CHI 6-DEC-72 20:25 13190

Comment on proposed L10 change, (Journal, 13135,)

Don, What is the proposed relationship between name1 and name2 in the following: (name1) FILE name2 ? Can either name be omitted? If they are both present which one has pesedence?
--Charles. 1

CHI 6-DEC-72 20:25 13190

Comment on proposed L10 change, (Journal, 13135,)

(J13190) 6-DEC-72 20:25; Title: Author(s): Irby, Charles H./CHI;
Distribution: Andrews, Don I./DIA; Sub-Collections: SRI-ARC; Clerk: CHI;

CHI 6-DEC-72 20:55 13191

Comment on (mjournal, 13143,1) regarding use measurements

Jacques and Don, in (Mjournal, 13143, 3) Jacques states that the WSI code is obsolete and that SUPERWATCH gives better character reaction time data. As I understand the WSI code, it was to measure the monitor overhead in getting a character to the user program (NLS). This seem like useful information to me. Does SUPERWATCH really give us data on this? If not, it might be worth considering updating the WSI code to give us acurate data. Also, I do not understand whether the use measurements code actually measures page faults or just PMAP's. Is any of this page fault, working set size, etc. data useful or is it all waisted in the presence of SUPERWATCH? -- Charles. 1

CHI 6-DEC-72 20:55 13191

Comment on (mjournal, 13143,1) regarding use measurements

(J13191) 6-DEC-72 20:55; Title: Author(s): Irby, Charles H./CHI;
Distribution: Andrews, Don I., Vallee, Jacques F./DIA JFV;
Sub-Collections: SRI-ARC; Clerk: CHI;

DIA 7-DEC-72 9:08 13192

For JTM - about getting META

HI. Hope you get this. I believe you can just copy our subsystem META.SAV and use iton your TENEX. It accepts a 7-bit text file and produces a standard REL file. We can send you what documentation we have, which does not include detailed stuff about the meta library. To make a new META you will need <META>LIBE and <META>OPS. These are now in NLS files, but output sequential should do the right thing -- but then it looks like you might get NLS, huh? (Note: you wil also need <META>meta for a new meta). Send me a message if you get this. Our current sndmsg doesn't know your machine exists... Don 1

DIA 7-DEC-72 9:08 13192

For JTM - about getting META

(J13192) 7-DEC-72 9:08; Title: Author(s): Andrews, Don I./DIA;
Distribution: Melvin, John T./JTM; Sub-Collections: SRI-ARC; Clerk: DIA;

DSK 6-DEC-72 20:57 13193

TAB Problems in NLS

TAB problems have been fixed in all systems (display, output processor, TNLS, output quickprint). TNLS changes are not in the running system yet, however. Let me know if you find discrepencies. 1

DSK 6-DEC-72 20:57 13193

TAB Problems in NLS

(J13193) 6-DEC-72 20:57; Title: Author(s): Kaye, Diane S./DSK; Distribution: Agent, Station, Hoffman, Carol B., Lee, Susan R., Michael, Elizabeth K., Dornbush, Charles F., ARC, Guest O., Feinler, Elizabeth J. (Jake), Handbook, Augmentation Research, Kelley, Kirk E., Meyer, N. Dean, Byrd, Kay F., Prather, Ralph, White, James E. (Jim), Vallee, Jacques F., Kaye, Diane S., Rech, Paul, Kudlick, Michael D., Ferguson, Ferg R., Lane, Linda L., Auerbach, Marilyn F., Bass, Walt, Engelbart, Douglas C., Hardeman, Beauregard A., Hardy, Martin E., Hopper, J. D., Irby, Charles H., Jernigan, Mil E., Lehtman, Harvey G., North, Jeanne B., Norton, James C., Page, Cindy, Paxton, William H., Peters, Jeffrey C., Ratliff, Jake, Row, Barbara E., Van De Riet, Edwin K. (Ed), Van Nouhuys, Dirk H., Victor, Kenneth E. (Ken), Wallace, Donald C. (Smokey), Watson, Richard W., Andrews, Don I./sri-arc ; Sub-Collections: SRI-ARC; Clerk: DSK;

DVN 6-DEC-72 19:48 13194

Lost Journal Messages

I recieved your journal message (13064). I wrote a reply (journal,13078,) which you can check on line. Apparently something was wrong with your initial file so the journal culd not write on it. Dave Hopper, who cares for te journal, thinks he has fixed it. 1

The reply tells you how to do what you want; sorry you have been without this useful information. 2

DVN 6-DEC-72 19:48 13194

Lost Journal Messages

(J13194) 6-DEC-72 19:48; Title: Author(s): Van Nouhuys, Dirk H./DVN; Distribution: Forman, Ernest H./EHF ; Sub-Collections: SRI-ARC; Clerk: DVN;

EHF 7-DEC-72 7:50 13195

(TOSTANCOHEN) To:Stan Cohen
I received a request for more documentation about SPEAKEASY from:

Jim Condie
Div. of Data Processing
Board of Governors
Federal Reserve System
Washington D.C.

737 4171 Ext. 7551.

He also asked if SPEAKEASY could be easily installed at another installation. I said it could. Would you like to contact him?

Ernie

11/28/72 1

(J13195) 7-DEC-72 7:50; Author(s): Forman, Ernest H./EHF;
Distribution: Cohen, Stanley/SC; Sub-Collections: NIC; Clerk: EHF;

JI 7-DEC-72 7:54 13196

I received a request from AFTEC for ARPANET information so that they can write a contract with their contractors to employ ARPANET resources fortheir envisioned use of the ILLIAC under ARPA contract.
could you please send them the following: 1

(1) TENEX Manual=Executive Language
(2) IMP Manual, and
(3) Resource Notebook
please send them to;
Capt.Michael Ondrasek
HQ USAF-AFTAC (TD-2B)
Patric Air Force Base
Florida 32925 1a

please send Mr. Robert Abbott L-379
box 808
Livermore, California 94550
a Resource Notebook, and any summary information available concerning ARPANET Resources....This request was through Steve Crocker at ARPA. Thank You. 2

JI 7-DEC-72 7:54 13196

(J13196) 7-DEC-72 7:54; Author(s): Iseli, John/JI; Distribution: North, Jeanne B./JBN; Sub-Collections: NIC; Clerk: EHF;

DHC 7-DEC-72 12:13 13197

Problem with Goto

I just tried using the Goto command for NIC query and for Query. When I entered 'Quit' it returned my to statement zero of my initial file and then recycled me back to the input level of the Query.

?? D/

1

DHC 7-DEC-72 12:13 13197

Problem with Goto

(J13197) 7-DEC-72 12:13; Title: Author(s): Crocker, David H./DHC;
Distribution: Watson, Richard W./RWW; Sub-Collections: NIC; Clerk: DHC;

JRS 7-DEC-72 8:00 13198

dm-1 presentation to asst secy af/fin mgt.

this briefing is being prepared for the hon. spencer j. schedler, asst secretary of the air force for financial management. A telephone call was made by lt. col. j. mcginnis on 8 dec. 72 requesting the presentation and stated that a message would follow confirming the request and ggiving particulars. the content of the briefing is primarily directed at responding to management type questions rather than a technical overview of the sytem. the specific areas identified by lt. col. mcginnis and later confirmed in a call to col. w. wilson usaf/drl are as follows: 1

1a

background of the dm-1 program. 1b

costs incurred. 1c

coordination with the data automation people. 1d

status of the dm-1 evaluation. 1e

known and planned users for the system. 1f

management of the dm-1/rac program. 1g

Viewgraph no. 2

the back ground of the program will include a short history of the dm-1 program from its initiation in 1966 to the final product which was delivered in sept. of this year. in addition, the departure point in 1969 at which time the dm-1/ge 635 contract was started will be emphasized. 2a

viewgraph no. 3

this viewgraph will outline the principle features of the system and a description of the dm-1 software. there will be no attempt to completely describe the entire programming effort , but the points made at this time will lend themselves to additional discussion of the technical merits of dm-1 following the presentation in the question and answer period. 3a

viewgraph no. 4

the costs incurred during the life of the effort from its inception will be provided. these costs are for r&d and the advanced development program only. if estimates are required for a subsequent implementation of dm-1 in and operational

user environment, some thought must be given to engineering development activities. the funds necessary to accomplish this level of implementation are variable and highly dependent on the particular user envirimmnet. additional costs would be incurred for maintaining the dm-1 system and for keeping the documentation up to date. also, training costs would have to be included. 4a

viewgraph no. 5

the approval cycle for the dm-1 program will be given. the d&f for the advanced development program will be mentioned to establish the rac oriented adp. the coordination with acd will be mentioned in the context of the presentation given this past august to technology review committeee chaired by acd in alexandria, va. possibly the list of attendees at this meeting could be give to show that dm-1 has at least been exposed to a wide audience.it might also be appropriate to mention some of the dod agencies that have requested data on the system or who have expressed an interest in obtaining a copy of the system. 5a

viewgraph no. 6

the status of the dm-1 evaluation by in-house personnel will have to be handled carefully. the recent decimation of the test effort resulting from reassinging the primary test team members to other tasks has diluted our test program. i am not sure of the status of the test re report but i suspect that it is still pending. 6a

viewgraph no. 7

the only firm user for the dm-1 system is the reliability analysis center at radc. we are directing the program at this user. as directed by the d&f. we are still open to providing dm-1 to other installations, but no attempt has been made to do so. we might also like to mention the wwmccs target dms back-up capability that dm-1 provides since it it implemented on a wwmccs computer. 7a

viewgraph no. 8

the management of the program for rac and the continued dm-1 activity will also require some thought. the lack of an approved dar for the rac work may pose a proble. i am still not sure exactly how we want to handle this point. we can give a picture of the radc info sciences and reliability division relationship along with the interaction of iitri. i

think that i will need some help from the division on this particular point. 8a

JRS 7-DEC-72 8:00 13198

dm-1 presentation to asst secy af/fin mgt.

(J13198) 7-DEC-72 8:00; Title: Author(s): Stellato, Josephine R./JRS; Distribution: McNamara, John L./JLM; Sub-Collections: RADC; Clerk: JRS;
Origin: <STELLATO>DMBR.NLS;2, 7-DEC-72 7:51 JRS ;

JRS 7-DEC-72 8:08 13199

i nedd some more help on text editing (dean). how about it??? 1

JRS 7-DEC-72 8:08 13199

(J13199) 7-DEC-72 8:08; Author(s): Stellato, Josephine R./JRS;
Distribution: Bair, James H./JHB; Sub-Collections: RADC; Clerk: JRS;

SGC 7-DEC-72 9:31 13200

THIS IS A SAMPLE MESSAGE 1

(J13200) 7-DEC-72 9:31; Author(s): Chipman, Steve G./SGC;
Distribution: Strollo, Ted R./TRS; Sub-Collections: NIC; Clerk: SGC;

JCN 7-DEC-72 13:21 13206
Request for ARC System Status Light Implementation Task Start

Dick Watson and I have reviewed the question of implementing the ARC system status light task as outlined in (12095,) - a request for MEH coordination help - and (12379,) MEH suggestions and time/cost estimates. 1

We wish to proceed with the implementation of these features now, with MEH as pusher. 1a

MEH: Can we shoot fo a completion date of about mid-January? 1b

It is best to start with provision for key functions outlined in (12095,2) with the addition of current load average (last 5 minutes?) suggested by MEH in (12379,4a). 2

Four light stations are desired, including addition of one station for the conference room. 3

Light station device readability, aesthetic appearance, and room placement are important considerations. 3a

On this basis, the cost appears to be: $1,390 for hardware plus 23 days manpower. 4

KEV programming help may be delayed for a few weeks. This should be coordinated with CHI, RWW, DCW via KEV. 5

We should have as much hardware work done by borrowed people (Limuti?) as we can effectively have done. 6

JCN 7-DEC-72 13:21 13206
Request for ARC System Status Light Implementation Task Start

(J13206) 7-DEC-72 13:21; Title: Author(s): Norton, James C./JCN ;
Distribution: Hardy, Martin E., Irby, Charles H., Watson, Richard W.,
Wallace, Donald C. (Smokey), Victor, Kenneth E. (Ken), Ferguson, Ferg
E., Peters, Jeffrey C., Van De Riet, Edwin K. (Ed)/MEH (for action) CHI
RWW DCW KEV WRF JCP EKV ; Sub-Collections: SRI-ARC; Clerk: JCN ;
Origin: <NORTON>SLIGHTS.NLS;1, 7-DEC-72 10:54 JCN ; HJOURNAL="
JCN 12 DEC 72 4:27AM 13201";

JBP 7-DEC-72 19:09 13207

Phone Book Memo 2

I have recently tried to connect to all the likely sockets of the hosts that were up at the time. I will either get the rest in the next few days or send their names to you. Current open question is what do TENEXs do on socket 7. Also troubled with violations of "offical policy" see rfc #349. So far so good. --jon. 1

JBP 7-DEC-72 19:09 13207

Phone Book Memo 2

(J13207) 7-DEC-72 19:09; Title: Author(s): Postel, Jonathan B./JBP; Distribution: Neigus, Nancy J./NJN; Sub-Collections: NIC; Clerk: JBP;

Terminal feedback

(by the way, i will make my interrupts small and frequent. One hassle per message. If you would prefer they come in larger lumps, let me know) ... I imagine you have already thought of it and planned on it, bu in case not: 1

NLS should allow the user to automatically set ALL parameters, not just Control Characters, with predefined branches in his initial file. This would eliminate the neet for ever using 'Execute Viewchange', if the user has consistent weirdnesses. 2

DHC 7-DEC-72 12:23 13208

Terminal feedback

(J13208) 7-DEC-72 12:23; Title: Author(s): Crocker, David H./DHC;
Distribution: Watson, Richard W./RWW; Sub-Collections: NIC; Clerk: DHC;

DHC 7-DEC-72 12:32 13209

Levadj on Feedback

To be more useful for a beginner, Execute Viewchange Feedback Levadj should restate satement number, if different, after the user enters d's and/or u's. 1

Currently it can be quite misleading. If my CM is at 1E and I enter "IS " Levadj says "1F". If I enter "d", at that point, I will be entering statement 1E1 , which is not obvious unless I know enough about NLS to generally not need Levadj. 2

DHC 7-DEC-72 12:32 13209

Levadj on Feedback

(J13209) 7-DEC-72 12:32; Title: Author(s): Crocker, David H./DHC; Distribution: Watson, Richard W./RWW; Sub-Collections: NIC; Clerk: DHC;

DHC 7-DEC-72 15:59 13210

Inserting where?

Some time ago, I mentioned to Maralyn my belief that the use of the word "at", following "Insert Statement" was confusing. Since that time, I have found that it is confusing other people as well. 1

The actual meaning of the command is "Insert text after Statement at" which may take a long time to type, but is precise. A short form would be "Insert Statement after". 2

The problem, of course, is to make it easy to know the current or impending location of the CM, when this cannot be done visually (a la' TNLS). 3

DHC 7-DEC-72 15:59 13210

Inserting where?

(J13210) 7-DEC-72 15:59; Title: Author(s): Crocker, David H./DHC;
Distribution: Watson, Richard W./RWW; Sub-Collections: NIC; Clerk: DHC;

MAK 7-DEC-72 21:16 13211

MESSAGE TO YOU

HI THERE MARK

MAK 7-DEC-72 21:16 13211

MESSAGE TO YOU

(J13211) 7-DEC-72 21:16; Title: Author(s): Kampe, Mark A./MAK; Distribution: Seriff, Marc S., Postel, Jonathan B./MSS2(FOR YOUR EDIFICATION) JBP(IGNORE THIS); Sub-Collections: NIC; Clerk: JBP;

JBN 7-DEC-72 16:01 13212

JPL work in CAI

Thank you for the two articles. We would be interested in any other documents issued by JPL on its work in CAI. 1

JBN 7-DEC-72 16:01 13212

JPL work in CAI

(J13212) 7-DEC-72 16:01; Title: Author(s): North, Jeanne B./JBN ; Distribution: Smith, Gordon A./GAS ; Sub-Collections: SRI-ARC; Clerk: KIRK;

KIRK 7-DEC-72 18:59 13213

Can the new calculator be accessed by a user program to do some calculations that may be needed by that program. That is, can some other program "call" the calculator as a subprogram? 1

(J13213) 7-DEC-72 18:59; Author(s): Kelley, Kirk E./KIRK;
Distribution: Michael, Elizabeth K./ekm ; Sub-Collections: SRI-ARC;
Clerk: KIRK;

SRL 7-DEC-72 19:12 13214

TRANSMITTAL to Dr. W. Kohler from Susan Lee

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

NIC 13146
6-DEC-72

1

TRANSMITTAL TO: Dr. W. Kohler
Statistisches Landesamt NW
4 Dusseldorf
Postfach 1105

2

FROM: Susan Lee (SRI-ARC)
Station Agent

3

At your request I am enclosing the following documents: 4

NIC 7750 The ARPA Network 4a

NIC 11626 Improvements in the Design & Performance of the ARPA Network 4b

We presently do not have any extra copies of AFIPS 1972, however, I will send one to you as soon as we get more copies. 5

Also enclosed is a letter (NIC 13040) and several documents from Jim White in answer to the question in your letter. 6

Enclosed: 7

NIC 7750
NIC 11626
NIC 13040
NIC 8246
NIC 9348
NIC 10596
NIC 12112 7a

SRL 7-DEC-72 19:12 13214

TRANSMITTAL to Dr. W. Kohler from Susan Lee

(J13214) 7-DEC-72 19:12; Title: Author(s): Lee, Susan R./SRL ;
Distribution: Agent, Station, North, Jeanne B./sa nicsta ;
Sub-Collections: SRI-ARC NICSTA; Clerk: KIRK;

SRL 7-DEC-72 19:15 13215
TRANSMITTAL to INWG Group Members from Susan Lee

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

NIC 13145
6-DEC-72

1

TRANSMITTAL TO: All INWG Group Members

2

FROM: Susan Lee (SRI-ARC)
Station Agent

3

At the request of Vint Cerf, I am enclosing the following functional document as background information regarding the ARPA Network: 4

NIC 7104 Current Network Protocols 4a

SRL 7-DEC-72 19:15 13215

TRANSMITTAL to INWG Group Members from Susan Lee

(J13215) 7-DEC-72 19:15; Title: Author(s): Lee, Susan R./SRL ; Distribution: Agent, Station/sa ; Sub-Collections: SRI-ARC; Clerk: KIRK;

KIRK 7-DEC-72 20:36 13216

PSO takes load off of system?

It has been noted by some but not all members of PSO that since the restriction of the system to 15 local users, their work-load has gone up. That is, several people who would generally have been able to do a task without involving others, have been unable to get on the system and instead, given the task to PSO. 1

Everyone in PSO is glad to do anything to help, that is what we're here for. I am expressing the fact as Dirk thought it would be of interest when it came up in the monthly PSO meeting. However, I plan to stay off of the system (except for rush jobs) before 5:00 pm. 2

It is understood that the new system of terminal allocation would probably change this situation. 3

4

KIRK 7-DEC-72 20:36 13216

PSC takes load off of system?

(J13216) 7-DEC-72 20:36; Title: Author(s): Kelley, Kirk E./KIRK; Distribution: Agent, Station, Hoffman, Carol B., Lee, Susan R., Michael, Elizabeth K., Dornbush, Charles F., ARC, Guest O., Feinler, Elizabeth J. (Jake), Handbook, Augmentation Research, Kelley, Kirk E., Meyer, N. Dean, Byrd, Kay F., Prather, Ralph, White, James E. (Jim), Vallee, Jacques F., Kaye, Diane S., Rech, Paul, Kudlick, Michael D., Ferguson, Ferg R., Lane, Linda L., Auerbach, Marilyn F., Bass, Walt, Engelbart, Douglas C., Hardeman, Beauregard A., Hardy, Martin E., Hopper, J. D., Irby, Charles H., Jernigan, Mil E., Lehtman, Harvey G., North, Jeanne B., Norton, James C., Page, Cindy, Paxton, William H., Peters, Jeffrey C., Ratliff, Jake, Row, Barbara E., Van De Riet, Edwin K. (Ed), Van Nouhuys, Dirk H., Victor, Kenneth E. (Ken), Wallace, Donald C. (Smokey), Watson, Richard W., Andrews, Don I./SRI-ARC ; Sub-Collections: SRI-ARC; Clerk: KIRK;
Origin: <KELLEY>LOG.NLS;3, 7-DEC-72 20:16 KIRK ;

DHC 8-DEC-72 12:18 13217

Last of the Archives

Dirk;

My thinking on having the list of archived files available thru NLS was for selective searching. Actually, the same thought applies to regular directory searching. When many people use the same account, the direcotry can be quite long. If the list were accessible thru NLS, it could be selectively viewed. 1

DHC 8-DEC-72 12:18 13217

Last of the Archives

(J13217) 8-DEC-72 12:18; Title: Author(s): Crocker, David H./DHC; Distribution: Van Nouhuys, Dirk H./DVN; Sub-Collections: NIC; Clerk: DHC;

DHC 8-DEC-72 12:23 13218

What's in a name?

Assuming that statement names can truly allow one to think in terms of organizing concepts, rather than arbitrary and transient statment numbers, and assuming that other people's memories are as bad as mine, a "Print Names" command which would, under standard control of viewspecs, print statements which have names. This would allow the user to review the names he has used. 1

DHC 8-DEC-72 12:23 13218

What's in a name?

(J13218) 8-DEC-72 12:23; Title: Author(s): Crocker, David H./DHC;
Distribution: Watson, Richard W./RWW; Sub-Collections: NIC; Clerk: DHC;

DHC 8-DEC-72 12:31 13219

Ending before beginning

In addition to the previously mentioned confusion about the location of the CM, a fair amouunt of confusion seems to occur (for me, it is definite, not just 'seems') with your philosophy of having the user enter the 'to' address or literal before the 'from' one. The Substitute and Move commands are examples. I believe this to be quite unnatural for most people, since we tend to think in terms of going 'from' something 'to' something else. 1

DHC 8-DEC-72 12:31 13219

Ending before beginning

(J13219) 8-DEC-72 12:31; Title: Author(s): Crocker, David H./DHC;
Distribution: Watson, Richard W./RWW; Sub-Collections: NIC; Clerk: DHC;

DIA 8-DEC-72 12:28 13220

Response to your comment on L10 change

I did not make myself clear enough. The following are legal, assuming my proposed changes to L10:

(name) FILE
FILE name
PROGRAM name
(blitz) PROGRAM name

The following is illegal:

(name1) FILE name2

1

DIA 8-DEC-72 12:28 13220

Response to your comment on L10 change

(J13220) 8-DEC-72 12:28; Title: Author(s): Andrews, Don I./DIA; Distribution: Irby, Charles H./chi ; Sub-Collections: SRI-ARC; Clerk: DIA;

DIA 8-DEC-72 12:44 13221

Response to Paul's User Control suggestion

This is an attempt to start some dialogue on Paul's ideas.

DIA 8-DEC-72 12:44 13221

Response to Paul's User Control suggestion

Paul, here are a few disjoint comments on your suggestions for User control by Group Allocation. 1

For the most part, I think you're idea is a good one. 1a

As an implementation detail, I think there should be an ONLINE schedule, which contains the times and user group allocations. This allows us a good deal of flexibility: 1b

The file could be manipulated by users with authority for such things. I think the visitor, or demonstration, priority should be handled in this way. That is, a special reservation for a terminal for DCE or JCN or whoever is made for 3-4 PM for example. 1b1

I also think that the schedule should be specified in a sequence by priority: 1b2

For example, if the load (or whatever) allows 21 users, then the first 21 "slots" in the schedule would be used. Suppose this leads to one of the comfigurations you give in your paper. Then suppose that at 3PM a terminal is reserved for a demo. At that time the schedule changes and the last "slot", which might be a group A slot, is the one to go. And, for example, I might be asked to get off the system. 1b2a

Or suppose that the load changes, or we lose a memory box, and the number of users should be dropped to 18. Then the last 3 slots are removed and the appropriate users in the specified groups are asked to leave. 1b2b

The schedule might give allocations for 25 users, but only the first n of them would be actually used for quota specifications at one time, where n would depend on the load perhaps, or be specified by you, Jim, or whomever. 1b2c

Off-quota use of the system would not depend of the schedule above the first n "slots" but would be as you specified in your paper. 1b2c1

By way of an example of a schedule: A letter in the following line represents a user in the corresponding group. At any one time, the group allocation would be specified by the first n letters. 1b2c2

9-12:

Response to Paul's User Control suggestion

H,H,H,H,A,F,F,G,G,F,G,G,B,B,C,E,B,D,B,E,C,A,B,E,C,
C 1b2c2a

In statement 3d you say that "...everyone within ARC should be garanteed as liberal an access to the system as possible." 1c

Well, it should be pretty obvious to everyone that the access that is possible now is not at all liberal. Your statement sounds kind of misleading to me, because it seems to be saying that this scheme will make it more liberal. All I see us doing here is regulating the lack of access to the machine - which is really an advantage in a way, because then I know I can't get on until 4:30 for example, but then I CAN GET ON 1c1

One of your basic utilization principles is that we should try to preserve a natural job mix and prevent any particular group of users to preempt the whole system. 1d

I'm not so sure about this principle. I don't really want to pound my fist on the table about it, but several things come to mind that make me question it: 1d1

Compile time is already a violation of that principle. Maybe there are other things that we do, or will do in the future that will disrupt the use of the system in general, and maybe the system should be preempted by a few to do it all at once ... 1d1a

People like to work together (in general) and perhaps work more effectively together. What if the machine "belonged" to the NLS programmers for four hours a day - and they didn't use it otherwise, except at off hours? 1d1b

Subsystems are shared, and the more people that use a particular subsystem, the more efficient the use of memory. 1d1c

There are some other things to think about. Maybe you already thought about them - perhaps we should ignore them anyway - 1e

What about considering the types of terminals in use. It sure seems strange to see two or three displays unusable because there are already too many people on the system. 1e1

Also, a teletype terminal user does not load the system as much as a display user. Perhaps the total number of users computation should take that into account. 1e2

Suppose there are two group X users allowed. Fat-finger gets on first, them Arnie. In an hour, only one group X person is allowed. Who goes off quota - Fat-finger because he has had more time on, or Arnie because he got there second? 1e3

In statement 6c2b you mention logging out: 1f

My feeling is that everyone should log in under his own name, and there should never be any reason for anyone to log out and log back in under another name. 1f1

I think we should make whatever changes in the system that are necessary to make this possible. 1f2

We should do away with the user names Documentation and Catalog. We don't use Operator much anyway. ICCC otta go away. 1f3

The autologout system should be changed so that it really knows whether or not a user is active. 1g

At the present time, users that are linked or advised, but are not using CPU time, are vulnerable to autologout. Also, processes that get the Q4-dismiss axe during high loads may get the autologout. 1g1

We need a foolproof test that determines that a console is going to waste. 1g2

The Refuse Autologout command would still be desirable for someone who would lose a lot of work if he were logged out, but had to leave his terminal for some reason. The chief example of this is someone debugging a large program with lots of patches, hot on the trail of a nasty bug, and he has to go to the head. 1g3

As I understand it, your scheme can be implemented entirely in the EXEC and requires no changes to the scheduler. That is quite an advantage since changes can be made without bringing up a new system. 1h

DIA 8-DEC-72 12:44 13221

Response to Paul's User Control suggestion

(J13221) 8-DEC-72 12:44; Title: Author(s): Andrews, Don I./DIA; Distribution: Rech, Paul, Wallace, Donald C. (Smokey), Victor, Kenneth E. (Ken), Norton, James C., Watson, Richard W., Engelbart, Douglas C., Irby, Charles H., Kudlick, Michael D., Van Nouhuys, Dirk H./pr dcw kev jcn rww dce chi mdk dvn ; Sub-Collections: SRI-ARC; Clerk: DIA; Origin: <ANDREWS>USERCTL.NLS;4, 6-DEC-72 11:43 DIA ;

BER 8-DEC-72 15:35 13222

We Need The Serial Number for Your Acoustic Coupler

If you have an acoustic coupler, please write down the serial number and tell Barbara no later than Tuesday morning, 12 December. Thank you. 1

BER 8-DEC-72 15:35 13222

We Need The Serial Number for Your Acoustic Coupler

(J13222) 8-DEC-72 15:35; Title: Author(s): Row, Barbara E./BER; Distribution: Agent, Station, Hoffman, Carol B., Lee, Susan R., Michael, Elizabeth K., Dornbush, Charles F., ARC, Guest O., Feinler, Elizabeth J. (Jake), Handbook, Augmentation Research, Kelley, Kirk E., Meyer, N. Dean, Byrd, Kay F., Prather, Ralph, White, James E. (Jim), Vallee, Jacques F., Kaye, Diane S., Rech, Paul, Kudlick, Michael D., Ferguson, Ferg R., Lane, Linda L., Auerbach, Marilyn F., Bass, Walt, Engelbart, Douglas C., Hardeman, Beauregard A., Hardy, Martin E., Hopper, J. D., Irby, Charles H., Jernigan, Mil E., Lehtman, Harvey G., North, Jeanne B., Norton, James C., Page, Cindy, Paxton, William H., Peters, Jeffrey C., Ratliff, Jake, Row, Barbara E., Van De Riet, Edwin K. (Ed), Van Nouhuys, Dirk H., Victor, Kenneth E. (Ken), Wallace, Donald C. (Smokey), Watson, Richard W., Andrews, Don I./SRI-ARC; Sub-Collections: SRI-ARC; Clerk: BER;

JFV 8-DEC-72 16:18 13223

Response to CHI regarding my current and future work.

Charles: 1

I guess I'm confused already. Dick has assigned me to work under Paul (60%) basically to get the command usage statistics out, and under Mike (40%) to do whatever needs to be done to improve the Query language. He anticipates a six-month transition before he sees me doing anything more imaginative. 1a

In spite of this I'd like to respond to your request for ideas on things that would be useful and interesting to do. I really think a lot of the problems that arise in the information management area come from a lack of integration of our various subsystems. The transition to MPS is an opportunity to do a good job in the next implementation, and I would like to be associated with the "NLS in MPL" effort. A first step might be for me to write an MPL programmer's manual. Is one in preparation ? 1b

Regarding your note about WSI and SUPERWATCH, I think we might meet with Paul and Don to define responsibilities in this area. Since Don has stated that the WSI stuff was obsolete I have to take his word for it. Every time I mention WSI people either laugh or don't know what it is, so I find it hard to believe that it's crucial to the system. If a feature like this has value, then it should be part of the measurement package, but does it require a special NLS command? Furthermore, my understanding is that if WSI is high it means the system is having response time problems, and these are better analyzed through the overall picture given by SUPERWATCH. 1c

Paul is mainly interested in getting command usage data from my program. How this will be related to Don's statistics is not yet clear. We need time to experiment. I don't feel I should re-write much of the measurement code, and the only reson I wanted to bring the "Use Measurements" stuff into NLS was to make it easier to run tests on it and to define a clean interface. I can see your reasons for keeping it out, and I have now deleted all the changes I had made in DATA and AUXCOD. 1d

Jacques 1d1

JFV 8-DEC-72 16:18 13223

Response to CHI regarding my current and future work.

(J13223) 8-DEC-72 16:18; Title: Author(s): Vallee, Jacques F./JFV; Distribution: Irby, Charles H., Rech, Paul, Watson, Richard W., Kudlick, Michael D./CHI PR RWW MDK; Sub-Collections: SRI-ARC; Clerk: JFV; Origin: <VALLEE>ART.NLS;3, 8-DEC-72 16:14 JFV ;

JFV 8-DEC-72 16:57 13224

Viewspecs capability implemented in Query.

Query language users can now specify their own viewspecs. Also formatting of individual branches is now possible through viewspecs embedded in the file.

JFV 8-DEC-72 16:57 13224

Viewspecs capability implemented in Query.

This is in partial response to Dick Watson's note (12614,) requesting further work along the lines of QUERY, and to Jake Feinler's Statement of Plans for the Resource Notebook Development (12425,). 1

On December 4th the three of us met to discuss short-term goals in this area, and we narrowed the requirements down to the following: 2

1) Jake needs a way to specify viewspecs for Notebook formatting on a branch-by-branch basis. 2a

2) The file is getting fairly large and there is a need to break it into as many files as we have sites. A logical way to do this is to handle the Resource Notebook and the NIC locator in a similar way, i.e. with a link structure. 2b

3) There is a need to allow duplicate statement names within a site branch. 2c

2d

I have worked on the first problem by doing two things: 3

i/ allowing Query users to specify their own viewspecs (by typing a 'v') and 4

ii/ scanning the text of a requested statement for an expression of the form:

(:xyz)

where xyz are viewspecs. 5

This expression must follow the statement name. 5a

A "jump to link" from NLS on this expression will do the right thing. 5b

JFV 8-DEC-72 16:57 13224

Viewspecs capability implemented in Query.

(J13224) 8-DEC-72 16:57; Title: Author(s): Vallee, Jacques F./JFV; Distribution: Agent, Station, Hoffman, Carol B., Lee, Susan R., Michael, Elizabeth K., Dornbush, Charles F., ARC, Guest O., Feinler, Elizabeth J. (Jake), Handbook, Augmentation Research, Kelley, Kirk E., Meyer, N. Dean, Byrd, Kay F., Prather, Ralph, White, James E. (Jim), Vallee, Jacques F., Kaye, Diane S., Rech, Paul, Kudlick, Michael D., Ferguson, Ferg R., Lane, Linda L., Auerbach, Marilyn F., Bass, Walt, Engelbart, Douglas C., Hardeman, Beauregard A., Hardy, Martin E., Hopper, J. D., Irby, Charles H., Jernigan, Mil E., Lehtman, Harvey G., North, Jeanne B., Norton, James C., Page, Cindy, Paxton, William H., Peters, Jeffrey C., Ratliff, Jake, Row, Barbara E., Van De Riet, Edwin K. (Ed), Van Nouhuys, Dirk H., Victor, Kenneth E. (Ken), Wallace, Donald C. (Smokey), Watson, Richard W., Andrews, Don I./SRI-ARC; Sub-Collections: SRI-ARC; Clerk: JFV;
Origin: <VALLEE>ART.NLS;5, 8-DEC-72 16:49 JFV ;

DEX analysis 1

Why DEX has not been used much in the past. 1a

This is a look at why Deferred Execution (DEX) has not been used extensively in the past. The reason can be summed up in the phrase "too hard to use" 1a1

Why it may or may not be used more in the future. 1b

All but one of the old tasks will remain in the new system. That is the requirement of typing the exact number in front of each statement. It will be accompanies by the option of typing "s" (for same level) "d" (for down a level) and "u" (for up a level). 1b1

Paul -- 2

I feel it would be useless to elaborate on this because the new DEX will be comming out soon and I cannot analyse it. The old DEX will then be obsolete and any analysis of it will be obsolete. 2a

KIRK 8-DEC-72 17:37 13225

DEX analysis

(J13225) 8-DEC-72 17:37; Title: Author(s): Kelley, Kirk E./KIRK;
Distribution: Rech, Paul/PR ; Sub-Collections: SRI-ARC; Clerk: KIRK;
Origin: <KELLEY>DEX.NLS;5, 8-DEC-72 17:36 KIRK ;

TRANSCRIPTION OF ALL ARC MEETING 3 NOVEMBER 1972 1

This transcription has not been completely edited and some inacuracies may exist due to the nature of transcription. However, the general drift of the meeting should be apparent. 1a

(DCE) Well, we all just shared a big experience that ended a week ago and some of us it took a while to recover. So in one way it might have been better to have a meeting early in the week and dumped all our experieces and shared our feelings and so on... But I chose to do it later in the week when some of us got ourselves put back together. So a big part of it was not so much to introduce any great new things, but to try to share what happened and see if we can put together the best kind of lessons and observations about where we stand in the community and where we stand next. What do people think of us and what's there for us to get from activities and just to be sharing 2

I made a long list mostly one statement each of sort of opportunity kinds of contacts that I made during the two weeks that were essentially seperate from any thing that happened on the floor of the ICCC conference. It comes out to twenty four relatively significant items here almost any of which could turn into a real activity opportunity. I don't intend to go through it today, but just say that that's there and maybe I'll summerize it but what I'd like to get is different people to describe their view of what happened during the ICCC show and prepareation and what happened here during that time, and what happened there and mention that I'm serious about wanting to extract and get down on paper almost evry sort of significant scrap of gossip or data or something that will be likely relavent to us in doing the kind of planning we'll be doing in the next few months. 2a

In which we'll have to try to some how intigrate a lot of this opportunity into some sort of plan from and the more we know about what different people feel and plan to do and what would like or dont like, that we come into contact, the better base we have. So Dick has volunteered to put that together so I'd like everyone to cooperate with him, give him scraps in writing and Dick, do you mind now? sort of... why don't you kick off and sort of extract things from people since that ICCC floor show was. 2b

(RWW) Well, before asking anybody else to say anything, I just want to say a few, ... To me the ICCC was symbolic on a lot of levels to me both personally and a number of things. But again it was one of those kind of shows, I tend to think of the whole

thing as kind of like a carnival that takes place every now and then that seems like real significance of something really new happening. And I think that ICCC was one of these events and It was sort of represented by an interview that Max Barret, he's the communications guy that works for TYMESHARE. The time TYMESHARE network and the ARPA network were connected together at the show and both of them were being demonstrated. 3

And Max Barret was being interviewed by one of the guys from one of the electronics periodicals. And Max was telling the guy how he was sitting there with this terminal from the ARPA net going all the way back to Cupertino and this computer was talking to here, and he took the guy and showed how he could get connected through the ARPA net to his Paris computer and out of the Paris computer came the weather in France. You know, the wind velocity at the top of the Eiffel Tower and a few other absolutely trivial kinds of things and he went on talking about all that was the happening and the guy was looking around the room and he finished the interview in a very normal kind of fassion and just went a way as if this is sort of the run of the mill kind of thing he'd gathered his information and split. 3a

The next day he came back to Max just sort of shaking. You know, he said, Max, do you know what's happening here? That it sort have hit him over night sort of what this represented in terms of new kinds of communications capabilities and people getting together and working together and so on. So for me I really felt that something sort of significant had happened. It was one of those things where somebody demonstrated the telegraph for the first time. Or transcontental railroads got connected to gether, or you know, a guy puts his foot on the moon. All those things are in and of themselves, trivial things, nothing real seems to happen, and yet they represent some sort of major step both of technological and other aspects of evolution. And I felt that about the ICCC and the network and also to me was something representative to me of ARC as well. 3b

In my perception of what happened as a result of preparing for the ICCC and working with the people around the net, and as a result of what took place there, the demonstration area where we were really came off I think very impressive. Eventually I hope we'll get one of those big IMLAC tubes that they had there. I think it really showed off ARC very very well and the kinds of things they are doing and we got a lot of very favorable comment and so on. And it represented to me a sort of successful connection between ARC and the outside world.

That to me the NIC and other things that we have been a part of are doing. 3c

That there's an acceptance of what's happening here that I've never felt before--an interest in what we're doing, the fact that we can run on the IMLAC and now get DNLS out into the world is very important. The fact that we didn't just have DNLS running on the IMLAC in our booth, an IMLAC of quite a bit different configuration, similar to the one they have over at MIT was also able to run DNLS while we were there. With more of this kind of indication and the fact that lots of people would say things like, "Oh, now I see what you guys are trying to do." That kind of feeling of acceptance aad and real interest, I think to me symbolizes I think a major new point for this project and the whole thing. 3d

I came away feeling really good about the whole thing that had happened there. Particularly I would just personally like to thank all the people who were back here. It's kind of a funny feeling to be there, and I don't know what a guy feels like being up there on the moon, and needs to get back and needs all those computers and all that sort of stuff that's going on in Texas or where ever it was, but that's kind of the way I felt. I don't know how Charles felt, but that Saturday, Sunday, and Monday that we were trying to get that damn IMLAC to work and get a procedure so we could load it and it was almost like trying to get juices from home and really make it happen. 3e

And then Monday night when it was all clear that it was all going to work. That we could load the IMLAC at will and that we could dial up and somebody back here would say Network Information Center or something, we knew we made contact. You know, we really felt like really good because the real energy center was back here. I really felt like here is this little apendage sticking out here talking to the colonials or something and that home base was back here with all the energy on it and it was really nice to know that at five o'clock in the morning here, you could dial the phone and there was somebody here. And even though I don't think we called that often, just knowing. 3f

Well first of all, we often didn't know if things went wrong if it was the IMLAC, the TIP, the TIP gurgled and coughed on many different occasions it had never been connected to that many terminals before in it's life, especially so many high speed ones, or whether it was you know TENEX had stopped or what had happened. and And to be able to make some kind of

communication contact and try to figure out what had happened even though that didn't happen very often, I think that was very important. 3g

Well, that's my speal I guess, I really feel like all the objectives that I hoped to see occomplished for the ICCC were occomplished. 3h

(CHI) I was amazed at how much different it was from an AFIPS exhibit or something like that. It was real. People were able to sit down and use a large number of systems at will and really do a number of things and it was just really incredible and the sort of HUM that was going on there the two or three days before the conference started was just phenomenal. I had never seen so much energy in one place in my life. It was just incredible. All those people running around testing all kinds of different systems on all kinds of different terminals and finding problems and fixing them. I was just xxx... 4

(RWW) They had the TIP up with most of the terminals connected more or less beginning to work within six hours from when they started on Friday. It took another couple of days to begin to work out all the glitches and stuff but that's pretty impressive to bring to bear all the wierd terminals and other kinds of things in a computer and just get us linked into this incredible thing in that short a space and time. 5

(CHI) They rewired the back-plane of an IMLAC in one day and it was working the next. 6

(DCE) Sort of like one evening and night. That was really a weekend an experience that week end. If we'd foreseen that, I think it would have been well (if) all twelve of us had been there instead of three of four of us. Because that charge and experience of watching all these guys, all the Network People, Kids I call them because most of them are young to a very old man. 7

(RWW) Speak for yourself 8

(Laughter) 9

(DCE) But the way they were filing in and working together and you couldn't tell who was from where the way they were trying to interact until you got to know them better. And then Tech Reps from these different terminal people just obviously were affected ... and just really got turned on. And that IMLAC guy ... who was going to rewire all of that. And I was going to try and rest

that weekend but I just couldn't stay out of that room. The impact of that room is why I somehow got turned on and tried working with Smokey trying to get that .... done... 10

(CHI) I was really amazed at, there were several documents generated during that weekend of people would just sit down and crank out a list of all the people and where they were from and what they were doing and stuff and the number of times I heard the word NLS thrown around was just incredible because they were all using NLS. 11

(RWW) People were making lists ... who was on the floor and time schedules and plans and stuff and they were all using NLS. 12

(CHI) ...and I was so shocked at that that I could hardly believe it. And then we found out that something like fifty or eighty percent of the terminals were upper case only and a lot of the things would look like trash with all the slashes and things in it so we had at the last minute to make changes in it. If it hadn't been for people back here, we would have really been screwed. 13

(JEW) It was really a change in attitude about NLS you notice if you've been involved with the Network people very long, there has always been kind of a stigma about TNLS being kind of a loser and no one could understand why the syntax was so strange and hard to use and different from other text editors. And then everybody got so excited about NLS when they saw it on a display, and really being used for something in an invironment in which they could use it tieing into the network on an IMLAC. Just that one thing alone was very healthy. 14

(DCE) That shared screen business, at least from the kind of people I was interacting with and all, has just a phenomenol impact. 15

(CHI) I guess it was on the last day, I was called over to help some guy who had just written someting in TNLS, it was a new RFC and they were trying to submit it to the journal. And they said they wanted a number. And I said, "Well, type "n"" and it said number. And then they said, "Well we want an RFC number" and I said, "Type 'r'" and it said RFC number, and I said, "Well, do you have one?" And they said, "No". So I said, "Type a carriage return" and it spit out an RFC number and a NIC number and I said, "Well do a status and see if it looks alright." and they did, and it looked alright and it said "go" and it said "completed" and it was very quick and then one of the guys said to one of the other, well lets go look at it--make sure it got

there and everything and the other guy says, "no, no, it takes a long time for it to get delivered." and I said "No, no, just..." I typed a space and a link off to the thing. and And BINGO it was there and we could look at it on line. 16

And I said, well, lets print it. So I jumped to the origen and did an output device printer and I left TNLS and used the sendprint thing that Smokey had done and just printed it out on a printer that was right next to them and it just blew their heads off. I mean, it just came out nicely formatted and they were running around showing it (laughter) it was just really neat, I mean it just made the day as far as I am concerned. 16a

(RWW) I think it would be interesting for Marilyn to describe a little session she had with a guy named Andrew Lapinsky from the institute of the future because it was another one of those things where I think a guys head got turned around. The back ground for this story that Marilyn didn't know when she was interacting with this guy... 17

(xxx) Fortunately 18

(MFA) Fortunately was right. 19

(RWW) was about 9 - 10 months a go a guy from the Institute For the Future came over here, we showed him NLS and then we essentially said, "You can't use it." Because we haven't got enough computer capacity to do the kinds of experiments they wanted to do--doing delphi kind of dialogue kinds of things on the NET. So they're using a P-10 system at ISI. But the net result of that is that those guys have really been harboring a kind of grudge and feeling really bad and angry and mad at us. And this Guy Lapinsky had given a paper just that morning on the techniques that they were doing so when he came to talk to us to see what we were doing there, he came with this kind of background with this kind of grudge that we're not helping him and feeling that what they were doing was really significant. And both Marilyn and Paul had sessions with him and the guy spent a lot of time there and I think it would be usefull if they just talked a little bit about what happened to him during that time. I was just fascinated to watch it. 20

(JCN) We might add that we were standing behind Marilyn and this guy listening to every question and watching every answer ... 21

(MFA) He was very hostile and very demanding. He came up to me and said, "Show me how to send a message." And immediately I

thought, "Journal" you know, "send a message". So I took him through the NIC locator, and that was OK but somehow I still wasn't getting to what he wanted. And I took him through the journal documentation and finally it dawned on both of us that that was not what he wanted. What he wanted was to be able to essentially link to his son at UCLA or someplace. So I finally got out of ARC locator in our documentation into the querry language and that was just beautiful. 22

We stepped down and got to UCLA finally and looked at their software, you keep stepping down and finally there's the procedure how to connect to active users and the exact syntax was there exactly what he wanted. And then I said do you know your son's identification code essentially. And he said, no. So I took him through the identification system then and we did a STATUS FOR dot LAST NAME Lapinsky. And just like that it printed his son's last name and all this kind of stuff. So he had the two pieces of information he needed to connect to him. 22a

(xxx) Was that a display or a typewriter? 23

(MFA) I was sitting at the IMLAC doing a demo when he came over. 24

(BER) You can't do that on DNLS. Right? 25

(MFA) Next to him happened to be Baker? - somebody from London who just happened to be there. And Lapinsky got< really turned on and sort of satisfied you know like this really works and this fella from London , I have his name written down someplace, and he was looking at the Identification system and he said, "Oh, try my name, try my name" So I a>said, "Dot, and his last name and ZAP and he looked at it and then he said, "You should change that phone number entry there. It should say international or something because it was a London telephone number. So I went to modify mode and I changed it and I did a status and he saw it was changed and he said, "Do you suppose you could get my middle name in there." you know? (Laughter) And then he wanted his Ident changed and it sort of got carried away. I showed him how I couldn't change his ident and how that was really a good thing and this kind of stuff and Lapinsky was very happy when he walked away. 26

(RWW) Paul spent about 1/2 hour with him, and hour almost... 27

(PR) Yeah, he came to see me just after he saw you and he said, well, she showed me that, but she knows how to do that, that's very complicated. I want to try that by myself. So I said, "Why

dont you sit down..." "No, no, no, not around here because you guys have got it all set up. I want to go to the other end of the room and try to do that and connect to my son all by myself." "Fine, why don't you ..." And before leaving he said, "Look, it's so complicated your thing, I wantto be very hard nosed about what it is going to be used for." I said, "Well," I tried to explain to him that what we are doing is a workshop in which we can study all kinds of procedure. Very general , what ever we are going to study. Doug has during the conference brought up something that it turned out people were very receptive to it, was the concept of the workshop for knowledge work where we study new procedures. I tried to explain to him that. He said "Well, that's so general, that's no good because I wnat to be hard nosed, I want immediate results. What can you do for me?" 28

I tried to explain to him; he was just not receptive so I said to him, "What are YOU doing?" 28a

He said, "Well, we are developing a procedure for forcasting, for long-term forcasting for all kinds of things." 28b

"I said, "How much energy will we need in the year 2000." 28c

"Well, we are not doing that, we are just developing procedure." 28d

I said, "Well, I am going to be hard-nosed too..." (laughter) 28e

"Oh, well, I think I understand what you mean," and he left... 28f

(laughter) 29

(DCE) There is more background, that organization ... 30

(PR) Excuse me, he invited me to come and see them, and he wants to come and visit us here. 31

(DCE) Good idea. That organization put in a proposal a year and a half or so ago to Larry Roberts to develope some tele-conferencing techniques. In among them would be ways in which Larry can hock up around the network with various advisors he might pick from his community who would help him evaluate some proposal. And there is some kind of scenario that reads sort of snatches like that, that they would be interacting about the topic, they'd use various techniques and the proposal even included in it apparently the plan to use our system for this or modify it and all. And the very odd part is Larry Roberts didn't tell us the whole time--He accidentally revealed this when Dick,

Jim, and I and Dave Brown were there a year ago last June to talk about the next proposal thing. And we were just really kind of shocked and angered that Larry's gonna go ahead committing us to be involved. 32

I don't know, there was something about their going ahead. Right now it's different. I was on the panel for the paper he gave and it sounds very interesting what he's doing. 32a

(PR) He indicated to me, I mean, I had a long discussion with him about that, and he got very interested. He indicated, I think what they tried to do I think is to use NLS xxx. 33

(DCE) But you have to wait until they discover it. And that's just to this time... 34

(PR) He wants to come and visit us and he would like us, he invited me to go and see them ... he was very interested. 35

(DCE) Yeah, well, I don't want, I'd rather share with other prople for a while, besides myself, I mean. 36

(RWW) Well, another thing, I showed a lot of people our COM stuff. And the pressure out there of people wanting to put all their documentation into NLS and get it all out through COM is starting to build. I don't know how much longer we can hold the dam, but ... 37

(JCP) Ooohhh my god. 38

(Laughter) 39

(CHI) People were really stoked by that COM outfit. I mean, they were just really, it was incredible. 40

(JAKE) What did we do, how did we demonstrate that? 41

(CHI) We had a binder giving examples of COM output the way we do. 42

(DCE) Mill, could you do me a favor? On my desk is a binder that says ETPS on it. 43

(RWW) What we did is we had a table that was about half the length width of this table that was right in the main pathway where people walked that had all the NIC type of documents plus this sample binder of all the COM stuff laid out there. People would stop and browse through it. Grab it and show it to people. 44

(DCE) There are a couple of things on this list I think I should tell everyone. One thing and very brief, it really looks as though we've got enough money, subscriptions promised or potentially promised to go ahead with putting a utility on the line. Were not sure whether that will be the fiscal year in which that money will be released will let us do it before next summer or not but that looks very well covered. And two, three very interesting things came out of my visit to ARPA having to do with that. One is that ARPA is really beginning to count on experimenting with NLS in its own offices. But that's ARPA, not the Information Processing Techniques Office. That's all the offices. And to have a PDP-15 on site that they've evolved over the last few years to use to manage a lot of their fund programming. and that sort of data base planning system. 45

And there was a consultant gal from Boston that had been working with them and practically residing there for some time and one of the women that works there that just kind of gotten that thing integrated and in a practical way of evolving in an office service, just made me have a lot of faith that if they were around, NLS could get integrated and they could help. 45a

So Larry has just roughly said, "Well, I can see peeling off [funds] to contribute to the utility to buy support for our first year of experiments. And the next thing I said, well, what about generally under utility other than just people being able to dial in on NIC on just a catch as catch can basis, they need something if they're going to experiment with their documentation or their support in their software work or something. [...] 45b

I said, "Alright, Larry, there is something I've been waiting years to ask you, when are you going to require your contractors to submit all of their reports in computer form?" 45c

"Ok, it's time " (Laughter) 45d

So a rough idea is they will put a dead-line in something like July or something. And every report if the contractors submit them after that, they have to be in computer form. It doesn't have to be written on NLS at all, but it has to be stuck in the journal, because that's the delivery mode. And I said, but you understand we don't have ways to integrate photographs and diagrams yet. And he was all for it suddenly and he went out and brought back a stack of their reports about this high and thumbed through them like that and just said, "Oh hell, there aren't enough diagrams to worry about in here anyway." So it's very interesting ... 45e

(WLB) Dirk's trying to get some half-tones into our current stuff. 46

(DCE) That's great, but about that COM. I put together a few things, I had one of those DEC maintenance guys traveling workshops, one of those briefcases just loaded to the gills that I carry around with me everyplace to have things ready to show. Here is one of the little things I say. "Well you talk about documentation, and so I have a series of Xeroxes that starts with this page. So in this section there's a series like that that say, you know that real technical documentation has got to be able to accomodate. You know that computer graphics is going to be able to produce the designs of these things. That's great, you'd like to be able to go out and design a picture, but then you want to lable it, put captions on it, you want to edit cuts and slices to it and have that around and fit that into a report that you are going to modify. You want pages with all kinds of curves and diagrams and equations and stuff like that." 47

and I just flip through some pages like this of typical things. Then I say, well, we've been experimenting with a COM device that will do this, here are some examples of what the COMP-80 will put out. Including the business where they will scan the diagram and store it as computer data and programatically you can ask that to be scalled and inserted someplace on a page, and sharps and different font samples." and then I say, "And here's what we've been turning out as samples... 47a

(End of side 1 begin side 2) 48

(DCE) ... Xdoc system before any organization is going to be able to think seriously about its documentation being generated, developed, controled, via this and NIC and they really start going. And it's just another high impact thing that starts to be meaningful. So it's worth all your sweat. What ever it cost you, it was worth it. We should say the same thing to Dean for the effort that went in to that, but that's going to mean a lot. So that the opportunities just within the technical documentation and the idea of a handbook, too, you can really get to them with that. But the possibilities of getting alot of different people to cooperate in evolving just the DPIS side of the thing is itself big enough that we could turn into, convert ourselves into a DCPS push. With lots of .... there's not much potential I feel in there. So Walters memo in the journal is xxxx. 49

(RWW) I'd just like to say a few things 50

(DCE) Barbera's going to try and interrupt. 51

(BER) What's a utility besides PG&E? I don't understand. 52

(DCE) That's a reasonable question I guess. A utility generally means you can buy something from somebody who delivers it to you like electricity or water or gas ... 53

(BER) So people are going to buy NLS? 54

(DCE) Right. So we're setting up, that's what the proposals coming to us are to have a computer tied to the network. That there will be NLS and it's there to provide, they can buy so many dollars worth of NLS service and it's sitting there as a utility. That's what we call it: the NLS utility. 55

(RWW) I'd like to just say a couple of things about the way the whole ICCC thing came off because to me that was a real lesson in perserverence. When the whole thing was proposed a year ago this coming December at a principle investigators meeting in Washington, the room sort of split in half. Half the room said, "My god, you'll kill us all by demonstrating this thing that doesn't work yet." And the other half of the room says, "Oh, wonderful wonderful, we think it's great." And so that was sort of the beginning of the idea of putting on the ICCC. And then Larry Roberts gave Bob Conn from BBN the job of pulling it together. And the first thing that bob Bob ran into was all the guys that were yelling and screaming at him, "NO, NO, NO, you know You'll kill us." Including his own boss. And the guys who said yes suddenly realized that they'd have to put up some support and give some services and back him up and they all dropped out 56

Bob was kind of left there all by himself to pull this thing together. And he just kept slowly working all by himself up until about last April or May and then he made a tour around the country talking to each of the ARPA sites to see if they would give anything in the sense of would you demonstrate something, would you help us do anything. And again very few people except ourselves and a one or two others said they'd help out and he was still pretty much by himself, but he kept plugging along the whole thing and then in July he wanted to come out and talk to us about our little piece about what we were thinking about doing. And I suggested that maybe he should get some other people involved because it was too big a thing for one guy, he had been pulling this thing by himself and so in July there were maybe six or seven people who came here from BBN and MIT and here UCLA that started the thing. 56a

But very few people really still involved, very few sources committed from any of the sites on the network, everybody stiill very skeptical including ourselves about whether we could really make it work, and then a month later there was another meeting and this time there were like twelve people instead of maybe six or seven and then three weeks later there's another and more resources slowly began to be committed to it 56b

the whole thing just sort of built. And even the scenarios came in late, that we had written up in the little scenario booklet. And yet, by the time we hit the floor, all these people who didn't submit scenarios were all over the network were there, they had brought their own scenarios. They had them in the same format that the scenario booklet had had in. Some were putting them in NLS, others were doing them by hand. Suddenly people who hadn't been very interested were running around making signs and putting them up on their booths and giving demos that had never been planned to be given and this whole room was just filled with activity. 56c

It was like this thing really came out of nowhere in the last month and to me watching the way Bob just doggedly kept it up by himself, basically for months and months all by himself, he just felt like it was really worth doing. Slowly people kept jumping behind him, and as the band waggon got bigger and it looked like it was going to go, everybody wanted to get on. Finally at he the end...and in some ways, I see that with NLS. 56d

It's a similar kind of thing. People are really starting to do the same kind of thing. Doug has sort of been doing the same "trip" in NLS. It's beginning to happen. I learned a lot. If you really want to do something, you just keep at it and eventually, if it is really going to work, everybody will fall in and come along. 56e

(DCE) There are a lot of good benefits out of that. A lot of the people learn. Bob Conn grew about three feet in the process and... 57

(RWW) The other thing that suprised me is I tend to think of this place often as very inefficient and kind of sloppy. And the day that Charles was talking about running around with that RFC. I ran up to some guy and said, "Hey, did you see that?" He said, "oh, I take that for granted from you guys, you guys are the most efficient guys around." (laughter) It blew my mind. I thought we had succeeded somehow. He says, "Oh, any you guys say you'll do something, we know you're gonna do it." I thought, "my god." 58

(CHI) How are we ever gonna live up to that? 59

(laughter) 60

(DCE) It's relative. Even in our darkest hours I say, "But (sigh), just look around at our competition." 61

(laughter) 62

(RWW) It was kind of funny when Jim and I wheeled in the big boxes of scenarios and little folders and stuff. Three or four people ran over: "The NIC is here " 63

(laughter) 64

(WLH) The world is gonna be safe. 65

(DCE) I remeber the few times I played any kind of athletics. It was always the way it was. You look at that other team and they always looked so much more prepared and better organized, skilled and stronger. Look around at all of us crippled... That's a very important thing for us always to keep in mind, that there are troubles and all but we have a very strong position and relatively speaking, a very coordinated group, relatively. One of our problems is that our expectations are always so much higher than they 66

(CHI) I was really amazed at how the little things that worked had such a big impact on people. A lot of people had trouble seeing the bigger fancier things that we had. But the simple "point" last-name thing in the querey just wiped them out. 67

(MFA) Linking, people got excited about you could link to somebody back here. 68

(PR) Someone asked me whether or not I could link to someone here at SRI. I said, "Sure, let's do a SYSTAT." I look down and I see one fellow here. Sure, I link to him, and no answer. I typed in, "Are you there?" No answer. Well maybe he is gone. The next day I got the answer. He was at the coffee break. I managed to link to someone else. 69

(DCE) I worked the week before that. I took a TI and dialed into a tip at the bureau of standards, I got a good education through that one. One night I was working late and I did a systat and I saw that Dean Meyer was working. So I linked to him. I was sitting in my hotel room in Washington D.C. and he was sitting in his apartment up in Berkely. One thing I want to ask, we spent

a lot of time ahead of time getting the data together. You know the directories and all that. An emense amount of file material there. So one of the questions was how much payoff did it have, or sort of ways, could we have gotten by with one tenth of that? 70

(RWW) Well the answer to that question as far as I am concerned, when Monday night came, and we knew the IMLAC was going to work and we had everything there, ninety percent of my goals were finished. That all the good things that happened during those three days, were just added frosting. What was really important to me about all that preperation of the files and stuff was what was going to be there when we got done. To me that was one of the real significant things. Everybody in the Network's participation in that conference wasn't just the fact that we demonstrated to the world that we're a living thing, but what's going to be there in terms of the fact that, we've got all these people now who've been into each other's systems in ways they have never been in before and we've got a catalog out that's up to date and a directory out and we've got some procedures working. We've got some things that are going to be there on-going. To me is the really significant thing. More important even than what happened physical there. 71

(DCE) Yeah I told Larry Roberts. He was there a little bit on the weekends. He could quit right now and you still would have gotten your money's worth. 72

(CHI) Setting up the NIC resource querey thing was extremely valuable people really liked that a lot. It was worth all the trouble we went to. 73

(RWW) It's a funny thing. I think there's a real feeling in the world. A lot of people visiting the conference had it. You know, here's this awful complex thing, but here's something that I can, he can take off the street basically and understand. 74

(CHI) I was sitting next to Abhul Bushan and he was using the NIC querry thing and he said, "God, at last I can find out what's really going on." And he was going down through level and level and I said, "Well, you know, that's just an NLS file and your just doing print branch." And he said, "No shit?" It just made all the difference in the world that he could be led through the file. 75

(JAKE) A little aside to that, a woman is coming to visit me next week who used to be my boss and has since gone to be the head technical librarian at IBM. She called me once to sort of negotiate when we were going to meet. And she called me back

again to say, "Some of our people have been to your meeting and I wonder if I could get on distribution for your documents. That was a good sign too because she's in the middle of all the IBM research. 76

(DCE) Who's that? 77

(JAKE) Betty Bateman? Do you remember her? 78

(RWW) Get her name down. 79

(DCE) Where's she at? 80

(JAKE) IBM, she's at Poughkeepsie but she also deals with Kingston people. So I was kidding her and I said, "Well, when do you people want to get on the ARPA net? She'll be out here next week. Maybe we can give her some documents or what have you. 81

(CHI) I talked to some guy from IBM who was watching the DNLS display thing going. I asked if he needed any help or wanted any questions answered or anything. He said, "No, I've been watching you guys for a long time, I know pretty much what you're doing, I just wanted to know what you've been doing in the last couple of years or so. So I explained a few of the things like splitting screens and sharing screens and stuff like that. And he said, "Hey, that's really nice." And I said we've been developing this language called MPS and explained some of the language features. He obviously was aware of what I was talking about. And he said, "Oh, that's really neat." And I said one of the things we'd like to do is get it on to a lot of machines like 360's and you know, 91 maybe at UCLA or something. And he got very interested, 82

(DCE) That's the kind I want to... 83

(CHI) But I didn't catch his name. 84

(laughter) 85

(DCE) That's all right, weight?, Approximate age, height? 86

(RWW) Mike, you were sort of burried over in siberia over there with the LINOLAC and some of those wierd terminals, helping guys just generally. Not in the first day or so. What happened over there? What was that like? 87

(MDK) We had a couple of very funny terminals over there. Some of them were only upper case terminals and that really was a mistake on the part of who ever supplied the terminals. 88

(DCE) Do you think that will be a lesson? Why are people still making upper case and when will they learn? 89

(CHI) Oh, I talked to the poor LINOLEX guy and he said, "Gee, I wish I had known because we have upper/lower case, I just didn't bring it." 90

(MDK) Yeah, a couple of the manufacturers were that way. Dick is right, I was sort of over in Siberia for a while and didn't get as much chance as the others to be at the NLS demonstration. But one thing I noticed was the persiverance of each of the people who was visiting the conference to be sure they were able to go through these scenarios and to WANT to go through the scenarios. Our job, mine for example, was to sort of lurk in the background and help anybody that got stuck. There were misprints in the scenario booklet, and things of that sort which were inevitable and the guy would get stuck on it. And I had occasion to---I dont mean that to hurt you Barbera. 91

(BER) Well it's Linda too, Kay too. 92

(MDK) Well you might of copied it the way the guy wrote it and he did it wrong. 93

(RWW) That's what the case was. 94

(BER) Bob Metcalf screwed up. 95

(MDK) Yeah, and in one case in particular that is probably what happened. Any way, it was really delightful to see the enthusiasm of these people to GET IT RIGHT. Boy, if they couldn't get it, they'd look around and they'd see you with your little red ribbons on and, "Come on over here, can you help me?" And then when you help them, boy it's like a sigh of relief and they look up and smile and thank you and go on and continue to type. And this happened many times so my message is that these booklets really carried a message to these people that there was something they could use, they knew how to do it, follow the menu... 96

(RWW) At the end of the session, at the end of the whole thing, people were going around scrounging scenario booklets. You'd think it was like a world fair or something and they all wanted to keep these things. We had two extra boxes of the scenarios at the end left. We had twelve hundred or so had been passed out and we had printed up like 1500 and so Jeanne and I were pulling them out and geeting ready to send them back to the SRI office to have them shipped back here. And people kept comming from all

directions. You know, I want some, Bob Conn said, "I want a box". Bob Metcalf said "I want a box". So after we got all packed up, I looked around and here were all these guys running around under the tables picking these things up. And they had this big stack of them and the UCLA guys were taking some back, and you know, it was just an interesting kind of demonstration of the need for documentation on the Network. 97

(laughter) 98

(MDK) There was another thing I noticed... 99

(JAKE) You just turned me on Dick... 100

(MDK) Being in siberia, you get to see what the Siberians use, and they were using some of the latest terminals. CIT terminals, teletype terminals. 101

(RWW) Yeah, buy us a dozen. 102

(MDK) I aint gonna buy us any, because I didn't think they were good. There was an IMLAC there that we used which is a latter model I gather from ours, and besides that it had a bigger screen and very clear, very clear text display. That terminal I thought was the best terminal in the room. As far as the quality of the display, the amount of information on the display, the ease in using it, the key board was nice. And I really wasn't turned on by anybody elses terminal that was there. 103

(CHI) Did you use the Sugarman at all? 104

(MDK) The Sugarman? Where was that? 105

(CHI) That was black characters on white background. 106

(MDK) No I didn't see that one. 107

(CHI) That one was pretty nice. 108

(MDK) There were how many different types of terminals there? About 14. 109

(RWW) Probably about 15-20 different types of terminals. 110

(JAKE) Doug, do we have patent rights to the IMLAC, or is that something completely seperate. 111

(CHI) No, a company makes those. 112

(DCE) Does every one know when they talk about the big display? Imlac makes a big monitor about like this with a brownish colored screen that you can plug in in parallel or instead of the display that's on. 113

(MDK) that's a 25 inch TV screen. 114

(CHI) 21. 115

(DCE) Oh, it's just, the same character generator and all, it just looks like a completely different piece. So much difference in visibility and nice reading and stuff. 116

(PR) For demonstration it's better. 117

(RWW) That was very interesting, we were trying to make our TV camera work on the IMLAC and we had this ugly big 25 inch Panasonic or something monitor. And it had, first the line had all kinds of reflections going back, so everything looked all kind of ghosty and so forth and so everybody was running around and brought 75 ohm resistors and they were fixing this thing up. And it never really looked very good. The little Sony worked reasonably good, but you couldn't see it the way things were working. And the IMLAC guys were watching us and they suddenly realized they had this big thing back there up in New York or Boston or where ever it is that they lived and a...They would look much better if they had their thing there rathere than this ugly TV thing we were trying to use. And the next day they had it there and plugged in when I arrived it sat there working. 118

(DCE) Just a funny little happenstance like that makes so much difference. That probably sold more IMLACS. 119

(CHI) Well the replacement costs for that, the big tube is only $1300 more than the little tube at time of purchase. And that really impressed a lot of people. 120

(KEV) Can we trade in our little tube? 121

(CHI) We asked them if they would buy the little ones back and they said yes. 122

(MDK) They said yes? 123

(CHI) Yes. 124

(MDK) Oh, I thought they said no. 125

(DCE) It makes it so that you I've never been able to look at an Imlac. It just looks so crappy, but that one is something else. 126

(CHI) Another interesting thing that happened was that there was this fellow Mike Hearn who is a physicist from Utah who was demonstrating some things that he had done using graphics on the IMLAC. And his programs ran on TENEX's so he had this program on every TENEX in the NET. And before his demonstration would start, well he'd just sort of start his demonstration by going around to each of the TENEX's and see which one had the lightest load, and run it on that one. And then if it would go, if that TENEX went away, he'd just immediately switch over to another one. And that really impressed people. That you could just go out there and use any one that you want. 127

(RWW) What was really funny was, he'd log into a TENEX and do a SYSTAT and it would say, "Load average 2.3" and he would say "Ah, too high a load average." Then he'd switch over to another one and it would say 1.5" and he would say, well that's pretty high," Then he'd switch to .9 "yeah, I'll use that one." 128

(JEW?) There were a lot of people using those kinds of figures. 2 was really high. 129

(CHI) Eleanor Wornheart, the girl who wrote SCHOLAR said she won't run it if the load average is over about 2 or 3, it is just out of the question. 130

(PR) Network analysis corporation told me exactly the same thing. That they alsy went all through the network to get what they want. 131

(JDH) Automatic program to select your computer... 132

(CHI) Some people have done some really neat things where you can sit down at several of the systems now and say "Link to such and such at such and such a site. And it does the connection for you and establishes the link and you don't even.... or "Where is somebody" and it will go around to all the different computers and see where he's logged in. Things like that that are really neat. 133

(RWW) It has a little table of the most likely places you're to be found. It first logs in and does it's own little systat to see if you are there and then it just starts doing a search through the network trying to find you. It's very far out. 134

(JAKE) Who has this? 135

(RWW) Some guys at MIT. Then there is this guy at BBN who's got this little program called CREEPER that it starts itself up on the BBN TENEX and then after a while, it sends out a link across the net to another TENEX and transfers itself with a little motor it's got in itself across to the next TENEX, and leaves a little record behind that it was there. Then it runs for a little while there, and opens up a connection and transfers itself across, and just wanders around the net. 136

(Laughter) 137

(RWW) And the guy can sit there with his TELNET and log into these different sites to try and find it to find out where it went. So some of the othere guys, well it was Ray Tomlinsin at BBN who was going to write program called KILL 138

(laughter) 139

(RWW)...which is going to walk through the net trying to find CREEPER and eat it. 140

(CHI) There was another very nice demonstration there, a guy wrote an air trafic control smulation that ran on three different computers with a fourth one monitoring them. 141

(RWW) How did he get into ours? 142

(CHI) I don't know. He could attach to any one of the ones that were running and they were essentially simulating different zones of air. I mean of different sections of the country. And he'd watch planes move from one to the other and he'd tap into each one and sort of watch what was happening. 143

(DCW) That is the groundwork for the distributed TENEX system. MCROSS. And the stuff they are learning about the Air traffic control system will be applied to the distributed TENEX. 144

(RWW) Where is that being applied now? 145

(CHI) At BBN. 146

(DCW) That's Bob Thomas who has a directory here who uses it to run MCROTH. That program has a neat attribute, it checks the load average itself. If it's too high, it doesn't run or it moves itself to another site. 147

(JAKE) What if it runs into KILLER? 148

(DCE) That's great. 149

(RWW) That's another thing. John Melvin wants us to get NLS running and to run it down on their machine down at ISI and do all our compiling or so forth. I guess their load avereage is fairly light and they've got a lot of people who want to use 'em, and they're afraid they'll come in and really gobble them up. I don't know why he's not afraid of us. 150

(CHI) He knows that we have the Utiltity on the horizen so... 151

(DCE) Yeah. They know us, is one thing. But there is a political thing, If they sit there not too highly loaded, then that looks bad from the ARPA offices point of view and they run around trying to find people to switch over to use them. But they fully expect users they want to build up in time. And they'd just as soon not have to fend with these earlier people. So if we got on and really raized the load average, it would be to their advantage. 152

Then John says, "Well what I'd really like to do is ARC people to reach through and use it and lighten your system so maybe a little more Network people can use it. And this comes along at really a beautiful time for us. And Charles was telling me how with in a months elapsed time or in one man-month or in some not too scarry software cost, that monitor interface that supported anyone in DNLS but did most of the work in somebody elses TENEX. And which if that worked, most of us who logged in to do NLS would be running down on that machine subject to their crashes etc. but probably smart enough to learn to copy our files down or do what ever you need to that way. But if that lightened the load on here and could encourage more network people on, we could start building up that market that's ready to start harnessing utility. It would just be great. 152a

(RWW) I started telling Marylin, this Computer Corporation of America where they are doing this Data Language thing could eventually use the lazer store and all that. And I told them we would like to archive our journal and other stuff on-line at some such site like his. He said, "Well, gee, I don't know how much stuff we got, we only got a billion characters. Course, he's been used to thinking in terms of trillions but right now he's only got a billion. Well I said, a disc-pack will do. 153

(DCE) Yeah, he's very much interested in helping ... 154

(CHI) What kind of store is that? 155

(RWW) Just disc-packs, he's just got a million disc-packs. 156

(DCE) He needs to justify his utility to the Network by getting customers. Well I guess it's time to quit. It was really a great conference and I had an unbelievable two weeks. I'm going to keep trying to develop this file that's a summary of sort of new activity possibilities. I'm also going to try to make some fairly detailed contact reports I want to have a fair amount of useful background information in it. I feel like just saying, well, National Bureau of Standards says they might buy fifty to twenty thousand dollars a year from us for utility. Or they are going to send two people here for two or three days DNLS training. 157

(RWW) I appologize for that. We were giving a demonstration to Ruth Davis when I was linked to Dave Hopper. She said, "How long will it take to learn DNLS?" and I said, "Oh, two or three days" so now she is going to send a few people here to test us out. I saw Metcalf do it in a day. 158

(DCE) Some other time when I kind of get these put together better and can sort them into the channels of activity they represent, I'd like to have another meeting to try to relate it to people. But just in summary about it, there really seems to be just an unbelievable amount of opportunity for us to get people started to use NLS invarious ways or get them to participate in some of those community things they want to do. Organizations that not only themselves would like to experiment within their organization, in a sensible way, but who's mandate, the topical work that they're doing has strong bearing on all of this so that very interrested in it from it's own self. I just feel like we've been through enough stimulus for today. Speaking for myself, I get too turned on when I start .... Is there any kind of wrap up thing about the ICCC? You were saying that we might spend a few minutes thinking about what did we learn that might be applied to future things? Is there any thing like that... 159

(RWW) Well I guess the key thing is I'm going to try to pull together from the people who went there and from anybody else who has any comments back here something about what we learned about what we should be doing or what we didn't do right that is sort of a summary of what we did. 160

(End of side 2, begin side 3) 161

(KEV) Can you give the next one one the West coast so we don't have to get up at 4am? 162

(laughter) 163

(MDK) We'll send you guys to Europe. 164

(CHI) Right. I personally sure would like to thank the people who worked back here. ...Priceless. 165

(DCE) And then I'd say everybody that went or stayed, It was a tremendous team effort. It was very very valuable in lots of ways, but it looked awfully good from the outside. It looked great to me. A lot of people strained important tendonds in doing it. 166

(HGL) When's the next one? 167

(DCE) (Laugh) Not too soon. 168

(RWW) You need one of those a year. 169

(HGL) One every two years. 170

(DCE) It came at a good time. The impact was high, I really don't wat to be repeating that, but it really would be hard to overstate it as far as what it ment as a landmark, I went around as I was leaving finding the guys around the network that participated the hardest and really told them that if you don't know it, you are a part of something that is really a very historical event. When somebody writes the history of computers as they evolved in our society, computers beginning to be a sharable thing over a network, is really going to have an awfully high impact. You know that event right there is really like, you know, Robert Fulton's Steamboat ride on the river or something. It is going to be a rare, really stand out. The way everybody here really got behind it during the summer.... 171

(RWW) I guess one thing we should say in closing is that the number of people there from foreign contries who are high up in ministries of communications or what have you was quite high. There were a lot of people, Great Britain sent over a team and Sweden had a team. France had a team and there were Germans running around and Chinese and Russians, and they were all sort of like all getting turned on by this concept of a network and talking about connecting their network into this network and in the background of the whole thing there were international working group meetings setting up protocols and planning for interconnecting these networks on a world wide scope. And we published some of the first procedings for that. Through NLS and through the send-print thing out the upper-lower case inktronic

that was there. So there was a lot going on at the conference even behind the scenes making the thing really a global thing. 172

(JAKE) Just one footnote too, Jeanne went to the ASIS meeting which is one of the biggest information library, you know, type meetings and she was connecting over to the ARPA network from that meeting and she said that had quite a reception too. Typing into our cataloging system and what-not. So that was interesting, connecting the two world thing. 173

(DCE) A lot of people are in a way sort of approaching us as though the Network is ours. I don't know if that's a very small percentage of people or not, but it happens. People say, "Well, how can I get on your network?" And it's not a very politic thing to propagate. 174

(laughter) 175

(DCE) But the thing that I think that, like you talk about the impact for us as for all the people who really start seriously seeing what networks could do and are going to go do them, and could get a look at what information services on a network meant by looking at what we do or doing about it. The number of peole who will be wanting to give some kind of service to some sort of network or community and for which the NIC and the NLS workshop kind of thing is probably the most advanced prototype we could find and to buy into the utility to support the initial experiments is the only way to go. This is going to propigate like crazy as one of the very important things we can get involved in. But I promised not to... 176

(HGL) What sort of discussion was there at the conference of what the networks were going to be used for. Most of the scenarios were games. And I know you were talking about a question, that sort of question comming up at MBS a few months ago. 177

(RWW) I think what happened in that room, in the scenario boolket itself, there were a lot of games, and low level kinds of things, but simultaneously there were guys doing the scenario things, there were demonstrations being given all over the room by guys from Utah showing their graphics stuff or somebody showing some physics stuff or this Air traffic control, or us demonstrating NLS so the network came across not as a trivial thing at all but as a real working cooperative, you know, sharing kind of thing. And all the kinds of things we were doing, the split screen sharing stuff were very important to those people who were watching it. Like you know Ruth Davis and other people who are

potential sponsers of our work and they were very turned on by it. 178

(JAKE) I know there are some plans afoot, and I don't know how far along they've gotten so I won't name names and associations but one of the very large technical associations in the country is considering a network of computation I guess for their area and they're considering putting this on the ARPA network and they are you know, really thinking about it very seriously and having committee meetings and so forth and so I really think the word has gotten out when major ... 179

(DCE) Theoretical Chemists? 180

(JAKE) Yeah, I didn't know how public that was but there were a lot of people that said, "Let's don't spend the money that way, we don't want to waste our money." And now they are coming around and saying, maybe we ought to look into this, Maybe it's not such a bad idea. 181

(DCE) That's one of the early prototypes of the kind that will be meaningful for us, they are ones for whom it will really pay off to share computer resources over a network, and using that transportation system like the ARPA network for it is very advantageous to their point of view so they will get a discipline oriented community using that. Those are the kind of communities that you can approach and say now that you have this and its paying off anyway, you want to start talking about centralized information services. Documentation production, dialogue, etc. 182

(JAKE) I've also had several people from other groups at SRI who have asked me, [...] "What programs are available and is there any way that someone in a research program that's [on] the ARPA NET. I said, I haven't been there long enough, give me a chance to find out whether we operate that way and if it is that kind of thing. It's something we might think about, whether people here could be an in-house user group. 183

(RWW) Well, if anybody wants to get into that kind of thing, they can dial and make arrangements with the AIMES TIP people to get a terminal and make arrangements to dial into the ARPA net that way if they have legitimate reasons like government contracts and stuff to use the ARPA net. They can't use our computer to do that. 184

(JAKE) Well, it was more of an idea of, you know, people suddenly wanting to know as close to the fact of their system network

thing set up. It's now gotten to the place of what's available around there... 185

(RWW) That's the resource notebook. 186

(JAKE) Yeah, but I think that's interesting NIC ... 187

(DCE) It's a lot of attitudes and political swirls going on in Washington. While on one hand the network and ideas are really swelliing up, then there is a certain ammount of opposition and reluctance to accepting the ARPA network as something to build on. But I really have been pushing hard on everybody that I have come in touch with and saying, "It's so important to get on now and start learning how to share resources and you can parallel in always better technology underneath perhaps, but it's gonna happen naturally. 188

I'm gonna shift gears because we'll break our arms patting our backs. We should all go to a party pretty soon. One thing I wanted to tell everybody about is the role Dave Brown is going to be playing and have him talk about it too. I have spoken a number of times from last spring on about a steering committee composed of Dave and Bart Cox, and Don Scheuch who is vice president that Bart reports to, that a steering committee be set up to help ARC and I have started saying, Help. And just looking, and just anticipating the swirl of opportunities that are going to arise, and the kind of strategic ideas like communities of various kinds and running utilities has very real possibilities in our near future. 188a

I just knew that we had to begin getting ready in ways that we were'nt. Some of that readyness has to come from SRI in anticipate things like space, personell requirements, and such things as odd and different kinds of business relationships, contracting relationships we'd be getting involved in. Like running that utility. We're sort of acting like retailers but being responsible for the financing of a utility center. If we start getting involved with some of these communities, there are going to be things like a very real net worth that are going to start accumulating just in one of those communitites. And if we get it going and start organizing it, what corporate entity is going to essentially be the owner of that accumulating net worth and how can they be dispensed with if and when that thing disbands and transfers. 188b

Well many of these kinds of questions have to be dealt with. But one very important one has to do with the way we organize and the way we manage. And I finally sort of disparred of

finding a way myself of designing our organization in a management approach and then installing it and following through on it. Wether or not I do that well or not, I'm involved on one hand in so subjective a way and so are all of us that it's very hard to be objective coordinator. But it's a big tough problem and as our operation becomes more complex and more pressure, there is a real question as to SRI as a corporation having a strong role in the operational management kind of thing. That is the new schedules. 188c

Hireing people. Seeing that resources aren't overextended. Seeing that people are talking to each other, that things are reviewed that if you have a plan that's afoot and the guys that're technically involved decides that we should review it every month and these people should do it. Alright, where, the guys involved are not very good guys you can get really sticking to that and it's kind of decayed into reviewing processes that start getting things into the reviewing processes. Many things like this that you call mind management sorts of needs and I really asked this committe to see how they could help me and us. 188d

And so what the committee did was appoint Dave as their legman. To come in, penetrate our organization and learn enough aoout it to come up with that kind of external recomendation. But that means there'd be a. What we are sort of assuming is there will be a sort of negotiated recomendation that fits what many. Anybody is welcome to contribute any of his ideas and biases, but as a subjective evaluation and some kind of net agreement among the affected parties and in the end we are starting to sort of negotiate our way into a new organizational structure and one of the things that obviously I'm looking for is the role for me that fits my personality and in the way I can help the best. There are ways that most other people too to contribute better. So I don't want to get too mystical about it. Nothing is going to happen in any fell swoop so that's all I'll say and then Dave, you can answer any questions. 188e

(DB) As Doug mentioned, I think it has been very important for this committee with Don Scheuch and Bart Cox and myself sort of representing SRI management or SRI to understand better what ARC's long range goals and plans are and what this is going to mean to SRI. And I think that SRI management has to really understand where ARC is going and believe in it and maybe shape it a little bit. But help ARC get there. The thing that I'm concerned about now on behalf of this committee is the organization and management of ARC. We think it can be improved,

that it's got to be an effective organization and management to go where it wants to go in the future and that it,... 189

My job is to learn about what some of the problems are, about what the present situation is and what can be done to help improve the way things are done to make the management and operation of this place more efficient so that everybody understands it and it's a system you all think can work and have confidence in yourselves. The committee wants to move in that direction and will be making recommendations and negotiating changes with Doug, the EMC, the ARC. And I don't think anything is going to happen that's sudden and drastic and new and suprising. I'm hoping we can do some things, some significant things that we will all see are the way to go fairly soon. 189a

But there will be a evolution instead of a revolution. I'm still the Director of the Information Science Laboratory so I can't devote all of my time to this. I'll devote as much as I can. I think I'll devote half of my time. I hope to talk to each one of you. Some of you repeatedly and feel free to stop me and give me your ideas or impressions. Give me a call on the phone or drop in to my office any time. I'll be up here talking with you a great deal so you'll be seing me around. 189b

(DCE) His office is right under John Winsley's. Does that mean anything? Right down stairs from JAKE's office, shop. Do we have enough space Jim? Do we have a spare office that... 190

(laughter) 191

(CHI) What about the corner room right over there? 192

(JCN) Yes 193

(WLB) I mean, is it safe to tell him that we have a spare office? 194

(DCE) Well there is a little exercise that everybody at SRI has to go through about this time of year called Budget. And we have to stop and reflect on how would a place like this have any way of keeping track of itself and know whether or not it can invest in a new building or this or that if it didn't plan ahead and watch and monitor whether if what it expected to happen next year started to happen or whether they got way off. So they have a budget and every group puts in how much it expects to bring in of different kinds of funds and the number of people it expects to have during the different parts of the year and .....all of this gets made up so the institute gets an idea of how much income

it's going to have and how much it can invest in various parts and they keep monitoring that by the four week period. 195

Some guys are sweating a lot if there is drops. So ours for next year had to go in and this brought up this funny question of what do we guess we can, how many people and all that. We ended up being conservative about it saying that the contracts we have in effect now, the number of people that that can afford. But many people have to put in things that are very probablamatical that have no idea where their dollars are going to come if they're coming toward the end of next year. And if we put in something that's as problamatical as that. There would be twice as many people. 195a

So at least Dave and Bart should be made aware that. This we know we can do and there is someplace in this that we could do and that real question like saying, "By the middle of 1974, thinking of size, there may Be 100 people involved in all these various activities stemming from where we are at now." That's a very good possibility so you can percieve that there are a lot of questions about coordinating, managing and all of that that are on top of or next to, associated with a sort of strategic and technical and architectural ones of what to do and sort of how technically and substantively to do it. Choose the coordination of it and take contracts from 27 different people to participate in something, that means a lot of businesslike ways of where that's going and who's doing what about it. 195b

Well I'm very pleased that it's Dave that's comming in. We've had a long association and it's always been a good one and he knows probably better than any outside guy. Outside guy inside SRI. So you can trust him absolutely. 195c

(DB) Thankyou 196

(DCE) Which turned around another way means, "He wont tell me what you tell him." (laugh) If you want to tell him how you think things ought to be done, or who ought to have a say around here and you think that would horrify me, then don't be afraid to tell him because he's here to listen. 197

(DB) I don't expect any difficulties on that score. 198

(DCE) I want to go to Cindy's party pretty soon and I guess I'll see you people later. 199

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USER ALLOCATION BY GROUP ACCOUNTS

(FIRST DRAFT)

1

INTRODUCTION 2

When left uncontrolled, the computing load of our system is now often deteriorating beyond the point where the response time -whatever we define it to be- becomes intolerably bad. Hence, some corrective actions are needed if we want to improve this situation which at times prevents everyone from getting normal service. 2a

The present difficulty stems from the fact that the total utilization of our system has increased quite significantly over the last months and that we are now running out of computing power. We are compute bound, and our real problem is that we must somehow monitor user computer access during peak working hours. We can no longer avoid it. 2b

On the average, our system becomes very sluggish when the number of active users exceeds the 20-21 level. At that point, the average load factor, which measures the number of "go" jobs in the system, climbs rapidly above the 6-7 level with the consequence that all interactive computer usage deteriorates quickly. The phenomenon is somewhat similar to the traffic on a freeway where a few extra cars can slow down all traffic beyond tolerance level. The marginal cost simply becomes prohibitive. 2c

To establish a better cut-off point, we are presently attempting to establish the average response curve of our system as a function of the number of active users. But, it already appears that the total number of users should never be allowed to exceed the 20-21 level. Therefore, the decision we have to make boils down to deciding how this limitation should be enforced and how user access to the system should be monitored. The real problem is how to allocate in an efficient fashion scarce time sharing resources in order to eliminate the frustrations of the presently generalized first-come first -served "grabbing" system.. 2d

Many ad hoc solutions come immediately to mind when one first considers the problem. In the short run, they would probably alleviate the present situation. For instance, an upper limit on the total number of users allowed to log in at any point in time (15 ARC users and 8 network users before 2 p.m. and 18 ARC users after that time) will probably preserve to some extent an adequate on-line working environment. But, in the long run, such a solution will be inadequate, and a more comprehensive monitoring system will be needed which will take into account the basic priorities of ARC considered in their economic environment. It is the purpose of this memo to open the discussion towards the design of such a system. 2e

We first look at the ARC environment in an attempt to determine what general principles should be followed in a logical sequence of steps leading to unobtrusive but appropriate user control.

2f

BACKGROUND REFLECTIONS ABOUT THE ARC ENVIRONMENT 3

ARC is an "information laboratory". As such it is probably the first one to have all the major attributes of a true experimental laboratory where systematic experimentations on information handling procedures could be carried out. 3a

Indeed, it is general enough to allow on-line simulation of a very wide variety of information processes. It is flexible enough to be adaptable to almost any real life information handling situation one wants to consider. Furthermore, we can easily design and develop almost any additional tool or procedure required for experimental purposes. Finally, and most importantly perhaps, we have an extremely valuable pool of utilization expertise which is available to support effective research in experimental information science. 3b

These are our assets. We must jealously preserve them against erosion and mismanagement. In particular, it seems essential that we do not put any undue restraints on the freedom of access to our on-line system if we are to preserve the concept that we have indeed an information laboratory in a nearly normal working environment. 3c

In order to create as natural an "information handling environment" as possible, everyone within ARC should be garanteed as liberal an access to the system as possible. This would give us the advantage of a true on-line organization which can be effectively observed and analysed. This will open the doors of experimental information science. 3d

Consequently, we should be quite careful not to destroy by thoughtless regulations the "information lab" we have so painstakingly built up. It has now great value. 3e

All these considerations lead us to the following utilization principles.

3f

BASIC UTILIZATION PRINCIPLES 4

(1) Within reasonable limits, we should strive to allow as much as possible free access of our on-line system to all ARC users. 4a

(2) If this is impossible, we should try to preserve a natural job mix in order to prevent at any point in time any particular user group to preempt the whole system for its own parochial needs. 4b

(3) Whenever feasible and convenient, we should try to reschedule working hours in order to spread the system utilization over more than the regular working hours. There is still significant idle time waiting to be used early in the morning, in the evening, late at night and during the week ends. It is there, and the marginal cost to us is negligible. Why not use it? See the monthly time-plot of the average idle time (IDL) in the appendix. 4c

(4) If further control becomes necessary then a monitoring system must be introduced. The first objective of such a system should be to make all users aware of the scarcity of the resource they are using and thus foster a certain measure of resource management at the user's level rather than at the organization level. Simple awareness of the real value of the resources being used will naturally eliminate some of the most questionable marginal applications and thus alleviate to some extent the present congestion of the system. 4d

(5) Finally, it has been shown that if control is indeed needed, then the most practical, unobtrusive control is a group allocation system whereby groups of users are allocated utilization quotas which can effectively limit the number of users belonging to this group. It has the advantage that within groups easy informal arrangements can be made which allow effective adjustment to particular situations. 4e

We propose that such a system be implemented within ARC. 4f

USER CONTROL BY GROUP ACCOUNTS 5

Basically it has two major aspects, namely: 5a

1) An upper bound on the total number of users allowed to access the system at any point in time is established. This upper bound, which will effectively limit the total number of users allowed to be on the system, could be either a specified parameter which will be evaluated periodically or a calculated function of prevailing load factors and desired priorities. A combination of both might probably be the best solution since the load average does vary with user populations. However, initially, a fixed parameter would be easier to implement. 5a1

2) A group allocation subsystem which will control the access to the time sharing system, manage individual priorities, and determine who should be logged out whenever the number of users exceeds the preceding upper bound or whenever any situation develops which requires a load "tear down". Its basic function will be to preserve at all time a negotiated job mix which will maximize, in the long run, the overall utilization of our system. 5a2

This group allocation subsystem will be enforced as follows: 5b

1) Each user of the system will belong to a natural user group and to one group only. 5b1

2) Each user group will be entitled to a certain "priority quota" which will be established either by group negotiation or by managerial decision. This implies that a given user group will be guaranteed computer access for a number of its members equal to its quota. It should be pointed out that this quota does not have to be constant throughout the day, but could very well change over time (either during the day or over the week) to better accomodate group needs. 5b2

3) When a member of a user group wants to log in, three cases might occur, namely, 5b3

a) The number of logged in users of the group is less than its total quota. In that case, the user can log in under the group's "quota priority" which means that he can work on the system as long as he wants without any further restriction from the system. 5b3a

b) The total number of logged in users of the group has reached its allocated quota, but the total number of users of the system is below its upper bound. In that case, the new user can log in under an "off-quota" priority. If he chooses to do so, he will then be monitored by the "off-quota" queueing system described below. 5b3b

c) The total number of logged in users of the group has reached its allocated quota, and the total number of users of the system has reached its upper bound. In that case, the user is denied access to the system until either condition (1) or (2) are met again. However, two exceptions will be considered and discussed below. 5b3c

4) Under the "off-quota" priority system the user's name is put into a first-in first-out (FIFO) priority queing system. When the total number of users of the system exceeds its allowed upper bound the user whose name comes first on the FIFO off-quota list will be asked to log out, or be logged out automatically if he does not comply with that request within a reasonable period of time. 5b4

5) A given user's priority may change. This occurs when a quota user logs out. He is then replaced on the quota priority list by the user of his group whose name is found first on the off-quota list. Thus the priority status of the latter is changed and his name is dropped from the off-quota priority list. 5b5

6) Express Terminal.

One exeption to the above priority system should be for very short jobs such as submission of a message, submission of a journal item, minor changes in a file, and quick checks and printouts. For such cases it is suggested that an express terminal be created which would be exclusively reserved for short jobs, say for less than 10 minute jobs. Furtermore, for people working from home or other distant stations from which they cannot easily access the express terminal, an express priority could be created which would allow them to log in under the express terminal's quota for short periods of time only. 5b6

7) Visitor Priority.

Another exception which might be considered is a "visitor" priority. Under such a priority, any member of ARC, or any authorized personnel only, should be allowed to log in for demonstration purposes. This would allow easy access to a terminal without having to make special visitor's arrangements. This type of priority should have precedence over all "off- quota" priorities and, when the system is fully busy with quota users it should have precedence over a predetermined quota user such as, for example, a staff user or a PSO user. 5b7

8) Finally, it should be noted that some authorized users might not belong to any priority group and, consequently, would only be allowed to use the system under "off-quota" priority.

5b8

DISCUSSION 6

Group Allocation 6a

User control by group allocation deals with the three major aspects of the problem of controlling computer access in a fully loaded time sharing environment. 6a1

1) First, it guarantees adequate responsiveness by appropriate restriction on the total number of simultaneous users. 6a1a

2) Next, it guarantees computing allocation to the various groups of users which will respect existing contractual agreements. 6a1b

3) Finally, it allows better work load scheduling by reducing that problem to smaller, more manageable scheduling problems within more homogeneous user groups. This will allow informal arrangements which can better take into account personal values and minimize potential conflicts. 6a1c

Some Economic Considerations 6b

When the system is not fully utilized the marginal cost for an additional user is negligible. Therefore no matter what formal agreements have been passed, it makes good economic sense to make easily available any unused computing power to other authorized users who need it.The "off-quota" priority system clearly achieves this goal while strictly protecting existing contractual agreements. Under that type of arrangement, only computer access under fully loaded conditions, is therefore being effectively priced. This is likely to be good economic strategy for the expanding bootstrapping community. 6b1

For the sake of completeness, it should be added at this point that a price allocation system is usually very difficult to implement in a non market situation. This is especially true in an R&D environment and therefore we believe that it would be a mistake to consider it for ARC. 6b2

However, difficult negotiations between user groups might arise and the question of pricing for prime time quotas will inevitably come up. In particular, this might happen in the context of the information utility we are planning. In that case, a bidding strategy might have to be considered if approximate time partitioning is not satisfactory. 6b3

Group Statistics and Priority Status 6c

To plan effectively his work schedule and to make it compatible with his group's schedule, a user needs specific information about the status of the system, about his group's utilization statistics, and about his and his group's current priority status. Hence, that information must be made available to him in a convenient form. 6c1

This will require the development of an appropriate user monitoring system which will keep track of relevant group utilization statistics. It will also require some new commands at the monitor level to be able to access easily that information. 6c2

The following is a very sketchy list of needed information. 6c3

a) System status 6c3a

The usual information plus, possibly, a breakdown by user priority groups. 6c3a1

b) Group status 6c3b

Group Status would indicate what users are logged in from that group; since when; how much CPU time used ; group priority status ordered by arrival time to show relative queueing positions. 6c3b1

c) Priority status of the user 6c3c

Priority Status would indicate whether the user is on a quota or off-quota priority. This command will be necessary when someone is leaving the system and another user becomes a quota user. The latter must be able to check his quota status. 6c3c1

d) When we log out, we should be given, besides the time we spent on that session, the total time we spent during the week both on quota time and total time. It could also indicate the number of times a user logged in and the average connect time. The ratio of CPU time over connect time might also be a usefull parameter. 6c3d

e) Finally, in some cases, we should be able to log out one user and replace him by another user without having to go through the regular log in procedures and without loosing the first user's priority status. A procedure allowing that operation would be useful. 6c3e

f) Note about the Command "Refuse Autologout".
This command should be deleted. However, instead of automatically logging out a user who has been inactive for more than 10 minutes, he could be put first, if at all possible, on the "off-quota" priority list before being logged out definitely.

6c3f

TENTATIVE GROUP ALLOCATION FOR ARC USERS,

7

The following is an attempt to divide all ARC personnel into roughly homogeneous user groups and allocate to them the priority quotas shown in the table below. It is essentially given for illustration purposes. However, should practical implementation be considered, it could also serve as a starting point for practical discussions on the topic because it corresponds roughly to past utilization behavior.

7a

Possible ARC User Groups. 7b

Groups	Potential Users
A	DCW, KEV, WRF, DIA, MEH, EKV, JCP
B	CHI, DSK, WLB, JFV, JDH, HGL, CFD, EKM, WHP, XEROX
C	KFB, KIRK, LLL, SRL, BER, MEJ
D	JEW, JBN, EJF
E	DCE, JCN, RWW, MDK, PR, MFA, BAH, NDM, DVN
F	RADC
G	Network Users
H	Overhead Users

7b1

Note: The four overhead users will be logged in permanently and will therefore preempt that many quota priorities. 7b1a

- Express terminal,
- Background, and
- Printer
- Operator

7b1a1

Tentative Group Allocation for ARC 7c

	Time					
Groups	0–9	9–12	12–13	13–14	14–16	16–24
A	1	1	2	2	2	2
B	2	4	8	4	5	6
C	2	2	0	1	1	1
D	1	1	1	1	2	2
E	2	2	1	3	4	4
F	5	3	1	3	1	1
G	4	4	1	3	2	2
H	4	4	4	4	4	3
Total	21	21	18	21	21	21

7c1

SOME AVERAGE UTILIZATION STATISTICS 8

Between September 23 and November 15 the following users were the top 20 users of our system. 8a

Top twenty Users	% of CPU Time	
Documentation	7.0	
KEV	6.1	
Catalog	6.0	
DCW	4.9	
Operator	4.2	
JCN	4.2	8b1
Mitchell	3.5	
JCP	3.5	
DSK	3.2	
WRF	3.2	
HGL	3.2	8b2
CHI	2.8	
MEJ	2.5	
Gilbert	2.5	
ICCC	2.2	
MFA	2.1	
WLB	2.0	8b3
DVN	1.9	
CFD	1.8	
JEW	1.8	8b4
Total	68.7	8b5

The next 10 users have used another 13.1 % of our user CPU time (rougly all available CPU time less the overhead, i.e., approximately 65 %) and the following 10 users took another 9.3 %. Thus, the top 40 users have used 91.0 % of all user CPU time, while the next 60 users used less than 10 %.
73 % of all users have used more than .1 % each. 8c

Percentages of User CPU Time Consumed by the Various Groups

A		B		C		D		E	
KEV	6.1	DSK	3.2	MEJ	2.5	JEW	1.8	JCN	4,2
DCW	4.9	HGL	3.2	KIRK	1.4	JBN	.7	MFA	2.1
JCP	3.5	CHI	2.8	LLL	1.1	EJF	.7	DVN	1.9
WRF	3.2	WLB	2.0	BER	1.1			DCE	1.4
DIA	1.1	CFD	1.8	KFB	.2			MDK	1.1
MEH	1.1	JDH	1.4	SRL	.1			PR	1.1
EKV	0.0	JFV	0.4					BAH	1.1
		WHP	0.3					NDM	1.0
		EKM	0.1					RWW	.7
		XEROX	9.0						
Total	19.9		24.2		6.4		3.2		14.6

8d

Background System Users 8e

Documentation	7.0
Catalog	6.0
Operator	4.2
System	3.0
Background	2.0
Printer	1.0
Total	20.2

8e1

During the same period RADC used 2.4 % of the user CPU time and the Network users another 6.3 %. 8f

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EKV QUESTIONS FOR MOTGEN

+ If at all possible could you please obtain the following information for me by 12/18/72. I would like to get it together for analysis and action as soon after this date as possible. 1

[EKV] What ARC equipment is sensitive to power fluctuations or outages? 1a

+ Reply thru the journal OR In my scratch file:
It is a file with write protection off (any user can write on it). 2

J(jump) L(link) (HARDY,MEHEKV,1:whyi;"[EKV]" -'*) 2a

- Insert reply one level down from each request 2b

- Please asterisk each item you reply to immediately preceding [initial]... ie: [initials]*
This enables me to sense your replies

WHEN FINISHED 2c

- U(update) O(old) ca ca
OR 2d

- O(output) F(file) MEHEKV.nls;1;p777777 2e

- THANK YOU.... 2f

3

MEH 13-DEC-72 12:54 13228

EKV QUESTIONS FOR MOTGEN

(J13228) 13-DEC-72 12:54; Title: Author(s): Hardy, Martin E./MEH ;
Distribution: Van De Riet, Edwin K. (Ed)/ekv ; Sub-Collections:
SRI-ARC; Clerk: MEH;

MEH 13-DEC-72 12:31 13229

MDK QUESTIONS FOR MOTGEN

+ If at all possible could you please obtain the following information for me by 12/18/72. I would like to get it together for analysis and action as soon after this date as possible. 1

[MDK] Shell information on AC line recording techniques. 1a

[MDK] What kind of back-up or cushioning does Tymshare have for PG&E fluctuations or outages? 1b

+ Reply thru the journal OR In my scratch file:
It is a file with write protection off (any user can write on it). 2

J(jump) L(link) (HARDY,MEHMDK,1:whyi;"[MDK]" -'*) 2a

- Insert reply one level down from each request 2b

- Please asterisk each item you reply to immediately preceding [initial]... ie: [initials]*
This enables me to sense your replies

WHEN FINISHED 2c

- U(update) O(old) ca ca
OR 2d

- O(output) F(file) MEHMDK.nls;1;p777777 2e

THANK YOU 2f

3

MEH 13-DEC-72 12:31 13229

MDK QUESTIONS FOR MOTGEN

(J13229) 13-DEC-72 12:31; Title: Author(s): Hardy, Martin E./MEH ;
Distribution: Kudlick, Michael D./mdk ; Sub-Collections: SRI-ARC;
Clerk: MEH;

MEH 18-DEC-72 14:17 13230

EKV Questions About Documentation

[EKV] In order to get started on hardware documentation, and see where we are going, I need you to prepare for me the following: 1

- Break-down of the types, as you see them. (ie: circuit diagrams, flows, blocks, etc). 1a

  With each give a brief descripttion of what it looks like (long if necessary). 1a1

- From this we will plan the start. 1b

+ Reply thru the journal OR In my scratch file:
It is a file with write protection off (any user can write on it). 2

J(jump) L(link) (HARDY,MEHEKV,1:whyi;"[EKV]" -'*) 2a

- Insert reply one level down from each request 2b

- Please asterisk each item you reply to immediately preceding [initial]... ie: [initials]*
This enables me to sense your replies

WHEN FINISHED 2c

- U(update) O(old) ca ca
  OR 2d

- O(output) F(file) MEHEKV.nls;1;p777777 2e

- THANK YOU.... 2f

MEH 18-DEC-72 14:17 13230

EKV Questions About Documentation

(J13230) 18-DEC-72 14:17; Title: Author(s): Hardy, Martin E./MEH; Distribution: Van De Riet, Edwin K. (Ed)/EKV; Sub-Collections: SRI-ARC; Clerk: BER;