Incremental Growth with Fractional Gigabit Ethernet & CWDM

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Business Services
Wholesale Access
Cellular Backhaul
Rural Residential
Service Provider Opportunities

A single optical infrastructure supporting:

• Business Services
• Wholesale Access
• Cellular Backhaul
• Rural Residential
Business Services

Business Class:
• Symmetrical Bandwidth  • Managed demarcation
• Assured Bandwidth
• Flexible QoS

Secure: Bi-directional Encryption
Flexible: Native Ethernet or VLANs
Wholesale Access

Branch office services for another Carrier’s customer

Meet SLA requirements

- Low latency (under 3 ms)
- Low jitter (under 0.5 ms)

Carrier Class availability
Cellular Backhaul

Hardened NID

Support multiple wireless carriers at a single site:
• Segregated & Guaranteed bandwidth
• Individual demarcation
• Low delay & jitter
• Remote provisioning of bandwidth
Rural Residential

Low entry cost

• Single port 3U head-end cards
• No active common equipment
  • Cards operate independently
• Double or Triple play
• Flexible bandwidth provisioning
• Centralized and distributed splitting
**Incremental Growth**  
*(Residential & Small Business)*
**Incremental Growth**
(Medium & Large Business)

Passive CWDM Multiplexing
- Segregate by wavelength
- Non-disruptive customer addition
- Remote bandwidth provisioning
  - Up to 1 Gbps/customer
Nebula Ethernet Service Delivery Options

VFAST - 100 Mbps
- Point to Point
- WDM
- CWDM

GFAST - Gigabit
- Point to Point
- Multi-Drop
- Remote Multi-Drop

Nebula HC
- Higher Speeds & Capacity
- Alternative Configurations
- Additional Protocols
GFAST – Managed Gigabit Ethernet

Secure
- Bidirectional encryption

Managed
- SNMP services

Flexible
- VLAN based service delivery
- Extensive QoS & traffic shaping

Configurable
- Point-to-Point and Multi-Drop
- 1 to 32 end-points per fiber
Nebula HC – High Capacity Gigabit Ethernet

**Growth**
- Higher Speeds (10 Gbps)
- Additional reach (up to 80 km)
- More capacity (over ¼ terabit/sec)

**Flexibility**
- Switch/Router Integration
- Innovative Multiplexing
  - Low Band
  - CWDM/DWDM
- Multiple Protocols
  - Fiber Channel
  - SONET
About Nebula

- Privately held company established in 1993
- Steady year-by-year growth since inception
- Focused solely on EtherOptic equipment *(Cost efficient carrier grade Ethernet)*
- Flexible architecture enables Nebula to rapidly adapt designs to meet customer requirements
- 16-year track record of deploying carrier grade Ethernet in service providers’ networks
- RUS Listed
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