INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

Q.68

(03/93)

GENERAL RECOMMENDATIONS ON TELEPHONE SWITCHING AND SIGNALLING

FUNCTIONS AND INFORMATION FLOWS FOR SERVICES IN THE ISDN

OVERVIEW OF METHODOLOGY FOR DEVELOPING MANAGEMENT SERVICES

ITU-T Recommendation Q.68

(Previously "CCITT Recommendation")

FOREWORD

The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the International Telecommunication Union. 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, established the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

ITU-T Recommendation Q.68 was prepared by the ITU-T Study Group XI (1988-1993) and was approved by the WTSC (Helsinki, March 1-12, 1993).

_____

NOTES

1 As a consequence of a reform process within the International Telecommunication Union (ITU), the CCITT ceased to exist as of 28 February 1993. In its place, the ITU Telecommunication Standardization Sector (ITU-T) was created as of 1 March 1993. Similarly, in this reform process, the CCIR and the IFRB have been replaced by the Radiocommunication Sector.

In order not to delay publication of this Recommendation, no change has been made in the text to references containing the acronyms "CCITT, CCIR or IFRB" or their associated entities such as Plenary Assembly, Secretariat, etc. Future editions of this Recommendation will contain the proper terminology related to the new ITU structure.

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

© ITU 1994

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
1	Introduction	1
2	Management services and users	1
	2.2 Management service users	1
3	Methodology	1
	3.1 Methodology in developing management services for User Type 1	2
	3.2 Methodology in developing management services for User Type 2	2
	3.3 Methodology in developing management services for User Type 3	3
	3.4 Methodology in developing management services for User Type 4	3
4	Unified and common methodology	3
5	References	3

ABSTRACT

This Recommendation provides an overview of the methodology for developing management services for different types of user.

Keywords

Methodology, management services, TMN, Stage 2.

OVERVIEW OF METHODOLOGY FOR DEVELOPING MANAGEMENT SERVICES

(Helsinki, 1993)

1 Introduction

1.1 The three stage methodology that is described in Recommendation I.130 has been used extensively for developing protocol supporting basic services and supplementary services in CCITT.

1.2 The Telecommunications Management Network (TMN) methodology that is described in Recommendation M.3020 has been used for management services, such as configuration management, fault management, performance management, accounting management and security management.

1.3 Some of the management services which are traditionally available to network Operation, Administration and Maintenance (OA&M) personnel can be accessed by users or subscribers through their access/terminal interfaces.

1.4 Given the above considerations, it is very important to ensure the consistent use of methodology and to avoid unnecessary divergence of network management output. This Recommendation describes the methodologies which are to be used in developing management services for subscribers as well as OA&M/TMN personnel.

2 Management services and users

2.1 **Management service definition**: A TMN Management Service as defined in Recommendation M.3020 is an area of management activity which provides for the support of operations, administration and maintenance of the network being managed. It is always described from the user perception of the OA&M requirements.

2.2 Management service users

There are four types of users who may access the management services which are provided by the TMN system which includes switching and signalling network elements.

2.2.1 Users on the OA&M access who can access network management services to configure and control their terminal through their user and network interfaces (User Type 1).

2.2.2 Customer network managers who can access network management services to manage their portion of the network (User Type 2).

2.2.3 Network OA&M personnel who can access network management services to manage the network through the TMN interfaces (User Type 3).

2.2.4 Management service users in other TMNs who can access management services via the non-TMN interfaces (User Type 4).

3 Methodology

This clause describes the methodology that is to be used in developing management services for the users as described in clause 2.

3.1 Methodology in developing management services for User Type 1

The three stage methodology (see Recommendation I.130) is to be used in developing this type of management service. Since this type of management service is provided through the access signalling interfaces, for consistency with basic service and supplementary service development, it is very important that a common framework be used. The three stage methodology may be summarized as:

- Stage 1 is an overall service description from the user's standpoint.
- Stage 2 is an overall description of the organization of the network functions to map service requirements into network capabilities.
- Stage 3 is the definition of switching and signalling protocol needed to support services defined in Stage 1.

Each stage consists of several steps.

Stage 1

Stage 1 is an overall service description from the user's point of view, but does not deal with the details of the human interface itself. The Stage 1 service description is independent of the amount of functionality in the user's terminal, other than that required to provide the human interface. For example, the conference calling service description is designed to be independent of whether the conference bridge is in the terminal, in the serving exchange or elsewhere.

The steps in Stage 1 are:

- Step 1.1: Service prose definition and description;
- Step 1.2: Static description of the service using attributes;
- Step 1.3: Dynamic description of the service using graphic means.

Stage 2

Stage 2 as defined in Recommendation Q.65, identifies the functional capabilities and the information flows needed to support the service as described in Stage 1. The Stage 2 description will also include user operations not directly associated with a call (e.g. user change of call forwarding parameters via his service interface) as described in Stage 1. Furthermore, it identifies various possible physical locations for the functional capabilities. The output of Stage 2 which is signalling system independent is used as an input to the design of signalling system and exchange switching Recommendations.

The steps in the enhanced Stage 2 to handle Managed Objects are:

- Step 2.1: Derivation of a functional model and managed object definition;
- Step 2.2: Information flow diagrams;
- Step 2.3: SDL diagrams for functional entities (the use of SDL for management service development is for further study);
- Step 2.4: Functional entity actions and actions identified in the managed object definitions;
- Step 2.5: Allocation of functional entities to physical locations.

Stage 3

In Stage 3 the information flow and SDL diagrams from the Stage 2 output form the basis for producing the signalling system protocol Recommendations and the switching Recommendations.

3.2 Methodology in developing management services for User Type 2

The need for such methodology development is for further study.

3.3 Methodology in developing management services for User Type 3

The basic TMN methodology will be used. For consistency with the methodology described in 3.1 above, the TMN methodology is augmented with explicit information flow diagrams. For consistency, the TMN methodology (see Recommendation M.3020) is summarized in three stages. For each stage, it consists of a number of tasks.

Stage 1

Task 1: Describe TMN management services, as perceived by the TMN users.

Task 2: Select and assign TMN application functions.

Stage 2

Task 3: Define objects, attributes, operations and notifications.

Task 4: Consolidation.

Task 5: Define management information schema.

Task 6: Determine communication requirements.

Task 7: Prepare documentation for protocol tasks.

Stage 3

Task 8: Analyse message needs.

Task 9: Describe adequacy of existing protocol for each layer.

Task 10: Define new protocol requirements.

Task 11: Define new layer services and protocols.

Task 12: Select layer services.

Task 13: Select layer protocols and form protocol suites to support the application messages.

3.4 Methodology in developing management services for User Type 4

The need for development of such methodology is for further study.

4 Unified and common methodology

The development of a common and unified methodology for management services is being studied.

5 References

– CCITT Recommendation *Method for the characterization of telecommunication services supported by an ISDN and network capabilities of an ISDN*, Rec. I.130.

– CCITT Recommendation *Stage 2 of the method for the characterization of services supported by an ISDN*, Rec. Q.65.

– CCITT Recommendation *TMN interface specification methodology*, Rec. M.3020.