International Telecommunication Union

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

M.1541

(01/2011)

SERIES M: TELECOMMUNICATION MANAGEMENT, INCLUDING TMN AND NETWORK MAINTENANCE

Designations and information exchange

Planned outage notification to customers

Recommendation ITU-T M.1541

ITU-T

International Telecommunication Union

ITU-T M-SERIES RECOMMENDATIONS

TELECOMMUNICATION MANAGEMENT, INCLUDING TMN AND NETWORK MAINTENANCE

Introduction and general principles of maintenance and maintenance organization	M.10–M.299
International transmission systems	M.300–M.559
International telephone circuits	M.560–M.759
Common channel signalling systems	M.760–M.799
International telegraph systems and phototelegraph transmission	M.800–M.899
International leased group and supergroup links	M.900–M.999
International leased circuits	M.1000–M.1099
Mobile telecommunication systems and services	M.1100–M.1199
International public telephone network	M.1200–M.1299
International data transmission systems	M.1300–M.1399
Designations and information exchange	**M.1400–M.1999**
International transport network	M.2000–M.2999
Telecommunications management network	M.3000–M.3599
Integrated services digital networks	M.3600–M.3999
Common channel signalling systems	M.4000–M.4999

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

Recommendation ITU-T M.1541

Planned outage notification to customers

Summary

Recommendation ITU-T M.1541 describes the process for the notification of planned outages to customers. It describes specific processes in view of the network architecture and the type of service agreement with the customer.

History

Edition	Recommendation	Approval	Study Group
1.0	ITU-T M.1541	2011-01-13	2

Keywords

Customer, network operator, notification, one-stop-shopping, planned outage, service agreement, service provider, user.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, information and communication technologies (ICTs). The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. 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 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.

NOTE

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

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure, e.g., interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

INTELLECTUAL PROPERTY RIGHTS

ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. 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, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at http://www.itu.int/ITU-T/ipr/.

Table of Contents

Introduction

Traditionally an end-to-end private international service has been jointly provided by bilateral network operators who have individual bilateral service agreements with both end customers. An end-to-end private domestic service has been solely provided by a single network operator under a single service agreement with the customer.

Currently these international and domestic end-to-end private services are in some cases provided by multiple network operators. In this case, a single service provider normally has an end-to-end service agreement with the customer. This agreement is called one-stop-shopping. The service provider has contracts with the involved network operators. The customer normally requires the service provider to notify in advance all planned outages in any network portion within an end-to-end connection.

This Recommendation describes the procedures for planned outage notification between the service provider and the customer for different network architectures and different types of service agreements. Related Recommendation ITU-T M.727 describes the responsibility and functions of the planned outage notification point.

Recommendation ITU-T M.1541

Planned outage notification to customers

1 Scope

This Recommendation describes the process for the notification of planned outages to a customer of private services such as leased circuit and virtual private network (VPN). It constitutes the specific processes in view of the network architecture and the type of service agreement with a customer.

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 M.60] Recommendation ITU-T M.60 (1993), *Maintenance terminology and definitions*.

[ITU-T M.727] Recommendation ITU-T M.727 (2011), *Planned outage notification point*.

[ITU-T M.1400] Recommendation ITU-T M.1400 (2006), *Designations for interconnections among operators' networks*.

[ITU-T M.1540] Recommendation ITU-T M.1540 (1994), *Exchange of information for planned outages of transmission systems*.

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

3.1.1 customer [ITU-T M.60]: An entity which receives services offered by a service provider based on a contractual relationship. It may include the role of a network user.

3.1.2 network operator [ITU-T M.1400]: An operator that manages a telecommunications network. A network operator may be a service provider and vice versa. A network operator may or may not provide particular telecommunications services.

3.1.3 one-stop-shopping [ITU-T M.727]: An arrangement whereby a single service provider provides or coordinates with multiple network operators the provision of one or more telecommunication services to a customer. It is designed to provide the customer with a single point of contact for ordering, implementation, billing and maintenance of the partial services provided by each involved network operator.

3.1.4 planned outage notification point (PONP) [ITU-T M.727]: A planned outage notification point (PONP) is an element within the service provider's organization, responsible for initiating and coordinating service notification activities to customers in the case of planned outages on any network section within the scope of the service agreement between a customer and a service provider.

3.1.5 service provider [ITU-T M.1400]: A general reference to an operator that provides telecommunication services to customers and other users either on a tariff or contract basis. A service provider may or may not operate a network. A service provider may or may not be a customer of another service provider.

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

3.2 Terms defined in this Recommendation

None.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

CPE Customer Premises Equipment

PONP Planned Outage Notification Point

SLA Service Level Agreement

TNC Terminal National Centre

VPN Virtual Private Network

5 Concepts and background

Planned work of network systems is generally carried out for the expansion and enhancement of networks and services. Such work will include the installation of new equipment, routine maintenance, upgrade of software, replacement of power supply equipment and activities for the clearance of faults. If the planned work results in the interruption of services, the re-routing of traffic or the restoration of facilities should be tried to be made in advance.

If it is not possible to re-route or back-up the service, it will be required to carry out the work during a planned outage. Especially, the planned maintenance of local access facilities normally causes service interruption because its restoration is not easy. From the view point of customer satisfaction, the planned outage should be notified to the customer in advance.

Under some service agreements such as one-stop-shopping, a service provider is required to notify the customer not only about his own planned outages, but also about outages resulting from work to be carried out by other contracted network operators.

6 Relation between network architecture and type of service agreement with the customer

6.1 Network architecture

Traditionally, an end-to-end domestic private service such as private leased circuit or virtual private network (VPN) has been provided by a single network operator, and an end-to-end international private service has been jointly provided by two network operators. The latter is identified as "bilateral service" and the corresponding network is called "bilateral network".

Currently, both international and domestic end-to-end private services are in some cases provided by multiple network operators.

From this it follows that basically three different architectures exist: single operators' network, bilateral operators' networks and multiple operators' networks.

6.2 Types of service agreement

In the case of a single network operator providing an end-to-end service to a customer, there is a single service agreement.

Bilateral network operators, jointly providing an end-to-end international service have individual service agreements with customers at each end. This type of service agreement is called a bilateral service agreement.

In case a single service provider has a single service agreement with the customer even though the end-to-end service is jointly provided by multiple network operators under some operational agreements, the type of service agreement is called one-stop-shopping.

In some special cases, one single customer has multiple service agreements with multiple service providers who are involved in the end-to-end service.

6.3 Useful combinations and notification processes

As described in clauses 6.1 and 6.2 above, there are three types of network architectures and three types of service agreements. Theoretically, there are nine possible combinations between network architecture and service agreement. However, the number of useful combinations is limited. Table 1 identifies the five combinations of network architectures and types of service agreement which are used in practice.

According to the combination, the process of planned outage notification to a customer is given in clause 7. Appendix I provides some examples.

Table 1 – Network architectures and types of service agreement

Service agreement / **Network architecture**	**One-stop-shopping (single service agreement)**	**Bilateral service agreement**	**Multi-lateral service agreement**
Single operator's network	✓ Case 1 (Note 1)	–	–
Bilateral operators' network	✓ Case 2B	✓ Case 2A (Note 2)	–
Multiple operators' networks	✓ Case 3B	–	✓ Case 3A
NOTE 1 – Traditionally popular in domestic service. NOTE 2 – Traditionally popular in international service.			

7 Basic process of planned outage notification

In case 1 of Table 1, the process of planned outage notification is very simple. The maintenance department of the network operator, normally the PONP (planned outage notification point), is informed about the planned outage by the maintenance department in the same operator, and notifies the customer in advance.

In cases 2B and 3B of Table 1, the notification process is not simple. The customer requires the service provider to notify them about the planned outage of any portion of an end-to-end connection, even that of a distant local access line. The PONP of the service provider obtains the planned outage information from not only the maintenance department in the same provider, but also from the other involved network operators, and notifies the planned outage to the customer.

In cases 2A and 3A of Table 1, the PONP in each involved network operator is responsible for notifying the customer about any planned outages caused by maintenance activities within that operator's network.

Typical examples of notification processes for the 5 combination cases in Table 1 are shown in Appendix I.

8 Timing of the notification

For all cases, 14 calendar days advanced notification to a customer is generally desirable but the actual number of days should be agreed in a service level agreement (SLA) between a service provider and a customer.

The following aspects should also be considered:

1) The date and time of planned outage should only be confirmed after acceptance by customers, in principle.
2) Planned outages should preferably not be carried out if notice cannot be given and received at least three days in advance.
3) An urgent planned outage for solving a problem in the network could be notified just before the outage.

Appendix I

Typical examples of notification process for the 5 combination cases

(This appendix does not form an integral part of this Recommendation.)

The cases defined in Table 1 are:

Case 1: Single operator's network and one-stop-shopping (Figure I.1)

Case 2A: Bilateral operators' networks and bilateral service agreement (Figure I.2-b)

Case 2B: Bilateral operators' networks and one-stop-shopping (Figure I.2-c)

Case 3A: Multiple operators' networks and multi-lateral service agreement (Figure I.3-b)

Case 3B: Multiple operators' networks and one-stop-shopping (Figure I.3-c)

The figures below depict possible notification processes for each of these five cases.

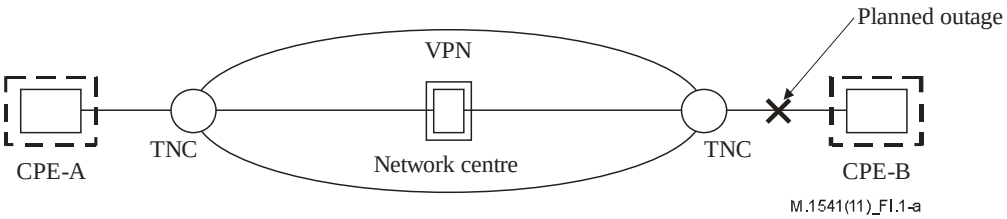

Figure I.1-a – Single network architecture

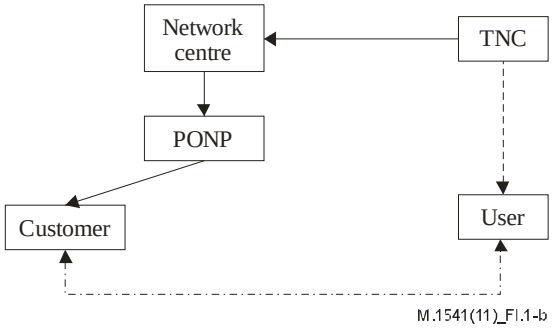

Figure I.1-b – Process of notification under one-stop-shopping

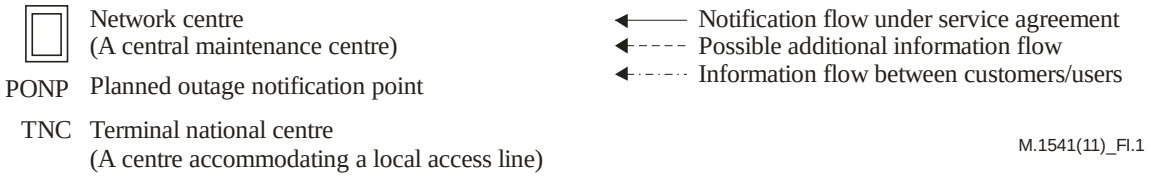

Figure I.1 – A notification process in case of planned outage of a local access line affecting an end-to-end VPN connection, case 1

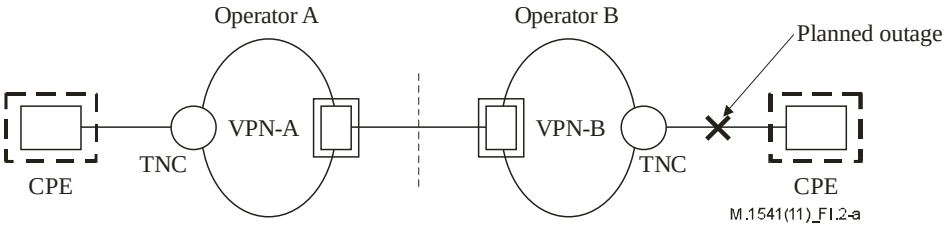

Figure I.2-a – Bilateral network architecture

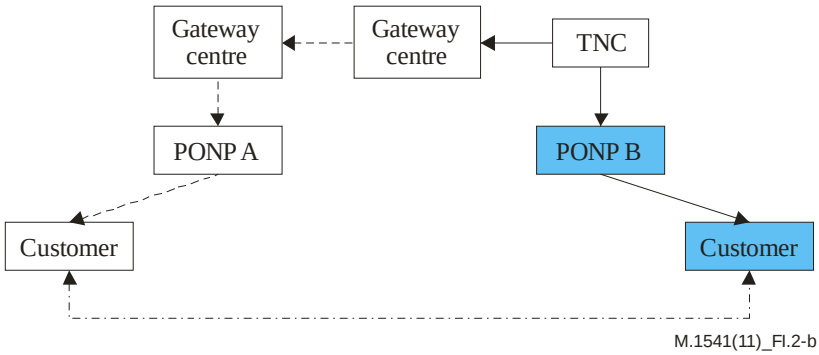

Figure I.2-b – Case 2A: Process of notification under bilateral service agreement

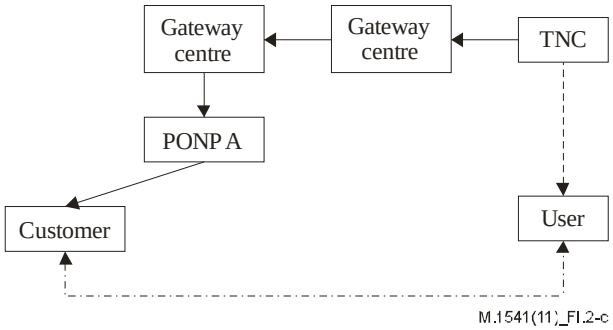

Figure I.2-c – Case 2B: Process of notification under one-stop-shopping

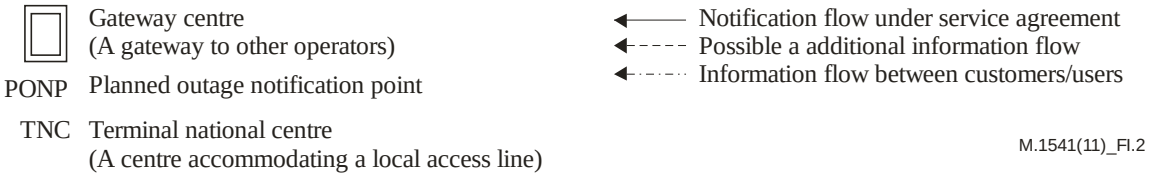

Figure I.2 – A notification process in the case of planned outage of a local access line affecting an end-to-end VPN connection, cases 2A and 2B

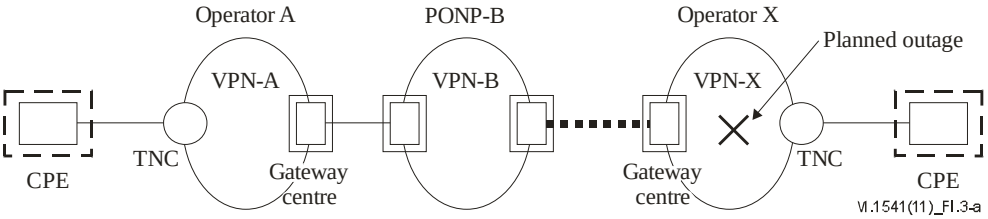

Figure I.3-a – Multiple network architectures

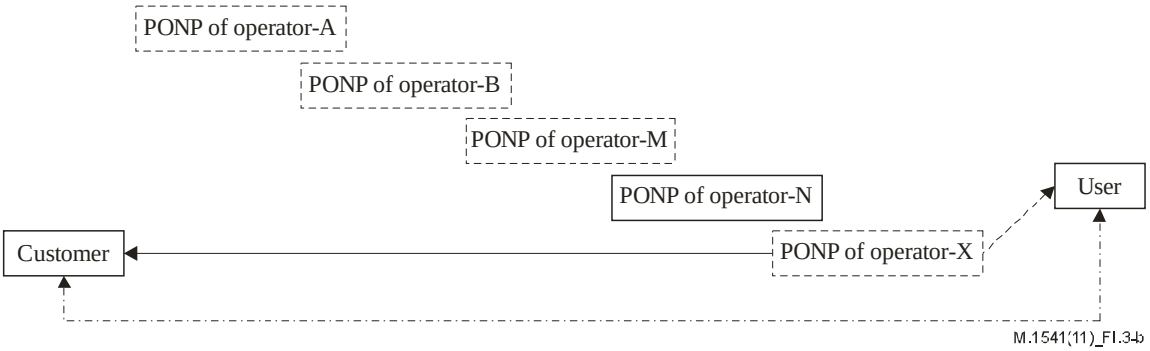

Figure I.3-b – Case 3A – Process of notification under multi-lateral service agreement

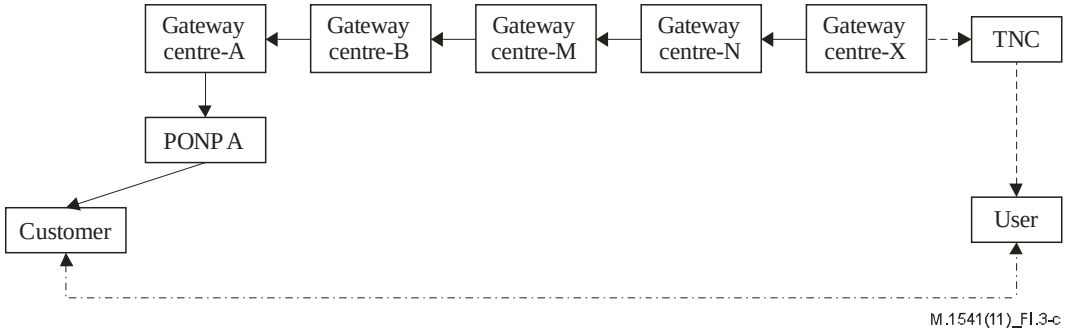

Figure I.3-c – Case 3B – Process of notification under one-stop-shopping

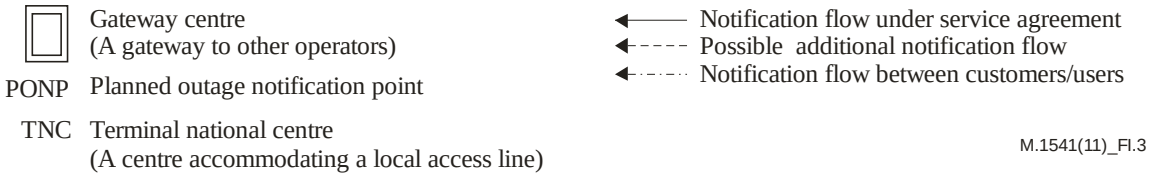

Figure I.3 (in case of multi-lateral network) – A notification process in case of planned outage of a distant network portion affecting an end-to-end VPN connection

SERIES OF ITU-T RECOMMENDATIONS

Series A	Organization of the work of ITU-T
Series D	General tariff principles
Series E	Overall network operation, telephone service, service operation and human factors
Series F	Non-telephone telecommunication services
Series G	Transmission systems and media, digital systems and networks
Series H	Audiovisual and multimedia systems
Series I	Integrated services digital network
Series J	Cable networks and transmission of television, sound programme and other multimedia signals
Series K	Protection against interference
Series L	Construction, installation and protection of cables and other elements of outside plant
Series M	**Telecommunication management, including TMN and network maintenance**
Series N	Maintenance: international sound programme and television transmission circuits
Series O	Specifications of measuring equipment
Series P	Terminals and subjective and objective assessment methods
Series Q	Switching and signalling
Series R	Telegraph transmission
Series S	Telegraph services terminal equipment
Series T	Terminals for telematic services
Series U	Telegraph switching
Series V	Data communication over the telephone network
Series X	Data networks, open system communications and security
Series Y	Global information infrastructure, Internet protocol aspects and next-generation networks
Series Z	Languages and general software aspects for telecommunication systems

Printed in Switzerland
Geneva, 2012