KIRK 27-MAR-75 00:02 25631

files deleted from <SRI-ARC>

Will the person who deleted files from SRI-ARC directory on the SRI-AI machine please get in touch with me?

Kirk 1

KIRK 27-MAR-75 00:02 25631

files deleted from <SRI-ARC>

(J25631) 27-MAR-75 00:02;;;; Title: Author(s): Kirk E. Kelley/KIRK; Distribution: /SRI-ARC([ACTION]) ; Sub-Collections: SRI-ARC; Clerk: KIRK;

JCP 27-MAR-75 01:17 25632

An Overview Of Changes Under The 133 Monitor At Office-1

This is a brief overview of changes that the average user will experience at Office-1 with the arrival of the 133 monitor. Most of the important things happen down inside the monitor or the exec where the user doesn't see them, but a few will be obvious to everyone, and will need to be explained. 1

EXEC - Only a few changes will appear in the exec that will have any affect on users. the NETUSER, COMUSER, and NICUSER restrictions will remain on exec commands and subsystem use just as they have in the past. Also, commands which relate to the group allocation system will look the same, at least in the exec that first appears under 133. The "MESSAGE" command will remain in the exec, printing out additions to the user's MESSAGE.TXT since the time of last read. Also, when a user logs in, he'll be given a little blurb about his date and time of last login. The "you have new journal mail" message will dissapear, since the EXEC is no longer involved in establishing the user's ident at login time, preventing it from knowing whose initial file to look for. The feature of the Office-1 exec where a user can login without typing "log" before his username will be retained, since users are presumably very used to this feature. A new command that a user can do without logging in, like a systat, is "NETLOAD". This is like a systat for systems that are up on the network, producing a load average and number of users for these systems. 2

PIE-SLICE - The biggest apparent change under 133 will be the advent of the pie-slice scheduler. Besides regulating the number of users that can log in under an allocation group, the system will also split up the allocation of cpu time according to a table kept in directory <SYSTEM> in much the same way the Office-1 group allocation is now kept. With 133, comes a small subsystem called GRPSTS. This will augment, not replace, the GROUPSTAT and SYSTAT commands in the EXEC. It tells the user hom many users are logged in under each of the system's pie-slice groups, how much of a share that group is allocated, and how the allocation compares with the amount of cpu time people logged in under that group are actually getting. 3

OTHER SUBSYSTEMS - Some small changes will show up in other subsystems, like SNDMSG, since current versions of these will be implemented under 133. This should not have any noticable effect on anyone. If you want to get a feel for these small changes, just login at BBNB and you'll see the SNDMSG, READMAIL, etc. that they'll be getting. BANANARD will continue under 133. OLDNLS will not run under 133, if anyone still cares, so users should be warned about this if there is still anyone using it. In short, the system at Office-1 will appear much as BBNB does to us except for the obvious differences of not having to type "log" at login, the continued presence of our GROUP allocation system, and the continuation of the NETUSER, COMUSER, and NICUSER restrictions. 4

JCP 27-MAR-75 01:17 25632

An Overview Of Changes Under The 133 Monitor At Office-1

(J25632) 27-MAR-75 01:17;;; Title: Author(s): Jeffrey C. Peters/JCP;
Distribution: /JHB([ACTION]) ARC-APP([INFO-ONLY]) ;
Sub-Collections: SRI-ARC ARC-APP; Clerk: JCP; Origin: < PETERS,
133,NLS;2, >, 27-MAR-75 01:08 JCP ;;;;####;

test

Rather than replace the three meta-primatives LSEL, DSEL, and SSEL with three other "more intuitive terms", I would propose using only the two terms: POINT and TyPEIN. TyPEIN is a primitive term. For TNLS, the primitive "ADDRESS" would be better than POINT but we must write documentation which works for both DNLS and TNLS. The use of the one meta-primative POINT cat replace the three we now use. So POINT in TNLS = ADDRESS. In DNLS, POINT = BUG/ADDRESS and [POINT] = BUG/[ADDRESS]. 1

LSEL = TYPEIN/[POINT] DSEL=POINT and SSEL = POINT/[TYPEIN] 2

My experience shows that users are not consciously concerned with the fact that all NLS operands are one of three combinations of three basic input types. Instead, all they want to know is what their current alternatives are. 3

test

(J25633) 27-MAR-75 03:13;;; Title: Author(s): Kirk E. Kelley/WUC;
Distribution: /KIRK([ACTION]) ; Sub-Collections: WUC; Clerk: KIRK;

CHI 27-MAR-75 12:10 25634

NPTG-ARC fingings for 26-Mar-75

Daily report of findings for 26-Mar-75 1

ARPA-TIP HUNG TERMINALS 2

Several instances of hung terminals were reported yesterday by users trying to access Office-1 and BBNB. The symptom was that they would suddenly be unable to get characters to/from the servicing host. In many cases, the only remedy was to disconnect and reconnect. In other cases, the situation would clear itself after a few minutes. Ben Barker looked into one such hung terminal and found a 0 bit allocation and was able to clear up another user's problem by flushing the TIP buffer. He should explain the nature of these problems to us. 2a

It may be just a coincidence, but the VDH software has been up and down alot in the TYMESHARE TIP since Tuesday, and there have been quite a few anomolies during that period of time, including retransmission of messages that actually got delivered, resulting in duplicate output on terminals. 2a1

The Test on the 25th did not happen 3

Ben also reported that because of a number of difficulties, the test they were trying to run on Tuesday did not actually happen. However, some testing and debugging of data collection mechanisms did take place on Wednesday. 3a

White/Victor Measurements 4

Jim will release some measurements he and Ken collected regarding TENEX/NCP/NETWORK measurements as described in my memo of yesterday. It should be pointed out that Bob Clements criticized us for making these measurements and that I criticized him for not telling us that they were making similar measurements when we put out an anouncement of our intentions a week before we did it. Ken has discussed the situation with Ray Tomlinson. Ray agreed to send us his changes and to look at ours. We would very much like to run Ray's changes since they should be much more complete than ours. It should also be pointed out that Jim White will no longer be working on performance issues but rather is returning to the implementation of the Distributed Programming System. Ken Victor and Jan Kramers will be taking on his measurement work. Martin Hardy and Rene Ortega will be trained to run the measurement programs that now exist. 4a

LEVIN's memo reporting problems in the network during a 35 minute period. 5

In a conversation with Ben Barker, I asked if the problems

reported in Levin's message were fairly typical. He said they were. This somewhat alarmed me, so I probed some of the events reported more closely. Ben said he should study the message and talk to me later or send out a clarifying message. However, he did explain to me that at least some IMps have been patched to report to NCC whenever they turn their host interface off for more than 1/2 second. This appears to be happening quite a lot. So far, I understand that there are at least two reasons for turning this interface off. One is the sending of multipacket messages that require a subnet allocate and the other is that the host is trying to send a message to another host that is not taking messages fast enough. 5a

This latter event can cause the host-imp interface to be blocked for 15 or more seconds at a time. This was added to the subnet flow control when it was learned (some time ago) that the RFNM mechanism was not adaquate because it only controled things at the link level. Since two host could have many links between them, the subnet had to take additional measures to prevent the net from getting cloged and crashing. This is very important since it prevents the sending host from sending to any other host for significant periods of time. The 15 second periods of no response correlates well with user experience of service going away for such periods of time and then catching up suddenly. As I understand it, a change in the host-imp protocol would be required to fix this one. Perhaps the BBN-Network guys could address this in a separate message. 5a1

MULTI-PACKET MESSGAES TO TIP/ELF 6

We have changed buffer sizes in TIps and in our ELF to avoid problems associated with servicing hosts sinding multipacket messages to terminals over long network paths. This only effect NLS display terminals, of course, and does not effect XGP's, printers, and other high-baud-rate "terminals" attached to TIPs. 6a

CHI 27-MAR-75 12:10 25634

NPTG-ARC fingings for 26-Mar-75

(J25634) 27-MAR-75 12:10;;; Title: Author(s): Charles H. Irby/CHI;
Distribution: /SRI-ARC([INFO-ONLY]) DLS([INFO-ONLY]) ;
Sub-Collections: SRI-ARC; Clerk: CHI; Origin: < IRBY,
FINDINGS-26-MAR-75.NLS;2, >, 27-MAR-75 12:08 CHI ;;;;####;

POOH 27-MAR-75 14:43 25635

Bugs and suggestions regarding the Calculator Tool

Calculator Situation 1

In setting up the Calculator Tool Help data base, I have encountered various problems, some of these are bugs that need to be fixed for the calculator to work properly. Others are simple suggestions that would be of great help to the user. In addition, there are a few suggestions that would involve major additions. It would be helpful if decisions could be made regarding these various categoires, so that I can continue to build the help tool. 1a

BUGS: 1a1

The accumulator you are using should always appear in your tty window. At present, it does not appear after certain commands. I have isolated some of these commands, and will have a complete list shortly. 1a1a

There is no dollar sign ($) displayed in the calculator file when you use the command Show File and have the dollar sign in your format. 1a1b

After using the Show File command, going to one or more subsystems and then quitting back to the calculator, you get the error message system string error. 1a1c

You cannot input a number that begins with a decimal. 1a1d

If you use the Show File command and then quit back to Base, your screen is not always completely cleared and you get part of the calculator file remaining on your screen. 1a1e

SIMPLE SUGGESTIONS 1a2

Institute a Show Format command 1a2a

Institute a Reset Format command to set you back to the default format 1a2b

Change the Show File command to Display File. At present, this command does not work like all the other show commands and I think it is confusing to the user. 1a2c

Institute a command that would allow the user to clear the calculator file from her display. At present, the only way to get rid of the caluclator file is to quit to base and then go back to the calculator. 1a2d

Change the Format Commas and Format Dollar sign commands to Use Commas and Use Dollar signs. These two commands don't

seem to fit well with the other Format commands. When you set a place format that is to small for a number that you already have, you get the message that the format has been reset to the default. Dollar signs and commas are not reset and I don't think they should be. With this proposed change, format would then only refer to place value. 1a2e

Other Suggestions (based on feedback from Jim Norton) 1a3

Institute an Add Colum command. A column of figures (all in the same plex) would be totaled if the user pointed to any number in the column. The total would be placed in your file at the end of the colum and could replace any total that already existed. 1a3a

Institute a function that would interactively interpret and evaluate algebraic functions. This would be extremely useful for people preparing budgets or other similar financial reports where they had formulas into which they were constantly putting different numbers. This is described in detail in a document called Calculator Package dated 9/24/70. I have a copy of it for further discussion. 1a3b

POOH 27-MAR-75 14:43 25635

Bugs and suggestions regarding the Calculator Tool

(J25635) 27-MAR-75 14:43;;; Title: Author(s): Ann Weinberg/POOH;
Distribution: /RWW([ACTION]) EKM([ACTION]) DVN([ACTION])
JCN([INFO-ONLY]) KIRK([INFO-ONLY]) ; Sub-Collections: SRI-ARC;
Clerk: POOH;

User-options for the Calculator

In addition to POOH's 25635 suggestions for the Calculator tool, 1

KIRK 27-MAR-75 18:39 25636

User-options for the Calculator

(J25636) 27-MAR-75 18:39;;;; Title: Author(s): Kirk E. Kelley/KIRK;
Distribution: /EKM([ACTION]) ; Sub-Collections: SRI-ARC; Clerk:
KIRK;

Silver Bullets, sample and Propsal

During the recent all-ARC meeting in which Dick and Jim described on the ARPA contractor's meeting Dick reported that the ARPA office would like to get frnquent, generalized, brief, "bulleteized" reports. I find that an interesting task and offer this proposal. 1

I suggest reports on the 15th and 30 of the month. I imagine that I or some other report maker would go to a small list of people (maybe EKM, CHP DVN and JEW) and ask if there were anything to report, write it up in the format below with not more than 5 lines to an item and BACKGROUND and IMPLICATIONS as appropriate, pass it by Dick for approval and journalize it to Walker (?) in the ARPA office. 2

Perhaps it is too much to try to write something that a congresperson could understand, but the choice of words should atleast aim at anyone in the central ARPA office. 3

It should take about 2 hours of the reporters time, half an hour of Dicks, and 15 minutes from the other people. 4

Each report would have 3-5 items. I offer a sample below. I have not been watching ARC Development from a top view-...maYbe I chose the wrong things. 5

ARC Developement Quick Report for the period Ending March 30th 6

[] The Development Group began doing thier daly work through the ARPA net on a PDP-10 at BBN in Boston. The productivity of people used to working in NLS on interactive display (CRT) terminals has been reduced several times as idicated by subjective impressions and rough measures like the amount of CPU time used per unit of time logged in. 6a

IMPLICATIONS: This is a serious problem for the NSW schedule. 6a1

[]Specifications have been completed for running NLS at ISI. We are now working out fuzzy areas and ISI is waiting for ARC for finish specifying the PCP (Procedure Call Protocol)which allows programs running in one machine to call across the net for support from programs on other machines. 6b

BAnKGROUND ISI is planning to use NLS in their COTCO message handling system. Implimentation involves coloborative work beetween ISI and ARC. 6b1

IMPLICATIONS:.: ARC is about a month behind schedule in PCP specification. 6b2

[] ARC established a task force to improve the productivity offered by NLS running through the network. They are cooperating

with interested parties at BBN and elsewhere. So far they have unearthed a number of small problems charateristically involving data entering a leaving the net, but no dramatic brakthroughs. Reports are journalized daily. 6c

BACKGROUND: See above. 6c1

IMPLICATIONS:Times is beign taken from the NSW contract, but we believe that if the effort is even moderately sucessfull the time will be repaid for us and for other network users. 6c2

[] Two chapters of an Airforce manual have been typed onto MTST tapes, translated through a several computer steps, and set up as NLS files. These are trial runs and some errors appeared from the translation steps and from the typist's faileur to follow input rules. 6d

BACKGROUND: In association with the NSW program an Airforce Group is putting an 8000-page manual into NLS for future printing and online use. This will be the largest publication effort in the history of NLS. 6d1

DVN 27-MAR-75 19:16 25637

Silver Bullets, Sample and Propsal

(J25637) 27-MAR-75 19:16;;; Title: Author(s): Dirk H. Van Nouhuys/DVN; Distribution: /ARC-DEV([ACTION]) ; Sub-Collections: SRI-ARC ARC-DEV; Clerk: DVN; Origin: < VANNOUHUYS, SB,NLS;2, >, 27-MAR-75 19:08 DVN ;;;;####;

JLE 28-MAR-75 11:42 25638

NCP Buffer Size Modification

The change that you requested seems to be simple enough though our current knowledge shows that the change needs to be made not in TELNET (where we have been making the change previously) but in the NCP itself. As of 8:30 Friday morning the SRI-AI 10 was refusing connection in a way that I have never seen occur before, but hopefully I can make this change very soon and test it before the 1:30 meeting. I would like to report message size statistics at that time as well but that might be optimistic.

...Joe

1

JLE 28-MAR-75 11:42 25638

NCP Buffer size Modification

(J25638) 28-MAR-75 11:42;;;; Title: Author(s): Joseph L. Ehardt/JLE; Distribution: /CHI([INFO-ONLY]) ; Sub-Collections: NIC; Clerk: JLE;

CHI 28-MAR-75 13:10 25639

NPTG-ARC Findings for 27-Mar-75

Not sent to NPTG. DCE please tell me if you want it sent out.

NPTG-ARC Findings for 27-Mar-75

Daily report of NPTG-ARC findings for 27-Mar-75: 1

KI-TENEX 1a

Given that many of the problems we are observing in the network are either caused by or aggrivated by long network paths, and given that solutions to these problems are probably not going to be forthcoming for some time, we have asked Jan Kremers to evaluate how well NLS would run on a KI-TENEX, which TYMSHARE could possibly install for us in two or three months. KA-TENEX's are getting very scarce since DEC is no longer making KA's and BBN is not very interested in making pagers for KA's. TYMSHARE has already commited to support a large number of KI's and would thus not see too much risk in getting another for us, since it could use it if we couldn't. We would probably be in line for a KL when they became available and had gone through some field shakedown. 1a1

Half Duplex Display NLS 1b

Since I have found TNLS to be useable (and in fact preferable for certain kinds of tasks) in half duplex mode when remote echo delays are too long, I patched togeter a half duplex DNLS yesterday and ran with it for a short while. Although this was not a conlusive test, it was sufficient to show me that a real half duplex DNLS would be very trick from the user's standpoint. Whereas in TNLS one typically terminates commands with Carriage Return, there is no equivalent in DNLS. Also, in DNLS coordinate information is input and echoed abck to the user by the TIP/ELF. This is all quite confusing and annoying. For typing in literal text, however, the half duplex mode was clearly supperior. We would probably have to use the "/" feedback of TNLS (and most other TENEX programs) to indicate backspace-character instead of just erasing it from the display, however. Switching into and out of half duplex would be a very tricky business. 1b1

Host Blocking 1c

Steve Butterfield of BBN-Network sent out a memo sumarizing some imp-blocking-host data collected on 20-Mar-75. It showed clearly that Office-1 is blocked quite a bit more frequently than the other hosts measured (ARPT-TIP, TYMSHARE-TIP, BBNB, BBN10X-TIP, and BBNC). A very large number of blocks were due to Office-1 sending multi-packet messages. I sent Steve a message asking if they had more recent measures of Office-1 multi-packet message blocks since we think the TIP/ELF buffers are smaller than a packet now. I will forward Steve's message to anyone who is interested. 1c1

NPTG-ARC Findings for 27-Mar-75

BBN results of testing and measurements 1d

We have received no results yet from BBN concerning the tests and measurements they have been doing. We have also not had any explaination of the 15 second blockage problems reported by Levin. We have not received any word from Bob Clements about what is measurable in 1.33 TENEX that would help us determine NLS's behavior at BBNB and to anticipate its behavior at office-1 after it comes up on 1.33. Bob has also not sent us the measurements of the logical drum/disk activity we asked for. In addition, we have had no word on the report we made to BBN that our printer runs at half speed when only one hop from the AI-TENEX. 1d1

VDH software in TYMSHARE TIP 1e

Alex McKenzie reported yesterday that the diagnosis of several TYMSHARE-IMP crashes this week seems to indicate that the VDH is somehow causing the IMP to run out of buffers and this is causing some other bug that causes the IMP to crash. They are pursuing the problem. 1e1

SUBNET TIMES 1f

running the Jim White/Ken Victor measurement program is yielding quite different subnet times. The program runs at SRI-AIC and sends a character to a looped-back terminal on the TYMSHARE-TIP. The subnet times to traverse this path twice (round trip) vary from 200 MS to 800 MS. Jim will publish some of the statistics gathered so far. There may be some correlation here with the VDH code in the TYMSHARE-IMP. 1f1

CHI 28-MAR-75 13:10 25639

NPTG-ARC Findings for 27-Mar-75

(J25639) 28-MAR-75 13:10;;; Title: Author(s): Charles H. Irby/CHI;
Distribution: /SRI-ARC([INFO-ONLY]) ; Sub-Collections: SRI-ARC;
Clerk: CHI; Origin: < IRBY, FINDINGS-27-MAR-75,NLS;2, >,
28-MAR-75 13:05 CHI ;;;;####;

POOH 28-MAR-75 15:57 25640

Keeping track of tapes sent to DDSI

I've created the file <com,tapes,> where we can keep track of the tapes we send to DDSI. At least we can try to be organized even if they are not.

POOH 28-MAR-75 15:57 25640

Keeping track of tapes sent to DDSI

Listed below is information about tapes sent to DDSI. For each tape sent, the follcwing information will be included: 1

Tape number, date tape was readY for DDSI, and person who sent tape 2

FILENAMES and person responsible for each file 2a

Tape 0001 3/26/75 POOH 3

<userguides,commands-com,nls;10> POOH 3a

<office-1,meyer,formats,nls;1> (run with format 2) NDM 3b

POOH 28-MAR-75 15:57 25640

Keeping track of tapes sent to DDSI

(J25640) 28-MAR-75 15:57;;; Title: Author(s): Ann Weinberg/POOH;
Distribution: /KIRK([ACTION]) DVN([ACTION]) NDM([ACTION]) ;
Sub-Collections: SRI-ARC; Clerk: POOH; Origin: < COM,
TAPES.NLS;2, >, 28-MAR-75 15:51 POOH ;;;;####;

KIRK DVN POOH 28-MAR-75 16:53 25641
Readmail and Calculator progress, command sum. and format lib. to com

The week ending 3/28 1

POOH: 1a

finished final changes on commands summary and sent it to DDSI 1a1

transfered all nsw help data base files to the directory help..the only reason I include this simple task is that it took an entire morning to to complete! 1a2

attended all arc meeting and several other 1:30 daily report meetings 1a3

created a file in directory com for keeping track of tapes sent to DDSI 1a4

NSW Documentation 1a5

Useroptions pOOH<help,Useroptions,> 1a5a

DRAFT Scenario DUE:April 25 1a5a1

Scenario DUE:May 9 1a5a2

DRAFT Data Base File DUE:April May 2 1a5a3

Data Base File DUE: May 26 1a5a4

DRAFT Introduction to NSW Useroptions DUE: April 28 1a5a5

Introductiono NSW useroptions DUE: May 11 1a5a6

Caluculator POOH<help,calculator,> 1a5b

Action: continued learning about calculator and revising command descriptions in <help,calculator,> submitted a status report to EKM, RWW, DVN, and KIRK, awaiting feedback, spoke with JCN and Susan about users of the calculator. 1a5b1

DRAFT Scenario DUE:April 15 1a5b2

Scenario DUE:April 25 1a5b3

DRAFT Data Base File DUE:March 28 1a5b4

Data Base File DUE: April 28 1a5b5

DRAFT Introduction DUE: April 4 1a5b6

Introduction DUE: April 18 1a5b7

Graphics POOH<help,graphics-terms,> 1a5c

DRAFT scenario on Making a Flow Chart DUE:April 25 1a5c1

Scenario on Making a Flow Chart DUE: May 2 1a5c2

DRAFT Data Base File DUE:April 4 1a5c3

Data Base File DUE: April 11 1a5c4

DRAFT Introduction DUE: April 18 1a5c5

Introduction DUE: April 25 1a5c6

NLS Editor <help,Editor,> 1a5d

DRAFT Scenario DUE:May 2 1a5d1

Scenario DUE: May 16 1a5d2

DRAFT Data Base File DUE:April 11 1a5d3

Data Base File DUE: April 18 1a5d4

DRAFT Introductionfor NSW audience DUE: April 25 1a5d5

Introduction DUE for NSW audience: May 2 1a5d6

NLS Environment File POOH KIRK <help,nlsum,> 1a5e

DRAFT Data Base File DUE:May 2 1a5e1

Data Base File DUE: 18pril 18 1a5e2

Sequential I/O 1a5f

POOH, a tutorial on how to use Sequential I/O. 1a5f1

DRAFT DUE *May 20 1a5f1a

DUE *May 29 1a5f1b

NSW Cue Card POOH 1a5g

Draft DUE May 15 1a5g1

DUE June 1 1a5g2

Readmail and Calculator progress, command sum, and format lib. to com

DvN 1b

Final Report 1b1

A little miscelaneous Editing,proding and working with Harvey to get the last little bit of writing on Help cleaned up. 1b1a

Small Trailing NLS-8 Documents 1b2

preface to NLS: Waiting for Application's Review 1b2a

TNLS Addressing: It is on me to repsond to RWW's review. 1b2b

COM: 1b3

Of the last drft of Dean's format library that went to DDSI for proofs, all but one format were correct; we sent the one format to them and requested camera-ready copy for the rest. New draft of the command summary went to DDSI. 1b3a

I tried for the third week to recall Martin Hardy's paper Microprocessing Technology from archive at BBN and failed . I have ordered SRI to print some more of the old version. 1b3b

NSW DocumentationCombination of slow response and other work (mostly staffing, glossary, and overhead) ment almost no progress here. 1b4

DCPS DvN<help,dpcshelp,> 1b4a

DRAFT scenario formatting a file for COM DUE:April 11 1b4a1

Scenario on formatting a file for COM DUE:April 25 1b4a2

DRAFT Data Base File DUE:March 28 1b4a3

Data Base File DUE: April 28 1b4a4

DRAFT Introduction DUE: April 4 1b4a5

Introduction DUE: April 18 1b4a6

Front End/Works Manager DvN<help,fewm,> 1b4b

Introduction 1b4b1

DRAFT DUE April 11 1b4b1a

Readmail and Calculator progress, command sum. and format lib. to com

Final DUE: April25 1b4b1b

Scenario loging into NSW and getting a tool. 1b4b2

Darft DUE April 18 1b4b2a

Final DUE May 2 1b4b2b

DRAFT Data Base File DUE: April 7 1b4b3

Data Base File DUE: April 21 1b4b4

Interface to Secretarial Functions 1b4c

DvN, Introduction, 1b4c1

DRAFT DUE *April 15 1b4c1a

DUE *April 25 1b4c1b

Glossary: Rita Hysmith continued slow but important work of ferreting out problems. I will have to go over what she has done, make maybe half the corrections that can be done with mass substitutes or other automatic processes, and then hand it to some one to put in hand edits. That will take till the end of next week. Then it can go to SRI editing in good shape. 1b5

Hiring: Beverly Boli will come to work April 7. We are still looking for another documentation person with the title Research Associate or thereabouts. I fired up the various services that are suposed to send us candidates. 1b6

KIRK 1c

Got a good start on the Readmail tool <Help, Readmail,> 1c1

KIRK DVN POOH 28-MAR-75 16:53 25641
Readmail and Calculator progress, command sum, and format lib, to com

(J25641) 28-MAR-75 16:53;;; Title: Author(s): Kirk E. Kelley, Dirk H. Van Nouhuys, Ann Weinberg/KIRK DVN POOH; Distribution: /DIRT([INFO-ONLY]) ; Sub-Collections: SRI-ARC DIRT; Clerk: POOH;

JBP 30-MAR-75 02:09 25642

elf ncp alternative

28-MAR-75 14:38:14-EDT,2673;000000000000
Mail from USC-ISIB rcvd at 28-MAR-75 1437-EDT
Date: 28 MAR 1975 1131-PDT
From: RAVELING at USC-ISIB
Subject: Elf NCP
To: Postel at BBNB
cc: Ehardt at BBNB, Raveling

Jon,
We don't have a full NCP to replace Elf's, but we do have an alternate for its storage allocation module. I'm sure that's what Steve had in mind.

Source for this module is in [ISIB]<ELF>NSA.N11, and it's a direct replacement for the standard copy of NSA. It uses the kernel's $AVS and $FVS primitives to manage NCP buffers, rather than the standard scheme with fixed buffers generated in the assembly of NSA.

The main advantages of our version of NSA are that using $AVS reduces the amount of core wasted in partially filled blocks and that it eliminates the need for careful system tuning to optimize buffer pool allocations. This is fairly important to us for high data rate transmissions (CVSD speech and network measurements), which have trouble with peak demands on buffer space when the IMP loads up enough to refuse messages for a few seconds. With fixed buffering the NCP crashed frequently.

A disadvantage of our NSA compared to the standard version is that it uses more CPU time. It doesn't use enough additional time to hurt our current applications though; core use is our critical problem, so it was an easy tradeoff to decide on.

There are two related changes, both extremely small, which would have to be made in NNCP0 and NNCP in order to use our NSA. The NNCP change may have been incorporated in the standard Elf -- we haven't checked since January.

In NNCP0 the $GFMQE subroutine was modified so that if the queue of free MQEs is empty it calls a routine in NSA to allocate more. This eliminates the possibility of running out of MQEs, provided the system doesn't run out of free storage.

In NNCP's initialization there was a minor bug that caused it to skip formatting the first MQE. This wastes one pre-assembled MQE but isn't fatal to people using the standard NSA. However, when we added dynamic MQE allocation to NSA we cut down the number of pre-assembled MQEs to 1 and the initialization blew up.

elf ncp alternative

It would be safest to use SRCCOM to check the standard versions of NNCP and NNCP0 before trying our NSA.

Finally, the kernel and NCP will need to be linked at different addresses. Without buffers assembled into the NCP it shrinks drastically and can be linked a fair bit higher. The space lost there should be absorbed in the area used by SAVS for its free space. In a nonvirtual system that's the space below the kernel, so the kernel has to be linked higher.

-- Paul

JBP 30-MAR-75 02:09 25642

elf ncp alternative

(J25642) 30-MAR-75 02:09;;; Title: Author(s): Jonathan B. Postel/JBP; Distribution: /NPG([INFO-ONLY]) NSW([INFO-ONLY]) ; Sub-Collections: SRI-ARC NPG NSW; Clerk: JBP;

JBP 30-MAR-75 02:13 25643

here's another tool

28-MAR-75 18:49:28-EDT,790;000000000000
Mail from USC-ISIB rcvd at 28-MAR-75 1849-EDT
Date: 28 MAR 1975 1548-PDT
From: GOLDBERG at USC-ISIB
Subject: INTRODUCTION TO NSW
To: POSTEL at BBNB
cc: GALLENSON, GOLDBERG, CROCKER 1

I am about to be thrust into the world of NSW as a tool purveyor, the tool in question being the MLP-900 micro-programmable processor and the pRIM system we have built around it. You have been recommended as a good starting point for gathering both information and further introductions.
I have copies of, and have begun to read, both your NSW Protocols, V2, and White's PCP, V2. While they seem to be necessary reading, they don't seem sufficient for an understanding of what I must do to convert (upgrade?) PRIM into a tool. 2

Joel Goldberg
(GOLDBERG @ ISIB)
------- 2a

JBP 30-MAR-75 02:13 25643

here's another tool

(J25643) 30-MAR-75 02:13;;; Title: Author(s): Jonathan B. Postel/JBP; Distribution: /NPG([INFO-ONLY]) ; Sub-Collections: SRI-ARC NPG; Clerk: JBP;

CHI 28-MAR-75 20:56 25644

Summary of NPTG-ARC findings and status

This document attempts to summarize the findings of the ARC Network Performance task force, Recommendations are also made where appropriate, In addition time estimatees are given for length of time until a problem is fixed, As I learn more about the problems, I will update this file, 1

BREAK CHARACTER TO TIP 1a

The 208 modems connected to Line processors were sending continuous breaks to the TIP whenever the Line processor was powered down, This was because the Line processor-modem connection had the "data ready" bit wire to true all the time, sine the Line Processor did not provide such a signal, The TIP had been modified to detect this sort of thing and disable it. The TIP modification did not work for some unknown reasons, 1a1

This is supposedly not happening anymore, Perhaps should modify design of Line processor so it wont happen, Tips being modified to prevent it, 1a2

Caused very significant degradation of service to users using local host if TIP connect was to the local host and was not closed, 1a3

BREAK CHARACTERS TO PDP-10 1b

An open line to the PDP-10's Data Line Scanner was found and fixed, May have accounted for a 1% to 2% load on system (this is based on our experience that an open line at 9600 baud caused a 20% load on our local PDP-10), The open line at Office-1 was at 1200 baud, 1b1

VDH interference 1c

The Very Distan Host interface code and buffers now being installed in the TYMSHARE TIP is highly suspect but no conclusive proof as yet, It appears to be causing IMP crashes and strange behavior, 1c1

I expect this will get fixed within a month, I would recommend moving the VDH to another IMP since it eats up 50% of the IMP's buffer space and seems flacky, 1c2

HOST blocking imp-host interface 1d

It was discovered that TENEX is blocking IMP from inputting on 1,31 TENEX, Office-1 is moving to 1,33 to fix this and other network problems, I expect this will be up within three weeks,

This may not entirely eleviate the problem and we should continue to watch it. 1d1

imp blocking host-imp interface 1e

This seems to be happening quite a lot and probably accounts for the 15 second periods users have observed when there is no interaction with the servicing host. There are two causes known to me to date. Hopefully the bbn-network people will clarify this area for us. 1e1

multi-packet messages 1e2

Can cause the interface to be blocked for at least the round trip time to the receiving imp. this causes the host to be unable to send data to any other host for period of at least 1/2 second. Fixing this requires a change to host-imp protocol which I recommend ARPA should support. This will require many months to implement for all hosts but could be fixed in all TENEX's more quickly. 1e2a

receiving host slow in taking data 1e3

This may account for long (15 second) pauses where a host does not respond. The subnet blocks a host from sending too much data to a receiver host that is not taking data quickly enough. If the host is going down or faultering, the delay in taking data becomes the timeout period or 15 (or is it 40) seconds. 1e3a

Hopefully the bbn-network people will clarify this one for us shortly. The fix here is also a change in imp-host protocol or perhaps a change to sending hosts to monitor their outstanding messages more closely and to anticipate the imp blockage before it occurs. 1e3a1

general tenex overhead -- NCP and scheduler 1f

Initial measurements from JEW's and KEV's work indicate that general TENEX NCP/scheduler overhead often exceeds network transmission times for single charcter interactions. It is perhaps posible to tune TENEX so that this overhead is reduced. BBN-TENEX people are currenly looking into these problems and may come up with some answers. 1f1

It almost goes without saying that TENEX load has a significant effect on responsiveness. However, the pie slice scheduler does provide some insulation from this. 1f1a

Summary of NPTG-ARC findings and status

subnet performance 1g

The subnet performance seems about according to specs (about 50 MS per hop). However we have observed times when it appeared to be more like 200 MS per hop. Long network paths seem to cause some problems because the net was designed assuming a max of 6 hops and the average length is now more like 10 hops. This is very serious and requires either changes in network topology or network desing and protocols to accomodate this deviation from initial design assumptions. 1g1

Since this is likely to take a long time to fix, I recommend that ARC should get its TENES service from a host that is at most 6 hops away, and preferably much closer. Jan Kremers is investigating the performance of NLS on a KI-TENEX, since this will break the log jam for TYMSHARE, since it is going with KI PDP-10's. An alternative solution should be sought for east-coast Office-1 users (like putting a TYMSHARE or BBN managed facility on the east coast). 1g1a

ELF problems 1h

ELF crashes, hangs, and character dropping has been a very serious problem for us. There are now three people working on various of the problems. My guess is that most of our serious elf problems will be solved within a week if Dave Retz pays attention to them. Otherwise, I would guess three weeks. 1h1

Mouse keyset handling 1i

The reliability of mouse/keyset usage has dropped considerabley. It was decided that this would be corrected within NLS rather than changing the Line Processor (which we now consider to be frozen except for bug fixes). 1i1

I expect the fixes will be in the running BBNB NLS within a few days 1i1a

suspended connections 1j

This continues to be a problem for me. My connection tends to be broken to BBNB about four times a day. I have never been able to type in the daily status report without at least 2 breaks in my work, some of which are auto hangup of the data set at the ames tip. 1j1

single vs multi-packet messages 1k

It was learned that sending multi-packet messages to tip

terminals over long network paths did not win. We have changed tip/elf buffers to be smaller than a packet to avoid this. However, file transfers and other network uses can still cause problems. 1k1

It should be pointed out that the net is really optimized for single and 8-packet messages. Less throughput performance is achieved with anything in between. 1k1a

CHI 28-MAR-75 20:56 25644

Summary of NPTG-ARC findings and status

(J25644) 28-MAR-75 20:56;;; Title: Author(s): Charles H. Irby/CHI;
Distribution: /SRI-ARC([INFO-ONLY]) ; Sub-Collections: SRI-ARC;
Clerk: CHI; Origin: < IRBY, SUMMARY,NLS;2, >, 28-MAR-75 20:50
CHI ;;;;####;

JBP 1-APR-75 15:51 25649

Message about PCP from Raj Kanodia

31-MAR-75 16:09:47-EDT,5909;000000000000
Mail from MIT-MULTICS rcvd at 31-MAR-75 1609-EDT
From: Kanodia.CompNet at MIT-Multics
Date: 03/31/75 1610-edt
Subject: logical-channels in PCP 1

Jim White and Jon Postel: 2

It seems likely that I will be implementing the PMP on Multics and, therefore, have just gone through the PCP and related documents and would like to suggest that the entire notion of logical channels be dropped from the PCP (or PMP.) It seems to me that this can be accomplished by making a very small change to the user interface to the PMP and will result in elimination of a substantial amount of complicated software without any loss of existing capabilities. 3

Briefly, I see three reasons for having logical channels. A discussion on each of these follows. 4

1 - "Logical channels exist for two reasons. The first is to permit two processes to know each other, either for a very brief interval or for very infrequent interchanges, without creation or maintenance of a physical channel." (Jim White and Jon Postel's reply to PCP critique by BBN, March 11, 1975) 5

> It seems to me that creating a physical channel is no more complicated than creating a logical channel. The code to create a physical channel (along with a logical channel) already exists. And after all, a "physical channel" is really a virtual channel implemented in terms of a rather large virtual socket space and link space and should not require any more resorce than a logical channel. Existence of logical channels, on the other hand, makes PMP software rather complicated; every PMP must be programmed to be interruptible at any point in time and be prepared to forward messages on logical channels. Also notice that messages sent on logical channels will take much longer to reach the destination than those sent on physical channels. 5a

2 - "The second reason is that I suspect that there might be situations in which one process has to be able to ascertain its relationship to another with respect to the process tree (e.g. so that the system can verify the legality of some operation)." (Jim White and Jon Postel's reply to PCP critique by BBN, March 11, 1975) 6

> Logical channels are an unnecessarily complicated mechanism to achieve this goal. Further more, PMP does not provide any

Message about PCP from Raj Kanodia

primitives by which a process can determine its relationship to the process at the other end of a logical channel. If the relationship is meant to imply any hierarchical ordering of processes then we have the following possibilities: 6a

1 - Direct superior
2 - Indirect superior
3 - Direct inferior
4 - Indirect inferior
5 - none of the above 6a1

If the fifth case holds for any two processes then there is no simple relationship between the two processes, at least not something that can be inferred from or implied by their respective positions in the process tree. An integer associated with the process handle can easily maintain a process' relationship (in the sense of one of the above catagories) to the process at the other end. Any finer description of the relationship does not depend upon their position in the tree and hence must come explicitly from the user. 6b

3 - Another property of the logical channels which is implicit in their definition is that when the introducing process goes away (or a connection between the introducing process and one of the introduced processes breaks) then the logical channel is automatically broken. 7

Let process A have connections A-1 and A-2 to process 1 and process 2 respectively. Now process A introduces 1 and 2 which results in the connection 1-2. As the protocol stands now, if A dies, or if any of the connections A-1 or A-2 is broken, then connection 1-2 is also broken. The same behaviour can be obtained without logical channels. In fact, mechanism for this already exists, namely, the introduction table. If and when connection A-1 or A-2 is broken, A simply looks up in the introduction table and initiates to break all the connections dependent upon the broken connection. It might be appropriate to make the protocol a little more flexible. It will no longer be mandatory to break 1-2 when A dies or A-1 or A-2 is broken. Let the user programs specify whether or not the connection 1-2 is to be broken when A-1 or A-2 are broken. 7a

This will allow modelling of at least one existing situation within the frame work of PMP. When a remote process requests an answering service to create a new process, answering service may be viewed as performing an "introduction" between the remote process and the newly created local process and then removing itself from the scene with the newly established connection left intact. 7b

JBP 1-APR-75 15:51 25649

Message about PCP from Raj Kanodia

The "small change" to PMP is merely eliminating the "direct" argument to the ITDPRCS call (introduce-processes). ITDPRCS will always result in creation of a physical channel. There will no longer be any need for logical-channel-support entries in the PMP and PMP will become less cumbersome.

- Raj Kanodia

JBP 1-APR-75 15:51 25649

Message about PCP from Raj Kanodia

(J25649) 1-APR-75 15:51;;; Title: Author(s): Jonathan B. Postel/JBP;
Distribution: /JEW([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk:
JBP;

KIRK 2-APR-75 05:21 25650

Two changes for NLS-9 to help avoid lost work

With the new Heading entity to be implemented for NSW, I expect the Statement entity in NLS-9 will be replaced by Heading and Paragraph where paragraph is what is now called Statement. The word Substructure would presumably replace the word Plex. This will make it easier to interface the inexperienced user to NLS secretarial functions. 1

Changing Plex to Substructure will have other benefits. It will be harder to accidentally delete a plex. Plex is so close to Text on the keyset and Text requires so many CTRL-D's that you are now almost guaranteed to delete a lot of work sometime. It has happened to me with disasterous effects several times. 2

In addition, I propose that anything the user now commands to have deleted be instead moved to a special branch at the end of the file (named waste-basket-for-deleted-work ??) which disappears with the "Update File Compact" command. If the overhead on this is not too great, the benefits toward making NLS a friendly system to use would be tremendous. 3

Two changes for NLS-9 to help avoid lost work

(J25650) 2-APR-75 05:21;;; Title: Author(s): Kirk E. Kelley/KIRK; Distribution: /NPG([INFO-ONLY]) RWW([INFO-ONLY]) FDBK([INFO-ONLY]) JHB([INFO-ONLY]) SRL([INFO-ONLY]) DVN([INFO-ONLY]) JCN([INFO-ONLY]) DCE([INFO-ONLY]) RLL([INFO-ONLY]) RA3Y([INFO-ONLY]) ; Sub-Collections: SRI-ARC NPG FDBK; Clerk: KIRK;

KS 2-APR-75 13:01 25651

Draft of reply to Watson, for your perusal.

WATSON (rww) draft 1

We at Computer Associates [SW, REM, KS] have had some discussion of the points raised in your memo of 26 Feb 75. None of us is in complete agreement with the others, or with the memo, on every point. But the upshot is that we have no serious objection to any of the suggestions you raise. If we had had, we would have gotten back to you sooner. Sorry. 1a

We do have a few comments and questions, though: 1b

As I believe you've already heard from REM, all questions of automatic/forced completion/recognition will be held in abeyance for this year. 1b1

Under universal functions, Set 1 (available everywhere): 1b2

No objection to anything on the list. You don't mind that we tend to think of them as "control characters"? 1b2a

Possible addition: a "situation" view, like '<' or '>' in NLS, to reassure the user by telling him where he is. 1b2b

Under universal functions, Set 2:
We take it that "available to ... tools" means "available IN ... tools" -- i.e., available to a user when he is running in the tool. 1b3

We have no objection to the tool designer putting these in as second-level commands, assuming, of course, that: 1b3a

The user is also permitted to invoke them in the "Class II" manner -- that is, by prefixing with a special character. This is for the sake of uniform appearance to a user who might use tools of both Classes. 1b3a1

The calls on the WM are the same in either case. 1b3a2

Our present understanding of the FE-WM interaction on multiple tools is as follows: 1b3b

The WM must be called to get in contact with a new tool [RUN tool]. 1b3b1

The WM must be called to correctly terminate contact with a tool [END tool] 1b3b2

The WM can be called to disconnect a tool, without terminating [SUSPEND tool]. 1b3b3

KS 2-APR-75 13:01 25651

Draft of reply to Watson, for your perusal.

The WM can be called to reconnect a suspended tool [RESUME tool]. 1b3b4

A SUSPENDed tool must be either RESUMEd or ENDed, 1b3b5

Now, outside of this, all slewing between tools, running several concurrently, or executing a command in one while running another, is up to the FE to manage (although the WM is happy to resupply grammars, etc., that the FE machine doesn't have room to keep). 1b3b6

Within this understanding, we're a little unclear about exactly how to understand the Set 2 commands, but we assume there's no serious problem. 1b3c

Does "quit tool" mean to quit the tool he's in? Where is he after he has done that? 1b3c1

KS 2-APR-75 13:01 25651

Draft of reply to Watson, for your perusal.

(J25651) 2-APR-75 13:01;;; Title: Author(s): Kirk Sattley/KS;
Distribution: /REM([ACTION]) ; Sub-Collections: NIC; Clerk: KS;

RLL 2-APR-75 14:16 25652

commment on NLS-NSW changes: PARAGRAPH, SUBSTRUCture, and wastebasket

The name of things IS indeed important.

RLL 2-APR-75 14:16 25652

commment on NLS-NSW changes: PARAGRAPH, SUBSTRUCture, and wastebasket

RE: (KJOURNAL, 25650, 1:w) 1

The name change (statement to paragraph) sounds like a great idea, the waste basket idea seems to be a slight duplication of the version feature (u can backup to the previous version) however perhaps not as easy or reliable (one could have created and deleted items within a partial copy). In any case this waste basket sounds like a nature for another dimension (like graphs, backlinks, etc). 2

One objection: the name SUBSTRUCTURE sounds, to me, like what a BRANCH is. Perhaps another name can be found (FIELD, SET, etc, or just STRUCTURE) 3

RLL 2-APR-75 14:16 25652

commment on NLS-NSW changes: PARAGRAPH, SUBSTRUCture, and wastebasket

(J25652) 2-APR-75 14:16;;; Title: Author(s): Robert N. Lieberman/RLL; Distribution: /KIRK([INFO-ONLY]) JHB([INFO-ONLY]) JCN([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: RLL;

CHI 2-APR-75 14:43 25653

re 25650: Kirk's suggested changes for NLS-9

Kirk, with respect to your suggestions about Paragraph and Substructure and Waste-basket, I would like to say I patched NLS to use Paragraph and Substructure and found it to be very nice except that old habbits caused me to delete a lot of substructure when I meant to delete a statement. With regard to the waste basket for deleted material, is it your intention that deleted text would go there too (e.g. delete word)? All of the formatters (actually the seqgen) would have to be changes so as not to show this bra7ch to the user or it would have to be a separate tree within the file (or a separate file -- one per user) in which case there would have to be special commands to get at the contents. All in all, I like the ideas and think we should try to come up with some workable solutions. -- Charles.

1

CHI 2-APR-75 14:43 25653

re 25650: Kirk's suggested changes for NLS-9

(J25653) 2-APR-75 14:43;;;; Title: Author(s): Charles H. Irby/CHI;
Distribution: /SRI-ARC([INFO-ONLY]) ; Sub-Collections: SRI-ARC;
Clerk: CHI;

First-pass L10 List Run-time Package Design

This memo is a first-pass definition of the L10 list run-time package. 1

"Type" in the descriptions below always has one of the following values: 2

```
DESCRIPTOR=0
NULL=1
INTEGER=2
STRING=3
LIST=4
```
2a

NULIST (list, sublistornot, e1, e2) 3

If "sublistornot" is FALSE, effectively sets list,L to zero. Otherwise, discards elements "e1" through "e2", shifing forward any elements behind them. 3a

RDLELM (list, deleteorkeep, index -> descr, value) 4

Returns the descriptor "descr" for and value "value" (addr of L10 string, list, or block; or integer) of element "index" of list "list". If "deleteorkeep" is TRUE, the source element is replaced with a null descriptor. 4a

WRLELM (list, type, value, replaceornot, index) 5

If "replaceornot" is FALSE, appends element of type "type" and value "value" to list "list". Otherwise, replaces element "index" with it. 5a

BLC () 6

Initializes for list construction. 6a

APLELM (type, value) 7

Appends element of type "type" and value "value" to list in list construction workspace. 7a

APSUBL (flags, list, e1, e2) 8

If bit 35 of "flags" is on, appends all elements of list "list" to list in list construction workspace. Otherwise, appends only elements "e1" through "e2". If bit 34 of "flags" is on, the source descriptors are copied into the destination. Otherwise, the source values are used, and typed as INTEGER at the destination. If bit 33 of "flags" is on, the source elements are replaced with null descriptors. 8a

First-pass L10 List Run-time Package Design

ELC (list => worklist) 9

If argument "list" is present (i.e. non-zero), stores list in list construction workspace as list "list" and releases the workspace. Otherwise, simply returns addr "worklist" of and responsibility for list in workspace. 9a

JEW 2-APR-75 15:43 25654

First-pass L10 List Run-time Package Design

(J25654) 2-APR-75 15:43;;; Title: Author(s): James E. (Jim) White/JEW; Distribution: /NPG([ACTION]) RWW([INFO-ONLY]) ; Sub-Collections: SRI-ARC NPG; Clerk: JEW; Origin: < JWHITE, LISTRTP.NLS;2, >, 2-APR-75 15:39 JEW ;;;;####;

JBP 2-APR-75 16:37 25655

Dispatcher/Encapsulator/File-Package

Summary of Meeting between R. Schantz, J. White & J. Postel, on 27 & 28 March 1975. 1

Three topics were discussed: The Dispatcher, The Encapsulator, and The File Package. 2

The Dispatcher 3

The main concerns here are the association between the calling user and the directory assigned for his use. The following strategy allows the user to end up in his own login directory. This then allows the regular access controls of the system to be effective. 3a

The dispatcher performs the server side of the standard Initial Connection Protocol such that the two resulting connections are openned to a new job (which is a PCP job). 3b

Listens on the PCP contact socket L 3b1

L = 25 decimal 3b1a

Selects a new socket pair (S) from the dispatcher's socket name space (directory relative) 3b2

Creates a job containing PCP stuff and passes it the socket numbers U (remote caller) and S (new local) in the ACs 3b3

AC0 = U (Absolute 32 bit)
AC1 = S (dir rel 15 bit) 3b3a

Sends the socket number S to the calling process and closes the connection, then loops back to the begining. 3b4

The new job: 3c

Opens the new connections between S and U+3, and between S+1 and U+2. 3c1

Read from the newly opened connections the login and accounting parameters for the calling user 3c2

Change login identity of this job to the user supplied . 3c3

Time out and aborts if the login info is not supplied. 3c4

The Encapsulator 4

The focus here was on the Network Virtual Termial Package (NVTP)

and the communication between the Front End (FE) and the Tool. Here a major change in strategy was decided on. 4a

Scenario for tool start up: 4b

The User tells the FE he wants to run the tool. 4b1

The FE tells the WM the user wants to run the tool. 4b2

The WM creates the PCP tool process at the tool bearing host, this process is passed as startup info the name of the "old tool" subsystem to be run. 4b3

The WM supplies the login parameters to the newly created tool process 4b4

The WM introduces the FE and the tool proceess 4b5

The WM returns to the FE the process handle for the tool process and the grammer for the tool. 4b6

The FE (interpreting the grammer) call the tool process to open the NVT package. 4b7

The FE locally sets up a user telnet process listening on two sockets (UT & UT+1) . 4b8

The FE calls on the tool process NVT package SETUPNC procedure passing the argument UT. 4b9

SETUPNC (UT) 4b9a

The NVTP initates the tool subsystem as a fork and establishes the connection to the FEs user telnet, the TBH end of these connections feed a NVT (or server telnet) that act as the primary I/O for the subsystem. The NVTP returns as a note to the FE the local socket numbers used in establishing the connection ST and ST+1. 4b10

NOTE (ST) 4b10a

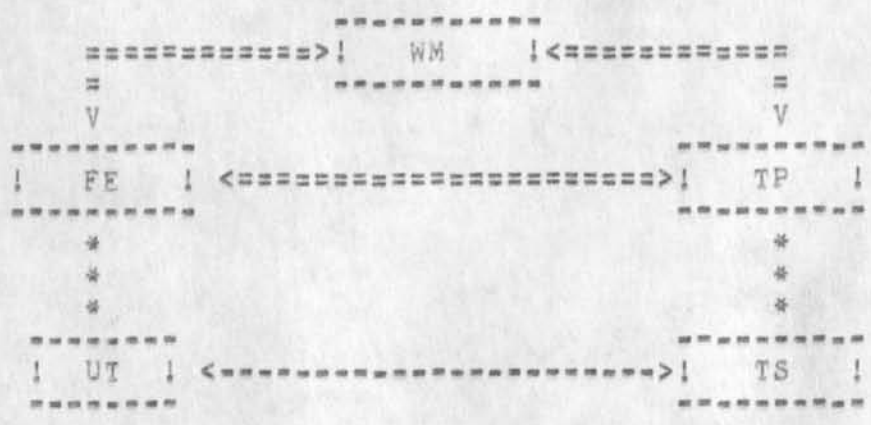
The FE verifies that the telnet connections now established to its user telnet process are in fact from the tool subsystem by checking the ST socket number returned by the tool process against the actual connections. 4b11

The FE (as directed by the tool grammer) takes input from the users terminal and hands it to its local user telnet for transmission to the tool subsystem. Data arriving from the tool

subsystem at the user telnet in the FE is delivered to the users terminal using the routines of the FE. 4b12

The SETUPNC call is left unsatisfied, and therefore allows the NVTP to use help returns to notify the calling process (the FE) of any unusual events (eg subsystem halts), The calling process (the FE) can freeze the NVTP and the tool subsystem by an INTPRC call or about the use of the tool subsystem by an ABORTPRO call. 4b13

The resulting configuration has PCP communication paths between the FE and the WM, between the FE and the Tool process, between the WM and the Tool process, and has the telnet path between the tool subsystem and the FE's user telnet. 4b14



4b14a

where: 4b14a1

=== indicates a PCP connection 4b14a1a

--- indicates a telnet connection 4b14a1b

*** indicates a control path 4b14a1c

WM is the works Manager 4b14a1d

FE is the Front End 4b14a1e

TP is the Tool Process 4b14a1f

TS is the Tool Subsystem 4b14a1g

UT is a User Telnet 4b14a1h

The NVTP also acts as a file reference trapper. 4c

The File Package 5

The file package was examined and the essential features abstracted. This resulted in a small set of procedures, and the elimination of the access control aspects of the earlier specification. Also the ability to access portions of files and route the file data on various paths was eliminated. 5a

The relation between file package directories and Tenex directories is one to one. The access rights to directories and files that a caller on a file package has are exactly those of the user-password-account that the process containing the file package is logged in with. 5b

The file package is an interface to the regular operating system file system and uses its access controls. 5c

That is to say that the is no attempt to build up a virtual file system at the file package level. 5d

Definitions: 5e

The following arguments are used in the subsequent prodcedure definitions: 5e1

name - the name of a file in host dependent syntax 5e2

name - CHARSTR 5e2a

directory - the name of a directory (or directory hierarchy) in host dependent syntax 5e3

directory - CHARSTR 5e3a

Note that in Tenex the directory is not enclosed in angle brackets <>. 5e3a1

filename - the fully qualified name of a file 5e4

filename - LIST (directory, name) 5e4a

filelist - a list of file names 5e5

filelist - LIST (filename, ...) 5e5a

srclist - list of source files 5e6

srclist - filelist 5e6a

dstlist - list of destination files 5e7

dstlist - filelist 5e7a

newlist - list of newly assigned uniquely named files 5e8

newlist - filelist 5e8a

fileclass - a partially specified file name that indicates a set of files in host dependent syntax. 5e9

fileclass - CHARSTR 5e9a

In Tenex this is the star (*) notation. 5e9a1

disp - the disposition of the source files, either DELETE or RETAIN. 5e10

disp - BOOLEAN [DELETE = FALSE / RETAIN = TRUE] 5e10a

Note that DELETE makes the operation a rename, while RETAIN makes the operation a copy. 5e10a1

chnl - a port handle. 5e11

chnl - INDEX 5e11a

If chnl is an argument of a procedure the data generated by (or received by) the procedure is transmitted on that physical channel . 5e11a1

filetypelist - a list of file types associated with the filelist that indicate the physical type of the file and the format of the pcp encoded transmission of the file. The type is represented by a small integer. 5e12

filetypelist - LIST (INTEGER, ...) 5e12a

Procedures: 5f

Listdir (directory, fileclass, EMPTY -> filelist) 5f1

The names of the subset of files indicated by DIRECTORY and FILECLASS are returned in the result FILELIST. 5f1a

Listdir (directory, fileclass, chnl -> EMPTY) 5f2

The names of the subset of files indicated by DIRECTORY and

FILECLASS are transmitted via the physical channel indicated by CHNL. 5f2a

Deletefiles (filelist) 5f3

The files specified in FILELIST are deleted. 5f3a

Localxfer (srclist, disp, directory -> newlist) 5f4

The files specified by SRCLIST are assigned new unique names and entered into the directory indicated by DIRECTORY. The list of new file names is reported in the NEWLIST result. 5f4a

The retention or deletion of the source files is indicated by DISP. 5f4b

Localxfer (srclist, disp, dstlist -> EMPTY) 5f5

The files specified by SRCLIST are stored as indicated by DSTLIST. 5f5a

The retention or deletion of the source files is indicated by DISP. 5f5b

Getfiles (srclist, filetypelist, disp, chnl) 5f6

The files are sent on the physical channel indicated by CHNL as specified by SRCLIST. 5f6a

The type information in FILETYPELIST is used to determine the mapping from storage format to transmission format for the files. 5f6b

The retention or deletion of the source files is indicated by DISP. 5f6c

Putfile (dstlist, filetypelist, chnl -> EMPTY) 5f7

The files received on the physical channel indicated by CHNL are assigned the names and entered into directories as indicated by DSTLIST. The list of new file names is reported in the NEWLIST result. 5f7a

The type information in FILETYPELIST is used to determine the best storage format for the files. 5f7b

Putfile (directory, filetypelist, chnl -> newlist) 5f8

The files received on the physical channel indicated by CHNL

are assigned new unique names and entered into the directory indicated by DIRECTORY. The list of new file names is reported in the NEWLIST result. 5f8a

The type information in FILETYPELIST is used to determine the best storage format for the file. 5f8b

Discussion: 5g

A convention to be followed whenever two parallel lists are supplied as arguments is that if the second list runs out before the first list, then the last element of the second list is to repeated for every remaining element of the first list. 5g1

Another convention is that the procedures of the file package are to make help returns to their caller on any error. 5g2

Source file does not exist 5g2a

Access control prevent your use of that file 5g2b

Unrecoverable I/O error 5g2c

The intent of the help return is to have the file package procedures report the failure of an operation on a per file basis, that is, the help return can indicate the specific file in error. This then allows the caller to resume or abort the procedure with full knowledge of how far it got, or which files were not processed. 5g3

JBP 2-APR-75 16:37 25655

Dispatcher/Encapsulator/File-Package

(J25655) 2-APR-75 16:37;;; Title: Author(s): Jonathan B. Postel/JBP; Distribution: /JEW([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: JBP;

RWW 2-APR-75 19:56 25656

We must be more careful with how we charge our time

Please start being much morwe careful about charging your time. People are just charging all their time to NSW when infact meetings, various types of maintenance, services to ISI, some of the measurement stuff, proposal work etc should be charged to other numbers. If you do not know what number to charge something to see me. We are spending NSW money at too high a rate and will overrun unless we start watching things morre closely. I will have to start asking questions about all time cards with 40 hours charged to NSW. Sorry keeping budgets is as painful to me as you but has to be done. Thanks Dick

1

RWW 2-APR-75 19:56 25656

We must be more careful with how we charge our time

(J25656) 2-APR-75 19:56;;;; Title: Author(s): Richard W. Watson/RWW; Distribution: /ARC-DEV([ACTION]) JCN([INFO-ONLY]) DCE([INFO-ONLY]) ; Sub-Collections: SRI-ARC ARC-DEV; Clerk: RWW;

KIRK 2-APR-75 20:25 25657

The Whole Universe Catalog Video Tape to be shown at 5:00 in J1068

That's today, Thursday at five in the room on the first floor under the Xerox room on our floor. 1

KIRK 2-APR-75 20:25 25657

The Whole Universe Catalog Video Tape to be shown at 5:00 in J1068

(J25657) 2-APR-75 20:25;;;; Title: Author(s): Kirk E. Kelley/KIRK;
Distribution: /MH([INFO-ONLY]) KLM([INFO-ONLY]) PKA([INFO-ONLY
]) JBP([INFO-ONLY]) RA3Y([INFO-ONLY]) DSM([INFO-ONLY])
JOAN([INFO-ONLY]) POOH([INFO-ONLY]) JLE([INFO-ONLY]) ;
Sub-Collections: SRI-ARC; Clerk: KIRK;

KIRK 2-APR-75 21:56 25658

Re CHI 25653 and RLL 25602 comments on suggested changes to NLS-9 Editor

Plex -> Substructure

Charles, I remember the problems you described when Plex was replaced by Substructure. That's one reason I included the waste-basket proposal in the same message. Perhaps we can come up with another word as Robert suggests instead of Substructure. I don't like any of his replacements and I can't think of any myself. We might consider keeping Plex as a second level command. This would solve the current loss of work and some of the change-over problems. Also, an extra OK 'a la Delete Modifications might be appropriate for "Delete Substructure" and "Replace Substructure" at least until people got used to the change. 1

Size of Waste Basket scraps

There is probably some optimum size for deleted or replaced strings to be moved to the waste basket. Under that size, it would not be worthwhile. I could live with having to re-type 70 characters I accidentally deleted. This may be too expensive or too many characters to re-type for other users. Some experimentation may be necessary. For certain commands such as Delete and Replace Character, Word, Visible, and Invisible it would probably not be worth while even checking the deleted string size. With some extra work, it could be made a user-option with a range of e.g. 0-2000 characters. It might be so expensive that string manipulation would not be supported at all. Only complete chunks of statements over a certain size would be worth keeping. Even this would be a great improvement. 2

Location of Waste Basket

I was thinking the branch containing the deleted items would be quite visible at the end of the file and that no changes in the sequence generators and no difficulty in getting to the deleted text would be required. Update File would automatically delete the wastebasket branch before updating. This would mean printing without updating, substitutes and content searches over the whole file would include what is in the waste basket. I think this will be tollerable and even has some nice features in both simplicity of implementation and use. One thing this implementation would NOT do is maintain the waste baskets in the old versions with which they are associated. That would be nice if there was some easy way to do it.

Is there any reason why what I have proposed would not work? 3

KIRK 2-APR-75 21:56 25658

Re CHI 25653 and RLL 25602 comments on suggested changes to NLS-9 Editor

(J25658) 2-APR-75 21:56;;; Title: Author(s): Kirk E. Kelley/KIRK;
Distribution: /SRI-ARC([INFO-ONLY]) FDBK([INFO-ONLY]) ;
Sub-Collections: SRI-ARC FDBK; Clerk: KIRK;

JBP 3-APR-75 11:35 25659

New Version of Millsteins WM-PROCEDURES

This document describes the current definitions of the important WM procedures. Part one is a description of certain commonly occurring arguments. Part two describes the procedures. The intent of some of the arguments in 1. may not be clear until you have read 2. 1

1. Common Arguments and Data Structures 2

userid - INTEGER internal WM identifier of a logged-in user. It logically corresponds to the triplet (project, node-name, password) 3

node-profile - ? node-relative profile of user. the exact details are currently unknown to COMPASS. It is SRI's responsibility to supply the logical definition of this argument. 4

user-profile - ? user-relative profile (i.e., the same person may appear as the user at several nodes of the project tree.) The node-profile supplies information peculiar to each node; the user-profile supplies information that is true no matter which node the user is logged into. Again, it is SRI's responsibility to supply the logical definition of this argument. 5

maxlist - INTEGER Maxlist is expected to be part of either the node-profile or user-profile. It is used as an argument to the WM procedures which also have file-spec as an argument (and which could therefore cause ambiguous file specification). If the file-spec (in conjunction with the scopes or keys, q.v.), is in fact ambiguous, then the WM procedure will return, via HELP, a list of the NSW-file-names if the length of this list is less than or equal to maxlist. See the descriptions of DELETE, RENAME, SETSEMAPHORE, UNSETSEMAPHORE, COPY, EXPORT, OPEN. It is unclear to me at present how those WM procedures which are called by tools can effectively use maxlist unless they are cognizant of user- or node-profiles. 6

cost - INTEGER cost is returned via a HELP return by

several WM procedures. It is to be
interpreted as the cost in cents of the
use of a tool or of an entire session,
as appropriate. The user is given the
opportunity to gripe about the cost by
means of the BOOLEAN gripe which is
expected as an argument of RSMPRO. 7

project - CHARSTR This triple identifies and gives
node-name - CHARSTR access to a node on the NSW project
password - CHARSTR tree. All rights to access files, use
tools, use WM procedures, and spend
money are associated with that node.
For more details, see forthcoming
document by Steve Warshall. 8

tool-name - CHARSTR The name, e.g., NLS, TECO by which a
tool is known to the WM. A large block
of data called the i/a tool descriptor
is indexed by this name. This des-
criptor lists the TBHs and prcaddrs
of potential instances of the tool,
correlates the input and output attcodes
(see below) with the appropriate
lists of attributes, and supplies what-
ever other information the WM needs to
successfully run and service the file
requests of the tool. 9

tooluse-name - CHARSTR The name by which a particular instance of a
given user's active tool is known.
This argument is necessary to
distinguish between, e.g., different
concurrent uses of NLS. 10

tool-grammar - ? FE interprable data structures supplied
by the tool purveyor. The description
of its minimum requirements is an SRI
responsibility. 11

<a>-<b>-process-handle - INTEGER the process handle by
which <a> knows <b> . 12

NSW-filename - CHARSTR The NSW file system is a tree whose
name-part - CHARSTR root node is named NSW and which has at
least as many sons as there are pro-
jects making use of NSW. Each such
son node is named by the project, e.g.,
IVTRAN, ISTP, BETA. The tree below

each son node is entirely up to the discretion of the project leader. A name-part is a path name (alpha-numeric components separated by ",") (with the root node NSW deleted) of a leaf on the project tree where the file designated by that name-part can be found. An example of such a name-part is IVTRAN,PARSE,BCLDUC,INSERT. (the final period is not part of the name, it is a normal sentence-ending period.) The order of components is important - A,B is not the same as B,A . 13

Name-parts do not necessarily designate unique files. NSW files have attributes and certain of these attributes (those supplied by tools) may be used for disambiguation. Thus it is entirely possible for a user to have a file with name-part A,B and attribute FORTRAN-SOURCE and another file A,B with attribute 360-FORTRAN-REL. The NSW-file-names of these two files are unambiguous and consist of name-part/tool-supplied attributes. E.g., A,B/FORTRAN-SOURCE and A,B/360-FORTRAN-REL. The tool-supplied attributes consist of those file attributes which are supplied by tools through WARRANT, DELIVER, CLOSE. The exact form of the attributes will be described in a forthcoming document. 13a

Also note that NSW files can have attributes supplied by the WM itself - e.g., creator, last read date, etc.. These attributes are not used for file disambiguation, but, as described below, can be used for file access. Only the WM or a tool can give an attribute to a file; a user cannot. 13b

access-type - OWN|COPY|ENTER|DELETE denotes a particular kind of access to the NSW file system. OWN access implies all other types. 14

key - CHARSTR A key is an initial segment of a

name-part followed optionally by a /
and some attributes. It is associated
with an access type (e.g., a COPY key).
A key denotes some segment of the NSW
file system. It is used to control
access - i.e., you must have a key of
appropriate type to access a file in
the segment denoted by the key. 15

scope - CHARSTR There are three kinds of scope: COPY,
ENTER, DELETE. A scope is of the same
form as a key. A user cannot have a
scope which defines a segment of the
file system to which he does not have a
key, but he may define a smaller seg-
ment. E.g., if a user has a COPY key
IVTRAN.PARSE he can set a COPY scope to
IVTRAN.PARSE/FORTRAN-SOURCE, or
IVTRAN.PARSE.BOLDUC, but not to
IVTRAN/FORTRAN-SOURCE. A user may have
more than one COPY or DELETE scope. He
may have only one ENTER scope. There
is a WM procedure by which a user may
change his scopes. A user's scopes
define his "working directory" with
respect to the NSW file system. Scopes
are used by the WM in two ways. 16

One, COPY and DELETE scopes are used to
delimit the portion of the file system
through which search is made for a
filespec. 16a

Two, the ENTER scope is used to prefix
the entry-name when an attempt
is made to put a file in the NSW
file system. 16b

A user's current scope, of whatever
type, may be overridden by making the
first component of a filespec or entry-
name %NSW. If this is done for a
filespec, then the user's keys rather
than his scopes are used to delimit
search and verify COPY or DELETE
access. If this is done for an entry-
name, then it is presumed that the
entry name (minus the first %NSW com-
ponent) is a complete name-part, and

the ENTER keys are just used to verify access. 16c

file-spec - CHARSTR A filespec is the name by which a user denotes a file. It may consist of some of the components of the name part of the file and/or some tool-supplied attributes and/or some WM-supplied attributes. It is generally used in conjunction with either copy or delete scopes to query the NSW file catalogue. However, as mentioned above, prefixing a filespec with %NSW overrides the current scopes and refers directly to keys. 17

The components of the name part of the filespec must be ordered but they need not be contiguous. Three periods ... are used to indicate the possibility (but not the requirement) of non-contiguity. 17a

Rather than give a formal syntax of filespec, I will provide some examples: 17b

```
IVTRAN,,,INSERT
A,B,,,C/360-COBOL-REL
/360-COBOL-REL
%NSW,,,PARSE
%NSW/FORTRAN-SOURCE,CREATOR-MILLSTEIN
```
17c

entry-name - CHARSTR Name components separated by a single period. The use of an entry name is described above. 18

maxitem - INTEGER Maxitem is a WM system parameter which is used as an upperbound for the number of items retrievable by a file-spec. That is, as soon as the WM ISR system finds more than maxitem entries, it terminates, and the WM procedure using the ISR will make an appropriate HELP return, asking for a more restrictive file-spec. 19

qhelp - BOOLEAN qhelp is used when a tool calls the WM and doesn't want the WM to directly

contact the user at the FE for assis-
tance. In this case qhelp is set to
F. 20

<a>-attcode - INTEGER An index into the i/a tool descrip-
tor where a large list of required or
known attributes can be referenced
without a large amount of net trans-
mission. 21

external-name - CHARSTR Either an ARPAnet pathname with pass- word or
a device pathname with password
(the latter to be defined by Charles
Muntz). 22

code - INTEGER An index into the i/a tool des-
criptor where an algorithm for con-
structing an NSW-filename and other
pertinent information can be found. 23

device-code - CHARSTR I suggest crd - card reader
pun - card punch
ptr - paper tape reader
ptp - paper tape punch
mt7 - 7 track mag tape
mt9 - 9 track mag tape
dta - DEC tape
? 24

id - (userid!0) WM procedures which can be called from
either the FE or a tool have id as
the first argument. If id is userid
then the call is from the FE. If it is
0 then the call is from a tool. WM
procedures which have userid as first
argument can only be called from the
FE. If there is any other first argu-
ment (other than LOGIN, REATTACHTONSW
which are only FE-callable) then
the WM procedure can only be called by
a tool. 25

It should be noted that the arguments described
above, in particular file-spec and entry-name, are described
syntactically as they are seen by the NSW user. Since they
will be parsed by the FE, it is expected that the parsed form, i.e.,
a more machinable encodement of the actual argument,
is what is really delivered by the FE when a WM procedure is
called from the FE. If a WM procedure is called by a tool,

then the argument really delivered is expected to be in unparsed form. Future work on the WM will optimize for those cases where a tool calls a WM procedure with an argument which has been passed from, and therefore parsed by, the FE. 26

2. WM Procedures 27

2.1 Connection 28

1) LOGIN(project, node-name, password)
-> userid
node-profile
user-profile
system-message - CHARSTR
qhave-mail - BOOLEAN 29

LOGIN connects a user to the NSW, establishing him as an active user with all the rights implied by the node to which he has logged. Mistakes (i.e., non-recognition by the WM) in arguments will be handled by PCP HELP returns. The user will then be permitted to retype the incorrect argument or abort.
Userid is to be associated with this user by the FE and used as an argument in all future WM calls from this FE. 30

2) LOGOUT(userid)
-> cost 31

LOGOUT disconnects a user from NSW. For 1 July NSW, all i/a tools must be ended (see ENDTOOL below). All files in LNDs on live TBHs which have not been put in the NSW file system (see DELIVER below) will be lost. Files on dead TBHs which have been CLOSED will be put in the NSW file system when the TBH comes up again. Batch tools are, of course, asynchronous with respect to user-NSW connection and are not affected by LOGOUT. 32

If the user has active i/a tools the WM will make a PCP HELP return requesting that they be ended. If this is not done in an orderly fashion (i.e., by ENDTOOL), the WM will do it for the user and files may be lost. 33

3) RELOG(userid, (project|%), (node-name|%), (password|%))
-> cost
userid 34

RELOG is equivalent to LOGOUT followed by LOGIN to a different node. It is not clear that a callable WM procedure is necessary to accomplish this, but it is obviously easy to

provide. I would like suggestions from Kirk Sattley and Charles Irby. 35

4) REATTACHTONSW(project, nodename, password,
-> userid
node-profile
user-profile
LIST[FE-tool-process-handle, tool-name,
tooluse-name, tool-grammar] 36

REATTACHTONSW is intended to allow a user to resume his session in the event that his FE goes down. This is not a high priority procedure and will probably not be available 1 July. In fact, I don't belive that it can be fully designed until much more is known about FE capabilities. The LIST returned might reasonably be reduced by not including tool-grammar, and instead having the FE request grammars as required. 37

5) SCOPE(userid, access-type, scope, qadd) 38

SCOPE adds (if qadd is T) or deletes (if qadd is F) the scope of access-type. Assistance is obtained by PCP HELP return in the event that there is difficulty (conflict with keys, e.g.). 39

2.2 Tool Running 40

1) RUNTOOL(userid, tool-name, tooluse-name)
-> FE-tool-process-handle
tool-grammar 41

RUNTOOL verifies that the user has access to the tool called toolname. It CRTPRCs an instance of the tool. It ITDPRCs the FE and the newly created tool process. It calls BGNNSW in the tool process so that the tool has process handles for the FE and the WM. The process handle returned by ITDPRCs by which the FE knows the tool is returned along with the tool grammar. The tooluse-name argument is provided so that several active instances of the same tool can be distinguished. 42

2) ENDTOOL(userid, tooluse-name)
-> cost
LIST[NSW-filename of any file with semaphore set]
LIST[NSW-file-names of files DELIVERED] 43

ENDTOOL causes the WM to SEPPRCS the FE and the tool process. It DELPRCs the tool process, reclaiming (and

consequently destroying all files in) the workspace. Cost is returned via a HELP return, permitting the user to gripe. All semaphores set during the tool's use are unset unless the i/a tool descriptor indicates that this tool is one which understands use of the semaphore. If so,a list of files with semaphore set is returned by a return of type HELP so that the user can confirm that he wants to leave the semaphore set or would rather unset it. It has been suggested by Kirk Sattley that ENDTOOL return a list of all NSW files created during the running of the tool. I would invite comments. 44

3) RERUNTOOL(userid, tooluse-name)
-> FE-tool-process-handle
tool-grammar 45

RERUNTOOL reestablishes the connection between a user and a tool which was running on a TBH which had crashed and has subsequently come back up. It is a bare minimum requirement on tool purveyors that they handle the LND so it is preserved in the event of TBH crash and that they provide a reentry point. This procedure is not at all well defined yet and probably will not be available 1 July. 46

2.3 Files, No Movement 47

1) DELETE(id, filespec, maxlist, qhelp)
-> NSW-filename 48

DELETE verifies that filespec designates a unique file to which the user (identified explicitly by userid, or implicitly if DELETE is called by a tool - first argument 0) has DELETE access. This access is blocked by a set semaphore. If any assistance is required it is obtained via a PCP HELP return (if qhelp is T or if DELETE were called by a batch tool) or by a direct FE HELP call (otherwise).Once a unique file has been found, its STATUS attribute is set to DEL. It will no longer be accessible to OPEN, COPY, RENAME, EXPORT, etc., but the actual file catalogue entry and file copies are not immediately deleted. The NSW-file-name of the deleted file is returned. This return could be a HELP return, requiring confirmation before the actual delete occurs. Alternately, since the file does not immediately disappear, UNDELETE could be supported. I invite comments. 49

2) RENAME(id, filespec, maxlist, entry-name, qhelp)
-> old-NSW-filename
new-NSW-filename 50

RENAME verifies that filespec designates a unique

file to which the user has DELETE access. This access is blocked by a set semaphore. If any assistance is required it is attained via PCP HELP return or direct FE call as above. RENAME forms a new NSW-filename using entry name and the tool-supplied attributes of the old file. It verifies ENTER access and unambiguity. As usual assistance is sought should there be any difficulty. The NSW catalogue is then altered to reflect the nsw name-part and both old and new NSW-filenames are returned. 51

3) SETSEMAPHORE(filespec, maxlist, qhelp)
-> NSW-filename 52

The WM verifies that the tool can use SETSEMAPHORE, that filespec designates a unique file to which the user has DELETE access, and that the semaphore is not already set. Assistance is obtained via PCP HELP return or direct FE call as above. If all is well, the semaphore is set and the NSW-filename is returned. 53

4) UNSETSEMAPHORE(id, filespec, maxlist, qhelp)
-> NSW-filename 54

The WM verifies that filespec designates a unique file to which the user has DELETE access. Assistance is obtained as usual. If all is well, the semaphore is unset and the NSW-filename returned. 55

5) WARRANT(attcode, NSW-filename)
-> new-NSW-filename 56

WARRANT adds the attributes referenced in the i/a tool descriptor by attcode to the file whose current name is NSW-filename. Since tool-supplied attributes are part of NSW-filenames, the new NSW-filename is returned. 57

6) DISPLAY(userid, access-type, filespec, mask|%))
-> (LIST[portions of entry selected by mask for all files designated by access-type and filespec] | number of files designated by access-type, filespec) 58

DISPLAY either lists selected portions of file catalogue entries for some set of files or else reports the cardinality of the set. Details of mask must await the forth- coming document describing file catalogue entries. 59

7) CLOSE(output-attcode, local-filename, entry-name, qhelp)
-> NSW-file-name 60

CLOSE performs all the functions of DELIVER below
except that 1) no NSW file copy is made and 2) an entry is
made in the active tool use entry of the calling tool. The
intent of CLOSE is to protect the user from TBH crashes.
Should the TBH go down and then come back up again, then, if
either the user is not logged in or chooses not to RERUNTOOL, the WM
will make NSW file copies of the CLOSEd files. Thus
the user's CLOSEd files will be in a well-defined consistent
state when he again chooses to OPEN them.
If a file has been CLOSEd with a given output-attcode
and entry-name, and, later during the running of the tool,
another file is CLOSEd or DELIVEREd with the identical
output-attcode and entry-name, the WM assumes that it is the
user's intent to replace the previously CLOSEd file.
If a file has been CLOSEd, it is not necessary to
DELIVER it. ENDTOOL will DELIVER all CLOSEd files that have
not previously been explicitly DELIVEREd. I invite comments
on this procedure. 61

2.4 Files, Movement 62

1) COPY(id, filespec, maxlist, entry-name, qhelp)
-> src-NSW-filename
dst-NSW-filename 63

COPY verifies appropriate accesses, etc. and creates
a new NSW catalogue entry and a new copy of the source file. 64

2) EXPORT(id, filespec, maxlist, external-name, qhelp)
-> src-NSW-filename 65

EXPORT verifies appropriate access and moves a copy
of the source file to the location designated by external-
name. 66

3) IMPORT(id, external-name, entry-name, qhelp)
-> dst-NSW-filename 67

IMPORT is the inverse of EXPORT. 67a

4) TRANSPORT(id, src-external-name, dst-external-name) 68

TRANSPORT is an extended FTP for NSW users. 68a

5) OPEN(input-attcode, filespec, maxlist, qset, qhelp)
-> NSW-filename
local-filename 69

OPEN is used by tools to obtain copies of NSW files.

The WM verifies that there is a unique file designated by filespec to which the user as COPY access and which has the attributes implied by input-attcode. Assistance is obtained as usual. Should the user also have DELETE access to the file, then the semaphore is set if either the i/a tool descriptor indicates that it should be or if qset is T. In this event (the user having DELETE access) access is blocked unless the user indicates that he is willing to use an older version of the file if the semaphore is already set and the user cannot get it unset. In any event, if the semaphore is set, the user is informed. The WM makes a copy of the file into the workspace used by the tool, performing whatever conversions are necessary and possible (see Jon Postel for a description of same). The NSW-filename of the copied file and the local filename of the new copy are returned (for entry in the LND among other uses). 70

6) DELIVER(output-attcode, local-filename, entry-name, qhelp) -> NSW-filename 71

DELIVER is used by tools to insert files into the NSW file system. ENTER access and unambiguity are verified with assistance sought as usual. An entry is made in the NSW file catalogue and a copy is made of the file referenced by local file name. The original file is left in the tool's workspace. The NSW-filename of the new entry is returned. 72

7) GETFILE(code)
-> local-filename 73

GETFILE is used by certain tools, e.g.,READMAIL,which require access to the NSW file system on behalf of a user, but not to files to which the user himself has direct access. For example, there will be a canonical way, referenced by code in READMAIL's i/a tool descriptor of constructing an NSW file- name of a mailbox in which someone has put mail for the user of READMAIL. I'm still hazy about details. 74

8) PUTFILE(code, local-filename) 75

PUTFILE is the inverse of GETFILE. PUTFILE would be used by SENDMAIL. Both would be used by NLS (conceivably) for storing a user's NLS-profile. 76

9) READDEVICE(local-filename, devide-code) 77

READDEVICE is used by tools which provide means for users to input via local tape, card reader, paper tape reader without making NSW files. The WM would figure out from the

userid which FE the user was at and therefore what the external-name of the appropriate device is. After that this procedure is just like TRANSFER. 78

10) WRITEDEVICE(local-filename, device-code) 79

WRITEDEVICE is the inverse of READDEVICE. 79a

2.5 Misc. 80

There will be available at minimal cost, a horde of auxiliary WM procedures - e.g., LISTSCOPE, WHEREIS(user-name), etc. - as required. I invite suggestions divided into three categories: 1) Must have by 1 July
2) Must have eventually
3) Wouldn't it be nice if 81

Justification is required for category 1). 82

2.6 Rights and Tree Changes 83

See forthcoming document by Steve Warshall. 83a

2.7 WM Recovery, Archival 84

There will eventually have to be procedures to handle failures and revivals in all system components. These will not be available by 1 July. I suggest implementing trivial procedures by 1 July; I regard this problem as one requiring a major effort over at least a two year period. 85

I suggest deferring archival facilities until we can confidently use the Datacomputer. This may well be possible, now, but I regard archival as of secondary importance by 1 July. I invite comments. 86

JBP 3-APR-75 11:35 25659

New Version of Millsteins WM-PROCEDURES

(J25659) 3-APR-75 11:35;;; Title: Author(s): Jonathan B. Postel/JBP;
Distribution: /NPG([INFO-ONLY]) ; Sub-Collections: SRI-ARC NPG;
Clerk: JBP;

FE-WM CONTROL FUNCTIONS: Comments.

STANDARD FE-WM CONTROL FUNCTIONS: COMMENTS. 1

We at Computer Associates [SW, REM, KS] have had some discussion of the points raised in your memo of 26 Feb 75. None of us is in complete agreement with the others, or with the memo, on every point. But the upshot is that we have no serious objection to any of the suggestions you raise. If we had had, we would have gotten back to you sooner. Sorry. 1a

We do have a few comments and questions, though: 1b

As I believe you've already heard from REM, all questions of automatic/forced completion/recognition will be held in abeyance for this year. 1b1

Under universal functions, Set 1 (available everywhere): 1b2

No objection to anything on the list. You don't mind that we tend to think of them as "control characters"? 1b2a

Possible addition: a "situation" view, like '<' or '>' in NLS, to reassure the user by telling him where he is. 1b2b

Under universal functions, Set 2:
We take it that "available to ... tools" means "available IN ... tools" -- i.e., available to a user when he is running in the tool. 1b3

We have no objection to the tool designer putting these in as second-level commands, assuming, of course, that: 1b3a

The user is also permitted to invoke them in the "Class II" manner -- that is, by prefixing with a special character. This is for the sake of uniform appearance to a user who might use tools of both Classes. 1b3a1

The calls on the WM are the same in either case. 1b3a2

Our present understanding of the FE-WM interaction on multiple tools is as follows: 1b3b

The WM must be called to get in contact with a new tool [RUN tool]. 1b3b1

The WM must be called to correctly terminate contact with a(n instance of a) tool [END tooluse]. 1b3b2

If the user calls RUN tool several times with the same tool name, he will be connected to several different

instances of the tool -- in theory, they could be on separate hosts -- distinguished by different tooluse names. 1b3b3

Thus, from the WM's viewpoint, the user in the middle of a session is connected to a set of tooluses -- and there are no explicit hierarchical, ring, or stack relationship among them. Any of them might ask the WM for file service, or any of them might be ENDed at any time. 1b3b4

Now, outside of this, all slewing between tools, running several concurrently, or executing a command in one while running another, is up to the FE to manage (although the WM is happy to resupply grammars, etc., that the FE machine doesn't have room to keep). 1b3b5

Within this understanding, we're a little unclear about exactly how to understand the Set 2 commands, but we assume there's no serious problem. 1b3c

Resume, suspend, execute ... presumably involve the FE moving its attention among the tooluse-connections it has open. 1b3c1

Run tool produces a RUN tool call on the WM. 1b3c2

Does "quit tool" mean to quit the tool he's in? Where is he after he has done that? If the FE is keeping some sort of tooluse-stack, this could mean sending an END tooluse command to the WM, followed by a re-direction of the FE's attention to a "previous" tooluse-connection, if the intent is to keep the NLS "Quit" operation. 1b3c3

I hope these remarks, though late, are responsive. 1c

Kirk Sattley [KS], Computer Associates [SATTLEY@BBNB]. 1d

KS 3-APR-75 14:58 25660

FE-WM CONTROL FUNCTIONS: Comments.

(J25660) 3-APR-75 14:58;;; Title: Author(s): Kirk Sattley/KS;
Distribution: /RWW([ACTION]) CHI([INFO-ONLY]) JEW([INFO-ONLY]
) JBP([INFO-ONLY]) ; Sub-Collections: NIC; Clerk: KS;
Origin: < SATTLEY, WATSON-DRAFT.NLS;2, >, 3-APR-75 14:48 KS ;;;;####;

CHI 3-APR-75 15:34 25661

Network Performance task force summary and plan for handoff

DCE, JCN, and RWW must approve this plan before it is official.

CHI 3-APR-75 15:34 25661

Network Performance task force summary and plan for handoff

This document attempts to summarize the findings of the ARC Network Performance task force. Recommendations are also made where appropriate. In addition time estimatees are given for length of time until a problem is fixed. Since many of the people who have been working on the performance problems must get back to their NSW commitments, I have also attempted to describe how the various problems should be pursued. 1

BREAK CHARACTER TO TIP 1a

The 208 modems connected to Line Processors were sending continuous breaks to the TIP whenever the Line processor was powered down. This was because the Line Processor-modem connection had the "data ready" bit wire to true all the time, since the Line Processor did not provide such a signal. The TIP had been modified to detect this sort of thing and disable it. The TIP modification did not work for some unknown reasons. 1a1

This is supposedly not happening anymore. The TIP has been modified to prevent it and the Line Processor is being changed to prevent it. Martin Hardy should make sure this is not happening to any other TIPs we are associated with. 1a2

This caused a very significant degradation of service to users using local host if TIP connect was to the local host and was not closed. 1a3

BREAK CHARACTERS TO PDP-10 1b

An open line to the pDp-10's Data Line Scanner was found and fixed. May have accounted for a 1% to 2% load on system (this guess is based on our experience that an open line at 9600 baud caused a 20% load on our local PDP-10). The open line at Office-1 was at 1200 baud. 1b1

VDH interference 1c

The Very Distant Host interface code and buffers now being installed in the TYMSHARE TIP is highly suspect but no conclusive proof as yet. It appears to be causing IMP crashes and strange behavior. 1c1

I expect this will get fixed within a month. I would recommend moving the VDH to another IMP since it eats up 50% of the IMP's buffer space and seems flacky. Martin Hardy should stay on top of this. 1c2

HOST blocking imp-host interface 1d

It was discovered that TENEX is blocking IMP from inputting on 1,31 TENEX. Office-1 is moving to 1,33 to fix this and other network problems. I expect this will be up within three weeks. This may not entirely eleviate the problem and we should continue to watch it. Jan Kremers and/or Dave Hopper should talk with Ray Tomlinson and/or Ken Victor to find out how to measure the occurances of this in 1,33 TENEX. 1d1

imp blocking host-imp interface 1e

This seems to be happening quite a lot and probably accounts for the 15 second periods users have observed when there is no interaction with the servicing host. There are two causes known to me to date. Hopefully the bbn-network people will clarify this area for us.Dave Hopper should stay in contact with Dave Walden about this area. 1e1

multi-packet messages 1e2

Can cause the interface to be blocked for at least the round trip time to the receiving imp, this causes the host to be unable to send data to any other host for a period of at least 1/2 second for the ARPA-TIP -- Office-1 and ARC-ELF -- BBNB situations. Fixing this requires a change to host-imp protocol which I recommend ARPA should support. This will require many months to implement for all hosts but could be fixed in all TENEX's more quickly. 1e2a

receiving host slow in taking data 1e3

This may account for long (15 second) pauses where a host does not respond. The subnet blocks a host from sending too much data to a receiver host that is not taking data quickly enough. If the host is going down or faultering, the delay in taking data becomes the timeout period or 15 (or is it 40) seconds. 1e3a

Hopefully the bbn-network people will clarify this one for us shortly. The fix here is also a change in imp-host protocol or perhaps a change to sending hosts to monitor their outstanding messages more closely and to anticipate the imp blockage before it occurs. 1e3a1

general tenex overhead -- NCP and scheduler 1f

Initial measurements from Jim White's and Ken Victor's work as well as Ray Tomlinson's recent memo indicate that general TENEX NCP/scheduler overhead often exceeds network transmission times for single charcter interactions. It is perhaps posible to

tune TENEX so that this overhead is reduced. BBN-TENEX people are currenly looking into these problems and hopefully will come up with some answers. Don Andrews, with help from Ken Victor, Dan Lynch, and Jan Kremers, is putting together a list of measurement facilities that should be added to TENEX scheduler and NCP. Jan Kremers should stay on top of this. 1f1

It almost goes without saying that TENEX load has a significant effect on responsiveness. However, the pie slice scheduler does provide some insulation from this. 1f1a

subnet performance 1g

The subnet performance seems about according to specs (about 50 MS per hop). However we have observed times when it appeared to be more like 200 MS per hop. Long network paths seem to cause some problems because the net was designed assuming a max of 6 hops and the average length is now more like 10 hops. This is very serious and requires either changes in network topology or network design and protocols to accomodate this deviation from initial design assumptions. Dave Hopper should monitor the progress in this area. 1g1

Since this is likely to take a long time to fix, I recommend that ARC should get its TENEX service from a host that is at most 6 hops away, and preferably much closer. Jan Kremers is investigating the performance of NLS on a KI-TENEX, since this will break the log jam for TYMSHARE, since it is going with KI PDP-10's. An alternative solution should be sought for east-coast Office-1 users (like putting a TYMSHARE or BBN managed facility on the east coast). 1g1a

The difference in performance of printers and high speed terminals when zero and one or three hops away is still unexplained. We have experienced differences of a factor of two in throughput to these devices depending on whethter they were zero or more hops away (going from zero to one hop for the printer and zero to three for the terminal -- we ran two terminals side by side, one zero hops and one three). Dave Hopper should follow this up with Dave Walden. 1g2

ELF problems 1h

ELF crashes, hangs, and character dropping has been a very serious problem for us. There are now three people working on various of the problems. My guess is that most of our serious elf problems will be solved within a week if Dave Retz pays attention to them. Otherwise, I would guess three weeks. 1h1

Network Performance task force summary and plan for handoff

From ARC's standpoint, Joe Ehardt has responsibility for ELF. We should help Joe in any way we can to eliminate the current and future problems. Joe will need to take ELF down during the day, sometimes with little warning. We ask everyone's cooperation and patience. 1h1a

Mouse keyset handling 1i

The reliability of mouse/keyset usage has dropped considerabley. It was decided that this would be corrected within NLS rather than changing the Line Processor (which we now consider to be frozen except for bug fixes). 1i1

I expect Bob Belleville will have the fixes in the running BBNB NLS within a few days. 1i1a

suspended connections 1j

This continues to be a problem for me. My connection tends to be broken to BBNB about four times a day. I have never been able to type in the daily status report without at least 2 breaks in my work, some of which are auto hangup of the data set at the ames tip. 1j1

Perhaps the productivity group could keep and publish (to BBN) a weekly log of such breaks. 1j1a

single vs multi-packet messages 1k

It was learned that sending multi-packet messages to tip terminals over long network paths did not win. We have changed tip/elf buffers to be smaller than a packet to avoid this. However, file transfers and other network uses can still cause problems. 1k1

Martin should stay on top of TIP buffer sizes to insure that they do not exceed 116 characters (one packet). Joe Ehardt should, when ELF has stabilized, try some more tests with different buffer sizes in ELF to see if we can improve upon the single-packet case. This should be done in conjuction with buffer size variations inside the supporting TENEX. Dave Hopper should find out from Ray Tomlinson or Ken Victor how to monitor the occurences and interference of sending multi-packet messages and having the subnet block the host. 1k1a

In addition to monitoring the above problems, I would suggest the following take place: 2

Charles Irby, Ken Victor, Jim White, Jon Postel, Jan Kremers, and

Network Performance task force summary and plan for handoff

Joe Ehardt should meet with Dave Hopper, Martin Hardy, Jerry Weet, and any other interested parties to go over in detail the operation of the net and the problems that have been uncovered so far. Could Jon Postel organize this meeting? I would suggest that it happen as soon as possible. 2a

The productivity group should produce a list of current problems (broken connections, access to terminals, hardcopy generation, terminal malfunctions, unresponsive hosts, ELF crashes, etc) listed according to their (perceived) severity with respect to user productivity. This will give guidancee to those who can do something about it as well as ARC management. I refer you to Bob Belleville's and Jon Postel's earlier survey (JJOURNAL, 25598, 1:w). 2b

Dave Hopper and Jan Kremers should periodically (perhaps weekly or bi-weekly) hold a meeting where they describe the current state of affairs. Occational written matter is also very helpful. 2c

CHI 3-APR-75 15:34 25661

Network Performance task force summary and plan for handoff

(J25661) 3-APR-75 15:34;;; Title: Author(s): Charles H. Irby/CHI;
Distribution: /SRI-ARC([INFO-ONLY]) ; Sub-Collections: SRI-ARC;
Clerk: CHI; Origin: < IRBY, HANDOFF.NLS;3, >, 3-APR-75 15:30 CHI
;;;;####;

System Analyst's Qualifying Exam

3-APR-75 03:41:20-EDT,3298;000000000000
Mail from USC-ISIB rcvd at 3-APR-75 0341-EDT
Date: 3 APR 1975 0020-PDT
From: CURRIER at USC-ISIB
Subject: Just in case you havn't seen this one yet....
To: NETWORK HACKERS: 1

System Analyst's Qualifying Exam 1a

Instructions: Read each question carefully. Answer all questions.
Time limit: 4 hours. Begin immediately. 2

History: Describe the history of the papacy from it's origins to the present day, concentrating especially, but not exclusively, on it's social, political, economic, religious and philosophical impact on Europe, Asia, America and Africa. Be brief, concise and specific. 3

Medicine: You have been provided with a razor blade, a piece of gauze and a bottle of scotch. Remove your appendix. Do not suture until your work has been inspected. Time limit: 15 minutes. 4

Public Speaking: 2500 riot-crazed aborigines are storming the classroom. Calm them. You may use any ancient language other than Latin or Greek. 5

Biology: Create life. Estimate the differences in subsequent human culture if this form of life had developed 500 million years earlier, with special attention to it's probable effect on the English parliamentary system. Prove your thesis. 6

Music: Write a piano concerto. Orchestrate and perform it with flute and drum. You will find a piano under your seat. 7

Psychology: Based on your knowledge of their works, evaluate the emotional stability, degree of adjustment and repressed frustrations of each of the following: Alexander of Aphrodisias, Rameses II, Gregory of Nicia, Hammurabi. Support your evaluation with quotations from each man's work making appropriate references. It is not necessary to translate. 8

Sociology: Estimate the sociological problems which might accompany the end of the world. Construct an experiment to test your theory. 9

Engineering: The disassembled parts of a high-powered rifle have been placed on your desk. You will also find an instruction manual, printed in Swahili. In 10 minutes a hungry Bengal tiger will be admitted to the room. Take whatever action you feel appropriate. Be prepared to justify your decision. 10

System Analyst's Qualifying Exam

Economics: Develop a realistic plan for refinancing the national debt. Trace the possible effects of your plan in the following areas: Cubism, the Donatist controversy, the wave theory of light. Outline a method for preventing these effects. Criticize this method from all possible points of view. Point out any deficiencies in your point of view, as demonstrated in your answer to the last question. 11

Political Science: There is a red telephone on the desk beside you. Start World War III. Report at length on it's socio-political effects, if any. 12

Epistemolgy: Take a position for or against Truth. Prove the validity of your stand. 13

Physics: Explain the nature of matter. Prove or disprove Tachyons. Include in your answer an evaluation of the impact of the development of mathematics on science. 14

Philosopy: Sketch the development of human thought, estimate it's significance. Compare with the development of any other kind of thought. 15

General Knowledge: Describe in detail. Be objective and specific. 16

17

JBP 3-APR-75 17:11 25662

System Analyst's Qualifying Exam

(J25662) 3-APR-75 17:11;;; Title: Author(s): Jonathan B. Postel/JBP;
Distribution: /SRI-ARC([INFO-ONLY]) ; Sub-Collections: SRI-ARC;
Clerk: JBP;

Examination Answers

History: "Look at those Christians see how they love one another" 1

Medicine: "Physician heal thyself" 2

Public Speaking: "Never have so few given so much for so many" 3

Biology: "A rose by any other name would smell as sweet" 4

Music: "You played it for her your can play it for me - play it Sam" 5

Psychology: "Thou shalt not bear false witness against thy neighbor" 6

Sociology: "Thou shalt do no murder" 7

Engineering: "Illigitium non carborundum" 8

Economics: "A penny saved is a penny earned" 9

Political Science: "We have nothing to fear but fear itself" 10

Epistemolgy: "Truth or illusion Martha, truth or illusion" 11

Physics: "There are more things in heaven and earth than fits your philosophy" 12

Philosopy: "I think, therefore I am" 13

General Knowledge: NO 14

15

Examination Answers

(J25663) 3-APR-75 20:40;;; Title: Author(s): Robert Louis Belleville/RLB2; Distribution: /SRI-ARC([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: RLB2; Origin: < BELLEVILLE, ANSWERS.NLS;1, >, 3-APR-75 20:07 RLB2 ;;;;####;

JBP 4-APR-75 00:29 25664

Schantz comments on meeting notes

3-APR-75 17:45:22-EDT,20792;000000000000
Mail from BBN-TENEXA rcvd at 3-APR-75 1744-EDT
Date: 3 APR 1975 1745-EDT
From: SCHANTZ at BBN-TENEXA
Subject: Meeting notes
To: Postel at BBNB, JWhite at BBNB
cc: Schantz 1

I've read through your summary of our meeting and the results agree with what I had written down. My comments are inline with the text I am returning and denoted by [*****.
I've looked at and coded the dispatcher to a great degree and have not developed any hitches. I rather suspect that closer scrutiny of the other two pieces (especially the file package) will reveal some uncertainties, but hopefully they will be minor. I think this document indicates that we have a pretty good handle on the problems, at least for TENEX. Let me know your feelings about any of the non-trivial comments that follow.
--Rick 2

Summary of Meeting between R. Schantz, J. White & J. Postel, on 27 & 28 March 1975. 2a

Three topics were discussed: The Dispatcher, The Encapsulator, and The File Package. 2b

The Dispatcher 2c

The main concerns here are the association between the calling user and the directory assigned for his use. The following strategy allows the user to end up in his own login directory. This then allows the regular access controls of the system to be effective. 2c1

The dispatcher performs the server side of the standard Initial Connection Protocol such that the two resulting connections are openned to a new job (which is a PCP job). 2c2

Listens on the PCP contact socket L 2c2a

L = 25 decimal 2c2a1

Selects a new socket pair (S) from the dispatcher's socket name space (directory relative) 2c2b

[***** In TENEX, selects a new socket pair (S) from a common tool socket space, by means of using directory relative socket names] 3

Schantz comments on meeting notes

Creates a job containing PCP stuff and passes it the socket numbers U (remote caller) and S (new local) in the ACs 3a

[***** Creates a new job for each request.] 4

AC0 = U (Absolute 32 bit) 4a

[***** Absolute 32 bit receive socket name] 5

AC1 = S (dir rel 15 bit) 5a

[***** Relative 15 bit receive socket name] 6

Sends the socket number S to the calling process and closes the connection, then loops back to the begining. 6a

[***** The socket sent to the caller is actually S', which is the full 32 bit socket name of the receive socket derived from S, and on TENEX consists of <17 bit directory #><S>] 7

[***** The TENEX dispatcher can and will see if a system shutdown is pending and imminent. If the shutdown is within some interval T, then the dispatcher will not accept any new ICP requests in order to minimize the possibility of users having their tool yanked out from under them. Two approaches are possible, 1) Ignore the request by sending an immediate CLOSE, or 2) open the send connection and pass some useful status information such as the time we are expected to be back up. (Note that an odd number passed to the caller is a violation of ICP protocol and can be interpreted as a time, or anything else we choose.) Ultimately, we can get as complex as we want to get the proper behavior since selecting the interval T is a problem. There probably exist two types of transactions, short and long. If we select an interval very close to shutdown time, long transaction which don't have a prayer of finishing will be allowed to start. If we make the interval longer, transactions which are short and could possibly finish before shutdown may be rejected and other possible servers may not be available. Generally, I propose that the interval be quite small (maybe 2 minutes), and suggest that ways of alerting the controlling fork created for the new job to the approximate duration of computational service required for this transaction be investigated.] 8

The new job: 8a

Opens the new connections between S and U+3, and between S+1 and U+2. 8a1

[***** 8 bit byte size for both send and receive connections] 9

Schantz comments on meeting notes

Read from the newly opened connections the login and accounting parameters for the calling user 9a

[***** ... the newly opened connections the PCP CRTPROC MESSAGE CONTAINING THE login and...] 10

Change login identity of this job to the user supplied . 10a

Time out and aborts if the login info is not supplied, 10b

The Encapsulator 10c

The focus here was on the Network Virtual Termial package (NVTP) and the communication between the Front End (FE) and the Tool, Here a major change in strategy was decided on, 10c1

Scenario for tool start up: 10c2

The User tells the FE he wants to run the tool. 10c2a

The FE tells the WM the user wants to run the tool, 10c2b

The WM creates the PCP tool process at the tool bearing host, this process is passed as startup info the name of the "old tool" subsystem to be run. 10c2c

[***** The WM creates a PCP "old tool encapsulator" process at the tool bearing host; this process ...] 11

[***** A couple of tiny things. 1) The startup info (old tool file name) is effectively passed to the NVT package before it is even opened. This seems a bit funny when it is viewed as more than a special case. 2) In order to get the access control to the "old tool" file right, we must ensure that the job changes to the correct identity given by name, pswrd, acct parms, before the startup info is allowed to be processed. 12

The WM supplies the login parameters to the newly created tool process 12a

[***** The process initialization code is entered and passed the startup info.] 13

The WM introduces the FE and the tool proceess 13a

[***** What about BEGIN-NSW? and also END-NSW procedure? Will they be passing useful parameters?] 14

The WM returns to the FE the process handle for the tool process and the grammer for the tool. 14a

[***** ... interpreting the grammAr callS ...] 15

The FE (interpreting the grammer) call the tool process to open the NVT package. 15a

The FE locally sets up a user telnet process listening on two sockets (UT & UT+1) . 15b

[***** ...FE's user telnet. The TBH end of these connections feed an NVT (or server telnet) that acts ...] 16

The FE calls on the tool process NVT package SETUPNC procedure passing the argument UT. 16a

SETuPNC (UT) 16a1

The NVTP initates the tool subsystem as a fork and establishes the connection to the FEs user telnet, the TBH end of these connections feed a NVT (or server telnet) that act as the primary I/O for the subsystem. The NVTP returns as a note to the FE the local socket numbers used in establishing the connection ST and ST+1. 16b

NOTE (ST) 16b1

[***** Both UT and ST are full 32 bit receive socket names.] 17

The FE verifies that the telnet connections now established to its user telnet process are in fact from the tool subsystem by checking the ST socket number returned by the tool process against the actual connections. 17a

The FE (as directed by the tool grammer) takes input from the users terminal and hands it to its local user telnet for transmission to the tool subsystem. Data arriving from the tool subsystem at the user telnet in the FE is delivered to the users terminal using the routines of the FE. 17b

The SETUPNC call is left unsatisfied, and therefore allows the NVTP to use help returns to notify the calling process (the FE) of any unusual events (eg subsystem halts). The calling process (the FE) can freeze the NVTP and the tool subsystem by an INTPRO call or about the use of the tool subsystem by an ABORTPRO call. 17c

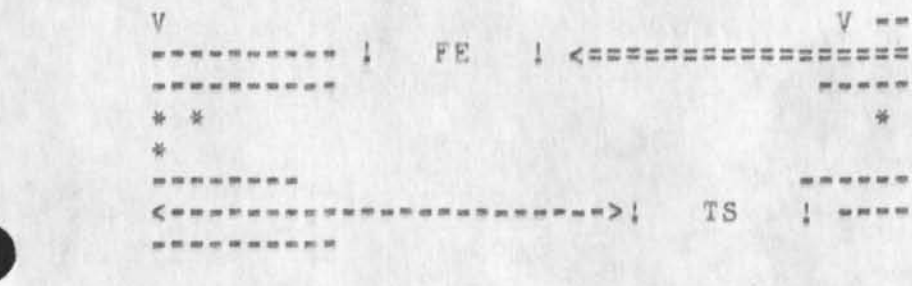
[***** ... notify the calling process...] 18

Schantz comments on meeting notes

[***** ... INITPRO call or abort the ...] 19

[***** ABORTPRO will result in closing the NVT. A subsequent SETUPNC will cause the "old tool" to be reinitialized.] 20

The resulting configuration has PCP communication paths between the FE and the WM, between the FE and the Tool process, between the WM and the Tool process, and has the telnet path between the tool subsystem and the FE's user telnet. 20a



20a1 20a2 20a3

where: 20a3a

=== indicates a PCP connection 20a3a1

--- indicates a telnet connection 20a3a2

*** indicates a control path 20a3a3

WM is the Works Manager 20a3a4

FE is the Front End 20a3a5

TP is the Tool Process 20a3a6

TS is the Tool Subsystem 20a3a7

UT is a User Telnet 20a3a8

The NVTP also acts as a file reference trapper. 20b

The File Package 20c

The file package was examined and the essential features abstracted. This resulted in a small set of procedures, and the elimination of the access control aspects of the earlier

specification. Also the abliity to access portions of files and route the file data on various paths was eliminated. 20c1

The relation between file package directories and Tenex directories is one to one. The access rights to directories and files that a caller on a file package has are exactly those of the user-password-account that the process containing the file package is logged in with. 20c2

The file package is an interface to the regular operating system file system and uses its access controls. 20c3

That is to say that the is no attempt to build up a virtual file system at the file package level. 20c4

[***** That is to say that there ...] 21

Definitions: 21a

The following arguments are used in the subsequent prodcedure definitions: 21a1

name - the name of a file in host dependent syntax 21a2

name - CHARSTR 21a2a

directory - the name of a directory (or directory hierarchy) in host dependent syntax 21a3

[***** If it is in host dependent syntax, why doesn't the TENEX name include "<" and ">" as delimeters?] 22

directory - CHARSTR 22a

Note that in Tenex the directory is not enclosed in angle brackets <>. 22a1

filename - the fully qualified name of a file 22b

filename - LIST (directory, name) 22b1

filelist - a list of file names 22c

filelist - LIST (filename, ...) 22c1

srclist - list of source files 22d

srclist - filelist 22d1

Schantz comments on meeting notes

dstlist - list of destination files 22e

dstlist - filelist 22e1

newlist - list of newly assigned uniquely named files 22f

[***** The way it is used indicates that whenever there is a newlist every element in that list has the same directory name in the (directory, name) pair for each file in the list, but it must be repeated for each file. It might prove useful to define a default specification that says that if the directory field of the name pair was empty, it means the directory of the last item which had it specified. In addition, empty directory on the first (or only) item would default to connected directory.] 23

newlist - filelist 23a

fileclass - a partially specified file name that indicates a set of files in host dependent syntax. 23b

[***** This is really only a special type of "name" as defined above. As such it should probably be indicated in parameter lists as (directory, name) just as an ordinary file would be. The catch would be that it would not be applicaple everywhere (e.g. yes in a filename for listdir, but no in a dstlist for putfile). Again with these type names, directory=empty should default to the connected directory.] 24

fileclass - CHARSTR 24a

In Tenex this is the star (*) notation. 24a1

disp - the disposition of the source files, either DELETE or RETAIN. 24b

disp - BOOLEAN [DELETE = FALSE / RETAIN = TRUE] 24b1

Note that DELETE makes the operation a rename, while RETAIN makes the operation a copy. 24b1a

chnl - a port handle. 24c

chnl - INDEX 24c1

If chnl is an argument of a procedure the data generated by (or received by) the procedure is transmitted on that physical channel . 24c1a

filetypelist - a list of file types associated with the filelist that indicate the physical type of the file and the format of the

pcp encoded transmission of the file. The type is represented by a small integer. 24d

[***** These file types must be enumerated soon.] 25

filetypelist - LIST (INTEGER, ...) 25a

Procedures: 25b

Listdir (directory, fileclass, EMPTY => filelist) 25b1

[***** As indicated above, this might be better represented as a two parameter call, the first being a (directory, name) list and the second the destination indicator. This routine would accept (directory, name) pairs of the following variety: (directory, fileclass) which would do the TENEX star thing for that directory, (directory, name) which really asks if that file exists, (directory, empty) which lists all files in that directory, (empty, empty) which lists all files in the connected directory, (empty, fileclass) which does the star thing for the connected directory, etc. etc.] 26

The names of the subset of files indicated by DIRECTORY and FILECLASS are returned in the result FILELIST. 26a

Listdir (directory, fileclass, chnl => EMPTY) 26b

The names of the subset of files indicated by DIRECTORY and FILECLASS are transmitted via the physical channel indicated by CHNL. 26b1

Deletefiles (filelist) 26c

[***** Deletefiles (filelist => EMPTY)] 27

[***** Note also that file classes might be possible here (e.g. delete (directory, *.*) might clear the entire directory, as might (directory, empty). the trouble with this approach is that you should really report back to the caller the names of the files that were deleted, and error indicating may be a problem).] 28

The files specified in FILELIST are deleted. 28a

Localxfer (srclist, disp, directory => newlist) 28b

[***** We could unify the dstlist vs directory distinction by saying all names are (directory, name) pairs, and that (directory, empty) on output file means generate a new name. Then, using convention that last specified parameter holds when a new

parameter is ommited, Localxfer is just (srclist, disp, dstlist) where dstlist is a list of filenames (possibly only one: directory, empty). In this way we could mix specified destination names with generated names. The user would be responsible for remembering the order of generated names if he mixes specified with generated.] 29

[***** It should be made clear that a single disp holds for all the files in the list.] 30

The files specified by SRCLIST are assigned new unique names and entered into the directory indicated by DIRECTORY. The list of new file names is reported in the NEWLIST result. 30a

The retention or deletion of the source files is indicated by DISP. 30b

Localxfer (srclist, disp, dstlist => EMPTY) 30c

The files specified by SRCLIST are stored as indicated by DSTLIST. 30c1

The retention or deletion of the source files is indicated by DISP. 30c2

Getfiles (srclist, filetypelist, disp, chnl) 30d

[***** Getfiles (srclist, filetypelist, disp, chnl => EMPTY)] 31

The files are sent on the physical channel indicated by CHNL as specified by SRCLIST. 31a

The type information in FILETYPELIST is used to determine the mapping from storage format to transmission format for the files. 31b

The retention or deletion of the source files is indicated by DISP. 31c

Putfile (dstlist, filetypelist, chnl => EMPTY) 31d

The files received on the physical channel indicated by CHNL are assigned the names and entered into directories as indicated by DSTLIST. The list of new file names is reported in the NEWLIST result. 31d1

The type information in FILETYPELIST is used to determine the best storage format for the files. 31d2

Putfile (directory, filetypelist, chnl => newlist) 31e

Schantz comments on meeting notes

The files received on the physical channel indicated by CHNL are assigned new unique names and entered into the directory indicated by DIRECTORY. The list of new file names is reported in the NEWLIST result. 31e1

The type information in FILETYPELIST is used to determine the best storage format for the file. 31e2

Discussion: 31f

A convention to be followed whenever two parallel lists are supplied as arguments is that if the second list runs out before the first list, then the last element of the second list is to repeated for every remaining element of the first list. 31f1

Another convention is that the procedures of the file package are to make help returns to their caller on any error. 31f2

Source file does not exist 31f2a

Access control prevent your use of that file 31f2b

Unrecoverable I/O error 31f2c

The intent of the help return is to have the file package procedures report the failure of an operation on a per file basis, that is, the help return can indicate the specific file in error. This then allows the caller to resume or abort the procedure with full knowledge of how far it got, or which files were not processed. 31f3

[***** We cAn identify three possibilities after error detection and a help call, 1) skip that element and proceed on to next one 2) Abort the whole call, with or without trying to undo what you've already done, and 3) try same element again with newly specified parameters. The exact nature of these help calls will become clearer as the implementations proceed.] 32

[***** General comment on file package:
Note the ramification of this organization for the NSW file transfer utility to access and retrieve files from the various permanent and temporary work spaces (i.e. directories).
Since the File Process (i.e. the process with the file package code; there is only 1, I think, for a WM) is logged in as a single user, and no further passswords are provided other than to log the FP in, the TBH system must provide a way to allow a special user (i.e. the designated FP) to access all of the directories in the NSW space, while at the same time not allowing public access to these directories. In TENEX we plan to do this using the group mechanism.

JBP 4-APR-75 00:29 25664

Schantz comments on meeting notes

In MULTICs I think we agreed that arranging the directories properly in the hierarchy would accomplish the same effect.] 33

34

JBP 4-APR-75 00:29 25664

Schantz comments on meeting notes

(J25664) 4-APR-75 00:29;;; Title: Author(s): Jonathan B. Postel/JBP; Distribution: /JEW([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: JBP;

KIRK 4-APR-75 04:09 25665

Curly bracket codes seem to be used by LP

On a trial test of passing curly brackets to the terminal by changing lsgfrmt, I found that it works fine in TNLS and in teletype simulation but in DNLS on a DataMedia only the first character of each line is displayed. Is 173B or 175B used by the LP for something? On an earlier test where I also included tilda (176B) I got a line of <NUL>s down the left margin of my screen. Charles or Bob, can you verify that the LP is the problem and let me know if any thing can be done to display curly brackets?
<KKELLEY,LSGFRMT,PROC=REP,> will show what happens when using DNLS and trying to pass 173B and 175B on to the display. Also, it would be nice to include tilda and 174B (vertical slash) at some point so NLS can boast of suporting the full ASCII set. I'm not sure if ISI wants to display curly brackets or just use the code? Elizabeth, can you find out for sure. 1

KIRK 4-APR-75 04:09 25665

Curly bracket codes seem to be used by LP

(J25665) 4-APR-75 04:09;;;; Title: Author(s): Kirk E. Kelley/KIRK;
Distribution: /EKM([ACTION]) CHI([ACTION]) RLB2([ACTION])
NPG([INFO-ONLY]) ; Sub-Collections: SRI-ARC NPG; Clerk: KIRK;

KIRK 4-APR-75 05:06 25666

The Whole Universe Catalog: a new tool

What it is 1

The Whole Universe Catalog (WUC [rhymes with duke]) is a way of looking at things. It consists of a simple, powerful accessing system with which you can view from a display or typewriter terminal your personal NLS files as well as the Whole Universe Catalog index. The index currently interfaces to many things of interest to NLS users. If the thing you want is online and you know it's name, WUC can take you to it. If you don't know it's name, you should be able to find it through a synonym or by pointing to categories if it is cataloged in WUC. WUC is meant to eventually become an online university with access to the universe. Hence the ambitious name. 1a

The accessing system requires no knowledge of viewspecs, addresses, commandwords, directories or file boundaries. Yet for those who know them, WUC contains all of the addressing and viewing capablities of NLS. It can reduce from ten to one the number of buttons to be pushed for some of the most common viewing functions in NLS. Once entered (via the Execute command) it can be used without ever touching the keyboard or keyset. However, any legal NLS ADDRESS can be typed. In DNLS, prompting represents buttons and combinations of buttons on the mouse. Type questionmark in WUC for a short description of the major alternatives. 1b

Since WUC has not been accepted as an official ARC program, you cannot type <CTRL-Q> and get help with it or learn about it in help. Instead, type HELP in the wuc command. 1c

Also, please send any comments to ident KIRK or sndmsg to KKELLEY@BBNB. Do not send any feedback concerning WUC to FEEDBACK. 1d

How to get it 2

Use the "Process Branch" command on the following branch (2B) to make WUC available to you. 2a

Execute Programs Load Program XPROGRAMS,WUC 2b

Execute Use IPXPROGRAMS,WUCEW 2b1

In DNLS, push the two rightmost mouse buttons together to go NEXT from where you point and thereby scroll through the rest of this document. 2c

CD quits WUC. Type ew to "Execute WUC" once you have quit. 2d

The Whole Universe Catalog: a new tool

Features 3

With WUC you use the same command for the same viewing function in DNLS as in TNLS. 3a

WUC allows viewspecs when you want to input them (as in Jump to Link) but does not prompt for them every time. Only one confirm is necessary because it also specifies your view. The confirm can be thought of as a very special viewspec which also acts to terminate the command. 3b

Any NLS address is acceptable but if you wish to address a name in a certain branch, you need not preceed it with exclamation point. 3c

If you type a long address and misspell the last word, WUC will take you as far as it can and indicate the rest of the address was not found thus saving you from re-typeing the beginning of the address. 3d

Parenthetical comments are not confused with links. Text in parentheses is ignored unless you use the ,1 address element. 3e

Locating Documents 3f

WUC makes document locator files and super documents easier to use in several ways. Probably the most important to the novice is that you do the same simple things to 1) get to the locator, 2) search down through it, 3) access a particular file and 4) find the piece of information you want in that file. In addition, WUC eliminates five of the rather criptic buttons necessary most of the time in TNLS (pbSN,1<CA><CA>). With WUC in TNLS, you just type the statement number (SN) and confirm. In DNLS this is a single mouse button push. 3f1

For instance, to access the userguides locator, simply type LOCATOR followed by your CA. If you type LOCATOR OUTPUT you go directly to the output processor guide skipping any view of the locator all together. If you type LOCATOR OUTPUT PES you go directly to the description for the PES output processor directive. In this case all you have to type is OP PES because the output processor guide happens to be available directly from the WUC index under the name OP. 3f2

Another locator type file, the NSW super document located at BBNB, is also available via WUC. Just type NSW. 3f3

Advantages of WUC over the Help command. 3g

For help with NLS, type NLS while using WUC. You can also go

directly to a particular definition or branch of infomration by typing NLS followed by the name of the information. For example, NLS LINK. 3g1

WUC contains help for all user-programs made available in WUC by their authors instead of just the ones approved by ARC management. Type PROGRAMS. 3g2

WUC allows you to scroll to read everything about a certain topic at once without having to back up and try each menu one at a time. When you do want to back up, it is just one push of a button (BC) and in TNLS, only enough is typed to indicate where you have returned. Where you go when you back up is not confusing. Backing up ALWAYS takes you to the next place back. It remembers your last 60 places on a simple stack. 3g3

You can see everything or just an outline at your discretion. 3g4

In DNLS, you use the mouse to point to a menu item or point to a word for its definition instead of typing it in from the keyboard. 3g5

WUC accepts any valid NLS link, address, viewspec, or content analyzer pattern or program in addition to the simple words accepted by Help. You never get the cryptic message "Illegal list characters" while using WUC. 3g6

WUC will take you through as many links and files as necessary to get you to where the Help description writeer wishes to take you. Even if you type "science fiction" and the information is located under "novels" which is linked to from "fiction" located under "sciences" linked to from "science", WUC will find it. The Help command will not search through links. Also, if the Help database links to a link, you see nothing when you use the Help command. 3g7

Help Description Writers: you can stop right where you are and edit your current view. 3g8

Since WUC can access any NLS file with the essential flexibility needed, the current restrictions on format could be eliminated. Instead of the ugly, chopped up database we now have, we could have a smoothly flowing online document which would map almost directly into a discursive prose hard copy document. 3g9

WUC allows you to have your current view printed on the line printer. 3g10

The Whole Universe Catalog: a new tool

Query 3h

Although it is currently not available for Novice users, it would be very easy to access, for example, the Arpanet Resource Notebook using WUC. The current "Bring" and "ShoW" commands as well as the instructions for use duplicated in every file would be unnecessary. Typing questionmark should be sufficient to teach the user what to do. 3h1

The user could type, for example, NIC SRI-ARC PERSONNEL and see the information directly without having to wade through the current laborious path. 3h2

All of the writing advantages listed in the Help discussion above are as important for Query database builders. Standard online documents could be written for the database and turned directly into hard copy. 3h3

Jump to Name External 3i

When sysgd (the L10 procedure locator) uses angle-brackets instead of parentheses for links, you could go directly to any procedure by typing sysgd followed by the procedure name. 3i1

In writing the WUC source code, I set the index file to be sysgd, put procedure names in angle brackets when I called them and simply pointed to the procedure name when I wanted to see the code for the procedure. 3i2

WUC will display statements in NLS files from other sites. (preceed the statement name with the site name, directory name and filename). 3j

If you try to take an invalid link, WUC will indicate the problem and display the statement containing he invalid link. 3k

You can go "up" to a higher level from the origin of a file if a link to the source for that file has been specified in the origin. This helps make many files accessible as a single "virtual" file. Such a file is merely a special branch in a theoretically unlimited file and is treated as any other branch. 3l

You generally get faster response with WUC because the computer doesn't have to handle as much user interaction before it calls core routines. 3m

Type WUC for a list of the things available in the WUC index. 3n

Bon Voyage, information-space-person! 3o

KIRK 4-APR-75 05:06 25666

The Whole Universe Catalog: a new tool

(J25666) 4-APR-75 05:06;;; Title: Author(s): Kirk E. Kelley/KIRK;
Distribution: /NPG([INFO-ONLY]) DVN([INFO-ONLY]) POOH([
INFO-ONLY]) JAKE([INFO-ONLY] For your review, Jake) ;
Sub-Collections: SRI-ARC NPG; Clerk: KIRK;

RH 4-APR-75 09:03 25667

Would you Believe

HMMMMM, just wondering if it was possible for me to actually receive journal the "right" wat. Has not seemed to have been working for me at all. 1

RH 4-APR-75 09:03 25667

Would you Believe

(J25667) 4-APR-75 09:03;;;; Title: Author(s): Rita Hysmith/RH;
Distribution: /RH([ACTION]) RH([INFO-ONLY]) ; Sub-Collections:
SRI-ARC; Clerk: RH;

KS 4-APR-75 14:36 25668

Replying to your letter to Warshall.

Dear Dirk:

Steve Warshall has passed your letter on to me, since I'll be the person here at Computer Associates who'll be concerned with documentation -- at least as far as anyone is. I'm also on the DIRT distribution list. I've read the HELPD document you mentioned to Steve (Ijournal, 25084,), and it seems quite practicable ... with practice.

For starters, we have the document
[BBNB]<MILLSTEIN>WM-PROCEDURES.TXT;37
which describes the "White Boxes" -- the externally-callable procedures in the Works Manager. This is a greatly expanded version of the White Boxes portion of my earlier message to CHI, which you referred to (Hjournal,25383,). You may very well already have seen it by now, and someone may have journalized it; however, the current version, with a few changes to the previous one, was just produced yesterday (2 April 75). If you can't access it easily, I'll be happy to SNDMSG it to you.

This document is already organized into nameable paragraphs, albeit not in NLS. It would be an interesting NLS exercise for me to convert it to an NLS file and start patting it into HELPD shape. Shall I do that?? Of course, you would do it certainly faster, and probably sooner, than I could.... If I start it, you'll cerainly have to get in to fix it up, in any case. How does it work in NLS to have two different users messing with the same file? Can you send me a quick tutorial?

In any case, it IS just a WM-calls description, not a user-commands description, although those two concepts differ mostly only in syntax -- so far, at least. I'm to be working with CHI on the user syntax, and will insert that, with explanations, into our working WM-HELP file as we go.

I'm reachable by journal mail [KS], or addressable as SATTLEY@BBNB.

Sincerely, Kirk Sattley, Mass. Computer Associates

KS 4-APR-75 14:36 25668

Replying to your letter to Warshall.

(J25668) 4-APR-75 14:36;;; Title: Author(s): Kirk Sattley/KS;
Distribution: /DVN([ACTION]) REM([INFO-ONLY]) SW([INFO-ONLY]
) ; Sub-Collections: NIC; Clerk: KS; Origin: < SATTLEY,
VANNOUHUYS-DRAFT.NLS;1, >, 3-APR-75 16:41 KS ;;;;####;

KS 4-APR-75 16:30 25669

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I'm reachable by journal mail [KS], or addressable as SATTLEY@BBNB.

Sincerely, Kirk Sattley, Mass. Computer Associates

KS 4-APR-75 16:30 25669

Reply to your letter to Warshall.

(J25669) 4-APR-75 16:30;;; Title: Author(s): Kirk Sattley/KS;
Distribution: /DVN([ACTION]) REM([INFO-ONLY]) SW([INFO-ONLY]
) ; Sub-Collections: NIC; Clerk: KS; Origin: < SATTLEY,
VANNOUHUYS-DRAFT.NLS;2, >, 4-APR-75 16:27 KS ;;;;####;

POOH 4-APR-75 18:17 25671

Tapes sent to DDSI

Listed below is information about tapes sent to DDSI. For each tape sent, the following information will be included: 1

Tape number, date tape was ready for DDSI, and person who sent tape 2

FILENAMES and person responsible for each file 2a

Tape 0001 3/26/75 POOH 3

<userguides,commands-com,nls;10> POOH 3a

<office-1,meyer,formats,nls;1> (run with format 2) NDM 3b

Tape 0005 4/4/75 POOH 4

<userguides,commands-com,nls;> POOH 4a

Tape 121 4/4/75 KIRK 5

<arcdocumentation,gtest> KIRK 5a

POOH 4-APR-75 18:17 25671

Tapes sent to DDSI

(J25671) 4-APR-75 18:17;;; Title: Author(s): Ann Weinberg/POOH;
Distribution: /JOAN([ACTION] DCPS notebook please) DIRT([INFO-ONLY
]) ; Sub-Collections: SRI-ARC DIRT; Clerk: POOH; Origin: <
COM, TAPES.NLS;2, >, 28-MAR-75 1551 POOH ;;;; ####;

DVN 4-APR-75 20:10 25672

Prodcutivity Reports to DPCS Please?

Jim, could you send your user productivity reports to &DPCS or put them in the DPCS subcollection for furture reference?

1

DVN 4-APR-75 20:10 25672

Prodcutivity Reports to DPCS Please?

(J25672) 4-APR-75 20:10;;;; Title: Author(s): Dirk H. Van Nouhuys/DVN; Distribution: /DEE([ACTION] dpcs notebook please) JHB([ACTION]) ; Sub-Collections: SRI-ARC; Clerk: DVN;

DVN 4-APR-75 20:13 25673

Allocation of my time to DPCS

Beverly Boli is comming to work Firday and it seems right to me that her arrival should eventually free up some of my time for DPCS work. The NSW is hard-pressed, and she will take some time to get going. What about my starting to work half time on DPCS May 1? 1

DVN 4-APR-75 20:13 25673

Allocation of my time to DPCs

(J25673) 4-APR-75 20:13;;;; Title: Author(s): Dirk H. Van Nouhuys/DVN; Distribution: /RWW([ACTION]) DCE([ACTION]) DEE([ACTION] dirt and dpcs notebooks please) POOH([INFO-ONLY]) BEV([INFO-ONLY]) KIRK([INFO-ONLY]) RLL([INFO-ONLY]) JCN([INFO-ONLY]) PWO([INFO-ONLY]) ; Sub-Collections: DPCS SRI-ARC; Clerk: DVN;

DVN 4-APR-75 20:18 25674

Fitting Government Paper

We should have an Output Processor directive something like ",Federalpaper = On;", which you could put in the header, and it would reset all the margins, headers, top and bottom etc, to fit 8.0 x 10.5 paper. 1

DVN 4-APR-75 20:18 25674

Fitting Government Paper

(J25674) 4-APR-75 20:18;;;; Title: Author(s): Dirk H. Van Nouhuys/DVN; Distribution: /FEED([ACTION]) DEE([ACTION] dpcs notebook please) DPCS([INFO-ONLY]) ; Sub-Collections: SRI-ARC DPCS; Clerk: DVN;