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INTERNATIONAL TRANSMISSION SYSTEMS,
TELEPHONE CIRCUITS, TELEGRAPHY, FACSIMILE
AND LEASED CIRCUITS

Telecommunications management network

**TMN service management requirements for
information interchange across the TMN
X-interface to support provisioning of
Emergency Telecommunication Service (ETS)**

ITU-T Recommendation M.3350

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TMN AND NETWORK MAINTENANCE: INTERNATIONAL TRANSMISSION SYSTEMS, TELEPHONE CIRCUITS, TELEGRAPHY, FACSIMILE AND LEASED CIRCUITS

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ITU-T Recommendation M.3350

TMN service management requirements for information interchange across the TMN X-interface to support provisioning of Emergency Telecommunication Service (ETS)

Summary

This Recommendation provides the basic functional requirements, framework, and use-cases for interchange of service management information across the TMN X-interface between a service customer and service provider, both officially authorized, associated with provision of Emergency Telecommunication Service (ETS). This capability is called the Emergency Telecommunication Service (ETS) Management Service (ETSMS).

Source

ITU-T Recommendation M.3350 was approved on 7 May 2004 by ITU-T Study Group 4 (2001-2004) under the WTSA Resolution 1 procedure.

Keywords

Disaster relief, ETS, requirements, service management, TMN, X-interface.

FOREWORD

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Introduction

During catastrophic events, such as earthquakes, severe storms, floods, and civil unrest, governmental and other essential users of public telecommunications need a preferential telecommunication capability to support emergency and disaster relief operations. Telecommunication resources are often restricted during these serious events due to damage, congestion, and failures. Therefore, it is desirable to establish and manage telecommunication capabilities to support disaster relief operations that will provide a high probability of completion of emergency telecommunications. ITU-T Rec. E.106 [1] describes an International Emergency Preference Scheme (IEPS) for PSTN, ISDN, and PLMN telephony services to support emergency recovery activities during crises.

Certain international and national telecommunication capabilities will enable authorized users to have preferential access to telecommunication services and preferential processing of telecommunications to support recovery operations during emergency and disaster events. These capabilities, when provided nationally, are referred to as the Emergency Telecommunication Service (ETS). While some countries already have national preference schemes in existing telecommunication systems, the challenge at hand is provisioning appropriate priority mechanisms for a family of multimedia services in the newly emerging generation of packet-based networks, as well as ensuring effective interoperation with existing PSTN, ISDN, and PLMN emergency services, facilitating also international telecommunications when applying ITU-T Rec. E.106. Interchange of critical service management information could significantly benefit emergency recovery operations. Service management information associated with ETS operations needs to be shared between SP and SC authorized to manage emergency and disaster relief operations to ensure the best possible telecommunication support is provided under the stressful circumstances. The ETS Management Service (ETSMS) addressed by this Recommendation will provide this capability.

ITU-T Recommendation M.3350

TMN service management requirements for information interchange across the TMN X-interface to support provisioning of Emergency Telecommunication Service* (ETS)

1 Scope

The subject of this Recommendation is the interface between a duly authorized service customer (SC) and a duly authorized service provider (SP) that is used to manage emergency telecommunication service (ETS) features. ETS features are used by emergency responders during disaster events for telecommunications to organize and coordinate activities for saving lives and restoring community infrastructure. The definition of actual ETS features and requirements are the subject of other Recommendations.

This Recommendation describes the ETS Management Service (ETSMS) and identifies functional requirements for interchange of critical service management information, which relates to ETS features, among TMNs across the X-interface of the service management layer as defined by ITU-T Rec. M.3010 [2]. The requirements described will enable authorized disaster response and recovery operations personnel, as SCs, to interact with SPs to share knowledge of the availability of services, configure services, and activate required services. Some aspects of the ETSMS may be used at any time independent of the occurrence of actual emergencies.

Other TMN Recommendations will cover the specific format and data elements as well as the protocols for interchange of management information across the X-interface for the ETSMS.

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.

- [1] ITU-T Recommendation E.106 (2003), *International Emergency Preference Scheme (IEPS) for disaster relief operations*.
- [2] ITU-T Recommendation M.3010 (2000), *Principles for a telecommunication management network*.
- [3] ITU-T Recommendation M.3208.1 (1997), *TMN management services for dedicated and reconfigurable circuits network: Leased circuit services*.
- [4] ITU-T Recommendation X.731 (1992) | ISO/IEC 10164-2:1993, *Information technology – Open Systems Interconnection – Systems management: State management function*.
- [5] ITU-T Recommendation X.790 (1995), *Trouble management function for ITU-T applications*.

* The use of the term "Service, service" in this Recommendation does not imply any recognized service definition in ITU-T; it covers telecommunication capabilities, applications, requirements, features, resources, etc.

3 Terms and definitions

This Recommendation defines the following terms:

3.1 availability: The measure of ability of the network resources to support ETS or ETSMS features that could be used as activated or to be activated by authorized users supporting emergency and disaster relief operations.

3.2 degradation: A state of the ETS in which the quality of service level falls below a minimum threshold specified in the service level agreement between SC and SP.

3.3 ETS Management Service (ETSMS): A management service that provides capabilities for interchange of critical service management information, which is related to available ETS features, between service customers and service providers responsible for disaster relief operations to recover from catastrophic events.

3.4 failure: Loss of capability to support ETS communications or the ETSMS.

3.5 Service Level Agreement (SLA): A Service Level Agreement (SLA) is a formal negotiated agreement between two parties. It is a contract that exists between the Service Provider (SP) and the Service Customer (SC). It is designed to create a common understanding about service, quality, priorities, responsibilities, etc. SLAs can cover many aspects of the relationship between the SC and the SP, such as performance of services, customer care, billing, service provisioning, etc.

3.6 ETS network operator: An authorized organization that operates a telecommunication network and provides ETS features for ETS service users. An ETS network operator may be a SP and vice versa.

3.7 ETS service customer: A designated manager of the ETS features and the recognized user of the ETSMS. There may be different levels of SCs from national and regional down to the immediate local disaster area. The Service Level Agreement (SLA) for the ETS and ETSMS is between the SC and SP.

3.8 ETS service provider: An authorized service provider of the ETS features and the ETSMS.

3.9 ETS service user: The ETS service user (SU) is authorized by the SC to use the ETS features. The SU is not a user of the ETSMS.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations:

ETS	Emergency Telecommunication Service
ETSMS	ETS Management Service
IEPS	International Emergency Preference Scheme (E.106)
ISDN	Integrated Services Digital Network
PLMN	Public Land Mobile Network
PSTN	Public Switched Telephone Network
SC	(Authorized ETS) Service Customer
SLA	Service Level Agreement

SP	(Authorized ETS) Service Provider
SU	(Authorized ETS) Service User
TMN	Telecommunication Management Network

5 Conventions

Conventions used in use-case diagrams and the use of UML are imported from ITU-T Rec. M.3020.

6 ETSMS functional requirements

6.1 ETSMS framework

Disaster situations can strike unexpectedly anytime and anywhere. Recovery requires rapid response by local, regional, and national authorities, immediate reaction from utility service providers, and support from medical, recovery, fire, police, and construction resources. Effective communications are essential to facilitate the myriad of activities required for organizing and coordinating lifesaving efforts concurrent with re-establishing control in the disaster area and restoration of the community infrastructure. Effective telecommunication services are imperative to the success of disaster recovery and mitigation operations.

Emergency and disaster relief operations require extensive coordination and cooperation by organizations involved in restoring the infrastructure and for the well being of the society impacted. During these disaster situations, telecommunication services are often severely disrupted through facility damage as well as congestions due to significantly increased telecommunication traffic. Operations centres may be established or activated to coordinate the myriad of activities that are required to recover from the destruction, locate missing people, save lives, recover the infrastructure of the community, and restore normal living conditions for the population. ETS telecommunications to support these emergency recovery operations are given preferential access and processing treatment (e.g., as specified in ITU-T Rec. E.106).

The ETS Management Service (ETSMS) provides online interchange of critical telecommunications management information, which is associated in real time with provision of ETS features, and will significantly facilitate and benefit recovery operations. These interactions will more efficiently and effectively facilitate provisioning of essential telecommunications support by the authorized ETS Service Provider (SP), use of ETSMS by the authorized ETS Service Customer (SC), and use of ETS by the ETS Service User (SU). Specific requirements for interchange of important service management information for emergency and disaster relief operations are described in this Recommendation.

Figure 6-1 shows the reference interface X being addressed by this Recommendation. The X-interface is also referred to as the "Service Customer – Service Provider" interface and is used to convey information related to service management as defined in ITU-T Rec. M.3010. Within this Recommendation, the SC is the disaster response individual or function, such as an emergency operations centre, that is assigned responsibility to interface with the ETS management system. ETSMS enables interchange of service management information between SCs and SPs to assist disaster relief operations. The SP provides the ETSMS capability in support of the provisioning of ETS. The network management system and underlying element managers are components of the SP's operations support system. The ETS management system collects data from network and element managers and then makes available agreed upon service management data and information associated with the provision of ETS to the SC.