TSC Task Force: ONAP for Enterprise Business

Meetings:  
- Meeting Minutes - 1/20/2021  
- Meeting Minutes (LFN Event) - 2/2/2021  
- Meeting Minutes - 2/17/2021  
- Meeting Minutes - 3/3/2021  
- Meeting Minutes - 3/17/2021 @7am PST  
- Meeting Minutes - 3/31/2021 @7am PST  
- Meeting Minutes - 4/14/2021 @7am PST  
- Meeting Minutes - 4/28/2021 @7am PST  
- Meeting Minutes - 5/12/2021 @7am PST  
- Meeting Minutes - 5/26/2021 @7am PST  
- Meeting Minutes - 6/2/2021 @7am PST  
- Meeting Minutes - 6/23/2021 @7:30 am PST  
- Meeting Minutes - 7/7/2021 @7.30 am PST  
- Meeting Minutes - 15 Sep 2021 @7:30 am PST  
- Meeting Minutes - 01 Sep 2021  
- Meeting Minutes - 15 Sep 2021 @7:30 am PST  
- Meeting Minutes - 15 Sep 2021 @7:30 am PST  
- Action Items (In Progress)  
- Action Item (Closed)

Meeting Minutes - 1/20/2021

Key Questions:

#1 What does ONAP offer to an enterprise customer (IoT, Financial, Healthcare, Gaming, etc) that we can’t get from existing cloud offers or outside the Cloud.

#2 What does ONAP offer on top of that outside of the telco space?

Different Scenarios

1) 3rd party vendors using ONAP to serve their enterprise customers (operating model - managed services)

2) Operators offering solutions to Enterprises (based on 5G Techno - Network Slicing, Virtual Edge, etc) supported by 3rd party vendors

3) Enterprise customers running ONAP themselves (on their premises), supported/trained by 3rd party vendors

Additional thought(s)

#1 Investigate what Openstack is offering to Enterprise Business?

#2 Contact Cheng Huang, gyaoguang wang - leading ONAP Support for Vertical Industry (DDF Topic in Feb 2021)

#3 Maybe reconnect with Helen Chen about Healthcare

#4 Ask TSC members, EAUG if any contact point from their Enterprise Business

#5 Kick-off a survey to get feedback about interest and use cases
Meeting Minutes (LFN Event) - 2/2/2021

- 2021-02-02 - ONAP: TSC Task Force- ONAP For Enterprise Business - LF Networking - Confluence

Meeting Minutes - 2/17/2021

- Review action items from LFN Event
- Importance
  - to rebrand ONAP and its components outside the "Network" domain
  - to be able using ONAP components independently
  - to demonstrate with some real cases ONAP components with other systems/applications (not CNF, PNF, VNF)
  - to use ONAP (or a subset of ONAP) as a black box

- Survey - key items (in progress)
  - Comments: Need to re-adjust the survey and also ONAP message based on "Enterprise" Terminology
  - What are your goals about Cloud migration? Are you already hosting your IT applications in public cloud or private cloud managed by a 3rd party vendors? If not - Where are you in your virtualization journey?
  - What are the different major steps being part of your migration?
  - Which OSS/BSS systems/IT applications will not be part of your virtualisation journey? Hybrid model (Private on prem/Cloud & Public Cloud)
  - (After introducing ONAP) which consumption model do you think you would like to adopt? Or will you adopt another one not listed below? Need to re-adjust the consumption model for Enterprise Business

- Have you any regulatory requirement to be considered?
- Any particular device/standard to be supported and connected to your IT application(s)?
- Size of production deployment (small/medium/large)? Define "size" for Enterprise Business
- What would you consider "as a service" for your Enterprise Business (which application, what type of IT support, etc?)

- Some material:
  - The Business Case for Deploying SDN in Enterprise Networks
  - SDN in the home: A survey of home network solutions using Software Defined Networking

Meeting Minutes - 3/3/2021

- Suggestion to reschedule this meeting on Wednesday at 7am PST (to be discussed on 3/4 during the next ONAP TSC)
- Creation of a new EUAG (End User Advisory Group) dedicated to Enterprise Businesses (under preparation) - LFN Board to be voted on March 24th, 2021
  - Kenny will provide criteria to be part of this new EAUG (not company membership) but people involved in deployment, design, implementation, etc.
  - Open beyond "carriers"
- Intro about DARPA Program with Trudy Morgan (Cloud Computing Expert)
  - Focus on 5G Network Security
  - 4 years program
  - E2E Open Source 5G Network across the US
ONAP Added-Values: ONAP for Orchestration including Network Slicing, AI/ML/DL
Mostly all the components are open source components except RAN part
Some ONAP pages about Network Slicing
- https://wiki.onap.org/x/YBmLBQ
- ETSI Network Service for 5G Network Slicing
SDOs: ETSI, 3GPP
Current status:
- Amar Kapadia (representing LFN/ONAP Community) is currently setup an ONAP test-bed to demonstrate E2E Network Slicing capabilities
- Lab currently open but required VPN connection, located in San Diego

Meeting Minutes - 3/17/2021 @7am PST
- 5G Super Blueprint
- Discussion about ONAP/ODA Integration
  - How ONAP could improve/build Network Service Visualization/Customer Facing Service (CFS)?
  - Currently Network Slicing activities are trying to work on this area
  - TAC Whitepaper is in progress
    - Additional information about CSMF
    - What are CSMF functionalities supported by ONAP today?
    - Will ONAP support any CFS capability?

Meeting Minutes - 3/31/2021 @7am PST
- Trudy Morgan: Present first ONAP/OPS-5G use cases
  - 5 year effort - all work being done in the LF. Work will be up-stream w/o forking code
  - NIWC: Naval Information Warfare Center
  - Research project - all work is unclassified.
  - Deck presented today: OPS 5G Use Case.pdf

Open Source 5G End-to-End Implementation
Linux Foundation Component Projects

Meeting Minutes - 4/14/2021 @7am PST
- Latest ONAP/OPS 5G updates from Amar Kapadia
  - ONAP/Magma discussions on April 8th - Deep Dive about ONAP
  - Current understanding is that we could use REST API (northbound ITF) or Mesh

5G Super Blueprint Roadmap is also considering the OPS 5G program inputs.
Goal is to use as much OSS as possible, but may need commercial solutions initially in areas that are less OSS mature like RAN i.e. 5UE, Commercial gNB
From a testing perspective, the goal is to us Nationwide network to enhance DoD ability to test 5G Core security (Multisite OPS 5G Joint Independent Testing Option) but it will also dependent on Magma deployment model.
ONAP capabilities to support this program:
  - Orchestrates/Instantiate and Magma Orchestrator (instead of SO)
  - ONAP Network Slicing functionalities
  - LCM
  - Control Loop mechanisms (including ONAP/Acumos)
  - Akraino/ONAP Blueprint
Believe that we need to be proactive on this
Would like Aarna to provide a regular update on progress to this team. Set aside the first 5-10 mins of every meeting for that purpose.
Need to make sure that standard process workflow is followed for feeding requirements into the community
ONAP Enterprise Task Force will be the first entry point for OPS 5G program supported by the Requirements, Architecture and Security subcommittee representatives.
• OPS 5G meeting on April 9th - focus on E2E Network Slicing

  Welcome and Introduction Neil Hoff, NIWC PAC

  Super Blueprint and 2021 Roadmap, including slicing Amar Kapadia, Linux Foundation

  OPS-5G Technical Area 3 (SABRES) – Secure Slicing Dr. Erik Kline, USC/ISI

  MAGMA - Target release for network slicing and timeline for requirements development Amar Padmanabhan, Facebook

  ONAP - How network slicing will be orchestrated by ONAP Swaminathan Seetharaman, Wipro

  OUSD(R&E) comments / discussion

  Key take away: Align people on "what it is a Slice" terminology

  How could ONAP interact with Magma GW/Magma Controller?

  Some additional info about Magma

    • First deployment of 5G-FWA in June 2021 (Brazil)
    • Can be deployed on ARM/ESXI
    • Horizontal scaling
    • NB ITF = REST (to be connected with ONAP) or Mesh

3 options:

#1 Create a dedicated controller via SDNC and handle Magma GW like any other device

#2 Have an adapter for the magma in ONAP Service Orchestrator and use it as a resource orchestrator for the specific jobs. Disadvantage: create something specific

#3 5G PNF Plug & Play and consider Magma GW as a PNF?

  Current proposal: Avoid to create something specific but re-use what is already developed in ONAP (SO/SDNC/SDNR) and orchestrate directly the Magma GW via gRPC

  Need to understand what it is behing the Magma GW and explore if there is a possibility to interact directly with the devices? Maybe not acceptable

  Advantage: full re-use of the current E2E Network slicing capabilities developed in ONAP - 5G Super Blueprint_ONAP_Magma proposal (V1)

Other Info:

![Diagram of 5G Core+MEC Phase](image-url)
Meeting Minutes - 4/28/2021 @7am PST

- Feedback from Swaminathan Seetharaman about future scope/functionalities/roadmap supported by CSMF (Communication Service Management Function)

  With ref. to the roadmap for CSMF, there is nothing planned for Istanbul release. Anything beyond it will depend on the interest from use case contributors and/or community.

  A few points which came up in our earlier discussions include the following. However, none of them have progressed further since then.

  #1 Control Loop actions at Communication Service (e.g., eMBB) level (service assurance) which will be driven by CSMF. This could result in slice-level reconfigurations, or even re-mapping of the service to a different slice instance.

  #2 Having different service priorities, e.g., resulting in pre-emption (when needed) during service fulfilment and during operation, for services having a higher priority

- Integration with Magma Controller/GW

  #1 Review the 4 ONAP/Magma action items identified on 4/14/2021 - Feedback from Amar Kapadia, Prabhjot Singh Sethi (prabhjot@aranetworks.com)

  Magma Controller REST Interface - magma | 1.0.0 | karthiksubraveti | SwaggerHub

  Magma Controller = orc8R = magma/orc8r at master · magma/magma · GitHub

  Doc web site: Introduction · Magma Documentation

  There is no Magma GW documentation at this stage

  Magma GW = to be considered as CNF (by June 2021); currently available as PNF/VNF

  Magma Controller= CNF

  #2 Currently the goal is to interact with the Magma Controller as a first step directly.

  As part of the roadmap, we should also investigate if there is a way to interact directly with the Magma GW (reduce 1 overhead layer between Magma/ONAP)

  Additional information are required about Magma Controller to finalize the right architecture.

  #3 Currently the scaling of GW is manual and triggered by the user.

  Magma Controller is also manual so both (Controller/Magma) can be orchestrated via ONAP

  **Opportunity for ONAP to automate the scaling of Magma GW (Control Loop)**

  #4 Can we conclude Magma is an EMS (Element Management System)? YES

  #5 5G Blueprint based on Guilin/Honolulu? Magma release is scheduled by June 2021 therefore let's consider ONAP Honolulu release

  #6 Is there any Security Magma requirement? based on HTTPS, Mesh? Not yet available.

  Currently used DockerCompose, next step will be used Helm v3.0.

  #7 Any information about Magma packaging, modeling requirement?

  Recommendations: TOSCA descriptor pointing to HELM (in alignment with ETSI specs

- Byung-Woo Jun - Next on ONAP CNF Task Force - every Thursday at 1pm UTC
  - Initial analysis about Magma integration on April 29th, 2021
  - ONAP-Magma-2021-04-29-v1.pptx

- Marian Darula, Byung-Woo Jun, Thinh Nguyenphu -
  - CNF packaging/modeling recommendations on May 6th, 2021

Meeting Minutes - 5/12/2021 @7am PST

- Linux Foundation to take over Facebook's Magma | Light Reading
- Review of the integration with Magma Controller/GWs
  - Byung-Woo Jun shared the latest Magma architecture proposal
• Amar Kapadia explained that there are two interactions expected with ONAP: Deployment/Onboarding & Instantiation
  • Arun Thulasi (from Magma’s team) provided additional information about how Magma Controller & GWs are deployed. Magma Controller is today deployable on AWS K8s. Goal is to have GWs fully containerized by June 2021. Magma controller (orc8R) is managing all GWs. Additional information: Configure AGW - Magma Documentation
  • Chaker Al-Hakim sees Magma components as services orchestrated by the ONAP Platform. ONAP will onboard Magma via SDC, instantiate Magma Controller via SDNC and then collect KPIs/Telemetry data to trigger any Control Loop action (if required) + Network Slicing capabilities (NSMF through NBI)
  • Prabhjot Singh Sethi shared the HL Integration Plan

Meeting Minutes - 5/26/2021 @7am PST

• Review of the integration with Magma Controller/GWs
  • Code updated for AWS environments and is now available.
  • Up and running with 2 deployments
  • fully containerized GW planned for v1.6 (~4 weeks out)
  • discussion this week and next should have sufficient content for the DTF
  • standard SDC/SDC/Multicloud model should be able to be used.
  • potential for SDNC or CDS might be able to be used later - TBD
  • Possibility of plug-n-play model to be used for AGW - something to look at
  • Installing the access GW automatically would be valuable
  • existing Magma baremetal upgrade model installs as a new package or collection of packages
  • For ONAP assumption of initial deployments are PNF and time permitting then on CNF

  • Suggestion to have a meeting next week at the same time with a smaller group. (TAC conflict noted)
• Same bi-weekly bridge to be used - [David McBride](mailto:david.mcbride@nokia.com) will host, [Kenny Paul](mailto:kenny.paul@nokia.com) will set up invite

• Information about Magma Security requirements @Arun Thulasi
  - public certs are used for connects between internal components and HTTPS
  - Magma provides the certificate to client
  - https://docs.magentocore.org/docs/orc8r/架构_modularity
  - https://docs.magentocore.org/docs/orc8r/架构_security
  - https://docs.magentocore.org/docs/orc8r/架构_overview
  - The three above links should address some of the questions that we discussed in better detail

• DTF Event in June - 2021-06-DD - ONAP TSC Task Force: ONAP For Enterprise Business
  - Is the slot OK i.e. Tue Jun 8 2021, 16:30 - 17:30 CET/10.30am-11.30am EST?
  - Shall we meet on June 2nd, 2021 to finalize the DDF presentation?
  - ONAP For Enterprise call will be canceled on June 9th due to DDF event.

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**Meeting Minutes - 6/2/2021 @7am PST**

• Latest 5G Super Blueprint press release - Super Blueprints Integrate the 5G Open Source Stack from Core to Door
• Review DDF Event presentation - 2021-06-DD - ONAP TSC Task Force: ONAP For Enterprise Business
• How does the Enterprise Task Force feel about starting at 7:30am PST? Approved by the TF - Catherine to re-adjust the calendar accordingly
• ONE Summit - Call For Proposals (CFP) | Linux Foundation Events - deadline: June 20th, 2021 - Let's submit an abstract !!!

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**Meeting Minutes - 6/23/2021 @7.30 am PST**

• 5G Super Blueprint - Rules of the Road - LF Networking - LF Networking Confluence
  - 5G Super Blueprint also 5G Open Source Stack Initiative - Super Blueprints Integrate the 5G Open Source Stack from Core to Door - Linux Foundation Super Blueprints Integrate the 5G Open Source Stack from Core to Door
  - Upstreaming - each project will host the source code and provide artefacts/containers to be used for 5G Super Blueprint
  - Feel free to review offline and add any component
• How do we plan to communicate with the other open source communities about 5G Super Blueprint (Akraino, Anuket, LF Edge) to discuss dependencies and requirements?
  - <Catherine> Bring this item to the next 5G Super Blueprint call.
  - <Chaker> Invite them to the next call on June 29th, 2021 at 11am EST - 5G Super Blueprint - Networking (lfnetworking.org) and to our ONAP for Enterprise Task Force
• Magma Roadmap

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**Magma Roadmap - 5G SA**

*Note: 5G SA development being led by Wavelabs and Facebook*

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**Meeting Minutes - 7/7/2021 @7.30 am PST**

• Magma/ONAP Integration - latest updates - Byung-Woo Jun, Prabhjot Singh Sethi, Amar Kapadia

  https://wiki.lfnetworking.org/download/attachments/56066612/ONAP%20For%20Enterprise_LFN%20DDF%20June%202021_Final_V2.pdf?version=1&modificationDate=1623166120000&api=v2

  Magma 1.6 is currently delayed by another month. This release might not contain the CNF Magma Access GW version.

  Suggestion to move forward with the VNF Magma Access GW (and use Magma 1.5 only supporting 4G) but will not use "5G - PNF Plug and Play"
Call flows to be updated accordingly - slight changes versus original CNF flows

Magma 1.6 will contain VNF Magma Access GW supporting 5G (to be available end of July 2021)

Potential APIs change - impacting the registration (hope backward compatibility and/or 'tags' to support 5G (and still LTE)

Magma Sample Configuration

- Additional areas that we could explore in parallel:
  - alarms/events generated by VNF Magma 1.5 GW
  - Create alarm/events catalog and check if 3GPP compliant
  - DCAE VES

Meeting Minutes - 7/21/2021 @7.30 am PST

- Magma/ONAP Integration - latest updates
  - Prabhjot Singh Sethi
    - #1 enabling 5G as part of the Access GW will be part of the next Magma release (v1.6) but roadmap not yet finalised
    - No major in the Configuration API discussed on 7/7
    - Network slicing and complex features will be part of later Magma releases (but not v1.6)
- LF Edge - Ike Alisson
  - Discussion about Network Slicing
  - Information sent offline by Ike
    - Functionalities (3GPP TS 23 501 Rel 17 June 2021) related to "Session Service Continuity" (deliberately not including details on SSC Mode 1-3 related to UPF/PSA selection/re-selection) and "Local Traffic Routing" functions/capabilities for "inter-" and "intra-" Platforms/Systems communication (HPLMN and VPLMN) with regard to %G NFs Cloud Native factors adoption in CSP Service Solution Frameworks.

Related to that, there is also the issue of Authentication, Authorisation and Accounting (also as part of the Security) (SUPI; SUCI; GUTI) for both, Applications/Service commissioning/instantiation and Users and related to them UEs.

Solution Key Issue #27: Policy based Authorization for Indirect Communication between Network Functions (NFs)

This solution addresses K1 #22 - Authorization of NF Service Access in Indirect Communication.

The solution proposes Policy-based Authorization of NF Consumer requests in the SeCoP (Service Communication Proxy) associated with the NF Producer.

A Set of Policies are provisioned in the SeCoP which allow the SeCoP to recognise an incoming Service Request from a NF Consumer and determine whether to allow the request and set of services that can be allowed for the requesting NF.

As it is recently stated in some reports on that issue (adoption of Cloud Native capabilities and Cloudification in CSP/Cellular/Wireless Networks), it becomes apparent that VNFs implementing NFs such as Firewalling, IP Address assignment or Switching & Routing might not be able to comply entirely with the Cloud Native paradigm.
E.g. aiming at 3GPP Service Communication Proxy (SCP/SeCoP), as a CNF, a Component performing Proxy-like Routing Tasks can be certainly decomposed into Micro Services based on their Workload type (e.g. Long-Running Tasks versus Short Logical Operations to determine an outcome). However, by De-composing a NF into Microservices the newly created CNFs need to be addressable among each other based on Stateless Protocols like HTTP. The result is a typical “Chicken and the Egg” Problem, as the CNFs were supposed to implement Service Routing, but relies on a Service Routing among them.

Other Factors such as Port Binding and Dev/Prod Parity simply do not apply to Functions that sit below the Transport Layer where Ports are exposed.

Furthermore, for Networking related Tasks (Routing, Firewalling, etc.) Packets from senders such as the UE that are supposed to be handled must be encapsulated in a Stateless Protocol to reach the next Microservice that forms the Networking Application. Thus, not all VNFs can be ported to CNFs to enable an economy at scale. However, even though not all Cloud Native factors can be fulfilled for some VNF types, VNFs can be Cloudified aiming at a high adoption of the Cloud Native Factors without the notion of decomposing a VNF into Microservices (CNFs) that form the Application.

- Questions about Magma: Is there any performance metrics about Magma? How many users per GW etc without any additional infrastructure? Prabhjot Singh Sethi said that Magma team said that currently put high physical devices as an Access GW, you will get a better number.
- Magma Containerization is delayed, not date/commitment yet, phasing approach but the requirements have been created in Github.
- Chaker Al-Hakim discussed the LF Open Source Component Projects for 5G under LF Edge umbrella. Chaker invited people to attend the LFN 5G Super Blueprint meeting.
- Prabhjot Singh Sethi gave some information about Akraino Blue print part of LF Open Source Component Projects for 5G. Magma GW has a monolithic architecture and not yet foreseen for Edge blue print.
- Chaker Al-Hakim will join Akraino TSC meeting to provide some awareness about LF Open Source Component Projects for 5G.

Meeting Minutes - 8/4/2021 @7.30 am PST

- SABRES (Secure, Adaptive, roBust, Resilient, and Efficient Slices) presented by Dr Erik Kline
- Gervais-Martial Ngueko: Proposal of SABRES integration into ONAP E2E Network Slicing call flows

Meeting Minutes - 8/18/2021 @7.30 am PST
**Magma/ONAP Integration - latest updates (Byung-Woo Jun, Amar Kapadia)**

- CNF TOSCA package being onboarded through ONAP SDC - information shared by Sebastien Determe (SDC Committer) - in progress in preparation to onboard Magma CNF
  - To test it, Sebastien has followed that use case: https://docs.onap.org/projects/onap-integration/en/latest/docs_vFW_CNF_CDS.html
  - Sebastien used the Native ZIP file that contains CBA + helm packages - https://gerrit.onap.org/r/gitweb?p=demo.git;a=tree;f=heat/vFW_CNF_CDS;h=f39e04c8e94011e856506585bca454232bec612594;hb=HEAD
  - Seshu Kumar M, Byung-Woo Jun provided additional information about ONAP CNFO/SO – CNF distribution/orchestration - further discussions will be organised offline as soon as Lukasz Rajewski will be back (re-use the ONAP Enterprise slot?)

=> Catherine to open the bridge on Wednesday (8/25) at xxx - team to let us know 😊

- Feedback from Amar Kapadia - Onboarding of standalone EMCO done but integration with ONAP still under discussion a.k.a. EMCO v2 (additional development/integration work will be required)
- Magma CNF date not yet available - current path: Magma VNF (1.6?). Nevertheless let's complete our current path so we can learn from our initial integration (not only from a service delivery perspective but also from service assurance, security, resiliency, etc perspectives

**ONAP/SABRES Integration - current status: SABRES constructor/validator under prototype/development; ONAP/SABRES - Design level, no implementation/integration yet**

**Follow-up on Michael August's questions - In order to document a test plan about how to evaluate the network slicing security research being done by Dr. Kline's team. Can the ONAP Community provide information about:**

1) Is there an API within ONAP’s VNF Manager component or Element Management that enables **assignment/allocation** to specific pieces of hardware within the NFVI/cloud infrastructure?

   *Some information are currently available in the AAI component (Active Available Inventory)*

   Our model can also easily be adapted to store any information needed if our current model does not support it. APIs for inventory operations are auto generated once added to the model.

   Can you please review our current model/relationships to see if it supports what you are looking for


   **A&AI API Documentation:** https://wiki.onap.org/display/DW/AAI+REST+API+Documentation+-+Istanbul

   *Associations between virtual and physical resources is currently done in A&AI.*

   **Question:** What level of granularity do we need to consider (pod, container, etc)? **Michael to confirm**

   VNF Manager in the context of ONAP:

   #1 external VNFM adaptor provided by SO (ETSI compliant)

   #2 VNFC (CNF) LCM is provided by SDNC/CCSDK (Heat compliant)

2) If the underlying VIM provides APIs for placement of virtual resources on specific pieces of physical hardware, then ONAP provides corresponding APIs that the VNFs can use to leverage these VIM placement APIs to perform precise placements of the virtual resources they use onto specific nodes within the physical infrastructure? It also depends on what the VNF/CNF/PNF provide as information.

   *If the VIM is based on k8S then the new EMCO version (developed by Openness) will support a way to define the platform requirements on per workload basis as intents.*

   *At the time of deployment, it can do match making between requirements and capabilities it discovered early on to select the right K8s cluster.*

   **OpenNESS - EMCO API Documentation.** Currently the latest EMCO version (V2) has not yet been integrated to ONAP.

3) Are there APIs between the Network Slice Instance layer and the Resource layer (resource management functions) that enable a network slice instance to gain information about the current mapping of network slice instances to physical resources? Likewise, are there APIs that enable the network slice instances to leverage specific resources available within the resource layer?

   *The current Network Slicing functionality (till Istanbul release) hasn't considered VNF placement, resource occupancy levels of a cloud instance, occupancy levels of a VNF, etc. due to a number of reasons (first focus on the basic functionality and key lifecycle phases, limited interest/contributions from community for core slicing (where VNF/CNF will be most relevant), etc.). Some of the aspects were being discussed for future releases beyond Istanbul.*

   *In addition, there is work done on VNF/VF module placement optimization done in OOF. The HAS functionality in OOF could be leveraged, a couple of references are given*:

   - https://docs.onap.org/projects/onap-optf-has/en/latest/index.html#master-index

   *There was also another functionality FGPS (Fine-Grained Placement Service) in OOF which I think is no longer maintained*
**Seshu Kumar** will provide additional further information about SO NSSMF adaptor, compliant with 3GPP.

CSMF and NSMF are implemented using SO BPMN workflows to support 5G network slicing use case. CSMF workflow will process the user input (service request) that comes from CSMF portal (UUI) and save the order information into a communication service instance in AAI. Then CSMF will send network slice request to NSMF workflow, and NSMF will then create service profile, NSI and NSSI. Service profile is a logical concept which exists only in AAI - it contains two AAI instances, one is a profile instance that will hold the slice parameters, and the other is a service instance which will be used to organize the NSI. NSI is also a service instance in AAI which will be used to organize NSSI. NSSI is the actual entity which will be created by NSSMF and an AAI service instance will also be created to represent NSSI in AAI context. NSI and NSSI can both be shared.

SO queries OOF for slice template selection and then slice instance selection. In response to slice instance selection query, OOF may return an existing slice instance or may recommend SO to create a new slice instance. A new process called Orchestration Task is created to manage recalibration of NSI/NSSI selection with manual intervention from the portal. A new SO adapter is created to be the adapter of NSSMF which will interact with external NSSMF for NSSI management. See the SO Impacts and Interfaces wiki page for details.

**Meeting Minutes - 01 Sep 2021**

- Magma/ONAP Integration - latest updates
  - Prabhjot Singh Sethi: magma helm artifacts [https://drive.google.com/drive/folders/1h312oni0P7jiQaFmHjSNC-4dWcxStXc?usp=sharing](https://drive.google.com/drive/folders/1h312oni0P7jiQaFmHjSNC-4dWcxStXc?usp=sharing)
  - NOTE: Recording was corrupted - the zoom stub file will not convert: -{

**Meeting Minutes - 15 Sep 2021 @7:30 am PST**

- ONAP/SABRES Integration Follow-Up - Gervais-Martial Nguenko, Pierre Close, Paulo Costa
- ONAP Service Assurance based on Magma Glacier Peak v1.6 - Jorge Hernandez, Gervais-Martial Nguenko

**Agenda - 29 Sep 2021 @7:30 am PST**

- ONAP Service Assurance based on Magma Glacier Peak v1.6 - Jorge Hernandez, Gervais-Martial Nguenko
- ONAP/Magma Integration Updates - Byung-Woo Jun, Prabhjot Singh Sethi

**Action Items (In Progress)**

- Prabhjot Singh Sethi: Will check how long Magma 1.5 support will be available? Will VNF Magma GW still available with Magma 1.6? What's the process to raise a bug? How long it will take to fix it? Check if Magma 1.6 API backward compatible (supporting both LTE/5G) to Magma 1.5
- Amar Kapadia: follow up with Louis (LF) to setup a repository for Helm Charts (Magma special packaging); Amar Kapadia: I have followed up with Louis Illuzzi
- Catherine Lefevre: Does anybody explore any ONAP/ODA Integration
- Kenny Paul, Catherine Lefevre: Invite Walmart (Date to be confirmed)

**Action Item (Closed)**

- (Catherine) To follow up with Swaminathan Seetharaman about scope/functionality/roadmap supported by CSMF
- (Kenny): Setup onboarding process for DARPA Program
- (Veronica): Provide the Orange Invite to be shared with the ONAP community
- (Kenny) Collect any EUA Use Cases
- (Kenny) add an item to TSC call - 3/25 about EUA for Enterprise
- (Kenny) add an item to TSC call - 3/4 - new schedule for Task Force - Enterprises + introduce agenda (3/31) - Alla Goldner, Timo Perala (requirement subcommittee) and Chaker Al-Hakim (architecture subcommittee) to attend
- (David): Follow-up with Amar Kapadiabout TSC presentation about current status regarding OPS-5G & LFN Activities
- (Catherine): Recheck the ONAP Calendar
- Kenny Paul set up meeting invite for next week 26 May 2021
- Chaker Al-Hakim: Invite LF Edge to our ONAP for Enterprise Task Force on July 21st
- Catherine Lefevre: Discuss with Arpit about the new name a.k.a "5G Open Source Stack" - can be confusing with OpenStack initiative from RedHat; preference is to use "Open 5G Stack"
- Rework our ONAP Added Values Message in alignment with Vertical Industry & Enterprise Business - presented during the DDF Event in June 2021
- Contact Enterprise Business Units within our own company
Prepare the Survey (Discontinued)

- **Catherine Lefevre** “How do we plan to communicate with the other open source communities” - Bring this item to the next 5G Super Blueprint call.

- **Chaker Al-Hakim** Invite LF Edge to our ONAP for Enterprise Task Force on July 21st