

Invitation

New Technologies – Research Centre

Is proud to invite you to the lecture

Can Photonic Networking Help Data Centres

by

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The amount of data traffic passing through communication networks is rising at a phenomenal rate. Global data centre IP traffic is forecast to reach 7.7 Zetabytes/year by 2017 - 69% of which will be cloud traffic, from its present level of 2.6 Zetabytes/year. This is a compound annual growth rate of 25%. This expansion is attributable to the rise of smart phones/tablets, e-services and the emergence of the Cloud. Users expect reliable and fast access to data rich content through the internet anywhere at any time and on the move. These technologies are straining both networks and data centres. In addition, according to Intel, data centres currently consume around 1.5% of the world electricity output at a cost of \$27 billion. These trends have resulted in electronic bottleneck in both data centres and transmission networks. New developments in cloud computing will compound this problem even more, not mentioning contribution to CO₂ emission. Current data centres perform all data processing by electronic switching which are incapable of fulfilling these growing demands. It has been suggested that the fundamental limits of data centre electronic switching which relies on bandwidth limited silicon devices is now being reached. Therefore new technological solutions are required. It is believed that all-optical systems using photonic integrated circuits and highly scalable optical interconnects may provide an answer with the promise of data rates exceeding Terabits per second. We will discuss these developments and propose new solutions and demonstrate all-optical devices that may lend itself to the improved highly scalable interconnects based on advanced optical code-division multiple-access (OCDMA).

Date: 30 April 2014

Time: 10:00 am.

Venue: **Building C1** Vědeckotechnický park, **room TC211**,
Teslova 5B, Pilsen