



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

Q.735.6

(07/96)

SERIES Q: SWITCHING AND SIGNALLING

**Specifications of Signalling System No. 7 – ISDN
supplementary services**

**Stage 3 description for community of interest
supplementary services using Signalling
System No. 7: Global Virtual Network Service
(GVNS)**

ITU-T Recommendation Q.735.6

(Previously CCITT Recommendation)

ITU-T Q-SERIES RECOMMENDATIONS

SWITCHING AND SIGNALLING

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
SPECIFICATION OF SIGNALLING SYSTEMS No. 4 AND No. 5	Q.120–Q.249
SPECIFICATIONS OF SIGNALLING SYSTEM No. 6	Q.250–Q.309
SPECIFICATIONS OF SIGNALLING SYSTEM R1	Q.310–Q.399
SPECIFICATIONS OF SIGNALLING SYSTEM R2	Q.400–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.849
General	Q.700
Message transfer part	Q.701–Q.709
Signalling connection control part	Q.711–Q.719
Telephone user part	Q.720–Q.729
ISDN supplementary services	Q.730–Q.739
Data user part	Q.740–Q.749
Signalling System No. 7 management	Q.750–Q.759
ISDN user part	Q.760–Q.769
Transaction capabilities application part	Q.770–Q.779
Test specification	Q.780–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.1999
BROADBAND ISDN	Q.2000–Q.2999

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

ITU-T RECOMMENDATION Q.735.6

STAGE 3 DESCRIPTION FOR COMMUNITY OF INTEREST SUPPLEMENTARY SERVICES USING SIGNALLING SYSTEM No. 7: GLOBAL VIRTUAL NETWORK SERVICE (GVNS)

Summary

The global virtual network service is a global switched service supported by multiple networks and is offered to customers over PSTN and/or ISDN. While minimizing the need for dedicated network resources, GVNS provides private network functions to users at geographically dispersed international locations.

Source

ITU-T Recommendation Q.735.6 was prepared by ITU-T Study Group 11 (1993-1996) and was approved under the WTSC Resolution No. 1 procedure on the 9th of July 1996.

FOREWORD

ITU (International Telecommunication Union) is the United Nations Specialized Agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the ITU. The ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Conference (WTSC), which meets every four years, establishes the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 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.

INTELLECTUAL PROPERTY RIGHTS

The ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. The ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

As of the date of approval of this Recommendation, the ITU had/had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

© ITU 1997

All rights reserved. No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the ITU.

CONTENTS

	Page
6 Global virtual network service	1
6.1 Introduction	1
6.1.1 Scope	1
6.1.2 References	1
6.1.3 Terms and definitions.....	1
6.1.4 Abbreviations	2
6.2 Description	2
6.2.1 General description.....	2
6.2.2 Specific terminology	3
6.2.3 Qualification on the applicability to telecommunication services	3
6.2.4 State definitions.....	3
6.3 Operational requirements	3
6.3.1 Provision and withdrawal.....	3
6.3.2 Requirements on the originating network side.....	3
6.3.3 Requirements in the network.....	3
6.3.4 Requirements on the terminating network side.....	3
6.4 Coding requirements	3
6.4.1 Messages	3
6.4.2 Parameters	3
6.5 Signalling procedures	7
6.5.1 Activation/deactivation/registration	7
6.5.2 Invocation and operation	8
6.6 Interactions with other supplementary services.....	15
6.6.1 Call Waiting (CW)	15
6.6.2 Call transfer services	15
6.6.3 Connected line identification presentation (COLP)	15
6.6.4 Connected line identification restriction (COLR)	15
6.6.5 Calling Line Identification Presentation (CLIP)	15
6.6.6 Calling Line Identification Restriction (CLIR)	15
6.6.7 Closed User Group (CUG)	15
6.6.8 Conference calling (CONF)	16
6.6.9 Direct-Dialing-In (DDI)	16
6.6.10 Call diversion services (CDIV)	16
6.6.11 Line Hunting (LH)	16
6.6.12 Three-Party service (3PTY)	16
6.6.13 User-to-User Signalling (UUS)	16
6.6.14 Multiple Subscriber Number (MSN).....	16

	Page
6.6.15 Call hold (HOLD)	16
6.6.16 Advice of Charge (AOC)	16
6.6.17 Sub-addressing (SUB).....	16
6.6.18 Terminal Portability (TP).....	17
6.6.19 Completion of Calls to Busy Subscriber (CCBS).....	17
6.6.20 Malicious Call Identification (MCID).....	17
6.6.21 Reverse charging (REV)	17
6.6.22 Multi-Level Precedence and Preemption (MLPP)	17
6.6.23 Private Numbering Plan (PNP)	17
6.6.24 International Telecommunication Charge Card (ITCC)	17
6.7 Interaction with other networks.....	17
6.8 Signalling flows.....	17
6.9 Parameter values (timers)	17
6.10 Dynamic description.....	17

Recommendation Q.735.6

**STAGE 3 DESCRIPTION FOR COMMUNITY OF INTEREST
SUPPLEMENTARY SERVICES USING SIGNALLING
SYSTEM No. 7: GLOBAL VIRTUAL
NETWORK SERVICE (GVNS)**

(Geneva, 1996)

6 Global virtual network service**6.1 Introduction****6.1.1 Scope**

The Global Virtual Network Service (GVNS) is a multi-network international service which provides private network functions to users at geographically dispersed international locations while minimizing the need for dedicated network resources. It may be offered to customers over the PSTN or ISDN.

6.1.2 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; all 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.

- [1] CCITT Recommendation I.130 (1988), *Method for the characterization of telecommunication services supported by an ISDN and network capabilities of an ISDN*.
- [2] ITU-T Recommendation I.112 (1993), *Vocabulary of terms for ISDNs*.
- [3] ITU-T Recommendation Q.71 (1993), *ISDN circuit mode switched bearer services*.
- [4] ITU-T Recommendation F.16 (1995), *Global virtual network service*.
- [5] ITU-T Recommendation Q.85.6 (1996), *Stage 2 description for community of interest supplementary services: Global Virtual Network Service (GVNS)*.
- [6] CCITT Recommendation E.164 (1991), *Numbering plan for the ISDN era*.
- [7] ITU-T Recommendation Q.763 (1993), *Formats and codes of the ISDN User Part of Signalling System No. 7*.
- [8] ITU-T Recommendation Q.730 (1993), *ISDN supplementary services*.

6.1.3 Terms and definitions

This Recommendation defines the following terms.

6.1.3.1 dialled number: The number which a GVNS user dialled excluding prefix digits.

NOTE – This information, if required by the terminating network, will be included in the terminating network routing number.

6.1.3.2 ISDN number: A number conforming to the numbering plan and the structure specified in Recommendation E.164 [6].

6.1.3.3 terminating access indication: Information used to identify the type of access that the GVNS terminating participating service provider actually used to complete the call.

6.1.3.4 GVNS user group identification: Information that uniquely identifies the GVNS customer. An example for the usage of such information is to locate the address of the database record of a GVNS customer.

6.1.3.5 originating participating service provider identification: Information that uniquely identifies the participating service provider that provides customer access to GVNS to the calling user/interface.

6.1.3.6 routing number: Information used to complete a call to the terminating functional entity. This information is mandatory and is carried by an ISDN number (fully conforming to Recommendation E.164).

NOTE – Whenever adjacent GVNS functional entities are implemented by separate GVNS Participating Service Providers, the Routing Number shall be an ISDN number (fully conforming to Recommendation E.164) unless another prior arrangement exists between the participating service providers.

6.1.3.7 terminating network routing number: Information used by the terminating functional entity to route calls. This information is mandatory and is carried by either an ISDN number (fully conforming to Recommendation E.164) or a network-specific number.

6.1.3.8 terminating participating service provider identification: Information that uniquely identifies the participating service provider that provides customer access to GVNS to the called user/interface.

NOTE – This information is included in the Routing Number.

6.1.4 Abbreviations

This Recommendation uses the following abbreviations.

ISDN Integrated Services Digital Network

NDC National Destination Code

OPSP Originating Participating Service Provider Identification

PSTN Public Switched Telephone Network

TPSP Terminating Participating Service Provider Identification

6.2 Description

This clause is specific to Signalling System No. 7 protocol for the ISDN User Part. Stage 3 identifies the protocol procedures and switching functions needed to support a telecommunication service.

This clause is limited to the type A and B call mechanisms as defined by the GVNS Stage 2 [5]. It does not fully support the type C call mechanism.

6.2.1 General description

GVNS allows service providers to offer subscribing customers a service with the features and functionality similar to that of a private network while minimizing the need for dedicated network resources; however, dedicated network resources may be used to access GVNS or in conjunction with GVNS. A GVNS customer is assigned a unique identifier which identifies the GVNS user group. GVNS user group identification provides a means by which various networks can recognize