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AppleTalk Remote: Troubleshooting Inability to Reach TCP/IP Host

Revised: 9/28/92
Security: Everyone

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Article Created: 24 December 1991

TOPIC ----------

We're using MacTCP with a Macintosh on Ethernet configured for TCP/IP (as opposed to AppleTalk - encapsulating IP with DDP). This works fine. When using AppleTalk Remote Access however, the Macintosh that is dialing in must use AppleTalk (since the link is AppleTalk only).

When we configured MacTCP on the PowerBook, we chose AppleTalk and the LocalTalk side of a FastPath 4 that was configured to route TCP/IP. This K-box works fine for Macintosh computers on LocalTalk. With AppleTalk Remote Access, however, we can't reach a TCP/IP host. We get a "host not found" message. In addition, when we configured MacTCP on the host Macintosh (sitting on Ethernet) for AppleTalk encapsulation of IP, we couldn't reach the host either.

Since I always used just the TCP/IP configuration of MacTCP before, I'm not sure what is going wrong. Is there something in the K-box we need to change? Something in the MacTCP configuration?

Configuration:
- Macintosh IIci
- MacTCP 1.1
- System 7
- Apple Ethernet (old) card
- Shiva FastPath 4

DISCUSSION ----------

First you should make sure the FastPath is running either K-Star or KIP. If it's using the default ROM code, you won't be able to use it as a DDP/IP gateway.

Next you should verify the configuration:

- Check to see if the DDP/IP gateway was configured at all. You should see a startup message in the log or diagnostics windows that begins with "KSTAR FastPath ..."

- Check that there are IP addresses assigned for either static or dynamic allocation, or both. Verify that the IP address, default router, and subnet mask fields are configured properly.

- Verify that option 7 is turned on; this allows the Fastpath to respond to NBP lookups for "IPGATEWAY" from both the LocalTalk and Ethernet interfaces. We suspect that option 7 may be your culprit. KSTAR 8.1.1 hard wires option 7 on, so you don't have to worry about it if you're using 8.1.1.

You could use Inter•Poll to verify that the FastPath was advertising DDP/IP services. Perform a lookup for all nodes of type "IPADDRESS" Every node assigned a DDP/IP address will respond including the FastPath itself. The router should respond with something like:

Net	Node	Name	Type	Zone
1	220	192.11.0.200	IPADDRESS	LocalTalk

If you then do a lookup for all nodes of type "IPGATEWAY" you should see only the router respond, no end nodes, and hopefully only one router per zone.

Net	Node	Name	Type	Zone
1	220	192.11.0.200	IPGATEWAY	LocalTalk

By default it will only respond to lookups that are directed from the LocalTalk port. If option 7 is enabled, the FastPath will respond to lookups from the Ethernet port, but only if they are directed to the zone for which the LocalTalk port is configured. For example, assume you have a FastPath, with the LocalTalk port configured for zone "LocalTalk," and the Ethernet port configured for zone "EtherTalk." You must select the zone "LocalTalk" when you configure the DDP/IP gateway location in the MacTCP control panel from an Ethernet attached Macintosh, or from a remote LocalTalk attached Macintosh. If you don't select "LocalTalk," the FastPath won't respond to lookups for "IPGATEWAY." The key here is to select the correct zone, the zone configured for LocalTalk interface of the FastPath.

In their documentation, Shiva is a little more restrictive. They specify that the Ethernet port of the FastPath must have the same zone included in its zone list as the zone configured on the LocalTalk interface. They also specify that all nodes managed by a single gateway MUST be in the same zone as the LocalTalk interface for this gateway. The DDP/IP gateway as a whole isn't a documented standard. As long as you use only dynamic assignment, you shouldn't have any problem with the scheme outlined above. With version 8.1.1 of K-STAR, it looks like you should be able to use this type of scheme with static addresses as well. I haven't tested this, but the documentation included with 8.1.1 seems to indicate that they've made some

significant improvements to address assignment.

From the K-STAR 8.1.1 release notes:

Changes made to K-STAR to avoid dynamic IP addresses that are still in use from being given away are:

a. IP in AppleTalk traffic from each Macintosh is used to reset the aging timer.

b. While entries idle (those which have not sent an NBP reply for its IPADDRESS, or any IP traffic) for over 5 minutes will be considered for reuse; the FastPath will send directed IPADDRESS NBP lookups to the Macintosh for 10 minutes after the last response was seen.

c. The FastPath performs a wild card IPADDRESS lookup in the local (LocalTalk) zone every 30 minutes.

d. Previously, the FastPath would hold an IP packet for an address in its client range for up to 30 minutes in the hope that the client would respond to the (initial) NBP ARP. The FastPath no longer holds such packets.

e. Previously, the FastPath stopped keeping track of how old entries were after 30 minutes. Now times are kept up to 2^15 seconds (over 9 hours) to better distinguish between old and very old entries when deciding which entry to reuse.

f. The FastPath will only respond to "NBP PROXY ARPs" (Mac sends an IP ARP request by doing an NBP lookup for type IPDARESS, name xx.xx.xx.xx) if they originate from a Macintosh which is a registered client. This enables two FastPath IPGATEWAYs to coexist in the same zone. Since 2 IPGATEWAYS can coexist, the FastPath now always responds to IPGATEWAY lookups; this is as if option 7 was always enabled.

Finally, take a look at the TCP/IP configuration of the remote Macintosh as well as the Ethernet based Macintosh that also failed. What do they have in the way of configuration data? What zone are they pointed to for the DDP/IP gateway lookup? Are they configured for "Server" node address access? What zone do they reside in? Have you tried static address assignment?

Tech Info Library Article Number:9638