



VŠB – Technical University of Ostrava
Faculty of Mining and Geology

20th International conference on
IT4P 2017
Information technology for Practice

Experience with Teaching using Videoconferencing System

Roman Danel & Michal Řepka

IT4P - Information Technology for Practice 2017

9th – 10th October 2017

Agenda:

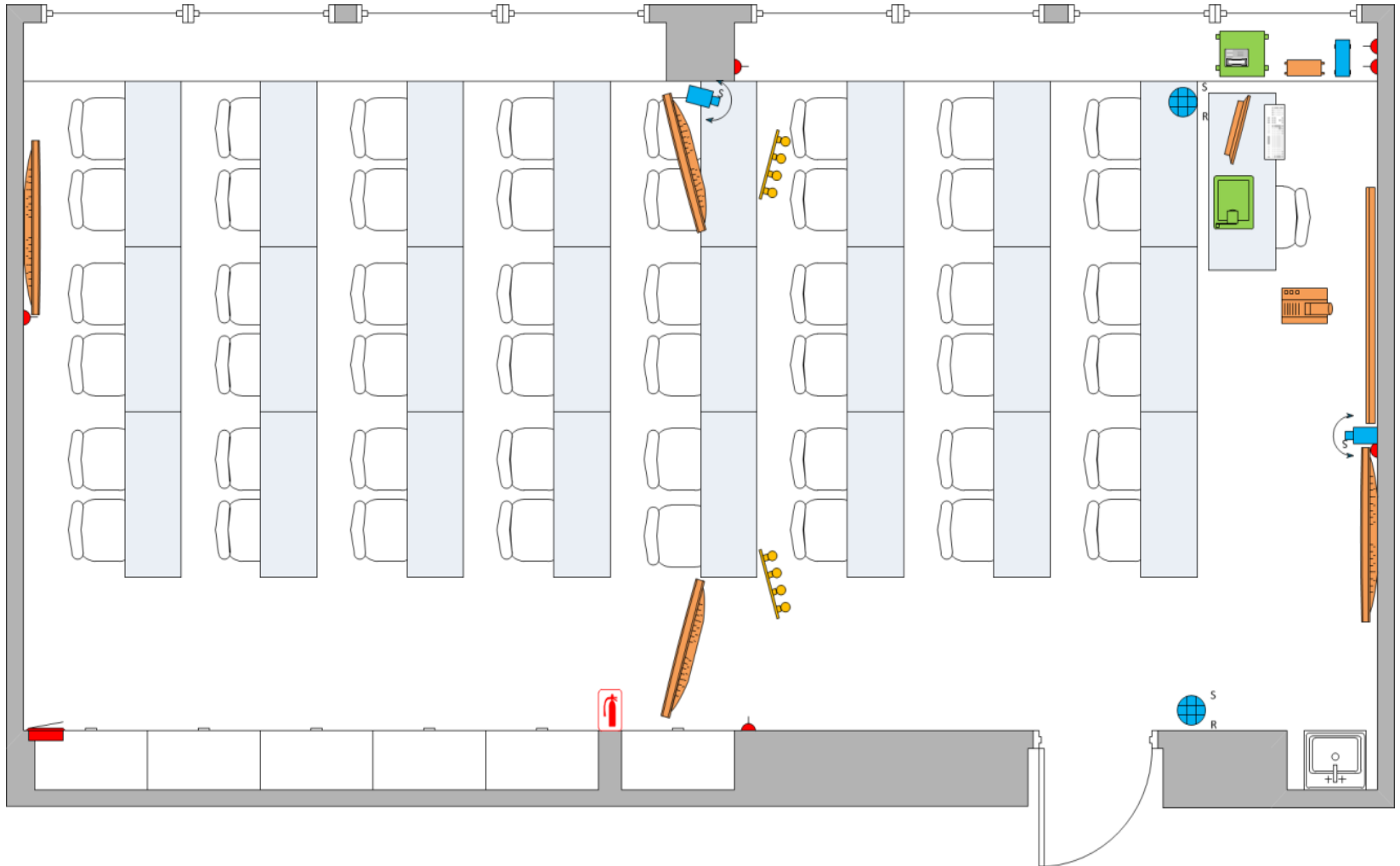
- Remote teaching Ostrava – Most
- Videoconference system Polycom
- Problems with the system
- Using Skype as a replacement
- Problems with Skype
- Manfred Spitzer
- Conclusion

MOST

VŠB



Classroom with the videoconference



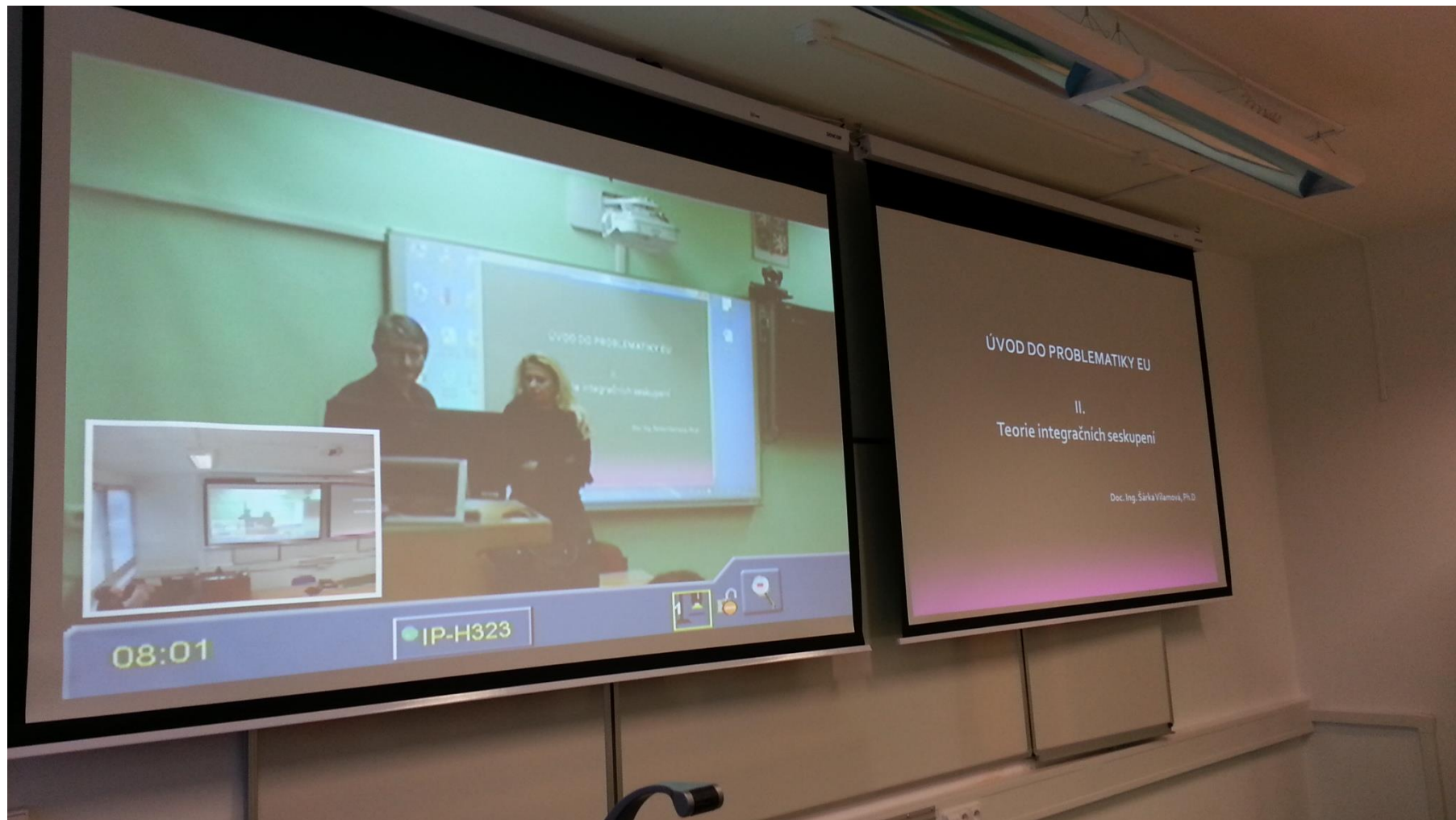


How the teacher see the classroom





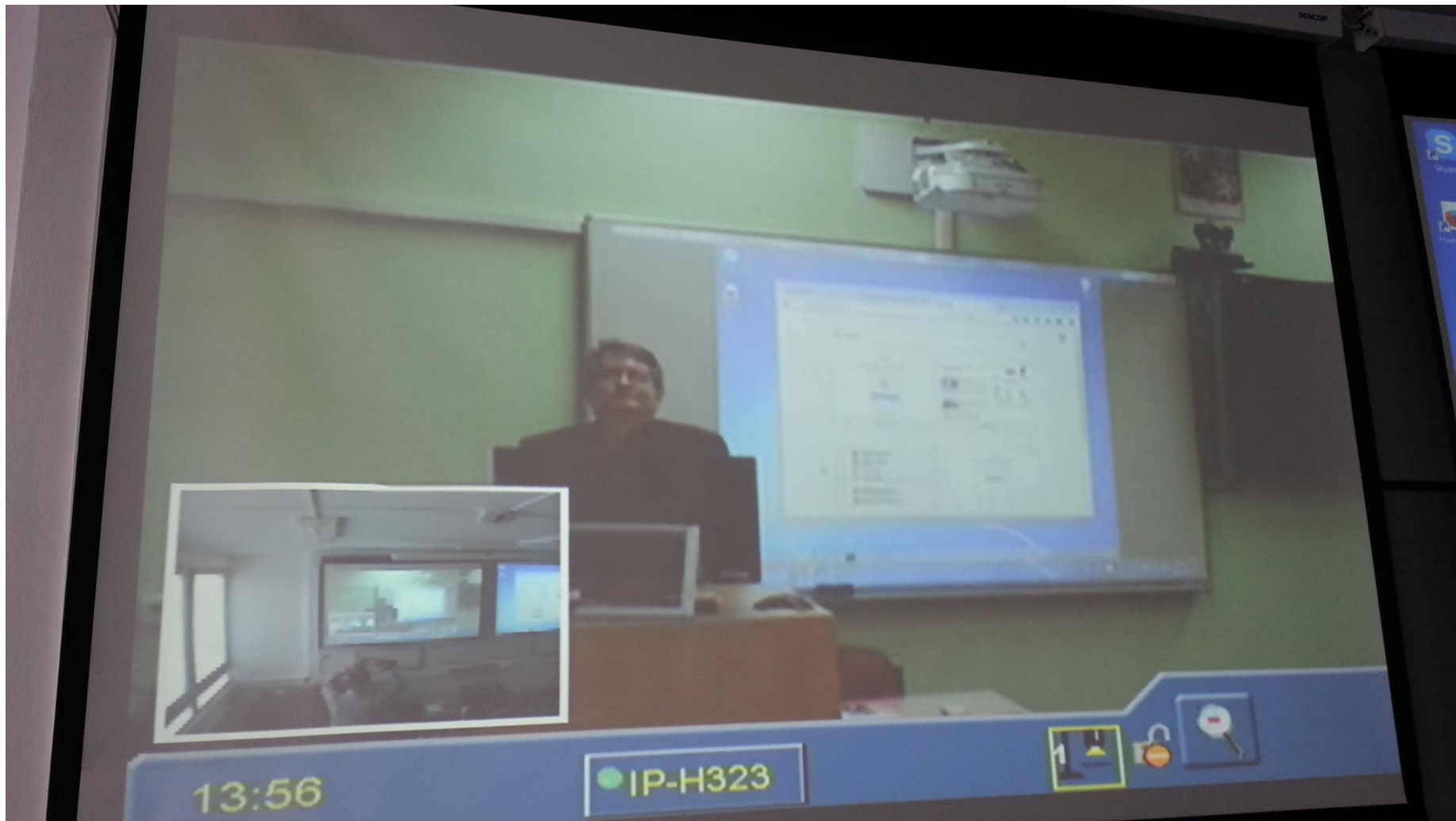




ÚVOD DO PROBLEMATIKY EU

II. Teorie integračních seskupení

Doc. Ing. Šárka Vítamová, Ph.D.



Equipment - Ostrava

- Equipment for connection with the other site enabling transmission of audio and video – Polycom HDX 8000
- Two SONY EVI-D100 controllable cameras (controllable direction of view, 10x optical zoom, automatic focuses)
- 4x4 matrix switch of video and audio signals - Gefen 4x4 DVI KVM MATRIX
- Data projector Epson 450WI
- Digital visualizer (PS400 Digital Visualizer)
- 4 Sony 55X4500 TV televisions (size 55“)
- 2 lights - Parabeam 200DMX
- Mixing panels and audio amplifier, including 6 speakers and 1 subwoofer.

Equipment - Most

- Equipment for connection with the other site enabling transmission of audio and video – Aethra X5
- Two controllable cameras SONY
- VGA signal hub
- Two EPSON EB-1980WU data projectors
- Mixing panels and audio amplifier, including six speakers and one subwoofer.

Polycom in Most



Teacher costs in Most

- Average stay - two nights – 2000 CZK
- Travelling costs – 1500 CZK

1 teacher in Most – 3500 CZK (130 €)

Problems

- The videoconference system was its gradual construction and improvement which, however, means that it does not present an integral whole but a **group of interconnected technical equipment from various producers**
- The installation documentation is missing in the system

Problems

- As the **equipment ages**, the costs of maintenance are increasing
- In 2014 the system started experiencing connection failures, especially audio, which started to impact on the quality of education
- Therefore, at the end of 2014 the system was innovated; the system was, amongst others, supplemented with a more user-friendly control setup using a tablet PC application

2016 – the videoconference system is moving to the new school location



Problems

- We have also detected a problem on the students' part
- Repeated questionnaire surveys amongst the students of technical fields of automation and information science found that in general, students rate teaching via videoconference negatively and prefer live teaching
- In 2015, final-year students raised a direct written requirement for the subjects included in the final state exams to be taught without the use of the videoconference system.

Using Skype instead of the videoconference system

- September 2016 - webcams were added at the Institute's new site and teaching via Skype (with Hangout from Google as a backup system) was put into operation.

Skype benefits

- No additional costs
- More than 1:1 participants
- Connection with other workplaces (e.g. Slovakia, Žilina)

Skype problem with audio

- The videoconference system is design to send and receive audio from all places in the room.
- During the audio tests with Skype we found big echoes – Skype system is designed to speak with one to one (audio source must be close to the microphone)
- We discovered that maximal distance can be about 50 to 100 cm.

Skype

- To solve the problem we had to add extra microphone for student side and set very low sensitivity
- When students wanted to ask the lecturer they had to use the wireless microphone.

Problem with Skype

- Soon after putting this solution into operation it was found to be unsuitable.
- This is due to the method of teaching, where combined (long-distance) courses have teaching concentrated into six-hour blocks mainly on Friday morning, Friday afternoon and Saturday morning.
- This means that on Fridays the video transmission via Skype was continuous for over 10 hours.

Problem with Skype

- The operator of Skype services evaluated the transmission with excessively large volumes of data as potential threat and the account was after several weeks **blocked**.
- The big drawback is **the dependence** on an external service provider (Microsoft, Google...), and **their conditions of operation**.

Manfred Spitzer

- M. Spitzer, “The Mind within the net: models of learning, thinking, and acting”, MIT Press: 1999, ISBN: 978-0262692366
- M. Spitzer, “Cyberkrank!: Wie das digitalisierte Leben unsere Gesundheit ruiniert”, Droemer: München 2015, 978-3-426-27608-2.

Manfred Spitzer

Manfred Spitzer shows the results of a test which assessed the study results of teaching in two classes

- in the first class, teaching was performed in the classical way with printed literature;
- in the other class teaching was performed using tablets and multimedia teaching materials

Manfred Spitzer – results of research

- In the case of the second class (using tablets), student's results gradually deteriorated.
- Spitzer gave a reason for this that **studying using multimedia materials leads to compromised concentration on the actual content!**

Conclusion

- Although it seems like a simple way of providing teaching at a remote site, the current software solutions such as Skype/Hangout **are still not suitable** as full-blooded **replacements for videoconference systems for teaching long-distance students**.
- The use of multimedia has its limitations and **cannot absolutely replace the direct contact of teachers with students**
- Teaching using a videoconference system **is suitable only for certain subjects which are more descriptive** in nature (e.g. subjects such as Information systems).

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Thank you for attentions....