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Proof-of-Concept for Data Service using Information Centric Networking in IMT-2020

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Supplement 48 to ITU-T Y.3070-series of Recommendations

Proof-of-Concept for Data Service using Information Centric Networking in IMT-2020

Summary

This Supplement specifies a proof-of-concept for a service that provides named data such as Internet of Things (IoT) named data by information centric networking in IMT-2020. In the Supplement, an enhanced name resolution system is implemented based on distance-constrained containers to resolve from names to addresses more efficiently.

Keywords

IMT-2020; ICN; Data Service; Naming; Name Resolution

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1. Scope

This Supplement describes a proof-of-concept for data service using information centric networking in IMT-2020 to fulfil four standardization gaps investigated by the ITU-T Focus Group on IMT-2020 during 2015-2016. It demonstrates the feasibility and benefits of an enhanced name resolution system based on distance-constrained containers by use cases such as real-time video streaming and temperature-humidity monitoring.

2. References

The following ITU-T Recommendations and other references contain provisions, which, through reference in this text, constitute provisions of this Supplement. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; all users of this Supplement are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published.

The reference to a document within this Supplement does not give it, as a stand-alone document, the status of a Supplement.

- [ITU-T Y.3011] Recommendation ITU-T Y.3011 (2012), *Framework of network virtualization for future networks*.
- [ITU-T Y.3031] Recommendation ITU-T Y.3031 (2012), *Identification framework in future networks*.
- [ITU-T Y.3032] Recommendation ITU-T Y.3032 (2014), *Configuration of node identifiers and their mapping with locators in future networks*.
- [ITU-T Y.3033] Recommendation ITU-T Y.3033 (2014), *Framework of data aware networking for future networks*.
- [ITU-T Y.3071] Recommendation ITU-T Y.3071 (2017), *Data aware networking (information centric networking) – Requirements and capabilities*.

3. Definitions

3.1 Terms defined elsewhere

This Supplement uses the following terms defined elsewhere:

3.1.1 address [b-ITU-T Y.2091]: An address is the identifier for a specific termination point and it can be used for routing to this termination point.

3.1.2 gateway [b-ITU-T Y.2261]: A gateway is a unit that interconnects different networks and performs the necessary translation between the protocols used in these networks.

3.1.3 identifier (ID) [b-ITU-T Y.2091]: An identifier is a series of digits, characters and symbols or any other form of data used to identify subscriber(s), user(s), network element(s), function(s), network entity(ies) providing services/applications, or other entities.

3.1.4 identifier/locator separation [b-ITU-T Y.2015]: Identifier/locator separation is decoupling the semantic of IP address into the semantics of node identifiers and locators. Distinct namespaces are used for node identifiers and locators so that they can evolve independently. Locators are associated with the IP layer whereas node identifiers are associated with upper layers in such a way that ongoing communication sessions or services shall not be broken by changing locators due to mobility and multihoming.