

Optical Networking Terminology Primer

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The fundamental building blocks of telecom...

- Right-of-Way (RoW)
- Conduit
- Fiber pair
 - Types
 - SMF-28 (old - avoid)
 - Corning LEAF → E-LEAF
 - Lucent Truwave Classic → Reduced Slope(RS)
 - Major national footprints
 - Qwest, Level 3, Williams, AT&T
 - Global Crossing, Touch America, etc.

Optronics

- Distance scales
 - Metro (CWDM possible)
 - Regional/state
 - National
- Dense Wave Division Multiplexing (DWDM)
 - Point-to-point, unprotected circuits
 - Departure from SONET rings
 - 2.5 or 10 Gbps channels
 - Wavelengths, lambdas, λ 's

Long Haul DWDM Equipment

- Components
 - Terminal Multiplexers (OEO)
 - Hand off as OC-192c or OC-48c SONET; soon 10 GigE LAN PHY
 - Optical Add-Drop Multiplexers (OADM)
 - Express vs. ‘milk run’ λ 's
 - Amplifiers (OO)
 - Every 100 km
 - Regenerators (OEO)
 - Every 500 km (LH)/1500 km (ELH)/2500 km (ULH)
- Vendor lineup
 - Ciena, Corvis, Cisco
 - Nortel, NEC, Lucent
 - Startups: Ceyba, Celion, Xtera

Business basics

- Contracts (bifurcated \Leftarrow bankruptcy considerations)
 - IRU
 - 20-year asset
 - O&M (5-year renewable \Leftarrow CENIC)
 - Fiber maintenance
 - Co-location
 - amplifier huts & gateways
 - rack space, power, x-connect costs
- **DWDM incremental cost advantage**
 - $\text{Cost}(\lambda_N) / \text{Cost}(\lambda_1) \sim O(10\%) \quad (N > 1)$
- Managed wave services
- Access provisions
 - Carrier hotels (fiber meet-me rooms)
 - Carrier PoPs (fiber access required)
 - Carrier local loops (last right of refusal?)