ABS Tech Note: AWS20 Multi-Homing & IP Forwarding (6/94)

Revised: 6/24/94
Security: Everyone

ABS Tech Note: AWS20 Multi-Homing & IP Forwarding (6/94)

==========

Article Created: 23 June 1994

TOPIC

This tech note explains the differences between Multi-homing and IP (Internet Protocol) forwarding/routing, and how these capabilities can be achieved under A/UX.

DISCUSSION

Multi-Homing

A/UX supports multi-homing. It's possible that you may have multiple IP (Internet Protocol) interfaces (for example Ethernet Adapters) running under A/UX. As a result, your A/UX system may appear on and have access to different TCP/IP networks which may not be connected. To set up your A/UX system for multi-homing, follow the steps 1 through 3 oulined in the configuartion section below.

IP Forwarding / Routing

A/UX also supports IP routing or forwarding. This means that an A/UX system with more than one IP interface is configured to run as an Internet forwarder /router, and knows how to route IP traffic between two separate networks. IP forwarding/routing helps in extending the topology of your Ethernet network. To configure your system to be an Internet forwarder / Router, follow all the steps outlined in the configuration section below.

Configuration

To set up your A/UX system for multi-homing and/or Internet forwarding/Routing functionality, install a second IP interface, per the instructions provided by the card manufacturer and connect the network cable that came with the card to the second network and follow the steps steps outlined below. In both situations, a Macintosh computer running A/UX can be connected to two separate networks by using two IP interfaces.

1) Log in as root , after A/UX boots up.

2) Make a new kernel by typing the following command:

```
newconfig bnet appletalk
```

This will create a new kernel that will include the necessary modules for Ethernet (ao, as or ae6) , TCP/IP and AppleTalk support. Please note that newconfig will prompt you for the Internet address and netmask for the additional Ethernet card. It will also display the interface name such as ae0 etc.

3) When newconfig is done, restart A/UX.

4) After restarting A/UX, log in as a root and enable IP forwarding by typing the following adb (kernel debugger) command. (IP forwarding defaults to OFF on A/UX 3.0 and later versions.) The following lines show the commands you enter italic type and the output of adb in boldface.

```
#adb -w -k  /unix   /dev/kmem
 a.out file = /unix (COFF format)
 core file = /dev/kmem
ready
ipforwarding?D
ipforwarding:      0
ipforwarding?W  1
ipforwarding:   0x0        =    0x1
$w
$q
```

Then reboot A/UX so that the change will take effect. You might also want to make the same change to the /etc/install.d/boot.d/bnet_dr file (adb -w bnet_dr) in case you build a new kernel via newconfig on the forwarder /router system at some later date.

5) Enable routed daemon on each computer on the networks. To start in.routed manually, enter the following command:

```
/etc/in.routed
```

Alternatively, you can change the action field for the /etc/in.routed entry in the /etc/inittab file to wait, which can cause in.routed to start automatically.

6) Modify/check the /etc/hosts file on all computers to include host name and IP address of all the systems on the network and /etc/networks file on all computers to contain the host name and the network number.

7) Modify /check the /etc/NETADDRS file to configure IP and broadcast addresses and netmasks for each card.

The user will be prompted for the information as in the above steps 6 and 7, while running newconfig. See Chapter 6 Creating and Managing a TCP/IP Network of the Server Administration With A/UX 3.0.1 manual, for the detailed description on Routing and Forwarding.

Note: MacTCP under A/UX supports only one control panel CDEV, attributing to ONLY one IP interface, and does not let you access /select multiple IP interfaces. In other words, you cannot change/switch IP interface from the A/UX finder and changing the interface selection in the MacTCP CDEV has no effect.

Support Information Services

Tech Info Library Article Number:14419