Question(s):	17/13	Geneva, 30 November - 11 December 2015

TD

Source:	Editor
Title:	12th Revision of Cloud Computing Standards Roadmap on December 2015

The purpose of Cloud Computing standards roadmap is to be used for coordination on Cloud Computing related activities of ITU-T SGs and other SDOs. For this purpose, it is necessary to collect all the information from ITU and other SDOs including their understanding of Cloud Computing and relation with Cloud Computing of their works.

This document provides 12th revision of Cloud Computing Standards Roadmap. Major changes for CCSR are;

- Updates of Recommendation ITU-T Y.3600 according to the approval;

- Updates of ITU-T Y.CCIC-arch, and Y.BDaaS-arch;

- Updates of ITU-T SG5 deliverables;

Also, it was proposed matrix for analysis of deliverable for activity domain column in Appendix C.

The following action items are provided by editor for future plan of this roadmap

- ISO/IEC JTC 1 SC 27 deliverables (Doc 155, Doc 176) : required to rearrange related projects to apply the form

- Cloud Standards Customer Council (CSCC) (Doc 59) : required to rearrange related projects to apply the form

- TBDs on URI in each deliverables

Appendix A. Analysis of deliverable to provide its category in Activity domain column

Appendix B. Changes of Cloud Computing Standards Roadmap

Appendix C. 12th Revised version of Cloud Computing Standards Roadmap

_____

Contact:	Kangchan Lee ETRI Korea	Tel: +82-42-860-6659 Fax: +82-42-861-5404 Email: chan@etri.re.kr

Appendix A. Analysis of deliverable to provide its category in Activity domain column

In the SG13 meeting, which was held in November 2015, the matrix of gap analysis was agreed on "cloud computing standards roadmap" which describes the currently available or on going standardization items as a following table.

Others						
Testing						
SLA, metering						
Inter cloud, CSB						
Management						
Security						
Cloud service category						
Fundamental						
	General, definition	Requirements Use Cases	Architecture	API, interface, profile	Format, schema	others

The horizontal axis describes document category which cover the subject of application as following;

■ General, definition: the standard which provides general description or terms and definitions of the technology;

■ Requirements, use cases: the standard which provides use cases and derived general/functional requirements;

■ Architecture: the standard which provides reference architecture;

■ API, interface, profile: the standard which provides common interface, API and/or its profile;

■ Data model, format, schema: the standard which provides data model or protocol including scheme and/or its encoding format;

■ Others (e.g. guideline, technical report, etc.).

Also, the vertical axis describe the sub or related technology.

Note 1 - The items of horizontal axis are not subordinate to the different technologies.

Note 2 - The items of vertical axis can be modified with technology change

Note 3 - A standard has more than one location on a matrix. If a standard includes multiple document (horizontal axis) categories or related technologies (vertical axis), it should be mapped multiply.

Example of allocation: ITU-T Y.3500|ISO/IEC 17788 is (1, 1) in the matrix

_____

Appendix B. Changes of Cloud Computing Standards Roadmap

No.	Entity	Title	Changes
1	ITU-T SG13 Q17|JTC1 SC 38 WG3	**ITU-T Y.3500|ISO/IEC 17788,** Information technology – Cloud computing – Overview and vocabulary	
2	ITU-T SG13 Q18|JTC1 SC 38 WG3	**ITU-T Y.3502|ISO/IEC 17789,** Information technology — Cloud computing - Reference architecture	
3	ITU-T SG13 Q17	**ITU-T Y.3501-ed2**, Cloud Computing Framework and high-level requirements	
4	ITU-T SG13 Q17	**ITU-T Y.3503**, Requirement of Desktop as a Service	
5	ITU-T SG13 Q18	**ITU-T Y.3510-ed2**, Cloud Computing infrastructure requirements	
6	ITU-T SG13 Q18	**ITU-T Y.3511**, Framework of Inter-cloud	
7	ITU-T SG13 Q18	**ITU-T Y. 3513**, Cloud computing - Functional requirements of Infrastructure as a Service	
8	ITU-T SG13 Q18	**ITU-T Y.3512**, Cloud computing - Functional requirements of Network as a Service	
9	ITU-T SG13 Q19	**ITU-T Y.3520-ed2**, Cloud computing framework for end to end resource management	
10	ITU-T SG13 Q17	**ITU-T Y.~~BigData-reqts~~3600,** ~~Big data – cloud computing based requirements and capabilities~~Requirements and capabilities for cloud computing based big data	Updated by Q17/13 Rapporteur
11	ITU-T SG13 Q17	**ITU-T Y.DaaS-arch,** Functional architecture for Desktop as a Service	
12	ITU-T SG13 Q18	**ITU-T Y.CCNaaS-arch**, Cloud computing - Functional Architecture of Network as a Service	
13	ITU-T SG13 Q18	**ITU-T Y.CCIC-arch**, Cloud computing - Functional Architecture of inter-cloud computing	Updated by Q18/13 Rapporteur
14	ITU-T SG13 Q18	**ITU-T Y.BDasS-arch**, Functional architecture of Big Data as a Service	Updated by Q18/13 Rapporteur
15	ITU-T SG13 Q19	**ITU-T Y.CCTIC**, Trusted inter-cloud computing framework and requirements	
16	ITU-T JRG-CCM	**ITU-T Y.e2ecslm-Req,** End-to-end cloud service lifecycle management requirements	

17	ITU-T JRG-CCM	**ITU-T Y. e2ecm,** Common Model for End to End Cloud Computing Resource Management	
18	ITU-T JRG-CCM	**ITU-T M.occm**, Overview of Cloud Computing Management	
19	ITU-T JRG-CCM	**ITU-T M.rcsm** Requirements for Cloud Service Management	
20	ITU-T JRG-CCM	**ITU-T M.mivrcc** Requirements and analysis for management interface of virtualized resources in cloud computing	
21	ITU-T SG17	**X.1601,** Security framework for cloud computing	
22	ITU-T SG17	**X.fsspvn,** Framework for a secure service platform for virtual network	
23	ITU-T SG17	**X.goscc,** Guidelines of operational security for cloud computing	
24	ITU-T SG17	**X.idmcc,** Requirement of IdM in cloud computing	
25	ITU-T SG17	**X.sfcse,** Security functional requirements for Software as a Service (SaaS) application environment	
26	ITU-T SG17 Q8	**ITU-T X.CSCdataSec,** Guidelines for Cloud Service Customer Data Security	
27	ITU-T SG5 Q19	**L.1200**: Direct current power feeding interface up to 400V at the input to telecommunications and ICT equipment	Updated by TD 464 (WP2/13)
28	ITU-T SG5 Q17	**ITU-T L.1300**, Best practices for green data centers	Updated by TD 464 (WP2/13)
29	ITU-T SG5 Q18	**ITU-T L.1410**, Methodology for environmental impact assessment of information and communication technologies (ICT) goods, networks and services	Updated by TD 464 (WP2/13)
30	ITU-T SG5 Q17	**ITU-T L.1301**, Minimum data set and communication interface requirements for data centre energy management	Updated by TD 464 (WP2/13)
31	ITU-T SG5 Q19	**ITU-T L.1201**, Architecture of power feeding systems of up to 400 VDC	Updated by TD 464 (WP2/13)
32	ITU-T SG5 Q19	**ITU-T L.1202**, Methodologies for evaluating the performance of an up to 400 VDC power feeding system and its environmental impact	Updated by TD 464 (WP2/13)
33	ITU-T SG5 Q18	**ITU-T L.1420**, Methodology for energy consumption and greenhouse gas emissions impact assessment of information and	Updated by TD 464 (WP2/13)

		communication technologies in organizations	
34	ITU-T SG5 Q18	**ITU-T L.1430**, Methodology for assessment of the environmental impact of information and communication technology greenhouse gas and energy projects	Updated by TD 464 (WP2/13)
35	ITU-T SG5 Q17	ITU-T L.1302 (L.Assessments_DC) Assessment of energy efficiency on infrastructure in data centre and telecom centre	Updated by TD 464 (WP2/13)
36	ITU-T SG5 Q17	**ITU-T L.1320 (L.MandM_infra)**, Energy efficiency metrics and measurement for power and cooling equipment for telecommunications and data centres	Updated by TD 464 (WP2/13)
37	ITU-T SG5 Q19	**ITU-T L.renewable**, Interfacing of renewable energy or distributed power sources to up to 400 VDC power feeding systems	Updated by TD 464 (WP2/13)
38	ITU T SG5 Q17	**ITU-T L.green_mgm_DC**, Functionality requirements and framework of green data center energy-saving management system	Updated by TD 464 (WP2/13)
39	ITU-T SG5 Q18	**ITU-T L.1440**, Methodology for environmental impact assessment of information and communication technologies at city level	Updated by TD 464 (WP2/13)
40	ITU-T SG11	**ITU-T Q.FW-Cloud-iop,** The framework and overview of Cloud Computing interoperability testing	
41	ITU-T SG16	ITU-T H.248.CLOUD, Gateway control protocol: Cloudification of packet gateways	
42	DMTF	**DSP0263**, Cloud Infrastructure Management Interface (CIMI) Model and REST Interface over HTTP – Version 1.0.1	
43	DMTF	**DSP8009**, CIMI XML Schema – Version 1.0.1	
44	DMTF	**DSP0264**, Cloud Infrastructure Management Interface - Common Information Model (CIMI-CIM) – Version 1.0.0	
45	DMTF	**DSP0243**, Open Virtualization Format Specification - Version 1.1.0	
46	DMTF	**DSP0243**, Open Virtualization Format Specification - Version 2	
47	DMTF	DSP8023 OVF Envelope XSD - Version 2.0	
48	TM Forum	TMF061 Release 1.0, Service Delivery Framework (SDF) Reference Architecture, Release 1.0	

49	Broadband Forum	WT-302: Framework for Cloud Services in Broadband Networks	
50	ATIS Cloud Services Forum	**ATIS-0200005**, Cloud Framework for Telepresence Service	
51	ATIS Cloud Services Forum	**ATIS-0200008**, Trusted Information Exchange (TIE)	
52	ATIS Cloud Services Forum	**ATIS-0200009**, Cloud Service Lifecycle Checklist	
53	ATIS Cloud Services Forum	**ATIS-0200006**: Virtual Desktop Requirements	
54	ATIS Cloud Services Forum	**ATIS-0200010:** CDN Interconnection Use Cases and Requirements in a Multi-Party Federation Environment	
55	ATIS Cloud Services Forum	**ATIS-0200011**, Multicast Delivery of Content to Mobile End User Devices	
56	MEF	Carrier Ethernet Services for Cloud Use Cases	
57	MEF	Carrier Ethernet Services for Cloud Management Interface Profile	
58	ISO/IEC JTC 1 SC 38 WG 3	**ISO/IEC 19086-1**, Cloud Computing - Service Level Agreement (SLA) Framework – Part 1 : Overview and Concepts	
59	ISO/IEC JTC 1 SC 38 WG 3	**ISO/IEC 19086-2** Information Technology - Cloud Computing – Service Level Agreement (SLA) Framework – Part 2 : Metrics	
60	ISO/IEC JTC 1 SC 38 WG 3	**ISO/IEC 19086-3** Information Technology - Cloud Computing – Service Level Agreement (SLA) Framework – Part 3 : Core Conformance Requirements	
61	ISO/IEC JTC 1 SC 38 WG 4	**ISO/IEC 19941** Information Technology - Cloud Computing – Interoperability and Portability	
62	ISO/IEC JTC 1 SC 38 WG 5	**ISO/IEC 19944** Information Technology - Cloud Computing - Data and their Flow across Devices and Cloud Services	

_____

Appendix C. 12th Revised version of Cloud Computing Standards Roadmap

1. ITU-T SG13

Activity domain[1]	Entity	Title of deliverable	Scope of deliverable	Current status	Starting date	Target date
	ITU-T SG13 Q17|JTC1 SC 38	**ITU-T Y.3500|ISO/IEC 17788** Information technology – Cloud computing – Overview and vocabulary	This Recommendation | International Standard provides an overview of cloud computing along with a set of terms, definitions and concepts. It is a terminology foundation for the cloud computing standardization work. This Recommendation | International Standard is applicable to all types of organization (e.g. commercial enterprises, government agencies, not-for-profit organizations). URI : http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=12210	Recommendation | IS	September 2012	August 2014
	ITU-T SG13 Q18|JTC1 SC 38	**ITU-T Y.3502|ISO/IEC 17789** Information technology — Cloud computing - Reference architecture	This Recommendation | International Standard specifies the cloud computing reference architecture (CCRA). The reference architecture includes the cloud computing roles, cloud computing activities as well as the cloud computing functional components and their relationships. URI : http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=12209	Recommendation | IS	September 2012	August 2014
	ITU-T SG13 Q17	**ITU-T Y.3501-ed2**, Cloud Computing Framework and high-level requirements	This Recommendation provides a cloud computing framework by identifying high-level requirements for cloud computing. The Recommendation addresses the general requirements and use cases for: – cloud computing;	Recommendation 2nd Edition Initiated	2012-06-15 2015-05-01	May 2013 4Q 2015

[1] for use of editors. After the gathering of cloud activity, this column provides the category of deliverables

			– Infrastructure as a Service (IaaS), Network as a Service (NaaS), and Desktop as a Service (DaaS) cloud services; – inter-cloud, end-to-end resource management, and cloud infrastructure. The first release of this Recommendation addresses a set of use cases and related requirements which are included in Appendix I. Next release of this Recommendation will provide an update of this set of use cases and requirements. The release concept is described in Appendix II. URI : http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=11917			
	ITU-T SG13 Q17	**ITU-T Y.3503**, Requirement of Desktop as a Service	This Recommendation provides use cases, general requirements and functional requirements for Desktop as a Service (DaaS). URI : http://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=8419	Recommendation	2012-06-15	May 2014
	ITU-T SG13 Q18	**ITU-T Y.3510-ed2**, Cloud Computing Infrastructure Requirements	This Recommendation identifies requirements for cloud infrastructure capabilities to support cloud services. The scope of this Recommendation includes: - Overview of cloud infrastructure; - Requirements for compute resources; - Requirements for network resources; - Requirements for storage resources; Requirements for resource abstraction and control. URI : http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=11918	Recommendation 2nd Edition Initiated	2012-06-15 2015-05-01	May 2013 4Q 2015
	ITU-T SG13 Q18	**ITU-T Y.3511**, Framework of inter-cloud computing	This Recommendation describes the framework for interactions of multiple cloud service providers (CSPs) that is referred to as inter-cloud computing. Based on several use cases and consideration on different types of service offerings, this Recommendation describes the possible relationship among	Recommendation	2012-06-15	March 2014

			multiple CSPs; which are peering, federation, and intermediary. By introducing the concept of the primary CSP and /secondary CSPs, the Recommendation further describes CSP interactions in the cases of federation and intermediary patterns. The Recommendation also considers the network significance and its issues. Finally, relevant functional requirements are derived. URI : http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=12078			
	ITU-T SG13 Q18	**ITU-T Y.3513**, Cloud computing - Functional requirements of Infrastructure as a Service	This Recommendation provides functional requirements and use cases of Infrastructure as a Service (IaaS), one of the representative cloud service categories. This Recommendation covers the following: – General description of IaaS; – Functional requirements of IaaS; – Typical IaaS use cases. URI: http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=12286	Recommendation	02/2013	August 2014
	ITU-T SG13 Q18	**ITU-T Y.3512**, Cloud computing - Functional requirements of Network as a Service	This Recommendation provides use cases and functional requirements of Network as a Service (NaaS), one of the representative cloud service categories. This Recommendation covers the following: – High level concept of NaaS; – Functional requirements of NaaS; – Typical NaaS use cases. This Recommendation provides use cases and functional requirements of NaaS application, NaaS platform and NaaS connectivity. URI:http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=12285	Recommendation	02/2013	August 2014

		ITU-T SG13 Q19	**ITU-T Y.3520-ed2**, Cloud computing framework for end to end resource management	This Recommendation provides a framework for end-to-end cloud computing resource management. This Recommendation includes: - general concepts of end to end cloud computing resource management; - a vision for adoption of cloud computing resource management in a telecommunication rich environment; - end-to-end management of cloud resource and services across multiple platforms, i.e. management of any hardware and software used in support of the delivery of cloud services. URI : http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=11919	Recommendation 2nd Edition Initiated	2012-06-15 2015-05-01	June 2013 4Q 2015

		ITU-T SG13 Q17	**ITU-T Y.~~BigData-reqts~~3600**
			
			Big data – cloud computing based requirements and capabilities~~Requirements and capabilities for cloud computing based big data~~
				This Recommendation provides approach to use cloud computing to meet challenges existing in use of big data. It addresses the following subjects:
				
				• Overview of big data;
				  − Introduction to big data;
				  − Big data ecosystem and roles;
				  − Relationship between cloud computing and big data;
				• Cloud computing based big data system context and benefits;
				• Cloud computing based big data requirements;
				• Cloud computing based big data capabilities;
				~~This Recommendation provides approach to use cloud computing to meet challenges existing in use of big data. It addresses the following subjects:~~
				~~Overview of cloud computing based big data including Introduction of big data, Big data characteristics and functionalities, Relationship between cloud computing and big~~
					Recommendation~~Draft Recommendation~~	06/2013	~~Q2~~ November 2015

			~~data, Benefit of cloud computing based big data from telecom perspectives~~ ~~– Cloud computing based big data requirements;~~ ~~– Cloud computing based big data capabilities;~~ ~~– Cloud computing based big data use cases and scenarios~~ URI : http://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=9853			
	ITU-T SG13 Q17	**ITU-T Y.DaaS-arch,** Functional architecture for Desktop as a Service	This Recommendation provides functional architecture for Desktop as a Service (DaaS) to specify the detailed functional components and their relationships based on the general and functional requirements of Y.3503. It addresses the following subjects: − DaaS functionalities related with DaaS components − DaaS functional architecture; − Mapping DaaS functional architecture to the cloud computing reference architecture. URI : http://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=10156	Draft Recommendation	July 2014	Q1 2016
	ITU-T SG13 Q18	**ITU-T Y.CCNaaS-arch**, Cloud computing - Functional Architecture of Network as a Service	This Recommendation specifies NaaS functional architecture, including functionalities, functional components as well as reference points and procedures, based on the functional requirements specified in Y.3512. The scope of this Recommendation consists of: − Overview of NaaS functional architecture − Functionalities of NaaS − Functional components of NaaS − Reference points between functional components of NaaS	Draft Recommendation	07/2014	06/2016

			− Procedures for typical NaaS use cases			
			URI: http://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=10229			
	ITU-T SG13 Q18	**ITU-T Y.CCIC-arch**, Cloud computing - Functional Architecture of inter-cloud computing	This proposed Recommendation specifies inter-cloud computing functional architecture, including functionalities, functional components as well as reference points and procedures, based on the framework specified in Y.3511. The scope of this recommendation includes, but is not limited to: − Analyses of functional requirements of inter-cloud computing − Overview of inter-cloud computing functional architecture − Functionalities of inter-cloud computing − Functional components of inter-cloud computing − Reference points between functional components of inter-cloud computing − Procedures for typical inter-cloud computing use cases Note - The analyses of functional requirements of inter-cloud computing will be concluded in next July 2015 meeting. URI: http://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=10547T.B.P.	Draft Recommendation	05/2015	Q4 2016
	ITU-T SG13 Q18	**ITU-T Y.BDaaS-arch**, Functional architecture of Big Data as a Service	This Recommendation specifies the functional components, functional architecture, and reference points of Big Data as a Service (BDaaS). The scope of this recommendation includes: − Overview of Big Data as a Service functional architecture − The functional components of Big Data as a Service − The functional architecture of Big Data as a Service.	Draft Recommendation	05/2015	11/2016

Activity domain	Entity	Title of deliverable	Scope of deliverable	Current status	Starting date	Target date
			− The reference points between functional components of BDaaS URI: http://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=10548T.B.P.			
	ITU-T SG13 Q19	**ITU-T Y.CCTIC**, Trusted inter-cloud computing framework and requirements	This Recommendation specifies framework of trusted inter-cloud computing and relevant use cases, based on the framework specified in ITU-T Rec. Y.3511. The scope of this Recommendation includes: The scope of this Recommendation includes: − objectives of trusted inter-cloud computing, − requirements for security of trusted inter-cloud, − requirements for governance of trusted inter-cloud, − requirements for resiliency of trusted inter-cloud. URI: TBD	Draft Recommendation	05/2015	2Q 2017

2. ITU-T JRG-CCM (Joint Rapporteur Group on Cloud Computing Management) of ITU-T SG13 and ITU-T SG2

Activity domain	Entity	Title of deliverable	Scope of deliverable	Current status	Starting date	Target date
	ITU-T JRG-CCM	**ITU-T Y.e2ecslm-Req** End-to-end cloud service lifecycle management requirements	This Recommendation specifies the functional requirement of the lifecycle for service management aspects of Cloud services. The Cloud service lifecycle management involves charging events management, policy management, management of role related information, service/application provisioning, resource management, context management, and content management URI : http://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=9744	Draft Recommendation	06/2012	Q3 2015

	ITU-T JRG-CCM	**ITU-T Y.e2ecm** Common Model for End to End Cloud Computing Resource Management	This Recommendation : - Provides a model, based on SES Simple Management Interfaces (SMIs), for all layers of cloud computing reference architecture. - Demonstrate how such approach would result in development and deployment of fundamentally manageable cloud computing applications and solutions, in an end-to-end, multi-cloud environment, independent of choice of technology, run-time, programming language or tools made to develop the solutions. URI : http://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=9745	Draft Recommendation	02/2013	Q3 2015
	ITU-T JRG-CCM 5	**ITU-T M. rcsm** Requirements for Cloud Service Management	The scope of this Recommendation is to define the general management requirements that support the cloud service fulfillment, delivery, operation and management, and to provide function framework for cloud services management. Also the relationship between cloud service management and cloud resource management will be described. URI: http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=9621	Draft Recommendation	2013-01-31	Q3 2015 for consent
	ITU-T JRG-CCM	**ITU-T M.mivrcc** Requirements and analysis for management interface of virtualized resources in cloud computing	This Recommendation specifies the requirements and analysis for the management interface between the cloud operational support system (COSS) and the virtualized resource management (VRM) agent. This Recommendation follows the interface specification methodology described in [ITU-T M.3020]. In this Recommendation, the VRM agent stands for the management and control aspects of abstraction and control functions within resource and network layer of the cloud computing reference architecture (CCRA) [ITU-T Y.CCRA]. The COSS represents an integrated management system across a global management domain which implements operational related management capabilities required in order to manage and control the cloud services offered to customers. In this Recommendation, the functional requirements for the management interface are specified, which include configuration management, fault management, and performance management. In the	Draft Recommendation	2013-01-31	2017 for consent

			analysis part, the detailed information model supporting the above functions across the management interface is provided.			
			This Recommendation only focuses on the computing and storage related virtualized resources in cloud computing environment, such as resource pool, template, virtual machine, virtual machine image, volume, and network interface. Networking related virtualized resources such as virtualized network, virtualized link, virtualized node, and virtualized port can be derived from the corresponding Information Object Classes (IOCs) defined in [ITU-T M.3160], which is out of the scope of this Recommendation. URI: http://www.itu.int/itu-t/workprog/wp_item.aspx?isn=9623			

3. ITU-T SG17

Activity domain	Entity	Title of deliverable	Scope of deliverable	Current status	Starting date	Target date
	ITU-T SG17	**X.1601,** Security framework for cloud computing	This Recommendation analyses security threats and challenges in the cloud computing environment, and describes security capabilities that could mitigate these threats and address security challenges. A framework methodology is provided for determining which of these security capabilities will require specification for mitigating security threats and addressing security challenges for cloud computing. URI : http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=12036	Recommendation	2010-04	2014-01-24
	ITU-T SG17	**X.fsspvn,** Framework for a secure service platform for virtual network	This Recommendation defines the framework of service platform for virtual network (SPVN), which provides for establishing and managing virtual network. The service platform provides the functions of network connectivity (e.g. NAT transversal), security service (e.g.	draft	2010-12	2014-01 (determination)

			identity management in virtual network) and network management (e.g. security policy distribution, group management in virtual network). This Recommendation also describes the key technologies used in the service platform and the interfaces between the service platform and applications. URI : http://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=9411			
	ITU-T SG17	**X.goscc,** Guidelines of operational security for cloud computing	This Recommendation provides guideline of operational security for cloud computing, which includes guidance of service level agreement (SLA) and daily security maintenance for cloud computing. The target audiences of this Recommendation are cloud service providers, such as traditional telecom operators, ISPs and ICPs. URI : http://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=9434	draft	2012-03	2014-01 (determination)
	ITU-T SG17	**X.idmcc,** Requirement of IdM in cloud computing	The Recommendation focuses on the harmonization of the telecommunication services in the cloud computing environment. This Recommendation starts from the use-case and requirements analysis in consideration of the existing industry efforts and it concentrates on how to harmonize the telecommunication services and the Internet services based on a common identity management infrastructure in the cloud computing environment. URI : http://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=9413	draft	2010-12	2014-01 (determination
	ITU-T SG17	**X.sfcse,** Security functional requirements for Software as a Service (SaaS) application environment	This Recommendation provides a generic functional description for secure service oriented Software as a Service (SaaS) application environment that is independent of network types, operating system, middleware, vendor specific products or solutions. In addition, this Recommendation is independent of any service or scenarios specific model (e.g., web services, Parlay X or REST), assumptions or solutions. This Recommendation describes a structured approach for defining, designing, and implementing secure and manageable service oriented capabilities in telecommunication cloud computing environment. URI : http://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=9418	draft	2011-04	2014-01 (determination)

| | ITU-T SG17 Q8 | **ITU-T X.CSCdataSec** Guidelines for Cloud Service Customer Data Security | This Recommendation will provide guidelines for securing cloud service customer datacloud service customer data, in the case where the CSP is responsible for ensuring that the data being handled with appropriate security. This Recommendation specifies security controls for cloud service customer data in different stage of full data lifecycle. These specific security controls used may vary as the security needs of the cloud service customer data changes. URI : http://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=10273 | Draft Recommendation | 2014-09 | Q1 2017 for determination |

4. ITU-T SG5

Activity domain	Entity	Title of deliverable	Scope of deliverable	Current status	Starting date	Target date
	ITU-T SG5 Q19	ITU-T L.1200, Direct current power feeding interface up to 400V at the input to telecommunication and ICT equipment	This Recommendation specifies the direct current (DC) interface between the power feeding system and ICT equipment connected to it. It also describes normal and abnormal voltage ranges, and immunity test levels for ICT equipment to maintain the stability of telecommunication and data communication services. The specified interface is operated from a DC power source of up to 400 V to allow increased power consumption and equipment power density, in order to obtain higher energy efficiency and reliability with less material usage than using a lower voltage such as -48 VDC or AC UPS power feeding solutions. URL: http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=11638	Recommendation		Approved 05/2012
	ITU-T SG5 Q17	ITU-T L.1300, Best practices for green data centres	This Recommendation specifies best practices aimed at developing green data centres. A green data centre can be defined as a repository for the storage, management, and	Recommendation		Approved 06/2014

			dissemination of data in which the mechanical, lighting, electrical and computer systems are designed for maximum energy efficiency and minimum environmental impact. The construction and operation of a green data centre includes advanced technologies and strategies. The Recommendation provides a set of rules to be referred to when undertaking improvement of existing data centres, or when planning, designing or constructing new ones. URL: http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=12204			
	ITU-T SG5 Q18	ITU-T L.1410, Methodology for environmental life cycle assessments of information and communication technology goods, networks and services	Recommendation ITU-T L.1410 deals with environmental life cycle assessments (LCAs) of information and communication technology (ICT) goods, networks and services. It is organized in two parts: • Part I: ICT life cycle assessment: framework and guidance •Part II: "Comparative analysis between ICT and reference product system (Baseline scenario); framework and guidance". Part I deals with the life cycle assessment (LCA) methodology applied to ICT goods, networks and services. Part II deals with comparative analysis based on LCA results of an ICT goods, networks and services product system, and a reference product system. URL: http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=12207&lang=en	Recommendation		Approved 12/2014
	ITU-T SG5 Q17	ITU-T L.1301, Minimum data set and communication interface requirements for	Recommendation ITU-T L.1301 establishes a minimum data set necessary to manage data centres and telecommunication rooms in an environmentally responsible manner. The Recommendation specifies the communication interface and defines the parameters to be communicated depending on	Recommendation		Approved 05/2015

		data centre energy management	the equipment used in data centres, such as power systems (alternating current (AC)/direct current (DC) and uninterruptible power supply (UPS) and energy distribution), cooling systems and information and communication technology (ICT) equipment. URL: http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=12428			
	ITU-T SG5 Q19	ITU-T L.1201, Architecture of power feeding systems of up to 400 VDC	Recommendation ITU-T L.1201 describes the architecture of power feeding systems of up to 400 VDC for information and communication technology (ICT) equipment in telecommunication centres, data centres and customer premises. It describes aspects such as configuration, redundancy, power distribution and monitoring, in order to construct safe, reliable and manageable power feeding systems. It can be used also as an architecture reference model for further Recommendations e.g., on the performance of DC power feeding systems. URL : http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=12135	Recommendation		Approved 03/2014
	ITU-T SG5 Q19	ITU-T L.1202, Methodologies for evaluating the performance of an up to 400 VDC power feeding system and its environmental impact	Recommendation ITU-T L.1202 is provided as a complement to Recommendation ITU-T L.1201, which describes the architecture of direct current (DC) power systems with an up to 400 VDC information and communication technology (ICT) equipment interface. The up to 400 VDC ICT equipment interface is described in Recommendation ITU-T L.1200. Recommendation ITU-T L.1202 provides a framework for assessing performances of up to 400 VDC power feeding systems and the savings incurred when compared to other power feeding systems such as the −48 VDC power system and the AC uninterruptable power system (UPS) commonly used in information and communication technology (ICT) sites.	Recommendation		Approved 04/2015

			This Recommendation deals with performance factors such as efficiency, reliability/availability and environmental impact. URL: http://www.itu.int/ITU-T/recommendations/rec.aspx?id=12427&lang=en			
	ITU-T SG5 Q18	ITU-T L.1420, Methodology for energy consumption and greenhouse gas emissions impact assessment of information and communication technologies in organizations	Recommendation ITU-T L.1420 presents the methodology to be followed if an organization intends to claim compliance with this Recommendation when assessing its information and communication technology (ICT) related energy consumption and/or greenhouse gas (GHG) emissions. This Recommendation can be used to assess energy consumption and GHG emissions generated over a defined period of time for the following purposes: for assessment of related impact from ICT organizations or for assessment of impact from ICT related activities within non-ICT organizations. URL: http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=11431	Recommendation		Approved 02/2012
	ITU-T SG5 Q18	ITU-T L.1430, Methodology for assessment of the environmental impact of information and communication technology greenhouse gas and energy projects	Recommendation ITU-T L.1430 is intended as a complement to ISO standard ISO 14064-2 and the Project Protocol of the Greenhouse Gas Protocol (GHG Protocol). This Recommendation provides guidance for the application of a specific methodology to assess the environmental impact of information and communication technology (ICT) greenhouse gas (GHG) and energy projects. This assessment methodology is specifically directed at quantifying and reporting GHG emission reductions, GHG removal enhancements, energy consumption reductions, and enhancement of energy generation and storage in ICT GHG and energy projects.	Recommendation		Approved 12/2013

			An ICT GHG project uses mainly ICT goods, networks and services (GNS) and is designed to reduce GHG emissions or increase GHG removals that are quantified by comparison between the environmental impact of a project activity and a corresponding baseline scenario.			
			An ICT energy project uses mainly ICT goods, networks and services to reduce energy consumption and improve energy efficiency.			
			From the ICT perspective, this Recommendation takes into account considerations based on existing project quantification guidelines and aims at covering ICT GHG and energy project activities within both the ICT and the non-ICT sectors.			
			This Recommendation recognizes the importance of project validation and verification for the credibility of project results but does not enforce the validation and verification procedures to be applied. It is expected that such procedures will be determined by the selected GHG programme, national regulations, the project proponent's internal policy or the intended user's request.			
			URL: http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=11904			
	ITU-T SG5 Q17	ITU-T L.1302 (L.Assessments_DC) Assessment of energy efficiency on infrastructure in data centre and telecom centre	Recommendation ITU-T L.1302 contains the energy efficiency assessment methodology for data centre and telecom centre, test equipment accuracy requirements, assessment period, assessment conditions and calculation methods. For data centre and telecom centre, it was divided into assessment methods for whole data centre /telecom centre efficiency and partial data centre/telecom centre.	Draft Recommendation		Consented on 23.10.2015

			As main energy consuming infrastructure in data centre/telecom centre are power feeding system (power supply system) and cooling system, both system energy efficiency measurement methodologies are covered in this Recommendation. It will take advantage of methodologies and best practices currently in used or in development in networks and data centre/telecom centre. This Recommendation aimed at reducing the negative impact of data centre and telecom centre through providing the methodologies of energy efficiency assessment. It is commonly recognized that data centre and telecom centre will have an ever-increasing impact on the environment in the future. The application of the assessment methods defined in this Recommendation can help owners and managers to build future data centres/telecom centres, or improve existing ones, to operate in an environmentally responsible manner. URL: http://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=9653			
	ITU-T SG5 Q17	ITU-T L.1320 (L.MandM_infra), Energy efficiency metrics and measurement for power and cooling equipment for telecommunications and data centres	Recommendation ITU-T L.1320 contains the general definition of metrics, test procedures, methodologies and measurement profiles required to assess the energy efficiency of power and cooling equipment for telecommunications and data centres. More detailed measurement procedures and specifications can be developed in future related ITU-T Recommendations. Metrics and measurement methods are defined for power equipment, alternating current (AC) power feeding equipment (such as AC uninterruptible power supply (UPS), direct current (DC/AC) inverters), DC power feeding equipment (such as AC/DC rectifiers, DC/DC converters), solar equipment, wind turbine equipment and fuel cell equipment.	Recommendation		Approved 03-2014

			In addition, metrics and measurement methods are defined for cooling equipment such as air conditioning equipment, outdoor air cooling equipment and heat exchanging cooling equipment. URL: http://www.itu.int/ITU-T/recommendations/rec.aspx?id=12136&lang=en			
ITU-T SG5 Q19		ITU-T L.renewable Interfacing of renewable energy or distributed power sources to up to 400 VDC power feeding systems	Defining interface and architecture for injecting renewable energy and distributed power sources into an up to 400 V power system as defined in L.architecture URL: http://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=10018	Agreed to initiate the work	Dec. 2013	2016
ITU T SG5 Q17		ITU-T L.green_mgm_DC, Functionality requirements and framework of green data center energy-saving management system	This Recommendation describes Functionality requirements and framework of green data center energy-saving management system. The energy-saving will be realized through performance to increase the energy efficiency of data center. The scope of this Recommendation includes: - Characteristics and operation flow of green data center energy-saving management system - Functionality requirements of green data center energy-saving management system (eg: Real-time energy consumption data acquisition; Energy consumption data analysis and chart show; Energy consumption data query; Energy consumption monitoring and early warning; Strategy Optimization, etc.) - Capability needs of green data center energy-saving management system (eg: collect data from different	WI approved	December 2014	2016

			communication interface; secure storage; control management, etc.) - Framework of green data center energy-saving management system Sensor definition, interface and protocol are not included in the scope of this Recommendation. URL: http://web.itu.int/ITU-T/workprog/wp_item.aspx?isn=10367			
	ITU-T SG5 Q18	ITU-T L.1440, Methodology for environmental impact assessment of information and communication technologies at city level	Recommendation ITU-T L.1440 gives general guidance for city level environmental assessments related to ICT, and provides a description of methodologies to be used for the assessment of the environmental impact of ICT in cities. In this first edition of this Recommendation, the assessment is limited to energy consumption and GHG emissions. The present Recommendation is divided in two parts. - Part I relates to the first order effects from the use of ICT goods and networks in city´s organizations and households. - Part II relates to the first and second order effects from ICT projects and services applied in the city. This Recommendation provides specific guidance in setting the city boundaries, preparing and performing the assessment of ICT related GHG emissions and energy consumption at city level. URL: http://www.itu.int/ITU-T/recommendations/rec.aspx?id=12431&lang=en	Recommendation		Approved 23.10.2015

Activity domain	Entity	Title of deliverable	Scope of deliverable	Current status	Starting date	Target date
	ITU-T SG5 Q19	L.1200: Direct current power feeding interface up to 400V at the input to telecommunications and ICT equipment	This Recommendation specifies the direct current (DC) interface between the power feeding system and ICT equipment connected to it. It also describes normal and abnormal voltage ranges, and immunity test levels for ICT equipment to maintain the stability of telecommunication and data communication services. The specified interface is operated from a DC power source of up to 400 V to allow increased power consumption and equipment power density, in order to obtain higher energy efficiency and reliability with less material usage than using a lower voltage such as -48 VDC or AC UPS power feeding solutions. URI : http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=11638	Recommendation		
	ITU-T SG5 Q17	ITU-T L.1300, Best practices for green data centers	Recommendation ITU-T L.1300 describes best practices aimed at reducing the negative impact of data centers on the climate. It is commonly recognized that data centers will have an ever-increasing impact on the environment in the future. The application of the best practices defined in this document can help owners and managers to build future data centers, or improve existing ones, to operate in an environmentally responsible manner. Such considerations will strongly contribute to a reduction in the impact of the Information and Communication Technology (ICT) sector on climate change. URI : http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=11429	Recommendation		
	ITU-T SG5 Q18	ITU-T L.1410, Methodology for environmental impact assessment of information and communication technologies (ICT) goods, networks and services	Recommendation ITU-T L.1410 deals with the assessment of the environmental impact of information and communication technology (ICT) goods, networks and services. It is organized in two parts: — Part I (clause 5) — ICT life cycle assessment: framework and guidance. — Part II (clause 6) — Comparative analysis between ICT and a reference product system (baseline scenario); framework and guidance.	Recommendation		

			Part I deals with the life cycle assessment (LCA) methodology applied to ICT goods, networks and services (ICT GNS). Part II deals with comparative analysis based on LCA results of an ICT GNS product system and a referenced product system. This Recommendation provides specific guidance on energy and greenhouse gas (GHG) impacts. URI : http://www.itu.int/ITU-T/recommendations/rec.aspx?id=11430			
	ITU-T SG5 Q17	**L.DC_minimum set**, Minimum data set for data center energy management	Minimum data set and communication interfacerequirements for DataCenter energy management URI : http://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=8620	Draft Recommendation	2013-01-29	2014 for consent
	ITU-T SG5 Q17	**Rev L.1300 rev**, Best practices for green data centers (revision of L.1300)	This Recommendation specifies best practices aimed at developing green data centres. A green data centre can be defined as a repository for the storage, management, and dissemination of data in which the mechanical, lighting, electrical and computer systems are designed for maximum energy efficiency and minimum environmental impact. The construction and operation of a green data centre includes advanced technologies and strategies. The Recommendation provides a set of rules to be referred to when undertaking improvement of existing data centres, or when planning, designing or constructing new ones URI: http://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=8829	Draft Recommendation	10/2012	2014 for consent
	ITU-T SG5 Q19	**ITU-T L.architecture**, Architecture of DC power feeding systems	System configuration, architecture and cable distribution including feeding, lightning protection, EMC, earthing and bonding of the power feeding system URI : http://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=8778	Draft Recommendation	2011-09-20	Q4 2013
	ITU-T SG5 Q19	**ITU-T L.performance**, Methodologies for evaluating the performance of	Methodologies for evaluating the performance of energy feeding and its environmental impact URI : http://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=8779	Draft Recommendation	2012-10-08	2014

		energy feeding and its environmental impact				
	ITU-T SG5 Q18	ITU-T L.1420, Methodology for energy consumption and greenhouse gas emissions impact assessment of information and communication technologies in organizations	This Recommendation can be used to assess energy consumption and GHG emissions generated over a defined period of time for the following purposes: for assessment of related impact from ICT organizations or for assessment of impact from ICT related activities within non-ICT organizations. URI : http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=11431	Recommendation	2009	2012
	ITU-T SG5 Q18	ITU-T L.1430, Methodology for environmental impact assessment of information and communication technology greenhouse gas and energy projects	Specific guidance for Information and Communication Technology (ICT) greenhouse gas (GHG) and energy projects for quantifying and reporting their GHG emission reductions and/or removal enhancements as well as their energy consumption reductions and enhancement of energy generation and energy storage URI : http://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=8781	Draft Recommendation	2009	February 7 2013 for consent
	ITU-T SG5 Q17	ITU-T L.assDC, Assessment of DC and TLC room Infrastructure	Assessment methodology of data center and telecommunication room infrastructure energy efficiency considering environmental conditions and running conditions. URI : http://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=9653	Draft Recommendation	2013-01-29	2014 for consent
	ITU-T SG5 Q17	L.MandM_infra Energy efficiency metrics and measurement for power and cooling equipment for telecommunications and data centres	This Recommendation specifies principles and concepts of energy efficiency metrics and measurement methods for power feeding equipment and cooling equipment in telecommunications rooms and data centres. The methodologies defined in this Recommendation are applied at single equipment level. The efficiency of power conversion and cooling in the data centre or telecommunication facility is only partially attributed to the equipment. The architecture and organization of the space and equipment to deliver the power or	Consented	2012-10-08	Consented in 2013-12-13

			cooling to the systems is as equal, if not a more significant factor to energy efficiency. Another general factor will be the interoperability, management, and response of these systems across the demand and operational range. URI : http://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=8783			
	ITU-T SG5 Q19	**ITU-T L.renewable**	Defining interface and architecture for injecting renewable energy and distributed power sources into an up to 400 V power system as defined in L.architecture URI : http://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=10018	Agreed to initiate the work	Dec. 2013	Q4 2014 for consent

4.5.   ITU-T SG11

Activity domain	Entity	Title of deliverable	Scope of deliverable	Current status	Starting date	Target date
	ITU-T SG11	**ITU-T Q.FW-Cloud-iop,** The framework and overview of Cloud Computing interoperability testing	This draft Recommendation describes the framework and overview of Cloud Computing interoperability testing. The framework Recommendation includes general scenarios and kinds of testing and measurement technologies for interoperability testing of cloud computing. URI: http://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=9767	Draft Recommendation	2013-02	2015-07

5.6.   ITU-T SG16

Activity domain	Entity	Title of deliverable	Scope of deliverable	Current status	Starting date	Target date
	ITU-T SG16 Q3	**ITU-T H.248.CLOUD,** Gateway control protocol: Cloudification of packet gateways	This Recommendation does not define any new signalling extensions for the H.248 gateway control protocol. URI: http://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=10200	Draft Recommendation	July 2014	2016

6.7.   ISO/IEC JTC 1 SC 38

Activity domain	Entity	Title of deliverable	Scope of deliverable	Current status	Starting date	Target date
	ITU-T SG13 Q17|JTC1 SC 38	**ITU-T Y.3500|ISO/IEC 17788** Information technology – Cloud computing – Overview and vocabulary	This Recommendation	International Standard provides an overview of cloud computing along with a set of terms, definitions and concepts. It is a terminology foundation for the cloud computing standardization work. This Recommendation	International Standard is applicable to all types of organization (e.g. commercial enterprises, government agencies, not-for-profit organizations). URI : http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=12210	Recommendation	IS	September 2012	August 2014
	ITU-T SG13 Q18|JTC1 SC 38	**ITU-T Y.3502|ISO/IEC 17789** Information technology — Cloud computing - Reference architecture	This Recommendation	International Standard specifies the cloud computing reference architecture (CCRA). The reference architecture includes the cloud computing roles, cloud computing activities as well as the cloud computing functional components and their relationships. URI : http://www.itu.int/ITU-T/recommendations/rec.aspx?rec=12209	Recommendation	IS	September 2012	August 2014
	ISO/IEC JTC 1 SC 38 WG 3	**ISO/IEC 19086-1**, Cloud Computing - Service Level Agreement (SLA) Framework – Part 1 : Overview and Concepts	This international standard specifies: an overview of Service Level Agreements (SLA)s for cloud services, identification of the relationship between the master service agreement and the SLA, cloud SLA concepts that can be used to build SLAs, and terms commonly used in SLAs for cloud services. This standard is for the benefit and use for providers and customers. This standard does not provide a standard structure that would be used for cloud SLA contracts. Contracts are highly	WD (3 November 2014 for CD ballot submission)	2013-02-23	Sept 2016

			customized items between providers and customers so this standard seeks to establish a set of common cloud SLA building blocks (concepts, terms, definitions, contexts) that can then be used to create cloud SLAs that will help avoid confusion and facilitate common understanding between the cloud service providers and the cloud service customers. This international standard does not supersede any legal requirement. URI: http://www.iso.org/iso/home/store/catalogue_tc/catalogue_detail.htm?csnumber=67545			
	ISO/IEC JTC 1 SC 38 WG 3	**ISO/IEC 19086-2** Information Technology - Cloud Computing – Service Level Agreement (SLA) Framework – Part 2 : Metrics	This international standard specifies a model and metrics for describing and measuring properties of the concepts and components in 19086. This standard is for the benefit and use for both provider and customer. This standard does not provide a standard structure that would be used for cloud SLA contracts. URI: http://www.iso.org/iso/home/store/catalogue_tc/catalogue_detail.htm?csnumber=67546	WD	2014-10-06	Mar 2017
	ISO/IEC JTC 1 SC 38 WG 3	**ISO/IEC 19086-3** Information Technology - Cloud Computing – Service Level Agreement (SLA) Framework – Part 3 : Core Conformance Requirements	This international standard specifies: core conformance requirements for Service Level Agreements (SLA)s for cloud services for ISO/IEC 19086. This standard is for the benefit and use for providers and customers. This standard does not provide a standard structure that would be used for cloud SLA contracts. URI: http://www.iso.org/iso/home/store/catalogue_tc/catalogue_detail.htm?csnumber=67547	WD	2014-10-06	Mar 2017

	ISO/IEC JTC 1 SC 38 WG 4	**ISO/IEC 19941** Information Technology - Cloud Computing – Interoperability and Portability	This international standard specifies: cloud computing interoperability and portability types, the relationship and interactions between these two aspects, and common terminology and concepts used to discussing interoperability and portability and particularly relating to cloud services. URI: http://www.iso.org/iso/home/store/catalogue_tc/catalogue_detail.htm?csnumber=66639	WD	Oct 2014	Oct 2017
	ISO/IEC JTC 1 SC 38 WG 5	**ISO/IEC 19944** Information Technology - Cloud Computing - Data and their Flow across Devices and Cloud Services	This International Standard provides the structure for transparency about data in portable devices and cloud services ecosystem and specify an expanded reference architecture for this ecosystem. URI: http://www.iso.org/iso/home/store/catalogue_tc/catalogue_detail.htm?csnumber=66674	WD	Oct 2014	Oct 2017

7.8. DMTF

Activity domain	Entity	Title of deliverable	Scope of deliverable	Current status	Starting date	Target date
	DMTF	**DSP0263**, Cloud Infrastructure Management Interface (CIMI) Model and REST Interface over HTTP – Version 1.0.1	This specification describes the model and protocol for management interactions between a cloud Infrastructure as a Service (IaaS) Provider and the Consumers of an IaaS service. The basic resources of IaaS (machines, storage, and networks) are modeled with the goal of providing Consumer management access to an implementation of IaaS and facilitating portability between cloud implementations that support the specification. This document specifies a Representational	Published		January 2012

			State Transfer (REST)-style protocol using HTTP. However, the underlying model is not specific to HTTP, and it is possible to map it to other protocols as well.			
			CIMI addresses the management of the lifecycle of infrastructure provided by a Provider. CIMI does not extend beyond infrastructure management to the control of the applications and services that the Consumer chooses to run on the infrastructure provided as a service by the Provider. Although CIMI may be to some extent applicable to other cloud service models, such as Platform as a Service ("PaaS") or Storage as a Service ("SaaS"), these uses are outside the design goals of CIMI. URI : http://dmtf.org/sites/default/files/standards/documents/DSP0263_1.0.1.pdf			
	DMTF	**DSP8009**, CIMI XML Schema – Version 1.0.1	The XML Schema for the XML serialization of the CIMI model can be found at: http://schemas.dmtf.org/cimi/1/DSP8009.xsd The schema provided does not intend to reflect every single modeling constraint and requirement specified in the model. This schema is designed to apply more broadly to any model-related serialized material found in Consumer requests as well as in Provider responses, and is intended to provide a preliminary, non-exhaustive syntactic check on these. URI : http://schemas.dmtf.org/cimi/1/dsp8009_1.0.1.xsd	Published		January 2012
	DMTF	**DSP0264**, Cloud Infrastructure Management Interface - Common Information Model (CIMI-CIM) – Version 1.0.0	This document makes use of the common meta-model used by CIM, the Common Information Model to describe the CIMI logical model. This is defined in DSP004, CIM Infrastructure Specification 2.6 URI : http://dmtf.org/sites/default/files/standards/documents/DSP0264_1.0.0b.pdf	Published		January 2013
	DMTF	**DSP0243**, Open Virtualization Format	DMTF's Open Virtualization Format (OVF) is a packaging standard designed to address the portability and deployment of virtual	Published		January 2012

			Specification - Version 1.1	appliances. OVF enables simplified and error-free deployment of virtual appliances across multiple virtualization platforms. OVF is a common packaging format for independent software vendors (ISVs) to package and securely distribute virtual appliances, enabling cross-platform portability. By packaging virtual appliances in OVF, ISVs can create a single, pre-packaged appliance that can run on customers' virtualization platforms of choice. The Open Virtualization Format (OVF) Specification describes an open, secure, portable, efficient and extensible format for the packaging and distribution of software to be run in virtual machines. URI : http://dmtf.org/sites/default/files/standards/documents/DSP0243_1.1.0.pdf	DMTF Standard INCITS 469-2010 ISO/IEC 17203:2011		
	DMTF		**DSP0243**, Open Virtualization Format Specification - Version 2	OVF 2 Features: - Support for Network Ports - Scaling at deployment time - Support for basic placement policies - Encryption of OVF packages - Disk sharing at runtime - Advanced Device Boot Order - Advanced Data Transfer to Guest OS - Support for Improved Internationalization - I18N - Support of HASH Improved - Updated CIM schema URI : http://dmtf.org/sites/default/files/standards/documents/DSP0243_2.0.0.pdf	Published	January 2012	December 2012

| | DMTF | DSP8023 OVF Envelope XSD - Version 2.0 | This document defines an XML schema for representing DMTF Open Virtualization Format for OVF Envelope 2.0 sections as defined in DMTF DSP1001 1.1. XML instance documents using this XML schema represent DMTF management profiles in a "machine-readable" form. This XML schema uses the "Venetian Blind" design pattern: Only the XML elements intended to be used as root elements are declared as global elements in the XML schema, and all relevant XML types are declared as global types.

URI : http://schemas.dmtf.org/ovf/envelope/2/dsp8023_2.0.0.xsd | Published | | 2012-01-01 |

8.9. TM Forum

Activity domain	Entity	Title of deliverable	Scope of deliverable	Current status	Starting date	Target date
	TM Forum	TMF061 Release 1.0 Service Delivery Framework (SDF) Reference Architecture, Release 1.0	The SDF RA Release 1 defines the scope and characteristics of the essential elements which constitute the patterns that the SDF architecture must support. URI : http://www.tmforum.org/TechnicalSpecifications/TMF061ServiceDelivery/39341/article.html	Published		2009-07-28

9.10. ETSI

Activity domain	Entity	Title of deliverable	Scope of deliverable	Current status	Starting date	Target date

10.11. ATIS

Activity domain	Entity	Title of deliverable	Scope of deliverable	Current status	Starting date	Target date
	ATIS Cloud Services Forum	**ATIS-0200005**, Cloud Framework for Telepresence Service	This specification establishes a foundation for continuing ATIS work efforts on Unified Visual Communications. The specification explores a provider-agnostic and product-agnostic implementation. It will consider two primary aspects of the telepresence service. The first is use cases such as immersive telepresence that are deployed today. The second are future cases resulting from the application of the cloud and service evolution in the future. URI : http://www.atis.org/docstore/product.aspx?id=26079	Published		2012-02
	ATIS Cloud Services Forum	**ATIS-0200008**, Trusted Information Exchange (TIE)	This document describes the Trusted Information Exchange as an aggregated service and lists the high level requirements. URI : http://www.atis.org/docstore/product.aspx?id=26798	Published		2012-10
	ATIS Cloud Services Forum	**ATIS-0200009**, Cloud Service Lifecycle Checklist	The Cloud Service Lifecycle checklist establishes a baseline of expectations between providers who are interoperating cloud services. The document will also be referenced in cloud service standards to provide a reference model for requirements development. Each enterprise has an existing governance model. The lifecycle checklist provides a way to extend the process model between participating companies. URI : http://www.atis.org/docstore/product.aspx?id=27854	Published		2012-11
	ATIS Cloud Services Forum	**ATIS-0200006**: Virtual Desktop Requirements	This document addresses hosted virtual desktop services for medium and large enterprises. It specifies a federation framework to allow service providers to support high-performance virtual desktops beyond their normal coverage areas. The document also identifies an initial set of infrastructure-service interfaces and related requirements. This is a logical basis for the work on cloud infrastructure federation.	Published		2012-05

			URI : http://www.atis.org/docstore/product.aspx?id=26147			
	ATIS Cloud Services Forum	**ATIS-0200010:** CDN Interconnection Use Cases and Requirements in a Multi-Party Federation Environment	ATIS Standard ATIS-0200003 provided initial use cases and requirements for Content Distribution Network (CDN) Interconnection between two CDN providers via Cache-based Unicast delivery method. ATIS Standard ATIS-0200004 developed use cases and requirements for content distribution via Multicast-based delivery. This standard, ATIS-0200005, extends the use cases and requirements for an environment involving multiple CDN providers joining together to form a CDN Federation. The interconnection lifecycle use cases and requirements developed in the previous two ATIS standards are re-examined for the impact arising from a federation of multiple CDN providers. Additional emphasis is placed on the interconnection domain functionality such that guidance on the eventual development of network-network interconnect (NNI) architectures and supporting protocol requirements can be derived. URI : http://www.atis.org/docstore/product.aspx?id=27860	Published		2012-12
	ATIS Cloud Services Forum	**ATIS-0200011**, Multicast Delivery of Content to Mobile End User Devices	This document extends previous ATIS work on multicast-based content delivery methods to mobile End User devices. Three Use Cases describe potential situations where such devices can receive multicast-based broadcasts of specific live events/video content via the 3GPP Evolved Multimedia Broadcast Multicast System (eMBMS). Delivery processes, assumptions, Content Delivery Network interconnection implications, and supporting requirements are also provided. URI : https://www.atis.org/docstore/product.aspx?id=28155	Approved		2014-02

11.12.   Broadband Forum

Activity domain	Entity	Title of deliverable	Scope of deliverable	Current status	Starting date	Target date
	Broadband Forum	WT-302: Framework for Cloud Services in Broadband Networks	WT-302 describes use cases for Cloud Services in context with previous work at BBF and elsewhere, in order to help position potential future Multi Service Broadband Network (MSBN) features. Use cases and related gap analysis identify where additional work to support	Draft	3Q2012	4Q2013

| | | | Cloud Services in the BBF defined MSBN may be required. Analysis determines implications on areas of MSBN architecture, network functionalities including interfaces, service model, security, billing and operations.
URI : http://www.broadband-forum.org/ | | | |

12.13.   Metro Ethernet Forum

Activity domain	Entity	Title of deliverable	Scope of deliverable	Current status	Starting date	Target date
	MEF	Carrier Ethernet Services for Cloud Use Cases	- Includes both Single and Multiple Ethernet Cloud Carrier Domain cases - Part1: for Cloud Provider Interconnect (CP to CP) - Part2: for Enterprise Access to CP URI : TBD	Working Drafts	March 2012	April 2014
	MEF	Carrier Ethernet Services for Cloud Management Interface Profile	- Identify relevant Protocol Neutral MEF 7.x objects (and attributes) - Operational Use Cases and information requirements for CP to ECC management interface. - Focus on reconfiguration of specific Service Attributes (e.g., CIR) - Phase 1 approach: Changes to Service Attributes occur only when EVC/OVC is inactive or during a Maintenance Interval - Explore scheduled reconfiguration, and configuration durations. - Provide Interface Operational Requirements: Number of changes allowed over time (how long change should last); lead time for request fulfillment. - Describe SLSs for management interactions (performance metrics) URI : TBD	Working Drafts	March 2012	April 2014

_____