Design, Development and Evaluation of an Adaptive and Standardized RTP/RTCP-based IDMS Solution

Mario Montagud Climent, mamontor@upv.es
Telecommunication PhD Program, Communications Department, Universitat Politècnica de València (UPV)
Supervisors: Prof. Fernando Boronat Segui (UPV), Dr. Pablo Cesa (CWI)
CWI: The National Research Institute for Mathematics and Computer Science (Amsterdam, The Netherlands)

1. Introduction & Motivation
- **Motivation:** Increasing relevancy of shared media experiences → Networked togetherness around media content.
- **Definition:** Inter-Destination Media Synchronization (IDMS) refers to the simultaneous synchronization of the playout processes of a specific media stream across geographically distributed devices.

2. Use Cases

3. Methodology

4. Problem Analysis

5. Architectural Approaches for IDMS

6. Requirements
- Desirable resilience on standardized components.
- Low traffic overhead.
- Inter-operability and widespread support.
- Sync metadata in the media delivery units.
- Valid for different media streams and applications.
- Valid for stored and live streaming services.
- Resilience on wall-clock timing information.
- Compensation of the end-to-end delay.
- 64-bit timestamps → Resolution in the order of µs
- Need for an adaptive and scalable feedback channel.
- Inherent rate adaptive techniques

7. Design Process

8. Evaluation Methodology

9. Some Results

10. Publications
- 1 Internet Engineering Task Force (IETF) Standard.
- 2 papers in relevant international conferences (e.g., ACM Multimedia, IEEE LCN, IEEE MASCOMs...)
- 3 papers in international workshops (MSDiOSSync).
- 2 papers in national conferences (HTELE).
- 2 open-source modules.