UbiMed4K

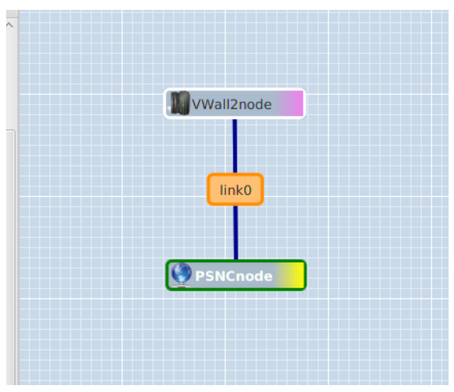
GOALS

- Provide high quality long distance remote collaboration tool for medical professionals
- Support 4K video from medical devices
- Support live intercontinental collaboration
- Assess the enhanced tool's operation

CHALLENGES

- Access to 4K-enabled video sources, content and reference display devices
- Access to 4K-related expertise
- Processing power required for encoding and decoding 4K video
- Access to infrastructure outside of Europe

DEMO SETUP



PL-LAB (PSNC)

Virtual Wall (imec)

RESULTS

Resolution	Bit rate [Mbps]	CPU usage [% of core]	Correlation CPU–bit rate	Encoding fps	RAM usage [%]	Correlation RAM–bit rate
1920x1080	2	133	0,89	25	8,3	-0,21
	4	138		25	8,3	
	8	142		25	8,3	
	16	146		25	8,3	
3840x2160	4	457	0,97	16,8	31,2	-0,58
	8	466		16,8	27,0	
	16	471		16,5	25,5	
	32	502		16,3	26,2	

MORE RESULTS

Resolution	Bit rate [Mbps]	Median of one way end-to-end delay [ms]	Correlation delay–bit rate	Median of objective QoE metrics value	median of expert subjective video quality estimation
1920x1080	2	202	0,65	0,283	Poor
	4	202		0,094	Good
	8	219		0,055	Excellent
	16	240		0,030	Excellent
3840x2160	4	407	0,54	0,419	Bad
	8	405		0,245	Poor
	16	421		0,211	Fair
	32	430		0,105	Good

CONCLUSIONS

- medVC terminal is technically compatible with 4K, but:
  - Framerate drops by 30%
  - Encoding of fewer streams in parallel
  - End-to-end delay rises
- Intercontinental collaboration possible, end-to-end delay rises but acceptable

POST MORTEM

- medVC compatible with 4K
- New hardware components for media processing are being researched in order to improve efficiency
- This will allow to be ready for 4K medical devices entering the market
- More detailed view of the operating field for remote doctors, also on other continents