Department of
Information
Technology
ITEC
University
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MPEG-7/-21, DSCP, Media Synchronisation

Content

- **Project at ITEC**
- **Idea**
- **Introduction into ...**
  - MPEG-7 Variation DS
  - MPEG-21 (BSDL/DIA)
  - Differentiated Services
  - Inter media synchronisation
- **Previous work**
- **Problems**
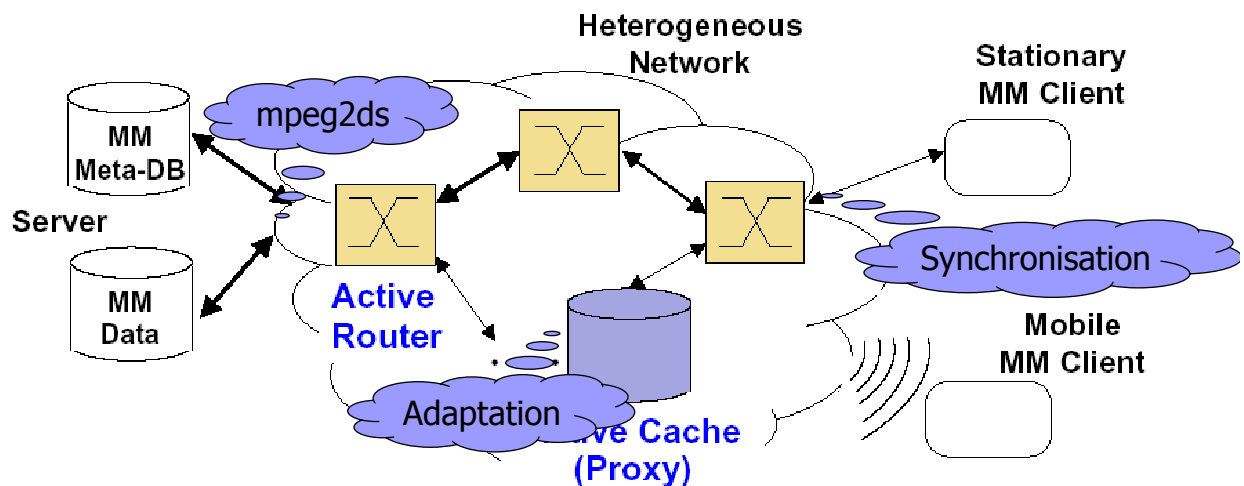- **Roadmap**
- **References**

Project Context and Idea

- **P14788: Qualitätsadaptives Video-Caching und Übertragen in Netzen**
- **Keywords:**
  - DISTRIBUTET MULTIMEDIA SYSTEMS
  - VIDEO STREAMING
  - **ADAPTION**
  - **QUALITY OF SERVICE**
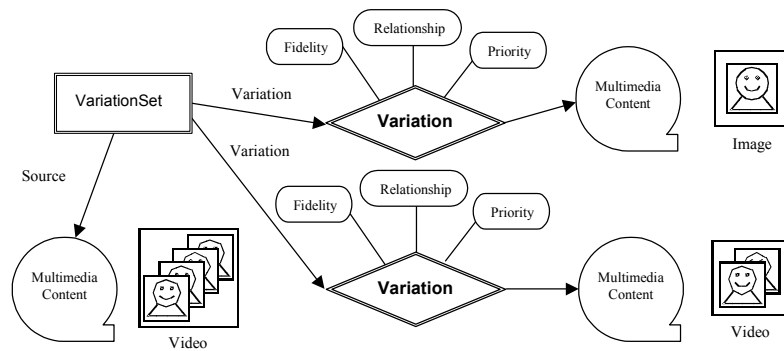 - ACTIVE NETWORKS
  - **MPEG**

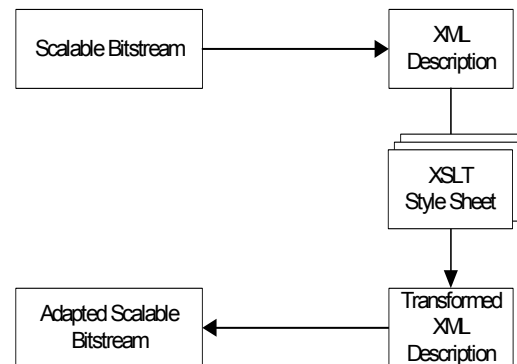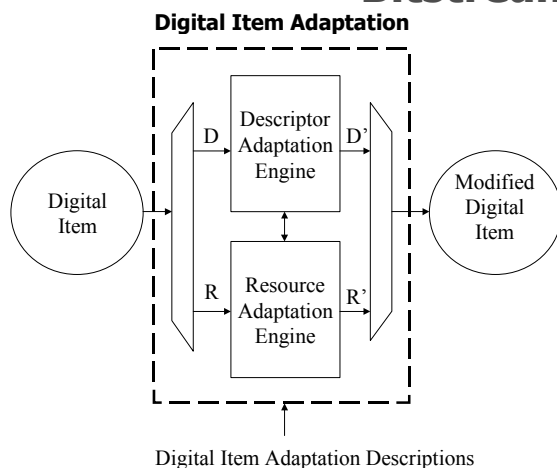
Project Context and Idea (cont'd)

Introduction: MPEG-7 Variation DS

- **Description of associations or relations between different variations of multimedia content**
- **For example: Summarization, ColorReduction**

Introduction: MPEG-21 BSDL/DIA

- **Digital Item Adaptation**
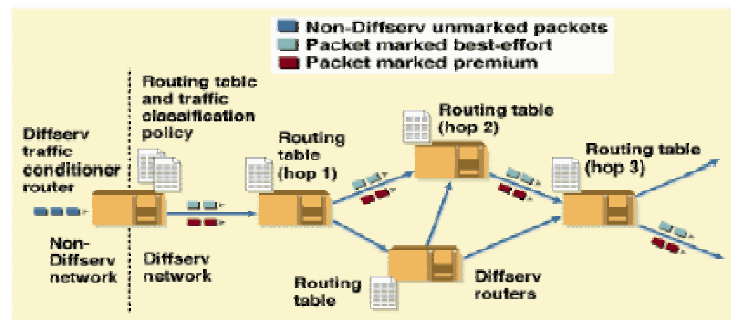- **Bitstream Syntax Definition Language**

Multimedia Content Adaptation using XML/XSLT

Introduction: DiffServ

- **Exploit edge/core router distinction for scalability**
  - Policing at edge to get services (complex)
  - Forwarding in core to realize services (simple, fast)
- **Relative-priority scheme**
  - Packets are marked with "behaviour" (essentially, priority) ...
  - ... and treated according to small set of packet-forwarding schemes

Figure 1: DiffServ architecture

Introduction: Synchronisation

- **Independent task**
  - Synchronisation between MPEG-7 data and MPEG-4 media streams
  - Meta data <-> Media data

Previous Work

- **Identification of MPEG-7 Variation DS for the adaptation process within this master thesis**
- **CfP Content Adaptation**
  - Extension for the BSDL Schema describing an MPEG-4 ES
  - Core experiments with XSL-Transformations
  - Analysing the existing core experiments held between Singapore and Sydney meeting

Problems

- **MPEG-7 Variation DS describes only relations between two or more already existing sources**
- **BSDL not defined yet**
  - Difficult to handle MPEG streams described with BSDL in case of packet loss
- **Transformation across abstraction layers**
  - High-Level (apps layer) vs. Low-level (network layer) Information
  - Increases complexity in ingress/leaf router
- **...**

Roadmap

- **Exact definition of master thesis**
- **Estimated end: Oct/Nov 2002**
  - Mar/Apr: Definition, Analysis, Design
  - May/Jun: Implementation ;-)
  - Jul/Aug: Tests, Measurements
  - Sept/Oct: Writing …

References

- Lecture Slides Institute of Information Technology
- ISO/IEC JTC 1/SC 29 N 4242, MPEG-7, Multimedia Content Description Interface — Part 5: Multimedia Description Schemes
- Sylvain Devillers, Myriam Amielh, MPEG-21 Draft Requirements on BSDL and Content Adaptation, ISO/IEC JTC1/SC29/WG11, MPEG01/M7653, Pattaya, December 2001
- Requirements Group (Editor: Anthony Vetro, MERL), MPEG-21 Requirements on Digital Item Adaptation, ISO/IEC JTC1/SC29/WG11/N4515, Pattaya, December 2001
- X. Xiao, L.M. Ni, Internet QoS: A Big Picture, IEEE Network, Vol. 13, No. 2, pp. 8-18, March/April 1999
- DiffServ RFCs (RFC2475, RFC2597, RFC2598)