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SERIES D: GENERAL TARIFF PRINCIPLES

General tariff principles – Charging and accounting principles for intelligent network supported services

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Guiding principles for charging and accounting for intelligent network supported services

ITU-T Recommendation D.285

(Previously CCITT Recommendation)

ITU-T D-SERIES RECOMMENDATIONS

GENERAL TARIFF PRINCIPLES

TERMS AND DEFINITIONS	D.0
GENERAL TARIFF PRINCIPLES	D.1–D.299
Private leased telecommunication facilities	D.1–D.9
Tariff principles applying to data communication services over dedicated public data networks	D.10–D.39
Charging and accounting in the international public telegram service	D.40–D.44
Charging and accounting in the international telemessage service	D.45–D.49
Charging and accounting in the international telex service	D.60–D.69
Charging and accounting in the international facsimile service	D.70–D.75
Charging and accounting in the international videotex service	D.76–D.79
Charging and accounting in the international phototelegraph service	D.80–D.89
Charging and accounting in the mobile services	D.90–D.99
Charging and accounting in the international telephone service	D.100–D.159
Drawing up and exchange of international telephone and telex accounts	D.160–D.179
International sound- and television-programme transmissions	D.180–D.184
Charging and accounting for international satellite services	D.185–D.189
Transmission of monthly international accounting information	D.190–D.191
Service and privilege telecommunications	D.192–D.195
Settlement of international telecommunication balances of accounts	D.196–D.209
Charging and accounting principles for international telecommunication services provided over the ISDN	D.210–D.279
Charging and accounting principles for universal personal telecommunication	D.280–D.284
Charging and accounting principles for intelligent network supported services	**D.285–D.299**
RECOMMENDATIONS FOR REGIONAL APPLICATION	D.300–D.699
Recommendations applicable in Europe and the Mediterranean Basin	D.300–D.399
Recommendations applicable in Latin America	D.400–D.499
Recommendations applicable in Asia and Oceania	D.500–D.599
Recommendations applicable to the African Region	D.600–D.699

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

ITU-T RECOMMENDATION D.285

GUIDING PRINCIPLES FOR CHARGING AND ACCOUNTING FOR INTELLIGENT NETWORK SUPPORTED SERVICES

Source

ITU-T Recommendation D.285 was prepared by ITU-T Study Group 3 (1993-1996) and was approved under the WTSC Resolution No. 1 procedure on the 1st 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 (Helsinki, March 1-12, 1993).

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.

CONTENTS

Recommendation D. 285

GUIDING PRINCIPLES FOR CHARGING AND ACCOUNTING FOR INTELLIGENT NETWORK SUPPORTED SERVICES

(Geneva, 1996)

1 Scope

1.1 This Recommendation outlines general considerations and guiding principles for charging and international accounting for traffic and facilities used to support services that utilize Intelligent Networking (IN) capabilities.

1.2 These principles are intended to provide a basis for treating IN-supported service elements that may be common to a number of services (see Annexes A to C). These guidelines may provide a useful basis on which bilateral and multilateral negotiations can take place, for example when developing or revising tariff and accounting provisions dealing with specific services, for more customized services and/or in advance of the availability of service specific Recommendations.

1.3 It should be understood that, while some IN-supported service elements may be common to a number of services, each service must determine both the applicability and the handling of each of these elements on an individual basis.

2 Background

2.1 In modern network architecture, logic and database storage systems provide, in addition to normal call switching, functions that can be applied flexibly to support a wide range of new services and applications. Such systems, which provide the basis for supporting IN services, may be located in separate units that control network switching via common channel signalling for example, but no specific implementation should be implied from this Recommendation.

2.2 In providing such functions, the use of shared resources such as databases and the signalling system can vary considerably from service to service and with the applications selected by users. It can also vary with the particular method by which a service provider has implemented a service. The tariff and accounting principles need to take this variability into account.

2.3 Application of such common elements may:

a) improve the operational efficiency, marketability and flexibility of new services;

b) assist smooth transition for customers and service providers;

c) reduce the time-frames for developing relevant ITU-T Recommendations;

d) provide a framework within which bilateral and multilateral negotiations can take place, for example for more customized services and/or in advance of the availability of service specific Recommendations.

3 Charging

3.1 While the charges in any country are a national matter, guidelines on charging structures can be helpful for service providers in offering multiple IN-supported services and/or services in different countries.

3.2 Charges normally reflect service offerings and subscribers' selections.

3.3 Charges may be applicable for the use of resources associated with network intelligence, such as databases and signalling networks, or service profile management.

3.4 Charges normally cover any payment due to network operators and/or service providers (plus any handling charges that may be applicable).

3.5 Charging structures should be simplified where possible by grouping like functions (noting the potential multiplicity of IN functions performed).

3.6 The calling party should be advised if there is a likelihood of an unexpected charge, e.g. if the call has been diverted, as in UPT.

4 Billing

4.1 Normally, billing of customers is a national matter, but with some IN-supported services (e.g. those providing personal and/or terminal mobility), it is necessary for a service provider to collect billing information on behalf of another service provider.

4.2 Timely transfer of billing information may be required where some form of credit limit is applied on behalf of a customer, a user and/or a service provider.

4.3 The currency, structure and levels of the billing information should be agreed between the relevant service providers.

4.4 It should be noted that the service provider that bills the customer may process the billing information to take account, inter alia, of any contractual arrangements between the customer and the service provider (e.g. concerning aggregate traffic in a billing period).

4.5 In the event of billing disputes, the service provider that bills the customer should be the contact point for that customer.

5 International traffic accounting

5.1 This clause covers principles for the call or bearer component of IN-supported services.

5.2 In principle, international traffic accounting should be in accordance with the characteristics of the call made, using the normal accounting rate for the network and/or service used.

5.3 In instances where the IN functions or processing cause a significant deviation in the cost of call or bearer operations, this may be taken into account in normal traffic accounting as agreed on a bilateral or multilateral basis, considering the roles of those involved in providing an IN-supported service.

6 International accounting for in-facilities required for the provision of in-specific service elements

6.1 This clause covers principles for the IN functionality itself.

6.2 Accounting arrangements should be as simple as possible.

6.3 In instances where the IN functions form an integral part of the overall cost of service operations, these costs may be included in the normal traffic accounting or separately accounted, as agreed on a bilateral or multilateral basis.

6.4 The international accounting for IN-facilities required for the provision of IN-specific service elements should ensure fair and equitable remuneration of all parties concerned for the provision and use of the relevant resources.

6.5 Such remuneration should be cost orientated, taking into account only the economically significant components, utilized for particular IN-supported services, as agreed on a bilateral or multilateral basis.

6.6 Accounting may be applicable for the use of signalling network and/or other facilities, such as databases and data processing, that may be external to the direct call path but are necessary for the provision of required IN-service elements.

6.7 Analysis of traffic flows and cost components may show that the principle of reciprocity, applied on a bilateral or multilateral basis, negates the need for international accounting for the facilities required for the provision of IN-specific service elements.

7 Guidelines for specific service elements

7.1 The use of IN-supported service elements may have an impact on the overall cost of service operations and may influence international accounting.

7.2 Annexes A to C provide guidance on the possible implications of the use of IN-supported service elements as listed below.

Index to annexes

Annex A

Number translation

(This annex forms an integral part of this Recommendation)

A.1 Applications

Number translation can be a feature or functionality of a number of services, e.g. International Freephone, UPT, GVNS, Automated Telecommunication Charge Card, Home Country Direct, Abbreviated Dialling, and Call Diversion. It can also be used for customized applications.

A.2 Implementation

Number translation on a call can occur:

– in the originating country only;
– in the terminating country only;
– in a transit country;
– via interworking among multiple countries;
– in both originating and terminating countries;
– and via a regional or global IN-system facility.

A.3 Resources required

The resources required for number translation of a particular call will depend on the network implementation, and may include:

– signalling, including for example, use of Signal Transfer Points (STPs) (for exchange of information to enable the call to be correctly routed); and

– database search to ascertain the appropriate network number.

A.4 Impact on international accounting

A.4.1 Call circuit function

In instances where number translation causes significant deviation in the cost of call or bearer operations, this may be taken into account in normal traffic accounting as agreed on a bilateral or multilateral basis, considering the roles of those involved in providing number translation.

A.4.1.1 Call set-up time

The call set-up time would not normally be affected by a single number translation feature. However, multiple database queries may result in delays in call set-up times.

A.4.1.2 Ratio of successful/unsuccessful calls

The ratio of successful/unsuccessful calls could improve as a result of performing number translation.

A.4.2 Translation function

Inclusion of the translation function in international accounts may be relevant where translation functions are undertaken by service providers other than the service provider that bills the customer and may be:

a) included as a general overhead in the standard accounting rate; or

b) separately accounted on the basis of:

   i) a specified rate per number translated, taking into account variations in translation complexity, if significant;

   ii) total time and volume for aggregated relevant number translation functions during a settlement period.

Annex B

Validation, Authentication and Authorization (VAA)

(This annex forms an integral part of this Recommendation)

B.1 Applications

VAA can be a feature of a number of services, e.g. UPT, GVNS, Automated Telecommunication Charge Card, and Home Country Direct. It can also be used for customized applications.

B.2 Implementation

VAA for a particular call can occur:

– in the originating country only;
– in the terminating country only;
– in a transit country;
– via interworking among multiple countries;
– in both originating and terminating countries; and
– via a regional or global IN-system facility.

B.3 Resources required

The resources required for VAA of a particular call will depend on the network implementation of the VAA functions, and may include:

– voice recordings, prompting customers to key in account and/or PIN numbers;
– transmission of the account, PIN numbers and validation response across the network, for example through a voice circuit, a signalling network, or data network;
– database search to ascertain permission for caller to make a particular call.

B.4 Impact on international accounting

B.4.1 Call circuit function

In instances where VAA features cause significant deviation in the costs of call or bearer operations, this may be taken into account in normal traffic accounting as agreed on a bilateral or multilateral basis, considering the roles of those involved in providing VAA features.

B.4.1.1 Ratio of conversation time/call holding time

The ratio of conversation time/call holding time may be significantly affected by the use of the VAA features. This impact will occur on the circuit path from the origin of the call to the point in the network where the call progress is held while the VAA features are accessed.

B.4.1.2 Ratio of unbillable/billable calls

The ratio of unbillable/billable calls could improve as a result of rejections through the VAA functions.

B.4.2 VAA functions

Inclusion of the VAA functions in international settlements may be relevant where VAA functions are undertaken by service providers other than the service provider that bills the customer and may be:

a) included as a general overhead in the standard accounting rate arrangements;
b) applied as a negotiated rate (depending on complexity) per validation, authorization, and authentication; or
c) accounted for on the basis of total time and volume for aggregated VAA functions during a settlement period.

Annex C

Database manipulation (DM)

(This annex forms an integral part of this Recommendation)

C.1 Applications

DM enables manipulation of data related to a particular customer, either directly by the customer or by the service provider, following instructions from the customer. The type of information that may be manipulated could include time of day routing, authorizations and screening instructions for incoming calls. The DM function can be offered on a number of services, e.g. UPT, International Freephone, GVNS and Automated Telecommunication Charge Card services. It can also be used for customized applications.

C.2 Implementation

A customer database can be provided:

– in the home country of the customer, where the database can be accessed either from the home country or from the country to which the customer has roamed;

– subject to bilateral negotiations, in the country to which the customer has roamed;

– in a third country;

– via interworking among multiple databases; and

– via a regional or global IN facility.

C.3 Resources required

There are two elements to the DM function:

a) the actual database use; and

b) communication with the database, which can take place over:

- voice circuits;
- a signalling system; or
- a data communication network.

C.4 Impact on international accounting

C.4.1 DM functions

Inclusion of the DM feature in international accounting would be relevant where the database functions, including communication with the database, are provided by a service provider other than the service provider that bills the customer. The international accounting would typically cover:

a) actual database use, i.e. the use of computer resources, and could be:

i) included as a general overhead in the standard accounting rate arrangements;

ii) applied as a negotiated rate for the different functions a customer can perform whilst manipulating a database;

iii) accounted for on the basis of total time and volume for aggregated DM functions during a settlement period;

b) communications with the database, for which accounting would normally be in accordance with the relevant D-Series Recommendations for the actual service used.

ITU-T RECOMMENDATIONS SERIES

Series A	Organization of the work of the ITU-T
Series B	Means of expression
Series C	General telecommunication statistics
Series D	**General tariff principles**
Series E	Telephone network and ISDN
Series F	Non-telephone telecommunication services
Series G	Transmission systems and media
Series H	Transmission of non-telephone signals
Series I	Integrated services digital network
Series J	Transmission of sound-programme and television signals
Series K	Protection against interference
Series L	Construction, installation and protection of cables and other elements of outside plant
Series M	Maintenance: international transmission systems, telephone circuits, telegraphy, facsimile and leased circuits
Series N	Maintenance: international sound-programme and television transmission circuits
Series O	Specifications of measuring equipment
Series P	Telephone transmission quality
Series Q	Switching and signalling
Series R	Telegraph transmission
Series S	Telegraph services terminal equipment
Series T	Terminal equipment and protocols for telematic services
Series U	Telegraph switching
Series V	Data communication over the telephone network
Series X	Data networks and open system communication
Series Z	Programming languages