Benefits of Passive Optical Networks

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Building Network and Cabling

3 networks for 3 services ~ Today’s Voice, Data & Video Services

1. Data Center (MDF)
2. Riser Closet (IDF)
3. Distribution (User)

- 2,000m Limitation
- 90m Limitation

Devices and Connections:
- Router
- Data Switch/Server
- Workgroup Switch
- Data Cross Connect
- Voice Switch
- Voice Cross Connect
- CAT6 Data
- CAT5s Voice
- Coax Video
- Video passive splitter
Building Network and Cabling

Passive Optical Network Service Delivery ~ 1 network for **ALL** services

Open Network Access
Or Service Provider model

**20-30km Passive Optical Network (PON) Reach**

*One network for all services*
PON Based Service Delivery: 
**Voice ➔ Analog and VoIP Support**

- PON was designed to carry both Analog POTS and Data services –
  - VoIP services are carried as a high-priority data service
  - GPON enables Analog Voice to be converted into VoIP directly within the ONT
  - Both VoIP and Analog POTS are carried thru GPON network identically
PON Based Service Delivery: Video → CATV or IPTV distribution support

Open Network Access
Or Service Provider model

Benefits of CATV Video Overlay
- Carriage of CATV signals is transparent to GPON
- Multiple vendors for head-end equipment
- GPON provides remote ON/OFF control at end user

Satellite mini-headend options over GPON as well
PON Based Service Delivery:  
*Data ➔ Business Services*

- **Network Operator business model**
  - Triple-play broadband
  - Business Ethernet
  - Hosted / Managed services
  - Cloud based services
  - Leased fiber
  - IT and/or LAN management
  - Network management

- **MTU/MDU business model**
  - Triple-play broadband
  - All IP/Ethernet centric services
  - T1 over GPON
  - Wireless Access Points
  - Security and Surveillance
  - Building automation
Benefits of Passive Optical Networks

- Up to 70% less Equipment CapEx
- Up to 50% less Infrastructure CapEx
- Up to 80% less power consumption
- Up to 90% less space utilization
- 5-9s reliability, physical redundancy and provisionable QoS
- Tangible contributions to environmental green initiatives
- Future proof fiber optic cabling infrastructure
- Year-over-year lower total cost of ownership (lower OpEx)
- Graceful migration to a fully converged IP network
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