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Part 3: Template for Service Level Agreements (SLA)

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Foreword

This ETSI Guide (EG) has been produced by ETSI User Group (USER).

During the editing process, among other contributions, parts of the University of Wollongong (AU) SLA template and guidelines have been incorporated, in particular in annex A.

The present document is part 3 of a multi-part deliverable covering the quality of telecom services, as identified below:

Part 1:   "Methodology for identification of parameters relevant to the users";

Part 2:   "User related parameters on a service specific basis";

Part 3:   "Template for Service Level Agreements (SLA)".

Introduction

Quality of Service can be evaluated from different perspectives and therefore using different measurement methods:

a) a first level of QoS is related to the reliability of the equipment and can be measured accurately via technical means, although these measures might be expensive because of both the dispersion of the test and the size of the sample to be tested;

b) a second level is related to the service provision and is closely linked to the kind of use of the service. Therefore appropriate criteria have to be defined according to this kind of use between the customer and the supplier;

c) the last one is intended to measure the subjective satisfaction of the customer and there is often no other means than a survey to get it.

In the two first categories, technical means can be used to perform the measurements and in such cases, standards are often useful to achieve a common approach; such standards are given as references where appropriate. They include a precise definition of what is meant as a failure: total failure, poor performance, backup situation, etc.

Assessing these different aspects is of paramount importance to the provider who endeavours to improve the offered QoS. From a user viewpoint, the end-to-end QoS is the most relevant, even if objective and subjective measurements may be usefully combined for a better assessment of the QoS.

Measurements of every interesting parameter all the time might be very expensive and can even jeopardize the network performances. It is often cheaper to get them via a poll. In addition, a third party can usefully carry out these measurements to make them more reliable and avoid any criticism from one of the involved parties.

It is worth noting that:

a) QoS is not a quantity that can be measured using some deterministic meter. The evaluation of QoS can only be performed statistically. Statistical rules apply and state that to obtain a precision of 1 %, the size of the sample analysed must be as large as 1000 units and the sample must be taken out of a population 100 or 1000 times larger. This implies practically that QoS can only concern items produced in very large quantities. The QoS concept does not apply to items produced in 2, 20 or 200 units.

b) An operator can commit himself to a 99 % or 99,9 % QoS level if and only if he produces, or has produced since the beginning of production of this item 10^6 or 10^7 units. 99 % or 99,9 % figures mean that less than 1 item out of 100 or 1 000 is not good quality. Adding the traditional sampling ratios and precision of measurement ratios leads to populations as large as 10^6 or 10^7 units

c) An SLA that concerns units, dozens or hundreds of anything (leased lines, Frame relay circuits…) with 99 % committed QoS is meaningful if and only if these units are taken out of a very big population.

d) It is hopeless to expect that screening the "very best" units out of a poor quality population would allow guarantying high QoS level for the selected items. A poor quality product might certainly contain some high quality "nuggets" but the indicators enabling their sorting out are hazardous.

e) The only means to obtain high level QoS products from an operator is to make sure that:

- the purchased service is widely provided and the provider is mastering all manufacturing, installation and support processes,

- the average QoS score of his production is close to the commitment he is intending to negotiate with you,

- a quality insurance plan exists, has been labelled, is annually monitored and is auditable in accordance with ISO 900X standards.

f) Satellite systems do exhibit very high reliability. This is achieved mainly with careful design including redundancy, use of space qualified equipment. Experience has demonstrated that satellite links do provide quasi error free transmission. To increase availability, site diversity can be used to mitigate link outage due to heavy rain conditions or failure in a satellite earth Station [8]. It is also possible to design satellite networks using transponders on different satellites to improve reliability and availability of the service in case of a failure.

QoS and Reliability in the Telecom category, concerns more and more items peripheral to the product as described in clause 5 and less performance indicators.

The existence of a Quality assurance plan labelled, monitored and auditable is key to the QoS.

In this context, the achievement of a satisfying SLA requires an in depth analysis of the user needs for which guidance is given in EG 202 009-1 [6] and EG 202 009-2 [7].

1   Scope

In the current competitive world, Quality of Service (QoS) is becoming, jointly with cost, a key parameter in selling and buying telecommunications services. At the same time, technology and liberalization trends are raising new types of concerns unknown with the Plain Old Telephony Services (POTS) using switched connections provided by a single monopoly supplier. This why achieving a SLA is more and more often perceived as the best means to ensure the optimal cost/quality ratio to the customer and the provider in a win-win perspective.

Nowadays, there are several standards describing QoS measurements but the questions of which indicators are to be monitored and which values they should meet are still open. This Part 3 of the deliverable defines a framework for a Service Level Agreement between a customer and a supplier of Telecommunications Services. Such framework uses the service specific QoS parameters proposed in EG 202 009-2 [7] to evaluate the Quality of Service, while EG 202 009-1 [6] gives guidance to identify the parameters relevant to the users. The following concepts are defined:

   a) The services covered by the SLA;

   b) The performance or quality criteria pertinent from the user point of view with reference to indicator values;

   c) The methods to acquire the indicator values needed to measure the performance or the quality of service;

   d) The service level that the supplier is agreeing to ensure.

In addition, a Service Level Agreement aims to define a common quality management process used by the supplier and the customer, including:

   a) Outage management

   b) Statistics for prevention

   c) Usage statistics

   d) Etc.

Such framework is intended to avoid the multiple misunderstandings that, by experience, are appearing between the customer and the supplier or between different departments within the supplier company.

The main principles for these definitions are:

   • To define the services according to the applications performed by the user and not by the technical solution: for example, voice over IP is one of the many technical solutions to communicate between subscribers of the world-wide telephone network; ATM, frame Relay, IP are some of the many technical solutions to ensure a data transmission service between a terminal and a server or between networks. The quality criteria are the same, only the Service Level is different.

   • To define the quality criteria with respect of usage and not technique. In speech quality, users are more interested in intelligibility than in bandwidth, distortion, signal to noise ratio or lost packets… Quality criteria should be defined from the functional criteria, then translated into technical criteria. This means that different performance parameters may be used to quantify the quality, depending on those that are relevant for the technology used. In any case the criteria should take into account the effects perceived by the user and not their causes in the network.

Therefore, the present document does not intend to describe measurement techniques since several ETSI TCs are dealing with such techniques and have the appropriate technical knowledge to develop standards in this area. The purpose of the document is rather to give guidance in using such standards in SLA and defining indicator values.

2   References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies.

[1]   ITU-T Recommendation E.800: "Terms and definitions related to quality of service and network performance including dependability".

[2]   ETSI ETR 003: "Network Aspects (NA); General aspects of Quality of Service (QoS) and Network Performance (NP)".

[3]   ETSI EG 201 769-1: "Speech Processing, Transmission and Quality Aspects (STQ); QoS parameter definitions and measurements; Part 1: Parameters for voice telephony service required under the ONP Voice Telephony Directive 98/10/EC".

[4]   ETSI TR 121 905: "Universal Mobile Telecommunications System (UMTS); Vocabulary for 3GPP Specifications (3GPP TR 21.905 version 4.4.0 Release 4)".

[5]   Directive 98/10/EC of the European Parliament and of the Council of 26 February 1998 on the application of open network provision (ONP) to voice telephony and on universal service for telecommunications in a competitive environment.

[6]   ETSI EG 202 009-1: "User Group; Quality of Telecom Services; Part 1: Methodology for identification of parameters relevant to the Users".

[7]   ETSI EG 202 009-2: "User Group; Quality of telecom services; Part 2: User related parameters on a service specific basis".

[8]   "IUT-R Handbook on satellite communication operating in the Fixed Satellite Services (FSS)".

3   Definitions, symbols and abbreviations

3.1   Definitions

For the purposes of the present document, the following terms and definitions apply:

call: logical association between two or more endpoints, offering the possibility to make use of a telecommunication service (see TR 121 905)

connection: connection provides for transfer of information between endpoints (see ITU-T Recommendation I.113-504 modified)

defect: limited interruption of the ability of an item to perform a required function. It may or may not lead to maintenance actions depending on the results of additional analysis (see ITU-T Recommendation I.113-601)

fault: inability of an item to perform a required function, excluding that inability due to preventive maintenance, lack of external resources, or planned actions (see ITU-T Recommendation I.113-603)

function: set of processes defined for the purpose of achieving a specified objective (see ITU-T Recommendation I.112-403)

    NOTE: Functions may be ordered in a logical hierarchy.

Quality of Service (QoS): collective effect of service performance which determines the degree of satisfaction of a user of the service (see ITU-T Recommendation E.800)

> NOTE 1: The quality of service is characterized by the combined aspects of service support performance, service operability performance, serveability performance, service security performance and other factors specific to each service.
> The term "quality of service" is not used to express a degree of excellence in a comparative sense nor is it used in a quantitative sense for technical evaluations. In these cases a qualifying adjective (modifier) should be used.

> NOTE 2: Complementary definition on QoS requirements of the user/customer, QoS offered by service provider, QoS achieved by service provider, QoS perceived by the user/customer are given in [2].

service provider: organization that offers a telecommunication service to the customer and/or user

> NOTE 1: A service provider needs not to be a network operator (see EG 201 769-1 [3]).

> NOTE 2: A service provider that is subject to the requirements of the ONP Voice Telephony Directive will in most cases also be a network operator.

user: individuals, including consumers, or organizations using or requesting publicly available telecommunications services (copied from Directive 98/10/EC)

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

GSAR	Guaranteed Service Availability Ratio
GTTD	Guaranteed Time To Delivery
GTTR	Guaranteed Time To Repair
POTS	Plain Old Telephony Service
QoS	Quality of Service
SLA	Service Level Agreement
SQA	Service Quality Agreement

4 Building a Service Level Agreement

An effective SLA acknowledges that clients and service providers have responsibilities and obligations to each other. It is important to address these points in the development phase, and acknowledge them in writing. An agreement that clearly defines the roles and responsibilities of both parties will be of particular benefit if problems arise. The SLA should be used in any case as a means to improve the process and the mutual understanding and not to relieve responsibility of one party on the other party.

Parties should consist of 1 or 2 representatives from each party who may have an interest in the outcomes of the service.

An important step in the process is to identify needs and expectations for the specified services. This enables both parties can understand what service attributes are most valued by each group. A service attribute is the aspect of service quality that is most important to the client/customer.

The service provider needs to discuss its capacity and potential constraints on providing the service for the customer/client. This will assist both parties gain an understanding of each other's requirements and reduce unrealistic expectations. If there are concerns or issues regarding service levels they should be discussed at the negotiations stage, not when a SLA is close to implementation.

The critical areas of service must be identified and both client and service provider need to agree on a minimum level of service to provide client satisfaction.

It is necessary at this stage, for clients to distinguish their specific needs from broader expectations regarding service, and to appropriately prioritize service requirements. It may also be appropriate for the provider to detail the range of services they can provide. This is the way both parties can fully identify their needs and expectations and agree on which services will be provided.

A service level is an agreed process which may include one or more of the following elements to describe service performance:

- Service features

- Quantitative aspects

- Quality aspects

- Timeliness

- Cost/tariff.

When both parties have established agreed service levels, the next step is to agree on measurement of service level performance. It is essential to implement a system that will provide credible results; otherwise all parties within the process may lose confidence.

It is often the service provider, who puts forward ideas regarding measurement of performance, however this is not always the case. Performance can be difficult to measure in some cases and it is a good idea to keep it as simple as possible. Some lateral thinking by both parties incorporating a mix of output and outcome measures often generates the best results. One-off or periodical surveys may be all that is required to check whether performance indicators have been achieved.

As with all stages within this process, it is important that agreement is reached between client and service provider regarding service performance evaluation. If there is no provision for QoS measurement means, then the SLA will not be manageable.

Both parties should identify the aspects of the service provision and maintenance not covered in the agreement.

Another key aspect of SLAs is the need to incorporate an element of flexibility, in order to accommodate environmental change that is common within organizations. One way of building in flexibility is to separate the broad areas of agreement that are unlikely to change, from the details that can be altered subject to discussion.

A review process should be put in place and each party to the agreement should discuss and monitor the agreement throughout its life and state who will be responsible for reviewing performance.

It is important to define how the agreement will be monitored and the mechanisms that will be used to resolve issues that may arise during the course of the agreement. If the service levels and standards have been defined clearly, and indicators to measure performance have been established, then monitoring will be relatively easy. The agreement should build in a process for feedback between both parties, via reporting or another agreed communication method between the representatives of both parties.

The following clauses are providing indications on how to define these parameters and the best means to measure the performance.

5　　　Service Level Agreement template

Telecommunications Services include several parts:

a) The delivery of the service itself (connection to a telecommunication system)

b) Several additional provisions that are more and more key parameters of the QoS:

- Information on the service

- Implementation and setting up

- Backup in case of problem

- Processing of service failures (repair and setting back to working order)

- Help desk to take the users' problems into account and report on the progress of restoring

- Billing and accounting media and methods

- Statistics on operation and traffic

- Possible up-dates

- Documentation

- Etc.

All these items are the basis for the SLA. Features of each of them have to be characterized in the SLA in order to define as accurately as possible what the service will do and will not do.

The performance indicators are defined in EG 202 009-1 [6].

Performance criteria are in many cases service specific. Therefore it is important that in the SLA the following points are made:

- what are the performance criteria that are pertinent to the particular service?

- what are the acceptable range of performance?

- how are these to be measured?

- who will measure it?

- what are the acceptable measuring procedures (test specification i.e. ITU-T recommendation, or ETSI standard and the frequency of measurement, sample size, confidence limits etc)

- in the event of a dispute or disagreement, what are the resolution procedures?

- what are the penalty clauses?

- who will be the arbitrating body in the event of a disagreement?

5.1 Services covered

Hereafter should be the definition and description of the telecommunication services: type of network and type of use, connection establishment, equipment provided, technical features of the various items.

5.1.1 Content

Here should be listed a general description of each service provided and of the bearer network(s).

1) Type of service/network

2) Network structure

3) Grid mesh

4) Local loop

5) Type of traffics

5.1.2 Features

5.1.2.1 Technical features

To be specified for each network component and each type of use envisaged.

5.1.2.2   Geographical features, coverage

Geographical features have to be specified using maps and tables for user equipment (including nodes, satellite terminal…) specifying every local agreement.

On the particular case of wireless communications and taking into account that there are two schools of thought: one based on the geographical coverage (including landmass and oceans for maritime and aeronautical services) and the other one based on the population. The indicator should be based on both geographical and population coverage.

5.1.3   Connection establishment

It is expected to have here a detail of the procedure to implement a new connection.

5.1.4   Service life cycle

Here should be detailed the procedures to achieve each of the tasks for each service provision.

- Before sale

- Sale

- Installation

- Documentation

- Acceptance

- Operation

- Troubleshooting

- Billing

- Evolution: Benchmarking, release, technical update

- …etc.

5.1.5   Duration of the agreement

Here should be detailed how to deal with the following aspects:

- Renewal

- Price revision

- Benchmarking during the contract

- Break up clause of the contract

- Cessation

5.2 QoS commitments

Should specify:

- Implementation allotted time

- Rated operation: criterion, measurements and level commitments

- Backup: criterion, measurements and level commitments

- Allowance for unavailability, outage classes and corresponding procedures

- Principles and methods of calculation for penalties

Each commitment is associated to one severity in case of dysfunction defining the agreed priority, allotted time to intervene as well as an escalation procedure from the provider side. It is worth noting that some providers are now committing themselves to 100 % availability.

5.2.1 Setting up

Should specify:

- Access and implementation in customer premises, description of provider equipment

- Installation time commitments

- Acceptance

5.2.2 Operation

5.2.2.1 Rated operation

Should contain the rated performances and appropriate checking methods.

5.2.2.2 Back up operation

Should detail the back up operation, preventing any service break up.

5.2.2.3 Maintenance

The process and conditions to perform maintenance or test should be detailed.

5.2.3 Service break up

Should detail the allotted service break up limits in duration, frequency and totalization, measurement methods and the basis for optional penalty calculation.

Possible time slots for different allowance should be specified.

5.2.4 Outage process

Should detail the process for taking into account the outages, for customer information, for common investigation and the possible constraints in accessing the customer premises, etc.

5.2.5 Indicators

Indicators are belonging in principle to the following categories:

- Availability

- Time to answer

- Bit rate for each data flow

- Stability

EG 202 009-1 [6] gives indication on how to choose the appropriate indicators and related thresholds according to the type of service provided and to the type of application using it. Table 1 gives also guidance in this aspect on the service level expected according to the type of application.

Table 1: Service level indicators

Service Level	Type of applications	Key parameters
1	Non critical data Like Public Internet Without any guarantee on a minimal transmission speed	Best effort No performance management
2	Critical operational data e.g. VPN outsourcing or eCommerce Frame relay, CIR or ATM	Low lost packet rate Transit time and jitter monitored.
3	Real time applications Voice, video, Visio conference	Low transit time and jitter.

5.2.6 Means to ensure quality

As usual in quality management, appropriate means should be implemented to ensure the expected results are reached. This kind of commitment can be included in the SLA or in a specific Service Quality Agreement (SQA). Some examples are detailed in table 2.

Table 2: Quality means

Need	Impact on design
Availability	Backup routes Relief of network links and equipment
Response time	End to end transit time
Bit rate per flow	End to end guaranteed bit rate Load sharing and balance. Bandwidth sharing
Stability	Network operation mechanisms

5.2.7 Quality features of the service and additional provisions

Quality features of the service are by essence service specific. Again, it is important that in the SLA the following points are made:

- what are the performance criteria that are pertinent to the particular service?

- what are the acceptable range of performance?

- how are these to be measured?

- who will measure it?

- what are the acceptable measuring procedures (test specification i.e. ITU-T recommendation, or ETSI standard and the frequency of measurement, sample size, confidence limits, etc.)

EG 202 009-1 gives guidance on how to define these aspects. Regarding the provisions additional to the service itself, table 1 and [2] are useful to define the appropriate parameters.

Table 3: Key parameter of the service quality

Features	Criterion	Key parameter
Use	According to the product/service	See part 2 of the deliverable
Aftersales information	Reporting, update	See table 1
Capabilities, restrictions, performances	User friendly and updated documentation	See table 1
Tariffs	Legibility, evolution	Errors, absence
Procedures	Simplicity	Efficiency
Sale and provision		See table 1
Appointments	Required time to set-up Timeliness Conformance to the planning	See table 1
Contract and cancellation procedure	Legibility, Benchmarking	See table 1
Launching	Time to deliver Timeliness Conformance to the specification	See table 1
Billing	Accuracy, conformance to the order	See table 1
Lump billing	Number of errors	Number of errors
Detailed billing	Number of errors	Number of errors
Supplier-customer interface	Reliability	MOS
	Assurance	MOS
	Empathy	MOS
	Responsiveness	MOS

5.3 Customer Support

Here should be detailed the help desk availability schedule and information exchanges for the outage process: procedures, documentation, etc.

5.3.1 Help Desk

The following issues have to be specified:

- Working hours and days.

- Method to process the calls.

- When answer is provided wholly automatically, e.g. by voice response systems, a provision for switching to a human operator should be proposed in all cases.

5.3.2 Outage management

The following aspects should be specified:

- Principle of mutual information.

- Limits of liability on customer equipment.

5.3.2.1   Resolution process

The process should be detailed on the issues below:

- Opening of an outage record

- Outage identification and localization

- Possibilities of remote outage process.

- Cases where a human intervention should occur.

- Notification to the initiator of the call of the closure of the outage.

- Process to prevent the repetition of the similar outages.

5.3.2.2   Priority levels

Table 4 intends to define the priority level to be given according to consequences of the outage to the users. These levels are to be used in the escalation process and possible penalties as well.

Table 4: Priority levels

Severity	Definition	Example
1	Service interruption	Inability to access the service
2	Service deterioration	Microcuts, undue response time or Bit Error Rate, aborted calls, etc.
3	No impact on the user	Proactive maintenance, scheduled tests, etc.

5.3.2.3   Escalation process

The escalation process should define who is given the responsibility to fix the failure according to its duration.

Table 5: Escalation process timescale

Acting people	Severity 1	Severity 2	Severity 3
Responsible for customer helpdesk	1 h	2 h	4 h
Operation responsible	2 h	4 h	Next working day
Technical director	4 h	8 h	None

5.3.2.4   Customer information

Here should be detailed the customer information process on the outage management, e.g. how is given information on the cause of the outage, the progress of the repairing, expected end of the outage, possible backup, etc.

5.4   Reporting

Content and frequency of the reports on consumption, quality of service and outage should be specified here. When provided electronically, the format of the records should be open and specified to enable the user to consolidate such information between the various possible providers. This is a key issue to allow for benchmarking.

5.4.1   Consumption reports

Itemized bill should list the details of:

- Charge records and costs per site, link, if appropriate, and for the whole network.

- Charge analysis providing indication on the trends, per site, applications, type of traffic, etc.

5.4.2   Outage reports

Technical reports, detailing the main causes of outage, their consequences on the traffic, means implemented to avoid their repetition, etc.

Traffic reports should provide information on congestion occurred, etc.

5.4.3   QoS reports

Report on service outages should detail statistics on their occurrence, consequences (limited to one site, one service or widespread),

Statistics should be given on disturbances, microcuts, undue response times, aborted calls.

Information should be given on actions to improve the QoS: Proactive actions, preventive maintenance.

5.4.4   Costs

The possible type of medium to make the report available should be specified with its corresponding price if appropriate.

Table 6: Report prices

Report	Includes	WEB price	CD ROM price	Paper price
Performance report	Launching reports Modification reports	(generally free of charge)	(generally paying)	(generally paying)
	QoS reports			
Detailed billing	Lump detailed billing	On demand (generally free of charge)	(generally paying)	(generally paying)
	Detailed billing per site			
	Breakdown of the traffic			
Consumption analysis	Consumption analysis	On demand (generally free of charge)	(generally paying)	(generally paying)
Technical reports	Traffic		(generally paying)	(generally paying)

5.5   Charging and billing

Tariffs, penalties, format and billing frequency, validation and modes of payment should be detailed has far as possible to avoid any misunderstanding between the provider and the customer. In particular for mobile communications, every detail should be given on the different categories of calls, in particular on incoming and outgoing calls with subscribers outside the provider network.

5.5.1   Penalties

5.5.1.1   Penalties on delay on delivery

The amount of the penalties related to the disrespect of the delivery date are computed depending on the delay and bit rate of the connection according to the following table (x being a basic fee to be negotiated in the SLA).

Table 7: Examples of calculation of the penalty amount

Connection bit rate	Amount of the penalty		
	1 to 7 days delay	8 to 28 days delay	> 28 days delay
1 Mbit/s ≤ 2 Mbit/s	300x	600x	1200x

Table 8

Connection bit rate	Amount of the penalty		
	1 to 14 days delay	15 to 56 days delay	> 56 days delay
2 Mbit/s ≤ 8 Mbit/s	750x	1500x	3000x
> 8 Mbit/s	1000x	2000x	4000x

5.5.1.2 Penalties on GTTR

The amount of the penalty is calculated for each month, each connection and each defect.

This amount is a percentage on the monthly price of each connection concerned. This percentage depends on the actual time to repair and on the commitment agreed between the parties. The following table gives an example of such calculation.

Example of calculation of the penalty amount

Actual repair time for a 5 hour commitment	Actual repair time for a 8 hour commitment	Penalty
≤ 5 hours	≤ 8 hours	0 %
> 5 hours et ≤ 12 hours	> 8 hours et ≤ 12 hours	5 %
> 12 hours et ≤ 24 hours	> 12 hours et ≤ 24 hours	15 %
> 24 hours	> 24 hours	25 %

5.5.1.3 Penalties on GSAR

The amount of the penalty is calculated for each month and each connection each defect.

This amount is a percentage on the monthly price of each connection concerned. This percentage depends on the difference between the committed availability rate and the recorded one according to the table below.

Example of calculation of the penalty amount

Difference between the target and the actual availability rate	Penalty
> 0 et ≤ 2 %	15 %
> 2 % et ≤ 4 %	30 %
> 4 %	50 %

5.5.2 Validation of bills before recovery

The process of validation of the bills before recovery should be detailed here defining the timescale and how dealing with objections, disputes, etc., Who is responsible in both parties for these tasks should be clearly identified.

5.5.3 Modes of payment

E-billing is a crucial issue with the development of telecommunication services.

E-billing interest for Telecom operators is due to its capability to reduce the cost of the paper bills and accelerate the payment by the customer's bank. The E-bill being forwarded to the client a couple of weeks before payment date, the absence of customer's protest is considered by the operator as an authorization to draw the customer's bank account.

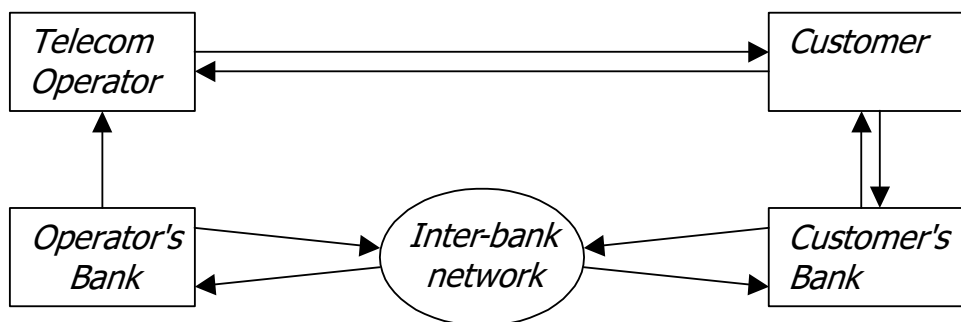This argument is highlighted in figure 1.

Figure 1: The electronic billing process

Since the advent of XML, new directions are investigated to avoid usage of a costly user workstation. The directions opened consist in:

- using EDI in the case of big companies with hundreds of thousands of premises;

- using XML in the case of SMEs.

From a user's perspective, the advantages of E-billing is to open up some dynamic Benchmarking capabilities and easier automated management of the bill, provided appropriate interfaces are available.

5.5.3.1 Payment of penalties

- Penalty on GTTD.

The penalty is deduced from the bill related to the service access fees.

- Penalty on GTTR et GSAR.

The penalties due to the disrespect of corresponding commitments recorded during month M are calculated on the amount of the bill of month M-1 and deduced from the bill of month M+1.

The total amount of penalties is limited to 10 % of the overall monthly customer bill.

5.6 Revision procedures.

A review process should be put in place and each party to the agreement should discuss and monitor the agreement throughout its life.

The US widely-known "How-ya" effect, according to which users are much less satisfied today by services they were completely satisfied with some years or some months ago, shows how important the continuous analysis of customers expectations is.
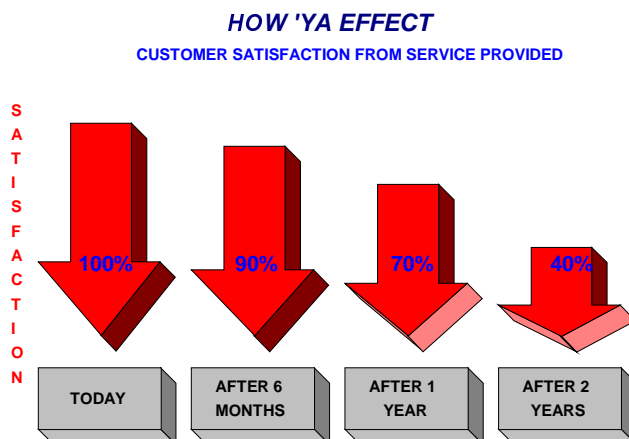
HOW 'YA EFFECT

CUSTOMER SATISFACTION FROM SERVICE PROVIDED

Figure 2

Who will be responsible for reviewing performance should be stated.

If staff changes in either client or provider areas the new staff responsibilities needs to be communicated clearly to the new staff.

If new services or service features are required the agreement should be flexible enough to allow for review and change.

A program for adjustment of service levels should be agreed if there is a deviation from agreed performance.

6   Conclusion

The ETSI User group hopes the present document provides useful guidance on the users expectations about the QoS to the standard makers, regulators and providers. It is expected also that the users themselves can find here some help, e.g. business users when establishing a SLA with their favourite provider.

There are obvious lacks at this stage of the document that could hopefully be filled with a further revision, in particular in the field of security, content control and SPAM control in the Internet area.

Annex A (informative):
Checklist Building the Service Level Agreement

During the SLA building process, it is useful to bear in mind the following principles:

- Keep it as simple as possible (Building a mutual understanding is more important than the document itself).

- Take it as a journey and not a destination (A SLA is a living document and has to be updated regularly)

There are five (5) main steps in developing a SLA process. These are outlined below:

- Start Up

- Negotiation

- Documentation

- Review

- Implementation

The process is summarized in a Checklist. Parties who are developing a SLA should not attempt to start at the documentation phase, as this is a common response, but to go through the sequence set out in these guidelines.

A.1 Start Up

First of all, has someone with the appropriate competencies be appointed as SLA responsible?

A.1.1 Key parties and objectives

- Have you referred to this Guide for service level agreements?

- Have you identified the parties involved?

  - Who is the service provider?

  - Who are the clients?

- Have you clarified the main objectives of the service level agreement?

A.1.2 Identify needs and expectations

- What are the needs of the parties involved?

- Do you have a clear definition of both parties service attributes?

- Have you agreed what services will be provided?

A.2 Negotiation

To come to the user satisfaction it is crucial that the service level agreed be compatible with the supplier ability to fulfil the agreement.

A.2.1   Define service levels

- Have you discussed the service provider's capacity to provide the service?

- Have all service level concerns been raised?

- Have you identified what will provide client satisfaction?

- Have you agreed on the minimum level of service?

- Have you agreed on areas for future improvement?

A.2.2   Establish performance indicators

- Have you formulated indicators to measure the key service performance?

- Have you reached agreement on the performance indicated?

A.2.3   Confirm issues

- Are client and service provider roles and responsibilities clearly defined in writing?

- Have you established a process that will flag problems early?

- Have you established a process to resolve issues that might arise?

A.2.4   Determine costs and payment

- Have you identified what services are free of charge?

- Have you determined costs for additional services where appropriate?

- Have you agreed an appropriate cost transfer mechanism where appropriate?

- Have you agreed on the frequency of billing where appropriate?

A.3   Documentation

Agree on the document framework and content. It is often useful to start writing a draft SLA and then to amend it step by step to go to the final version getting support from all the actors involved.

- Are you using this guide?

- Does the document reflect the nature of the service relationship?

- Is it flexible enough to accommodate changes?

A.4 Review

Establish a review process:

- Who will be responsible for reviewing performance?

- Have you agreed on a mechanism for reporting?

- Have you agreed on a program for adjustment of service levels?

- How will client and service provider feedback be sought?

A.5 Implementation

Create and sign the Service Level Agreement:

- Has someone with appropriate authority signed the document?

- Have you communicated the agreement to staff from both parties?

Annex B (informative):
Bibliography

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