InfiniBand

A proprietary hi speed LAN technology

catering to high performance (Scientific)

Computing.

Capabilities usually a year or two ahead of Ethernet.

As of 2017 could do 300 Gbps in 12 lanes of 25 Gbps each.

Open include -Socket Direct Protocol — SCSI scatty
- IP over Infiniband — Network File system
- Lustre

MPLS: Multiprotocol Label Switching

- WAN technology.
- Data unit is "flow" of packets, not individual packets.
- Simplifies management.
- Differentiate among flows by "labels". In MPLS network.
- Allows simplified "Traffic engineering"

Routing according to multiple objectives:
- security
- cost
- delay

special version: ....
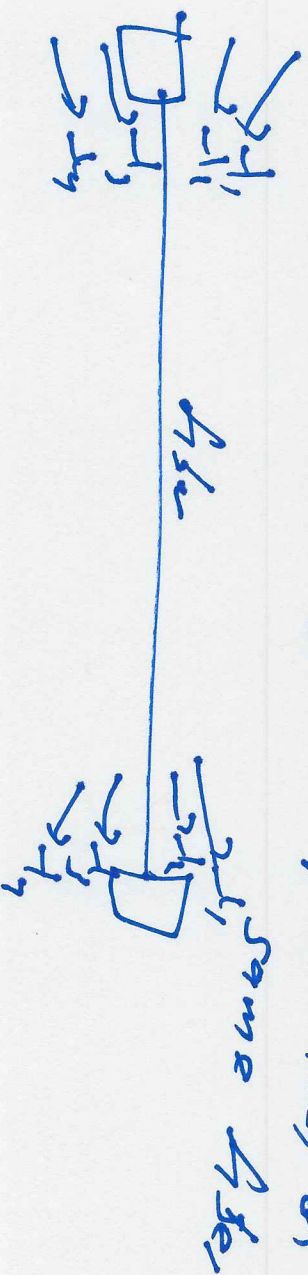GMPLS
(generalized)"

Optical Networks for Telecommunications?

Different Technologies:

SONET → Synchronous Optical Network.

Fiber optic standard from ~1990,
for data and telephone calls.

Telecom Architecture

Allows ring topology for reliability.

. . . .

WDM → wavelength division multiplexing from 1990's.
multiple optical signals (~1 to ~100) on
same fiber.

fiber

Flexible / Elastic Optical Networks

Allocate spectrum bandwidth in fiber in
response to user needs

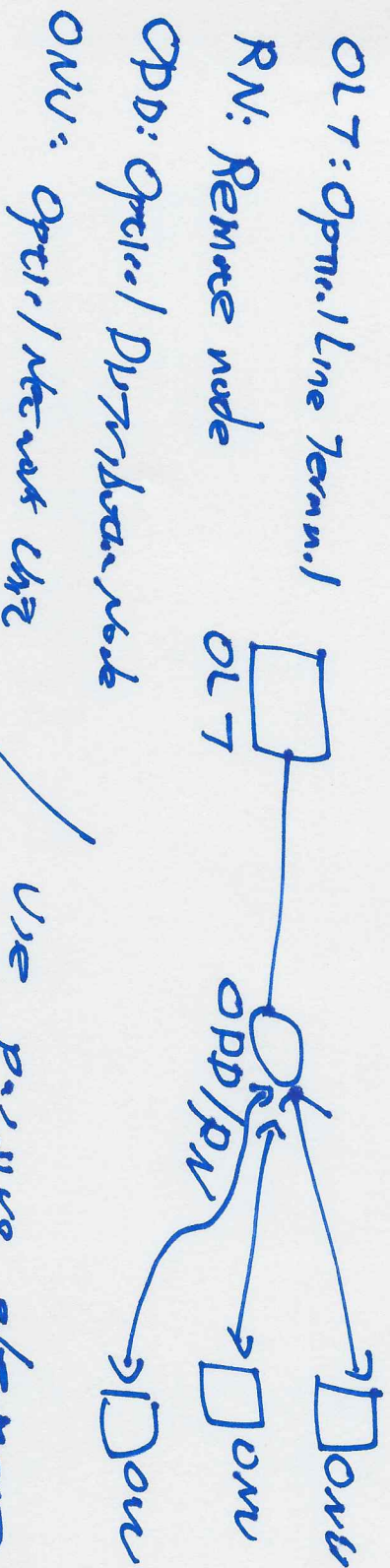Example: Build 25 GHz bandwidth
out of 4 x 6.25 GHz "spectrum slots".

Optical Transport Network (OTN):

Like SONET are designed (in 1990s) to
take advantage of WDM.

OTU1 — 2.5 Gbps   OTU2 — 10 Gbps   OTU3 — 40 Gbps
                                     OTU4 — 100 Gbps

Passive Optical Networks (PON)

OLT: Optical Line Terminal

RN: Remote node

OPD: Optical Distribution Node

ONU: Optical Network Unit

Use passive elements which do not need power in the fiber distribution network.

Types: TDM - Time Division Multiplexing
WDM - Wavelength Division Multiplexing
OFDM - Orthogonal Frequency Division Multiplexing