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Abstract for Nordunet conference

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Technology evaluation for time sensitive data transport

Emerging research and commercial services like IPTV, high quality video conferencing, remote surgeries and cloud computing in particular are time sensitive and their successful deployment assumes network with minimal delay and jitter in combination with high bandwidth and preferably low packet loss. The NREN communities must provide underlying network infrastructures and transport technologies to facilitate services with such requirements to the network.

In this paper we investigate and evaluate circuit and packet based transport technologies from classic best effort IP over MPLS flavours, Provider Backbone Bridging (PBB), "Transparent Interconnect of Lots of Links" (TRILL) to Optical Transport Network (OTN) and SDH. The transport technologies are evaluated theoretically, using simulations and/or experimentally.

Each transport technology is evaluated based on its performances and capabilities with respect to a number of points. First, its capability to guarantee low delay and jitter during normal and high load conditions; this includes service model and reservation procedure. Secondly, how the technologies proactively and reactively handle failure situations in links and nodes including resource overhead and restoration time. Thirdly, complexity and automation possibilities for establishment of paths for high demanding applications, and finally how the technologies are backed by research communities and major vendors like Ciena, Alcatel-Lucent, Nokia-Siemens and Huawei.

The technologies are compared in defined scenarios and a subset of them is tested with high demanding research applications.

The work is part of GEANT JRA1 Task 1.