Global Standardization Activities

Latest TM Forum Developments

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Abstract

As an established thought leader in telecom operations related standards, the TeleManagement (TM) Forum is making good progress on three strategic programs in addition to its ongoing work in developing operation systems. This article provides an overview of recent TM Forum initiatives concerning service interaction between telecom operations and over-the-top content toward virtualization, the proof of concept Catalyst project, and overall TM Forum related developments.

Keywords: TM Forum, Frameworx, Catalyst project

1. Introduction

The TeleManagement (TM) Forum [1] was originally established in 1988 as the OSI (Open Source Initiative)/Network Management Forum and today has more than 950 corporate members and well over 90,000 technicians and engineers working to fine-tune telecom operations-related industry standards to promote improved interoperability. TM Forum focuses primarily on standards related to the development of operation systems (business processes, information models, applications). It produces Frameworx, an updated suite of best practices and business metrics that define key performance indicators and key quality indicators for frameworks and operations for automatically generating interfaces. Frameworx is released biannually; the current version is Frameworx 15.0. As of this writing, the upgrade to Frameworx 15.5 was scheduled for December 2015.

Investigative work in preparation for a new release of Frameworx begins with face-to-face meetings of working-level drafters during TM Forum Action Week, which is held twice a year. These meetings are followed up with regular teleconferences and collaborative liaisons to complete the drafting work.

Frameworx specifications are deliberated on by the members and then organized as a deliverable document divided into units called *projects*. Issues have traditionally taken the form of projects as the basic units making up the Frameworx standard. Over the last few years, project discussions related to strategic programs have become prominent (as discussed in

greater detail below), and the content of the various projects is discussed in parallel and reflected in the main body of Frameworx.

2. Telecom operations standardization

Standardization of telecom operations involves careful consideration of how equipment under management is linked with the business processes of the operators. The equipment to be managed goes beyond conventional equipment and systems that comply with ITU-T* recommendations. The equipment dealt with in recent years involves virtual technology, specifically, equipment for network function virtualization (NFV) specified by the European Telecommunications Standards Institute (ETSI) and network function virtualization/software-defined networking (NFV/SDN) dealt with by the Open Network Foundation (ONF). The standardization process involves building liaison relationships with ETSI, ONF, and other organizations. We should also note that whereas ETSI and ONF are primarily focused on management at the network control level, TM Forum also studies operations as a business process and is not just focused on control alone.

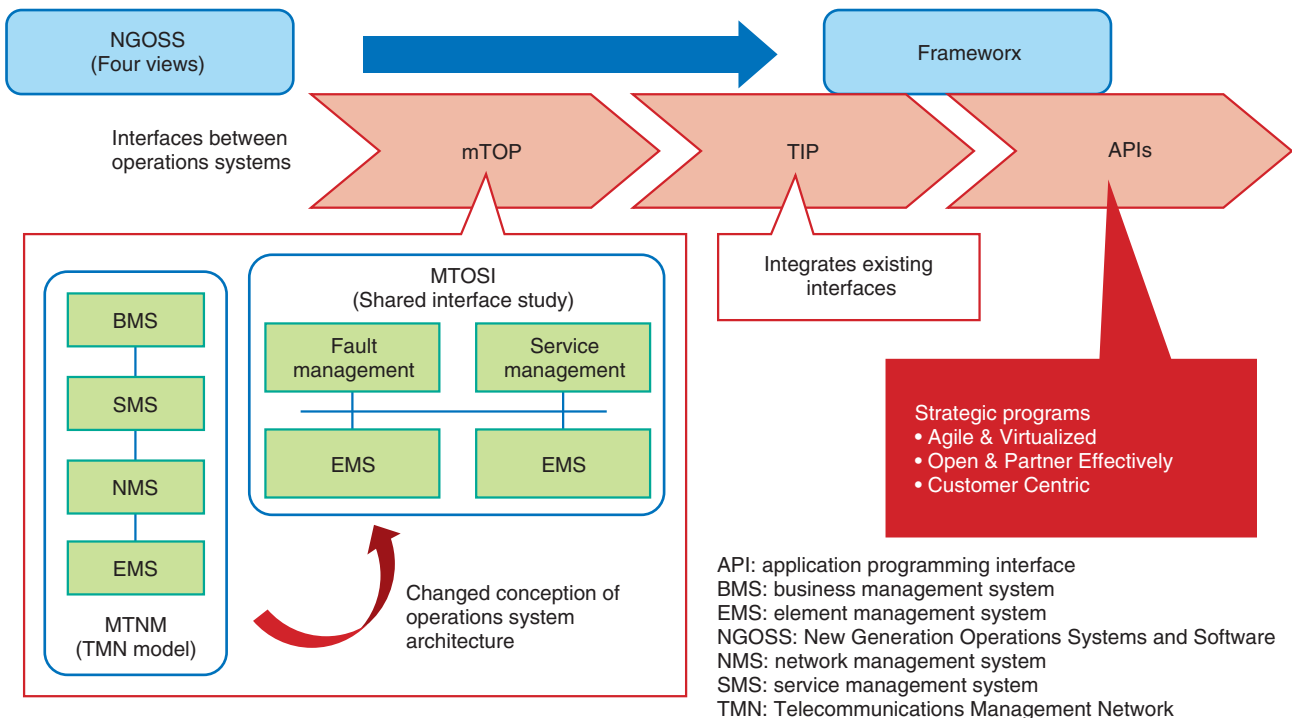* ITU-T: International Telecommunication Union, Telecommunication Standardization Sector

Fig. 1. Transformation in concept of interfaces.

3. Frameworx and three strategic programs

3.1 Work on Frameworx

TM Forum has been working on the Frameworx suite for some time and has recently placed particular emphasis on the following elements.

(1) Business Process Framework (eTOM)

The enhanced Telecom Operation Map (eTOM) is a business process organized based on phases and Shared Information/Data Model (SID) domains.

(2) Information Framework (SID)

SID is organized not as a concrete data model of how information is managed and distributed but rather as an information model.
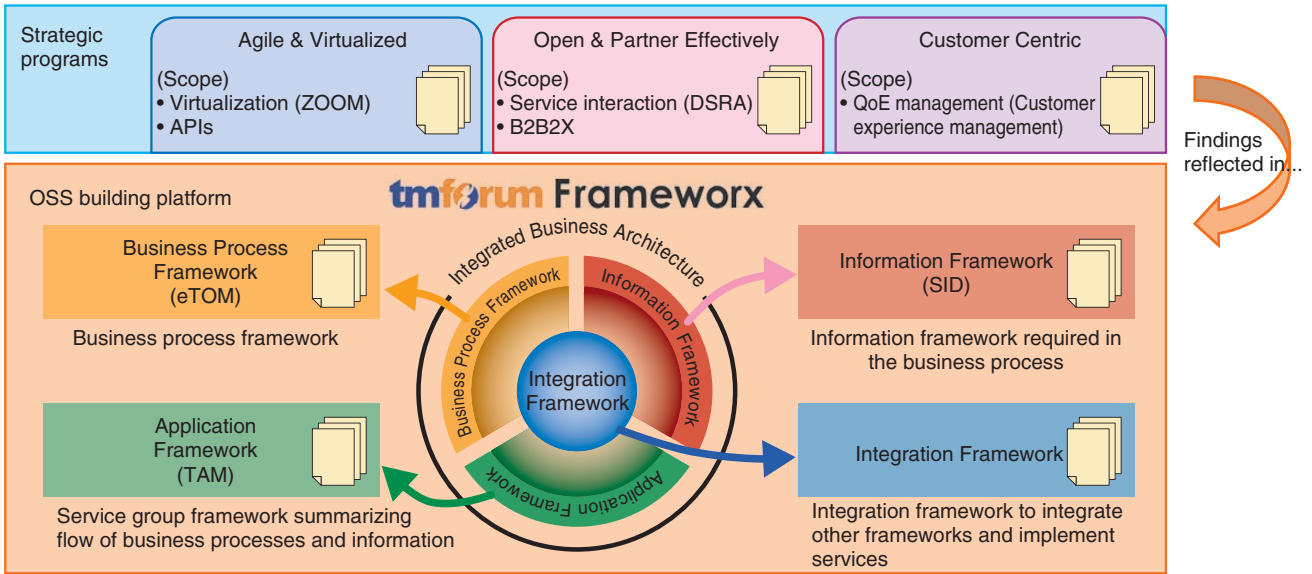
(3) Application Framework (TAM)

TAM (Telecom Application Map) is a standard framework for organizing and mapping operation support system (OSS) capabilities using relationships with eTOM and SID.

Business processes involve more than operational processes such as fulfillment, assurance, and billing. They also focus attention on strategy (decision-making), readiness (migration, procurement), and other factors.

In terms of interface trends, we have already evaluated MTNM (Multi Technology Network Management) and MTOSI (Multi-Technology Operations System Interface) as part of mTOP (multi Technology Operations Program), and we are making headway in integrating interfaces with other conventional interfaces through TIP (TM Forum Integration Program). This reflects the changes in operations system architectures and the transformation in the concept of interfaces (**Fig. 1**). More specifically, we are now pushing beyond modeling of network equipment capabilities for each protocol by ITU-T and other traditional organizations by integrating wireless and wireline network equipment models. As conventional information models expand, there is growing momentum to develop models that incorporate virtual networks as well.

3.2 Strategic programs

The policy to expand the Frameworx suite was launched two years ago with the decision to pursue three strategic programs. Efforts were focused on dealing with the introduction of virtualization and business-to-business-to-X (B2B2X) service. More specifically, efforts were focused on the following

Fig. 2.   Three strategic programs.

three strategic programs (**Fig. 2**), which are introduced here and described in more detail in the following sections.

(1)   Agile & Virtualized program

This program is centered on virtual operations and security.

(2)   Open & Partner Effectively program

This program is focused on scenarios through service interaction, for example, architecture and Internet of Things (IoT) to achieve an open digital ecosystem.

(3)   Customer Centric program

The emphasis of this program is big-data analysis to evaluate customer experience management and applicable metrics based on criteria for assessing customer experience.

4.   Open & Partner Effectively program and DSRA

The Open and Partner Effectively program focuses on service interaction among telecom operators and schemes for quickly creating new value. More specifically, the program explores scenarios based on B2B2X business best practices, a service interaction architecture (i.e., Digital Service Reference Architecture (DSRA)) (**Fig. 3**), and concrete representational

state transfer-based application programming interfaces (APIs) for promoting service interaction. The DSRA is essentially a scheme in which digital services—private cloud, public cloud, NaaS (network as a service)—provided by the service domain can offer interactive services using an API broker based on a service API catalog.

5.   Agile & Virtualized program and ZOOM

The Agile & Virtualized program is committed to the Zero-touch Orchestration, Operations and Management (ZOOM) project for exploiting NFV and SDN in the operation of virtual networks. Primary objectives of the ZOOM project are to curtail capital and operating expenditures through virtualization, while creating service opportunities through rapid deployment of new services. Not only has this promoted discussion of the OSS architecture and an information model under management, it has also led to the definition of a framework supporting procurement of VNF (Virtual Network Function). One challenge faced by the OSS architecture is that the sharp demarcation between the network control layer and the operation support layer that has existed until now becomes rather blurry when dealing with virtual technology.
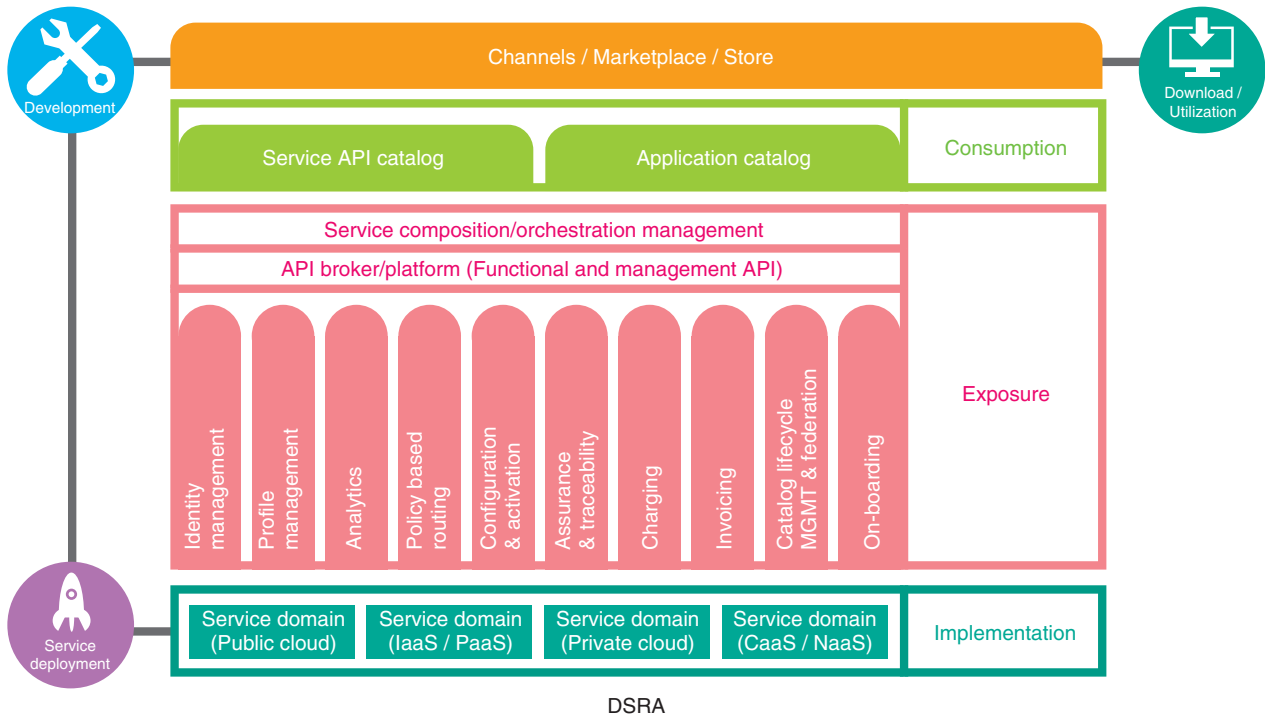
Fig. 3. Architecture for service interaction.

6. Customer Centric program

The Customer Centric program deals with a framework for improving customer satisfaction that can be adopted as a quality metric to assess customer enjoyment and experience using telecom services. This involves defining the lifecycle of customers, deriving a customer access channel metric for each phase of the lifecycles, then developing a big data analysis based reference architecture for calculating the metric.

7. Catalyst project

The goal of TM Forum's Catalyst project is to verify the documented effectiveness of the Frameworx suite as a standard and then continue to enhance and refine the standard document. In the Catalyst project, dynamics using Frameworx standards prepared by more than four software vendors are currently being validated that will be applied to scenarios assembled by more than two telecom operators. With this initia-

tive, new events including TM Forum Live! and Catalyst InFocus have largely superseded the biennial TM Forum Management World that was held in earlier years, and they provide representatives of corporate TM Forum members an opportunity to provide feedback and offer comments that will be incorporated into future releases of the Frameworx standard.

No less than 20 Catalysts were showcased at TM Forum Live! 2015, which was held in Nice, France in the first week of June. Note that half of these Catalysts involved virtualization, which clearly indicates the enormous interest among members in the operational aspects of virtualization.

8. Overall trends

Since it was first established, TM Forum has primarily been concerned with the development of telecom-oriented operations. Just a few years ago, most discussions on the operation layer were centered on network management, but today we find that upper layer customer management and the business

management layer are also widely discussed. Indeed, we find that even in lectures by TM Forum executives, the speakers tend to mention areas where sharing is achieved by standardizing telecom operator network management and service management, and areas where differentiation is highlighted as a legitimate business strategy. Discussion of business metrics and other topics in Frameworx clearly reflects these trends.

We have also recently begun to see more discussion on operations geared toward IoT and 5G (fifth-generation mobile networks), which should open the way to establishing cooperation with many OTT operators. We are thus making good headway in building liaison relationships with other related standards organizations. One initiative that clearly illustrates these proactive collaborative efforts is the joint meetings with other standards-making bodies at TM Forum Action Week, TM Forum Live!, and other conferences organized by TM Forum.

9. Future prospects

The NTT Group plans to move forward with wholesale services based on virtual and B2B2X model-based interactive services featuring open, competitive architectures and interfaces. Upstream activities are currently underway in the investigative projects of TM Forum's three strategic programs, with the idea that these new insights will be reflected in future Frameworx document releases.

The Forum also continues to be actively involved in the proof of concept Catalyst project to verify the viability of operational scenarios by combining commercialized technologies. The findings obtained in the Catalyst project were presented at Catalyst InFocus 2015 [2] held in Dallas, Texas in early November 2015.

References

[1] TM Forum site, http://www.tmforum.org/
[2] TM Forum Catalyst InFocus Event site, http://catalystinfocus.tmforum.org/

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