TELESTREAM

Application Note

Configuring the Ascend MAX800 for use with Clipmail in a private network

Introduction

This Application Note guides the ClipMail user through the MAX800 router configuration process by using a simple dial up connection example. Please refer to the attached network diagram. It is highly recommended that you also read the Ascend technical literature supplied with the MAX800, to become familiar with the features and functions not covered here.

Procedure for Basic Configuration

The MAX800 is easily configured to operate in a private network consisting of dial-up basic rate ISDN connections. Ascend provides both a graphical (via Ethernet) and a text based (via telnet or serial terminal) method to configure the MAX800. When starting from scratch, the graphic user interface (GUI) is the quickest way to enter the ISDN numbers and IP addresses. Once that information is entered, the text-based interface should be used thereafter since it provides real time status and diagnostic features. The interface is identical whether accessed via a telnet session or a serial terminal (set to 9600, 8, N 1).

The Ascend GUI is the NavisConnect Explorer. It includes a button for changing the IP address of the router, a button labeled “Quick Start”—that is intended for preliminary configuration of a new device, as well as a comprehensive hierarchical set of screens for configuration.

The MAX800 configuration can be updated without having to reset or reboot the device. The screens each have a “Save” function that immediately enacts any changes made. Since the MAX800 is not reset during or after the configuration change process, always make sure any WAN connections left over from a previous configuration have hung up before initiating a test. Failure to do so may produce misleading results that are difficult to repeat.

Quick Start

This is basically a wizard that guides the user through a set of screens for entering basic configuration information. For static IP addressing, the only required fields in the IP screen are Ethernet IP address and IP subnet mask. In the Encapsulation (Answer) Options screen, check the boxes for all types of encapsulation expected. In the PPP Specific Configuration screen, set Compression to none (this is taken care of inside the ClipMail), and select PAP, CHAP or none for Receive Authentication. This is for security on ISDN (WAN) connections only. Ascend offers various security features that allow users to access the router from the LAN; their settings will depend on your particular LAN requirements. For further details, refer to the Ascend MAX Configuration Guide.

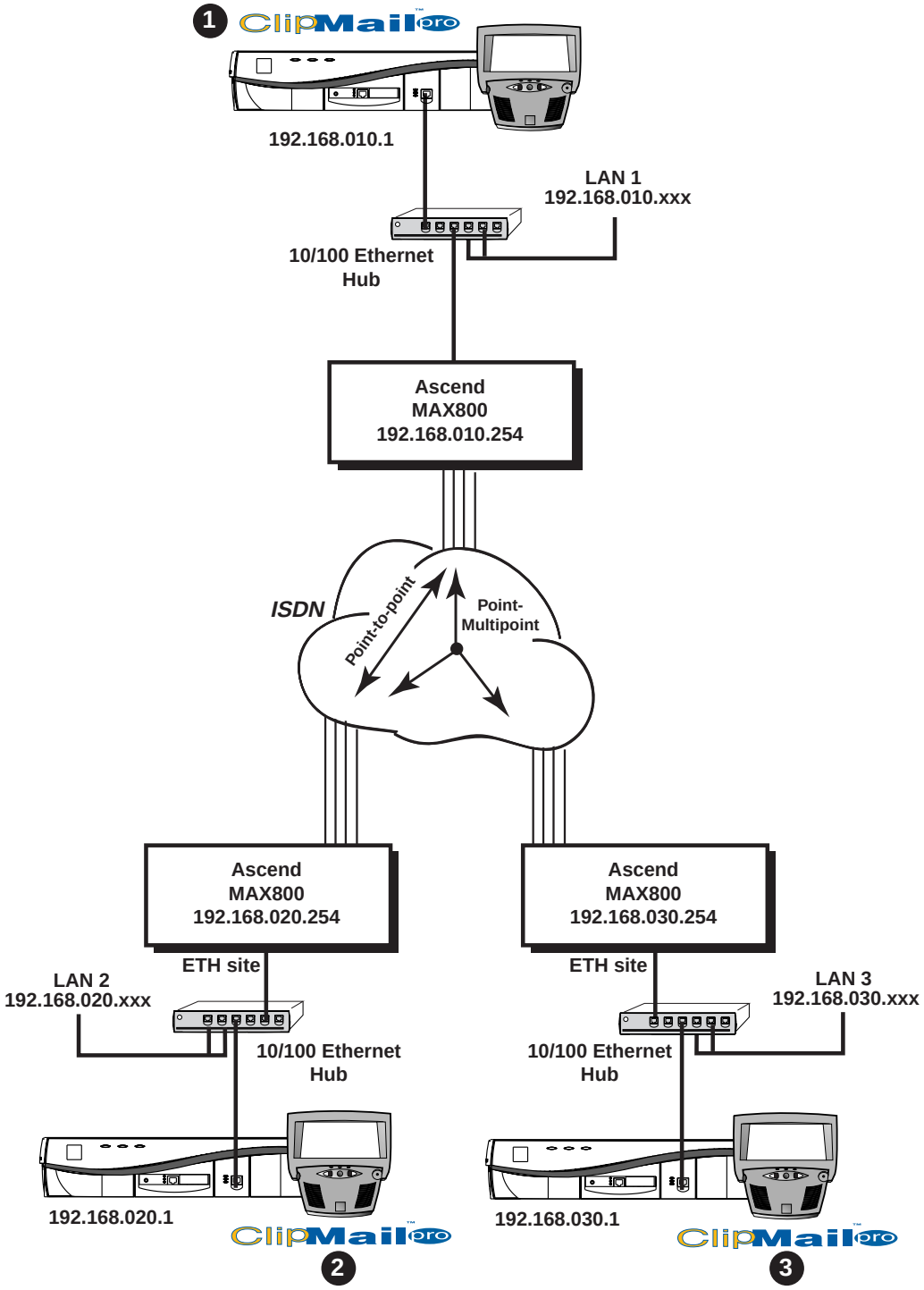

Figure 1. Example of an Ascend MAX800 System Configuration

Main Configuration Screen

Once the router is selected in the opening screen, and the Quick Start wizard is complete, click on the "Open" button to enter the Main Configuration screen. This screen is split, showing all the different configuration screens in hierarchical directories on the left, and details of the one selected on the right. For configuring a *point to point*, or *point to multi-point* dial up network as shown in figure 1, only four screens need to be edited. These are addressed individually below.

Answer Profile

This screen sets parameters for dealing with incoming ISDN calls. Under the Encapsulation tab, we recommend you set PPP, MP, and MPP at a minimum. Under the Bandwidth tab, set both the minimum and maximum number of channels to the total number of B channels available (8 if 4 BRI lines are in use). This will tell the MAX800 that it should use all available bandwidth all the time.

Since there is only one answer profile on the MAX800, it should be general purpose enough to connect to all incoming calls, even if they use different protocols.

Connection Profiles

This area is concerned with the details of dialing out using ISDN. It is possible to set up several connection profiles that each represent calls to remote sites based on IP routing. For the three-site network shown earlier, each site would have two connection profiles defined. Each connection profile is referred to by its station name. The *Dial#* field on the General screen is where the destination ISDN number should be entered. Remember to start with a "1" followed by the area code and 7-digit number for all 64k connections using the NI-1 protocol. In the *Encapsulation* screen, the MPP protocol (also known as MP+) is recommended. This is a public domain protocol defined in RFC1934 that adds a layer of control on top of the industry standard MP protocol (RFC1717). At connect time, the caller will essentially ask the unit called if MPP is available. If it is, the added control features of MPP will be used for the call. If not, the call will proceed using the MP protocol. At this time, all Ascend ISDN routers and most Cisco ISDN equipment support MPP. Please refer to the topic *Hunt Groups and MPP* presented later in this application note for details on some of the advantages of MPP.

Under the *IP* tab of the Connections screen, check both *Enable IP Routing* and *Compress Headers.* Under Configure Addresses, enter the network address of the remote LAN and the remote subnet mask.

Under the Bandwidth tab of the Connections screen, set *Min. Channels, Base Channels* and *Max Channels* all to the maximum number of B channels available. This will instruct the MAX800 to connect using all available channels for routing any IP traffic to the remote LAN, and is the ideal setting for transmitting clips using ClipMail. If the router is going to be used for other types of network traffic such as E-mail and web access, more sophisticated methods of bandwidth allocation may be used. Refer to the *Ascend MAX Network Configuration Guide* for details.

IP Routes

This screen should be filled in to enable routing of all IP traffic having the remote network address to the remote router (gateway). One static route should be set up and enabled for each connection profile.

Slots

These screens should be filled in with the seven digit ISDN phone number, along with the 11 digit SPID (for NI-1) assigned to the line. The Port Group, Slot, and Trunk Group may all remain zero for this example.

Hunt Groups and MPP

Hunt groups are required for the receive side of a multi-line connection—when you're *not using* MPP (plain MP). This means the Central Office switch will give the next available number to the calling side when it requests it. The switch decides which channel and number will be given out. This is the reason that only a single number need be entered in the connection profile. The C.O. switch will connect using an unused channel each time this number is re-dialed.

With MPP, the caller sends a "number request" message to the called, which then returns the next available number to dial, so hunt groups are not required. Using hunt groups and MPP simultaneously is *not recommended* because the calling router may receive two different numbers for each request—one from the switch and another from the called router.

Each BRI is assigned two numbers, but there is no fixed relationship between numbers and specific B channels. Either number may be dialed to get a connection on the next available B channel; in fact the same number may be dialed twice to use both B channels. This is why the Ascend will connect at 128k without hunt groups when using MP: it simply dials the same number twice. Two numbers are given so that the B channels may be used for separate connections or services. A voice call is always treated as higher priority by the switch than a data call, and can bump data traffic from a B channel.

Another benefit of MPP is the inclusion of a bandwidth allocation control protocol. Therefore, enabling BACP inside a connection profile (outgoing call) will have no effect when MPP is selected. It is recommended that BACP be enabled for all incoming profiles, since it is required for callers using MP, and does no harm if the caller is using MPP.

For a detailed discussion of BACP and MPP, refer to the resource library at http://www.ascend.com.

Diagnostics

Although the GUI is very useful for configuring the MAX800, it offers no interactive diagnostic functions. For this the text-based interface must be used via telnet or serial terminal connection. This screen is divided into nine menus. The main configuration menu is on the left, with eight small menus showing real time status on the right. Use the TAB key to cycle through the menus, and the arrow key to make menu selections. For details on using the text interface, refer to the MAX800 Series Administration Guide included on the CDROM.

> **Note:** if you are using Microsoft Windows telnet, make sure to check "VT100 Arrows" in the Terminal Preferences screen.

Typing <control>D from the menus window will bring up a *DO* menu. From here, you can select *Termsrv,* which will open up a command line interpreter. Typing "*?*" will display a list of commands available. Also from the DO menu, selecting *Diagnostics* opens up a command line interpreter for executing diagnostic functions. Typing "*?*" will provide a list of these. A good resource for frequently asked questions is http://aos.ascend.com.

> **Note:** Certain parameters are only editable if you have logged in with *full access*. To do this, type <control>D, select Password, then select Full Access and it will prompt you for a password.

For More Information

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