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BENEFITS OF INTERNET COMPUTER NETWORKS FOR ABSEL MEMBERS

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ABSTRACT

Internet computer networks are described. These networks are valuable for communication, file transfer and remote computer usage. There are benefits for both simulation and experiential exercise oriented individuals. Internets provide a great way to provide help for simulation and experiential exercise users.

INTERNETS

Computer networks connecting on-campus mainframes and/or microcomputers have been available for some time. In recent years, internetworks or internets linking universities and other research organizations have become commonplace. Most faculty members have access to an internet of some type although many are unfamiliar with its use. Surprisingly many ABSEL members are not network users if the number of Bitnet addresses included in the "Participant List 1991" sent to members is any indication of network usage.

The generic term for an Internet among non-computer science faculty appears to be 'Bitnet. ' Many faculty members include their Bitnet address on their business cards. However, there are a number of other inter-nets in addition to Bitnet. Bitnet (an acronym for Because It's Time Network) was developed at City University of New York and is a low cost, slow speed network which transmits messages by passing them from computer node to computer node until the message reaches its destination (Comer, 1988)

A much more powerful internet known as Internet (with a capital I) connects many universities, government research labs and military installations (Comer, 1988). Internet provides direct point-to-point E-mail and high speed file transfer. It is linked to many other networks via gateways. Internet addresses end in .edu for educational institutions while Bitnet addresses (if they include the extension) end in .bitnet.

This paper will attempt to familiarize the ABSEL community with some of the benefits that internets can provide. Benefits are available to those oriented toward experiential exercises as well as to simulation-orientated individuals. The discussion will use Internet as a representative of internets. The reader's internet may or may not have the full range of capabilities of Internet. However, the internet that may be available is sure to be of some value to the reader.

There are three internet applications which should be of most interest to ABSEL members. All members can take advantage of the significant benefits of electronic mail (E-mail). Most members may want to utilize the file transfer capability of an internet. And some members may want to use the Internet remote login feature, if available.

ELECTRONIC MAIL

Electronic mail is not something that only the computer techies use. It is being used on a daily basis by academics, government, and business people across the country. E-mail is somewhat of a cross between the telephone and the letter. It shares the relative speed of a telephone message with the accuracy of a letter document. The sender creates a written message on a mainframe computer using a software program (editor) similar to a word processor. The capabilities and friendliness of the software varies from installation to installation, but the trend is toward increasing both in capability and in user friendliness. Alternatively, the message may be composed on a personal computer, using a familiar editor or word processor. Then it is uploaded in text format to the mainframe for transmission to the recipient.

After the message is composed, it is sent via the internet to its recipient. This generally takes only one or two keystrokes to accomplish. The transmission may be almost instantaneous or it may take several hours, depending upon the internet used, gateways required to other nets, and the location of the recipient. If the transmission uses Bitnet, a message is relayed from node to node until it reaches its destination. Internet sends the message directly to the destination computer. E-mail messages even may be sent via internet and its gateways to subscribers of commercial services such as Compuserve.

While E-mail does not provide for actual two-way communication, some internets provide a chat mode where two users can type messages back and forth to each other. Of course, the second person must wait for the first person to finish the message before responding. But this is necessary for telephone conversations, too. How much communication takes place when two people talk at the same time, even if they are face to face?

The E-mail recipient is notified that mail has been received via a message such as 'New mail is available.' The message may be read immediately if the recipient is logged on at the time of receipt. Alternatively it may be read at the time of login during the next session on the mainframe computer. A sender may never know when (or if) a message is received. However, E-mail eliminates

playing telephone tag. When one wants to communicate, one simply creates a message and sends it. The message is delivered to the recipient's computer, where it waits until read by the recipient.

Internets tend to promote communication as it is easier and faster to type an E-mail message and send it than it is to write a comparable letter. And there is no envelope to address and no delivery to a mail drop. Most internets have gateways which enable the user to send messages to individuals operating on many other networks. Tie key is to know a recipient's address. The address is best obtained from the recipient as it has very difficult to guess the correct address of most recipients. Even if you know the correct university, you are not likely to know the specific computer the individual uses for E-mail.

E-mail works just as well to communicate with a colleague in a foreign country as it does to communicate with someone within the United States. The transmission time will generally run! from a couple of minutes to a couple of hours. There are no additional mailing fees. Thus ond can easily keep up with the activities of both national and international colleagues all year around rather than just at annual meetings. In fact, E-mail can help internationalize the thinking of business school faculty.

USER HELP

E-mail can be particularly useful for providing information about the availability of simulations and experiential exercises and for solving technical problems users are having with either type of pedagogical device. The user can specify the exact nature of the problem in writing so that the author has a clear understanding of what may be happening. The message will be complete instead of consisting of hasty fragmentary notes scribbled out during a telephone call.

From an author's perspective, E-mail provides an excellent way of communicating with users. Multiple messages can be exchanged with a user who is having a problem, even it located many miles away, without significant telephone charges being incurred. Changes, cautions, and alterations can be explained with one message being sent to all known users at once. It also provides a good communication channel for users to relate their experiences and wish lists for future revisions. A major problem for authors is to discover who one's users are. Providing an internet address in written documentation or in a README file may entice users to establish contact with the developer.

FILE TRANSFER

Internets normally have file-transferring capabilities of some type. This may range from slow speed transfer (which may require large files to be broken into smaller parts for transmission) to high speed trans

-fers capable of moving very large files in a matter of seconds. File transfers can be very useful when working on manuscripts where more than one author is involved. One author may write a rough draft and send it to another author for polishing. Alternatively, portions of a manuscript may be written by each author with the portions being sent to the other author(s) for integration and polishing.

File transfers may be used to send experiential exercises and updates to potential users when the exercises are needed quickly. This is particularly useful when the recipient is located in another country. The exercise may be provided on the same day instead of the week or two required by airmail.

File transfers are also extremely useful for simulation authors. A user can upload a program that is malfunctioning along with the relevant data files to the mainframe computer. Then the files can be sent to the author. (An alternative is to send the prograins and files via an author's bulletin board if one is available. See Fritzsche and Cotter, 1991. However, this can get expensive if significant long distance charges are involved.) With the program in hand, the author can replicate the problem, which is likely to save significant time in locating the offending code. The revised program file can then be sent back to the user to minimize down time. The user then may download the program to a microcomputer and is ready to go. This is especially useful when a problem originates in another country. An updated program can be sent to Europe, Australia, etc. in a few minutes or at most a couple of hours.

A file may be sent to a public subdirectory on the recipients mainframe or it may be sent directly to the recipient's account. To send a file to the recipient's account, the recipient's account name and password must be known. (It may be a good idea for the recipient to change passwords prior to receiving the file and then change passwords again after the file is transferred in order to maintain security.) A file sent to the public subdirectory on the recipient's mainframe may be downloaded directly to the user's microcomputer.

It is also possible for an author to obtain files directly from the user's account or the user's mainframe public directory. This is advantageous if the user is unfamiliar with internet procedure. Thus the user only needs to know how to load the offending files and data onto a mainframe computer. If the developer and user both are on Internet, the developer can simply use FTP (file transfer protocol) to go into the user's account or the user's mainframe public directory and obtain a copy of the files. The problem can then be located and an updated version placed back into the users account or public directory in the manner discussed above.

While most business educational simulations run on microcomputers, internets are mainframe based. Thus to use internet for the transfer of program and data files, one must upload the files to or download the

files from a mainframe. There are essentially two ways to do this. The slower method is to communicate with a mainframe via modem and upload or download the files. The faster method is to locate a microcomputer which is connected to a mainframe via a local network such as Ethernet. The file transfer then becomes very simple and quite fast. Even the most novice user, with a little help, could move files back and forth with little trouble.

A second possible use of internet tile transfers is to make current versions of programs available to all users. The most recent versions of programs can be placed in a public directory on a mainframe. Users could then periodically check the dates of the programs in the public directory, possibly at the beginning of each new term, to make sure they are using the most recent version. Alternatively, the program could be placed in a subdirectory, which is password protected and all known users could be given the password. This use of the network would require more sophistication on the part of the user. He or she must be familiar enough with networks to be able to access files on another computer after logging on to a mainframe computer. They then must know how to transfer files from the foreign computer to their machine. This is not difficult, but may get a little technical, especially for individuals who are not comfortable with computers.

REFERENCES

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