



CONNECTED VISUAL REALITY

High Quality Audio Visual Communication in Heterogeneous Networks

Live Demo daily at 10:00 / 11:00 / 13:00 / 15:00 / 17:00



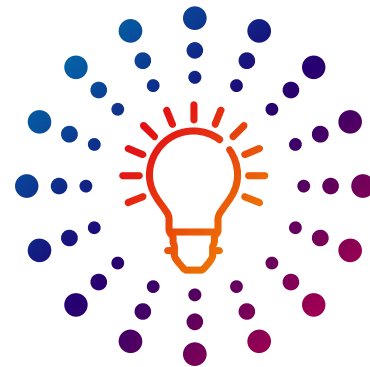
ERICSSON

RWTHAACHEN
UNIVERSITY

MAIN
CONCEPT

now part of **rovi**

PROJECT GOALS



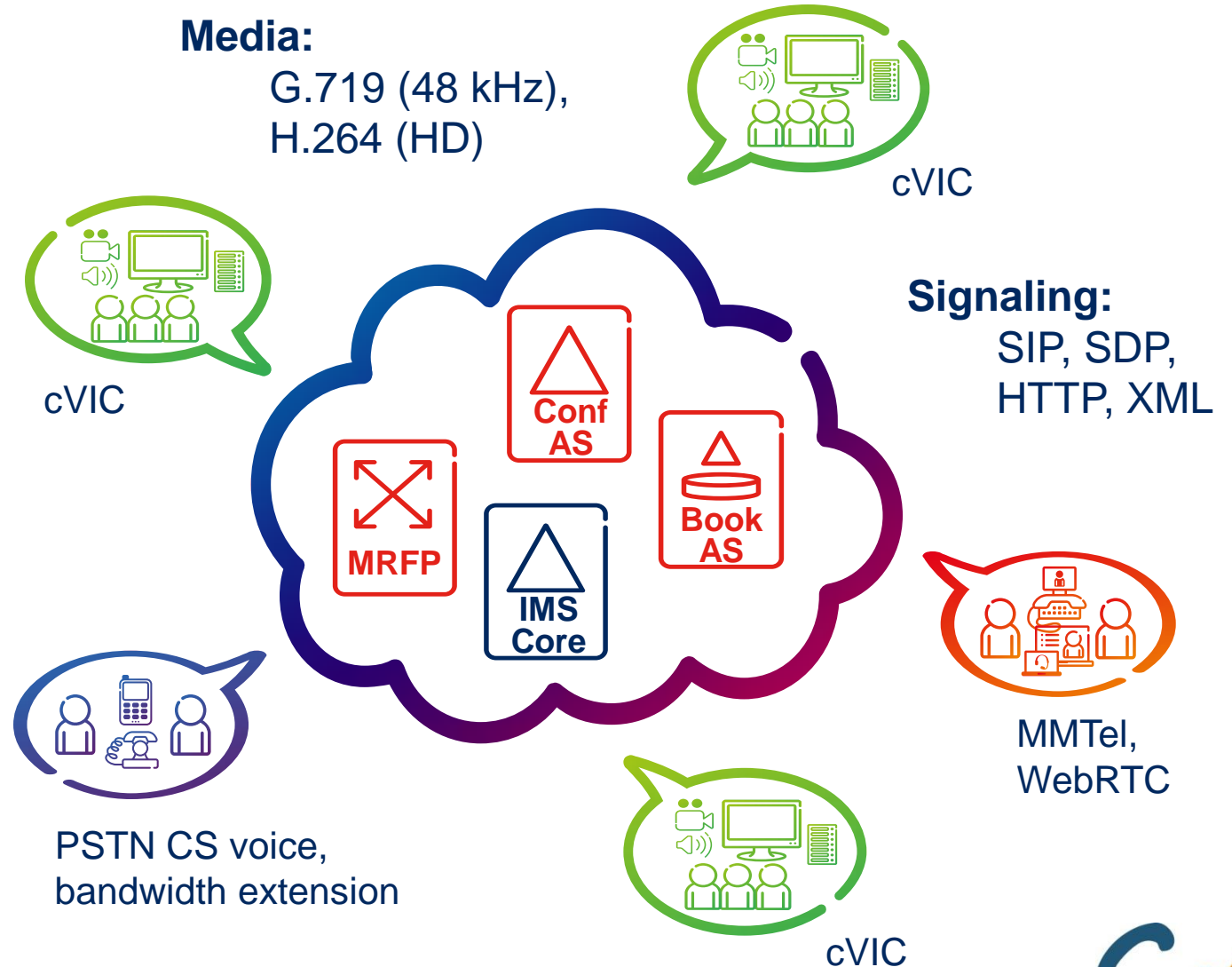
INTEROPERABILITY
QUALITY-OF-SERVICE
NETWORK INTEGRATION
PROOF-OF-CONCEPT

BEAMFORMING
AUDIO LOCALIZATION
ECHO CANCELLATION
NOISE REDUCTION

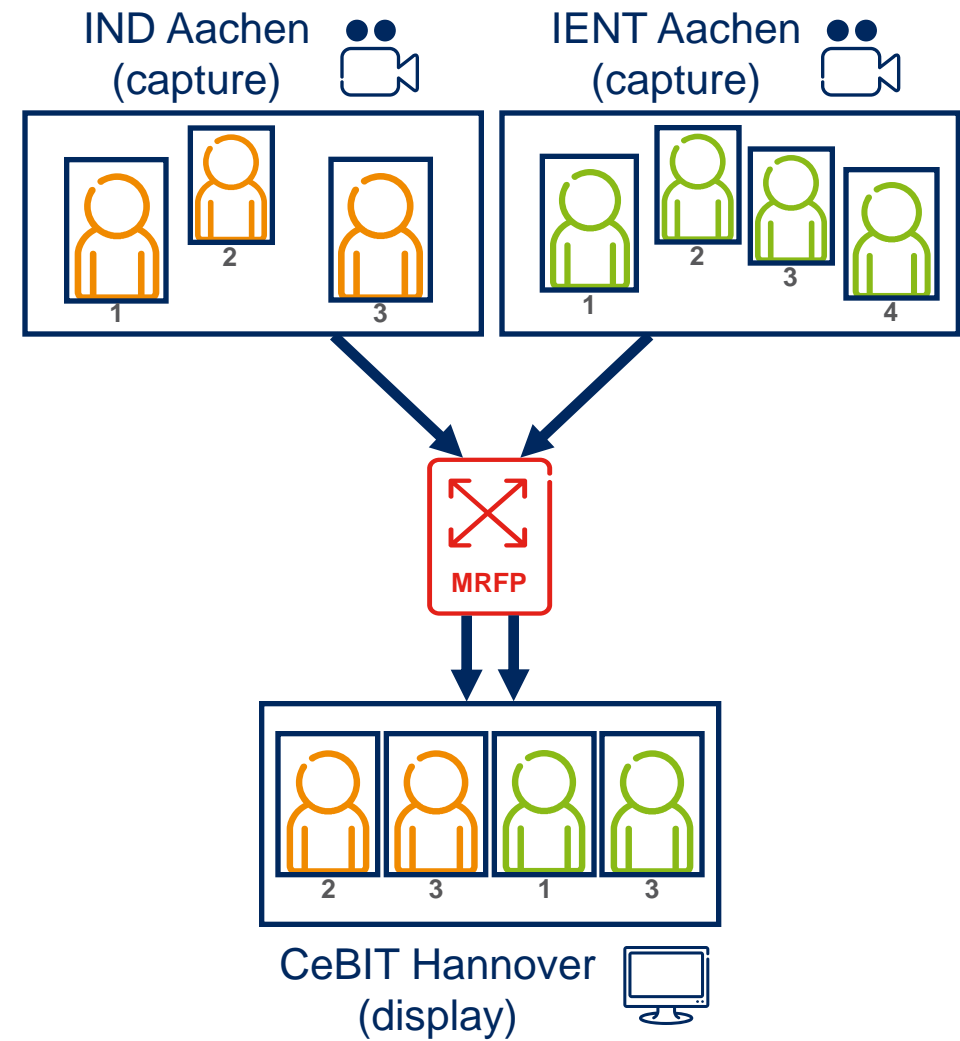
VIDEO ANALYSIS
FACE RECOGNITION
HIGH EFFICIENCY VIDEO CODING
SCALABLE VIDEO

DEMONSTRATOR SYSTEM

- › Video conferencing
- › IP based IMS network
- › Same technology as fixed and mobile telephony networks
- › Same technology as future voice over LTE (VoLTE)



SCENE COMPOSITION

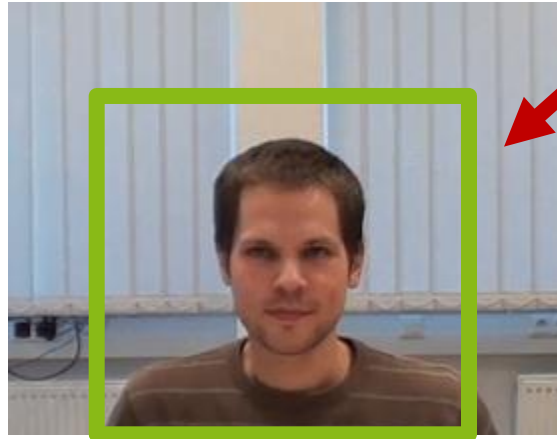


VIDEO SCENE ANALYSIS

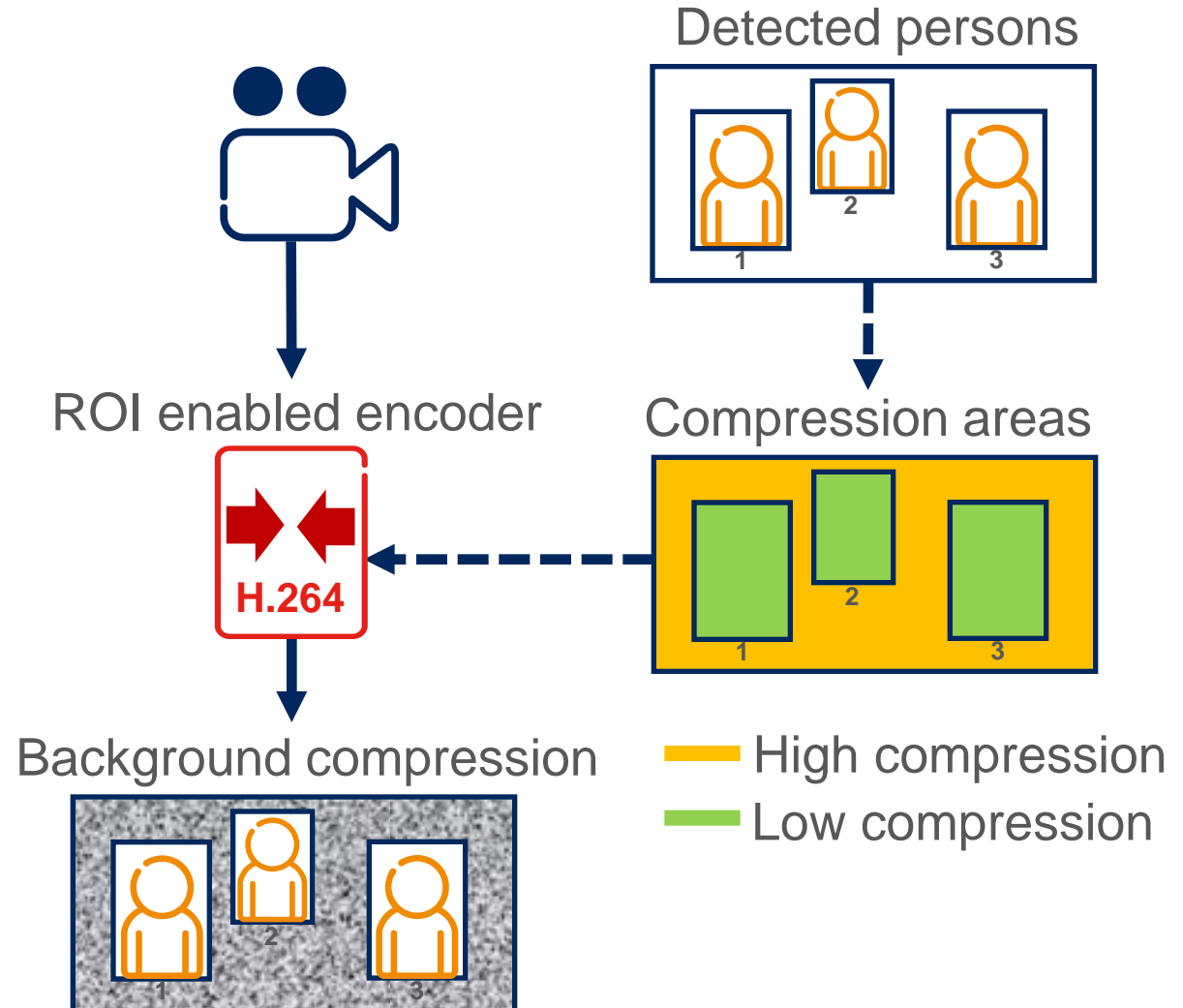
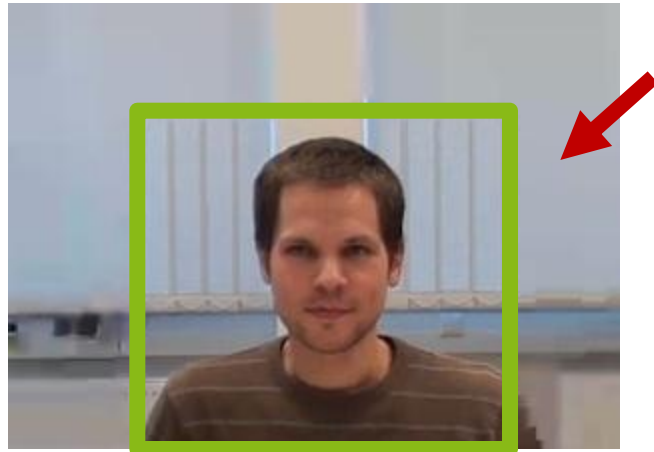
- › Face detection
 - Viola-Jones Detector
 - Cascaded classifiers
 - Robust against illumination changes
- › Tracking
 - Mean-shift tracking
 - One tracker per detected face
- › Signaling
 - Region of interest



REGION OF INTEREST ENCODING



30 - 50 % lower bitrate



AUDIO SIGNAL PROCESSING

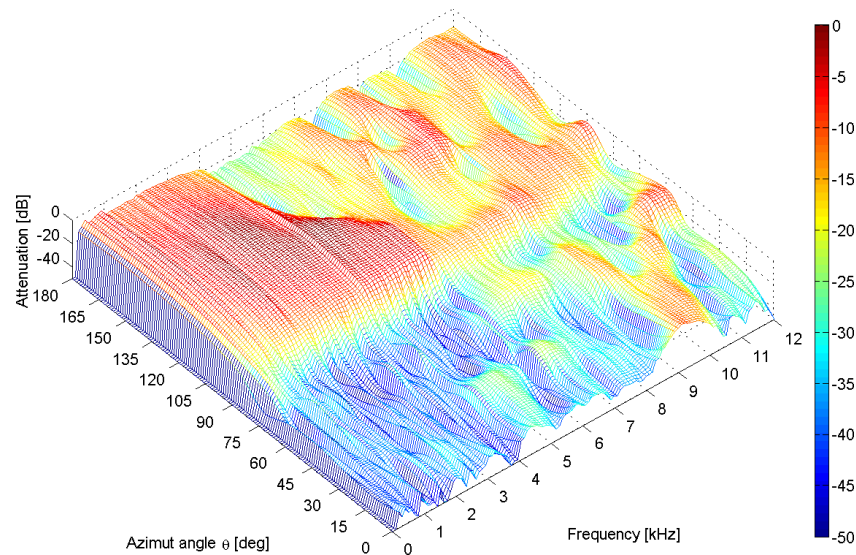
MICROPHONE ARRAY PROCESSING

Spatial separation of different speakers

Joint active speaker detection

- Angle information by video analysis
- Speaker activity by beamforming

Activity index sent to MRFP for scene composition



ARTIFICIAL BANDWIDTH EXTENSION

Limited frequency range of current telephone speech

- Low quality and intelligibility

Bandwidth extension to wideband speech

- Improved and homogeneous listening experience

