Packet servers are special stations which you can connect to. These stations provide a "service". Some of these services are very simple and some are quite complex. This chapter discusses some of the more common servers and the basics of using them. Nodes, bulletin boards, and DX spotting are discussed in more detail in later chapters. Nodes and bulletin boards are discussed in great detail in Volume 2.

5.A NODES

5.A.1 MAKING A CONNECTION: A node is a station to which you can connect and ask it to connect you, in turn, to another station. In our telephone analogy, this service is like the old-time telephone operator. You rang the operator and asked to ring a telephone somewhere else. After the phone at the other end is answered, the central office becomes transparent. Even if the other phone is only a few blocks away, the signals go from your phone to the central office, and on to the other phone.

A node works much the same way. You connect to a node and tell it: "Connect me to N7AAA." Once the connect is made, the node becomes transparent and you no longer talk to the node; instead, you talk to the other station. An example of this process is:

```
cmd: c valley
cmd:*** CONNECTED to VALLEY
c w7exh
VALLEY:N7FGF-3}  Failure with W7EXH
c n7fgf
VALLEY:N7FGF-3}  Connected to N7FGF
[AEA PK-88]  19096 free  (A,B,H,J,K,L,R,S,V,?) >
cmd: d
cmd:*** DISCONNECTED
```

In this example, the local node "VALLEY" is connected to on lines 1 & 2. Then, the node is asked to make a connection to W7EXH (line 3). The node tries a number of times and fails. Then, it notifies you that it was unable to satisfy your request (line 4). At this point, you are still

connected to the node. A second request was made, this time to N7FGF; it was successful, but only got a mailbox. Finally, a disconnect was made as in the earlier examples.

It is important to note that some users, particularly "old-timers" refer to nodes as "digis". Most nodes will serve as a digipeater but they also do much more. In this book, nodes are called nodes.

5.A.2 AUTOROUTING: Many, but not all, nodes offer autorouting to other nodes. This function is rather like a primitive long distance phone call. Though the old-time phone system did not work exactly this way, it was close enough to pretend. Suppose that you wanted to call your Uncle Henry in New York City. You ring your local phone operator and say: "please connect me to the operator in New York City". After a substantial wait (while operators along the way make the necessary connections), you get the distant operator. Then you are able to say to the New York operator "Please ring Henry Jones at 4435 for me." You did not need to know how the telephone company lines are laid out; the operators manage that detail for you.

Autorouting works much the same way. In this case, suppose that your friend N7AAA is on a (not too distant) node called PODUNK while you can directly connect to a node named METRO. After connecting to METRO, you simply tell it "Connect me to PODUNK". Once that happens, you are connected to PODUNK and you tell IT, "Connect me to N7AAA". It should be fairly obvious that you must know which node N7AAA is using. An example of how this works follows:

```
cmd: c salem
cmd:*** CONNECTED to SALEM
Welcome to the Salem Packet Switch
Type ? for list of available commands.
c mthood
SALEM:AF7S-1}  Connected to MTHOOD:KB7DBD-1
c n7cpa
MTHOOD:KB7DBD-1}  Connected to N7CPA
HI, TYPE <CTRL-T> FOR MENU, TYPE COMMAND "T" TO TALK TO
N7CPA
[ZCZ] *** LAN-LINK 2.00R>
cmd: d
cmd:*** DISCONNECTED
```

In this example, a connection is made to the local node named "SALEM" in lines 1 &2. Then, the node is asked to connect to the node "MTHOOD" (line 5). SALEM notifies when it is successful in line 6. At

this point, SALEM is transparent, and anything typed goes to MTHOOD. Next, MTHOOD is asked to connect to N7CPA in line 7. This is successful with the connect message shown. Finally, a disconnect is done.

It is important to note that you do not need to know how the "network" is arranged between SALEM and MTHOOD. In fact, there is a 70cm link from SALEM to PDX7, a 1.25M link from PDX7 to WLINN, and a 70cm link from WLINN to MTHOOD. But your packet is routed automatically.

It is also important to note that not all nodes handle connect requests in exactly this way. Refer Chapters 8 & 9 for more information.

5.B BULLETIN BOARDS

Bulletin boards don't seem to have a direct analogy in the telephone system we have been using as an example. But if you have ever seen a bulletin board at a community location with cards, for sale ads, etc, you have seen something quite similar.

Most (but not all) of the bulletin boards we are interested in are called "store-and-foreward" BBSs. This means that you may leave a message for a person somewhere else (even non-hams!); the message will be moved between neighboring bulletin boards to its destination.

There are quite a variety of bulletin boards now in operation. Chapter 6 discuss bulletin boards in more detail and Volume 2, Chapter 25 gives you operating details of each type I can find in use in the Northwest. There should be enough in this section to get you started.

To use a bulletin board, you need to know four things: (1)which one to use, (2) how to reach it, (3) how to log on the first time, (4) how the basic operations work.

5.A.1 FINDING A BBS: You can find out which one to use several ways. You can ask other packeteers on the node you prefer to use. You can look at the prompt list on your node to see if it has a "BBS server" attached. To get this, send the node a "?" (after connecting first, of course). A node with an attached BBS will return a prompt line something like this:

```
c wlinn
SALEM:AF7S-1}  Connected to WLINN:W0RLI-1
?
WLINN:W0RLI-1}  BBS RT QTH CONNECT BYE INFO NODES PORTS
ROUTES USERS MHEARD
```

The presence of the "BBS" in the prompt line shows that there is a BBS attached to the node.

Many BBS's have their own "node names". The BBS attached to the WLINN node in the example above has the name "RLIMB" (interpretation: W0RLI's MailBox). A node will give you a list of the other nodes it "knows" about if you send it an *"N"* (for Nodes). Names such as "xxxMB", "MBxxx", "xxxBOX, "BBSxxx", or "xxxBBS" are usually bulletin boards.

Intelligent use of the network suggests that you use the BBS which is the closest to your "home" node, in the network sense. It makes little sense to use a BBS which is 4 or 5 nodes away when there is one 2 nodes away. The closer one usually has all the same bulletins on it. The BBS occupied the network getting those bulletins to it and you don't need to repeat what has already been done.

If you cannot tell which is the closer BBS, ask a local node user.

5.B.2 CONNECTING TO A BBS: Having chosen a BBS for a first try, how do you connect? From a network node, you may tell the node to connect you to a named BBS. You may also connect to a node with an attached BBS and type *"BBS"*; the node will transfer you to the BBS. Some BBSs are not networking and must be connect to by callsign directly from its node.

5.B.3 FIRST TIME LOGON: As a first time user, you will be asked a standard set of questions when you connect (log on) to the BBS. An example of what you will encounter is the following (edited slightly for brevity):

```
CLARK:N7CHR-1}  Connected to RFBBS:AA7RF
[MSYS-1.13-H$]
Hello ?, Welcome to AA7RF's MSYS BBS in Woodland, WA
Welcome! As a new user you will see this information. Next
time you connect you will go directly to the BBS command
prompt. Please register as requested below. The home bbs
you give must NOT be a personal (built into a TNC) BBS but
```

```
rather a well known full service bbs that does mail
forwarding. If you haven't picked a home bbs yet, you are
welcome to use this one. Just enter its call with the NH
command.

Please use N command to enter your name
Please use NQ command to enter your QTH (City and state)
Please use NZ command to enter your Zip or Postal Code
Please use NH command to enter call of BBS you want your
mail sent to
Enter command: A,B,C,D,G,H,I,J,K,L,M,N,P,R,S,T,U,V,W,X,?,*
>
```

Once you respond to these questions, you will be spared this first log-in ritual. The first-time logon procedure varies a little among various BBS types. Follow the instructions closely because they are intended for a first-time user.

5.B.4 BBS BASIC SERVICES: Among all of the services which a bulletin board supplies, the most commonly used ones are (1) reading bulletins, (2) reading personal messages, and (3) sending personal messages.

In most BBSs, an *L[ist]* will give you a list of all of the bulletins which have arrived at the BBS since you last checked in. With your first checkin, this list could be VERY long. Unless you specify otherwise (again, see Chapter 6 and Volume 2, Chapter 25), many BBSs will give you this list about 20 lines at a time. In this context, a "bulletin" is a message which can be read by anybody.

If you find a bulletin with a subject which is interesting, note the message number (usually near the left end of the line in the message list). At the BBS prompt line, you may enter *R[ead] ###* to read the message with number "###".

Most BBSs notify you when you logon if you have waiting personal mail. If you are uncertain about your "mail", an *LM* (List Mine) will give you a list of all your mail. Your personal mail is numbered like the bulletins. And, like bulletins, you may read your mail with *R[ead]###* at the BBS prompt; *RM* (Read Mine) will also read all personal messages addressed to you which you have not already read.

It is your responsibility to dispose of your mail after it has been read. To do so, send *K[ill] ###* (Kill message ###).

Many BBSs do not "remember" what you have read unless you disconnect by sending *"B"* (Bye) to the BBS.

5.C CONVERSE SERVERS

Converse servers are another answer to the question: "How do I find someone to talk to?" This is a little like a party line where everyone on the line is listening and anything said by any of the listeners is heard by all others.

Converse servers have several names. One is "Round-Table", another is "CHAT node", a third is "CROWD node" . They come in several styles which are both similar and different.

5.C.1 HOW CONVERSE SERVERS WORK: All of the servers provide a way where two or more packet stations can carry on a conversation. When you connect to it or otherwise activate it, all you type is sent to all other stations which are similarly connected. Depending on the implementation, you may direct comments to a particular participant. It is also often possible to specify information about your-self (such as name and QTH); this information is available to the other participants.

5.C.2 AN EXAMPLE:

```
SALEM:AF7S-1}  Connected to WLINN:W0RLI-1
rt
WLINN:W0RLI-1}  Connected to RT

W0RLI RoundTable Server V3.0
Copyright (C) H. N. Oredson 1992
Type /H for command summary.
KA7EHK : *** Joined the RoundTable
/H
/U - Users
/N - Enter Name
/Q - Enter qth
/B - Leave RoundTable and return to node.

/Q Tangent, OR
*** Done
/N Jim
*** Done
```

```
/u
Stations in the RoundTable are:
 2 KA7EHK [Jim, Tangent, OR]
/B
Returned to Node WLINN:W0RLI-1
```

This example is from one of several servers in the Portland, Oregon area. This one is entered by typing *RT* while connected to the node (line 2). When you have connected to the server, there is a "log-on message" which notifies you of the fact (lines 3 to 8). It also tells you how to get help. One of the common convention with these servers is that a line preceded by a / is directed to the server, rather than to the conversants. In the example, a name (line x) and QTH (line y) is specified. When asked who the current participants are (with */u* near the end of the session), it indicates the call(s) (KA7EHK was the only participant this time), plus name and QTH if entered. Notice, also, that when you terminate the server with a */B* (bye), you are left still connected to the node to which the server is attached (in this case).

5.C.3 CONVERSE SERVER TYPES: There are 4 major converse server implementations. One (shown in the preceding example) is attached to certain nodes much like a BBS. You can determine whether or not there is such a server just like you can find if there is an attached BBS: send an ? to the node in order to get a prompt from the node. If you see "RT" on that list, there is one and you need only type RT to connect. An example of such a prompt line is this one:

```
WLINN:W0RLI-1}  BBS RT QTH CONNECT BYE INFO NODES PORTS
ROUTES USERS MHEARD
```

A second server type is the "CHAT node" or "CROWD node". This type appears as a node to the packet network. With this type, most are named "CHAT". You must connect to it as if it were a node. Once done, it behaves much like the other converse servers. See Volume 2, Chapter 24, for a more detailed description of this combination node and converse server.

Both of the preceding converse servers could be considered "local conversation". This is because servers are isolated from each other. The following two types are "distributed conversation" because servers may be linked together.

DX Cluster stations usually contain a converse server. See section 5.F for an introduction to DX Spotting and Chapter 7 for a detailed description. It should suffice to say at this point that, except for command details, the operation is similar to that previously described. The principle difference is that users of linked DX Cluster stations can talk to each other as if they were all using a single server.

NOS stations (including JNOS) have the capacity to implement a distributed converse system. The extreme case of this is the converse arrangement over Internet in which stations in Australia, Eastern Canada, Europe, and a number of U.S. sites can all talk together as if on a single server. See 14.J for some notes about NET and NOS; see Volume 2, Chapter 24, for details.

5.D CALLBOOK SERVERS

Callbook servers are a way of finding out basic information about the holders of U.S. amateur radio licenses. There are two styles of callbook servers which are available in the Northwest. One is the local server in which the information is available on a compact disk (CD) at the node site. This type can be found by, again, observing the node's prompt line:

```
WLINN:W0RLI-1}  BBS RT QTH CONNECT BYE INFO
  NODES PORTS ROUTES USERS MHEARD
qth ka7ehk

JAMES D WAGNER  KA7EHK
31677 N LAKE CREEK DR
TANGENT, OR 97389
Born: 41  Class: T

Returned to Node WLINN:W0RLI-1
```

With this type, one simply types *"QTH callsign"* as in line 3. The result is returned on several lines.

Please be aware that these CDs are expensive and the station operator may not always purchase a new one every time one is available. Also be aware that these servers (usually) only list U.S. hams; some DX Spotting Systems have available U.S, Canadian, and some foreign calls.

Many callbook servers also do other things like search for calls associated with a given name, or associated with a ZIP code. Ask the

SYSOP for details if you want to use these other features.

There is also the Internet callbook server. Through Internet Gateways, one may access a server on the U.S. East Coast. Ask the sysop of your local Internet Gateway for details.

5.E INTERNET GATEWAYS

Internet is an international computer network. It was originally designed to link major universities and government research laboratories. In recent years, the network has grown to include most universities and many "high-tech" businesses. Most universities with university-wide computer networks have "internets" on the campus with those nets linked to "the Internet".

The KA9Q "NOS" program and its derivatives (including JNOS) provide a means for joining the packet radio network and various internets. When such an arrangement is made, the result is referred to as a "gateway". For detailed information about how this works, see Chapter 14 and the JNOS entry in Volume 2, Chapter 24.

5.F DX SPOTTING

DX Spotting or "DX Clusters" are a special purpose packet network (at least, in the Northwest). These are nodes which are controlled by special software. The nodes are linked together so that most of what happens at each individual site is sent to all of the others.

The purpose of this system is the location of DX stations. The features are specifically designed with this in mind. The new user should be aware that although these stations accept messages in the style of a store-and-foreward BBS, there is generally no interchange between the DX cluster system and the "regular" packet system in the Northwest. See Chapter 7 for details.

5.G SUMMARY

In this chapter, a variety of services provided by various packet installations have been discussed. The intention for this chapter was to provide enough information for new users so that there would be awareness of features of the packet radio system.

For more information, refer to Chapter 6 about bulletin boards, Chapter 7 about DX spotting nodes, Chapter 8, 9 & 10 about packet networking, Chapter 11 about the inner workings of packet protocols, Chapter 12 about H.F. operation, Chapter 13 about packet satellites, Chapter 14 about file transfers, & Chapter 15 about TCP/IP.