DALNET NETWORKING POLICIES

1 Description of the DALNET service

DALNET (the Detroit Area Library NETwork), in cooperation with Ameritech Advanced Data Services and Ameritech Library Services has designed a network service intended to provide access to DALNET resources such as the Horizon system servers. It provides connectivity to sites through Ameritech's Managed Router Service with Frame Relay as the transport.

Included in a typical DALNET new connection is a CSU/DSU, router, frame relay circuit, and PVCs (Private Virtual Circuits) to the two DALNET head end sites. Ameritech manages the network connections, hardware, and configurations.

2 DALNET Requirements

2.1 DALNET head end circuits (to DPL and WSU) should carry only traffic for DALNET services.

2.2 Redundancy should be built in for the head end sites. That is, if a head end circuit or router goes down, customers should be able to access services at the other head end.

2.3 The DALNET network should be scalable to accommodate over 100 remote sites.

2.4 DALNET network components, such as routers, CSU/DSUs, and frame relay circuits should be installed, monitored, and maintained by Ameritech.

2.5 The presence of DALNET at any site should not interfere with access to the Internet or the customer's intranet.

2.6 DALNET should not interfere with alternative (Internet) access to its services. For example, if a DALNET router goes down the customer should be able to use the Internet to access its services.

2.7 The presence of DALNET at any non-head end site should not prevent that site from utilizing Ameritech frame relay services to connect to any other site using the same circuit, so long as the following conditions are met:

1) All DALNET traffic is routed through a dedicated PVC.
2) Ameritech manages the router.

3 Design Recommendations

3.1 The Detroit Public Library (DPL) currently has a T1 circuit for its intranet traffic. DALNET traffic should run over a separate T1 that terminates at its own router. The DPL T1 contains DPL local and Internet traffic. The DALNET T1 will contain DALNET traffic only.

3.2 A PVC (private virtual circuit) between the DPL head end and the WSU head end should be configured. This PVC will be the primary path used for server to server updates.

3.3 To make router configuration easier, DPL and WSU should each place DALNET servers on dedicated sub-nets.

3.4 Each remote site should have a separate PVC for each head end site for redundancy purposes.

3.5 Remote site DALNET routers will provide Network Address Translation (NAT) services at the remote site routers. It will translate all customer addresses to a private class B address in the 172.20.x.x range. This accomplishes 4 things:

1) It insures that DALNET servers use the DALNET network when responding to requests that originate from a remote DALNET router. If the source address of a packet is in the 172.20.x.x range then the traffic gets routed back through DALNET. If the source

address is something other than 172.20.x.x then it will route the response through the Internet.

2) It allows the configuration of the DALNET routers to be consistent (the cookie cutter approach).
3) Customers are relieved of the burden of having to provide proxy or NAT services on their own.
4) It makes the DALNET network traffic predictable and easier to troubleshoot.

3.6 Filters will be configured on the head end routers so only routes to the servers will be published to the remote DALNET routers. Since the remote DALNET routers are only aware of how to get to the servers then they can't be used for non-DALNET traffic.

3.7 DALNET servers use NIC registered TCP/IP addresses.

4 Different Scenarios and How They Will Be Addressed

4.1 Scenario A. Standalone Sites with No Internet Access

4.1.1 Stub sites are those that have only one ethernet LAN segment. A typical stub site is a small library. The ethernet segment will use the 172.20.x.x range provided by DALNET.

4.2 Scenario B. Standalone Sites With Internet Access

4.2.1 There are sites with only one LAN that also have access to the Internet (perhaps through a Merit router). DALNET will treat such sites just like any customer with an intranet. Devices such as PCs on such a single LAN site should be configured so that their gateway of last resort is the DALNET router address. The DALNET router will route all non-DALNET traffic through the Internet router.

4.3 Scenario C. Remote Sites with PVCs to Other Sites

4.3.1 A DALNET remote site will have a PVC for each DALNET head end. Additional PVCs to other sites will not be considered as DALNET connections. Ameritech will still manage the router and its configuration. The configuration will insure that only DALNET traffic goes through the DALNET PVC. One example may be a site on The Library Network.

4.4 Scenario D. DPL Remote Sites

4.4.1 DPL remote sites are unique in that they need to access DPL services and DALNET services through the same head end. By installing a separate T1 dedicated to DALNET traffic at the DPL head end, DPL remote routers can be configured to direct traffic through the appropriate circuit and PVC.

4.5 Scenario E. Sites With Connections to Intranets

4.5.1 By providing NAT services the DALNET routers can readily accommodate sites with intranets, regardless of the addressing they use internally. An example of this type of site is U. D. Mercy.

5 Customer Responsibilities

5.1 DALNET's responsibility ends at the remote DALNET router's Ethernet port. Customers must configure their networks to make them aware of DALNET services. This can be done several different ways, including configuring static routes or redistributing DALNET routes into their network. Ameritech will provide a standard paper on how DALNET is configured and what options the customer has to communicate effectively with the DALNET router.

5.2 The customer needs to provide the DALNET installer a list of TCP/IP addresses that are used in their intranet. This information is required to configure NAT.

5.3 The customer needs to provide access to their network through one of the following:

1. A patch cord and a hub connection.
2. A patch cord and a switch connection.
3. A cross over patch cord and a router's Ethernet port.

5.4 It is up to each individual institution to manage Internet connections to DALNET servers.

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