Successful ONAP TM Forum Collaborations

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
5G Riders on the Storm - Phase II
focuses on the operational use cases required to support lifeline communications both during and after extreme weather events such as storms and flooding. Public safety relies on functional emergency services that in turn rely on CSPs providing an assured level of 5G services that enables first responders to do their job.

5G Optimized Capacity & E2E Experience - Phase II
guaranteeing assured service quality across multiple slices requires elimination of prohibitively expensive, resource over-allocation and cross-CSP co-ordination. This Catalyst demonstrates real-time, dynamic, automated planning, operation and spectrum optimization for multiple SLA guaranteed slices, with blockchain-based settlement, spanning multiple CSPs.

Skynet
advanced eHealth and tele-medicine services across seamlessly coordinated, geographically distributed service providers to support medical crises where global collaboration is needed. We will demonstrate the value of industry standard frameworks and APIs to support complex Network Services Orchestration, Service Assurance, monetization and capabilities offered by 5G network slices and physical networks.

demonstrate the concept of network capability openness via APIs to enable service agility, and build a digital service ecosystem based on China Unicom’s ONS Capability Center empowered by DevOps process and an open platform.
### DTW 2019 Catalysts Contributions for ONAP

<table>
<thead>
<tr>
<th>Catalyst</th>
<th>Contribution</th>
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<tr>
<td>Skynet</td>
<td>Contribution to ONAP: White paper 12.2 <strong>ODA-194</strong> - Contribution to ONAP: White paper 12.2</td>
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<tr>
<td><strong>5G: Optimized Capacity &amp; E2E Experience - Phase II</strong></td>
<td>The document 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 <strong>ODA-240</strong> - The document 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</td>
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*Challenge is how to feed these results into ONAP*
Skynet

Borderless Remote Health Care: A Reality with 5G
Supported the fulfillment of "RIDERS in the STORM"

That thanks to the collaborative work of

TIM, orange, telenor, A1, KDDI, KDDI R&D LABS, BT, Netcracker, Accenture, HUAWEI, and gen.
Slice template blueprint framework

Leverage GSMA NEST GST work and NGMN service categories, apply SID thinking → create programmatic slice blueprint framework

Industry/std inputs

- NEST Slice template parameter list
- Use case families with network characteristics

Profiles:

- Device
- Service
- Traffic
- Security
- Commercial

Profiles

Service to network slice mappings

~45 params to fully qualify network characteristics

Generic slice template (JSON)

Network slice template (JSON)

10 created: e.g. low cost connectivity, 50Mbps suburban, smart wearables, high speed train connectivity, video surveillance, etc.

https://github.com/5g-ridersonthestorm/gsma-gst
3GPP Model 28.805 and TM Forum ODA

Telecommunication management; Study on management aspects of communication services

Product

Service

CFS

RFS

Service Config

Resource

Function/

Resource

28.805 Figure 4.3.1: Management model for management of communication services
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<td>5G / ORAN &amp; 3GPP Standards Harmonization</td>
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<td>IG xxx Services not slices <a href="https://github.com/5g-ridersonthestorm/gsma-gst">https://github.com/5g-ridersonthestorm/gsma-gst</a> TMF664 RFAC API</td>
<td>ODA Production/Open API</td>
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<td>GB999 IG1176 TOSCA Guide for Model-Driven Automation R19.0.0</td>
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<td><strong>TMF909 NaaS API Component Suite</strong></td>
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<td>xNF License Management use case</td>
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<td>IG1141 Onboarding Automation</td>
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TM Forum’s thoughts on Top Four collaboration opportunities for R6 Frankfurt

1. Continue with APIs
   e.g. Ext Int adoption of TMF 909 Networks as a Service API Component Suite
   1. Internal Closed Control Loop APIs  GB999 ODA Production and Open APIs
   2. Catalyst API findings (described earlier)

2. Use of the TOSCA templates for SDC and ONAP Runtime
   IG1176 TOSCA Guide for Model-Driven Automation R19.0.0

3. Modeling/API ‘Meet in the Middle’ approach
   1. GSMA GST practical use through JSON in Open APIs
   2. Connectivity Service models - network technology neutral
   3. Alignment with Fx Information Framework and SDC models

4. License model –
   Share work on Licensing Models IG1141 and ONAP activities

We need champions for each opportunity that are working in or coordinating across both organizations.
Spares
Skynet

Borderless Remote Health Care: A Reality with 5G
Skynet primary objective

As recent history has proven, epidemic outbreaks are still happening frequently, even in well developed countries and swift, coordinated handling is crucial: pandemic influenza, bird flu, swine flu, Nipah and Ebola still have a global impact.

How telecoms can help the eHealth sector?

The Skynet model can ultimately enable an unprecedented medical collaboration around the globe.
5G Riders in the Storm

Catastrophic floods cause human tragedy, endanger lives and bring heavy economic losses.

A Severe Weather Event
Inspired by the Genova Storm 2014 was our Use Case but ....

.... during the last five years Europe has suffered over 100 major damaging floods
Different Users have different (Communication) Needs...

First Responders
- Push2talk
- BodyCam
- Health & Location Sensors

Cities
- Smart-City Sensors
- Water: Smart meters, use and flow sensing
- Video: Surveillance, video cameras
- Energy: Smart meters, demand response
- HVAC: Energy, building, parking
- Fire: Fire detection, smoke, heat
- Access & security: Badge-in, camera, integration, perimeter, door
- Elevators: Maintenance, performance
- Occupancy Sensors: Sensors in lights, exit signs etc.

Enterprise Customers
- Enterprise-Gold
- Enterprise-Silver

Media
- Media: Internet, Television, Radio, Newspapers
- Weather Reporting
- Met Offices

...Different network characteristics
Licencing was addressed as part of ODA /ZOOM Onboarding Automation initiative

- **Key Results in**
  - [IG1141 Procurement and Onboarding Suite R18.0.1](#)
  - [IG1141A Onboarding Automation: Package ID, Software Assets and License Management Support R18.0.1](#)
  - [IG1141M Onboarding Automation: Metrics Support R18.0.1](#)
  - [IG1141C Onboarding Automation: VF Categorization and Orchestrateability R18.0.1](#)
  - [IG1141 Procurement & Onboarding of Virtualization Packages R18.0.1](#)

- **Context:** Need to understand how to automatically onboard both network software applications, network appliances
  - [IG1176 TOSCA Guide for Model-Driven Automation R19.0.0](#)
  - [IG1141 identified licensing conditions for Software Application inc. VNF as a critical challenge](#)
  - [CSP did not want licence management software in their critical infrastructure](#)
  - [Approach is based on extending ISO. (2012). ISO/IEC 19770 Software asset management (six parts](#)
  - [https://www.iso.org/standard/56000.html](https://www.iso.org/standard/56000.html)
Key entities in Software asset Management