



Interactive **R**eal time **M**ultimedia Applications on **S**ervice Oriented Infrastructures

Empowering the Service Economy with SLA-
aware Infrastructures

*Objective ICT-2007.1.2: Service and Software
Architectures, Infrastructures and Engineering*

The Future of the Internet Internet of Services Working Group

Non – Functional Requirements

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Non-Functional Requirements



- Paving the way towards the “Future of the Internet” vision poses a number of requirements including **Non-Functional** ones: Quality of Service, Usability, Mobility, Interoperability, Scalability...
- The way ahead is to **combine and interrelate NFRs across the complete business-IT-network stack** (reliability and predictability from telecoms with flexibility and openness of the internet).
- Taking into consideration
 - Consumers may also be providers of information / services
 - Consumers’ behaviour influences non-functional system properties
- **New business models** will emerge
 - Adaptable QoS schemes (including properties ranging from security, integrity and availability to performance and timeliness).



Quality of Service

- QoS Guarantees will eventually determine the value of a service
 - Future internet services / interactive applications will have stringent timing and performance needs...
- The key point is and will continue to be the “**Performance Guarantee**” involving:
 - timed execution management, synchronized communication under various load conditions, satisfaction of other QoS constraints
 - trade-offs between them.
- QoS aspects of the services and the **network** have to be dealt in a unified way.
- We should NOT forget the cases of “**end-to-end QoS Provision**” across a federation of providers.

QoS and SLAs

- Since new business models and new value chains will continue to emerge, the main question is: “**How to assure QoS via SLAs in this dynamic, ever-changing environment?**”
 - SLA negotiations should be based on knowledge of the QoS level that each provider is able to offer given current commitments and non-QoS assured workload
 - QoS should be reflected at various levels in the value chain, including the ability to translate high-level business objectives to low-level resource provisioning policies
 - SLAs should be assigned both, across the value chain but also across the business-IT stack within a service provider.

Consumer-centric

- Survey
 - Redesigning for **usability**, the average improvement in KPIs was 83%.
- We have to take into account “**Consumer-centric**” QoS properties, such as:
 - Quality of Experience (QoE)
 - Fidelity (refers to the measurement of the output’s quality)
 - Transparency about the relationship between QoS and costs.
- Concluding...
 - The final success of any attempt regarding the “Internet of Services” will primarily depend on its **real adopters**: the end users - whose main demand refers to the offered level of quality.



Thank you!

Further Information:

IRMOS Project: <http://www.irmosproject.eu>

SLA@SOI Project: <http://www.sla-at.soi.eu>

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