SUR candidate

please check to see if J. S. Brown of U. C. Irvine, see CBIGMEMLIST,
can be added to the SUR group, and send him a packet of SUR notes
to date with an index. Brown is conducting research under ARPA
funding
on understanding natural language student input to a computer based
  instruction system assuming that the discourse is limited to a
specific
domain of interest. The two experimental areas of interest are
electri onic circuits and geometry.   1

16671 Distribution
   Marcia Lynn Keeney,

SUR candidate

(J16671)   17-MAY-73 06:54;   Title: Author(s): Thomas O'Sullivan/TO;
Distribution: /MLK; Sub-Collections: NIC; Clerk: TO;

Default Fonts for Output Device COM

In the process of cleaning up the implementation of Ouput Device COM
I became aware of a change which occurred some time ago in the way
the Courier font is handled which affects all the OP default fonts.
Initially Courier was a mono-space only font, and the default font
was chosen to be 10p,Courier because of its similarity to the LPT
type face.   Subsequently Courier has been converted into a mono- or
proportionally-spaced font, and the default for 10p Courier is
proportionally-spaced, a change from the original specs.   It is my
feeling that the default fonts should be changed to 10p,Courier,Mono
so that unless other fonts are specified, COM output will look very
similar to TTY or LPT output -- particularly as regards tabular data.
If anyone disagrees with this, please let me know, otherwise I will
go ahead with the changes.   -- Walt   1

16672 Distribution
    Jeanne B. North, Walt Bass, N. Dean Meyer, Douglas C. Engelbart,
    Richard W. Watson, Dirk H. Van Nouhuys, James C. Norton, Marilyn F.
    Auerbach,

Default Fonts for Output Device COM

(J16672)   17-MAY-73 10:01;   Title: Author(s): Walt Bass/WLB;
Distribution: /COM; Sub-Collections: SRI-ARC COM; Clerk: WLB;

Experimental Output Processor is Ready for You

Dean,
The changes to the XOP which we've been talking about are complete
and, for the most part, tested and debugged. Any time you want to
start testing it against your files you can do "Output Device
Experimental ..." There may be transients caused by my bringing up
new XOPs, so if something crashes, check with me to see if I'm in the
middle of debugging a new one. If you could prepare a brief guide to
these changes for people who have used the old OD COM, it would
probably be helpful. The new Tabstops directive works as follows:
 -- printer tabs as indicated, COM tabs computed
   as (t-1)*xpc where t is the printer tabstop, xpc is the x-width of
   SP in the current BFont.
.TabStops=6,11,16,21(500,1000,1500,2000); -- obvious
.TabStops=(500,1000,1500,2000); -- ignored except for COM
M
Let me know if you uncover any bugs.   -- Walt   1

16673 Distribution
   N. Dean Meyer,

Experimental Output Processor is Ready for You

(J16673)   17-MAY-73 16:55;   Title: Author(s): Walt Bass/WLB;
Distribution: /NDM; Sub-Collections: SRI-ARC; Clerk: WLB;

New Experimental Output Processor

A new experimental Output Processor has been brought up with many
changes affecting COM users only. The way of specifying X and Y
measurements (margin settings, etc.) has been completely changed
(Dean or I can supply details), and old COM files will not work
properly with the new Exp. OP. Dean is in the process of updating
all these old files, and, unless something comes up before then, the
Exp. OP will be made the running OP on Monday. We think the changes
that have been made will prove more than worth the slight
inconvenience involved -- if you have any grounds for disagreement,
please make them known. -- Walt   1

16674 Distribution

Jeanne B. North, Walt Bass, N. Dean Meyer, Douglas C. Engelbart,
Richard W. Watson, Dirk H. Van Nouhuys, James C. Norton, Marilyn F.
Auerbach,

New Experimental Output Processor

(J16674)   17-MAY-73 17:02;   Title: Author(s): Walt Bass/WLB;
Distribution: /COM; Sub-Collections: SRI-ARC COM; Clerk: WLB;

Don McLaughlin: Answer to 16662

I am interested in meeting anyone who is considered for a programming
job. I don't believe I met Don before. Perhaps I could be present
in a group discussion, lunch, etc. or if no more group things are
planned, I would like to have 15 minutes scheduled with him. Thanks
for your message.   1

16675 Distribution
  Paul Rech,

Don McLaughlin: Answer to 16662

(J16675)   18-MAY-73 09:33;   Title: Author(s): Diane S. Kaye/DSK;
Distribution: /PR; Sub-Collections: SRI-ARC; Clerk: DSK;

thank you note from frank

marilyn thanks a lot ffor a super fine course,it was interesting   1

16676 Distribution
   Marilyn F. Auerbach,

1

thank you note from frank

(J16676)   18-MAY-73 12:51;   Title: Author(s): Guest O. ARC/ARCG;
Distribution: /MFA; Sub-Collections: SRI-ARC; Clerk: ARCG;

frank s washington report

we have found a new way to communicate now. went to races again   1

16677 Distribution
Linda L. Lane,

frank s washington report

(J16677)   18-MAY-73 08:18;   Title: Author(s): Frank E. Owens/FEO;
Distribution: /LLL; Sub-Collections: NIC; Clerk: FEO;

Exegesis of Walden Memo as Naming Example

Peter-

Thanks for voicing in (16663,) your questions re (16464,). I see that
it sounded as though I had some criticism of Dave Walden's memo.
Rather the memo was an actual example used to illustrate the various
factors complicating the establishment of workable procedures for
naming. The points I meant to make in the example of Dave's
unexceptionable memo were: 1

  1. The possible variations of names are myriad.   1a

  2. Tables of cross-references and standard usage are desirable for
  all these variations, to indicate "official" names for various
  Network uses, mail, NIC Journal, sendmessage, employer group,
  computer common name, computer address, and on and on. e.g.   1b

    Walden's U.S. Mail address is BBN   1b1

    His sendmessage address as seen here at NIC is BBN-TENEX   1b2

      (For many weeks the address for Murray at CCA was printed on
      receipt at NIC as HGM@CCA, but sendmessage to that address
      was undeliverable. The system only recognized HGM@37.)   1b2a

      (I still have in my directory rejected mail addressed in
      ignorance to JI@MITRE-TIP and to ISELI@MITRE-TIP.)   1b2b

    There is a group named BBN-TENEX, but Walden is not in it, he
    is in BBN-NET.   1b3

      (A sendmessage received at NIC today was from "Nancy Neigus
      at BBN-TENEX at BBN-TESTIP"; Nancy is in BBN-NET group.)   1b3a

    Dave refers to the PDP-1D, but in its address it is to have the
    form BBN-PDP1, which is not the only intuitive possibility.   1b4

    In some cases, erroneous site ident information has been
    published through misinformation from the site about the octal
    vs. decimal site number.   1b5

  3. Changes must be provided for.   1c

  4. Various people have jurisdiction over various records, and a
  correlation and instruction, such as Dave sent, is desirable and
  unusual. A formal requirement and channel for provision of this
  information is desirable.   1d

16679 Distribution
    Richard W. Watson, Elizabeth J. (Jake) Feinler, L. Peter Deutsch,
    Charles H. Irby, Michael D. Kudlick, James E. (Jim) White, Nancy J.
    Neigus, Alex A. McKenzie,

Exegesis of Walden Memo as Naming Example

(J16679) 18-MAY-73 11:08; Title: Author(s): Jeanne B. North/JBN;
Distribution: /RWW JAKE LPD CHI MDK JEW NJN AAM; Sub-Collections: NIC
ARC ; Clerk: JBN;
Origin: <NORTH>EXAMPCLAR.NLS;2, 18-MAY-73 10:26 JBN ;

Novice — Expert Group

I am very interested in the Novice — Expert Group discussions and
would like to sit-in on the meetings if possible. I would be willing
to stay out of discussions and only observe.   1

16680 Distribution
    Michael D. Kudlick, Diane S. Kaye,

Novice — Expert Group

(J16680)   17-MAY-73 19:34;   Title: Author(s): Kirk E. Kelley/KIRK;
Distribution: /MDK DSK; Sub-Collections: SRI-ARC; Clerk: KIRK;

NIC Account Directory

from John Kohl
usaf afdsc/sfp
(202) 697-2723 ident jek:
Please assign the Air Force Data Services Center a directory.   DIR
NAME = AFDSC   PSWD = HRP.   Users   JEK   others later.   1

16681 Distribution
    Michael D. Kudlick, John E. Kohl,

(J16681)   18-MAY-73 13:14;   Title: Author(s): Michael D. Kudlick/MDK;
Distribution: /MDK JEK; Sub-Collections: SRI-ARC; Clerk: MDK;

I have received comments from a number of people on the latest draft
of the File Transfer Protocol which I sent to you several weeks ago.
Most of these comments were small points that corrected minor but
irritating inconsistencies. (E.g. Are command codes alphabetic or
alphanumeric characters? Both were mentioned and even on the same
page.   Alphabetic was chosen.) The document was amended as
requested.   1

There were, however, some larger issues which I will mention here.
These are either sections that were unclear enough to potentially
cause confusion in implementors who had not been to all the FTP
meetings, or philosophical questions that I do not feel free or
inclined to decide myself. They follow in no particular order.   2

1.   3

The definition of Carriage Control format neglected to mention the
relation of these characters to end of line and end of record. The
printer process must be able to tell when it reaches the end of a
line or record so it can find the first character of the next line
- record. However, the ASA controls override any format effectors
that may have been used to indicate end of line or any standard
procedures for printing records.   3a

2.   4

It appears that there is confusion about the role of the Go Ahead
(GA) as defined in the new TELNET spec. It was created for
halfduplex terminal control as a signal to turn around the line;
sites may negotiate not to use it. In the FTP document I allowed
it to be used to signify end of a command line or reply code over
the TELNET connection. In particualr I thought it would be a more
elegant solution to the multi-line reply code problem. There were
objections to this from hosts that use it for a special purpose,
and, in addition, the old defintions must remain for those sites
that negotiate not to use the GA. Therefore I think I will remove
any overt references to it, and state instead that the procedures
used over the TELNET connection follow the specifications of the
TELNET document.   4a

It is my feeling that the FTP should not be more restrictive than
the TELNET Protocol. Since FTP is explicitly built on top of
TELNET any liberties inherent in the latter should be passed on.   4b

An additonal question is whether the allowances of the TELNET
connection should apply to the data connection as well. For
example, if two sites negotiate to talk in EBCDIC (when this
option is defined) over the TELNET connection using the NL
character to define end of line (if this is the way the option is

defined), can the same NL character be used to denote end of line
for a non-record-structured file transfer in EBCDIC? The question
then is: do we want a single standard end Of line convention for
transfer over the data connection, which would be the NVT-ASCII
default, CRLF, or should whichever conventions are used on the
TELNET connection to indicate end-of-line be allowed on the data
connection? Currently we are defining CRLF and NL to be the ASCII
and EBCDIC end of line characters, respectively.   4c

3.   5

Ed Taft from Harvard brought up the problem of fixed server
sockets again. It was my impression from the meeting that the
majority of participants was in favor of the fixed sockets. Ed
has some new comments on it, and I quote his letter here: 5a

"As you may recall, one reservation I had at the meeting
was with the concept of a default server socket for data
transfer (S+2 for input and S+3 for output, where S is the
Telnet input socket).   In our system, there is no way for
the FTP server to be guaranteed that these sockets will, in
fact, be free.   However, I withdrew my objection when Bob
Clements suggested that I change our NCP to reserve a block of
sockets for any process that has one of those sockets
allocated to it. (Apparently, TENEX reserves 64 or 128
sockets for exclusive use by a particular process).   5a1

Unfortunately, this does not solve our problem either. In
our FTP server implementation, the process controlling the
Telnet connections is different from the one performing the
data transfers. The server control job, which has control
of the Telnet connections, logs in a subjob over a
pseudo-teletype in response to a USER command, issues
appropriate IMPCOM and COPY commands in response to RETR,
STOR, etc., thereby making use of existing software to do
most of the work (rather than duplicating access control
mechanisms and the like inside the FTP server program).
Thus, if the block of sockets surrounding the server TELNET
sockets were to be reserved to the control job, they would be
inaccessible to the subjob doing the data transfer.   5a2

The problem is not insurmountable.   The control job
could assign itself the appropriate data sockets (S+2 and
S+3) and then reassign these sockets to the subjob, in our
system. However, I find this solution to be kludgey at best
and would rather avoid it.   5a3

I would therefore like to suggest that the concept of a
default server data socket be eliminated and make the SOCK

2

server reply mandatory, as is the case in the current
protocol.   I would argue that the host-host protocol
carefully avoids putting any restrictions on how hosts
allocate their sockets or what significance is placed on
socket numbers (except for the low order bit, which
specifies direction of data transfer). The File Transfer
Protocol has no business specifying the use of particular
socket numbers such as S+2 and S+3, in my opinion."   5a4

4.   6

Finally I would like to suggest that people look at John Day's NIC
Journal item (NIC# 15750) "Yet Another..." as a radically
different view of FTP.   6a

I hope that you will send your reactions to this note to me as soon
as possible. In addition I would appreciate your thinking about an
implementation schedule (when the new version should be accepted and
when the old must die) and sending me your suggestions.   7

I hope to have the next, and hopefully final version, in the mail
by the first of June.   7a

Thanks very much.   Nancy   8

16682 Distribution
    Kenneth T. Pogran, James M. Pepin, John D. Day, Robert G. Merryman,
    James E. (Jim) White, Michael D. Kudlick, Alex A. McKenzie, Michael
    A. Padlipsky, Bradley A. Reussow,

FTP

(J16682) 18-MAY-73 13:49;   Title: Author(s): Nancy J. Neigus/NJN;
Distribution: /KP JMP DAY RGM JEW MDK AAM MAP BAR; Sub-Collections: NIC;
Clerk: NJN;
Origin: <BBN-NET>ISSUES.NLS;3, 18-MAY-73 13:45 NJN ;

xxyyzz

This is a sample message   1

16683 Distribution
    Schuyler Stevenson,

xxyyzz

(J16683)   18-MAY-73 15:05;   Title: Author(s): Schuyler Stevenson/SS;
Distribution: /SS; Sub-Collections: NIC; Clerk: SS;

Mike Plesset will be at ARC Next Friday.

Jim Norton ask ed Mike Plesset to pu t off his visist becaue of the
presure of getting off a proposal for more money and the visist of
Russel from the Vela Office. Plesset will be here at 10:00 next
Friday the 25. This message is most of all a tickler that Bob Wing
would like to see him first, at 10:00 if possible.
The TNLS Class in Boston is set up for two two-day casses beginning
June 18 with Friday for advaned students.
This meessage illustrates how message leads to bad writing.   1

16684 Distribution
    Michael D. Kudlick, James C. Norton,

Mike Plesset will be at ARC Next Friday.

(J16684)   18-MAY-73 16:12;   Title: Author(s): Dirk H. Van
Nouhuys/DVN; Distribution: /MDK JCN(fyi); Sub-Collections: SRI-ARC;
Clerk: DVN;

A Useful Example for Insequen

Yesterday David Russell, a manager paralell with Larry Roberts in
ARPA visisted here. We moved a TECO file having to do wit his
administrative planning from ISI. That file appears as
<ARPA>Task.TXT;1. We converted it to an NLS file, (arpa, tasks,) vie
insert sequential. Today I converted it again via your insequen
program to be (vanNouhuys,vela,).   1

Your program workd well. It did leave one-line statements and a few
of the dates were out of line. If you want a file to polish insequens
against, <arpa>task.txt is a good, realistic example.   2

His program would like to handle docmentation like this in NLS and
would like to be able to move it back and forth from TECO files.   3

16685 Distribution
N. Dean Meyer, David C. Russell, Richard W. Watson,

A Useful Example for Insequen

(J16685) 18-MAY-73 16:40; Title: Author(s): Dirk H. Van Nouhuys/DVN; Distribution: /NDM DCR2(for your information) RWW(fyi); Sub-Collections: DPCS SRI-ARC; Clerk: DVN;

Things we Should Talk about on Monday

"Two and you're out"...I'll let you wnder abou that one.   1

The favorite Operator candidate seems to have disappeared. Kirk has
expresed interest. He has talked to Smokey and they are thinking it
over.   2

Elizabeth would like to go to Rome to see the forms in action.   3

What is the state of planning training at the ARPA office? (the
traing schedule in the next couple of months is getting heavey.).   4

We should have a DEX 1.5 course. Kirk could teach it. (not if her
were operator).   5

16686 Distribution
    James C. Norton,

Things we Should Talk about on Monday

(J16686)   18-MAY-73 16:51;   Title: Author(s): Dirk H. Van Nouhuys/DVN;
Distribution: /JCN; Sub-Collections: COM; Clerk: DVN;

Request to Change JDRT Group Membership

Dick -- Please replace your ident in JDRT's membership with CHI's,
and dispose of yourself as coordinator. I've added you to JDDT.
Thanks. --Jim   1

16687 Distribution
    Richard W. Watson,

Request to Change JDRT Group Membership

(J16687)   18-MAY-73 16:43;   Title: Author(s): James E. (Jim)
White/JEW; Distribution: /RWW; Sub-Collections: SRI-ARC; Clerk: JEW;

There will be no meeting of the Journal Design Team next Tuesday (May
22nd); I'll be in Boston.   --Jim

16688 Distribution
    James E. (Jim) White, Richard W. Watson, J. D. Hopper, Diane S. Kaye,
    Walt Bass, L. Peter Deutsch,

Re: (,16672) Default forced Mono

I disagree with your making the default font Courier Mono. While it
is worhtwhile to set up a default as close to the line printer as
possible, I feel that that is a sacrifice no worth making. If
someone wants line printer output, they can do it on the lineprinter.
If you make the default forced Mono, one couldn't just do a
Face=TimesRoman and get what was expected (proportional spacing). If
you still want to make that change, please give me a chance to
present more arguments.   1

16689 Distribution
    Jeanne B. North, Walt Bass, N. Dean Meyer, Douglas C. Engelbart,
    Richard W. Watson, Dirk H. Van Nouhuys, James C. Norton, Marilyn F.
    Auerbach,

Re: (,16672) Default forced Mono

(J16689)   18-MAY-73 15:41;   Title: Author(s): N. Dean Meyer/NDM;
Distribution: /COM; Sub-Collections: SRI-ARC COM; Clerk: NDM;

Comment from Sylvan Rubin on SCHOLAR not really needing an author
language, cf(16273,5a)

Sylvan Rubin brought to my attention the passage (16273,5a) and gave
me some good information that made "out of date" (or purely
erroneous) that statement.   This was a contact report on a visit by
Sylia Mayer of ESD, and quoted her that "SCHOLAR needs development of
an 'author language'."   1

Sylvan says that the machinery that runs SCHOLAR could easily be
adapted so that it could accept statements from an "author", parsing
and massaging it with the same processes used for dealing with a
student's input, except here adding to or modifying the data
structure from which the tutoring would later be done.   2

Sylvan says that he asked Jaime Carbonnell (BBN's developer of
SCHOLAR) about this possibility about a year ago; Jaime said that he
appreciated this possibility, that its implementation would indeed be
relatively straightforward, and that implementing it was one of the
items on his stack of things to do for/about SCHOLAR.   3

Sylvan showed me a progress report (IPO Project 072531-002, 29 Oct
69, already in our XDOC -- 4440,) by him, entitled "Educable Programs
for Computer-Aided Instruction and General Information Retrieval."
In this project they were working on a CAI processor much along the
lines of SCHOLAR (except, as Sylvan points out, at a considerable
difference in funding support); in this project he had pictured this
same approach to provide "author support," and had deemed it
relatively easy to provide once the tutoring part was implemented.   4

16690 Distribution
    David R. Brown,

Comment from Sylvan Rubin on SCHOLAR not really needing an author
language, cf(16273,5a)

(J16690) 18-MAY-73 17:26;   Title: Author(s): Douglas C. Engelbart/DCE
; Distribution: /drb ; Sub-Collections: SRI-ARC; Clerk: DCE   ;

Notes and references from Sylvan Rubin on the CAI language, PILOT

I had asked Sylvan for any documents that could supplement our XDOC
files on CAI languages. He brought the following: 1

    Sylvan Rubin, "Criteria for a Programming Language for
    Computer-Aided Education," July 1972 (an SRI memo) XDOC(12755,)   1a

    Sylvan Rubin, "PILOT 73 -- A Simple Conversational Language," 9
    Feb 73 (an SRI memo) XDOC(15584,)   1b

    Sylvan Rubin, "PILOT 73," (The "manual" for using this language),
    16 Feb 73 (an SRI memo) XDOC(15585,)   1c

PILOT 73 is a modified version of the PILOT language developed at UC
Berkeley to run on a 940. The language was standardized in Jan 73 by
a group of users of PILOT, as the "next generation", seeking a
standardization that would facilitate the exchange of CAI programs
among the group. Sylvan's latest translator runs in TYMSHARE and is
writen in Super BASIC. It does a one-pass compilation before
startup, but essentially runs as an interpreter. Another version is
now running on the PDP-11, which does a more extensive compilation,
actually producing an object version to store on the disk and run at
runtime.   2

Dean Brown is maintaining a list of the installations that run PILOT
(or PILOT 73); apparently there are something like 20 such, including
the UC Medical School (heavy users, early pioneers), Suppes group at
Stanford, Dartmouth, etc. John Ball of MITRE told Sylvan that they
had decided to use PILOT 73 on the Comunity Services System being
installed for the community of Reston, Va. (TICCET??) -- this CAI
facility would be but one of the "community services". The
California State College Network may have it installed, too.   3

I recalled that at one time we had installed the early version of
PILOT on our 940, and agreed to let Dean Brown have computer time so
that he could experiment with writing CAI programs -- with the
provision that he practice on programs that would teach people how to
use our system. Dean didn't have time to follow through; but I
played around a bit with PILOT anyway.   4

Sylvan says that Abe Waksman had used an earlier version of PILOT to
build a program for teaching people how to write CAI programs using
PILOT. The system could switch back and forth between standard
concept-teaching and a "trying out of lesson-material PILOT segments"
-- i.e., the system would switch to execute the student's trial
programs, and then back to running the teachig program to teach him
some more about PILOT. Sylvan said that this adaptation turned out
to be very easy to implement.   5

    He says that the "command file capability" in TYMSHARE makes it

extremely easy to pop a student back and forth between an
execution mode in BASIC, for instance, and the tutoring mode under
PILOT. (The basic nature of this facility is, as he puts it, to
be able to have sub-systems with functional recursion.)   5a

Comments: 6

 Obviously we will want someday to have similar facility for
teaching NLS.   6a

 I have been experimenting with an L10 user program that would
interpret NLS-file text and run a very simple sort of CAI
language. From that experience, and my earlier experiments with
PILOT, I am quite certain that a PILOT 73 interpreter for NLS
files, written as a user program in L10/NLS, would be relatively
straightforward to implement. PILOT 73 seems to be effective
enough to be able to write quite adequate CAI processes that could
help our user training considerably.   6b

16691 Distribution
David R. Brown,

Notes and references from Sylvan Rubin on the CAI language, PILOT

(J16691) 18-MAY-73 17:28;   Title: Author(s): Douglas C. Engelbart/DCE
; Distribution: /drb ; Sub-Collections: SRI-ARC; Clerk: DCE ;

Call for Contributions to the Quarterly Managemnt Report

It's quarterly managemnt report time again.
The attached draft, based on the previous report (journal,15290,),
shows headings for major accomplishments with an ident in square
brackets. Would the owner of the ident please report major
accomplishments in that area if any.   1

Note also empty branches describing our plans and our problems.
Please contribute to them as you see fit.   2

On Monday Kay Byrd will bring each contributer a copy of this
journal item with blank pages in appropriate places. Please write
your accomplishments, prolems, and plans on the blank pages and
return them to Kay by 5/24.   3

ARPA Order Number: - Program: -   4

Title: Network Information Center and Augmentation System
Development   4a

Contractor: Augmentation Research Center, Stanford Research
Institute   4b

Date of Contract: 10 May 1972   4c

Amount of Contract: $2,270,000   4d

Contract Number: F30602-72-C-0313   4e

Principal Investigator: Dr. Douglas C. Engelbart, phone (415)
326-6200, ext. 2220   4f

Contract Expiration Date: 10 February 1974   4g

I   RESEARCH PROGRAM AND PLAN   5

As per our proposal and contract, work is progressing in the
following areas: 5a

Developing Service Functions for: 5a1

External users - the Network Information Center (NIC)   5a1a

Internal users - prototype systems such as: 5a1b

Dialog Support System (DSS)   5a1b1

Documentation Production and Control System (DPCS)   5a1b2

Software Engineering Augmentation System (SEAS)   5a1b3

Dialog Support System (DSS)[CHI]   6b

Software Development[RWW]   6c

Preparation for Workshop Utility[JCN]   6d

IV   FISCAL STATUS[JCN]   8

V   ACTION REQUIRED BY THE GOVERNMENT[JCN]   9

VII ARC Journal References   11

  (Ref14798) Michael D. Kudlick, "NWG/RFC 469 #1 Network Mail
           Meeting Summary", 8-MAR-73.   [Cited in 3A3:(14798,)]   11a

  (Ref14165) Richard W. Watson, "NLS in MPS Conversion Planning
           Framework", 2-FEB-73.   [Cited in 3C1:(14165,)]   11b

  (Ref14164) Richard W. Watson, "Analysis-Development Tasks other
           than for MPS Conversion", 9-FEB-73.   [Cited in
           3C1:(14164,)]   11c

  (Ref14710) Harvey G. Lehtman, "DEX: Plans and Progress Report",
           22-FEB-73.   [Cited in 3C2:(14710,)]   11d

  (Ref14108) H. Charles Irby, "Faster literal collection for TNLS",
           28-JAN-73.   [Cited in 3C5:(14108,)]   11e

  (Ref15240) James C. Norton, "Notes From the SRI/Tymshare meeting
           in Cupertino 3/21", 22-MAR-73.   [Cited in
           3D1:(15240,)]   11f

  (Ref15241) James C. Norton, "Proposed Workshop Utility Brief ARC
           Job Descriptions", 22-MAR-73.   [Cited in 3D2:(15241,)]   11g

  (Ref14137) James C. Norton, "Request to ARPA for Approval of
           Proposed SRI-ARC Use of the USC-ISI PDP-10", 30-JAN-73.
           [Cited in 4A:(14137,)]

                                                                      11h

Approved by:

D. C. Engelbart, Principal Investigator

                                                                      12

16692 Distribution
  James C. Norton, Richard W. Watson, Charles H. Irby, Michael D.
  Kudlick, Kay F. Byrd,

Call for Contributions to the Quarterly Managemnt Report

(J16692) 18-MAY-73 17:18;   Title: Author(s): Dirk H. Van Nouhuys/DVN;
Distribution: /JCN RWW CHI MDK KFB(please note your part described in
statement three); Sub-Collections: SRI-ARC; Clerk: DVN;
Origin: <VANNOUHUYS>QMR.NLS;1, 18-MAY-73 17:15 DVN ;

I have three suggestions for detecting the loss of messages by the
communications subsystem. The first of these is perhaps the more
powerful and simpler to implement since it use no new concepts and
has the power to retransmit the message detected as lost.   1

The first scheme: 2

  If upon sending a message the host saved a copy of that message
  and waited until either: 2a

    a RFNM was returned, in which case everything is ok and the
    next message is processed;   2a1

    a INCOMPLETE TRANSMISSION is returned, in which case the copy
    of the message is retransmitted (this could be a loop so put a
    finite upper bound on the number of times to retransmit the
    same message)   2a2

    a DESTINATION DEAD is returned, in which case mark the
    destination down and require the exchange of reset commands
    before further communication is allowed;   2a3

    something else is received indicating an error in the network
    or local IMP, in which case at least log the error, and
    probably close the conversation.   2a4

  Following the above proceedures either on a per host basis or a
  per link basis should prevent a lost message problem from
  developing.   2b

The second scheme: 3

  If a on a per host basis message numbers are included in the host
  to host header of messages, and messages are delivered in order
  (this is currently the case in the network, execpt for priority
  messages so this proposal requires that each host either send
  everything as priority or nothing as priority) then each receiving
  host can detect a missing message by comparing the message number
  of the received message with the previously received message.   3a

    On exchanging resets the sequence numbers between that pair of
    host is set to zero.   3a1

    Each time a message is sent the current send message number is
    entered int a field in the message header, and the current send
    message number is incremented (modulo N, say N=256).   3a2

    Each time a message is received the message number from the

1

message header is compared to the current receive message
number and: 3a3

    if the received message is the expected one then the message
    is accepable and the current receive message number is
    incremented (modulo N);   3a3a

    if the received message is not the expected one then a
    message has been lost.   3a3b

What to do when a missing message is detected is not clear, but at
least it can be logged and reported to the network control center.
A missing message may not be fatal to an interactive conversation,
but it is critical in a file transfer, thus i suggest that missing
messages which are not recovered be cause to close the
conversation.   3b

The third scheme: 4

Host to host acknowledgements could be required. Such an
acknowledgement scheme could be implemented similarly to the IMP
to IMP scheme. This is a serious change to the current protocols
so i will not elaborate on it here, feeling that deeper study will
be necessary to fully specify a reasonable host to host
acknowledgement strategy.   4a

Of these three suggestions the first is the most immeadiately
practical and implementable; in fact several host all ready do this.
These schemes also are non-conflicting, they could be implemented and
used simultaneously.   5

16693 Distribution
   Marcia Lynn Keeney, Jeanne B. North,

Tables of Data

I have made another pass at some of the handbook/resource notebook
tables. They now live in <FEINLER>MITRE-HDBK. Take a look at them
for format and organization. I have changed a few things and juggled
a little to get them to fit and also be suitable for query. This is
just a first pass subject to revision, negotiation, discussion, etc.,
etc. Take a look at them and see what you think. I'll talk to you
when I get to   1

1

16694 Distribution
   Susan S. Poh,

Addendum to previous message

Whoops, lost the end off of that message. To continue, I'll call you
from Boston. Regards. JAKE   1

1

16695 Distribution
  Susan S. Poh,

A note on the CALL/RETURN mechanisms of MPS

This note solicits information re the statistical distribution of
various flavors of CALL/RETURN mechanisms as employed by MPS for use
in one possible optimization for the MPS compiler.

A note on the CALL/RETURN mechanisms of MPS

??? on procedure calls and returns.   1

> Experience with several implementation languages suggests that the
> utility of any implementation system depends somewhat on how
> suitable the system is for addressing the tasks at hand. Last
> Friday, Jim Mitchell proposed a fairly elegant and generalized
> call/return scheme using records which are allocated on the "heap"
> and are returned to the "heap" at the appropriate times. Such a
> scheme appears to handle the general problems of return records of
> unknown (at compile time) length and call/return problems of
> coroutines and ports. The question that keeps nagging me is
> whether or not emphasis should be placed upon really streamlining
> the truly common (conjecture) call/return problems as well.   1a

> The question I'm raising is one of the "peephole" optimization
> variety for the MPS compiler, but I'd like to record the thought
> while it occurs. Does anyone have any information on the
> statistical distribution of different types of calls and returns
> actually utilized in implementation languages like MPS? Could we
> use Superwatch to tell us what percentage of procedure calls have
> 0 arguments, 1 argument, etc., and the same sort of information
> for returns as well.   1b

> I don't expect that such information is of crucial importance
> today, but it might be nice to know to help plan the sort of
> optimizations that a reasonable MPS compiler should consider.   1c

> What do you think?   1d

16696 Distribution
    Charles H. Irby, Charles F. Dornbush, James G. Mitchell, William H.
    Paxton, L. Peter Deutsch, Donald C. (Smokey) Wallace, Ed H.
    Satterthwaite, Walt Bass, Don I. Andrews, Paul Rech,

First Impressions of the TNLS Calculator

I had the chance last week to try out the calculator on some real
data of interest to me from TNLS.   A couple of comments and
questions: 1

  1. It seemed very natural and easy to use after a half hour or
so of going through all the options in the user guide.   New
users familiar with the syntax of NLS should have no trouble
in picking it up.   1a

  2. The r[eplace] s[tatement] didn't seem to work.   I was
trying to replace a statement that only had a space in
it--could this cause the problem...When I would type the s, it
would echo a ?   1b

  3. Is there any direct way to see the contents of the CALC
file without leaving the calculator?   I found that after a
number of calculations using different files (and after
stumbling and recovering a couple of times) that when I said
w[rite file] I had some strange numbers in the file...strange
in the since that I didn't have what I thought I would.   After
a while I would do a quit return, load the calc file and print
it out before doing a write file command.   1c

  4. I can see (even with my limited experience) the need for an
add column command and an add statement command.   Are there
any plans for these?   Would it simplify the software if the
user was required to give the addresses of the beginning and
ending numbers in a column?   This might be an acceptable
trade-off, if the software could be easily generated.   1d

  5. I tried to use the calculator Sat (19th) from DNLS and the
↑G didn't seem to work..any hints?   1e

16697 Distribution
   Elizabeth K. Michael, Dirk H. Van Nouhuys, Thomas F. Lawrence, James
   H. Bair, Edmund J. Kennedy, John L. McNamara,

We should be able to Print Lists of Archived iles.

Since many directories of archived files are now past scren length,
many past two or three scren length, it sure woul be nice if lpt were
a subcoman of the interrogate group or insome oter way e couldpringt
out the files archive in a given directory.   1

16698 Distribution
   Nps Np, Richard W. Watson, Charles H. Irby, Donald C. (Smokey)
   Wallace,

Correction to (16685,); Insequen Worked.

My appologies, the statment structure of (vanNouhuys, Vela,) is
pretty reasonable. I misunderstood a quickprint.   1

16699 Distribution
    N. Dean Meyer, Richard W. Watson, David C. Russell,

I need the viewspec l and g indenting feature with viewspec B in TNLS.

What would be the chance of getting TNLS to work the same as DNLS with viewspec combinations lB and gB (i.e.: indenting from the highest displayed branch only)????   1

1

16700 Distribution
   Nps Np, Richard W. Watson, Charles H. Irby, Charles H. Irby, Harvey
   G. Lehtman, Diane S. Kaye, Charles F. Dornbush,

Memo to Mr. Bunny

Dear BUGS, if people are sending any NP's your way, please execute
secondary distribution to NP or NPS. Note: NPS is in
<DOCUMENTATION,NPS,1:x> not NLS,NP as you have it in
<DOCUMENTATION,BGS,NP)   1

16701 Distribution
   Diane S. Kaye, Harvey G. Lehtman, Charles H. Irby,

The Database Proposal (journal, 16347, 1:x).

I would appreciate any comments or suggestions you may have.
Actualizing this proposal is the job function I would most like to
contribute to ARC/NIC.   1

16702 Distribution
  Douglas C. Engelbart, Richard W. Watson, James C. Norton, Michael D.
  Kudlick,

I'm through using (VanNouhuys,visitlog,)

Dirk: I took the material from you "visitlog" file, on McNamara's
visit (cf your note -- 16345,).   Thanks for the updating; you can
discard the material now.   Doug   1

16704 Distribution
   Dirk H. Van Nouhuys,

Editing Proficiency Test :My Thoughts on (radc,prog,)

In response to (JOURNAL,16653,) I have read (radc,prof,). I agree
that it looks good for atleast a first cut at an editing proficiency
test .   Maybe we would want something more extensive later.   1

16705 Distribution
    James H. Bair, Susan R. Lee, Michael D. Kudlick, Marilyn F. Auerbach,
    James C. Norton,

Calculator Team Response to Request for Design Modification

CALCULATOR TEAM RESPONSE TO REQUEST FOR DESIGN MODIFICATION

1

The Calculator Implementation Team met this morning to discuss the requests to include an extended NLS command set within the Calculator.

2

Fortunately, the general problem of NLS-subsystem interface is currently being worked out by CHI. This work has been approved by the Novice Expert Design Team and will very soon be presented for final approval to the Review Team following which it will be implemented.

3

When the calculator was first designed, the need for the capability being requested was recognized and provided for. This was done in a very clean way which allows the user the full NLS command set. He only needs to type q[uit] r[eturn] CA to make all NLS commands available. (See documentation: <Michael>DNLSMANUAL and <MICHAEL>TNLSMANUAL under Quit Return).

4

It is understandable that there might be slight dissatisfaction with the present implementation since the quit and subsequent return are somewhat slow in execution.

5

With this latest proposed change in NLS in mind we have identified areas in the Calculator where the Quit Return/ Goto Calculator mechanism can be greatly optimized.

6

In addition, when the general capability of executing NLS commands from within a subsystem is available we will be able to assess the cost of changing the Calculator/NLS interface to take advantage of the new NLS feature.

7

16706 Distribution
   Richard W. Watson, James C. Norton, Charles H. Irby, Paul Rech,
   Beauregard A. Hardeman,

Telterm   uparrow

Just   to note: telterm uparroww is EOM key..helpful if you want to
follow tnls links...no? bye   1

16707 Distribution
  Marilyn F. Auerbach,

jean, when you get back, could you call me for a meeting (527-8012),
Mike Leavitt. Many thanks.   1

16708 Distribution
   Jean Iseli,

Superwatch Average Graphs for Week of 5/7/73

TIME PLOT OF AVERAGE IDLE TIME FOR THE WEEK OF 5/7/73
x axis labeled in units of hr:min, xunit = 1800 sec.   1
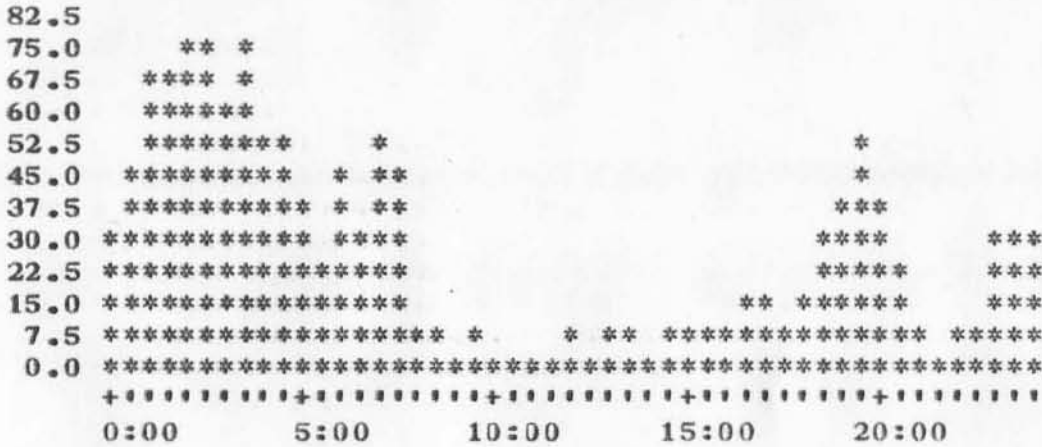
```
   82.5
   75.0         ** *
   67.5       **** *
   60.0       ******
   52.5       ********       *                                    *
   45.0     *********    *  **                                    *
   37.5     **********  *  **                                   ***
   30.0   *************  ****                              ****        ***
   22.5   ****************** ****                          *****        ***
   15.0   *****************                              ** ******      ***
    7.5   ******************** *      *  ** **************** *****
    0.0   *********************************************************************
        +ooooooooo+ooooooooo+ooooooooo+ooooooooo+ooooooooo
        0:00      5:00      10:00     15:00     20:00                            1a
```

TIME PLOT OF AVERAGE NUMBER OF GO JOBS FOR THE WEEK OF 5/7/73
x axis labeled in units of hr:min, xunit = 1800 sec.   2

```
    8.0
    7.2
    6.4                     **
    5.6              *   *** *
    4.8              * ******  *
    4.0              ********* ****
    3.2            ****************  *
    2.4           *********************       **
    1.6           **********************     ****
    0.8        ****************************************
    0.0   *********************************************************************
        +ooooooooo+ooooooooo+ooooooooo+ooooooooo+ooooooooo
        0:00      5:00      10:00     15:00     20:00                            2a
```

1

Superwatch Average Graphs for Week of 5/7/73

TIME PLOT OF AVERAGE PERCENT OF SYSTEM USED IN DNLS FOR WEEK OF
5/7/73
x axis labeled in units of hr:min, xunit = 1800 sec.   3

```
  24.0
  22.0                                              *
  20.0                              *  *            *
  18.0                              *  **          ***
  16.0                            *  ****         *****
  14.0                            *******       *******
  12.0                            *******      ********
  10.0                          *******************
   8.0                          ********************      *
   6.0                          **********************  *  ****  *
   4.0     *              *  **************************** ****  **
   2.0  ****       *        *******************************************
   0.0  ***************************************************************
       +  1 1 1 1 1 1 1+ 1 1 1 1 1 1 1+ 1 1 1 1 1 1 1+ 1 1 1 1 1 1 1+ 1 1 1 1 1 1 1
        0:00        5:00       10:00       15:00       20:00                   3a
```

TIME PLOT OF AVERAGE NUMBER OF NETWORK USERS FOR THE WEEK OF 5/7/73
x axis labeled in units of hr:min, xunit = 1800 sec.   4

```
  12
  11
  10
   9
   8                       *
   7                       *
   6                       *
   5            *         ****      *
   4            *      *  *****    **
   3         ******************  *
   2         *********************   *
   1   ***********************************************************
   0   ***********************************************************
      +  1 1 1 1 1 1 1+ 1 1 1 1 1 1 1+ 1 1 1 1 1 1 1+ 1 1 1 1 1 1 1+ 1 1 1 1 1 1 1
       0:00        5:00       10:00       15:00       20:00                   4a
```

Superwatch Average Graphs for Week of 5/7/73

TIME PLOT OF AVERAGE NUMBER OF USERS FOR THE WEEK OF 5/7/73
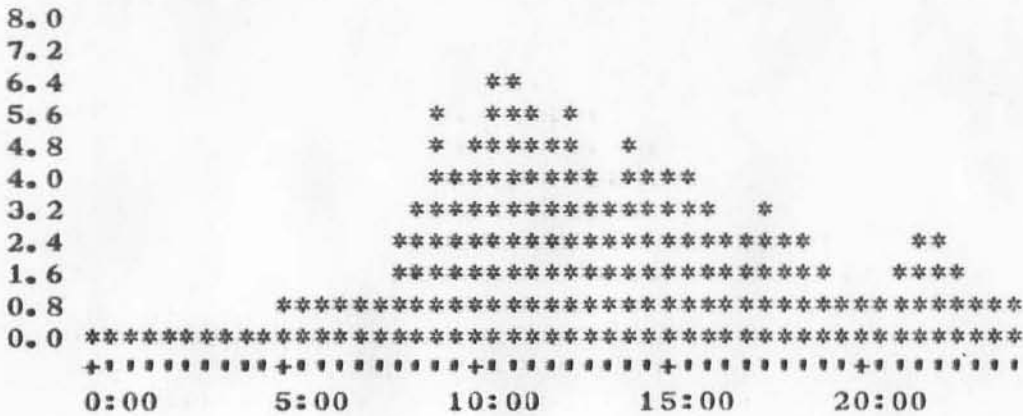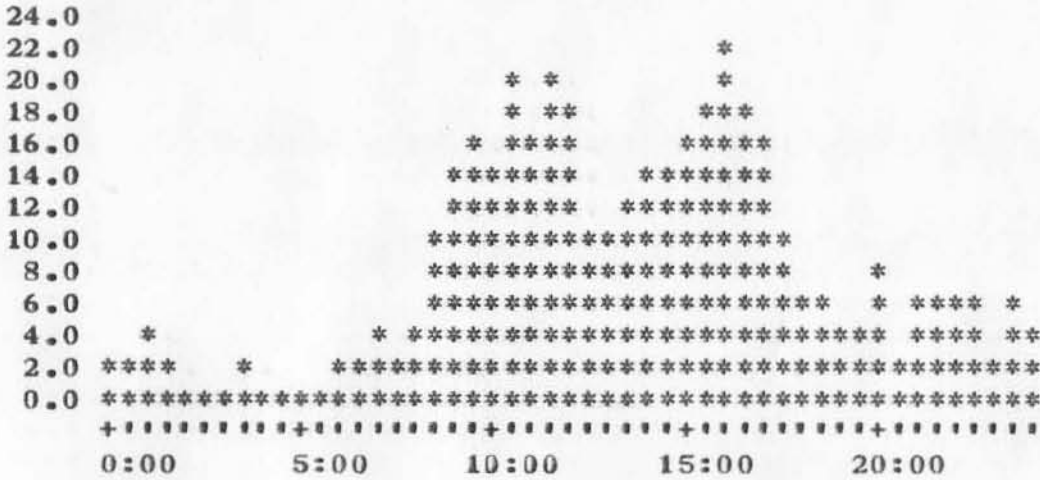x axis labeled in units of hr:min, xunit = 1800 sec.   5
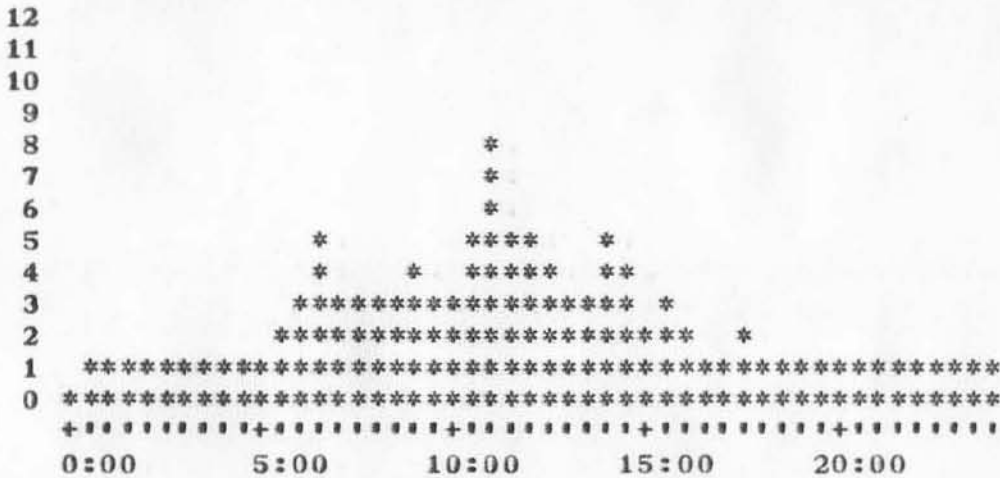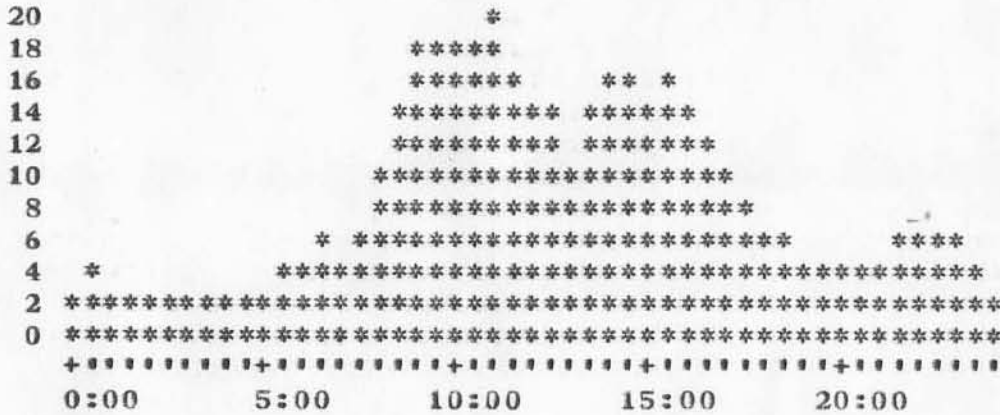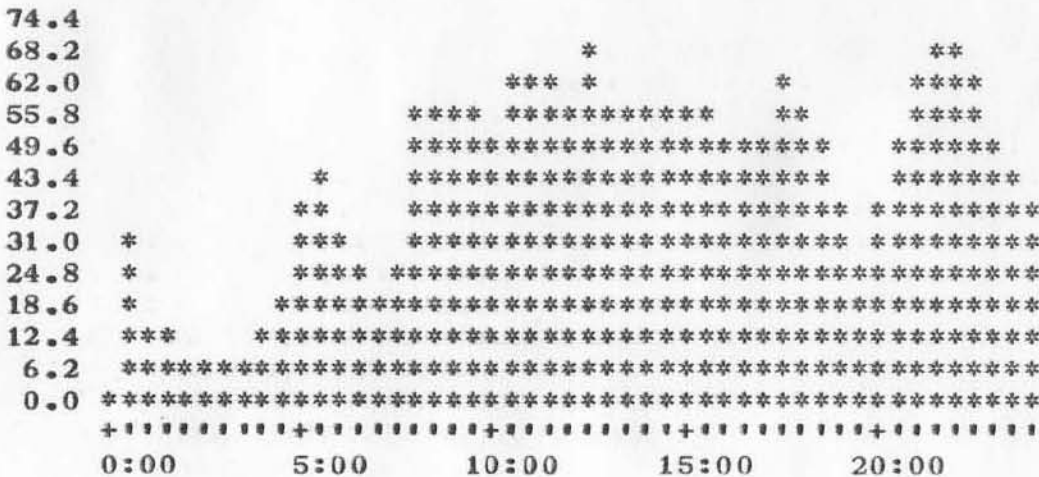
```
 20                         *
 18                      *****
 16                      ******       ** *
 14                     ********** ******
 12                     ********** *******
 10                    ********************
  8                    *********************
  6              *  ************************      ****
  4     *         *********************************************
  2  **********************************************************
  0  ***********************************************************
     +•••••••••+•••••••••+•••••••••+•••••••••+•••••••••
     0:00       5:00      10:00     15:00     20:00                    5a
```

TIME PLOT OF AVERAGE PER CENT OF CPU TIME CHARGED TO USER ACCOUNTS
FOR WEEK OF 5/7/73
x axis labeled in units of hr:min, xunit = 1800 sec.   6

```
 74.4
 68.2                       *                  **
 62.0                   *** *            *     ****
 55.8              **** ************    **     ****
 49.6              ************************    ******
 43.4         *    ***********************     *******
 37.2         **   *************************** *********
 31.0    *    ***  *************************** *********
 24.8    *    ****  ****************************************
 18.6    *    *******************************************
 12.4   ***   ***********************************************
  6.2   ******************************************************
  0.0  *******************************************************
     +•••••••••+•••••••••+•••••••••+•••••••••+•••••••••
     0:00       5:00      10:00     15:00     20:00                    6a
```

16709 Distribution
    James C. Norton, Richard W. Watson, Douglas C. Engelbart, Paul Rech,
    Donald C. (Smokey) Wallace, Jeffrey C. Peters, Dirk H. Van Nouhuys,
    Elizabeth J. (Jake) Feinler, Charles F. Dornbush, Kirk E. Kelley,
    Duane L. Stone,

Addition to INWG Mailing List

Marcia, please add the following name to the INWG mailing list and send him all relevant notes to date (see <SU-AI>INWGREL file for current list of relevant notes. Thanks, Vint Cerf.

Prof. Kauko Rahko, Helsinki University of Technology, Telephony Laboratory, 02150 Otaniemi, Finland.   1

16710 Distribution
   Marcia Lynn Keeney,

response to Draft Training Design Doc (16639,)

I have read the training design document (16639,) and have a few
comments. Most of my comments are flavored by my personal
experience, by our experience in training new users here at RADC,
by the training exercise we will have to go through when the
Utility comes up, and by the overall nature of the RADC effort,
ie evaluation.   1
GENERAL COMMENTS   2
    The general approach to training seems to be a "shotgun"
    approach. Try a little bit of everything in the hopes that
    something will stick. There is a lot to be said for this
    approach, especially during the development cycle. However,
    we will soon have to freeze on A training approach--at least
    for beginners.   2a
    There does not seem to be a good definition of a minimal
    acceptable level of training. Perhaps the PRIMER could be
    taken as this. My experience is that a two day course can
    better be described as exposure, rather than training. To
    those users who are curious or otherwise motivated, this is
    probably sufficient training. They will pick up the rest of
    the system as they need it from scattered documentation and
    converstations with more advanced coworkers. There will still
    be a group of people after the two/three days who are
    sufficiently bewildered or unmotivated that they never get
    over the hump of basic system knowledge. My experience is
    that once you get over the hump, that use of the system alone
    is sufficiently motivating to sustain and increase its use.   2b
    I feel that there is a need for a TEXT BOOK that explains in
    words and pictures the basic concepts which must eventually be
    acquired to allow smooth use of the system and further
    self-learning. This text could be independent of any actual
    use or demonstrations on the system..in fact I would think
    that its use would preceed actual hands on use of the system.   2c
        I have had to acquire this perceptual image after the fact,
        and am never quite sure if I have it right. Every once in
        a while something comes along that upsets my mental image
        of the parts of the system, their relationship and their
        interactions.   2c1
SPECIFIC COMMENTS   3
    ref..(16639,3a1)..I would say in RADC's case you and/or we
    will be training 12 to 15 people in a section somewhat
    similiar to John McNamara's, see..(16379,2e5:g) plus some new
    people in John McNamara's section.   3a
    ref..(16639,3a2a:g)..I would say that all of those subjects
    apply to RADC, except NLS/L-10 programming and SEAS. In
    addition, I think that they will need minimal instruction in
    TENEX proceedures and in ARPANET.   3b
    ref..(16639,3a4)..I would say that you are trying to teach
    people how to do something, but failing that you should
    certainly plan on imparting certain functional behavior which

1

response to Draft Training Design Doc (16639,)

will allow them to learn by themselves, if they have the
motivation.   3c
ref..(16639,3b2a2:g)..This is the first time I have seen the
suggested contents of the Primer. This looks like an
excellent start in the direction of defining a basic subset of
the system which is almost a must before anyone can make
significant use of it in his daily work. I would add to this
some ARPANET training (minimal in addition to login) and
possibly links, since they are so powerful and seem to be
needed before one can really make intelligent use of the
Journal.   3d
ref..(16639,3b2c:g)..A good statement of our interests. RADC
may have to actually give instruction in internal
oraganization use on NLS, but we could use help in
devising/reviewing some of our current schemes. Training of
trainers is important, if you ever wish to relieve yourselves
of a continuing and increasing burden.   3e
ref..(16639,4b5:g)..it seems that training one to be an
NLS/L-10 programmer involves residency at SRI for 6? months.
This is reasonable and tolerable at this stage of the game. I
doubt that a good mannual would help without the personal
contact over an expended period of time.   3f
ref..(16639,5c1)..a help terminal would probably not be of any
more benefit to new RADC users than training them to link to
some experienced user here.   3g
ref(16639,5e4a)..we don't need a more powerful DEX, We just
need a DEX..I have not yet been able to make it work over the
net (I haven't tried in the last month or so)..I'm concerned
that it "does not seem likely as a service to be offered ever
the net"...I hope you're just talking about NIC???   3h
ref..(16639,5e6a)..not without six months of TNLS and system
use under their belt   3i
ref(16639,5f:g)..We are interested in testing at RADC for two
reasons, to monitor a students progress so that we as trainers
can be more confident that a trainee has reached a minimal
level of system knowledge/proficiency; and to try to determine
the cost of training as part of determining the overall cost
of system acquisition. (nore on this to follow in a day or
so)   3j

16711 Distribution
   Dirk H. Van Nouhuys, Michael D. Kudlick, James C. Norton, Marilyn F.
   Auerbach, Harvey G. Lehtman, James H. Bair, Thomas F. Lawrence,
   Edmund J. Kennedy,

1

The complete updated Journal System Online Userguide is in
<userguides, jurnl, 1:xbz>.

I am not happy with it but I thought I should get something to you.
Dirk told me that Dick Watson asked him why it was taking me so long
to do this.   I don't think he knows how much time I've had avalable,
the extent of necessary updating, and that it includes the ident and
number systems as well as creating a journal entry.   1

The reasons I am not happy with this are: 2

   It is a mixture of attempts to accomodate several communication
   mediums and therefore does not work right in any of them.   2a

   I tried to format it for online viewing as best I could, but I did
   not want to decide to deviate too much from the offline format
   until you had given me some feedback about my proposal -- 16347,
   1:x>.   2b

   Possible use by the current query system was in the back of my
   mind.   In fact, it can be used with some degree of success. (try
   it)   2c

   I would have rather used the conventions described in <kelley,
   userguides, 1:w>.   2d

   I would have liked to use links a lot more instead of repeating
   the same things.   2e

   I think most of the material in the introduction of the hard copy
   version belongs in it's proper heiarchical place by subject in the
   online version.   2f

   Also, there were several last minute changes (some sections were
   completely re-done twice because the first update was obsoleted
   before it was made available.   2g

At any rate, it is currently up to date and correct to the best of my
knowledge.   The only things I am unhappy with are matters of style.
I shall wait till you have reviewed this before formatting it for
hardcopy.   In the mean time, I hope to write a DEX 1.5 userguide as
per my proposed language and use it in the DEX 1.5 class to see if
people can learn using this system.   3

   I think people learn better by having free (meaning easy) access
   to information than by programmed, authoritarian methods.   Also,
   this could fulfill the Novice Planning Committee's requirements
   for online help.   See -- ijournal, 16639, 5c2:wy>.   3a

16714 Distribution
    Marilyn F. Auerbach, Dirk H. Van Nouhuys,

New Output Processor, New Way of Specifying COM Measures

This short file explains the new way of specifying COM measurements
in the new Output Processor effective 5/21/73.

New Output Processor, New Way of Specifying COM Measures

The way measurements are specified to the Output Processor for COM
formatting has been drastically changed. Instead of a seperate
directive for COM measurements and standard measurements as was
previously done, the printer and COM measurements are now specified
in the same directive. The old X and Y directives (e.g. LMX, BMY)
are no longer being supported.   1

The new syntax is: .Directive=standard,com;
                     e.g.   2

    When both are specified, the first value (standard line or
    character measurement) has effect on all but COM. The second
    has effect on COM.   3

    Whenever only a COM measurement is specified (e.g.), the
    directive will be ignored (except to conform to D, the directive
    print switch) on all device except COM.   4

    If only a standard measure is specified (e.g.), the expected
    thing will happen on non-COM devices. On COM, the given
    dimension (in lines or characters) will be converted to the
    nearest thousandths of an inch using the current body character
    size and YBL. Directives specified this way do NOT adjust
    themselves when either body character size or YBL is changed.   5

    On directives which take some immediate action, if only the COM
    measurement is specified, the directive will be ignored on
    non-COM devices (e.g. TabTo=,4.5).   6

    This change, of course, eliminates the need for all directives
    allowing only non-COM measurements. For example, LBS and YBS
    have been combined into YBS. Such directives will no longer be
    advertised. LMXBase has been changed to LMBase, and works on
    non-COM devices. XBC and YFC also fit this new form and take
    standard measures (characters and lines respectively) or COM
    measurements, as described above. These have no effect on
    non-COM devices.   7

    These changes should not effect existing non-COM files. But
    files formatted for COM will have to be converted. Also, in the
    future, good style calls for use of the new forms and a phasing
    out of the obsolete directives (like LBS).   8

    Please feel free to call on Dean Meyer at 845-1099 or extension
    4908 for further explanation, help with problems, help with the
    conversion of COM files, and any other help with output
    problems.   9

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