Overspill Routing In Optical Networks: A True Hybrid Optical Network Design

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Overview

- Hybrid Optical Network (Based on degree of interaction and integration)
  - Client-Server
  - Parallel
  - Integrated
- ORION -> “integrated” Class
- ORION Concept
- Evaluation
- Comparison (with p2p WDM & wavelength Switching)

Introduction (1)

- Why hybrid? Why ORION?
  - OxC -> wavelength path can not be reused
  - ASONs (Automatically Switched Optical Network)
    - Bandwidth & time scale granularity are still coarse
  - IP/WDM
    - Statistical Multiplexing can be achieved
    - O-E-O conversion may be a bottleneck at very high speed
  - ORION succeeds in using full benefit of ASONs without sacrificing high SM gains from IP/WDM

ORION Conceptual design(1)

- Point-to-Point WDM
  - Bandwidth efficient
  - Bottleneck in electronic layer
  - IP/WDM, OPS, OBS