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SERIES E: OVERALL NETWORK OPERATION, TELEPHONE SERVICE, SERVICE OPERATION AND HUMAN FACTORS

International operation – General provisions concerning Administrations

Emergency Telecommunications Service (ETS) and interconnection framework for national implementations of ETS

ITU-T Recommendation E.107

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ITU-T Recommendation E.107

Emergency Telecommunications Service (ETS) and interconnection framework for national implementations of ETS

Summary

There is a potential for bilateral/multilateral agreement between cooperating countries/administrations to link their respective Emergency Telecommunications Service (ETS) systems. This Recommendation provides guidance that will enable telecommunications between one ETS national implementation (ENI) and another ENI, in addition to providing a description of ETS.

Source

ITU-T Recommendation E.107 was approved on 8 February 2007 by ITU-T Study Group 2 (2005-2008) under the WTSA Resolution 1 procedure.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications. 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.

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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/.

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Introduction

Countries have, or are developing, ETSs. Implementation of ETS by definition is a national matter. However, disasters/emergencies can transcend geographic boundaries, and thus there is a potential that countries/administrations may enter into bilateral and/or multilateral agreements to link their respective ETS systems. This Recommendation provides guidance that will enable telecommunications between one ETS national implementation (ENI) and other ENI(s).

ITU-T Recommendation E.107

Emergency Telecommunications Service (ETS) and interconnection framework for national implementations of ETS

1 Scope

This Recommendation provides guidance that will enable telecommunications between one ETS national implementation (ENI) and other ENI(s) (authority-to-authority), in addition to providing a description of ETS.

Early warning (EW) for disasters is not part of this Recommendation, but is left for future studies that may add to this Recommendation or become a separate Recommendation.

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 E.106] ITU-T Recommendation E.106 (2003), *International Emergency Preference Scheme (IEPS) for disaster relief operations*.

3 Definitions

This Recommendation defines the following terms:

3.1 Emergency Telecommunications Service (ETS): A national service providing priority telecommunications to the ETS authorized users in times of disaster and emergencies.

3.2 ETS user: A user authorized to obtain priority telecommunications in national and/or international emergency situations.

3.3 priority treatment capabilities: Capabilities that provide priority in the use of telecommunications network resources, allowing a higher probability of end-to-end telecommunications and use of telecommunication applications.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

ENI ETS National Implementation

ETS Emergency Telecommunications Service

IEPS International Emergency Preference Scheme

IP Internet Protocol

ISDN Integrated Services Digital Network

ISUP ISDN User Part

NGN Next Generation Network

PIN Personal Identification Number

PLMN Public Land Mobile Network

PSTN Public Switched Telephone Network

RTP Real Time Protocol

SIP Session Initiation Protocol

TDM Time Division Multiplex

TDR Telecommunications for Disaster Relief

UDP User Datagram Protocol

5 Conventions

None.

6 Emergency telecommunications service

ETS is a national implementation utilizing the features, facilities and applications available in national public networks and service offerings. As such, it could be said to resemble a supplementary service since it can only exist if there is an established telecommunication service. Implementation of ETS by definition is a national matter; however, ETS national implementations are likely to exhibit some of the following characteristics:

a) ETS users should be able to use their normal telecommunication terminals to initiate ETS calls, sessions or telecommunication during times of crisis or agreed emergency situations.

b) An originating national network may use various methods to identify an ETS user request for ETS telecommunication.

c) As a national capability, ETS is specifically designed to serve the telecommunication needs of authorized ETS users. How ETS users are authenticated and authorized is a national matter.

d) An ETS call, session or telecommunication is provided end-to-end priority treatment beyond that offered to the general public. The priority treatment is applied during the call/session establishment phase, and should continue to be applied for the duration of the call, session or telecommunication. The priority treatment consists of priority mechanisms and features applicable to various aspects (e.g., signalling, control, routing, and media traffic) that are essential for the establishment and continuation of the telecommunication, including:

- **Priority treatment**: Priority treatment mechanisms may include priority call/session set-up (e.g., priority queuing schemes for network resources), access to additional resources (e.g., via alternate routing) and exemption from restrictive network traffic management controls (e.g., call gapping). Pre-emption in the public network (i.e., terminating any established telecommunication to release resources to serve a new ETS call/session request) is a national matter.
- **Network interconnection and protocol interworking**: The signalling of ETS indicators transmitted across network boundaries (e.g., between a circuit-switched network and an NGN, etc.) and the ETS priority treatment should also be ensured to be interoperable across the relevant networks.

e) An ETS user should be able to communicate with any other available user. For example, any restrictions to call/session completion should be overridden.

f) A national government/administration decides whether user priority levels will be assigned to ETS users, and if assigned, how many levels will be used and the assignment criteria.

g) If a network or network element is not able to distinguish an ETS call/session request from a normal call request, then the routing of an ETS requested call should proceed as a normal call and any ETS markings or indicators associated with the call should be maintained and transmitted if technically feasible.

7 ENI-to-ENI interconnection

Countries have, or are developing, ETSs to allow priority treatment for authorized traffic to support emergency and disaster relief operations within their national boundaries. However, there could be a crisis situation where it is important for an ETS user in one country to communicate with available users in another country. In this case, it is important for an ETS call/session originated in one country to receive end-to-end priority treatment, i.e., priority treatment in the originating country and the destination country. This may require interconnection of two ETS national implementations via an international network that provides priority treatment capabilities. The term gateway in the following guidelines should be interpreted to be a traditional gateway exchange in a circuit-switched network or an equivalent for NGN networks. The following provides guidance for such an interconnection:

a) Countries may establish bilateral/multilateral agreements with regard to the exchange and treatment of ETS calls, sessions and telecommunications. Even though ETS may have been invoked, national authorities should be able to retain control of network management functions for their own telecommunication networks, including those elements relating to international traffic with other countries.

b) An outgoing international gateway shall provide priority treatment to an ETS call, session or other telecommunication. It will provide, if necessary, appropriate mapping of the originating country's national ETS indicators to the corresponding international call markings so that the ETS call, session or other telecommunication receives priority treatment in the international network. As this ETS call, session, or other telecommunication proceeds through the international network to an incoming international gateway, the incoming international gateway shall also provide priority treatment. It will provide, if necessary, appropriate mapping of the international call markings associated with the ETS call, session, or other telecommunication to the corresponding national indicators of the destination country so that the ETS call, session or other telecommunication receives priority treatment in the destination country.

c) Based on bilateral/multilateral agreement between countries/administrations, the information relating to the ETS user priority level shall be carried transparently across the international network and presented to the destination network. The incoming gateway in the destination country may provide a mapping of the ETS user priority level received from the originating country to that of the country of call/session destination.

d) If a transit network is not able to distinguish an ETS call/session request from a normal call/session request, then the ETS call/session request should be processed as a normal call/session request and any international call markings associated with the call/session should be passed without change.

e) TDR facilities may be used, based on bilateral/multilateral agreement between countries/administrations, for interconnection of ETS national implementations, for example, thereby supporting international calls, sessions or telecommunication between ETS national systems. The international emergency preference scheme (IEPS) for disaster relief operations described in [ITU-T E.106] provides priority treatment for international

telephony services for authorized users over connection-oriented telecommunications networks. Therefore, based on bilateral/multilateral agreement between countries/administrations, IEPS could be used in such a scenario for interconnection of ETS national implementations.

f) Based on bilateral/multilateral agreement between countries/administrations, mobility of ETS users shall be supported.

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