

## The ongoing evolution from packet based networks to hybrid networks in research & education networks

The ongoing evolution from packet based networks to hybrid networks in research & education (R&E) networks or what are the fundamental reasons behind the growing gap between commercial and R&E networks

As exemplified by the Internet2 HOPI initiative (<http://networks.internet2.edu/hopi/>), the new GEANT2 backbone (<http://www.dante.net/server/show/nav.00100f00d>) and projects such as Dragon (<http://www.isi.edu/research.html#Networking>) & Ultralight (<http://ultralight.caltech.edu/portal/html/>), national research and education networking infrastructures are undergoing several very fundamental evolutions moving from packet based Internet networks to hybrid networks, that is a combination of conventional packet based Internet backbones coupled with dynamically established end to end circuits, i.e. Bandwidth on Demand (BoD), also dubbed sometimes “lambda Grids”, but also moving from conventional Telecom operated networks to customer empowered dark fiber based network infrastructures.

The speaker will try to explain the fundamental reasons behind this very significant paradigm shift and will also try to assess its likely impact on National R&E networks, while also giving an overview on what next generation optical transport networks (OTN) may look like in a few years time with the advent of Ethernets over SONET/SDH, Virtual Concatenation (VCAT) and Link Capacity Adjustment Scheme (LCAS).

**Author:** Mr MARTIN, Olivier (CERN (on pre-retirement program until July 2006))

**Presenter:** Mr MARTIN, Olivier (CERN (on pre-retirement program until July 2006))

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