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Question 14/17

4-5 分鐘

(New Question 14/17)

Motivation

Distributed Ledger Technologies (DLT), also known as Blockchain, are a new type of secure database or ledger that is shared across multiple sites, countries or institutions with no centralized controller. Data is controlled by multiple parties.

As a specific distributed database technology, DLT are inherently resistant to modification of the data - once recorded, the data in a block cannot be altered retroactively. This prominent feature of DLT is well known after the success of its early digital cryptocurrency applications known as Bitcoin.

DLT has become one of disruptive technologies with great potential to change our economy, culture and society. DLT enables innovative financial/non-financial decentralized applications that eliminate the need for third party intermediaries. DLT will introduce new data management infrastructure that will accelerate a services revolution in industries (for example, banking and finance, government, healthcare and super logistics) based on telecommunications.

Distributed ledger technologies will have a profound impact for telecom users and industries including telecom service providers.

There is a need for identifying the roles and responsibilities of telecom users, operators and service provider with regards to

security aspects in the DLT environment.

Standardization of the best comprehensive security solutions is vital for DLT that has many use cases for every sector including telecom industry. Due to some specific characteristics of the DLT, providing security becomes an especially challenging task that deserves study.

Recommendations and Supplements under responsibility of this Question as of September 6: None.

Texts under development: X.sardlt, X.strdlt, X.sct-dlt, X.ss-dlt, X.dltsec, X.sadlt, X.stov.

Question

Study items to be considered include, but are not limited to:

1. How should security aspects (e.g., security architecture and subsystems) be identified and defined in a DLT environment?
2. How should threats and vulnerabilities in applications and services based on DLT be handled?
3. What are the security requirements for mitigating the threats in a DLT environment?
4. What are security technologies to support applications and services based on DLT?
5. How should secure interconnectivity between entities in a DLT environment be kept and maintained?
6. What security techniques, mechanisms and protocols are needed for applications and services based on DLT?
7. What are globally agreeable security solutions for applications and services based on DLT, which are based on telecommunication/ICT networks?
8. What are best practices or guidelines of security for applications

and services based on DLT?

9. What PII (Personally Identifiable Information) protection and information security management are needed for applications and services based on DLT?
10. What stakeholders should SG17 collaborate with?

Tasks

Tasks include, but are not limited to:

1. Perform a gap analysis on ongoing security relevant work in other organizations for distributed ledger technologies.
2. Produce a set of Recommendations providing comprehensive security solutions for DLT based applications and services.
3. Study further to define security aspects of applications and services based on DLT, which are based on telecommunication/ICT networks.
4. Study and identify security issues and threats in applications and services based on DLT.
5. Study and develop security mechanisms, protocols and technologies for applications and services based on DLT.
6. Study and develop secure interconnectivity mechanisms for applications and services based on DLT.
7. Study and identify PII protection issues and threats in applications and services based on DLT.
8. Study and develop information management system for entities providing applications and services based on DLT.

Recommendations:

- X-series and others related to security

Questions:

- ITU-T Qs 1/17, 2/17, 3/17, 4/17, 5/17, 6/17, 7/17, 8/17, 9/17, 10/17, 11/17 and 13/17.

Study Groups and Focus Groups:

- ITU-T SGs 11, 13, 16 and 20;
- ITU-T FG on Application on Distributed Ledger Technology;
- ITU-T FG on Digital Currency including Digital Fiat Currency.

Standardization bodies:

- ISO TC 307;
- ISO/IEC JTC 1/SC 27.

Other bodies:

- GSMA, W3C;
- ATIS; CCSA; TIA; TTA; TTC.