**tmforum**

connecting digital ecosystems

Catalyst Pitchback
5G Service
Operation

# Companies

| Champion Confirmed | Champion Tentative | Participant Confirmed | Participant Tentative |
|---|---|---|---|
| AT&T | Verizon | Netcracker | |
| BT | Telenor | Mycom-OSI | |
| Orange | | Teoco | |
| NTT | | AT&T | |
| Telecom Italia | | | |

## We are still looking for:

5G Network assets or simulator

Extra Vendors NEP maybe OSS (asset management)

Resources /Budget for: Engaging Univ of Surrey and or others

GTM Comms (Neil McIvoy)

# Problem Statement

As a….. *Digital Communications Service Provider*

I need to…

- *Assure new service and business model opportunities enabled by 5G in in an agile, and cost effective manner.*

So that I can….

- *operationalize and monetize the 5G service opportunities that cover a wide range of service characteristics addressing a wide range of business segments and industry verticals (as described and categorized by the NGMN).*

To do this, I need to…

- *Deliver 'Network as a Service' with a wide range of SLA characteristics based on multiple 5G and legacy network technologies suitable for multiple industry verticals and assured by Operations Center of the Future.*

I know I am successful when…

- *Support multiple NaaS services including 5G Servce classes (network slices) hosting multiple client applications*

- **dynamically and autonomously assuring** *numerous concurrent slice instances (in parallel) with total isolation and SLA to carrier-grade standards*

- *Concurrently optimizing infrastructure asset usage across Service Classes*

   *(Implicit is the need to on board third party Virtualized Functions in days but this is the focus of an expected phase III of the Well enabled VNF packaging project).*

**Why is this an important problem to solve?**

- 5G will drive the next wave of SP investments – It is already in their plans for next year with tentative rollout plans

- Potential to create a single fixed mobile infrastructure on which new services can be deployed with resource optimisation

- NGNM Alliance publishing Requirements including OSS in Q1 2017

- Delivers  key things:

  - Wide range of Network capabilities: Ultra Reliable & Low Latency (uRLL), Enhanced Massive Machine Type Comms (mMTC)

  - Infrastructure /resource optimization whilst maintaining  Customer Experience

  - Drive new service revenues in many industry verticals Smart city, IoT, etc.

- Dynamic Resource optimization to drive coste efficiency and CEM improvement

# Ideas for Innovation

## What new areas do you plan to explore?

- *APIs that let us…*

    - Realize TMF 628 Performance management

    - Bridge to OPNFV vES event streaming

- *Best practices to help get services to market faster*

    - *Best practice from an operations center perspective to manage: Closed Control Loop, Autonomic Management based on orchestration and Policy Management.*

    - *Specifically how to manage dynamically optimized resource usage across multiple 5G based Service classes*

- *New technology for…*

    - *Realizing Service Assurance in the Operations Center of the Future exploiting Open Source*

    - *Optimization based on traffic/ usage analytics in real time using vES Metrics and real time analytics*

# Spares

# The Catalyst

- Two service classes being dynamically optimized against traffic usage patterns

  - Ultra Reliable & Low Latency (uRLL)  Industry 4.0 example (TIM)

  - Massive Machine Type Comms (mMTC) IoT example

- Overall orchestration and optimization of resources across multiple service classes

- Optimization of Revenue and asset utilization

- Optimization based on traffic/ usage analytics in real time

# Ideas for Innovation

- **Take an operations center viewpoint**
  - Multi service, Multi enterprise, Multi actor

- **Leverage work on:**
  - Dynamic Optimisation using Closed Control Loops
  - Dynamic Orchestration of multiple Closed Control Loops
  - Asset and revenue management
  - Available Open Source assets

# Ideas for Innovation

**What new areas do you plan to explore?**

- *APIs that let us…*

- *Best practices to help get services to market faster*

- *New technology for…*