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STUDY PERIOD 2017-2020

SG13-TD329-R1/WP3

Study Group 13

English only

Question(s): 16/13   Geneva, 14-25 October 2019

TD

Source:	Rapporteur
Title:	Meeting report of Q16/13 (Geneva, 14-25 October 2019)
Purpose:	Admin

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Keywords: Meeting report; Q16/13; October 2019

Abstract: This document contains the meeting report of Q16/13 which is held in Geneva, 14-25 October 2019.

CONTENTS

1.   Question 16/13 – Knowledge-centric trustworthy networking and services

Question 16/13 was addressed in 29 sessions during the SG 13 meeting in Geneva (14 – 25 October 2019) under the chairmanship of Gyu Myoung LEE (Korea (Rep. of)). The group adopted the agenda in **TD 304 (WP3/13)**.

The objectives for this meeting were:

–   To request approval of draft Y.3800;

–   To review the progress of on-going draft Recommendations (Y.QKDN_KM, Y.QKDN_Arch, Y.QKDN_CM, Y.QKDN_SDNC, Y.dv-ess, Y.energy-brokerage, Y.trust-arch, Y.trust-pdm);

–   To review new work items;

–   To discuss other items including liaisons.

Question 16/13 discussed 27 contributions and incoming Liaison Statements. Q16/13 has made improvement of draft Y.3800 for requesting approval to the SG13 meeting. Further details are available in clause 4.1. Q16/13 has decided to start the development of 3 new draft Recommendations and produced 16 output documents including the meeting report.

The main results of the meeting are the following:

–   The draft Recommendation ITU-T Y.3800 (Y.QKDN_FR) for approval (**TD 315/WP3**), Framework for Networks supporting Quantum Key Distribution;

–   The updated draft Recommendation ITU-T Y.QKDN_KM (**TD 316/WP3**), Key management for Quantum Key Distribution network;

–   The updated draft Recommendation ITU-T Y.QKDN_Arch (**TD 317/WP3**), Functional architecture of the Quantum Key Distribution network;

–   The updated draft Recommendation ITU-T Y.QKDN_CM (**TD 318/WP3**), Control and Management for Quantum Key Distribution Networks (QKDN-CM);

– The updated draft Recommendation ITU-T Y.QKDN_SDNC (**TD 319/WP3**), Software Defined Network Control for Quantum Key Distribution Networks;

– The updated draft Recommendation ITU-T Y.dv-ess (**TD 320/WP3**), Framework of distributed virtualized energy storage systems;

– The updated draft Recommendation ITU-T Y.energy-brokerage (**TD 321/WP3**), Framework of trusted electricity brokerage for distributed energy resources;

– The updated draft Recommendation ITU-T Y.trust-arch (**TD 322/WP3**), Functional architecture for trust enabled service provisioning;

– The updated draft Recommendation ITU-T Y.trust-pdm (**TD 323/WP3**), Framework for Trust based Personal Data Management Platform;

– The initial draft Recommendation ITU-T Y.QKDN_BM (**TD 324/WP3**), Business role-based models in Quantum Key Distribution Network;

– The initial draft Recommendation ITU-T Y.OBF_trust (**TD 325/WP3**), Open Bootstrap Framework enabling trustworthy networking and services for distributed diverse ecosystem;

– The initial draft Recommendation ITU-T Y.QKDN-req (**TD 342/WP3**), Functional Requirements for Quantum Key Distribution Network;

– Outgoing LS (**TD 326/WP3**), LS/o on work progress on Quantum Key Distribution (QKD) network in SG13 (as of October 2019) [from ITU-T SG13];

– Outgoing LS (**TD 327/WP3**), LS/o/r on the co-located meetings between Q4/17 and Q16/13 for Quantum-based security work items (reply to SG17-LS193) [from ITU-T SG13];

– Outgoing LS (**TD 328/WP3**), LS/o/r on harmonization of term and definition of 'key' related to quantum-based security used in ITU-T SG17 and SG13 (reply to SG17-LS197) [from ITU-T SG13];

– Q16/13 meeting report (**TD 329/WP3**).

2. Results

2.1 Recommendations for Approval under TAP

No Recommendations were considered under TAP approval at this meeting.

2.2 Recommendations proposed for Consent in accordance with Rec. A.8.

No Recommendations were proposed by Q16/13 for Consent by SG 13.

2.3 Other documents for Approval

The following Recommendation was proposed by Q16/13 for Approval by SG 13:

Description	Documents	Question
Draft Recommendation ITU-T Y.3800 (Y.QKDN_FR), "Framework for Networks to supporting Quantum Key Distribution"	TD 315/WP3	Q16/13

3. Outgoing liaison statements

The following is a summary of the outgoing Liaison Statements prepared by Q16/13.

Title	Destination	Purpose	Document	Source
LS/o on work progress on Quantum Key Distribution (QKD) network in SG13 (as of October 2019) [from ITU-T SG13]	ITU-T SG2, ITU-T SG11, ITU-T SG17, FG-QIT4N, ETSI ISG-QKD, ISO/IEC JTC1/SC27	Information	TD 326/WP3	Q16/13 Rapporteur
LS/o/r on the co-located meetings between Q4/17 and Q16/13 for Quantum-based security work items (reply to SG17-LS193) [from ITU-T SG13]	ITU-T SG17, TSAG, FG-QIT4N	Action	TD 327/WP3	Q16/13 Rapporteur
LS/o/r on harmonization of term and definition of 'key' related to quantum-based security used in ITU-T SG17 and SG13 (reply to SG17-LS197) [from ITU-T SG13]	ITU-T SG17, SCV, FG-QIT4N	Information	TD 328/WP3	Q16/13 Rapporteur

4. Discussions

4.1 Draft Y.3800 (Quantum Key Distribution Network - Framework)

C-835	KT Corporation	Y.3800: Supporting the approval	Q16/13

- KT Corp., Telecom Service Provider, would like to support the continuation of QKDN studies in the SG13 and ITU-T space and in particular, as a first step for approval of a fundamental Recommendation in these studies, Y.3800 "Framework for Networks supporting Quantum Key Distribution", at October meeting in a form it was proposed in AR text (TD 287/WP3).

C-825	Huawei Technologies Co., Ltd.	Draft new Recommendation ITU-T Y.3800 (formerly Y.QKDN_FR): "Framework for Networks supporting Quantum Key Distribution"	Q16/13

- This document contains the draft new Recommendation ITU-T Y.3800 (formerly Y.QKDN_FR): "Framework for Networks supporting Quantum Key Distribution". It is proposed not to accept the the document as a generic overview of the approaches on enhancing the security of communication networks by employing QKD.

C-775	Korea (Rep. of)	Support the continuation of QKDN studies and approve Y.3800	Q16/13

- Republic of Korea would like to support the continuation of QKDN studies in the SG13 and ITU-T by asking to approve Y.3800 at October meeting in a form it was proposed in AR text.

TD 308/WP3: WP3/13 co-chairman proposal for AAP Recommendation Y.3800 (Y.QKDN_FR): "Framework for Networks supporting Quantum Key Distribution"

TD 307/WP3: Y.3800 - AR comments resolution

Meeting Result

– At the first week, the meeting shared the status of draft Y.3800 AAP LC and AR and reviewed C-825. An informal meeting to discuss C-825 was held on 18 October 2019.

– On 21 October 2019, the meeting adopted the agenda in TD 310/WP3 and continued the discussion for further improvement until 22 October 2019.

– The meeting progressed the document successfully with main stakeholders (the main editor, UK, Canada, Huawei, Orange and QuantumCTek, etc.) on 22 October 2019. The result of this meeting is available as TD 315/WP3 for a decision at the SG13 closing plenary meeting.

4.2 Y.QKDN_KM (Quantum Key Distribution Network – Key Management)

Base document: TD 282/WP3

C-774R1	National Institute of Information and Communications Technology (NICT); NEC Corporation; Toshiba Corporation	Proposed modifications to the draft Recommendation ITU-T Y.QKDN_KM: "Key management for Quantum Key Distribution Network"	Q16/13

- This contribution proposes the updated draft Recommendation Y.QKDN_KM "Key management for Quantum Key Distribution Network".

Meeting Result

– The meeting agreed to accept the proposed modifications from C-774R1.

These are several open issues identified at the Q16/13 meeting. Contributions are invited on these open issues below to the next meeting.

– To harmonize and avoid duplications this document with Y.QKDN_Arch and Y.QKDN_CM on functional elements and procedures.

– To be check the alignment between clause 8, 9 and 11 on metadata.

– To consider the structure of this document to include sub-clause under clause 7 requirements.

4.3 Y.QKDN_Arch (Quantum Key Distribution Network – Functional Architecture)

Base document: TD 283/WP3

C-829	CAS Quantum Network Co. Ltd., QuantumCTek Co., Ltd.	Proposed modifications to the draft Recommendation Y.QKDN_Arch "Functional Architecture of the Quantum Key Distribution Network"	Q16/13

- This contribution proposed to clarify the solutions to the design consideration of Y.3800 in the draft Recommendation Y.QKDN_Arch and to revise the QKDN functional architecture to include new functional elements.

C-773	National Institute of Information and Communications Technology (NICT); NEC Corporation; Toshiba Corporation	Proposed modifications to the draft Recommendation Y.QKDN_Arch "Functional Architecture of the Quantum Key Distribution Network"	Q16/13

- This contribution proposes the functional architecture model and configurations of QKD network in the draft Recommendation ITU-T Y.QKDN_Arch: "Functional Architecture of the Quantum Key Distribution Network" (SG13-TD283/WP3).

C-767	Beijing University of Posts and Telecommunications, CAS Quantum Network Co. Ltd., Ministry of Industry and Information Technology (MIIT)	Proposal of northbound interface and service provisioning procedure for QKDN control layer on Draft Recommendation Y.QKDN_Arch	Q16/13

- This contribution proposes a northbound interface between Network application layer and QKDN control layer for QKDN functional architecture, add a resource allocation function module in QKDN control layer, and provide a new optional service provisioning procedure to make QKDN more flexible and efficient.

C-765	Beijing University of Posts and Telecommunications, CAS Quantum Network Co. Ltd., Ministry of Industry and Information Technology (MIIT)	Proposal of overall operation procedure for QKDN on Draft Recommendation Y.QKDN-Arch	Q16/13

- This contribution proposes the overall procedure of service provisioning for recommendation Y.QKDN_Arch. The proposed overall procedure intends to clearly show the relationship between each operation mode in QKDN.

C-671	CAS Quantum Network Co. Ltd., Ministry of Industry and Information Technology (MIIT), QuantumCTek Co., Ltd.	Synchronization function in QKDN_Arch	Q16/13

- This contribution proposes to add synchronization function and specification in the working item of QKDN_Arch.

Meeting Result

Based on the agreement of the meeting, changes are made as follows:

- A new clause 8 is introduced to reflect the design principles from C-829.
- A new diagram of QKDN functional architecture model is updated to harmonize the different proposals in this meeting.
- The relevant functional elements and reference points description is revised correspondingly.

4.4 Y.QKDN_CM (Quantum Key Distribution Network – Control and Management)

Base document: TD 284/WP3

C-782	KT Corporation, ETRI	Y.QKDN-CM: descriptions of the multi-layer/external management function for "Control and Management for Quantum Key Distribution Network"	Q16/13

- This contribution proposes to add descriptions of the multi-layer/external management orchestration function for "Control and Management for Quantum Key Distribution network".

C-781	KT Corporation, ETRI	Y.QKDN-CM: description of control layer management function for "Control and Management for Quantum Key Distribution Network"	Q16/13

- This contribution proposes control layer management function for "Control and Management for Quantum Key Distribution network".

C-780	KT Corporation, ETRI	Y.QKDN-CM: description of the key management layer management function for "Control and Management for Quantum Key Distribution Network"	Q16/13

- This contribution proposes key management layer management function for "Control and Management for Quantum Key Distribution network".

| C-779 | KT Corporation, ETRI | Y.QKDN-CM: descriptions of quantum layer management function for "Control and Management for Quantum Key Distribution Network" | Q16/13 |

- This contribution proposes to add descriptions of the quantum layer management function for "Control and Management for Quantum Key Distribution network".

| C-778 | KT Corporation, ETRI | Y.QKDN-CM: revised description of the high-level functional architecture for "Control and Management for Quantum Key Distribution Network" | Q16/13 |

- This contribution proposes revised description of high-level functional architecture for "Control and Management for Quantum Key Distribution network".

| C-777 | KT Corporation, ETRI | Y.QKDN-CM: Additional functional requirements for "Control and Management for Quantum Key Distribution Network" | Q16/13 |

- This contribution proposes additional functional requirements for "Control and Management for Quantum Key Distribution network".

| C-766 | Beijing University of Posts and Telecommunications, CAS Quantum Network Co. Ltd., Ministry of Industry and Information Technology (MIIT) | Proposal of multi-layer orchestration management functionality for QKDN on Draft Recommendation Y.QKDN_CM | Q16/13 |

- This contribution proposes the inter-layer management orchestration functionality for recommendation Y.QKDN_CM. The proposed orchestration intends to clarify the interaction between quantum layer management, key management layer management and control layer management from the perspective of basic network functions.

Meeting Result

– The meeting agreed to accept proposals made by the following contributions, C-766, C-777, C-39, C-778, C-779, C-780, C-781, C-782, C-45 with some and minor editorial revisions based on the intensive discussions during the meeting.

4.5   Y.QKDN_SDNC (Quantum Key Distribution Network – Software Defined Network Control)

Base document: TD 285/WP3

| C-769 | Beijing University of Posts and Telecommunications, CAS Quantum Network Co. Ltd., Ministry of Industry and Information Technology (MIIT) (China) | Proposed modifications to the draft Recommendation ITU-T Y. QKDN_SDNC "Software Defined Network Control for Quantum Key Distribution Networks" | Q16/13 |

- This contribution proposes modifications to the draft Recommendation ITU-T Y. QKDN_SDNC "Software Defined Network Control for Quantum Key Distribution Networks" (TD271/WP3).

Meeting Result

Based on the discussion of the meeting, changes are made as follows:

– The meeting discussed several high-level issues, and agreed to add some notes in the corresponding parts.

4.6 Y.dv-ess (Energy storage system)

Base document: TD 265/WP3

| C-745 | ETRI | Proposal for updating the description of architecture overview in Y.dv-ess | Q16/13 |

- This contribution provides the revised text for a general architectural model of virtualized energy storage systems in Clause 8.1 of Y.dv-ess based on TD265/WP3. In this contribution, contributors intend to revise Clause 8.1 according to the proposed modifications.

Meeting Result

– The meeting agreed to accept the revised text in Clause 8.1.

4.7 Y.energy-brokerage (Trusted electricity brokerage)

Base document: TD 266/WP3

| C-748 | ETRI | Proposal for updating the description of trusted electricity brokerage in Y.energy-brokerage | Q16/13 |

- This contribution provides an updated description of trusted electricity brokerage in Clause 6.1 of Y.energy-brokerage based on TD266/WP3. In this contribution, contributors intend to revise Clause 6.1 according to the proposed modifications.

Meeting Result

– The meeting agreed to accept the proposed text in Clause 6.1.

4.8 Y.trust-index (Trust index)

Base document: TD 267/WP3

No contribution.

4.9 Y.trust-arch (Trust functional architecture)

Base document: TD 268/WP3

C-754	Korea (Rep. of)	Proposal for new text of reference point and procedure for trust enabled service provisioning of Y.trust-arch	Q16/13

- This contribution proposes adding a new next about reference point and procedure for trust enabled service provisioning in clause 9 and 10.

Meeting Result

– The meeting agreed to accept the proposed text and diagram with minor editorial modification.

4.10 Y.trust-pdm (Trust-based personal data management)

Base document: TD 286/WP3

C-816	KAIST	Y.trust-pdm: proposal for revising contents of clause 9 ("framework architecture")	Q16/13

- This contribution proposes the revised figure and texts for clause 9 ("Architecture for trust based personal data management platform") of Y.trust-pdm based on the latest output document.

C-815	KAIST	Y.trust-pdm: proposal for revising contents of clause 7 ("considerations")	Q16/13

- This contribution proposes the revised figure and texts for clause 7 ("Considerations") of Y.trust-pdm.

C-814	KAIST	Y.trust-pdm: proposal for revising contents of clause 6 ("overview")	Q16/13

- This contribution proposes the revised figure and texts for clause 6 ("Overview") of Y.trust-pdm.

Meeting Result

– From C-814, C-815 and C-816, the meeting agreed to accept the proposed text and figure with minor editorial modification.

4.11 Y.PII-Did (Personally Identifiable Information - De-Identification)

Base document: TD 270/WP3

No contribution.

4.12 Y.SNS-trust (Trust in Social Networking Services)

Base document: TD 231/WP3

No contribution.

4.13 Socio-technical recommendations (Y.STR)

Base document: TD 164/WP3

No contribution.

4.14 New work items

(1) General aspects of QoS on QKDN

C-834	KT Corporation, ETRI	Initiating a new work item on "General Aspects of QoS (Quality of Service) on the Quantum Key Distribution Network"	Q6/13, Q16/13

- This contribution proposes a new work item on "General Aspects of QoS on the Quantum Key Distribution network" for the consideration by WP1 & 3. It is intended to describe QoS aspects for QKD network in SG13.

Meeting Result

– The meeting reviewed the contribution and clarified various points for better understating of QoS related aspects on QKDN.

– As Q6/13 is responsible of initiating this work as the lead group on QoS in SG13, Q16/13 hasn't taken any actions and will follow up the progress of Q6/13 on this topic.

(2) Business role-based model in QKDN

C-813	KAIST, KT Corporation	New: proposed a new work item for business role-based model in QKD network	Q16/13

- This contribution proposes a new work item for business role-based models in quantum key distribution networks (QKDN).

Meeting Result

– From C-813, the meeting decided to propose this initial draft Recommendation titled "Business role-based models in Quantum Key Distribution Network" (Y.QKDN_BM) as a new work item to the plenary meeting. (See Annex A for A.1 Justification)

– Some concerns raised regarding potential contributors for this new work item since this document deals with 'business aspects' which would not be opened to the public. The depth of contents will be discussed in further meetings to develop this document.

(3) Requirements for QoS assurance of QKDN

C-784	KT Corporation, ETRI	New: Initiating a new work item on "Requirements for QoS Assurance of the Quantum Key Distribution Network"	Q6/13, Q16/13

- This contribution proposes a new work item on "Requirements for QoS Assurance of the Quantum Key Distribution network" for the consideration by WP3. It is intended to describe QoS Assurance requirements for QKD network in SG13.

Meeting Result

– The meeting reviewed the contribution and clarified various points for better understating of requirements for QoS assurance on QKDN.

– As Q6/13 is responsible of initiating this work as the lead group on QoS in SG13, Q16/13 hasn't taken any actions and will follow up the progress of Q6/13 on this topic.

(4) Open Bootstrap Framework

C-789	India	Proposal for initiating a new work item on "Open Bootstrap Framework enabling trustworthy networking and services for distributed diverse ecosystems"	Q16/13

- This contribution proposes to initiate new work item on "Open Bootstrap Framework" that will satisfy all present and future trust requirements of network and devices belonging to diverse ecosystem and is also independent of both network technology and mobile network operator. This proposal aims to be an enabler for the harmonisation of a trust framework for ITU, 3GPP and One M2M and non 3GPP networks/ technologies.

Meeting Result

– From C-789, based on the meeting discussion and several drafting sessions, the meeting decided to propose this initial draft Recommendation titled "Open Bootstrap Framework enabling trustworthy networking and services for distributed diverse ecosystems" (Y.OBF_trust) as a new work item to the plenary meeting. (See Annex B for A.1 Justification)

(5) QKDN requirements

C-783R1	KT Corporation, ETRI	Y.QKDN-CM: Splitting Y.QKDN-CM into two draft Recommendations: Y.QKDN-func-req and Y.QKDN-CM-fa"	Q16/13

- This contribution proposes to split Y.QKDN-CM into two draft Recommendations: Y.QKDN-func-req (Functional Requirements for QKDN Architecture, Control, Key Management, and Network Management) and Y.QKDN-CM-fa (Functional Architecture for QKDN Control and Management).

Meeting Result
– From C-783R1, the meeting decided to propose this initial draft Recommendation titled "Functional Requirements for the Quantum Key Distribution Network" (Y.QKDN-req) as a new work item to the plenary meeting. (See Annex C for A.1 Justification)

4.15 NSP discussion

– The meeting discussed potential work items of Q16/13 in the next study period and agreed to continue related activities on trust and QKDN. For considering long term activities, the meeting has agreed to consider "quantum enhanced networks and services" in the Question title.
– The Rapporteur conveyed this meeting result to the SG13 NSP adhoc session held on 21 October 2019. Q16/13 needs to prepare the draft revision of the question text for further consideration.

4.16 Incoming liaisons, and others

Other contributions

QALL/13

C-736	China Telecommunications Corporation	Propose to continue the research for Network 2030 in SG13 for the next study period and update the ToR of Q2/13	Q16/13

- This contribution proposes to continue the research for Network 2030 in SG13 for the next study period. It will provide the general goal and objectives of this topic related to network 2030, and this contribution proposes some relevant questions.

C-735R1	China Mobile Communications Corporation, Huawei Technologies Co., Ltd., Institute of Acoustics of the Chinese Academy of Sciences	Proposal for initiating a new question on Computing aware network based on computing and network convergence	Q16/13

- This contribution introduces the convergence of computing and network and the challenges arising, puts forwards the necessities of research on computing aware network with great network efficiency, intelligence and user experience, and proposes to initial a new question on "Computing aware network based on computing and network convergence".

C-731R1	China Mobile Communications Corporation, Huawei Technologies Co., Ltd.	Proposal for initiating a new question on Large-scale Deterministic Network Network requirements and functional architecture in study period 2021-2024	Q16/13

- This contribution proposes to initiate a new question on "Large-scale Deterministic Network: Network requirements and functional architecture" in study period 2021-2024 of SG13, and focuses on the study of the requirements, capabilities, architecture and key technologies to realize the Large-scale Deterministic Network. And the ecosystem from business models and use cases should be promoted to build and realize the better cooperation with operators and customers.

C-833	Huawei, China Telecom, Verizon, Rostelecom, SK Telecom	Proposal for extension of a Focus Group on Technologies for Network 2030 (FG-NET2030) operation	Q16/13

- This contribution requests the extension of the Focus Group on Network 2030 lifetime, with the rationale to complete the work assumed by FG-NET-2030.

C-668R1	Mali , Société des Télécommunications du Mali (SOTELMA)	The Impact of the Internet of Connected Objects in Developing Countries Like Mali	Q16/13

- The problem of coverage does not arise if there is regulation and standardization. For that, certain measures and norms must be adopted in order to allow the popularization and apprehension of these tools.

| C-667 | Benin | Some elements to furnish the development on use cases and migration aspects of IMT-2020. | Q16/13 |

- • The purpose of this new contribution is to provide material for the work to be done on raising awareness of IMT-2020, focusing on use cases and aspects of IMT-2020 migration.

Meeting Result

– The meeting hasn't discussed the above documents due to lack of time.

Incoming liaisons

Q16/13 and others

297-WP3	ITU-T SG17	LS/i on work progress on quantum-based security in SG17 [from ITU-T SG17]	Q16/13
296-WP3	ITU-T SG17	LS/i on the co-located meetings between Q4/17 and Q16/13 for Quantum-based security work items [from ITU-T SG17]	Q16/13
295-WP3	ITU-T SG17	LS/i on harmonization of term and definition of 'key' related to quantum-based security used in ITU-T SG17 and SG13 [from ITU-T SG17]	Q16/13
372-GEN	ISO/IEC JTC1/SC27/WG4	LS/i on 28th meeting resolutions [from ISO/IEC JTC1/SC27/WG4]	Q19/13, Q18/13, Q17/13, Q16/13

Meeting Result

– The meeting has prepared outgoing liaison statements for 297-WP3, 296-WP3 and 295-WP3.

QALL/13

367-GEN	ITU-T SG15	LS/i on OTNT Standardization Work Plan [from ITU-T SG15]	QALL/13
365-GEN	TSAG	LS/i on results of FG-DLT [from TSAG]	QALL/13
364-GEN	TSAG	LS/i on New IP, Shaping Future Network [from TSAG]	QALL/13
363-GEN	FG DLT	LS/i on final FG DLT deliverables [from FG DLT]	QALL/13

362-GEN	SCV	LS/i on approval of new terms and definitions [from SCV]	QALL/13
361-GEN	SCV	LS/i on the definition of broadband access [from SCV]	QALL/13
360-GEN	FG-VM	LS/i on the call for proposals for an internationally agreed Vehicular Multimedia Architecture [from FG-VM]	QALL/13
359-GEN	FG-DPM	LS/i on deliverables of ITU-T Focus Group on Data Processing and Management to support IoT and Smart Cities & Communities (FG-DPM), July 2019 [from FG-DPM]	QALL/13
358-GEN	ITU-T SG15	LS/i on the new version of the Home Network Transport (HNT) Standards Overview and Work Plan [from ITU-T SG15]	QALL/13
357-GEN	ITU-T SG15	LS/i on the new version of the Access Network Transport (ANT) Standards Overview and Work Plan [from ITU-T SG15]	QALL/13
353-GEN	ITU-T SG9	LS/r on hot topics (TSAG-LS16) [to TSAG and all ITU-T SGs] [from ITU-T SG9]	QALL/13
352-GEN	ITU-T SG9	LS/r on reference table to be used for Conformance and Interoperability testing (SG11-LS82) [to ITU-T SG11 and all ITU-T SGs] [from ITU-T SG9]	QALL/13
351-GEN	ITU-T SG5	LS/i on Establishment of new ITU-T Focus Group on Environmental Efficiency for Artificial Intelligence and other Emerging Technologies (FG-AI4EE) [from ITU-T SG5]	QALL/13

Others – None.

354-GEN	ITU-R	Draft new report "Artificial intelligence systems for programme production and exchange"	QALL/13

Meeting Result

– The meeting has reviewed the above documents. It was a good chance to introduce several related activities of other groups.

– There was no action for the above documents.

5. Work programme

The meeting agreed to start work on the following new work items:

– Y.QKDN_BM "Business role-based models in Quantum Key Distribution Network";

– Y.OBF_trust "Open Bootstrap Framework enabling trustworthy networking and services for distributed diverse ecosystem";

– Y.QKDN-req "Functional Requirements for the Quantum Key Distribution Network".

NOTE - A.1 justifications for new recommendations related to these work items are attached in Annexes.

The currently on-going work items for Q16/13 are as follows:

Acronym	Title	Editor	Priority	Consent / Approval	Reference
ITU-T Y.dv-ess	Framework of distributed and virtualized energy storage systems (New.)	Taein Hwang (tihwang@etri.re.kr), Il Woo Lee (ilwoo@etri.re.kr)	High	Jul. 2020	TD 320/WP3
ITU-T Y.trust-index	Trust index for ICT infrastructures and services (New.)	Hyeontaek Oh (hyeontaek@kaist.ac.kr), Jun Kyun Choi (jkchoi59@kaist.edu)	Medium	Jul. 2021	TD 267/WP3
ITU-T Y.STR	Socio-technical recommendations for contributing to socio-economic awareness (New)	Viliam Sarian (sarian@niir.ru)	Medium	Jul. 2021	TD 164/WP3
ITU-T Y.trust-arch	Functional architecture for trust enabled service provisioning (New.)	Hoan Suk Choi, Korea (Republic of), hkrock7904@gmail.com Woo Seop Rhee, Korea (Republic of), wsrhee@hanbat.ac.kr	Medium	Jul. 2020	TD 322/WP3
ITU-T Y.QKDN_FR	Framework for Networks to supporting Quantum Key Distribution (New.)	Hyungsoo KIM, KT corp., hans9@kt.com Kaoru Kenyoshi, NICT, kaoru.kenyoshi@nict.go.jp	High	Oct. 2019	TD 315/WP3
ITU-T Y.SNS-trust	Framework for Evaluation of Trust and Quality of Media in Social Networking Services (New.)	Namkyung Lee, ETRI (nklee@etri.re.kr)	Medium	Jul. 2021	TD 231/WP3
ITU-T Y.trust-pdm	Framework for Trust based Personal Data Management Platform (New.)	Hyeontaek Oh, KAIST, hyeontaek@kaist.ac.kr Nakyoung Kim, KAIST, nkim71@kaist.ac.kr Jinhong Yang, Inje University/KAIST, sunupnet@kaist.ac.kr	High	Jul. 2020	TD 323/WP3

Acronym	Title	Editor	Priority	Consent / Approval	Reference
ITU-T Y.QKDN_Arch	Functional architecture of the Quantum Key Distribution network (New.)	Zhangchao Ma, CAS Quantum Network Co., Ltd., mazhangchao@casquantumnet.com	High	Jul. 2020	TD 317/WP3
ITU-T Y.QKDN_KM	Key management for Quantum Key Distribution network (New.)	Kaoru Kenyoshi, NICT, kaoru.kenyoshi@nict.go.jp	High	Jul. 2020	TD 316/WP3
ITU-T Y.PII-Did	Prioritization based De-Identification Methods for Personally Identifiable Information (New.)	Yang, Jinhong KAIST, jinhong@inje.ac.kr Onik, Md Mehedi Hassan KAIST, hassan@oasis.inje.ac.kr Kim, Chul-Soo, ETRI charles@inje.ac.kr	High	Jul. 2020	TD 270/WP3
ITU-T Y.energy-brokerage	Framework of trusted electricity brokerage for distributed energy resources (New.)	Taein Hwang ETRI, tihwang@etri.re.kr, Il Woo Lee ETRI ilwoo@etri.re.kr	Low	Sep. 2021	TD 321/WP3
ITU-T Y.QKDN_SDNC	Software Defined Network Control for Quantum Key Distribution Networks (New.)	Yongli Zhao, Zhangchao Ma and Junsen Lai	Low	Sep. 2021	TD 319/WP3
ITU-T Y.QKDN_CM	Control and Management for Quantum Key Distribution Networks (QKDN-CM) (New.)	Hans Kim, hans9@kt.com, Taesang Choi, ETRI., choits@etri.re.kr, Jaehwan Jin, LGU+	Low	Mar. 2021	TD 318/WP3
ITU-T Y.QKDN_BM	Business role-based models in Quantum Key Distribution Network (New.)	Hyungsoo (Hans) Kim, KT, hans9@kt.com Hyeontaek Oh, KAIST, hyeontaek@kaist.ac.kr	High	Jul. 2020	TD 324/WP3
ITU-T Y.OBF_trust	Open Bootstrap Framework enabling trustworthy networking and services for distributed diverse ecosystem (New.)	Abhay Shanker Verma, as.verma@gov.in Ranjana Sivaram, ranjana.sivaram@gov.in Sharad Arora, sharad.arora@sensorise.net	High	Jul. 2020	TD 325/WP3
ITU-T Y.QKDN-req	Functional Requirements for the Quantum Key Distribution Network (New.)	Hyungsoo Kim, KT corp., hans9@kt.com, Taesang Choi, ETRI., choits@etri.re.kr, Kaoru Kenyoshi, NICT, kaoru.kenyoshi@nict.go.jp, Zhangchao Ma, CAS QN, mazhangchao@casquantumnet.com	High	Jul. 2020	TD 342/WP3

NOTE – Q16/13 has <u>living list items</u> on the following work items:

– Trust framework of trustworthy device selection for data transmission (**TD 479 (WP3/13)**);

– Trust based ICT service and business models (**TD 480 (WP3/13)**).

However, there were no relevant contributions the above existing living lists in this meeting.

6. Future meetings

The following is a summary of the upcoming meetings proposed by Q16/13.

Dates	Place	Host	Q	Objectives
TBD	TBD	TBD	16/13	– Q16/13 will deal with 15 draft recommendations (Y.dv-ess, Y.trust-index, Y.STR, Y.trust-arch, Y.SNS-trust, Y.trust-pdm, Y.QKDN_Arch, Y.QKDN_KM, Y.PII-Did, Y.energy-brokerage, Y.QKDN_SDNC, Y.QKDN_CM, Y.QKDN-BM, Y.QKDN-req, Y.OBF-trust), the current living list items of Q16/13, but are not limited to.
2 – 13 March 2020	Geneva	ITU-T	16/13	– Q16/13 will deal with 15 draft recommendations (Y.dv-ess, Y.trust-index, Y.STR, Y.trust-arch, Y.SNS-trust, Y.trust-pdm, Y.QKDN_Arch, Y.QKDN_KM, Y.PII-Did, Y.energy-brokerage, Y.QKDN_SDNC, Y.QKDN_CM, Y.QKDN-BM, Y.QKDN-req, Y.OBF-trust), the current living list items of Q16/13, but are not limited to.

7. Closure

The Q16/13 Rapporteur thanked the delegates for their participation in the ad-hoc group activities to progress the work, and particularly the TSB SG 13 Secretariat and contributors for their support and active involvement during this meeting.

Annex A:
A.1 justification for proposed draft new Recommendation: Y.QKDN_BM

Question:	16/13	**Proposed new ITU-T Recommendation**	Geneva, Switzerland, 14–25 October 2019	
Reference and title:	ITU-T Y.QKDN_BM "Business role-based models in Quantum Key Distribution Network"			
Base text:	C-813		**Timing:**	2020-07
Editor(s):	Hyungsoo (Hans) Kim, KT, hans9@kt.com Hyeontaek Oh, KAIST, hyeontaek@kaist.ac.kr		**Approval process:**	AAP

Scope (defines the intent or object of the Recommendation and the aspects covered, thereby indicating the limits of its applicability):

This draft Recommendation describes business roles, business role-based models, and service scenarios in Quantum Key Distribution Network (QKDN) from different deployment and operation perspectives. Especially, this draft Recommendation identifies various business models that require secure communications with QKDN and existing user networks as follows:

– general QKDN applications;

– financial sector;

– healthcare sector;

– transportation sector;

– etc.

This draft Recommendation can be used as a guideline for design of service scenarios that utilize QKDN from business point of views as well as for deployment and operation of QKDN from telecom operators' point of views.

NOTE – This draft Recommendation does not identify, in an exhaustive manner, all business roles, business role-based models, and service scenarios of QKDN.

Summary (provides a brief overview of the purpose and contents of the Recommendation, thus permitting readers to judge its usefulness for their work):

Draft Recommendation ITU-T Y.QKDN_BM describes business roles, business role-based models, and service scenarios in Quantum Key Distribution Network (QKDN) from different deployment and operation perspectives with existing user networks for supporting secure communications in various application sectors.

This draft Recommendation can be used as a guideline for applying QKDN from business point of views as well as for deployment and operation of QKDN from telecom operators' point of views.

Relations to ITU-T Recommendations or to other standards (approved or under development):

ITU-T Y.3800, ITU-T Y.QKDN_Arch, Y.QKDN_KM, Y.QKDN-CM, Y.QKDN_SDNC

ITU-T TR.sec-qkd, X.sec-QKDN-ov

ETSI GS QKD 002

Liaisons with other study groups or with other standards bodies:

ITU-T SG17, ITU-T FG-QIT4N, ETSI ISG QKD, ISO/IEC JTC1 SC7 WG3, IETF/IRTF

Supporting members that are committing to contributing actively to the work item:

KT, KAIST, CASQuantum Network. QuantumCTek, ETRI, Korea (Rep.of)

Annex B:
A.1 justification for proposed draft new Recommendation: Y.OBT_trust

Question:	16/13	**Proposed new ITU-T Recommendation**		Geneva, Switzerland 14–25 October, 2019	
Reference and title:	ITU-T Y.OBF_trust "Open Bootstrap Framework enabling trustful devices, applications and services for distributed diverse ecosystems"				
Base text:	C-0789		**Timing:**		2020-07
Editor(s):	Abhay Shanker Verma, as.verma@gov.in Ranjana Sivaram, ranjana.sivaram@gov.in Sharad Arora, sharad.arora@sensorise.net		**Approval process:**		AAP

Scope (defines the intent or object of the Recommendation and the aspects covered, thereby indicating the limits of its applicability):

This draft Recommendation specifies an Open Bootstrap Framework that allows the Registration, Authentication and Authorisation between Devices (including Constrained Devices), Connected Services, Service Providers and Applications.

The scope of this draft Recommendation includes
- A Concept that extends the use of embedded Secure Elements and Keys, originally intended for Operator Services, to be used for creating secure associations for Applications provided by Third Party Service Providers
- An Open Bootstrap Framework with definitions of Nodes and Reference Points
- A set of functions, mechanisms and workflows for securitising the interactions between the stakeholders in the physical world and the services in the cyber space

Summary (provides a brief overview of the purpose and contents of the Recommendation, thus permitting readers to judge its usefulness for their work):

Draft Recommendation ITU-T Y.OBF_trust describes an Open Bootstrap Framework (OBF), which includes an OBF Client, an OBF Authentication Server, an OBF Resource Server and four Reference Points. It unfolds a bootstrapping architecture and a description of the OBF elements, reference points, mechanisms and workflows for the mutual authentication between Connected Devices, Applications and Service Providers.

The objective of the OBF is to provide security bootstrapping to devices for the purpose of extending trustful services to any Application/ Service Provider by re-using the Secure Element and trustful networking capabilities of the network technology layer.

The Recommendation is relevant to Network Operators, M2M Service Providers and Applications/ Services Providers for deployment of secure services in the emerging 5G/ Smart Cities/ IoT Application/ Services domain.

Relations to ITU-T Recommendations or to other standards (approved or under development):

ITU-T X.1113, ITU-T X.1158, ITU-T Y.2724, ITU-T Y.3052

Liaisons with other study groups or with other standards bodies:

ITU-T SG 17, ITU-T SG 20, ETSI TC Cyber

Supporting members that are committing to contributing actively to the work item:

India, Tunisie Télécom

Annex C:
A.1 justification for proposed draft new Recommendation: Y.QKDN-req

Question:	6/13	**Proposed new ITU-T Recommendation**	**Geneva, 14–25 October, 2019**	
Reference and title:		Recommendation ITU-T Y.QKDN-req: Functional requirements for quantum key distribution network		
Base text:	Annex II		**Timing:**	7-2020
Editor(s):	Hyungsoo Kim, KT corp., hans9@kt.com, Taesang Choi, ETRI., choits@etri.re.kr, Kaoru Kenyoshi, NICT, kaoru.kenyoshi@nict.go.jp, Zhangchao Ma, CAS QN, mazhangchao@casquantumnet.com		**Approval process:**	AAP

Scope (defines the intent or object of the Recommendation and the aspects covered, thereby indicating the limits of its applicability):

This Recommendation is to specify functional requirements for Quantum Key Distribution network as follows:

- Functional requirements for capabilities of quantum/key management/QKDN control and management layers and other capabilities for QKDN

This Recommendation refers to draft Y.3800 as high level requirements of QKDN.

Summary

This Recommendation specifies functional requirements for capabilities of quantum/key management/QKDN control and management layer as well as any capabilities (e.g., reference points) of functional architecture of QKDN.

Relations to ITU-T Recommendations or to other standards (approved or under development):

Draft Y.3800(formerly Y.QKDN-FR), Y.QKDN-Arch, Y.QKDN-KM, Y.QKDN-CM, and Y.QKDN-SDNC

Liaisons with other study groups or with other standards bodies:

ETSI ISG QKD, ITU-T SG17, ITU-T FG-QIT4N

Supporting members that are committing to contributing actively to the work item:

<Member States, Sector Members, Associates, Academia>

KT corp., ETRI, KAIST, NICT, CAS Quantum Network Co., Ltd., Quantum CTek Co. Ltd.

Annex D:
Summary of Q16/13 meeting activities

Date	Morning		Afternoon	
14 Oct(Mon)	**SG13 PLEN**	**SG13 PLEN**	**WP3 PLEN**	**Introduction^R, Y.trust-pdm**
15 Oct(Tue)	**Y.QKDN_SDNC ^R (09:00~)**	**LSs on QKDN**	**Y.3800^R (13:00~)**	**Y.QKDN_KM^R**
16 Oct(Wed)	**Y.QKDN_Arch^R (09:00~)**	**Y.QKDN_Arch^R**	**Y.QKDN_Arch^R (14:00~)**	**New work item^R (1), (2), (3) on QKDN**
17 Oct(Thu)	**Y.QKDN_CM^R (09:00~)**	**Y.QKDN_CM^R**	**New work item^R (4) Open Bootstrap Framework (14:30~) Adhoc on Y.QKDN_Arch^R (14:30~)**	**Y.dv-ess, Y.energy-brokerage, Y.trust-arch, Adhoc on Y.QKDN_Arch ^R**
18 Oct(Fri)	**Y.QKDN_Arch^R (09:00~)**	**Q16_NSP^R**	**NSP (13:00 – 14:30), Offline meeting on C825 (14:30~)**	**Offline meeting on C825**
21 Oct(Mon)	**SG13 PLEN**	**Y.3800^R**	**Y.3800^R**	**Y.3800^R, NSP (18:00-)**
22 Oct(Tue)	**Y.QKDN_Arch^R, Y.QKDN_SDNC ^R**	**New work item (4) Open Bootstrap, Framework^R, Others**	**Y.3800^R (13:30-14:30) Adhoc meeting^R**	**Y.3800^R**
23 Oct(Wed)	**Y.QKDN_CM^R**	**Splitting Y.QKDN_CM^R, new work item (4)**	**Y.QKDN_KM^R, short review of Y.QKDN_Arch, Y.QKDN_SDNC**	**Y.QKDN-req**
24 Oct(Thu)	**Y.QKDN-req, Liaisons, Meeting report review^R, (08:30-09:30) WP3 PLEN (09:30~)**	**WP3 PLEN**	**-**	**-**
25 Oct(Fri)	**SG13 PLEN**	**SG13 PLEN**	**SG13 PLEN**	**SG13 PLEN**
NOTE - iftp site: http://ifa.itu.int/t/2017/sg13/exchange/wp3/q16/201910/ ^R - Remote participation – https://www.itu.int/myworkspace/home/index/remote_participation				

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