NJN 27-DEC-72 13:36 13524

Imlac help

Larry -- I'm afraid your description of your Imlac configuration was too minimal for me to give you any real help. I need to know: 1

how much core -- 4k, 8k? 1a

any hardware options? 1b

connected to what? the TIP? SAIL? some other host? 1c

does it allow TTY loading or only via PTP or cassette? 1d

why isn't TSE (the Imlac package) enough? 1e

is your Imlac an alpha model or a graphic model? 1f

Also do you want games to play, such as LIFE at BBN or DMCG and Space War at DMCG, or do you want a simple graphic language so you can write your own programs? I'm not even sure the latter exists as a higher level language. 2

Barring all of this, DMCG has an Imlac assembler and loader for tty loading of any type Imlac (Jerry Powell of Mitre got his from them) and many games; BBN has many programs but all for maximal Imlacs with 16k of core and all the options, also LIFE which can be run even on a tty; Don Walllace at SRI=ARC might be a first reference for building Imlac progs from scratch; and UCSB has some simple games you can play. 3

If you are more specific with me I can be more specific with you. 4

NJN 27-DEC-72 13:36 13524

Imlac help

(J13524) 27-DEC-72 13:36; Title: Author(s): Neigus, Nancy J./NJN;
Distribution: Masinter, Larry M./LMM; Sub-Collections: NIC; Clerk: NJN;

NJN 27-DEC-72 13:45 13525

bigger and better tips

Buz-- You found a bug in the new reset command. But Nancy Mimno has fixed it already. It won't happen again.
Your extra core (in a second cabinet) will be installed on Jan. 4. There is a possibility of having 2 more modems without an extra drawer. If you want more than that let us know in advance.
--Nancy Neigus 1

NJN 27-DEC-72 13:45 13525

bigger and better tips

(J13525) 27-DEC-72 13:45; Title: Author(s): Neigus, Nancy J./NJN; Distribution: Owen, A. D. (Buz)/ADO; Sub-Collections: NIC; Clerk: NJN;

NJN 27-DEC-72 7:15 13526

belated merry eksmess

Your socket suggestions seem fine. No Tenex is required to change more than two sockets, including BBN who can be counted on to be the most recalcitrant. They probably are not going to like changing CPYNET, but now that FTP is here, CPYNET is supposed to fade away. Tomlinson will probably dump it rather than change the numbers, but may not want to do that for a while--e.g. until FTP is better established.
I didn't understand your message about links; the numbers didn't add up, and I guess I just didn't understand your accounting. Please re-explain in more detail.
I hope you had a good Christmas, and same for New Year to come.
--Nancy 1

NJN 27-DEC-72 7:15 13526

belated merry eksmess

(J13526) 27-DEC-72 7:15; Title: Author(s): Neigus, Nancy J./NJN;
Distribution: Postel, Jonathan B./JBP; Sub-Collections: NIC; Clerk: NJN;

RWW 27-DEC-72 10:17 13527

Please Please Improve the Quality of the Displays

The quality of the displays keeps going downhill; the one I'm at now tasker 10 is very hard to read. Some of the mouse button pushes don't seem to get in also.
I request that operations put making the displays readable a much higher priority item, they have been bad like this for to long. 1

RWW 27-DEC-72 10:17 13527

Please Please Improve the Quality of the Displays

(J13527) 27-DEC-72 10:17; Title: Author(s): Watson, Richard W./RWW;
Distribution: Norton, James C., Hardy, Martin E./jcn meh ;
Sub-Collections: SRI-ARC; Clerk: RWW;

D.C. Engelbart: SRI-ARC Summary for IPT Contractor-Meeting

(J13537) 11-JAN-73 13:51; Title: Author(s): Engelbart, Douglas C./DCE ; Distribution: Watson, Richard W., Norton, James C., Van Nouhuys, Dirk H./rww jcn dvn ; Sub-Collections: NIC; Clerk: KIRK; Origin: <ENGELBART>BSUMRY.NLS;4, 11-JAN-73 13:41 KIRK ;.DIR=1;
.HJOURNAL="DCE @GDATM; 13537"; .DLD='@; @HED=
"D.C. Engelbart: SRI-ARC Summary for IPT Contractor-Meeting ";
@LBS=1; @MCH=65; @SNF=72; @DLS=1; @PGN=0; @PES;
@HRM=72; @F="@SPLIT;Page @GPN;"; @FRM=72;

INTRODUCTION 1

It is relevant to summarize the basic terms of ARC's current contract with IPT; they were settled upon in June of 1971, and have essentially been in effect through the calendar year of 1972: 1a

Our work is focused entirely on developing and delivering certain types of operational services through the ARPANET -- we are explicitly broadening the range of our work beyond exploratory development to include special, exploratory-application forms both of service/product development and of operational service support. 1a1

The services are to support exploratory application of the intellect-augmentation techniques whose evolution and transference to users are the central, continuing vector of the Augmentation Research Center. We are now using the term, "Computer Based Knowledge Workshop" (or simply, "Workshop") to refer to the coordinated system of augmentation techniques within which the "knowledge worker" (who is our end-user target) does his "knowledge work." In the contract, the specific service items listed were: 1a2

The Network Information Center (NIC) 1a2a

Dialogue Support 1a2b

Documentation Production and Control 1a2c

Software-Engineering Augmentation 1a2d

System-Developer's Handbook 1a2e

System-Developer's Baseline Management 1a2f

Collaborative System Evolution 1a2g

NOTE: A different and perhaps more useful categorization of the Workshop services we now consider is described in in the paper, "Coordinated Information Services for a Discipline- or Mission-Oriented Community," by D.C. Engelbart, 12 Dec 72 (Available from us under ARC/NIC No. 12445, and also to be published in the Proceedings of the Second Annual Computer Communications Conference, San Jose, California, 24 Jan 73). 1a2h

For each category of Workshop service we proposed three primary aspects among which we would expend development energy: 1a3

Functions -- the repertoire of transactional capabilities, their functional effects, and the control language and protocol involved in each service; 1a3a

Delivery capability -- the means and techniques that support delivery of such functions to remote users, who would need support from both computer and people services; 1a3b

Marketing capability -- the means and techniques for setting up and evolving the service-support arrangemnts, within the shifting, experimental environment of the Network community, for interested groups to actually try integating our services into their work. 1a3c

IPT support is divided as follows: 1a4

Forty percent for the NIC, for both development (of function, delivery, and even a bit of marketing), and for the operational marketing and delivery of its services. 1a4a

Sixty percent, for developmental work only, in the other service categories -- it being understood that any subsequent operational business in marketing and delivering "workshop support" services to subscribers would be a separate business matter beteen us and the subscribers. 1a4b

Our aim is not at all to remove ourselves from the exploratory R&D business; rather we are investing in a strategy that is aimed at several results: 1b

To experiment with new means for consciously pursuing socio-technical innovation; 1b1

To experiment with new ways in which discipline- or mission-oriented communities can do their work; 1b2

To exercise the ARPANET in its experimentation with the sharing of distributed computational and data resources; 1b3

To demonstrate that perhaps the most important resources made "sharable" by a multi-access computer network will be

those represented by the elements of knowledge, skill, judgement, intuition, conceptual skills, etc. distributed among the humans in the Network community; 1b4

To promote a more significant and efficient exploration of Workshop augmentation needs and possibilities -- among a variety of application groups who can share in the use of a solidly supported base of Workshop-support tools and services, and who can each contribute in important and gratifying ways to the continuing evolution of that Workshop base. 1b5

WORKSHOP UTILITY DEVELOPMENT 2

For the past year we have been working toward the establishment of what we call a Workshop Utility service. Its basic, computer-support component is to be furnished through the ARPANET by a TENEX facility at the site of a commercial time-sharing company, who will install, maintain, and operate the facility under contract to us. We will maintain in that facility an especially solid, less-experimental version of NLS, and we will take contracts for its usage. 2a

We sent out an advertised RFP, and ended up with four companies submitting proposals. From among these, we have selected TYMSHARE for next-stage negotiation. Concurrently, we are actively seeking clients to subscribe to the Service -- offering service modules that are fixed proportions of the Utility's computer capacity over a one-year period. Our tentative plan is to launch this service about September, 1973. Along with each portion of NLS computer service, the Workshop Utility will include a certain proportion of technical support. 2b

We aren't going commercial with this enterprise; this is but a step, consistent with the contract provisions descibed above, toward the aims outlined in Branch (1b). We are looking only for clients of the Workshop Utility who plan to use it in the exploratory mode -- to apply it in prototype applications where it is to their advantage to experiment with a solidly supported but still early model of an augmented Workshop, and/or where it is to our advantage to have their particular experimental applications providing a special kind of orientation, stimulation, feedback, etc. to the benefit of the ongoing Workshop evolution. 2c

The experience and developments outlined below for this past year are all very much relevant to increasing our ability to

support a Network Workshop Utility, and to increasing the value of that Utility to serious-user clientele. 2d

OPERATIONAL RELIABILITY AND EFFICIENCY 3

Toward these ends we have been investing at least ten percent of our manpower. We have experimented with roles and procedures, with maintenance schedules and policies, and with software conventions and practices. We implemented a relatively comprehensive operating-system measurement system (SUPERWATCH) for TENEX, and have been learning very useful things from analysis of the measurements. 3a

For over six months a seasoned operations research man has been studying both the SUPERWATCH measurements and our user operations; he is helping us understand the dynamics of our service loading, and he has been the architect of a plan involving grouping and resource allocation at an organizational level, together with special TENEX-schedular conventions and practices, for partitioning and scheduling loads and service. This is an important step toward understanding how to provide sophisticated computer services in a Workshop environment. 3b

DISTRIBUTED-SERVICE EFFORT 4

Serving a distributed user clientele is a basic problem for any Network Service; and we have been struggling and learning with/about problems and needs. An overwhelmingly strong impression we now have in this respect is that, until the services available to them (including their terminals and their way of using them) become integrated into their way of life like the telephone system now is, the distributed clientele of a powerful computer-support system won't successfully become established or make significant use of the service without a very active effort explicitly involving personal contact and a goodly amount of direct personal support. 4a

This realization has affected our development priorities, and will be reflected as much as possible in the operational services of the Utility. For example, we have known that remote availability of DNLS (Display NLS) would ultimately be very important, but for the NIC we had assumed that most of our clientele wouldn't have the terminal equipment to make use of it, and therefore NIC service has concentrated quite a bit on TNLS (Typewriter NLS). 4b

A workable network DNLS was eventually developed in time for the ICCC (with specially programmed IMLAC terminals, and thanks to generous last-ditch push by Peter Deutsch of Xerox). 4b1

We have for some years had DNLS features that allowed people at two different consoles to link screens, and by simultaneously talking on a telephone they could collaborate as though standing together in front of a (very special) blackboard. For the ICCC, we made the necessary modifications so that this feature would work on the IMLAC terminals, too. 4b2

Subsequently, we have used this feature to work with people at RADC (in Rome, New York), who are just beginning to experiment with Network-supported DNLS. This shared-screen mode of dialogue turned out to be such a powerful means (dramatically so) of providing direct personal support, that it makes clear to us that every Workshop Utility client site should be equipped with at least one DNLS terminal to support this kind of direct, personal help from the Utility (not to speak of the significant value for use in tele-conferencing dialogue among fellow Workshop Utility clientele). 4b3

Among the other developments we made toward improved, distributed service were the following: 4c

Special means for directing formatted-page output to local printers tied to a TIP, including page-at-a-time delivery to typewriters not using pin-feed paper. 4c1

A very simple "Query" interface to NLS files, allowing search through NLS reference files (especially the NIC Locator set) with essentially no training (except for how to reach us through the TIP and how to log into TENEX). 4c2

Improvements to the IDENT and distribution facilities of the NIC Journal. 4c3

A highly automated process for producing NIC catalogs 4c4

Close involvement with development of the Network File Transfer Protocol -- which is an important ingredient in the kinds of information services both NIC and the Workshop Utility will offer. For example, to transfer files generated from other editing systems into the Journal for distribution, cataloging, and archiving; or for delivering

online Journal memos to the recipient's site for printout; or for using special Network file-management resources to store our ever-growing collection of online material. 4c5

WORKSHOP FUNCTION DEVELOPMENT 5

Professional-quality, computer-typeset publication via our Output Processor and a commercial service bureau (using a III Comp-80) has been a steady development activity with us. We are now setting up for publishing our NIC documentation this way, and also struggling as amateur typographers to set up our latest project report. 5a

The typography-control directives added to the Output Processor give us such a wide choice for type of font, size, density, and page position, that the early experiments produced very wild results. That serious typography is a full profession can readily be appreciated. 5a1

When he gets to the final type-setting pass in producing a manuscript, almost every client of the Utility will clearly need specialist help if he deviates much at all from some standard format for his type of material. The ability to obtain such help from a remote specialist, via real-time telconferencing using the shared-screen dialogue, is a beautiful example of the benefits the Network will bring for human-resource sharing. 5a2

Economical generation and updating of online files, whether for document development or data management, is another thing in which we have been steadily investing. 5b

We have continued a low-grade effort, recently stepped up, to evolve what we call DEX (for Deferred Execution system) as a supplementary Workshop facility. We currently spool the input from online-type typewriters onto magnetic cassettes. Paper tape works, too, and likely the clerical support for a cluster of knowledge workers would find a mini-computer, working in a low-feedback spooling mode, effective for DEX-input purposes. 5b1

Almost the whole range of NLS functions are specifiable, and the logic of the batch-executed DEX control processes has been developed to put the burden on the run-time "compiler" to worry about what the current address of a target item might be, in view of the alterations specified up to this point in this batch entry. 5b2

I claim that a skilled clerk-typist will learn DEX very handily, and can be significantly more efficient in terms of keyboard time and computer-resource consumption, for many basic types of file-development work, than the most-skilled DNLS user. We discovered many years ago that in an important number of cases involving heavy reworking of manuscript drafts, it was an advantage to have DEX-like systems that didn't talk back to the operator; to make use of the feedback took the operator's attention away from the input material, and for later scanning of the typed-input record the feedback typing represented distracting "noise". 5b3

Calculation is a basic sort of Knowledge Workshop task. For heavy computation our Workshop would provide useful support in formulating, studying, documenting, etc. of the models and computer programs, but we would count on shipping the computation out (through the Network) to systems that were built to do that kind of work. 5c

But in the range covering needs where people now turn to slide rules, little desk calculators, and perhaps to the simpler applications of BASIC programs, it is feasible and valuable to include special calculation-support tools in the Workshop environment. We have been working on such as an addition to NLS. Early developments in this regard demonstrate immediately that they can be extremely valuable. 5c1

NETWORK INFORMATION CENTER 6

Although the qualitative nature of NIC-service functions has changed but little during the year, we have learned a great deal, have developed substantialy more reliable operational support, and improved efficiencies. We have taken over the job of maintaining the Network Resource Notebook that was effectively begun by BBN, and are pushing heavily upon extending the scope, depth, and accuracy of its coverage. Our information-output service load is still predominently offline, and involves a lot of NIC-staff interaction with clients: we have 132 addressees to whom we mail regularly, about five items a week (54 Network Liaison people, 48 Station Agents, and 30 Associates -- individuals who aren't ARPANET but who are involved actively in network technology). 6a

We maintain special circulation lists (full addresses, telephone numbers, etc) and provide online or hard-copy distribution of intra-group memos to 15 special-interest groups, four of whom are becoming quite active in using this

mode of dialogue: The ARPANET Sattelite Systems Group (18 members), the Computer Based Instruction Group (28), the International Network Group (29), and the Speech Understanding Research Group (26). 6b

We are beginning an interesting experiment with ACM's AI SIG, who have for some time been publishing a newsletter in a conventional manner. They have taken steps to use the NIC Journal to get early releases of articles put online and to facilitate online commentary. We hope ultimately to be able to support their direct publication from online files. 6c

We maintain relatively comprehensive "ident" data for a total of 366 registered individuals, affilliation organizations, and working groups, and somehow have a telephone directory with 530 phone numbers. All of these data are accessible via DNLS and TNLS, and much of it with the very easily used QUERY subsystem. Updating these data is a religiously maintained activity. 6d

NIC monthly pays a telephone bill of about $700, and a mailing bill of between $800 and 1300; it also runs about 5000 sheets a week out of its own Xerox machine, besides paying about $300 per month for outside reproducton costs. 6e

Each Station Agent requires special introductory help; only a few have been sent to SRI to learn -- most of them have a lot of telephone talk at first, and we try to call them regularly to check up on things. We have run about seven TNLS classes, and one DNLS class, at our site; and have been learning about off-site teaching with the group at RADC. 6f

We invested very heavily in ICCC participation; many people (more than just our NIC group) worked for three to five months preceding the Conference, and twelve of us spent the week in Washington. We considered the event to be highly successful, and very much worth whatever we all spent on making it come off. 6g

AAM 28-DEC-72 7:03 13568
Response to NIC 13499,13497,13496;copies to AKB,RDB2

Dear Jon,
I'm glad to see that your thesis is coming along (an inference from the sudden burst of journal mail). I don't know how broad the distribution of your three recent notes was, so I don't know if my comments are necessary -- but here they are anyhow:
1) "Links" - In your example, I think you should be thinking of "in-links" and "out-links", if you do so you will see that invoking FTP only uses 3 links in the "worst" direction. (Of course, you can get back to the case of 5 by invoking RJE insted.) In addition, links are reallyassignable on a per-Host basis (ie, a Host is typically using several different instances of "link 0" and could easily use several instances of "link 27". Therefore, I don't think the currant situation is as bad as you imply. On the other hand, I don't mind the expansion of the pool of available links either.
2) RFC 418 - It is my understanding that Bressler is working with Bhushan to get a new FTP document written which incorporates (or argues with) Hathaway's comments. I do agree that the points ought to be addressed.
3) "Socket Numbers" - YOU are the king of socket numbers My only concern, and its not strong, is that too many generally useful functions are being moved out of the area where a "logged-in" user can get at them and into a seperate area of "obscure" socket numbers which a user might find difficult to remember

Have a happy New Year. I hope I can get a chance to get out to see you before too long.
Alex

1

AAM 28-DEC-72 7:03 13568
Response to NIC 13499,13497,13496;copies to AKB,RDB2

(J13568) 28-DEC-72 7:03; Title: Author(s): McKenzie, Alex A./AAM; Distribution: Postel, Jonathan B., Bhushan, Abhay K., Bressler, Robert D. (Bob)/JBP AKB RDB2; Sub-Collections: NIC; Clerk: AAM;

CHI 28-DEC-72 10:39 13569

A possible print journal bug

Jim, DHC implies in (Journal,13506,) that Print Journal prints both the "Journal" and "author" branch. Is this a bug or a feature??? Is he even telling the truth?? -- Charles. 1

CHI 28-DEC-72 10:39 13569

A possible print journal bug

(J13569) 28-DEC-72 10:39; Title: Author(s): Irby, Charles H./CHI; Distribution: White, James E. (Jim)/JEW; Sub-Collections: SRI-ARC; Clerk: CHI;

CHI 28-DEC-72 11:30 13570

Response to (Journal, 13508,)

Don, with regard to your comments in (Journal,13508,), The Nic-NLS sources do represent the running system and are kept around chiefly for bug fixes or other small-scale changes that we feel should get into the running system as soon as possible. More extensive changes are made to the <NLS> sources and we try to bring up a new system from thoses sources every couple of months. When we actually bring up a new system from <NLS> is largely a function of what we are doing and how important some of the changes are. We have a file <NLS>STATUS, in which we keep track of changes to the various systems. -- Charles. 1

CHI 28-DEC-72 11:30 13570

Response to (Journal, 13508,)

(J13570) 28-DEC-72 11:30; Title: Author(s): Irby, Charles H./CHI; Distribution: Mitchell, James G., Deutsch, L. Peter, Kaye, Diane S., Andrews, Don I., Bass, Walt, Duvall, William S., Church, Mary S., Hopper, J. D., Irby, Charles H., Lehtman, Harvey G., Melvin, John T., Parsley, Bruce L., Paxton, William H., Deutsch, L. Peter/NPG LPD; Sub-Collections: SRI-ARC NPG; Clerk: CHI;

DHC 27-DEC-72 20:51 13571

Use of NLS files with standard line-editors

As the Network Measurement Center moves towards greater Network use, I am having to consider our future documentation needs. Because of the power of the tools available, the NIC seems the logical place to do most of the work. 1

Unfortunately, the reliability of the NIC's system poses a serious problem. If we have our files at the NIC and the NIC is not up, we are up a creek. Even if the files are kept elsewhere, they are not compatible with any other system. 2

I understand that you have a program that stores files at UCSB, so the first problem does not seem too serious. 2a

I have a suggestion which would allow standard editors to be able to manipulate nls-generated files. I have sent this note to several of you (Dick, Dirk, and Jim White) because this is considerably more important and pressing than the average note I send to Dick. 3

The suggestion is conceptually simple: An Input Processor which formats sequential input, according to directives, into nls statements. 4

The Input Directives could be swallowed by the Input processor, so they would not be in the nls file; and the directives would be generated by the Output Processor, when so directed. 4a

As long as nls only accepts direct terminal input, its usability for us is severely limited. 5

I realize that this would be a fairly major effort and not directly useful for the development of NLS. On the other hand, It would make nls more 'available' (tho considering the system load, that may not be desireable.) 6

Please let me know about the feasibility of such a development. 7

Many thanks. 8

DHC 27-DEC-72 20:51 13571

Use of NLS files with standard line-editors

(J13571) 27-DEC-72 20:51; Title: Author(s): Crocker, David H./DHC; Distribution: Watson, Richard W., Van Nouhuys, Dirk H., White, James E. (Jim)/RWW DVN JEW; Sub-Collections: NIC; Clerk: DHC;

see (13508,), (13522,), and (13521,).

While it is heartening to learn that ARC has already invented a method for keeping track of NLS versions, there are three things wrong with it. First, it is propagated by word-of-mouth: I have made two sanctioned sets of changes in NLS and no one ever told me about it. Second, as HArvey points out, responsibility for using the procedure lies on people (it is not fully automatic) and it is therefore fallible. Third, THE FACT REMAINS THAT MY SUGGESTION FOR PROCEDURE CALLS, WHICH DIA PUT INTO THE NLS SYMBOLICS SOME TIME AGO, IS STILL NOT IN THE RUNNING SYSTEM. I still do not understand how this happened. My proposal in (13522,) would alleviate the first two difficulties. 1

(J13572) 28-DEC-72 7:34; Author(s): Deutsch, L. Peter/LPD;
Distribution: Lehtman, Harvey G., Andrews, Don I., Kaye, Diane S., Irby,
Charles H., Bass, Walt, Watson, Richard W., Hopper, J. D./HGL DIA DSK
CHI WLB RWW JDH; Sub-Collections: NIC; Clerk: LPD;

NDM 29 DEC 72 8:50AM xxxxx 13573

Dec 28 talk with DDSI - hard copy camera

On the 28th of December, about noon, Dirk and I (Dean) called Mark Brown of DDSI to ask about some files sent down on Dec 18. 1

(Their turnaround time has been very poor lately.) 1a

While talking to Mark, I asked him about the state of III's special camera for producing immediate full sized output (instead of 35mm film). 2

He said that they had had a meeting on the subject that very morning, and that they had assigned two men to look into it. 2a

At his last inspection of the camera, Mark thought it unacceptable as far as quality. 2b

III claims to have improved it. DDSI hopes to find it acceptable in the near future. 2c

I mentioned that we might be interested in using it in connection with long-distance Xerography to minimize turnaround time. 2d

As always, Mark seemed interested in such an arrangement. 2d1

Mark also mentioned that we may wish to change our arrangement with them to a "time is of the essence" contract. He smells money. 2d2

We should remember that, in his sales pitch, he promised a maximum of four days turnaround time. Lately, it has been twice that. 2d2a

NDM 29 DEC 72 8:50AM xxxxx

Dec 28 talk with DDSI - hard copy camera

(J13573) 28-DEC-72 12:36; Title: Author(s): Meyer, N. Dean/NDM;
Distribution: Bass, Walt, Meyer, N. Dean, Van Nouhuys, Dirk H.,
Auerbach, Marilyn F., Kaye, Diane S., Engelbart, Douglas C., Norton,
James C., Watson, Richard W., Irby, Charles H., Engelbart, Douglas C.,
Watson, Richard W., Van Nouhuys, Dirk H./DPCS DCE RWW DVN;
Sub-Collections: SRI-ARC DPCS; Clerk: NDM;
Origin: <MEYER>DDSITALK.NLS;2, 28-DEC-72 12:32 NDM ;

DVN BER 28-DEC-72 15:50 13574

Terminal Visibility

You may have noticed funny little colored tags on your spot on the message board. 1

These tags are a step towards a system for keeping the whereabouts of 30 character per second teletype like terminals public. 2

We hope that after all the World Comm couplers have been traded the following system will be in force: 3

Anyone who has a terminal permanently in his office or at home has a red metal tag by his name on the message board. 3a

Certain terminals are shared by pairs: Jake Feinler and Mike Kudlick share their terminal and Paul Rech and Beau Hardeman share a terminal. A red tag goes on the message board for each of these people representing in this case their half interest in a terminal. 3a1

Following (12609,) a certain number of terminals are "floating". Anyone who has a floater has a large plastic tag attached to his name on the board. When you return a floater (put it in the southeast corner of the PSO room by the desk), please remove the tag from the message board and attach it to the terminal, e.g., with a piece of scotch tape. 3b

If you take a floater from the pool, please remove the tag from the floater and put it in your place on the message board. 3c

DVN BER 28-DEC-72 15:50 13574

Terminal Visibility

(J13574) 28-DEC-72 15:50; Title: Author(s): Van Nouhuys, Dirk H., Row, Barbara E./DVN 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;
Origin: <ROW>TERMINALS.NLS;1, 28-DEC-72 15:45 BER ;

MFA 29-DEC-72 22:06 13575

NLS SYSTEM NEWS

this describes the changes of interest to users in the version of NLS brought up on 29-DEC-72

NLS SYSTEM NEWS

NLS NEW SYSTEM DOCUMENTATION - this describes the changes of interest to users in the version of NLS brought up on 29-DEC-72 1

JUMP DIRECT TO JOURNAL MESSAGES 1a

User may now "jump" directly to specific journal messages. (Previously, a link to a journal message took the user to the origin statement of the journal file containing that message.) 1a1

NEW SID CAPABILITY FOR LINKS AND JUMPS 1b

The ability to jump to statement identifers (SID's) has been implemented. Statement identifiers are unique numbers that are assigned to statements in a file in the order in which they are created. These numbers remain with their coresponding statements for the life of the statements. Unlike statement numbers which are assigned to statements in a file according to their logical position in the file, statement identifiers are quite independent of the location of the statement in the file are a listing of them (the SID's) might appear to be quite random. 1b1

It is possible to use a SID wherever a statement number was previously used in the syntax of links and jumps. The syntax of a SID is the character '@ followed by the decimal number which is the statement SID. SID's are generated by the file system and are invariant over file structure modifications or editing operations on the file. Thus the SID for any statement in a file never changes unlike a statement's statement number which may change as new statements are added to the file. 1b2

NEW VIEWSPEC CONTROL FOR SID'S 1c

SID's may be displayed in the same manner as statement numbers through use of the "m" and "I" viewspecs. Viewspec "m" will turn on statement numbers or SID's depending on the mode specified by viewspecs "I" or "J". The default mode is "J", statement numbers; if "I" is specified, SID's will be displayed when "m" in in effect. 1c1

Viewspecs "G" and "H" may be used as previously to position the SID's of statement numbers to the left or the right of a statement. Viewspec "n" still turns off numbers regardless of whether they are SID'S or statement numbers. 1c2

UPPERCASE OK IN DNLS COMMANDS 1d

DNLS will now accept upper case characters when parsing commands. 1d1

SHOW UPPERCASE COMMAND FOR UPPERCASE-ONLY TERMINALS 1e

The Execute Show Uppercase command enables users at uppercase-only terminals to control whether characters entered into the system as uppercase using special shift characters are actually indicated as uppercase characters (i.e.,preceded by slashes) at the terminal. 1e1

```
e[xecute] sh[ow uppercase?] y[es]
                            CA
                            n[o]
```
1e1a

If this command is not used, or if the user specifies "no" to this command, both uppercase and lowercase characters will appear as uppercase at the terminal. 1e2

EXECUTE DEVICE SPECIFICATION: TNLS/DNLS 1f

The Execute Device Specification command enables the user to move to/from/between DNLS and TNLS while preserving the state of his current NLS session. 1f1

```
e[xecute] d[evice type] t[i-terminal] CA
                        e[xecuport]
                        33[tty]
                        37[tty]
                        d[isplay]
```
1f1a

A specification of "d" (display) transfers the user to DNLS; all other specifictions transfer the user to TNLS. 1f2

TABS ARE GOOD 1g

Tabs have been fixed in both TNLS and DNLS. 1g1

INVISIBLES NOW SHOW IN TNLS 1h

Special representation of non-printng characters will be printed out in TNLS. 1h1

NEW COMMAND -- Insert Date 1i

An Insert Date and Time command is now in TNLS and DNLS. It allows a user to insert the system-supplied date and, optionally, time immediately following a specified visible. 1i1

In DNLS, the syntax is: 1i2

i[nsert] d[ate] (BUG/t[ime BUG]) (CA/CDOT) 1i2a

In TNLS, the syntax is: 1i3

i[nsert] d[ate] (ADDR/t[ime ADDR]) (CA/CDOT) 1i3a

NEW MODE FOR XSET COMMAND -- Initial Upper Case 1j

A new mode for the xset editing commands has been impiemented, called Initial Upper Case mode. This mode caused the first character of all words in the target text string to be forced to upper case. The mode is set with the command: 1j1

x[set] m[ode] i[nitial upper case] CA 1j1a

The target string is defined any of the xset options (character, text, statement, group, plex, etc.) 1j2

MFA 29-DEC-72 22:06 13575

NLS SYSTEM NEWS

(J13575) 29-DEC-72 22:06; Title: Author(s): Auerbach, Marilyn F./MFA ; 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: MFA ;

Dec 28 talk with DDSI - later the same day

At 4PM, Mark Brown called back on the files we asked about this morning. They had received our Dec 18 tape long ago, and hadn't yet begun it. He promised they would do it today. SPQR, which we wanted to stop, was already on its way. 1

I asked him about the state of their various projects: 2

1 Proportional spacing and full justification 2a

Paul says he has the software written. He has yet to debug it. He expects it to be operational sometime around late January, 1973. 2a1

2 Half-tones and MiSur 2b

They have received a Computext graphics machine. MiSur, they claim, has been working for a while for line drawings. They are now developing their editing of graphics capabilities. 2b1

MiSur cannot handle half-tones. They are done by photographically superimposing an image of the photo on the film (flashing). 2b2

The film which is used on the Comp80 is very high contrast, and cannot handle with any quality half-tones of greater than 25-30 dots per inch. We screened at 100. Newspapers screen around 30. 2b2a

DDSI deems it not worth their investment to develop half-tone capabilities on MiSur. 2b2b

3 Full set of ASCII characters in all fonts 2c

Paul asked III for the rest of the characters. They said they would cost $50 each. DDSI screamed, and III agreed to give them the characters they needed. They still haven't gotten them. They claim to have called III this morning, but noone was there. Mark promised to keep pushing that. 2c1

4 Scheduling problems 2d

Since Dec is a slow month for production work, they have been spending a lot of time on development work, hence the slowdown. They are getting a III15, a mini-computer like a PDP15, which will eventually preprocess all MiSur tapes.

Dec 28 talk with DDSI - later the same day

This will take the programming development work load off the Comp80 and speed things up. 2d1

In their charter from Signal Oil, their parent company, there is a provision that, when the Comp80 is working at 80% capacity, they are authorized to lease a second Comp80. This doesn't appear to be imminent. While their system is overloaded, the machine itself is not. 2d2

They have received a package from III allowing them to slant the Courier type face. It will be operational as soon as Paul checks it out and deems it acceptable. 3

copy sent to Mark Brown, DDSI

Dec 28 talk with DDSI - later the same day

(J13577) 28-DEC-72 16:51; Title: Author(s): Meyer, N. Dean/NDM;
Distribution: Bass, Walt, Meyer, N. Dean, Van Nouhuys, Dirk H.,
Auerbach, Marilyn F., Kaye, Diane S., Engelbart, Douglas C., Norton,
James C., Watson, Richard W., Irby, Charles H., Engelbart, Douglas C.,
Watson, Richard W., Van Nouhuys, Dirk H./DPCS DCE RWW DVN;
Sub-Collections: SRI-ARC DPCS; Clerk: NDM;
Origin: <MEYER>DDSITALK2.NLS;1, 28-DEC-72 16:47 NDM ;

DIA 28-DEC-72 14:11 13578

Response to 13508, 13522, 13521, and others.

Thank you Harvey and Charles for your responses to my suggestions abot keeping track of NLS versions. I have looked at <NLS>status: it is cool but I agree wih Peter's remarks also. But please answer this: What should I have done to learn of the existance of <NLS>status. How many more important files are there that I should know about. How is anyone, in general, to find out about such files, conventions, etc., in view of the kind of things we will be doing in the future with SEAS, etc.?? 1

DIA 28-DEC-72 14:11 13578

Response to 13508, 13522, 13521, and others.

(J13578) 28-DEC-72 14:11; Title: Author(s): Andrews, Don I./DIA; Distribution: Irby, Charles H., Deutsch, L. Peter, Lehtman, Harvey G., Kaye, Diane S., Bass, Walt, Watson, Richard W., Victor, Kenneth E. (Ken), Wallace, Donald C. (Smokey)/chi lpd hgl dsk wlb rww kev dcw ; Sub-Collections: SRI-ARC; Clerk: DIA;

JBN 28-DEC-72 19:51 13579

Projector Use in Meeting Agenda, Discussion, Concensus

Today a group of people interested in control of NIC files and directories met in the Conference Room and were augmented in their discussion by use of the projector. A file had been prepared with an outline of the subjects to be discussed, and this was projected for information and to form a basis for recording conclusions. During the meeting the facts and conclusions presented were input and edited to record the discussion and reflect the opinions of the attendees. I found this a very satisfactory means to focus on the questions to be handled and to record concensus in a realtime mode which allowed for immediate verification or correction. Only two of us took turns at the console, but in principle a number of attendees could rotate the control, or all input and view creation duties could be delegated to a meeting secretary. 1

JBN 28-DEC-72 19:51 13579

Projector Use in Meeting Agenda, Discussion, Concensus

(J13579) 28-DEC-72 19:51; Title: Author(s): North, Jeanne B./JBN; 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., North, Jeanne B./sri-arc nicsta ; Sub-Collections: SRI-ARC NICSTA; Clerk: JBN;
Origin: <NORTH>TVUSE.NLS;1, 28-DEC-72 19:07 JBN ;

PR 28-DEC-72 15:46 13580

This is a revised and final version of "User Allocation by Group Accounts" which replaces (13227,). It incorporates some suggestions made by various people in ARC and includes a list of relevant references and comments on the subject.

USER ALLOCATION BY GROUP ACCOUNTS 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 sometimes 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. Our real problem is that we must control user computer access during peak working hours. It is now a reality that can no longer be ignored. 2b

On the average, our system becomes very sluggish when the number of active users exceeds the 20 level. At that point, the average load factor, which measures the number of "go" jobs in the system, climbs 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. However, it already appears that the total number of users should never be allowed to exceed the 20 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 controlled to eliminate the frustrations of the present first-come first -served "grabbing" system. 2d

We first look at the ARC environment to determine what principles should be followed in the design of a workable user control system.

2e

BACKGROUND REFLECTIONS ABOUT THE ARC ENVIRONMENT 3

ARC is an "information laboratory". As such it has all the major attributes of a true experimental information laboratory where systematic experimentations can be carried out. It is both general and flexible enough to allow on-line simulation of a very wide variety of real life information processes. And, most importantly, there exists an extremely valuable pool of utilization expertise which is available to support systematic experimentations. 3a

These are our assets. We must 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 a desirable mixed-job working environment. 3b

In order to create such an environment, everyone within ARC must be garanteed liberal access to the system. This will foster the real development of a prototype on-line organization. By observing and analysing the latter we will be able to gain the valuable insight we need to plan our future developments. 3c

These considerations lead us to the following utilization principles. 3d

(1) Within reasonable limits, we should strive to allow as much as possible free access of our on-line system to all ARC users. 3d1

(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. 3d2

(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, late at night and during the week ends. It is there, and the marginal cost to us is negligible. Why not use it? 3d3

(4) If further control becomes necessary then a control 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 eliminate some of the most questionable marginal applications and thus alleviate to some extent the present congestion of the system. 3d4

(5) Finally, if control is indeed needed, then the most practical control is a group allocation system whereby groups of users are allocated utilization quotas which limit the number of users belonging to each group. It has the advantage that within each group informal arrangements can be made to adjust to particular situations. 3d5

We propose that such a system be implemented within ARC.

3d6

USER CONTROL BY GROUP ACCOUNTS 4

Basically it has two major aspects, namely: 4a

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 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 load factors and 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. 4a1

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, in the long run, will maximize the overall utilization of our system. 4a2

This group allocation subsystem will have the following features: 4b

1) Each user of the system will belong to a user group and to one group only. 4b1

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 with the days of the week) to better accommodate specific group needs. 4b2

3) When a member of a user group wants to log in, three cases might occur, namely, 4b3

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. 4b3a

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. 4b3b

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. 4b3c

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. 4b4

5) A 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. 4b5

6) Express Terminal.

One exeption to the quota 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. 4b6

7) Visitor Priority.

Another exception which might be considered is a "visitor" priority. Under such a priority, any authorized personnel should always be allowed to log in for demonstration purposes whenever the need arises . 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. 4b7

8) Non Priority Users

Some authorized users might not belong to any priority group and, consequently, should only be allowed to use the system under "off-quota" priority. 4b8

9) Allocation of CPU Time

Although it does not seem to be necessary to partition tightly the allocation of CPU time proportionally to user quotas, a feature could nevertheless be added which would allow a certain control over the allocation of CPU time. Under such a control subsystem, the number of users allowed under a given quota should be variable when the expected CPU consumption is clearly out of line with the average expected load attributable to that group. Two cases might be considered, namely, a very low load case (a training session for instance) and a very high load case. In the former the actual quota could be increased temporarily and in the latter it could be decreased. 4b9

10) Contingency Tear Downs

In some cases it will be necessary to reduce the number of users below the quota level because some contingency will have arisen. In such cases a decision will have to be made about who should be logged out and in what order. The suggestion of D.I. Andrews (13221,) to have an on-line priority schedule which lists all users in order of priority whether on quota or not seems to be the best solution for dealing with contingency situations. Such a solution would also be useful in dealing with the transition problems from a higher quota to a lower quota. We recommend that this solution be adopted. The following is from Don's notes: 4b10

"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: 4b10a

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. 4b10a1

I also think that the schedule should be specified in a sequence by priority: 4b10a2

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. 4b10a2a

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. 4b10a2b

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. 4b10a2c

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. 4b10a2c1

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. 4b10a2c2

9-12:
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 4b10a2c2a

DISCUSSION 5

Group Allocation 5a

User control by group accounts deals with the three major aspects of the problem of controlling computer access in a fully loaded time sharing environment. 5a1

1) First, it guarantees adequate responsiveness by appropriate restriction on the total number of simultaneous users. 5a1a

2) Next, it guarantees computing allocation to the various groups of users which will respect existing contractual agreements. 5a1b

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. 5a1c

Some Economic Considerations 5b

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 available any unused computing power to other authorized users who need it. The "off-quota" priority system achieves this goal while strictly protecting existing contractual agreements. Under that type of arrangement, only computer access under fully loaded conditions, is being priced. 5b1

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 we believe that it would be a mistake to consider it for ARC. 5b2

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. 5b3

Group Statistics and Priority Status 5c

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 schedule and statistics, and about his current priority status. Hence, that information must be made available to him in a convenient form. 5c1

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. 5c2

The following is a very sketchy list of needed information. 5c3

a) System status 5c3a

The usual information plus, possibly, a breakdown by user priority groups. 5c3a1

b) Group status 5c3b

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. 5c3b1

c) Priority status of the user 5c3c

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. 5c3c1

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 useful parameter. 5c3d

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. 5c3e

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.

5c3f

TENTATIVE GROUP ALLOCATION FOR ARC USERS,

6

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.

6a

Possible ARC User Groups. 6b

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

6b1

Note: The four overhead users will be logged in permanently and will therefore preempt that many quota priorities. 6b1a

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

6b1a1

Tentative Group Allocation for ARC 6c

	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

6c1

SOME AVERAGE UTILIZATION STATISTICS 7

Between September 23 and November 15 the following users were the top 20 users of our system. 7a

Top twenty Users	% of CPU Time	
Documentation	7.0	
KEV	6.1	
Catalog	6.0	
DCW	4.9	
Operator	4.2	
JCN	4.2	7b1
Mitchell	3.5	
JCP	3.5	
DSK	3.2	
WRF	3.2	
HGL	3.2	7b2
CHI	2.8	
MEJ	2.5	
Gilbert	2.5	
ICCC	2.2	
MFA	2.1	
WLB	2.0	7b3
DVN	1.9	
CFD	1.8	
JEW	1.8	7b4
Total	68.7	7b5

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. 7c

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

7d

Background System Users 7e

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

7e1

During the same period RADC used 2.4 % of the user CPU time and the Network users another 6.3 %. 7f

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D. van Nouhuys, "Being Poor doesn't Teach us How to be Rich" (130408,) 8e

B.A. Hardeman, "Weekly Utilization Statistics", (13434,) 8f

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PR 28-DEC-72 15:46 13580

(J13580) 28-DEC-72 15:46; Title: Author(s): Rech, Paul/PR;
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: PR;
Origin: <RECH>MODEL.NLS;40, 28-DEC-72 15:39 PR ;

RWW 28-DEC-72 15:38 13581

Reply to DHC on Suggestion to get Files in and out of NLS from other Sites

Dave, A couple of things, one our reliability has been quite good for several months now and will continue so we expect. Second we have a major project to get text files in and out of NLS from other sites on the net which Jim White is working on so your suggestion will be implemented. Stay tuned for details later. Keep sending suggestions. 1

RWW 28-DEC-72 15:38 13581

Reply to DHC on Suggestion to get Files in and out of NLS from other Sites

(J13581) 28-DEC-72 15:38; Title: Author(s): Watson, Richard W./RWW; Distribution: Crocker, David H., White, James E. (Jim), Van Nouhuys, Dirk H./dhc jew dvn ; Sub-Collections: SRI-ARC; Clerk: RWW;

RWW 28-DEC-72 18:43 13582

Two Seminars for Week of Jan 2

There will be two seminars next week. On Jan 3 Chuck Dornbush will talk about the NLS DDT and its use. On Jan 5 Charles Irby will talk aboutt MPS and related topics. These are Wed and Fri at 3:00. 1

RWW 28-DEC-72 18:43 13582

Two Seminars for Week of Jan 2

(J13582) 28-DEC-72 18:43; Title: Author(s): Watson, Richard W./RWW; 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 SRI-ARC; Clerk: RWW;

MEH 29-DEC-72 18:34 13583

TASKER GRIPE REQUEST

This is a request for constructive criticism and specific repair needs regarding our display system (TASKER, TV's). 1

Please (by 1/10 are you will not be heard) send to MEH via journal or jot down and give to BER. Be as specific as you can or note you would like to see me to discuss. 2

THANK YOU 2a

3

MEH 29-DEC-72 18:34 13583

TASKER GRIPE REQUEST

(J13583) 29-DEC-72 18:34; Title: Author(s): Hardy, Martin E./MEH ; 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: MEH;

MEH 29-DEC-72 18:30 13584

RESPONCE TO DISPLAY USERS and RWW (13527,): Please please improve the quality of Tasker

I have much sympathy with your requests and agree Tasker is in poor condition and in immediate need of tuning and repairs. 1

My plan: 1a

1. During 1/8,9 survey Tasker for repairs as detected by hardware personel. 1a1

2. Request user comments on Tasker improvements and repairs. 1a2

See (13583,). 1a2a

3. Digest and sort findings into 3 groups as follows: 1a3

- G1. Immediate improvments that can be implemented without downing a whole Tasker. 1a3a

- G2. Immediate improvements that can be implemented, but require downing a whole Tasker. 1a3b

- G3. Improvments requiring back ordering of parts or support equipment . 1a3c

4. 1/12, or there abouts, start implementation of all items in group 1. if needed, start negotiations with operations manager (JCN) for time to take a whole tasker down to implement group 2. If needed, place a request order for parts and support equipment needed by group 3. 1a4

MEH 29-DEC-72 18:30 13584

RESPONCE TO DISPLAY USERS and RWW (13527,): Please please improve the quality of Tasker

(J13584) 29-DEC-72 18:30; Title: Author(s): Hardy, Martin E./MEH ; Distribution: Engelbart, Douglas C., Watson, Richard W., Norton, James C., Watson, Richard W./emc rww ; Sub-Collections: SRI-ARC EMC; Clerk: MEH;

MEH 2-JAN-72 17:40 13585

Some conclusions to MOTOR GENERATOR query

- Follow through to (12615,), (12616,), (12877,) (13228,), (13229,), (13232,). 1

- There is only one record in our system logs about a possible downage due to power failure. 2

[WRF] says he feels it should be more like 4. 2a

My personal experience (seeing the line noise on an oscilloscope and evaluating device faults) tells me we have had more also. 2b

[Lucky] says the DEC Disk controllers are sensitive to power fluctuations and outages. All other Dec equipment he feels weather ok. 2c

[EKV] and [DCW] can recall many Bryant Disk outages suspected due to power failure. 2c1

Although this device is gone now it seems worth mentioning here in context with [Lucky] comments. 2c1a

[EKV] [and I] can recall several Tasker breakdowns. It seems Tasker is extremley sensitive to line fluctuations and rapid turn-off/on sequences. 2d

Repair times were in the order of 1/2 to full days. Its Obvious a series of these would put us in a very bad way. 2d1

- The data I have collected about other facilities implies all facilities trying to maximize uptime or sell service have some sort of power protection. 3

Tymshare has many protective systems: (modular line distribution, dual sources, motor generator, and others) 3a

Our CDC facility downstairs has 2 motor generators, a main source and spare. 3b

(It is not sharable with us it because it converts 60 cycle power to 400 cycles, which we cannot use.) 3b1

- It looks like the justification must come from Tasker, Disk controllers and whatever weight we assign a more stable system. 4

Aside from protecting these devices and providing a more stable system, the investment is a sound one. Motor Generators typically last many years and have low maintenance costs. (The

generator unit is brushless and all movements are ball bearing.) Another point is they are only power dependent and therfore can be use with more than one facility. (If power requirements are different the generator unit can be changed at a fraction of the orginal cost.) 4a

It seems apparent then for a comparatively low investment (under $20,000) the benefits are many and well worth it. 4a1

- From information in (12615,2d) and recent talks with [DCW] It looks like the G.E. "ride-through" 50 KW model is what we want. This gives us 10 KW of buffer power. 4b

If you foresee much expandion we might consider their 75 KW model. 4b1

UNIT COSTS (typical installation, Sept 71):
50KW = $15,000
75KW = $19,000 4b1a

I do not know what our actual installion cost would be. We have some special requirements noted in (12615,2d). A more exact estimate can only come from more serious neqotiations with G.E.. 4b2

5

MEH 2-JAN-72 17:40 13585

Some conclusions to MOTOR GENERATOR query

(J13585) 2-JAN-72 17:40; Title: Author(s): Hardy, Martin E./MEH ; Distribution: Engelbart, Douglas C., Watson, Richard W., Norton, James C., Norton, James C./emc jcn ; Sub-Collections: SRI-ARC EMC; Clerk: MEH;

MEH 17-JAN-73 13:57 13588

Follow Up to Tasker Plan (13584,)

- First pass survey shows necessity for a more detailed look and investigation of Tasker set-up. 1

  This is taking place this week (1/15 - 20), and perhaps some of next week. 1a

- Therefore: digesting, sorting and implementing improvements (if any) will be delayed. 2

3

MEH 17-JAN-73 13:57 13588

Follow Up to Tasker Plan (13584,)

(J13588) 17-JAN-73 13:57; Title: Author(s): Hardy, Martin E./MEH; Distribution: 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, 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;

MEH 17-JAN-73 13:46 13589

Letter to D. Stodolsky at UC Irvine (ARC's 5 Finger Keyset Flow)

Enclosed you will find the 5 Finger keyset circuit we use in our Imlac. It is a very simple circuit that relies on a software (polling scheme) to solve contact bounce and sampling. 1

In our PDP-10 system we use quite a different scheme. A Hardware interface does the contact bounce protection and decision making. 2

The way it works is: 2a

AT EACH CYCLE BEGINNING; it strobes the state of all switches (we have 12 sets) into receive buffer registers. 2a1

NEXT; for each Keyset, if any switch has changed since last sample, a "changed" register (for each keyset) is set. 2a2

NEXT; it stores each of these keyset fields (keyset switches + changed bit) into an intermediate buffer space (external core). 2a3

THEN; for any set of switches that have become zero (all up since last sample) the interface sends an interrupt to the processor. 2a4

(all up is the initiate signal to the processor saying last keyset value is the valid one.) 2a4a

WHEN; the processor receives the interrupt it transfers these external core data fields to the processor's memory for action. 2a5

Hope this is of some help... 2a6

MARTIN HARDY
SRI
MENLO PARK, CA. 2a6a

MEH 17-JAN-73 13:46 13589
Letter to D. Stodolsky at UC Irvine (ARC's 5 Finger Keyset Flow)

(J13589) 17-JAN-73 13:46; Title: Author(s): Hardy, Martin E./MEH;
Sub-Collections: SRI-ARC; Clerk: BER;

Projector Filming Results

[DCE] Some TV projector filming results. 1

- Characters 1a

  Intensities varied on TV screen (left side had Darker characters). 1a1

  Not noticeable on film. 1a2

- White background 1b

  Uneven intensity on TV screen. 1b1

  More noticeable on film. 1b2

- Horizontal scan line 1c

  Not noticeable on TV screen or film. 1c1

- Vertical blanking bars 1d

  Noticeable on film at full 16 mm speed (24 frames/sec). 1d1

    Showed up as dull grayish like defocused bars in background, not clear and distinguishable (much like a strobe light affect). 1d1a

    At approximately 1/2 time (10 frames/sec) they were much less noticeable, and in my opinion non-objectionable. 1d1b

    Zev said he definitely could eliminate them at 1/6 time (4 frames/sec). 1d1c

    HE thinks also we could get better results shooting from a TV set than TV projector screen. 1d1d

[DCE] An alternative to TV filming would be to shoot directly from a Tasker 5 inch tube and separately the live room scenes. 2

  Then later edit and merge (split screen, mix,) whatever we would want. Zev claims he can do this. The results would be a film that looked as if we had made it live with mixer, split screen and switching. Sound could also be dubbed in later from live recordings or script. 2a

  It would be obviously more expensive and difficult to do, yet sound like the best method and the best results. They should be High quality films at super 8, 16, or whatever size desired 2b

Projector Filming Results

If quality films are what we want, I recommend we try this method. 2b1

[DCE] As a result of our recent talks (1/15), I will schedule with Zev Pressman an experiment to film from a tasker 5 inch tube and live record keyboard sound. Then merge a composite for viewing and synchronizing test. 3

MEH 17-JAN-73 13:39 13590

Projector Filming Results

(J13590) 17-JAN-73 13:39; Title: Author(s): Hardy, Martin E./MEH; Distribution: Engelbart, Douglas C./DCE; Sub-Collections: SRI-ARC; Clerk: BER;

MEH 17-JAN-73 14:52 13591

Hardware Secretarial and Assistant Needs

In a way the CSO Hardware group is like the Catalog and NIC, in that it requires dedicated routine services support. 1

Under present definitions (10901,3e3a), The PSO concept of providing these services for the Hardware group does not work. It is a inconvenience not a convenience. 2

PSO (as I see it) is designed and structured around the Catalog and NIC needs. The openness concept (respond to request from others) only maximizes PSO's utilization and in more cases than not is an inconvenience to others. 3

Their jobs always get bumped and are therefore at best second best. (Perhaps rightfully so, I am not questioning the importance of PSO's commitment to the Catalog and NIC, but only trying to illustrate my case.) 3a

Couple this with PSO's live responsibility and commitment to; answer telephones, support proposal writing, support ARC's Line management, be messenger and general ARC personal secretary (timecards, travel arrangements, meeting arrangements, file keeper, etc). 4

Leaves in reality then only third, fourth, or fifth best support for CSO Hardware things. 4a

To be of use to us the service must be better, and in fact must be dedicated in order to breed familiarization, like MEJ has with the Catalog or Sue with NIC. Most of Hardware's secretarial support needs are fast responce needs and do require some familiarization. 4a1

I have waited as long as three to four days on occasions, in an attempt to get PSO requests honored, and because their completions were delaying other jobs I removed these requests and completed them myself. 4a2

This was not true long ago, but even then (when requests did get honored) I had to explain (more than I deem necessary) Hardware things. If the implementor was familiar with us, this would be minimized and therefore remove a lot of redundancy acts on an already over burdened team. 4a2a

The CSO Hardware group is supporting all of ARC. This support job is bigger and harder than meets the eye of most casual observers. It does need permanent secretarial and assistant support. 5

Hardware Secretarial and Assistant Needs

Most jobs performed by Hardware are small requiring short action (troubleshoot a printer problem, replace a bad circuit breaker, analyze a power distribution problem, replace worn or broken cables or connectors, troubleshoot a display controller, troubleshoot the Network interface or some other a device, investigate users complaints, reduce spotware reported errors for analysis, respond to a new idea, be a source book for hardware facts, baby sit outside repairmen answering their questions and helping when needed, diagnose a circuit to find out why it repeatedly fails) 5a

This list goes on and on seemingly without end. New and different jobs get tacked on the end almost faster than old ones get completed. 5a1

Each of these small jobs have associated with them other small jobs. (locating special tools, spare parts, manuals, ordering replacements, communicating with manufacturers about specific repairs and maintainability, recording failures and repairs.) 5a2

And all of this has time limits, for there is another job waiting. 5a3

The big jobs like documentation, planning, training, investigating trouble areas, upgrading, etc, become side-line jobs, much more than they should be, making our job a very mixed bag. 5b

What I am asking for here then is HELP -- supporting help that supports us. Which in turn will allow us to do a better job supporting you. 6

A secretary would be a start, one that belonged to and was part of the Hardware team. Her or his main responsibility would be to Hardware like PSO's is to NIC; MEJ's is to the Catalog. 6a

A Doer, Do this, Do that; 6a1

- (Order parts, keep parts account, keep maintenance records, coordinate outside repairmen, assist with hardware contract renewal necessities, follow up on back orders, coordinate property for users, maintenance personnel, and contract accounters.) 6a1a

Much of our documentation could be done by this person,

Like constructing and maintaining the catalogs specified in CSO's Hardware plan (12874,1c3a). 6a1b

- Hardware service manual. 6a1b1

  This has already been started, but without better support will not be adequately completed and will soon be out dated just like its predecessor. 6a1b1a

- Hardware reference manual. 6a1b2

  This also has be started but needs a keeper to implement it on-line and then maintain it. This manual is extremely important. It contains all operating information about each of our hardware devices. It constantly changes and is in need of a method for updating. A Hardware knowledgable secretary could do this nicely. 6a1b2a

- Helping with flow charts, circuit copying, and general support that will push us towards obtaining better documentation and a more effective Hardware operational system. 6a1b3

The advantage of having this secretary as a member of the Hardware team is that she would be in the action of it all, not distant and concerned with other responsibilities. 7

There remains no doubt in my mind that there exists full-time secretarial work in the the CSO Hardware operation and by its very nature necessitates a permanent assignment (hardware assistant) to this team. 8

MEH 17-JAN-73 14:52 13591

Hardware Secretarial and Assistant Needs

(J13591) 17-JAN-73 14:52; Title: Author(s): Hardy, Martin E./MEH; Distribution: Engelbart, Douglas C., Watson, Richard W., Norton, James C., Van Nouhuys, Dirk H./EMC DVN; Sub-Collections: SRI-ARC EMC; Clerk: BER;

SUMMRY OF TASKER PROBLEMS

DISPLAY SYSTEM PROBLEMS 1

Several display system problems were found in survey (13584,) conducted in response to RWW request (13527,). The following is a sorted list of these problems. Included with each problem is; unit affected, fix, expected results of fix, implementation approach and cost estimates. 1a

CONTENTS: 1a1

SUMMRY OF TASKER PROBLEMS

(G1) 1b

SUMMRY OF TASKER PROBLEMS

1. (TV MONITORS) 1b1

SPECIFIC PROBLEM 1b1a

- with the same signal source some TV monitors have clearer pictures than others 1b1a1

UNITS AFFECTED 1b1b

- most all 1b1b1

FIX 1b1c

- We need to investigate the problem in more detail to see if procedures can be developed, or changes made that will allow us to more consistently optimize performance. 1b1c1

EXPECTED RESULTS OF FIX 1b1d

NOTE:
If improvements are possible. 1b1d1

ACTUAL: 1b1d2

- TV monitor pictures that are consistent, independent of monitor, and optimized for best picture 1b1d2a

NOTICEABLE BY USERS: 1b1d3

- optimum picture clarity 1b1d3a

- hopefully, overall improvement in picture clarity 1b1d3b

IMPLEMENTATION APPROACH 1b1e

- investigate further in shop 1b1e1

COST ESTIMATE 1b1f

1 MM [ekv, rab, jr] 1b1f1

2. (DEFLECTION AMPLIFIER) 1b2

SPECIFIC PROBLEM 1b2a

- bad character response 1b2a1

UNITS AFFECTED 1b2b

- tasker stations (3-10) 1b2b1

FIX 1b2c

- repair as needed
- calibrate deflection amplifiers 1b2c1

EXPECTED RESULTS OF FIX 1b2d

ACTUAL: 1b2d1

- improved character shape and general quality. 1b2d1a

NOTICEABLE BY USERS: 1b2d2

- improved character shape, (wiggles, and the like) 1b2d2a

IMPLEMENTATION APPROACH 1b2e

- Build up a bench high voltage power supply, then remove one tasker bin (the one that is already down, tasker 7 and 8), repair, calibrate and take a more detailed look at the problem. 1b2e1

Note:
Use this experience and results to determine approach on remaining taskers. It may require some Tasker down time. 1b2e1a

COST ESTIMATE 1b2f

bench work, 1 bin = 2 MM [ekv, rab] 1b2f1

remaining bins = 3 MD each
= (3 MD)X(5 bins)= 15 MD [rab, ekv?] 1b2f2

3. (LENSE FOCUS) 1b3

SPECIFIC PROBLEM 1b3a

- bad edge focus at aperture wider than f4 1b3a1

UNITS AFFECTED 1b3b

- all taskers 1b3b1

FIX 1b3c

- find a close up lens with flat-field focus at large aperture (wider than f3). 1b3c1

EXPECTED RESULTS OF FIX 1b3d

ACTUAL: 1b3d1

- flat field focus 1b3d1a

- greater lens opening 1b3d1b

- longer tasker CRT tube life 1b3d1c

NOTICEABLE BY USERS: 1b3d2

- improved edge focus 1b3d2a

- improved character contrast 1b3d2b

IMPLEMENTATION APPROACH 1b3e

- find a better lens. Use purchasing capabilities. Use Zev Pressman (optic engineer) to help us define specifications. 1b3e1

Note:
- If the lens we find has a different focal length the Tasker's camera mounts may have to be altered. 1b3e1a

COST ESTIMATE 1b3f

lens = 1 MM, + $200 to $500 each lens [meh, rab] 1b3f1

mounting changes = unk time and $ 1b3f2

4. (MOUSE SYMBOL) 1b4

SPECIFIC PROBLEM 1b4a

- 1. mouse tail disappears when bug is moved fast 1b4a1

- 2. all of symbol disappearing when moving fast 1b4a2

UNITS AFFECTED 1b4b

- 1. tail = all taskers 1b4b1

- 2. all mouse = (4, 8) 1b4b2

FIX 1b4c

- 1. improve tail stroke of up-arrow (is bad on tasker) and write mouse more times (3,4). (we now write it 2 times.) 1b4c1

- 2. tune TV controllers more often 1b4c2

EXPECTED RESULTS OF FIX 1b4d

ACTUAL: 1b4d1

- 1. improved up arrow tail 1b4d1a

- 2. darker symbol 1b4d1b

NOTICEABLE BY USERS: 1b4d2

- 1.+ 2. improved appearance of up-arrow and contrast of mouse symbol when moving 1b4d2a

IMPLEMENTATION APPROACH 1b4e

- same as character write up #3 1b4e1

COST ESTIMATE 1b4f

- see character write up #3 1b4f1

5. (MOUSE MARKER) 1b5

SPECIFIC PROBLEM 1b5a

- bug mark, after a CA, is off 1b5a1

UNITS AFFECTED 1b5b

- taskers (11, 12, 7) 1b5b1

FIX 1b5c

- calibrate deflection amps correction circuits 1b5c1

EXPECTED RESULTS OF FIX 1b5d

ACTUAL: 1b5d1

- mouse markers will be in alignment 1b5d1a

NOTICEABLE BY USERS: 1b5d2

- improved mouse pointer selection 1b5d2a

IMPLEMENTATION APPROACH 1b5e

- calibrate on-line, take just the station needing alignment 1b5e1

COST ESTIMATE 1b5f

1 MD [rab, ekv] 1b5f1

6. (SPOT SIZE) 1b6

SPECIFIC PROBLEM 1b6a

- spot size of tasker tubes is larger than manufacturer specification. (Effect is degraded character definition.) 1b6a1

UNITS AFFECTED 1b6b

- all taskers 1b6b1

FIX 1b6c

- investigate further to determine if improvements can be made 1b6c1

EXPECTED RESULTS OF FIX 1b6d

ACTUAL: 1b6d1

- smaller spot size, improved character stroke width to character size ratio 1b6d1a

NOTICEABLE BY USERS: 1b6d2

- clearer characters 1b6d2a

- better contrast 1b6d2b

IMPLEMENTATION APPROACH 1b6e

- remove one tasker bin (2 crts) and experiment with in our shop. 1b6e1

NOTE:
after shop experiment determine what to do next 1b6e1a

COST ESTIMATE 1b6f

bench investigation = 1 MW [ekv, rab] 1b6f1

improvements = unk $. 1b6f2

SUMMRY OF TASKER PROBLEMS

(G2) 1c

7. (POWER SUPPLY BACK-Up) 1c1

SPECIFIC PROBLEM 1c1a

- need to hook-up and try out 1c1a1

UNITS AFFECTED 1c1b

none 1c1b1

FIX 1c1c

take one tasker and hook-up 1c1c1

EXPECTED RESULTS OF FIX 1c1d

ACTUAL: 1c1d1

- faster repairs when a power supply dies 1c1d1a

- standby power supplies that we know will work 1c1d1b

NOTICEABLE BY USERS: 1c1d2

- none 1c1d2a

IMPLEMENTATION APPROACH 1c1e

take one tasker for one day and try. 1c1e1

COST ESTIMATE 1c1f

2 MD, [ekv, rab] + Tasker 1 day 1c1f1

8. (CHARACTERS) 1c2

SPECIFIC PROBLEM 1c2a

- the following characters have poor definition: capital h, capital p, capital o, and small r 1c2a1

UNITS AFFECTED 1c2b

- all taskers 1c2b1

FIX 1c2c

- re-design character cards 1c2c1

- align character generator and associated circuitry 1c2c2

EXPECTED RESULTS OF FIX 1c2d

ACTUAL: 1c2d1

- improved characters 1c2d1a

NOTICEABLE BY USERS: 1c2d2

- closing of capital o, complete capital h character, improved capital p shape and position. 1c2d2a

IMPLEMENTATION APPROACH 1c2e

- Precalculate new circuit values.
- Make substitute character card (2 characters that are non-standard symbols). Use this card to substitute with character card that is to be removed for repairs (hours). 1c2e1

Note:
Character correspondence will be placed on each tasker while substitute card is installed. 1c2e1a

- Take each Tasker for one day to implement alignment 1c2e2

COST ESTIMATE 1c2f

4 MW + each Tasker 1 day [ekv, rab] 1c2f1

9. (DYNAMIC FOCUS) 1c3

SPECIFIC PROBLEM 1c3a

- tasker will not edge focus at full tube aspect ratio (3.5" x 3.5"). This problem is different (Though the effects are the same) than that of the (LENSE FOCUS) problem. 1c3a1

UNIT AFFECTED 1c3b

-all taskers 1c3b1

FIX 1c3c

- troubleshoot to see if repairs and/or an improved redesign can be implemented 1c3c1

EXPECTED RESULTS OF FIX 1c3d

note:
if improvements are possible 1c3d1

ACTUAL: 1c3d2

- improved edge focus, which will allow us to expand image size on tasker crt, which will improve character stroke width to character size ratio, which should give improved character definitions. 1c3d2a

NOTICEABLE BY USERS: 1c3d3

- should notice overall improvement due to easier tuning by Jake and clearer characters. 1c3d3a

IMPLEMENTATION APPROACH 1c3e

- same as deflection write up 2. In addition some Tasker down time to test circuits with the running system. 1c3e1

COST ESTIMATES 1c3f

same as deflection amplifier write up 2. + Tasker (7-12) 2 days. [ekv, rab] 1c3f1

improvements = unk $ 1c3f2

10. (MAINTENANCE PANEL) 1c4

SPECIFIC PROBLEM 1c4a

- scope sync pulse and step switch circuitry do not work. 1c4a1

UNITS AFFECTED 1c4b

- all taskers 1c4b1

Fix 1c4c

- troubleshoot and repair 1c4c1

EXPECTED RESULTS OF FIX 1c4d

ACTUAL: 1c4d1

- maintenance support tools that work, which in turn will provide faster repair service 1c4d1a

NOTICEABLE BY USERS: 1c4d2

- none, since this is used only for maintenance purposes. 1c4d2a

IMPLEMENTATION APPROACH 1c4e

- troubleshoot and repair on-line as much as possible. 1c4e1

Note:
Negotiate during troubleshooting time to take tasker down when needed. (expect down time to be 1/2 to 1 day durations). 1c4e1a

COST ESTIMATE 1c4f

troubleshooting = 2 MD + tasker (1-6) and (7-12) 1 day each [ekv, rab] 1c4f1

fixing = unk $ 1c4f2

11. (TASKER (7-12) wiggling characters) 1c5

SPECIFIC PROBLEM 1c5a

- possible power supply regulation or noise problem 1c5a1

UNITS AFFECTED 1c5b

- taskers (7-12) 1c5b1

FIX 1c5c

- troubleshoot and repair 1c5c1

EXPECTED RESULTS OF FIX 1c5d

ACTUAL: 1c5d1

- no wiggles 1c5d1a

NOTICEABLE BY USERS: 1c5d2

- improved character quality 1c5d2a

IMPLEMENTATION APPROACH 1c5e

- take all of tasker (7-12) for troubleshooting 1c5e1

COST ESTIMATE 1c5f

6 MD + tasker (7-12) 3 days [ekv, rab] 1c5f1

SUMMRY OF TASKER PROBLEMS

(G3) 1d

12. (TV TEXT SIZE) 1d1

SPECIFIC PROBLEM 1d1a

- aspect ratios on TV monitors incorrect 1d1a1

UNIT AFFECTED 1d1b

- several taskers stations 1d1b1

FIX 1d1c

- buy calibration device which will allow Jake to standardize all TVs and controllers aspect ratios 1d1c1

EXPECTED RESULTS OF FIX 1d1d

ACTUAL: 1d1d1

- proper aspect ratio and centering 1d1d1a

NOTICEABLE BY USERS: 1d1d2

- consistent size from one station to the next 1d1d2a

Implementation Approach 1d1e

- order calibration device [meh] 1d1e1

Cost Estimate 1d1f

$1,500 to $2,000. 1d1f1

13. (PERSISTENCE) 1d2

SPECIFIC PROBLEM 1d2a

- sticky TV images when recreating a new text or moving mouse 1d2a1

UNIT AFFECTED 1d2b

- possibly all 1d2b1

(at time of investigation I found only tasker #3 with bad retention) 1d2b2

FIX 1d2c

OPTIONS: 1d2c1

- 1. Tune and tweek TV controllers more often (I did this with tasker #3 and it fixed it). This will not completely resolve it, but certainly should help. 1d2c2

- 2. Dedicate a TV controller to burn in new vidicons (Jake informs me new ones vary considerably in persistence, but stabilize after about 2 weeks of use.) 1d2c3

- 3. Buy premium selected vidicons 1d2c4

- 4. Replace old one more often (4 months?). (Old ones get weak which requires more target volts, which increases retentions.) 1d2c5

- 5. Implement outside project to determine correct CRT-vidicon combinations. 1d2c6

- 6. Try some more combinations of CRT-vidicon ourselves. I have already tried several, we should discuss. 1d2c7

- 7. Experiment with a scan converter.(I recommend we investigate, this could be our best solution) If worked it would replace tasker CRT and TV controller system. Scan converters take x, y, signals in and output EIA TV compatible signals ready for TV set. 1d2c8

EXPECTED RESULTS OF FIX 1d2d

SUMMRY OF TASKER PROBLEMS

ACTUAL: 1d2d1

- improved system? 1d2d1a

- less equipment upkeep? 1d2d1b

- less tweeking needed? 1d2d1c

NOTICEABLE BY USERS: 1d2d2

- better TV text? 1d2d2a

IMPLEMENTATION APPROACH 1d2e

- discuss 1d2e1

COST ESTIMATE 1d2f

1. spend more time tweeking 1d2f1

2. one TV controller dedicated to burn in vidicons 1d2f2

3. probably about $400. each vidicon 1d2f3

4. 30% increase in yearly vidicon cost, 8 more/yr = (8)x($300) = $2,400/yr 1d2f4

5. outside project cost is unknown? 1d2f5

6. $1,500 tubes, 1 MM, tasker 2 days, plus cost of implementing results, ($3,600 to $10,000). [meh, ekv, rab] 1d2f6

7. 1 MW investigating, tasker 1 day, if we purchased; scan converters cost approximately $3,000 ea . [meh, rab] 1d2f7

MEH 1-FEB-73 8:55 13592

SUMMRY OF TASKER PROBLEMS

(J13592) 1-FEB-73 8:55; Title: Author(s): Hardy, Martin E./MEH ; Distribution: Engelbart, Douglas C., Watson, Richard W., Norton, James C., Irby, Charles H./emc chi ; Sub-Collections: SRI-ARC EMC; Clerk: MEH;

DHC 28-DEC-72 23:35 13593

tnx

Dick -- thanx for the prompt reply and the heartening new. My dial will stay set to channel 2. 1

DHC 28-DEC-72 23:35 13593

tnx

(J13593) 28-DEC-72 23:35; Title: Author(s): Crocker, David H./DHC;
Distribution: Watson, Richard W./RWW; Sub-Collections: NIC; Clerk: DHC;

DVN 29-DEC-72 10:53 13594

DRAFT Plan for New Training Series

In the second week of January let's resume half-hour show and tell sessions. 1

As previously, I propose to tape these sessions for possible use in training outside ARC. 1a

A tape that is in my opinion useable for teaching people to send a journal message fell out of the TNLS course. 1a1

Let's have sessions at 11 on Thursday mornings. 2

I propose the following subjects to start with: 3

They go over ground we surveyed before, both because we now know better what we're doing and because not everyone knows what we taught. 3a

On January 9, Jeff might tell us again about archiving and interrogating 3b

On January 16 I might talk about basic TNLS addressing 3c

On January 23 Jim might talk about how to find old journal items. 3d

On January 30 Marilyn might talk about output processor directives. 3e

This draft is intended to solicit opinions and notify people who will have to show and tell. If I do not hear any comments by next year, I will try to establish this as a real schedule. I hope for future sessions on more complex output processor directives, DNLS, Tabs, etc. etc. Suggestions are welcome. 4

I send this draft also to peple at Rome. 5

Perhpas you should cnnect to these sessions by speaker phone and Tenex linking when the subject is TNLS and Share images when the subject is in display? 5a

DVN 29-DEC-72 10:53 13594

DRAFT Plan for New Training Series

(J13594) 29-DEC-72 10:53; Title: Author(s): Van Nouhuys, Dirk H./DVN; Distribution: Lawrence, Thomas F., Stone, Duane L., Norton, James C., Watson, Richard W., Lehtman, Harvey G., Auerbach, Marilyn F., Kelley, Kirk E., Peters, Jeffrey C./tfl dls (I got your note on the workstatement. I found it tought provoking. I am thinking about it.) jcn rww hgl mfa kirk jcp ; Sub-Collections: SRI-ARC; Clerk: DVN; Origin: <VANNOUHUYS>TRAINING.NLS;1, 29-DEC-72 10:24 DVN ;

DVN 29-DEC-72 9:19 13595

More On Putting Sequential Files Into NLS : reply to (13571,)

A ccommand exists to put sequential files in NLS. It is called, logically enough, inset sequential TNLS. Syntax: 1

E[xecute] in[sert sequnetial] A[ssemberlfile] CA
9[40 file]
T[ennex file at] FILENAME CA 2

Don't worry about 940 file and assembler. If you can make your file into a tennex file, (the chances seem to me good that you can) you can then put it into NLS. 3

The resutulting NLS file, of coures, has some dumb,mechnanical default structure; I don't just recal what it is. However we have written some user programs that mkae better structure, e.g. make each sentence (as identified by periods anc captials) into a statement. 4

For more information on these programs, you might get in touch with Kirk Kelley (KIRK) who has used them or Harvey Lehtman who wrote them. 5

All th above is a kludge, of course, pending the development Dick talks about in (13581,) but I thought you might liketo know about it anywway. 6

DVN 29-DEC-72 9:19 13595

More On Putting Sequential Files Into NLS : reply to (13571,)

(J13595) 29-DEC-72 9:19; Title: Author(s): Van Nouhuys, Dirk H./DVN; Distribution: Crocker, David H., Watson, Richard W., White, James E. (Jim), Kelley, Kirk E., Lehtman, Harvey G., Auerbach, Marilyn F., Neigus, Nancy J., Forman, Ernest H./dhc rww jew kirk hgl mfa njn ehf (for your information) ; Sub-Collections: SRI-ARC; Clerk: DVN;

do you ever read your journal mail anymore? 1

(J13596) 29-DEC-72 8:50; Title: Author(s): Padlipsky, Michael A./MAP; Distribution: Metcalfe, Robert M. (Bob)/RMM; Sub-Collections: NIC; Clerk: MAP;

NJN 29-DEC-72 8:07 13597

another TIPUG note

Susan, I have another TIP Users Group note ready to go out. It needs to have the TIPUG number and NIC number filled in in H2 (second heading). Otherwise it is set for printing and waiting for you in (BBN-NET,SITE-SKED,). If you want me to fillin the numbers just leave me a message. Thanx, Nancy. 1

NJN 29-DEC-72 8:07 13597

another TIPUG note

(J13597) 29-DEC-72 8:07; Title: Author(s): Neigus, Nancy J./NJN;
Distribution: Lee, Susan R./SRL; Sub-Collections: NIC; Clerk: NJN;