Network Architecture Alternative AB′:
Distributed Routing with 100+ Mb Backbone

Internet Connections

Eliminating our reliance on SMDS for connection to the Internet, FDDI is used to allow a scaled connection up to T-3 speed via PrepNet or another access provider

Inter-campus Connections

Scalable Connections to remote sites (e.g., New Bolton Center, CJS) are achieved via SMDS, replacing dedicated T-1 service. HUPnet is connected via a routed connection scaling from 10 Mb/sec as necessary.

Other elements:

- Network infrastructure servers are consolidated onto fewer platforms with better redundancy
- AppleTalk and IPX are routed campus-wide and access is provided for remote users
- Desktop hardware and software standards continue to evolve, as Windows95 use surges
- PennNames transitions to feed a DCE secure core, and client/server services (including network access) transition to Kerberos.

vBNS

T-3

PrepNet

R

SMDS

HUPnet

Penn will provide coordinating support for advanced networking initiatives that may run counter to our conventional deployments. This will likely include swifter adoption of ATM and direct Internet or vBNS connections for certain projects.

Remote Access

The analog modem pool continues to scale to meet demand, shifting to a combination of analog 28.8 bps, and digital ISDN lines (capable of supporting multiple protocols). Commercial access providers may supplement these pools especially for outlying areas.

Modem Pool

Advanced Networks

A

Inter-Building Backbone

S

FDDI switch (S) deployed to handle multiple FDDI rings required in this architecture. Central routing is only for outside or inter-campus connections

Legacy Network Environments

Terminals

The ISN is eliminated early in 1996; asynchronous terminal server connections are completely replaced by Ethernet early in 1997. No new investments are made in 10-base-2 wire or electronics, and users are transitioned as buildings are renovated and rewired.

Wiring Strategies and Standards

EIA/TIA 568 continues to be the wiring standard. Ethernet switches are deployed within closets if necessary, though shared ethernets within buildings dominate. Secure hubs prevent premiscuous listening on shared segments. Some 100-Base-X fast ethernet outlets are deployed. Campus ethernet connections begin to migrate towards "personal ethernet" which allows local hubs on 10-base-T or fast ethernet outlets.

E

R

E

R

E

Building 1

R E

Building 2

Intra-Building Backbones

Clusters of buildings are connected to the backbone via 100+ Mb/sec technology (FDDI or fast ethernet) for increased bandwidth. Ethernet or fast ethernet switches deployed in all buildings reduce the size of the collision domain and provide a scalable building interconnection.

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