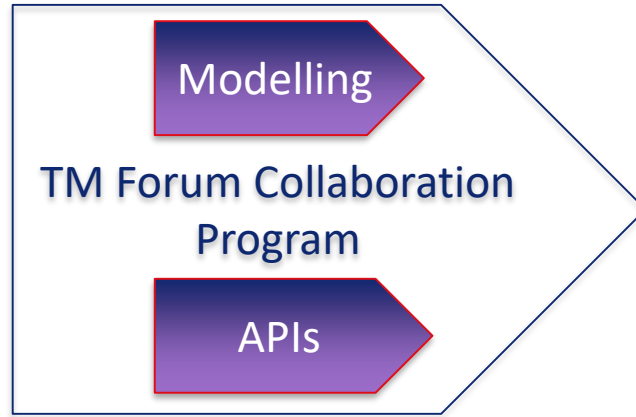




TM Forum ONAP Report LFN Developer & Testing Forum, Prague, Jan 15, 2019

[LFN Developer & Testing Forum, Prague, Jan 13 - 16, 2019](#)

Catalysts drive TM Forum Implementation



Implementation
Learning Points
Open Source contributions

2018

Catalyst: Agile OSS for New Age Services & Hybrid Networks, DTW (Digital Transformation World) 2018

- ONAP implementation A&AI, SO , Resource catalogue
Success factor [Infosys](#)
- Proactive input of experiences to ONAP thru CRs to ONAP
- Lead Nishi Mathur Infosys

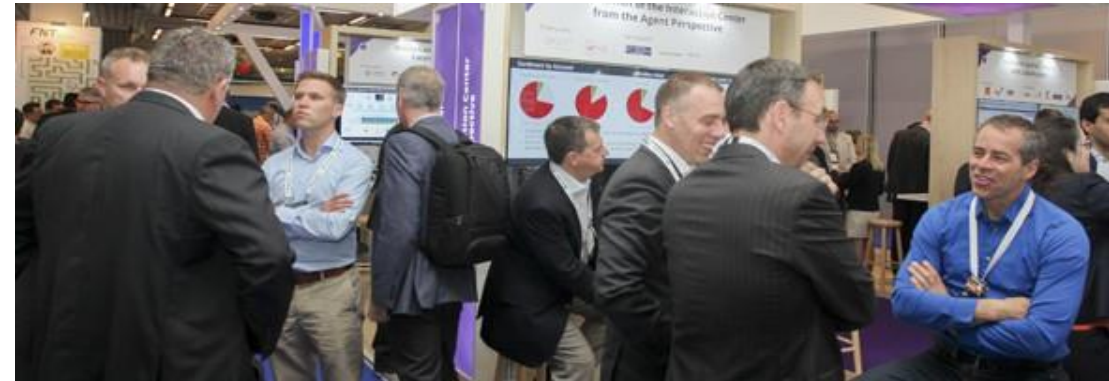
2019

- [5G Optimized Capacity & E2E Experience - Phase II](#)
 - [ODA-240](#) - provides information on merging architecture, components and concepts from TMF Open API, 3GPP, ONAP, GSMA and MEF to realize a solution for effective 5G slicing
- [Skynet](#)
 - Contribution to ONAP: White paper 12.2
[ODA-194](#) - Contribution to ONAP: White paper 12.2
ONAP usage learning points

Challenge is how to feed these results into ONAP

What are TM Forum Catalyst projects?

- Rapid fire, member-driven, proof-of-concept projects
- Create innovative solutions to industry challenges in multiple vertical markets
- Connect ecosystems (CSPs, integrators, vendors, enterprises)
- Validate, and contribute back to, TM Forum best practices & standards
- Present showcase demonstrations at TM Forum events



Areas for potential Liaison and Coordination

SDC

- IG1176 TOSCA Guidelines (for Network appliance/ application MDA)
- IG1194 Focus on Services not Slices
- R20: 5G Modelling Product/ Service/ Resource Function/ Resource (based on catalyst)
- R20: Locations model updates

DMaaP

- TMF688 Event Management API REST Specification R19.0.0 ?

SO

- **TMF664 Resource Function Activation and Configuration**

A&AI

- TMF638 Service Inventory API REST Specification R18.5.0
- **TMF639 Resource Inventory API**

External API Framework

- **REST API guidelines: Review align ONAP and TMF630 API Design Guidelines**
- TMF 909 NaaS

Architecture

- Autonomous Networks (AN) project started
 - Envision how ONAP Architecture can leverage AN target architecture (2H-2020)

Red items: Collateral that can be used immediately to support ONAP/ TM Forum joint work

Asset	Relevance	Proposed Interaction
IG1176 TOSCA Guidelines	A mapping between TOSCA and the TMForum Information Model with potential to bring greater commonality and extensibility to TOSCA entity definitions.	BT are expecting to create a white paper on the value of using an Information Model like that from TMForum in onboarding network functions. This may be relevant whether the onboarding is viewed through a lens of ETSI, TOSCA, ONF or ONAP. This might lead to a possible joint approach to OASIS for changes to TOSCA.
IG1194 Focus on Services not Slices	Proposes how to Abstract GSMA GST/ NeST to model general Comms Connectivity services where the detail of 5G slices is hidden from consumers through use of profiles/ templates. Similar to MTOSI MTOP work.	Presentation April 30th 2019 to the ONAP Service Modelling team. See Minutes Member* led review of whether the general service view can be embedded in future SDC implementation. <i>Kevin McDonnell Huawei?</i>
<i>R20: 5G Modelling Product/ Service/ Resource Function/ Resource (based on catalyst findings)</i>	<i>Compendium of a set of 5G results coming from multiple catalyts</i>	<i>Presentation and sharing of work . Joint review</i>
<i>R20: Location model updates</i>	<i>Plan to revisit Addresses and Geolocations with view to allowing simplified models where complexity can be added as needed.</i>	<i>Joint Study We have nine member companies interested in this topic. Desire ONAP detailed requirements. Dirk Rejahl Digiglu?</i>

*Member means a member of either or both TM Forum or ONAP communities.

Asset	Relevance	Proposed Interaction
TMF688 Event Management API REST Specification R19.0.0	Possible umbrella API for simplified consumption Open Source implementations such as Kafka, Flink, Spark Splunk. Enabling plug and play.	Member* lead joint study Teoco?, Mycom ? Use Performance and AI focussed use cases. (New Catalyst?)

**Member means a member of either or both TM Forum or ONAP communities.
Rationale is we need the domain experts who may need to be drawn from either community,
Experience show that organisation that are members of both are the most effective in leading joint work..*

Asset	Relevance	Proposed Interaction
TMF664 Resource Function Activation and Configuration	API support orchestration of both intent based and detailed management of Resource (Functions) needed to support hybrid legacy network orchestration and Virtualisation in single API model (see TR 255 Suite for extensive examples) and we have 3GPP 28.541 examples.	Member* led Joint Review <i>Vance Shipley Sigscale?</i> (New Catalyst?)

*Member means a member of either or both TM Forum or ONAP communities.

Asset	Relevance	Proposed Interaction
TMF638 Service Inventory API REST Specification R18.5.0	<i>Possible Open API evolution of current ONAP AA&I API functionality?</i>	<i>Member* led joint review with recommendation and timescales? (New Catalyst?)</i>
TMF639 Resource Inventory API	<i>Possible Open API evolution of current ONAP AA&I API functionality?</i>	<i>Member* led joint review with recommendation and timescales? (New Catalyst?) Guidelines in ONAP for migration of an existing low level inventory elements from a COTs product to A&AI (Infosys, CSPs)</i>

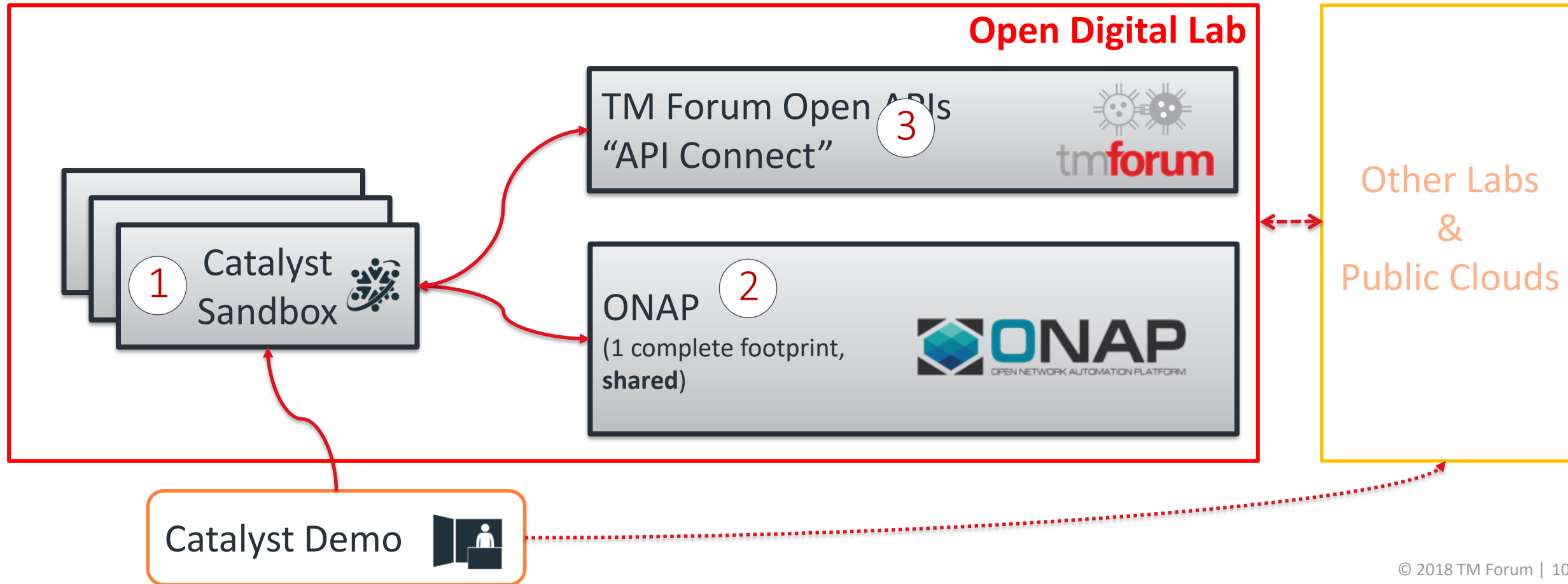
**Member means a member of either or both TM Forum or ONAP communities...*

Asset	Relevance	Proposed Interaction
REST API Guidelines: Review align ONAP and TMF630 API Design Guidelines	<i>Share implementation experiences between ONAP and Open APIs and create aligned (single?) Joint Recommendation?</i>	<i>Joint meeting reviewing both public document with recommendation on what can be aligned and by when? Steve Harrop Vodafone?</i>
TMF 909 NaaS	<i>Additional API and profile candidates for ONAP Ext Int</i>	<i>Member* led joint work? Ludovic Robert Orange? (New Catalyst?)</i>

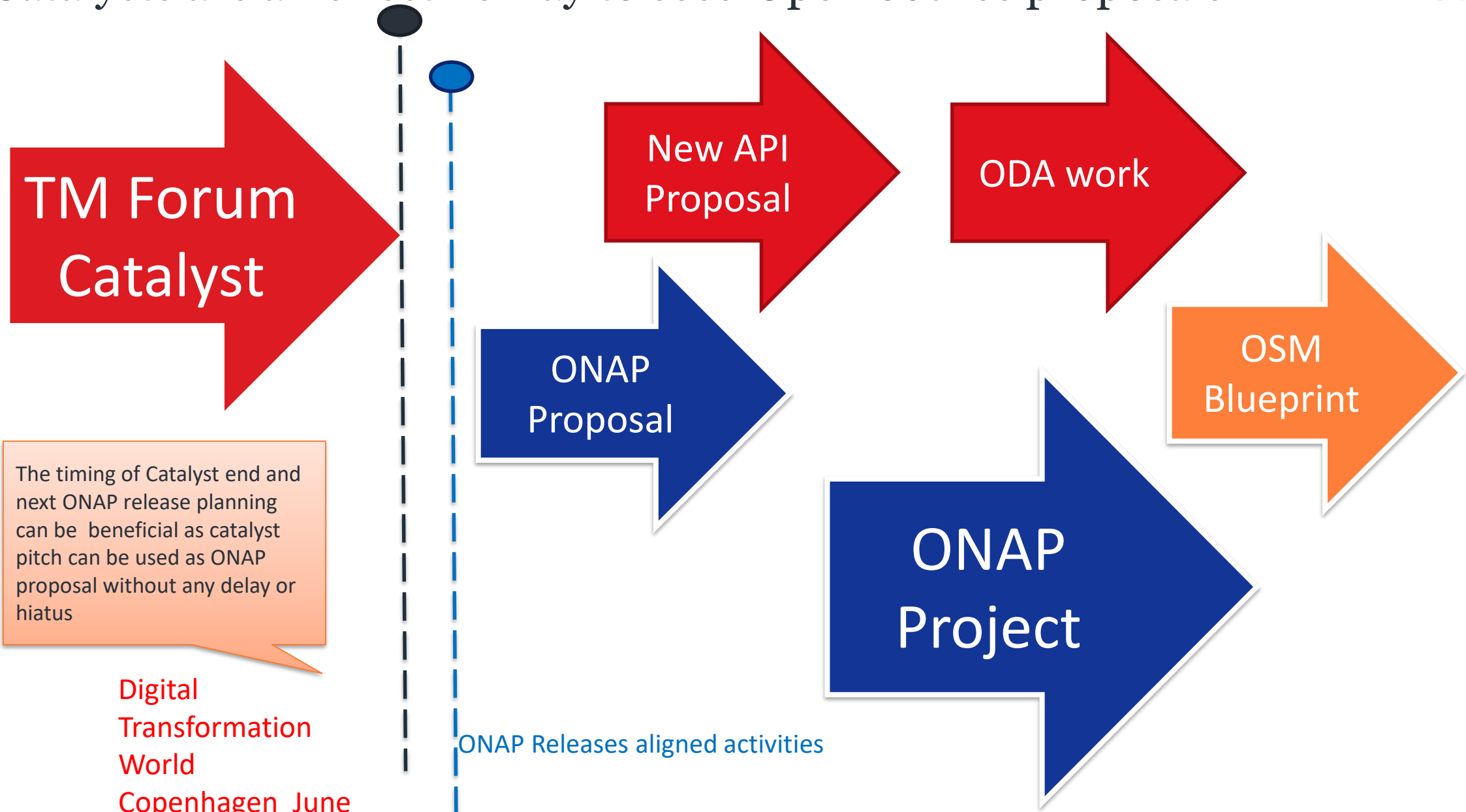
*Member means a member of either or both TM Forum or ONAP communities.

Catalyst Usage of Open Digital Lab (including ONAP)

1. Each Catalyst has private Kubernetes Cluster (a.k.a Catalyst Sandbox)
2. A single shared ONAP deployment to ONE Kubernetes Cluster (medium footprint)
3. TMForum Open API Reference Implementations running in another K8s cluster

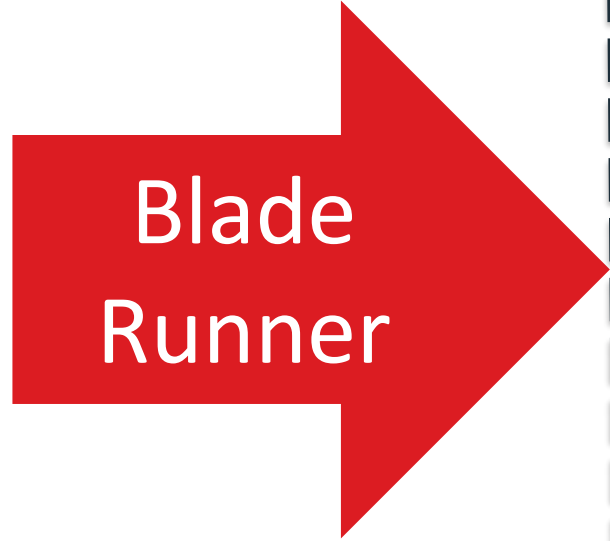


Catalysts are an effective way to seed Open Source proposals



...and the work gets to continue on AFTER the DTW showcase!

...as was case for Blade Runner and ONAP CCVPN



DTW – May 2018



ONAP R3 Casablanca
November 2019

- Catalysts are happening between now and DTW Copenhagen June 2020
- Opportunity to influence ONAP related catalysts in next 4-8 week before charter and contracts close
- ONAP related catalysts for DTW Copenhagen included in the Posted slides listed in next two slides
- For further information contact dmilham@tmforum.org or kdilbeck@tmforum.org for more information

- A number of candidate opportunities have been identified for engagement with ONAP teams
- Catalysts are happening between now and DTW Copenhagen June
- Catalysts are a practical way to develop implementation artefacts collaboratives between ONAP and TM Forum members
- Some TM Forum assets can be used immediately: APIs and some modelling artefacts
- There is a window of opportunity in next 4-8 weeks for ONAP to Influence the content of ONAP related catalyst planned for DTW Copenhagen June 2020

Informational Slides

- **R6 Requirements response**
- **Candidate #1:: 5G /Licence management:**
 - Work on IG1141 Onboarding automation and IG 1176 ToSCA . Need to present to ONAP.
 - **Status: Continuing**
- **Candidate #2:: 5G Service management**
 - IG1194 use of GST attributes including notion of templates /profiles in plus
 - Use of 5 G JSON schemas with TMF 664 Resource Function Activation and configuration API 5g 28.541 NRM schemas are at <https://github.com/5g-ridersonthestorm/gsma-gst>
 - **Status: Continuing with planned updates to the JSON schema to align with GSMA Update and addition of TOSCA models for onboarding configuration.**
- **Candidate #3:: 3rd Party Operational Domain manager: code focus**
 - Arising from the Blockchain-based Telecom Infrastructure Marketplace Catalyst TM Forum has received code contribution from Whalesoft and IBM.
 - **Status: Assessing IPR usage of Java Libraries and working on including within TM Forum Open Digital Architecture Reference Implementation workstream.**
- **Candidate #4 REST API style guide alignment** across MEF TM Forum ONAP .
 - Envisaged outcome common Style Guide for API documentation.
 - **Status:** completing resolution of internal CRs on current document as precursor to outreach to MEF ONAP and others.

- R6 Requirements response
- **Candidate #4 REST API style guide alignment** across MEF TM forum ONAP . Outcome common Style Guide for API documentation
 - Situation is that MEF has a different opinion on what should be optional and mandatory in APIs based on the MEF use cases.
 - **Status:** awaiting completion of TM Forum REST guide line update to deal with TMF outcome CRs
- **Candidate #5 API tooling and documentation**
 - **Cloud based API tooling** for autogenerating swagger files, API CTK and Documentation
 - **Uses schematised JSON Data Model**
- **Candidate #6 joint work on policy representation in TOSCA**
 - IG1176 now published and feedback welcome
 - Currently looking at adding process model into TOSCA work on SID Process modelling use of TOSCA
 - **Status: Continuing with focus on joint proposal to OASIS TOSCA group**

Prospective catalysts stating intention to use ONAP-DTW Copenhagen. Catalysts are not finalised

id	Title	Lead
C20.0.01	Automating NaaS Lambda (λ) Services	Ernie Bayha (AT&T)
C20.0.08	5G Via Optimus –Phase 2	Vinay Devadatta Wipro
C20.0.13	Boosting AIOps for Full Hybrid NaaS (A&AI)	Luis Fernando Rubio Martínez Everis
C20.0.24	5G and Customer Driven Network Optimisation	Andrew Davison Unico

ONAP Relevant Catalyst currently under consideration for Copenhagen(2)

Prospective catalysts stating intention to use ONAP-DTW Copenhagen. Catalysts are not finalised

id	Title	Lead
C20.0.29	GHOST IN THE SHELL	Frédéric Desnoes Orange
C20.0.38	BOS : an implementation of ODA Core Commerce Management, phase II	Hervé BOUVIER Orange

Champion value proposition

Leverage the industry to accelerate innovation



CTIO

“I want to prove new ideas (and new suppliers) quickly and cost-effectively”

Influence the industry towards common approaches



Business Owner

“I want to align technical initiatives & business strategy”

Participant value proposition

Know the industry (relationship building)



Product Manager

“I want to develop new client relationships and to gain deep understanding of customer requirements and partner and competitor capabilities”

Excite the industry with our innovation (marketing)



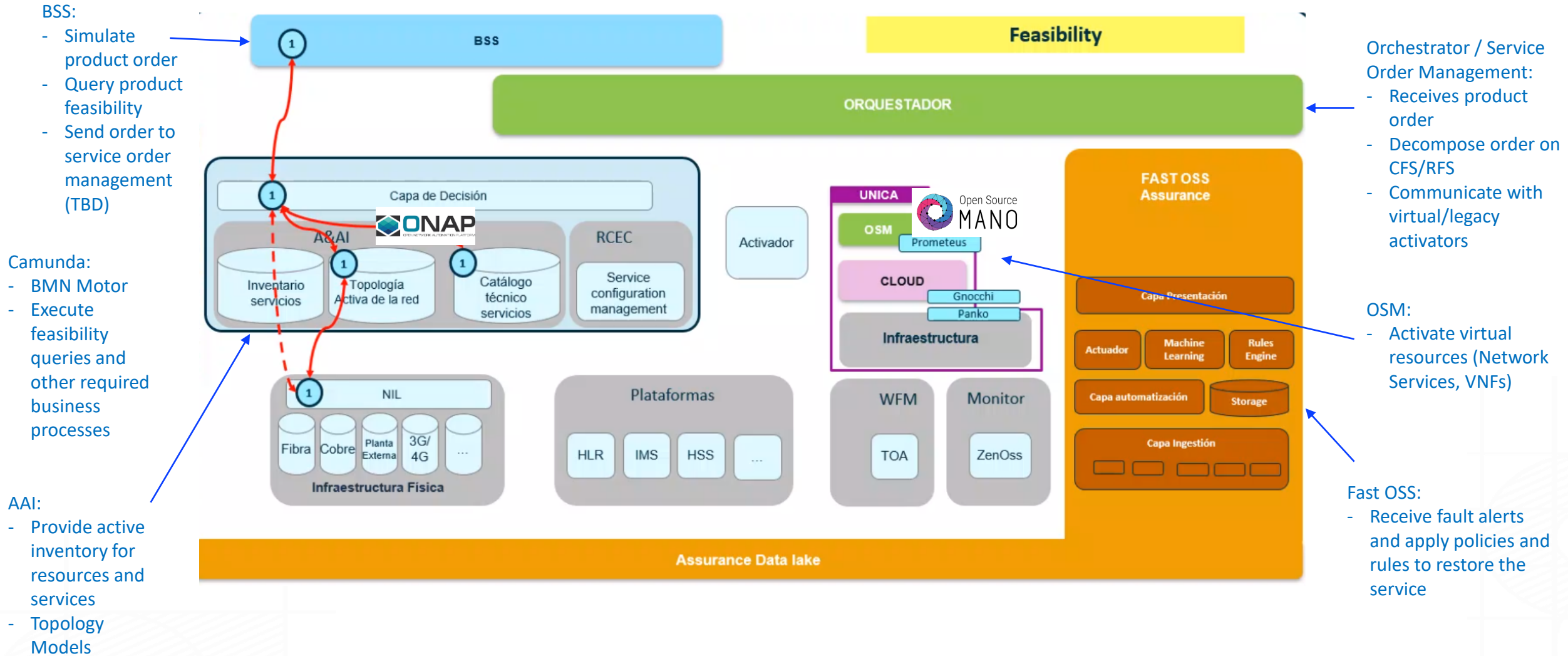
CMO

“I want to get recognition for my company’s innovation and show how our products help the industry”

TM Forum value add:

- **Marketing platform:** Showcase | Promotion | Awards
- **Program management:** Structure (e.g IPR) | Matchmaking | Project management (deadlines & motivation)

01 | Architecture – High Level Design



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

