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## Macintosh-to-DEC: Integration Issues (1/95)

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TOPIC -----

A new building, with approximately over 400 Macintoshes, is being set up with a full Ethernet-based network. All the workstations will be Macintosh IIci 8/80 systems, with a variety of DEC and Apple file- and data-servers. The cabling system to be used is thin-wire coax, with either thick-wire or fiber risers (ideally FDDI) in the building, leading to two wiring closets on each floor.

From each of the two closets, one strand of star-wired coax will extend to each workstation. Although it may seem strange, this cabling architecture has been decided upon before the network protocol and data distribution method has been finalized. As I understand it, DEC DEMPRs will be used for coax cable distribution, and some form of DEC bridge installed for DECnet traffic isolation, but this is subject to change.

I am unsure what routers/bridges are available for AppleTalk, DECnet, and AppleTalk and DECnet traffic management.

Obviously, the AppleTalk InternetRouter is not a major player, as it can only route AppleTalk packets. DECnet packets, and, therefore, AppleTalk packets embedded ("tunneled") within DECnet packets would simply not get through. However, is there something in PATHWORKS for Macintosh that will act as a gateway between AppleTalk and DECnet? If so, how does this work? Layered on top of AppleTalk Internet Router perhaps? What products would you suggest, either from Apple, DEC, or third-party product families, that we should take a look at?

Finally, do you know of any Macintosh-familiar contacts in DEC who we could contact from this end on DEC-specific issues?

DISCUSSION -----

Just so we are together on this, bridges operate at Layer 1 and the Media Access

Control (MAC) sublayer of Layer 2 of the seven-layer Open Systems Interconnection model, and they route packets according to the destination address. Bridges, therefore, are protocol-transparent and allow networks to be constructed using multivendor products and multiple protocols.

Routers, on the other hand, operate at the network layer (Layer 3) of the OSI model and use the protocol information contained within the packet to determine how packets should be routed. In the past, routers were limited by their ability to handle only a single protocol. That's no longer the case.

Many of the newer bridges have multiple communications ports and route packets according to protocol, packet type, and packet length. These are often called "routing bridges."

The following routers support both DECnet and AppleTalk:

Cisco Systems's AGS is a self-learning/load-balancing router that connects 802.3 to 802.5 networks. Protocols supported are TCP/IP, OSI, XNS, DDN, X.25, DECnet, AppleTalk, and Novell's Internetwork Packet Exchange (IPX). It supports the Spanning Tree Protocol, source routing, up to 8 local nets and 14 wide-area net interfaces per unit at up to 4M bits/second. It supports RS-232-C, RS-449, and CCITT V.35. Net management supported is Simple Network Management Protocol (SNMP).

Network Equipment Technologies' LANExchange 50 is a self-learning/load-balancing router that connects 802.3 to 802.5 networks. Protocols supported are TCP/IP, DECnet, XNS, X.25, and AppleTalk. It supports the Spanning Tree Protocol, source routing, up to 24 local nets, and 24 wide-area net interfaces per unit at 1200 to 4M bits/second. It supports RS-232-C, RS-449, and CCITT V.35. Net management supported is Simple Network Management Protocol (SNMP).

Wellfleet Communications, Inc.'s Link Node/Concentrator Node is a self-learning/load-balancing router that connects Ethernet Versions 1 and 2; 802.3 to same local net. Protocols supported are TCP/IP, XNS, IPX, OSI, and AppleTalk. It supports the Spanning Tree Protocol, up to 26 local net on Concentrator Node; 8 on Link Node and up to 52 wide-area interface on Concentrator Node; 16 on Link Node. It supports RS-232-C, RS-449, CCITT V.35, T-1 DS1. Network management supported is SNMP and 802.1.

The AppleTalk/DECnet Transport Gateway in PATHWORKS for Macintosh allows users on one network to access services on the other network. It performs transport relay from DECnet NSP to and from AppleTalk Data Stream Protocol (ADSP). An example of use is running MacX on a Macintosh using a VAX DECwindows client. Without the gateway, the Macintosh needs to run DECnet protocol to talk to DECwindows on the VAX. With the gateway, the Macintosh can run AppleTalk and still can use the VAX DECwindows as its client.

With AppleTalk for VMS 3.0, one can use the VAX as a DECnet and AppleTalk router. With DECnet routing and AppleTalk routing turned on, the VAX can be used to route traffic between two AppleTalk networks. Network management is done via a new management utility called ATK\$MANAGER.

For any DEC-specific issues, you may try the AppleLink address DIGITAL.SELL,

Apple's DEC team.

For more details, search the Technical Info library under "Cisco Systems," "Network Equipment Technologies," and "Network Resources Corp."

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