

User-centered Quality Assessment of HD IPTV Services

Results from the FP7 Project OptiBand

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THE OPTIBAND CHALLENGE

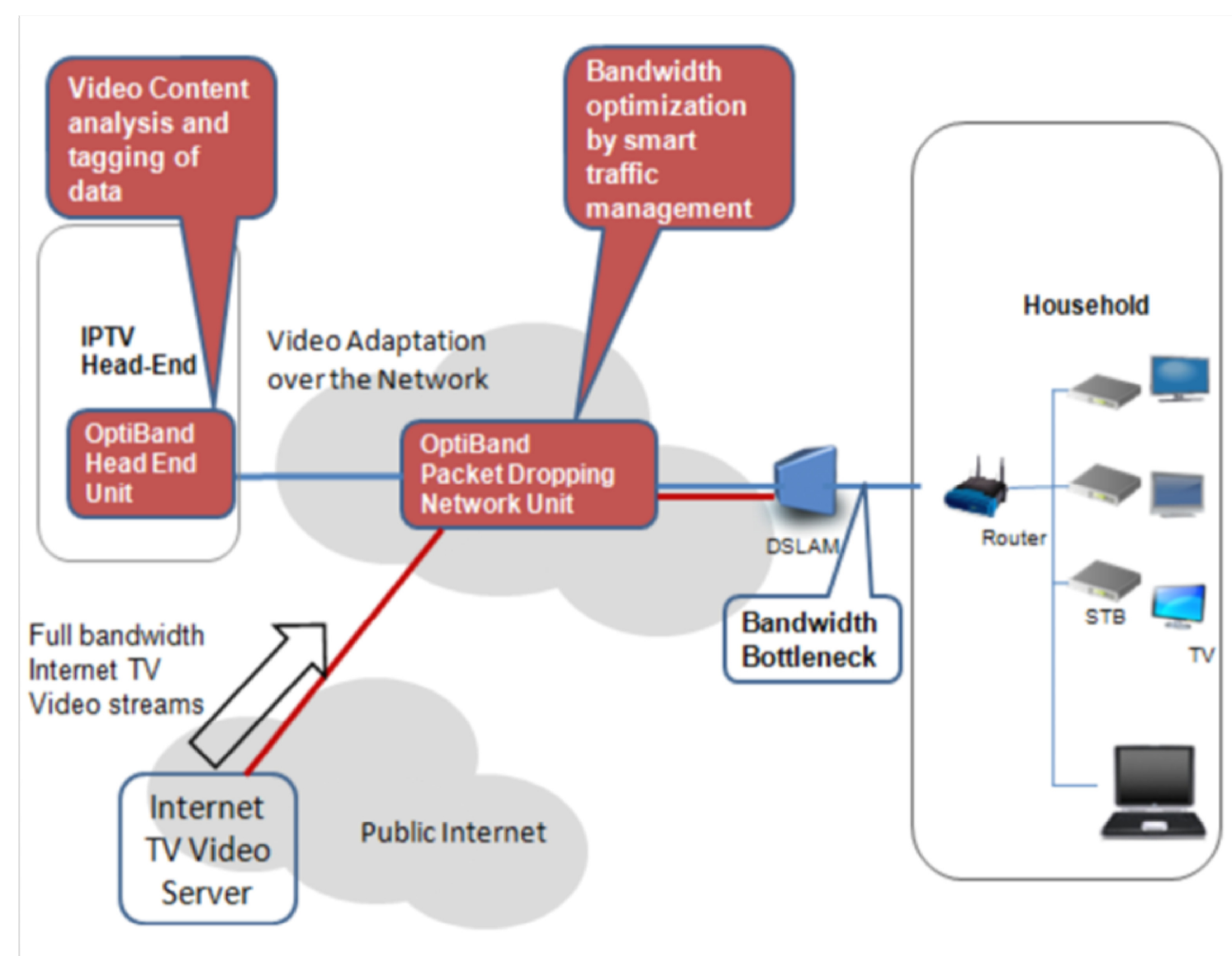
The Problem

Currently, the ADSL access network creates a bandwidth bottleneck which does not allow for adequate provision of personalized High Definition (HD) video content to the subscriber.

The Solution

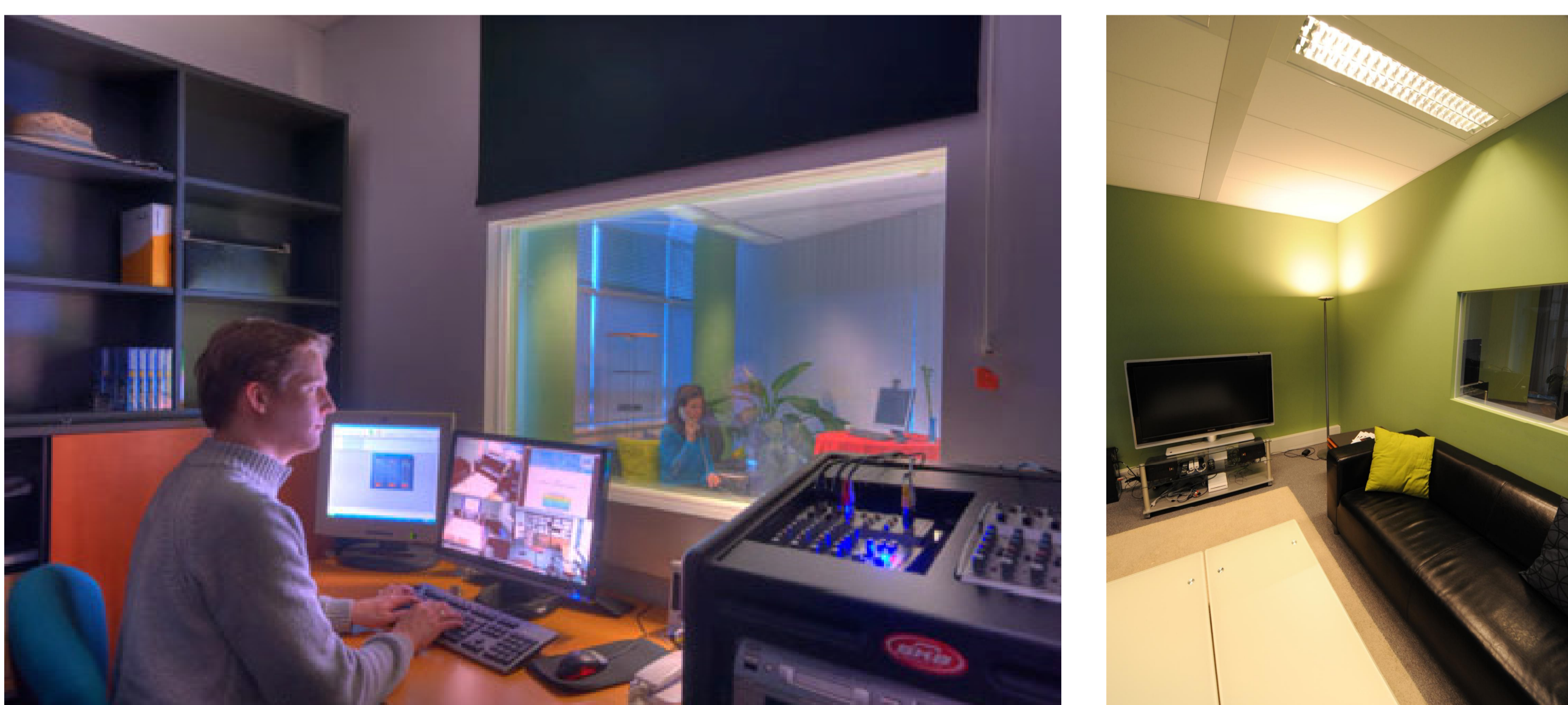
Significant bandwidth savings by data dropping algorithms based on the nature of the video content (so-called "Content aware data dropping algorithms"). These algorithms will be implemented in two units: The "OptiBand Head End Unit" and the "OptiBand Network Unit".

→ Enable consumption of multiple HD channels per household over a single ADSL line.



THE i:lab AT FTW

The i:lab (interfaces and interaction lab) contributes to a variety of research projects in regional, national or European funding schemes. Companies can benefit from up to 50% public funding within Austria's COMET program, if they decide to conduct collaborative research at the i:lab of the FTW.



The i:lab optimally supports a wide array of user-centered research and development activities. Thanks to its modular design, various application areas can be investigated by combining various facilities and features:

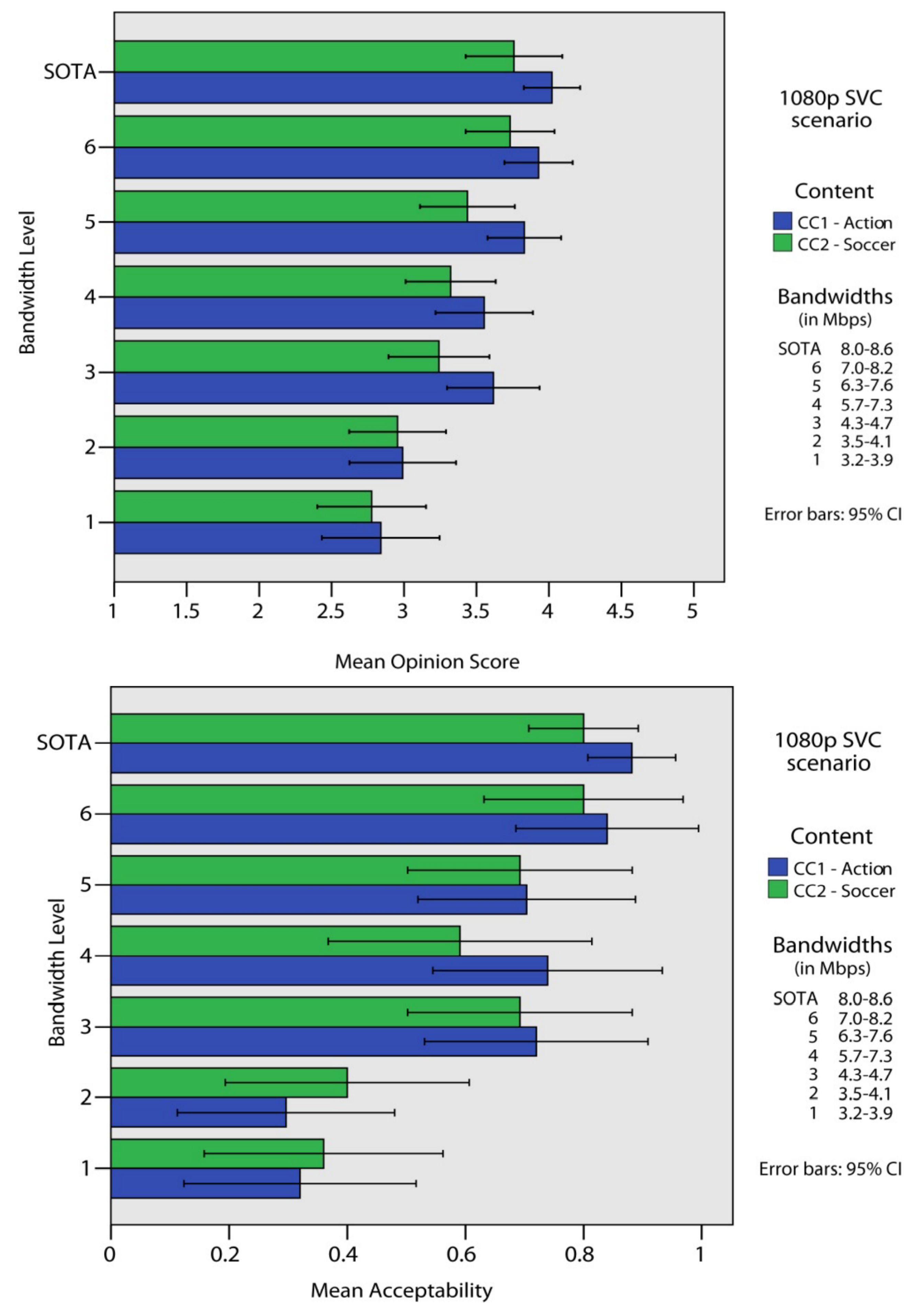
- Two large test rooms directly controlled from a central observation room
- A custom-made observation and test management system that enables to control test conditions and automatically capture user feedback and behavior
- Acoustic properties that allow for unbiased conversational speech quality tests as well as for high quality sound recordings

OPTIBAND AT FTW: TASK AND FIRST RESULTS

Tasks

- Investigation of the Quality-of-Experience (QoE) of this new technology
- Development of scientific QoE criteria and measurement methods
- Evaluation of QoE impact of data dropping by a series of user studies
- Guide for algorithm development towards optimal user-perceived quality

Comparison: MOS vs. Acceptance Ratings



- **Absolute user-based assessment** results: mixed
The targeted 33% data reduction (bandwidth level 4) without falling below 3.7 MOS is hard to achieve via packet dropping.
Targeted bandwidth level 4 only acceptable in 60-70% of the cases

- **Relative** comparison of user-based assessment results:
Very strong data reduction with mostly affordable relative quality losses (e.g. 1080i, action: -45% with only a loss of 0.7 MOS).
Sharp decline in acceptability at bandwidth level 2 (>50% reduction)

→ Rethink validity of absolute QoE acceptance thresholds, develop flexible QoE thresholds aligned to content type and duration