Contribution ID: **66**   Type: **Presentation**

Remote analysis of human voice - environment for voice training and ORL medicine

Thursday, 20 September 2012 12:00 (20 minutes)

Link for further information

http://medicus.cesnet.cz/doku.php/publikace

Description of the work

The remote desktop protocol (RDP) transfers events from mouse and keyboard from user's client application to the remote system where it is interpreted and graphical changes are transferred back to client's application which visualizes it. RDP protocol also introduces some support in sound recording redirection over RDP, however, due to our measurements, we decided to introduce our own customization of RDP protocol to redirect sound recording over RDP without loss of information and control of quality of recorded data.

The system is being used in the research of voice training of students of pedagogy and singing and by some othorinolaryngologists.

The test deployment on the cloud provided by the METACENTRUM were tested with the promising results and some challenges. The cloud environment OpenNebula allows user friendly interface to deploy virtual machines almost without intervention of some profesionals or support. The intervention were needed if we installed a custom virtual machine with MS Windows operating system which is prerequisite of the analytical application. The license agreement of the operating system needs to be fulfilled also on the virtual machine in the cloud. This may cause some troubles to providers who doesn't have appropriate license schema and currently METACENTRUM doesn't provide some multilicense choice for MS Windows operating systems.

Wider impact of this work

The RDP protocol is mostly used for administration purposes. Another web technologies are used to provide application on the web - HTTP, HTML, Javascript and others. However the introduced work shows an application which can be accessed remotely via RDP without complicated reimplementation and provide an application support to establish and cooperate via virtual research environment. Deployment of the application to the cloud removes the maintenance task of hardware from provider of the application to the provider of the cloud. However, the maintenance should be moved also on the level of operating system and generic scientific software. This and other expectations from scientific cloud providers are now being discussed within the research community.

Printable Summary

The aim of the project FONIATR described within this presentation is to built and maintain a system to support remote access to analytical tools and cooperation of specialists in the field of human voice pathologies (othorinolaryngologist) and in the field of speech or voice training.

The analytical application can analyze input signal - human voice and provide a graphical output in terms of voice range profile supporting decision and cooperation of specialists. On top of that the anonymized analysis of voices would provide a database for further statistical research.

The application is deployed on the server and can be accessed by remote desktop protocol.

The METACENTRUM activity of CESNET provides access to scientific cloud. The deployment on the test cloud provided by the METACENTRUM were tested with the promising results and challenges of license of underlying software, cost of services etc.

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Session Classification: Virtualised Resources

Track Classification: Virtualised Resources: challenges and opportunities (Michel Drescher: track leader)

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