational resources from a service provider.
- Support for ETSI SOL002 v2.7.1 Ve-Vnfm Interface from ONAP to external VNF Manager(s)
- Container Network Function Test Platform (CNTP): OVP 2.0 support and Enable Network Service testing
- R7 PNF PLUG & PLAY BUILDING BLOCK / WORK-FLOW MANAGEMENT
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- xNF License Management
- 5G Network Resource Model (NRM) Configuration
- CCVPN Transport Slicing

TABLES OF REQUIREMENTS

STANDARDS Alignment

ТОРІС	CONTACTS
Onboard ETSI SOL004 compliant VNF packages (ETSI Package Management)	Fernando Oliveira, Byung- Woo Jun
Onboard ETSI SOL007 compliant Network Service Descriptor packages (ETSI Package Management)	Fernando Oliveira, Byung- Woo Jun
Design ETSI SOL007 compliant Network Service Descriptor packages (ETSI Package Management)	Fernando Oliveira, Byung- Woo Jun
Support for Nested/Hierarchical ETSI SOL001 v2.7.1 Network Service Descriptor	Fernando Oliveira, Byung- Woo Jun
Support for ETSI SOL003 v2.7.1 Or-Vnfm Interface from ONAP to external VNF Manager(s)	Fernando Oliveira, Byung- Woo Jun
Support for ETSI SOL005 v2.7.1 Os-Ma-nfvo Interface between ONAP and NFVO	Fernando Oliveira, Byung- Woo Jun

Support for ETSI NFV NFVO Orchestrator in ONAP SO	Fernando Oliveira Byung- Woo Jun
Guilin release - functional requirements proposed list#Support for ETSI SOL002 v2.7.1 Ve-Vnfm Interface from ONAP to external VNF Manager(s)	Fernando Oliveira Miroslaw Medrek
R7 HARMONIZATION: ONAP/3GPP & O-RAN ALIGNMENT-STANDARDS DEFINED NOTIFICATIONS OVER VES	Marge Hillis
	Vimal Begwani
	Oskar Malm
	Damian Nowak
A1 Adapter Extension	Michela Bevilacqua John Keeney

5G Related

торіс	CONTACTS
E2E Network Slicing	LIN MENG,
	Swaminathan Seetharaman
OOF-SON: 5G Self-Organizing Network (SON) using ONAP Optimization Framework (OOF)	N.K. Shankaranarayanan, Swaminathan Seetharaman
Intent-based Network	Huang ZongHe
R7 5G PNF SERVICE MODEL INTRODUCTION	Benjamin Cheung
Guilin release - functional requirements proposed list#5GNetworkResourceModel(NRM) Configuration	yaoguang wang
CCVPN - Transport Slicing	Henry Yu LIN MENG

xNF (PNF, VNF, ANF, CNF ...) Related

торіс	CONTACTS
R7PNFPLUG&PLAYBUILDINGBLOCK/WORK-FLOWMANAGEMENT	Benjamin Cheung Damian Nowak
Guilin release - functional requirements proposed list#R7ONAPSECURITY- CMPv2SERVER/CLIENTINTEGRATION	Benjamin Cheung Pawel Baniewski Hampus Tjäder
Guilin release - functional requirements proposed list#R7PNFONBOARDING/PRE- ONBOARDINGVNF-SDKVALIDATION	Benjamin Cheung Damian Nowak Zu Qiang (Ericsson)
Support xNF Software Upgrade in association to schema updates	Zu Qiang (Ericsson) Lukasz Rajewski Ajay Mahimkar Chri s Rapposelli-Manzo
ONAP high level design requirements NOTE: These relate both xNF and 5G Table	Alessandro Gerardo D'Alessandroceciliamaria. corbi@telecomitalia.it
Configuration&PersistencyServiceProject	Benjamin Cheung, Joanne Liu Rudel Tony Finnerty
Support for Containerized Network Function orchestration through ONAP service orchestrator	Seshu Kumar Mudiganti Srinivasa Addepalli Lukasz Rajewski
PM Data Control Extension	Michela Bevilacqua, @Mark Scott

TESTING Related

ТОРІС	CONTACTS
Support for Test Topology Auto Design NFV Testing Automatic Platform	Lei Huang
Support for Test Environment Auto DeployNFV Testing Automatic Platform	Lei Huang

Support for Test Task Auto Execution NFV Testing Automatic Platform	Lei Huang
Support for Test Result Auto Analysis & Certification NFV Testing Automatic Platform	Lei Huang
Guilin release - functional requirements proposed list#Container Network Function Test Platform (CNTP)	user-67d6f

MISC Category

ТОРІС	CONTACTS
xNF License Management	Timo Perala Samuli Kuusela
R7 MDONS Extension	Raghavan Subramanian Xin Miao

Onboard ETSI SOL004 compliant VNF packages (ETSI Package Management)

Executive Summary - Enable a vendor provided ETSI SOL004 compliant VNF package including an ETSI SOL001 VNF Descriptor to be onboarded into ONAP for composition into an ONAP Service

- Support for onboarding ETSI v2.7.1 SOL004 CSAR Packages (Link to ETSI SOL004 v2.7.1)
- Support for onboarding ETSI v2.7.1 SOL001 VNF Descriptor (Link to ETSI SOL001 v2.7.1)
- Support for mapping of ETSI v2.7.1 SOL001 VNF Descriptor into SDC AID Data Model
- Support for using an ETSI v2.7.1 VNF in an ONAP Service

Business Impact - Enables operators and service providers to use same ETSI compliant VNF packages with ONAP and existing NFVO. Industry compatibility.

Business Markets - All operators that are currently using ETSI packages to deploy VNFs

Funding/Financial Impacts - Reduction in operations expense from using industry standard VNF packaging. Reduction in capital expense from vendors using a single packaging methodology.

Organization Mgmt, Sales Strategies - There is no additional organizational management or sales strategies for this requirement outside of a service providers "normal" ONAP deployment and its attendant organizational resources from a service provider.

Onboard ETSI SOL007 compliant Network Service Descriptor packages (ETSI Package Management)

Executive Summary - Onboard an ETSI SOL007 v2.7.1 compliant (Link to ETSI SOL007 v2.7.1) Network Service Descriptor package including an ETSI version 2.7.1 SOL001 Network Service Descriptor (NSD) to be onboarded into ONAP for composition into an ONAP Service or deployment using an ETSI compliant NFVO.

- Support for Cataloging and Preserving the original SOL007 package
- Support for mapping of ETSI v2.7.1 SOL001 Network Service Descriptor in the SOL007 package into SDC AID Data Model
- Support for deploying a service that contains an ETSI SOL001 v2.7.1 compliant Network Service using VF-C as the NFVO
- Support for deploying a service that contains an ETSI SOL001 v2.7.1 compliant Network Service using an external NFVO

Business Impact - Enables operators and service providers to use vendor provided and internally designed Network Service Descriptors with ONAP and existing NFVO. Industry compatibility.

Business Markets - All operators and service providers that are developing ETSI compatible Network Services

Funding/Financial Impacts - Reduction in operations expense from using industry standard NSD packaging.

Organization Mgmt, Sales Strategies - There is no additional organizational management or sales strategies for this requirement outside of a service providers "normal" ONAP deployment and its attendant organizational resources from a service provider.

Design ETSI SOL007 compliant Network Service Descriptor packages (ETSI Package Management)

Executive Summary - Design, catalog and distribute an ETSI SOL007 v2.7.1 compliant (Link to ETSI SOL007 v2.7.1) Network Service Descriptor package including an ETSI version 2.7.1 SOL001 Network Service Descriptor (NSD) for deployment using an ETSI compliant NFVO.

- Support for deploying a service that contains an ETSI SOL001 v2.7.1 compliant Network Service using VF-C as the NFVO
- Support for deploying a service that contains an ETSI SOL001 v2.7.1 compliant Network Service using an external NFVO

Business Impact - Enables operators and service providers to use vendor provided and internally designed Network Service Descriptors with ONAP and existing NFVO. Industry compatibility.

Business Markets - All operators and service providers that are developing ETSI compatible Network Services

Funding/Financial Impacts - Reduction in operations expense from using industry standard NSD packaging.

Organization Mgmt, Sales Strategies - There is no additional organizational management or sales strategies for this requirement outside of a service providers "normal" ONAP deployment and its attendant organizational resources from a service provider.

Support for Nested/Hierarchical ETSI SOL001 v2.7.1 Network Service Descriptor

Executive Summary - Onboard an ETSI SOL007 v2.7.1 compliant (Link to ETSI SOL007 v2.7.1) Network Service Descriptor package including an ETSI version 2.7.1 SOL001 Network Service Descriptor (NSD) that includes references to other Network Service Descriptors for composition into an ONAP Service or deployment using an ETSI compliant NFVO.

Business Impact - Enables operators and service providers to use vendor provided and internally designed Network Service Descriptors with ONAP and existing NFVO. Industry compatibility.

Business Markets - All operators and service providers that are developing ETSI compatible Network Services especially for 5G Slicing where each Slice Subnet is associated with a Network Service

Funding/Financial Impacts - Reduction in operations expense from using industry standard NSD packaging.

Organization Mgmt, Sales Strategies - There is no additional organizational management or sales strategies for this requirement outside of a service providers "normal" ONAP deployment and its attendant organizational resources from a service provider.

Support for ETSI SOL003 v2.7.1 Or-Vnfm Interface from ONAP to external VNF Manager(s)

Executive Summary - Provide an interface adapter from ONAP Service Orchestrator to external VNF Manager(s) using ETSI SOL003 v2.7.1 (Link to ETSI SOL003 v2.7.1) compliant Interface

- Support for Create, Instantiate, Query of a VNF using an external VNF Manager
- Support for Grant request from an external VNF Manager
- Support for ModifyVnfInfo using an external Manager
- Support for VNF Heal
- Support for VNF Scale (out, in, level)
- Support for Grant with Incremental resource allocation and HPA support using OOF
- Support for received VNF Life Cycle Notifications (LCN) from a VNF Manager and translation into DCAE Events
- Oauth2 based authentication support between ONAP and VNFM(s)

Business Impact - Enables operators and service providers to use vendor provided or internally developed ETSI compliant VNF Manager(s). Industry compatibility.

Business Markets - All operators and service providers that are using ETSI SOL003 compliant VNF Managers

Funding/Financial Impacts - Reduction in operations expense from using industry standard Interfaces.

Organization Mgmt, Sales Strategies - There is no additional organizational management or sales strategies for this requirement outside of a service providers "normal" ONAP deployment and its attendant organizational resources from a service provider.

E2E Network Slicing

Slides presented in the March 2nd 2020 Requirements	E2E Network Slicing High level requirements report on Mar 2nd
Sub-committee call	Requirement Subcommittee Call

Executive Summary: 5G Network Slicing is one of the key features of 5G. The essence of Network Slicing is in sharing network resources (PNFs, VNFs, CNFs) while satisfying widely varying and sometimes seemingly contradictory requirements to different customers in an optimal manner. Same network is expected to provide different Quality of Experience to different consumers, use case categories and industry verticals including factory automation, connected home, autonomous vehicles, smart cities, remote healthcare, in-stadium experience and rural broadband. An End-to-End Network Slice consists of RAN, Transport and Core network slice sub-nets. This Use Case intends to demonstrate the modeling, orchestration and assurance of a simple network slice (e.g. eMBB). While 3GPP standards are evolving and 5G RAN and core are being realized, this Use Case will start with realizing an E2E Network Slice with a simple example of a 5G RAN, Core and Transport Network Slice sub-nets. It will also align with relevant standard bodies (e.g., 3GPP, ETSI, TM Forum) as well as other open initiatives such as O-RAN where relevant, w.r.to both interfaces as well as the functional aspects.

Business Impact: Network Slicing is a feature that almost every service provider will leverage. It allows a service provider to improve their network efficiency by maximizing the network throughput more tailored to each user's use of the network. It is seen as an imperative for efficient and optimal use of their network. This will be particularly relevant as 5G is expected to have upwards of 10,000x the traffic load over 4G and 20GB peak data rates.

Business Markets: Network Slicing, for this use case, is specifically aimed at a 5G access, core and transport. In the future, this might be extended to other domains or applications such as fixed-wireless convergence, Wi-Fi access, all aspects of transport including fronthaul, or unified network management orchestration. Network Slicing functionality is what almost every wireless service provider will inevitably find valuable. The concepts and modeling work being done for Network Slicing will find applications in other areas as well. (Industries) Some applications and industries such as smart cities, remote maintenance, video streaming vs life-saving first-responder type applications will demand different requirements from Network slicing. (Marke ts/Regions) There are no regional specific aspects to Network Slicing.

Funding/Financial Impacts: Network slicing engenders the optimal use of resources for a Network. Thus, this represents OPEX savings for a service provider.

Organization Mgmt, **Sales Strategies:** There is no additional organizational management or sales strategies for this use case outside of a service providers "normal" ONAP deployment and its attendant organizational resources from a service provider.

Support xNF Software Upgrade in association to schema updates

Executive Summary: A schema update in relation to a xNF software upgrades is a routine for network upgrade to support new xNF features, improve efficiency or increase xNF capacity on the field, and to eliminate bugs. This use case provides to ONAP an advantage in orchestrating and managing the Life Cycle of a Network Services in-line with business and service objectives.

Business Impact: Deployment and orchestration of new services over CNFs, VNFs and PNFs in a model and software driven way simplifies the network management. Enables operators and service providers to manage the Life Cycle of a Network Service. Assuring continuity of operation of services is crucial for production and carrier grade environments. The actualization or upgrades of software and in consequence required changes in the service model is a natural part of service instance life cycle. Without the support of ONAP service update with schema change, service life cycle management by ONAP can be very difficult which can impact the quality and continuity of services.

Business Markets: All operators and service providers that are using ONAP for service and network function Life Cycle Management

Funding/Financial Impacts: Reduction in operations expense from using industry standard Interfaces.

Organization Mgmt, Sales Strategies: There is no additional organizational management or sales strategies for this requirement outside of a service providers "normal" ONAP deployment and its attendant organizational resources from a service provider.

ONAP high level design requirements

slides 20200512.ONAP.relG.TIM.functional.requirements.pptx

Key Contacts - Alessandro Gerardo D'Alessandro, ceciliamaria.corbi@telecomitalia.it

Executive Summary – Today new emerging infrastructures based on kubernetes are becoming very popular. ONAP components shall support CNAs /CNFs artifacts, cloud native service models and relevant distribution/management. Given the fact that K8s has its own orchestration capabilities that partially overlap with ONAP capabilities, it is expected that ONAP development focuses first on aspects not covered by K8s. The envisioned scenario is based on both CNFs and PNFs. Moreover kubernetes provide a declarative approach to the orchestration of many aspects such as resource provisioning, resource scaling and resiliency and can be enhanced with many add-ons that seamlessly provide other features such as application control, communication robustness etc (e.g service mesh by Istio). ONAP provides a good level of flexibility in service orchestration (e.g. a la carte, Macro and E2E orchestration approaches) but the framework requires specialized skills to implement unforeseen orchestration patterns that may slow down new service design and deployment. It is therefore required that ONAP functional module adopts a declarative approach and native support for CNAs artifacts to avoid time to market bottlenecks.

Business Impact – Today, many ONAP components (e.g. SDC, SO and AAI) are not able to manage CNA/CNF artifact/service models in a native way that bring to unnecessary complexity in service orchestration. It is expected that ONAP modeling and LCM support be future proof. ONAP developments shall focus first on LCM aspects not covered by K8s (e.g. on service orchestration rather than resource orchestration, on resource splitting among different k8s clusters rather than on single k8s cluster, on PNFs LCM aspects, etc.). Moreover it is required that ONAP be designed in a way that it can be easily be customized with general programming skill personel.

Business Markets - All operators and service providers that are using ONAP for service and network function Life Cycle Management

Funding/Financial Impacts – Native support of Cloud native Apps artifacts/service models allow workforce skills reduction and hence OPEX reduction requires custom development before introducing ONAP in production environment with CAPEX expenditure

Organization Mgmt, Sales Strategies - There is no additional organizational management or sales strategies for this use case outside of a service provider "normal" ONAP deployment and its attendant organizational resources from a service provider.

Support for Test Topology Auto Design NFV Testing Automatic Platform

Executive Summary – To achieve a more flexible NFV automated test platform, ONAP-based NFV automatic testing platform provides a quick test service (topology) design composed of tested VNF and test environment, as well as supports the import and reuse test service(topology) between different test environments.

Business Impact – There are a large number of cross-department and cross-organization communications during the traditional network element, system or equipment network access test. And the manual errors are inevitable, the knowledge in test field cannot be solidified. The cost of each test is high and the test cycle is always long. After introducing NFV, because network element software and hardware equipment are layered decoupled, the introduction of a large number of open source components as well as the frequent upgrade of the software itself, make network access test become more complicated and frequent. Testing has become a bottleneck during the introduction and iteration of new technologies. Therefore, it is urgent to introduce automated test tools. By introducing test topology auto design and corresponding enhancements, it can solidify domain knowledge, and help reduce labor costs, shorten test cycle, improve test efficiency, optimize test accuracy.

Business Markets - CSPs can accelerate new network services deployment cycle, improve interoperability and software quality, and reduce in-house testing effort and reduce costs. Vendor can leverage it to deduce the cost of VNF developing, and improve time to revenue for new product offerings, achieve greater alignment with customer requirements from service provider, and demonstrate product quality through open ecosystem testing. Instrument manufacturers can refer to the open source implementation of this platform and provide solutions for their commercial products. At the same time, the realization of this requirement can be combined with OVP's existing processes to accelerate the testing and certification of OVP NFV commercial products.

Funding/Financial Impacts – The test topology auto design tool can help reduce the labor costs in traditional NFV test process and the R & D costs of NFV commercial products, as well as shorten the benefit reaping period of new products, and improve test efficiency.

Organization Mgmt, Sales Strategies - There is no additional organizational management or sales strategies for this use case outside of a service provider "normal" ONAP deployment and its attendant organizational resources from a service provider.

Support for Test Environment Auto DeployNFV Testing Automatic Platform

Executive Summary – To achieve a more flexible NFV automated test platform, ONAP-based NFV automatic testing platform provides test case execution optimization orchestration capability to reduce unnecessary replicated deployment between different test case executions.

Business Impact – There are a large number of cross-department and cross-organization communications during the traditional network element, system or equipment network access test. And the manual errors are inevitable, the knowledge in test field cannot be solidified. The cost of each test is high and the test cycle is always long. After introducing NFV, because network element software and hardware equipment are layered decoupled, the introduction of a large number of open source components as well as the frequent upgrade of the software itself, make network access test become more complicated and frequent. Testing has become a bottleneck during the introduction and iteration of new technologies. Therefore, it is urgent to introduce test environment auto deploy tool and corresponding enhancements, can we optimize orchestration capabilities and provide flexible and automated deployment of test environments for NFV testing. This can also help reduce labor costs, improve test efficiency and test accuracy.

Business Markets - CSPs can accelerate new network services deployment cycle, improve interoperability and software quality, and reduce in-house testing effort and reduce costs. Vendor can leverage it to deduce the cost of VNF developing, and improve time to revenue for new product offerings, achieve greater alignment with customer requirements from service provider, and demonstrate product quality through open ecosystem testing. Instrument manufacturers can integrate their test tools and test capabilities into this platform, and demonstrate product quality through open ecosystem testing. Integrators can refer to the open source implementation of this platform and provide solutions for their commercial products. At the same time, the realization of this requirement can be combined with OVP's existing processes to accelerate the testing and certification of OVP NFV commercial products.

Funding/Financial Impacts – The optimized test case execution orchestration capability can reduce the labor costs in traditional NFV test process and the R & D costs of NFV commercial products, as well as shorten the benefit reaping period of new products, and improve test efficiency.

Organization Mgmt, Sales Strategies - There is no additional organizational management or sales strategies for this use case outside of a service provider "normal" ONAP deployment and its attendant organizational resources from a service provider.

Support for Test Task Auto Execution NFV Testing Automatic Platform

Executive Summary – To achieve a more flexible NFV automated test platform, ONAP-based NFV automatic testing platform provides a flexible testing framework for testers, and enables output customized test reports (e.g. XML, Json, etc.).

Business Impact – There are a large number of cross-department and cross-organization communications during the traditional network element, system or equipment network access test. And the manual errors are inevitable, the knowledge in test field cannot be solidified. The cost of each test is high and the test cycle is always long. After introducing NFV, because network element software and hardware equipment are layered decoupled, the introduction of a large number of open source components as well as the frequent upgrade of the software itself, make network access test become more complicated and frequent. Testing has become a bottleneck during the introduction framework and corresponding enhancements, it can realize the automatic execution of NFV test tasks, reduce labor costs, and improve test efficiency.

Business Markets – After enabling Test Task Auto Execution, CSPs can leverage it to accelerate time to deployment for new network services, improve interoperability and software quality, and reduce in-house testing effort and reduce costs. Vendor can leverage it to deduce the cost of VNF developing, and improve time to revenue for new product offerings, achieve greater alignment with customer requirements from service provider, and demonstrate product quality through open ecosystem testing. Instrument manufacturers can integrate their test tools and test capabilities into this platform, and demonstrate product quality through open ecosystem testing. Integrators can refer to the open source implementation of this platform and provide solutions for their commercial products. At the same time, the realization of this requirement can be combined with OVP's existing processes to accelerate the testing and certification of OVP NFV commercial products.

Funding/Financial Impacts – The test task auto execution capability can reduce the labor costs in traditional NFV test process and the R & D costs of NFV commercial products, as well as shorten the benefit reaping period of new products, and improve test efficiency.

Organization Mgmt, Sales Strategies - There is no additional organizational management or sales strategies for this use case outside of a service provider "normal" ONAP deployment and its attendant organizational resources from a service provider.

Support for Test Result Auto Analysis & Certification NFV Testing Automatic Platform

Executive Summary – To achieve a more flexible NFV automated test platform, Test Result Auto Analysis & Certification capability support integration with 3rd party test & certification systems, and provide certified product release markets.

Business Impact – There are a large number of cross-department and cross-organization communications during the traditional network element, system or equipment network access test. And the manual errors are inevitable, the knowledge in test field cannot be solidified. The cost of each test is high and the test cycle is always long. After introducing NFV, because network element software and hardware equipment are layered decoupled, the introduction of a large number of open source components as well as the frequent upgrade of the software itself, make network access test become more complicated and frequent. Testing has become a bottleneck during the introduction and iteration of new technologies. Therefore, it is urgent to introduce test result auto analysis & certification capability. By introducing test result auto analysis & certification capability and corresponding enhancements, it can provide one-stop stop service for test certification and issuance, reduce labor costs, improve test efficiency and test accuracy.

Business Markets - After enabling test result auto analysis & certification capability, CSPs can leverage it to accelerate time to deployment for new network services, improve interoperability and software quality, and reduce in-house testing effort and reduce costs. Vendor can leverage it to deduce the cost of VNF developing, and improve time to revenue for new product offerings, achieve greater alignment with customer requirements from service provider, and demonstrate product quality through open ecosystem testing. Instrument manufacturers can integrate their test tools and test capabilities into this platform, and demonstrate product quality through open ecosystem testing. Integrators can refer to the open source implementation of this platform and provide solutions for their commercial products. At the same time, the realization of this requirement can be combined with OVP's existing processes to accelerate the testing and certification of OVP NFV commercial products.

Funding/Financial Impacts – The test result auto analysis & certification capability can reduce the labor costs in traditional NFV test process and the R & D costs of NFV commercial products, as well as shorten the benefit reaping period of new products, and improve test efficiency.

Organization Mgmt, Sales Strategies - There is no additional organizational management or sales strategies for this use case outside of a service provider "normal" ONAP deployment and its attendant organizational resources from a service provider.

OOF-SON: 5G Self-Organizing Network (SON) using ONAP Optimization Framework (OOF)

Slides presented in the March 16th 2020 Requirements Sub-committee
call

ONAP_OOF_SON_Requirements_Subcommittee_Mar16_v_1.0. pptx

Executive Summary: SON (Self-Organizing Networks) functionality is an essential part of 4G networks, and will be even more critical for 5G. SON enables automation to improve network performance and efficiency, improve user experience, and reduce operational expenses and complexity. The objective of the OOF SON use cases is to develop an ONAP-based SON platform using the ONAP Optimization Framework (OOF). We have taken a phased approach since SON is complex, and SON for 5G is still evolving. We started with the Physical Cell Identity (PCI) optimization SON use case in Casablanca, and added centralized Automated Neighbor Relations (ANR) aspects in Dublin. In Frankfurt, we included adaptive SON functionality, took initial steps in O-RAN alignment and collaborated with Policy Control Loop Co-ordination (CLC). For Guilin, we will align with ORAN interfaces, be the early adopter of the new Runtime Config DB (e.g. generate DB schemas and APIs based on yang models), cover SON-related workflow for new cell addition, introduce another SON use case to add new platform capabilities, and collaborate on further extensions to CLC. We will also pursue alignment with industry trends for open interfaces & open models for RAN interactions, in particular with O-RAN.

Business Impact: SON is an essential feature in mobile networks, and relevant to every operator. Any ONAP-based network deployment for 5G will benefit from an ONAP-based SON solution, which provides a disaggregation of SON functions into modules aligned with the ONAP architecture. Operators and vendors will both benefit from the ability of vendors to bring best-in-class solutions to each module, while leveraging the benefits of a community-supported open platform. This will enable faster development of innovative solutions. The approach taken could very well be evolved to address SON use cases whose scope extends beyond just the RAN.

Business Markets: SON for 5G is relevant to all 5G operators and markets.

Funding/Financial Impacts: SON functions reduce OPEX since the automated self-organizing functions are an efficient approach to continuously optimize network configurations to improve performance and respond to network conditions.

Organization Mgmt, Sales Strategies: There are no additional organizational management or sales strategies for this beyond whatever is required for ONAP deployment to support 5G.

Configuration & Persistency Service Project

KEY CONTACTS - Benjamin Cheung, Joanne Liu Rudel Tony Finnerty

ТОРІС	FILES
Presentation made at Requirements S/C on 16 Mar 2020	DataPersistency16Mar2020v3.pdf

EXECUTIVE SUMMARY - The RunTime Configuration Database / Data Persistency Service is a new platform component that is designed to serve as a data repository for Run-time data that needs to be persistent. As a stand-alone ONAP component, this project provides data layer services to other ONAP platform components and use cases that require persistent configuration or operational data. The R6 development will be enhanced as well.

BUSINESS IMPACT - The ability for service operators to visualize and manage data in a RAN network (PNFs, VNFs, and logical constructs) with ONAP is a critical business function because they are key Life Cycle Management (LCM) and OA&M operations. The project has business impacts to enhance the operation of data-handling within ONAP by providing efficient data layer services.

BUSINESS MARKETS - This project applies to any domain (wireless, transport, optical, and wireline) that ONAP may manage. It is not a market or geographical specific capability. It is expected that scaled ONAP installations such as Edge & Core ONAP deployments will also deploy the database across each installation.

FUNDING/FINANCIAL IMPACTS - This project represents a large potential Operating Expense (OPEX) savings for operators because of the ability to configure networks saving time and expenses.

ORGANIZATION MGMT, SALES STRATEGIES - There is no additional organizational management or sales strategies for this use case outside of a service providers "normal" ONAP deployment and its attendant organizational resources from a service provider.

Support for ETSI SOL005 v2.7.1 Os-Ma-nfvo Interface between ONAP and NFVO

Executive Summary - Provide an interface adapter from ONAP Service Orchestrator to NFVO(s) using ETSI SOL005 v2.7.1 (Link to ETSI SOL005 v2. 7.1) compliant Interface

- Support for Create, Upload, Update, Query, Delete of an ETSI NS Descriptor using VF-C
- Support for Create, Upload, Update, Query, Delete of an ETSI NS Descriptor using an external NFVO
- Support for Create, Instantiate, Terminate of a ETSI NS using VF-C
- Support for Create, Instantiate, Terminate of a ETSI NS using an external NFVO
- Support for Scale, Heal, Update of an ETSI NS using VF-C Support for Scale, Heal, Update of an ETSI NS using an external NFVO ٠
- Support for receiving NS Notifications (LCN) from an NNFVO and translation into DCAE Events
- Oauth2 based authentication support between ONAP and NFVO(s)

Business Impact - Enables operators and service providers to use vendor provided or internally developed ETSI compliant NFVO(s). Industry compatibility.

Business Markets - All operators and service providers that are using ETSI SOL005 compliant NFVOs

Funding/Financial Impacts - Reduction in operations expense from using industry standard Interfaces.

Organization Mgmt, Sales Strategies - There is no additional organizational management or sales strategies for this requirement outside of a service providers "normal" ONAP deployment and its attendant organizational resources from a service provider.

Support for Containerized Network Function orchestration through ONAP service orchestrator

Key Contacts - Seshu Kumar Mudiganti Srinivasa Addepalli Lukasz Rajewski

Executive Summary - Provide CNF orchestration support through integration of K8s adapter in ONAP SO

- Support for provisioning CNFs using an external K8s Manager
- Support the Helm based orchestration
- leverage the existing functionality of Multi cloud in SO
- Bring in the advantages of the K8s orchestrator and
- Set stage for the Cloud Native functioanl scenarios to be demosntarted through ONAP

Business Impact -Enables operators and service providers to orchestrate CNFs based services along with the VNFs and PNFs

Business Markets - All operators and service providers that are intended to use the CNFs along with PNFs / VNFs

Funding/Financial Impacts - Reduction in the footprint of the ONAP for CNF support by reusing the existing components.

Organization Mgmt, Sales Strategies - There is no additional organizational management or sales strategies for this requirement outside of a service providers "normal" ONAP deployment and its attendant organizational resources from a service provider.

Support for ETSI SOL002 v2.7.1 Ve-Vnfm Interface from ONAP to external VNF Manager(s)

Executive Summary - Provide an interface adapter from ONAP Service Orchestrator (EMS) to external VNF Manager(s) using ETSI SOL002 v2.7.1 (Link to ETSI SOL002 v2.7.1) compliant Interface

- Support for receiving VNF Life Cycle Notifications (LCN) from a VNF Manager and translation into DCAE Events
- Oauth2 based authentication support between ONAP and VNFM(s)

Business Impact - Enables operators and service providers to use leverage ONAP's EMS like capabilities to monitor VNFs through a vendor provided or internally developed ETSI compliant VNF Manager(s). Industry compatibility.

Business Markets - All operators and service providers that are using ETSI SOL002 compliant VNF Managers

Funding/Financial Impacts - Reduction in operations expense from using industry standard Interfaces.

Organization Mgmt, Sales Strategies - There is no additional organizational management or sales strategies for this requirement outside of a service providers "normal" ONAP deployment and its attendant organizational resources from a service provider.

Container Network Function Test Platform (CNTP): OVP 2.0 support and Enable Network Service testing

Key Contacts - user-67d6f

Executive Summary - In ONAP, as part of Container Network Function (CNF) support, its mandatory to add enable the following testing/validation to make sure the given CNF is as per the need.

- 1. Design Time validation: When Operator on-board CNF as VSP in SDC, Operator wants to check the given CNF is confromance to their Operator Specific compliance such as security policies
- 2. Run time validation: Once CNF is provisioned in ONAP, it needs to be validated for sanity check and required functioanlity check.
- 3. Support LFN OVP 2.0 to support CNF conformance and CNF on-boarding vadiidations. (pre-on-boarding time)

More Details: OVP 2.0 CNF support in ONAP

Business Impact - Enables Vendors to perform the OVP tasks and helps to levrage to same to Operator to enhance the ONAP production with required additional validation of CNF and its service

Business Markets - All operators that are currently using CNF based Network service. All Vendors seekins for OVP 1.0 badging

Funding/Financial Impacts - Helps Vendors for getting OVP badgings while for Operators, it reduce the manual/offline check invovled during designtime /run-time..

Organization Mgmt, Sales Strategies - There is no additional organizational management or sales strategies for this requirement outside of a service providers "normal" ONAP deployment and its attendant organizational resources from a service provider.

R7 PNF PLUG & PLAY BUILDING BLOCK / WORK-FLOW MANAGEMENT

Key Contacts - Benjamin Cheung Damian Nowak

EXECUTIVE SUMMARY - This requirement will augment the work-flow to building block management within SO for Plug and Play operation. The continues the work started in R6. In R6, some of the SO work-flow to building block work was finished, and in R7 this is enhanced. The description of the "base" work which will be enhanced is shown in the wiki: PNF PLUG and PLAY in R6 Frankfurt

BUSINESS IMPACT - The enhancement to Plug and Play operation in ONAP is a critical business function because they enhance installation and commissioning activities.

BUSINESS MARKETS - This project applies to any domain (wireless, transport, optical, and wireline) that ONAP may manage.

FUNDING/FINANCIAL IMPACTS - The plug and play project has Operating Expense (OPEX) savings for operators because of the ability to saving time and expenses during installation and commissioning and contributes towards ZTM (Zero touch management).

ORGANIZATION MGMT, SALES STRATEGIES - There is no additional organizational management or sales strategies for this use case outside of a service providers "normal" ONAP deployment and its attendant organizational resources from a service provider.

R7 ONAP SECURITY - CMPv2 SERVER/CLIENT INTEGRATION

Key Contacts - Benjamin Cheung Pawel Baniewski Hampus Tjäder

EXECUTIVE SUMMARY - This requirement improves ONAP Security with CMPv2. CMP is used by multiple operations including Plug and Play, and NetConf operation. In R6 CMPv2 Certificate Service and basic development was implemented. Integration with server & client to the certificate service will be completed. There are also two ONAP boardering clients to integrate with the certificate service with interfaces to SDN-C and DCAE. Changes in Cert Service as DCAE wanted output artifacts in different configurable formats. SDN-C was completed in R6, In R7, the OOM software completed (in R6) and will be merged in R7, and DCAE interoperation with CMPv2 will be the focus in R7. In R6, some of this work was done in

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BUSINESS IMPACT - The enhancement to CMPv2 operation will improve security management within ONAP and affects multiple ONAP functions and use cases, including Plug and Play (PNF registration) and NetConf. As with all security functionality within ONAP, Security is a fundamental aspect of FCAPS, being the "S" for security management.

BUSINESS MARKETS - This project applies to any domain (wireless, transport, optical, and wireline) that ONAP may manage.

FUNDING/FINANCIAL IMPACTS - Potential OPEX savings with enhanced security to prevent breaches and prevent security compromises.

ORGANIZATION MGMT, SALES STRATEGIES - There is no additional organizational management or sales strategies for this use case outside of a service providers "normal" ONAP deployment and its attendant organizational resources from a service provider.

R7 PNF PRE-ONBOARDING VNF-SDK VALIDATION

Key Contacts - Benjamin Cheung Damian Nowak Zu Qiang (Ericsson)

EXECUTIVE SUMMARY - This requirement enhances the PNF (Onboarding) / Pre-onboarding use case. This requirement introduces package security Option2 improvements on Signature per artifact on the Vendor delivered package as defined in ETSI NFV SOL004 v2.7.1 section 5.2. The validation of onboarded PM dictionary data based on schema information will be done. The standard can be found here: https://www.etsi.org/deliver/etsi_gs/NFV-SOL /001_099/004/02.07.01_60/gs_NFV-SOL004v020701p.pdf . In R4 and R6, Option 1 signature per package was developed but not Option 2.

BUSINESS IMPACT - The enhancement to Onboarding & Pre-onboarding is a critical business function because they are vital to design-time operation to properly onboard vendor packages.

BUSINESS MARKETS - This project applies to any domain (wireless, transport, optical, and wireline) that ONAP may manage.

FUNDING/FINANCIAL IMPACTS - The PNF Onboarding & Pre-onboarding use case has Operating Expense (OPEX) savings for operators because of the ability to saving time and expenses during installation and commissioning of PNF resources.

ORGANIZATION MGMT, SALES STRATEGIES - There is no additional organizational management or sales strategies for this use case outside of a service providers "normal" ONAP deployment and its attendant organizational resources from a service provider.

R7 5G PNF SERVICE MODEL INTRODUCTION

Key Contacts - Benjamin Cheung

EXECUTIVE SUMMARY - This requirement introduces platform information model enhancements to document new ISOMII experimental classes from 3GPP TS28.541, the 5G Network Resource Model (NRM).

BUSINESS IMPACT - The requirement, is a critical because it will serve to lay the ground-work for actually "turning on" a real 5G DU (PNF) that might be installed by a Vendor.

BUSINESS MARKETS - This project applies to any domain (wireless, transport, optical, and wireline) that ONAP may manage.

FUNDING/FINANCIAL IMPACTS - Without the groundwork laid down for information model management of a 5G Service, operators will not be able to "turn on" a real live 5G network using "live" PNF resources. No Network. No Business. High OPEX impact.

ORGANIZATION MGMT, SALES STRATEGIES - There is no additional organizational management or sales strategies for this use case outside of a service providers "normal" ONAP deployment and its attendant organizational resources from a service provider.

R7 HARMONIZATION: ONAP/3GPP & O-RAN ALIGNMENT– STANDARDS DEFINED NOTIFICATIONS OVER VES

Key Contacts - Marge HillisVimal BegwaniOskar Malm Damian Nowak

EXECUTIVE SUMMARY -

-This contribution introduces a new domain in VES, stndDefined, which indicates that the event contains data that conforms to format/schema defined by a separate standards organization1. In addition we propose one new field in the VES Common Header to enable further classification of such events, e g to support routing of these events to appropriate DMaaP topics. An optional second stage validation is proposed in DCAE prior to acknowledging the event to enhance trouble shooting.

-It is proposed that the first application of this generic capability supports VES encapsulated 3GPP defined notifications as described in 28.532 version 16.3.0 Annex B (informative). The ORAN 01 specification also refers to VES-based 3GPP notifications for several management services, and in those cases is expected to further align with the approach and solution published in 3GPP in a future release.

BUSINESS IMPACT- The ability for service providers to deploy ONAP as the SMO in their O-RAN compliant network depends upon ONAP's ability to process VES encapsulated events as defined by 3GPP and ORAN in DCAE and route these events to appropriate DMaaP topics. This proposal, in Guilin, provides the necessary capability for ONAP to process and validate events that are defined using 3GPP schema for the data. The proposal is readily extensible for the support of additional events from 3GPP, ORAN or other standards organizations adding a high degree of flexibility to the ONAP platform.

BUSINESS MARKETS - This contribution applies to any Service Provider that wants to use ONAP as an O-RAN compliant SMO or to support 3GPP compliant interfaces and can be leveraged by Service Providers wishing to support events from network functions which are aligned with other standards organizations.

FUNDING/FINANCIAL IMPACTS - This contribution helps enable ONAP to be O-RAN and 3GPP compliant which should stimulate contributions from companies that are aligned with O-RAN and 3GPP. There is no new hardware to be procured and no new licenses.

ORGANIZATION MGMT, SALES STRATEGIES - This proposal does not affect sales strategies.

1) Standards organization is intended to be interpreted in a broader sense than SDO as defined by ITU, to cover also e.g. joint ventures like 3GPP and open industry fora like the O-RAN Alliance.

Intent-based Network

Key Contacts - Huang ZongHe

EXECUTIVE SUMMARY

The Intent-based Network (IBN) is available to bridge the gap between the business department and IT department. It is able to capture the intents of business sensitively, and then reconfigure the end-to-end network according to the intents momentarily. Normally, the operation of underlay network and related systems are involved when opening or reconfiguring a network service. It needs professionals of different roles to perform a series of complex operations, which also takes a long time. The target of IBN is to establish an extensible framework to identify the users' network requirements based on natural language, allocate appropriate resources with the help of preset business knowledge or self-learning intelligent engine, and then convert them into the operations.

In addition, the IBN also includes:

(1) Intent verification function: It is used to verify whether the automatically created network services satisfy the requirements of users;

(2) Intent assurance function: With the help of periodic analyzed business KPI, it checks whether the current network services satisfy the users' requirements, such as QoS. If not, it will reconfigure the resources and networks to satisfy the expectations of users.

BUSINESS IMPACT - The Internet of Everything will be true not soon later. The IBN has great potential in the applications from users and devices in the park or branch office to the data center or cloud. It is able to reconfigure and optimize the network continuously, protect IT and business processes, and provide insight. The IBN simplifies the operation of opening and reconfiguring network service, as well as the operation of monitoring and assuring network quality after opening the service. Operators can use the IBN to capture the intents of business, and then monitor network status and implement strategies in the whole networks. It is able to satisfy the requirements of network business much better.

BUSINESS MARKETS - The Intents can be applied to multiple levels, such as application service levels, security policies, compliance transactions, operational processes and other business requirements. The IBN will be applied to the scenes of the opening and management of various network services. In the first stage, it will be used in the 5G use case to opening and monitoring of network services. Later, it will be integrated into more use cases to simplify the opening and management of services.

FUNDING/FINANCIAL IMPACTS - The IBN is able to respond to the requirements of organizations quickly with little human intervention. with the corresponding reduction of time and energy required for network maintenance, IT professionals can spend more time on innovation to bring practical value to the enterprise. The IBN is able to respond to the requirements of organizations quickly, simplify the manual operation of network opening and management, and reduce operators' OPEX.

ORGANIZATION MGMT, SALES STRATEGIES - There is no additional organizational management or sales strategies for this use case outside of a service providers "normal" ONAP deployment and its attendant organizational resources from a service provider.

PM Data Control Extension

Key Contacts - Michela Bevilacqua, Mark Scott

EXECUTIVE SUMMARY -

-PM data collection control provides 5G network operators with a dynamic and more efficient way to configure performance measurement collection on a selected subset of PNFs/VNFs in the network and complements the existing PM data collection and processing capabilities in ONAP/DCAE. An initial version has been delivered in Rel 6 (5G / Bulk PM / PM Control - REQ-129). Planned enhancements for Rel 7 intend to further increase the capability and the dynamicity of this feature.

BUSINESS IMPACT- PM control is a critical business function because it is vital to enable the PM data collection in ONAP.

BUSINESS MARKETS -All operators and service providers that want to use ONAP for PM data collection.

FUNDING/FINANCIAL IMPACTS - PM data collection control can provide OPEX savings for operators due to increased automation of a critical function.

ORGANIZATION MGMT, SALES STRATEGIES - There is no additional organizational management or sales strategies for this use case outside of a service providers "normal" ONAP deployment and its attendant organizational resources from a service provider.

A1 Adapter Extension

Key Contacts - Michela Bevilacqua, John Keeney

EXECUTIVE SUMMARY - This requirement enhances the A1 adapter/interface capabilities provided in Rel 6 as part of 5G/ORAN & 3GPP Standards Harmonization requirement (REQ-38). O-RAN has defined A1 interface specification in the context of the management of 5G RAN elements to provide intent based policies for optimization of the RAN network performance. Planned enhancements for Rel 7 include additional support for managing A1 Policies, multiple A1 targets in the RAN, multi-version support for different A1 targets, and secure TLS communication.

BUSINESS IMPACT- Continuing the convergency between ONAP and ORAN initiated in Rel 6, A1 interface can be used by all service providers and avoid duplicate development effort.

.BUSINESS MARKETS -Enhanced A1 capabilities, once developed, will be useable by any service provider deploying and using ONAP.

FUNDING/FINANCIAL IMPACTS - A1 interface provides a flexible way for the operator to manage wide area RAN network optimization, reducing capex investment needs.

ORGANIZATION MGMT, SALES STRATEGIES - There is no additional organizational management or sales strategies for this use case outside of a service providers "normal" ONAP deployment and its attendant organizational resources from a service provider.

R7 MDONS Extension

Key Contacts - Raghavan Subramanian Xin Miao

EXECUTIVE SUMMARY - This requirement introduces enhancements to MDONS (Multi-Domain Optical Network Services) that was added in R6 enabling e2e orchestration of optical services & resource management. Some of the functionality we plan to introduce for R7:

- Standards based enhancements: OpenROADM / ONF T-API topology updates, MEF 63/64 service definitions at design time
- Cross-carrier service decomposition BSS / OSS coordination
- Asynchronous notification handling
- Intelligent domain link selection & routing

BUSINESS IMPACT - The requirement will enable automation of the design and activation of optical services spanning service provider networks leveraging standards & will speed time to revenue.

BUSINESS MARKETS - Applicable to any service provider offering global enterprise services or services that otherwise extend beyond their own network resources. It also applies to service providers with independent operational units that effectively operate as separate service providers. Primarily targeting management of optical/transport domains through ONAP

FUNDING/FINANCIAL IMPACTS - While this automation may result in some CAPEX savings due to improved management of interconnect points, it will primarily reduce OPEX by automating some of the manual steps required for service provider interconnections. It will also allow service providers to respond more quickly to service orders requiring off-net resources, thus reducing time to revenue. It will enable support for SLAs and adherence to service constraints that potentially allow for the development of new premium service offerings.

ORGANIZATION MGMT, SALES STRATEGIES - There is no additional organizational management or sales strategies for this requirement outside of a service providers "normal" ONAP deployment and its attendant organizational resources from a service provider.

Support for ETSI NFV NFVO Orchestrator in ONAP SO (ONAP SO ETSI-Aligned Hierarchical Orchestration)

Executive Summary - Enable E2E workflows by orchestrating ETSI NFV compliant Network Services and VNFs. This NFVO should provide an ETSI NFV SOL005 v2.7.1 NBI which can onboard ETSI NFV SOL004 and ETSI NFV SOL007 v2.7.1 compliant packages which then can be Life Cycle Managed and monitored. This NFVO should use an ETSI SOL003 v2.7.1 SBI to invoke an external VNF Manager.

Business Impact - Enables operators and service providers to use Industry standard Orchestration to deploy, manage and monitor network services. Industry compatibility.

Business Markets - All operators and service providers that are developing ETSI compatible Network Services especially for 5G Slicing where each Slice Subnet is associated with a Network Service

Funding/Financial Impacts - Reduction in operations expense from using industry standard ETSI Orchestration.

Organization Mgmt, Sales Strategies - There is no additional organizational management or sales strategies for this requirement outside of a service providers "normal" ONAP deployment and its attendant organizational resources from a service provider.

xNF License Management

Key Contacts - Timo Perala, Samuli Kuusela

Executive Summary - Continue use case analysis for xNF License Management and derive any requirements to ONAP. The aim is for ONAP to support various types (simple, complex, vendor specific) commercial licensing models and use cases. These will be reflected as multiple, optional solutions for ONAP. The use cases we started with include xNF onboarding, PNF introduction/ONAP PnP, VNF instantiation. Further use cases to be analyzed, eg. usage monitoring for the purpose of invoicing. Based on agreed use cases review relevant ONAP xNF requirements. Possible SW contributions, eg. in SDC, as well as enhancement of ONAP architecture sequence diagrams.

Business Impact - xNF License Management is a critical business function. Agreed use cases should allow ONAP to flexibly support commercial licensing models.

Business Markets - The requirement applies to any domain (wireless, transport, optical, wireline) that ONAP will manage. It is not a market specific function.

Funding/Financial Impacts - The use case is fundamental for supporting efficiently business agreements between the operator and the vendor.

Organization Mgmt, **Sales Strategies** -There is no additional organizational management or sales strategies for this use case outside of a service providers "normal" ONAP deployment and its attendant organizational resources from a service provider.

5G Network Resource Model (NRM) Configuration

Key Contacts - yaoguang wang

Executive Summary - This requirement enhances the Network Resource Management (NRM) configuration management provided in R6. NRM configuration management allows the service providers to control and monitor the actual configuration on the Network Resources. They may be used within the first PNF or VNF instantiation or routine operations after PNFs or VNFs are running. Planned enhancements for R7 include checking SO BBs (ConfigDeplyBB) applicability on NRM Configuration, CDS SS gRPC API with RestfultExecutor, full automation for integration test (CIST).

Business Impact - Network resources are the fundamental resources to the mobility networks. Only the network resource are ready then the service like eMBB service can be instantiated. Better service quality can be achieved by suitable NRM configuration management.

Business Markets - Considering the Network Resources are basic for mobility network, New 5G deployments as well as legacy 4G systems should be considered as target markets. Both radio and core and other sub-network domains could also benefits from it.

Funding/Financial Impacts -Orchestrating and Controlling the network resources could reduce the OPEX.

Organization Mgmt, **Sales Strategies** -There is no additional organizational management or sales strategies for this use case outside of a service providers "normal" ONAP deployment and its attendant organizational resources from a service provider.

CCVPN - Transport Slicing

Key Contacts - Henry Yu LIN MENG

Executive Summary - An End-to-End 5G Network Slice consists of RAN, Transport and Core network slice sub-nets. This requirement is devoted to the realization Transport Slice sub-nets. It implements TN NSSMF, of which the functionality includes the modeling, orchestration and assurance of a Transport Slice. While TN NSSMF is a self-contained entity and thus this requirement can be independent, ensuring the integration with the E2E Network Slicing is an important aspect of this requirement. Standards-based interfaces and architectural framework (e.g., ETSI ZSM, IETF) are used by this requirement.

Business Impact - This requirement is important because Transport Slicing is an essential feature of the overall E2E Network Slicing, whose value is stated in its requirement.

Business Markets - Transport Slicing is an essential feature of Network Slicing. Any operators who would like to deploy ONAP-based Network Slicing solution will require this feature. Equally important, this feature (ONAP TN NSSMF) is self-contained and deployable. Thus, an operator who wishes to deploy an ONAP-based TN NSSMF may also benefit from it.

Funding/Financial Impacts - Transport slicing provides service automation, assurance, and the optimal use of network resources. Thus, it helps reduce OPEX for a service provider.

Organization Mgmt, Sales Strategies - There is no additional organizational management or sales strategies for this use case outside of a service providers "normal" ONAP deployment and its attendant organizational resources from a service provider.