DCE 23-OCT-72 10:20 12380

Centrally Coordinated Information Services for a Discipline- or Mission-Oriented Community

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Centrally Coordinated Information Services for a Discipline- or Mission-Oriented Community

We consider here an array of information services that can be supplied effectively to a distributed community of clients by means of a computer network; and it is assumed throughout that we are considering a group of users who find it advantageous to pool resources and cooperate in mutual developments because they work within a common discipline or pursue a common mission. 1

The Augmentation Research Center has set its longer-range goals toward the continued evolution of such services, and toward supporting their application within certain types of discipline- or mission-oriented communities. 1a

We feel that our accumulation of techniques, experience, and operational developments, gained in ten continuous years of purposeful evolution, is ready for serious, intentional community experimentation to begin. From our experience, it is only by using a relatively complete, coordinated set of augmentation tools, applied realisticaly and consistently in one's everyday working domain, that enough perspective is developed to sensibly guide workshop evolution. We think that the culture of the knowledge-work communities should be evolving along with their knowledge workshops, and it is time for some exploratory community beginnings. 1b

We assume that an augmented information center will serve clientele who have various degrees of connectedness to the computer(s) -- from mailed paper to the widest-bandwidth, audio-visual, on-line connection -- but the central experiment is for clients who have on-line access of ARPANET nature, where a proposed range of services supported at their site would be as described below: 2

EXTERNAL DOCUMENTATION 2a

External-document bibliographic management and retrieval services, and a clearing-house service for acquisition. Facilitation for addition of items of private interest to any participant. 2a1

Central support for dynamic maintenane of local, private shelf collections, of any preferred subset of the Community's XDOC collection, Support includes automatic creation of indexing printouts over the collection, or on-line retrieval service over just that set of documents. 2a2

Microform options for private collections. Advantage then of optional use of local, computer-directed,

accessing equipment and techniques that are centrally supported. 2a2a

COLLABORATIVE DIALOGUE 2b

Computer aids for the composition of messages and for their subsequent reviewing, cross-referencing, modification, transmission, storage, indexing, and full-text retrieving; where each message may cite specific passages of prior messages, so that a group of related messages thus forms a recorded dialogue. These services, plus automatic delivery of messages, on-line accessability both to message notification and to the full text of other-message referenes, and open-ended storage of the dialogue records, allows a community of people who are distributed in space and time to maintain a new degree of collaborative dialogue. 2b1

Audio-visual dialogue, via linked displays and telephones, is a technique becoming useable now with DNLS. The speed and flexibility of this "augmented blackboard" is shared bilaterally, either party being able to point or control (according to agreed-upon protocol, of course), 2b2

Even though working very far apart, distributed parties are thus provided with an unparalleled facility for collaborating -- your colleage can go over your draft with you just as though he were sitting with you, and together you consider the results of the interactive changes; or the specialist from the computing utility scans through your program with you to help you find a bug; or a specialist in graphic manipulation or output-typography specification can help you with some tricky construction; or a teacher can help a student; or etc. indefinitely.. 2b2a

Further developments would enable speech input and output into the messages -- where records of arbitrarily long speech strings (e.g., one word in length, or twenty hours of continuous talking) could comprise the messages, or could be intermixed with textual content in the messages. Cross citations in the textual parts of messagecs could refer to specific passages in the speech. On line there could be jumping back and forth to such cited passages from the text, or flexible jumping about within t speech records, anotating the speech strings, etc. 2b3

DOCUMENT DEVELOPMENT, PRODUCTION, AND CONTROL 2c

Computer aids for the composition, study, and modification of document drafts -- assuming flexible intermixing of text, computer-generated graphics, computer-manipulated scan-generated photo images, etc.. Automatic processing for high-quality photo-composition output, with flexible controls for font-designation and formatting, to enable the production of publication-grade hard copy (printng masters, or microform masters). 2c1

Support for collaborating between several writers, and with an editor, in the process of evolving a final draft. Included in the "editing" can be help for setting font, size, and density of different character strings, and for managing footnotes, cross-references, tables of contents, indices, etc. 2c2

Aids also for controlling changes, new-version distributions, etc., and for indexing complex documents or sets of documents. 2c3

RESEARCH INTELLIGENCE 2d

With the above centrally supplied (therefore uniformly available) services, a community can have a dynamic and highly useful special data base to serve its "intelligence" needs -- i.e. to keep up to date on what is happening in the world that particularly affects it. 2d1

This sort of intelligence service can exist with the support of a minimal amount of central coordination -- where most of the work is provided as matter-of-course by-products from various kinds of the community's regular activity, and a moderate amount of volunteer effort could tie it together. 2d2

Or, by sharing in the financial support of a higher level of centrally administered "intelligence-service" activity, a community could maintain some professionally oriented and trained personnel to provide the planning, coordinating, and quality control, and to contract out (or enlist volunteers) to help in specialty areas where professional subject-matter specialists are needed. But in any event, there is a range of choice in how to handle such a service, and the Information Center can support any choice. 2d3

DISCIPLINE-ORIENTED HANDBOOK DEVELOPMENT 2e

Special developments in computer aids and working conventions would be provided to support the collaborative evolution of a very large, complex document. I sometimes like to use the term "super-document" here, where: 2e1

there are many sections (often with many levels), carefull attention to terminology, and serious concern for the consistency and completeness of both content and representational form; 2e1a

there is continuous development expected in the substantive contents of most sections, so that relatively frequent production of updated editions is required; 2e1b

there is apt to be frequent cross referencing; 2e1c

there is considerable value in having such as comprehensive concordance-type indices, accurate glossaries, well organized tables of contents (to several levels), etc. 2e1d

For a discipline- or project-oriented community, one very important application of a centrally available "super-documentation" service would be to maintain the "Community Handbook" -- i.e., the uniform, consistent, and complete (as possible) integration of the special knowledge that is under development by the community. This would include descriptions of: principles, practices, observations, hypotheses, how-to-do-it items, challenges, goals, definitions, arguments, techniques, etc. 2e2

All of the relevant, handbook-like information for the usual special discipline would make a very large super-document. Although I fully expect that someday the whole body of such information, for each active discipline, will be held and evolved within a monolithic super-document -- for the near future I would expect that a community would carry in its computerized handbook mainly the information that has changed from what is found in standard reference books, or that might have special value in being computerized (e.g. for teaching, or reference lookup). 2e2a

An active community would be constantly generating new

information bearing upon the contents of the last formal version of its Handbook -- comments, errata, suggestions, counter examples, altered designs, improved arguments, new experimental techniqes and data, etc. 2e3

For many of the participants, an up-to-date awareness of some of this new information would be useful. Consider the value then of centrally supported aids for collaborative dialogue, where new information, linked to each specific piece of referenced information within the Handbook, would be almost instantly available to everyone, and anyone can add his data and/or commentary in response. 2e3a

Such dialogue can greatly facilitate the growth rate and relevancy of relevant new information, and it can also facilitate the community process of resolving conflicts, setting standards, shaping into consistency a body of principles, controlling terminology, etc. Individuals or working committees responsible for parts of such activity can collaborate closely and continuously with other concerned parties; and, for example, trial drafts of new policies or formulations can be reviewed and commented upon by means of the same dialogue-support system. 2e3b

There would also be computer-aided service for publishing successive versions of the Handbook, in highest-quality form. In fact, development of special portrayals (involving such as mixed text and drawings, with photgraphic overlaying) to suit the unique needs of a given discipline could be xpected as a matter of course, so that portrayals would become available that would have been out of reach otherwise (without the computer aids). 2e4

There would evolve techniques for automatically generating special "subset" publications from the one, monolithic super-document, almost to custom order. For instance, a special edition to suit a given level of maturity in the discipline, or to suit a given sub-discipline, or to suit a need for teaching as opposed to referencing, etc. 2e4a

Direct publication to microfiche masters would be provided. This would provide a distinct advantage of enabling much wider ownership of complete, up-to-date issues of the Handbook (which might comprise thousands

of pages). And there is a very important added advantage to the microfiche publications -- there will be computer-controlled fiche readers that can provide much enhanced accessing (cross-reference following, topical lookup, etc.) services than would be possible by thumbing through books. 2e4b

These "frame-jump fiche readers" would be connected on-line to the Information Center, whose computer knows about both the content and the formatting for that issue of the Handbook, and thus can give a surprising amount of help. It will be possible to have screen-pointing devices so that the computer will know where on the page one is pointing (it already knows which page, since it positioned him there). Then, for instance, one need only point to a cross-reference citation to have the computer position his view to the appropriate fiche and frame. Or, point to a word and ask to be positioned to the frame where it is first used in the text. 2e4c

COMPUTER-BASED INSTRUCTION 2f

CBI includes both Computer-Assisted Insruction (CAI), where on-line computer services assist the student during his learning periods, and Computer-Managed Instruction (CMI), where there may be other computer services employed as an integral part of the instruction process other than in this interactive, teaching mode; for example, analyzing results of a study-testing session employing mark-sense response sheets, and for each student selectively preparing the next-session materials, depending upon his performance history. 2f1

If relatively widespread applicability of CBI were suitable for the Community, then it seems reasonable to expect gains to be available by pooling resources and utilizing a Community-coordinated information service -- especially over a computer network. By the time a community also had a set of centrally managed information services of the scope and power described above, there would be consideralbe overlap onto the range of services of value to the CBI processes and activites. 2f2

One significant liklihood would be that the dynamic evolution of the Community Handbook could be coordinted with the CBI processes and conventions so that at least the preparation and updating of the CBI materials would be

greatly facilitated -- and it is very probable that communities would ultimately integrate their Handbook and CBI techniques so that their Handbook contained the special tags, links and etc. required by the CBI computer processes for automatically generating "special insructional material." 2f3

Or another way of considering it -- depending upon the computer aids invoked, the one data base of the monolithic Handbook could simultaenously serve such various needs as introductory teaching, in-depth teaching, independent studying, miscellaneous referencing or question answering, or even hypothesis testing. 2f4

ASSEMBLY PRESENTATIONS, WORKSHOPS, AND CONFERENCES 2g

This refers to the augmentation that can be provided for assemblies of people. We have carried out some rather successful experiments in the past, and know that there are rather marked improvemnts possible over the conventionsl "assembly-collaboration workshop." 2g1

PROJECT MANAGEMENT 2h

Computer aids such as PERT, CPM, or our Baseline Record System (BRS), plus the above enriching services (especially dialogue support, document development, production and control, and a "Hanbook" system), would make a powerful package upon which to base many of the key management functions of the Community as a whole, and likely the natural xtension would be for such systems to work their way into the management prcesses internal to the Community-member orgainzations. 2h1

WORKPLACE WITHIN WHICH TO USE OTHER COMPUTATIONAL AND DATA RESOURCES 2i

This assumes that the Community members can avail themselves of Display-NLS service in support of their general daily work -- beyond that in which they are participating the special, communiy-oriented activities. They immediately can gain benefit in the internal communications, documenting, studying, etc. 2i1

Our NLS services would be valuable in providing coordinated access to such, as well as for supportive

activites such as giving presentations, conducting working seminars, etc. 2i1a

Then further, their discipline will generally have processes and data that are important in its evolving work and methodology -- e.g. special numerical data, statistical processes, analytical programs, etc. 2i2

Assuming that special computational resources of the type needed are available within the same computer network that carries the Community's central information services, then provision can be made for the use of these other services "through" the coordinated "workplace" in which a participant makes use of the Center's above services. 2i3

In all of these, there is basic advantage in having a flexible, powerful facility for managing mixed text and graphics -- composing, studying, modifying, integrating new material into working notes and reports, publishing, doing collaborative dialogue, giving presentations, etc. -- and, when using different computer services, of handling these foregoing aspects of the service utilization within a familiar and consistent working environment. 2i4

For special data-base management systems, an augmented workshop would facilitate the human's work in: 2i5

Preparing, editing, and reviewing data input 2i5a

Formulating, editing and transmitting interactive service requests 2i5b

Receiving the DBMS output, manipulating it, and either recycling for improved results, or integrating the output information into working notes where it may be effectively studied, where it may become part of a developing work, whre it may be easily be located and commented upon in collaborative dialogue, from where it may easily be published, or etc. 2i5c

For computational services, writing and documenting the programs can be done with high efficiency, and work-mode consistency 2i6

For clients who also wish to develop new tools and techniques to expand their workshop's "toolkit" beyond what had been centrally developed: 3

Consultants and contractors would be available for special support, if a client chose to use such services rather than develop and maintain his own implemenation staff. 3a

Otherwise, his staff (or his contractors) would have available special higher-level languages, tailored to fit the level and subject of concern. There would be good manuals, augmented-collaboration help in learning how to use them, special interactive debugging aids, and clean interfaces with the rest of the sizeable software system. 3b

Using the next-stage Modular Programming System (MPS) in which NLS is being re-programmed, a client developing his own special workshop features would independently be able to implement and try out his own new-feature modules as part of the full complement of already checked out tools -- 3c

with minimum danger of messing up the larger, existing set of tools, 3c1

without the disconcerting worry/problem of being launched solo into complexities involving details, concepts, and considerations outside the domain of his concern. 3c2

with minimum service cost for compiling, debugging, and operating his new tools -- i.e. he is still sharing the operating overhead of the rest of the workshop that he is using, along with all the other system users. 3c3

Other users of the common workshop service utility are protected from such experimentation -- they need be exposed only to the standard portions of the system that have been thoroughly checked out. 3d

However, the other users in the Community can, at their own risk, experiment with new special features at any stage of their development, via arrangements with the experimental developer. In this mode, many new features would likely be available -- with various sub-communities making relatively heavy use of some sets of them. 3e

Then, a process would exist whereby such new features would be integrated into the "standard", guaranteed set of modular services, so the basic, centrally supported workshop would steadily evolve and expand. 3f

A Community that is collaboratively evolving its workshop

in this manner would necessarily have to sustain community processes that monitor and enforce the standards and principles by which the evolution takes place. Assumedly, the augmented collaborative capablities of the Community would facilitate such processes, but there would be no evading the constant human effort required -- but indeed, upgrading a discipline's workshop should be of as much importance to it as is the upgrading of its topical concepts and theoretical principles. 3f1

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Centrally Coordinated Information Services for a Discipline- or Mission-Oriented Community

(J12380) 23-OCT-72 10:20; Title: Author(s): Engelbart, Douglas C./DCE; Distribution: Cox, Bonnar, Brown, David R., Watson, Richard W., Norton, James C., Irby, Charles H., Bass, Walt, Kudlick, Michael D., North, Jeanne B., Rech, Paul, Vallee, Jacques F., Van Nouhuys, Dirk H., Auerbach, Marilyn F., Rech, Paul/BC DRB RWW JCN CHI WLB MDK JBN PR JFV DVN MFA PR; Sub-Collections: SRI-ARC; Clerk: DCE;

JTM 23-OCT-72 15:33 12381

Lost File

Smokey, the file <usc>eclmsgs.nls (version 100 or there abouts) has mysteriously disappeared. It was known to exist about a week and a half ago. Could you check the backup tapes and see if a copy exists and if so recover it? Thanks. --JEW 1

JTM 23-OCT-72 15:33 12381

Lost File

(J12381) 23-OCT-72 15:33; Title: Author(s): Melvin, John T./JTM;
Distribution: Wallace, Smokey C., Pepin, James M./DCW JMP;
Sub-Collections: NIC; Clerk: JTM;

LPD 22-OCT-72 22:44 12382

Reply to 12373

I have no objection to printable control characters printing. I just want it to be consistent. If I define % as CA with echo , for example, I usually get % , but sometimes just %, just , or nothing, depending on the circumstances. This is what I object to. 1

LPD 22-OCT-72 22:44 12382

Reply to 12373

(J12382) 22-OCT-72 22:44; Title: Author(s): Deutsch, L. Peter/LPD; Distribution: Irby, Charles H./CHI; Sub-Collections: NIC; Clerk: LPD;

LPD 22-OCT-72 22:51 12383

TNLS rejects three funny characters

It appears that TNLS will not accept left-curly-bracket (173B) in a literal unless preceded by ^V [Illegal Character message], and will accept but not print, either on input or output, right-curly-bracket (175B) or not-symbol (176B). I can't think of any good reason for this -- 175B is the old ESC, but surely TENEX is converted by now and NLS can still accept it from 33's. Is TENEX "doing you some favors"? 1

LPD 22-OCT-72 22:51 12383

TNLS rejects three funny characters

(J12383) 22-OCT-72 22:51; Title: Author(s): Deutsch, L. Peter/LPD; Distribution: Irby, Charles H./CHI; Sub-Collections: NIC; Clerk: LPD;

LMM 24-OCT-72 2:06 12385

usc-isi:<hearn>scene

<SU-HP>REDUCE.NLS;1, 24-OCT-72 1:58 LMM ; 1

REDUCE === HOSTS 4,69,86 (and 11 and 65) 1a

1b

REDUCE is a language and system for the evaluation of algebraic 1c

expressions. It may be run interactively on hosts 4,11,69 and 86 and 1d

in batch mode on host 65. 1e

1f

This scenario describes the use of the program under the TENEX 1g

time-sharing system. Scenarios for sites 11 and 65 are also available 1h

on request. 1i

1j

The syntax of REDUCE resembles ALGOL 60. Therefore anyone 1j1

with a knowledge of this or a similar algorithmic language should 1k

have no trouble learning REDUCE. The capabilities of the system 1l

include manipulation of polynomials, rational functions, 1m

user-introduced operators and matrix expressions. Extensive pattern 1n

matching and procedural facilities are also available. 1o

1p

A limited subset of the system's capabilities are described 1p1

here; users interested in more details are referred to the User's 1q

Manual. However, it is hoped that this brief demonstration will 1r

convince you of the power of the system. 1s

1t

This scenario is described explicitly for host 86, but, apart from a 1u

different sign-on procedure, the dialog would be identical for hosts 1v

4 and 69. 1w

1x

1. To connect the TIP to USC-ISI Tenex, type: 1y

@r lf 1z

@l sp 86 lf 1a*

USC-ISI TENEX 1.29.5.9 EXEC 1.46.1 1aa

1ab

2. To login to Tenex, type: 1ac

@login sp iccc cr 1ad

(PASSWORD) iccc cr 1ae

(ACCOUNT #) 1 cr 1af

JOB 1 ON TTY103 22-OCT-72 10.04 1ag

1ah

3. To send a message concerning problems in REDUCE, type: 1ai

@sndmsg CR 1aj

USER[@HOST](S): hearn 1ak

MESSAGE (? FOR HELP);

<now type your message>

↑Z

4. To use REDUCE, type:

@RUN <HEARN>REDUCE CR

In the following examples, the program will print an asterisk

after each line is typed to indicate that it is ready for more input.

This asterisk is not indicated in the examples.

To calculate the factorial of 50, type:

FOR I:=1:50 PRODUCT I; CR

Notice the following general characteristics of a REDUCE command:

1) Commands end with a semi-colon. However, if you wish to suppress

output the $ sign may be used instead.

2) All integer arithmetic is done with arbitrary precision, so you

can get some very long numbers if you try

3) REDUCE has some nice extensions of ALGOL 60 (mainly taken from 1bf

other languages) such as the PRODUCT expression above. A similar SUM 1bg

construction is illustrated by typing: 1bh

```
FOR I:=1:50 SUM I**2; CR
```
1bi

which sums the squares of all integers between 1 and 50 inclusive. 1bj

1bk

To expand the expression (X+Y+Z)**4 and collect like terms, you can 1bl

write: 1bm

```
(X+Y+Z)**4; CR
```
1bn

1bo

If you wish to save this result for later use, you can now type 1bp

```
SAVEAS W; CR
```
1bq

1br

or, alternatively, you could have said initially: 1bs

```
W:=(X+Y+Z)**4; CR
```
1bt

1bu

To suppress the printout, one would have typed: 1bv

```
W:=(X+Y+Z)**4$ CR
```
1bw

1bx

If you wish to correct mistakes in the input line, the 1bx1

easiest thing to do at this demonstration is to use ↑A to delete the 1by

previous character or ↑X to delete a whole line. A system editor is 1bz

also available for more extensive input editing. 1c*

1ca

Once we have stored our result in W, we can use this in other 1cb

expressions. For example, 1cc

```
DF(W,X); CR
```
1cd

will differentiate (X+Y+Z)**4 with respect to X. 1ce

1cf

One very useful feature of REDUCE is its simple matrix 1cf1

syntax. For example to set M to the matrix 1cg

1ch

```
A B
```
1ch1

```
C D
```
1ch2

1ci

one types: 1cj

```
MATRIX M; CR
```
1ck

```
M:=MAT((A,B),(C,D)); CR
```
1cl

1cm

We can now use M in any context where a matrix is allowed. For 1cn

example, you should try: 1co

```
M**(-1); CR
```
1cp

to get the inverse, 1cq

TP M; CR 1cr

to get the transpose, 1cs

and 1ct

DET M; CR 1cu

to get the determinant. 1cv

Other constructions such as 1cw

2*M**2-M**(-1); CR 1cx

can now be tried. 1cy

M*M**(-1); CR 1cz

is also worth doing. 1d*

1da

REDUCE also has a wide range of substitution capabilities which the 1db

user should learn about. 1dc

For example, the sequence of declarations: 1dd

OPERATOR INT; CR 1de

LINEAR INT; CR 1df

FOR ALL N,X LET INT(X**N,X)=X**(N+1)/(N+1); CR 1dg

FOR ALL X LET INT(1,X)=X,INT(X,X)=X**2/2; CR 1dh

is sufficient to enable the system to integrate any polynomial with 1di

respect to a symbolic variable. Thus 1dj

INT(W,Y); CR 1dk

will give the integral of (X+Y+Z)**4 with respect to Y if W has been 1dl

set as described earlier. 1dm

After these simple calculations, you are now ready to try 1dn1

your hand at more complicated problems. For further details the 1do

REDUCE User's Manual should be consulted. 1dp

1dq

if you prefer to consider this as a demonstration of the 1dq1

capabilities of REDUCE in a batch environment, you can run all the 1dr

above examples by the following alternative sequence to step 4: 1ds

@RUN <HEARN>REDUCE CR 1dt

REDUCE 2 (22-OCT-72)... 1du

IN DEMO; 1dv

1dw

The program will now read commands from the disk file DEMO, which 1dx

contains all the examples in this scenario. 1dy

1dz

When you have finished with REDUCE, you can return to the 1dz1

exec by typing ↑C. To leave host 86, the following sequence of 1e*

commands should be typed: 1ea

@LOGO CR 1eb

@C LF 1ec

1ed

LMM 24-OCT-72 2:06 12385

usc-isi:<hearn>scene

REDUCE was developed at Stanford University and the 1ed1

University of Utah by Anthony C. Hearn. Parts of the system have been 1ee

contributed by Ruediger G. K. Loos. Any questions regarding REDUCE 1ef

should be directed to: 1eg

1eh

Anthony C. Hearn 1eh1

Department of Physics 1ei

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Salt Lake City 1ei1a

Utah 84112 1ei1a1

Telephone: (801) 581-8502 1ej

1ek

LMM 24-OCT-72 2:06 12385

usc-isi:<hearn>scene

(J12385) 24-OCT-72 2:06; Title: Author(s): Masinter, Larry M./LMM;
Distribution: Masinter, Larry M./LMM; Sub-Collections: NIC; Clerk: LMM;

LPD 24-OCT-72 8:48 12386

TNLS suggestion

I think TNLS would be improved by having a mode in which all commands which take a text argument (textual Delete, Replace, Transpose, Move, Copy) print the selected argument and require confirmation with CA. The message "ok?" is not very useful. Perhaps this could be extended to a mode where all address specifications other than simple name or content searches would do a / to show what they found. 1

LPD 24-OCT-72 8:48 12386

TNLS suggestion

(J12386) 24-OCT-72 8:48; Title: Author(s): Deutsch, L. Peter/LPD; Distribution: Irby, Charles H./CHI; Sub-Collections: NIC; Clerk: LPD;

DIA 24-OCT-72 13:41 12387

How to Trace Procedure Calls and Returns Inside NLS.

This document describes a way of getting a printout of calls and returns within NLS for one command, or small number of commands. It involves no permanent code changes in NLS.

How to Trace Procedure Calls and Returns Inside NLS.

How to Obtain a Trace of Procedure Calls inside NLS. 1

There is a way to obtain a trace of procedure calls and returns for an NLS command, or several commands. It is done by way of a user program and involves no permanent code changes in NLS itself. 1a

Basically, a user program patches the call UUO's so that the called procedures' address is written on a file. (A zero is written for returns). Another user program turns the whole thing off, restoring the NLS code and closing the file. 1a1

The file is always called TRACE.DATA, and is a sequential file of 18 bit bytes. I invite anyone to change the user program to collect the file name from the user. 1a2

The user program to start the trace is located in <andrews,tracer,1:w>. The program to stop the trace is in <andrews,tracer,2:w>. Perhaps there's a better place for this file to live? 1b

Compile the user programs with the G[oto] P[rograms] L[10 compile] command. Then at any time later, the trace may be turned on by doing G[oto] P[rograms] E[xecute program] START, and turned off by G[oto] P[rograms] E[xecute program] STOP. 1b1

Use caution, since large amounts of data can be created very quickly, You could probably fill the disk in a few minutes of fancy NLS stuff with the thing turned on. 1b2

It is expected that it will be used to trace the flow of control for one command. 1b2a

The TRACE.DATA file can be printed with the Interpret Trace command of the Superwatch subsystem. 1c

It requires the name of the trace data file, a get file with symbols in it, and an output file. It also requests a max number of lines of output so you can indicate how much stuff you expect to pump through the printer, and not hang up the printer for a long time if you have a much longer file than you think 1c1

You cannot specify <SUBSYS>NLS.SAV as the get file with symbols. Use another copy of NLS.SAV if it exists, or make one as follows: 1c2

Do a get on subsys NLS. Look at 116 (type 116/ at the EXEC). SSAVE page 0 through 0 and whatever page the symbol table starts in (usually about 360), through 377. This makes a satisfactory file of only about 17 pages. 1c2a

The file is printed with procedure names and addresses, indented to show levels of calls and returns. An R denotes a return. 1c3

Be advised that "GOTO's" are not recorded. Goto state has to de deduced from the context of the calls. 1c3a

If you don't get any procedure names printed out (just addresses), you most likely specified the wrong set of symbols. Check the version numbers. 1c3b

Hopefully this little goodie will be useful in organizing NLS code. I think we can get the most-often referenced code to fit in fewer pages. Also, it should be of some help in revamping for the MPS version of NLS. It may even be useful in finding bugs - who knows? 1d

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How to Trace Procedure Calls and Returns Inside NLS.

(J12387) 24-OCT-72 13:41; Title: Author(s): Andrews, Don I./DIA; Distribution: Andrews, Don I., Bass, Walt, Dornbush, Charles F., Ferguson, Ferg R., Hopper, J. D., Irby, Charles H., Kaye, Diane S., Lehtman, Harvey G., Michael, Elizabeth K., Vallee, Jacques F., Victor, Kenneth E. (Ken), Wallace, Smokey C., White, James E. (Jim), Deutsch, L. Peter/SRI-PROG LPD; Sub-Collections: SRI-ARC SRI-PROG; Clerk: DIA; Origin: <ANDREWS>BLURG.NLS;4, 24-OCT-72 13:36 DIA ;

DIA 24-OCT-72 13:44 12388

I got your link, Paul. I was getting a cup of coffee... Hi. 1

(J12388) 24-OCT-72 13:44; Author(s): Andrews, Don I./DIA;
Distribution: Rech, Paul/PR; Sub-Collections: SRI-ARC; Clerk: DIA;

LPD 24-OCT-72 16:52 12389

Your procedure for tracing NLS sounds fascinating. I would like to see some output when you have some. 1

LPD 24-OCT-72 16:52 12389

(J12389) 24-OCT-72 16:52; Title: Author(s): Deutsch, L. Peter/LPD;
Distribution: Andrews, Don I./dia ; Sub-Collections: NIC; Clerk: LPD;

NWG/RFC# 408 ADO JBP 25-OCT-72 14:44 12390
Netbank

The following idea for a protocol (or service) is offered as an aid to network use for new users: 1

a single billing and account creation and validation system, so that a manager of a "goal oriented project" could: 1a

authorize a set of user's ids to gain access to and utilize resources at the entire or a specified subset of the server hosts. 1a1

create a set of accounts which the users will expend, and which will be used as the breakdown for a single bill to be presented to the project manager. 1a2

the idea is that the project manager would be required to go through the initialization process of introducing himself, verifying the existance of funding, etc. only once, and, 1b

the idea would also encourage server hosts to implement systems for which usage might be projected to start at low levels and grow, by allowing funded hacking by project members in a controlled manner. 1c

this would require an option at login for the prospective user to indicate the server should check the "netbank" facility at the system currently hosting it. 1d

NWG/RFC# 408 ADO JBP 25-OCT-72 14:44 12390
Netbank

(J12390) 25-OCT-72 14:44; Title: Author(s): Owen, A. D. (Buz), Postel, Jonathan B./ADO JBP; Distribution: Stoughton, Ronald M., North, Jeanne B., Stevenson, Schuyler, Fitzsimmons, Jerry, Meir, Jaacov, Crocker, Steve D., Lawrence, Thomas F., McConnell, John W., Heafner, John F., Long, Robert E., Ollikainen, Ari A. J., White, James E. (Jim), Hathaway, A. Wayne, Murphy, Dan L., Foulk, Patrick W., Winter, Richard A., Zoeren, Harold R. Van, McKenzie, Alex A., Sundberg, Robert L., Winett, Joel M., Bhushan, Abhay K., Karp, Peggy M., Pyke, Thomas N., Landsberg, Abe S., Wilber, B. Michael, Moorer, James A., Feigenbaum, Edward A., Braden, Robert T., Pepin, James M., Wessler, Barry D., Melvin, John T., LeGates, John C., Bernstein, Art J., Shepard, C. D., Hargraves, Robert F., Powell, Jerry J., North, Jeanne B., Dolan, Bruce A., McKenzie, Alex A., Melvin, John T., Metcalfe, Robert M. (Bob), Kahn, Robert E., Postel, Jonathan B., Karp, Peggy M., White, James E. (Jim), Crocker, Steve D., Page, Cindy, Irby, Charles H./NWG NF CXP CHI; Keywords: Network-usage accounting billing charging bank; Sub-Collections: NIC NWG NF; RFC# 408; Clerk: JBP;

RWW 25-OCT-72 16:41 12391

REQUEST TO ADD UCSD TO TENEX

SMOKEY, PLEASE ADD UCSD-CC AS A USER NAME TO TENEX WITH PASSWORD ARPA 1

RWW 25-OCT-72 16:41 12391

REQUEST TO ADD UCSD TO TENEX

(J12391) 25-OCT-72 16:41; Title: Author(s): Watson, Richard W./RWW; Distribution: Wallace, Smokey C./DCW; Sub-Collections: SRI-ARC; Clerk: ARCG;

JBL 25-OCT-72 14:13 12392

Output Processor to Sequential File problems

Not urgent, don't worry about this before you get back to Calif.

JBL 25-OCT-72 14:13 12392

Output Processor to Sequential File problems

I have been trying the Output Processor to a sequential file, and have been having no success. That is, it seems to work OK, but I wind up with a file full of garbage, no doubt related to NLS internal format (or so I would guess from what happens when I TYPE it in EXEC). Is there another way to get a TYPEable text output file out of NLS? 1

JBL 25-OCT-72 14:13 12392

Output Processor to Sequential File problems

(J12392) 25-OCT-72 14:13; Title: Author(s): Levin, Joel B./JBL;
Distribution: Watson, Richard W./RWW; Sub-Collections: NIC; Clerk: JBL;

VGC 26-OCT-72 6:43 12394

INWG 1 International Packet Network Working Group
Report of Subgroup 1

ARPA Network Information Center
Stanford Research Institute
Menlo Park, California 94025

INWG 1
24 October 1972

1

International Packet Network Working Group:
Report of Subgroup 1 on Communication System Requirements
Tuesday, 24 October 1972, 9:30 A.M.

2

INTRODUCTION

3

The Working Group consisting of D. Davies (NPL, Britain), P. Shanks (UKPO), F. Heart (BBN), B. Barker (BBN), R. Despres (French PTT), V. Detwiler (University of British Columbia, Canada), and O. Riml (Bell-Northern Research, Canada) agreed on the following terms of reference as its objective for further work:

4

(1) To consider what requirements must be met by the packet switching networks to allow convenient communications between computers and terminals when that communication takes place through more than one network.

4a

It was agreed that interworking between packet-switching networks should not add complications to the HOSTS, considering that networks will probably be different and thus gateways between networks will be required. These gateways should be as uncomplicated as possible, whilst allowing as much freedom as possible for the design of individual networks. Part of the future work must be to determine the extent of this freedom.

4b

(2) To consider what recommendations to make on packet-switching networks, and how to provie for acceptance of these recommendatios throught CCITT and other international organizations such as IATA.

4c

Packet switching networks as exemplified by the ARPANET and SITA network, may be either private networks or public networks. Some private networks will not face the interworking problem, therefore our principal concern should be with public networks, or multi-purpose private networks.

4d

SPECIFIC TECHNICAL FACTORS

5

In the time available, the subgroup could do no more than list some of the principal technical factors affecting interworking between packet-switching networks as follows:

6

Function of the Network 6a

The network could provide only a packet transport service, or it could, like the ARPA network, accept messages which it divides into packets for transport and reassembles within the network. The decision has a big influence on interworking. It is closely related to the work of Subgroup 2. 6a1

The Network's User-Interfaces 6b

Two kinds of interface should be defined: 6b1

(a) An interface which exchanges packets or messages with a processor or intelligent device. There are two possible arrangements: 6b1a

(1) The network authority installs a store-and forward device (SPUR-IMP) adjacent to the user's equipment, (host) allowing the interface to be a local one, possibly multi-wire. 6b1a1

(2) A link is made, over a distance, between the newest working center (IMP) and the user's equipment (HOST) and the interface is defined by a procedure over this link. 6b1a2

In either case, error control should be provided across the interface. As far as possible, features of the draft CCITT interface for the new data network should be adopted. This may be easier with arrangement (2), but a genuine attempt should be made to adopt the synchronous line facilities defined by CCITT in both cases. 6b1b

(b) An interface (or several alternative interfaces) for simple terminals. This (or those) should also adopt the draft CCITT interface as closely as possible. Problems of extending error control and flow control to simple terminals were recognized, but no conclusions reached as to the need for these facilities. 6b1c

The Packet Size Maximum 6c

In an ideal world, all the interconnected networks would have the same maximum packet size, but this is unlikely to be the case. 6c1

With a small variation of this parameter, among existing networks, it would be feasible to enforce an upper packet size limit that would answer efficient handling between networks. This would then become a lower limit for the maximum packet size of future networks. 6c2

With a large variation, we could conceive of cutting up packets and reassembling (a kind of message function) but this might create very complex problems for HOST-HOST protocol, particularly for HOSTS in incompatible networks. Clearly, the uniform standard is much to be preferred. 6c3

Optimum packet size is influenced by these factors: 6c4

(a) Packet transit time, since packet size affects the storage delay in nodes. 6c4a

(b) Maximum data rate, since it affects the size of block which is acknowledged across the network. 6c4b

[Chairman's note: However, end-to-end acknowledgement of each block is not a necessary feature of networks. If HOSTS handle message reassembly, the network could have several packets in flight at one time, provided that a packet sequence method and the pre-reservation of assembly space are engineered.] 6c4c

(c) The use of a method of satellite relay which has fixed length time slots which are shared between a number of point-to-point links. There is pressure to reduce the size of these slots. 6c4d

[If the links concerned are IMP-IMP links, the "segments" contained in these slots need only an IMP address, thus saving on address overhead. The packet can be made up from a number of such "segments", and it will have a normal packet format including a heading with the full destination address. In this way packet size and satellite requirements can be decoupled.] 6c4e

Flow Control 6d

This can have two related functions to prevent general congestion of the network and to give end-to-end control so that a data source is controlled by the destination's capacity to absorb data. A network must be able to protect itself against congestion without depending completely on

the correct operation of other networks with which it is interconnected. The end-to-end flow control is related to HOST-HOST protocol. Therefore some aspects of flow control extend across inter-network boundaries and some may not. 6d1

Other Technical Factors Mentioned by the Group 6e

The network heierarchy 6e1

The numbering plex and international routing. 6e2

How should the quality of service be specified in packet-switching switching systems? 6e3

VGC 26-OCT-72 6:43 12394

INWG 1 International Packet Network Working Group
Report of Subgroup 1

(J12394) 26-OCT-72 6:43; Title: Author(s): Cerf, Dr. Vinton G./VGC ; Distribution: Madden, James M., Slyke, Richard M. Van, Young, Michael B., Kantrowitz, William, Padlipsky, Michael A., Fitzsimmons, Jerry, Hart, James, Stevenson, Schuyler, Deutsch, L. Peter, Petregal, George N., Davidson, John, Millstein, Robert E., Lawrence, George, Saltzer, Jerome H., O'Sullivan, Thomas, Seroussi, Sol F., Bradner, Scott, Thomas, Robert H., McCutchen, Sam, Thomas, John C., Romanelli, Michael J., Stoughton, Ronald M., Owen, A. D. (Buz), Fink, Robert L., Meir, Jaacov, North, Jeanne B., Petregal, George N., Crocker, Steve D., Lawrence, Thomas F., McConnell, John W., Heafner, John F., Long, Robert E., Ollikainen, Ari A. J., White, James E. (Jim), Hathaway, A. Wayne, Murphy, Dan L., Foulk, Patrick W., Winter, Richard A., Zoeren, Harold R. Van, McKenzie, Alex A., Sundberg, Robert L., Winett, Joel M., Bhushan, Abhay K., Karp, Peggy M., Pyke, Thomas N., Landsberg, Abe S., Wilber, B. Michael, Feigenbaum, Edward A., Braden, Robert T., Pepin, James M., Wessler, Barry D., Melvin, John T., North, Jeanne B./nlg nicsta ;
Sub-Collections: NIC NLG NICSTA; Clerk: JBN;
Origin: <NORTH>INWG1.NLS;4, 26-OCT-72 6:35 MFA ;

JBN 26-OCT-72 8:24 12395

INWG 2 International Packet Network Working Group, Report of Subgroup 2

ARPA Network Information Center
Stanford Research Center
Menlo Park, California 94025

INWG 2
25-OCT-72

1

International Packet Network Working Group:
Report of Subgroup 2 on HOST-HOST Protocol Requirements
Tuesday, 24 October 1972

2

1. Membership

3

Barry Wessler, Vint Cerf, Kjell Samuelson, Derek Barber, C. D. Shephard, Louis Pouzin, Brian Sexton, William Clipsham, Keith Sandum, Alex McKenzie, Jeremy Tucker

3a

2. Objectives

4

The group decided to adopt the following five ordered objectives:

4a

a. Define which issues must be resolved by HOST-HOST (H-H) protocol.

4a1

e.g. Flow control; error detection and handling; retransmission and acknowledgement mechanisms; ways to determine current state of process at "other" end of the conversation; message sequencing; synchronization; addressing problem.

4a1a

b. Select a design philosophy

4a2

The majority feeling was in favor of a message switched H-H protocol. Furthermore, layering of protocol levels seemed very desirable.

4a2a

c. Design the HOST-HOST protocol.

4a3

Agree to implement the protocol design by a certain date

4a4

Make implementation recommendations.

4a5

3. Strategy

5

a. Review of existing protocols for various networks (e.g. Walden Message-Switching Protocol, ARPA H-H Protocol, NPL High-Level Protocol, CYCLADES Protocol, EPSS Protocol, etc., Cerf to arrange for dissemination of relevant material via NIC and/or other sources.

5a

b. Through exchange of position papers and other working notes, attempt to achieve objectives 2a - 2e. Infrequent working meetings are to be held as the opportunity arises. 5b

4. Organization 6

a. Temporary Chairman/Secretary: Vint Cerf 6a

b. Possible Chairman is software department head of COST 11 Network Executive Board. 6b

6. Immediate Tasks 7

a. Issue mailint list (Cerf) 7a

b. Establish NIC identification for INWG2 (Cerf) 7b

c. Distribute relevant ARPA and non-ARPA material (Cerf et al) 7c

d. Solicit position papers from INWG2 members on issues, design philosophy, and implementation. 7d

e. Plan next meeting. 7e

JBN 26-OCT-72 8:24 12395

INWG 2 International Packet Network Working Group, Report of Subgroup 2

(J12395) 26-OCT-72 8:24; Title: Author(s): North, Jeanne B./JBN; Distribution: Cerf, Dr. Vinton G./VGC; Sub-Collections: NIC; Clerk: JBN; Origin: <NORTH>INWG2.NLS;2, 26-OCT-72 8:14 JBN ;

VGC 26-OCT-72 8:55 12396

INWG 2 International Packet Network Working Group, Report of Subgroup 2

ARPA Network Information Center
Stanford Research Center
Menlo Park, California 94025

INWG 2
25-OCT-72

1

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Report of Subgroup 2 on HOST-HOST Protocol Requirements
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VGC 26-OCT-72 8:55 12396

INWG 2 International Packet Network Working Group, Report of Subgroup 2

(J12396) 26-OCT-72 8:55; Title: Author(s): Cerf, Dr. Vinton G./VGC; Distribution: Cerf, Dr. Vinton G./VGC; Sub-Collections: NIC; Clerk: JBN; Origin: <NORTH>INWG2.NLS;2, 26-OCT-72 8:14 JBN ;

DCE 25-OCT-72 20:52 12397

Suggested Agenda for Engelbart Briefing of RADC Staff, Friday 27 Oct 72

DCE 25-OCT-72 20:52 12397

Suggested Agenda for Engelbart Briefing of RADC Staff, Friday 27 Oct 72

(J12397) 25-OCT-72 20:52; Title: Author(s): Engelbart, Douglas C./DCE; Distribution: McNamara, John L., Stone, Duane L., Norton, James C., Van Nouhuys, Dirk H./JLM DLS JCN DVN; Sub-Collections: SRI-ARC; Clerk: DCE;

DIA 26-OCT-72 10:43 12398

Sample Output from the NLS trace Procedure.

Some sample output from the call-return trace thing. The format is <procedure name>,<program name> <address>: 1

(I think we lost some indentation on the insert sequential -- but it's actually easier to read in NLS) 1a

TRACE FROM FILE <ANDREWS>TRACE.DATA;2 1b

R R R R 1b1

MVBFBF,UTILTY 13942 R 1b1a

SQINIT,SEQGEN 24053 R R 1b1b

MAINCT,TCTL 142945 1b1c

CROOT,INPFBK 47981 R 1b1c1

CRLF,INPFBK 46622 1b1c2

TYPECH,INPFBK 46489 1b1c2a

LDCHR,UTILTY 12672 1b1c2a1

CHBPTR,UTILTY 12622 R R R R 1b1c2a1a

TYPECH,INPFBK 46489 1c

LDCHR,UTILTY 12672 1c1

CHBPTR,UTILTY 12622 R R R 1c1a

ECHOFF,INPFBK 47173 R 1d

INPUT,INPFBK 45258 1e

LOOKC,INPFBK 45305 1e1

TINPTC,INPFBK 46816 1e1a

TODCHR,INPFBK 47006 1e1a1

RAWCHR,INPFBK 47100 1e1a1a

NLCRMS,AUXCOD 78056 R 1e1a1a1

NLCRMS,AUXCOD 78056 R R 1e1a1a2

Sample Output from the NLS trace Procedure.

```
   LDCHR,UTILTY  12672                                          1e2
      CHBPTR,UTILTY  12622 R R                                  1e2a
SHIFT,INPFBK  47063 R R R                                       1f
REPCHR,UTILTY  12685                                            1g
   CHBPTR,UTILTY  12622 R R R R                                 1g1
TTYWC,TCTL 142973                                               1h
   TGOTO,TXCT 150806                                            1h1
      ECHO,INPFBK  46582                                        1h1a
         TYPEAS,INPFBK  46506                                   1h1a1
            CHBPTR,UTILTY  12622 R R R                          1h1a1a
INPCUC,INPFBK  46626                                            1i
   INPUT,INPFBK  45258                                          1i1
      LOOKC,INPFBK  45305                                       1i1a
         TINPTC,INPFBK  46816                                   1i1a1
            TODCHR,INPFBK  47006                                1i1a1a
               RAWCHR,INPFBK  47100                             1i1a1a1
                  NLCRMS,AUXCOD  78056 R                        1i1a1a1a
                  NLCRMS,AUXCOD  78056 R R                      1i1a1a1b
      LDCHR,UTILTY  12672                                       1i1b
         CHBPTR,UTILTY  12622 R R                               1i1b1
SHIFT,INPFBK  47063 R R R                                       1j
REPCHR,UTILTY  12685                                            1k
   CHBPTR,UTILTY  12622 R R R R R                               1k1
TGP,USRPGM  57681                                               1l
```

DIA 26-OCT-72 10:43 12398

Sample Output from the NLS trace Procedure.

```
    ECHO,INPFBK  46582                                          1l1
       TYPEAS,INPFBK  46506                                     1l1a
          CHBPTR,UTILTY  12622 R R R                            1l1a1
  INPCUC,INPFBK  46626                                          1m
     INPUT,INPFBK  45258                                        1m1
        LOOKC,INPFBK  45305                                     1m1a
           TINPTC,INPFBK  46816                                 1m1a1
              TODCHR,INPFBK  47006exceeded max lines            1m1a1a
```

DIA 26-OCT-72 10:43 12398

Sample Output from the NLS trace Procedure.

(J12398) 26-OCT-72 10:43; Title: Author(s): Andrews, Don I./DIA;
Distribution: Deutsch, L. Peter/LPD; Sub-Collections: SRI-ARC; Clerk:
DIA;
Origin: <ANDREWS>TRACE.NLS;1, 26-OCT-72 10:35 DIA ;

VGC 26-OCT-72 8:21 12399

INWG 2 International Packet Network Working Group, Report of Subgroup 2

ARPA Network Information Center
Stanford Research Center
Menlo Park, California 94025

International Packet Network Working Group: Report of Subgroup 2 on HOST-HOST Protocol Requirements

Tuesday, 24 October 1972 2

1. Membership 3

Barry Wessler, Vint Cerf, Kjell Samuelson, Derek Barber, C. D. Shephard, Louis Pouzin, Brian Sexton, William Clipsham, Keith Sandum, Alex McKenzie, Jeremy Tucker 3a

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Agree to implement the protocol design by a certain date 4a4

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e. Plan next meeting. 7e

VGC 26-OCT-72 8:21 12399

INWG 2 International Packet Network Working Group, Report of Subgroup 2

(J12399) 26-OCT-72 8:21; Title: Author(s): Cerf, Dr. Vinton G./VGC; Distribution: Cerf, Dr. Vinton G./VGC; Sub-Collections: NIC NIC; Clerk: JBN;
Origin: <NORTH>INWG2.NLS;2, 26-OCT-72 8:14 JBN ;

JBL 26-OCT-72 17:51 12400

Help I'm about to lose hours of work

HELP I have been working for hours on a long NLS file, occasionally doing Update-Old-versions and more occasionally doing Output-Files (I kept shrinking the file). The oldest version I have of the file is 4 (renamed as something else for the time). Version 5 got screwed, but not long after I did an Update-Old-version. I tried Output-Filing it to the next version, which seemed to work, except that now when I try to print a statement, it seems to loop arouund forever. But when I try to load in version 5 (with it's partial copy) I get a PC Open Fail message (file busy). The file is <bbn-net>tip-guide. I would really like to get version 5 back.
Thank for your help.
Joel

1

JBL 26-OCT-72 17:51 12400

Help I'm about to lose hours of work

(J12400) 26-OCT-72 17:51; Title: Author(s): Levin, Joel B./JBL;
Distribution: Wallace, Smokey C./DCW; Sub-Collections: NIC; Clerk: JBL;

ADO 27-OCT-72 15:15 12408

Cindy: I have just ordered myself a copy of NIC 10703 using the journal command Distribute Document'; I am not sure if that command will do just what I want, but I thought I would try. I also tried for a copy of NIC 5480 (by Jim White), which however, the journal system rejected the number. Please send me a copy of the latter, if it is available, and the former if I won't already be getting one. thanx .. Bux. 1

ADO 27-OCT-72 15:15 12408

(J12408) 27-OCT-72 15:15; Author(s): Owen, A. D. (Buz)/ADO;
Distribution: Page, Cindy/CXP; Sub-Collections: NIC; Clerk: ADO;

ARPA 29-OCT-72 13:47 12410

mess

now is the time 1

ARPA 29-OCT-72 13:47 12410

mess

(J12410) 29-OCT-72 13:47; Title: Author(s): Advanced Research Projects Agency/ARPA; Distribution: Page, William J./WJP; Sub-Collections: ARPA; Clerk: ARPA;

hello

(J12411) 29-OCT-72 13:48; Author(s): Advanced Research Projects Agency/ARPA; Distribution: Advanced Research Projects Agency/ARPA; Sub-Collections: ARPA; Clerk: ARPA;

**JBL 29-OCT-72 20:10 12412
More about my troubles with NLS

I have been doing more work with my big file (namely the TIP Users'Guide), and I have more data you might be interested in, in the event that this bug is not well known (if it is, by all means ignore me) 1

Since I last sent you a message, I have finished my big work, includeing recovery by hand (ugh) of the work I lost when my file got garbaged. Incidentally, I can add to the details of that thing the fact that about 15 min. or so before I hit the bad part of that file, the NIC TENEX or its NETSER apparently got into trouble, as it was all DEAD to the TIP. 2

Here is what happened this evening: 3

This time I was very carefully updating my work frequently and always into new versions so that I wouldn't have far to back up if I got screwed again. I also occasionally created new files with "output file", since my file was shrinking by leaps and bounds as I edited it. 3a

As a result my directory got filled to the gills with deleted files, since NLS likes to do that (not that it mattered), and I eventually ran over my 488-page allocation when NLS tried to open up my next .PC file. 3b

I control-C'd out, looked at my DSKSTAT, and EXPunged a whole lot of crap. I CONtinued and went on editing. 3c

After finishing a couple of paragraphs I received some funny error messages from good old NLS: system error, I/O error (type CA). Next, the edit I had just tried turned out to have failed entirely. 3d

I control-C'd out again to see if a PC existed. It existed. 3e

Next I did a FILstat to see if it was open and found to my surprise JFN's for the one PC, one open for read/write, two not open. 3f

I next went back in and tried stuff like fresh NLS's, unlocks, deleting and expunging the PC, and from that point on I always got the "open error, file busy" message for the partial copy. And each time there were always two JFN's for the PC: #6 open, and another not open. 3g

That seemed very strange to me so I Output-Filed the stuff (after an unlock) from the previous version, did half an hour's worth of re-doing, and finished with the file intact. 3h

JBL 29-OCT-72 20:10 12412

More about my troubles with NLS

I thought you might find some aspects of this problem interesting, in case you hadn't seen them before. 4

JBL 29-OCT-72 20:10 12412

More about my troubles with NLS

(J12412) 29-OCT-72 20:10; Title: Author(s): Levin, Joel B./JBL; Distribution: Wallace, Donald C. (Smokey)/DCW; Sub-Collections: NIC; Clerk: JBL;

DRAFT Proposal for PODAC Budget and POD Script 1

To: Record 2

We figure roughly thaturing the first 6 months of POD Activity, ARC spent about $2,500 on outside expenses for PODAC: for Gus Matzorkis' various services, $1,500; sending people to EST, $675; for rental of Vallombrosa, $204; for honorariams to Arthur Hastings, $75; for honorariam to M. Branstrom, $75. Total $2,530. 3

In the past, however, Jim Fadiman cost about $3000 a quarter or about $90 a person per quarter. 4

We propose to establish a budget of $3,000 per quarter for PODAC and disperse control of that budget equally among all members of ARC, that is $90 per person per quarter. 5

If someone wants to do something which requires spending money outside ARC, he must report the expenditure beforehand to Kirk Kelley who will subtract it from his PODAC account. 6

If something is planned that costs more than $90, the necessary number of people must be willing to spend the necessary fraction of their account to make up the total. 6a

The question of whether people who have not paid can participate in any expensive event shall be determined case by case. 6b

If somebody quits ARC in a quarter, his PODAC money reverts back to general funds. If somebody is hired during the quarter, he gets a sum pro-rated against the remaining fraction of the quarter. POD money can accumulate in people's accounts up to $360. 7

Kirk Kelley is nominated POD treasurer and will keep POD accounts. 8

Note the money discussed in this proposal is money for outside expenditures and is entirely separate from any question of people's salaries for time spent in POD activities. 9

(ERRORSTRINGS) 10

10a

DVN 30-OCT-72 11:07 12413
BER 31 OCT 72 4:47AM

(J12413) 30-OCT-72 11:07; Title: Author(s): Van Nouhuys, Dirk H./DVN; Distribution: Van Nouhuys, Dirk H./DVN; Sub-Collections: SRI-ARC; Clerk: DVN;
Origin: <VANNOUHUYS>JPOD.NLS;1, 25-AUG-72 10:19 DVN ;

REF 30-OCT-72 16:48 12416

comment on Some New Directions in Robot Problem Solving

This paper is full of shit. 1

REF 30-OCT-72 16:48 12416
comment on Some New Directions in Robot Problem Solving

(J12416) 30-OCT-72 16:48; Title: Author(s): Fikes, Richard E./REF;
Distribution: Fikes, Richard E., Coles, L. Stephen/REF LSC;
Sub-Collections: NIC; Clerk: REF;

ARPA 30-OCT-72 16:56 12417

testmess

this is a test 1

ARPA 30-OCT-72 16:56 12417

testmess

(J12417) 30-OCT-72 16:56; Title: Author(s): Advanced Research Projects Agency/ARPA; Distribution: Advanced Research Projects Agency/ARPA(for test); Sub-Collections: ARPA; Clerk: ARPA;

DVN 30-OCT-72 11:23 12418

My Parsley Inactivity

I merely wish to record that my inactivity in personal and organizational development is due solely to preparation for ICCC. 1

When ICCC is over I intend to push for 2

the podscript proposal journal,12413,) 2a

and for the special interest group in pod techniques. 2b

In this connection, unless there is a counter proposal, I intend to try to work out a deal with Arthur Hastings (kjournal,10636,). 2b1

DVN 30-OCT-72 11:23 12418

My Parsley Inactivity

(J12418) 30-OCT-72 11:23; Title: Author(s): Van Nouhuys, Dirk H./DVN; Distribution: Engelbart, Douglas C., Vallee, Jacques F., North, Jeanne B., Watson, Richard W., Kelley, Kirk E., Auerbach, Marilyn F., Rech, Paul, Meyer, N. Dean, Engelbart, Douglas C., Wallace, Donald C. (Smokey), Lehtman, Harvey G./DCE JFV JBN RWW KIRK MFA PR NDM DCE DCW HGL ; Sub-Collections: PODAC ; Clerk: DVN;
Origin: <VANNOUHUYS>PODINAC.NLS;1, 18-OCT-72 16:31 BER ;

KIRK 30-OCT-72 19:32 12420

FRAMAC5 TRANSCRIPTION

The FRAMAC meeting held on June 9 and transcribed by Joy many moons ago has been unarchived and names added to match the voices. It is ready to be journalized on Thursday November 8 as soon as you make any corrections, edits, etc., that you feel are necessary. There is a hard copy on the bulletin board in the console area; or you can access the file on-line in (kelley,framac5,1:xy). 1

KIRK 30-OCT-72 19:32 12420

FRAMAC5 TRANSCRIPTION

(J12420) 30-OCT-72 19:32; Title: Author(s): Kelley, Kirk E./KIRK; Distribution: Auerbach, Marilyn F., Bass, Walt, Engelbart, Douglas C., Hopper, J. D., Irby, Charles H., Kaye, Diane S., Kudlick, Michael D., Lehtman, Harvey G., North, Jeanne B., Norton, James C., Paxton, William H., Rech, Paul, Vallee, Jacques F., Van Nouhuys, Dirk H., Victor, Kenneth E. (Ken), Wallace, Donald C. (Smokey), Watson, Richard W., Andrews, Don I., White, James E. (Jim)/framac ; Sub-Collections: SRI-ARC FRAMAC; Clerk: KIRK;

JCN 31-OCT-72 10:35 12421

ARC WEEKLY REPORT - WEEK ENDING:

HJOURNAL="SRI-ARC 1 NOV 72 5:50AM 12421";

JCN 31-OCT-72 10:35 12421

ARC WEEKLY REPORT - WEEK ENDING:

JCN 31-OCT-72 10:35 12421

ARC WEEKLY REPORT - WEEK ENDING:

(J12421) 31-OCT-72 10:35; Title: Author(s): Norton, James C./JCN ;
Distribution: Van Nouhuys, Dirk H., Byrd, Kay F., Row, Barbara E.,
Paxton, William H., Watson, Richard W., Norton, James C./DVN KFB BER
EMC ; Sub-Collections: SRI-ARC EMC; Clerk: JCN ;
Origin: <NORTON>WEEKLYREPORT.NLS;1, 31-OCT-72 10:16 JCN ;

JCN 31-OCT-72 10:33 12422
Setting Up the ARC Weekly Report Procedure

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HJOURNAL="JCN  1 NOV 72  5:51AM 12422";
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JCN 31-OCT-72 10:33 12422
Setting Up the ARC Weekly Report Procedure

Each Monday we will prepare a Weekly Report and send it to Bob Wing for incorporation in the ISE Division Weekly Report. 1

The attached worksheet should be used to accummulate information during the week. 1a

On Monday, this information should be input to a new file made by copying the form (12421,) to a new filename. 1b

Kay Byrd is responsible for coordination of preparation of the report. 1b1

Dirk van Nouhuys is responsible for approving the report and sending it to Bob Wing's office. 1b2

It will be helpful if ARC people who are planning trips or expecting visitors will let Kay know as early as possible so that she may be of assistance where needed and also so that she can record the information. 1b3

Each report should be entered into the ARC Journal, with copies distributed to SRI-ARC. The author should be: &SRI-ARC. 1b4

JCN 31-OCT-72 10:33 12422
Setting Up the ARC Weekly Report Procedure

(J12422) 31-OCT-72 10:33; Title: Author(s): Norton, James C./JCN ;
Distribution: Van Nouhuys, Dirk H., Byrd, Kay F., Row, Barbara E.,
Paxton, William H., Watson, Richard W., Norton, James C./DVN KFB BER
EMC ; Sub-Collections: SRI-ARC EMC; Clerk: JCN ;
Origin: <NORTON>WEEKPROC.NLS;1, 31-OCT-72 10:16 JCN ;

JCN 28-NOV-72 15:18 12424
Some Descriptive Material for DVN re: ARC and NIC

Dirk: Here are two branches that attempt to describe ARC and NIC in one paragraph each. They may be useful when you make a combined one or two page document that we can handout to those who want a very brief idea about these activities. 1

I lifted these from 1a

1. the NIC ARPA Resource Notebook and 1a1

2. the NIC description on the ICCC folded program handout. 1a2

ARC: 2

The Augmentation Research Center (ARC) is primarily interested in augmenting the intellectual activities of people working in complex problem-solving situations. 2a

"Augumentation" in this context means increasing the capability of a person or organization to approach complex problems, to gain comprehension of the nature of these problems, and to derive solutions satisfying given constraints. 2b

ARC's approach to augmentation research has two essential aspects: 1) externalization of intellectual structures in symbolic form, making use of highly interactive computer systems; and 2) application of a bootstrapping strategy in the augmentation research program. 2c

The bootstrapping strategy (evolution of the systems developed by actual daily use) has been used to assure tight feedback in the developmental process. 2d

Externalization via computer systems makes it possible for one to work with intellectual structures (such as computer programs, textual information, design requirements, and plans) of much greater size and complexity than can be effectively handled with traditional techniques. 2e

Some current tasks being pursued at SRI-ARC include the following: 2f

1. Development of the ARPA Network Information Center (NIC) to supply the information and liaison needed to promote dialog between geographically separate individuals or groups. 2g

2) Research in programming languages and software for computer-aided dialog support systems. 2h

3. Preparation of user and system documentation including production, control, and dissemination methodology. 2i

5. Development of a research itelligence facility to hold operational information concerning hardware, software, etc. 2j

6. Evolution of educational techniques for training new network users. 2k

7. Investigation of graphic techniquss and equipment for production of catalogs, handbooks, reports, etc., in hardcopy from online computer files. 2l

NIC: 3

The ARPA Network Information Center (NIC) is an exploratory general purpose information service set up at Stanford Research Institute (in ARC) to serve the ARPANET community with both conventional and new types of online and offline services. 3a

These services are designed: 3b

1. To help people find resources for their information-handling needs - people, systems, and documentation. 3b1

2. To help members of a geographically distributed group collaborate with each other. 3b2

The NIC receives, catalogs, and distributes online and offline information records. It maintains Station Collections of Network documents at ARPANET sites, and a larger collection of relevant documets at the NIC itself. 3c

The NIC also participates actively in Network protocol development. 3d

JCN 28-NOV-72 15:18 12424
Some Descriptive Material for DVN re: ARC and NIC

(J12424) 28-NOV-72 15:18; Title: Author(s): Norton, James C./JCN ;
Distribution: Van Nouhuys, Dirk H., Stone, Duane L./DVN DLS (for your
info) ; Sub-Collections: SRI-ARC; Clerk: JCN ;
Origin: <NORTON>ARCNIC.NLS;1, 27-NOV-72 15:37 JCN ; HJOURNAL="
JCN 29 NOV 72 5:54AM 12424";

JAKE 5 DEC 72 4:07AM 12425
Resource Notebook - future plans

This memo sums up plans, ideas, and needs for the Resource Notebook. Comments gladly accepted.

Since the revised version of the Resource Notebook is still in DRAFT form, this seems like an appropriate time to make suggestions for further changes and ideas to be incorporated into the finalized version. 1
The following paragraphs present a number of ideas for the consideration and discussion by interested persons. Comments are welcomed.

2

(INTERFACE PROBLEMS)

3

(QUERY INTERFACE)

3a

Decisions need to be made about several of the existing features in the query language. Some of the most important problems include the following:

3a1

1. 3a1a

Should we continue using only two levels of NLS for constructing the query language. It has been suggested that we might be able to use more than two levels of NLS but make it appear to the user that only two levels are available. This might be done by opening up program levels through the use of viewspecs; by automatic linking to sections of the data base; or by an L-10 program to control structure.

3a1a1

I do not have strong feelings about the number of levels used, however, I think the use of only two levels puts tremendous restrictions on formating the data base. Therefore, if the query language is going to be restricted to two levels of NLS, I feel we will have to add other refinements such as hidden online directives, useable tabulation, carriage returns, etc., in order to give any structure at all to the data base. I do feel VERY STRONGLY that the data base needs a lot of structure for it to be readable and useable. (Even the Holy Bible written in one paragraph would soon cease to be the greatest story ever written)

3a1a2

2. 3a1b

It would be very useful to be able to apply viewspecs and some form of output directives to specific branches or lines of the query language text. I can visualize a set of directives applied at the beginning of query (or somewhere invisable) that structures the format of the query language online. Users would not know about these nor be able to change them. However, someone familiar with NLS could enter the resource notebook data base through NLS and apply whatever viewspecs, directives, or what-have-you that he

wanted (by making a copy, not by having write access to the file.)

3a1b1

3. 3a1c

At the point in the query language where the user is told to "choose one of the above", I would like to see the options "all of the above" and an "and" feature. (Such as "this AND this", which automatically implies "but not the others".)

3a1c1

4. 3a1d

The length of statement names is a problem in query language as is the use of parentheses and hyphens in statement names. It might be useful to have each list of items to choose from numbered so that the user can take his choice of using the number or the statement name. We might also use some form of automatic ALTMODE (such as NLS commands have) wherein the user types one or two letters and the rest of the word prints out automatically. If statement names remain more or less the same as they are now, we will need to review them carefully with respect to brevity and duplication.

3a1d1

5. 3a1e

At present we are unable to link in query language. This would be a very useful feature for the Resource Notebook data base, but it would be even more useful for other applications of query language.

3a1e1

For the Resource Notebook I would like to be able to link from the reference citations embedded within the text of a site writeup to the bibliographies at the end of each site. I would also like to be able to link from the bibliographic citation at the end of each site to the actual document online. This could be a powerful feature for query users. It could give them access to much of the information within the journal without their having to learn the concept "journal' or know about NLS.

3a1e2

6. 3a1f

We need to decide whether the file containing the Resource Notebook should be broken down into separate site branches.

3a1f1

The file as it now stands is very large, but it will probably be twice this size before it is finished. Programmers claim this is unwieldy. Also, we seem to have to fight for space to store a large file while no one seems to get upset about several small files. Bad file messages are more of a problem with large files, since the errors are more difficult to find and take more man and machine time to

fix.

3a1f2

I do not have strong feelings one way or the other about the file size - there are advantages to keeping the file intact as well as disadvantages. However, I do have STRONG FEELINGS about having to constantly justify the need for a place to store the finished file and the unedited version, as well as justify the need for a personal directory large enough to do some information retrieval work and large-file editing. I would like to somehow get the message across to nonNICers that the Resource Notebook, and other large documents of a similar nature, are an integral part of the ongoing work of ARC. They cannot be erased, changed, moved, or shunted around randomly anymore than the programs that control NLS. If we cannot allocate the necessary time and space to produce these documents, then perhaps we should reconsider the importance of this part of our activity.

3a1f3

WOW That was pretty strong That last statement was not meant as a criticism of any person or group, but it was a strong plea for recognition of NIC problems during assignment of ARC resources and priorities. I realize that items the size of the Resource Notebook often strain the system and that to many people it appears that NIC gets more than its share of the system resources, but this is not a condtion that is going to go away - infact, it will probably get worse due to the nature of NIC documents; therefore it seems to me we need to address ourselves to new, creative ways to handle the problem of large file msnipulation and storage. (If anyone wants to shoot back at me concerning this outburst - fire away)

3a1g

(DIRECTORY INTERFACE)

3b

Several people have pointed out problems associated with the Ident file and Directory production. My understanding of how the Ident file operates is very limited, however, I do have some impressions as a novice user (or should I say 'interested onlooker') which I will outline for consideration:

3b1

1. The Ident file seems to be much too 'fragile' from the standpoint of input and maintenance. Perhaps some failsafe features or other changes could be considered for the future.

3b1a

2. I would suggest that one person be made Editor of ALL input into the Ident file and Directory. (That is not to say that only one person should do the actual inputing, but one person should control and edit what goes in.

Persons here or around the Net could enter idents the would like to have in a scratch pad file or in writing. The editor would check to make sure it was acceptable and unique, and would then enter it into the system along with the date (for settling conflicts of precedence.) The same sort of procedure would be followed for personnel, addresses, phone numbers, etc., in the directory. All information would funnel through one person for checking, editing, and input. I think this would avoid some of the confusion that now exists with information in the Ident file and the Directory, and it would cut down on the number of contacts needed to maintain this information.

3b1b

3. We need a program that automatically updates the online personnel section of the Resource Notebook each time a corresponding change is made in the online Directory or Ident file. The Directory would act as a Masterfile for personnel data and a program would automatically update other sections of documents that contain this type of entry. The situation now is confusing with site personnel being contacted by NIC people several times for the same information. Also the duplication of effort causes extra editing.

3b1c

(SYNTAX)

3c

At present few documents produced by NIC have the same syntax. Now that Marilyn and the two Jims have made a true believer of me, I feel compelled to urge that we do something about the syntax situation. The Resource Notebook, Scenarios, and User Guides will all be revised soon. Therefore this might be a good time to write a 'Syntax Conventions Guidelines' paper. I find the syntax used in the Command Summary document particularly confusing. It uses abbreviations such as 'ID' in a completely different context than any of the other documents, and does not follow the rules outlined for other documents.

3c1

Along with the syntax conventions, we need to establish standard abbreviations for commands and word useage conventions for variables such as ID, PASSWORD, etc. I will be glad to contribute if I can. When a syntax has been agreed upon, I would like to see it published in the journal (maybe one already is) and disseminated in hard copy to NIC people for reference. NIC people should be encouraged to follow the adopted syntax, and it should appear at the beginning of each major document for reference by the user.

3c2

(MISCELLANEOUS PROBLEMS)

3d

The NLS programming 'glitch' that was in the system right before ICCC and is still there, needs to be fixed. It now takes almost an hour to update and verify the Resource Notebook file everytime an editing change is made. This is somewhat prohibitive timewise.

3d1

Locator must be tied into the new Resource Notebook file and the old Resource Notebook needs to be removed fromm the NIC Directory. I would like to know more about how locator works, also.

3d2

At present it is very difficult to gain access to our system between the hours of 11:00 am and 3:00 pm. This makes it very difficult to organize work that requires heavy inputing and editing (or any work for that matter). This is a difficult dilemma to resolve and no solution will suit everyone. However, I would like to make one suggestion for consideration. Instead of having all equipment up for grabs at all times (theoretically), could we assign, for instance, two people to a given tasker. These two people would then only have to decide between themselves who would get to use the tasker at a given time. That way instead of competing with all the people at ARC for a piece of equipment, one would only be competing with one other person. Also, fewer people would be competing as local users at any given time. The same arrangement might also be applied to terminals except for the ones that are kept at home. This approach would let everyone know where they stand with respect to equipment, would spread out the load more evenly, and would allow work to be organized more efficiently.

3d3

(CONTENT CHANGES)

4

(USER-PROGRAMS)

4a

The most important item needed immediately, which is not now in the Resource Notebook, is a complete listing of programs available for use by ARPAnet users. Few sites filled out this information in the questionnaire, and when they did the text was generally not suitable for inclusion in the Resource Notebook. Therefore, more negotiation will have to be done with site Liaisons to obtain the information we would like to have for this section.

4a1

Items to be included under User Programs are:

4a2

1. Program name — 4a2a
2. Type of program (compiler, editor, etc.) — 4a2b
3. Caretaker — 4a2c
4. Description of the program's capabilities — 4a2d

5. Account parameters (if different from site's general accounts procedures) 4a2e
6. How to access the program 4a2f
7. A brief scenario that gives the novice user an idea of how the program operates (Further thoughts about scenarios are outlined below.)

4a2g

(PROGRAMS-TABLE)

4b

Another important item which is needed in both the hardcopy and query version of the Resource Notebook is a table of available Network programs which would include:

4b1

1. The name of the program. 4b1a
2. The site at which the program is available. 4b1b
3. Enough of a description of the program to let the user know whether he wishes to obtain further information about it.

4b1c

The Programs Table in the query-language version of the Resource Notebook will act as an index of what to access, whereas in the hardcopy version it will act more as a quick-reference summary table,

4b2

(EQUIPMENT TABLE)

4c

A table of the various peripherals available FOR USE around the Network might be useful to users later on. At present there isn't much equipment available for use, but there may be in the future. Such things as special printers, graphics equipment, etc., would be of interest if these were available to use either online or as a batch service. I suggest we consider this later, as more equipment and services (other than straight computing) become available.

4c1

(INTRODUCTION)

4d

The Host-Site subsection of the Introduction should be eliminated in my opinion. Instead the questionnaire used to obtain information for ICCC should be revised and entered online in a separate file as a 'packet' that can be used by new sites or by old sites for updates. Reference can then be made to this packet from the introduction to the Resource Notebook so that interested persons can access it.

4d1

The Introduction should be limited to:

4d2

1. A brief description of the organization of the Resource Notebook and how the information was obtained. 4d2a
2. Some guidelines as to its use. 4d2b
3. Instructions for accessing the same information online through the query language.

4d2c

(USER-ONLY SITE DESCRIPTIONS)

4e

Site descriptions for user-only sites do not fit the same criteria as the site descriptions for server sites. Therefore a different content and format is needed for a user-only site writeup. A user-only site writeup should be much shorter and does not need to include information on network considerations, login procedures, schedule of availability, etc. The following information would probably be sufficient to describe a user-site adequately:

4e1

1. Address 4e1a
2. Function statement 4e1b
3. Personnel listing 4e1c
4. TELNET procedure, if not a TIP 4e1d
5. Description of the site and its interests 4e1e

A Future plans of the site with respect to the ARPAnet, if any.

4e1f

(TIP-ACCESS)

4f

TIP access to the network is primarily the same for all TIP user sites; therefore, the procedure for accessing the network through a TIP needs to be included only once as a general case for all TIPS.

4f1

(FUNCTION STATEMENT)

4g

The Function statement should be a concise statement of what each site does on the network, or of what each site has to offer network users. It should be brief, no more than a couple of sentences for server sites and only one line for users or TIPS.

4g1

In my opinion a server needs to be better defined. If a site is not willing to supply the mechanism for users to interact with its system, or does not perform an active service to the ARPAnet community, it should not be called a server. Some sites now called servers give marginal service, and their status might be reconsidered. Other sites provide a service to the ARPAnet but do not wish to interact personally with individual users. This should be made 'perfectly clear' in the function statement.

4g2

(CONTROL CHARACTERS)

4h

Only a minimum number of control characters are included in the DRAFT of the Resource Notebook. The ideal situation would be to have a table or chart of all the control characters available for use on a given system.

4h1

Control characters should be described as ASCII characters wherever possible. We should also attempt to give a listing of any non-printing ASCII characters that have been assigned non-standard functions for a given system.

4h2

Eventually I would like to work out a summary table of control characters available on all the different systems and include it as one of the reference tables in the offline and online versions of the Resource Notebook. This would serve two purposes: First it would provide a reference tool for comparison of the various systems, and second it might encourage more conformity of command language around the network. (I'm a born optimist)

4h3

Many of the systems have one set of control characters or commands for the EXEC and another set or sets for the subsystem language(s). My feeling at this time is that subsystem command language and special characters should be described under User Programs where the subsystems themselves are described. Any other views on this? One exception might be to include the most fundamental editing commands such as backspace, delete word, delete line, etc. under basic commands even though these may be part of a subsystem editor.

4h4

(ADMINISTRATIVE PROCEDURES)

4i

This is an area that needs a lot of expansion judging from comments in the Marshall Abrams memo (NIC 10606). The first thing that needs to be covered is how does one become a member of the ARPAnet. Who do you contact? What are the necessary credentials, if any? What equipment do you need for interface? How much does it cost? Etc.

4i1

Sites already on the Network need to provide SPECIFIC guidelines for the following;

4i2

1. How do you set up an account? What forms are needed? Who is the contact? 4i2a
2. How much free time is available? 4i2b
3. How much, if any, long term storage is available? What is the procedure for saving files? 4i2c
4. Are there any peripheral services available such as

printing, dumping onto tapes, loading tapes, etc?
Are any of these services free? If not, what are the costs? 4i2d

5. What are the billing procedures? How often? How specific? Can one get an immediate feedback on amount being spenT? And so on. 4i2e
6. Can documentation be charged to the general account or muST this be handled separately? 4i2f
7. Can documentation, tapes, printouts, etc. be maileD? How will the costs be billed? What is the turnaround time? 4i2g

If a given site does NOT provide any kind of accounts procedures, this should be noted so that the user does not waste his time nor the time of site personnel trying to negotiate services that are not available. 4i3

(SCENARIOS) 4j

The text of the scenarios used for the ICCC Meeting should be added to the Resource Notebook under User Programs. (See Scenarios under Organization and Format below for further comments.) 4j1

(ORGANIZATION AND FORMAT) 5

(PROGRAM TABLE) 5a

This table should be included at the front of the Resource Notebook and should be organized first by type of program and then by program name along the y-axis, and by site along the x-axis. Enough of a description of each program would also have to be included to allow the user to know whether he wishes to seek further information. The offline version of the table could be more elaborate than the online version with respect to layout and labeling. 5a1

(EQUIPMENT TABLE) 5b

This table, if included, should be organized first by types of equipment then by specific models of equipment along the y-axis, and by site along the x-axis. Included also might be a brief description of any unique equipment features of interest to users. 5b1
I would like to see the present equipment description in query language print out as a table similar to the Personnel table. The breakdown of choices is too fine in this section now. 5b2

(NETWORK-CONSIDERATIONS)

5c

The arrangement of the current DRAFT of the Resource Notebook seems to be backward with respect to Network Considerations. Network Considerations should come before the section on LOGIN. That way the user is given the information needed to deal with TELNET. etc., before he is told how to login to a given system. This seems more in keeping with the actual sequence of events a user must go through. Using this arrangement will allow us to remove some redundancy from the writeups also.

5c1

(ACCOUNT PARAMETERS)

5d

At present there is a small subsection called Accounts Parameters in the Resource Notebook. Since this section will probably expand greatly in content it should become a major section of its own, probably following the section on Software.

5d1

(DESCRIPTIONS)

5e

Many of the descriptions of systems and interest statements are quite long. They should be shortened where possible and for query language we should add a "MORE?" feature that allows the user to read as much as he wishes.

5e1

(STATEMENT NAMES)

5f

The choice of statement names needs to be reconsidered with the query language in mind. Many of the statement names are too long. Also the same statement name cannot be used twice within a file. This causes problems. If each statement name must be unique, we should review all the statement names to make sure they are compatible with query language and reasonably short.

5f1

It would be very useful if we could design an option to get rid of parentheses and hyphens in statement names. These are a nuisance to deal with in query language.

5f2

(SCENARIOS)

5g

The scenarios should be an integral part of the Resource Notebook in my opinion. They need to be tied to the descriptions of user programs which will be covered in the Resource Notebook. 5g1
As the scenarios now stand (in the ICCC booklet) they do not give the user any guidelines as to what he can DO with each program, only how he can get into it.

5g2

The Scenario Booklet idea is a good one, and I would suggest that

such a booklet be included as an appendix to the Resource Notebook. An alternate idea would be to writeup user programs including scenarios under each site, then include a small card or booklet of scenarios in a pocket at the end of the Resource Notebook which would permit the user to "cookbook" his access to any given system or program.

5g3

(USER NEEDS AND FEEDBACK)

6

(SITE WRITEUP APPROVAL)

6a

Several sites have expressed the desire to maintain strict editorial control over information included in the Resource Notebook and in the Query Language. Basically I agree with this philosophy. NIC should control format and brevity, but the sites must approve of what we write about them, or they will not cooperate in supplying us with information or in supplying service to users through the Network.

6a1

Of major concern is a method for obtaining site approval:

6a2

1. Should we try to complete one site, then send it out while continuing to writeup the next site. 6a2a
2. Should we do a rough draft of all sites and send them all out at once for approval. 6a2b
3. Should we finish a given section or sections for all sites, then send the sections all out at once for approval while continuing to writeup the next section. (This would allow us to concentrate on certain areas such as login procedures, scenarious, user programs, etc. and deal with all similar material at once.

6a2c

I believe I prefer the last method because it allows the Resource Notebook to be assembled in a logical fashion and should be fair to all sites. If anyone disagrees with this, let me know your views and any alternative procedures you might suggest.

6a3

(USER NEED FEEDBACK)

6b

It would be useful to have a summary of all sendmessages, phone logs, and other collections of user interactions made once a month (or periodically) so that we could review problem trends. Nic people would be primarily interested in this, but others might be too.

6b1

To provide user feedback it would be nice to have a users advisory

group made up of at least one person from each site, one or more NIC people, plus other interested persons such as Tom Pyke of NBS. This could be an informal group that would meet formally only before a major revision of the Resource Notebook or other major document.

6b2

A newsletter to inform users of changes and additions to ARPAnet resources would be very useful. Many of the current sites do not access NLS online at this time, so initialy this newsletter should be both on- and offline and should be sent to any user requesting it. Perhaps a guest 'editorship' could circulate around from site to site to get more site participation.

6b3

A small account needs to be set up to allow me (or whoever) to access all the various sites around the Network and test out their programs and login procedures. Most sites will be free accounts, but a few will not. This small account would also let us get a smattering of some of the accounting procedures being used. From sites that do not have open passwords and account numbers for network users, I would like to obtain a NIC password and account number so that these do not have to be renegotiated each time we wish to access a given site.

6b4

(EDITING)

7

Each section of the Resource Notebook needs the following editing and proofing:

7a

1. Content editing. 7a1
2. Content approval by sites. 7a2
3. Checkout and proofing of reference citations. 7a3
4. Final proofing for format, spelling, abbreviations, text position, etc. 7a4
5. Checkout for format and output directives before printing. 7a5
6. Proofing of COM-printed hard copy. 7a6
7. Checkout for problems in query language.

7a7

Time must be allowed for editing as well as writing. In some instances editing takes more time than the original writing. Good scheduling is very important to keep a smooth flow of work moving through the process. PSO people can help with much of the proofing and some of the editing, but the process is much less efficient if a different person does the work each time.

7b

(DOCUMENTATION)

8

(ACQUISITION)

8a

We do not always get the documentation we need to describe systems and programs on the ARPAnet. Sometimes the documentation has been revised, and we have not received the revised edition. Maybe Jeanne or Jim White have some ideas as to how we can 'encourage' the sites to cough up all the necessary documentation. Many times the liaison doesn't know what documentation is available. Perhaps we need a Documentation Agent as well as a Liaison and Station Agent at each site.

8a1

(MICROFILM)

8b

I would like to be able to include a full set of microfilmed documentation with each copy of the Resource Notebook that is disseminated. This could be included in a pocket at the back of the Notebook or as an appendix. We would need to investigate what the amount of material to be microfilmed would be and how much it would cost. Maybe Jeanne has already investigated this.

8b1

For sites who insist on charging for their documentation or do not wish to have it distributed, we should give exact details for acquisition incuding price, contact, reference, identifying numbers, etc.

8b2

Sites should be encouraged to make their documentation available as an 'advertising' feature and should be discouraged from separate negotiation and charging wherever possible. (Any views on this? Is this a sensitive area with the sites, or one that would be too much work for us?)

8b3

(INTERLIBRARY LOAN)

8c

Do we loan or reproduce documentation for dissemination to requestors at the various sites? If so, what are the charges and procedures, If not, what is our reasoning.

8c1

(INDEXING)

9

Indexing in my opinion is an area in which we are somewhat weak at present. The powerful feature of linking online and the flexible use of file structure available in NLS offset some of the need for indexing online, but these same features tend to compound the problems of indexing for offline hardcopy documents. (For instance, trying to remember statement 3b3a1a2 for quick lookup in the User Guide can blow your mind, whereas online one only needs to bug

3b3a1a2, not remember it.) Some possible solutions might be the following:

9a

1. 9a1

   Write a program, similar to the one that now exists for statement numbers on the right, that would apply to statement NAMES on the right. This could be effectively used to make a quick thummbthrough index on the righthand margin. (This has already been suggested to Walter Bass)

9a1a

2. 9a2

   Design a program to permit an author or indexer to choose selected words throughout his text that would make suitable index entries. These would be gathered into a separate file along with the corresponding statement numbers and the resulting list would be sorted by some useful criteria (such as alphabetically). Jim Norton and I have worked out a first approximation of this type of indexing. It has lots of possibilities but needs further thought and work.

9a2a

3. 9a3

   We might consider another type of statement numbering system, such as a decimal system or all numeric system. This would be a pretty fundamental change, but would allow much easier access to statement numbers offline. I have no idea what problems such a change would cause, and make the suggestion on a 'what if' basis. Since the present system only permits 26 statements at the same level before it must repeat the alphabet, it is somewhat limited and might be worth changing.

9a3a

4. 9a4

   Devise a scheme to use real touch-em, feel-em page numbers on offline documents. There would be problems involved with constant updates of large documents that would necessitate a complete update of the index. Also, it would be harder to compare online and offline documents, as each would have to have its own indexing system. However, page-referenced indexes in offline documents would make a lot of our users happy.

9a4a

These are just a few suggestions for indexing schemes that are somewhat automatic and could be applied to the Resource Notebook (and possibly to other documents.) They do not approach the whole problem of a general-case, conceptual indexing system suitable for most online and offline applications in ARC and NIC and for the whole utility community. This could be a very exciting design and programming problem to which I would like to contribute whatever I can.

9b

(PRINTING AND DISSEMINATION)

10

(PRINTING)

10a

For the time being I feel we should continue to print the sections of the Resource Notebook by the traditional method of getting copy from our line printer reproduced. Meanwhile we should continue to experiment with the COM printing procedure as a parallel function. I would recommend using a COM printed version for the next full revision of the Resource Notebook (See Timetable below). My reasoning for this is the following:

10a1

1, Results of samples from the COM so far have not been satisfactory in format or quality of print. There are many reasons for this, the main one being that we are just learning all of the options and are seeing how the various type fonts look for the first time. I think it will take a few passes before a pleasing format is evolved, and the passes should be made on a small sample. 10a1a
2. We need to experiment on a small scale with some of the production problems. What will time schedules be. How extensive will the proofing job be. How and with whom do we communicate. What is apt to cause snafus, etc. 10a1b
3. The Resource Notebook is one of the largest documents we produce and will eventually (hopefully) have quite a variety of text such as headings, paragraphs, code, tables, indexes, etc. This could be used as a showpiece to 'advertise' how far we have gone with the COM printing concept.

10a1c

(LAYOUT AND FORMAT)

10b

For the present I feel we should continue with the notebook format that we are using. We should get dividers for the new sites or lump them for the time being under one divider with a heading such as 'Sites Added Since Last Revision'. This would continue up until a full revised edition is issued, and is obviously an interim solution.

10b1

Meanwhile we should investigate other possible formats, dividers, pockets, etc. with the revised edition in mind. (Jeanne has probably investigated many avenues before.) I agree with Dick that the Resource Notebook is not exactly a 'pocket edition' you can carry around with you. Perhaps we can find some alternatives to its present size. (Jeanne has pointed out that we can now

print on both sides of the page - that will help.)

10b2

(DISSEMINATION)

10c

I favor sending separate sections of the Resource Notebook out at different intervals until all the sections have been written, at which time we would publish a major revision. I think we should not let sites change their offline printed site writeups anytime they want to, but should allow them to revise the written version quarterly. However, the online version can be updated more or less continuously. Changing the online version is a quick operation compared to printing and disseminating a whole new site writeup.

10c1

(PRIORITIES)

11

The following list of tasks or considerations are listed in order of importance and/or sequence:

12

1. Decide on how many levels will be available, whether links will be used, what statement name parameters will be, etc., in query language. 12a
2. Decide on size of Resource Notebook file and what its file structure will be online. 12b
3. Decide on the format of the Resource Notebook in query language (i.e., online). 12c
4. Decide on the best interface with PSO for production of the Resource Notebook. 12d
5. Adopt the revised Resource Notebook format and organization outlined above. 12e
6. Write syntax conventions. 12f
7. Rewrite the introduction to the Resource Notebook. 12g
8. Publish and disseminate the introduction. 12h
9. Publish, proof, and disseminate other offline parts of the Resource Notebook (such as equipment charts, table-of-contents, etc.) as needed or received. 12i
10. Revise the questionnaire and journalize. 12j
11. Send questionnaire to sites that have not yet been written up. 12k
12. Write-up new sites to the present content level for other sites. 12l
13. Get site approval on new site writeups. 12m
14. Print and disseminate new site writeups. 12n
15. Get site approval for old site writeups now in Draft form. 12o
16. Obtain user program information from server sites. 12p
17. Put the Program Table into query and disseminate the offline version. 12q
18. Writeup the user-program information. 12r

19.	Test and edit the user-program information.	12s
20.	Get site approval on the user-program information.	12t
21.	Publish and disseminate the user-program information.	12u
22.	Revise the senarios to fit the Resource Notebook.	12v
23.	Test and edit the scenarios.	12w
24.	Publish and disseminate the scenarios.	12x
25.	Get TELNET access procedures from the sites.	12y
26.	Writeup TELNET access procedures.	12z
27.	Test and edit the TELNET access procedures.	12a*
28.	Publish and disseminate the TELNET access procedures.	12aa
29.	Obtain the administrative procedures from the server sites by personal contact or questionnaire.	12ab
30.	Writeup the administrative procedures.	12ac
31.	Get site approval for the administrative procedurres.	12ad
32.	Edit the administrative procedures.	12ae
33.	Publish and disseminate the administrative procedures.	12af
34.	Write TIP access procedure.	12ag
35.	Writeup the user sites using the revised format.	12ah
36.	Decide upon the indexing methodology and write a program if needed.	12ai
37.	Index the Resource Notebook.	12aj
38.	Edit the index.	12ak
39.	Publish and disseminate the index.	12al
40.	Obtain all documentation possible.	12am
41.	Code and input any new documentation	12an
42.	Revise the site bibliographies.	12ao
43.	Check out the query language version of the Resource Notebook.	12ap
44.	Investigate alternatives for the physical aspects of the new notebook (covers, dividers, etc.)	12aq
45.	Order necessary materials for producing the new resource notebook.	12ar
46.	Decide on the COM format.	12as
47.	Write an L-10 program for producing the hardcopy version of the Resource Notebook.	12at
48.	Test COM format and program on a small sample.	12au
49.	Test COM procedures for scheduing problems, etc.	12av
50.	Print the revised Resource Notebook on COM.	12aw
51.	Proof and disseminate the revised notebook.	12ax
52.	Decide whether to include microflmed documentation.	12ay
53.	Decide whether to include an equipment table or not.	12az