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

Next Generation Networks – Frameworks and functional
architecture models

Framework to support signalling for IPv6-based NGN

Recommendation ITU-T Y.2054

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Recommendation ITU-T Y.2054

Framework to support signalling for IPv6-based NGN

Summary

Recommendation ITU-T Y.2054 specifies the features of signalling using Internet Protocol version 6 (IPv6), requirements, and interworking scenarios to support signalling in IPv6-based next generation network (NGN) environments.

Source

Recommendation ITU-T Y.2054 was approved on 29 February 2008 by ITU-T Study Group 13 (2005-2008) under Recommendation ITU-T A.8 procedure.

Keywords

IPv6, NGN, QoS, signalling.

FOREWORD

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Recommendation ITU-T Y.2054

Framework to support signalling for IPv6-based NGN

1 Scope

This Recommendation specifies the requirements and guidelines for supporting the existing signalling protocols and signalling for supporting several functions required in Internet Protocol version 6 (IPv6)-based next generation networks (NGN) using the IPv6 features.

This Recommendation covers the following:

- Features of signalling using IPv6
- Requirements of signalling for transport/service control and interworking
- Functional architecture for signalling in IPv6-based NGN
- Signalling interworking scenarios between IPv6-based NGN and other networks

The implementation methods for the delivery of signalling messages in IPv6 are not covered by this Recommendation.

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 Y.2012] Recommendation ITU-T Y.2012 (2006), *Functional requirements and architecture of the NGN release 1*.

[ITU-T Y.2051] Recommendation ITU-T Y.2051 (2008), *General overview of IPv6-based NGN*.

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

3.1.1 IPv6-based NGN [ITU-T Y.2051]: This refers to NGN that supports addressing, routing, protocols, and services associated with IPv6. An IPv6-based NGN shall recognize and process the IPv6 headers and options, operating over various underlying transport technologies in the transport stratum.

3.1.2 service continuity [b-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.

3.1.3 signalling [b-ITU-T I.112]: The exchange of information specifically concerned with the establishment and control of connections, and with management, in a telecommunication network.

3.1.4 signalling interworking [b-ITU-T Q.300]: Signalling interworking is the controlled transfer of signalling information across the interface between signalling systems where the significance of the transferred information is identical or where the significance is translated in a defined manner.

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3.1.5 user [b-ITU-T M.60]: A person or a machine delegated by a customer to use the services and/or facilities of a telecommunications network.

3.2 Terms defined in this Recommendation

This Recommendation defines the following terms:

3.2.1 flow: This refers to a sequence of packets sent from a particular source to a particular destination where common routing is applied. When using IPv6, a flow is identified by IPv6 3-tuple including source/destination IP addresses and flow label.

3.2.2 flow label: The 20-bit field in the IPv6 header is used by a source to label the packets of a flow. This label identifies IPv6 packets with the same origin and destination. The identified packets can be treated equally in the network.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations:

ANI	Application-Network Interface
CN	Correspondent Node
CoA	Care-of-Address
CR-LDP	Constraint-based Routed Label Distribution Protocol
DHCPv6	Dynamic Host Configuration Protocol for IPv6
DiffServ	Differentiated Services
FEC	Forwarding Equivalent Class
GMPLS	Generalized MultiProtocol Label Switching
HA	Home Agent
ICMP	Internet Control Message Protocol
IP	Internet Protocol
IPv4	Internet Protocol version 4
IPv6	Internet Protocol version 6
IMS	IP Multimedia Subsystem
IntServ	Integrated Services
ISDN	Integrated Services Digital Network
LDP	Label Distribution Protocol
LSP	Label Switched Path
MN	Mobile Node
MPLS	MultiProtocol Label Switching
NACF	Network Attachment Control Function
NGN	Next Generation Network
NNI	Network-Network Interface
PSTN	Public Switched Telephone Network
QoS	Quality of Service
RACF	Resource and Admission Control Function