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# Quality of Service (QoS) in Telecommunication Engineering

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## Presentation Format

Introduction

QoS Parameters

Importance and Applications

Monitoring and Compliance strategies

Comments and Contributions

## Introduction (Continues)

### **3. What is Quality of Service (QoS) in Telecommunication Engineering?**

- i) It is a measure of performance of a Telecommunication network/System. For example, to ensure that real time voice and video services are delivered without any complaint, a Service Level Agreement SLA & Contract is negotiated between a Network Service Provider and the Customer to meet the business requirements.**
- ii) Therefore QoS is dependent on adherence and effective management of the SLA/Contract between the Customer and Service Provider.**
- iii) It means QoS provided to Nigerians today by the Telecommunication Network Service Providers depends on the Contract, SLA and their effective management the Regulator- N.C.C**

## Introduction

### 1. What is Quality of a Telecommunication Network or System?

**Simply means ability of the Network to transmit, receive and process clear signals without unwanted noise. Quality depends on following factors:**

**i) Data loss , ii) Jitter (consistent delay characteristics), iii) latency, leading to Echo**

### 2. What is Service of a Telecommunication Network?

**It means the type of facilities provided by the Network. Examples are**

**i) Standard Voice/ VoIP, ii) Broadband (Voice, Data & Video), iii) Basic Mobile telephone, Wireless local loop (WLL) or GSM Services**

Parameters

**Quality of Service Parameters for: i) Basic Telephone Service (Landline)**

<u>Parameter</u>	<u>Benchmarks</u>	<u>Period</u>
<b>-Prov.of tel after registration the request months</b>	<b>90% in &lt;5 days</b>	<b>6</b>

**Network Performance :**

<b>-Call Completion Ratio (CCR) months</b>	<b>&gt; 45</b>	<b>6</b>
<b>-Grade of Service(Prob. of call failure over Swat) months</b>	<b>&lt; 20 %</b>	<b>6</b>
<b>-Congestion</b>	<b>&lt; 20%</b>	<b>6 months</b>
<b>-Response for Customer's assistance (within 24hrs) months</b>	<b>&gt; 70%</b>	<b>6</b>

Parameters

**Quality of Service Parameters for:ii) Broadband Services  
(Voice/Data/Video)**

<u>Parameter</u>	<u>Benchmarks</u>	<u>Period</u>
<b>Service Access Delay months</b>	<b>&lt;1 Min</b>	<b>6</b>
<b>-Call Access Delay months</b>	<b>&gt; 45</b>	<b>6</b>
<b>-Grade of Service</b>	<b>&lt; 1 %</b>	<b>6 months</b>
<b>-Congestion</b>	<b>&lt; 1%</b>	<b>6 months</b>
<b>-Response for Customer's assistance</b>	<b>&gt; 70%</b>	<b>6 months</b>
<b>- Fault clearance (within 72 hours)</b>	<b>&gt;70 %</b>	<b>6 months</b>
<b>-Billing Complaints per 100 bills issued</b>	<b>&lt;10%</b>	<b>6 months</b>

Parameters

**Quality of Service Parameters for :iii) GSM, basic Mobile Telephone and Wireless Local Loop Services**

**Parameter**

**Benchmarks**

**Network Performance**

- Service Access Delay (time b/w press send botton & ringback tone< 45Sec**
- Call Set-up Success Rate (CSSR) > 70 %**
- Call Drop Ratio(call lost after establishment/ establ calls < 30%**
- Billing Complaints & resolution (/100 bills issued) > 70%**

## Monitoring and compliance strategy to improve QoS

- **Ensure compliance and effective management of existing SLA**
- **Monitor regularly development of Telecom technologies**
- **Explore feasibility of steady and regular Public Mains Power supply-NEPA**
- **Reduction in the human dependence of Telecom Network**
- **Organize Customer Services forum for periodical review of the currently set QoS parameters for:**
  - **redefining the benchmarks**
  - **deletion of some existing QoS parameters**
  - **addition of some new parameters based on the merits, world trend and experience**

Questions, clarification, comments and contributions