10 Gigabit Ethernet: Customer Applications

IEEE 802.3ae Interim
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First Principles

- Buildings will not move because of 10 GbE
- Customers have a requirement to run new network gear on the existing installed infrastructure
- Customers are smart
Why 10 Gigabit Ethernet

- 75% of new LAN clients are 100 Mbps (Intel, zdnet.com)
- Industry shipping over 250 thousand GbE ports/month
- Leverages installed base of 250 million Ethernet switch ports
Task Force Goals & Customer Requirements

- **MAC**
  - Support Ethernet installed based while scaling Ethernet speed
    - Maintain 802.3 frame format and size.

- **PMD**
  - Support distances from 100 m on installed MMF to 40 km on SMF

- **PHY**
  - LAN PHY: support transmission of data on dark fiber and dark wavelength while maintaining traditional simplicity of Ethernet
  - WAN PHY adds support for transmission of Ethernet on installed base of SONET/SDH transport infrastructure
The Growth of Ethernet

Cumulative Shipments

- Sw 10
- Sw 100
- Sw 1000
- Sw 10000

Sw 10, Sw 100, Sw 1000: Dell'Oro Group, Sw 10,000: Gartner Group Dataquest; Cisco Projections

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Where 10GbE Will Be Used

• LAN:
  – both service provider and enterprise

• MAN:
  – both dark fiber and DWDM

• WAN:
  – Attachment to WAN access equipment at edge of OC-192 infrastructure
10 GbE in the LAN

• 10 GbE in service provider data centers and enterprise LANs
  • Switch to switch
  • Switch to server
  • Data centers
  • Between buildings

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10 GbE in the MAN (Dark Fiber)
10 GbE in the WAN

- Attachment to OC-192 access equipment at edge of WAN cloud
- Compatibility with the installed base of SONET OC-192

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Conclusions

• Market projections are not inevitable
• Three areas of application
  – LAN
  – MAN
  – WAN access