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SERIES Y: GLOBAL INFORMATION
INFRASTRUCTURE, INTERNET PROTOCOL ASPECTS
AND NEXT-GENERATION NETWORKS

Next Generation Networks – Service aspects:
Interoperability of services and networks in NGN

Multi-connection requirements

Recommendation ITU-T Y.2251



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Recommendation ITU-T Y.2251

Multi-connection requirements

Summary

In order to support multi-connection capability, new functions are required in the user equipment (UE) and network, such as connection management and coordination, QoS policy control, and access network selection. Recommendation ITU-T Y.2251 describes the requirements to support multi-connection.

History

Edition	Recommendation	Approval	Study Group
1.0	ITU-T Y.2251	2011-03-16	13

Keywords

Access network connection, coordination, management, multi-connection, policy.

FOREWORD

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The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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Multi-connection requirements

1 Scope

Multi-connection is the functionality which provides capability to the user equipment (UE) and network to maintain more than one access network connection simultaneously. Furthermore, multi-connection controls and coordinates the media sessions and components across such access network connections.

Different types of access network connections provide users with different user experiences, such as high throughput, low delay, and high security. Multi-connection enables users to utilize any or all of the available access network connections in support of new service scenarios. It is recognized that operators and users will benefit from harmonization of multiple connections, such as efficient utilization of network resources, load balancing, reliability of connection and continuity of services.

This Recommendation describes the requirements of multi-connection and provides a high-level overview of the functionality to be addressed. The descriptions cover aspects related to service requirements, capabilities requirements, functional requirements, and other technology requirements.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation 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 Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

[ITU-T Q.1706]	Recommendation ITU-T Q.1706/Y.2801 (2006), <i>Mobility management requirements for NGN</i> .
[ITU-T Q.2981]	Recommendation ITU-T Q.2981 (1999), <i>Broadband integrated services digital network (B-ISDN) and broadband private integrated services network (B-PISN) – Call control protocol</i> .
[ITU-T T.140]	Recommendation ITU-T T.140 (1998), <i>Protocol for multimedia application text conversation</i> .
[ITU-T X.200]	Recommendation ITU-T X.200 (1994) ISO/IEC 7498-1:1994, <i>Information technology – Open Systems Interconnection – Basic Reference Model: The basic model</i> .
[ITU-T Y.1221]	Recommendation ITU-T Y.1221 (2010), <i>Traffic control and congestion control in IP-based networks</i> .
[ITU-T Y.2011]	Recommendation ITU-T Y.2011 (2004), <i>General principles and general reference model for Next Generation Networks</i> .
[ITU-T Y.2012]	Recommendation ITU-T Y.2012 (2010), <i>Functional requirements and architecture of next generation networks</i> .
[ITU-T Y.2051]	Recommendation ITU-T Y.2051 (2008), <i>General overview of IPv6-based NGN</i> .

[ITU-T Y.2052]	Recommendation ITU-T Y.2052 (2008), <i>Framework of multi-homing in IPv6-based NGN</i> .
[ITU-T Y.2091]	Recommendation ITU-T Y.2091 (2007), <i>Terms and definitions for Next Generation Networks</i> .
[ITU-T Y.2233]	Recommendation ITU-T Y.2233 (2010), <i>Requirements and framework allowing accounting and charging capabilities in NGN</i> .
[ITU-T Y.2261]	Recommendation ITU-T Y.2261 (2006), <i>PSTN/ISDN evolution to NGN</i> .

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

3.1.1 application [ITU-T Y.2261]: A structured set of capabilities, which provide value-added functionality supported by one or more services, which may be supported by an API interface.

3.1.2 call [ITU-T Q.2981]: An association between two or more users using a telecommunication service to communicate through one or more networks.

3.1.3 connection [ITU-T X.200]: A connection is an association established for the transfer of data between two or more peer-(N)-entities. This association binds the peer-(N)-entities together with the (N-1)-entities in the next lower layer.

3.1.4 handover [ITU-T Q.1706]: The ability to provide services with some impact on their service level agreements to a moving object during and after movement.

3.1.5 IP flow [ITU-T Y.1221]: An IP flow at a given interface is defined as the occurrence at that interface of the set of IP packets which match a given classification. An IP flow may consist of packets from a single application session, or it may be an aggregation comprising the combined traffic from a number of application sessions. When a classification may be subdivided into different sub-classifications (separate or overlapping), different IP subflows may be recognized in the corresponding IP flow.

3.1.6 service continuity [ITU-T Q.1706]: The ability for a moving object to maintain ongoing service over including current states, such as user's network environment and session for a service.

3.1.7 session [ITU-T T.140]: A logical connection between two or more user terminals for the purpose of exchanging information in text format on a real-time basis.

3.2 Terms defined in this Recommendation

This Recommendation defines the following terms:

3.2.1 multi-connection: The functionality which provides capability to the user equipment (UE) and network to maintain more than one access network connection simultaneously.

NOTE 1 – All connections are coordinated to provide service to higher layer entities.

NOTE 2 – In a multi-connection communications at least one UE is required to be a multi-connection UE.

3.2.2 service component: Part of a service which cannot be further decomposed.

3.2.3 service decomposition: Act of decomposing a service into several service components.

NOTE – The original service logic can be restructured transparently to the end user and application.

3.2.4 service transfer: Act of moving, one or more services or service components belonging to a single multi-connection UE, from one access network associated with one interface of the multi-connection UE to another access network(s) associated with other interface(s) of the multi-connection UE.