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SERIES M: TELECOMMUNICATION MANAGEMENT,
INCLUDING TMN AND NETWORK MAINTENANCE

Telecommunications management network

**Multi-technology network management: CORBA
IDL solution set (TMF814) with implementation
statement templates and guidelines (TMF814A)**

ITU-T Recommendation M.3170.3

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ITU-T Recommendation M.3170.3

Multi-technology network management: CORBA IDL solution set (TMF814) with implementation statement templates and guidelines (TMF814A)

Summary

The multi-technology network management (MTNM) solution suite realizes a TMN interface between the NML and EML according to ITU-T Recommendation M.3010 for the FCAPS management of multi-technology fixed transport, access and aggregation networks.

This Recommendation first explains the structure of the MTNM CORBA IDL solution set (TMF814) and associated implementation statement templates and guidelines (TMF814A), then refers to ITU-T Recommendation X.780.2, ITU-T Recommendation Q.816.2 and MTNM supporting documents for relating the TMF814 and TMF814A components to key Recommendations on TMN and functional network architectures, and finally points out MTNM interoperability in a multi-vendor network.

This Recommendation wraps TMF814 and TMF814A, and the associated MTNM supporting documents, by referencing them normatively and relating them to key ITU-T Recommendations utilized by the MTNM approach to CORBA and functional modelling. These relationships imply that MTNM operations systems are TMN-compliant and TMN-conformant according to ITU-T Recommendation M.3010. This Recommendation can also be used as a first lead-in to the MTNM CORBA IDL solution set with implementation statement templates, interoperability guidelines and MTNM feature matrices.

Source

ITU-T Recommendation M.3170.3 was approved on 16 March 2007 by ITU-T Study Group 4 (2005-2008) under the ITU-T Recommendation A.8 procedure.

Keywords

Common Object Request Broker Architecture (CORBA), element management (EM), EM layer (EML), EM system (EMS), interface, multi-technology network management (MTNM), network management (NM), NM layer (NML), NM system (NMS), Next Generation Network(s) (NGN), NGN management (NGNM), operations system (OS), Q interface, q reference point, reference point, service-oriented CORBA, service-oriented façade, service-oriented managed object, tele(com(munications)) management (TM), TM Forum (TMF), TM network (TMN).

FOREWORD

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Introduction

This Recommendation provides an overview of the TM Forum's MTNM CORBA IDL solution set TMF814 v3.0 and TMF814 v2.1 and CORBA implementation statement templates and guidelines TMF814A v3.0 and TMF814A v2.1, and provides evidence that MTNM is TMN-compliant, TMN interface protocol-conformant and Level B TMN interface information-conformant according to [ITU-T M.3010] by using the compliance and conformance points of the service-oriented CORBA TMN framework [ITU-T X.780.x] and [ITU-T Q.816.x].

ITU-T Recommendation M.3170.3

Multi-technology network management: CORBA IDL solution set (TMF814) with implementation statement templates and guidelines (TMF814A)

1 Scope

The multi-technology network management (MTNM) solution suite is an implementation standard of a TMN interface between the NML and EML according to [ITU-T M.3010] for the FCAPS management of multi-technology fixed transport, access and aggregation networks. The MTNM implementation view specifies a CORBA-based TMN Q interface between an NMS (CORBA client or TMN manager) and an EMS (CORBA server or TMN agent which is in contact to the NEL).

The MTNM solution suite consists of the following deliverables:

- The MTNM business view is specified in the business agreement (BA) TMF513.
- The MTNM system view is specified in UML in the information agreement (IA) TMF608.
- The MTNM CORBA-based implementation and deployment views are specified in the CORBA IDL solution set (SS) TMF814 (with HTML documentation) and associated implementation statement (IS) templates and guidelines TMF814A.
- The MTNM supporting documentation (SD) guides and lightens the work with the MTNM views and also includes normative parts of the interface such as name/value pairs.

This Recommendation:

- provides an outline of the TMF814 components (uniformly structured CORBA IDL files with inline comments, generated HTML documentation and MTNM supporting documents) (see also clauses 6.1.2 and 6.4 [ITU-T M.3170.0]) and how they are related;
- refers to [ITU-T X.780.2] for the structure of the CORBA IDL files and modules, the used parts of the IDL repertoire and foundation IDL, and the applied IDL style;
- refers to [ITU-T Q.816.2] for the used CORBA-based TMN services;
- proves compliance and basic profile conformance of TMF814 with [ITU-T X.780.2] and [ITU-T Q.816.2] (i.e., the service-oriented CORBA framework);
- provides an outline of the structure of TMF814A and how it relates to MTNM supporting documents (such as MTNM feature matrices) and complies with the CORBA-based interface implementation conformance statement (ICS) proformas of [ITU-T X.781];
- wraps TMF814 and TMF814A with their supporting documents by referencing them normatively according to ITU-T Rec. A.5 and pointing to key closely related in-force ITU-T Recommendations on TMN (NGNM) and functional (NG) network architectures;
- as a consequence, provides evidence that MTNM is TMN compliant, TMN interface protocol-conformant and Level B TMN interface information-conformant according to [ITU-T M.3010];
- indicates that TMF814 and TMF814A collectively specify an interoperable CORBA-based NML-EML interface and so get wrapped jointly according to Figure 8-1;
- indicates that TMF814 provides a vendor-independent two-part data model (behaviour and state of managed objects) that offers standardized means for vendor-specific extensions;
- determines for further study the recommended contents of CORBA-based vendor-provided ICS documents (if needed) such as a vendor-specific implementation statement (IS) as per TMF814A and an interface implementation specification (IIS) as per [b-TMF833 v1.0];

- indicates that the applicability of the service-oriented CORBA paradigm goes beyond CORBA and the management of NEs and networks, for example towards XML-based management of both telecom networks-based services and content and applications-based services.

This Recommendation first explains the structure of TMF814 and TMF814A, then refers to [ITU-T X.780.2] and [ITU-T Q.816.2] and identified MTNM supporting documents for relating the TMF814 and TMF814A components to key Recommendations on TMN (NGNM) [ITU-T M.3010], [ITU-T M.3060], etc. and functional (NG) network architectures (allowing for details) [ITU-T G.805], [ITU-T G.852.2], [ITU-T Y.2012], etc., and finally points out the MTNM support of interoperability (when vendors use TMF814A and the built-in extension mechanisms of TMF814) that would enable the deployment of a multi-technology cooperative network management solution (CoNMS) in a multi-vendor network.

This Recommendation wraps TMF814 and TMF814A, and the associated MTNM supporting documents, by referencing them normatively and relating them to key Recommendations. These relationships imply that MTNM operations systems are TMN-compliant and TMN-conformant according to [ITU-T M.3010]. This Recommendation can also be used as a first lead-in to the TM Forum MTNM CORBA IDL SS with IS templates, interoperability guidelines and MTNM feature matrices.

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 G.805] ITU-T Recommendation G.805 (2000), *Generic functional architecture of transport networks*.
- [ITU-T G.809] ITU-T Recommendation G.809 (2003), *Functional architecture of connectionless layer networks*.
- [ITU-T G.852.2] ITU-T Recommendation G.852.2 (1999), *Enterprise viewpoint description of transport network resource model*.
- [ITU-T M.3010] ITU-T Recommendation M.3010 (2000), *Principles for a telecommunications management network*.
- [ITU-T M.3013] ITU-T Recommendation M.3013 (2000), *Considerations for a telecommunications management network*.
- [ITU-T M.3060] ITU-T Recommendation M.3060/Y.2401 (2006), *Principles for the management of Next Generation Networks*.
- [ITU-T M.3170.0] ITU-T Recommendation M.3170.0 (2007), *Multi-technology network management: Introduction and supporting documentation*.
- [ITU-T M.3170.1] ITU-T Recommendation M.3170.1 (2007), *Multi-technology network management: Business agreement (TMF513)*.
- [ITU-T M.3170.2] ITU-T Recommendation M.3170.2 (2007), *Multi-technology network management: Information agreement (TMF608)*.

- [ITU-T Q.811] ITU-T Recommendation Q.811 (2004), *Lower layer protocol profiles for the Q and X interfaces.*
- [ITU-T Q.812] ITU-T Recommendation Q.812 (2004), *Upper layer protocol profiles for the Q and X interfaces.*
- [ITU-T Q.816.x] ITU-T Recommendations Q.816.x, *CORBA-based TMN services.*
 NOTE – This series of Recommendations has the following structure:
 Q.816 (2001), *CORBA-based TMN services.*
 Q.816.1 (2001), *CORBA-based TMN services: Extensions to support coarse-grained interfaces.*
 Q.816.2 (2007), *CORBA-based TMN services: Extensions to support service-oriented interfaces.*
- [ITU-T X.780.x] ITU-T Recommendations X.780.x, *TMN guidelines for defining CORBA managed objects.*
 NOTE – This series of Recommendations has the following structure:
 X.780 (2001), *TMN guidelines for defining CORBA managed objects.*
 X.780.1 (2001), *TMN guidelines for defining coarse-grained CORBA managed object interfaces.*
 X.780.2 (2007), *TMN guidelines for defining service-oriented CORBA managed objects and façade objects.*
- [ITU-T X.781] ITU-T Recommendation X.781 (2001), *Requirements and guidelines for Implementation Conformance Statements proformas associated with CORBA-based systems.*
- [ITU-T X.920] ITU-T Recommendation X.920 (1997) | ISO/IEC 14750:1999, *Information technology – Open Distributed Processing – Interface Definition Language.*
- [ITU-T Y.110] ITU-T Recommendation Y.110 (1998), *Global Information Infrastructure principles and framework architecture.*
- [ITU-T Y.2011] ITU-T Recommendation Y.2011 (2004), *General principles and general reference model for Next Generation Networks.*
- [ITU-T Y.2012] ITU-T Recommendation Y.2012 (2006), *Functional requirements and architecture of the NGN release 1.*
- [TMF513 v3.0] TM Forum TMF513 Version 3.0 (2004), *Multi-Technology Network Management (MTNM) NML-EML Interface: Business Agreement*, except for the table of references contained in Appendix B.
 NOTE – Refer to the companion Recommendation ITU-T M.3170.1 for an explanation of this exception.
- [TMF608 v3.0] TM Forum TMF608 Version 3.0 (2004), *Multi-Technology Network Management (MTNM) NML-EML Interface: Information Agreement*, Rational Rose™ (UML) version and generated HTML version, except for the table of references contained in Appendix B.
 NOTE – Refer to the companion Recommendation ITU-T M.3170.2 for an explanation of this exception.
- [TMF814 v2.1] TM Forum TMF814 Version 2.1 (2002), *Multi-Technology Network Management (MTNM) NML-EML Interface: CORBA IDL Solution Set.*
- [TMF814 v3.0] TM Forum TMF814 Version 3.0 (2004), *Multi-Technology Network Management (MTNM) NML-EML Interface: CORBA IDL Solution Set.*

