TM Forum Catalyst Datasheet

5G SERVICE OPERATIONS - REAL TIME SERVICE ASSURANCE

The catalyst demonstrates agile closed loop operations to deliver 5G network slice assurance for multiple industry verticals whilst continuously optimizing infrastructure utilization and meeting SLA commitments. It focuses on real-time service assurance of two 5G service classes– uRLLC (ultra-reliable low latency communications) for connected factories and uMTC (ultra-reliable machine-type communications aka uRLLC(ITU-R)) for connected cars, deployed on a common 5G RAN and Core infrastructure.

WHO ARE THE CHAMPIONS/PARTICIPANTS

Champions – AT&T, BT, NTT Orange, Telecom Italia, Telenor, Vodafone

Participants - AT&T, MYCOM OSI, NetCracker, TEOCO

BIG PICTURE

As a 5G Communication Service Provider (CSP), a key business challenge is the real-time management of multiple industry vertical customers (such as Autonomous Cars and Connected Factories), with specific QoS requirements linked to each vertical. This offers the CSP opportunities to embrace new 5G enabled business models and to extend its service portfolio, offer connectivity services and react dynamically to the SLA demands of each industry vertical, thus creating a dynamic and effective environment for new revenue streams.

To do this, the CSP must exploit the 5G network slicing concept, through which resources and services can be improved, extended, and combined for specific industry verticals. The CSP should also be able to offer connectivity services for the mission critical services. In this way, the 5G network slices are offered as a service to peer CSPs, Online Service Providers (OSP) and to 5G enterprise customers.

For this, the CSP needs to build a flexible network that can slice the shared physical and virtualized resources across RAN, backhaul/transport and virtualized core networks to support the requested services with their associated SLAs. Network slicing allows the 5G CSP to offer differentiated and guaranteed services with varying traffic characteristics on the same infrastructure with a very high level of isolation.

As the service and the required QoS characteristics are assigned to a 5G network slice, it needs to be monitored for the offered and guaranteed QoS/SLA through the use of closed loop management systems, which can orchestrate the network slice in real-time for dynamic capacity and quality, and manage its failure conditions in real-time.

The CSP will be successful in meeting the high reliability, low latency and high bandwidth needs of the verticals only when it maximizes the usage of shared resources and network assets across all network slices guaranteeing differentiated SLAs to multiple tenant workloads. Closed-loop and real-time service assurance and orchestration functions enable such dynamic network slice management and resource optimization based on network/service QoS changes and the related appropriate policies.

What makes this a significant problem to be solved?

At the present stage of 5G development, the industry does not have a clear idea about how to operationally address the Service Assurance challenges of 5G 'Network Slices' despite this being one of the key potential benefits of 5G investment.

5G business opportunities are predicated on delivering new network service capabilities in an agile manner into multiple industry verticals, and optimizing utilization of fixed/mobile infrastructure within the boundaries of the respective SLAs.

Delivery of agile, adaptable and differentiated services, some requiring high bandwidth, high reliability and low latency, especially for the IoT industry verticals, is critically dependent on real-time service assurance of 5G 'Network Slices', which involves intent-based closed control loop solutions based on Hybrid Infrastructure Platform (HIP) aka Hybrid Network Management Platform (HNMP) principles applied to agile Operation Support Systems for the Operations Center of the Future.

What will change about the way your Champion does business if this problem is solved?

This catalyst will provide the CSP champion with critical operational insights into the Service Assurance components required to serve high demand SLAs for mission-critical services, so that the 5G CSP can deliver high quality services for autonomous car and connected factory verticals with confidence. The 5G operator will be able to take on new verticals as customers, and meet their stringent SLA demands in real-time, through complete visibility of the network/service performance for each dedicated network slice. Its technical teams will support the business teams through:

- Dynamic 5G Network Slice optimization using closed-loop orchestration
- Service assurance/orchestration specific to industry vertical's QoS policies
- Use of Open Source metrics/counters, (i.e., OPNFV /ONAP Virtualization Event Streaming (vES)) and TM Forum Open APIs, for rapid and frictionless integration and interoperability of service assurance components in the CSP ecosystem

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ANY CALL TO ACTION?

In the Catalyst, the Service Assurance systems uses policy-based automation and closed loop assurance, and also uses TOSCA as a reference for modelling based on data from a domain/service Orchestrator.

The catalyst illustrates how ecosystem integration can be carried out through TM Forum concepts and API operations in TM 628 Performance Management API, TR 255 Resources Function Configuration and Activation API, (aka Entity Provisioning API), Service Assurance using intent based SLA/OLA approaches and use of standardized event streaming for metrics/counters based on use of Open Source vES (OPNFV/ONAP)

The catalyst verifies and validates the ZOOM TR 262 Hybrid Infrastructure Platform principles and requirements on the exact subset of the TM Forum Open APIs (TR262 section 5) and vES that are needed for 5G network slice assurance.

OTHER KEY INFORMATION

1. ***Which Collaboration project are you associating with your project?***

ZOOM Project work on TR262 Hybrid Infrastructure Platform, IG1144 Operations Center of the Future, and Onboarding Automation.

2. ***Does this project build on a previous Catalyst project? If so, please identify the difference between the previous project and this most recent iteration.***

This is a new Catalyst and does not build on any previous catalyst project. However, it does use results from catalysts documented in IG1128 Dynamic Control Architecture for Managing a Virtualized Eco-System R16.0.1