Quality of Service Management in the Application Layer as well as …

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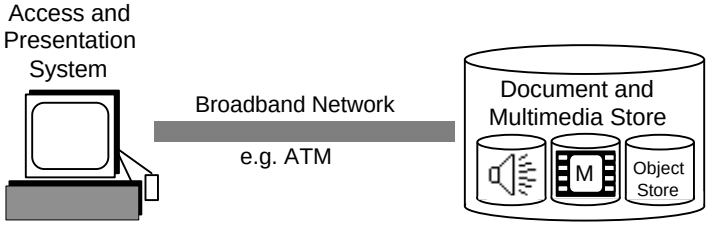

Problems:

- different qualities of media objects (resolution)
- different network bandwidth
- different presentation facilities (hardware, software)

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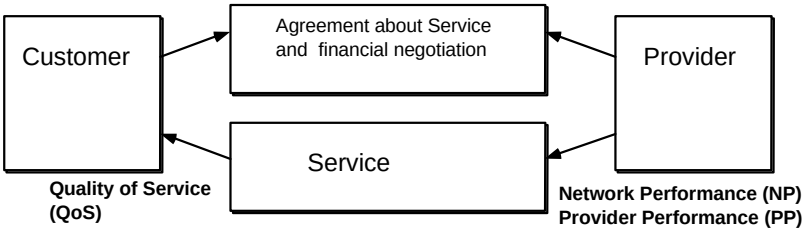
2. The Items of QoS



- "QOS is a set of user-perceived attributes of that which makes a service what it is.
- It is expressed in user understandable language and manifests itself as a number of parameters, all of which have either subjective or objective values".

3. QoS, State of the Art

We take a look at the communication models
OSI and CCITT

In the conclusion we have to state that:

- there are no terms of QoS provided at the OSI application layer
- QoS parameters are just handed down to the transport layer
- technical parameters e.g. peak rate, middle rate, peak duration

3. QoS, Suggestions

We propose a new terminology that allows:

- user can express his QoS requirements in common terms
- can be mapped to terms of network parameters
- the underlying layers may accept or reject the requirements

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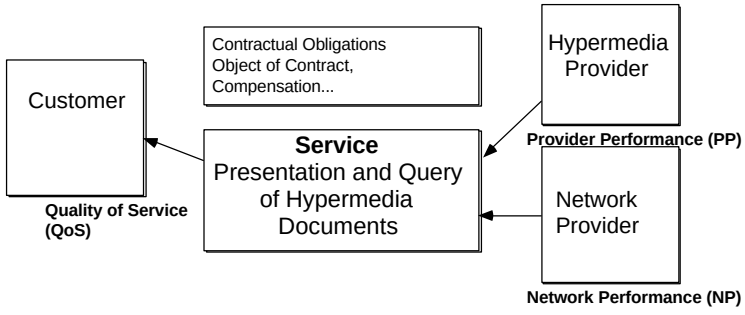
4. A QoS Model for Distributed Hypermedia Systems



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4.1. Terms of User Requirements

- the quality of hyper documents with regard to their content,
- the speed of picture display
- reaction time for queries
- color brilliance of pictures
- size of pictures and moving images
- maximum delay of video display
- query result relevance
- font readability

4.2. QoS Constraints

- customer quality requirements
- limitations of the transport system
- limitations of hard- and software
- cost constraints
- the assortment of hyper documents offered by the hypermedia provider

4.3. QoS Mapping

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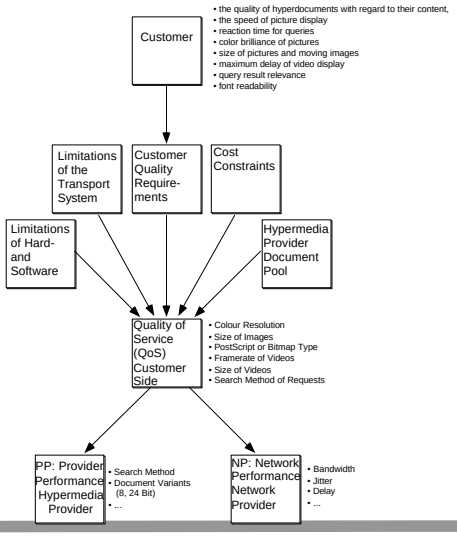

4.4. Interactive Query of Customer Quality Requirements

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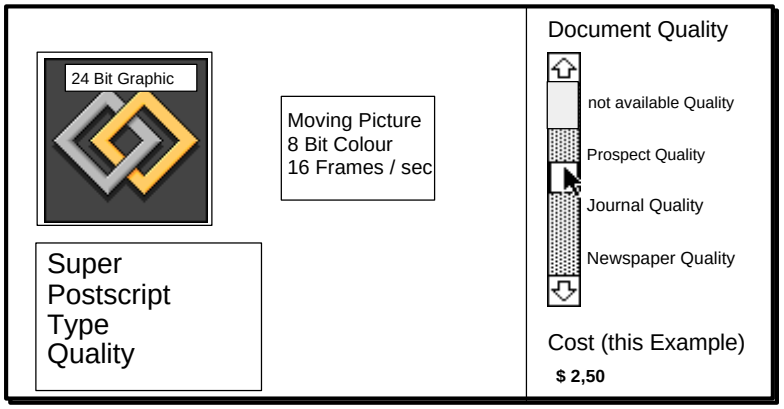
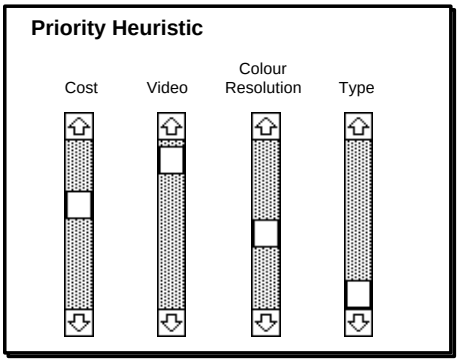
- (Quality Query by Example)



4.5. Heuristics for particular Qualities

- "Best-Result" Heuristic
  "Best-Fit" Heuristic



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4.6. Exception Handling

- the negotiated QoS profile can not longer be guaranteed
- the server can indicate that a medium isn't available any more
- the transport system can indicate the reduction of available network performance

  -> must be handled softly according to the user
  -> grateful degradation
  -> renegotiation

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5. Summary

- the application and presentation layer of OSI gives no sophisticated model for quality of service
- it is possible to see a distributed hypermedia system as a service
- it is possible to express the quality criteria in user terms using an example
- the “Quality Query by Example” dialog
- the user can configure a quality profile
- it takes into consideration the potentials and limitations of the software,
  hardware, transport system and media server

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