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Network for Capacity Building and Knowledge Exchange in ICT Policy, Regulation and Applications
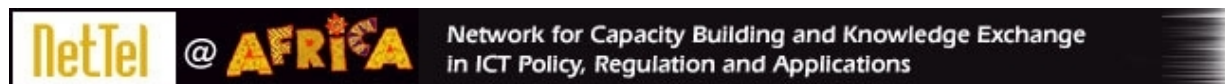
Workshop on
Quality of Service

3 – 7 October 2011, Serena International Conference Centre, Kampala, Uganda

ICTs and specifically Mobile cellular and Internet user penetration have grown impressively in all regions of the world over the past decade. For instance in Africa according to ITU mobile cellular penetration in Africa in 2010 was 45.2% and internet user penetration in Africa grew over 20-fold in the decade to 2010, from 0.5% to 10.8%. These people are increasing their uptake of ICTs so as to communicate and communicate clearly, faster and in a convenient manner. Yet in many economies across our continent quality of service remains a challenge thus inhibiting our citizens' desire to communicate effectively and in a timely manner.

GENERAL OBJECTIVE
The workshop's general objective is to support the development of efficient communications services through the understanding of the role of network services and their performance. In particular, the workshop will be addressing issues regarding Quality of Service from the point of view of developers, providers and users.

SPECIFIC OBJECTIVES

∗ develop the ability and awareness of the consumers to protect their interest by conceptually and quantitatively understanding the quality of service they need and / or have the right to expect;
∗ enable service providers to manage and improve the quality of the service they offer;
∗ develop the ability to draw up commercial SLA contracts, including procedures for their verification;
∗ enable network users, such as enterprises with VPN and VLAN needs, e-government operators, IP telephony operators and generally users that rely on IT for their business efficiency, to seek the best network providers, optimize their infrastructure, negotiate a suitable SLA and supervise and control compliance.
∗ facilitate the task of regulators in monitoring the quality of service of the industry and in assessing its level of performance

Content of the Workshop

* As a background to the Quality of Service concepts, provide a description of the various types of commonly used services (e.g., video, images, data exchange and retrieval, voice on IP, etc). Classify these types of services into service categories
* For each type of service, rank the quality features from most to least relevant. Explain this by comparing different services, showing why the quality features rank differently for each service
* Describe each quality feature and the parameter used to assess its level of acceptability (delay, lost packages, jitter, etc)
* Provide a model of a communications session, highlighting its key elements (terminals, interfaces, transmission media, network, routing, etc).
* Use the model to explain the processes that degrade the messages and how they affect their quality. For instance, relate lost packages to bit error rates and other factors, delay or latency to propagation delay, processing time and queuing, etc.
* Explain how the traffic load may impact the quality: represent quality versus traffic load trends, recognizing the inflexions where the various network limitations come into play
* Explain which are the requirements or specifications on QoS most commonly adopted by various fora

* Explain various situations in which QoS is key and provide procedures and examples about them
* Explain, from the point of view of a network designer, how QoS parameters and network parameters relate
* Explain what are the QoS levels and specifications needed by an IT service operator to ensure user satisfaction
* For a provider of network services, how various service levels in terms of QoS may be configured to define and sell service level agreements (SLA)
* Explain how to define and negotiate an SLA in line with the goals of a purchaser of network services and its organization
* For an organization IT manager, how to measure, test, and evaluate the service level actually achieved in practice by the supplier of network services

The seminar will also elicit feedback from the attendees by setting case studies or exercises for each subject, in the context of their individual areas of responsibility or interest