



# 10 Gigabit Ethernet: Customer Applications

IEEE 802.3ae Interim

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Cisco Systems



# 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

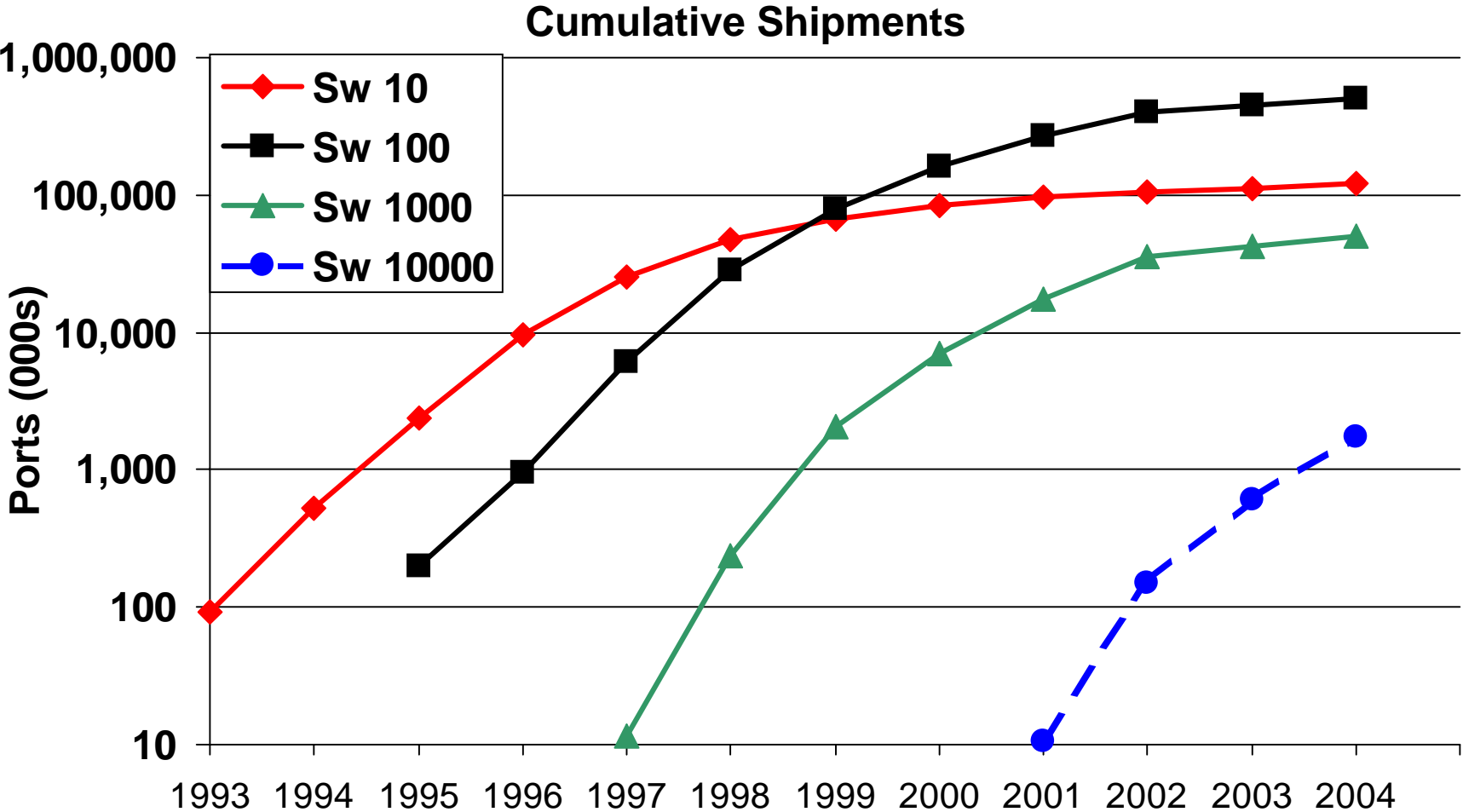
# Why 10 Gigabit Ethernet

- 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 base 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



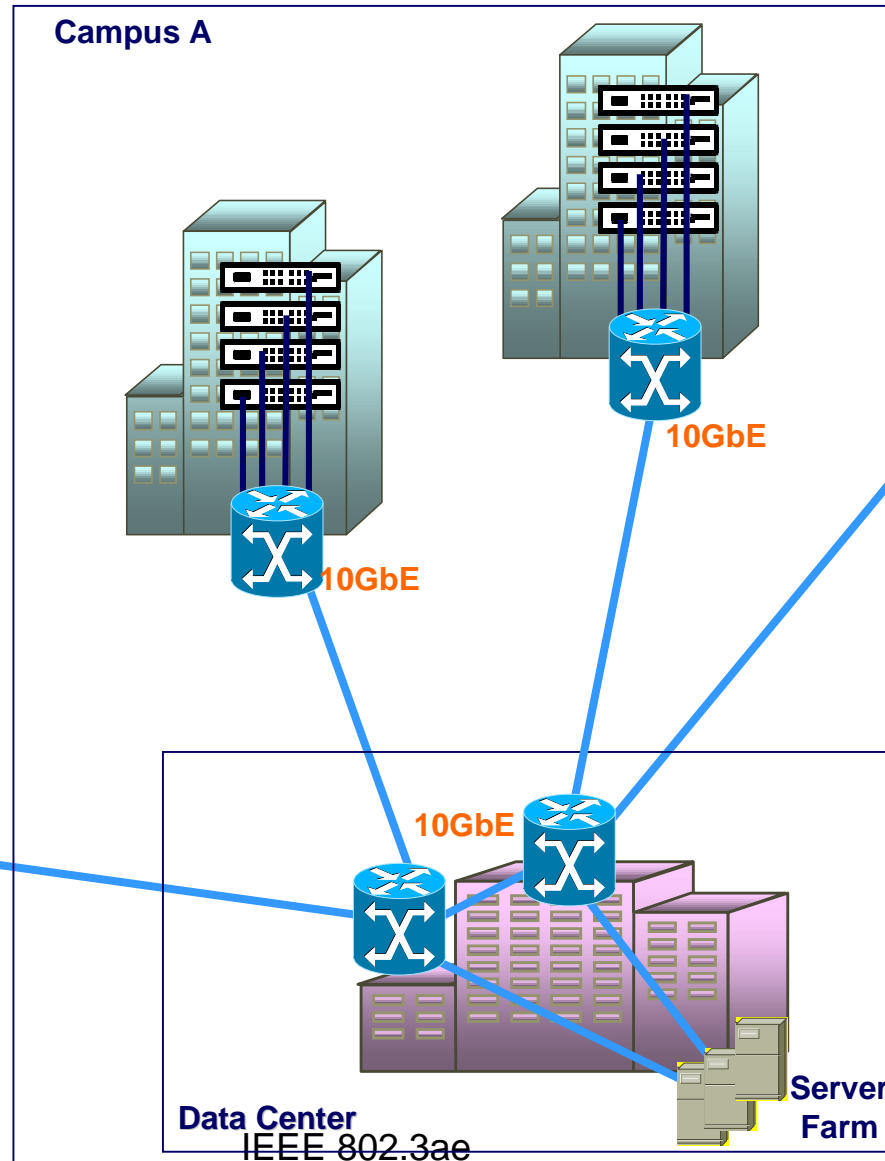
Sw 10, Sw 100, Sw 1000: Dell'Oro Group, Sw 10,000: Gartner Group Dataquest ;Cisco Projections

# Where 10GbE Will Be Used

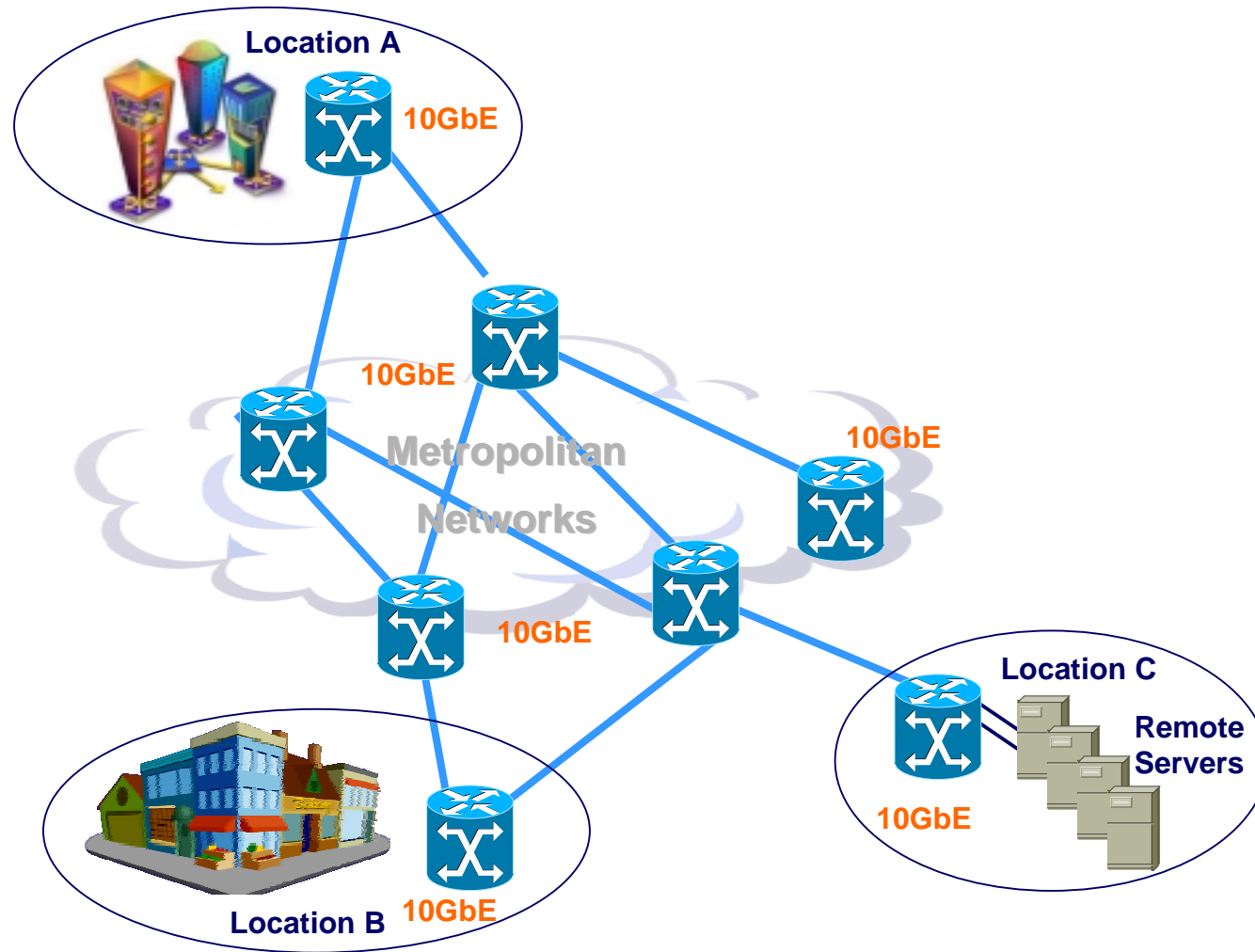
- LAN:
  - both service provider and enterprise
- MAN:
  - both dark fiber and DWDM
- WAN:
  - Attachment to WAN access equipment at edge of OC-192 infrastructure

# 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



# 10 GbE in the MAN (Dark Fiber)



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# Conclusions

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