

Recommendation

ITU-T Q.3722 (04/2025)

SERIES Q: Switching and signalling, and associated measurements and tests

Signalling requirements and protocols for SDN – Resource control protocols

Signalling requirements of virtual broadband network gateway (vBNG) for cloud access

ITU-T Q-SERIES RECOMMENDATIONS

Switching and signalling, and associated measurements and tests

SIGNALLING IN THE INTERNATIONAL MANUAL SERVICE	Q.1-Q.3
INTERNATIONAL AUTOMATIC AND SEMI-AUTOMATIC WORKING	Q.4-Q.59
FUNCTIONS AND INFORMATION FLOWS FOR SERVICES IN THE ISDN	Q.60-Q.99
CLAUSES APPLICABLE TO ITU-T STANDARD SYSTEMS	Q.100-Q.119
SPECIFICATIONS OF SIGNALLING SYSTEMS NO. 4, 5, 6, R1 AND R2	Q.120-Q.499
DIGITAL EXCHANGES	Q.500-Q.599
INTERWORKING OF SIGNALLING SYSTEMS	Q.600-Q.699
SPECIFICATIONS OF SIGNALLING SYSTEM NO. 7	Q.700-Q.799
Q3 INTERFACE	Q.800-Q.849
DIGITAL SUBSCRIBER SIGNALLING SYSTEM NO. 1	Q.850-Q.999
PUBLIC LAND MOBILE NETWORK	Q.1000-Q.1099
INTERWORKING WITH SATELLITE MOBILE SYSTEMS	Q.1100-Q.1199
INTELLIGENT NETWORK	Q.1200-Q.1699
SIGNALLING REQUIREMENTS AND PROTOCOLS FOR IMT-2000	Q.1700-Q.1799
SPECIFICATIONS OF SIGNALLING RELATED TO BEARER INDEPENDENT CALL CONTROL (BICC)	Q.1900-Q.1999
BROADBAND ISDN	Q.2000-Q.2999
SIGNALLING REQUIREMENTS AND PROTOCOLS FOR THE NGN	Q.3000-Q.3709
SIGNALLING REQUIREMENTS AND PROTOCOLS FOR SDN	Q.3710-Q.3899
Resource control protocols	Q.3710-Q.3739
Network signalling and signalling requirements for services	Q.3740-Q.3779
TESTING SPECIFICATIONS	Q.3900-Q.4099
PROTOCOLS AND SIGNALLING FOR PEER-TO-PEER COMMUNICATIONS	Q.4100-Q.4139
PROTOCOLS AND SIGNALLING FOR COMPUTING POWER NETWORKS	Q.4140-Q.4159
PROTOCOLS AND SIGNALLING FOR QUANTUM KEY DISTRIBUTION NETWORKS	Q.4160-Q.4179
SIGNALLING REQUIREMENTS AND PROTOCOLS FOR IMT-2020	Q.5000-Q.5049
COMBATING COUNTERFEITING AND STOLEN ICT DEVICES	Q.5050-Q.5069

For further details, please refer to the list of ITU-T Recommendations.

Recommendation ITU-T Q.3722

Signalling requirements of virtual broadband network gateway (vBNG) for cloud access

Summary

In addition to Internet access, the demand for home broadband service continues to grow due to streaming video, cloud storage and other cloud applications. However, the provisioning and operation of broadband services and cloud services are nowadays completely independent. It is difficult to coordinate service management and operation management. As a result, it is currently impossible to realize automatic provisioning and operation. These issues can be addressed by enhancing the ability of virtual broadband network gateways (vBNGs) to integrate with cloud services, ensuring consistency between broadband access services and cloud access services. Recommendation ITU-T Q.3722 introduces the scenarios of vBNG for cloud access. The requirements and signalling procedures of vBNG for cloud access is also addressed.

History *

Edition	Recommendation	Approval	Study Group	Unique ID
1.0	ITU-T Q.3722	2025-04-13	11	11.1002/1000/16289

Keywords

Broadband, cloud access, vBNG.

* To access the Recommendation, type the URL <https://handle.itu.int/> in the address field of your web browser, followed by the Recommendation's unique ID.

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.

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Table of Contents

	Page
1 Scope.....	1
2 References.....	1
3 Definitions	1
3.1 Terms defined elsewhere	1
3.2 Terms defined in this Recommendation.....	1
4 Abbreviations and acronyms	1
5 Conventions	2
6 Architecture for cloud access with vBNG	3
6.1 Overview of the architecture for cloud access with vBNG	3
6.2 Functional description of the architecture	4
7 Requirements of the vBNG for cloud access.....	6
7.1 Functional requirements of the vBNG	6
7.2 Functional requirements of the CSPM	7
8 Signalling procedures of the vBNG for cloud access.....	7
8.1 General procedure	7
8.2 The procedure of cloud resource allocation for cloud service	9
Appendix I – Scenarios of virtual broadband network gateway for cloud access	11
I.1 Cloud game.....	11
I.2 Cloud NAS	11
I.3 IPTV	12
Appendix II – Infrastructure mechanisms to guarantee performance and reliability of vBNG for cloud access	13
Bibliography.....	15

Recommendation ITU-T Q.3722

Signalling requirements of virtual broadband network gateway (vBNG) for cloud access

1 Scope

This Recommendation specifies the signalling requirements of the virtual broadband network gateway (vBNG) for cloud access. The following aspects are addressed in this Recommendation:

- Architecture of the vBNG for cloud access.
- Requirements of the vBNG for cloud access.
- Signalling procedures of the vBNG for cloud access.

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.2320](#)] Recommendation ITU-T Y.2320 (2015), *Requirements for virtualization of control network entities in next generation network evolution*.

[[ITU-T Y.2350](#)] Recommendation ITU-T Y.2350 (2024), *Requirements of next generation network evolution (NGNe) to support container-based network entities*.

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

3.1.1 broadband network gateway (BNG) [b-ITU-T Q.3315]: The access point to the provider's IP network for wireline broadband services.

3.1.2 virtualized BNG (vBNG) [b-ITU-T Q.3719]: The virtualized BNG is the broadband network gateway of which all features or some features are directly implemented as virtualized network function(s) (VNF) running on the network function virtualization infrastructure (NFVI). It is used to either augment or replace the existing traditional BNG.

3.2 Terms defined in this Recommendation

None.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

AAA	Authentication Authorization Accounting
CNID	Cloud Network Interconnection Detection
CSA	Cloud Service Authentication

CSP	Cloud Service Provider
CSPE	Cloud Service Policy execution
CSPM	Cloud Service Policy Management
DC	Data Centre
DHCP	Dynamic Host Configuration Protocol
DPDK	Data Plane Development Kit
DSCP	Differentiated Services Code Point
eBPF	extended Berkeley Packet Filter
GRE	Generic Routing Encapsulation
IOPS	Input/Output Operations Per Second
IP	Internet Protocol
IPTV	Internet Protocol Television
NAS	Network Attached Storage
NFVI	Network Function Virtualization Infrastructure
NUMA	Non-Uniform Memory Access
PF	Physical Function
RSS	Receive Side Scaling
SR-IOV	Single Root I/O Virtualization
TM	Tunnel Management
URL	Uniform Resource Locator
UUID	Universally Unique Identifier
vBNG	virtual Broadband Network Gateway
vBNG-CP	virtual Broadband Network Gateway-Control Plane
vBNG-UP	virtual Broadband Network Gateway-User Plane
VNF	Virtualized Network Function
VNI	Virtual Network Identifier
VPN	Virtual Private Network
VxLAN	Virtual extensible Local Area Network

5 Conventions

In this Recommendation:

The keywords "is required" indicate a requirement which must be strictly followed and from which no deviation is permitted, if conformance to this Recommendation is to be claimed.