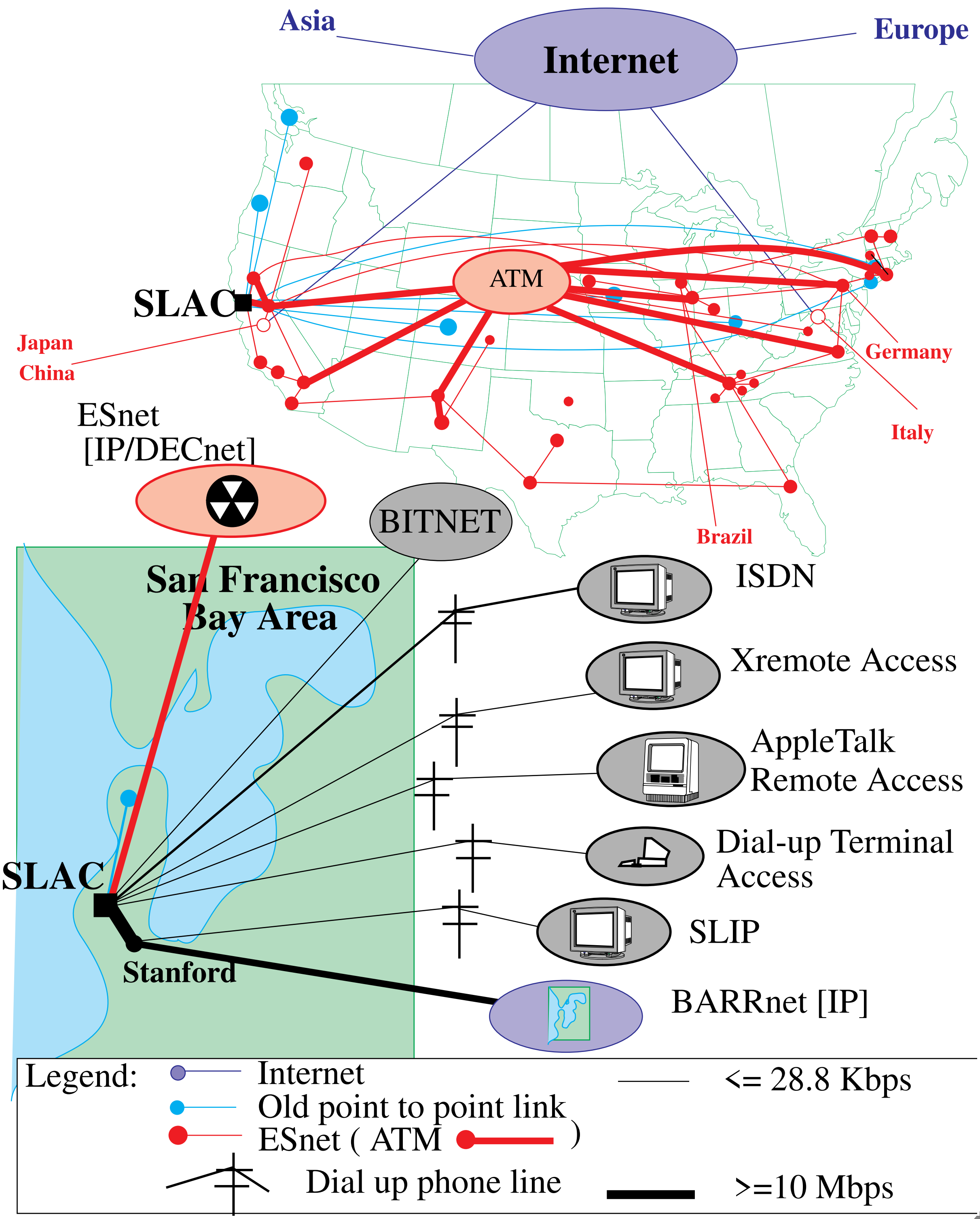
SLAC Wide Area Connections - 1995



SLAC Wide Area Network (Page 2)

Access to BITNET since 1984

Phasing out older slower (<=19.2 Kbps) connections

- Still a few university point to point links left

Primary offsite connectivity via ESnet, 1.5 Mbps T1 link

- ESnet has connections to Europe, Japan, China & Brazil and to Internet

  Internet

  – Internet connection has many international connections, including 6 to Europe and in particular to CERN

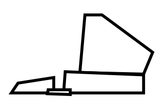
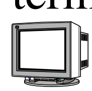
- Upgrading to 45 Mbps T3/ATM connections, **SLAC link ordered**

10Mbps connection to Stanford/BARRnet/Internet

Internet going thru growing pains

Provides world wide connectivity, with redundancy

Home & itinerant access via 9.6-28.8 Kbps dial-up modems

- Dumb terminals (9.6Kbps), 
- Appletalk Remote Access(28.8Kbps), X terminal(14.4Kbps) & SLIP (via Stanford)  
- **Need 128Kbps ISDN access for modern GUI applications**

SLAC Wide Area Network (Page 3)

Perfomance to other HEP institutions needs to improve:

- Sites on ESnet
  - Typically about 8 hops, 35 msec response, 15-100 KB/s FTP access
- Sites on Internet (USA)
  - Typically about 16hops, 75 msec response, 8-30 KB/s FTP access
- Sites on Internet (International)
  - Typically about 18hops, 300 msec response, 1-15 KB/s FTP access

SLAC monitors performance to other sites and works with ESnet and other Internet providers to resolve problems (eg. slow response to Colorado State and Rutgers)

SLAC uses dedicated “firewall” router for security

SLAC Wide Area Network (Page 4)

Futures:

ESnet traffic increasing, more than doubles/yr

Increasingly IP (DECnet < 10%)

ESnet plans to upgrade backbone:

- Procurement to upgrade to ATM technology:
  - step 1 at 45 Mbps links (in progress)
  - step 2 at 155 Mbps links
  - step 3 at > 600 Mbps
- **T3 line for SLAC is being ordered now (Apr 95)**

Upgrades take much time to plan and implement

Need to consider BFactory WAN data transfer requirements & get into ESnet plans

Desktop video conferencing can soak up lots of bandwidth (~200 Kbps/conference)

Internet backbone is mostly already T3 (45 Mbps)