DEW 1-MAY-72 15:56 10300

participation

i am composing a journal message that should allow me to become a functioning member of the sur group 1

participation

(J10300) 1-MAY-72 15:56; Title: Author(s): Don E. Walker/DEW; Distribution: James E. White, Augmentation Research Handbook, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Donald R. Cone, Don Limuti, William R. Ferguson, Priscilla Lister, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Mary S. Church, William S. Duvall, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne B. North, James C. Norton, Cindy Page, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I. Andrews/SRI-ARC; Sub-Collections: SRI-ARC; Clerk: DEW;

DL 1-MAY-72 15:59 10302

WHAT

THIS MESSAGE IS NONSENSE 1

DL 1-MAY-72 15:59 10302

WHAT

(J10302) 1-MAY-72 15:59; Title: Author(s): Don Limuti/DL; Distribution: Dirk H. van Nouhuys, Don Limuti, Priscilla Lister, Don E. Walker, Don Limuti/DVN DL PL DEW DL; Sub-Collections: SRI-ARC; Clerk: DL;

DCE 1-MAY-72 15:55 10303

nonsense message

thank you for accepting this message. 1

DCE 1-MAY-72 15:55 10303

nonsense message

(J10303) 1-MAY-72 15:55; Title: Author(s): Douglas C. Engelbart/DCE; Distribution: Richard W. Watson/RWW; Sub-Collections: SRI-ARC; Clerk: DCE;

RWW 1-MAY-72 15:59 10304

sample journal session

how are you all ...?this is a sample message.....thank you 1

RWW 1-MAY-72 15:59 10304

sample journal session

(J10304) 1-MAY-72 15:59; Title: Author(s): Richard W. Watson/RWW;
Distribution: Dirk H. van Nouhuys, Richard W. Watson/DVN RWW;
Sub-Collections: SRI-ARC; Clerk: RWW;

Additions to POD Bibliography

The following items should be added to the bibliography of items dealing with PODs: 1

Articles in Innovation (most containing bibliographies): 2

Ferguson, "Coping with Organizational Conflict", Issue 29. 2a

Sperling, "Getting OD to Really Work", Issue 26. 2b

Tannenbaum, "Organizational Change Has to Come", Issue 23. 2c

Davis, "Building More-Effective Teams", Issue 15. 2d

Dunnett, "Should Your People Take Sensitivity Training?", Issue 14. 2e

Bowers and Norman, "Strategies for Changing an Organization", Issue 5. 2f

Books in the Organizaton Development Series of Addison-Wesley (on order): 3

Bennis, "Nature of Organization Develpment". 3a

Beckhard, "Strategeies of Organization Development". 3b

Lawrence and Lorsch, "Developing Organizations". 3c

Schein, "Process Consultation". 3d

Walton, "Third Party Consultation". 3e

Blake and Mouton, "Grid Organization Development". 3f

Argyris, "Intervention Theory and Methods". 4

HGL 1-MAY-72 16:01 10305

Additions to POD Bibliography

(J10305) 1-MAY-72 16:01; Title: Author(s): Harvey G. Lehtman/HGL;
Distribution: Marilyn F. Auerbach, Jeanne B. North, Douglas C.
Engelbart, J. D. Hopper/MFA JBN DCE JDH; Sub-Collections: SRI-ARC;
Clerk: HGL;
Origin: <LEHTMAN>BIB.NLS;1, 1-MAY-72 15:44 HGL ;

DVN 1-MAY-72 16:01 10306

This is a sample message.

This is a sample message.

DVN 1-MAY-72 16:01 10306

This is a sample message.

(J10306) 1-MAY-72 16:01; Title: Author(s): Dirk H. van Nouhuys/DVN;
Distribution: Beauregard A. Hardeman, Dirk H. van Nouhuys/BAH DVN;
Sub-Collections: SRI-ARC; Clerk: DVN;

DL 1-MAY-72 16:03 10308

JUST WANTED TO GIVE YOU SOMETHING TO READ RALPH 1

(J10308) 1-MAY-72 16:03; Title: Author(s): Don Limuti/DL; Distribution: Richard W. Watson/RWW; Sub-Collections: SRI-ARC; Clerk: DL;

Marilyn F. Auerbach
Augmentation Research Center
Stanford Research Institute
Menlo Park, California 94025

To:
Access Copy

10309 Bass

Oak POD Meeting: Duration 9229
18 Feb 72 Nouhuys

FIR

FIR POD Meeting Notes 8692
28 Jan 72 Ferguson

Fir POD minutes -- 1 Feb 8939
9 Feb 72 Church

Fir Pod Meeting, 9 February 1972 9226
14 Feb 72 Jernigan

Fir POD Meeting, 9 February 1972 9228
14 Feb 72 Jernigan

Fir POD Meeting, 9 Feb 1972 9239
14 Feb 72 Jernigan

Fir POD Minutes for Meeting of 14 March 1972 9522
15 Mar 72 Jernigan

A Fir POD Report of Activities, 11 April 1972 10188
20 Apr 72 Jernigan

Fir POD Meeting, 18 April 1972 10125
20 Apr 72 Jernigan

CEDAR

Cedars Arise and Form Your Roots 8652
25 Jan 72 Lehtman

The PODAC Papers

DVN 1-MAY-72 17:23 10310

Locator is back on the air

see title 1

DVN 1-MAY-72 17:23 10310

Locator is back on the air

(J10310) 1-MAY-72 17:23; Title: Author(s): Dirk H. van Nouhuys/DVN; Distribution: Richard W. Watson/RWW; Sub-Collections: SRI-ARC; Clerk: DVN;

JBP 2-MAY-72 1:02 10311

comment on alex-to-ari message

The message from alex was not distributed to everybody but my guess is that it went to the technical liaisons (one guy per site). 1

JBP 2-MAY-72 1:02 10311

comment on alex-to-ari message

(J10311) 2-MAY-72 1:02; Title: Author(s): Jonathan B. Postel/JBP;
Distribution: Dr. Vinton G. Cerf/VGC; Sub-Collections: NIC; Clerk: JBP;

JGM 2-MAY-72 15:13 10312

MESSAGE TO JIM MITCHELL

Jim, thanks very much for your time and patience this afternoon.

1

JGM 2-MAY-72 15:13 10312

MESSAGE TO JIM MITCHELL

(J10312) 2-MAY-72 15:13; Title: Author(s): James G. Mitchell/JGM;
Distribution: James G. Mitchell/JGM; Sub-Collections: NIC; Clerk: JGM;

NLS Operations Role

At the general Software meeting held April 28 it was decided that we need an NLS Software Operations role at ARC. This person would represent NLS (as DCW does TENEX) as far as the general Operations job is concerned. Below is a tentative list of areas that seem to fall into this category. 1

1a

Bringing Up New Versions of NLS 1b

The NLS Operations Coordinator role parallels that of the System Coordinator, in the sense that the former should verify new systems from the standpoint of performance while the latter should verify the new <NIC-NLS> source from the standpoint of coding and documentation conventions. 1b1

The Operations person needs to find out the exact nature of additions/deletions that went into making up the new version, so that some appropriate special tests may be made at this time. (This should pertain to all code changed, regardless of whether or not it was deemed significant enough to appear in <NLS>STATUS.) 1b2

The general problem of Quality Assurance has, in the past, remained more or less unsolved, as far as I can tell, and some sort of standards must be evolved, even though we realize that a fully automated approach is extremely difficult to achieve. 1b3

1b4

NLS Bug Fixing 1c

When bug reports are submitted, either via the form or the phone: 1c1

Identify problem. See if it is new, or has been the object of some sort of past action. If you discover a bug, you will cause a smaller drain on people resources if you document it (at the risk of being redundant) than if you try to tell people about it. (I have tried to help people who have come to me with problems in the past, only to track it down and find out that it is a known problem with a small priority.) If we get a better handle on bug-fixing, people should be more willing to go through the misery of filling out a form, and let the Operations person worry about tracking down duplicate gripes. 1c1a

Keep a running (up-to-date) status on known problems, so the guy who talks directly to the reporter of the problem may be able to lay his hands on a quick answer. (Or, keep this information in a file which everyone can check.) 1c1b

Assign priorities to the required bug fixes and enlist the guy who wrote the code, if possible, to take time out from development to fix the problem. The success of the whole Operations effort depends quite definitely on the support of everyone who gets involved in this. If the author of the code is not around, the Operations person should track it down and fix it. Due to the current state of internal documentation, the cooperation of the rest of the NLS team will also be needed here in order to pool knowledge, since this person will probably get into all sorts of areas of the system. 1c1c

1c1d

These steps should eventually result in the definition of meaningful testing procedures and a more appropriate bug-reporting mechanism. Even though we are in a more free environment here than in industry, and even though we don't have "paying" customers, we all pay a high price when people don't take the responsibility for documenting and maintaining the code they produce. I would like to see us try this more unified and professional approach to keeping ourselves and the NIC users happy. 2

3

DSK 2-MAY-72 15:15 10313

NLS Operations Role

(J10313) 2-MAY-72 15:15; Title: Author(s): Diane S. Kaye/DSK; Distribution: James E. White, Augmentation Research Handbook, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Donald R. Cone, Don Limuti, William R. Ferguson, Priscilla Lister, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Mary S. Church, William S. Duvall, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne B. North, James C. Norton, Cindy Page, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I. Andrews/SRI-ARC; Sub-Collections: SRI-ARC; Clerk: DSK;
Origin: <KAYE>NLSORG.NLS;2, 1-MAY-72 17:25 DSK ;

ON THINGS LITERARY (more-less)

O wae Gae the giftie gie us to see irsils as ithers see us.
A man's a man for a' that and a' that.
A skunk sat on a stump. The skunk said the stump stunk, and the skunk said the stump stunk.
She sells sea shells down by the sea shore.
The world is too much with us late and soon, don't you think?
Hee, hee, hee, hee, hee, hee, hee, hee, ...

1

The world of literary froth and fun provides us with a means for cerebral relief at the expense of eye strain and, in this case, considerable digital (you'll pardon the expression) expense.

1a

DLM 3-MAY-72 17:08 10315

ON THINGS LITERARY (more-less)

(J10315) 3-MAY-72 17:08; Title: Author(s): Dan L. Murphy/DLM;
Distribution: James G. Mitchell, Dirk H. van Nouhuys, L. Peter
Deutsch/JGM(would you believe) DVN(teech) LPD(aint married life
wnderful); Sub-Collections: NIC; Clerk: DLM;
Origin: <MITCHELL>CLEAN.;1, 3-MAY-72 16:25 DLM ;

<NORTON>LIMUTI.NLS;1, 20-APR-72 14:53 JCN ; 1

Equipment at fault: (circle one or write) 1a

ARC:	DEC:	BRYANT:	TELCO:	BBN
				1a1
Xcore	Pager	Drum	Datasets	IMP
				1a2
" Multiplexer	CPU	Disk		1a3
" Interface	Memory			1a4
I\O Box				1a5
Disk\Drum Mux.				1a6
IDC	Tapes/Control			1a7
A/D Converter	Line scanner			1a8
DC1, DC2	Diskpacks			1a9
Tasker 1, 2				1a10
IMP Interface				1a11
Low-prior dev				1a12
Printer				1a13
Clock				1a14
Others (mouse, keysets, air cond, TYYs, indicate if others)				1a15

Date: 1b

Time Down: 1c

Time Up: 1d

Who's effected -whole system? or: 1e

(all displays, half displays, ttys, Net, datasets, printer, ...): 1e1

Time fix started: 1f

Type of failure (components, noise, design error, unknown, etc...): 1g

Device or interconnection problem?: 1h

Is equipment upgradeable, as per EKV April 72 plan?: 1i

Comments: 1j

(J10317) 3-MAY-72 17:23; Author(s): Don Limuti/DL; Distribution: Don Limuti, Don Limuti/DL DL; Sub-Collections: SRI-ARC; Clerk: DL;

missing person

It's because I haven't found the right person 1

DVN DL 3-MAY-72 17:32 10318

missing person

(J10318) 3-MAY-72 17:32; Title: Author(s): Dirk H. van Nouhuys, Don Limuti/DVN DL; Distribution: Gino Pucine, James C. Norton, Don Limuti/GINO(to se if you really have and id) JCN DL; Keywords: ppperson #←←←; Sub-Collections: NIC; Clerk: PL;

User Guide for New Output Processor Directives

The following is a user guide for some new directives of the Output Processor. The new directives deal with the new grid coordinate system of the OP, character fonts, character sizes, and inter-character spacing. 1

Grid Coordinates 2

The OP now deals internally with an 256K by 256K coordinate system rather than the old system of columns and lines. All horizontal and verticle distances are now in terms of the new coordinate system. 2a

All the old directives dealing with columns and lines remain and work as they have always worked. When they occur in a file, their settings are merely converted by the OP into the grid coordinate system. 2b

There are a bunch of new directives that allow the user to specify horizontal and verticle distances directly in terms of the grid. There is a one-to-one correspondence between each of the old column or line directives and a new grid directive. 2c

New X-coordinate directives 2d

(remove last X to find what column directive it corresponds to) 2d1

Left and right margins: 2d2

BLMX BRMX HLMX HRMX FLMX FRMX LMX RMX 2d2a

Indentation: 2d3

ICRX IFirstX ILX ILCRX ILevX IMaxX IOvrX IRelX IRestX ISNX 2d3a

Other 2d4

SNFX SigFX 2d4a

Note: 2d5

There is as yet no directive for setting tab stops in terms of the grid. 2d5a

All the former column query directives are now in terms of the grid rather than in terms of columns. 2d5b

New Y-coordinate directives 2e

(remove last Y to find what line directive it corresponds to) 2e1

Page layout: 2e2

TMY LBHJH1Y LBH1H2Y LBH2H3Y LBH3H4Y LFHY BMY LPF LMaxY 2e2a

Plex formatting: 2e3

YPxFLDY PxFLSY PxFLUY 2e3a

Grabs: 2e4

GRBY FastGrabY 2e4a

Note: Grab, the older grab directive, remains only in terms of lines. 2e4b

YBL and YBS: 2e5

The new directives YBL (Y space Between Lines within a statement) and YBS (Y space Between Statements) correspond to the old LBL and LBS. 2e5a

There are some differences however. 2e5b

YBL is the Y grid distance from the bottom of the preceding line to the bottom of the next line. LBL was the number of blank lines to be inserted between lines of a statement. Thus the default value of YBL was 0 while the value of YBL must always be greater than or equal to 1. 2e5c

YBS is the Y grid distance from the bottom of the last line of the preceding statement to the bottom of the first line of the following statement. Formerly, LBS * LBL was the number of blank lines to be inserted between statements. YBS must also always be greater than 0, whereas LBS could be 0. 2e5d

Note: All the former line query directives are now in terms of the grid rather than in terms of lines. 2e6

There are two strange directives that are going to be a bit hard to explain. They are pretty awkward and hopefully somebody will figure out a better way to do it. 2f

YPERL (Y grid distance PER Line) is used in three ways: 2f1

Its current value is used to convert the old line directive values to grid values. 2f1a

The Post Processor part of the OP uses YPERL to convert differences in Y coordinate values to carriage returns for those devices that have only carriage returns to do spacing in the Y direction (all current devices except the FR80) 2f1b

YPERL is used for the distance below the body of a statement to put the statement number and/or signature. 2f1c

XPERCH (X grid distance PER Character) is used in two ways: 2f2

Its current value is used to convert the old column directive values to grid values. 2f2a

The Post Processor part of the OP uses XPERCH to convert differences in X coordinate values to spaces for those devices that have only spaces to do spacing in the X direction (all current devices except the FR80) 2f2b

The main reason for the existence of these directives is to make it possible to print a file on several different devices using exactly the same directives and have it come looking pretty much the same on each of the devices. 2f3

The user is warned to be careful about the use of these directives and the general problem of getting check copies out on the printer before printing stuff with the FR80. A little thinking and experience should help a lot until somebody comes up with a better way of doing this. 2f4

The default values of YPERL and XPERCH are 1 for all current devices except the FR80. They are in terms of the FR80 16K by 16K grid for the FR80. 2f5

What this all does mean is that if you only want stuff formatted for the line printer and you stick to using the old line and column directives, everything will work as it did before (with the exception of now LBS is not multiplied by LBL to get the spacing between statements). All old files set up for the line printer will come out exactly as they did before with the exception noted above. 2f6

Fonts, Character Sizes, and Inter-Character Spacing 3

There is an entirely new group of directives that allow the

user to set the font, size, and spacing of characters. Each of these may be set independently for the following areas: 3a

Body, Footer, Header 1, Header 2, Header 3, Header 4, Header Journal, Numbering PleXes, Statement Numbers, and SIGnatures. 3a1

Note: 3b

These directives have an effect only for the FR80. 3b1

The Footer includes the page number. 3b2

"Numbering Plexes" means any of the numbers that are printed before the text of the statement. 3b3

"Statement Numbers" means any of the numbers that are printed after the text of the statement. 3b4

The directives are as follows (Font means font, "CSz" means character size, "CSp" means inter-character spacing): 3c

Body 3c1

BFont BCSz BCSp 3c1a

Footer 3c2

FFont FCSz FCSp 3c2a

Header 1 3c3

H1Font H1CSz H1CSp 3c3a

Header 2 3c4

H2Font H2CSz H2CSp 3c4a

Header 3 3c5

H3Font H3CSz H3CSp 3c5a

Header 4 3c6

H4Font H4CSz H4CSp 3c6a

Header Journal 3c7

HJFont HJCSz HJCSp 3c7a

User Guide for New Output Processor Directives

(J10319) 3-MAY-72 18:04; Title: Author(s): Bruce L. Parsley/BLP; Distribution: James E. White, Augmentation Research Handbook, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Donald R. Cone, Don Limuti, William R. Ferguson, Priscilla Lister, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Mary S. Church, William S. Duvall, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne B. North, James C. Norton, Cindy Page, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I. Andrews/SRI-ARC; Sub-Collections: SRI-ARC; Clerk: BLP;
Origin: <PARSLEY>OPUG.NLS;3, 3-MAY-72 18:02 BLP ;

DVN 4-MAY-72 8:04 10320

On:"On Things Literary"

As you may know I teach TNLS. My present class includes a student namde Diana L Merry. I ask that she be listed in the system and have an ident, but unbeknowst to me she was not entered. When she logged in she tried using her initials and, naturally, suceeded. These events account for a practice journal message named ON THINGS LITERARY which the system attributes to you as author. 1

DVN 4-MAY-72 8:04 10320

On:"On Things Literary"

(J10320) 4-MAY-72 8:04; Title: Author(s): Dirk H. van Nouhuys/DVN; Distribution: Dan L. Murphy, Richard W. Watson, Dirk H. van Nouhuys/DLM RWW DVN; Sub-Collections: SRI-ARC; Clerk: DVN;

JTM 4-MAY-72 8:04 10321

hello, mike. i just thought id let you dnow that im alive and well down in the south. i still pick up my mail via the journal, so if you want to get in touch (with some lag) just send me a journal item. jtm 1

(J10321) 4-MAY-72 8:04; Title: Author(s): John T. Melvin/JTM; Distribution: Michael D. Kudlick/MDK; Sub-Collections: SRI-ARC; Clerk: JTM;

JEW 4-MAY-72 8:47 10322

FACILITATOR/LIAISON ROLES 17 MAY 72 3:44AM

IN RESPONSE TO RWW'S REQUEST AT THE LAST NIC PLANNING MEETING ... 1

What follows is a list of the functions that a Facilitator and Liaison turn out to perform. The two roles parallel one another, one with more global scope than the other. 2

While at UCSB, I found that my time in these roles was spread fairly evenly across this outline, with the exceptions that: 3

Lots of time was spent implementing protocols, and 3a

Very little time was spent chasing inter-host bugs 3b

Facilitator 4

Protocol Development 4a

Aid in identifying necessary, Network-standard protocols 4a1

Schedule and oversee their development 4a2

Participate in working meetings 4a3

Chase bugs at interface points between hosts 4b

Interface with interested individuals and groups outside the Net 4c

Answer (or re-direct) questions about the Net on such subjects as: 4c1

Services available 4c1a

Documentation 4c1b

Marketing a product by putting it on the Net 4c1c

Getting a host onto the Net 4c1d

Hardware 4c1d1

From BBN 4c1d1a

Costs 4c1d1a1

Locally built 4c1d1b

Estimated cost	4c1d1b1
Any hardware already built for their partiular machine type by some other host?	4c1d1b2
Software	4c1d2
Estimated cost, size, implementation time	4c1d2a
Any software already written for their particular machine and system by some other host?	4c1d2b
Request documents be sent by NIC	4c2
More formal interfaces -- examples:	4c3
Panel member at session of EDUCOM network conference	4c3a
Upcoming ICCC conference	4c3b
Liaison	5
Protocol development	5a
Participate in design of protocols pertinent to home host	5a1
Implement (or see implemented) each such protocol at home host	5a2
Code	5a2a
Debug	5a2b
Test and experiment	5a2c
Maintain	5a2d
Help remote users to effectively use local system	5b
Field telephone/hard-copy queries about:	5b1
Local resources	5b1a
Conventions for their use	5b1b
Peculiarities of their use through the Net	5b1c

Help local users use other resources in the Net 5c

FACILITATOR/LIAISON ROLES 17 MAY 72 3:44AM

(J10322) 4-MAY-72 8:47; Title: Author(s): James E. White/JEW; Distribution: Richard W. Watson, Jacques F. Vallee, James E. White, Jeanne B. North/npt ; Sub-Collections: SRI-ARC NPT; Clerk: JEW; Origin: <WHITE>LIAFAC.NLS;6, 3-MAY-72 16:18 JEW ;;

JEW 4-MAY-72 13:32 10324

SRI INFO UPDATE PER REQUEST

Bruce, the following changes to <dolan>arpanet.sri are appropriate: 1

Emergency contact is 'Mr. Ed Van De Riet' 1a

(Note the spaces) 1a1

Address is '333 Ravenswood Ave.' 1b

(Note the 's') 1b1

As far as phone lines are concerned 2

The consensus is that yes we are connection to Ames, McClellan, and UCSB 2a

I can't comment on the scheduled line switches involving LBL and Xerox 2b

The telephone company stickers in the modem cabinets have different circuit number prefixes than your information indicates 2c

Ames -- 1GW 02568 (Note '1GW') 2c1

Mc Clellan -- 36W 03005 (Note '36W') 2c2

UCSB -- 1GW 00547 (Note '1GW') 2c3

JEW 4-MAY-72 13:32 10324

SRI INFO UPDATE PER REQUEST

(J10324) 4-MAY-72 13:32; Title: Author(s): James E. White/JEW;
Distribution: Bruce A. Dolan/bad ; Sub-Collections: SRI-ARC; Clerk:
JEW;
Origin: <WHITE>SRIDOLAN.NLS;3, 4-MAY-72 13:30 JEW ;

Some Problems in New TNLS

<control-b> at the end of a command does not make the command repeat as in DNLS. It would be very useful in the sytem where you have to wait for characters to type. 1

Show Marker List doesn't work and Markers don't work in addreses. 2

Content analyser patterns don't seem to work in links....In a print cmmand they yeilded the curious response: "No existing block with name LOCAL ← A: V:" and then accepted the viewspec and printed the current statement. 3

When I entered a series of options following Y/N, on the first occasion the system prompted me, sensibly: "opt C:". Ffrom then on, however, it gave me only "C:". 4

Some viewspecs (m,I,G) carry forward, others (lines and levels) reset following each command. 5

I wish the viewspecs would not reset, as in the old days. 5a

Quit puts you in TENEX OK, but with "Illegal Instruction" and a lot of location shit. 6

When I asked "Show Directory" for everything, it gaave me only account numbers. 7

Some Problems in New TNLS

(J10325) 7-JAN-74 15:47; Title: Author(s): Dirk H. Van Nouhuys/DVN; Distribution: /NEWNLS; Sub-Collections: SRI-ARC NEWNLS; Clerk: DVN;

DVN 4-MAY-72 14:11 10326

Oak answers PODCOM's Questions

These notes respond to PODCOM's request that Pods answer certain questions (journal,10225,). 1

The answers are based mostly on discussions in our meeting of May 3, but also on a series of tape interviews of members I made the second week in April. 1a

I intend to write up the interviews in a separate document (journal,10325,) 1a1

Consensus is not characterisitc of our Pod. In general if one person asserts an opinion, some agree, others disagree, and others remain silent. Their silence is not tantamount to agreement. These notes, then, report a sampling of opinion. 1b

1c

Some of us believe that our Pod has contributed to organizational and personal development and others that it has not. Two people feel strongly that it has not, no one feels strongly that it had. 2

Several who felt the pod had made no contribution, emphasized that they merely reported what had happened and did not thereby condem the notion of PODAC. 2a

"The lessons we've learned had to be learned."..."It takes three months to learn there's no way to wait out Doug." 2a1

Several people commented that Pods had helped communication. The opinion expressed by other Pods that they had interferred with communication must rerfer to the tendency of the pods to dissipate the tight communication that used to go on in the software group. 2b

Two others felt that Pods take time aWay from discussion of personal and organizational development with members of other pods. 2b1

We believe we made a contribution in inviting Gus Matzorkis to speak. 2c

"It's never a disapointment any more, and sometimes something nice happens. That's why I'm getting more and more postive." 2d

Our disucssion of goals began with some one saying, "We have no goals..if we did set goals we would not state them," but in the following conversation people suggested and endoresed several goals. 3

Oak answers PODCOM's Questions

Someone said, "It would be nice if this were an energy-gathering place." 3a

Instruction in "Mind Dynamics" and massage were suggesed and endoresed. 3a1

Audio and/or video taping our meetings and rerunning them for self enlightenment was suggested and strongly endoresed. We urged unanimously (except for one member who was asleep, possibly gathering energy) that ARC carry out its long-standing plan to get a video tape machine. This endorsemet was the strongest consensus that I remember in our Pod. 3a2

Other goals susgested and endorsed: 3b

Keeping a personal or group journal of what had been going on relevant to personal ad organizational development. 3b1

Being more open to suggestions from within the Pod (We have always allowed the veto of any one dissenter to block any plan; people seemed to think we should reexamine this rule). 3b2

Fielding meaningful questions from outside the Pod and returning meaningful replies to the questioners. 3b3

"We could try to make a serious (non-bullshit) attempt to define personal and organizational development." 3b4

Our reaction to proposals to reshuffle the Pods was mixed. Two people were strongly opposed, two people in favour with reservations. 4

Several people agreed that discussion was easier in groups smaler than 8. 4a

We have disagreed strongly several times about the principal of bringing in non-ARC consultants to help us in our Pod functions. Some one suggested that people with strong disagreement on that point should not be in the same Pod. 4b

Several people said that they liked our Pod as it is and do not want to change it much. 4c

In response to questins about how long and how often pods should meet and whether the organization of PODAC should change we talked mostly about the possibilities of PODAC's other than Pod meetings, that is seminars and special purpose pods. 5

Oak answers PODCOM's Questions

Special purpose Pods might devote themselves to, e.g. particuar work problems, or sensitivity games. 5a

If such other activies became important, we would have to redivide time accordingly. 5b

With one disenting vote, we reccomended that Pod attendance be officially voluntary. 6

DVN 4-MAY-72 14:11 10326

Oak answers PODCOM's Questions

(J10326) 4-MAY-72 14:11; Title: Author(s): Dirk H. van Nouhuys/DVN; Distribution: Douglas C. Engelbart, Walt Bass, J. D. Hopper, Kenneth E. Victor, Linda L. Lane, Mil E. Jernigan, Cindy Page, Marilyn F. Auerbach, Michael D. Kudlick, Walt Bass, Beauregard A. Hardeman, J. D. Hopper, Diane S. Kaye, Don Limuti, Priscilla Lister, James C. Norton, William H. Paxton, Dirk H. van Nouhuys/PODCOM OAK; Sub-Collections: SRI-ARC PODCOM OAK; Clerk: DVN;
Origin: <VANNOUHUYS>POD.NLS;1, 4-MAY-72 14:01 DVN ;

RADC/SRI KICKOFF MEETING NOTES

SRI/RADC AHI MEETING 25-27APR72 1

PURPOSE:To discuss SRI support to RADC during the 8 months of the pending contract 1a

ATTENDEES:JCN,DVN,PR,DLS,TFL,JHB,RBP 1b

DISCUSSION: 1c

Paul Rech will assume the role of team leader (pusher) for this effort from James Norton. JCN will assist in the BMS area and Dirk van Nouhuys in the training area with other ARC people being on call for consultation, programming, transcription etc as required. 1c1

The RADC AHI activity was briefly discussed by DLS. The activity is currently broken into 7 efforts. These are contained in: 1c2

(stone,bmseff,)backed up by a plan in (stone,baseline,) 1c2a

(stone,termeff,) backed up by plan in (stone,term,) 1c2b

(lawrence,nettsk,) 1c2c

(bair,effort,) backed up by plan in (bair,plan,) 1c2d

(lawrence,traeft) 1c2e

(radc,assist)--roger panara 1c2f

(stone,afxoaeff,) backed up by (stone,agree) 1c2g

It was suggested by JCN that another effort might be created with the objective of actively seeking out and describing other Aif Force organizations/environments in which the AHI technology might be placed. This suggestion was reenforced by PR's concern over the relatively minor impact that a succesful implemetation of AHI at RADC would have on the Air Force. 1c3

The environment at RADC in which the development/training/evaluation efforts will be conducted was discussed. The higher level management (division) is supporting the activity--Dr. Crocetti is particularlly interested in the support that AHI can give team activities and has taken an active interest in the evaluation plan--Bill Bethke wants to "dazzel" the new RADC commander with a demo of AHI capabilities. The AHI group at RADC will be split up for

at least a few months due to a recent move into new offices. JCN indicated that this is less than desireable since much casual information on tricks of using the system will be missed. Perhaps this can be partially offset by a regular users' group meeting. The IMLACs will be placed in a single room. JCN suggested that they be separated by movable partions to allow for a certain amount of privacy when desired. He also strongly suggested that a second secretary be trained in use of the system as soon as possible to provide DEX backup. 1c4

The problem of training was discussed in detail. It was agreeded that SRI waould help RADC during the first round of training in TNLS with the idea that RADC will then be in a position to conduct future training exercises on their own. Training in DEX will be deffered until RADC recieves the cassette recorders. Training in L-10/content analyzer will be defered until the baseline management system is better designed. A number of different views on the order of training were expressed by DLS, JCN, DVN, JHB, and TFL. It is clear that the order of training has to be reestablished and the rationale behind tha order clearly made visible (prefferably prior to the first training session). 1c5

Agreement was reached in principle on shifting RADC people out of the common directory <RADC> into private directories when they have reached a certain level of profficiency in use of the system and/or have a number of files of their own. 1c6

The question of privacy of files was discussed. It was agreeded that no!!! classified files will be entered into the system--that individual files could be protected from read/write access using existing TENEX commands and possibly unique passwords--that in general the RADC files will be open to SRI and the rest of the network. It will be RADC's responsibility, as the primary inputter of information, to make sure that files containing "for official use only" information are appropriately protected. 1c7

Both RADC's tentative and SRI's pilot baseline management systems were discussed and compared. From the discussion one outstanding thing became apparent--The people supplying information to the system must be highly motivated to do so or the system will fail. A number of techniques for increasing this motivation were discussed, they included: 1c8

training/indoctrination as to the importance in keeping

information up-to-date (tell and retell the supplier of the function and importance of the system in the planning and manpower allocation process) 1c8a

giving back to the supplier information which is useful to him (let him know who spent what amount of time on his effort during the last reporting period--help him to become a better estimater--let him know how he spent his time during the last reporting period) 1c8b

allowing the supplier to input information in a format which is "natural" to him (let him discover the need for a certain amount of formating on his own) 1c8c

making the use of the information by group leaders, section cheifs and branch cheifs visible to the supplier (if they don't take it seriously then why should the suppliers) 1c8d

creating another role in the branch of development coordinator--with part of his job being to make sure that the development activity's bms records are up to date (roughly equivalent to RADC's group leaders) 1c8e

To enhance the bms development activity, a planning group consisting of JCN, PR, DVN, DLS, JHB, and TFL was established. JCN will get this group identified in the journal as a group ident. He also agreeded to set up a separate journal subcollection for RADC. 1c9

The desire of Col Danielian to have someone from SRI take a look at the Air Staff planning organization was discussed. SRI agreeded that they would be willing to do this on a limited basis--namely Paul Rech--with someone from RADC accompanying him. A tentative date of the last week in MAY was agreeable. The first trip will be a short one 1-2 days, with a more extensive one to follow in which a closer look at DCS/P&O to identify tasks in which a pilot test of AHI could be undertaken. 1c10

Proceedures/conventions are needed for accessing and using other peoples draft files. It was agreeded that one should consult with the author first and get his permission before using or disseminating anothers files. This policy will be adopted at RADC. 1c11

UNRESOLVED ITEMS: 1d

Training in DEX will be defered until RADC recieves their

cassette recorders. It is not clear that a separate training course by SRI is required. 1d1

The whole question of content-analyzer and L-10 and how these can be used in developing and operating the RADC BMS was defered until a more complete description of the system has been approved by RADC management. 1d2

The need for special help in using the IMLAC version of DNLS is indeterminate at this time. 1d3

It was not clear whether or not the calculator package would be available for use in the BMS. RADC expressed a strong desire to have it available. It is particlarlly desireable during the planning cycle at RADC where review of plans forces continual recalculation of manpower and dollar figures. 1d4

ACTION ITEMS: 1e

The journal will be used more by all concerened for communicating, coordinating, planning, etc!!!! 1e1

DLS--will poll the potential RADC trainees and confirm the dates of 17 & 18 May for a training visit by DVN and JCN. 1e2

DLS--will call Col. Danielian and set a date for a preliminary visit by himself and PR. 1e3

DLS--will contact JEW with a statement of the desire for a line printer at RADC and ask for his advice/council/comments/inputs. PL will print a limited number of files if required on the SRI line printer and air mail to RADC. 1e4

JCN--will establish a group ID for planning purposes called "RBMS" and establish an RADC subcollection with eventual autoindexing. 1e5

TFL--will document the conflicting training requirements and generate a training list. 1e6

PSO--will DEX up to 100 pages per month for the next 2-3 months if required by RADC. 1e7

COMMENTS: 1f

DLS 4-MAY-72 14:42 10327

RADC/SRI KICKOFF MEETING NOTES

(J10327) 4-MAY-72 14:42; Title: Author(s): Duane L. Stone/DLS; Distribution: Duane L. Stone, James H. Bair, Thomas F. Lawrence, James C. Norton, Paul Rech, Dirk H. van Nouhuys/RBMS; Sub-Collections: RADC RBMS; Clerk: DLS;

This document was written about a year ago and reflects some of the earlier thinking of RADC. It is being entered into the journal for historical purposes.

RADC PROPOSAL TO SRI/ARC (AUG 71)

INTRODUCTION:

This proposal represents the first of a series of efforts at RADC to use and evaluate the potential of the SRI AHI system. The basic premise upon which this project is based is:

that AHI technology can be introduced with relative ease into an Air Force environment, where the potential users of the technology are not particularly motivated to use it and where they have little of no experience in on-line interactive use of computers. Furthermore, once the population is trained they will experience a significant increase in their effectiveness on the job.

OBJECTIVE:

The objectives of this effort are to:

demonstrate the capabilites of NLS to IS management and engineering personnel.

begin evaluation of NLS for eventual application to DCS/P&O.

APPROACH:

The overall approach to this effort will be to use the AHI system via the ARPA network for a period of a year to accomplish work within the ISI branch. Activities in which AHI technology will be used include:

project planning
project management
section management
contract monitoring

Selected ISI personnel will use the NLS system to accomplish as much of their daily work as possible during the one year period. Both the time period and the personnel have been chosen to allow the widest possible exposure of NLS to people and jobs.

It is considered axiomatic that both the demonstration and the initial evaluation activities can only be carried out sucessfully by intimately involving the demonstrator, the demonstratee, and the evaluator in use of NLS to complete a legitimate Air Force task. Indeed the individuals involved in this effort will play all three roles at different times. The first task chosen first for this effort is the ISI contribution to the Consolidated RADC Program Call, ref.(PROGCALL).

The evaluation will be based upon an experimental survey including; controlled attitude measurements, standardized questionaires, interviews and on-line comments from users during the training and use phases. The comments and responses to the survey will be input to a NLS file and analyzed by the AHI people at RADC.

Although the exercise will center around the use of the system, a number of activities must preceed, accompany, and follow. These include:

pre-use activities--
- lease/purchase of additional terminal equipment
- training of key ISI personnel
- loading of data bases into NLS
- connection of teriminals to the TIP and the TIP to the ARPA Net
- changing portions of NCP and/or NLS software

use activities--
- creation of form 30a's.
- creation of form 30's from form 30a's
- updating project documentation
- recording of meeting notes comments, and other material of short lived value
- calculation of manpower, dollars computer time, and scheduleing data and the projection of these figures against available resources.
- creation and presentation of briefings.
- preparation and printing of final documentation for submission to IS.

post-use activities--
- collect user comments on their experiences using NLS over a two month period
- administer post test survey to:
  - users of the system--
    - management
    - engineers
    - administrators
    - secretaries
  - watchers of the system--
    - IS management
    - ISI management
- analyze results of comments and questionaires

DISCUSSION:

Terminals--

We feel it is necessary to have at least three IMLAC terminals with 8k of core, indpendent keyboard, high resoloution CRT, interface expansion interupt, mouse and binary keyset. In addition one of the terminals should have the console option. IMLAC terminals have been chosen over less expensive terminals because;

The IMLAC can be made immediately compatable with NLS by using SRI's IMLAC software for high speed teletype operation.

SRI is in the process of changing NLS and writing IMLAC software which will give a remote user the full power of DNLS.

SRI has plans to transfer portions of the command feedback information and some of the text editing functions into the IMLAC to relieve the CPU of trivial yet time consuming tasks.

most of the functions associated with CRT displays are under program control in the IMLAC. This greatly increases the display's flexibility for experimental purposes. Since the IMLAC is programmable, it is not limited to use on the AHI project alone.

A potential pool of IMLAC software for various applications exists through out the network (MIT Dynamic Modeling Project has 4, MAC AIMS has 2, BBN has 1, SRI has 2 and there is an assembler for IMLAC available under MULTICS).

Three units are necessary because;

it is impossible to exercise and evaluate the on-line team interaction capabilities with less than three units.

The work load at peak times during the year will require at least three units.

In addition to the Execuports and IMLACs used for exercising NLS, a printing unit of reasonable quality is required to output documentation in it's final form.

We could use a model 37 tty available within IS, however it is a prototype model and somewhat unreliable.

We could use SRI's printer and have them mail us the output. The mailing delay might prove to be intolerable.

We could lease a medium speed line printer compatable with SRI's software. As network use grows at RADC, we might want to buy one and dedicate it to the NET.

We could buy a unit to interface the IBM Magnetic Tape Selectric Typewriter (MTST) to the phone lines. This unit makes the MTST look like a IBM-2741 to a computer. This could mean that SRI would have to modify its software to accept 2741 input/output, however the BBN TIP software should take care of most of the code conversion necessary. The reasons for going this way are:

The MTST and 2741 use golf ball printers, resulting in the highest quality print of all the alternatives.

It is a relatively inexpensive intermediate solution for low volume quality output of text.

The MTST provides a convenient means of capturing text as it is being typed by a secretary, ie. items which must be typed as a part of everyday office routine can also be loaded into NLS if they have content of lasting value.

The MTST can be used for off-line preparation of bulk text by the secretary when NLS, the TIP, the NET, etc. are not available. When conditions permit the text can then be transmitted to SRI (providing of course, that NLS has been modified to accept input from a remote sequential tape file).

The MTST can receive characters at 300 baud rate for later printing off-line.

The eventual customers for AHI in the Air Force are in DCS/P&O where there are currently 30 MTSTs installed. Any system we design for them will have to take MTSTs into consideration, both because they have several hundred thousand dollars invested in them and because they provide a reliable backup in an operational environment when the computer is down.

Training--

Currently there are only three individuals at RADC with a working knowldge of TNLS. These individuals will be used to train the rest of the personnel selected for this exercise . The following candidates were selected in order to obtain a wide variety of backgraouds, job positions and experience levels.

F. Tomaini, R. Nelson, J. McNamara, R. Panara, J. Cavano, T. Buccerio, M. Petell, J. Bair, T. Lawrence, D. Stone.

Data Input--

Data required for Program Call must be input prior to the middle of Oct. Selected portions of the project documentation will be input by the project engineers and the secretary. Data on the status of the FY-72 efforts will be input by the adminstrator. Task writeups will be input by the engineers and possibly the secretaries. General plans and guidance will be input by the section and branch chiefs. Most of the inputing of data should be accomplished as a by-product of the training exercise. It should be accomplished using the Execuports and direct dial access agreement we now have with SRI. The total useful data loaded prior to Program Call should not exceed 50,000 characters

TIP/ARPA Net--

The TIP is scheduled for delivery to RADC 28 Sep 71. Plans are currently being made to include modems for connecting IMLACS, Execuports, and TTYs. The necessary telephone services for the TIP should be installed at the same time. We could expect to start Network transmission by 15 Oct.

Use Activities--

The use of NLS by engineers and secretaries for Program Call will build up slowly through late Oct. and Peak in early Nov. By late Nov. it will be used more by section cheifs, project engineers, and adminstrators. A second peak of activity will occur late in Dec. during Div. review of the branch program.

It is difficult to estimate the level of use, however there should not be more than 3-4 users on at any one time. It should also be possible to schedule use of the system from 08:00 to 12:00 EST to minimize the impact on ARC users.

The resultant data added to NLS files should not exceed 100,000 characters. Precautions will be taken to hold down proliferation of versions of files.

The engineers will be using the text input and editing packages. The adminstrator, project engineers, and management will be mor interested in using the calculation, analyzer/formatter, and collector/sortter packages.

Evaluation Activities--

Since there are no generally accepted measures of job performance (at least for jobs involving intellectual activities) and since this is our first attempt at evaluation of AHI technology,it must of necessity be a psychometric evaluation; ie, a collection of user reactions to a set of tools, techniques, proceedures, etc. embodied in NLS at a particular point in time. Since the experimental population will be unfamiliar with team augmentation techniques, we will also be interested in monitoring their training experiences.

Each system user will be instructed to place comments in a special "comm" file as they occur to him and will be required to enter some comment following any extended session with the system. The comments collected during he training session will be used to:

help eliminate confusion during training.

uncover any recurring problems in learning the system.

formulate recommendations for future training exercises.

The comments gathered during the use of the system will be used to:

discover any recurring trouble spots in trying to use the system to accomplish legitamate work.

help design questionaires to be administered at the end of the exercise.

In general the questionaire will be designed to elicit the users' judgements of the effect the system had or could have on their job performance. Specific questions will be aimed at eliciting judgements on improvements which might be made in terminal configuration, command language, system inter/intra file services, NLS modules, etc. from the users' point of view.

The system would be used by the RADC AHI people during Jan. and Feb. to administer the questionaire, analyze the results and document their findings. The system would also be used at this time to prepare further detailed plans for RADC involvement in AHI for the rest of the year. These could include monitoring the status of funds and manpower expenditures in the branch, detailed management of the section's technical progress (alla Base Line Management System), and demonstrations to HqUSAF people.

SCHEDULE:

Training--15 Aug to 15 Oct (under current agreement with SRI/ARC)

Terminals/modems--15 Nov (60 day delivery)

TIP--5 Oct (scheduled delivery date)

SRI services--15 Oct 71 to 15 Oct 72 (to be negotiated)

COST ESTIMATE (X $1,000):

Training---direct dial phone	5.0
Terminals--	
3 IMLACs @ 16.5	49.5
1 MTST @ 9.5	9.5
1 MTST interface @ 3.6	3.6
6 IMLAC modems @ 1.5	9.0
2 Exuport modems @ .4	.8
1 MTST modem @ .4	.4
1 2741 modem @ .4	.4
2 modem racks @ 1.5	3.0
10 cables @ .03	.3
terminal subtotal	76.5
SRI services (est.)	75.0
total	156.5

PROPOSAL:

RADC is proposing to use the SRI/ARC NLS system via the ARPA net for a period of one year from 15 Oct 71 to 15 Oct 72. This use will involve:

a maximum of 10 people

a maximum of 7 terminals

a maximum of 4 hours per day

RADC will procure modem equipment through their own channels and will provide training of RADC users.

SRI is requested to consider feasibility, scheduling and costing for the following items:

procurement of IMLACs and MTST interface.

guaranteed system availability from 08:00 to 12:00 EST.

privacy of files from other NIC users.

adequate file space.

access to full TNLS capability.

user mannuals on all NLS modules.

access to TNLS via 2741 type terminals.

remote I/O of sequential cartridge tape (MTST) files.

remote DNLS with IMLAC terminals.

access to and training in the Base Line Management System.

(J10328) 4-MAY-72 14:47; Title: Author(s): Duane L. Stone/DLS;
Distribution: Duane L. Stone, James H. Bair, Thomas F. Lawrence, James
C. Norton, Paul Rech, Dirk H. van Nouhuys/RBMS; Sub-Collections: RADC
RBMS; Clerk: DLS;
Origin: <STONE>RADCPROP.NLS;1, 1-SEP-71 10:29 DLS ; *** DIRECTIVE
ERROR: String Too Big *** . H=" RADC PROPOSAL TO SRI/ARC" ;

DLS 4-MAY-72 14:54 10329

Background Letters Requesting RADC Help in Applying AHI

This file contains a selected number of "official" requests from ARPA and DCS/P&O for RADC to get involved in evaluating/applying AHI technology. Its being entered into the journal for historical purposes.

Background Letters Requesting RADC Help in Applying AHI

ARPA MEMORANDUM 10 SEP 71

SUBJECT: SRI-AHI Project

ARPA would welcome RADC assistance in the testing and evaluation of the SRI Augmented Human Intellect techniques through the expenditure of resources in support of the SRI effort. An addendum to the existing contract, AF30602-70-0219, could be used as a vehicle to accomplish this; however the contract should not be extended beyond its current date.

The contractor should provide services and equipment necessary to assure RADC:

a. Access to the full power of NLS via the ARPA Network from 0800 to 1200 Eastern time.

b. Training and user manuals for NLS modules as required.

c. Privacy of files from other network participants.

d. File storage sufficient to accomodate 10 users.

SIGNED: Lawrence G. Roberts

AF/XO 27 AUG 71

R&D Support for Automation Assistance for Plans and Operations Functions

AF/RD (Lt Gen Glasser)

1. Since August 1968, we have attempted to analyze, explore, identify and implement automated methods to assist staff officers in the conduct of their tasks. We have advanced in many areas of information management such as mechanized data filing, microfilm storage and retrieval, automatic typewriters, voice recorders, and a computer system which allows rapid retrieval of selected JCS action inormation. Although these efforts can assist in improving the responsiveness of the staff officier, there is still much to be done. The continued climate of budgetary restraints virtually necessitates the use of automated assistance to achieve optimal use of our resources.

2. Previous support frovided by the Rome Air Development Center under AFSC Engineering Support Project (921A-9339) was invaluable in achieving the progress made thus far. Technological advances being evluated under AFSC Advanced Development Plan (5550), "Data Processing Hardware and Software Technology", appear to have particular applicability to the problems facing staff officiers. Continued RADC support is highly desireable.

3. Your interest and assistance in our efforts are requested. We are willing to be the test-bed for the exploration and implementation of automation-assisted management and planning efforts. Programs and developments in support of our Plans and Operations efforts should provide benifits to other areas of the Air Staff.

4. Specifically I would like RADC to assist my Assistant for Automated Information in exploring the potential of a promising technology being developed by the Stanford Research Insitute under ARPA sponsership. This program "Augmentation of Human Intellect" appears to have great potential within our environment. If this appears promising after a modest exploritory effort, we would expect recommendations which would include design and cost estimates for a prototype system.

SIGNED: Gen. Donavon Smith, Assistant Deputy Chief of Staff/P&O

Staff Summary Sheet 17 AUG 71

Coord: Gen Keck, Gen Talbot

1. Since 1968, we have advanced in many areas of information management such as mechanized data filing, microfilm storage and retrieval, automatic typewriters, voice recorders, and a computer system which allows rapid retrieval of selected inormation. Although these efforts can assist in improving the responsiveness of the staff officer, there is still much to be done. The continued climate of budgetary restraints virtually necessitates the use of automated assistance to achieve optimal use of our resources.

2. Previous support provided by the Rome Air Development Center under AFSC Engineering Support Project (921A-9339) was valuable in achieving the progress made thus far. Technological advances being evluated under AFSC Advanced Development Plan (5550), "Data Processing Hardware and Software Technology", appear to have applicability to the problems facing staff officers, particularly the work at the Augmentation Research Center (ARC) at Stanford Research Institute (SRI).

3. ARC has been involved (for nine years under the sponsership of DOD Advanced Research Projects Agency) in the development of a general purpose interactive computing system aimed at improving the performance of individuals and teams engaged in complex problem solving and information manipulation activities. This is their Augmented Human Intellect (AHI) technology. They have been sucessful to the point where they now conduct most of their daily work using the system. It appears that sucessful application of the advances made at ARC might significantly improve the responsiveness of Air Staff; ie, the staffing of actions could proceed in a more orderly manner, be accomplished in a shorter time and the end product could be more complete, accurate and timely.

4. Future Possibilities:

a. Staff Officier Applications-The original draft of an action would be rapidly composed at a console by searching files previously created, extracting text pertainent to the action, inputing new text, and editing it. The resulting draft could then be printed for review and distribution or--the staff officer could "send" the draft to coordinating offices via the computer. The comments would be typed into the system and a notification would automatically appear in the staff officer's file that coordination had been completed. The comments would then be reconciled by the staff officer; using the text editing ability of the system to rapidly incorporate the comments and print a second draft of the paper. The staff officer could use the system to quickly extract information for summary sheets, briefings, etc.

b. Administrative Applications - Required action papers and information messages and other correspondence could be distributed to the various administrative sections. Status of actions and suspenses could be easily monitored.

5. The possibilities for bennificial application of this system are many, however the approach must be gradual with each step approved by the DCS/P&O directorates. Therefore we propose to ask RADC to assist XOA in exploring the potential of AHI. The bulk of the effort will be carried on by XOA. Contact with XOO, XOX, and XOD staff officers will be minimal during the exploritory phase. Specifically this assistance will be comprised of:

a. One teletypewriter terminal (to be located at XOA) with communications connected to SRI through the ARPA net.

b. Training of XOA personnel.

c. One RADC personnel - part time.

6. The approach to the exploration will be as follows:

a. One XOA officier will be system trained (two weeks).

b. DCS/P&O functions and proceedures will be selected that are common to the three directorates, i.e., staffing a paper (one week).

c. A task or series of tasks will be selected that are common to the three directorates, i.e., staffing a paper (one week).

d. AHI technology will be used to accomplish a small sample of the selected tasks (one month).

e. Two quarterly progress reports will be submitted to the DCS/P&O directorates.

f. A final report (at the end of the nine month period) will be submitted which will contain:

(1) Results of activities.

(2) Conclusions.

(3) Recommendations.

6. RECOMMENDATION: The proposed letter at Atch 1 be signed.

SIGNED: Col Leo Danielian

DLS 4-MAY-72 14:54 10329

Background Letters Requesting RADC Help in Applying AHI

(J10329) 4-MAY-72 14:54; Title: Author(s): Duane L. Stone/DLS; Distribution: Duane L. Stone, James H. Bair, Thomas F. Lawrence, James C. Norton, Paul Rech, Dirk H. van Nouhuys/RBMS; Sub-Collections: RADC RBMS; Clerk: DLS;
Origin: <STONE>REQUIREMENTS.NLS;1, 5-NOV-71 13:43 DLS ;

DLS 4-MAY-72 15:00 10330

AHI EVALUATION TASK

This is the only single document that I have which tries to outline the entire RADC AHI activity. It was written in the fall of 71 and has not been updated since. I do intend to update it soon however--I will try to use the "obsolete" command for the first time when i do.

AHI EVALUATION TASK

TITLE:

AHI EVALUATION

ENGINEER:

Duane Stone

OBJECTIVE:

The objectives of this task are to introduce AHI to ISI personnel, to demonstrate its utility to engineers and management, to begin evaluation of AHI technology's application to DSC/P&O problems, and to plan and prepare for a contolled evaluation in FY-73.

APPROACH:

The approach which will be used to realize the above objectives is:

To select a wide sample of subjects with varring backgrounds, job histories, and familiarty with computer systems.

To train these people in the use of NLS

To develop proceedures and methodologies for incorporating AHI into the ISI organization.

To have these people use the system for approximately six months to accomplish their daily tasks.

To monitor their experiences via questionaires, surveys, interviews, and a system maintained comments file.

RELATIONSHIP:

This task has a goal similar to the WPS task, namely, to show local engineers and management how proper application of advanced tools can make people more effective in their work.

It is dependent upon the ARPA Net task to provide the TIP, communication lines, and terminal interfaces necessary for economic connection of multiple terminals to SRI's ARC facilities.

It is indirectly related to all other tasks in the section, since proceedures developed under this task for handling task writeups, meeting notes, line items, etc. will apply through out the section.

AHI EVALUATION TASK

EFFORTS:

Terminals--

It is necessary to procure at least three IMLAC terminals with 8K of core, independent keyboard, high resoloution crt, interface interupt, mouse and binary keyset. In addition one of the IMLACs should have the console and printer options.

Four additional Execuports will be procured with tape cassetts.

One MTST (which we now have on lease with option to buy) may be purchased if we can find a reasonable way to interface it with the TIP.

In addition to the Execuports and IMLACs used for exercising NLS, a printing unit of reasonable quality is required to output documentation in it's final form. The existing model 37 ttys or the 2741 could be used for low volume quality output, however a medium speed printer will undoubtedly be required as traffic on the network and use of NLS builds up. The exact unit has not been chosen yet. It should be procured by the facility when a decision is made.

Training:

The ten people chosen for the initial experimentation will be trained in the use of the system by DLS JHB and TFL. The training exercise will consist of lectures intermixed with live demonstrations on the terminals (Execuports). The class sessions will not exceed 3 people at a time and of course will be dependent upon the availability of terminals, lines, and NLS. The training sessions will be as identical as possible in an attempt to negate any influence of training differences on the response to the attitude questionaires.

SRI Help:

Assistance from SRI will be required to make any extensive use of NLS. This assistance will take the form of:

Guarrenteed access to the system for specific hours during the day.

Additional file space (disk).

Full access to NLS ie, the normal user comming in over the Network will have access to a subset of NLS.

AHI EVALUATION TASK

Consultant services in the form of advice on the proceedures we are proposing to use in applying NLS to ISI.

Evaluation:

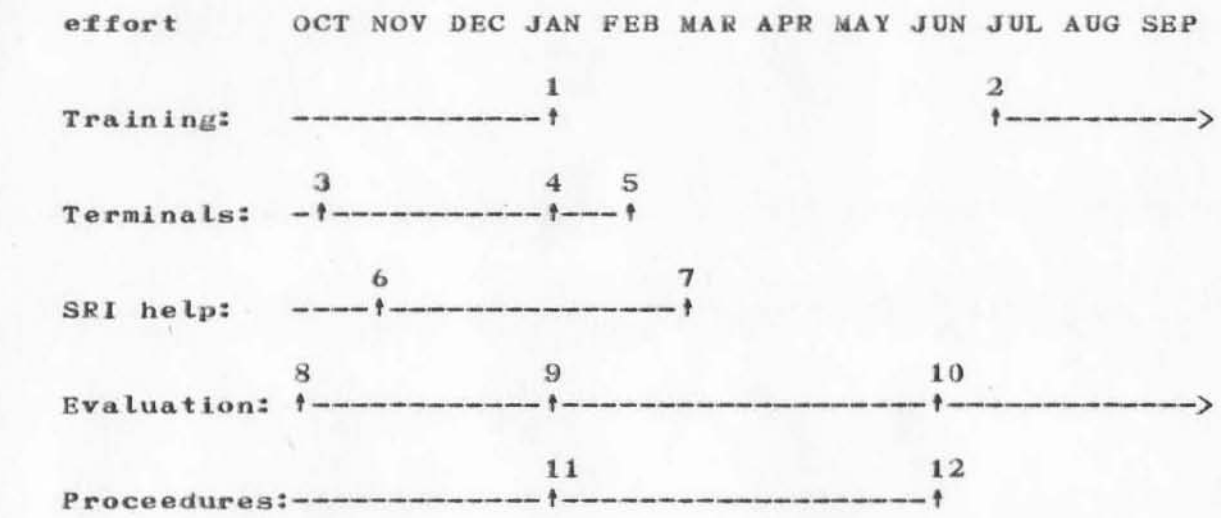
The evaluation will be based upon an experimental survey including; controlled attitude measurements, standardized questionaires, interviews and on-line comments from users during the training and use phases. The comments and responses to the survey will be input to a NLS file and analyzed by the AHI people at RADC.

Proceedures:

Proceedures will have to be developed for integrating the use of NLS within the ISI environment--both for the initial experiment and for the controlled experiment which will follow in FY-73. They will cover meeting notes, task writeups, line item listings, and the assignment of people who are responsible for officially updating/changing/modifying these files.

AHI EVALUATION TASK

MILESTONES:



1 Taining of 10 initial users complete.

2 Start training of the rest of ISI people.

3 Procurement package for terminals ready.

4 Contract with SRI for terminals.

5 Terminals delivered.

6 Procurement package for SRI assistance.

7 SRI under contract.

8 Initial attitude questionaire administered.

9 Report describing results of training exercise.

10 Report describing initial experiment within ISI.

11 Proceedures established for initial experiment.

11 Proceedures established for controlled experiment.

AHI EVALUATION TASK

MANNING:

Training:			Oct			Nov				Dec				COMP
week	03	10	17	24	31	07	14	21	28	05	12	19	26	
JHB	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1	.1	2mm
DLS	.2	.2	.2	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0	1mm
TFL	.2	.2	.2	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	1mm

Terminals:														
week	03	10	17	24	31	07	14	21	28	05	12	19	26	
JHB	.0	.0	.0	.0	.0	.1	.1	.1	.1	.0	.0	.0	.0	1mm
DLS	.3	.3	.1	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0	2mm
TFL	.2	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1mm

SRI help:														
week	03	10	17	24	31	07	14	21	28	05	12	19	26	
JHB	.1	.1	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	1mm
DLS	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	3mm
TFL	.2	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	1mm

Evaluation:														
week	03	10	17	24	31	07	14	21	28	05	12	19	26	
JHB	.4	.4	.4	.4	.2	.2	.2	.2	.2	.2	.2	.2	.2	3mm
DLS	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	1mm
TFL	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	1mm

Proceedures:														
week	03	10	17	24	31	07	14	21	28	05	12	19	26	
DLS	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	2mm
JHB	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	1mm
TFL	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	1mm

AHI EVALUATION TASK

DOLLARS:

effort	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	COMP
Training:P1	2	2	0	0	0	0	0	0	0	0	0	0	4
Terminals:P2	0	0	0	35	40	0	0	0	0	0	0	0	75
SRI help:P1	0	0	0	0	5	10	10	10	10	10	10	10	75
Evaluation:P1	0	0	0	0	0	0	0	0	0	0	0	0	1

STATUS:

Training:

OCT--Planned:

Training of Tom, Lou, and Marcelle; using direct dial access to SRI. Receipt of updated TNLS and Journal user manuals.

SEP--Accomplished:

Nothing.

Terminals:

OCT--Planned:

The final cut at terminal specification will be made, the PRCS package prepared and sent to SRI.

SEP--Acommplished:

It was discovered that Western Telematic does not intend to manufacture the MTST interface unit, therefore we are defering any activity in this area until we can determine if there is adequate reason to go out on a seperate effort. Meanwhile we still need a capability for defered execution and will be buying tape cassettes with the next Execuport order for this purpose.

SRI Help:

OCT--Planned:

The details of SRI's assistance to us for the rest of this fiscal year will be ironed out. DEC, JCN, and H?L will be comming to RADC on the week of the 11th to discuss in detail our plans and how they might help.

SEP--Accomplished:

The RADC draft proposal was submitted to SRI and initial feedback indicates that they are committed to helping us and that the level of effort seems to be satisfactory. The proposal emphasized Program Call which will only be partially accomplished useing NLS now, because of delays in ARPA net, terminals and the earlier start of Program Call.

Evaluation:

OCT--Planned:

The responses to the attitude questionaire will be analyzed using the facilities of Syracuse U. (Mark-sence Reader and statistical analysis programs for $35 per use).

SEP--Accomplished:
The attitude questioaire was completed and administered to the pre-test group of users and non-users.

Proceedures:
OCT--Planned:
Proceedures for tieing the task writeups into the official form 30'a list will be defined. The proceedures for updating the form 30'a list both within NLS and within ISI will be further defined. The task writeup format will be finalized. The collection of time expenditure data on a daily basis by Lou will be implemented.
SEP--Acommplished:
The first cut was taken at defining the task writeup format (this task writeup is an example of the format). A proceedure for collecting time expenditure data was proposed. The first cut was taken at defining the form 30'a list to include links to historical data.

SUMMARY:

Title:Training
Dollars:5581-4K
Precedence:
Manyears:.7
Type:IN-house
Symbol:ISIM
Name:Duane Stone X3857

Title: Terminals for AHI Evaluation
Dollars:5550-75K
Precedence:
Manyears:.3
Type:New Start
Symbol:ISIM
Engineer:Duane Stone X3857

Title:Implementation of Computer Augmentation Techniques(SRI help)
Dollars:5550-75K
Precedence:
Manyears:.5
Type:New Start
Symbol:ISIM
Engineer:Duane Stone X3857

Title:Evaluation of AHI
Dollars:1K
Precedence:
Manyears:.5

Type:In-house
Symbol:ISIM
Engineer:James Bair X3857

Title:Proceedure Development
Dollars:0K
Precedence:
Manyears:.4
Type:In-house
Symbol:ISIM
Engineer:Duane Stone X3857

To Launch FRAMAC

About FRAMAC's goals and general method of approach: 1

To provide a continuing, purposefully run forum, for developing the framework of concepts, strategies, principles, goals, etc. within which we will pursue our planning, promoting, growing, PODAC, LINAC, interaction with the world, etc. I plan a regular sequence of meetings, beginning this Friday, 5 May 72, 10 to 12. These will be working meetings, where dialogue is expected. Records will be kept and Journalized; and a coherent, explicitly developed Framework Section of the Handbook will ensue. 1a

First Stage (lasting two months, eight months, ???): 1b

a) Piece together and bring about a general understanding of my personal framework, the history that brought us to where we are, and the current state of our implicit framwork (i.e. the practices, principles, goals, etc. that we can see have affected our current state and direction). 1b1

b) Bring each of you to understand reasonably well where each of the others stands on (what you consider to be) the important facets of the framework, in terms not only of degree of his understanding, but also as to the degree and nature of his interest, beliefs, and attitudes. 1b2

Second Stage (from then on): 1c

A continuing process of framework analysis and development -- the objective is to continually evolve toward a "most useful framework," one that is kept complete and updated as part of our Handbook, and that is referenced constantly in our planning, designing, evaluating, and teaching. 1c1

I plan that in this stage we would judiciously integrate concepts, considerations, viewpoints, analyses, etc. of others, via an organization and process yet to be decided upon, During the Stage-1 process, there will be part of the framework for me to finish developing and to describe that bears upon the process of further Framework development. 1c2

A more detailed discussion of approach in FRAMAC's First-Stage: 2

I plan on an approach here that is much as if I were running a graduate seminar to impart where I'm at in my research. I'm sure that an unbroken series of presentations by me (lecture model) won't accomplish what I want -- I expect to give both prepared and extemporaneous presentations, but in limited cuts

and modules from my framework, interspersed with multi-way group dialogue sessions each of whose content affects my succeeding presentations. I don't know where most of the participants are at now, with respect to understanding most of the issues involved, nor what kind of presentation it would take to produce a given change in understanding on any given issue. 2a

I speak of developing a "general understanding" of my framework (which may involve a lot of work); but there also is the matter of the distribution among the participants in the nature and degree of their "beliefs and attitudes" (B&A) about the various facets of the framework. It is important for me at least to know what this B&A distribution is; and it may prove important to the succeeding FRAMAC stages to work at bringing about a closer grouping of the group's B&A relative to certain issues. I expect that I will want to deal with this, but how much energy to spend, and what part within FRAMAC and what part in PODAC, etc., will have to be decided as the cases arise. 2a1

About the initial composition of our FRAMAC group: 2b

These following list is hereby designated as comprising the FRAMAC Group membership, and a correspondng "FRAMAC" ident has been installed in the Journal System: DIA MFA WLB DCE JDH CHI DSK MDK HGL JBN JCN DVN WHP PR EKV KEV JFV DCW JEW RWW Bart Cox, Dave Brown, 2b1

I had been visualizing a smaller FRAMAC group, considering the type of dialogue I hope for. But when I reviewed our LINAC planning-team compositon, I decided that there is a such strong interaction between our current planning exercise and our Framework that I couldn't seem to find a logical way to cut the group membership smaller. 2b2

About attendance: I don't consider it mandatory; but I'll keep track of who attends each session, mainly to relate it to topics covered at the session, because I want to keep track of who has shared what presentations and dialogue episodes. 2c

It may well be that we'll modularize our Framework subject matter, in ways consistent with main clustering of interest among the FRAMAC group, and then arrange the topics of some of our meetings so that only particular FRAMAC sub-groups feel it important to attend. I'd guess that it would take some time to work out such a modularization. 2c1

Note to the "left out" people. 2d

Because I am quite concerned with developing a really effective operating mode for the FRAMAC meetings, I want to work consistently and carefully with a continuing group of attendees. Therefore, unless specifically arranged with me beforehand, I want attendance at the FRAMAC meetings to be limited to the FRAMAC Group. 2d1

I also want to get as much of our "proceedings" put into (Journalized) writing as possible -- and I urge interested non-attendees to keep track of our dialogues. Generally speaking, I'd welcome Journal contributions from others (within or outside of ARC) bearing upon Framework issues; and also I expect/hope there will be a goodly and rightful amount of ARC-PODAC discussion about FRAMAC issues -- I wouldn't want this to dominate PODAC time, but general fill-in for non-attendees is most valid, as also is any thrashing out of the personal bases underlying differences in belief and attitude regarding our Framework. 2d2

About agendas: After we get going, I'd expect that we can begin to lay out agendas for forthcoming meetings; but I really don't feel tht it is practical at the outset. I feel too much of a need to explore where people ar at during our first meetings; and the direction I give to subsequent meetings depends very much upon what I learn in this regard. 2e

PRIMER DRAFT

(J10332) 4-MAY-72 16:20; Title: Author(s): Marilyn F. Auerbach/MFA;
Distribution: Richard W. Watson, James C. Norton/RWW(please comment)
JCN; Sub-Collections: SRI-ARC; Clerk: MFA;
Origin: <AUERBACH>PRIMER.NLS;6, 4-MAY-72 16:19 MFA ;
.HJournal="MFA 17 MAY 72 PRIMER OUTLINE";

PRIMER DRAFT

COMMENTS - I've done quite a bit of reorganizing and have added some goodies that I think are necessary. (Most of you rtop level statements I've maintained here for identification pusposes and will change them as appropriate.) Barring grave philosophical differences between us on the following, I'll try to have a first draft for you by the end of next week (12-May). 1

HOW TO GET IN AND OUT OF THE SYSTEM 2

LOG 2a

login 2a1

logout 2a2

NLS 2a3

↑C 2a4

CON 2a5

WHAT A FILE IS AND HOW TO WORK WITH IT 3

STRUCTURE 3a

statement only 3a1

STATEMENT NUMBERS 3b

TEXT ENTRY 3c

insert statement with CDOT. 3c1

FILES 3d

load file 3d1

update 3d2

directory 3d3

delete file 3d4

HOW TO TELL WHERE YOU ARE 4

LOCATOR 4a

show statement 4a1

DCE 4-MAY-72 18:12 10334

Outline of ARC's needs for additional funds in FY73

INTRODUCTION -- This memo outlines a formulation for new funding that we feel would be advantageous to ARPA's networking experiment. These new-funding needs fall into four categories, all aimed toward increasing our capability for delivering basic NLS, Dialogue-Support, and NIC-information service to the Network: 1

1) Establishing a delivery arrangement with a commercial time-sharing utility (referred to as Utility). We base our estimates upon costing data developed during a series of talks with TYMSHARE. Our proposal is that Utility would connect to the ARPANET via an IMP or TIP, provide and operate a TENEX facility within which we run (and support) our software to provide basic NLS, NIC information services, Journal System, etc.. This will be the main source of such service to Network users; our local system would be devoted mostly to supporting our local staff, many of whom will be working on the NIC and Network-delivery tasks. 1a

Utility would bill SRI-ARC as one bulk customer, but can supply us with accounting data as to the usage by individual Net users. 1a1

2) Expanding our local staff to 1b

a) increase the support for NIC-information services, both in quantity of service delivered (more customers, and increased range/quantity of information), and in the quality (e.g. more actively digging out information for the Resource Notebook and other NIC functional documents), 1b1

b) meet the customer-support load involved in building up and serving an increased clientele -- involves providing the personal attention that most serious NLS users will need in order to make a serious trial at incorporating it into their working life -- and 1b2

c) establish, maintain, and service the "delivery version" of our software that is running in Utility. 1b3

3) Expanding local NLS-service capacity, both to support the above SRI-ARC staff increments, and to upgrade the general quality of service in line with our being able sensibly to contribute to the further functional development and utilization methodology of augmentation systems. (An ironical situation is arising, where other groups who will be adopting our NLS will have better quality service than we.) 1c

4) Working toward a new configuration of computers for

serving our own group of NLS users, where: locally there needs to be only a mini-computer (or several, depending upon the group size and range of devices); the mini-computer(s) will be connected to a larger machine in an ARPANET-compatible way; we could adaptably divide the various processing/storage tasks between the local and the central machines to provide optimum service (as opposed to the limiting cases of either total support from a local mini-computer, or total support from a big-machine central system). 1d

We want to learn how to do this; we plan to consider seriously our coming to depend entirely upon Utility service for our main computational and file-storage service; and we likely would convert to that mode for supporting our future local-research work (more and more of which we expect to do in collaboration with a community of others having shared access to the Utility service). We assume that such a solution on our part would provide a replicable system for other groups, which seems to us to add important value to this effort. 1d1

Outline of ARC's needs for additional funds in FY73

COST BREAKDOWN: 2

For Utility service (beginning Jan 1, 73 -- i.e. half of FY 73, then yearly beyond) 2a

Hardware	21.0 K/mo	2a1
Personnel	20.0 K/mo	2a2

SRI costs (the monthly rates would begin July 72; "once only" costs would appear in FY 73) 2b

Staffing for delivery-NLS support	7.5 K/mo	2b1
Increased NIC (information) service		2b2
Staffing	11.5 K/mo	2b2a
Direct (materials, mail, phone..)	2.5 K/mo	2b2b
Increased NLS service		2b3
Disk-file space ("once only" because previous budget provisions cover the difference by our project's second year; this also provides the balance we need for backup in case of drum failure))	27.0 K once	2b3a
Core (32 K words)	3.3 K/mo	2b3b
Low-quality display terminals (10 @ 5k)	50.0 K once	2b3c

Evolving toward our being served totaly over the Network, as from Utility's TENEX service. 2b4

Mini computers (2 @ 20, 2 @ 40)	120 K once	2b4a
Interfacing to IMP	10 K once	2b4b
Interfacing our hardware to Minis	30 K once	2b4c
Special-development labor (14 man-months)	35 K once	2b4d

Outline of ARC's needs for additional funds in FY73

TOTAL NEW-FUNDS REQUESTED BASED ON THE ABOVE ASSUMPTIONS: 3

FY 73 (including 245K once only)...816 K (total) 3a

Consisting of items outlined above: 3a1

Utility's TENEX service:	246K	3a2
SRI delivery-NLS support:	90K	3a3
Increased NIC service:	168K	3a4
Increased ARC NLS service:	117K (most once only)	3a5
Toward all ARC service over Network:	195K (once only)	3a6

(Note: Current-contract projected FY 73 expenditure, without any of the above additions, is 1,285 K) 3a7

Yearly thereafter:.....790 K/yr (total) 3b

Consisting of items outlined above: 3b1

Utility's TENEX service:	492K	3b2
SRI delivery-NLS support:	90K	3b3
Increased NIC service:	168K	3b4
Increased ARC NLS service:	40K (core)	3b5

DISCUSSION 4

The above material was prepared after we learned from Larry Roberts on May 1 that IPT would review its FY73 funding on May 3, and would need to know by this time of any additional funding needs that we wanted considered. It was from the above outline that I read off numbers to Larry over the phone (3 May, about 1315 our time). 4a

We have been working on the needs/recommendations for some time now, e.g.: we have had four serious meetings with TYMSHARE over the past two months; Mike Kudlick's Delivery Committee has been studying the problems and had evolved the other computer-service recommendations; and Dick Watson had already been studying NIC operating costs and extrapolating service needs and costs. 4b

We assume that IPT wants to follow through with exploring the value of high-technology utilization based upon the network technology that it has brought to the world; if so, we'd assume further that it will want to establish a concerted program for bringing a succession of "advanced research developments" into a serviceable enough stage so that the IPT research community can itself gain significant benefit from

their serious usage. For instance: really advanced hardware has been recognized continuously as being important to provide to the researchers; the ILLIAC IV project is a mammoth move in this direction; and the plan (as we understand it) for developing a sort of Network-utility Mathlab facility at MIT represents another investment in this direction. 4c

We are interested in computer augmentation of the less-specialized intellectual activities, i.e. we want an automated intellectual workshop in which all of the thinking, formulating, studying and communicating can be done better, including those special activities involving formal analysis and computation. The latter activities occur in a person's working life in the midst of much associated labor dealing with the concepts, their formulations, the equations/programs, the computer-produced results, the integrating of the latter into reports, the publications and dialogue thereto, etc. 4c1

The intellectual workshop we aim for will match to the specialized tools (the ILLIACs and Mathlabs, the data-base-management systems, etc), providing coordinated computer aids for that "associated labor." 4c2

We would like to get a better understanding of IPT attitudes toward: the place in its longer-term research framework where it would place a development thrust toward an integrated computer-supported intellectual workshop; and/or the place in its research-support budgeting where it would place expenditures to support its research contractors for utilizing such a workshop for doing their work. 4d

Our working assumption is that both the development and the utilization of the integrated-workshop, in a bootstrapping mode, have a very valid place within an advanced-research thrust on information-processing techniques. We would like to see IPT seriously consider various approaches that might be taken toward both the development and the application of widespread integrated-workshop service within its research community. 4e

We have quite a list of time-tested considerations we'd like to see brought into their study and analysis if/when they do this. 4e1

Meanwhile, we are persistently plugging away toward the approach we think best -- but although our approach integrates much of what from our experience is seasoned

understanding, it suffers seriously from lack of participatory interaction with IPT. 4e2

In our eyes, the steps outlined above to expand the delivery capability for fundamental NLS, NIC and Dialogue-Support services is a logical and timely step for IPT to take. But if the extra funding isn't forthcoming, I hope at least that this exercise will initiate a continuing and active IPT-ARC dialogue on the issue of developing and utilizing a coordinated, computer-aided intellectual workshop within IPT's research community. 4f

DCE 4-MAY-72 18:27 10335

Message to Bruce Dolan with summary figures from (10334,)

Bruce: Here is a condensed summary of the figures on ARC's additional-funding needs that I phoned in to Larry on Wednesday afternoon ((3 May). If you can, we'd like you to print out (10334,), which details our needs, and perhap more importantly, discusses the position we take in suggesting this additional funding and points out the type of dialogue we'd like to have with IPT. 1

New-fund summary, extracted from (10334,3). 2

FY 73 (including 245K once only)...816 K (total) 2a

Consisting of items outlined above: 2a1

.Utility's TENEX service:	246K	2a2
SRI delivery-NLS support:	90K	2a3
Increased NIC service:	168K	2a4
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Toward all ARC service over Network:	195K (once only)	2a6

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Increased ARC NLS service:	40K (core)	2b5

SC 5-MAY-72 11:53 10338

TEST MESSAGE

SC 5-MAY-72 11:53 10338

TEST MESSAGE

(J10338) 5-MAY-72 11:53; Title: Author(s): Stanley Cohen/SC;
Distribution: Stanley Cohen/SC; Sub-Collections: NIC; Clerk: SC;

TEST 2

HI THER FOR THE SECOND TIME 1

TEST 2

(J10339) 5-MAY-72 11:56; Title: Author(s): Stanley Cohen/SC;
Distribution: Stanley Cohen/SC; Sub-Collections: NIC; Clerk: SC;

KEV 5-MAY-72 13:21 10340

next cedar pod meeting

I would like to hold next weeks (5/10/72) cedar pod meeting at my house. I suggest that we start this meeting a little early, say 12:30, so that we can get back by three. there are several real cheap places to eat near my house (macdonalds, jack-in-the-box) if you would like to bring food. i will provide some beer.

KEV 5-MAY-72 13:21 10340

next cedar pod meeting

(J10340) 5-MAY-72 13:21; Title: Author(s): Kenneth E. Victor/KEV; Distribution: Martin E. Hardy, Linda L. Lane, Harvey G. Lehtman, Jeanne B. North, Bruce L. Parsley, Jeffrey C. Peters, Paul Rech, Ed K. Van De Riet, Kenneth E. Victor/CEDAR; Sub-Collections: PODAC CEDAR; Clerk: KEV;

Dirk H. van Nouhuys
Augmentation Research Center
Stanford Research Institute
Menlo Park, California 94025

To:
Master Copy

10341

DVN 5-MAY-72 13:37 10341

File Access Controls in TENEX

(J10341) 5-MAY-72 13:37; Title: Author(s): Dirk H. van Nouhuys/DVN;
Distribution: Diana L. Merry, David H. Crocker, Beauregard A. Hardeman,
Stephen W. Miller, Donald R. Cone, Richard C. Roistacher, William R.
Ferguson, Ernest H. Forman, Linda L. Lane, Priscilla Lister, Douglas C.
Engelbart, Ellen Westheimer, Jeanne B. North, John W. McConnell, L.
Peter Deutsch, James G. Mitchell, Alan C. Kay, Marilyn F. Auerbach,
Martin E. Hardy, Charles H. Irby, Mil E. Jernigan, Jeanne B. North,
James C. Norton, Cindy Page, William H. Paxton, Barbara E. Row, Dirk H.
van Nouhuys, Richard W. Watson, John T. Melvin, Steve D. Crocker, Thomas
F. Lawrence, John F. Heafner, Robert E. Long, Ari A. J. Ollikainen,
James E. White, A. Wayne Hathaway, Dan L. Murphy, Patrick W. Foulk,
Richard A. Winter, Harold R. Van Zoeren, Alex A. McKenzie, Robert L.
Sundberg, James M. Madden, Abhay K. Bhushan, Peggy M. Karp/DIANA TU;
Sub-Collections: SRI-ARC TU; Clerk: DVN;
Origin: <VANNOUHUYS>PRIVTEST.NLS;1, 5-MAY-72 9:32 DVN ; ;

File Access Controls in TENEX

Several people have shown interest in means to keep others from reading their files. TENEX has such means but it is clear that few people know about them. This memo is intended to redisseminate the file-locking procedures of TENEX which are available to us. It summarizes and explains information in the TENEX Executive Manual . 1

TENEX files actually have names considerably larger than those that normally appear in NLS commands. The next-to-last field of the full name locks or unlocks access to the file. You may change that field just as you change other fields. 2

If you print out the name of a TENEX file through its "Protection" command in the directory subcommand language, you will find it has the following form: 3

STRING. STRING;NUMBER;P/T NUMBER 3a

where the number following "P" or "T" controls access. 3b

For example, if I wanted to learn who could read or write on my initial file in the Directory NIC-WORK I could ask the systtem as follows: 4

@DIR SP <NIC-WORK>DVN ALT [.NLS;1], CR 4a

@@ P CR 4b

@@ CR 4c

@ CR 4d

<NIC-WORK> DVN.NLS;1;P 777752 4d1

All the numbers to the right of the second semicolon are set by default, but you can change them by hand. The number at the right-hand end, which is always a six-digit octal number, controls access to the fileas follows: 4e

FILE PROTECTION FIELD 4f

B0 B1 B2 B3 B4 B5 4g

Bit Protection Aspect Controlled 4h

---------- 4i

B0 Read contents of file 4j

B1 Write onto file 4k

B2 Execute program stored in file 4l

b3 Append to file 4m

b4 List file in directory listing 4n

B5 Not used 4o

Setting a bit 1 permits the action; setting to 0 denies the action. Read allows information to be extracted from a file; write permits new information to be written onto a file, replacing part or all of the original contents. Execute allows a file that has been read into core memory to be executed as a program. Append allows new information to be added to the end of a sequential (not NLS) file. List determines whether or not the file will appear when the directory containing it is printed. 5

Taking these six bits as a two-digit octal number, some common values are: 77, which pemits full access; 52, which protects a file from modification, but permits other functions; and 00 which denies everything, keeping even the file's existence a secret. 6

As mentioned above, a full, six-digit file protection number contains three of these protection fields, arranged as follows: 7

self group others 7a

For the present state of Group membership within ARC see ---journal,8066,) 8

Octal counting is a little confusing for non-octal thinkers. 9

Let me spell out two typical cases : 10

For full access for the user, access to read, execute, and list the the file for members of the User's Group, and access to list the file only for the rest of the world the number would be: 11

77 52 02 11a

For full access for the User, and no access for anyone else, the number is: 12

77 00 00 12a

You may make any file secret to others by spelling out the full name in any command that changes the name of the file -- Null

file, Output, and Update in NLS and Rename in Exec. To hide the contents and existence of the file discussed above, I would type in NLS 13

U[pdate] <DOCUMENTATION>DVN.NLS;1;p770000 CA [ ] 13a

Of course the the protection number will return to the default value if you use any of those commands without spelling out the full name. To update without changing the protected number, update to the old version. 14

Objectives of the RADC Visit April 25-26

These are the main ARC objectives of the planned visit to RADC April 25th and 26th: 1

To introduce Paul Rech and Dirk Vannouhuys to Duane Stone and the people he will be working with on the new RADC/ARC cooperative Baseline Management System development 1a

To discuss with RADC the team approach we are going to use in giving them assistance. 1a1

Jim Norton is still the primary ARC contact for the RADC/ARC project, but we will be working toward a change where Paul Rech replaces JCN in this role. (two months?) 1a2

To learn of RADC's plans as developed at this stage. 1b

To get an initial picture of the environment in which the RADC BMS will be developed and used. 1c

To discuss ARC's view of what the BMS includes. 1d

To formulate the next steps in the project planning - to make a first cut at the plan for how we will help and for what the BMS will look like. 1e

The latter, based as far as possible on the plans RADC has so far made. 1e1

To see where RADC's initial training of their people in TNLS is. 1f

Reference material of relevance to this project: 2

ARC's proposal: see (8347,1:wxbn) 2a

Duane Stone's planning file: see (stone,baseline,xbn) 2b

ARC's proposal to ARPA, the Baseline part: see (7409,) on tape ? 2c

JCN recent BRS needs memo: see (10048,) 2d

JCN linked to DLS on 4/21 0710 and we reviewed these notes. RADC is having a meeting today to consider their plans for the visit and will contact JCN later in the day - or send him a message on their ideas. 3

JCN 5-MAY-72 15:17 10364

ARC Project Subnumbers -Setup Request

TO: Jo Ann Dunn 1

From: Jim Norton cc: ARC PERC, DVN, Jim Hillhouse

---------- 2

Please set up the following project subnumbers. They are needed for use starting May 10th when the new ARPA/RADC project begins. 3

The numbers in asterisks (*199*) will not receive direct charges for labor or non-labor costs. Rather, they will be used to provide summary data for cost analysis purposes. Costs will be allocated to those numbers on the basis of pre-assigned percentages of the actual costs charged to the other numbers - such as 101, 102, 103, etc. 4

For now, the costs to be summarized for each summary account number should be those starting with the common digit: 199 would be the sum of 101, 102, etc. 4a

Project 1868 ARPA/RADC: (Supv: Engelbart, Leader: Norton) 5

199 OPERATIONS (Supv: Engelbart, Leader: Norton) 5a

101 Administration
(Supv: Norton, Leader: Van Nouhuys) 5a1

102 CSO - Hardware
(Supv: Norton, Leader: Vanderiet) 5a2

103 CSO - Software
(Supv: Norton, Leader: Wallace) 5a3

104 CSO - Operators
(Supv: Norton, Leader: Ferguson) 5a4

105 PSO - General
(Supv: Norton, Leader: Norton) 5a5

106 User Interface
(Supv: Norton, Leader: Auerbach) 5a6

299 DEVELOPMENT (Supv: Engelbart, Leader: Engelbart) 5b

201 Development Coordination
(Supv: Engelbart, Leader: Paxton) 5b1

202 Delivery
(Supv: Engelbart, Leader: Kudlick) 5b2

203 DSS - Dialog Support System
(Supv: Engelbart, Leader: Irby) 5b3

204 DPCS - Documentation Production and Support SYstem
(Supv: Engelbart, Leader: Bass) 5b4

205 BRS - Baseline Record System
(Supv: Engelbart, Leader: Rech) 5b5

206 SDHS - System Developers Handbook System
(Supv: Engelbart, Leader: Engelbart) 5b6

207 SEAS - Software Engineering Augmentation System
(Supv: Engelbart, Leader: Paxton) 5b7

208 Basic NLS development
(Supv: Engelbart, Leader: Engelbart) 5b8
209 Other development
(Supv: Engelbart, Leader: Engelbart) 5b9
399 MINI-CONSOLE (Supv: Engelbart, Leader: Eilers) 5c
301 Administration
(Supv: Engelbart, Leader: Eilers) 5c1
302 System Development
(Supv: Engelbart, Leader: Eilers) 5c2
499 IPT (Supv: Engelbart, Leader: Norton) 5d
401 Administration
(Supv: Engelbart, Leader: Norton) 5d1
699 NIC (Supv: Engelbart, Leader: Watson) 5e
601 Administration
(Supv: Watson, Leader: Watson) 5e1
603 CSO
(Supv: Watson, Leader: Watson) 5e2
605 PSO
(Supv: Watson, Leader: Watson) 5e3
606 Net interface
(Supv: Watson, Leader: Watson) 5e4
(includes station agent and Net participation) 5e4a
607 NIC Development
(Supv: Watson, Leader: Watson) 5e5
799 XEROX (Supv: Engelbart, Leader: Paxton) 5f
701 Administration
(Supv: Paxton, Leader: Paxton) 5f1
702 MPS development
(Supv: Paxton, Leader: Paxton)
5f2
Project 8622 ONR: (Supv: Engelbart, Leader: Kudlick) 6
899 SDIS (RINS) (Supv: Engelbart, Leader: Kudlick) 6a
801 Administration
(Supv: Engelbart, Leader: Kudlick) 6a1
808 SDIS - System Developers Intelligence System
(Supv: Engelbart, Leader: Kudlick)
6a2
Project 1894 RADC: (Supv: Engelbart, Leader: Rech) 7
999 RADC (Supv: Engelbart, Leader: Rech) 7a
901 Administration
(Supv: Rech, Leader: Rech) 7a1
905 Baseline Management System Development Support
(Supv: Rech, Leader: Rech) 7a2

Initial funding amounts are to be left open. Soon, we will assign initial budgets to each of these numbers and will let you know when we are ready to include them in the SRI accounting system. 8

SC 5-MAY-72 15:32 10365

A MESSAGE TO MYFRIEN ME

HI THERE I GUESS IT WORKS 1

SC 5-MAY-72 15:32 10365

A MESSAGE TO MYFRIEN ME

(J10365) 5-MAY-72 15:32; Title: Author(s): Stanley Cohen/SC;
Distribution: Stanley Cohen/SC; Sub-Collections: NIC; Clerk: SC;

REQUEST

HAVE YOU READ THE SPEAKEASY STUFF YET ? (SIGNED) STAN COHEN 1

SC 5-MAY-72 15:38 10366

REQUEST

(J10366) 5-MAY-72 15:38; Title: Author(s): Stanley Cohen/SC;
Distribution: Robert T. Braden/RTB; Sub-Collections: NIC; Clerk: SC;

To ARC: Use of New ARC Project Subnumbers

INTRODUCTION 1

ARC has been accounting for its labor and non-labor costs through operational use of a limited set of SRI project numbers and subnumbers and overhead accounts for many years. 1a

The account numbering scheme, the techniques for its use, and their actual application have recorded information of minimal value as aids to the management of the Center. 1b

Charges to our various contracts have provided some help in overall funding/cost management, but useful information about the costs of our various activities and the tasks being carried out has been almost totally lacking, in cases where recorded, providing inaccurate pictures of our situation. 1b1

Charges to our overhead accounts have been difficult to separate when the benefits of our overhead efforts are shared with contracts. We have not used the SRI overhead account system to advantage even as presently designed. 1b2

We are therefore starting to design a new ARC accounting system that hopefully will provide the needed aids to management of the Center on many levels and from many standpoints. An initial design with some discussion -some repeated here - is documented in (10047,). 1c

OBJECTIVES 2

With the recent ARC reorganization and the start of new contracts for all of ARC's support, we are designing an accounting system that meets several key objectives. 2a

They are: 2a1

1. To properly account for all costs we incur (and commit) as they relate to each sponsored contract and SRI overhead activity 2a2

2. To accurately account (as best we can) for the costs of sub-projects within our various contracts, such as the NIC part of the ARPA/RADC contract 2a3

This includes effective allocation of costs of shared tasks and activities to the various contracts and sub-projects 2a3a

3. To accurately account (as best we can) for the costs of

broad developmental activities and the tasks being conducted within them. 2a4

4. To conduct the accounting process in the environment of an evolving "ARC marketplace" situation that includes the dynamics of buyer/seller negotiations, aided by and integrated with the developing Baseline Record System 2a5

5. To effectively use the SRI Accounting system for meeting our contract accounting responsibilities to our clients and SRI while still getting the information ARC needs for internal financial management. 2a6

6. To effectively orient, train and further develop ARC people in contributing to and using the accounting data base. This should become as much a part of our daily working mode as the Journal, Baseline, and Intelligence systems under development. 2a7

THE NEW SUBNUMBERS TO USE 3

We have set up the following project subnumbers for ARC use

**starting May 10th when the new ARPA/RADC project begins. (see -- 10364,). 3a

The numbers in asterisks (*199*) will NOT receive direct charges for labor or non-labor costs. Rather, they will be used to provide summary data for cost analysis purposes. Costs will be allocated to those numbers on the basis of pre-assigned percentages of the actual costs charged to the other numbers - such as 101, 102, 103, etc. 3b

For now, the costs to be summarized for each summary account number should be those starting with the common digit: 199 would be the sum of 101, 102, etc. 3b1

Initial funding amounts for ARC projects are now left open. Soon, we will assign initial budgets (after discussion and agreements with the appropriate pushers, PERC) to each of these numbers. 3c

STARTING WEDNESDAY, MAY 10TH, THESE WILL BE THE PRIMARY PROJECT SUBNUMBERS AND SRI OVERHEAD THAT MAY BE CHARGED FOR TIME OR MATERIALS: 3d

(There will be a few charges to the present RADC/ARPA project: 8457 as the final report is being completed. JCN will monitor chagres to this project as it is ending). 3d1

Project 1868 ARPA/RADC: 3e
- *199* OPERATIONS 3e1
  - 101 Administration 3e1a
  - 102 CSO - Hardware 3e1b
  - 103 CSO - Software 3e1c
  - 104 CSO - Operators 3e1d
  - 105 PSO - General 3e1e
  - 106 User Interface 3e1f
- *299* DEVELOPMENT 3e2
  - 201 Development Coordination 3e2a
  - 202 Delivery 3e2b
  - 203 DSS - Dialog Support System 3e2c
  - 204 DPCS - Documentation Production and Support SYstem 3e2d
  - 205 BRS - Baseline Record System 3e2e
  - 206 SDHS - System Developers Handbook System 3e2f
  - 207 SEAS - Software Engineering Augmentation System 3e2g
  - 208 Basic NLS development 3e2h
  - 209 Other development 3e2i
- *399* MINI-CONSOLE 3e3

301 Administration	3e3a
302 System Development	3e3b
499 IPT	3e4
401 Administration	3e4a
699 NIC	3e5
601 Administration	3e5a
603 CSO	3e5b
605 PSO	3e5c
606 Net interface (includes station agent, Liaison and Net participation)	3e5d 3e5d1
607 NIC Development	3e5e
799 XEROX	3e6
701 Administration	3e6a
702 MPS development	3e6b
Project 8622 ONR:	3f
899 SDIS (RINS)	3f1
801 Administration	3f1a
808 SDIS - System Developers Intelligence System	3f1b
Project 1894 RADC:	3g
999 RADC	3g1
901 Administration	3g1a
905 Baseline Management System Development Support	3g1b
FOR OVERHEAD:	3h
The following are present SRI overhead codes and some explanation of their use:	3h1
(additional information on use of these overhead numbers is described in (norton,overhead,) soon to be entered into Journal.)	3h1a
OVERHEAD ACTIVITY CODES: SUMMARY	3h1b

Code No.	Title	
		3h1b1
511	Administration and Planning - General	3h1b2
512	Administration and Planning by Project Professionals	3h1b3
521 (+W.O.)	Institute Publication	3h1b4
522	Technical Papers	3h1b5
523 (+W.O.)	Symposia and Seminars	3h1b6
525	Client Liaison	3h1b7
531-01,-02, -03,-04 (+ Sub No.)	Institute Research and Development	3h1b8
541	Formal Education Courses	3h1b9
542	Orientation and Staff Training	3h1b10
543	Staff Development	3h1b11
544	Overseas Travel	3h1b12
551	Recruiting	3h1b13

552	Relocations and Transfers	3h1b14
561	Facilities Expense and Support Services	3h1b15
562	Laboratory Equipment Calibration and Repair	3h1b16
563	Other Maintenance	3h1b17
564 (+W. O.)	Minor Construction Work Orders	3h1b18
571	Interim Technical Study	3h1b19
*581-xx	Proposal Liaison	3h1b20
*582-xx	Concept Formulation	3h1b21
*583-xx	Proposal Preparation	3h1b22

ABOUT TIME CHARGES 4

Each week's time charges and non-labor costs must be recorded in a manner that accurately reflects the use of our resources as they are applied toward overhead and contract work. 4a

This has proven difficult in the past not just due to the lack of an adequate numbering scheme, but because of the amount of effort required of ARC people to make frequent and continuous conscious decisions about where and how to allocate the costs of their efforts and the tedious record-keeping that would be required to account for them in detail. 4a1

Many tasks are performed in 15 minute or hour periods on a randomly recurring basis . 4a1a

Many are of a shared-buyer nature and not easily recorded as such. 4a1b

It is much easier to account for longer-term high level of effort tasks, activities - as we have tried to do in the past. 4a1c

The shared-buyer nature of even these tasks has also made good accounting difficult, however. 4a2

We will soon be directing effort toward finding some better ways to account for people's time - to help them record what they are doing. Until we find such ways, we must go ahead with the weekly time sheet system we have. 4b

We plan to integrate the Baseline Record System task records with the numbering scheme outlined above to facilitate allocation of project task charges to the various accounts being established. 4c

As a start, JCN is developing a suggested basic charging

pattern for ARC people to use to get initial time charges
under this new numbering scheme going. 4d

MPS HANDBOOK, PRINCIPAL APPLICATIONS

20 MAY 72

MPS 3.0

Charles H. Irby*

Stanford Research Institute*
333 Ravenswood Avenue
Menlo Park, CA 94025
(415) 326-6200

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3180 Porter Drive
Palo Alto, CA 94304
(415) 493-1600

New ARC Project Subnumbers: SUMMARY

The new subnumbers to use starting Wednesday, May 10th, these will be the primary project subnumbers and SRI overhead that may be charged for time or materials: 1

Project 1868 ARPA/RADC:	1a
OPERATIONS	1a1
101 Administration	1a1a
102 CSO - Hardware	1a1b
103 CSO - Software	1a1c
104 CSO - Operators	1a1d
105 PSO - General	1a1e
106 User Interface	1a1f
DEVELOPMENT	1a2
201 Development Coordination	1a2a
202 Delivery	1a2b
203 DSS - Dialog Support System	1a2c
204 DPCS - Documentation Production and Support SYstem	1a2d
205 BRS - Baseline Record System	1a2e
206 SDHS - System Developers Handbook System	1a2f
207 SEAS - Software Engineering Augmentation System	1a2g
208 Basic NLS development	1a2h
209 Other development	1a2i
MINI-CONSOLE	1a3
301 Administration	1a3a
302 System Development	1a3b
IPT	1a4
401 Administration	1a4a
NIC	1a5
601 Administration	1a5a
603 CSO	1a5b
605 PSO	1a5c
606 Net interface	1a5d
(includes station agent, Liaison and Net participation)	1a5d1
607 NIC Development	1a5e
XEROX	1a6
701 Administration	1a6a
702 MPS development	1a6b
Project 8622 ONR:	1b
SDIS (RINS)	1b1
801 Administration	1b1a
808 SDIS - System Developers Intelligence System	1b1b
Project 1894 RADC:	1c
RADC	1c1
901 Administration	1c1a
905 Baseline Management System Development Support	1c1b

New ARC Project Subnumbers: SUMMARY

The following are present SRI overhead codes: 1d

(prefix these with our org code 750 such as in 750511) 1d1

Code No.	Title	
511	Administration and Planning - General	1d3
512	Administration and Planning by Project Professionals	1d4
521 (+W.O.)	Institute Publication	1d5
522	Technical Papers	1d6
523 (+W.O.)	Symposia and Seminars	1d7
525	Client Liaison	1d8
531-01,-02, -03,-04 (+ Sub No.)	Institute Research and Development	1d9
541	Formal Education Courses	1d10
542	Orientation and Staff Training	1d11
543	Staff Development	1d12
544	Overseas Travel	1d13
551	Recruiting	1d14
552	Relocations and Transfers	1d15
561	Facilities Expense and Support Services	1d16
562	Laboratory Equipment Calibration and Repair	1d17
563	Other Maintenance	1d18
564 (+W. O.)	Minor Construction Work Orders	1d19
571	Interim Technical Study	1d20
*581-xx	Proposal Liaison	1d21
*582-xx	Concept Formulation	1d22
*583-xx	Proposal Preparation	1d23

QUARTERLY MANAGEMENT REPORT 8, covering the period 9 November 1971 through 9 May 1972

ARPA Order Number: 967, Program: 1

Title: Network Information Center and Computer-Augmented Team Interaction 1a

Contractor: Augmentation Research Center, Stanford Research Institute 1b

Date of Contract: 9 February 1970 1c

Amount of Contract: $2,797,347 1d

Contract Number: F30602-70-C-0219 1e

Principal Investigator: Dr. Douglas C. Engelbart, phone (415) 326-6200, ext. 2220 1f

Contract Expiration Date: 9 August 1972 1g

I RESEARCH PROGRAM AND PLAN 2

As per our proposal and contract, work is progressing in the following areas: 2a

A. Network Participation 2b

Further development of the Network Operating System 2b1

Development and operational administration of the Network Information Center (NIC) 2b2

Use by ARC of the Network facilities as they become available and as appropriate 2b3

B. Team Augmentation Research 2c

Development of a user- and service-system design discipline 2c1

Management techniques to coordinate augmented design teams 2c2

Special user subsystems to support team collaboration 2c3

C. Computer Facility evolution and maintenance 2d

D. Terminal equipment procurement for RADC use 2e

QUARTERLY MANAGEMENT REPORT 8, covering the period 9 November 1971 through 9 May 1972

II MAJOR ACCOMPLISHMENTS 3

Network Participation 3a

Network usage of the NIC facilities has continued to increase. 3a1

Use of NIC computer facilities to send messages and to build files has been growing. Most of the day, 0500 to 1800 PST, some outside NIC users are using NLS via the Network. Usually, two to four are on at one time, and often as many as seven are logged in. 3a1a

In the past few months, the organic growth of the Network has been felt at NIC, with increase of demands on our distribution. Our initial distribution activity, to Liaisons, has increased from a list of 32 in January to a list of 40 in April. The total list, including Station Agents, and all other Network contacts, has grown from 72 in January to 99 in April. 3a1b

The arrangements NIC made in early 1971 for distribution to the Network Working Group, with procedures to be followed for any group on the Network, were extended in late 1971 to the Speech Understanding Group (SUR Group), which now has 19 members, and has issued 32 Notes in a series distributed to its members and to all Network Sites. 3a1c

In March 1972 a new interest group in Computer Based Instruction (CBI Group) was formed and has been supported by NIC with the mailing of Notes 1 through 5, including a list of its 24 members. 3a1d

Growth of the distribution list has been accompanied by stimulation of dialog on the Network, and while the volume of documents has not increased substantially, the average length is greater. 3a1e

Queries for specific net information from outside the net community have been received. 3a2

As the Network has become an operational reality, and news notes as well as professional papers have brought publicity of its existence, requests for information at many levels of specificity have been received at NIC, directly and through ARPA. 3a2a

At first, all such requests were referred to ARPA, but with increasing experience, NIC now makes its own judgments of appropriate answers in most cases, with an information copy to ARPA of relevant correspondence. 3a2a1

In many cases, a set of basic papers is sufficient to fill the requestor's need. In many other cases, a complete functional document such as the Network Resource Notebook or Current Network Protocols is sent. Sometimes updating material for the document is provided; sometimes it is understood that updates will not be sent. As yet, no direct charges to users are made for this material. 3a2a2

Attention has been devoted to helping ARC reorganize to make NIC more autonomous and costs separately chargeable. 3a3

In March, a new management organization for ARC was inaugurated, by which project responsibility was more easily assumed and more visible. (see -- 10034,1:wny) 3a3a

A NIC team of four was identified to do long-range planning and to correlate all aspects of NIC operations and services. 3a3a1

A first step was taken to a desired goal of making NIC efforts distinguishable from other ARC activities, so that costs may be accounted for, and budget and charges analyzed. Procedures were established for requesting, accomplishing, and recording all the work with documents that should be identified as NIC work. 3a3b

A draft procedure manual was prepared, and additions are continually being made to it. 3a3b1

Forms for requesting specific online and offline tasks were introduced and are being used to record many of the work operations involved in NIC document production, reproduction, and distribution. 3a3b2

Forms for recording individual daily NIC work were designed and tested, and can be used to sample the times of various work operations, to help establish NIC efforts and costs. 3a3b3

The NIC collection is growing. 3a4

With procedures better established, and with growing knowledge of the Network constituents, it has been possible to spend more effort on building a collection of documents for reference. 3a4a

The assistance of literature searchers and an order clerk in the SRI Library was arranged in January, and a stream of suggested references has started flowing into NIC. 3a4a1

The references selected by NIC people are then ordered by the Library and processed into the NIC Collection, and added to the NIC Catalog. 3a4a2

The catalog building system almost ready to operate. 3a5

As part of a larger effort, the Catalog Support System, the Catalog Production Processor was brought to the experimental stage. 3a5a

The Catalog Support System (CSS) has as its objective the augmentation by computer wherever possible of any of the processes in building catalogs of references to files and documents. 3a5a1

The Catalog Production Processor (CPP) is designed to allow the production of online and offline, incremental and cumulative indexes and listings of various kinds, using the Master Catalog as the data base. 3a5a2

More training courses have been given. 3a6

Training courses were given on November 29 and 30, January 27 and 28, March 16 and 17, and May 3, 4, and 5 to a total of about twenty-seven ARC and Network users. Each time a course is given, NIC modifies its approach to the subject, based on experience wi users and their reactions. 3a6a

Other Network participation received effort. 3a7

Ongoing work in helping the NWG design a file transfer protocol to facilitate, from our point of view, network entry and delivery of documents has proceeded with NWG design sessions and trial implementations. 3a7a

Several sites regularly use NLS to demonstrate usage of the ARPANET. 3a7b

NLS system development 3b

The following NLS features were implemented: 3b1

Deferred Execution System (DEX) 3b2

This process makes use of terminal and magnetic tape recording equipment for initial input of data with actual entry into computer files deferred until periods of relatively low system use (thereby resulting in less expensive use of the system for the processing of this work). 3b2a

The software for phase one (DEX-I) was completed and introduced to ARC users for operational use. DEX-II has been designed and will be implemented soon. (see -- 9241,) 3b2b

IMLAC software running over the Network 3b3

Further development by an ARC and Xerox team allowed trial DNLS use for IMLAC terminals over the ARPANET from UCLA and BBN. Trials were also made from Xerox, Palo Alto, and by an ARC staff member from Occidental, California. 3b3a

Source level debugger 3b4

A primitive source-level degugging system with capabilities for examining stacks, data fields of records, for setting breakpoints and continuing from them, etc., with parser and core routines in NLS was implemented. 3b4a

Go to Exec 3b5

A new command allows users to return to the TENEX EXEC level, enter and use other subsystems, with the option to reenter NLS (with the command "Quit" from the EXEC) and continue with their previous NLS state preserved. 3b5a

Displaying signatures 3b6

This now depends only on the signature display viewspec. Previously, viewspec y (blank lines between statements)

had to be on for signatures to appear. Create display, TNLS print, Quickprint, but not the Output Processor all follow this same convention. 3b6a

Execute Logout 3b7

A new Execute Logout command was implemented and is equivalent to issuing the Execute Quit command in NLS and following it with a LOGOUT command in the EXEC. 3b7a

Control file 3b8

A set of commands (and modifications to the user input routines) has been added to implement a control environment. A display session may be recorded on a file, then played back. During the playback, NLS will read the input from the control file instead of from the work station. An attempt is made to replay the commands at the same speed that the user entered them. 3b8a

Expanded substitute 3b9

Substitute in DNLS has been enlarged to recognize words, visibles, etc. 3b9a

The command, Substitute [text entity] in [structure entity] is now available. Text entity may be Character, Word, Visible, etc., and Structure entity may be Statement, Branch, Group, or Plex. 3b9b

Null file 3b10

A new command, Null File, has been added to TNLS and DNLS. It requires a file name and will create an empty file of that name. Upon completion of the command the user is left with the CM or display start at the origin of this new file. 3b10a

Superwatch 3b11

A subystem called Superwatch, for recording and analysis of system use data, was implemented. Superwatch is an information gathering and formatting-printing program designed to help monitor what is going on within our TENEX system. 3b11a

It is designed to put a very small load on the system while collecting information from it, so that it will

not alter the operation of the system significantly. Measurements show that the load incurred can be kept as low as 0.1 (of real CPU time). 3b11b

Superwatch also contains miscellaneous commands for changing system parameters and turning on and off various measurement code within the system. (see -- 8649,1:xbhz) 3b11c

For other recent NLS system changes, (See -- nls,status,changes:zxbbgn) 3b12

People Services Operation (PSO) 3c

We established a "People Services Operation," providing organized supporting operations, with developing procedures that aid in the throughput of incoming information and its entry into the data base. (see -- 7834,) 3c1

User documentation 3d

A detailed User's Guide for the Deferred Execution System was prepared and published. (see -- 9934,1:xbn) 3d1

This will permit ARC and future Network users to use much of the power of the NLS system at much lower cost. 3d1a

A detailed User's Guide for the L10 Programming Language was prepared and published. (see -- 9246,1:xbn) 3d2

Dialog Support System 3e

We have made few changes to the basic Journal system during the past few months. Most of our efforts have been directed toward keeping the system running, with some attention to changes that make it either more reliable or easier to use. 3e1

Frequent ARC Journal indices are prepared using online techniques. (see -- 9513, -- 9514,) 3e1a

Further design of the Journal and also of the overall DSS is beginning in conjunction with the recent ARC reorganization. 3e2

Baseline Record System development 3f

The baseline record system as implemented last Fall is still in use. Although parts of its operation provide some useful information, significant benefits from its use have not yet occurred. 3f1

The process of initiating our many tasks with a clearly recorded set of initial requirements and the collecting of design details as they develop still requires much more user orientation (changes in working habits) and system changes to facilitate the process. 3f1a

Redesign of existing features is under consideration, while attempts are being made to implement and use more effectively the features in the present design. (see -- 10048,) 3f2

Handbook development 3g

The initial collection and subject-categorizing that organizes our ARC Handbook information (as it now exists) has been accomplished during the past few months. 3g1

The trial guide to the Handbook contents is under development. (see -- 9681,1:xbbzn) 3g2

Hardware 3h

DEC Diskpacks 3h1

We have taken delivery of and have begun to use five DEC diskpacks and their associated control equipment. Initial experience has proven the configuration to be quite effective. The addition of more diskpacks for added capacity and for use in system reliability backup for the Bryant drum is now under consideration. (see -- 10199,1:xbh) 3h1a

RADC terminals 3h2

We have placed orders for four Execuports, four Termicette cassette recorders, and three IMLACS as per our proposal to RADC. (see -- 9249,1:xbbnz) 3h2a

Problems 3h3

Our prime goal has been to keep the system up for both

ARC and Network users as much of the time between 0500 and 1800 as we can. Prompt response to system failures has necessitated the use of a 24-hour on-call schedule for both the hardware and software teams. These procedures now permit the teams to respond quickly when problems arise. 3h3a

We have expended much effort in troubleshooting hardware failures as they have occurred. Attention to possible preventative maintenance and related procedures has also been given. 3h3b

We have experienced some difficulty with several different parts of the system, including the DEC CPU, the Bryant drum, the SRI facility air conditioning system, and our external core. 3h3b1

Studies are currently being made to determine configuration changes that will further improve our system reliability. (see -- 10199,1:wy) 3h3b2

III PROBLEMS ENCOUNTERED 4

No major problems 4a

IV FISCAL STATUS 5

Estimated expenditures and commitments to date are: $2,788,047, excluding computer lease commitments. Estimated funds required to complete the work are: $9,300. Estimated date of completion of work: May 9, 1972. 5a

V ACTION REQUIRED BY THE GOVERNMENT 6

Review and approval of the Final Report (now under preparation) on this contract when submitted. 6a

VI FUTURE PLANS 7

Completion of the Final Report on the contract. Follow-on research efforts will be conducted under the contract resulting from ARC proposal (7404,1) 7a

Approved by:

D. C. Engelbart, Principal Investigator 8