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Open Transport 1.0.8: Network Planning & Admin Q & A (3/96)

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TOPIC -----

This article is a series of questions and answers on the network planning and administration of Apple Open Transport 1.0.8.

Open Transport 1.1 is now available, and Apple recommends upgrading to it. Also refer to Open Transport 1.1 Reference Questions and Answers Tech Info Library articles for the most recent information.

DISCUSSION -----

Question: Will Open Transport require organizations to make changes in network administration, planning, or design?

Answer: The first Open Transport protocols -- AppleTalk and TCP/IP -- offer new features that give a network manager more flexibility and control. Some of these features, when implemented in a network environment will require additional thought and planning by a network manager.

In particular, Open Transport/AppleTalk adds support for the use of static (manually assigned) AppleTalk node addresses. If implemented, a network manager may prefer to assign addresses based on a pre-designed protocol address management plan. Open Transport/TCP adds support for the Dynamic Host Configuration Protocol (DHCP). DHCP allows network managers to allocate IP addresses and other configuration information from a DHCP server. Optimum deployment of DHCP services within an enterprise does require planning.

In order to better conform to applicable standards, Open Transport/TCP also has somewhat more rigorous requirements regarding the content and format of the local HOSTS file. See TCP/IP Features for more information.

Question: Does Open Transport offer network managers more control over Mac OS

networking?

Answer: Yes. Open Transport allows network managers to specify details of the network connection and configuration in advance, via a "preferences" file. These configurations may contain a mixture of user-provided information and network manager recommended and/or network manager required settings. Recommended data provides a default for the end-user, while required configuration data is locked with an administrator's password.

Open Transport configurations can be prepared on one machine and distributed to other systems. To support this, the Open Transport configuration utilities allow a configuration to "exported" and "imported". Exported configurations can be distributed via electronic mail, a file server, or even "sneaker net".

Question: Can Open Transport/TCP act as a DHCP client to a Windows NT Advanced Server?

Answer: Yes. However, due to significant differences between the Microsoft Windows NTAS implementation of DHCP and typical UNIX-based servers, there have been some interoperability issues with Open Transport 1.0.x:

- Customers running Open Transport v1.0 or v1.0.1 will not be able to acquire leased IP addresses. This is due to unusually long reply-time-out values used in the NTAS implementation. Open Transport v1.0.6 was changed to accommodate NTAS behavior in this regard.
- Customers running versions of Open Transport prior to v1.0.8 will be incompletely configured via DHCP.

NTAS sends only IP address, IP address lease information, the configuring server's IP address, and a subnet mask. Investigation revealed that other configuration options entered in the NT DHCP server's database (default gateway address, domain name server addresses, domain name, broadcast address, and so on) were not sent unless specifically requested by the client using the DHCP Parameter Request List option.

Apple believes that this practice -- requiring use of this option in order for the client to be properly configured -- is contrary to the DHCP server specification described in RFC 1541 (Dynamic Host Configuration Protocol). This RFC documents the Parameter Request List option as a MAY, rather than a MUST or SHOULD, making required use of the parameter inappropriate. Further, this behavior appears to be unique to the NTAS implementation.

In interest of interoperability, Open Transport v1.0.8 (and the planned v1.1) uses the Parameter Request List option to request default gateways, DNS servers, domain name, subnet mask, and broadcast address. This permits Open Transport/TCP clients to be fully configured by Windows NT DHCP servers, without adversely affecting interoperability with other fully compliant DHCP servers, at the expense of a few additional packets on the wire during the initialization phase.

Question: Can Open Transport/TCP act as a WINS client to a Windows NT Advanced Server?

Answer: No, not at this time. The Microsoft WINS server is dependent on Microsoft extensions to TCP/IP (requiring NetBIOS support) that provide some automation for assignment and registration of IP host and domain names.

The Internet Engineering Task Force (IETF) is developing a cross-platform industry standard technology for dynamic registration and look-up of IP names through the Dynamic Service Location working group.

Apple has no current plans to implement the WINS extensions. Instead, we are fully committed to implementation of the applicable IETF standards as they emerge. We welcome customer feedback on this topic -- should sufficient demand for a WINS client materialize, we'd be open to exploring this issue. A future Mac OS WINS client would be dependent upon Microsoft releasing sufficient technical detail regarding their proprietary extensions to IP to make an interoperable implementation possible.

Article Change History:

26 Mar 1996 - Added statement on Open Transport 1.1 release.

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