Network Architecture Alternative C: *Pervasive ATM*

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.

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

T-3

PrepNet

R

vBNS

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.

Advanced Networks

A

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.

R

SMDS

HUPnet

R

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

Inter-Building Backbone

Redundant central hubs, with automatic failover protection, use ATM switching between buildings coupled with a "super router" to route between subnets.

R   A

R   A

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.

An ATM "mesh" is established with some buildings serving as regional "hubs" redundantly interconnected.

Wiring Strategies and Standards

EIA/TIA 568 continues to be the wiring standard. Ethernet switches are deployed within buildings as bandwidth requirements demand. Secure hubs prevent premiscuous listening on the few shared ethernet segments that remain. 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. Limited deployment of ATM to the desktop

E

A

E

A

RS

Building 1

RS

Building 2

Intra-Building Backbones

Ethernet switches, eventually with ATM and/or distributed routing support, are deployed everywhere to reduce the size of the collision domain within buildings and provide a scalable building interconnection.

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