Unrecorded Journal

Sometimes, I would like to use the Journal distribution capability, but do not want a NIC number , nor do I want to have a copy of the note 'journalized'. Is there any possiblity of offering this capability? 1

17497 Distribution
Nps Np, Richard W. Watson, Charles H. Irby,

Unrecorded Journal

(J17497) 27-JUN-73 10:50; Title: Author(s): David H. Crocker/DHC;
Distribution: /NP; Sub-Collections: NIC NP; Clerk: DHC;

NWG/RFC# 537 SRB 27-JUN-73 12:12 17498
Announcement of NGG meeting-JULY 16-17

The proposed NGG meeting date of 16-JULY-73 has been confirmed. The meeting will be held at the University of Illinois on July 16 and 17. An informal meeting will be held Sunday evening, July 15, to arrange the agenda.

The initial meeting place will be:

Room 201, Advanced Computation Building

1101 W. Springfield

Urbana, Ill.

In the event that more space is needed, subsequent meetings may take place elsewhere.

James Michener suggests that those attending be sure to have read his RFC 493 on graphics protocols.

Local accomodations at Ramada Inn can be reserved by calling (800)648-5970(their toll-free number) or the local Inn, (217)352-7891. If you wish to make other arrangements, contact me and I will try to help.

Airline reservations can best be handled by your local airline office. Jim suggested that I warn Ozark (the local service) of the upcoming surge of non-student, non-standby passengers in the hopes of getting better service. As Ozark is currently enjoying a pilot strike, I have been unable to do this. Hopefully, it will be over in a few days, but if it isn't, I recommend that you get the closest flight you can and reserve a car for the rest of the way. This probably will be resolved in time to avoid any hassle, but I thought you would like to know about it just in case.

So that I will have a rough idea how much space we will need, let me know, if possible, if you plan to attend.

I can usually be reached by calling (217)333-9354, preferably in the afternoon. I will be gone July 2-6, so during that period, Nancy Freece at (217)333-7161 will take your messages. Network mail will be read earliest (also during JULY 2-6) if sent to user BUNCH at site USC-ISI. My mailing address is: 11

Steve Bunch
Center for Advanced Computation, Room 208
University of Illinois at Urbana-Champaign
Urbana, Ill. 61801

11a

17498 Distribution

Marvin Minsky, Robert E. Millstein, J. C. R. Licklider, Robert M. Balzer, Herbert B. Baskin, Robert P. Abbott, Peter Kirstein, William B. Kehl, Roland F. Bryan, James G. Mitchell, Jeanne B. North, Allen Newell, John McCarthy, Lawrence G. Roberts, Frank E. Heart, Edward L. Glaser, Thomas M. Marill, T. E. Cheatham, James W. Forgie, Keith W. Uncapher, Edward A. Feigenbaum, Leonard Kleinrock, William K. Pratt, David C. Evans, Douglas C. Engelbart, Bertram Raphael, Daniel L. Slotnick,

Thomas F. Lawrence, John W. McConnell, James E. (Jim) White, A. Wayne Hathaway, Patrick W. Foulk, Richard A. Winter, Harold R. Van Zoeren, Alex A. McKenzie, Joel M. Winett, Abhay K. Bhushan, Thomas N. Pyke, B. Michael Wilber, Edward A. Feigenbaum, Robert T. Braden, James M. Pepin, Barry D. Wessler, John T. Melvin, Steve R. Bunch, Rein Turn, Mark Medress, Franklin Kuo, Howard Frank, Robert L. Fink, Glenn J. Culler, Frank S. Cooper, Bruce G. Buchanan, Kenneth L. Bowles, Morton I. Bernstein, Paul Baran, Saul Amarel, Roy C. Amara, John E. Savage, Butler W. Lampson, William R. Sutherland, Thomas G. Stockham, Gene Raichelson, Michael O'Malley, Peter G. Neumann

Richard B. Neely, Dan Odon, Ralph E. Gorin, Robert G. Merryman, P. Tveitane, Adrian V. Stokes, David L. Retz, Reg E. Martin, Gene Leichner, Jean Iseli, Jed E. Donnelley, William Kantrowitz, Michael S. Wolfberg, Yeshiah S. Feinroth, James Hurt, Anthony C. Hearn, Eric F. Harslem, Robert M. (Bob) Metcalfe, Bradley A. Reussow, Daniel L. Kadunce, George N. Petregal, Michael B. Young, Michael A. Padlipsky, Schuyler Stevenson, L. Peter Deutsch, John Davidson, Thomas O'Sullivan, Sol F. Seroussi, Scott Bradner, Robert H. Thomas, John C. Thomas, Michael J. Romanelli, Ronald M. Stoughton, A. D. (Buz) Owen, Robert L. Fink, Jaacov Meir, Jeanne B. North, Steve D. Crocker

Peter Kirstein, Jim D. Foley, Jim H. Hansen, Steve R. Bunch, Ron M. Baecker, Jeanne B. North, Howard D. Wactlar, Marshall D. Abrams, John W. McConnell, Steve D. Crocker, W. Jack Bouknight, Jaacov Meir, J. C. R. Licklider, Robert M. (Bob) Metcalfe, James C. Michener, Albert Vezza, Edwin W. Meyer, Michael A. Padlipsky, Kenneth T. Pogran, Ira W. Cotton, Jerry J. Powell, Dave E. Liddle, Eric F. Harslem, E. Wells Pughe, Jean M. Saylor, Charles H. Irby, John T. Melvin, Richard W. Watson, James A. Moorer, Jonathan B. Postel, Ronald M. Stoughton, Terence E. Devine, David J. King, William L. Andrews, Milton H. Reese, Kenneth M. Brandon, Lou C. Nelson, Jeffrey P. Golden

NWG/RFC# 537 SRB 27-JUN-73 12:12 17498
Announcement of NGG meeting-JULY 16-17

(J17498) 27-JUN-73 12:12; Title: Author(s): Steve R. Bunch/SRB;
Distribution: /NGG NLG SRB PI; Sub-Collections: NWG NIC NGG NLG PI; RFC#
537; Clerk: SRB;
Origin: <ILLINOIS>NGGM.NLS;2, 27-JUN-73 12:00 SRB ;

Some Rambling Thoughts on NETED and/or neted

Let me say at the outset that I am not an editor 'freak' and hence the comments that follow should be weighted accordingly. On the other hand, maybe some comments from a naive perspective would be helpful. 1

Resonse to DHC's comments: 2

[Page 1: Reference to runoff...] I agree. The term 'runoff' was bandied about at the last meeting and I must confess I was never sure of what it meant. I assumed runoff was similar to NLS's output processor which is apparently close, if not correct. 2a

[Page 2: (First paragraph under choices)...] Picky, Picky, Picky. 2b

[Page 3: Please change or explain...] If a 360 hack like me understands, I don't think there is much of a problem. 2c

[N(ext) m should be more like +m...] I agree there should be a convenient mechanism for backspacing files, particularly if fixed line numbering is not employed. However, I also agree with MAP that '+ m' would be cumbersome. How about a backspace command like 'b m'? 2d

[Locate is a more rare term...] Whatever turns you on. I like 'locate' myself. 2e

["." should be "i" (for insert)...] I agree that we could get by without 'i string'. However, it does add some amount of convenience so why not leave it in? 2f

[Should be l string (for list)...] 'retype' is bad, 'list' is worse, but 'replace' tells it as it is. 2g

[There needs to be a read command...] I will yield to the editor wizzards on this one. 2h

[Line numbers...] I'm somewhat impartial on this. Since I normally run from CRT devices, line numbers have never caught my fancy. It doesn't accomplish much to have line numbers if you can't associate the numbers with the text you're interested in. I suppose if I don't have to see them I don't care if they are there. 2i

Comments in general: 3

As I recall, there was general agreement that it would be wise to use an existing editor that has been around for awhile. The fact that MAP's editor is well documented is also an important consideration. Yielding to minor suggestions could result in the

total basturdizing of the original proposal. Hence, in the interest of showing some compassion for the previous comment, I will withdraw my support for including a 'backspace file' command (as much as I would like to have it) and cast my vote for keeping MAP's editor as proposed. 3a

17499 Distribution

Leroy (Lee) C. Richardson, Frank G. Brignoli, Elizabeth J. (Jake) Feinler, Michael D. Kudlick, James E. (Jim) White, Michael A. Padlipsky, Kenneth L. Bowles, A. Wayne Hathaway, Jean Iseli, David H. Crocker, Nancy J. Neigus, Stephen M. Wolfe, Ronald M. Stoughton, Jim O. Calvin,

Some Rambling Thoughts on NETED and/or neted

(J17499) 27-JUN-73 13:24; Title: Author(s): Ronald M. Stoughton/RMS;
Distribution: /USING; Sub-Collections: NIC USING; Clerk: RMS;
Origin: <UCSB>NETED.NLS;1, 27-JUN-73 13:16 RMS ;

Dirk -- The stuff I've seen on the Utility did not make clear how much individual users would be assessed. What is the info on that?

--Dave

1

17500 Distribution
Dirk H. Van Nouhuys,

(J17500) 27-JUN-73 10:53; Author(s): David H. Crocker/DHC;
Distribution: /DVN; Sub-Collections: NIC; Clerk: DHC;

JRP 27-JUN-73 13:23 17501

whodunit

did you delete my file "jimessage"? I don't need it luckily but am distressed that files I write get deleted without my knowledge.
JOHN PICKENS

1

17501 Distribution
Ronald M. Stoughton,

JRP 27-JUN-73 13:23 17501

whodunit

(J17501) 27-JUN-73 13:23; Title: Author(s): John R. Pickens/JRP;
Distribution: /RMS; Sub-Collections: NIC; Clerk: JRP;

JRP 27-JUN-73 14:03 17502

WHO SUPPORTS LEVEL-0 GRAPHICS?

Does any site in the network graphics group support Level-0 graphics protocol as a server? I am implementing a user process to drive local tektronix terminals and a PLATO-IV terminal which we are modifying for network use. If any site supports a server process would you send me a message at NIC (JRP)? Thank you. John Pickens, UCSB, Computer Systems Lab. 1

JRP 27-JUN-73 14:03 17502

WHO SUPPORTS LEVEL-0 GRAPHICS?

(J17502) 27-JUN-73 14:03; Title: Author(s): John R. Pickens/JRP;
Distribution: /NGG; Sub-Collections: NIC NGG; Clerk: JRP;

MLK 27-JUN-73 14:29 17503

New Network Graphics Members

I sent you a journal message on the 15th but received no reply. I have had a request from Bob Thomas of BBN to add Elaine L. Thomas and T.H. Meyer (both of BBN) to the Network Graphics Group. Let me know soon what your decision is. Thank you. You can send me a message (Keeney@sri-arc) or a journal message. Marcia keeney. 1

MLK 27-JUN-73 14:29 17503

New Network Graphics Members

(J17503) 27-JUN-73 14:29; Title: Author(s): Marcia Lynn Keeney/MLK;
Distribution: /AV; Sub-Collections: SRI-ARC; Clerk: MLK;

Some random problems

(tenex)Notes on using TENEX 1

(systat)It would be nice if the SYSTAT would put a * after the user job number who called it. 1a

example:
1 oper
2* mike
3 guest 1a1

(logout) when a person logs out, he (she) should be given about 1 1/2 mins. to log back in. If not,the data set should be dropped. This time out should occur if the user detaches also. 1b

(phone)if the telephone is hung up or disconnected and I try to call back,I will, most of the time, come back on the same data set. the data set has not been droped,therefore I get right into my directory. this is very bad from a security standpoint. 1c

(tenex)Notes on problems with TENEX 2

(control-o) When doing output using Output Device Terminal, if, when the output starts, i hit a couple control o's, i get ILLEG INST 0 AT 710001. 2a

(elog)If a comma is typed, instead of a user name,in the ELOG program, a illeg inst trap occurs 2b

BUGHLT AT 61463
ILLEG INSTRUCTION TRAP IN EXEC
PC 7021 ACS 0 1001770 1
MESSAGE NOT FOUND FOR ERROR 0 2b1

(detach)If i log in and then detach, the job is not auto timed out. this probley will allow me(?) to get around the quota system by getting on and detaching instead of logging out. 2c

(attach)If the esc is hit when the attach command is waiting for the user name, a ill inst trap occurs 2d

ILLEG INSTRUCTION TRAP IN EXEC
PC 7021 ACS 0 1001770 1
GTJFN: No such version 2d1

MLM 27-JUN-73 15:00 17504

Some random problems

(J17504) 27-JUN-73 15:00; Title: Author(s): Michael L. Marrah/MLM; Distribution: /JCN(for your info) DCW(are you the one to send these to?); Sub-Collections: NIC; Clerk: MLM;

JRP 27-JUN-73 15:37 17505

Interprocess Communication

ERNIE, I remember at ICCC you had some interprocess communication experiments to demonstrate. Could you get for me a description of those experiments? I'm into interprocess (or Inter-Program) communication and I want to see what other people have done. Thanks, John Pickens (JRP) 1

Interprocess Communication

(J17505) 27-JUN-73 15:37; Title: Author(s): John R. Pickens/JRP;
Distribution: /EHF; Sub-Collections: NIC; Clerk: JRP;

Secondary distribution

It is often not possible to perform a secondary distribution on a document which was very recently submitted. When this occurs, please be patient and try again in half an hour or so. Sorry, but we cannot do much about this timing problem. -- Charles. 1

Secondary distribution

(J17507) 27-JUN-73 17:31; Title: Author(s): Charles H. Irby/CHI;
Distribution: /KIRK NPS JDH; Sub-Collections: SRI-ARC; Clerk: CHI;

DCE 27-JUN-73 18:30 17508

Visit Log, 20 Jun 73, George F. Coulouris, Queen Mary College, University of London

Upcoming ARPANET users; special collaboration interests with USC-ISI, may benefit from special NIC attention.

Visit Log, 20 Jun 73, George F. Coulouris, Queen Mary College, University of London

Professor George F. Coulouris,
Department of Computer SCience
Queen Mary College
Mile End Road
London, East 1, England
(01) 980-4811 1

He and his group definitely plan to use the ARPANET, and wlll be collaborating wth USC-ISI on a particular bit of work -- in doing some microprogramming work, based on ISI's, Standard Computer Co. MLP-900. 2

Probable NIC user. 2a

He was hosted by Smokey before lunch, and Chuck Dornbush and I lunched with them. 3

George is interested in hardware aided (augmented) data search techniques. They have an operational system to use standard disk units (2314-like devices?) that does ten-track parallel scanning and is a sort of super,indexed sequential, generalized searching processor.. 3a

The processor will assume that each data record is organized as an arbitrary sequence of data elements; each element consists of an attribute code and a (potentially sequence of) value code(s). Arbitrary coding of each, with arbitrary field lengths. I believe that there were character-count codes at the start of each field to specify number of characters. 3a1

As I remember it, there could be up to 32 conditions being tested in each record; all could be involved in one combinatorial expression for a very complex search criterion; or one could have a number of simultaneous search in which the total number of conditions being tested was 32, and each search has its independent logical-combination expression involvin any subset of the conditions. 3a2

They have two 4-K IMLACs, and there might be some possibility that they could implement our DNLS process at their end, either for their IMLACs, or partially within an INTERDATA computer (64K bytes) to which they both are connected. 3b

George says that two of his students are especially interested in things akin to "knowledge workshops," or, as they would call it, "interactive aids to research." 3c

Some possibility of my visiting them during my stay in England

Visit Log, 20 Jun 73, George F. Coulouris, Queen Mary College, University of London

next September; perhaps give them a talk on the AKW -- maybe even demonstrate DNLS?? Or, these functions might be combined somehow with my commitment to help Peter Kerstein. 3d

Smokey suggests trying hard to get the "mouse box" working early enough to arrange for a suitable small display console to be used over here for DNLS demonstrations. 3e

Literature that George took back with him: 4

D. C. Engelbart, AUGMENTING HUMAN INTELLECT: A CONCEPTUAL FRAMEWORK, SRI Project AFOSR-3223, October 1962 (XDOC -- 3906) 4a

D. C. Engelbart and W. K. English. "A Research Center for Augmenting Human Intellect", AFIPS Proceedings, Fall Joint Computer Conference, 1968, Washington, D.C. (XDOC -- 3954.) 4b

D. C. Engelbart, "Intellectual Implications of MULTI-ACCESS COMPUTER NETWORKS", A paper for the Proceedings of The Interdisciplinary Conference on Multi-Access Computer Networks in Austin, Texas, April 1970. (XDOC -- 5255.) 4c

D. C. Engelbart and ARC Staff, COMPUTER-AUGMENTED MANAGEMENT-SYSTEM RESEARCH AND DEVELOPMENT OF AUGMENTATION FACILITY, Final Report on RADC Contract RADC-TR-70-82 April 1970 (XDOC -- 5140,) 4d

D. C. Engelbart and ARC Staff, ADVANCED INTELLECT-AUGMENTATION TECHNIQUES, Final Report on NASA Contract NAS1-7897, July 1970 (XDOC -- 5140,) 4e

Augmentation Research Center, ONLINE TEAM ENVIRONMENT: NETWORK INFORMATION CENTER and COMPUTER AUGMENTED TEAM INTERACTION, Final Report on project RADC-TR-72-232, June 1972 (Journal -- 13041,) 4f

D. C. Engelbart, COORDINATED INFORMATION SERVICES for a DISCIPLINE- OR MISSION-ORIENTED COMMUNITY, paper presented at the Second Annual Computer Communications Conference, San Jose, California, 24 January 1973. (Journal -- 12445.) 4g

D. C. Engelbart, SRI-ARC SUMMARY for IPT CONTRACTOR-MEETING, summary report of work done at ARC during 1972. (Journal -- 13537.) 4h

D. C. Engelbart, DESIGN CONSIDERATIONS FOR KNOWLEDGE WORKSHOP TERMINALS, paper presented at the National Computer Conference, New York City, June 1973. (Journal -- 14851.) 4i

Visit Log, 20 Jun 73, George F. Coulouris, Queen Mary College, University of London

D. C. Engelbart, R. W. Watson, J. C. Norton, THE AUGMENTED KNOWLEDGE WORKSHOP, paper presented at the National Computer Conference, New York City, June 1973. (Journal -- 14724.) 4j

M. F. Auerbach, TNLS PRIMER 4k

IMLAC support-system printouts: Users Guide, IMHOW, IMOL, IMPACK, IMNLS 4l

DCE 27-JUN-73 18:30 17508

Visit Log, 20 Jun 73, George F. Coulouris, Queen Mary College, University of London

(J17508) 27-JUN-73 18:30; Title: Author(s): Douglas C. Engelbart/DCE ; Distribution: /rww jcn mdk jbn dcw cfd dls drb ; Sub-Collections: SRI-ARC; Clerk: DCE ;

Cost of an SRI Extension in San Francisco

An SRI extension near the corner of Pacific avenue and Lauguna in San Francisco would cost $30 to install and $165 /month thereafter. 1

17509 Distribution 1
Paul Rech, Richard W. Watson, James C. Norton, Jeanne M. Beck, 1a

Cost of an SRI Extension in San Francisco

(J17509) 15-JAN-74 14:43; Title: Author(s): Dirk H. Van Nouhuys/DVN; Distribution: /PR RWW JCN JMB; Sub-Collections: SRI-ARC; Clerk: DVN;

Teaching NLS at BBN in Cambridge

Our week in Cambridge was divided into two 2-day TNLS courses with the fifth day, Friday June 25th, devoted partly to demonstrations of DNLS and partly to teaching "advanced" features of TNLS. Marilyn and I taught the first two days, and Mike and I taught the last three days. 1

When we arrived at BBN, we found them very well prepared for us. (Gjournal,17055,) The two classes had been roughly sorted into a first class for programmers and a second class for operators and secretaries. All had idents. An attractive conference room was supplied with eight T-I's (a task more difficult there even than here) coffee, doughnuts,an easel, etc. The T-I's were connected to the TIP and the normal (experimental) modes of operationof the TIPs at BBN had been altered in some measure for our benefit. For the extensive and effective preparation, we must be mostly grateful to Nancy Neigus. 2

In talking with future host sites for TNLS classes, we must try to make them understand how much work on their part is necessary to make a course run smoothly. 2a

Preparation for the course involved an extensive correspondence by means of the joural and a few sendmessages. A file contains all of the journal references and most of the sendmessages, and I intend to journaize it as (journal,17510,) 2b

In the first two days SRI's system never crashed and we were only occasionally bothered by problems with the TIP of the NET. This bright and experienced class covered more ground in two days than any two- or three-day class has done before. 3

Members of BBN's SCHOLAR Project hope to teach some subset of NLS via computer aided instruction. They are the BBN end of the effort we discussed with Sylvia Mayer. (Journal,16273,) Throughout the whole teaching time at least two of the following people were present taking notes of what was happening in the class and tape recording the lecture portions: 4

Laura Gould, Mario Grignetti, George Wilson 4a

I secured for Mario copies of my survey of training (journal,15402,,), Marilyn's documentation plans (journal,14595,) and allied material. Both Mike and I were impressed particularly with Laura Gould's homework and sensitivity to problems of teaching NLS we hope to have her come to ARC talk to the group. 5

I must report that having never used NLS but studied the User Guide, Laura set out to draft a primer before being contaminated

with seeing the course. She naturally assumed markers were the most important form of TNLS addressing and discussed them first. 5a

The second class, operators and secretaries, except for Allan Collins, a psychologist connected with the SCHOLAR program, Diane Shaw, a programmer who works with Sylvia Mayer at Hanscom AFB, and J.C.R. Licklider, moved more slowly and had a bit more trouble with flakiness in the Network. 6

Many sttudents were frankly skeptical about the value of NLS because of its complicated commaad language, and what they viewed as internal inconsistencies and "nonintuitiveness" in the command language. The skepticism diminished in the course of the class but by no means went away. Fortunately several of the inconsistencies which people howled over most often will be repaired in the upcoming command changes (link,) e.g.: 7

The period before statement numbers, to/from order in editing commands, the inconsistency in presentation of the argument between the substitute command and the editing commands. 7a

Others are not scheduldedfor change. Most impoortant of them the location of the cursor on a character rather than between characters. 7b

It is not clear what, if anything, several of these people are going to do with their TNLS. Many were merely curious, others, notably Paul Johnson, intend to use it in their daily work . Others, including typists for Nancy Neigus or Alex McKenzie as well as programmers will have occasion to employ NLS in connection with Network use of the journal. 8

This morning (6-26) I listed theBBN-TENEX and BBN-NET directories and checked the last time students read their initial files. Of the 12 students attached to those directories, 10 had looked at their initial files that morning. 9

On Friday morning at 8 a.m. their time I began to attempt to demonstrate DNLS on an IMLAC connected first to a PDP-10 at BBN and thence by Telnet to us. We had originally planned to use a different IMLAC which is connected to the TIP, but it has only 4-K memory. Ken Victor discovered the previous week that it is impossible to run DNLS on an IMLAC with 4-K memory. BBN was good enough to give us by priority 35% of their system during the demonstrating. 10

We loaded into the IMLAC from a file at BBN a program that was supposed to interpret what ARC sent. (an "IMNLS") It interpreted NLS correctly except that the characters on the screen were about one-half centimeter high. After some flailing we concluded that this

program was out of date. Comming to that conclusion took about an hour. We logged back into ARC where we discovered that various IMLAC loadings were marked as appropriate for different sites, but none for BBN. I phoned Ken Victor and following his instructions went into TNLS, made a minor alteration in the source code, compiled a new IMLAC program, drew it by FTP (file transfer protocol) to BBN where Jerry Wolf, their IMLAC specialist, loaded it. After that display ran fine, though with rather rather slow response for about 15 minutes until the BBN machine crashed. It crashed twice more in the course of the morning, once about noon when Elizabeth Michael and I were attempting to share images. 11

I demonstrated more Network groping and the difficulty of running DNLS through two heavily loaded systems than I demonstrated DNLS, but at least we were able to do the groping and the people assembled in the IMLAC room seemed impressed with what they saw of the display system when they saw it. 12

Meanwhile back in the conference room, Mike was catching the second class and some of the observers from the SCHOLAR program up to the point the first class reached. In the afternoon I taught something that was billed as "advanced TNLS" and which turned out to be mostly the command analyzer and the go-to-program subsystem. 13

At 1:30 Friday ARC crashed for the first and only time. Over the weekend Ken had moved TNLS onto the BBN machine without, of course, access to the journal system, the ident file, or any run files. We had not used the TNLS resident at BBN in the class because of the importance of the journal and because of the high load average at BBN, but on Friday I resorted it. It ran fine except the command to compile a command analyzer pattern elicited "file not on-line...". presumably the content analyser calls the L-10 compiler from some save file at that point. 14

The Friday class also dealt in some detail with send-print, insert sequential, and output sequential, that is programs which allow people to move files back and forth between their system and NLS. One programmer expressed his intention of making code in NLS and returning it to his system via output sequential and FTP. 15

Late in the afternoon Joe Levin and Bonnie Nash-Webber interrupted the class with a couple of bottles of champagne and the week ended with bubbly good feeling. 16

Teaching NLS at BBN in Cambridge

(J17511) 27-JUN-73 21:29; Title: Author(s): Dirk H. Van Nouhuys/DVN;
Distribution: /KIRK SRL SM3 JBL BN2 MCG KDS DCE JCRL DSK MDK CHI MFA JCN
MEJ; Sub-Collections: NIC SRI-ARC; Clerk: DVN;
Origin: <VANNOUHUYS>BBNTRIP.NLS;3, 27-JUN-73 21:15 DVN ;

DHC 28-JUN-73 12:20 17512

Once again, please

Dirk -- due to some peculiarities in our FTP, your
message to me did not get thru. Please retransmit, either
thru the Journal or to DCROCKER at USC-ISI.

tnx. --dave

1

Once again, please

(J17512) 28-JUN-73 12:20; Title: Author(s): David H. Crocker/DHC;
Distribution: /DVN JCN; Sub-Collections: NIC; Clerk: DHC;

RMS 28-JUN-73 15:14 17513

jovial?

we have a user who is interested in using jovial. do you know of any sites which support it? ron stoughton(rms) 1

jovial?

(J17513) 28-JUN-73 15:14; Title: Author(s): Ronald M. Stoughton/RMS; Distribution: /SSP JI; Sub-Collections: NIC; Clerk: RMS;

PR 9-JUL-73 10:12 17514

The ARC Analysis Function (A Draft)

This is the write up I had prepared for our discussions with LGR and JSP. It is for our records.

THE ARC ANALYSIS FUNCTION
(A DRAFT PREPARED FOR OUR DISCUSSIONS WITH LGR AND JSP)

1

WHY ARC NEEDS AN ANALYSIS FUNCTION

2

No single group should be judge and party when it comes to assessing what has been done, how well it has been done, and how well the various parts perform within the integrated system we are developing at ARC.

2a

On the one hand, systems developers, by their very function, must be technique oriented. Although they usually have an excellent understanding of the intrinsic values of the techniques and particular systems, they cannot remain completely unbiased in their judgement of the results produced by their parts when they are integrated in the overall augmentation workshop which is being developed.

2b

On the other hand, real applications and goal oriented users present an excellent test bed for our system. Because we need outside participation in both our system evaluation and design feedback processes, we are actively seeking greater involvement of user communities. However, in this case again, judgements are not totally unbiased either, and the goal orientation of these parties is sometimes reflected by parochial views in their conclusions.

2c

We acknowledge that such a state of affairs is healthy and usefull. However, if we do not want to end up catering too much to the needs of one particular group of users at the expense of all the others, we must be very clear about this potential bias also.

2c1

Thus, an independent function is really necessary. Its role should be to get all the facts together, to assess the performance of the whole system and the contributions of the various parts, to analyse the major application areas, and to evaluate whether or not our overall goals are indeed being achieved as planned.

2d

We recognize that an optimal evolution of our overall system will sometimes imply suboptimal evolution of its components. We know that this creates problems and conflicts of interests. To overcome these difficulties, we need real facts, consistent data and thorough analysis of our procedures and alternatives.

2e

It is to provide this needed support that we have created an ANALYSIS function within ARC.

2f

WHAT ANALYSIS HAS DONE SO FAR 3

Presently, only two professionals are involved full time in the ARC Analysis function. They are Paul Rech (PR), who is leading that activity, and Susan Lee (SRL), who is assisting him. 3a

So far, our primary objectives have been to conduct some urgently needed analyses (see the selected list of references below) and to build sound foundations for future ARC analysis activities. 3b

The results obtained so far have shown the value of these activities. A few particular examples are the following areas. 3c

A group allocation system is being implemented as the result of the cooperation between Operations and Analysis. 3c1

As a result of a joint effort between Development and Analysis, the cost of text insertion with NLS was reduced by a factor of 2 to 3. 3c2

In conjunction with Operations, we have conducted a first comprehensive cost and usage analysis of ARC's operations. 3c3

We are studying the economics of text editing, and we are comparing NLS to other text editors in this regard. 3c4

The following list of documents published in our journal system further illustrates the scope of our first Analysis activities. 3d

STUDIES OF COMMAND USAGE FREQUENCIES 3d1

NLS Command statistics: Current implementaton and plans, (13110,) 3d1a

Recommendations regarding measurement commands, (13143,) 3d1b

Command Usage analysis: Report on Phase I, (13788,) 3d1c

Analysis of the NLS Language: Phase II Design, (15637,) 3d1d

COST OF TEXT INSERTION 3d2

Cost of Text Insertion with NLS, (14351,) 3d2a

Revised Timing and Cost of Text Insertion with NLS, (15466,) 3d2b

COMPARISON OF TEXT EDITORS 3d3

The ARC Analysis Function (A Draft)

The ARC Analysis function has the following three major objectives.: 4a

1) To provide analytical support for all phases of ARC's Operations, application activities and R&D efforts. This support falls into the following broad categories. 4b

a) Analysis of Specific ARC Activities.
Some of the most urgent tasks in this category are: 4b1

To study further the performance of 4b1a

our timesharing operations,
our NLS environment,
our Journal system, and of
the NLS Utility, and
all off-line operations. 4b1a1

To design and develop a general data collection system, a set of special purpose programs for data reduction, and better analytical tools and procedures. 4b1b

b) Analysis and Evaluation of Application Areas.
Some of the contemplated tasks in this category are: 4b2

To conduct an exhaustive analysis of the NIC operations and evaluate its goals and procedures. 4b2a

To analyse the needed characteristics of office automation systems as they relate to the technology and procedures we are developing. 4b2b

To analyse from an "augmentation technology" point of view the communication needs of geographically distributed communities and to determine the major characteristcs of future community information networks and community information centers. 4b2c

To study what impact the generalized introduction of NLS and network technology will have on planning activities. 4b2d

To study what impact the generalized introduction of NLS and network technology will have on operations research and management sciences.
**4b2e

To evaluate the potential impact of "augmentation technology" on organizational structures of organizations and communities. 4b2f

c) Analysis of User Systems.
Some contemplated tasks in this category are: 4b3

To analyse our dialog support system (DSS). 4b3a

To analyse our documentation production and control system (DPCS). 4b3b

To analyse the needs for information management systems (not to be confused with management information systems) and to describe their desirable characteristics. 4b3c

To analyse project management needs and determine what impact, if any, the utilization of NLS could have on existing project management methods and procedures. 4b3d

2) To develop the methodology and analytical tools for the experimental study of information handling procedures. 4c

3) To build up gradually the capability for stimulating cooperation with other analysis staffs throughout the community of workshop builders. 4d

SHORT TERM PLANS FOR ANALYSIS 5

BASIC TASKS NEEDING IMMEDIATE ATTENTION 5a

Analyse the NIC. 5a1

Conduct further sensitivity studies to determine operational bottlenecks in our system. 5a2

Develop improved procedures and tools for operational control of all ARC and NLS Utility operations. 5a3

This will cover the time sharing operations and the NLS operations. It will include scheduling of operations, allocation of resources, and cost- benefit studies. 5a3a

Launch an analysis program of information handling procedures of general interest to ARC. 5a4

A few areas seem to be primary candidates for such analyses. They include, among others, the Journal system, the send message system, text creation, the distribution and control of documents, and our PSO operations. 5a4a

THREE REPRESENTATIVE LONG TERM ANALYSIS PROJECTS 5b

1) DEVELOPMENT OF A GENERALIZED NLS ANALYSIS SYSTEM 5b1

We need a system and procedures to conduct systematic analyses of the NLS environment. Specifically, we need a system which would allow us: 5b1a

1) to study the frequencies of NLS command usage by organizations, by categories of users, and by individuals or groups of individuals. 5b1a1

2) to analyse the timing of NLS commands (CPU time and excecution time) 5b1a2

3) to study sequencies of commands, their interravival times and their distribution (micro analysis of usage patterns) 5b1a3

4) to conduct ex-post facto analyses of individual sessions, of specific jobs, and of critical events. 5b1a4

5) to provide the capability to reconstruct paths leading to poor performances and to identify sources of trouble. 5b1a5

6) to determine performance changes that may accompany, for instance, introduction of new features, modification of operational procedures, changes in environmental conditions, or results of training programs. 5b1a6

Some tasks to be worked on: 5b1b

1) Design and develop a generalized NLS data collection system. 5b1b1

2) Design and develop specific data reduction programs for analysing the collected data. 5b1b2

3) Develop appropriate analysis procedures for the various functional requirements. 5b1b3

4) Develop appropriate reporting procedures. 5b1b4

5) Develop testing procedures for operational control and training purposes. 5b1b5

6) Conduct tests and measurements of existing NLS environment [ARC, Network Users and Utility). 5b1b6

7) Conduct specific analysis requests for the NLS user community. 5b1b7

2) ANALYSIS OF THE NEEDS FOR AN INFORMATION MANAGEMENT SYSTEM 5b2

The introduction of office automation technology and augmentation techniques will strongly affect information management at all levels of activities. There is a need for much improved information handling at the knoledge worker's level, at the office level, at the organizational level and, in general, at the community level. 5b2a

In particular, there is a need for handling online working references, for managing online files, for handling hard copy documents in their flow through organizations, and for coordinating all these needs in a unified manner. 5b2a1

There is a need to analyse from our point of view what all these requirements really are, to describe them in a unified fashion and to study what new system features of NLS should be developed to meet these requirements. 5b2b

3) ANALYSIS OF PROJECT MANAGEMENT NEEDS 5b3

Project management becomes extremely difficult when a project becomes large and complex. Many methods for the management of such projects do exist and are being applied in both government and industry, and it appears that some of these currently used techniques might be adaptable for use with NLS. 5b3a

The goal of this project would be to explore these possibilities, and to make recommendations about the desirability of implementing them within NLS. 5b3b

STAFFING REQUIREMENTS 6

Presently, only two professionals are involved full time in the ARC Analysis function. They are Paul Rech (PR), who is leading that activity, and Susan Lee (SRL), who is assisting him. 6a

As ARC moves along into more application areas and builds up both its development efforts and operations, the role of Analysis will become much broader and much more central in the evolution of the community of workshop builders. Additional people will have to be added to its staff if it is to fulfill its role. 6b

The following projections summarize our expected minimal staffing requirements in this domain over the next two to three years. 6c

There is an immediate need for a system programmer who could

design and develop a generalized data collection system and the necessary data reduction programs which have to come along with it. We foresee that such an effort will have to be a continuous one in order to keep up with the expected fast pace of changes, the build up of operations and the increase in the number of applications. 6c1

One analyst (at the BS or MS level) . 6c2

A senior research analyst at the Ph.D. level. Must have experience in programming and experimental design. Background in behavioral sciences or psychology. 6c3

An experienced analyst with information science background. MS in either Operations Research or Management Sciences. 6c4

17514 Distribution

Douglas C. Engelbart, James C. Norton, Richard W. Watson, Susan R. Lee, Charles H. Irby, Michael D. Kudlick,

The ARC Analysis Function (A Draft)

(J17514) 9-JUL-73 10:12; Title: Author(s): Paul Rech/PR;
Distribution: /DCE JCN RWW SRL CHI MDK; Sub-Collections: SRI-ARC; Clerk:
PR;
Origin: <RECH>ANA.NLS;21, 9-JUL-73 10:03 PR ;

MLK 17-JUL-73 19:04 17515

TRANSMITTAL TO: John A. Meads

TRANSMITTAL TO: John A. Meads
Tektronix
Mail Station 81-872
P.O. Box 500
Beaverton, Oregon 97005

FROM: Marcia Keeney (NIC)
Station Agent 1

At the request of Ira Cotton I am enclosing the following RFC's: 1a

RFC 292
336
387
493
537 1a1

He also requested that I add your name to the Network Graphics Group Membership list. I am checking with the coordinator of that group as he must OK all additions. 1b

MLK/kk 1c

17515 Distribution
Station Agent,

MLK 17-JUL-73 19:04 17515

TRANSMITTAL TO: John A. Meads

(J17515) 17-JUL-73 19:04; Title: Author(s): Marcia Lynn Keeney/MLK ; Distribution: /SA ; Sub-Collections: NIC ; Clerk: KIRK ;

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NIC 17531
3 July 1973

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MLK 17-JUL-73 19:03 17550

TRANSMITTAL TO: Kauko Rahko

TRANSMITTAL TO: Kauko Rahko
Helsinki University of Technology
Telephony Laboratory
02150 Otaniemi
FINLAND

FROM: Marcia Keeney (NIC)
Station Agent 1

Enclosed are INWG notes 1, 3, 7, 8, 9, and 11. These notes are all considered out-of-date; we therefore do not ordinarily send these out with the other back issues of INWG notes. 1a

MLK/kk 1b

17550 Distribution
Station Agent,

TRANSMITTAL TO: Kauko Rahko

(J17550) 17-JUL-73 19:03; Title: Author(s): Marcia Lynn Keeney/MLK ; Distribution: /SA ; Sub-Collections: NIC ; Clerk: KIRK ;

trapping illegal instructions

Coming soon in XNLS, NLS will trap illegal instruction pseudo-interrupts. 1

When an illegal instruction does occur, an appropriate message will be typed out indicating that an illegal instruction has been executed, the offending instruction will be typed out both symbollically and in octal, the address of the instruction will be typed out both symbollically and in octal, a tenex error message will be typed out, and registers 1, 2, 3, s, and m, will be typed out both symbollically and in octal. 2

after doing all the typing a haltf will be issued. 3

at this point in time the following is the state of the world: 3a

all registers contain what they contained at the time the illegal instruction was issued. 3a1

in the case of an illegal instruction psi being generated by a jsys, register 1 may contain an error number. 3a1a

cells psireg thru psirgl contain the contents of registers zero thru fifteen at the time of the pseudo-interrupt 3a2

one can (if it is desired) go into ddt and poke around and either restart at an arbitrary point or actually rexecute the offending instruction after modifying anything 3a3

note that if you were in DNLS and you give an <ALT>g command to ddt you will be in DNLS. however display mode will not be right and i suggest typeing blind a command delete follwed by a goto exec command and then quiting that exec. 3a3a

4

trapping illegal instructions

(J17555) 28-JUN-73 14:45; Title: Author(s): Kenneth E. (Ken) Victor/KEV; Distribution: /NPG; Sub-Collections: SRI-ARC NPG; Clerk: KEV;
Origin: <VICTOR>PSI.NLS;1, 28-JUN-73 14:26 KEV ;

h

Dr. Eric Foxley, Director of Computing, Cripps Computing Centre, University of Nottingham, Nottingham, U.K. and, Mr. Steven J. Hague, Coordinator, Nottingham Algorithms Group. 1

To visit ARC Monday 2 Jul 73, 0930; whole day set aside for SRI visit, ARC being primary contact point. I assume that it is mainly the ARPANET and NIC that initiates the visit, since the London TIP is scheduled to become operational soon. 2

I would like for Mike to be their official host, with Jeanne taking over if mike isn't back (we'll help you, Jeanne, in that event). 2a

Dave Brown (ext 2944) is alerted and would be interested in having them visit with people in his Information Sciences Laboratory if the visitors are interested. Let it be their host's job to learn early in the day if they want to see other people in SRI, and make arrangements. The AI Group has not yet been contacted; don't know whether Foxley or Hague have AI interests. 2b

h

(J17556) 28-JUN-73 15:10; Title: Author(s): Douglas C. Engelbart/DCE; Sub-Collections: SRI-ARC; Clerk: DCE;

Reply to Request for Automatic Journal Keyword Generation 1

After consulting with Dave Hopper, I'd say this is my position: 1a

1. Agreed: Ommission of noise words is necessary. 1b

2. Agreed: It could be accomplished in the Journal. 1c

The field already exists (optionally) in the header. 1c1

The file idea sounds like it would work. 1c2

3. The catalog programs are another place where this could be accomplished. 1d

4. Arguments for putting this code into catalog. 1e

- runs (supposedly) during low load average 1e1

- does not tie up a normal user, as additional code in Journal Submission would (noticeably) 1e2

- could be run on another computer (and would be CPU-consuming code) 1e3

- since it requires using another file, it is desirable to optimize opens and closes 1e4

- in catalog it could probably be opened once 1e4a

- journal submission would have to open/close for every instance of a title (every submitted item) 1e4b

DSK 28-JUN-73 15:26 17557

Reply to Request for Automatic Journal Keyword Generation

(J17557) 28-JUN-73 15:26; Title: Author(s): Diane S. Kaye/DSK;
Distribution: /MDK; Sub-Collections: SRI-ARC; Clerk: DSK;
Origin: <KAYE>MIKE.NLS;3, 28-JUN-73 15:12 DSK ;

CHI 29-JUN-73 07:49 17559

New TNLS Command for turning Input Prompts on and off

NLS now has a command to turn the TNLS input prompts (T: , A: ,F: ,L: ,V: , and I:) on and off. The command is in Execute Viewchange Feedback and is called "(input) Prompts On?". Please let me know if there are difficulties with this command or facility. -- Charles.
P.S. at some point in time, one will be able to default this (along with a great many other user options) automatically when one enters NLS.

1

CHI 29-JUN-73 07:49 17559

New TNLS Command for turning Input Prompts on and off

(J17559) 29-JUN-73 07:49; Title: Author(s): Charles H. Irby/CHI;
Distribution: /TU; Sub-Collections: SRI-ARC TU; Clerk: CHI;

Ultimate Format Designer

A resurection of Parsley's and Meyer's thoughts on the ultimate "format designer," where the Output Processor may someday go. (Originally written 7/3/72)

Ultimate Format Designer

Outputing a text-with-graphics file requires a detailed list of parameters on what to do with the data in the file; we call this the format of the file. The format designer was intended to be a subsystem, either of TENEX or of NLS, which would allow the user to specify exactly what he wanted his output to look like, before he sent it through the output processer to be compiled into a form compatible with whatever device is available. 1

This file is a summary of Bruce Parsley's and my thoughts on the shape that the format designer part of the output process should take. 2

These are thoughts about the "ultimate" format designer. Its purpose would be to output files in book form and in formats of publication quality. It was intended to provide a simple way for the user to describe how he wants his document to look, yet provide him maximum flexibility. 2a

We assumed no limitations from the output device. 2a1

Format designing should be an on-line interactive process. 2a2

We tried to assume that the user had virtually no knowledge of the printing arts [which was easy since we were in that very position]. 2a3

There will be two phases to designing a format: designating the parameters of the format and placing keys for the output processer in the actual text file. 2b

We were considering two alternatives for the designation of format parameters: a function format designer and an area format designer. 2b1

The function format designer describes a format for each source [e.g. text, page number generator, footnotes, etc.]. The area formatter describes an area on the page, then attaches a source. 2b1a

In both cases, when appropriate a list of questions should be displayed on the screen. The user could then point to a question [parameter] and choose a new value for it. 2b1b

Each user would have a library of formats that he has designed. This would include a set of keys into files which have been defined in the process. 2b1c

Keys could be placed in the files as they are now or by special NLS commands. 2b2

A key, much like present directives, would cause a change in the format, a specific move, or would designate what area a statement should go to. 2b2a

At the beginning of each file, a document format could be inserted which would call into effect one of each of the other sub-formats [one for each source or area]. Keys could make changes at any point thereafter. 2b2b

Function Format Designer 3

1 When the user enters the format designer, he would be presented with the following list of functions, and would be asked to select one (with the mouse): 3a

key library 3a1
document 3a2
page 3a3
body 3a4
page number 3a5
running head 3a6
figure 3a7
footnote 3a8
heading 3a9
marginal note 3a10
tab 3a11
type font originator 3a12

2 Upon choosing one, the user enters a "sub-format designer" mode, and the appropriate display is created. 3b

First, the user will be asked to name that sub-format. 3b1

If it is a new name, default values will be displayed for each of the parameters. 3b1a

There should be command a to turn default vales on and off 3b1a1

If it is an already defined sub-format, the defined values will be displayed. 3b1b

He may then change any of the parameters by pointing to that line and inserting a value and the unit of measurement 3b2

Values can be given in inches, millimeters, characters or lines, points, or picas. 3b2a

Must be able to fill blanks with things like <n, >n, n,m when sensible 3b2a1

Once the page size is defined, it may be drawn to scale on the right half of the screen, and any further descriptions of position could be made with the mouse (or keyboard), then displaed graphically. 3b2b

He may also at any point change the name of the sub-format. 3b3

3 When he is done, some command will store those values as a sub-format of that name and return him to the beginning point where he may choose another function. 3c

One should be able to erase last decision within question, all decisions in a question, or replace whole format with default values to start over. 3c1

4 When he is done with the format designer, some command will store everything in his format library and return him to NLS. 3d

indenting on/off 3e1c29
names on/off 3e1c30
keyword reording on/off 3e1c31
signatures on/off 3e1c32
* means "must be followed by a 'to here' key" 3e1c32a
To here 3e1d
to here 3e1d1
delete ----- ----- -- here 3e1d2
[e.g. Delete Indent Key 35 Here, or Delete Body Format 2 Here] 3e1d2a

document 3e2

The document format asks for the name of all the subformats to be put into effect at the beginning of the file. 3e2a

They may be changed at any point by a key in the file. 3e2a1

Sub-formats: page, body, page number, running head, figure, footnote, heading, marginal note, tab 3e2a2

left, right or both pages 3e2b

everything else can be defined seperately for left and right pages 3e2b1

page 3e3

dimensions 3e3a

dashes dividing pages? 3e3b

reset viewspecs? 3e3c

body 3e4

margins 3e4a

text position 3e4b

flush left, right, both, center 3e4b1

if both, expand to full line if within --
(inches)(characters)(points) of filling line;
otherwise flush left, right, or center? 3e4b1a

if center, with respect to what position 3e4b1b

same for vertical 3e4b2

minimum of -- lines or (all) of level -- or (any) statement must be on (left)(right) page [can be designated for each statement level and page] 3e4c

repeatable for each level 3e4c1

type style, size, leading [distance between lines] 3e4d

definable for normal, itaics, boldface, overbar, and underbar 3e4d1

indenting: --spaces for -- or (all) level[s], maximum indent 3e4e

spaces, lines, page skips before -- level or (all) statements 3e4f

definable for each level 3e4f1

viewspecs 3e4g

page number 3e5

numeral system 3e5a

position, horizontal and vertical, with repect to margins or page edge, justification 3e5b

type syle, size 3e5c

if within text, blank space above, below, left, and right of numbers 3e5d

running head 3e6

input literal, level --, or running head key -- 3e6a

position and justification [like body position] 3e6b

type style, size, leading 3e6c

if source is from file: statement numbers, names signatures on/off, truncation 3e6d

if within body, blank space surrounding 3e6e

figure 3e7

figure area includes figure and caption 3e7a

placement and size 3e7b

either an area on the page or "as near to text reference as possible" 3e7b1

if within text, surrounding blank area 3e7c

define figure area and caption area with overall figure area 3e7d

source of caption, viewspecs 3e7e

justification of caption 3e7f

type style, size, leading of caption and text within figure 3e7g

if source is from file: statement numbers, names signatures on/off, truncation 3e7h

footnote 3e8

source 3e8a

print at end of current statement, current level -- statement, page, document. 3e8b

margins (left, right, bottom) 3e8c

justification 3e8d

type style and size, viespecs if source is file 3e8e

seperating line? how long, of what character? 3e8f

indenting first line, sucessive lines, all but number 3e8g

spaces after number 3e8h

heading [like chapter head] 3e9

source 3e9a

new page, new line, or same as text 3e9b

position on page 3e9c

type style, size, viewspecs, truncation 3e9d

if heading is within inches, picas, points of end of page, paginate 3e9e

Area Format Designer 4

This format designer was intended to be a generalization of the function format designer, conceived to do graphically what the other does via aphanumeric questions and blanks [although the first method included some of this mode too, and these questions may be answered alphanumerically as well as with the mouse]. 4a

1 The computer first asks the user to name the document format, give the page size, whether on not dashes should divide the pages, and reset any viewspecs if desired. 4b

2 At this point, a rectangle representing the page to some scale should appear on the screen 4c

3 A choice of left, right, or both pages should be made. 4d

If one page is defined, then the other, when about to be defined, should show as default values the values of the first page. 4d1

4 An area is then defined within the page boundaries. 4e

This may be done by the mouse or by description. 4e1

5 Usable space within the area should then be defined. 4f

6 A source should then be chosen: page numberer, footnote numberer, text of statement, signatures, statement names, statement numbers, statement id, pointers, pictures, text surrounded by string, current date, file origin statement. 4g

Combinations are acceptable. Sources should be bugged in the desired order, seperated by the appropriate characters or literals. 4g1

7 Question are then tailored to the source. 4h

page numberer 4h1

numeral system 4h1a

numerals on blank pages 4h1b

numerals (not)(only) on pages holding key -- 4h1c

footnote numberer 4h2

numeral system 4h2a

at end of staement, page, level --, document, or at key -- 4h2b

line above foonote? what character, how long? 4h2c

leave -- spaces for numbers 4h2d

numbers right or left justified 4h2e

rest of footnote left justified to -- spaces after (number)(left margin of area) 4h2f

text 4h3

(level --)(key--) 4h3a

pointer name[s], string surrounding, area of origin statement, if applicable 4h3b

all 4h4

type style, size, leading 4h4a

definable for each combination of regular, boldface, italics, underbar, and overbar 4h4a1

justifiation, horizontal and vertical 4h4b

may be centered at bugged point 4h4b1

widow lines: min. of -- lines or all of level-- or any statement must be on this page 4h4c

indenting? how much? maximum? 4h4d

line or page skip after level-- or key -- 4h4e

number of horizontal spaces between statements 4h4e1

truncation 4h4f

tab format 4h4g

tab number -- 4h4g1

position 4h4g1a

left or right justify to tab 4h4g1b

8 End of Format Designer 4i

Number areas in order of priority in case of overlapping. 4i1

Ultimate Format Designer

(J17560) 29-JUN-73 08:43; Title: Author(s): N. Dean Meyer/NDM;
Distribution: /OPIG EKM RWW; Sub-Collections: SRI-ARC OPIG; Clerk: NDM;
Origin: <MEYER>FMTDS.NLS;5, 29-JUN-73 08:36 NDM ;

Thanks. Re backspacing file, by the way, it's really not at all hard to do either a t / n or
a t/ l sequence to get to lines above the pointer. cheers, map 1

(J17561) 29-JUN-73 08:54; Author(s): Michael A. Padlipsky/MAP;
Distribution: /RMS; Sub-Collections: NIC; Clerk: MAP;

Network Work Requests

Ken ..

Some requests arising out of the recent NLS courses at BBN and Univ of Illinois:

1) For Network users, SYSTAT must be made to always list all jobs attached and detached, rather than doing so only when the load average is below some thresh-hold.

This is because the Network users don't always know who to link to (either they don't remember names until they show up on the SYSTAT list, or they don't remember name spellings).

Smokey had agreed to making this happen for Network users some time ago, but it has never happened, due to lots of other pressing things I'm sure. But I would definitely like to see it happen as soon as possible.

2) The Univ of Illinois people would like to know the detailed format of printer files (those created with output quickprint and output device). We noticed lots of ↑U's etc, but they need to know ALL of these special characters and their uses, in order to be able to translate to their own printer codes (they have a DEC printer).

If you tell me what they are, I will relay the information to Jim Hansen at ILL-ANTS.

Thanks ... Mike

Network Work Requests

(J17562) 29-JUN-73 09:13; Title: Author(s): Michael D. Kudlick/MDK;
Distribution: /KEV DCW(for your information); Sub-Collections: SRI-ARC;
Clerk: MDK;
Origin: <KUDLICK>KWEN.NLS;1, 29-JUN-73 08:53 MDK ;

MLK 29-JUN-73 09:22 17563

Phone Number for Gary Bockweg

Hi Pam, Can you give me the phone number for Gary Bockweg at ARPA? I need it for the identfile. Thanks. Marcia. 1

Phone Number for Gary Bockweg

(J17563) 29-JUN-73 09:22; Title: Author(s): Marcia Lynn Keeney/MLK;
Distribution: /PJK; Sub-Collections: SRI-ARC; Clerk: MLK;

MFA 29-JUN-73 10:22 17564

DNLS COURSE OUTLINE

An aid to teaching DNLS. See (userguides, arclocator, 2:xb) for current Users' Guides.

DNLS COURSE OUTLINE

find a specific document or set of documents given a minimum amount of information 1b3a

PART 3 - DNLS as a documentation tool (see -- 10705,1:wznC) 1c

Concepts 1c1

Basic text creation and intrafile editing (see -- 10707,1:wznC) 1c1a

_ Null file command (see -- 10705,1c8:wznC) 1c1a1

General command grammer (see -- 10707,1b:wznC) 1c1a2

Text entities 1c1a3

character, word, text, visible, invisible 1c1a3a

Insert command (see -- 10707,1a:wznC) (see -- 10707,1c1:wznC) 1c1a4

Editing commands - use same matrix from TNLS course 1c1a5

delete (see -- 10707,1c2:wznC) 1c1a5a

copy (see -- 10707,1c3:wznC) 1c1a5b

move (see -- 10707,1c4:wznC) 1c1a5c

replace (see -- 10707,1c5:wznC) 1c1a5d

transpose (see -- 10707,1c6:wznC) 1c1a5e

DNLS COURSE OUTLINE

(J17564) 29-JUN-73 10:22; Title: Author(s): Marilyn F. Auerbach/MFA;
Distribution: /JCN JHB DHC NJN PK2 GLB NDM; Sub-Collections: SRI-ARC;
Clerk: NDM;
Origin: <AUERBACH>SYLLABUS.NLS;3, 5-DEC-72 11:39 MFA ; .SNO=0;

**-73 11:06 17565

Date: 29-JUN-73 0827-PDT

From: NORTON at SRI-ARC

Re: This is the first net sndmsg mail that I am getting

- - - -

Th is is the message.

(J17565) 29-JUN-73 11:06; Author(s): James C. Norton/JCN ;
Distribution: /JCN ; Sub-Collections: SRI-ARC; Clerk: JCN; .SNF=HIRM;

MDK 29-JUN-73 11:22 17566

Resource Sharing Needs

Distributed to Mike Padlipsky, Ken Pogran, John Iseli.

MDK 29-JUN-73 11:22 17566

Resource Sharing Needs

Mike and Ken ... It was really good talking with you at lunch last week. 1

Out of that comes two things: 2

1) Belatedly no doubt but nevertheless as promised, there is a Tenex file at the NIC
<KUDLICK>USING.TXT
which you can read, or copy via FTP. It is a complete copy of Feinler's USING group meeting minutes. 3

2) I talked with John Iseli (MITRE) about the idea of creating a paper on the Network's needs for resource sharing RESEARCH (and management thereof). He liked the idea very much. 4

Several of us will have to participate in the writing of such a paper, if it's to have any real impact and credibility. Early next week, with John's help, I will get an outline on paper and communicate it to you and Ken. 4a

Initial thoughts center on these aspects: 4a1

Resource Notebook type of "Network Help" facility (with much better querying capabilities than present res-ntbk, of course) 4a2

A Network "exec" ... UULP, NETED, Facilitator concepts all apply here; 4a3

Need for redundancies (alternatives) built into the Network so that we don't get locked in (or out) when a given system or resource is unavailable somewhere; 4a4

Research on "people" resource sharing ... vastly improved "link" and "mail" facilities, especially from the point of view of the recipient who has to organize and respond to all that stuff flying at him. 4a5

Large scale distributed data storage and data base management facilities; 4a6

Security and privacy problems (and solutions, of course); 4a7

SOCIAL implications of computer networks:, problems & solutions; 4a8

Above all, I believe, the paper must point out the need for good research MANAGEMENT, long-term support and dollars, adequate incentives and rewards to the researchers. We might interest proposed sponsors by first asking for some "seed" money to get

objective preliminary studies going in any or all of the above areas, in order that the scope and directions of the research could be defined and reviewed before larger committments are made. 4b

Iseli suggested we try to put the paper together in collaborative fashion via the Network (using NIC's system, hopefully, but not necessarily), and I think that's a good idea. 4c

Others who might participate (I haven't asked them yet) are J.C.R. Licklider, Ken Bowles, someone from NSF, and someone like Ruth Davis (NBS), if I read her '73 Computer Communications Conference Keynote Address correctly. 4d

What do you think? 4e

MDK 29-JUN-73 11:22 17566

Resource Sharing Needs

(J17566) 29-JUN-73 11:22; Title: Author(s): Michael D. Kudlick/MDK;
Distribution: /MAP KP JI(for your information); Sub-Collections:
SRI-ARC; Clerk: MDK;
Origin: <KUDLICK>MIKE.NLS;2, 29-JUN-73 11:20 MDK ;

**67

Jake .... Were you ever able to contact John Barden at CASE on the Programs documentation stuff he was after ? ... Mike 1

(J17567) 29-JUN-73 11:31; Author(s): Michael D. Kudlick/MDK;
Distribution: /JAKE; Sub-Collections: SRI-ARC; Clerk: MDK;

**8

Charles ... Thanks very much for keeping Padlipsky informed on the login restriction situation at ARC. I definitely was out of touch with it, and hadn't read (17248,) closely enough to know that implementation was imminent.
You're right .... I will send my gripe to the EMC: this is of course a good example of how we've grown to the point that others depend on us to be relatively stable, so that when we change things we must adequately let them know in advance, and be prepared to handle the feedback. ... Mike

1

(J17568) 29-JUN-73 11:38; Author(s): Michael D. Kudlick/MDK;
Distribution: /CHI; Sub-Collections: SRI-ARC; Clerk: MDK;

PR 29-JUN-73 11:58 17569

A draft for the Research Proposal to the Vela Community

This is a rough draft of the proposal for support to the Vela Community you asked me to prepare for you. It still needs to be adjusted with ARC's policies concerning the access to the NLS Utility and to our own system. I could not do it due to the fact that Jim has been too busy to give his reactions about a previous draft I have shown him. I suggest that you discuss this subject with him directly.

Please let me know if you need some further assistance on this matter.

A draft for the Research Proposal to the Vela Community

TECHNICAL SUPPORT FOR THE USE OF AUGMENTATION TECHNOLOGY BY THE VELA PROJECT

1

INTRODUCTION

2

The purpose of this proposal is to request support for extending the utilization of the knowledge workshop technology developed at the Augmentation Research Center (ARC) of Stanford Research Institute (SRI) to the VELA Project of the Advanced Research Project Agency .

2a

The development of the augmented knowledge workshop techniques which are being developed at the Augmentation Research Center of Stanford Research Institute have now reached a stage of development where exploratory applications with high utilization potential can be profitably considered in some selected application areas outside the ARC and RADC environments where these techniques have been used successfully for the past several years.

2b

With the launching, early next fall, of an "NLS Utility" which will be operated and maintained by a commercial timesharing company, the on-line information handling system called NLS which has been developed by ARC will become available on a contractual basis to ARPANET users. Since the Advanced Research Project Agency (ARPA) will be the main subscriber to this NLS Utility, a considerable amount of computing power will be directly available for use by selected ARPA offices. Consequently, due to the concentration of expertise and engineering support that will exist around these offices, it will probably be within the ARPA environment itself that early exploratory applications will have the greatest potential for high pay-offs.

2c

The VELA project of ARPA is one of these selected application areas which could potentially benefit from the use of NLS. The objective of that project is to design, develop, operate, and evaluate a world-wide seismic data collection, processing, analysis, and storage system which will be using satellite communications, the ARPANET, large frame special purpose computers, and newly developed mass storage systems. Its purpose is to investigate the important remaining problems affecting the seismic verification of a comprehensive Test Ban Treaty and to obtain the operational experience necessary to design an optimium seismic verification system.

2d

Hence, the Vela Project is a very large scale project involving many geographically distributed contractors whose tasks and schedules are tightly interrelated. The management of such a large project is a difficult task by itself which, in this case,

is compounded by the fact that many iterations in the design of the seismic verification system will probably be necessary to arrive at the desired optimal configuration. Consequently, given furthermore that slippages in the development schedules and rates of expenditures will have serious consequences, any improvement in communications, information handling procedures, and support to the group cooperation process will have a significant impact on the final outcome of the project. 2e

Thus, the VELA project is an ideal candidate for possible "augmentation" by the NLS technology. The purpose of this proposal is to request support for introducing the existing NLS technology, procedures and methodologies into the VELA project, and to study how these techniques can be adapted to such an environment. 2f

Descriptions of the type of applications being suggested for exploratory use are given in a paper by Engelbart, Watson, and Norton [15] and in an earlier paper by Engelbart [16]. Copies of these documents are included with this proposal as Attachments A and B. 2g

PROPOSED STATEMENT OF WORK 3

Stanford Research Institute will provide the necessary qualified personnel and engineering services over a one year period to assist the VELA Project in the use and evaluation of the "augmentation technology" which will become available on a contractual basis via the ARPA network around September 1, 1973. 3a

The purpose of the project will be twofold. 3b

1) To assist the management of the VELA project and its contractors in the utilization and evaluation of the new information technology made availlable through the ARPA network, with emphasis on the NLS "augmentation technology" being developed at the Augmentation Research Center of Stanford Research Institute . 3b1

2) To study how project management can be facilitated by the use of NLS, to assist the VELA project in developing appropriate procedures for that purpose, and to make recommendations leading to an effective on-line project management system. In particular, we shall study the possibility of adapting known project management techniques, such as CPM and PERT, for use within the NLS framework. 3b2

It is expected that this work will: 3c

1) facilitate the management and control of the VELA project by providing augmented on-line communication capabilities to the different parties involved; 3c1

2) result in a realistic assessment of the desirability of creating within the ARPA Network a VELA Community Information Network and an associated Information Center for the contemplated worldwide seismic verification process; 3c2

3) provide practical knowledge about the feasibility and potential benefits of decentralizing, through the use of NLS, the information basis of a large project. It is expected that the results of this study will give valuable insight in the many conjectures and claims which have been made about the potential benefits of on-line project planning and control and lead, therefore, to improvements of known project management techniques. 3c3

In particular the work will cover the tasks listed below. 3d

1) Training and assistance in the use of the full capabilities of NLS, its user programming packages, and other relevant techniques available on the ARPA Network. 3d1

2) Technical assistance and engineering support in linking up involved parties. This will include: 3d2

providing file space, identifications, passwords and other system resources to accommodate up to four initial users until the NLS Utility becomes available, and 3d2a

giving assistance in the use of the available procedures to assure the privacy of file access. 3d2b

Some authorized ARC personnel will be allowed to enter and read the VELA Community files; however, other individuals accessing ARC services via the ARPA network will be denied that right unless the files are specifically released by the VELA management for general network use. 3d2b1

3) Provide information handling support for the distribution of hard copy information through the Network Information Center (NIC) of SRI-ARC. 3d3

4) Participate in the analysis of recognized information handling problems and assist in the development of appropriate solution procedures. 3d4

5) Help in the development and utilization of an on-line project management information base, and participate in the assessment of its effectiveness for project coordination and control. 3d5

6) Make recommendations towards the design of an on-line project management system utilizing the capabilities of NLS to improve the effectiveness of known project management techniques. 3d6

PROPOSED APPROACH FOR CARRYING OUT THIS WORK 4

To carry out the proposed work our first concern during all the phases of this proposed project will constantly be to enhance effectively the progress of the VELA Project towards its stated goals and to insure that the introduction of the new technology will not, at any time, slow down even temporarily the ongoing efforts towrds that end. 4a

We know by experience that to achieve such a result we must take a pragmatic and very gradual approach to the problem of technology transfer. We intend to take such an approach by having a professional from SRI-ARC, who is well trained in all aspects of the new augmentation technology and who has a background in operations research or management sciences, cooperate very closely with the VELA personnel and its major contractors in every aspects of the utilization of these new techniques. 4b

It will be his prime responsibility to identify with the cooperation of the VELA personnel those tasks which can be effectively augmented with the new techniques, to assist in the design of feasible solutions and low-profile implementation strategies, and to provide all the assistance needed to carry out those plans which are approved by the VELA management. For further details about the expected role of this professional we refer the reader to the discussion of the role of an "augmentation architect" in the following section. That is what the SRI-ARC representative will be supposed to be. 4c

A senior professional from ARC will be responsible for that part of the project which is concerned with the assessment of the practical results of this project and the study of their implications for project planning. 4d

BACKGROUND INFORMATION ABOUT ARC AND THE NLS UTILITY 5

A) The Augmentation Research Center 5a

Under Government sponsorship, the Augmentation Research Center

has developed over a period of ten years a general-purpose interactive augmentation system we call NLS for "on-line system". The goal of ARC's work has been to develop gradually a prototype Workshop system that will improve significantly the performance of individuals and teams engaged in knowledge-work activities. 5a1

For further background discussion, see [15] and [16], and the references in Section IV. 5a1a

B) Approach to the Problem of Technology Transfer 5b

We propose to begin to transfer technology from our local group of experienced users to a wider group of, geographically separate users within the ARPANET community. 5b1

This technology consists of computer software capabilities; a coordinated repertoire of computer-assistance tools; associated concept and language additions dealing with the tools and with the information organization and task processes associated with their use; and new aspects to intra-group organization and working methodology. 5b1a

Training a group in these new matters is necessary to the transfer; and to help others learn to train people in the new technology requires a transfer of the additional technology used to support the training. 5b1b

The process of technology transfer is not a simple process, judged by our and others' experience. We base our "Community Plan" strategy upon our experience that there are at least two main requirements for the transfer process both to be successful and to proceed at a reasonable speed and cost: 5b2

1) The group originating the technology and having the experience, and initial commitment to its value must follow through with training and application support of the end user groups until a critical mass of equivalently experienced and enthusiastic end users has developed. 5b2a

2) The end user groups must have at least one properly placed, active supporter of the transfer process. We have been using the term "local workshop architect" for this role. 5b2b

This seems similar to what Thomas Allen of MIT, who has studied the technology transfer process in some detail [13], calls a "gate keeper". His "gate keeper" is a person oriented both toward the problems of his

organization and toward capabilities developing outside his organization. He functions as the gate through which new ideas and technology enter his organization. 5b2b1

We find that Allen's concept of a "gate keeper" is highly relevant in our considerations, both for the successful transfer of our technology and for keeping the cost of this transfer to a reasonable level. 5b2b2

We would like to give particular emphasis to this second requirement--that each coherent group planning to integrate the proposed services into its working life should have at least one member serving as a "workshop architect" or "group coordinator." 5b3

The function of this person is to be familiar in detail with both the needs of his organization and the capabilities we are proposing. This person, knowing his group's needs and our capabilities, would help introduce a workshop system meeting these needs into his organization in the appropriate evolutionary stages. 5b3a

During the past year, RADC use of the ARC workshop system has been under the guidance of a local RADC workshop architect. This has proven to be a very effective arrangement. 5b3b

ARC personnel would continue to work closely with the workshop architect--in training him, in giving him significant help in his role, and in a continuing exchange of technical information. 5b3c

The labor-funding levels in this proposal are based on the assumption that when a client group is allocated a portion of the Utility Computer Services, the corresponding allocation of direct technical support will go primarily to its workshop architect. We assume that much of the responsibility for integrating the Workshop service into his organization or community will be handled by this person. 5b3d

If a workshop architect is not available within a client group, or if extra people need our direct technical support (as may be the case with some non-RADC users of the Workshop Utility), then additional funding will have to be provided. 5b3e

C) The NLS Utility 5c

1) Computer Services 5c1

We plan to offer a utility version of ARC's online system (NLS) which will be operated and managed by a commercial timesharing company. It will be serviced over the ARPANET, at least 16 hours a day, six days a week. 5c1a

There are two prime reasons for supporting Workshop services from a system operated and managed by a commercial timesharing utility company, rather than from a system directly operated by ARC. 5c1a1

1) A commercial firm has the experience, facilities, leverage on vendors, and redundant equipment that make possible more reliable service than can be produced in a research and development environment. 5c1a1a

2) It should be possible to expand the service in a more flexible manner in increments of whole or partial machines as usage grows. 5c1a1b

The computer services will be partitioned in such a way that we can guarantee each user his fair share of computer usage while still preserving flexible utilization of idle computing time. 5c1b

We are presently designing a scheme for partitioning computer access and service between groups of users so as to guarantee each group its fair share of system resources while preserving both adequate responsiveness and an independence for each group to plan its own usage loading. 5c1b1

We plan to implement and experiment with this scheme on the ARC machine before using it on the Utility system. 5c1b2

2) Access to the Services 5c2

The display version of NLS (DNLS) can presently be supported over the ARPANET on appropriately configured IMLAC display terminals, of which there are a number on the network, several located at RADC. Beyond this, we are planning to extend ARPANET DNLS support to a wider variety of display systems in three ways: 5c2a

1) Through extension of the IMLAC protocol to other display systems which can be provided with local-processor support, and using TELNET-protocol communication to the NLS Utility. 5c2a1

2) Through developing special versions of DNLS that work

with cheap, text-only display terminals, using no local-processor support and communicating with the NLS Utility via the TELNET protocol. 5c2a2

3) Through a general network-wide graphics protocol, serving display terminals with full DNLS service via the graphic protocol communication to the NLS Utility. (We are currently working with members of the Network Graphics Group on the design of such a protocol that could also support DNLS.) 5c2a3

The typewriter version of NLS (TNLS) utilizes the Network TELNET Protocol and is therefore available to a wide variety of CRT and hardcopy "typewriter" terminals. 5c2b

A "deferred execution" version of NLS (DEX) is supported from off-line typewriters using spooling stackup on magnetic tape cassettes, paper tape systems, or in local computers. 5c2c

DEX allows offline batch usage of a full range of NLS capabilities for document creation, editing, file manipulation--providing for almost any of the NLS operations for creating new files or working on existing files. 5c2c1

3) Service Features 5c3

File privacy 5c3a

The NLS Utility will provide the necessary standard TENEX software and/or procedures to ensure some privacy of file access. It should be noted on the other hand, that the visibility and availability of planning information and other recorded dialog in ARC's currently open Journal system provides some of the more significant effectiveness-augmenting potential of our Workshop system. 5c3a1

We assume that ARC computer-service personnel may occasionally have to access clients' user files as required from an operational standpoint; however, other individuals accessing Workshop Utility Service via the ARPA Network will be denied read, write and list access to a client's files, unless he specifically releases files for general use. 5c3a2

NLS's Output Processor, a powerful subsystem for formatting and printing documents, can currently be used from typewriter and other printers on network hosts and TIPS. 5c3b

Using the Network File Transfer Protocol, we are developing flexible capabilities that will allow transfer and conversion of text files back and forth between other text-manipulation systems and NLS. 5c3c

We are also developing the capability to enter documents and messages into the ARC Journal system from files created in other hosts, and to deliver documents submitted to the Journal to users at remote hosts through the network. 5c3d

We are planning to have cooperating distributed Journal systems running on several hosts in the network, and to use bulk storage in systems such as the Data Computer for archiving Journal and other files. 5c3e

Our goal, as it was with the TELNET and File Transfer Protocols, is to work for general network protocols to provide needed capabilities and thus minimize or eliminate any special Network provisions to support NLS over the Network. 5c3f

4) Future Plans 5c4

We are planning to begin during the coming year to rewrite NLS in the Modular Programming System (MPS), a new modular, run-time linkable, machine-independent programming system being developed jointly with Xerox PARC. We plan for continued evolution of the modularized NLS--MPS will allow NLS to be easily reconfigured for different user groups, allow "interactive frontend" or other modules to run on other hosts in the network, and allow collaborating groups to experiment with special features in the system which we or they create. 5c4a

We have been and are studying various configurations of hardware so as to be able to recommend to isolated individuals or coherent groups display, typewriter, and offline systems possibly supported by a mini-computer in a range of prices and capabilities for their use with NLS. 5c4b

SELECTED REFERENCES 6

1 ARC 3906, D. C. Engelbart, "Augmenting Human Intellect: A Conceptual Framework," Summary Report, Contract AF 49(638)-1024, SRI Project 3578, Stanford Research Institute, Menlo Park, California, AD 289 565, October 1962. 6a

2 ARC 5139, D. C. Engelbart and Staff of Augmentation Research Center, "Computer-Augmented Management-System Research and Development of Augmentation Facility," ARPA-TR-82, Final Report of Contract F30602-68-C-0286, SRI Project 7101, Stanford Research Institute, Menlo Park, California, April 1970. 6b

3 ARC 5140, D. C. Engelbart and Staff of Augmentation Research Center, "Advanced Intellect-Augmentation Techniques," Final Report NASA Contract NAS1-7897, SRI Project 7079, Stanford Research Institute, Menlo Park, California, July 1970. 6c

4 ARC 5255, D. C. Engelbart, "Intellectual Implications of Multi-Access Computer Networks," paper presented at the Interdisciplinary Conference on Multiple-Access Computer Networks, Austin, Texas, April 20-22, 1970. 6d

5 ARC 8276, D. C. Engelbart, "Experimental Development of a Small Computer-Augmented Information System," Annual Report, Office of Naval Research (ONR) Contract N00014-70-C-0302, SRI Project 8622, Stanford Research Institute, Menlo Park, California, April 1971. 6e

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7 ARC 10045, D. C. Engelbart, "Experimental Development of a Small Computer-Augmented Information System," Annual Report, Office of Naval Research (ONR) Contract N00014-70-C-0302, SRI Project 8622, Stanford Research Institute, Menlo Park, California, April 1972. 6g

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CONTRACTUAL PROVISIONS 7

ESTIMATED TIME AND CHARGES 7a

It is proposed that the work outlined herein be performed during a period of one year starting September 7,1973. 7a1

Pursuant to the provisions of ASPR 16-206.2, attached is a cost estimate and support schedules in lieu of the DD Form 633-4. 7a2

A contract resulting from this proposal should be for the amount indicated in the "Cost Estimates" section shown below, i.e., for $..... 7a3

REPORTS 7b

Because of the support nature of the efforts proposed herein, there will be no quarterly progress reports produced under this contract. But a final summary report will be submitted on completion of this work. 7b1

The following technical documentation will be provided: 7b2

TNLS and Deferred Execution Users Guides and updates 7b2a

DNLS User Guide and updates 7b2b

CONTRACT FORM 7c

It is requested that any contract resulting from this proposal be awarded on a cost-plus-fixed-fee basis. 7c1

RELATED SUPPORT FROM OTHER AGENCIES 7d

The Augmentation Research Center of SRI has been supported mainly by the Advanced Research Project Agency (ARPA) on a continuing basis. Support has also been provided by the Rome Air Development Research Center (RADC) of the U.S. Air Force. 7d1

ACCEPTANCE PERIOD 7e

For purposes of staff scheduling and training this proposal will only remain in effect until September 7,1973. Should a longer period be required for consideration of this proposal, the Institute would be pleased to consider an extension of this time period. 7e1

COST ESTIMATES 7f

A draft for the Research Proposal to the Vela Community

8c

Prepared by:

.....
Augmentation Research Center

R. W. Watson, Assistant
Director

Augmentation Research Center

8d

Approved:

D. C. Engelbart, Director
Augmentation Research Center

Bonnar Cox, Executive Director
Information Science and Engineering Division

8e

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A draft for the Research Proposal to the Vela Community

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