

RW 30-DEC-73 12:12 21248

***** FTP mail from [S506EW13] (WERME)

1

TEST OF NETWORK MAIL FROM NIC

2

3

21248 Distribution
Ric Werme,

1
1a

RW 30-DEC-73 12:12 21248

(J21248) 30-DEC-73 12:12; Title: Author(s): Ric Werme/RW ;
Distribution: /RW ; Sub-Collections: NIC; Clerk: RW;

Purdue News Article

Wayne:

1

I have taken the liberty of addressing this request to you since you are listed as coordinator for your site. I would like to invite you to write a brief article for the ARPANET News about your site, its plans, needs, accomplishments, capabilities, etc. The purpose for the article is to better inform the network community relative to your site and its relationship within the network community. If you have not seen a copy of the News, it is available online at the NIC (SRI-ARC) and may be viewed by typing the following two commands: (1) @NIC<CR> and (2) -A[rpanews]<CR>.

1a

If you can respond to this request in the affirmative, please send the article to me either through sndmsg to iseli@isi, or through the NIC Journal to JI. You may also submit to jernigan@nic or to MEJ through the NIC Journal system. I would appreciate if you could submit such an article prior to 20 January 1974.

1b

Thank you very much for your consideration and help. Most sincerely, Jean

1c

21249 Distribution

Wayne R. Robey, Mil E. Jernigan, Jean Iseli,

1
1a

Purdue News Article

(J21249) 31-DEC-73 08:38; Title: Author(s): Jean Iseli/JI;
Distribution: /WRR MEJ JI; Keywords: Purdue-news-article-request;
Sub-Collections: NIC MITRE-TIP; Clerk: JI;

Thanks for the link to documentation of POST. Since the users at SDAC share a directory at ISI; it should prove quite useful to us. I'll let you know what luck I have "implimenting" it. Buz Owen

1

21250 Distribution
Stephen R. Wilbur,

1
1a

ADO 30-DEC-73 21:35 21250

(J21250) 30-DEC-73 21:35; Title: Author(s): A. D. (Buz) Owen/ADO;
Distribution: /SRW; Sub-Collections: SDAC-TIP; Clerk: ADO;

L10 Queries - Output Journal

Dean:

I persisted and got a copy of <NLS>sysgd out recently and in browsing through it I found there is an Output Journal mail command.. There is one snag to this it sends a ^R after the headre line which sets our printer to double spacing. This character is inserted in (nls,seqfil,3e17b3). What would be nice is if I could take a modified version (with the offending char replaced) and use it instead of the standard. The question is HOW?

The other thing is that some of the output commands take a parameter called 'da' which is a display area.. what exactly is this?

Also I came across a reference to an L10 Reference manual.. Is this on-line or do I contact Marcia Keeney?

That's all for now my other programs are coming along nicely but it would be nice to have subscripted text pointers on occasion

Cheers .. Steve

1

21251 Distribution
N. Dean Meyer,

1
1a

L10 Queries - Output Journal

(J21251) 31-DEC-73 02:37; Title: Author(s): Stephen R. Wilbur/SRW;
Distribution: /NDM; Sub-Collections: NIC; Clerk: SRW;

comments on automatic ftp printing of files

the title and the content of your memo are not that well tied together ie you should say more about automatic printing. also your directives are all messed up. question how can i get the ftp document on line ?

comments on automatic ftp printing of files

Dave:

Why socket 4 what is your reasoning ?

Have you ask alex ? my guess is that "TIP's won't do it".

i think that ftp commands are limited to four characters so it would be XTYP or something.

It isnt clear that types p and d are nearly exclusive of each other and can be used in conjunction with some of the other types, legal and illegal combinations should be indicated.

It is not easy to give users one interface to both small host and large host mechanisms, if one uses ftp and the other not, or even if two different ftp command sequences are involved, the human user still has to know if it is a big host or a small host. not all tips have printers, and if they did there is no reason to assume they will all be on the same port, it is even possible that two or more groups will use the same tip from different buildings and have separate printers. the socket number to/from tip port number mapping is simple and could be coded into a user interface program which asked users which tip port to print on,, that is what tipcopy does, by the way getfile program that we had on the sigma listened on thhe socket number corresponding to port number 1 on tip 1. also note that of the printers on tips that i know of hey are on port 1 (or socket 00010002 hex).

It looks like you want a single user interface program that lets you send files to any thing, i think such a thing can be built with out much more in the way of standards. the missing fact is "how do ants's make their line printer's available to the network?"

--jon.

21252 Distribution
David H. Crocker,

1
1a

JBP 31-DEC-73 06:49 21252

comments on automatic ftp printing of files

(J21252) 31-DEC-73 06:49; Title: Author(s): Jonathan B. Postel/JBP;
Distribution: /DHC; Sub-Collections: NIC; Clerk: JBP;

comments on automatic ftp printing of files

dave:

it may be more reasonable to get things printed by using a particular file name rather than a type parameter. (i am losing T's on This Terminal). it might be that a standardized name for the printer could be agreed on.

--jon.

1

21253 Distribution
David H. Crocker,

1
1a

JBP 31-DEC-73 06:55 21253

comments on automatic ftp printing of files

(J21253) 31-DEC-73 06:55; Title: Author(s): Jonathan B. Postel/JBP;
Distribution: /DHC; Sub-Collections: NIC; Clerk: JBP;

<KUDLICK>HOSTNAMES.NLS;6, 10-JAN-74 08:40 MDK ;

21256

NWG/RFC # 608
NIC #21256

M.D. Kudlick
(SRI-ARC)
January 10, 1974

HOST NAMES ON-LINE

We at the NIC agree with Peter Deutsch's suggestion (in RFC# 606 / NIC# 21246) that the NIC maintain an on-line ASCII text file of Host names, addresses, and attributes. That suggestion corresponds to one made by Vint Cerf recently, and evidently receives ARPA/IPT support.

Jake Feinler at the NIC designed and maintains a source file, in NLS format, that can be used to generate the ASCII file Peter outlined. A program to generate an up to date version of the ASCII file needs to be written at the NIC, and run periodically (weekly, or as the situation warrants). Such a mechanism would allow us, of course, to maintain one source of data and use it for this and other purposes.

Our present data includes official Host name, Host address, Host status (user, server, TIP) and certain other information like Technical Liaison, Host computer, operating system, etc.

Provisions exist for including attributes of the type Peter suggested (for example, FTP byte size, TELNET duplex mode, echoing mode, and nicknames), but these data are currently NOT in our source file.

To get things moving, therefore, we propose to do the following things:

- 1) We shall write a program to generate the ASCII file in the syntax described in RFC# 606, namely:

<host-name-file> ::= <entry> / <host-name-file> <entry>

<entry> ::= <data-part> <end-of-line>

Note that this produces a blank line after the <data-part>.

<data-part> ::= <basic-part> / <data-part> <attribute-item>

<basic-part> ::= <host-name> , <host-address> <end-of-line>

<attribute-item> ::= <attribute-name> = <attribute-value>
<end-of-line>

- 2) We shall initially include only the following items in each <entry>:

- a) <basic-part>

Copy via 24093)
of the Arpent
Trip Report and Future
Programs

in which <host-address> will be a decimal host address, relative to the Host's own Network, and

in which <host-name> will be the official Host Name, a string obtained through negotiation between the Host and the NIC, governed by these constraints:

- up to 48 characters drawn from the alphabet (A-Z), digits (0-9), and the minus sign (-) ... specifically, no blank or space characters allowed;

- no distinction between upper and lower case letters;

- the first character is a letter;

- the last character is NOT a minus sign;

- no other restrictions on content or syntax.

Note: The Host Name may be prefixed with an Official Network Name of up to 24 characters enclosed in parentheses (). The Network Name designates the Network in which the Host resides.

(The characters used in the Network Name are drawn from the same character set as those in the Host Name, with the same constraints [except the length] as listed above.)

The ASCII text file will only contain the Official Network name for Hosts NOT on the ARPANET; for ARPANET Hosts, there will be no Network Name prefix.

b) <attribute-item>

in which <attribute-name> initially will have the single possible value STATUS, and the corresponding value of <attribute-value> for STATUS will be one of these:

- SERVER
- USER
- TIP
- UNKNOWN

c) <end-of-line>

this will be carriage return followed by line feed
(octal 015 followed by octal 012)

3) Attributes other than those for which <attribute-name> is STATUS will be added in the above format at a later date (to be announced) as the data becomes available to us.

We agree with Peter that the attribute list should not be construed as replacing option negotiation or any other means by

which one Host discovers the properties of another, but merely as an alternative source of information that is simply and easily accessible, in machine-readable form.

Suggestions for attributes that are worthy of inclusion in the ASCII file of Hostnames are welcome. Please send your suggestions and/or data to Jake Feinler.

FEINLER @ SRI-ARC, or NIC Ident = JAKE

For completeness, we record here the attribute suggestions given in RFC# 606:

NICKNAMES -- value is a list of acceptable nicknames for the host. Any system that provides name-to-address translation is encouraged (although of course not required) to accept these names as alternatives to the official host name.

FTP-BYTE-SIZES -- value is a list of the byte sizes supported by the FTP server. The first byte size is the one which leads to the least computational overhead (e.g. 36 for PDP-10's, 32 for 360's).

ECHOING -- value is L or R depending on whether the host expects the terminal to echo (Remote) or expects to do its own echoing (Local).

The ASCII file generated by the NIC will reside at Host OFFICE-1 (Host Address = 43 decimal), and will have the pathname.

<NETINFO>HOSTS.TXT

Using this pathname with an FTP process will enable anyone, of course, to retrieve the file for use at any Network Host.

The login username for FTP can be GUEST,
password ARPA,
account 1.

The file will be in alphanumeric sequence by Host Name.

The date after which the file will be available at OFFICE-1 will be announced via RFC as soon as the file is ready.

We welcome comments on this RFC, on RFC# 606, or on any other aspect of this problem. And we wish to acknowledge the contributions of Vint Cerf, Peter Deutsch, Jake Feinler, and Nancy Neigus in getting the official Host Name list to happen.

Manageing Query Data-Bases

Doug, Jim, Mike, and Dirk,
In viewing my future plans within the current ARC-NIC framework, I see a function evolving that is relevant to me. I would like to be the official query data-base coordinator. This could include development and maintenance of the Help data-base, and NIC and ARC Locators, as well as consultation and support for the Resource Notebook, ARC Handbook, and Forms System data-base. My current job is primarily composed of these functions except for the ARC Handbook, which has fallen by the way-side, and the Forms system which is yet to exist. Other functions that are a part of my current job are: Online Editor for the SIGART Newsletter and NIC functional documents, coordinating the NP feedback mechanism (recently with SRL as NEWNLS), and teaching DEX. I feel I could continue to be responsible for these other functions for a while. Most of them are related in one way or another, to the current or future query data-base. I would like to know what you think. -- Kirk

1

Managing Query Data-Bases

(J21257) 1-JAN-74 14:23; Title: Author(s): Kirk E. Kelley/KIRK;
Distribution: /DCE JCN MDK DVN; Sub-Collections: SRI-ARC; Clerk: KIRK;

User Programs..a few questions

Dean, I understnd that you are now # one user programs man?? True?? If so, I have been trying out some of the goodies that appear to be offered. I have been working from a contents file printed 12 N OV, so that may explain some of my problems. Others I can't explain, and need some education. I'd appreciate any help you could give me..if you're not the man, than who should I see?

1

One general problem that I ran into was the program being suspended. This happens I know when I use ODP and the system load is over 4. Is this what's happening with the userprogs too?

1a

addname

2

It is listed in the dirctory as addname.ca;l. The program is loaded OK, but when I attempt to execute it, the system comes back with "fst entry nonexistent". Whats up?

2a

changed

3

has disappeared..is it comming back? I could use it on a couple of open files that we have, where everyone contibutes dialog. When printing it out, it would be neat if I could see only those items that have been added since I last looked at it.

3a

delcol

4

has disappeared. Could save me a lot of time This I could use in reformatting the user statistics that I get weekly from BAH. I have been making different cuts of these, doing calculations etc. I end up deleting columns now in a mannual manner. If one can delete a column..why not transpose, replace, copy, and in the calculator--add?? Just a thought for future development goodies.

4a

delname, delsp

5

have dissappeared

5a

makeref

6

This appears to run OK until it finds a journal reference that is off-line, at least that's my interpretation. I get back a message that says "can't open catalogue file". Maybe someone else is doing catalogue work? Anyway, it quits without having added any references.

6a

notabs

7

A boon to us in IMLAC land, since too many tabs in a file blow the IMLAC's mind. Sometimes files prepared by secretaries on the TI's

User Programs...a few questions

have a lot of tabs in them, and the unsuspecting DNLS user will load the file. One thing which I didn't have time to check out, and maybe you can advise me--does this program pay attention to tab settings other than default, in TNLS? If so this would be a way to get desired spacing between irregular columns, without going to the output processor directive. If this is true, I would recommend it here as an SOP..especially for the secretaries.

7a

truncate, wordcount

8

have disappeared

8a

User Programs...a few questions

(J21258) 2-JAN-74 08:36; Title: Author(s): Duane L. Stone/DLS;
Distribution: /NDM JHB JPC EJK; Sub-Collections: RADG; Clerk: DLS;
Origin: <STONE>USERPROGS.NLS;1, 2-JAN-74 08:33 DLS ;

Telling SRW that POST is a good job

Steve Wilbur: Printed out several copies of your (21241,). I really like the whole job very much, from the size of step, through the mode of execution, and including the nice way you've documented it. I don't handle my Net-mail with the RD system, so I don't know enough about it to assess the particulars of your approach.

1

I have a notion that some ARGers are liable to be communicating a bit with you about the POST system, it seems like a good candidate for several Net-mail applications with problems similar to those you've solved.

1a

I noticed that those idents that I recognized are the same as the NIC/NLS idents for the particular people. I'm pleased with that.

2

There seems to be a need for a network-wide basic Ident system, accessible by anybody's private message handling system. This is one of the basic products of the NIC experience that seems to us to be useful over the whole of the Network. Whole-universe services of some of the other NIC products are becoming less practical as the Network community gets larger, and really should be tailored in service packages specifically oriented for special-purpose sub-communities on the Net.

2a

If at any time you'd like to try some dynamic linking to our Ident system by special support programs that you write to serve your users, please contact Mike Kudlick. We'd like to get dialogue going about the possibilities as soon as they appear of practical interest to someone (like you).

2b

Telling SRW that POST is a good job

(J21260) 2-JAN-74 10:03; Title: Author(s): Douglas C. Engelbart/DCE
; Distribution: /rww jcn mdk pr chi hgl kev dcw ;
Sub-Collections: SRI-ARC; Clerk: DCE ;

Status report to ARC on our DEIS activity

I leave for Washington this afternoon, slated to attend a meeting at the ARPA Nuclear Monitoring Research Office tomorrow morning. Dave Russell (of NMRO) called the meeting; it is billed as a discussion of "NLS Support of the ARPA Energy Information System Program". There will be at least one person there from our long-time sponsors, ARPA's Information Processing Techniques Office. Russell asked for the full complement of SRI managers involved in this DEIS project to attend:

1

Bob Rodden, assistant director, Operations Evaluation Department, Engineering Systems Division. He is the SRI Project Supervisor.

1a

Arlie Capps, reporting to Rodden, is the SRI Project Manager

1b

Dave Brown, director, Information Science Lab, Information Science and Engineering Division (our division), carries responsibility for the information systems aspect of the project, reporting to Capps. (This is not a bit untypical of SRI projects -- the line-management hierarchy being mixed into the project's TECHNICAL-support tree.)

1c

I will represent ARC, and our involvement will be in two forms:

1d

ARC has been serving in a technical support capacity, under an earlier organizational arrangement for the project. In this continuing capacity we will work under Dave Brown, providing technical information and consultation in particular about ARPANET and NLS technologies.

1d1

We probably will provide the SRI DEIS Project with workshop service support. Here we would work directly for Capps, supporting the on-going activity of the Project.

1d2

It looks as though we will be setting them up very quickly with terminals, Utility service, and ARC-staff support to operate two "Centers." One will be at SRI Menlo Park, upstairs in Room K3008 (almost directly over our computer). The other will be at SRI's Washington office, only a few blocks from the ARPA offices.

2

This meeting tomorrow is to work out the particulars. It looks now as though our peak involvement will be at about a 7- or 8-person level, including both professional and clerical help. Heaviest activity likely between now and March or April.

2a

P.S. The NMRO Seismic Data Management Program apparently also may want some NLS service soon. A special meeting to discuss this possibility, with me, IPTO staff, and some of the Seismic contractors, is scheduled for tomorrow afternoon. This is a large program, in its design and implementation phases now, and with an apparently long stretch of operational future ahead. Considering NLS

Status report to ARC on our DEIS activity

help right away for the system development phases, and perhaps on into operational phase.

3

Status report to ARC on our DEIS activity

(J21261) 2-JAN-74 11:29; Title: Author(s): Douglas C. Engelbart/DCE
; Distribution: /sri-arc ; Sub-Collections: SRI-ARC; Clerk: DCE ;

new rd facility

clayton, please read <mjournal>21239.
what do you think about using this facility?

john (jrp)

1

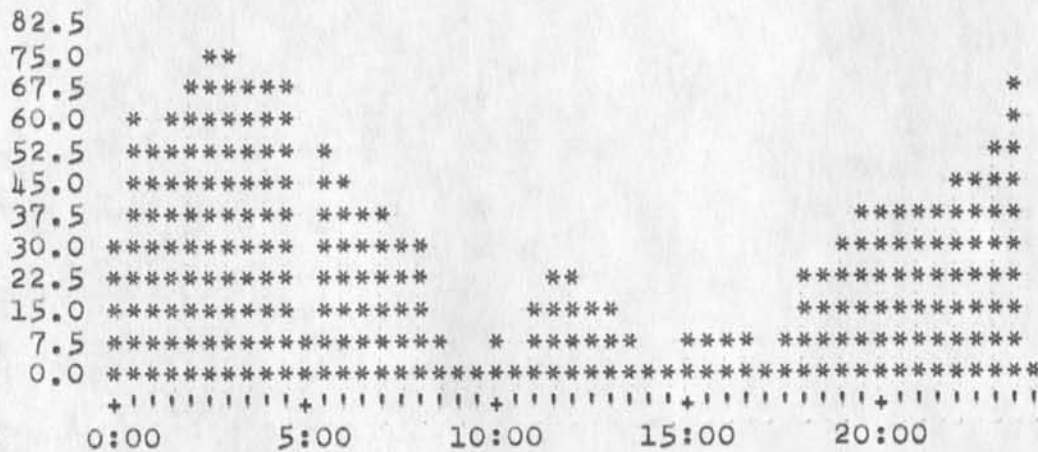
new rd facility

(J21262) 2-JAN-74 12:29; Title: Author(s): John R. Pickens/JRP;
Distribution: /CAG; Sub-Collections: NIC; Clerk: JRP;

Superwatch Average Graphs for Week of 12/17/73

TIME PLOT OF AVERAGE IDLE TIME FOR WEEK OF 12/17/73
 x axis labeled in units of hr:min, xunit = 30 minutes

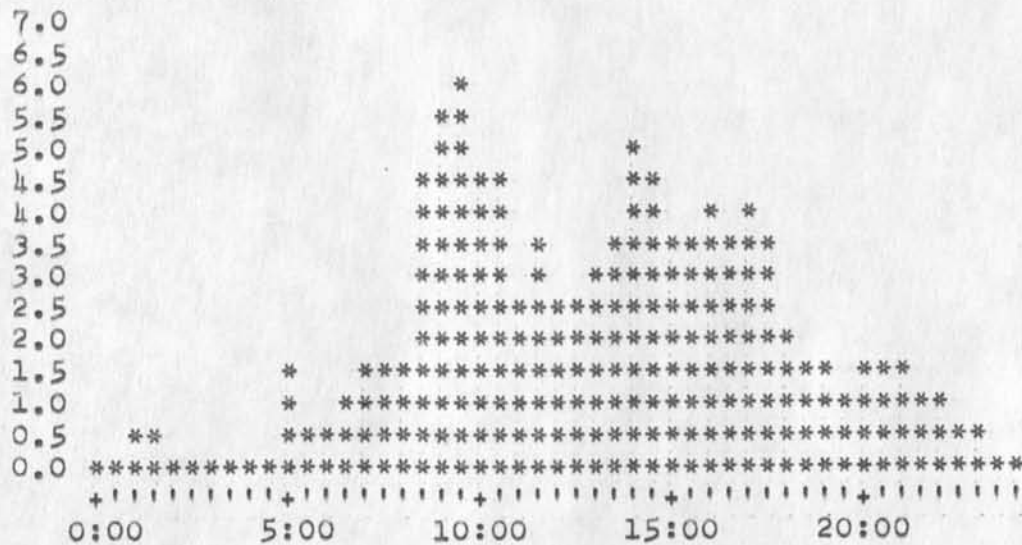
1



1a

TIME PLOT OF AVERAGE NUMBER OF GO JOBS FOR WEEK OF 12/17/73
 x axis labeled in units of hr:min, xunit = 30 minutes

2



2a

3



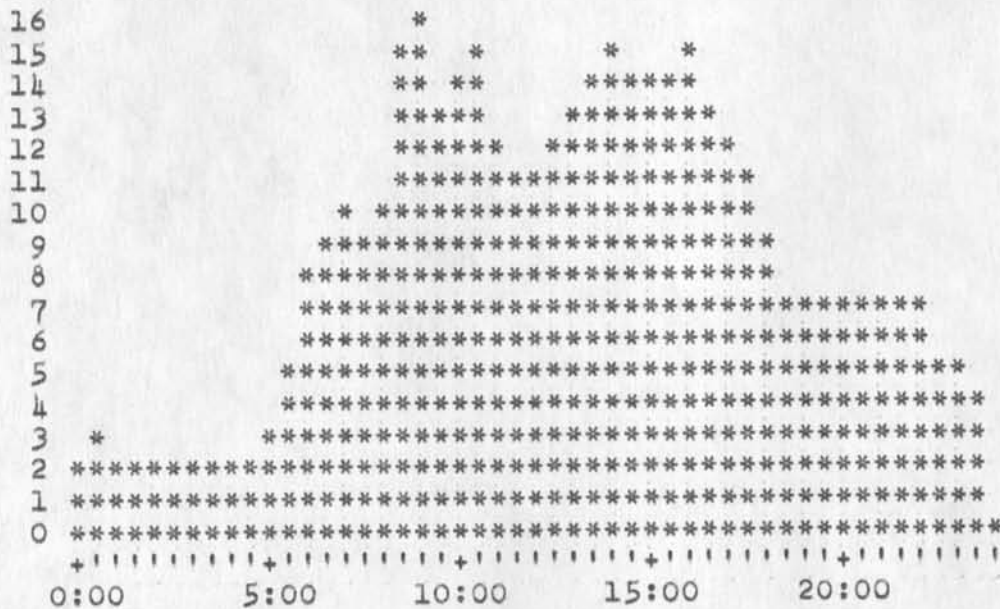
4



Superwatch Average Graphs for Week of 12/17/73

TIME PLOT OF AVERAGE NUMBER OF USERS FOR WEEK OF 12/17/73
 x axis labeled in units of hr:min, xunit = 30 minutes

5

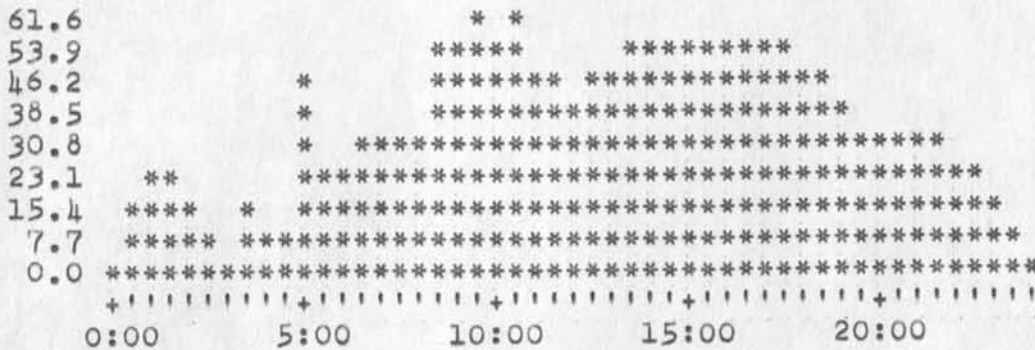


5a

TIME PLOT OF AVERAGE PER CENT OF CPU TIME CHARGED TO USER ACCOUNTS
 FOR WEEK OF 12/17/73

x axis labeled in units of hr:min, xunit = 30 minutes

6



6a

Superwatch Average Graphs for Week of 12/17/73

(J21264) 2-JAN-74 13:54; Title: Author(s): Susan R. Lee/SRL;
Distribution: /JCN RWW DCE PR JOP DVN JAKE KIRK DLS BAH;
Sub-Collections: SRI-ARC; Clerk: SRL;
Origin: <LEE>WEEK12/17GRAPHS.NLS;2, 2-JAN-74 13:49 SRL ;

Status of CCL

Nancy,
Sorry for not responding before now but I've been on vacation and just received your request for information. I will not be able to attend the meeting, but Clayton Greer will be present to represent UCSB. With regard to CCL, not much work has been accomplished here. I've thought about it some, but have not written anything down on paper. It was my impression that Wayne was going to take the initiative by documenting some of his ideas and distributing them to other members for their comments. I have been terribly busy with other projects and was relying on some one else to get the ball rolling. You might clear up a point of confusion for me. It was my understanding that our subgroup (i.e., Wayne, Ken, and myself) was to be concerned only with a common command language for batch processing systems and the common command language for interactive systems would be the responsibility of another subgroup. The USING group charter doesn't make this distinction, so if I am mistaken, please correct me. Happy New Year to you all. Ron

1

Status of CCL

(J21265) 2-JAN-74 13:59; Title: Author(s): Ronald M. Stoughton/RMS;
Distribution: /NJN; Sub-Collections: NIC; Clerk: RMS;

tickler for 10 Dec through 31 Dec

(dm3) 10 December - Monday

0830 hrs. Branch Chief's Meeting

ISIS/D. Nelson - Advanced Development Candidates - Completed

Dr. Cragg Visit - 0845 - 0945 - ISOverview - Mr. Barnum

1000 - 1100 Software First - Maj Patterson

1100 - 1200 - Higher Order Languages - Mr. DiNitto

1300 - 1400 - Software Reliability & Validation - Mr. Nelson

1400 - 1700 - Discussion

One hour is scheduled for each, but it is suggested that a 30 minute briefing be prepared to allow for questions.

ISIM/ISIS - Completion of Info Sci Div Questionnaire - All S&E personnel - Completed

(dt3) 11 December - Tuesday

Col Thayer - TDY

ISIM/R. Iuorno - Negative Interim Report on Inventions on Contract F30602-73-C-0001 w/Univ of Michigan - Completed

(dw3) 12 December - Wednesday

Col Thayer - TDY

ISF Confessions - 0830 hrs.

Due Date - ISIM/ISIS - Awards for Technical Achievement - Completed

1445 hrs. Presentation on Software - ISI/Col Thayer

(dth3) 13 December - Thursday

Col Thayer - TDY

Laboratory Activity Reports due today: Bucciero must have them by 1000, ISM must have them by 1100, and DOT must have them by 1600.

0830 hrs. Branch Chief's Meeting

Due Date - ISIS/D. White - PR-B-4-3229, Software Modeling Studies - RFQ F30602-74-Q-0025 - Completed

Due Date - ISIM/D. Stone - Tech Eval of Contract Services -

tickler for 10 Dec through 31 Dec

F30635-74-M-0877, Maintenance Service for Execuport Serial No.
2238 - 29 Aug 73 & 5 Sep 73 - Completed

4e

(df3) 14 December - Friday

5

Col Thayer - TDY

5a

Bobbie: Travel figures due by noon.

5b

Due Date - ISIM/R. Iuorno - Interim Report - Contract
F30602-73-C-0001 for Technical Review - Completed

5c

Due Date - ISIM/Ray Liuzzi - Technial Evaluation PR-B-4-3245 -
Extended to 11 Jan 74

5d

(dm4) 17 December - Monday

6

0830 hrs. Branch Chief's Meeting

6a

Due Date - ISIM/W. Rzepka - Evaluation of Prospective Sources -
PR-B-4-3250

6b

Col Thayer - Leave

6c

(dt4) 18 December - Tuesday

7

Commanders Supv Call - 10:00 hrs. in Bldg. 106 - Auditorium - All
supervisors down to Section level should attend.

7a

Col Thayer - Leave

7b

r & t selection of the month is due in ISI.

7c

ISC/Semeraro - IR&D Evaluations due - Completed

7d

(dw4) 19 December - Wednesday

8

Col Thayer - Leave

8a

0830 hrs. ISI Confessions

8b

Syracuse University Curriculum in Electrical & Computer
Engineering - Meeting at 1500 hrs. at Bldg. 309 - Dr. Foster Prof
in E&C Eng will brief interested engineers

8c

(dth4) 20 December - Thursday

9

Col Thayer - Leave

9a

tickler for 10 Dec through 31 Dec

Timecards due	9b
Laboratory Activity Reports due today: Bucciero must have them by 1000, ISM must have them by 1100, and DOT must have them by 1600.	9c
0830 hrs. Branch Chief's Meeting	9d
R & T selection of the month is due in ism.	9e
ISIS/D. Nelson - Paperwork for White - Completed	9f
(df4) 21 December - Friday	10
Col Thayer - Leave	10a
Bobbie: Travel figures due by noon.	10b
Supv Appraisal Forms are due TODAY!!	10c
(dm5) 24 December - Monday	11
0830 hrs. Branch Chief's Meeting	11a
Due Date - ISIS - UnsolProp DO 96-74, "Computer-Aided Software Error Search (CASES) Program" - Completed	11b
(dt5) 25 December - Tuesday	12
Merry Christmas	12a
(dw5) 26 December - Wednesday	13
laboratory activity reports are due tomorrow.	13a
(dth5) 27 December - Thursday	14
0830 hrs. Branch Chief's Meeting	14a
Laboratory Activity Reports due today: Bucciero must have them by 1000, ISM must have them by 1100, and DOT must have them by 1600.	14b
(df5) 28 December - Friday	15
Bobbie: Travel figures due by noon.	15a
(dm6) 31 December - Monday	16
0830 hrs. Branch Chief's Meeting	16a

tickler for 10 Dec through 31 Dec

Form 2's (employee time expenditures) are due today.

16b

Form 6's (projected manpower) are due today.

16c

oerdue

16d

tickler for 10 Dec through 31 Dec

(J21267) 3-JAN-74 05:22; Title: Author(s): Roberta J. Carrier/RJC;
Distribution: /FJT; Sub-Collections: NIC; Clerk: RJC;

21267 Distribution
Frank J. Tomaini,

Tickler for week of 2 January through 11 January

The Tickler is underway again...I have to admit that I have been kind of lax the last couple of weeks in regards to this file...Unfortunately, there is nothing of interest to any of you except for the fact that 1152s are due so please take note...then it will be worth the time!

Tickler for week of 2 January through 11 January

(jtl) 1 January - Tuesday	1
Happy New Year	1a
(jwl) 2 January - Wednesday	2
This is a REMINDER of Documentation Management Staff Visit from 2 - 25 Jan 74 - Files Inspection	2a
News Brief items due into Becky Today.	2b
Bobbie: Personnel Strength Rpt. due. - Completed	2c
(jthl) 3 January - Thursday	3
Laboratory Activity Reports due today: Bucciero must have them by 1000, ISM must have them by 1100, and DOT must have them by 1600.	3a
0830 hrs. Branch Chief's Meeting	3b
Advise IS if aware of some unique feature/program/project which could be adversely affected by our transition to the H6180 system.	3c
(jfl) 4 January - Friday	4
Timecards due today	4a
Bobbie: Travel figures due by noon.	4b
(jm2) 7 January - Monday	5
0830 hrs. Branch Chief's Meeting	5a
(jt2) 8 January - Tuesday	6
1152's due for Resident Graduate Center Spring Semester due in ISM	6a
(jw2) 9 January - Wednesday	7
ISF Confessions 0830 hrs.	7a
(jth2) 10 January - Thursday	8
Laboratory Activity Reports due today: Bucciero must have them by 1000, ISM must have them by 1100, and DOT must have them by 1600.	8a
0830 hrs. Branch Chief's Meeting	8b
(jff2) 11 January - Friday	9

Tickler for week of 2 January through 11 January

Due Date - Tom B. - Forward a projection of remaining FY-74 travel to DORP in regards to memo dtd. 20 Dec 73 - Subj: FY-74 indirect travel allocations

9a

Bobbie: Travel figures due by noon.

9b

Due Date - ISIS/ISIM - FY-74/75 Support - ISIS reply is Negative

9c

Tickler for week of 2 January through 11 January

(J21268) 3-JAN-74 06:10; Title: Author(s): Roberta J. Carrier/RJC;
Distribution: /RADC; Sub-Collections: NIC RADC; Clerk: RJC;

Notes on Conversation on PDP-11 Frontend with JSP

To: John Perry

1

Some notes just to review our conversation yesterday. One, I consider the need to move ahead on the development of a frontend system for NLS very important. Failure to do so could be critical in the period 12-18 months from now for reasons given below. If funding is a problem we should look for other things not to do. Second we strongly want to do this work in collaboration with others and not duplicate reinvent etc. I think having a "frontend" meeting with us BBN, ISI, ILL, Illiac, Cerf and others working on PDP-11 systems is the only way to fly ad am glad ARPA plans to call such a meeting. We look forward to attending. The reasons why we need to proceed in this direction are mainly two:

1a

1) Economics

1a1

a) The cost of network communications on a per packet basis requires "batch" transmissions rather than character by character transmission.

1a1a

b) Most of the CPU cycles in present NLS are used to perform interaction with the user, literal collection, bug selection, prompting etc. These functions are more economically performed in a mini rather than a 10. We think such an organization can cut costs by two or more.

1a1b

2) System organization issues

1a2

a) Response time through the net in DNLS is not likely to be fully adequate without local terminal handling power.

1a2a

b) We need to reorganize NLS to make it fit the type of model in (20391,) for distribution on several Net hosts and connection to distributed workshop tools.

1a2b

Notes on Conversation on PDP-11 Frontend with JSP

(J21269) 3-JAN-74 08:34; Title: Author(s): Richard W. Watson/RWW;
Distribution: /SDC2 JSP CF DCE JCN CHI DIA; Sub-Collections: SRI-ARC;
Clerk: RWW;

DATA ON STAFF COSTS

THIS IS BACKUP DATA >>>>> for DCE/JCN use

Total man-months = 7.5 people @ 80% project x 5.5 = 33
(includes .5 man credit from ARPA-paid Utility support)

Data:

Salary conversion factor to Price:

sal - vac/sl -oh work pb oh fee = factor

1.00 x .9 x .9 x 1.28 x 2.05 x 1.06 = 2.25

SR PROF and PROF 4.5 people - Utility credit* = 4 people

* .5 person credit for 25% of ARPA Utility people service prepaid.

5512/mo

5.5 months @ 5512/mo = 30316 x 2.25 = 68211

CLERICAL 3 people

1650/mo

5.5 months @ 1650/mo = 9075 x 2.25 = 20419

TOTAL: 7162/mo

5.5 months @ 7162/mo = 39391 x 2.25 = 88630

Backup Data for Cost Estimate (21228,1) for ARC Support of DEIS Teams

EQUIPMENT CONFIGURATION

Suggested configuration \$ 21615 x 1.06 (fee) = 22912

Display terminals

Delta Data terminals 3 @ 220/mo = 5 months @ 660/mo = \$ 3300

Consider Hazeltines (2) also -- costs not included.

Line Processors + mouse, keyset 3 @ 2500 = 7500

TV Monitors for use with Displays (2) = 1000

Typewriter terminals

T-I's Portable 3 @ 145 = 5 months @ 435/mo = 2175

Printer terminals

GE Terminets 2 @ 145 = 5 months @ 290/mo = 1450

Couplers 30 cps 2 @ 15/mo = 5 months @ 30/mo = 150

Mag tape Recorders terminals

Termicettes (IPC) 3 @ 85 = 5 months @ 255/mo = 1275

Modems

480 cps 6 @ 100/mo = 5 months @ 600/mo = 3000

High speed lines 480 cps

SRI to Tymshare, Cupertino (25 miles??) 2 lines @ \$3/mile/mo

25 miles @ 3 x 2 = 150/mo = 5 months @ 150/mo = 750

SRI-Wash to ARPA TIP (3 blocks)

1 mile @ 3 @ 3/mo = 5 months @ 3/mo = 15

One time installation charges 1000

Total Equipment =\$21615

Backup Data for Cost Estimate (21228,1) for ARC Support of DEIS Teams

OTHER NON-LABOR COSTS:

Travel and subsistence	9095 incl fee here and below
20 RT to Wash @ 305 =	6100
80 days @ 31 =	2480
Supplies (paper,tapes, etc.)	1060
Shipping	530
Living expenses 300/mo x 5.5 mo =	1749 (Meyer)
Subsistence 200/mo x 5.5 mo =	= 1166 (Meyer)
Communications	= 2120
TOTAL NON-LABOR OTHER	= 15720

Backup Data for Cost Estimate (21228,1) for ARC Support of DEIS Teams

(J21270) 3-JAN-74 09:33; Title: Author(s): James C. Norton/JCN ;
Distribution: /dce rww jcn ; Sub-Collections: SRI-ARC; Clerk: JCN ;
Origin: <NORTON>BENERGYPLAN.NLS;1, 31-DEC-73 14:12 JCN ;

ARI'S location etc.

Lou Nelson again. I can get hold of Ari tomorrow. He and Solveig will be staying in my apartment while we are in Hawaii next week. You should certainly call them when you hit town. The number will be 474-3780. His parents phone is 828-1203 I think. Have a good time at the NIC. Regards, Lou.

1

ARI'S location etc.

(J21271) 3-JAN-74 08:39; Title: Author(s): Lou C. Nelson/LCN;
Distribution: /MAP; Sub-Collections: NIC; Clerk: LCN;

Bugs in Line processor

Don, Martin Charles, as you guys know the line processor still has serious bugs. I was demoing it yesterday to Craig Fields of ARPA and hit 5 or 6. What do we have to do to get a PROM programmer up here to fix it yesterday? The bugs I hit were for the record. Vertical screen split messed up in several ways eventually forcing me to reset. Underlines across top on view specs. A screen full of repeated characters. Failure on a jump to content with message content too long, content was the word command. Some funny things with the calculator that I can not remember. The line processor is a show case. Lets get it to work right or take it off the air until it can be fixed.

1

Bugs in Line processor

(J21272) 3-JAN-74 08:42; Title: Author(s): Richard W. Watson/RWW;
Distribution: /DIA MEH CHI JCN MDK; Sub-Collections: SRI-ARC; Clerk:
RWW;

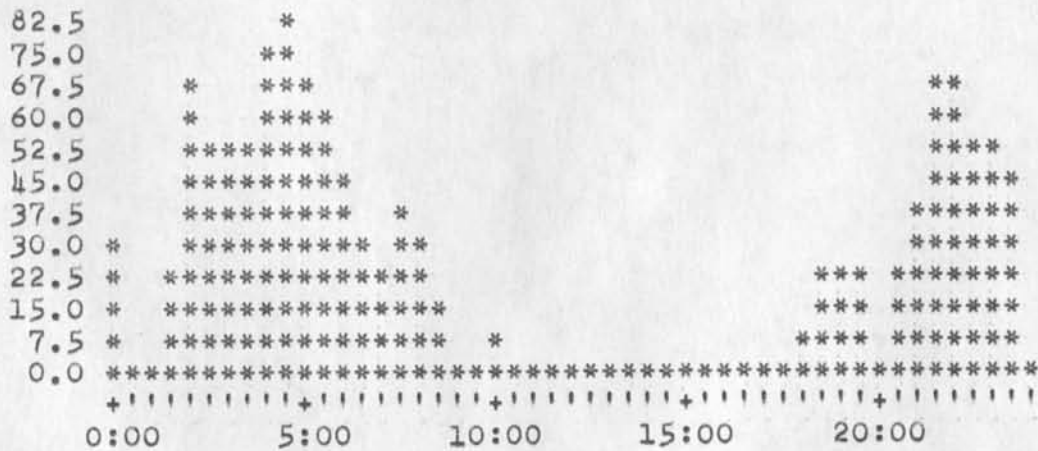
Superwatch Average Graphs for Week of 12/24/73

These averages cover only Dec. 26-28 due to the two-day holiday.

Superwatch Average Graphs for Week of 12/24/73

TIME PLOT OF AVERAGE IDLE TIME FOR WEEK OF 12/24/73
 x axis labeled in units of hr:min, xunit = 30 minutes

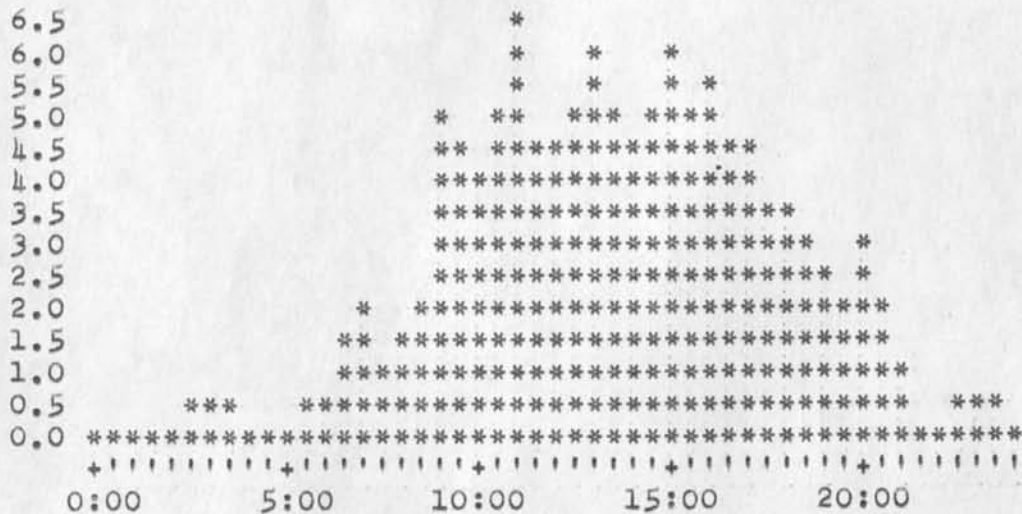
1



1a

TIME PLOT OF AVERAGE NUMBER OF GO JOBS FOR WEEK OF 12/24/73
 x axis labeled in units of hr:min, xunit = 30 minutes

2



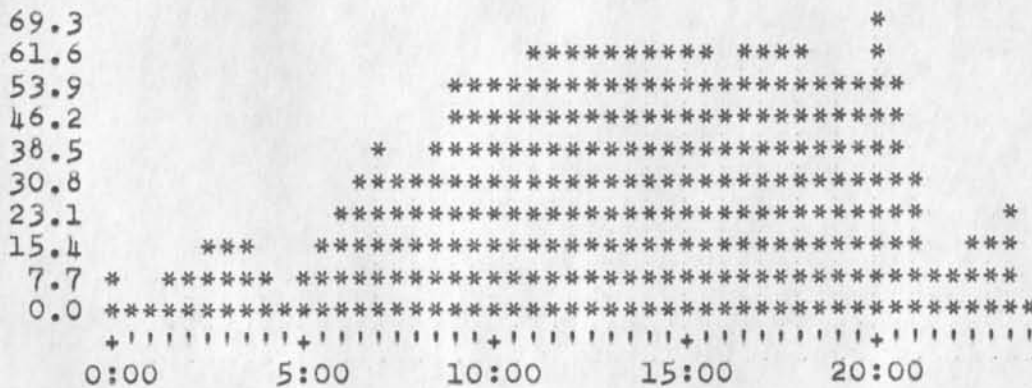
2a

Superwatch Average Graphs for Week of 12/24/73

TIME PLOT OF AVERAGE PER CENT OF CPU TIME CHARGED TO USER ACCOUNTS
FOR WEEK OF 12/24/73

x axis labeled in units of hr:min, xunit = 30 minutes

3

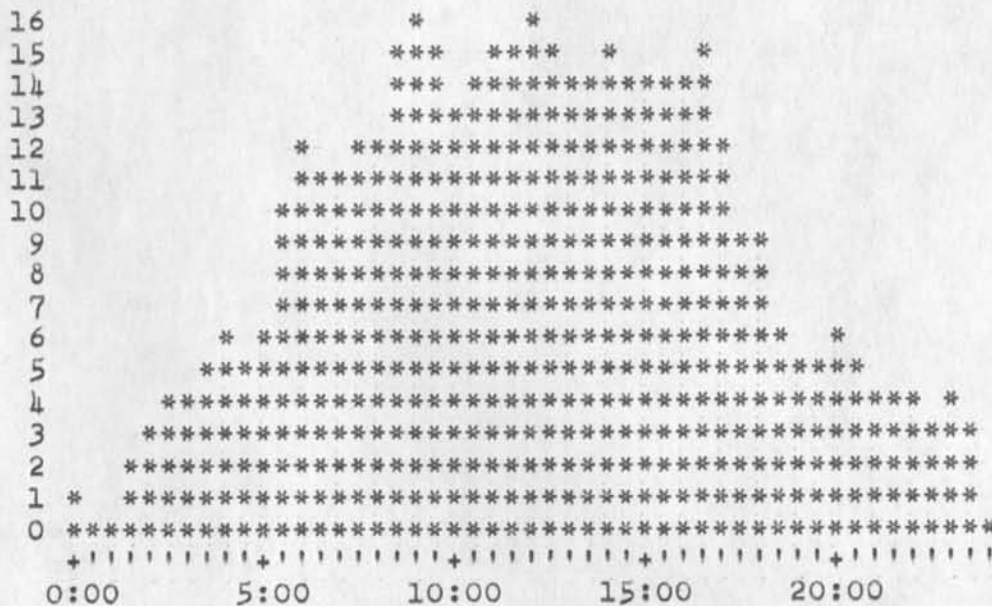


3a

TIME PLOT OF AVERAGE NUMBER OF USERS FOR WEEK OF 12/24/73

x axis labeled in units of hr:min, xunit = 30 minutes

4



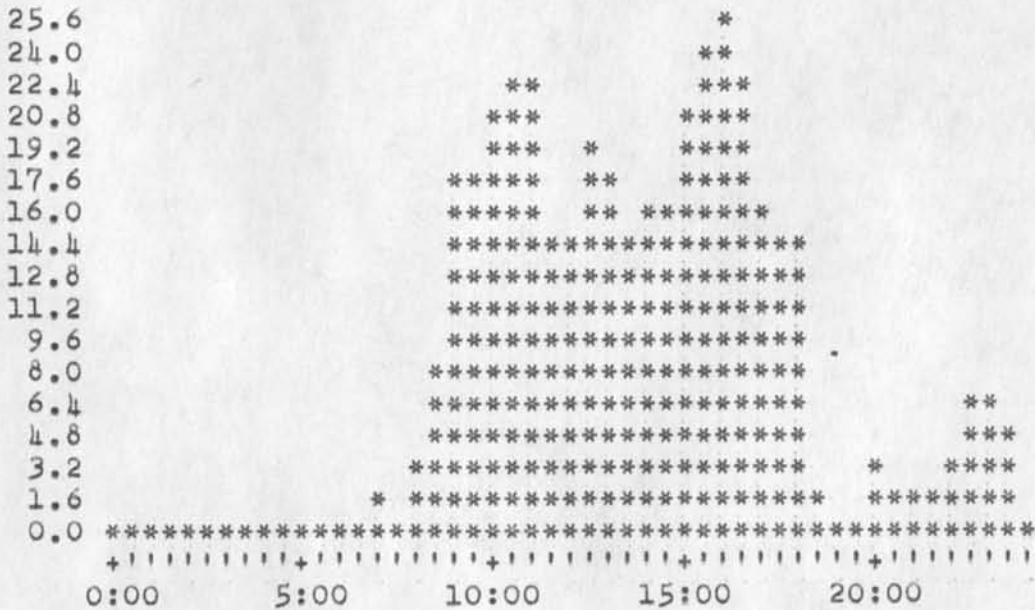
4a

Superwatch Average Graphs for Week of 12/24/73

TIME PLOT OF AVERAGE PER CENT OF SYSTEM USED IN DNLS FOR WEEK OF
12/24/73

x axis labeled in units of hr:min, xunit = 30 minutes

5

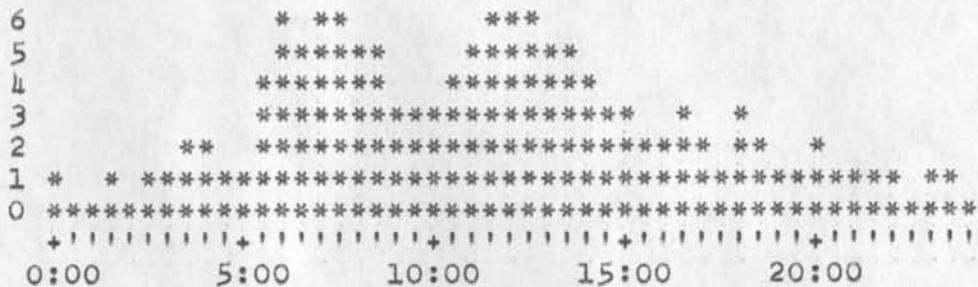


5a

TIME PLOT OF AVERAGE NUMBER OF NETWORK USERS FOR WEEK OF 12/24/73

x axis labeled in units of hr:min, xunit = 30 minutes

6



6a

Superwatch Average Graphs for Week of 12/24/73

(J21273) 3-JAN-74 10:10; Title: Author(s): Susan R. Lee/SRL;
Distribution: /JCN RWW DCE PR JCP DVN JAKE KIRK DLS BAH;
Sub-Collections: SRI-ARC; Clerk: SRL;
Origin: <LEE>WEEK12/24GRAPHS.NLS;1, 3-JAN-74 10:06 SRL ;

Time cards for this week, ending the 5th. We are supposed to be accounting for that Saturday we were to work in this Monday the 31st's slot on the time sheet. Then you put 8 hours beside the preprinted holday slot, and whatever is your wont for the rest of the week.

1

(J21274) 3-JAN-74 13:00; Title: Author(s): Jeanne M. Leavitt/JML;
Distribution: /SRI-ARC; Sub-Collections: SRI-ARC; Clerk: JML;

Directions to SRI-ARC for CKM

Connie:

1

SRI is located at 333 Ravenswood Avenue in Menlo Park. Ravenswood runs East-West between El Camino Real (the main road up the middle of the SF peninsula) and Middlefield Road. When you come down from the SF airport--assuming that's the way you will arrive-- you get on the Bayshore Freeway at the SF airport going South. Menlo Park is about 20 or so miles South.

1a

Nearing Menlo Park (after Redwood City), take the Marsh Road turnoff to the right and go West on it until it ends at Middlefield Road.

1b

Take a left and go South until you get to Ravenswood Avenue--about 4 stop lights down--and take a right on Ravenswood. This takes you toward El Camino Real and you will be passing the front of SRI.

1c

We are in the Engineering Building #30. It is the farthest large building fronting on your left on Ravenswood--just after you pass the main entrance to SRI. Our building is Z-shaped with a brick end--3 story. Take a left just past our building #30. and park in the lot in front of the building. There is a lobby in the wing that comes out to the street--there's a large number 30 on the plate-glass windows of the lobby. JUst ask the receptionist for Jim Norton or Jim Bair and we'll cme down for you.

1d

If lost call 326-6200 x 2124 or x 3630. We hope to start on the 10th (Thursday) at about 9:00am ok? Show up earlier if you want to.

1e

I don't know where you are staying..in SF? or near SRI? If my directions are unclear, let me know. Have a good trip.

1f

Directions to SRI-ARC for CKM

(J21275) 3-JAN-74 18:12; Title: Author(s): James C. Norton/JCN;
Distribution: /CKM JCN JHB; Sub-Collections: SRI-ARC; Clerk: JCN;

CF's mail since May 73

Craig, The Journal apparently U.S. Mailed everything to you prior to yesterday, since it did not know how to reach you on-line. A quick check of the journal catalog shows that only two items have been sent to you since May 73. They are as follows (I will request that it deliver them to you again online if you wish):

"Notes on Conversion on PDP-11 Frontend with JSP" Journal # 21269, from R. W. Watson (RWW)

"Notice of Content Analyzer Primer" Journal # 17819, from Dean Meyer (NDM).

-- Charles.

1

CF's mail since May 73

(J21276) 3-JAN-74 18:53; Title: Author(s): Charles H. Irby/CHI;
Distribution: /CF RWW; Sub-Collections: SRI-ARC; Clerk: CHI;

Watson comments on NLS front-end

Steve: I had a brief discussion with Dick Watson on the issue of the NLS front-end mini. I relayed as best I could your objections to the mode of development SRI proposed, and Dick seemed to understand and empathize. His summary of the conversation is in (mjournal,21269,1:w). The meeting to which he refers is the gathering of mini-builders which you proposed. What's a good next step? John

1

Watson comments on NLS front-end

(J21277) 3-JAN-74 19:00; Title: Author(s): John S. Perry/JSP;
Distribution: /SDC2; Sub-Collections: NIC; Clerk: JSP;

Marcia:

can you send me a copy of nic 18255 (inwg 35) i seem to have
misplaced my copy. thank you.

1

(J21280) 4-JAN-74 06:24; Title: Author(s): Jonathan B. Postel/JBP;
Distribution: /MLK; Sub-Collections: NIC; Clerk: JBP;

AFCS/NCA/RADC Memo of Agreement - RADC REPLY

FROM: ISIM

SUBJECT: Statement of Agreement between NCA and AFCS, and RADC

TO: AFCS/EPSR

This office is in general agreement with the "Statement of Agreement" generated by AFCS. A number of points in the statement should, however, be clarified.

This agreement should be looked at as an experiment and it does not commit RADC in supporting AFCS for operational computer needs.

The technical assistance to be provided by RADC in this first relationship will be minimal. There will be no support given to change or modify the FEMIS software. The system, as observed by AFCS personnel on 28-29 Nov 1973, will be loaded for their use. It should be made clear that if Hq AFCS requires modifications to the software at some later date, AFCS will be responsible to provide the necessary resources.

In response to a request from NCA/DO - Project SORT, dated 20 Dec 1973, the RADC RED Computer facility will provide the combined AFCS/NCA resources requested. The resources consist of the following items:

One each - Disk Pack Drive @ \$489/Month

One each Disk Pack w/1200 links @ \$20/Month

Disk Pack Drive Maintenance @ \$72/Month

Two each High Speed Channels @ \$130/Month

Four each Modems 202C2 @ \$360/Month

Projected Computer Usage @ \$3000/Month

TOTAL COST \$4071/MONTH

NCA/AFCS will use the software system called "FEMIS" for their Management Information System experiments. FEMIS is an experimental system and therefore the RADC RED Computer Facility cannot guarantee its operational status. It is essential to the success of the NCA/AFCS experimentation that a capable programmer be available on a full-time basis to maintain the integrity of the programs, make modifications to the programs where needed for testing and evaluation purposes, and to insure the accuracy of the data base. RADC has no in-house capability available for this purpose. There is however,

AFCS/NCA/RADC Memo of Agreement - RADC REPLY

contractor support that can be made available at a cost of \$40k per annum. This service will be most effective during the early stages of experimentation because that is the time when most of the software problems will occur.

6

RADC is looking forward to working with AFCS in the solution of their long range information processing requirements. This relationship, which is not covered in the subject agreement, will be pursued in the form of a preliminary RADC plan for assisting AFCS in the development of an up to date information system. RADC is pursuing a number of experimental and application programs in the development of Management Information Systems. It is our intention to make the results of these programs and the planning that went into them available to AFCS and to NCA.

7

EJK 4-JAN-74 08:35 21282

AFCS/NCA/RADC Memo of Agreement - RADC REPLY

(J21282) 4-JAN-74 08:35; Title: Author(s): Edmund J. Kennedy/EJK;
Distribution: /; Sub-Collections: RADC; Clerk: EJK;

LINE PROCESSOR, MEH IEEE CompCon 74, Microprocessor Technology To
Extend The Utility of Computer Peripherals

MICROPROCESSOR TECHNOLOGY TO EXTEND THE UTILITY OF COMPUTER
PERIPHERALS

Martin E Hardy Jr

AUGMENTATION RESEARCH CENTER
STANFORD RESEARCH INSTITUTE
333 RAVENSWOOD, MENLO PARK, CALIFORNIA
(415) 326 - 6200 ext. 3921

ABSTRACT

A microcomputer was designed to interface a class of display terminals to two non-plug-compatible user devices and an interactive computer system. (The two user devices are a pointing device called a Mouse and a one-hand keyboard called a Keyset)

The microcomputer, which we call a Line Processor, connects Mouse, Keyset, terminal, and main computer together as a Workstation. It performs all necessary line protocol and supervises communication between terminal and main computer.

The Line Processor is described and used to illustrate two points: first, the need for more flexible designs and interfacing capabilities in terminal equipment; and second, the feasibility of microprocessor technology satisfying this need. The Augmentation Research Center's work in interactive terminal systems is also briefly described.

LINE PROCESSOR, MEH IEEE CompCon 74, Microprocessor Technology To
Extend The Utility of Computer Peripherals

INTRODUCTION

In 1963, under a multiproject program sponsored by ARPA and the Air Force, the Augmentation Research Center (then just a small nucleus of personnel in SRI's System Engineering Laboratory in Menlo Park, California) initiated development of an interactive computer based system to augment human intellect [1,2]. This program has invested heavily and consistently in the design of hardware and software that would enhance real-time interaction with a computer (hands on mode).

The project now supports about 35 researchers and staff with greatly expanded goals (Augmented Knowledge Workshop [2]). Their principal interactive hardware is terminal workstations [3,4], that are part of a highly developed interactive computer system connected to a computer network of many dissimilar computers and terminals (ARPA Network [5]).

A WORKSTATION consists basically of four user devices:

- (1) DISPLAY, a CRT terminal for viewing information.
- (2) TELEWRITER-LIKE KEYBOARD, used in the conventional manner.
- (3) MOUSE [2], a device that rests on a table top to the right of the display and is operated by the right hand to position the display cursor.
- (4) FIVE-FINGER KEYSSET [2], a device that resembles a small piano keyboard. It supplements the display's keyboard and rests on a table top to the left. It is operated by the left hand, in combination with three switches on top of the Mouse that are operated by the right hand. Together they provide rapid character entry and function request while the right hand is dynamically controlling the display cursor position with the Mouse.

For the past several years this interactive computer system has been restricted to two types of display terminals. One type is a custom built display terminal that is part of a 12-station system that connects to the computer via two specially built interfaces [1]. These workstations were not designed for remote off-site operation. The other type is a minicomputer-based display terminal manufactured by Imlac Corporation (Needham, Massachusetts). These workstations can be remotely operated but contain more intelligence than is necessary for our user system and are relatively expensive (\$18,000).

Because of these factors, ARC became interested in the new class of display terminals using raster scan techniques and having editing capabilities [4]. These terminals cost less than \$6,000 but do not have a standard input for our Mouse and Keysset.

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Initial investigations with the manufacturers showed modifications to be very expensive; also, they would restrict us to one manufacturer and model. Therefore, we decided to design the Line Processor to provide the interface and to have the flexibility to be used with more than one company's terminal.

The Line Processor workstation we are currently using is shown in FIGURE 1. The Line Processor is microprogrammable and can be programmed to interface any terminal with addressable cursor and editing capabilities [4]. This workstation costs approximately \$7,500 with a Delta Data model 5200 display terminal. The Mouse and Keyset are manufactured by Cybernex Corporation (Palo Alto, California). The Line Processor was designed by SRI, and negotiations are in progress with Cybernex Corporation to manufacture it. We estimate it will cost \$2,000. Communication between display terminal, Line Processor, and main computer is full-duplex, bit-serial ASCII.

LINE PROCESSOR WORKSTATION [FIGURE 1]

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LINE PROCESSOR

A MICROCOMPUTER DESIGNED TO INTERFACE A CLASS OF DISPLAY TERMINALS TO TWO NON-PLUG-COMPATIBLE USER HARDWARE DEVICES AND AN INTERACTIVE COMPUTER SYSTEM.

As illustrated in FIGURE 1, The Line Processor connects Mouse, Keypad, terminal, and main computer together as a Workstation [4]. It is microprogrammed to perform four basic tasks:

- (1) Pass keyboard, Keypad and Mouse characters to main computer.
- (2) Control display terminal cursor position.
- (3) Control display terminal text manipulating modes.
- (4) Pass main computer-generated display characters to the display terminal.

Line Processor Architecture

The Line Processor is a microcomputer. It has six basic sub-blocks, which are shown in FIGURE 2: microprocessor, program store, data store, two-port full duplex serial communication module, dual channel A/D converter, and a four-bit 16-channel data input multiplexor. (For a more detailed view see Appendix.) In the design we used LSI and MSI components whenever possible to minimize development time and allow flexibility in submodule configuration.

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We used Intel's Imm4-42 central processor module, which includes their 4004 microprocessor. It contains four sockets for ROM or PROM program store, four RAMs for data store, four four-bit input ports and eight four-bit output ports. The program and data store are both expandable.

The Program Store

To allow flexibility to alter firmwares we used Intel's 1702A Programmable ROMs which can be erased with ultraviolet light and reprogrammed with an electrical charge. The current running system uses four PROMs. Each PROM has 256 eight-bit words. (The Appendix contains a list of the microprogrammed hardware functions.)

The Data Store

We used four Intel 4002 RAMs. They were designed specifically for the 4004 microprocessor. They provide 160 eight-bit words of read/write memory.

The Communications Transmitters/Receivers

The serial transmitter/receivers are standard MOS LSI UARTs with EIA line converters connecting them to the outside world.

Their communication rates are controlled with three separate baud rate switches--one for the display transmitter/receiver, one for the main computer receiver, and one for the main computer transmitter.

The Dual Channel A/D Converter

This module is SRI own design. It converts the Mouse analog inputs to an (x,y) digital pair that is used to position the display terminal cursor during Mouse tracking [4]. We decided to build our own converter module because in this application absolute conversion accuracy is not important. Any converter that has good successive sample repeatability could be used -- discrepancy could result in instability of the cursor on the screen.

Rodney Bondurant (our A/D expert) modified a standard converter design and we have been extremely satisfied with it. It is basically a ramp type using a common counter for both (x,y) analog inputs. Each result is transferred to an independent buffer register during a microprocessor I/O sync time. (The buffers are necessary to ensure valid data during program read.) To control stability a power supply regulator was installed on the board as close to the comparators as possible.

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The converter is very stable and has good successive sample repeatability with a one percent character boundary, (the area of uncertainty between quantum character values). Input to the A/D module can also be digital pulses. When input is digital, the buffer registers are used as up/down counters and the analog input is inhibited.

The Data Multiplexors

We used standard off-the-shelf 16-to-1-bit MOS LSI multiplexors. We left them continuously enabled, because the microprocessor is a sequenced device, and hence the address lines are completely settled by read data time.

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DISCUSSION

The Line Processor is microprogrammable, and has a flexible I/O buss. Because of this it has many advantages in application. It can be programmed to look like a virtual terminal to the main computer [6], thus taking some program load off the main computer. It can be programmed to support various display terminals of different manufacturers, thus not requiring a new design for each manufacturer. It can support different baud rates between main computer and display terminal (because of separate baud-rate switches and internal buffering), thus allowing effective Mouse tracking when the main computer baud rate is too slow. It can also support different I/O baud rates between the main computer (because of internal buffering and separate I/O baud-rate selectors for the main computer), thus allowing maximum display refresh rate -- an important factor when one wishes to use the DDD (dial-up) network with an interactive system where data to the main computer is essentially keyboard typing, and data from the main computer is mostly text the user is waiting to view.

To build the Line Processor just to interface the Mouse and Keyset to the terminal significantly increases the workstation cost and delays application of this new user system technology. This delay and expense could have been avoided if the terminal had cursor and keyboard interfacing capabilities.

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CONCLUSIONS

If terminal equipment manufacturers would take a more general and modular approach to their equipment design it would minimize the need for user groups to supplement those designs. Thus, the use of commercial equipment in the applications of new user systems technologies would be easier.

To meet these needs, it appears that microprocessor technology, as illustrated with the Line Processor, is a sound approach that economically allows equipment manufacturers to build more flexible devices, and user groups to have more flexibility in their applications.

LINE PROCESSOR, MEH IEEE CompCon 74, Microprocessor Technology To
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ACKNOWLEDGMENTS

The Line Processor has been a joint effort by of several of the ARC staff. I would especially like to thank Don Andrews, Rodney Bondurant, Charles Irby and Jake Ratliff; also, Phillip Friedman of Delta Data Systems for his company's exceptional cooperation and loan of their model 5000 display terminal; and Dane Elliot of Intel Corporation for his company's helpful advice and cooperation.

This work is currently being supported by The Advanced Research Projects Agency (ARPA) of the Department of Defense, the Rome Air Development Center of the Air Force, and the Office of Naval Research.

LINE PROCESSOR, MEH IEEE CompCon 74, Microprocessor Technology To
Extend The Utility of Computer Peripherals

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- 3) William K. English, Douglas C. Engelbart, Melvin A. Berman,
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LINE PROCESSOR, MEH IEEE CompCon 74, Microprocessor Technology To
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APPENDIX

LINE PROCESSOR: DETAILED I/O CONFIGURATION [FIGURE 3]

LINE PROCESSOR: MICROPROGRAMMED SUB-TASKS

The microcomputer performs eight basic sub-tasks:

- (1) Unloads characters when received by communication receivers.
- (2) Samples A/D converter.
- (3) Converts A/D data to ASCII characters.
- (4) Debounces Keyset switches.
- (5) Converts Keyset switches to ASCII characters.
- (6) Loads characters in communication transmitters.
- (7) Converts Mouse switches to ASCII characters.
- (8) Initiates communication transmitters to send.

TENEX Executive Manual

Bob,

Jan from TYMSHARE called and asked for 4 copies of the TENEX Executive Manual yesterday. I initially said that you could have them; but on closer investigation I found that the copies we have on hand were purchased by ARC for ARC people only.... So, I am sending you a form so that you can order them from BBN yourself. I'll send it in the U.S. mail today.

Marcia

1

TENEX Executive Manual

(J21284) 4-JAN-74 09:05; Title: Author(s): Marcia Lynn Keeney/MLK;
Distribution: /RLM2; Sub-Collections: SRI-ARC; Clerk: MLK;

Got Multics Account

Lou Nelson again. I talked to Ari. We now have the password to the multics account, so, we're set. Thanks.

1

Got Multics Account

(J21285) 4-JAN-74 09:15; Title: Author(s): Lou C. Nelson/LCN;
Distribution: /MAP; Sub-Collections: NIC; Clerk: LCN;

Notice of DRAFT of HELP Welcomes

Harvey,

I have drafted welcomes and most basic introductions for the HELP system. The welcome to follow <control-q> is in <documentation,help,backdoor>; the welcome to follow Goto HELP is in <documentation,help,frontdoor>; the message to respond to <control-q> in HELP is in <documentation,help,cue>.

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Notice of DRAFT of HELP Welcomes

(J21286) 4-JAN-74 10:32; Title: Author(s): Dirk H. Van Nouhuys/DVN;
Distribution: /DIRT; Sub-Collections: SRI-ARC DIRT; Clerk: DVN;

Preliminary measures of command specification vs. command execution time

INTRODUCTION

Measurements of CPU required for commands in DNLS and TNLS were taken on January 2 and 3 in the following manner:

- 1) CTRL T
- 2) Command typed in up until last command accept
- 3) CTRL T
- 4) Final Command Accept
- 5) After command is executed - CTRL T

For the purposes of this study, the time between the first and second CTRL T is the command specification time and the time between the second and third CTRL T is the command execution time.

DATA

The CPU times recorded below are all expressed in seconds and are averages of in most cases five command executions.

DNLS

Command	Command Specification Time	Percent of Total	Command Execution Time	Percent of Total	Total Time	
Jump Item	.3	27%	.8	73%	1.1	2b1
Jump Link(1)	.4	27%	1.1	73%	1.5	2b2
Jump Link(2)	.4	12%	2.8	88%	3.2	2b3
Jump File Ret	.3	21%	1.1	79%	1.4	2b4
Jump Successor	.3	27%	.8	73%	1.1	2b5
Jump Origin	.3	27%	.8	73%	1.1	2b6
Jump Content	.7	47%	.8	53%	1.5	2b7
Insert Char	.3	37%	.5	63%	.8	2b8
Delete Char	.3	37%	.5	63%	.8	2b9
						2b10

Preliminary measures of command specification vs. command execution time

Replace Char	.4	44%	.5	56%	.9	2b11
Delete Text	.4	44%	.5	56%	.9	2b12
Replace Text	.4	44%	.5	56%	.9	2b13
Replace Word	.5	50%	.5	50%	1.0	2b14
Delete Statemt	.3	30%	.7	70%	1.0	2b15
Copy Statement	.3	27%	.8	73%	1.1	2b16
Copy Branch	.3	23%	1.0	77%	1.3	2b17

Jump Link(1) is a link to a file which is online 2b17a

Jump Link(2) is a link to a file which is not online 2b17b

This differentiation was made because there appeared to be a significant difference in the command execution times. 2b17c

TNLS

2c

Command	Command Specification Time	Percent of Total	Command Execution Time	Percent of Total	Total Time	
						2c1
SP .#	.2	40%	.3	60%	.5	2c2
SP †(1)	.1	8%	1.1	92%	1.2	2c3
SP †(2)	.1	3%	3.2	97%	3.3	2c4
SP &	.2	18%	.9	82%	1.1	2c5
SP s	.2	50%	.2	50%	.4	2c6
SP .0	.2	50%	.2	50%	.4	2c7
SP [Content]	.3	50%	.3	50%	.6	2c8
Insert Char	.3	50%	.3	50%	.6	2c9
Delete Char	.2	50%	.2	50%	.4	2c10
Replace Char	.3	60%	.2	40%	.5	2c11
Delete Text	.4	67%	.2	33%	.6	2c12

Preliminary measures of command specification vs. command execution time

Replace Text	.5	62%	.3	38%	.8	2c13
Replace Word	.3	50%	.3	50%	.6	2c14
Delete Statemt	.3	50%	.3	50%	.6	2c15
Copy Statement	.5	71%	.2	29%	.7	2c16
Copy Branch	.4	67%	.2	33%	.6	2c17

SP ↑(1) is a link to a file which is online 2c17a

SP ↑(2) is a link to a file which is not online 2c17b

This differentiation was made because there appeared to be a significant difference in the command execution times. 2c17c

CONCLUSIONS

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In DNLS the average time for command specification is 33% of the total and the average time for command execution is 67% of the total.

3a

In TNLS the average time for command specification is 47% of the total and the average time for command execution is 53% of the total.

3b

It should be noted that the CPU required for these commands is higher than usual because many people are currently using the experimental NLS. However, the percentages should reflect the relative difference between the time needed for command specification and command execution.

3c

Preliminary measures of command specification vs. command execution
time

(J21287) 4-JAN-74 11:00; Title: Author(s): Susan R. Lee/SRL;
Distribution: /RWW PR JCN CHI(If you think anyone else should see this
feel free to distribute it.); Sub-Collections: SRI-ARC; Clerk: SRL;
Origin: <LEE>CSCE.NLS;5, 4-JAN-74 10:51 SRL ;

SCHOLAR IDENT

THANKS FOR OFFER OF GROUP IDENT FOR SCHOLAR. EXTRA PEOPLE TO BE INCLUDED BEYOND THOSE MENTIONED ARE AS FOLLOWS: JOHN SEELY BROWN (JSB), CATHY HAUSMAN (CLH), ALAN BELL (AGB), RICHARD BURTON (RRB), AND ROBERT BOBROW (RJB). WE WOULD ALSO LIKE INFORMATION ON HOW TO ACCESS THE NEWLY EMERGING TNLS AND HOW TO USE OFFICE-1.

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MCG 4-JAN-74 13:02 21288

SCHOLAR IDENT

(J21288) 4-JAN-74 13:02; Title: Author(s): Mario C. Grignetti/MCG;
Distribution: /KIRK; Sub-Collections: NIC; Clerk: MCG;

Re: 21287, Command Specification vs. Execution measurements

By the way, how much text did you type in the Insert Char commands?

Re: 21287, Command Specification vs. Execution measurements

Susan, nice work on the command specification/execution ratios. My
gut feeling was about 35% specification which is born out by your
data. Thanks very much. I will forward to NPG. -- Charles.

1

CHI 4-JAN-74 15:00 21289

Re: 21287, Command Specification vs. Execution measurements

(J21289) 4-JAN-74 15:00; Title: Author(s): Charles H. Irby/CHI;
Distribution: /SRL; Sub-Collections: SRI-ARC; Clerk: CHI;

motor-gen

Jim: I hear the capital budget forecast for next year includes money for the motor-generator requisition I wrote sometime ago. If so, I should inform you I have new data that claims maintenance cost of such a system gets out of hand after a few years. In addition, when I readdress this problem, in light of current energy problems and our recent power outage history, I conclude we should not install a motor-generator type power unit.

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(The motor-generator order was an outgrowth of troubles we were having due to poor PG&E power.-- This seems not to be the case now. Evidently PG&E has beefed up their supply system.)

1a

If we still want to protect our computer equipment from power transits and drop-out problems, we should either install an uninterruptable power unit or as an alternative, filter the equipment we know can be damaged due to power transits and install a lock-out device that disconnects and locks out the PG&E power when the first drop-out occurs.

2

An uninterruptable system to support both facilities would cost about \$100,000: to support just ours, about \$70,000. To modulate our facility and install a drop-out device would probably cost about \$15,000.

2a

motor-gen

(J21290) 4-JAN-74 15:37; Title: Author(s): Martin E. Hardy/MEH;
Distribution: /SRI-ARC; Sub-Collections: SRI-ARC; Clerk: JML;
Origin: <HARDY>MGEN.NLS;12, 4-JAN-74 15:32 JML ;