QSDG ACTIVITY

(Quality of Service Development Group)

Luis Sousa Cardoso

QSDG Chairman

JAN 2011

QSDG Plenary Sessions

YEAR	LOCATION
1984	The Hague
1985	Orlando
1986	Hong-Kong
1987	Manila
1988	Albufeira
1989	Bern
1990	Padova
1991	Blois
1992	S. Francisco
1993	Roturua
1994	Chester
1995	João Pessoa
1996	Cape Town
1997	Bahrain

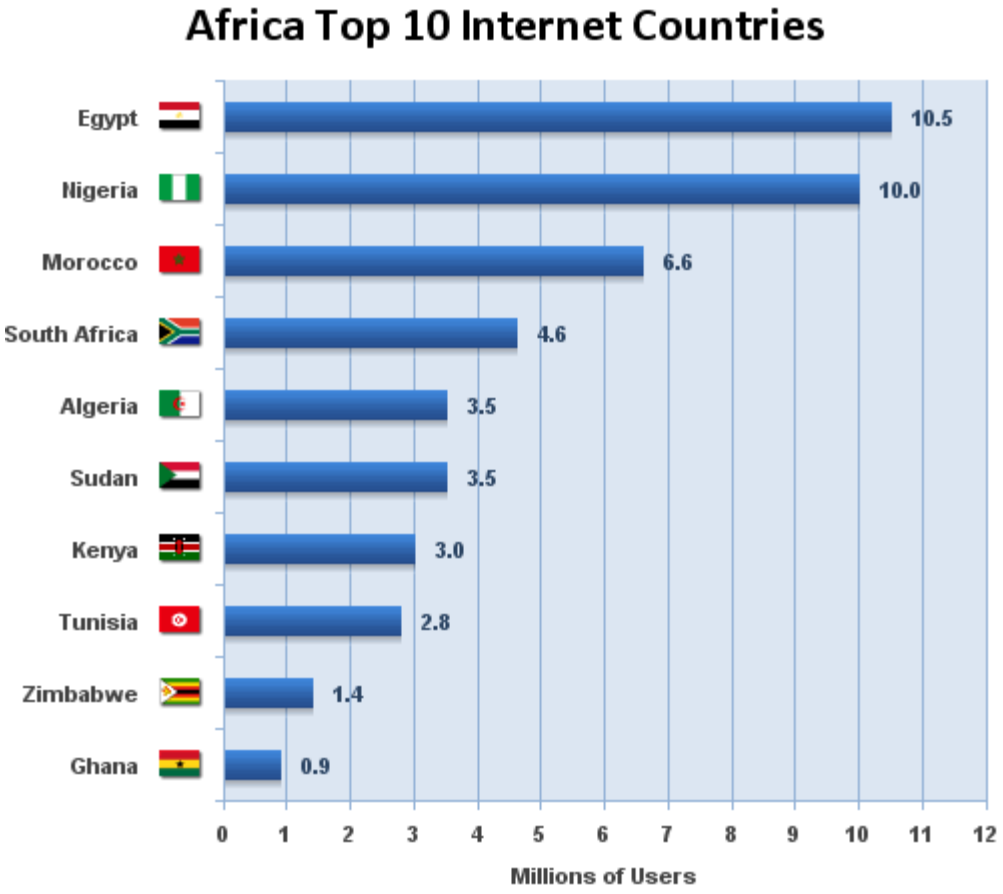
YEAR	LOCATION
1998	Fidji
1999	Budapest
2000	Montreal
2001	Berlin
2002	Washington
2003	Sal Island
2004	Lyon
2005	Xi'an
2006	Singapore
2007	Swakopmund
2008	Vienna
2009	Maputo
2010	Mbabane
2011	Kampala

AFRICA - some data

- **Large parts of Africa gained access to international fiber bandwidth for the first time via submarine cables in 2009 and 2010. In other parts of the continent, additional fiber systems have brought competition to a previously monopolized market. This has led to massive investments into terrestrial fiber backbone infrastructure to take the new bandwidth to population centers in the interior and across borders into landlocked countries.**
- **Africa's Internet and broadband sector is set to benefit the most from these developments. Wholesale prices for Internet bandwidth have come down by as much as 90% from previous levels based on satellite access, and the cost savings are slowly being passed on to the retail level as well. Broadband is rapidly replacing dial-up as the preferred access method, and this process is already virtually completed in the continent's more developed markets.**
- **Most African countries now have commercial DSL services, but their growth is limited by the poor geographical reach of the fixed-line networks. Improvements in Internet access have therefore been mostly confined to the capital cities so far. However, the rapid spread of mobile data and third-generation (3G) broadband services is changing this, with the mobile networks bringing Internet access to many areas outside of the main cities for the first time.**

Source: Internet World states

Internet users and population statistics for Africa



Source: Internet World Stats - www.internetworldstats.com - March 2009
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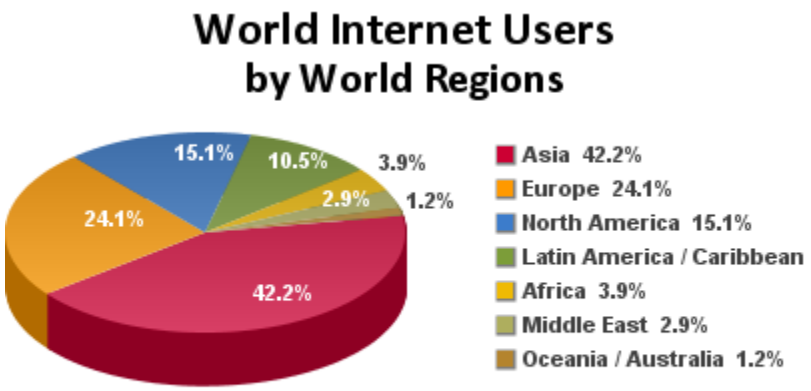

Source: Internet World Stats - www.internetworldstats.com/stats.htm
1,668,870,408 Internet users for June 30, 2009
Copyright © 2009, Miniwatts Marketing Group

The 2010 and 27th QSDG meeting took place in Mbabane, Swaziland from 18-22 October 2010, kindly hosted by SPTC (Swaziland Posts &Telecommunications Corporation) and SATA (Southern Africa Telecommunications Association)

Report on TD 404 GEN SG 12

SATA
Southern Africa Telecommunications Association

HUAWEI

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SWAZILAND POSTS & TELECOMMUNICATIONS CORPORATION
PHUTFUMANI

QSDG Current Activities (27th meeting agenda)

- Customer Satisfaction
- Reliability and Availability of Networks and Services
- QoS Issues of Access Technologies – xDSL, Cable Modem, Fixed Wireless
- Mobile Issues
- ATM, IP and NGN – QoS and Network Performance issues
- Impact of Fraud, Security and Revenue Assurance on QoS and Business Performance
- Risk Analysis
- Call Clarity and Transmission Performance
- Impact of ENUM on QoS experienced by users
- Shared concerns with other organisations
  - For example Calling Line Identification Accuracy…
  - FAS – Faked Ansewr Supervision…

QSDG and SNO

- **A proposal received from SNO was the need to work more closely with the QSDG forum, particularly in relation to standardised SLAs. It was proposed that we hold a joint meeting in 2011 to progress E.861. This proposal was analyzed at last QSDG in Swaziland and it was aopproved that:**
    - **Whilst keen to work with SNO on E.861, the QSDG did not wish to hold a joint meeting. The reason being is that they QSDG has a number of issues to progress which are unrelated to SNO and don't wish to dilute our focus.**
    - **Work within SNO on E.861 will progress and QSDG members will as required.**
    - **QSDG will be represented at our next SNO meeting and all SNO delegates are invited to attend the next QSDG**

QSDG Current Activity

- **Customer Satisfaction**
- **Reliability and Availability of Networks and Services**
- **IP and NGN – QoS and Network Performance issues**

Concerning these three points, some studies were done concerning IPTV and Triple Play services. Some conclusions:

- **P2P activity accounts for the lion's share of bandwidth consumption**
- **Management of bandwidth and Quality of Service take greater significance. Traffic segregation is a good methodology to cover this problem**
- ***The use of Deep Packet Inspection technology is supported***

“SLA: a need for the common agreement”

- **Some Operators are trying to agree to some Key Performance Indicators, measures of business performance, common to all the providers as a common layer of basic indicators. Such proposal, was presented at SNO 2010 in Germany and it was positive accepted from the delegates and a new action team was created with objective to deal with this matter (KPI’S and SLA metrics) and proposed cooperation with QSDG.**
- **For this reason the E.861 work (TOC) Operator Competency Metrics, it will be continued on SG2 and the name changed to “SLA-KPI between Carriers”.**
- ***In this particular point it is considered that SG2 and 12 should work very closed since SG12 is the leader ITU-T SG for Quality of Service matters.***

KPI Issues

- For QSDG those performance metrics, measures, ratios or simply performance indicators must be simple, easy to measure and specific for any activities to customers on delivery or maintenance.
- Two competing strains are involved in the mapping of well-being of elements in the enterprise infrastructure into the well-being of service:
    - Parameters that are easy for network specialists to measure do not translate wll into parameters that are really understood by ordinary consumers.
    - Parameters that are readily understood by consumers are not easy for network specialists to measure.
- This can be called the “semantic disparity problem”. The disparity is a result of way consumers understand their enterprise network and the way network specialists understand it. since 2000 QSDG is supporting clearly, the preference is the user-centric approach, since consumers are paying for the services. Operators should remember that performance measurement choice is a dynamic process - measures may be appropriate today, but the system needs to be continually reassessed as strategies and competitive environments evolve.

Customer Satisfaction Issues

- **Traditionally Quality of Service (QoS) parameters of ICT services were expressed by technical parameters specific to the service complemented by a set of generic parameters which are common to many services. The latter are usually associated mainly with the utilisation stages of the service. However with the exponential increase in the use of ICT services and their use the customer, QoS criteria have extended to non-utilisation stages of a service. Identification of these QoS criteria was undertaken and the resulting parameters have been defined.**
- **A methodology for the measurement and reporting of these parameters makes it suitable for inter-service provider comparisons when delivered performance data are reported. 86 new generic parameters have been identified. In practice a selection of parameters may be made by the regulator or a stakeholder. A selection of parameters may be considered by the ITU-T for the formulation of a Recommendation for use worldwide.**

Overview: Customer Relationship Stages

Before service usage

1. Preliminary information (4)
2. Contract establishment (4)
3. Service provisioning (8)

During service usage

4. Service alteration (9)
5. Technical upgrade (10)
6. Service support
   - a) Documentation (6)
   - b) Technical support (6)
   - c) Commercial support (6)
   - d) Complaint management (7)
7. Repair services (6)
8. Metering, charging, billing (10)
9. Network / service management by the customer (6)

After service usage

10. Cessation (4)

Total number of parameters = 86

(n) = number of new parameters described in each stage

QoE in Advanced Collaborative Environments

- **Modern communications technologies are increasingly leveraged to enable the geographical distribution of work groups. Advanced Collaborative Environments are a class of applications that build upon cyber-infrastructure to support communication and collaboration using high quality audio and video connections and interfaces to computational resources, storage systems and high-end applications.**
- **Collaborative environments have the potential of truly supporting distributed teams but there are still a number of barriers preventing seamless collaboration. These barriers are a result of problems in the following four domains:**

  1) a lack of understanding of the tasks that people perform when they are collaborating;

  2) a lack of understanding and fulfillment of users ' needs during collaborations;

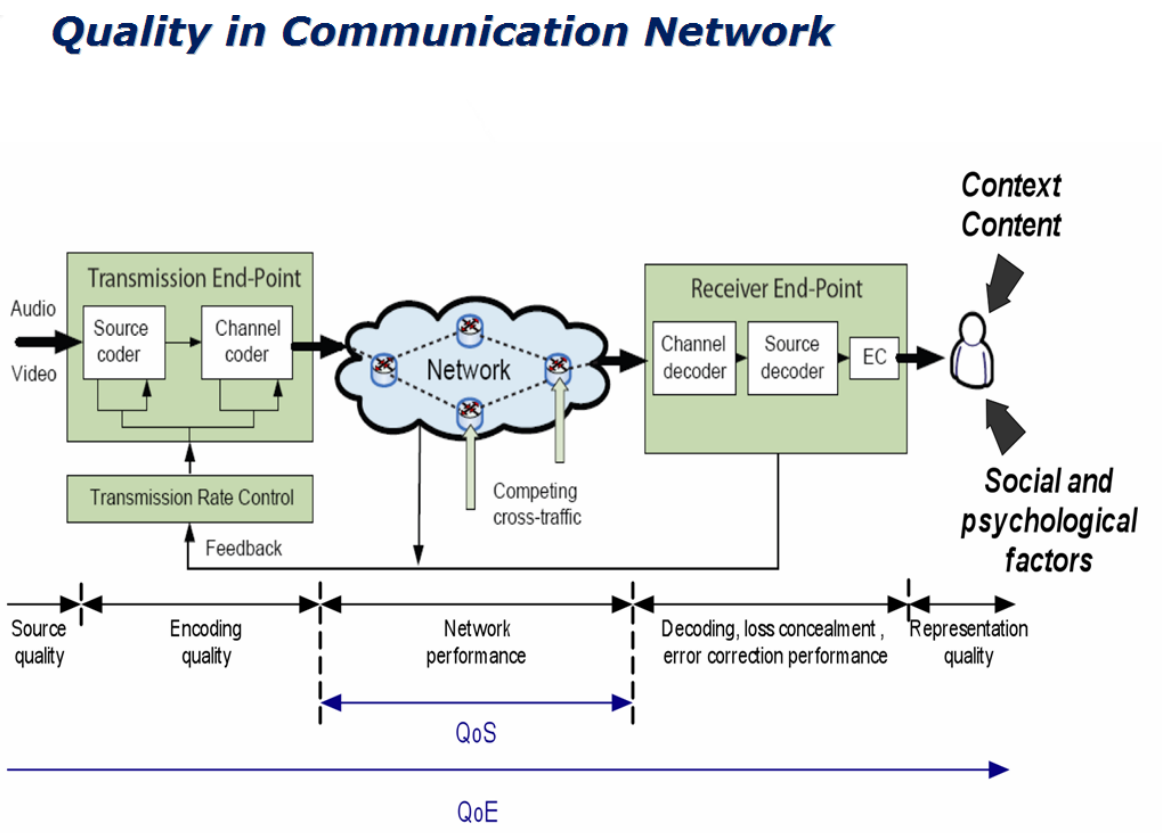
  3) the high complexity of collaboration services; and

  4) limited access to a wide variety of technologies for use in complex, heterogeneous, and dynamic environments.

- **It was concluded that social ergonomic problems in multimedia communication stem from irregularities in information flow through the systems. Specifically, three information flow problems are a source of common issues: *information asymmetry, channel limitation* and *cue interference*.**
  - ***Information asymmetries*** **arise when participants at one site have access to more information than participants at another site. Knowledge of this asymmetry led to distrust and discomfort for the system. Similarly, a single remote participant in a meeting where there is a large local group may be marginalized because he or she has access to less information than the participants that are together in the same room because he or she is unable to hear side conversations or read facial expressions as easily as the people physically collocated.**
  - ***Channel limitation*** **occurs when the media are insufficient to convey all of the ways that individuals are trying to communicate. In studies of using video and audio in a negotiation task, e.g. participants from different negotiation backgrounds performed better with video than with audio alone because they were more dependent than participants with similar backgrounds on the visual channel for conveying information.**
  - ***Cue interference*** **occurs when a communication system distorts or disrupts cues individuals use in communication, e.g it was found that camera angle had a significant effect on power and influence in a mediated conversation – individuals who appeared to be looking down on the other participants had more influence on a group task because they appeared more dominant due simply to the way the system was implemented. Other fundamental problems may exist, but we believe that these three issues account for a large number of social ergonomic issues in ACEs.**

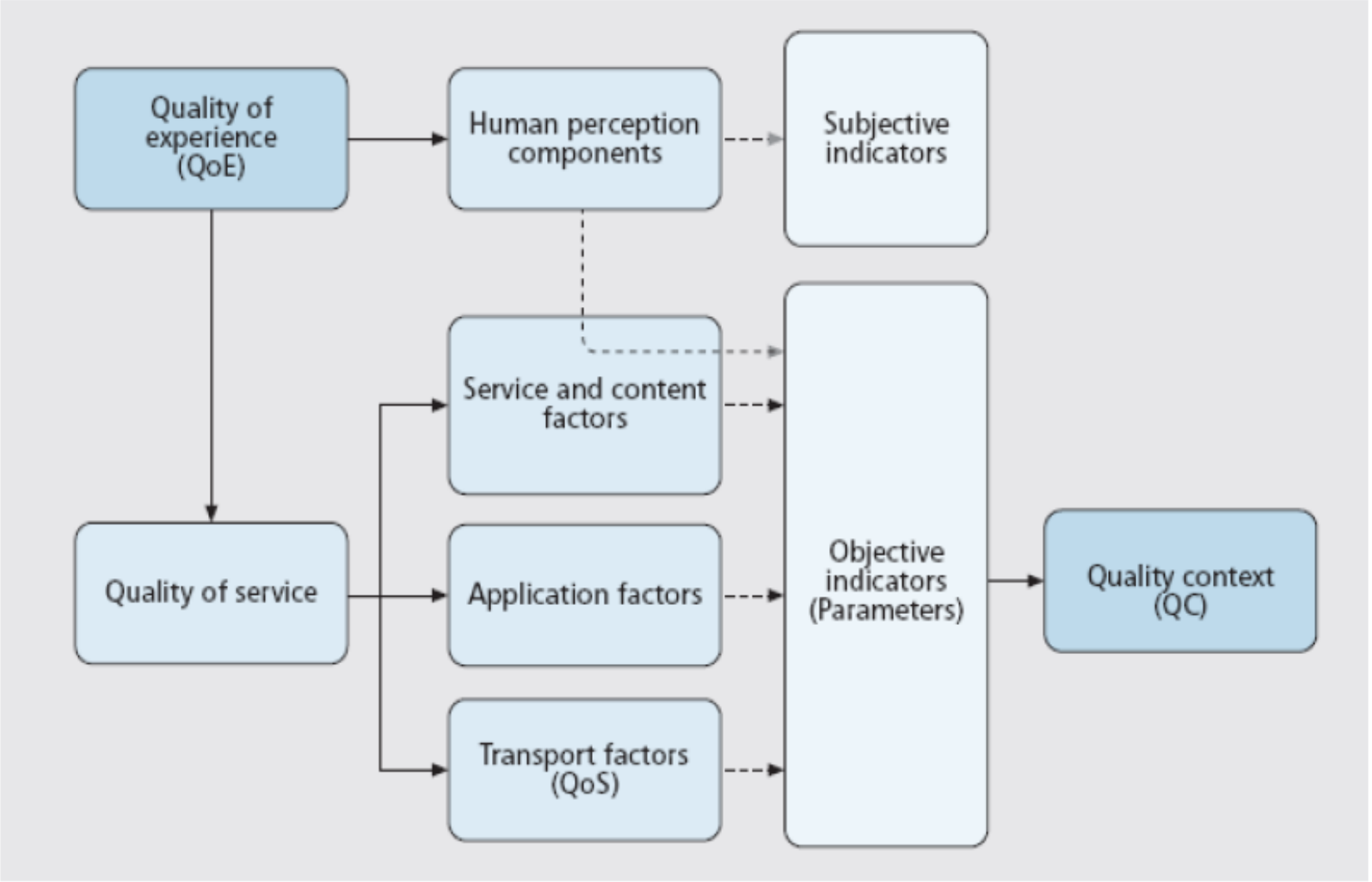
See also TD 427 (LS 204 SG16)

QoE a Subjective Measure



QoE is a purely subjective measure from the user's perspective of the overall value of the service provided. The challenging task of QoE research is to create a framework that is able combine these diverse aspects under a common umbrella in a way that we are able to somehow predict the behavior of end users when new services are offered to them

Quality of Experience



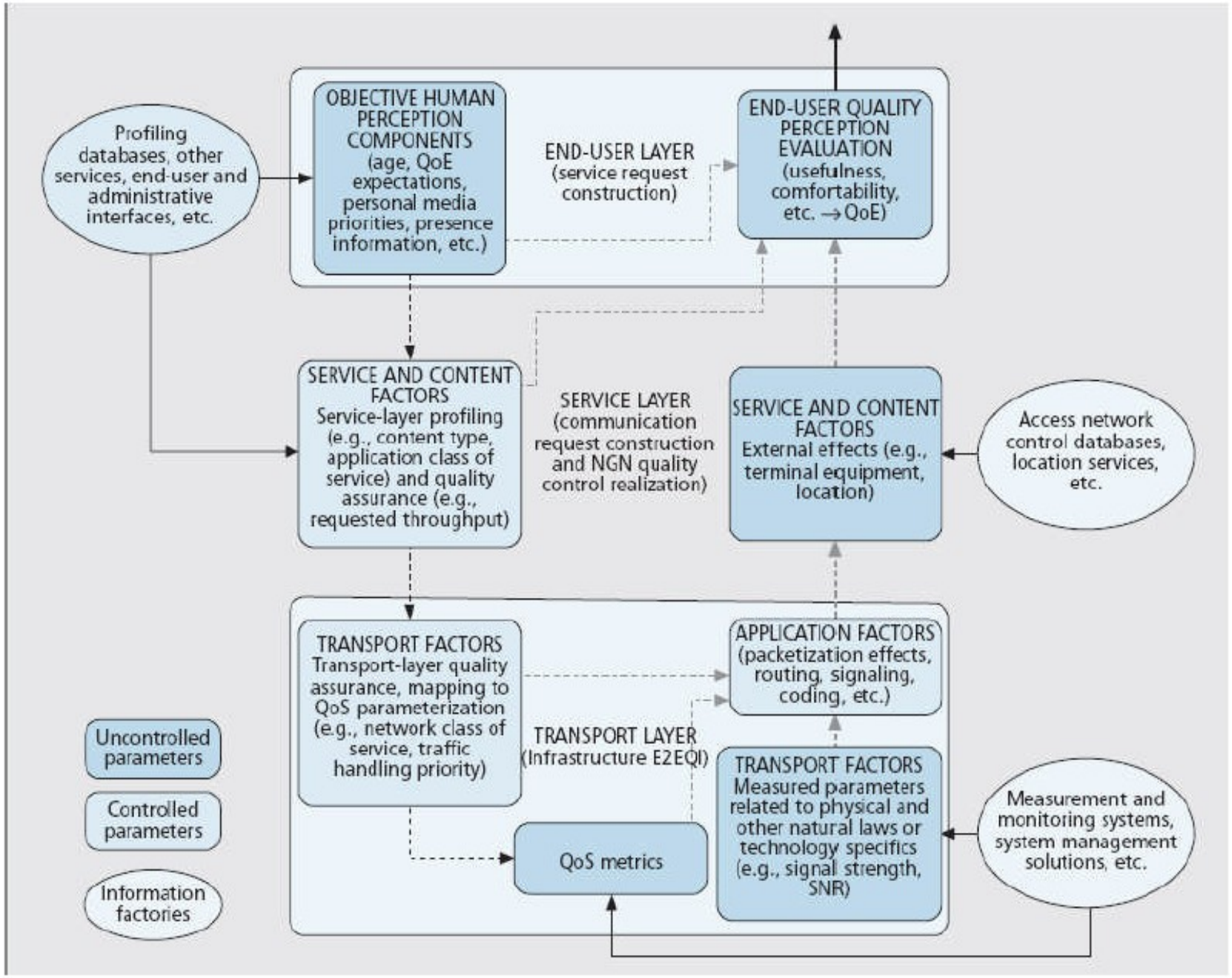
To effctively understand QoE

To effectively understand QoE, 3 layers designated by HCI Layers (Human Computer Interaction) should be added to the top of ISO 7 layers model. These 3 layers should be: Input/output, Human Performance and Human Needs.

New HCI Layers

	Layer	Label	Description
HCI Layers	10	Human Needs	Provides description of the needs, desires, goals of the user during the interaction independent of any method or technology. Also addresses business issues: will it sell, to whom, where, when.
	9	Human Performance	Provides description of the social, perceptual, cognitive, motor etc. aspects of the communications.
	8	Input/Output	Provides description of the human input (keyboard, mouse, etc.) and output (display, sound) aspects of the interaction.

Notes:
- layer 8 in HCI space is similar to OSI layers 1-2
- applies to IP services but also broadcast TV, VCRs, etc.
- illustrates difference between QoS (OSI) and QoE (HCI)


Profiling databases, other services, end-user and administrative interfaces, etc.
OBJECTIVE HUMAN PERCEPTION COMPONENTS (age, QoE expectations, personal media priorities, presence information, etc.)
END-USER LAYER (service request construction)
END-USER QUALITY PERCEPTION EVALUATION (usefulness, comfortability, etc. → QoE)
SERVICE AND CONTENT FACTORS Service-layer profiling (e.g., content type, application class of service) and quality assurance (e.g., requested throughput)
SERVICE LAYER (communication request construction and NGN quality control realization)
SERVICE AND CONTENT FACTORS External effects (e.g., terminal equipment, location)
Access network control databases, location services, etc.
TRANSPORT FACTORS Transport-layer quality assurance, mapping to QoS parameterization (e.g., network class of service, traffic handling priority)
APPLICATION FACTORS (packetization effects, routing, signaling, coding, etc.)
TRANSPORT LAYER (Infrastructure E2EQI)
TRANSPORT FACTORS Measured parameters related to physical and other natural laws or technology specifics (e.g., signal strength, SNR)
QoS metrics
Measurement and monitoring systems, system management solutions, etc.
Uncontrolled parameters
Controlled parameters
Information factories

Extension to HCI

A 10-Layer Model of Human-Technology Interaction

	Layer	Label	Description
HCI Layers	10	Human Needs	Provides description of the needs, desires, goals of the user during the interaction independent of any method or technology. Also addresses business issues: will it sell, to whom, where, when.
	9	Human Performance	Provides description of the social, perceptual, cognitive, motor etc. aspects of the communications.
	8	Input/Output	Provides description of the human input (keyboard, mouse, etc.) and output (display, sound) aspects of the interaction.
OSI Layers	7	Application	Provides services to the users of the OSI environment. It provides such services as FTP, transaction server, network management, etc.
	6	Presentation	Performs generally useful transformations on data to provide a standardized application interface and to provide common communications services. It provides services such as encryption, text compression and reformatting.
	5	Session	Provides the control structure for communication between applications. It establishes, manages and terminates
	4	Transport	Provides reliable, transparent transfer of data between end points. It provides end-to-end error recovery and flow control.
	3	Network	Provides upper layers with independence from the data transmission and switching technologies used to connect systems. It is responsible for establishing, maintaining and terminating connections.
	2	Data Link	Provides for the reliable transfer of data across the physical link. It sends blocks of data (frames) with the necessary synchronization, error control and flow control.
	1	Physical	Concerned with transmission of unstructured bit stream over the physical link. It invokes such parameters as signal voltage swing and bit duration. It deals with the mechanical, electrical, procedural characteristics to establish, maintain and deactivate

Reliability, Availability of Networks and Services

- Network Traffic needs timing
- Some networks are very critical to GPS
    - E.g.
        - Wimax – Time alignment error must be between 5 – 15 µs (depending on the guard bandwidth)
        - LTE – Time alignment error must be less than 3 µs.

    - The impact of a GPS outage on time synchronization in telecommunications networks clearly depends on the type of time sources used in different networks (e.g. network provided time sync, GPS time sources, radio time sync (DCF77) or atomic clock time sync.)

Reliability, Availability of Networks and Services

- **Network Traffic needs timing**
  - **The condition of the Sun has a major impact on radio propagation. It is expected that during the period 2013/2014 some important disturbances will take place. It is expecting significant impact on the GPS signal, potentially leading to an unavailability of the GPS signal for a significant amount of time (several days). The impact of a GPS outage on time synchronization in telecommunications networks clearly depends on the type of time sources used in different networks (e.g. network provided time sync, GPS time sources, radio time sync or atomic clock time sync.) By this reason it is proposed to investigate the vulnerability towards a loss of GPS and or radio based time sync signals in telecommunications and other industries. Typical questions might be:**
    - **What different time sources are Network Operators using?**
    - **Is there a backup in case of GPS signal failure over a longer period of time?**
    - **Is the backup fully automated or will manual intervention (organisational steps) be required?**
    - **Is the backup coming from a time source that again is GPS or radio dependent?**
    - **Do you know how long your network would be operational without any radio-based time signal?**

Reliability, Availability of Networks and Services

- **Massive bandwidth demand**
  - **Network management is an indispensable tool to control network congestion in view of rapidly increasing IP data traffic volumes. Network management is for example used to prioritise quality-sensitive applications over other, less demanding applications. This is done without looking into the actual content that is transmitted and does not affect citizens' fundamental rights such as the freedom of expression.**
  - **Network management allows service differentiation in the form of offers for specified quality. Economic incentives for a more efficient use of network capacity are urgently required to ensure the long-term sustainability of the internet. Differentiated tariffs, based on capacity and/or quality of service (QoS) responding to individual customer needs, can create such incentives.**
  - **In addition, economic arrangements for the transport of IP traffic should better reflect its value, encouraging a more efficient use of the network, especially as concerns those applications which generate the bulk of internet traffic.**

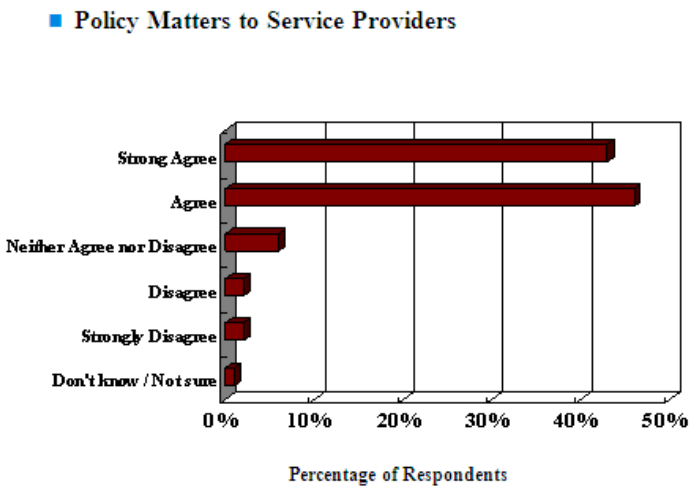
Reliability, Availability of Networks and Services

- **Massive bandwidth demand**
  - **Technically, traffic management can involve the differentiated treatment of different types of internet traffic. It ensures first and foremost that the network operator can maintain an appropriate level of quality of service for the large majority of internet services and for a large majority of users during periods of peak internet usage. It also ensures that an improper use of the net does not prevent other customers from using normally the internet.**
  - **QSDG is supporting the prioritization of IP traffic according to predefined classifications since its meeting in Singapore. However, It should be noted that from a technical perspective, today's public Internet does not generally feature the possibility to differentiate modes of delivery. This is due to the fact that guaranteed Quality of Service (QoS) can be implemented on-net but is not yet realized across networks on the public internet.**
  - **A minimum quality of service requirements by National Regulatory Authorities (RNA) should be considered as an *ultima ratio* intervention.**
    - **One form of quality differentiation of access services are managed services which are characterised by guaranteed quality of service and high reliability and which will be key drivers of future innovation. Examples of managed services which require pre-defined network quality or security features include distant healthcare applications or cloud computing. QSDG believes that regulatory rules which would distort the functioning of the market in responding to individual demand and thereby restrict choice and innovation would be contrary to an open, dynamic internet.**

Reliability, Availability of Networks and Services

- **IP QoS/Policy control**
  - **Policy control is an increasingly important aspect of the general transition to all-IP NGNs.**
  - **Most service providers believe they need to more intelligently control access to network resources, applications and subscribers.**

IP QoS/Policy control: Requirements survey



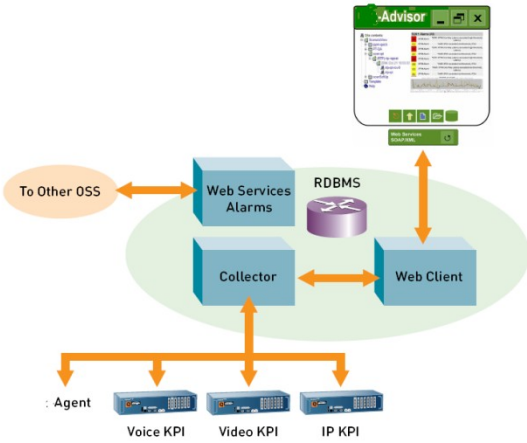
POLICY ELEMENT/TASK
Policy enforcement points (PEPs) / policy decision points (PDPs)
Deep Packet Inspection (DPI)
Traffic Shaping
Resource Allocation/ Call Admission Control
Application & Content Management
Third-Party Service Provider Management

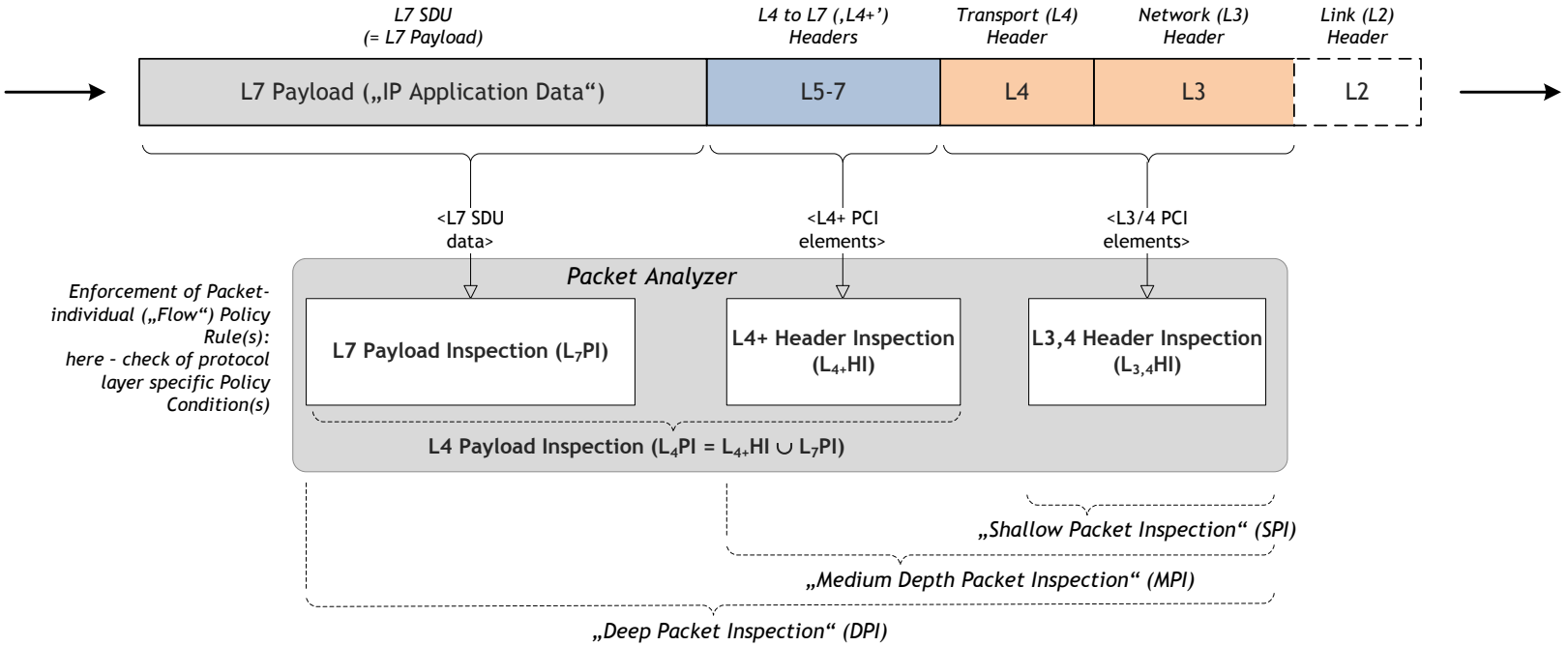
Question: Please indicate your level of agreement with the following statement: "Deployment of policy infrastructure is essential to our ability to differentiate service offerings, and therefore to our future competitiveness." N=100, including a mix of incumbent and competitive telcos, cable MSOs, and cellular wireless telcos.

From Heavy Reading - "Policy Control & DPI: The new boradband Imperative", 2008

Reliability, Availability of Networks and Services

- **Use of DPI**
  - **Deep packet inspection can provide business-critical information to solve network performance and service quality issues, and provide marketing teams with fine-grained analysis of observed customer usages. Their analysis enables application flow recognition whichever ports are used or the number of encapsulation levels involved**
  - **DPI products allow service providers to monitor and control traffic at all layers of the protocol stack (including the application layer) based on a set of policies. There are three fundamental business drivers for implementing DPI network platforms:**
    - **Maximize service revenue;**
    - **Minimize network capital expenditures (CapEx) and operating expenditures (OpEx);**
    - **Limit the risk of security threats to the network.**





Legend:

Lx	*Protocol Layer x*
SDU	*Service Data Unit („Packet Payload“)*
PCI	*Protocol Control Information („Packet Heder“)*
PDU	*Protocol Data Unit („Packet“)*

Deep Packet Inspection (DPI): a method of packet filtering that applies the filter rules using filter conditions based on protocol elements across multiple protocol layers (see e.g. reference model [ITU-T X.200]) in order to find, identify, classify, or control packets with specific data or code payloads that header packet filtering cannot detect.

NOTE – Nonstandard terms, often used in literature:

Shallow Packet Inspection“ (SPI) = L3,4HI

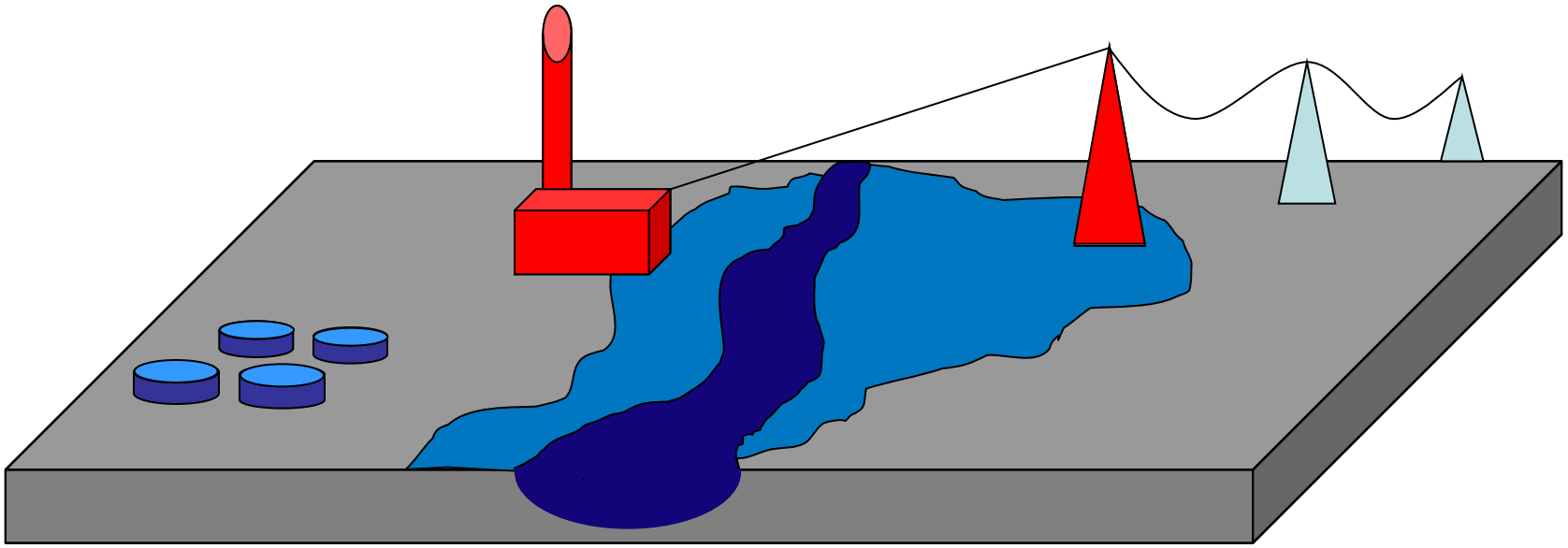
Medium Depth Packet Inspection“ (MPI) = L3,4HI ∪ L4+HI

Deep Packet Inspection“ (DPI) = L3,4HI ∪ L4+HI ∪ L7PI = L3,4HI ∪ L4PI

Critical Infrastructure Resilience

Short-Term Flood Resilience

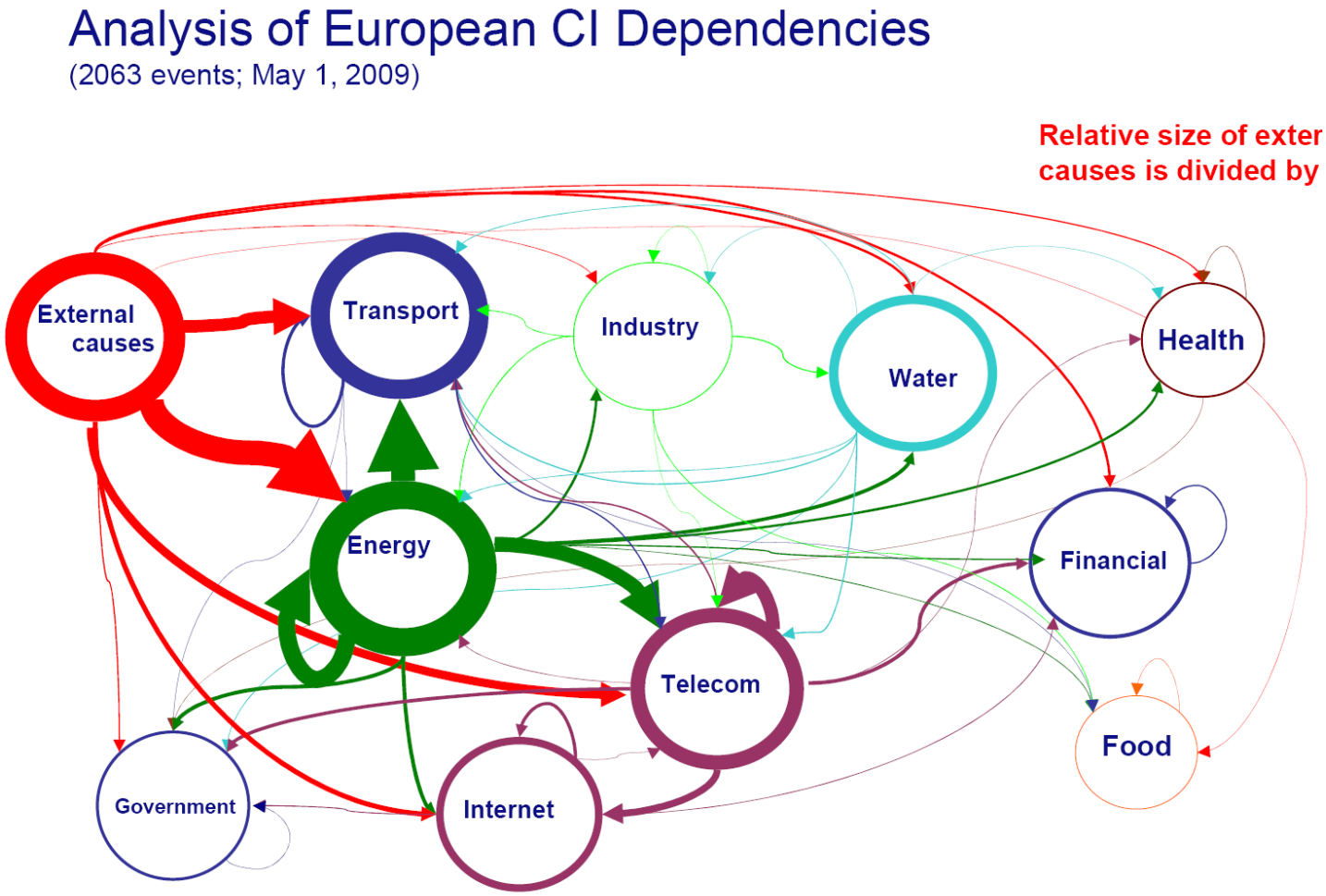
Interdependences



THE AGE OF RISK

- **Efficiency-oriented economic policy has dominated the past decades**
- **The quest for efficiency has been beneficial, but also led us to become increasingly dependent on infrastructures**
- **Today, information infrastructure is even more critical than traditional critical infrastructure**
  - **Energy networks, gas supply, financial services, postal services, telecom networks and services, Internet (???)**
- **Infrastructures are more inter-dependent**
- **Are we already in the "age of risk"?**

EXAMPLE OF INTERDEPENDENCIES



Source: TNO (2008)

Quality, Enviroment and Saving

E-Wast

- **The magnitude of the problem has become a major international environmental and trade issue, and has prompted two global and regional attempts to regulate and monitor the international transport of hazardous wastes. Signed in 1987, the Basel Convention is the first global attempt to regulate and monitor the transboundry movement of hazardous waste.**
- **The second is the United Nations Environment Program's adoption of the Cairo Guidelines and Principals for the Environmentally Sound Management of Hazardous Waste.**
- **Equally important and perhaps more significant on a regional level, is the Organization of African Unity's (OAU) voting of a resolution banning the acceptance of waste materials by all member countries.**
- **Despite these significant worldwide attempts to curb the lucrative but hazardous business, clandestine waste trading still continues.**

E-Wast

- **A United Nations Environmental Programme (Unep) study released early 2010 shows that the annual generation of e-waste in Kenya stands at 11,400 tonnes from refrigerators, 2,800 tonnes from TVs, 2,500 tonnes from personal computers, 500 tonnes from printers and 150 tonnes from mobile phones.**
- **With over 20 million mobile phone subscribers, three million computer owners and a growing dependence on electronic products, analysts say Kenya is ripe for major investments in recycling plants presenting consumers with where to safely dispose off the devices. This means that the volume of e-waste produced from mobile phones and other related appliances is set to increase.**

WTDC – 2010 Resolution 47

1. Programme 1 is the programme implementing the Resolution 47: to assist ITU Member States to maximize the utilization of appropriate technologies for the development of ICTs networks
2. Enhancement of knowledge and effective application of ITU Recommendations in developing countries including conformance and interoperability testing of systems manufactured on the basis of ITU Recommendations.

Steps by ITU to Implement Res 47

- ITU convened a Workshop, hosted by CCK (Kenya) on NGN Conformity and Interoperability Testing in Africa 2nd – 4th August 2010 in Nairobi, Kenya
- A Questionnaire was jointly drafted for the ITU to circulate to member states for views on establishment of NGN Test Centre(s) in Africa

QSDG full support Resolution 47 and will support this work if requested

NGN conformity and interoperability testing in Africa

It is considered that standards are not enough to ensure interoperability

- **Standards only meaningful if implemented in a consistent way**
- **Need to ensure that implementations adhere to the standards**
  - **What is expected of implementations in order to claim conformance – i.e., what are the requirements?**
  - **How will we know if an implementation conforms?**
  - **Test beds, test tools**
- **Conformance is necessary but not sufficient for interoperability**
- **Interoperability does not imply conformance**
- **It is concluded that NGN systems pose even greater risk of non-conformity and non-interoperability and QSDG is calling the attention to Resolution 47 of the WTDC 2010. Following this Resolution it is necessary the enhancement of knowledge and effective application of ITU Recommendations in developing countries including conformance and interoperability testing of systems manufactured on the basis of ITU Recommendations.**

NGN conformity and interoperability testing in Africa

- During Mbabane QSDG meeting it was concluded that Africa Region, mainly in the Southern Area needs a platform to test Conformity on different NGN platforms. SATA agreed to develop the issue near ITU

FAS + MISKOL

And other Situations.....

FAS

- False answers occur when a carrier deliberately charges a connection period while in reality the call was not connected to the destination. The false connection period may last for a few seconds at call setup time or call teardown time, or the connection time may be faked completely by using a false answer message or false ring tone.
- Telecom operators not only suffer from a loss of Quality of Service. As they are in general not aware that this fraud is occurring, they pass the additional charges from the carriers on to their customers, exposing themselves to refund claims.

FAS

- Impact on ASR and ALOC will be invisible in the natural fluctuations of the KPI.
- On top, false answers are not always an indication of intentional malicious behaviour. Sometimes there might be other explanations:
    - badly configured equipment,
    - under-dimensioned SIM Boxes,...
    - Fraudulent carriers take advantage of these genuine issues by “blending” in.
    - No synchronization between a VoIP leg and PSTN leg of the call on a VoIP-to-PSTN gateway.

All types of False Answer fraud will be detected by accurately measuring the dial/ringing/connect/disconnect timestamps of calls performed.

fasservice

A Fake False Answer Supervision Service

Fake FAS service is a service that allows you to earn extra money by mixing fake FAS calls into your real traffic. The service generates the needed carrier service messages and creates the needed billable airtime of your traffic, thus, simulating calls to numbers that are "out of coverage" and providing false billing.

What is FAS?

FAS is commonly referred to as False Answer Supervision and for a regular user this phenomenon means incorrect extra billing of calls: the billing starts earlier than the called party actually picks up the phone.

What is Fake FAS service?

Fake FAS service is a service that simulates calls to numbers that are out of network coverage and that provides false billable airtime to the calling party. The service pretends to be a real mobile carrier and plays back real mobile carrier service messages (e.g. "the number you are calling is not reachable at the moment, please, call back later") while charging for this.

How to identify FAS?

Once you notice one of the following, you are sure to experience a FAS problem:

- the billing of the call starts earlier than the called party picks up the phone

- the call is billed even if the called party is said to be out of the coverage (for example, for a mobile phone you get an announcement "we are sorry, but the party you are calling is unavailable at the moment")

- the call is billed even if the caller gets to a voicemail.

Contact us at

sales@fasservice.net

MISKOL

- "A missed call does not generate any revenue for the operator, at the same time it ends up using the network capacity of the cellular service provider.
- A study by Learning Initiatives on Reforms for Network Economies (Lirne), said that over 50 per cent of India's 140 million mobile subscribers make missed calls to convey a pre-agreed message
- "Miskol" is an adopted Filipino homonym for "miss call"--or a call made to the mobile phone that is not accepted by its receiver

QSDG Recommendation

- **"QSDG strongly recommend that the parameter ASR (answer seizure ration) should not be included in any Service Level Agreement, special on those ones introducing penalties. Its introduction can result in wrong interpretations and severe discussions between parties of that agreement. Several environments such as human behaviour ad economic can influence this parameter. *This way this parameter should not be included in any SLA and all of them containing references to these parameters should be reviewed."***

- **Q.12/SG12 needs to analyse the possible change of Annex C of E.801 – Framework for Service Quality Agreement and E.860 – Framework of a Service Level Agreement**

Security and reliability

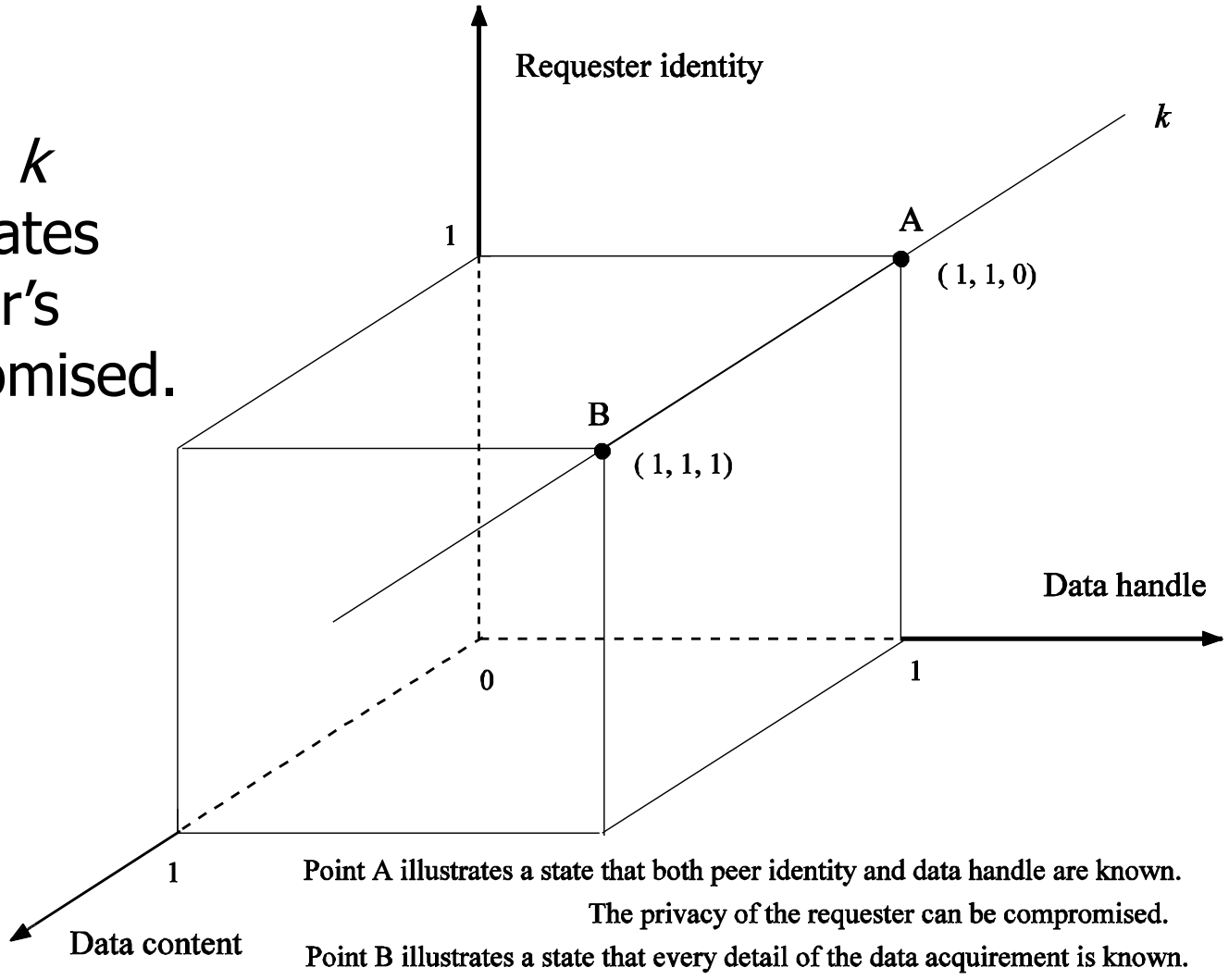
- **Security and reliability have become a major concern for service oriented applications as well as for communication systems and networks.**
- **With the need for evolution, if not revolution, of current network architectures and the Internet, autonomous and spontaneous management will be a key feature of future networks and information systems.**
- **In this context, security is na essential property. It must be thought at the early stage of conception of these systems and designed to be also autonomous and spontaneous.**

Privacy Matter

- Privacy is fundamental to trusted collaboration and interactions to protect against malicious users and fraudulent activities.
- Privacy is needed to protect source of information, the destination of information, the route of information transmission of dissemination and the information content itself

Privacy measurement

For example, line *k* represents the states that the requester's privacy is compromised.



Location Information is Sensitive

- Can reveal information about your activities, political views,…
- Of interest to burglars

- Access control to limit the number of people that can access your location information
  - Requires trusted computing base
- Privacy-enhancing technologies to reduce trusted computing base
  - Protects against break-ins, configuration errors,…

Quality-aware privacy protection in LBS

- Confidentiality of information about a person's whereabouts is a serious concern for location technology. Databases already store large amounts of personal information, including medical data, marketing preferences, and credit information.
- Lax security could lead to serious abuse of this data. Access to a database of location information could aggravate this situation by further exposing a persons movements.
- Moreover, it can have real-time implications. For example, someone could find and harm a victim.
- Obviously, technical and commercial considerations will determine the success of the technology.
- Issues of users' privacy and confidentiality will, however, have to be addressed first." Operators must take on the privacy issues as a technical challenge in front of technological developments, not as an afterthought

28th QSDG - 2011

The 2011 and 28th QSDG meeting is planned to be held in Kampala, Uganda

19 – 23 September

kindly hosted by

UCC – Uganda Communications Commission

in cooperation with

SATA – Southern Africa Telecommunications Association

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Communications For All

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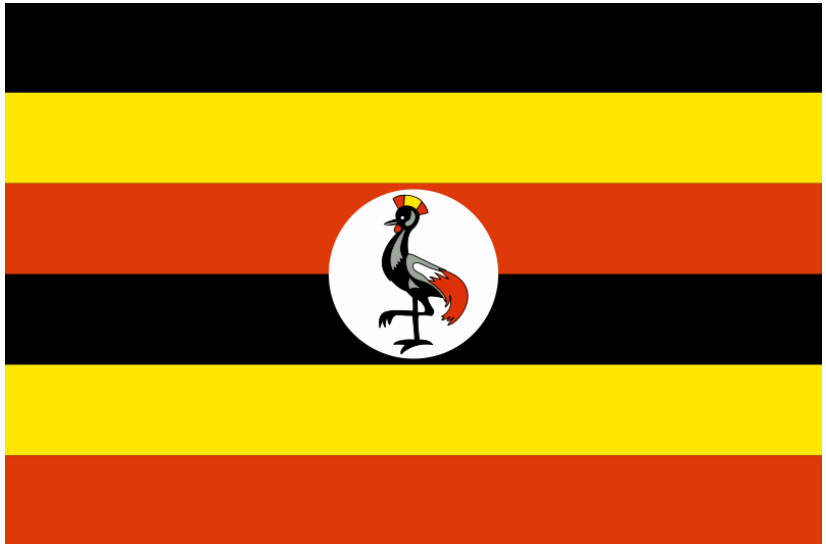
Southern Africa Telecommunications Association




Uganda
International boundary
Province boundary
National capital
Province capital
Railroad
Road
A province has the same name as its capital except where noted.
0 25 50 Kilometers
0 25 50 Miles
Mercator Projection
Boundary representation is not necessarily authoritative.
SUDAN
KENYA
ZAIRE
RWANDA
TANZANIA
Lake Victoria
Lake Albert
Lake Edward
Lake George
Lake Kwania
Lake Kyoga
Lake Bisina
Lac Muhazi
KABAROLE
SESE ISLANDS
Ukerewe Island
Jubà
Torit
Yei
Lokichokio
Nimule
Moyo
Atiak
Kitgum
Kaabong
Kotido
Arua
Gulu
Pakwach
Nebbi
Moroto
Lira
Apac
Butiaba
Masindi
Bunia
Hoima
Soroti
Kumi
Kapchorwa
Pallisa
Mbale
Kitale
Namasagali
Kamuli
Kiboga
Luwero
Kibale
Bundibugyo
Kyenjojo
Fort Portal
Mubende
Bombo
Busembatia
Tororo
Webuye
Eldoret
Iganga
Jinja
Kampala
Mukono
Mityana
Mpigi
Entebbe
Kasese
Butembo
Beni
Masaka
Kalangala
Kisumu
Butere
Kisii
Bushenyi
Mbarara
Lyantonde
Rakai
Rukungiri
Ntungamo
Kisoro
Kabale
Kyaka
Bukoba
Musoma
Buhengeri
Gisenyi
Kigali
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All ITU delegates are welcome