EARNEST,

 the EARN Newsletter

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 EARN Association\*

Editor: Hans Deckers\*

Special thanks to Daniele Bovio\*, Hans-Ulrich Giese\*, Turgut Kalfaoglu\*,

Jack Kessler\*, Greg Lloyd\* and Eric Thomas\* for their contributions.

Items which are followed by an asterisk (\*) are explained in the

glossary at the end of this newsletter.

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Next issue: February 1993

 The deadline to submit articles for publication is on 3 February

 1993.

 New project? New tool? New views on the network? Express your ideas

in EARNEST! Submit articles for publication, ideas for articles,

letters, etc., to Nadine Grange\* (grange@frors12.bitnet).

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1. Editor's Corner

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 by Hans Deckers (deck@frors12.bitnet)

I think the closest thing to a 'letter to the editor' is a message to

the editor, stating that one has no time to write a 'letter to the

editor,' with a promise that some day a true 'letter to the editor' will

be sent. The fact is that I DID receive such a message| And what makes

me feel even better: the writer described himself as a happy receiver of

the EARNEST newsletter and added a word of encouragement. Thanks|

2. News from the BoD\*

 ------------------

 by Hans Deckers (deck@frors12.bitnet)

Highlights from the BoD meeting on 5 and 6 November 1993 in Pisa.

- The BoD amended Article 17 of the EARN Statutes, taking away a

restriction on the number of consecutive Presidential terms.

- The BoD instructed management to provide a document describing EARN

services to end-users.

- The BoD ratified unanimously the membership of Cameroon.

- The BoD ratified the 1993 budget.

- The BoD approved new "Operational Procedures for Connection of a New

Country or a Site to EARN". This new version now contains a definition

of a "country": any state that is a member of the ITU\*. This gives EARN

management a clear-cut criterion for determining the "country" status of

a candidate for EARN membership. The procedure now also provides the

possibility to grant EARN institute membership and connectivity to sites

as "non-ITU member sites".

- A new Executive\* was elected. Its term of office starts on 1 February

1993.

The EARN officers for 1993/1994 are:

 President Frode Greisen, Denmark

 Vice-president Avi Cohen, Israel

 Secretary General Paul Bryant, United Kingdom

 Treasurer Marco Sommani, Italy

 Executive committee members Pedro Amorim, Portugal

 Jean-Loic Delhaye, France

 Tomasz Hofmokl, Poland

- The BoD thanked Wilfried Maschtera from the Johannes Kepler University

in Linz for his services to EARN and particularly regarding the

connection of Eastern and Central European Countries to EARN.

- The BoD formally congratulates EARN Staff on the successful completion

of the Regionalization Plan.

- The BoD has decided that EARN will organize a second Network Services

Conference (NSC'93) in Warsaw. For details, see section 11...

3. News from the NOG\* and the RPG\*

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 by Daniele Bovio (hi@frors12.bitnet)

The EARN Network Operation Group (NOG) met in Pisa just before the

NSC'92 conference. The meeting was attended by 29 participants,

representing 21 countries, and focused on several strategic topics and

new ideas.

Towards the goal of increasing the number of platforms able to use NJE\*

basic services the idea to extend NJE over LANs\* was discussed. The

kernel of the idea is to create a system based on a VAX/VMS\* with Jnet

(the RSCS\* emulation for VMS hosts). All PC/Workstation users connected

on the LAN would be seen from the NJE network as users of the JNET NJE

node. An IP application running on the VAX and on the PC/WS would take

care of transferring the NJE files to the PC/WS thanks to a mapping

table between the userids and the IP addresses of the PCs/WSs. It should

also be possible to have a UNIX\* based version. The goal is to allow PC

users to directly access basic NJE and Listserv\* services such as "tell"

and "sendfile" commands, and Automatic File Distribution (AFD).

A formal definition of the INTERBIT services was discussed. The INTERBIT

gateways assure the connectivity between the NJE world and the Internet

and are therefore a key issue. The basis for the discussion was two

papers: "Internetwork Services Between NJE and Non-NJE Environments",

and "Interbit Gateway Service", written by Michael R. Gettes and John

Wagner, from Princeton University. The two papers will be published as

official EARN papers as soon as finalized and will be available on

listserv@earncc.bitnet\*.

The NOG noted the papers and accepted them as a framework for the

Interbit service in general and for the definition of the Interbit

services in Europe. The NOG also approved that Princeton University will

act as a maintainer for this service.

Ebrahim Mashayekh, from the Institute for Sciences in Theoretical

Physics and Mathematics, Teheran, gave a general overview of the EARN

services currently available in Iran. It is expected that a leased line

will be funded and therefore installed in the near future. The hardware

available at the international site is also being upgraded. Given the

physical telecommunication infrastructure in Iran the constitution of a

national network presents major obstacles. A great effort, however, is

being made to extend the EARN services at the national level as much as

possible.

Daniele Bovio reported that a new version of the "Nodes file format and

contents" document is now available from NETSERV. This new version

includes clarifications for the use of the :newnode./:oldnode. tags as

well as a better definition of the use of the :serversn. tag.

A new server able to store and make available through NJE an archive of

software for DEC/VMS hosts was offered by Eric Thomas. After a general

discussion, the NOG concluded that the proposal was extremely valid and

therefore recommended that the EARN Office starts and maintains the

service. This new server will be host at SEARN (for details, see section

7).

The EARN Routing Project Group (RPG) also met in conjunction with

NSC'92. 19 technicians attended the meeting and focused on several

"routing" issues.

A status report from the core sites was given. In conclusion, it was

agreed that the general situation is satisfactory.

A roundtable about the IBM FAL\* version 2 and RSCS version 3 was held.

All the details of the discussion can be found in the RPG minutes.

A new Routing Table Generators program, which uses a new algorithm

ensuring symmetric routing, will be soon available through NETSERV. The

new tool will be maintained by a mixed group of technicians from BITNET

and EARN.

Complete minutes of these 2 meetings are available, respectively, as

files EXEC82 92 and EXEC83 92 on listserv@earncc.bitnet. To get a copy

of these files send the command GET EXEC82 92 or GET EXEC83 92

to listserv@earncc.bitnet.

4. Changes in topology

 -------------------

 by Daniele Bovio (hi@frors12.bitnet)

The just released December Routing Tables contain a brand new

international node connected to AEARN (Wien, Austria) called ROEARN.

ROEARN is, in fact, the first Romanian node joining the NJE community

and it is hosted at the Research Institute for Informatics, in

Bucharest. The contact for networking problem at ROEARN is Eugenie

Staicut (ESTAICUT@ROEARN, telephone: +40.1. 6652585).

A big WELCOME to our Romanian colleagues :-)

5. Statistics

 ----------

 by Greg Lloyd (glloyd@frors12.bitnet)

 and

 by Daniele Bovio (hi@frors12.bitnet)

SIZE OF THE NETWORK

Have you ever asked yourself questions like: "How many nodes are there

between my computer center and the node down there in Texas where I

usually send my mail?, 5?, 10?, 20?" Well, the number of "hops" that

your file has to do before reaching the final destination may vary a lot

depending on where you are and to where you are sending, of course, but

today, thanks to a wonderful tool written by David Lippke of the

University of Texas at Dallas called ROUTER, it is possible to find out

in a quick and easy way some interesting figures regarding the average,

maximum, and minimum number of hops that exist in the global NJE

network.

The following table encompasses a 7 year period, starting from 1987:

-------------------------------------------------------------------

 8701 8801 8901 9001 9101 9201 9213

General Statistics -

Number of nodes 1621 2134 2600 2963 3301 3491 3389

Number of links 1625 2191 2684 3126 3679 3940 3872

Hop Statistics -

Network diameter: 22 23 24 22 16 16 15

Minimum average hops: 5.04 5.28 5.09 4.70 3.92 3.91 3.81

Average number of hops: 9.11 9.47 9.39 8.43 7.16 6.92 6.69

Maximum average hops: 16.09 17.06 19.14 15.20 12.13 11.88 10.77

--------------------------------------------------------------------

EARN Core sites -

AEARN Avg hops: 7.14 7.47 7.84 7.02 5.46 4.64 4.41

CEARN Avg hops: 6.15 6.78 6.85 7.02 4.60 4.50 4.41

DEARN Avg hops: 6.15 6.48 6.11 5.26 4.51 4.55 4.41

FRMOP11 Avg hops: 8.03 7.19 7.04 6.21 5.46 4.54 4.35

HEARN Avg hops: 7.10 7.43 6.98 6.19 5.41 4.50 4.39

ICNUCEVM Avg hops: 7.31 7.09 6.97 6.06 4.60 4.47 4.36

SEARN Avg hops: 7.11 7.74 7.79 6.98 5.54 4.65 4.37

TAUNIVM Avg hops: 7.28 9.00 7.00 6.18 5.43 4.52 4.38

UKACRL Avg hops: 7.14 7.78 7.84 7.03 7.58 4.87 4.43

--------------------------------------------------------------------

The Network diameter is the maximum distance that can be found between

two nodes.

The minimum average hops is today (9213) at PUNFSV2. This means that our

colleagues at Princeton University can reach, on the average, any other

network node in 3.81 hops, not bad at all| On the other hand the

colleagues at AROSARIO (in Argentina) still need to travel across 10.77

nodes on the average to reach anybody else. The global average, for any

node, is currently of 6.69 hops. It can be seen clearly that this value

has been decreasing along the years.

This is due to several factors; one in particular has played a major

role: the definition of virtual NJE links over TCP/IP\* lines. Both the

BITNET and the EARN regionalization plans, described in previous issues

of EARNEST, were in fact essentially based on a massive definition of

NJE virtual links over existing TCP/IP networks. One of the major

benefits of the regionalizations is represented by the reduction of the

average value. How this positively affected Europe can be clearly seen

from the second part of the table, where a sharp decrease occurred

during 1991 and 1992, just after the EARN regionalization begun, for all

the European core sites.

Starting from the next issue of EARNEST we will regularly publish the

Minimum, Maximum and Average value of hops of the latest month.

GENERAL OVERVIEW OF DATA COLLECTION

In order to get an objective picture of its network's performance, EARN

has been collecting complete data along four scales for the last five

months. These are: traffic volume, link availability, link file queues

and round trip times (RTTs) for both files and interactive messages.

EARN monitors its traffic volume, network links, file-queues and message

RTTs down to its international level. That is, each member country

subscribed to the EARN Association has designated one international node

that acts as that country's gateway into the international network. A

subset of these international nodes have been selected as the EARN

backbone and make up the EARN Core nodes. The remaining international

nodes are allocated into regions, each region being serviced by a

specific EARN Core node. In addition to collecting figures on the above

three scales that relate solely to its own network, data is also

collected for EARN's transatlantic links with the BITNET network.

File RTTs are measured down to an inter-regional level (across the EARN

backbone). In addition to collecting figures relating solely to its own

international backbone, round trip time figures are also recorded for

EARN's transatlantic links with the BITNET network. These files traverse

a section of the BITNET backbone, cross the Atlantic and enter the EARN

backbone and are subsequently returned to the USA.

TRAFFIC, LINK AVAILABILITY AND QUEUES

This section reports on traffic volumes passing between the EARN network

regions and the performance of all regional network links. Traffic

volume is measured in the total amount of records sent and received

between each network region. Each record may contain up to eighty

characters (bytes) of information. Link performance is measured by the

percentage of time they were available for use and the average size of

file queues on them.

 +------------------------------+------------+

 | Link | Traffic |

 +--------------+---------------+------------+

 | Average | Average | Volume |

 | Availability | Files Queued | (records) |

 +--------------+---------------+------------+

 June | 93.6 (%time) | 13.7 (files) | 437 M |

 July | 91.8 (%time) | 12.7 (files) | 445 M |

 August | 90.6 (%time) | 19.2 (files) | 400 M |

 September | 94.8 (%time) | 11.1 (files) | 420 M |

 October | 94.1 (%time) | 21.9 (files) | n/a |

 +--------------+---------------+------------+

These figures show a reasonably stable percentage of link availability

over the last five months. The August 'holiday' effect may be observed

in the dip in link availability and jump in the file queues figures. It

must also be remembered that this data includes figures for some

international links that operate on a dial-up basis and are therefore

intentionally left disconnected for periods of time. The file queue

figures for October show the effect of saturation over some network

links. These links are isolated cases and in many cases the responsible

parties are planning upgrades to their lines. The traffic volume also

shows the expected 'holiday' reduction but otherwise has continued its

trend of steady growth.

ROUND TRIP TIMES

This section reports on Round Trip Times (RTTs). Two measurements of

Round Trip Time are made on the EARN network: by file and by interactive

message. The file RTTs are designed to approximate the quality of

service (in terms of elapsed time) a user may expect when transferring

files across the network. File RTTs are measured for two different file

sizes; the first is 50 record files (representative of a typical piece

of electronic mail) and the second, 1001 record files (representative of

a medium sized data file). They are measured on an hourly basis.

Interactive message RTTs are designed to approximate the quality of

service (also in terms of elapsed time) a user may expect when talking

to other users or service machines on the network. They are measured

every ten minutes.

 +---------------------+---------------------+------------+

 | 50 Record files | 1001 Record Files | Messages |

 +----------+----------+----------+----------+------------+

 | Average | Overall | Average | Overall | Overall |

 | Minimum | Average | Minimum | Average | Average |

 +----------+----------+----------+----------+------------+

 June | 8 secs | 7m03s | 19 secs | 8m45s | 4.5 secs |

 July | 7 secs | 7m39s | 15 secs | 9m34s | 4.5 secs |

 August | 7 secs | 8m24s | 15 secs | 8m41s | 4.5 secs |

 September | 7 secs | 5m07s | 15 secs | 7m44s | 5.5 secs |

 October | 6 secs | 6m02s | 12 secs | 6m50s | 5.5 secs |

 +----------+----------+----------+----------+------------+

The minimum and average RTT figures show the average fastest and overall

average in time taken for files to be sent out and returned over the

network. The figures show a general downward trend over the reported

period. They may be broadly viewed by the typical end user as

measurements of the average time taken for files sent from anywhere in

the EARN network to reach their final destination node. The overall

average time taken for interactive messages to be sent out to anywhere

on the network and returned to their origin remains constantly low over

the report period.

6. New Nodes and Deleted Nodes in the Network

 ------------------------------------------

 by Hans-Ulrich Giese (u001212@hearn.bitnet)

The following nodes have joined EARN, Bitnet or the other cooperating

networks in November or December 1992. Note that Romania joined EARN in

December.

The new nodes are listed below by country.

For details on any node, you can send mail to any Listserv machine,

eg: listserv@frmop11.bitnet with the line: SHOW NODE nodename

Brazil:

 BRPUCRSM

Columbia:

 UCARTCOL

Italy:

 ICTUNIV

Japan:

 JPNAFFRC

 JPNIUJ00

 JPNKEK

Mexico:

 ANAHUAC

Romania:

 ROEARN

United States:

 ARIZBPA FNLIB SLACSRV3

 AWTIMS JSU SPCVXX

 BPAVMS JSUVM SPRING

 CMIVMS MINA TCU

 DECUSB MISVMS TCUGVMS

 DECUSC PSUECLD UMIAMI1

 DECUSD PSUECLE UMIAMI2

 ECC PSUECLF VMNMIMC

 NIHDCRT6 PSUECLX WCC

A listing of the nodes which have been removed in November and December,

and the new address or the name of a person you can contact to obtain

further information, is given in the files NODES DEL9211 and NODES

DEL9212 available on listserv@frors12.bitnet. To receive the relevant

file send mail to listserv@frors12.bitnet with the line:

 GET NODES DEL92mm (where mm represents the month).

7. Announcing the VMS Store located on BITNET node SEARN

 -----------------------------------------------------

 by Eric Thomas (eric@searn.bitnet)

Are you tired of sluggish FTP\* transfers that time out after you've

waited 15 minutes? Don't you hate wading through 20 screens of unix

packages on archie in the hope of finding the host that has what you are

looking for, only to discover half an hour later that it was a 1988

version? Wouldn't you just love being able to say, "hey, send me a copy

of FOO and let me know whenever it is updated", rather than having to

check newsgroups full of flame threads just so you can know when a new

version is available? If you answered YES to any of these questions, we

think you will like the VMS Store.

WHAT IS THE VMS STORE?

The VMS Store is a repository of public-domain or otherwise free VMS

software which is \*automatically\* updated from its \*official source\*. If

a package is available from the VMS Store, it is the latest version or

it has just been updated and we'll have the latest version within 24h,

barring network failures. And the Store is located on the most reliable

of the EARN core sites - on the same ethernet as the main IP routers in

one of the hub sites of the European IP network.

The VMS Store is targeted to have everything a VMS user might want. Of

course we can't read people's mind and there will probably be things you

would have wanted to order, but which we don't store yet. In that case

all you have to do is tell us what it is and who wrote/maintains it, and

we'll add it to our inventory if the maintainer allows us to. And

remember, once it is in the Store it is automatically kept up to date.

The Store is managed by Listserv (the real one). This means that not

only can you order files or directories of files, but also request

notification of updates - or simply ask the server to automatically ship

you a new copy whenever the file is updated. All packages are stored in

VMSDUMP format so that you can use the files directly after receiving

them: no KLUDGE.C to resurrect savesets, no need to wait 10 minutes for

a VMS\_SHARE extraction or to worry about damaged RMS attributes. Well of

course some people may insist on packaging their software in one unixoid

format or another, and then there's not much we can do about it, but

real VMS files will arrive as genuine VMS files.

USING THE VMS STORE

You access the Store by sending commands to listserv@searn, either via

SEND or via e-mail. The command to order a file is GET, followed by a

directory name and file specification (do not specify any device name).

As usual you can use either square or angle brackets in the directory

name. You can use wildcards to order selected files, but only from a

single sub-directory. For instance, "GET <MX.MX031>\*.\*" is acceptable,

but "GET <000000...>\*.\*" is not, because it would span more than one

directory. Note, however, that the command "GET <000000...>XYZ\*.BCK"

will work IF all the files that match that pattern are in the same

directory. This means that even if you do not remember the exact

directory or fileid, you can still use the GET command as long as you

give a unique pattern.

To order a directory listing, send an INDEX command followed by a

directory name and optional file specification. The listing will be

returned to you in a file called VMSFILE.LIS. Note that there is no

"default directory" - if you say just "INDEX", you will get the regular

Listserv index. So send "INDEX <000000>" to get started, or if you want

a list of all directories, "INDEX <000000...>\*.DIR".

Sometimes you will find a file called "something.PACKAGE" in a

directory. This means that you can order the whole package by just

sending a GET command for that one file. And if you don't remember the

directory, you can always use "<000000...>".

To request notification of updates to a particular file, the command is

FUI ADD (for File Update Information), followed by the directory name

and fileid. If you would rather have a copy shipped to you

automatically, use AFD ADD instead (Automatic File Distribution). You

can get your FUI and AFD lists by sending an "FUI LIST" or "AFD LIST"

command, and you can remove files from these lists with FUI DEL or AFD

DEL followed by the directory name and fileid.

CURRENT RESTRICTIONS

The block counts in directory listings are approximate and usually a bit

higher than the actual size. They are still good enough for estimating

the amount of space you will need.

Unfortunately, the '%' wildcard character is not supported for the time

being, and the messages returned by the AFD and FUI commands are not

particularly attractive. But they do work, and this will be fixed in the

long term.

You must have BITNET connectivity in order to retrieve files, because we

think that using layered kludges on top of regular e-mail to retrieve

large packages is like using a screwdriver as a pry bar. Sure, it will

usually work up to a certain point, but given that we have people out

there who need the screwdriver for what it was meant to do and that we

are the ones who are responsible for any problem with the screwdriver,

we just don't want to let people order files via e-mail. Sorry.

Unfortunately it is not possible to make the files available via

anonymous FTP, as this would require the development of a special FTP

server. Before you start flaming, remember that the whole point of the

exercise is to use BITNET delivery rather than FTP because it is more

convenient and guarantees that the RMS attributes are preserved.

IF THE PACKAGE YPU WANTED IS NOT IN VMS STORE...

...please write to VMS-Store@SEARN and tell us about it. Remember to

tell us where the package is available from and who wrote it (if you

know the author's e-mail address, make sure to tell us!). In principle

we will add all requested packages to the Store, but there are a few

exceptions:

1. We will always contact the author for permission. We will not add

 any package against the author's will.

2. We only want up-to-date software. If for any reason we cannot have

 the software updated automatically, we will not store it. For

 instance if the package is available only from a unix machine with

 one of these multiple-dots filenames, we will not store it. Our daily

 batch jobs can handle most VMS-based FTP servers, but the same is not

 true for unix.

3. While we do have a reasonable amount of disk space (our initial quota

 is 500M), there are things we cannot afford to store because there

 are not enough potential users or because they are just too big. We

 have seen graphics packages which come in 4 savesets of 100M each,

 and we simply cannot store this sort of thing. Anything that big is

 best distributed by tape!

ACKNOWLEDGEMENTS

The VMS Store is a joint effort between the EARN office and the Swedish

University Network (SUNET). SUNET provides the hardware resources and

manpower to maintain and improve the "VMS<->LISTSERV gateway" software

which was developed for this purpose, while EARN takes care of the

administration of the Store itself - registering new products,

contacting their authors, and so on.

8. Server World

 ------------

 by Turgut Kalfaoglu (turgut@frors12.bitnet)

Hello all. There seems to be some confusion about how to subscribe to

files using various servers, so I'd like to start off by talking a bit

about the file subscriptions this time. First of all, there is a big

difference between subscriptions on Listserv versus Trickle\* servers: on

a Listserv, you subscribe to a specific file stored on the server,

whereas on Trickle, you subscribe to an abstract pattern which may match

one or more files.

LISTSERV FILE SUBSCRIPTIONS

In order to subscribe to files, you first need to define a password for

yourself. The file subscriptions are not accepted without a personal

password. So, issue the following command to the server that stores the

file you wish to subscribe to

 PW ADD some\_password

some\_password needs to be something you would remember. This password

will not be visible to anyone but to the postmaster of that server.

Once you get a reply from the server, you can proceed to subscribe to

the files of your choice. Send the following command to the server

 AFD ADD filename filetype PW=some\_password

This command will add the named file to your list of "Automatic File

Distribution". From now on, whenever a new copy of this file is stored

on the server, you will automatically obtain a copy.

To get a list of the files you have an AFD to, you can send an

 AFD LIST

command to the same server. This should provide you with a list of files

you are subscribed to.

TRICKLE FILE SUBSCRIPTIONS

The big difference between the servers comes from the fact that the

files stored on Trickle usually have a trailing number, like "SCAN99B"

that indicates the version of that software. This number changes

periodically, thus if would be useless to subscribe to a file, say

"BIGSORT3", since its name would change next time a new version is

available.

To circumvent this problem, the subscriptions are handled differently:

you subscribe to the first few letters of the filename. When the server

notices new files in its directories, it reads the "patterns" you are

subscribed to, and if there is a match it enters the /PDGET command for

you, for that file.

The "pattern" actually does not contain any "wildcards" in the Unix or

MSDOS sense of the word: it is simply the full directory name, and the

first few letters of the filename. You can give a short filename on

purpose to match several files files in that subdirectory, or even give

a \* instead of a filename to match all files in that subdirectory.

Let's give an example, and try to subscribe to the popular compression

utility, ARJ for MSDOS. So, to subscribe to this file (which is

currently called <MSDOS.ARC-LBR>ARJ230NG.EXE in the archives), you can

send a

 /SUB <MSDOS.ARC-LBR>ARJ

command to a Trickle server. Whenever a file comes to this directory,

that starts with the letters ARJ, you will get a new copy.

Note that if we had sent /SUB <MSDOS.ARC-LBR>ARJ230NG this would have

been useless, as the trailing numbers change with each version.

Finally, if we were interested in every new file in this directory, we

could have sent /SUB <MSDOS.ARC-LBR>\* to the server. The \* is a special

keyword, and it tells the server to send you every file that has

changed.

If you would like more information on file subscriptions, both server's

on-line help devotes a solid chapter to this subject.

SERVER STATISTICS

Each month I try to give you a glimpse of statistics obtained from

various servers. Trickle and Netnews statistics are also available from

listserv@frors12.bitnet, and soon from listserv@earncc.bitnet.

In November 92,

\* The Netnews server at frmop11.bitnet has received (mainly from US)

 about 1 gigabyte of uncompressed news, and forwarded 8 gigabytes of

 information to the other Netnews servers in Europe.

\* The 10 Trickle Servers have delivered 5 gigabytes of data to users,

 and received 1 gigabytes from FTP servers. They processed 63 thousand

 commands, with most users in Germany, followed by Belgium and The

 Netherlands. The most active Trickle is located in Austria, handling

 29% of the load, followed by the server in France, handling 20%.

\* Listserv@frmop11.bitnet, a major hub in the list distribution, has

 received over 70 thousand files, and created over 132 thousand DIST

 jobs.

Take care, and I'll see you in two months.

9. Europe, at least, discovers the users

 --------------------------------------

 by Jack Kessler <kessler@well.sf.ca.us>

 ===

 | | ...The "OSI Seven-Layer Model", as seen by a

 ======= pretty rowdy crowd of networkers, librarians,

 || || 7! and Italian waiters at the banquet of the

 ======= Network Services Conference at Pisa,

 || || 6 November 2-4...

 =======

 || || 5 ..Hey, it was late at night, and we'd all

 ======= worked long and hard, and the food was good,

 || || 4 and there was lots of wine...

 =======

 || || 3

 ======= Conferences in Europe are a little different

 || || 2 from conferences in other places. Ever try to

======= build ten different six-foot towers-of-Pisa out

|| || 1 of place cards, while "O Sole Mio" is crashing

 out from the tables at the back?

The idea of a "Network 'Services' Conference" came to Europe at the

beginning of November. It hasn't arrived in the US or elsewhere, yet,

and in all cases is a bit overdue. There was much of interest for anyone

who loves libraries, books, networked information, or European ways of

looking at things, and for anyone blessed or cursed with the need for

working on a computer.

The Pisa conference brought some leading lights from North American

information networking - Peter Deutsch, creator of "Archie" (not the

comic book, although he carries that with him), and John "Matrix"

Quarterman - together with network leaders from all over Europe, to

discuss what to do about a new topic: the users. There were many

librarians there: most of us were left fascinated, but also shaking our

heads and groaning. It seems that the great amount of work so far done

to help users on the networks leaves much still to be done, in both

Europe and elsewhere.

The conference, sponsored by EARN (European Academic and Research

Network) and a group of several other organizations, attracted 360

participants, from 46 countries, and by all accounts was highly

provocative and successful. Sessions covered "New Global Information

Tools" (World-Wide Web\*, WAIS\*, Gopher\*, Hyper-G\*, Archie\* and the Soft

Pages Project), "Beyond ASCII" (imaging, and ISO standards), "The

Electronic Library" (projects in Israel and France, "The Virtual

Library", Project "PegUn/Janus" at Columbia Uuniersity), "Delivering

Messages to the Desktop", "Central and Eastern Europe", "User Support",

"Special Interest Communities" ("Electronic Pierce", biology, chemistry,

"Human Genome"), "Managing Network Information Services", and

"Information Overload". It was for me a very different European version

of the birthpangs of this technology's application.

Keynote: Peter Deutsch, of "Archie"

The first keynote speaker, Peter Deutsch, delivered a fascinating and

funny talk - speaking at his accustomed rate, described as "56k with no

flow-control" - about the necessity now for "building networks, not just

network links", for "real services, not just projects", and for "not

explaining, but hiding" ftp and the various other user's tools so far

developed. "None ever wanted a 1/4 inch drill bit," he asserted, "they

wanted a 1/4 inch hole." The time has come, he said, to provide real

information on the networks, and not just tools for getting there.

Deutsch distinguished four purposes for existing network tools:

 1) Class Discovery - more tools are needed, he said,

 2) Instance Location (indexing tools) - we have lots now,

 3) Access (ftp, etc.) - lots,

 4) Management of Information (WAIS, 3W/WWW at CERN) - we could

 use some more.

The tools and projects which exist, he said fall into four groups:

 1) Interactive Message Systems (telnet, rlogin, talk, chat,

 MUDD - Multi-User Dangerous Dragons),

 2) Store-and-Forward (e-mail, news),

 3) Information Delivery (anonymous ftp, Gopher, 3W/WWW,

 Prospero, WAIS, ALEX) - the point being now to begin hiding

 these, hide the network, make it transparent, and,

 4) Tools for Finding Things - Peter's "own particular sandbox"

 at the moment, he says, in which he's finding that, "a

 gigabyte no longer is that big of a deal".

But the networks will be "useful only if populated with useful

information", Deutsch said. "Librarians," moreover, "should be running

the networks, not the UNIX weenies." He is concerned about the latter's

penchant for reinventing the wheel first developed by the former. "It's

going to be services," he concluded, "if someone around you starts

talking technology, watch out."

Imaging Projects

Anne Mumford, in "Beyond ASCII", pointed out that the problem with

images arriving now is their use, rather than the more technical

problems of their storage: image users will want to cut and paste,

insert, catalog, index, and change formats, just as they now do with

ASCII, she said. She mentioned CARL's Group 3 fax format journal

project, "CORE - Chemistry On-line Retrieval Experiment" which stores

the page and ASCII and a picture caption index, Northern Telecom's "CGM

- Computer Graphics Metafile" format, and Elsevier's project for issuing

35 imaged journals on cd-rom.

Standards: first round

Borka Jerman-Blazic described the Herculean / Augean effort currently

going in to develop international standards for software. The world has

over 3000 spoken languages, she pointed out, over 100 of these written:

50% use the Latin alphabet, but the other 50% use over 23 different

alphabets, counting only those which have over 1 million users. So users

come to the networks familiar with Latin diacritic and non-diacritic

alphabets, non-Latin alphabets (Cyrillic, Greek), diacritical scripts

(Arabic, Hebrew), and syllabic (Kanna Japanese) and ideographic

(Chinese) written modes of expression. One might just make them all

learn American English, but then again they might not want to, and they

simply might not. ISO 10646, a standard on which she's working,

specifies over 65,000 characters in world languages: she bravely

asserted both that it will accommodate UNICODE, and that conforming

commercial products will begin to appear next year.

The French libraries and ILL

Christine Deschamps delivered an elegant overview, of the vast array of

current events in France. She described their work on a national ILL

"union catalog": SQL request handling, an X.25 ILL system which batches

requests, and a project to develop an "OSI / Interlending OSI Network"

(ISO 10161 and 10162) to connect their effort to similar projects in The

Netherlands and the UK. In document delivery, she mentioned the

now-ended "FOUDRE" project, which used digital scanning and attempted to

capture and store text, as it was scanned, for future digital use: this

ran into both money and copyright problems. A newer "EDIL / Electronic

Document Interchange for Libraries" project, with the UK, Germany, the

Netherlands, and Portugal is proceeding, although there still are

copyright problems, she said.

Users

Jill Foster, one of the Program Committee members, emphasized the PC

background of users, in her presentations on "User Support". She

mentioned the large and expanding work group on User Support, "RARE ISUS

WG", which now draws from many different international groups, and

itself supports user-support work groups in fields as diverse as

cetacean studies, developmental psychiatry, diabetes studies, and marine

technology. An excellent report edited by Foster, which arrived

belatedly after wrestling its way through Italian customs, summarizes

European efforts in the user support area ("User Support and Information

Services in the RARE Community - A Status Report", RARE Technical Report

1, RARE Working Group 3, Subgroup USIS, 1st edition, March, 1992).

Taking a phrase from her countryman, Lorcan Dempsey, Jill reminded the

conference that the networks now, "present users with a flea market,

when what's needed is a department store": user support badly needs some

such network organizing, she said.

User Support at Cornell University

Carole Lambert, from Cornell, described the hard-nosed managerial

analysis to which they subjected their local version of the

"computer-center-versus-library" competition in information provision

which plagues every campus. "We hit the wall," she said, "with a service

that wouldn't scale":

 1) systems consulting services were one-on-one,

 2) classroom training focused on skills rather than on use and

 resources,

 3) documentation was labor-intensive, with limited

 distribution,

 4) accounting went to and not always through a central

 bottleneck.

Their new model, she said, presents a "scalable method of delivery":

they decided to

 1) leverage the technology - use their own computer and

 network technology to develop and disseminate user tools,

 2) leverage the human resources - they build campus

 coalitions, shared solutions, use e-mail and other techniques

 to sustain campus contacts, and "eliminate redundancies"

 (dangerous-sounding term, I think, for cutting out

 duplications).

Most of all though, at Cornell, they are trying to change the attitudes

and expectations of the users: "we want to make independence easier than

dependence," said Lambert, "we teach the users problem diagnosis and

resolution along with traditional user skills...we will be there, but we

want them to rely on themselves more than they rely on us."

Costs - an idea whose time is about to arrive

Thomas Johannsen, originally of Dresden and now of just-north-of-Tokyo,

made a fascinating presentation of "SoftPages", his "distributed

database for fileserver contents" (e.g. Archie, WAIS), which has a

built-in module for computing usage "cost", in terms of "economic

distance" - using speed, tariff, traffic and priority parameters.

Johannsen's presentation struck a chord in the conference: everyone is

getting a new awareness of usage costs, as the "academic test-bed"

history of the networks recedes and the "commercial" age dawns, and you

could see many minds in the audience quickly considering the logistics

of building in similar "costing" modules to other tools, following

Johannsen's suggestion. (The NREN legislation in the US calls for

precisely this sort of new approach: "The Network shall...have

accounting mechanisms which allow users or groups of users to be charged

for their usage of copyrighted materials..." High Performance Computing

Act of 1991. t.1,s.102,c,6.)

A Comprehensive Approach at Columbia Law

Willem Scholten presented Project Janus, Columbia University law

library's effort to

 1) avoid microforms,

 2) bring the library to the user (Manhattan presents critical

 space problems),

 3) adapt to changing patterns of information distribution.

The project involves participation by Thinking Machines Corp., the

university's main and health sciences libraries, the law library, and

the United Nations library human rights collection. One critical goal

was preservation of the law library's unique and rapidly-deteriorating

collections of Nuremberg (375,000 double-sided pages) and Rosenberg

(250,000 double-sided pages) trial documents. Their solution uses a

special "XWAIS", a highly-customized version of the publicly- available

WAIS tool, digitization with ocr, optical and magnetic tape, and Z39.50

and ISO's SR/1, two "Sun Sparc workstation networks", a "Xerox Docutech

7000 scanner and ocr system", and a "CM2-32K Thinking Machines parallel

processing super-computer": all the latest stuff.

Many hands have been in on the project: the law school publishes 13

legal periodicals, for example, and the goal of getting such publishing

costs back in-house is being approached through SGML and e-publishing on

the system. The reference desk is interested in information which has

time value and takes too long to get into print: the system loaded the

North American Free Trade Agreement recently and at last count was

getting 200-250 "hits" per day on that resource, and similar figures

have been achieved for on-line versions of the Maastricht Treaty and the

papers of the Rio Conference on the Environment. One other library

dream, of loading fulltext direct from commercial publishers, also at

least is under discussion with Simon & Schuster: user licences for the

library, based on a flat fee with royalties for downloading.

Closing: John "Matrix" Quarterman - the Global view

John Quarterman began his conference-closing keynote address with the

warning that he wouldn't make predictions - "my crystal ball's kinda

cloudy", he said - and then proceeded to make them. He has put together

a wonderfully-interesting series of maps, all using data taken from

various domain-name registries and servers, showing where all the

network use is taking place in the world (surprising activity patterns

in Iceland, Australia, Moscow, Hong Kong), and suggesting a continuing

rate of usage growth so phenomenal as to be catastrophic for both the

networks and librarians. It seems still that only Quarterman, despite

his good influence exerted since the 1988 publication of his book, "The

Matrix", has the breadth of vision, and the patience, to look at all the

world's information networks - Internet, EARN, BITNET, etc. - as a

whole.

Conclusions? 1 - the impending invasion of the commercial market

The real problem, lurking behind most of the conference talk, is what to

do about the impending invasion of the commercial market. The commercial

publishers are poised to plunge into the little world of academic

networking, we heard again and again. Quarterman showed us a fascinating

map, on which the portion of world network use devoted to "purely

academic" activity - which represented ALL network use a short time ago

- now is small and is shrinking rapidly: "academic use" will become an

insignificant part of networking as a whole, shortly, he asserted.

Conclusions? 2 - "the academic model will not scale"

The problem, then, acknowledged again and again by US and non-US

attendees, is that "the academic model will not scale": as network use

grows, the tools and structures and carefully-developed "standards" -

think of MARC, SGML, ftp, telnet, opac user interfaces, even ASCII -

will not satisfy a non-academic, international, user public: a

despairing conclusion - one which left several librarian-users in the

audience feeling a little abandoned. "Information overload" then,

inevitably, was debated: several people felt that a bad network

situation in this respect is about to get much, much, worse.

Conclusions? 3 - "the academic model had BETTER scale"

Some braver souls, though, insisted that private industry will need some

standards as well: if not necessarily for sharing information easily as

an altruistic goal, as the academic world wants, then at least for

ensuring the compatibility of its own hardware, software, and services

with a particular marketing structure: IBM products and services talking

to each other, Siemens' doing the same, all the components of a local or

wide-are network - serving fulltext newspapers to northern California,

Shakespeare to the entire Ivy League, or Montaigne (or Simenon) to

Touraine - able to communicate among themselves. Private industry will

have to start somewhere in all this, and that beginning may well be made

with at least some of the elaborate tools and standards which have been

assembled by the careful academic community today. Such, at least, is

the hope.

Conclusions? 4 - the Atlantic is a very wide pond

It was very interesting for this American to note the fundamental

difference between the US and the European approaches on the standards

point. Much good work on standards is being done on both sides of the

Atlantic. But the intense preoccupation with standards and

consensus-building in general is markedly different in Europe than it is

in the US. Great levels of bureaucracy, much tedious negotiation, and

great levels of frustration, all are devoted to accomplishing the

smallest point of agreement in Europe, ruled constantly by the

conviction that without some sort of "top-down" agreement, no

"bottom-up" effort will succeed. Not that bureaucracy and haggling don't

take place in the US context; but there seems to be more in Europe, and

it's much more intense, and deemed to be much more necessary. Law

students everywhere learn that Anglo-American law may be built

piecemeal, upon the "Common Law", and upon individual cases, while

Continental law is a seamless web of "codes", which are thought to cover

all conceivable instances. There is this same longing for "codification"

in European networking standards work: piecemeal, such as has

characterized the evolution of the Internet, will not do in Europe

- they need "top-down" codes and standards, before they can proceed

rather than after - a major difference from the US approach. Program

Committee chairman, Dennis Jennings mused about this, pointedly, to the

several US attendees and speakers: "You must remember that you are one,

gigantic, country, while we are by comparison a very large, but still

very disunited, collection of very small countries." It is interesting

to consider whether the US or the European "consensus-model" will more

readily "scale up" to the rapidly-evolving world information Matrix.

"Information Overload"

"Network Services '92", then, came to the conclusion that it may well

become impossible to service the networks during the next few years: too

many, too much, understood and aided by too few. The glass which appears

half empty, however, also is half full. There will be many more users

and many more things to do. Program Committee chairman, Dennis Jennings

also pointed out, however, that the evolution of the telephone was aided

by a paradigm shift: fears early in this century that there never would

be enough telephone operators were answered by the users becoming the

operators themselves. Just so, Jennings insists, a paradigm shift will

occur in networked information. The bottlenecks which exist today - of

costs and hardware capacities and user training and clumsy interfaces -

may be resolved ultimately by similar shifts: "transparent" interfaces,

"invisible" technologies, "paperless" libraries, "hypertext"

organization and access - it's hard to tell what from here, but

something.

A Role for Librarians - the librarian's glass may be half full

One final optimistic note sounded by the conference left the librarians

in the audience feeling smug. Already, no one can FIND anything on the

"nets", and it seems that this problem is not going away: it seems, in

fact, that the entry of the commercial market is about to make the

"navigating" problem much, much, worse. Navigating through information

resources is what librarians do: it's what we've done for centuries. It

is nice to feel needed: it's reassuring to discover how badly we're

going to be needed by the information network users in Europe and

elsewhere during the next few years.

10. The EARN survey - results

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 by Hans Deckers (deck@frors12.bitnet)

During the summer, EARN conducted an experimental survey of end users on

network usage and services. The survey questionnaire was distributed,

collected, and processed electronically. The number of responses to the

survey was smaller than had been hoped for.

At the EARNINFO\* meeting on 1 November 1992 in Pisa Professor Oguz Manas

presented the results of the EARN survey. His staff at Ege University in

Turkey, was responsible for the processing of the questionnaires.

He stated that there were over 1200 completed questionnaires, but as

this was far less than 1% of the total user population which was being

surveyed, this was certainly too few to reach any general conclusions

about EARN users.

In the discussions on individual questions, problems with the phrasing

of some of the questions were pointed out, and some solutions were

proposed. There were several comments indicating that many questions

would have been clearer if there had been more explanation or examples.

Clearly, there is a great need for accurate information on users' wants

and needs. There is discussion within EARN on the need for further

surveys, the proper scope for surveys, and efficient methods of

distribution, collection, and processing.

To get a summary of the survey results, send the command:

 GET SURVEY RESULTS

to: LISTSERV@FRORS12.BITNET

11. NSC'93 The Network Services Conference 1993 in Warsaw, Poland

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 by Hans Deckers (deck@frors12.bitnet)

NSC'93 will take place in Warsaw from 12 through 14 October 1993. The

Organizing and Program Committees, respectively chaired by Frode

Greisen\* and Hans Deckers, started their work. A first announcement and

call for papers will be sent out soon.

A conference mailing list (NSC93@FRORS12.BITNET) has been created.

Subscribers to that list will receive all NSC'93 conference

announcements. Subscribers to the NSC92 list will receive a note asking

them for permission to let EARN staff include them in the new list. Send

the command: SUB NSC93 Your Full Name to listserv@frors12.bitnet

to be added to the conference mailing list.

12. Upcoming events

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Meetings:

 EARN Board of Directors\*

 . 9-10 May 1993 Tromdheim, Norway

 RARE Council of Administration\*

 . 3/4 February 1993 Luxembourg

 . 13/14 May 1993 Trondheim, Norway

Conferences:

 4th Joint European Networking Conference - JENC93

 10-13 May 1993 Trondheim, Norway

 The Network Services Conference 1993 - NSC'93

 organised by EARN in cooperation with

 EUnet/EurOpen, NORDUnet, RARE and RIPE.

 12-14 October 1993 Warsaw, Poland

 IETF

 29 March - 2 April 1993 Columbus, Ohio

 July 1993 Amsterdam, NL

 Interop

 8-12 March 1993 Washington D.C., United States

 23-27 August 1993 San Francisco, United States

 25-29 October 1993 Paris, France

 18-22 March 1994 Washington D.C., United States

 12-16 September 1994 San Francisco, United States

 SHARE

 28 February-5 March 1993 San Francisco, United States

 15-20 August 1993 Washington D.C., United States

 20-25 February 1994 Anaheim, United States

 7-12 August 1994 Boston, United States

 Interim SHARE

 8-11 November 1992 Tampa, United States

 23-26 May 1993 San Antonio, United States

 INET'93

 17-20 August 1993 San Francisco, United States

13. Newsletter information

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 If you would like to receive the EARN Newsletter automatically, send

the command:

 SUBSCRIBE EARNEST First\_name Last\_name

to listserv@frors12.bitnet. To consult the previous issues, send the

command:

 GET EARNEST NEWSLTOC

to listserv@frors12.bitnet. The last issue is also available from

Netserv\* in the file EARNEST NEWSLET, send the command:

 GET EARNEST NEWSLET

to the nearest Netserv; a copy of the last issue is also kept in the

file EARNEST NEWSLET on listserv@frors12.bitnet.

 The EARN Newsletter is available at the RIPE NCC\*, thanks to

Rob Blokzijl from RIPE\*.

 by means of:

 WAIS\* wais.ripe.net

 GOPHER\* gopher.ripe.net

 WWW\* www.ripe.net

 Interactive telnet\* info.ripe.net

 Anonymous ftp\* ftp ftp.ripe.net

 The interactive service also gives the possibility to have documents

returned by E\_mail (for those who don't have ftp).

 The EARN Newsletter is included on the CONCISE\* service, thanks to

Juliana Evans, from the CONCISE helpdesk.

 If you want to retrieve the newsletters from this service by e-mail,

send the commands:

 start

 goto /networks/earn/earnest/issue-#

 info

in a piece of mail to concise@concise.level-7.co.uk, where '#' is the

number of the issue you want.

 For interactive access over X.25 networks dial:

 IXI network address: 2043 3450 3999 15

 Public X.25 address: 2342 3440 0193 15

Using this method, you will find it under NETWORKS (top-level index item

No. 23), then type 493 (for EARN), 495 will lead you to EARNEST and 496

(issue-1) will bring up the document.

14. EARNEST Glossary

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Here is a brief explanation of the items in this newsletter which are

marked with an asterisk (\*):

Anonymous FTP - special username (anonymous) that can be used by any

 user to access and retrieve files on a FTP site; the e-mail

 address is usually used as a password.

Archie - database of all available files on all ftp sites.

BITEARN NODES - table of all the nodes and links in the international

 NJE network (EARN, Bitnet\* and cooperating networks); every

 computer which routes mail in the network must have a copy;

 updated at least once a month.

BITNET - "Because It's Time" NETwork; originally, the academic network

 in the US based on NJE; this term is popularly used to refer

 to the whole international academic NJE network.

Daniele Bovio - Technical staff, EARN Office, France.

CONCISE - COSINE Network's Central Information Service for Europe

Hans Deckers - EARN manager, EARN Office, France

EARN Association - European Academic and Research Network.

EARN Board of Directors - BoD; EARN's legislative body; a representative

 from each EARN member country.

EARN core sites - Main sites in the regions defined in the EARN

 regionalization plan (for details send the command

 GET BOD7 91 to listserv@earncc.bitnet)

EARN Executive Committee - EXEC; EARN's executive body; 7 members

 elected from the EARN BoD;

EARNINFO - EARN permanent group on Information Services

EBONE - European Backbone Network; operates a European core backbone

 between 2 central sites (Amsterdam, Geneva, London,

 Montpellier and Stockholm).

FAL - IBM implementation of the TCI/IP protocol.

Hans-Ulrich Giese - EARN Master Coordinator, University of Nijmengen,

 The Netherlands.

Hyper-G - Project that combines concepts of hypermedia, information

 retrieval systems, and documentation systems.

ITU - International Telecommunication Union.

Gopher - The Internet Gopher is a distributed document delivery service

 that allows a neophyte user to access various types of data

 residing on multiple hosts in a seamless fashion.

Nadine Grange - Technical staff, EARN Office, France.

Frode Greisen - EARN President, UNI-C (Danish Computing Center for

 Research and Education), Copenhagen, Denmark.

FTP - File Transfer Protocol; method for transferring files over TCP/IP.

Jack Kessler - University of California at Berkeley, currently visitor

 at IDATE (Institut de l'Audiovisuel et des Telecommunications

 en Europe), Montpellier, France.

Turgut Kalfaoglu - Technical staff, EARN Office, France.

Listserv - list servers, either "Revised Listserv" by Eric Thomas or

 its derived version by EARN Association.

listserv@earncc.bitnet - Listserv address which hosts the filelist of

 official EARN documents and minutes.

Greg Lloyd - Technical staff, EARN Office, France.

LAN - Local Area Network; network usually located within a campus or a

 company.

Netserv - NETwork SERVer; file server mostly dedicated to the Network

 Management.

NJE - Network Job Entry; a service developed by IBM for reception and

 transmission in a computer network; the basic service

 provided by EARN, Bitnet and their cooperating networks.

NOG - Network Operation Group; technical body which oversees the

 international network; one representative from each EARN

 member country and the EARN staff.

RARE - Reseaux Associes pour la Recherche Europeenne; association of

 European networking organizations.

RARE Council of Administration - CoA; RARE's legislative body.

RIPE - Reseaux IP Europeens; collaborative organization of European

 Internet service providers.

RIPE NCC - RIPE Network Coordination Center; provides network support

 and services for the member organizations.

RPG - Routing Project Group; technical body which worked out the EARN

 regionalization plan.

RSCS - NJE support for IBM/VM operating system.

David Sitman - EARN Documentation Coordinator, Tel Aviv University,

 Israel.

TCP/IP - Transmission Control Protocol / Internet Protocol; constructor

 independent protocol suite developed for communication in a

 computer network.

Eric Thomas - Swedish University Network (SUNET), Kungliga Tekniska

 Hogskolan, Stockholm, Sweden.

Trickle - server that mirrors software archives accessible via FTP and

 caches recently requested files for faster delivery.

UNIX - constructor independent operating system.

VAX/VMS - operating system provided by Digital Equipment with their

 machines.

WAIS - Wide Area Information Server; experiment for automating the

 search and retrieval of many types of electronic information

 over wide area networks.

WWW - World Wide Web; client/server application that allows to retrieve

 and browse documents from various sources: ftp sites,

 newsgroups and other information systems such as Gopher or

 WAIS.

 /Nadine