Pure Optical (Photonic) Multicast

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Talk Overview

Optical Multicast

GLIF 2007 Demonstration

Optical Multicast

- Optical multicast may have two basic implementations:
  - including O-E-O conversion
    - $+$ full (3R) regeneration of signal
    - $-$ limiting factor for performance
    - $-$ often protocol and transmission speed dependent
    - $-$ not absolutely deterministic behavior (e. g., store and forward) can introduce jitter and/or reordering
  - pure optical
    - $+$ protocol and transmission speed independent
    - $+$ cost-efficient
    - $+$ can operate over broad range of wavelengths (see next slide)
    - $-$ introduces light attenuation
    - $-$ doesn't regenerate (3R) signal—reach limited to hundreds of kilometers, but can be increased with simple protocol agnostic OEO

Pure Optical (Photonic) Multicast

- Layer 1 means real light-path, not SONET channel
- can be used with DWDM multiplexes
- SONET/Ethernet can be used on top of it
- broadband (multi-color) nature enables distribution of many light-paths at once

CzechLight Multicast Switch

- broadband pure optical multicasting switch
- 4x4 matrix, anything from 1:1 to 1:4 for any input
- *currently sort-of blackbox—sorry*
  - patent application pending…
  - more info in approx. 2 months

GLIF 2007 Demonstration
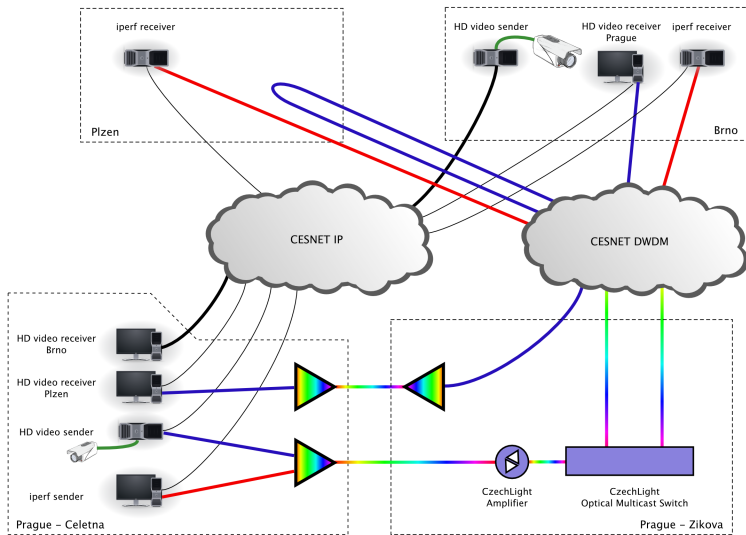
GLIF 2007 Demonstration

- Used channels:
  - 1550.12 nm
    - iperf sender + receivers
  - 1552.52 nm
    - Prague HD sender
    - Brno HD receiver
    - Plzeň loop to Prague HD receiver
- Production IP backbone for HD Brno → Prague
- Fiber lengths:
  - Prague – Brno: 298 km
  - Prague – Plzeň: 136 km

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Thank you for your attention!

Q?/A!

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