

# User-centered Quality Assessment of HD IPTV Services

## Results from the FP7 Project OptiBand

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### THE OPTIBAND CHALLENGE

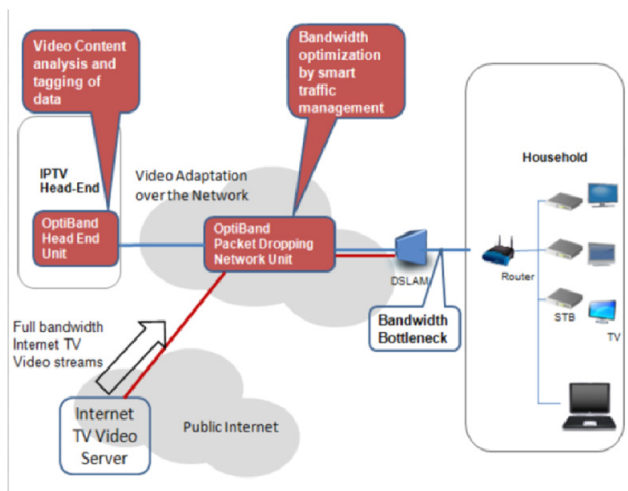
#### The Problem

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

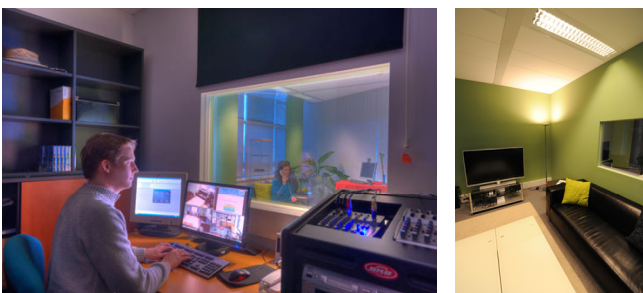
Significant bandwidth savings by data dropping algorithms based on the nature of the video content (so-called "Content aware data dropping algorithms"). These algorithms will be implemented in two units: The "OptiBand Head End Unit" and the "OptiBand Network Unit".

→ 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:

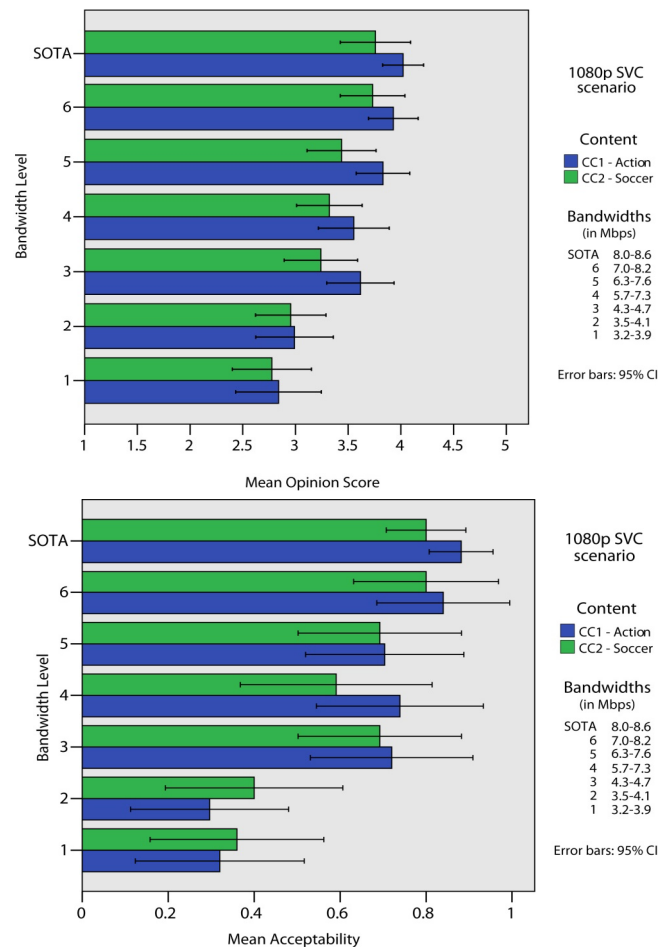
- Two large test rooms directly controlled from a central observation room
- A custom-made observation and test management system that enables to control test conditions and automatically capture user feedback and behavior
- Acoustic properties that allow for unbiased conversational speech quality tests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