



Technical Community Cooperation: Generic Network Management

Magnus Buhrgard, Open Source and Standardization Manager

Ericsson

Some observations 1 (4)

- ONAP is appealing to cooperate with for all the listed standards entities
- It is a very large area – need to define focus
- There are ongoing collaborations – Thanks Deng Hui and others!
 - I need your help to identify them
- A number of presentations were made at the Joint sub-committee meeting in April:
 - ETSI NFV - Thinh Nguyenphu
 - 3GPP SA5 - Thomas Tovinger & Anatoly Andrianov
 - BBF - Tim Carey
 - MEF - Karthik Sethuraman
 - TM Forum - Ken Dilbeck
 - ETSI ZSM – Klaus Martiny & Uwe Rauschenbach

Some observations 2 (4)

Harmonizing Open Source and Standards:

A Case Study of ONAP

Draft by Jenny Huang (AT&T),
Lingli Deng (CMCC), and
Hui Deng (Huawei)

“It is evident that as ONAP matures, with more platform capabilities introduced in each release, standards become increasingly important to ensure an extensible and interoperable ecosystem that the ONAP platform can support.”


“People make the difference: Despite all the processes and governance that are put in place It is the individuals who invest the time and careful focus that is required to bridge both communities who will make this effort successful.”

“Sometimes a standards effort will also create a reference implementation or snippets of code demonstrating an implementation.the standards licensing model might be incompatible with inclusion in an open source project”

Ways of Working for Collaboration

- Harmonization will benefit both ONAP and SDOs, but main objective to look for ONAP benefits
 - Use ideas from SDOs.
 - Be standards-compliant
 - Influence standards. Identify work item within SDOs.
- There is no obligation for ONAP to follow standards but:
 - Provide shortcuts to good solutions
 - Will make ONAP adoption easier
 - Lack of standard compliance can be a show stopper
- Focus on a few touchpoints per organization
- Open source is like a rope – you cannot push, only pull
 - Identify champions in ONAP
 - We need help from SDOs to identify and explain suitable well defined artifacts – Liaison persons
 - Individuals with one foot in each camp are valuable

Standards Usage Outline - ONAP

Open Source	SDO Partner	Standards	Affected Components
	ETSI NFV	VNF and NS descriptors: IFA011/IFA014 SOL001; VNF/PNF packaging and onboarding: SOL004; NS packaging and onboarding SOL007	SDC, SO, VF-C
		3-rd party VNFM interface: SOL003 3-rd party NFV-O and OSS interface: SOL005	SO: VNF-M adapter SO: NFVO adapter, External API
		VNF control, events, KPI's etc.: SOL002	EMS adapter
	OASIS TOSCA	ONAP Internal model: TOSCA/YAML Spec v1.2	SDC, AAI, DCAE
	TMForum	Service Order, Catalogue and Inventory: TMF API's: 641, 633, 638	External API to BSS (NB), SO, AAI, DCAE
	ETSI ZSM	Leveraging ETSI ZSM multi-domain architecture	SO, SO adapters
	3GPP	Network Slicing Mngmt & Info Model: 3GPP SA2 and SA5	SDC, DCAE, APPC, AAI
		3GPP 5G Configuration SA5	SDC, APPC
		3GPP FM/PM SA5	SDC, DCAE
	ETSI OSM Interworking	Based on YANG to TOSCA translation and ETSI NFV- SOL005	NF-SDK, SDC

3GPP SA5

Thomas Tovinger (Chair)

Anatoly Andrianov



5G Management

- Concepts, use cases, requirements architecture: 3GPP TS 28.530, 28.533
- Provisioning: TS 28.531
- Generic management services (incl. Prov, FM,PM): TS 28.532
- Network resource Model (NRM): TS 28.540, 28.541 (incl. Network Slicing)
- PM/KPI's and assurance: TS 28.550/552/554



Network Slicing

- Service requirements for next generation new services and markets TS 22.261
- Feasibility Study on Business Role Models for Network Slicing TR 22.830
- Definition, concepts and terms are defined by SA2 in 3GPP TS 23.501, 23.502
- Study on management and orchestration of network slicing in 3GPP TR 28.801

Closed Loop SLS Assurance

September, 2019

3GPP SA5 – Incoming Liaison Statement 1(2)

3GPP TSG-SA5 Meeting #127

Sophia Antipolis, France 14-18 October 2019

S5-196792

Title: LS on 3GPP – ONAP Cooperation & WoW

Response to:

Release:

Work Item:

Source: 3GPP TSG SA WG5

To: ONAP Community Coordinator for Generic Network Management Activities,
Magnus Buhrgard

Cc: 3GPP TSG SA

Contact Person:

Name: Thomas Tovinger

Tel. Number:

E-mail Address: thomas.tovinger@ericsson.com

Send any reply LS to: 3GPP Liaisons Coordinator, <mailto:3GPPLiaison@etsi.org>

“3GPP TSG SA WG5 (SA5) fully supports the Integration of ONAP and the 3GPP 5G management framework and strongly believes that it is necessary to align solutions between 3GPP and ONAP to avoid industry fragmentation. “

“SA5 highlights the need for establishing contacts between the ONAP community and 3GPP SA5, and for informing each other when a change is required to ONAP or 3GPP specifications.”

“Until a formal procedure for exchanging Liaison statements (LS) between 3GPP and ONAP is established, we ask that Magnus Buhrgard, as ONAP coordinator, kindly act as the focal point for coordinating the receipt and disposition of requests and information exchange between 3GPP SA5 and ONAP.”

3GPP SA5 – Incoming Liaison Statement 2(2)

“3GPP TS 28.532 has captured the stage 2 and stage 3 of operations and notifications for provisioning management service, fault supervision management service and performance assurance management services.”

“Some potential ways of integration could be discussed between the two groups. For example, 3GPP TS 28.532 has specified “A.3 JSON schema of ‘fault3gppFields’ for integration with ONAP VES” which could be potentially referred by ONAP. With established contact, further detail discussion could be better organized.”

“ACTION:

1. SA5 kindly requests establishment of an individual to act as a liaison coordinator between 3GPP and ONAP
2. SA5 kindly requests ONAP to inform SA5 when a version of VES API specification is available.
3. SA5 kindly requests ONAP to consider establishing a permanent reference to the ONAP VES API specifications.”

Proposal to form an ONAP taskforce to investigate and suggest a way to facilitate a permanent open reference, including a notification.

ETSI NFV

Thinh Nguyenphu

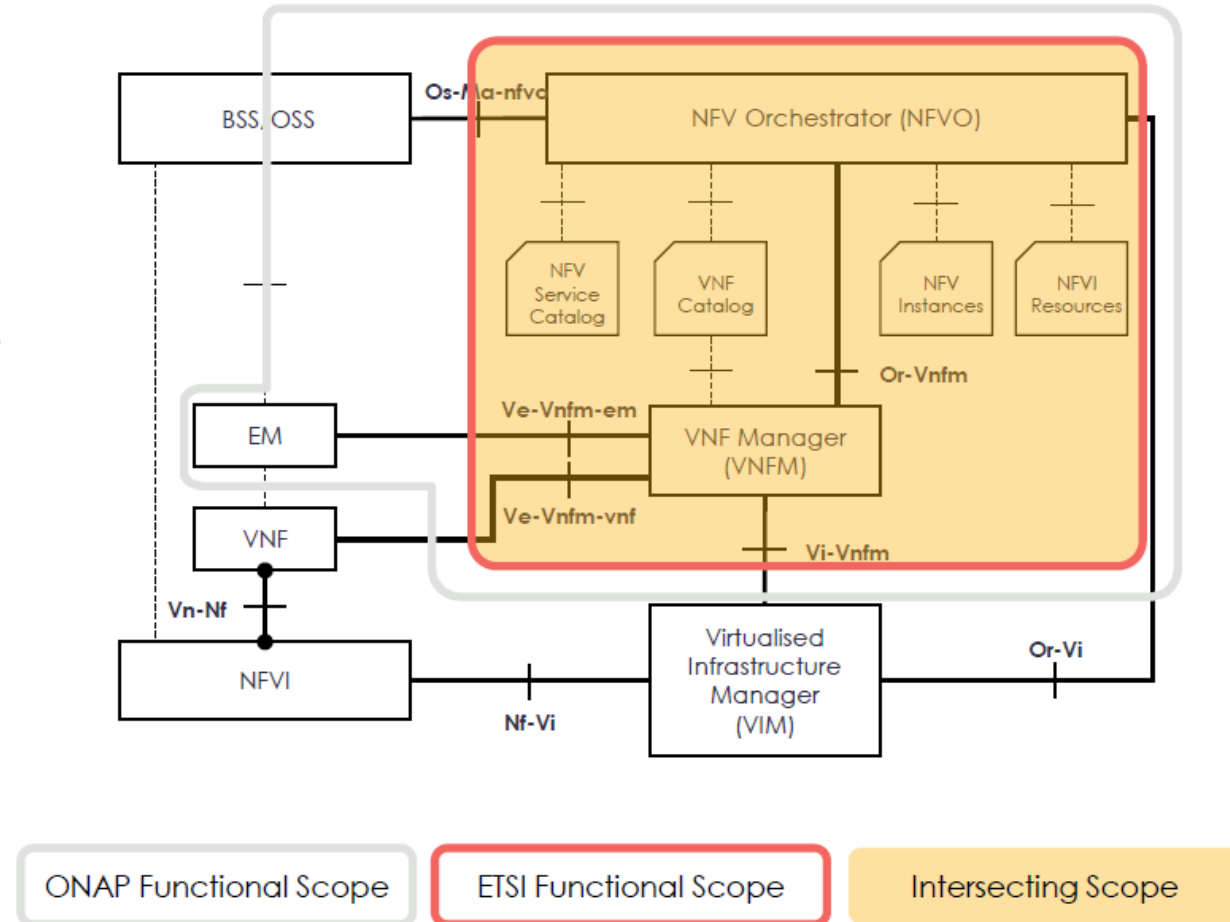
Rajavarma "Raja" Bhyrraju

Scope of ETSI Relative to Scope of ONAP

ONAP and ETSI have differing scopes, with ETSI scope being a subset of ONAP scope

ONAP scope includes OSS/EM features:

- PNF Orchestration/Provisioning (though SOL004 onboarding for PNF is part of ETSI)
- Services/Apps configuration
- Services/Apps FCAPS



ETSI-Alignment Task Force Update

October 8, 2019

Byung-Woo Jun, Michael Morris, Magnus Buhrgard, Ericsson
Fred Oliveira, Rajesh R, Rishi Tandon, Verizon
Yan Yang, CMCC
Maopeng Zhang, ZTE
Samuli Silvius, Katsia Kazak, Samsung
Alex Vul, Ruoyu Ying, Lianhao Lu, Intel
Thinh Nguyenphu, Nokia
Seshu Kumar, Huawei
Others from ETSI Alignment Task Team

Orchestration Scenarios (a.k.a. ETSI-Alignment) Task Force weekly meeting,
Weekly meeting: Mondays at 12PM UTC, 5AM PT, 8AM ET, 2PM CET, 5:30PM India, 8PM China.
<https://zoom.us/j/722438866>
One tap mobile: +16699006833,,722438866# US (San Jose) +16465588656,,722438866#
US (New York)

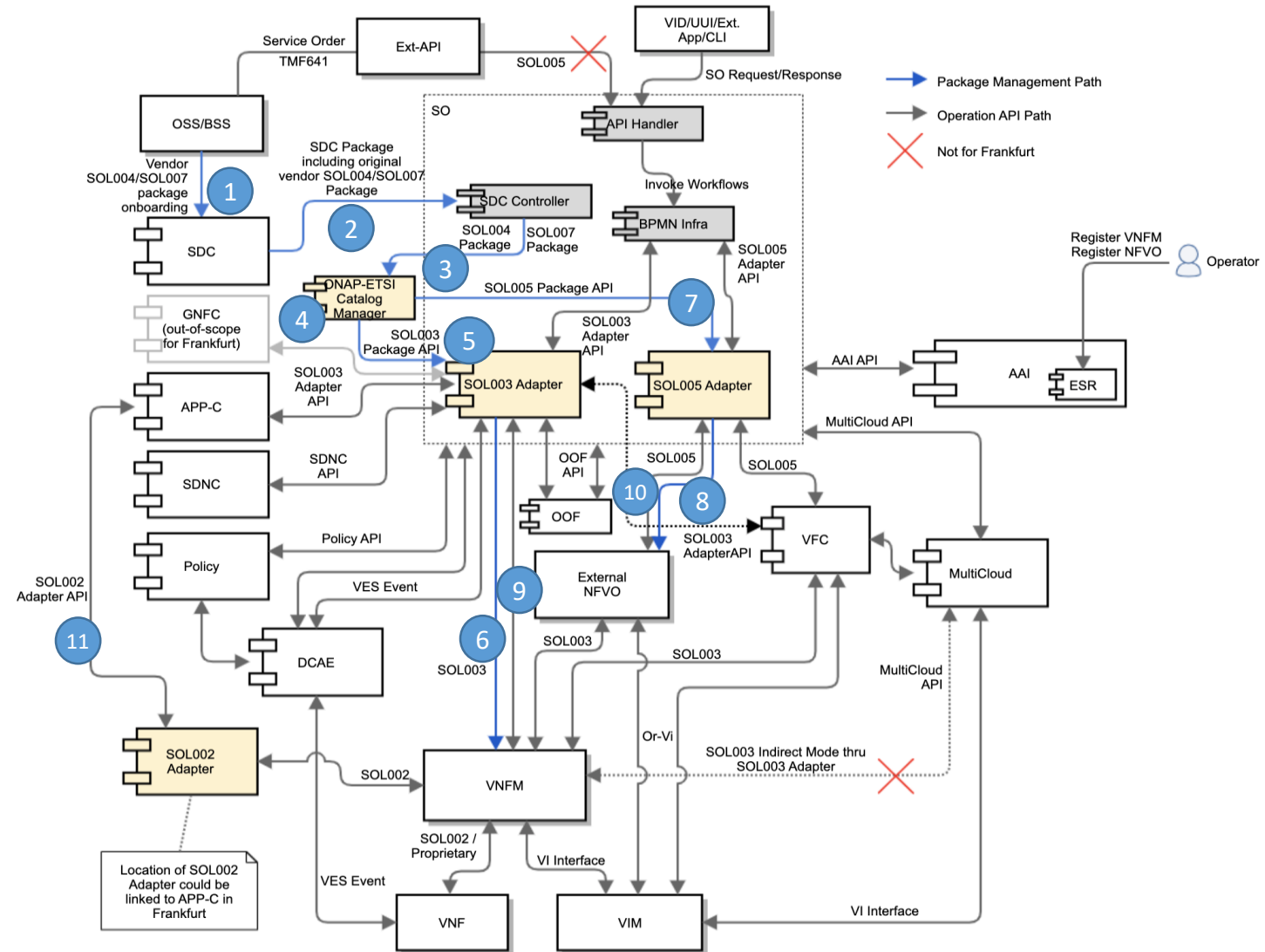
ONAP ETSI-Alignment Overall Architecture

ONAP will be aligned with ETSI standards: SOL004, SOL007, SOL001, SOL003, SOL005, SOL002

- SDC will support SOL004/SOL007 Package Onboarding
- SO (SDC Controller) will get an SDC package notification and queries for the SDC package including the vendor SOL004/SOL007 package
- SDC Controller will invoke ONAP-ETSI Catalog Manager to store vendor packages
- ONAP-ETSI Catalog Manager will store vendor packages in its database
- SOL003 Adapter will query for VNF packages
- SOL003 Adapter will forward VNF packages to VNFM
- SOL005 Adapter will query for NS/PNF/VNF packages
- SOL005 Adapter will forward NS/PNF/VNF packages to External NFVO
- SOL003 Adapter will support SOL003 Operations
- SOL005 Adapter will support SOL005 Operations
- SOL002 Adapter will support SOL002 Operations

Note: SOL003/SOL005/SOL002 Adapters will leverage common functionalities such as:

- Security, HPA, AAI access, Policy Access



For more architecture and design details: <https://wiki.onap.org/display/DW/ETSI+Alignment+Support>

November feedback from ETSI NFV, Raja Bhyrraju

There were no on-going updates in either VNFD or NSD specific change alignment between ETSI NFV and ONAP.

Thinh presented the changes agreed and completed by ETSI to ONAP modelling team and there was no further discussion after that.

If there are any pending items from ONAP not addressed by ETSI, the work can be carried out in Rel-3 maintenance or in Rel-4

ETSI ZSM

Klaus Martiny (Chair)

Nurit Sprecher (Vice-chair)

Short summary:

- A proposal (from Amdocs, DT, Ericsson, Huawei, Nokia) on how ONAP fits with the ZSM architecture was presented at the joint sub-committee meetings in Antwerp.
- It was later approved by ETSI ZSM.
- It shows ONAP as a potential implementation of a management domain as well as the option of using ONAP components in mixed solutions.

IETF

Qin Wu

November feedback from IETF, Qin Wu <bill.wu@huawei.com>

- Good collaboration examples between IETF and ONAP on its release
 - CCVPN project led by Orange, China Mobile which support L3SM interface in earlier version
- ACTN interface, and SD-WAN interface in the latest version: to help validate ACTN standards and L3SM standards
- For telemetry interface, we keep track of it, I think it should align with IETF management plane telemetry standards, e.g., YANG Push/Notifseries, IOAM,etc. unfortunately I see no good collaboration between IETF and ONAP officially which show appreciation to each other.
- 5G network slicing is a good area that needs more collaboration between IETF and ONAP, 3GPP.
- IETF has now design team and focus on transport network slicing between RAN and CORE, it should be a good opportunity for IETF to work together with 3GPP and ONAP and validate and verify the solution proposed by IETF.
- How does ONAP SD-WAN related project correlate with IETF and other SDOs on SD-WAN?
- The big challenge is a the scope of ONAP, it seems the scope of ONAP only focus on orchestration layer, drilling down to network layer and device layer seems not be the scope of ONAP.

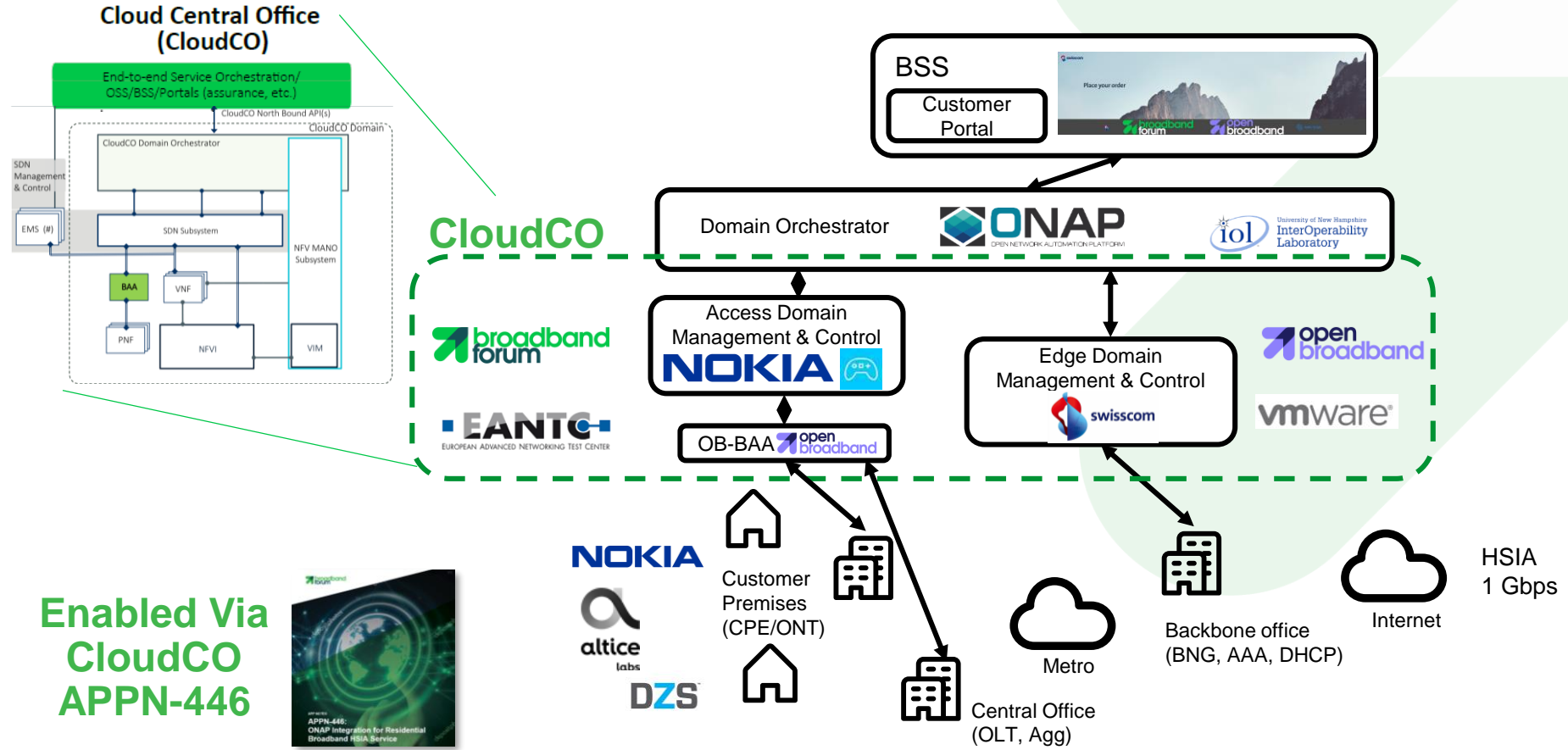
Broadband Forum

Tim Carey

Broadband Services Use Case: Specification Update

- The BBF used the ONAP BBS Use Case to update its CloudCO Application Note (APPN-446) that is based on the Dublin BBS Use Case.
- The ONAP BBS Use case is a **single vendor, proprietary interface** use case, the BBF has completed the process of making the Use Case **multi-vendor** and will look at adapting the ONAP BBS Use case to **align to the BBF WT-411 Definition of interfaces between Cloud CO Functional Modules standard**".
- The BBF has created implementations of the **multi-vendor** use case within the BBF's OB-LABs as well as vendor labs. This **was demonstration at Broadband World Forum 2019**.
- **The BBF plans to extend the use case with additional functionality (closed loop) in 2020 which it will feed back into ONAP.**
- In November 2019, the BBF will be reviewing the CloudCO BBS instantiation to determine what bugs and features to report to ONAP and what, if any, fixes and enhancements to provide for the Use Case.

System Overview



Enabled Via
CloudCO
APPN-446



MEF

Karthik Sethuraman

“MEF LSO Legato API project is collaborating with and leveraging the ONAP External APIs.”

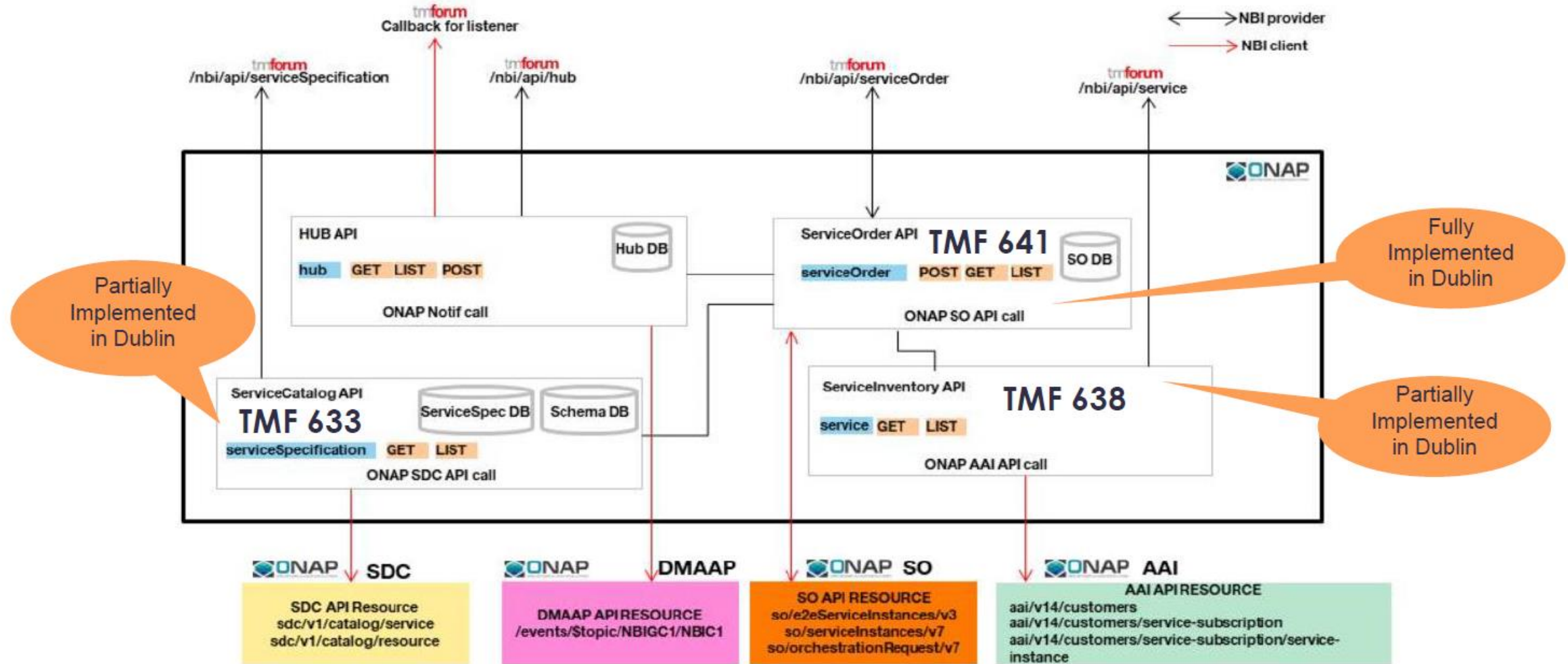
TM Forum

Dave Milham

[TM Forum ONAP interest group](#)

ONAP North Bound Interface with BSS

- Based on TMF Open API's





TM Forum Report
ONAP workshop
Antwerp Sept 2019

Open API and ExtInt

Ext Int APIs

- Use TM Forum APIs (Apache2.0)
 - [TMF641 ServiceOrder](#)
 - [TMF633 ServiceCatalog](#)
 - [TMF638 ServiceInventory](#)
- Open APIs to Design Guideline 3.0 are extensible
- ExtInt uses TMF open APIs with MEF Payload

Success factors

- Proactive coordination between TMF Open APIs and ExtInt team (and MEF Legato)
- Single member lead Orange Ludovic Robert and team



Modelling

SDC models & TM Forum Information Framework (aka SID)

- Continuous exchange of experience between SDC & Modelling teams and Inf Framework
- Success factor**
- Proactive coordination between teams
 - Single member lead Kevin Scaggs



Catalyst: Agile OSS for New Age Services & Hybrid Networks DTW 2018

- ONAP implementation A&AI, SO , Resource catalogue

Success factor

- Proactive input of experiences to ONAP thru CR
- Lead Nishi Mathur Infosys



Potential ONAP R6 and TM Forum Collaboration



Microsoft Word
Document

Samples from mapping document subject to change ➡

ONAP TSC Requirement	ONAP Team	TM Forum Asset	TM Forum Team
5G / ORAN & 3GPP Standards Harmonization	?	IG xxx Services not slices https://github.com/5g-ridersonthestorm/gsma-gst TMF664 RFAC API	ODA Production Open API
All Control Loop Policy Models should be TOSCA Compliant	?	GB999 IG1176 TOSCA Guide for Model-Driven Automation R19.0.0	ODA Production
Modeling: Network Slicing modeling	?	IG xxx Services not slices https://github.com/5g-ridersonthestorm/gsma-gst	ODA Production Frameworkx SID
LCM API Evolution	?	IG1176 TMF664 RFAC	ODA Production Open API
Third Party Operational Domain Manager	?	TMF909 NaaS API Component Suite	Open API
xNF License Management use case		IG1141 Onboarding Automation	ODA Production

Thank You!