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

Quality of telecommunication services: concepts, models,
objectives and dependability planning – Use of quality of
service objectives for planning of telecommunication
networks

Framework of a service level agreement

ITU-T Recommendation E.860

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ITU-T Recommendation E.860

Framework of a service level agreement

Summary

The liberalization and deregulation process that started during the last decade in the telecommunication's environment is still running and it is cause of meaningful changes. Increasing competition, favoured also by customer performance requirements, produces big pressures upon service/network providers. The latter, after having faced especially cost reductions for several years, nowadays try to improve quality of service (QoS) in order to differentiate their products from those of their competitors.

In addition the situation is complicated by the increasing demand of global services which involve in their provisioning several service/network providers. Therefore, roles of all entities that take part to service provision and their relationships have to be described. The scope is to state responsibilities of each provider and to assure quality of service required from customer.

A useful tool in formalizing the mentioned inter-relationships between entities is *Service Level Agreement* (SLA), that is the result of a negotiation between two or more parties with the objective of reaching a common understanding about service delivered, its quality, responsibilities, priorities, etc.

This Recommendation describes a generic structure of SLA adopting an approach independent from the type of service and the technology used. That approach is useful especially in a multi-provider environment which today has become reality.

Source

ITU-T Recommendation E.860 was prepared by ITU-T Study Group 2 (2001-2004) and approved under the WTSA Resolution 1 procedure on 29 June 2002.

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.

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Framework of a service level agreement

1 Introduction

The liberalization and deregulation process that started during the last decade in the telecommunication's environment is still running and it is cause of meaningful changes.

Increasing competition, favoured also by customer performance requirements, produces big pressures upon service/network providers. The latter, after having faced especially cost reductions for several years, nowadays try to improve quality of service (QoS) in order to differentiate their products from those of their competitors.

In addition the situation is complicated by the increasing demand of global services which involve in their provisioning several service/network providers.

Therefore, roles of all entities that take part to service provision and their relationships have to be described. The scope is to state responsibilities of each provider and to assure quality of service required from customer.

A useful tool in formalizing the mentioned inter-relationships between entities is *Service Level Agreement* (SLA), that is the result of a negotiation between two or more parties with the objective of reaching a common understanding about the service delivered, its quality, responsibilities, priorities, etc.

In the following a generic structure of SLA is described adopting an approach independent from the type of service and the technology used. That approach is useful especially in a multi-provider environment which today has become reality.

Therefore we begin with recalling QoS terms and definitions (clause 2) and the one stop responsibility concept (clause 4).

Afterwards the structure of a SLA is described in all its components (clause 5) and its application in a multi-provider environment is illustrated in clause 6.

2 Quality of Service definitions and terms

A standardization of terms and definitions in QoS is important for two main reasons:

- to avoid the confusion introduced by contrasting terms and definitions;
- to maintain the consistency between different groups involved in developing telecommunication standards.

In this clause terms and definitions for a QoS Framework are introduced, referring to [E.800] for the other QoS terms.

2.1 Entity

An *Entity* is a generic unit involved in using/delivering a service. It is characterized by its states and its transitions from a state to another (Figure 2-1). During a transition an entity can execute functions and interact with other entities through its outputs.

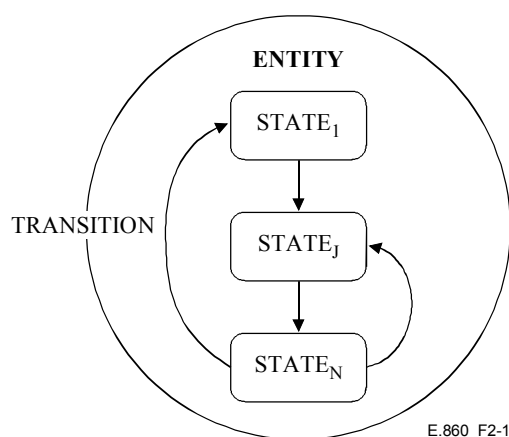


Figure 2-1/E.860 – States and transitions of an entity

An entity that delivers a service to another entity is called **provider** while the entity that receives the service is called **user**. The term user may indicate either an end user, a regulatory authority or a service provider. The latter receives a service from another service provider.

2.2 Interaction Points and Interfaces

An *Interaction Point* is a point where two entities can exchange information.

A group of interaction points at the logical boundary between two entities constitutes an *interface* (Figure 2-2).

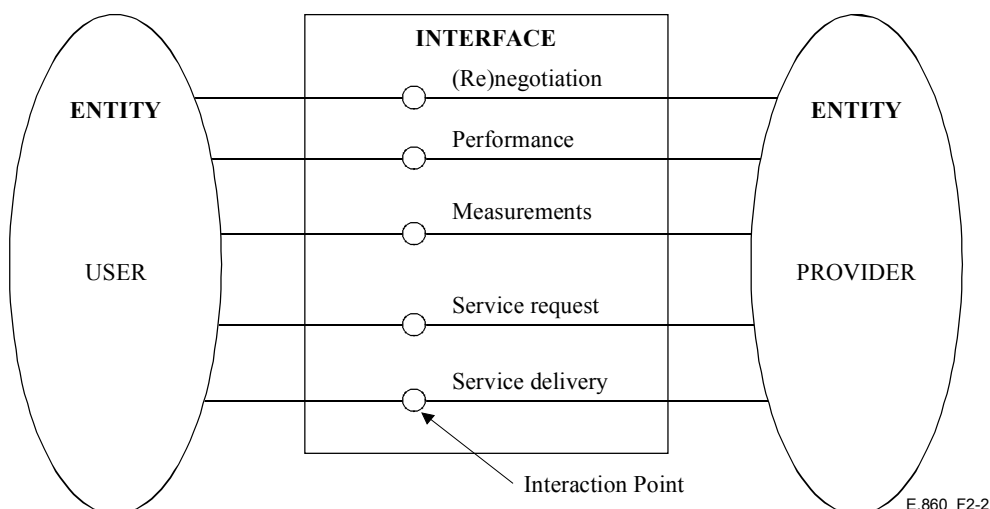


Figure 2-2/E.860 – Provider, user, service, interface, interaction points

Sometimes an interaction point between user and provider may not belong to their logical interface although this point remains under the control of the provider.

Interaction points can be located either on horizontal interface (between domains of the same functional level) or on vertical interface (between domains of different functional level) (Figure 2-3).

It is often useful to group more entities together in one; obviously the correspondent interfaces will be redefined in a convenient way.

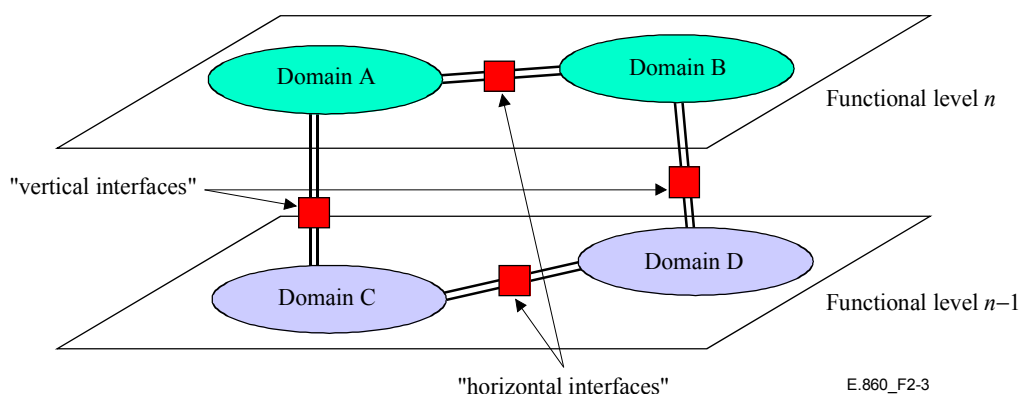
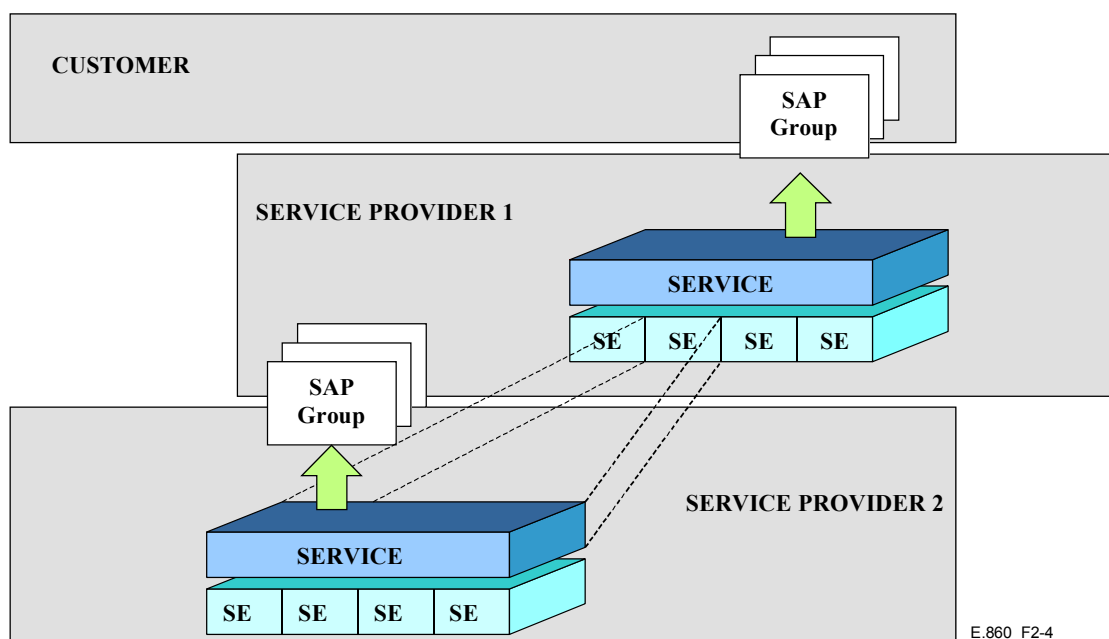


Figure 2-3/E.860 – "Vertical" and "horizontal" interfaces

2.3 Service, Service Element and Service Access Point

A *service* is a group of functions provided by an organization to a user through an interface [E.800].

The interaction points located in the interface between the SP's domain and the user's domain are called *Service Access Point* (SAP) and represent the points where service is delivered. SAP's definition is very important because all service components located between the SAPs in the SLA are under the SP's responsibility. In performance reporting, more SAPs may often be grouped in a *SAP Group*. The concept of layered architecture may be applied also in service definition and in performance estimation (e.g., Service Availability delivered from a provider to a user in correspondence of a SAP) (Figure 2-4).



SE Service Element
SAP Service Access Point

Figure 2-4/E.860 – Service composition

The example in Figure 2-4 shows a customer who buys a service from SP1 stipulating an agreement which contains responsibilities and priorities related to quality of service; in respect of this agreement performance parameters have to be provided in correspondence of SAP group by the provider to the customer.