Cloud Standards - A Telco Perspective

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Corporate Standards Department
Outline

- Telecom Industry Vision and Roles
- Huawei Cloud Strategy and Solutions
- Overview on Cloud Standards Telecom Interest Areas
- Summary
TELECOM INDUSTRY VISION AND ROLES
Telecom Business Transformation

... transforming from a traditional operator to a value added service provider

Cloud Computing offers a breath for growth by opening new business opportunities
Telco Competitive Advantage

- Capitalize on Telecom backbones, channels and market presence to deliver new value-added services and ensure a key position in the value chain.
- Enterprise Cloud Computing fits with Telco business as it leverages on their core competencies.
- Key assets to leverage:
  - Network Connectivity → Leverage the Cloud model to monetize the network.
  - Customer Relationship → Identity Management (e.g. SIM card).
  - End to end service levels monitored and guaranteed → QoS.
  - Security.
  - Unique access point amongst the various service categories: IT, Network and Security.

⇒ Towards the Cloud/IT Operator role.
Telco Value Proposition

A complete catalogue to simplify access to solutions delivered “as a service” with security and end-to-end SLAs*

End-to-end service with business-related SLAs and Security across network and IT

Bring the security and reliability of the AT&T virtual private network to Windows Azure, to energize enterprise demand for cloud solutions

(*) Source Orange
HUAWEI CLOUD STRATEGY AND SOLUTIONS
Huawei Vision

… enjoy Information Services like using Electricity today

Cloud computing

IT as a Service (IaaS/ PaaS/ SaaS)
Huawei Strategy: Integration between Cloud and Telecom

Evolution to ICT convergent network

- Telecom core gradually evolves to Cloud Computing platform for higher efficiency
- IT & CT service blending for better end user experience
- IT & CT network convergence eventually

Rich applications in the Cloud

- One stop-shop for SME solutions: Telecom & IT
- Rich Personal App (IT/CT) on Cloud
  - Social Network
  - Video & Game
  - Second Life
  - Blended Services
Telco Cloud Solutions

**Challenges & Opportunity**

**Huawei Solutions**

**Benefit**

**On-Demand IT as Services for Enterprises**
- **IaaS**
  - IT Hosting
  - Elastic Computing
  - Cloud Storage
- **SaaS**
  - With 3rd party partners

**Private Cloud for Government and Enterprise**
- Data Centers construction
- System integration
- IT outsourcing

**Isolated and Complex IT System for Telco**
- Data Centers consolidation
- Server/storage consolidation
- BSS/OSS on cloud
- Value Added Services on cloud
- Desktop on cloud

**Designed for Telco**
- New revenue from cloud services, improved retention with packages

**Grow with Telco**
- New revenue from private cloud and data center operation

**Understanding of Telco**
- Reduced OPEX
- Higher efficiency
OVERVIEW ON CLOUD STANDARDS INTEREST AREAS
Standardization Vision and Priorities

- Modular Cloud functional architecture integrating the Telco needs
  - The Framework and Architecture defined by the Collaborative Team ISO SC38 / ITU-T SG13 is important as it lays the foundations for specific protocols and technologies to be standardized later on.
  - The Access Layer in this Architecture should reflect the required Network functionalities (e.g. SLA management).
- Elastic network and infrastructure standardization to leverage the Cloud model for network monetization.
- Data Centers standardization, e.g. Open Data Center Alliance (ODCA).
- Cloud and virtualization management standards to allow more choice for IT customers through Interoperability and Portability between cloud environments.
- Security, Trust, and Identity Management.
Cloud Networking – IETF, BBF, ITU-T

- **Cloud interconnect and Cloud interoperability** standards with consideration of Telco requirements are important

- **IETF and BBF**
  - Cloud impacts on the carrier network/infrastructure
  - Cloud and Data Centers interconnection requirements
  - Ensure coverage by VPN technology extensions and network control enhancements, supporting large scale, multipoint layer 2 LAN/inter-site connectivity, VM/workload mobility and server clustering

- **ITU-T SG13 Future Networks / WP6 Cloud Computing**
  - Q26/13 Cloud computing ecosystem, inter-cloud and general requirements
  - Q27/13 Cloud functional architecture, infrastructure and networking
Cloud Management – DMTF, OASIS, W3C, OMA, …

**SaaS**
- Domain-focused
- OMA UVE

**PaaS**
- Competitive Part of eco-system
- W3C WACI

**IaaS**
- Matured
- DMTF CMWG

- Cross-platform Service Deployment
- OASIS TOSCA

- Web App Portability
- OMA UCD

- Service Lifecycle Management
- OASIS CAMP

- Virtualization of Telecom Networks & Service Enablers
- ETSI NFV

- Convergence of IT/CT Cloud
- ISO SC38 & ITU-T SG13

- Telecom Cloud Best Practices
- TMF CSI

- IaaS Resource Model & Management Protocol
- DMTF SVPC

- SNIA CDMI

- Unified Cloud Storage Interface
- DMTF CADF

- Cloud-based App Streaming
Cloud Management – DMTF, OASIS, W3C, OMA, …

- **OASIS TOSCA (Topology and Orchestration Specification for Cloud Applications)**
  - TOSCA formally describes the “topology” and “orchestration” of IT services, including their structures, properties, and behaviors
  - **Motivations**
    - Cloud Service Eco-system
    - Cross-platform Service Deployment

- **OASIS CAMP (Cloud Application Management for Platforms)**
  - CAMP produces a generic application and platform management API that is language, framework, and platform neutral
  - Management of apps & their use of the Platform → Upload, Manage lifecycle, Enable Monitoring
  - **Motivations**
    - Cloud Lifecycle Management
    - Cloud Service Portability
    - Unified Cloud Service management API
Cloud Management – DMTF, OASIS, W3C, OMA, …

- **W3C – WACI (W3C Application Cloud Interface)**
  - Portability of Web-based Cloud App
  - Open Cloud ecosystem for Web-based Cloud App

- **OMA-UVE (Unified Virtual Experience)**
  - A cloud based application execution environment enabling OS-independent applications and more
Identity Management in the Cloud – Kantara Initiative

- Identity Management (IDM) is one of the main competitive advantages to leverage by telecom operators for Cloud services
- IDM is mainly about **Cloud Orchestration** for an integrated services provider
- Some requirements:
  - Strong authentication as well as zero login of customers
  - Seamless Authentication/Access to the Cloud through fixed-mobile networks, through different devices, and spanning several networks / domains /clouds
  - Include the ID Management requirements from the Over the Top (OTT) players
- **Kantara Initiative - Telecommunications Identity WG:** reconcile fragmented efforts in the telco specifications development area regarding Identity Management
  - Interworking between IMS and the Web in terms of identity, so to enable easy 3rd party integration as well as seamless service usage by combinations of Liberty frameworks and standards of 3GPP
  - Exposure of IMS authentication enables new Business Models for the **cross-selling of Value Added Services** of Telecom operators as Authentication provider
Network Function Virtualization – ETSI ISG NFV

- **Drive the separation of SW and Hardware**, stimulating to use common off the shelve IT Hardware, benefiting from the innovation cycle within the IT platforms.

- **Stimulate the migration of Network Functions towards Software applications** to benefit from the portability and replication features of deploying SW on top of an IT Platform available within the service provider network.

- **ETSI NFV ISG** intends to provide a common terminology and framework to the industry for developing standards and products.
Summary

- Telecom Industry is facing deep changes affecting its business model and Cloud Computing brings a real breath for growth.

- Even the current situation can be seen as a “Jungle of Standards”, as a number of SDOs are developing solutions, there are still need for standards!

- The current Cloud architecture developed in the collaborative team ISO/SC38 and ITU-T is the starting point to depict the need for interfaces and protocols to be standardized.