ADDRESSING BUSINESS AGILITY THROUGH DYNAMIC ORCHESTRATION AND MANAGEMENT
BACKGROUND

With the advent of SDN (Software Defined Network) and NFV (Network Function Virtualization) and the fact that Communication Service Providers (CSPs) across the globe have embarked on the journey of execution of their NFV strategy: the very aspect of “Service Agility” takes the center stage.

With the widening gap between data consumption from CSPs’ networks and revenue from that data consumption, CSPs are exploring various business models to reap benefits of NFV rollout. To cope up with the increasing changes in market demand: CSPs are relying on Network Function Virtualization (NFV) to improve their revenues. Hardware based network appliance was clearly found to be an obstacle to achieve expedited and real time service innovation and provisioning. Existing Network layout is proliferated with heterogeneous (varied types) and proprietary hardware appliances. Launching new network service often calls for installation of additional type or vendor appliance. With immensely pressured OPEX; finding space and power to accommodate these additional appliances; is becoming almost impossible. In addition, this vendor specific hardware based network appliances reach end of life sooner than the speed with which new service rollouts happen.

NFV aims to address these problems by following the same principal as that of IT virtualization technology. Aim is to consolidate myriad of network equipment types realized in software packages on to commoditized hardware consisting of industry standard compute, store and connect capability. This could be located in Data Centers, Network Nodes and Customer Premises Equipment. To ensure agility in service creation and roll out: there is the need to have “Orchestration and Management” functional component that dynamically does resource allocation (Spin off VMs), manage service instances all in real time.

ROLE OF ETSI MANO

To address this aspect of ensuring agility in service creation: European Telecommunications Standards Institute (ETSI) has defined a reference architecture called Management and Orchestration (MANO). Which essentially lays out the foundation as to how various entities in SDN and NFV would come together to achieve “Realization, management and monitoring of network services” in real time. While, standards are evolving; most of the global Tier1 CSPs have taken MANO as a reference to arrive at their specific implementations.

TECH MAHINDRA’S APPROACH

From more than 3 decades of experience and learning delivering in to CSPs globally, we have taken COPA (Co-creation, Opensource, Platform and Automation) approach to arrive at out SDN/NFV offerings. In our view, COPA is the only way to help CSPs effectively collaborate with the entire value chain and transform themselves in Digital Enterprise. Technology landscape, which is evolving at the rapid pace: warrants extremely agile Enterprises. Openness is the key to the success as it curbs proprietary aspect of processes and code base which preempts easy integration and plug n’ play. Below picture from TMF Survey, ascertains this.

THE IMPORTANCE OF BEING OPEN

- 62%

Of operators believe open source is important for NFV and SDN
We have taken 3-prong approach to help CSPs achieve business agility with dynamic Orchestration and Management.

- We have indigenously built an industry accelerator that has only open source components.
- We have established strategic relationships with industry leading MANO product vendors from VIM to NFVO. In addition, we are building Center of Excellence with those products.
- Moreover, we are a founding member of ONAP (Open Network Automation Platform); a Linux Foundation program. ONAP is the most matured open source program that has contributions from large global CSPs like AT&T, China Mobile, China Telecom. ONAP not only addresses Service Orchestration aspect as defined by ETSI MANO. However, it goes beyond that in terms of providing necessary automation support to quickly create, design E-2-E Network Service and have it co-exist with CSPs existing Legacy Network (Physical Network) and OSS.

We follow the philosophy of not getting what comes in a box and put it on a VM (Virtual Machine). We do cloud native.

![Picture below depicts TechM OSS2.0 Platform solution](image)

Salient features of our solution as below:

- Design, Deploy and Assure services using Virtualized Network Infrastructure.
- An ability to onboard any VNF in real time manner.
- Create Service Chains spanning Cloud to the edge of network.
- Design and activate workflows
- Expose APIs to customers and partners to enable Dynamic Configuration.

Tech Mahindra’s indigenously developed Micro-services lifecycle management accelerator which provides an integrated best of breed open source technology stack. This enables rapid creation, deployment and management of micro-services, accelerates the refactoring and rationalization of legacy applications at much optimized costs.

It also provides an API gateway which helps publish / expose functional capabilities from disparate legacy back end systems and new age micro-service based applications allowing unified and federated operations across IT ecosystem.
GUARANTEED ACCELERATED DEVELOPMENT

Our Accelerator solution follows complete open source practice. Every aspect of solution architecture viz. Virtual Infrastructure Layer, Cloud Native (Containers for PaaS), Database, API Portal, Micro service Creation all the way up to Integrated Development to assure Continue Integration (CI) and Continuous Testing (CT); we have chosen open source components like Openstack, Ubuntu, Docker, MySQL, WSO2, Jenkins, Maven, Fusion Forge to Sprint Boot, Jersey, Camunda, Apache Tomcat etc.

KEY FEATURES OF OUR SOLUTION:

- REST API
- Micro Service Architecture
- API Management
- Versioning & Security
- Data As A Service With Designer Tool
- Data Integration
- Collaborative Agile Development
- Business Process As A Service With Designer Tool
- Report Usage & Monitor Performance
- In-depth Data Analysis

OUR VALUE PROPOSITION

Our solution offering allows CSPs to bundle next generation digital services that can be managed, provisioned and monitored across PNF and VNF, hence enabling complex service chaining.

Tech Mahindra accelerates SDN-NFV transformation of CSP networks through End to End vendor neutral solutions powered by in-house IPs, System Integration, Testing and Managed Services.

- Seamless integration with legacy and next generation OSS
- Enable Zero touch automation
- Allows no major re-design of existing OSS stacks
- Increased Service Agility
- Product Neutral: Get a Vendor Neutral Perspective on your roadmap to OSS Transformation, no vendor lock in
- Faster Time-to-Market through pre-Integrated Solutions: Leverage our VNF-Xchange Platform
- Accelerate Rollouts: OSS2.0, enables CSPs for faster rollouts of their virtual networks working in tandem with their existing PNF
- Move to auto-pilot mode of operations
Virtual Network world newly introduces the gap between Network Applications/Services and Physical Infrastructure, which is Virtualization Layer. Analytics, which is inbuilt with Our OSS2.0 strategy helps, plug that gap. Our approach is correlation of Network Applications/Services, Virtualization and Physical Infrastructure layer to provide real time view that equips Lifecycle Management, Scaling and Root Cause Analysis (RCA) all in automated way driving Closed Control Loop. Stay tuned with us to know more about our integrated Network Analytics approach in OSS2.0

VNF-XCHANGE

We have seen how OSS2.0 helps CSP’s with its differentiated value proposition for service delivery and assurance in the virtualized world. To bring in service agility and rapid roll outs, Tech Mahindra has an industry leading collaborative program named VNF Xchange, which provides a platform for end to end solution integration with partner products. This program also provides validation, benchmarking and certification of Virtual Network Functions (VNF) for these end to end productized solutions (SKU). The VNF-Xchange acts like a facilitator between the partner community and the customer community by validating the system under test (SUT) on a reference platform and determining its functional and performance characteristics. The SUT could be an independent VNF at a granular level, or a multi-partner integrated solution that realizes a key customer use case. OSS2.0 is an integral part within VNFXchange, to realize end to end orchestration and service chaining within the virtualized and hybrid networks within the CSP’s network landscape.

Read more about VNFXchange, visit www.vnfxchange.com
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Established Thought Leader in Telecommunication IT industry. Having more than 20 years of Telecom industry experience spanning from Senior Principal Consultant to Developer. Have worked on several Technology Consulting engagements and delivered large OSS transformation programs for global CSPs. Active participation and contribution to industry forums and standards.