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Telecommunications management network

Guidelines for the definition of SLA representation templates

ITU-T Recommendation M.3342



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ITU-T Recommendation M.3342

Guidelines for the definition of SLA representation templates

Summary

This Recommendation mainly deals with SLA Representation Templates used for Service Customers and Service Providers. It briefly introduces the overview and characteristics of SLA representation templates, and describes the detailed classification of SLA content, and provides the guidelines for the definition of SLA representation templates in detail, including the instructions for completing SLA templates. In Appendix I a simple example of SLA Representation Templates and instances of them are illustrated for reference.

Source

ITU-T Recommendation M.3342 was approved on 14 July 2006 by ITU-T Study Group 4 (2005-2008) under the ITU-T Recommendation A.8 procedure.

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Key performance indicator, KPI, key quality indicator, KQI, service level agreement, SLA, template.

FOREWORD

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Guidelines for the definition of SLA representation templates

1 Scope

The emerging new service and its QoS management requirements are challenging the NGN service management, demanding extendibility and scalability. The most important characteristic of NGN different from the current network is the QoS guarantee for services. SLAs are considered an effective way of solving the problems of QoS guarantee between Service Customers (SCs) and Service Providers (SPs).

Guidelines for the Definitions of SLA Representation Templates (GDSRT) are the instructional explanations about service level, quality of service, priorities and duties in the SLA content. Four parts, business part, service part, technology part, and QoS report, are defined in the guidelines and the content of each part is described in detail. On the basis of the guidelines, the specific SLA representation template instances can be developed according to the specific service features.

This Recommendation provides the guidelines and instructions for the definition and composition of SLA representation templates in order to manage QoS and service guarantee of telecommunication services effectively. It is the scope of this Recommendation to provide an overview of:

- the definition and characteristics of SLA representation templates, based on the requirements of QoS management for emerging new services;
- guidelines for the definition of SLA representation templates, in order to standardize the representation methods of SLAs;
- proformas of SLA representation templates and instructions for completing the proformas to allow defining any specific templates meeting the requirements for different services; and
- some SLA Representation Templates examples.

Although the guidelines for the definition are proposed in the context of NGN QoS requirements, it can be adapted to any telecommunication service and is not just limited to NGN services.

It is out of the scope of this Recommendation to provide the definition and concept of each specific Key Performance Indicator (KPI) or Key Quality Indicator (KQI); only the abstraction for how to represent QoS Parameters, KPIs and KQIs are addressed in this Recommendation. The definitions of KPIs and KQIs can be imported into SLA Representation Templates from other ITU-T Recommendations or specifications from other organizations.

By following the templates and the filling instructions provided in this Recommendation, a specific SLA can be created for a specific service. Some more detailed information can be captured from TMF GB917 Volume 2 [15] and Volume 3 [16], and ITU-T Rec. E.802 [3].

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.800 (1994), *Terms and definitions related to quality of service and network performance including dependability*.
- [2] ITU-T Recommendation E.801 (1996), *Framework for Service Quality Agreement*.
- [3] ITU-T Recommendation E.802 (Draft), *Framework and methodologies for the determination and application of QoS parameters*.
- [4] ITU-T Recommendation E.860 (2002), *Framework of a service level agreement*.
- [5] ITU-T Recommendation G.1010 (2001), *End-user multimedia QoS categories*.
- [6] ITU-T Recommendation M.1532 (2000), *Network maintenance service performance agreement (MSPA)*.
- [7] ITU-T Recommendation M.2301 (2002), *Performance objectives and procedures for provisioning and maintenance of IP-based networks*.
- [8] ITU-T Recommendation M.3010 (2000), *Principles for a telecommunications management network*.
- [9] ITU-T Recommendation M.3050.1 (2004), *Enhanced Telecom Operations Map (eTOM) – The business process framework*.
- [10] ITU-T Recommendation M.3208.1 (1997), *TMN management services for dedicated and reconfigurable circuits network: Leased circuit services*.
- [11] ITU-T Recommendation Y.1001 (2000), *IP Framework – A framework for convergence of telecommunications network and IP network technologies*.
- [12] ITU-T Recommendation Y.1221 (2002), *Traffic control and congestion control in IP-based networks*.
- [13] ITU-T Recommendation Y.1540 (2002), *Internet protocol data communication service – IP packet transfer and availability performance parameters*.
- [14] ITU-T Recommendation Y.1541 (2006), *Network performance objectives for IP-based services*.
- [15] TeleManagement Forum GB917-2 Version 2.5 (2005), *SLA Management Handbook – Volume 2 – Concepts and Principles*.
- [16] TeleManagement Forum GB917-3 Version 2.1 (2005), *SLA Management Handbook – Volume 3 – Service and Technology Examples*.

3 Definitions

3.1 Definitions imported from ITU-T Rec. E.860

- Service Level Agreement (SLA)

3.2 Definitions imported from ITU-T Rec. M.3208.1

- Service Customer (SC)
- Service Provider (SP)

3.3 Definitions imported from ITU-T Rec. E.419

- Key Performance Indicators (KPI)

3.4 Definitions imported from TMF GB917-2

- Key Quality Indicator (KQI)

3.5 Definitions imported from ITU-T Rec. M.3050.1

- End User (EU)
- Enterprise
- Customer¹

3.6 Other definitions in this Recommendation

This Recommendation defines the following terms:

3.6.1 SLA representation templates: SLA representation templates are the canonical representation method and format of a SLA for a specific service. It is composed of several proformas to contain the SLA contents for a specific service. It provides the structures and the organization method for the SLA content. When the SLA templates for a specific service are filled in with concrete information, they become a practical SLA instance.

3.6.2 guideline for the definition of SLA representation templates (GDSRT): GDSRT are the instructional explanations about how SLA content of a specific service can be organized and represented. It provides a directive profile about the canonical definitions and expressions of generic SLA representation templates.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations:

BBER	Background Block Error Ratio
BER	Bit Error Ratio
ES	Error Seconds
EU	End User
GDSRT	Guidelines for the Definition of SLA Representation Templates
ID	Identifier
IP	Internet Protocol
ITU-T	International Telecommunication Union – Telecommunication Standardization Sector
KPI	Key Performance Indicator
KQI	Key Quality Indicator
MSPT	Multiplex Section Protection Termination
MTBF	Mean Time Between Failures
MTBO	Mean Time Between Outages
MTPS	Mean Time to Provide Service
MTRS	Mean Time to Restore Service
MTTR	Mean Time To Repair
MTU	Maximum Transmission Unit
NGN	Next Generation Network

¹ The concept of "Customer" from ITU-T Rec. M.3050.1 [9] (which is originated by TMForum) and that of "Service Customer" from ITU-T Rec. M.3208.1 [10] (which is originated by ITU-T) are used as equivalent terms within this Recommendation.

NP	Network Performance
OI	Outage Intensity
OMG	Object Management Group
PM	Performance Monitoring
QoS	Quality of Service
RFS	Ready For Service
RFSD	Ready For Service Date
SA	Service Availability
SDF	Service Degradation Factor
SLA	Service Level Agreement
SA	Service Availability
SC	Service Customer
SES	Severely Errored Seconds
SP	Service Provider
SUA	Service UnAvailability
TMF	TeleManagement Forum
TMN	Telecommunications Management Network
UAS	UnAvailable Seconds
VLL	Virtual Leased Line

5 Overview of SLA representation templates

5.1 Background

The goal of the SLA is to create a healthy relationship between the SP and the SC, and to protect the legal rights of both the SP and the SC. Because of different SPs, different services and different definitions of SLA clauses, there is no standardized SLA representation and expression during the service negotiation and QoS guarantee phase. It is necessary to define standardized and generic guidelines of SLA representation templates to solve this problem.

5.2 What are SLA representation templates

SLA is a long-term guarantee of SCs' satisfaction. Both the SC's and the SP's interests are served by a simplified SLA negotiation and standardized contract process.

SLA representation templates are the canonical representation method and format of a SLA for a specific service. It is composed of several proformas that contain the SLA content for a specific service. It provides the structures and the organization method for the SLA content. When the SLA templates for a specific service are filled in with concrete information, they become a practical SLA instance.

5.3 Characteristics of standardized SLA representation templates

The characteristics of standardized SLA representation templates defined by this Recommendation should at least be:

- accordant with the current criteria;
- definition self-contained;
- extensible;
- realizable; and
- comprehensible.

5.4 What is GDSRT

Guidelines for the Definitions of SLA Representation Templates (GDSRT) are the instructional explanations about how SLA content of a specific service can be organized and represented. GDSRT provides the format of each proforma that may be involved in SLA representation templates, the structures about how SLA content is organized, which proformas to select in order to form a complete set of templates for a specific service, and the instructions about how the proformas can be filled in. On the basis of the guidelines, specific SLA representation templates for a specific service can be developed accordingly. Based on the SLA Representation Templates, the SLA negotiation between SCs and SPs can be carried out, and the agreed results can be captured in the SLA representation templates, thus forming a practical SLA instance.

6 Compositions of SLA representation templates

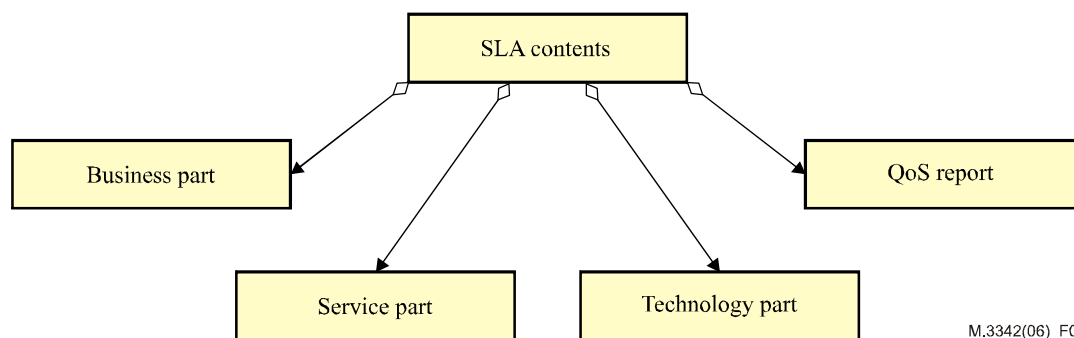
6.1 SLA contents

TMF GB917-3 [16] has specified that a SLA may contain the following:

- Points of Contact;
- Services Provided;
- System Design Information;
- Supporting Equipment;
- Level and Quality of Service;
- Monitoring and Reporting;
- Service Center;
- SP Backup and Disaster Recovery Mechanisms;
- Terms and Conditions;
- Network and Delivery Upgrades;
- Change Procedures;
- Service Violations and Remedies;
- Tariffs and Billing;
- Service Termination.

This Recommendation imports the above content into SLA Representation Templates, and the detailed information of each item can be found in clause 4 of GB917-3 [16]. In this Recommendation, additional details extend the above content list.

6.2 Basic composition of SLA representation templates



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Figure 1/M.3342 – Basic composition of SLA content

Figure 1 gives the basic composition of the SLA content, regardless of the services provided. Generally, the content of a SLA include the following four parts, which can be used to categorize the above SLA content listed in 6.1.

1) *Business part*

This part describes the general business information and business procedures related to the service provided by the SP to the SC. It may describe the information about contact information, general terms, help desk center, service violation processing and billing information, etc. This part covers the following items that are listed in 6.1:

- Points of Contact;
- Terms and Conditions;
- Service Center;
- Change Procedures;
- Service Violations and Remedies;
- Tariffs and Billing;
- Service Termination.

2) *Service part*

This part describes the detailed information about the service provided to the SC. It includes the negotiated service content and the agreed service level. This part covers the following items that are listed in 6.1:

- Services Provided;
- Service Level.

3) *Technology part*

This part gives the detailed information about QoS parameters, metrics set, and some technical supporting infrastructure, such as supporting equipments and system design information, etc. This part covers the following items that are listed in 6.1:

- QoS Parameters;
- Supporting Equipments;
- System Design Information;
- SP Backup and Disaster Recovery Mechanisms;
- Network and Delivery Upgrades.