DIA 4-DEC-73 07:35 20697

Another response to 20663 and the name for the Utilty

I also think KWCS1 is a rather poor name for the Utilty. The meaning is not clear, and it is unpronounceable. But since it is not fair to criticize without giving a constructive suggestion, I offer the following name: Augmentation Support System. As for 'leaving room for expansion' -- we could just call them ASS-one, ASS-two, etc. 1

DIA 4-DEC-73 07:35 20697

Another response to 20663 and the name for the Utilty

(J20697) 4-DEC-73 07:36; Title: Author(s): Don I. Andrews/DIA;
Distribution: /SRI-ARC; Sub-Collections: SRI-ARC; Clark: DIA;

DLD2 4-DEC-73 07:57 20698

Letter to 481B SPO proposing RTS study

RADC/IS 4 December 1973 1

Support to Advanced Airborne Command Post (AABNCP) System Project Offiice (SPO) 2

ESD/YS 3

1. Refernece ESD/YSE letter undated subject RADC FY-74 Support for the 481B Program, and, ESD/YS letter dated 20 July 1973, same subject. 4

2. RADC/IS is prepared to perform experiments on the H635 computer to investigate the feasibility of interfacing the Advanced Airborne Command Post (AABNCP) Remote Data Terminals to ground-based facilities. A general plan for these experiments is outlined in attachment one (1). The plan is subject to revision pending approval of the Program Management Directive (PMD) for WWMCCS Testing submitted to AF/ACD on 2 April 1973, and, pending approval for delivery of an H6000 series computer to RADC/ISF. 5

3. The RADC/IS proposal of work defines an analysis of computer hardware and software based on the use of a Priority Dispatcher (Processor) and a generalized Transaction Processing Executive (TPE). These subsystems will be configured on the H635 computer for RADC, 481B SPO, and MITRE people to perform studies in Remote Terminal (RTS) operations. During the same time period, eforts will continue at RADC to load and run WWMCCS software on the H635 to make similar RTS studies. The RTS/WWMCCS studies will be extended when the H6000 series computer is delivered. 6

4. RADC is aware of the top priority of the AABNCP program and is making every effort of assist in RTs/WWMCCS support. We have taken action to assign 2.5 man-years of technical support and liaison with the 481B SPO and MITRE for this study. 7

7a

FOR THE COMMANDER 8

DLD2 4-DEC-73 07:57 20698

Letter to 481B SPO proposing RTS study

(J20698) 4-DEC-73 07:57; Title: Author(s): David L. Daughtry/DLD2;
Distribution: /MAW RAL RFI FJT DLD2 JLM; Sub-Collections: NIC; Clerk:
DLD2;
Origin: <DAUGHTRY>AABNCP-LETTER.NLS;1, 4-DEC-73 07:42 DLD2 ;

DLD2 4-DEC-73 08:17 20699

Journal mail to Daughtry

If you wondering about the where abouts of Daughtry he is in room 34 bldg 3. I still am not receiving journal mail due to system problems so if there areany messages please call me at intercom #7. I'll be glad to talk to you...signed dave 1

DLD2 4-DEC-73 08:17 20699

Journal mail to Daughtry

(J20699) 4-DEC-73 08:17; Title: Author(s): David L. Daughtry/DLD2;
Distribution: /RADC; Sub-Collections: NIC RADC; Clerk: DLD2;

Date: 4-DEC-73 0819-PST

From: PERRY at USC-ISI

Re: TIP Phone Numbers

- - - -

TITLE: TIP Phone Numbers

After thoroughly surveying opinion within the IPTO office, we have come to the conclusion that it would be inappropriate to publish openly the TIP phone numbers. This would in essence open up the ARPA Network publicly to the world, an act forbidden by DoD policy and AT&T tariffs. We'd rather keep the numbers controlled ... at least in theory.

Regards,

John Perry

(J20700) 4-DEC-73 08:34; Title: Author(s): John S. Perry/JSP ;
Distribution: /MDK JCN JSP ; Sub-Collections: NIC; Clerk: JSP;

DCW 4-DEC-73 09:53 20701

KWCS1 #$%&@*+?"#

Hear Hear for JEW's comments on the utility name. Most of all the one about "we". I, for one, have become more and more dismayed about the rising number of unilateral decisions being made here at ARC. If this is really a collaborative community where the hell is the collaboration? I am surly not proposing that decisions can not be made by individuals as long as they are willing to take the responibilty for their actions but, I dont like the appearant secrecy with which so many decisions are being made. I would like to make a plea for more visibility in issues and decisions. Statements such as "its none of your business" or "you have no right" are clearly not accepable to me unless ARC really wants me to become "just a programmer". Many of us are really committed to whats going on and where we are going. KWCS1 is annoying at best 1

DCW 4-DEC-73 09:53 20701

KWCS1 #S%&@*+?"#

(J20701) 4-DEC-73 09:53; Title: Author(s): Donald C. (Smokey) Wallace/DCW; Distribution: /SRI-ARC; Sub-Collections: SRI-ARC; Clerk: DCW;

MCK 4-DEC-73 10:04 20702

Comment on 'Distribute Document'

I have noticed that when the Journal command 'Distribute Document' is used with the NIC number of a NIC document that was not submitted online, the message 'Document does not exist' is given. Not only is this not very helpful, but it is also inaccurate. At the very least, it would be nice if it said 'Document is not online'. It seems to me what it should really do, though, is notify someone at NIC (e.g, via SNDMSG) of the request for document. That person would then Xerox the appropriate number of copies and mail them to the appropriate individuals. 1

I understand that a user may currently accomplish the above by placing a telephone call to someone at NIC. It is however often more convenient to do something online than to make a telephone call, and besides, the whole idea of the Network is to allow people to utilize computers to the fullest. 2

Mark Krilanovich, UCSB 3

MCK 4-DEC-73 10:04 20702

Comment on 'Distribute Document'

(J20702) 4-DEC-73 10:04; Title: Author(s): Mark C. Krilanovich/MCK;
Distribution: /NP; Sub-Collections: NIC NP; Clerk: MCK;
Origin: <UCSB>JRNLGRIPE.NLS;2, 27-NOV-73 14:00 MCK ;

MLK 4-DEC-73 10:23 20703

Status of Dan Dechatelets

I got a hardcopy journal document to Dan Dechatelets back today from Boulder -- it was stamped "Return to Sender == No longer here" It had the usual DOCB address on it. If in fact, Dan is no longer with you please let me know who will replace him as station agent so that we can amend our mailing lists and the ident file. 1

Thanks. 2

Regards, 3

Marcia 4

MLK 4-DEC-73 10:23 20703

Status of Dan Dechatelets

(J20703) 4-DEC-73 10:23; Title: Author(s): Marcia Lynn Keeney/MLK;
Distribution: /SS DD; Sub-Collections: SRI-ARC; Clerk: MLK;
Origin: <KEENEY>DAN.NLS;2, 4-DEC-73 10:21 MLK ;

SRL 29-NOV-73 12:48 20704

Test Message

This is a test for NEWNLS 1

SRL 29-NOV-73 12:48 20704

Test Message

(J20704) 29-NOV-73 12:48; Title: Author(s): Susan R. Lee/SRL;
Distribution: /NEWNLS; Sub-Collections: SRI-ARC NEWNLS; Clerk: SRL;

NDM 4-DEC-73 11:12 20705

My Plans

I will not be available during finals, from December 8 through 16.

NDM 4-DEC-73 11:12 20705

My Plans

I expect to be available for work full time beginning December 17, 1973. I am planning a short trip (about two weeks) early in January; beyond that I have no conflicting plans. --Dean 1

NOV 25 - DEC 1, 1973: A WEEK IN REVIEW

WEEKLY ANALYSIS REPORT: 1

2

WEEK: NOV 25 - DEC 1, 1973 (24 HOURS/DAY) 3

4

TOTAL SYSTEM CPU: 68.703 5

6

(ARC)	CPU HRS	CON HRS	CPU/CON	% SYS	CON/CPU:1	6a
						6a1
(DOC)						6a2
(JMB)	.930	21.971	.042	1.354	23.625	6a2a
(NDM)	.374	17.314	.022	.544	46.294	6a2b
CAT	4.135	9.174	.451	6.019	2.219	6a2c
DOCB	-	-	-	-	-	6a2d
DOCUM	.329	11.856	.028	.479	36.036	6a2e
	-----	-----		-----		6a2f
TOTAL	5.768	60.315	.096	8.396		6a2g
						6a2h
(FAC)						6a3
(RAB)	.006	.121	.050	.009	20.167	6a3a
(MEH)	.756	26.519	.029	1.100	35.078	6a3b
(JCP)	3.014	60.337	.050	4.387	20.019	6a3c
(JR)	-	-	-	-	-	6a3d
(EKV)	-	-	-	-	-	6a3e
HRDWRE	.004	.067	.060	.006	16.750	6a3f
OPRATR	2.028	77.786	.026	2.952	38.356	6a3g

NOV 25 - DEC 1, 1973: A WEEK IN REVIEW

	-----	-----		-----		6a3h
TOTAL	5.808	164.830	.035	8.454		6a3i
						6a3j
(NIC)						6a4
(JDC)	.033	.665	.050	.048	20.152	6a4a
(EJF)	.288	13.149	.022	.419	45.656	6a4b
(CBG)	.003	.076	.039	.004	25.333	6a4c
(MDK)	.314	6.417	.049	.457	20.436	6a4d
(MLK)	.324	14.668	.022	.472	45.272	6a4e
(JBN)	.686	25.063	.027	.999	36.535	6a4f
NETINFO	-	-	-	-	-	6a4g
NIC-WORK	-	-	-	-	-	6a4h
	-----	-----		-----		6a4i
TOTAL	1.648	60.038	.027	2.399		6a4j
						6a4k
(PRO)						6a5
(DIA)	.130	7.908	.016	.189	60.831	6a5a
(CFD)	.827	21.935	.038	1.204	26.524	6a5b
(WRF)	.780	15.861	.049	1.135	20.335	6a5c
(JDH)	1.145	28.143	.041	1.667	24.579	6a5d
(CHI)	1.657	35.350	.047	2.412	21.334	6a5e
(DSK)	.644	17.669	.036	.937	27.436	6a5f
(HGL)	1.104	21.544	.051	1.607	19.514	6a5g
(EKM)	.358	10.076	.036	.521	28.145	6a5h
(KEV)	1.206	30.681	.039	1.755	25.440	6a5i

(DCW)	2.728	52.318	.052	3.971	19.178	6a5j
(JEW)	.317	6.225	.051	.461	19.637	6a5k
	-----	-----		-----		6a5l
TOTAL	10.896	247.710	.044	15.859		6a5m
						6a5n
(PSO)						6a6
(JML)	.079	4.797	.016	.115	60.722	6a6a
(BAH)	.577	10.970	.053	.840	19.012	6a6b
(MEJ)	1.340	79.138	.017	1.950	59.058	6a6c
(KIR)	.805	24.023	.034	1.172	29.842	6a6d
	-----	-----		-----		6a6e
TOTAL	2.801	118.928	.024	4.077		6a6f
						6a6g
(STA)						6a7
(JHB)	.463	19.210	.024	.674	41.490	6a7a
(DCE)	.654	23.958	.027	.952	36.633	6a7b
(SRL)	.292	10.168	.029	.425	34.822	6a7c
(JCN)	.699	14.634	.048	1.017	20.936	6a7d
(DVN)	.549	13.183	.042	.799	24.013	6a7e
(PR)	.218	6.909	.032	.317	31.693	6a7f
(RWW)	.124	4.180	.030	.180	33.710	6a7g
	-----	-----		-----		6a7h
TOTAL	2.999	92.242	.033	4.364		6a7i
						6a7j
(GROUP) TOTALS						6a8

NOV 25 - DEC 1, 1973: A WEEK IN REVIEW

GROUP	CPU HRS	CON HRS	CPU/CON	% SYS	
(DOC)	5.768	60.315	.096	8.396	
(FAC)	5.808	164.830	.035	8.454	
(NIC)	1.648	60.038	.027	2.399	
(PRO)	10.896	247.710	.044	15.859	
(PSO)	2.801	118.928	.024	4.077	
(STA)	2.999	92.242	.033	4.364	
TOTAL	29.920	744.063	.040	43.549	

(STATS)

HIGHEST CPU: JCP 3.014 hrs LOWEST CPU: RAB .006 hrs

HIGHEST CON: MEJ 79.138 hrs LOWEST CON: CBG .076 hrs

HIGHEST CPU/CON: BAH .053 HIGHEST CON/CPU:1: DIA 60.831

	CPU HRS	CON HRS	CPU/CON	% SYS	CON/CPU:1
(NET)					
TOTAL	14.191	417.816	.034	20.656	29.442

TOP FIVE

CASE-10	6.470	57.339	.113	9.417	8.862	6c6
MITRE-TIP	1.411	79.901	.018	2.054	56.627	6c7
GUEST	1.032	43.366	.024	1.502	42.021	6c8
ILLINOIS	.769	12.484	.062	1.119	16.234	6c9
UCSB	.552	23.768	.023	.303	43.058	6c10
	-----	-----		-----		6c11
TOTAL	10.234	216.858	.047	14.895		6c12
						6c13
(SYS)						6d
SYSTEM	10.152	401.899	.025	14.776	40.000	6d1
PRINTER	9.042	183.164	.049	13.161	20.257	6d2
BACKGROUND	2.370	152.459	.016	3.450	64.329	6d3
	-----	-----		-----		6d4
TOTAL	21.564	737.522	.029	31.337		6d5
(WOR)						6e
						6e1
ENERGY	.012	.289	.042	.017	24.083	6e2
JIMB	.149	9.393	.016	.217	63.040	6e3
MARTINEZ	.008	1.432	.006	.012	179.000	6e4
	-----	-----		-----		6e5
TOTAL	.169	11.114	.015	.246		6e6
						6e7
(XOX)						6f
						6f1
DEUTSCH	.099	1.157	.086	.144	11.687	6f2

MITCHELL	.089	4.427	.020	.130	49.742	6f3
PARC-MAXC	.099	2.825	.035	.144	28.535	6f4
SATTERTHWAITE	.030	1.350	.022	.044	45.000	6f5
SWEET	.007	.638	.011	.010	91.143	6f6
	-----	-----		-----		6f7
TOTAL	.324	10.397	.031	.472		6f8
						6f9

(RAD) 6g

6g1

NAME	CPU HRS	CON HRS	CPU/CON	% SYS	CON/CPU:1	DIR	
							6g3
BERGS	.210	7.019	.030	.306	33.424	63	6g4
CARRIER	.170	7.478	.023	.247	43.988	24	6g5
CAVAN	.300	13.523	.022	.437	45.077	120	6g6
DAUGHTRY	.149	9.539	.016	.217	64.020	74	6g7
IUORN	.026	.559	.047	.038	21.500	36	6g8
KENNE	.299	11.912	.025	.435	39.839	65	6g9
LAFORGE	.059	1.817	.032	.086	30.797	20	6g10
LAMON	.021	1.012	.021	.031	48.190	89	6g11
LAWRE	.088	7.703	.011	.128	87.534	94	6g12
LIUZZI	.146	6.999	.021	.213	47.938	37	6g13
MCNAM	.033	1.358	.024	.048	41.152	119	6g14
PANAR	.368	13.768	.027	.536	37.413	118	6g15
RZEPK	.078	3.216	.024	.114	41.231	116	6g16
STONE	.321	13.251	.024	.467	41.280	266	6g17

THAYE	.018	.692	.026	.026	38.444	51	6g18
TOMAI	.052	1.998	.026	.076	38.423	28	6g19
	-----	-----		-----		-----	6g20
TOTAL	2.338	101.844	.023	3.405		1320.000	6g21
(PER CENT TOTAL DISK CAPACITY)						2.710%	6g22
							6g23
							7

BAH 4-DEC-73 11:42 20706

NOV 25 - DEC 1, 1973: A WEEK IN REVIEW

(J20706) 4-DEC-73 11:42; Title: Author(s): Beauregard A. Hardeman/BAH; Distribution: /WAR; Sub-Collections: SRI-ARC WAR; Clerk: BAH;

Dirk: Are we going to have the OP Guides three-hole punched? Are we going to have the white one rebound? Did you ever get the KP5's for that? I am waiting to hear from you re OP cue cards and Martin's thing. They will complete a tape I'm waiting to send. --Dean 1

(J20707) 4-DEC-73 12:41; Title: Author(s): N. Dean Meyer/NDM;
Distribution: /DVN; Sub-Collections: SRI-ARC; Clerk: NDM;

JEW 4-DEC-73 12:59 20708

Scheduled Network Down Time

BBN will remove the PDP-15 from between the IMP and AI's PDP-10 the week of 10-DEC-73. This activity will be (in theory) transparent to us, except during a two-hour, stand-alone test of the IMP tentatively scheduled for 6-8 PM, WEDS 12-DEC-73. If you have need of the Net during that time, now is the time to hollar. 1

JEW 4-DEC-73 12:59 20708

Scheduled Network Down Time

(J20708) 4-DEC-73 12:59; Title: Author(s): James E. (Jim) White/JEW; Distribution: /SRI-ARC; Sub-Collections: SRI-ARC; Clerk: JEW;

JSP 4-DEC-73 13:25 20709

Updating Documentation

Fred Edwards very kindly pointed out to me that much of the on-line documentation concerning the system is not fully current. He referred specifically to the TNLS PRIMER (I have not reviewed this in detail myself.) But I imagine that other documentation has also to some extent lagged the rapidly evolving system itself. In view of the increased interest in/use of NLS and the Journal by the ARPA senior staff, it would probably be wise to ask someone to systematically review the on-line files to bring them fully up to date. At the same time, it would be cosmetically useful if the demonstration material concerned personages and topic areas more clearly relevant than Gilgamesh and his insatiable appetite for fulsome praise....John 1

Updating Documentation

(J20709) 4-DEC-73 13:25; Title: Author(s): Joan S. Perry/JSP;
Distribution: /JCN JSP; Sub-Collections: NIC; Clerk: JSP;

JSP 4-DEC-73 13:31 20710

Idents for ARPA Directors' Office

In view of the increasing interest in/use of the system by the ARPA senior staff, it would be wise to ensure that their names are in the IDENT system. I took the liberty of inserting basic information on Dr. Lukasik (SJL2) and Mr. Tachmindji (AJT) into the system today. The remaining data should, I believe, be brought up to date as soon as feasible. ... John 1

JSP 4-DEC-73 13:31 20710

Idents for ARPA Directors' Office

(J20710) 4-DEC-73 13:31; Title: Author(s): John S. Perry/JSP;
Distribution: /JCN JSP; Sub-Collections: NIC; Clerk: JSP;

DLS 4-DEC-73 13:38 20711

test journal message

This is just a test to see if you can get journal messages yet. It was sent at 16:30 EST, Tues. 1

DLS 4-DEC-73 13:38 20711

test journal message

(J20711) 4-DEC-73 13:38; Title: Author(s): Duane L. Stone/DLS;
Distribution: /DLD2 JHB; Sub-Collections: RADC; Clerk: DLS;

SRL 4-DEC-73 14:00 20712

Just a Note on MIS

I have been reading parts of the book Man-Computer Dialogues lately and thought the section on Management Information Systems (MIS) pretty interesting. 1

An example is given of a functioning information system for top management located at IBM's corporate headquarters. It consists of an information center and information specialists. 2

Among other advantages of such a system he emphasized the improved communications. 3

The article is written rather simplisticly but I'll give you a copy anyway in case you're interested. I thought it might be useful to cite a working information system at some point. 4

The information starts on page 441 of James Martin's Design of Man-Computer Dialogues, NIC 14627. 5

Just a Note on MIS

(J20712) 4-DEC-73 14:00; Title: Author(s): Susan R. Lee/SRL;
Distribution: /PR; Sub-Collections: SRI-ARC; Clerk: SRL;
Origin: <LEE>BLAP.NLS;1, 4-DEC-73 13:57 SRL ;

Proposal for Improving the Responsiveness and Cost-affectiveness of NLS Through the Use of Mini Computer Frontends

If we get a letter of intention or a purchase order to DEC before 1-Jan-73, we can expect to get a machine by April, Otherwise it will be June, July, or later. It seems reasonable to strive for the earlier delivery date since 1) the cancellation charge is only $100 up to 60 days before delivery, at which time it gets higher , and 2) we should have the PDP-10 -- PDP-10 experiments done and be ready for the PDP-11 by April (or a cancellation of the whole idea).

Proposal for Improving the Responsiveness and Cost-effectiveness of NLS Through the Use of Mini Computer Frontends

This is an SRI-ARC internal proposal for work to be done in the next 1-2 years, starting as soon as possible. 1

The authors of this proposal are: 1a

Don Andrews 1a1

Charles Irby 1a2

Ken Victor 1a3

Smokey Wallace 1a4

PROPOSAL AND BENEFITS 2

We feel that it is time that we addressed the problem of performing some NLS functions in an intelligent device "local" to the NLS user. 2a

We have in mind some kind of minicomputer more or less directly connected to NLS workstations, providing as much DNLS service as possible to its users. It would be connected to a central computer (e.g. our PDP-10) and the "primary" functions such as file manipulation and file storage would be done in the central computer. 2a1

We expect such a configuration to 2a1a

make DNLS less expensive overall, 2a1a1

provide more responsive service than direct connections 2a1a2

reduce overall volume of transmissions over ARPANET. 2a1a3

The importance of making efficient use of the ARPANET is increasing as the number of remote users rises -- especially when they will at some point have to PAY for network transmissions. 2a2

Studies have shown that an inordinate amount of our PDP-10 resources are being expended during command specification and text formatting instead of actual command execution. The parameter specification (and related feedback) can more efficiently (and more cost-effectively) take place in a remote mini computer, thus removing a large burden from the PDP-10. 2a3

As we now know, NLS is a very hard system to run from the point of view of a time sharing system, primarily because of the

large number of process activations with short execution times. The command specification and other character interactions are the "short execution" functions, while the text formatting and (for some commands) the command execution are the "long execution" functions. Remote command and parameter specification would make our use of the PDP-10 more effective. Performing simple commands entirely in the remote computer would be even more desirable. 2a4

We would expect to be able to support more users with a PDP-10 and remote interaction system, than we now support on one PDP-10. Also, we would expect to provide comparable service at a higher PDP-10 load. The logic is that users would be happier waiting for command execution if the command feedback etc. were lightning fast. This is a hypothesis that requires experimental verification. 2a5

This effort should be continued to the point that simple editing is done locally, and the PDP-10 is just a file system handler and difficult command executor. 2a6

In addition we should investigate the possibility of uncoupling display updating from file changes. By this we mean that we should investigate ways of updating the display as soon as possible (even before the command is really executed) so that the user may proceed with his next command. 2a6a

Let's begin to define what we are proposing by first describing what we are NOT proposing: 2b

What we are proposing is NOT directly concerned with the display terminal problem. The experiments we do and any systems which are derived from this endevor can/will apply to any display device on which DNLS can run. That includes Tasker, IMLACs, Line Processors, and anything that crops up in the future. We are concerned with manipulations between the PDP-10 and the display terminal. 2b1

It is true that there will have to be some front end driver appropriate for the terminal type, in the local computer. But that problem has been solved and will have to be solved in the future (for new displays) anyway. 2b1a

This effort is independent of the effort to select displays to replace TASKER. 2b1b

We are not concerned here with the communication link between

the local mini computer and the remote host. The system should work over a hardwire connection, a high speed TTY line, or a network connection. If any of the above don't work, we've blown it. 2b2

Nor are we very concerned here with the status of the mini-computer. It may be a network host (if large enough to handle an NCP), it may be connected to a TIP, or may not be in any network at all. 2b3

In fact, we are only secondarily concerned here with the actual configuration in the PDP-10. Obviously, the PDP-10 part of DNLS will have to be modified considerably to implement the required protocol between the mini and the PDP-10. But if we are successful, it should be reasonable to program a DNLS on another type of machine and interface to the local mini. We will have moved the interactive and display interface parts of NLS out of the main CPU. Remember that in the past, those two things have prevented the implementation of NLS on the more mundane computer products such as 360's. (One remaining problem is the file system...) 2b4

We propose that we set up a project to implement and experiment with providing local interactive service to DNLS users. 2c

The goal would be to provide better and more inexpensive service, by moving as much of DNLS as possible out into a local and cheaper computer. 2c1

This project would involve a hardware configuration (some form of minicomputer) with connections to display terminals, and a connection to our PDP-10. The resulting system should be connectable in a variety of ways. (See below.) 2c2

It would primarily involve a programming effort to design the interface protocol, develop the mini computer program to interpret CML programs, and modify DNLS in the PDP-10. 2c3

We suggest the following scenario: 2d

1) Design stage: to specify the necessary protocols and design the program structure. 2d1

2) We can perform an early experiment by using our PDP-10 in place of the mini to control our displays, and using the UTILTY PDP-10 to perform the host functions. This could give us a rough idea of what we would gain in terms of host load by doing command specification remotely. 2d2

3) Another experiment we may perform is to determine what command execution response time is satisfactory for users, when the feedback for everything else is fast. This could be done on our PDP-10 alone. 2d3

4) We may want to initially set up the mini and displays in a transparent mode. That is, the mini would simply act as a multiplexor or concentrator. 2d4

5) A reasonable first plateau would be to implement total command specification in the mini. Thus the PDP-10 would provide command execution and display window formatting, but not parameter specification or command feedback. 2d5

6) We would then begin implementing simple commands inside the mini and provide local display recreation for them. This is more difficult and probably involves a software effort as large as (5). It probably involves local disk storage. 2d6

7) We would also investigate the possible uncoupling of display updating and actual command execution for commands which were too complicated to put entirely within the mini. 2d7

Some of the important experiments along the way: 2e

What is the effective load change on the PDP-10 from our system now to a "local feedback" system, and a "local editing" system - given a number of users and level of service. Experience has shown us that this is difficult to estimate and even very hard to measure. We must DO it to find out exactly what we are dealing with. 2e1

What response within the PDP-10 is adequate when all the feedback is done locally? And when simple editing is done locally? This is a human factors problem, and probably could be investigated on our PDP-10 alone under light load. 2e2

What scheduler characteristics and/or memory characteristics does NLS have if the feedback is being done somewhere else? That is, how do things change within the PDP-10 when feedback functions are removed? The result may indicate changes in scheduling and/or NLS optimization tactics. 2e3

What are the speed and memory requirements of the minicomputer? We simply don't know enough except to make wild guesses here. Note, it depends heavily on the number of terminals and the features included in the mini -- this is an ongoing and complex question. 2e4

How many terminals can one mini serve given the various levels of service it must provide. This is more complicated than the previous question since it involves baud rates in and out, as well as human factors. 2e5

Sub-question: how many terminals can be run with a single 9600 baud line, with normal usage, if software problems within the mini are not a consideration. This also depends on type of service. 2e5a

Another very important question: what can be done with the algorithms and protocol design to reduce capacity and baud rate problems to a minimum? 2e6

Should we use Network Graphics Protocol (NGP) to drive display terminals which access a mini through the net or should we use device specific code so people at TIPs can also use NLS this way? Should we use NGP for host-to-mini communication? 2e7

REQUIREMENTS OF THE "END" OPERATIONAL SYSTEM: 3

Here is a list of general requirements for the system: 3a

The system should be connectable to a PDP-10 or other main computer, 3a1

1) through the ARPANET (or any network), 3a1a

2) through a high speed line (speed depending on number of terminals and level of service desired), 3a1b

Several high speed lines may be required for large systems. 3a1b1

3) by direct hardwire such as a I/O bus connection or direct memory access connection. 3a1c

Connection through the ARPANET should be possible, 3a2

1) by connecting to one or more TIP lines, 3a2a

2) by treating the mini as a host and connecting it to an IMP (or host-TIP). 3a2b

The system should be effective and economically reasonable when running over the NET, through a TIP, at 9600 baud; and likewise over a 9600-baud TTY port. This means that the

service is adequate and that there are enough terminals served by such a mini to make it worth the expense. 3a3

The system should be designed so that it can be scaled up and down in both hardware and software respects, in order to support different numbers of terminals or provide different amounts of service. 3a4

The mini should be able to support IMLAC's, Line Processors and any future display terminal we address ourselves to. We leave out TASKER for more or less obvious reasons. 3a5

We should be able to modify the software over the connection to the PDP-10, and we should be able to bring up "new versions" of NLS at any time service to the users can be interrupted for a short time (if indeed this is necessary). That is, the whole system is maintainable from the central computer (our PDP-10). 3a6

It should be possible to locate the terminals next to the mini, or to have some or all of them removed an arbitrary distance and run over phone lines or other communications lines. We may in fact have the mini in house and run some terminals over the NET with individual connections or something like that. It might be that some types of displays we choose to support in the future will have to be at the same location as the mini. But Line Processors and hopefully most others can be remote. 3a7

The system should be configured to allow maintenance by the manufacturer (or whomever we contract). Also, it should allow simple startup - with read only memory that loads the main program over the ARPANET, or a paper tape loop or some such thing. 3a8

There should be a simple and local check for "sickness" in the mini. This could be done whenever some strange thing happens. The check should be runnable from here, there or anywhere without interrupting service. This kind of checking will become very important in view of the number of computers involved. The system will have to be designed to help software folks find bugs and help hardware folks find out where the problem is. 3a9

REQUIREMENTS OF EXPERIMENTAL SYSTEM AND RELATIONSHIP TO "END" SYSTEM 4

We feel that we should be sure we have the experimental capabilities to carry out our experiments. So we expect to get a rather large/fast mini configuration. We will probably need some kind of disk storage, although maybe not initially. We will then scale down from there to find or estimate the requirements for

smaller systems. This is the only reasonable way to know the capabilities of the system. We have learned that scaling down is easy while scaling up is quite difficult unless the hardware is available for running tests of the scaled up version. 4a

The experimental system should be large enough to house at least two NLS front ends (i.e.., one interpreter and more than one CML program) so that the system is useable at the same time debugging is going on. 4b

Disk storage of some type will most certainly be necessary for a local editing version. It may be necessary for large command specification type systems. 4c

It is clear that there is a lower bound -- a limit to the scale down procedure. One terminal on a $40 K mini is not such an attractive idea. We can sidestep this problem by making the mini-terminal connection work over any general TTY-style connection such as phone line or net conection. Then anyone with one terminal could connect to a mini privided there was one somewhere they could "buy into." 4d

PROJECTED COSTS: 5

Obviously, we have very little idea of the end cost of such a system. We will make some wild guesses. Suppose the mini plus the terminals costs between $50 and $100 K. And suppose the range of terminals that it might support is between 4 and 16. We think these bounds are somewhat reasonable. Then the cost per terminal comes to between $4 and $25 K. Anywhere in here is not outrageous considering the corresponding decrease in required PDP-10 resources. 5a

The more services the mini performs, the higher the cost per terminal. But then there should be less expense associated with the PDP-10 usage. It should be clear that the economics of the whole system are very complicated, and cannot be estimated at this point. When we have a version of the thing running, we can at least say what THAT costs. Then we would be justified in making the usual insane estimates about what a system half or twice the size would cost. At this point, cost estimates are quite meaningless. 5b

We feel that the aim is to reduce the overall cost of using DNLS, while increasing the level of service at the same time. If it is clear that we are not going to be able to come close to that aim, then we should drop the thing or pull back until we find out why and what's wrong. 5c

SELECTION OF MINICOMPUTER AND OTHER DEVICES: 6

Selection criteria: 6a

Produced by a reputable manufacturer, available maintanence nation-wide, a mini that's been in service for awhile. 6a1

Available with various memory sizes and speeds at various costs. 6a2

An existing NCP for the mini we select. 6a3

A reasonable software package presently available and debugged, including 6a4

high level language with debugger, 6a4a

cross assembler (runs on one computer and produces code for another), 6a4b

ddt or equilavent (hopefully one that can be run from a remote system), 6a4c

multiplexing terminal service support (hopefully), 6a4d

multiprogramming monitor (hopefully). 6a4e

Summary of existing relevant mini projects in the ARPANET communuty 6b

ANTS 6b1

The ANTS system is a PDP-11 based TIP system. It is designed to be a general terminal service system. ANTS people would be quite willing to collaborative with us on this usage of ANTS. 6b1a

Features: 6b1b

Quite modular structure. 6b1b1

Running system. 6b1b2

Software: 6b1c

ANTS is written in an ALGOL-like language called PEESPOL and any code we wanted to add would also have to be in PEESPOL. The only available PEESPOL compiler runs on the

6700 at UCSD. Mapping it to our PDP-10 would not be practical -- we would have to use the ARPANET. 6b1c1

We would have to replace some of the central modules in ANTS by our own versions which are not line-at-a-time, as ANTS now is. 6b1c2

Hardware: 6b1d

PDP-11 family 6b1d1

cost: 6b1d2

30K to 100K 6b1d2a

Relevance to us: 6b1e

ANTS is primarily a message switching and I/O processor and its internal structure is not appropriate for our needs. 6b1e1

After our talks with John Day it is obvious that ANTS would require considerable low level changes to be applicable. 6b1e2

We feel that the people on the ANTS project would be difficult to collaborate with. 6b1e3

BBN 6b2

BBN is in the process of building a mini-based front end for TENEX. The basic plan is to allow users to acess either the local TENEX or the ARPANET. 6b2a

Features: 6b2b

1. Peripherals (and terminals) are accessable from other network hosts even when the local TENEX is down. 6b2b1

2. The local TENEX can provide service to the network even if the local mini-host is down. 6b2b2

3. Improved reliability of TENEX by removing its peripherals, and the peripherals will be considerably more maintainable. 6b2b3

Software: 6b2c

BCPL 6b2c1

BCPL compiler runs on pdp-10, 6b2c1a

reported efficient code generation, 6b2c1b

Source language debugging facilities. 6b2c1c

Cross Assembler 6b2c2

Remote (network or local-TENEX-driven) debugging facility 6b2c3

Hardware: 6b2d

cost: approx 30 K 6b2d1

PDP-11/40-CA, 16 K parity memory 6b2d2

ANTS ARPANET interface 6b2d3

Relevance to us: 6b2e

If we follow the evolution of TENEX we will be using PDP-11's in this manner in the future, probably to our advantage. It is possible that large parts of their code will be useful to us. It may or may not be reasonable to have one PDP-11 function as both a TENEX front end and a display terminal processor. 6b2e1

It is interesting to note BBN's reasons for using PDP-11's: 6b2f

1) PDP-11 has (and will always have) more software support and wider range of peripherals (currently 70) than any other mini. 6b2f1

2) A number of other mini-host system projects have selected the PDP-11, (ANTS, CMU, Lincoln Labs, University of Chicago) so there is a possibility of program sharing or exchange. 6b2f2

ILLIAC 6b3

ILLIAC is probably the most ambitious user of mini computers in the network community. 6b3a

Features: 6b3b

They plan to use PDP-11's to do: 6b3b1

TENEX scheduling 6b3b1a

terminal service 6b3b1b

file system access 6b3b1c

network NCP 6b3b1d

ILLIAC currently has about 10 PDP-11's and more on the way. 6b3b2

(The only real question is "Why do they have TENEX or PDP-10's at all?".) 6b3b3

Software: 6b3c

Assembly Language 6b3c1

Hardware: 6b3d

Many, many PDP-11's 6b3d1

Relevance to us: 6b3e

Some of their code may be usable for our applications. 6b3e1

ISI 6b4

ISI is having a Video Graphics System built by System Concepts Corp. This system is very similar to the Xerox PARC system except it is to be based on a PDP-11 and will be comercially available. 6b4a

Features: 6b4b

loadable font memory, 6b4b1

high-resolution dot-matrix character representation, 6b4b2

high scan rate video, 6b4b3

vector generator capability, 6b4b4

video switch, 6b4b5

video mixing. 6b4b6

Software: 6b4c

They plan to lean on the BBN PDP-11 software development. 6b4c1

Hardware: 6b4d

A wide range of PDP-11/40 mini's. 6b4d1

Relevance to us: 6b4e

The ISI system is similar in some respects to what we plan to build. Their development will take place about the same time as ours. In the long term, we may be able to use their display systems for our high quality displays -- we will be watching their development closely. 6b4e1

The ISI system is to be a completely contained ARPANET terminal system. (ala ANTS), but will not support a wide variety of terminal types. It will however, support much more sophistcated applications and terminal users. 6b4f

ISI plans to use much of the work being done by BBN in building this system. They like us are interested in the application aspects of the system and not in the developement of system software for mini computers. 6b4g

PARC 6b5

The PARC Terminal system is being built as the base for their automated office system experimentation. This system is designed to provide maximum flexbility in text handling facilities. 6b5a

Features: 6b5b

loadable font memory, 6b5b1

high resolution dot matrix character representation, 6b5b2

high scan rate video, 6b5b3

vector generator capability, 6b5b4

video switch, 6b5b5

video mixing. 6b5b6

Software: 6b5c

The current system is built using the data general Disk operating system (DOS). 6b5c1

The prototype system has been written in NOVA assembler language. 6b5c2

There is a PARC-developed BCPL compiler (which is reported to produce rather inefficient code). 6b5c3

Hardware: 6b5d

NOVA 800 6b5d1

Diablo disc 6b5d2

PARC-developed video terminal system 6b5d3

Cost: ? 6b5d4

Relevance to us: 6b5e

There are two aspects of their work that are of interest: 6b5e1

Display system 6b5e1a

This provides a protocol-level control over the displays, but not the ability to run programs on behalf of each terminal. 6b5e1a1

Mini-based display editing system. 6b5e1b

The editing system is entirely based on mini's using TENEX for file system handling much as we intend to do. 6b5e1b1

It is not clear that any work being done at PARC (except MPS) is or will be available to us (for legal/proprietary reasons). They plan to use their own brand of mini rather than NOVA's as soon as possible -- which would make it unwise to extract code from them even if possible. 6b5e2

UCSB (SCRL) 6b6

They are building some kind terminal system which we will find out about. 6b6a

Features: 6b6b

Software: 6b6c

hardware: 6b6d

Relevance to us: 6b6e

Interesting mini's which we have rejected: 6c

CDC 1700 6c1

Micro-programmable machine -- we may want to go to this type of machine after we understand things better but not at first (the investment just to get off the ground would be much too high -- a considerable software effort) 6c1a

Interdata 7/32 6c2

New 16-bit/32-bit/48-bit "mini" which has an enormous address space and in many ways is a big machine. However, since it is so new, we expect we would have to do much more software development for this machine than for others, not to mention its reliability. 6c2a

CONCLUSIONS 7

We conclude that a DEC PDP-11/40 is the most desirable mini for our purposes. 7a

Network interfaces already exist. 7a1

Suitable software is available. 7a2

It is being widely used in similar applications. 7a3

We already own a NOVA-1200. We reject this machine as a possible mini for this project. 7b

The CPU is too slow. 7b1

It does not have required features (I/O ports, memory protection, adequate instruction set). 7b2

Minimal cost savings in making use of this machine. 7b3

Experience at PARC has shown that Data General does not provide adequate maintenance - especially since they hired their best CE. 7b4

Proposal for Improving the Responsiveness and Cost-effectiveness of NLS Through the Use of Mini Computer Frontends

We require the following configuration: 7c

Connections: 7c1

Ability to connect a max of 16 terminals (high speed TTY lines). Some of these should be dial-up lines. 7c1a

Memory: 7c2

on the order of 80 to 100 K of core (we would rather send back memory if we do not need it than halt work for three months waiting for more memory if we find we did not order enough). 7c2a

Approx. 30k for basic code and Command Language Interpreter 7c2a1

Approx. 30k for state information about terminals 7c2a2

And the rest for execution functions for local editing. 7c2a3

Miscellaneous: 7c3

A disk (eventually -- need not order initially) 7c3a

Real time clock 7c3b

memory protection, multiply/divide instructions 7c3c

ARPANET interface 7c3d

Proposed configuration: 7c4

11-40 CPU with 16K memory	15,500	7c4a
extended instructions	1,295	7c4a1
clock	645	7c4a2
addtional memory to 64K	13,900	7c4b
addtional memory to 96K	9,400	7c4c
protection, relocation and segmentation	2,480	7c4d
16 line multiplexor	3,400	7c4e
expansion cabinet	2,400	7c4f

ANTS network interface	4,000	7c4g
	.....	7c4h
TOTAL for 64K system	38,385 *	7c4i
TOTAL for 96K system	46,657 *	7c4j

* includes 12 percent SRI discount. 7c4j1

Extensions: 7c5

disk storage **	??	7c5a

** there is a 1/2-million-word fixed head disk in the mill at DEC. It will probably be available when we need it. 7c5a1

The most suitable terminals for experimental use are the Line Processor terminals (with Delta Data's or perhaps something cheaper if available). This avoids working with a new beast initially. Imlacs also fall into this catagory but are three or four times as expensive. 7d

Obviously, we need something to replace Tasker but we are not ready to say exactly what at this point. The effort to find and install new local displays should be done in parallel to the work outlined in this proposal (we will probably attach them to the PDP-10 in a manner very similar to the way we would attach them to a PDP-11, and we should not put all of our eggs into one basket until we know the basket is strong enough). Line Processors will get us started and we can interface to the Tasker system replacement when we get it. 7d1

We will need 6 to 8 terminals to run meaningful tests. We may want to try more than that (perhaps 16) for further testing. 7d2

We STRONGLY feel that the system should be experimental in nature: that is, it should not be committed to serve anyone. That means that we cannot rely on it for normal ARC access to DNLS. After development, properly sized systems can be built for specific uses but the development will go much faster if the mini system is committed to experimentation and debugging exclusively. 7e

SPECIFIC PROPOSALS: 8

1) Order the hardware as soon as possible. 8a

2) Begin work on the software aspects immediately, i.e. 8b

a) modification to DNLS in the PDP-10 8b1

b) protocol specification 8b2

c) writing CML interpreter for the mini 8b3

3) Perform some experiments as soon as possible 8c

user response test 8c1

test using UTILITY-PDP-10 8c2

(requires at least first pass at a) and b) above) 8c2a

4) Launch a probe to find out exactly what existing software we can use and get it. 8d

DIA DCW CHI KEV 4-DEC-73 15:38 20713

Proposal for Improving the Responsiveness and Cost-effectiveness of NLS Through the Use of Mini Computer Frontends

(J20713) 4-DEC-73 15:38; Title: Author(s): Don I. Andrews, Donald C. (Smokey) Wallace, Charles H. Irby, Kenneth E. (Ken) Victor/DIA DCW CHI KEV ; Distribution: /RWW JCN DCE ; Sub-Collections: SRI-ARC; Clerk: CHI ;
Origin: <ANDREWS>PROPOSAL.NLS;12, 4-DEC-73 15:33 DIA ;

Bob -- Welcome to USING. Hope to see you or Paul at the USING Meeting in January. Dave. 1

(J20714) 4-DEC-73 17:37; Title: Author(s): David H. Crocker/DHC;
Distribution: /RHT; Sub-Collections: NIC; Clerk: DHC;

20714 Distribution
Robert H. Thomas,

Please read (IJOURNAL,20700,1:w) from John Perry, ARPA-IPT,giving reasons why TIP phone numbers should not be published. 1

(J20715) 4-DEC-73 17:39; Title: Author(s): Michael D. Kudlick/MDK;
Distribution: /RWW JAKE; Sub-Collections: SRI-ARC; Clerk: MDK;

20715 Distribution
Richard W. Watson, Elizabeth J. (Jake) Feinler,

USE OF SIGMA 7 OVER NETWORK TO RUN REDUCTION AND CFG PROGRAMS?
ASS

(J20716) 5-DEC-73 02:15; Title: Author(s): Keith N. Sandum/KNS;
Sub-Collections: NIC; Clerk: KNS;

MIKE 5-DEC-73 08:04 20717

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(ott) NOTES FOR OTTAWA TALK 1

During all of this talk, i am assuming that someone else, either yo or Don has explained the background of BPG, including: 1a

location in company structure 1a1

objectives 1a2

mthods of operation 1a3

etc. 1a4

home ta 1b

background 1b1

initial delphi study on the home services... what services looked most probable 1b1a

purpose 1b2

to determine what direction the technological emphasis was taking are there some real problems that must be overcome....what will the side-effects of some of these services be ? 1b2a

methods (methodology = SPRITE 1b3

what is sprite ? 1b3a

sequential polling and review of interacting teams of experts 1b3a1

identify groups or disciplines with a stake in the future of the these services (that is, their future development) and get them to compare note re their assumption, expectations, and fears re the development of the services. 1b3a2

asking the groups to pool their knowledge and develop some forecasts abot the future of a particular technology (traditioally) or process 1b3a3

How is sprite different from Delphi ? 1b3b

who are the experts ? Sprite recognizes that definitions vary. 1b3b1

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accent on identifying differences rather than on coming to a conclusion 1b3b2

reliance on comments for developing subsequent round, rather than on the statistical data 1b3b3

areas covered 1b4

privacy (with respect to other people) 1b4a

securtiy (with respect to data) 1b4b

interpersonal relations (expected changes in how we relate to people) 1b4c

time (how much more free time, how will we spend it ?) 1b4d

trvl- comm'ns 1c

purpose 1c1

to develop a better understanding of what factors motivate businessmen to travel rather than use comunications media, and to understand what aspects of their travel could be substituted for by these same media, or pedia that are bing developed. 1c1a

methods 1c2

survey of some 40,000 business travelers, traveling between Montreal and (Toronto, Ottawa, and Quebec City), and Toronto and (Ottawa). 9000 replys expected. 1c2a

cooperation between many different groups, each with a vested interest in the results was necessary. Some of cooperating groups included: 1c2b

Air Canada, CP Air, CN Rail, Voyageur Bus, Gov't. of Quebec, 1c2b1

parameters around which the questionnaire was based 1c3

corridor being traveled (even the idea of a corridor is crucial) 1c3a

type of company or institution sponsori he trip, and h travelers situation in that company 1c3b

principle reason or purpose for making the trip 1c3c

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secondary reasons for the trip (business and non:business) 1c3d

nature of communication process that will dominate the meeting, ie: 1c3e

bargaining 1c3e1

decision-making 1c3e2

courtesy or persoal relations 1c3e3

security or confidentiality required 1c3e4

duration of the trip 1c3f

types of face-to-face communication that might have been replaced by telecommunication.Examples: 1c3g

showing visual material 1c3g1

talking to a number of people at one time 1c3g2

talking to a number of different groups in the course of the day. 1c3g3

areas for further work.....where has it lead us 1c4

intra-city transportation elements 1c4a

energy consumption : travel vs. communications 1c4b

visual 1d

conference T.V. 1d1

computer conferencing 1e

general idea ..... new form of interaction 1e1

asynchronous comm'n. with sophisticated retrieval capabilities 1e1a

personal touches possible like anonymous messages, confidential messages, etc. 1e1b

input management routines: don't enter this comment until Larry has already read the text once; don't enter this comment until Nov. 28, etc. 1e1c

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some specifice examples of how it can improve communi8cations 1e2

able to hold conferences "out of time", "out of place" 1e2a

the fact that it is a formal conference tends o keep everyone on the right subject....not much jumping around.....chairman can control direction of he conference. 1e2b

it's democratic...everyone gets a voice 1e2c

even though everyone is speaking, you do't have to listen to you can be selective 1e2d

saves listeners' time 1e2d1

encorages speakers to be concise 1e2d2

continus-ally updated written record of proceedings is available 1e2e

to go back in the conference to confirm anything without disrupting proceedngs 1e2f

some examples of conf'g. systems we're using 1e3

BNR - used mainly as a message service ad project documentation aid. Very little interactive, simulataneous communication. very easy to retrieve past messages.....by number, by date, by author, or by content 1e3a

Institute for the F - used mainly as a project development and coordination aid 1e3b

Englebart's ARC - not as useful for cofeencing as the above two, but it has a host of information management rotines that let yo get right into another planner's work and observe what he is doing, how he operates, wat his style is, what his priorities are, etc. 1e3c

more detail on the Englebart system. 1e4

Initial reactions to a lot of the people we talk to are skeptical.....they wonder how anybody could work in that sort of environment, ie, with someone peering over their shoulder all the tme 1e4a

actually the reverse is true. the wrker becomes more productive, rather than less productive... the increased productivity stems, we believe, from the improved

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communications within his community of related planners or researchers. He has access to the ideas, thoughts, schedules, procedures, etc. of the community. 1e4b

how to give credit for work done 1e4b1

synergy at work 1e4b2

comunity's structuring of heir own informato must be of key importance. 1e4b3

MIKE 5-DEC-73 08:04 20717

this is a test of MIKE's ability to receive journal mail

(J20717) 5-DEC-73 08:04; Title: Author(s): Michael T. Bedford/MIKE;
Distribution: /MIKE; Sub-Collections: NIC; Clerk: MIKE;

JSP 5-DEC-73 08:29 20718

Release of TIP Phone Numbers

After surveying opinion with the IPTO office, i find universal reluctance to publicize openly a list of TIP numbers. First, some of the modems, lines, etc. have been purchased with non-ARPA money or have been explicitly justified/dedicated to project rather than public use. Second, there are issues relating to network security from eavesdropping/sabotage. Third, there are issues relating to AT&T tariffs. Conceivably, two cooperating parties could piggyback a large amount of cross-country traffic using ARPA lines gratis. So the consensus is that TIP numbers should be kept confidential and released on a case-by-case basis after coordination with this office. ... John

1

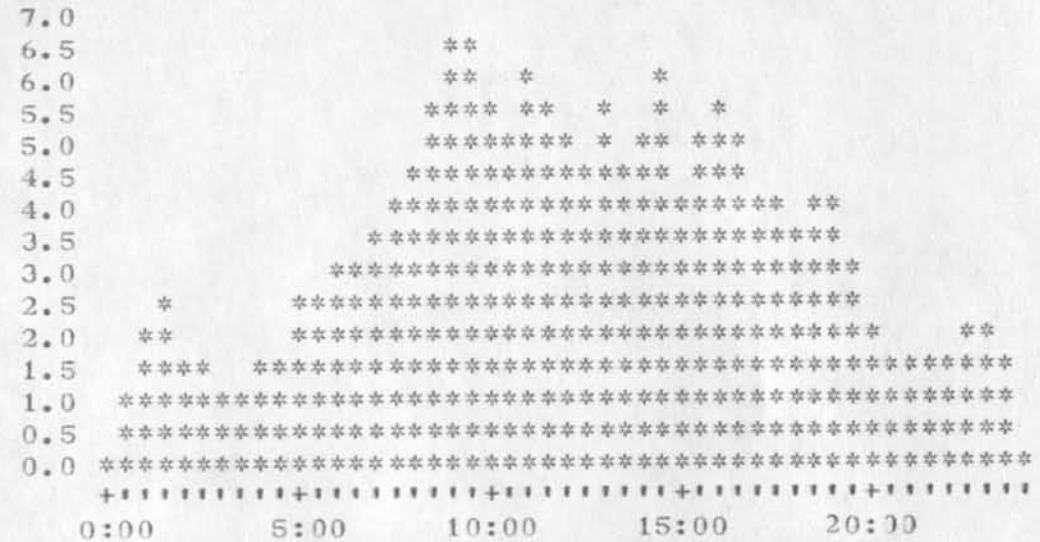
JSP 5-DEC-73 08:29 20718

Release of TIP Phone Numbers

(J20718) 5-DEC-73 08:29; Title: Author(s): John S. Perry/JSP;
Distribution: /MDK JCN JCRL CKM CKM; Sub-Collections: NIC; Clerk: JSP;

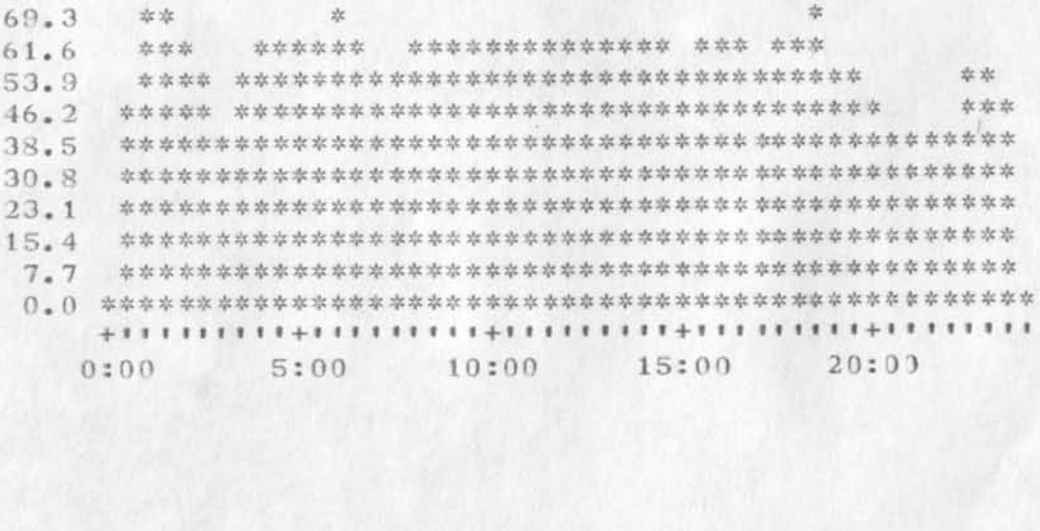
Superwatch Average Graphs for Week of 11/26/73

TIME PLOT OF AVERAGE NUMBER OF GO JOBS FOR WEEK OF 11/26/73
x axis labeled in units of hr:min, xunit = 30 minutes 1



1a

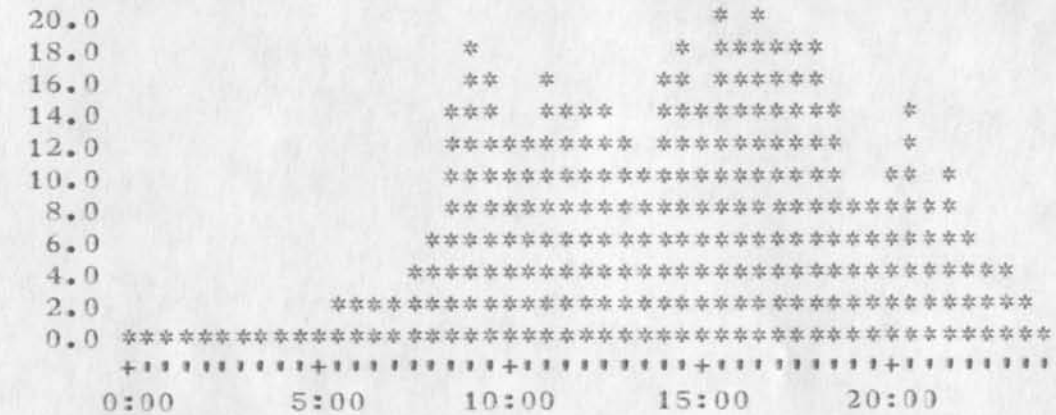
TIME PLOT OF AVERAGE PER CENT OF CPU TIME CHARGED TO USER ACCOUNTS
FOR WEEK OF 11/26/73
x axis labeled in units of hr:min, xunit = 30 minutes 2



2a

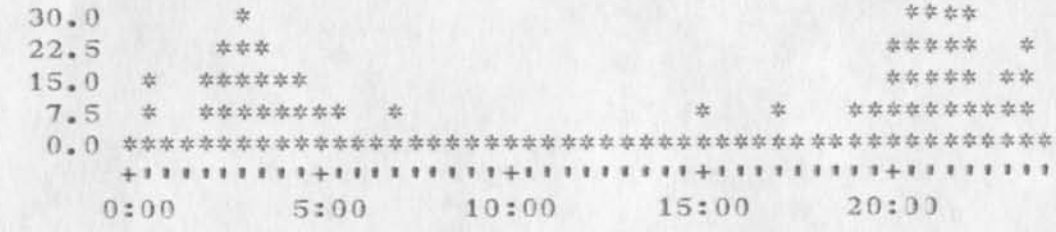
Superwatch Average Graphs for Week of 11/26/73

TIME PLOT OF AVERAGE PER CENT OF SYSTEM USED IN DNLS FOR WEEK OF 11/26/73
x axis labeled in units of hr:min, xunit = 30 minutes 3



3a

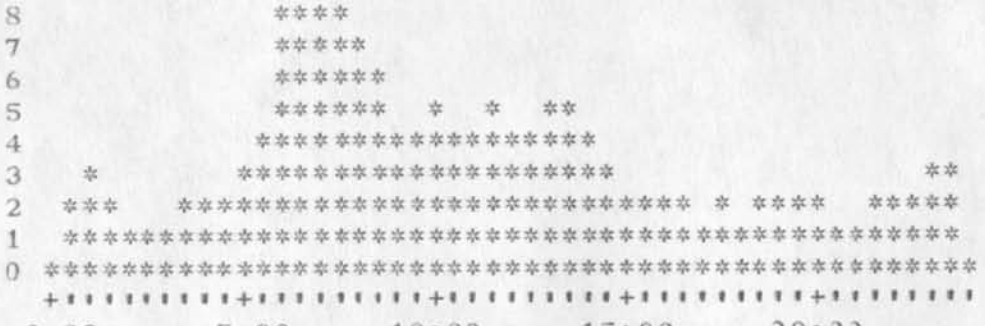
TIME PLOT OF AVERAGE IDLE TIME FOR WEEK OF 11/26/73
x axis labeled in units of hr:min, xunit = 30 minutes 4



4a

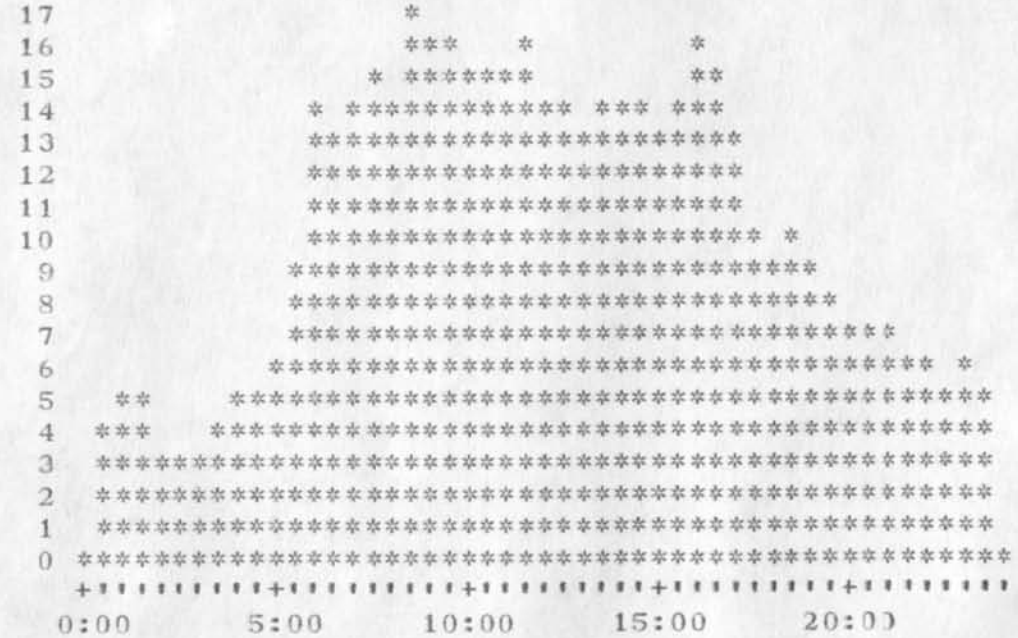
Superwatch Average Graphs for Week of 11/26/73

TIME PLOT OF AVERAGE NUMBER OF NETWORK USERS FOR WEEK OF 11/26/73
x axis labeled in units of hr:min, xunit = 30 minutes 5



5a

TIME PLOT OF AVERAGE NUMBER OF USERS FOR WEEK OF 11/26/73
x axis labeled in units of hr:min, xunit = 30 minutes 6



6a

SRL 5-DEC-73 09:23 20719

Superwatch Average Graphs for Week of 11/26/73

(J20719) 5-DEC-73 09:23; 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>WEEK11/26GRAPHS.NLS;2, 5-DEC-73 09:18 SRL ;

PR 5-DEC-73 11:19 20720

The SRI Energy Skill Inventory

Pat Henry wants us to go ahead with the energy skill inventory.

SKILL INVENTORY FOR THE SRI ENERGY COMMITTEE 1

Pat Henry confirmed that he wants to go ahead with JBN's proposal for developing an SRI "energy skill inventory" (18588,) [Sept. 3,1973). He told me that he would prefer the work to begin immediately in order to charge it to his 1973 budget. However, if this cannot be done he still wants us to go ahead on next year's budget. 2

Since Jeanne is busy for the rest of the year, I told Pat that we will not begin the work before mid January. He confirmed that this is acceptable for him, that he wants the work to be done, and that he is looking forward to hearing from us by that time. 3

Jeanne told me she is very interested in doing the job and that she plans to be available full time after mid January to work on the proposed project. I consider us as committed to do the job. 4

Pease let me know if there are any changes in this plan. 5

The SRI Energy Skill Inventory

(J20720) 5-DEC-73 11:19; Title: Author(s): Paul Rech/PR;
Distribution: /JBN RWW DCE MDK JCN; Sub-Collections: SRI-ARC; Clerk: PR;
Origin: <RECH>INV.NLS;2, 5-DEC-73 11:09 PR ;

Analysis ident

You all may not know that there is an ident ANALYSIS which can be used to send items intended for PR, SRL, and BAH. Copies of everything sent to this ident will also appear in a special file in the analysis directory. 1

Analysis ident

(J20721) 5-DEC-73 13:20; Title: Author(s): Susan R. Lee/SRL;
Distribution: /SRI-ARC; Sub-Collections: SRI-ARC; Clark: SRL;

EJK 5-DEC-73 13:59 20722

Info on mtg with barnum+

I had a visit today from al Barnum. He was inquiring about two things: 1

the radc mis 1a

the afsc mis 1b

He would like to see a copy of the radc mis proposal as soon as one is available. I told him tha a final penultimate version would be in his hands this week. (PLEASE) 2

Withreference to the afscmis proposal he had a couple of interesting things to say: 3

Gabe is not in Europe this week after all. Gabe wants a copy of the afsc mis proposal in his hands by friday. Al says that even if we do not have an absolutely letter perfect proposal by friday we must give him what we have and then later give him abetter version. 3a

The written proposal is,according to Al , even more important than the presentation. The presentation is for the group of scientific directors, but it is most unlikely that they could present a sufficiently unanimous stand as to take action approving and funding our proposal. However, al says that Irv mirman is really interested in pushing the concept and getting a mis for afsc. The last time I looked he was a special assitant to the commander or some such thing, so apparently he is in a position to fight this thing through by himself if he wants it. The major purpose of the briefing is to let the group know wat is being proposed. 3b

Al indicated htat he had no idea when the pitch might be he did say however that they are given quarterly. He said that he thought he gave his pitch in early september, so... I personally think he gave it later but i haven't had a chance to check it yet. 4

The delegate to the meeting on putting afsc on the arpa net has returned. (cap johnson?) The report of the group is in the gcos text editor but he himself is back at afsc writing up the report in final? form. I will try to see if patterson or kesselman or someone can get us a copy of what is alreaady avalable. 5

After some discussion, al came to the conclusion that the report must contain factual material on hardware, numbers, cost etc. However, the total job in its many ramifications need not be costed, just represetative costs for a site or two. 6

According to al ther are a total of 17 major computer installations within afsc 7

Info on mtg with barnum+

There is probably more, but at this instant I have run dry. 8

In the interests of expediency I will do no editing, except for any instances of total intelligibility. (read UNintelligibility for ...) 9

EJK 5-DEC-73 13:59 20722

Info on mtg with barnum+

(J20722) 5-DEC-73 13:59; Title: Author(s): Edmund J. Kennedy/EJK;
Distribution: /FJT RFI DLS JPC RBP DLD2 JLM RJC; Sub-Collections: RADC;
Clerk: EJK;

MLK 5-DEC-73 15:00 20723

AFF-12

I noticed that you entered a group or an organization in the identfile which came out in a rather incomplete state. It's AFF-12 and the only information contained in the entry is the name "JCD" and the mailing address "5131 HICKORY". May I delete this enry? If not, let me know how I can modify it to make more sense.
Regards,
Marcia Keeney (MLK)

1

AFF-12

(J20723) 5-DEC-73 15:00; Title: Author(s): Marcia Lynn Keeney/MLK;
Distribution: /EBD; Sub-Collections: SRI-ARC; Clerk: MLK;

RWW 5-DEC-73 16:05 20724

RWW Approval of NLS Frontend Plans (20713,)

Gentlemen, I have read your proposal and think we should proceed forwith. I have to talk to JCN and get straight on finances, but would like to get off a letter of intent this week. We need to check on rental arrangements $50,000 will be hard to come up with in one hunk. Smokey is wworking on a letter of intent. Doug's only question is shouldn't we also put in letter of intent for hardware for expected operational system (S?) for use in ARC if expected success occurs so don't have more delays. In other words assuming success what are the implications for hardware required to promulgate etc. Onward to distributed NLS

RWW 5-DEC-73 16:05 20724

RWW Approval of NLS Frontend Plans (20713,)

(J20724) 5-DEC-73 16:05; Title: Author(s): Richard W. Watson/RWW; Distribution: /DIA JCN KEV CHI DCW; Sub-Collections: SRI-ARC; Clerk: RWW;

DHC 5-DEC-73 18:56 20725

Case REX Program Comments

Jack and Erica -- 1

Steve told me about REX at Case, so I fooled with it some. i like it and think it will be quite useable for general queries; but would like to suggest some things: 1a

1. Type-outs tend to take to many lines. E.G., keyword listing should try to get three words to t aline. 1a1

2. There should be a page/screen-size control, so that output doesn't scroll off the end. If you addeda "Continue?" query, every N lines, the user also could abort long print-outs. 1a2

3. In general, the response to a "?" should only be a list of command words, no explanations to them (a la Tenex model), so that the user can use the question mark as a reminder of commands. The HELP command can get into more verbose stuff. 1a3

Tenex "noise" words, in parentheses, would help keep a "?" response from being too terse. (e.g., HELP, KEYWORDS (list), FIND (resource), DESCRIBE (resource), ...). 1a3a

4. The boolean stuff in very nice. How about a partial-string feature, too? 1a4

I.e., ...DDT would give all resources ending with "DDT"; ...DDT... would give all resources with "DDT" in them, etc. 1a4a

5. "Following hosts have requested resources" should be something like "Following hosts have FAMULUS" (i.e., repeat the query. 1a5

6. It would also be very nice if you implemented command completion (along with the current command recognition in REX). 1a6

What plans do you have for the program? And please let me know your reactions to my suggestions -- on the whole, they seem pretty minor to me. 1b

Case REX Program Comments

(J20725) 5-DEC-73 18:56; Title: Author(s): David H. Crocker/DHC;
Distribution: /JWB EG SDC2; Sub-Collections: NIC; Clerk: DHC;

DVN 5-DEC-73 20:57 20726

References to Files That Tell about Query; The Imlac Situation

The most recent information on the new Query systen is in (kjournal,19493,) and ((Ljournal,19724,). We are still puzzled by the Imlac problem. My guess is we will not have it fixed tomorrow (i.e. you are reading this on a TI.) But we are working on it.

DVN 5-DEC-73 20:57 20726

References to Files That Tell about Query; The Imlac Situation

(J20726) 5-DEC-73 20:57; Title: Author(s): Dirk H. Van Nouhuys/DVN; Distribution: /DLS JHB(fyi) EKM(fyi) JCN(fyi); Sub-Collections: SRI-ARC NIC RADC; Clerk: DVN;

DVN 5-DEC-73 21:04 20727

Do You Want to Talk to the Salesman from DDSI Tomorrow?

The present salesman of DDSI, Robert Spenser, will visit here tomorrow at 10:30 or 11. I have a list of small topics to discuss with him, but the visit is his idea. We are in a period when the software at DDSI is running pretty well and they are cutting back on services (JJOURNAL, 19283,1:w) (JJOURNAL, 19292, 1:w) and raising prices (IJOURNAL, 20443, 1:w). If any of you have natters you would like to have me bring up with him or would like to meet him, please lt me know.

1

DVN 5-DEC-73 21:04 20727

Do You Want to Talk to the Salesman from DDSI Tomorrow?

(J20727) 5-DEC-73 21:04; Title: Author(s): Dirk H. Van Nouhuys/DVN; Distribution: /JCN NDM(fyi) DCE RWW JBN JAKE MDK EKM; Sub-Collections: SRI-ARC; Clerk: DVN;

Forms System: Information Processing Requirements 1

INTRODUCTION 1a

A large part of information processing uses forms, particularly, the government. The manual process of preparing a form is tedious, time consuming, and expensive. 1a1

Problems include: 1a2

Identifying the correct form to get what you want. 1a2a

Entering the information in the proper place and in the proper format. 1a2b

Locating and editing the information. 1a2c

Editing a form draft. 1a2d

Routing a form draft to the proper persons, 1a2e

For completion, 1a2e1

For approvals. 1a2e2

Preparation of the final, typed version of the form with the required number of copies. 1a2f

The manual process forces tremendous duplication of effort at every stage. The number of times a person is required to submit his own name and the name and address of his organization is one example. 1a3

In addition to problems associated directly with the preparation of forms there is also the problem of reaching and using the information contained on completed forms. 1a4

In many cases other systems need this information. In a manual system the information will either be regenerated from its source or copied from one form to another form, perhaps a computer coding sheet. This process results in lost time, proliferation of data errors, and inconsistencies between data bases. 1a5

It is the intent of the forms system to attack these problems solving as many as possible in a reasonable time frame. 1a6

SYSTEM REQUIREMENTS 1b

Design and implementation work on the forms project has proceded on the basis of the following set of requirements. 1b1

General: 1b2

The system is designed for use by non technical, administrative personnel. All phases should be simple to use and self teaching where possible. 1b2a

Users will have at least some familiarity with NLS and Form System commands should be compatible with NLS . 1b2b

Data collected by the system should be in standard NLS file format permitting access from other NLS subsystems. 1b2c

Form Description: The user will be quided through the steps necessary to describe a form to the system. 1b3

In this case the "user" is probably a specially trained person who is thoroughly familiar with all aspects of the form being described and with the form description system. 1b3a

An overall description of the form describing its purpose, routing and disposition is desireable. 1b3b

The description will include the names and explanations where needed of each item on the form. 1b3c

Information necessary to format the data for printing is required. 1b3d

It should be possible to inform the system when the same inforration occurs in boxes in different forms. This information will enable the system automatically to fill in any information that is repeated on a form or across related forms. 1b3e

Preparing a Form Instance: Devices will be available to guide the user in Choosing form or forms that will serve his purpose within his organization. 1b4

He will be prompted for all items where direct entry is required. Information entered by the user will be edited at the time of entry for format and content whereever possible. Other items may be filled in from information contained in other form instances, from files and from standard responses contained in the form description. 1b4a

Many forms are prepared by more than one person. The form

description should contain routing information and the system should have a facility for notification and delivery of a form in process to the appropriate people. 1b4b

A facility is needed to protect information contained in a form in process (as well as in stored data). Some items, such as approval signatures, must have write access restricted to certain individuals, Other items containing sensitive information will also require restricted read access. 1b4c

Form Portrayal: The system must provide facilities for portraying the form both on display and typewriter type terminals for review and editing pruposes and for final printing. 1b5

Final printing must be on preprinted forms and will require operator interaction to specify form alignment, number of copies etc. A split platen printing device will allow the needed system - operator interaction while the form is being printed. 1b5a

Data Capture: Information submitted to the system must be retained wherever it is needed for completion of other forms or for other data management systems. 1b6

It should be saved in a form which permits other NLS systems such as Query to operate on the data, the Calculator, the Editor and the Journal. It should be accessable for reformating and transfer to other data management systems via the newtwork. 1b6a

Close attention should be given to storing data in the most compact manner possible. Automatic archival and house cleaning facilities must be provided. 1b6b

IMPLEMENTATION 1c

Staged implementation of the forms system is dependent on several projects concurrently in progress at ARC. Major redesigns of the NLS Editor, Journal and Query systems are now being carried out. These systems will provide power and usefulness to the forms system that could not otherwise be achieved in a reasonable time. 1c1

Actual implementation will occur in pre-planned phases of increasing utility. A recommendation and proposed schedule for each phase will be prepared as soon as the project overview is

completed. The overview should be available in draft form within the next two to three weeks. 1c2

Forms System Requirements

(J20728) 5-DEC-73 21:11; Title: Author(s): Elizabeth K. Michael/EKM;
Distribution: /DLS(I just journalized this for the record) RWW JHB JCN
HGL; Sub-Collections: RADC NIC SRI-ARC; Clerk: DVN;
Origin: <MICHAEL>FORMSREQ.NLS;5, 4-DEC-73 17:26 DVN ;

JBN 5-DEC-73 21:15 20729

Re: Archiving NIC Transmittal Letters

Per discussion between MDK, JBN and MLK, at this time we will discontinue journalizing routine NIC transmittal letters. 1

They will be prepared online as usual, using the form, and will continue to be placed in the file <nic-work>transmittals. Rather than journalizing them individually as heretofore, MLK will archive the file at the end of each month. 2

Marcia will continue to maintain two hardcopy files, one chronological and the other by organization. These serve to answer occasional questions as to our contacts with organizations, and preserve a running record of our recent actions. 3

If at a future time, online reference is useful and practical, the archived files can be retrieved. 4

JBN 5-DEC-73 21:15 20729

Re: Archiving NIC Transmittal Letters

(J20729) 5-DEC-73 21:15; Title: Author(s): Jeanne B. North/JBN;
Distribution: /MDK MLK KIRK; Sub-Collections: NIC SRIARC ; Clerk: JBN;
Origin: <NIC-WORK>TRANSMEMO.NLS;1, 5-DEC-73 21:08 JBN ;

RJC 6-DEC-73 05:44 20730

tickler for week of 19 - 30 ti

(nm4) 19 November - Monday 1

0830 hrs. Branch Chief's Meeting 1a

ISF Financial Analysis - 1330 hrs. - All Branch Chiefs 1b

1500 hrs. Center MIS Presentation - Ed Kennedy 1c

Dick Nelson - Annual Leave 1d

FJT - OER/Maj Patterson Due TUESDAY 1e

Draft Revision of RADCR 27-2 - Due Date ISM - Tom B. Comments etc. 1f

Due Date/ISIS/Capt Ives - Technical Evaluation PR-B-4-3233 - Completed 1g

(nt4) 20 November - Tuesday 2

Dl Overview Briefing. 2a

Due Date - ISIS/R. Nelson - Unsol Prop DO 71-74, Software System Management - Completed 2b

Dick Nelson - Annual Leave 2c

Due Date - Turn-In of Portable Electric Heaters 2d

(nw4) 21 November - Wednesday 3

0830 hrs. ISI Confessions 3a

Annual Disaster Preparedness Indoctrination - Lt Wingfield & Capt Daughtry - Bldg. 106 - Auditorium - 0930 hrs. - 1130 hrs. - Attendance will be recorded 3b

Collect Lab Activities TODAY 3c

Dick Nelson - Annual Leave 3d

(nth4) 22 November - Thursday 4

THANKSGIVING DAY 4a

Laboratory Activity Reports due today: Bucciero must have them by 1000, ISM must have them by 1100, and DOT must have them by 1600. 4b

(nf4) 23 November - Friday 5

tickler for week of 19 - 30 ti

For FJT - ISI/Action - Status for decision to proceed with AFSC usage of ARPA net communications facilities in regards to TWX rec'd 13 Nov 73. Sent to ISIM 5a

For FJT - Reply to memo dtd. 16 Nov 73 from Col Thayer to ISF for Action Items for the R&D Computer Facility (Comments, criticisms, etc.) 5b

Bobbie: Travel figures due by noon. 5c

Timecards due today 5d

Due Date - ISI/Bobbie - Updated listing of Utica College Contract due in ISM 5e

Due Date - ISIM/J McNamara - Review of Classification & Distribution Statement on RADC-TR-66-2 - Completed 5f

Due Date - ISIM/R. Iuorno - Review of Classification & Distribution Statement on RADC-TR-71-121 RADC/Multics Evaluation dtd Nov 71 In-House - Completed 5g

Due Date - ISIS/R. Motto - Review of Classification & Distribution Statement on RADC-TR-71-158, Modification and Improvement of the Executive Software System of the GE-645 Computer dtd Aug 71 - Contract F30602-70-C-0234 - Completed 5h

Due Date - ISIS/R. Motto - Review of Classification & Distribution Statement on RADC-TR-71-132, A Simplified Cardin Subsystem for GECOS-III dtd Jul 71 - Contract F30602-70-C-0134 - Completed 5i

Due Date - ISIM/R. Iuorno - Interim Report - Contract F30602-73-C-0001 for Technical Review - Extended to 14 Dec 5j

Dick Nelson - Annual Leave 5k

Carmella Marcoccia - Annual Leave 5l

(nm5) 26 November - Monday 6

0830 hrs. Branch Chief's Meeting 6a

Due Date - ISI/FJT - Management Support for R&D Program from DDR&E - Completed 6b

Col Thayer - Leave 6c

(nt5) 27 November - Tuesday 7

Col Thayer - Leave 7a

(nw5) 28 November - Wednesday 8

Representatives from AFDSC will visit RADC/Bergstrom (Focal Point) to begin testing of DM-1 System - Will be here through the 30th 8a

Due Date - ISIS/ISIM - Project Engineers Bimonthly Review of Tech Completions - due in ISM 29 Nov 8b

Col Thayer - Leave 8c

Due Date - ISIS/D. Marks - Technical Evaluation of PR-B-4-3232 8d

(nth5) 29 November - Thursday 9

0830 hrs. Branch Chief's Meeting 9a

AFSC Procurement Policy Briefing - Bldg. 106 - Auditorium - 1000 hrs. thru 1400 hrs. All Engineers involved in PRs should attend per F. Tomaini. 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

Due Date - ISIM/Bergstrom - Joint Services Electronics Program (JSEP) Proposal Review. Completed 9d

0900 - 1000 hrs. - Officer's Commanders Call - Bldg. 106 - Auditorium 9e

Col Thayer - Leave 9f

(nf5) 30 November - Friday 10

Due Date - ISIM/Ray Liuzzi - Technical Evaluation - PR-B-4-3245 - Extended to 14 December 10a

Form 2's (employee time expenditures) are due today. 10b

Form 6's (projected manpower) are due today. 10c

Bobbie: Travel figures due by noon. 10d

Due Date - ISI/ISIS/ISIM - Course Forms for Data Base due today into ISI/Bobbie 10e

Col Thayer - Leave 10f

RJC 6-DEC-73 05:44 20730

tickler for week of 19 - 30 ti

(J20730) 6-DEC-73 05:44; Title: Author(s): Roberta J. Carrier/RJC; Distribution: /FJT; Sub-Collections: NIC; Clerk: RJC;

RJC 6-DEC-73 06:52 20731

tickler for week of 3 Dec - 14 Dec

(dm2) 3 December - Monday 1

0830 hrs. Branch Chief's Meeting 1a

Robert Stover - Interview w/Col Thayer -- 1330 hrs. 1b

News Brief items due into Becky Today. 1c

Bobbie: Personnel Strength Rpt. due. Completed 1d

Due Date - Action Items (IS) Reply to Thayer - Review status of DM-1 1e

(dt2) 4 December - Tuesday 2

Due Date to ISF - For Tom B. Draft Proposal Re Equipment Maintenance 2a

(dw2) 5 December - Wednesday 3

ISC Confessions - 0830 hrs. 3a

(dth2) 6 December - Thursday 4

0830 hrs. Branch Chief's Meeting 4a

Status of DM-1 - Bergstrom w/Col Thayer - 1330 hrs. 4b

ISIM/Rr. Panara - Impact statements due 4c

Laboratory Activity Reports due today: Bucciero must have them by 1000, ISM must have them by 1100, and DOT must have them by 1600. 4d

(df2) 7 December - Friday 5

Timecards due today. 5a

Bobbie: Travel figures due by noon. 5b

Due Date - ISIM - Unsol Prop DO 85-74, "Network Info Center & Augmented Knowledge Workshop Development" w/SRI (1 cy) - Completed 5c

Due Date - ISIM - Unsol Prop DO 82-74,"Interactive Command Language III" w/Honeywell (2 cys) 5d

(dm3) 10 December - Monday 6

0830 hrs. Branch Chief's Meeting 6a

tickler for week of 3 Dec - 14 Dec

ISIS/D. Nelson - Advanced Development Candidates 6b

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. 6c

ISIM/ISIS - Completion of Info Sci Div Questionnaire - All SSE personnel 6d

(dt3) 11 December - Tuesday 7

ISIM/R. Iuorno - Negative Interim Report on Inventions on Contract F30602-73-C-0001 w/Univ of Michigan 7a

(dw3) 12 December - Wednesday 8

ISF Confessions - 0830 hrs. 8a

Due Date - ISIM/ISIS - Awards for Technical Achievement 8b

1445 hrs. Presentation on Software - ISI/Col Thayer 8c

(dth3) 13 December - Thursday 9

Laboratory Activity Reports due today: Bucciero must have them by 1000, ISM must have them by 1100, and DOT must have them by 1600. 9a

0830 hrs. Branch Chief's Meeting 9b

(df3) 14 December - Friday 10

Bobbie: Travel figures due by noon. 10a

Due Date - ISIM/R. Iuorno - Interim Report - Contract F30602-73-C-0001 for Technical Review 10b

Due Date - ISIM/Ray Liuzzi -Technial Evaluation PR-B-4-3245 10c

RJC 6-DEC-73 06:52 20731

tickler for week of 3 Dec - 14 Dec

(J20731) 6-DEC-73 06:52; Title: Author(s): Roberta J. Carrier/RJC; Distribution: /RADC; Sub-Collections: NIC RADC; Clerk: RJC;

MIKE 6-DEC-73 06:57 20732

Can I have your comments on this Letter to Mike Lutze of Sears; it outlines what we disucssed on Tuesday and the areas that I think we could cooperate Mike

to MIke Lutze, following meeting of Dec. 4/73 1

On behalf of Bell Canada Headquarters and Bell-Northern Research, I would like to thank you for spending yesterday with Mssrs. Moffat (H.Q. Management Science), Sanyal and Licker (BNR) and myself. We came away from the meeting with a muca better understanding of your objectives for the Sears Automated Order Service trial, and of your particular role in that trial. 1a

We understand that your main concern with the trial at this stage involves investigating alternatives for reducing the cost of taking catalogue orders. Since one method of reducing the unit cost of each order would be to increase the number of orders that are being processed with a given investment in equipment, I think that you will be interested in talking further with our people at BNR. Our initial discussion with Mr. Sanyal indicated that there may be some areas of their research program that will fit in nicely with your apparent needs. I am thinking specifically of the work on multiplexing of analog signals, and the on developing a device for receiving data from a rotary dial phone and processing it in the same way as your current Touch-Tone input signals. Availability of these two technological capabilities would enable you to receive and process more calls per hour with your existing equipment, and would permit you to offer the A.O.S. service to a much broader section of your catalogue customers. 1b

In addition to your desire to reduce the short-term costs associated with the order-taking process, we also recognize that you have a great opportunity to gain information about the longer-term viability of this type of service, and its effects on customer purchasing patterns. I realize that your group does not have a direct and immediate responsibility in this area, and that Ms. Doreen Medicker of your Market Research Department is more directly involved in researching this trial. With this in mind, I would propose that Ms. Medicker and Mr. Moffat of our Management Sciences group get together to discuss some of the research that we would like to conduct in this area. Mr. Moffat's experience in conducting surveys into uses of all types of telecommunications services should prove valuable to Ms. Medicker, and I am sure that the data base which she has collected to date would prove useful to him in developing his researdch proposal. 1c

I mentioned on Tuesday that the Business Planning Group was most interested in Sears' plans for developing a "work from home" capability for some of your phone order takers. If your central order taking office were able to reroute incoming calls to the home phones of some of your employees, you would be able to make

MIKE 6-DEC-73 06:57 20732

Can I have your comments on this Letter to Mike Lutze of Sears; it outlines what we disucssed on Tuesday and the areas that I think we could cooperate Mike

better use of your employees' time, eliminate the need to over-staff your order-taking offices for the greater part of four hours, in able to ensure meeting the peak demand during that period, and contribute to the community's well-being by taking advantage of a valuable labour pool that is handicapped by not being able to leave the house for ay extended period; physically handicapped individuals, mothers of young families, and elderly citizens would be very appreciative of a service of this type. The Business Planning Group would be very interested in cooperating with Sears on this project. One of the prerequisites for the service will be a programmable call forwarding device that could sit in your order taking office and direct incoming calls to different numbers, as needed. I will undertake some of the initial enquiries in this area for you, and I hope we will be able to get together a t a later date to discuss the possible implementation of such a service on a trial basis. 1d

Once again, let me express our thanks for spending the day with us on Tuesday. I think we are all looking forward to a mutually rewarding relationship. 1e

Yours sincerely, 1f

Michael T. Bedford
Supervisor - Business Planning 1g

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