Ethernet Last Mile Topology Considerations

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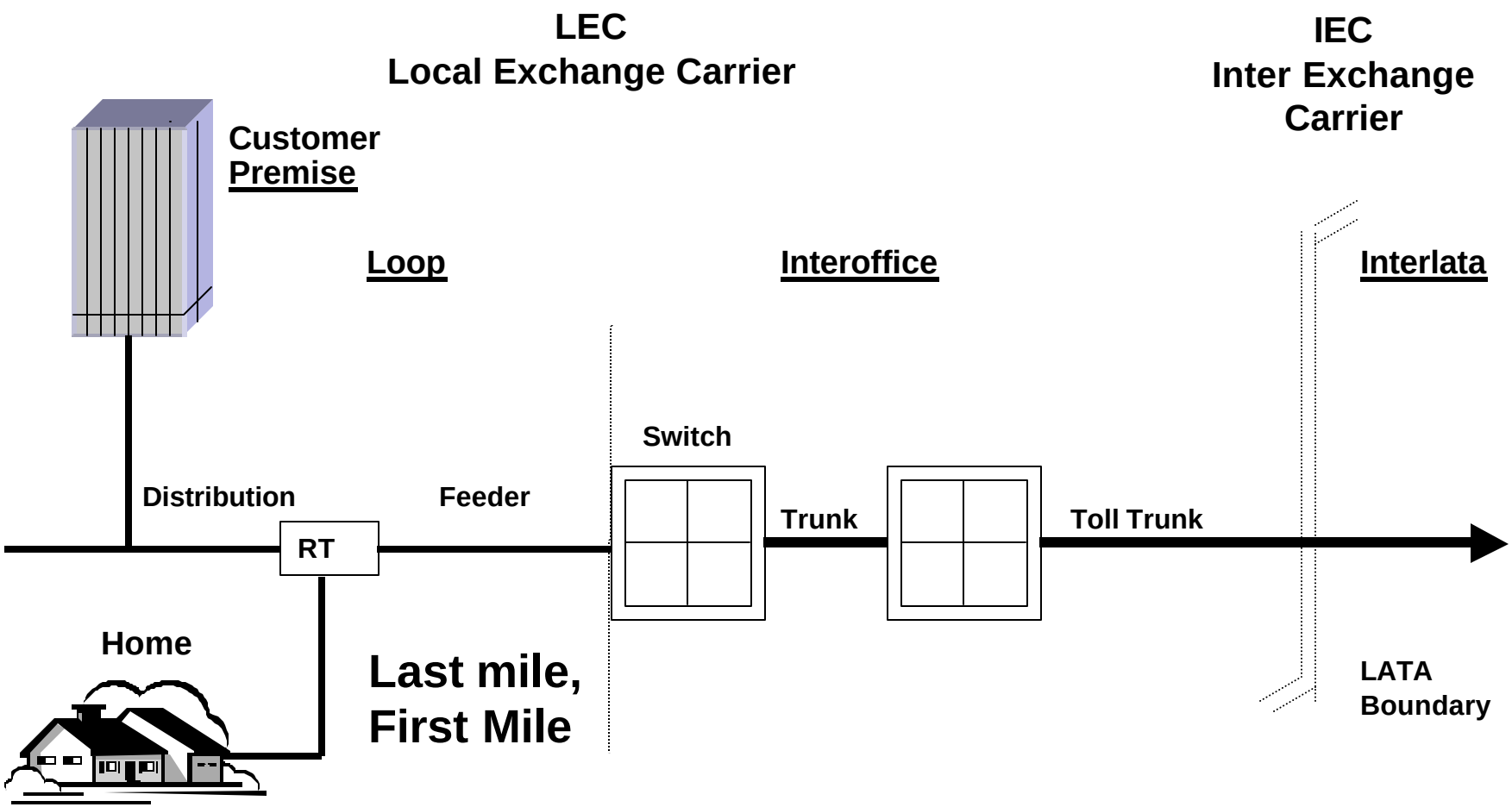
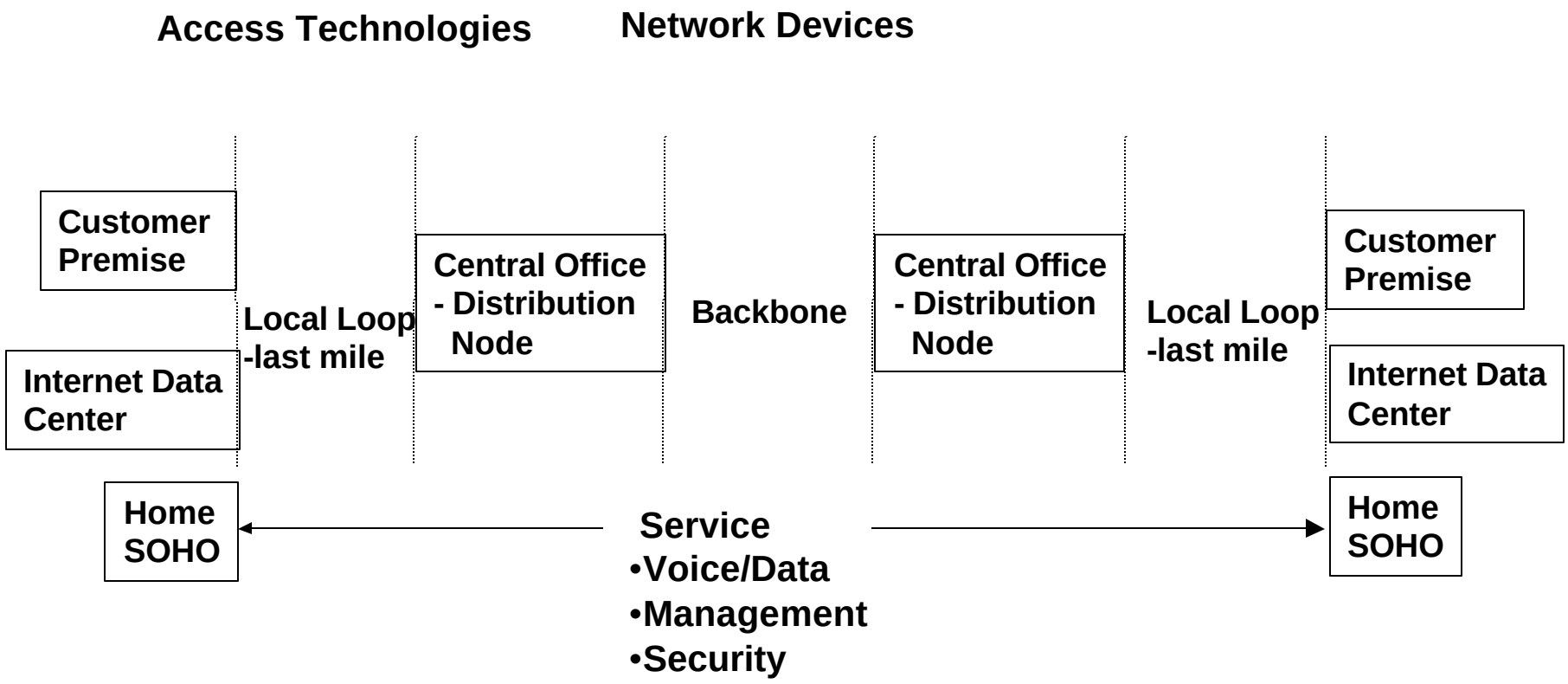
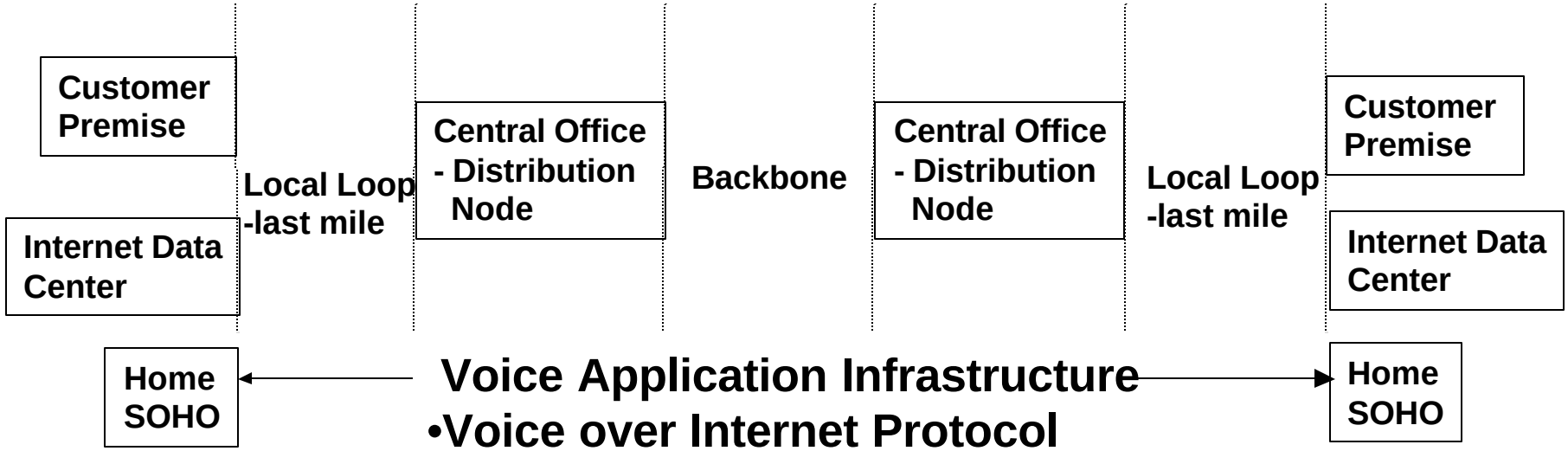
Network Boundaries



Current Infrastructure



Voice Application Infrastructure



Voice Application Infrastructure

- **Voice over Internet Protocol**
- **Voice over ATM**
- **Voice over HDLC**
- **Voice Compression over (T1/E1, ISDN)**

- **Multi-protocol Conversions**
  - **–T1/E1 to ATM, etc..**

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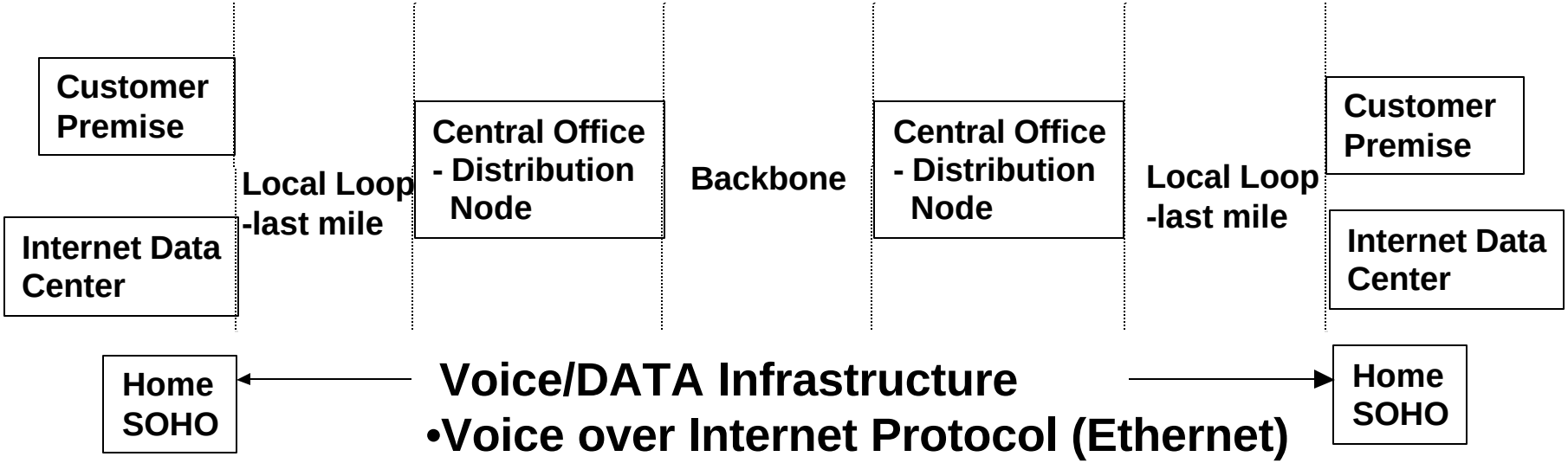
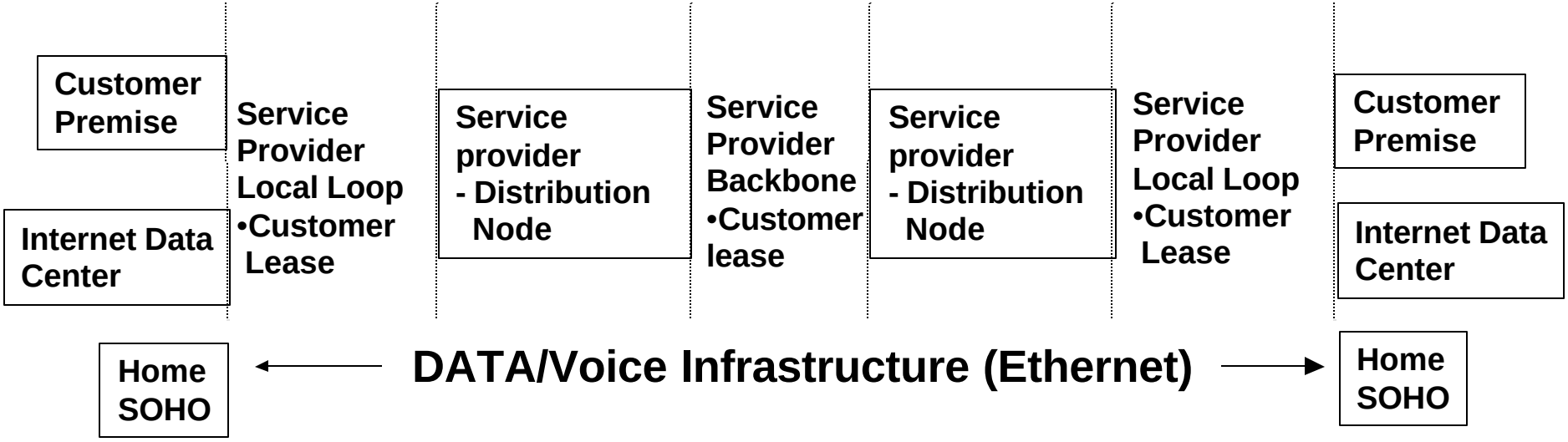
Voice/DATA Application Infrastructure



DATA/Voice Convergence Infrastructure (IP - Ethernet) -



- Voice over Internet Protocol (Ethernet)
- eliminates central office protocol conversions
- customer bandwidth on demand
  – (10 Mb/s,100 Mb/s, 1000 Mb/s,10 Gb/s)

Internet Cabling Distribution Environments

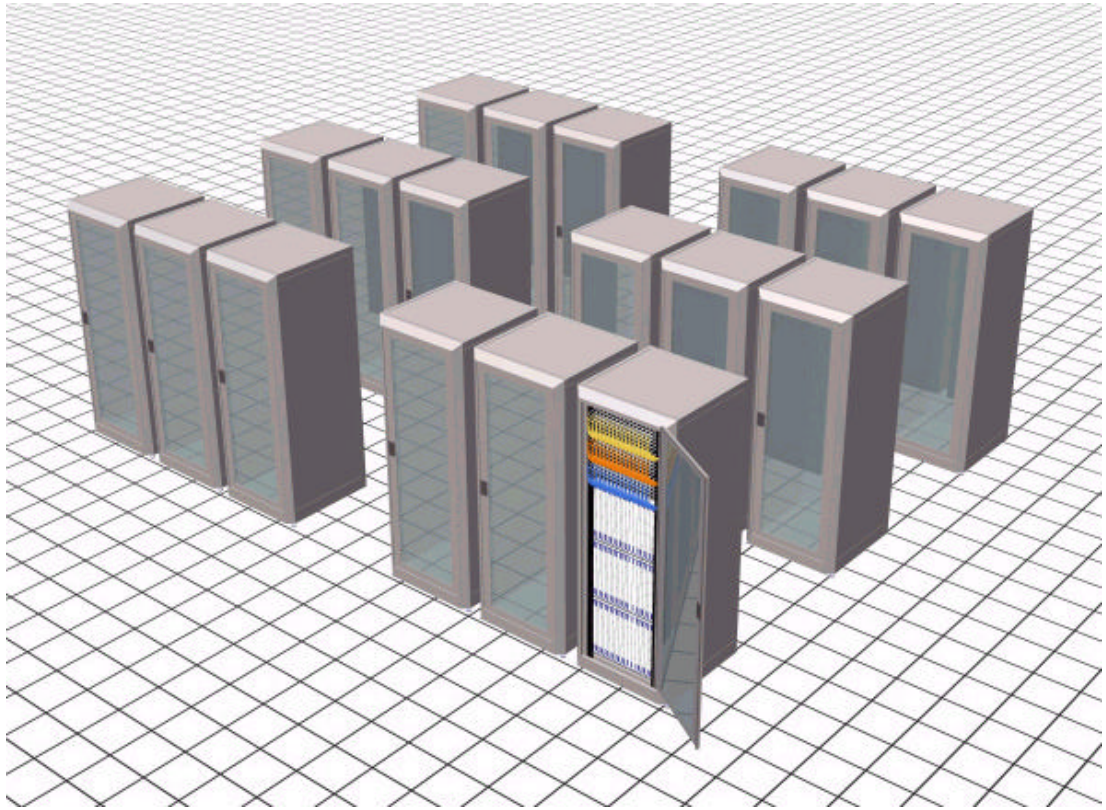
- Reengineering of the telecommunication infrastructure occurring in traditional and specialized environments.

- Each distribution environment has unique requirements of form, fit, and function.

- The Internet Cabling Distribution environments

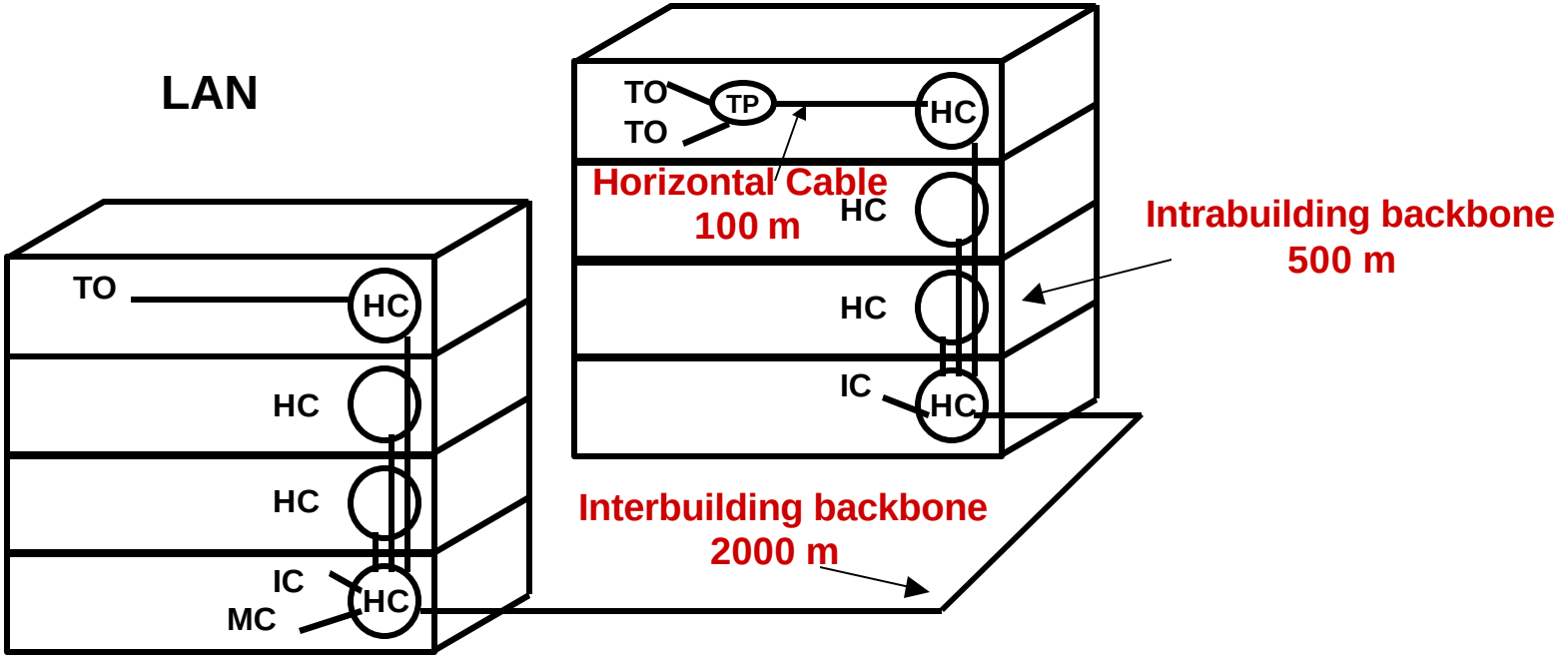
  - Internet data centers
  - Central office
  - Multi-tenant Buildings
  - Small and Home Office

Internet Data Centers



- Network infrastructure required to drive web hosted Internet applications.
- Internet data center space is growing in millions of square feet each year.

Multi-Tenant Services - LAN Infrastructure
Customer Premise Cabling - TIA/EIA-568-A



Voice and Data - In-building bundled Services

- Infrastructure Cabling
- local and long distance phone
- Internet access
- WAN and LAN connectivity

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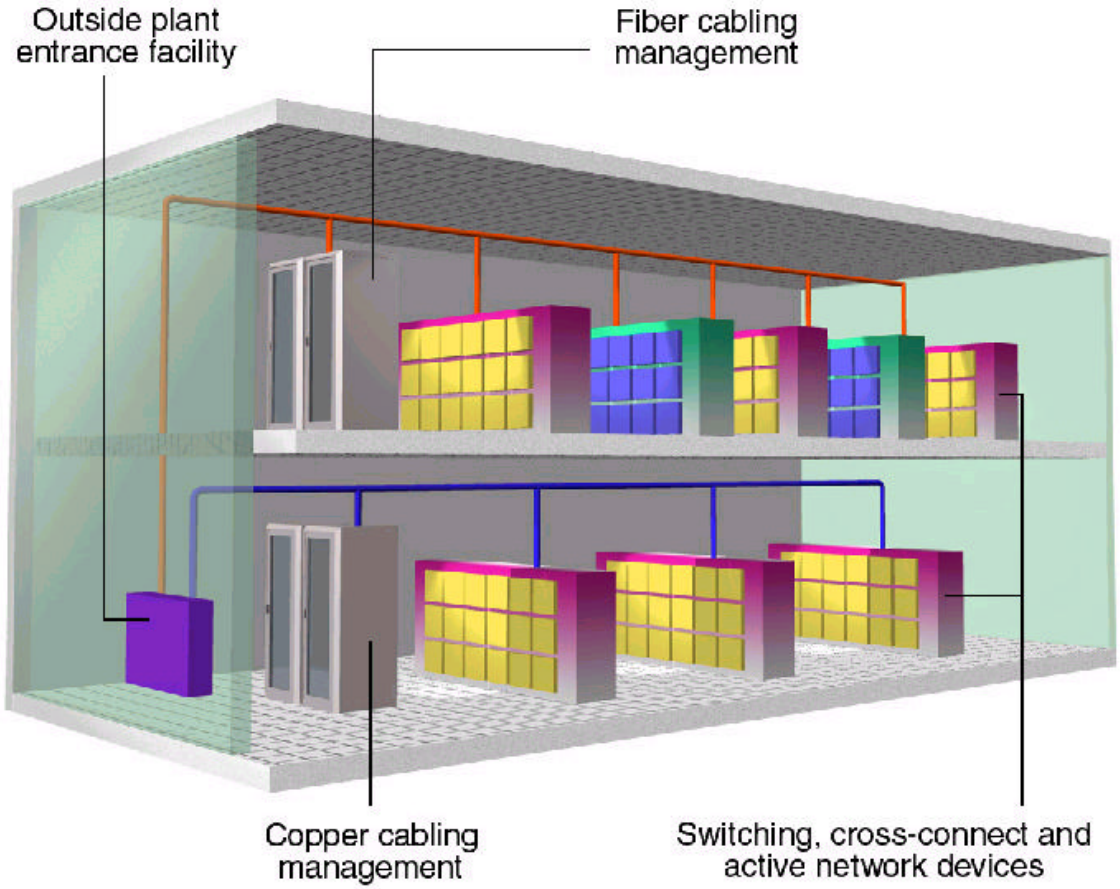
Service Provider Distribution Node- Central Office



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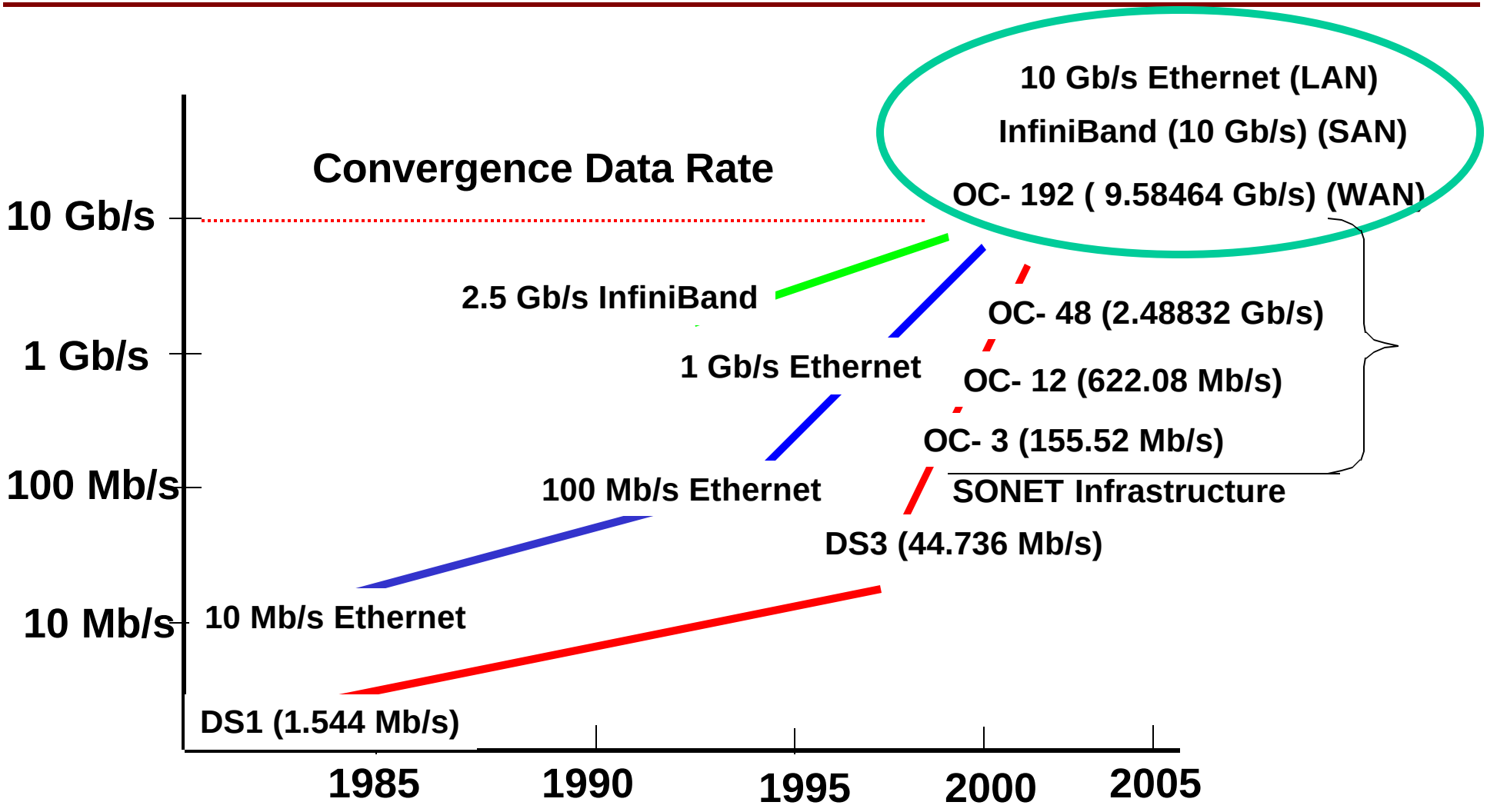
10 Gb/s Convergence Data Rate -LAN/WAN/SAN



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Installed Cabling Issues

Last Mile Cabling Performance

- **Transmission performance (distances)**
  - **twisted pair copper (taps)**
  - **coax**
  - **fiber**
  - **hybrid**