t

<BEDFORD>ACM,NLS;1, 2-OCT-74 13:29 MIKE ; 1

rough notes 1a

the idea of a cost benefit relationship applied to the introduction of CAMS technology. 1a1

real costs 1a1a

manpower costs incurred due to people taking tme off normal jobs to learn the system (includes temporarily reduced efficiencies wile "learning on the job") 1a1a1

dollar costs (let's just run through those.....) 1a1a2

private line to California - $3000/year 1a1a2a

communications equipment (multiplexors, datasets, conditioning) - $9000 1a1a2b

San Jose MUX = $3000.....this is BPG cash 1a1a2b1

Montreal MUX i= $3000.....but this is not a cash item 1a1a2b2

data sets at each end, plus conditioning, etc. = $3000.....not a cash item 1a1a2b3

terminal equipment - $15000 1a1a2c

software access : OFFICE-1 - $40000 1a1a2d

anxiety costs 1a1a3

girls not doing anything but typng to a machine 1a1a3a

frustration of having to do work over 1a1a3b

superiors being shown up in front of subordinates 1a1a3c

interuptions by novices learning from experienced users. 1a1a3d

learning a new way of organizing your thoughts (for your own use, and for use of others) 1a1a3e

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t

desccriptions one gets from proponents of systems who are 'selling' their particular software package, 1b

Appendix:The following are rationales for negative scenarios based on BPG experiences; rationales advocating the opposite point of view will be written as a basis for positive scenarios. Negative rationales have been written first because positive scenarios can be easily generated by paraphrasing the relevant literature. 1b1

Computer Text-Editing 1b1a

The BpG has had access to a sophisticated text-editing computer system for a year. About six of nine knowledge workers use the system, of whom three are using only the simplest text-editing features. One of the rationales for the system was that of increasing the size of a common information space. In practice, the capability for scanning other knowledge workers' files is used very rarely, and then only to monitor the progress of subordinates. A second rationale was to eliminate the need for introducing clerical help and accompanying lags in the production of routine documents and letters. In actual fact, most members have reverted to having letters transcribed by typists and there has been an increase in clerical assistance since the introduction of text-editing because some individuals are typing in information files that might not ordinarily be transcribed from source documents. 1b1a1

Originally, the system was meant to multiply the force of knowledge workers and hence increase productivity and efficiency. The theory states that a knowledge worker can produce reports more swiftly because much of the clerical leg-work has been eliminated or simplified. Rather than write a document in conventional serial fashion, much of the text is quickly composed by cutting and pasting previously written documents or items from information retrieval bases. This could be very useful for prolific repackagers of information but there are very few people who do this as part of their normal job. For instance, in the BPG, since most reports written by lower level employees are based on original analyses, there has not been any noticeable improvement in rate of output. Of course, simple text-editors such as IBM's SCRIPT have a much bigger market because much of ordinary business documentation is routine, e.g., there is an IBM advertisement showing how legislators can keep track of bills as they are amended and voted on. In general, the

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Computer Conferencing 1b1b

Despite our readily available terminals, an in-built bias to use terminals, potential strong links with colleagues in similar environments (BNR, Bell, Paul Polishuk, and IFF), computer conferencing has not taken off. Several conferences were initiated in September, 1973 after a favourable initial reaction to the concept and the 'new toy' syndrome but when the momentum was lost for two weeks over the Christmas period, they never got accessed after work returned to normal in January. This may be due to an inherent great weakness in the concept since feedback to suggestions or ideas is very slow (two days compared to two seconds on POT). In addition, the recording of all communications for posterity may lead to very cautious statements (would you want all your phone calls on tape?). Finally, as Cherry and other communication researchers have suggested, the potential strengths of communications devices are rarely appreciated ahead of time(e.g., the telephone was envisaged solely as an aid for the deaf). The fact, that despite a year's exposure to conferencing few new insights into applications have resulted, suggests that the communications needs that conferencing might fill may be better served by existing tools such as the telephone. 1b1b1

Information Retrieval 1b1c

Despite the fact that information retrieval systems have been tried on several occasions in the BPG, no such system is actively used by the BPG staff. Some argue that this is due to insufficient data bases. The argument is valid but will, unfortunately always be true no matter how much effort is put into constructing a retrieval system since there will inevitably be a huge amount of legwork necessary to keep a data base up to date. The failures are also due to the fact that they substitute for tasks that are, in fact, rarely carried out. For example, few members ever have occasion to look up specific forecasts and so there is no reason for them to use the Futures Information System. Another example is the chartbook data base. While the idea of being able to write up working papers on short notice sounds appealing, most of the BPG members hardly ever give formal talks. Therefore they have little or no use for the system. In

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The recent evaluation of the Quic-Law system at Queen's by Professor Slayton should be a valuable lesson. To the layman, it seems that a lawyer spends much of his time in the mundane task of tracking down laws and precedents of relevance to a particular case. This seems to be easily programmable since the body of law is very clearly delineated and elements in cases are easily classified by keywords. After implementing a legal information system, it was noted that the process of analogy is much more important than programmers first thought and that, in fact, it may be difficult if not impossible to build in this feature. 1b1c2

If information retrieval does not work in this environment, one must question whether it will ever work in the more unstructured and hazy environments of business at large. In creating business data bases, does one include business statistics, business periodicals, or even the daily newspaper, since all of these are inputs to the managerial decision-making process? Keeping such bases up to date may be a very large clerical task that will be costly even if computer costs were to go down greatly. 1b1c3

Mike here are some observations on the 'real costs'(1a1a) of your outline. 1c

I think that all costs to Bell that would not have been incurred had we not adopted Engelbart should be included: 1c1

thus the $3000 for Montreal MUX is as costly to Bell as the $3000 for the San Jose one even though 'this is not a cash item', the MUX unit on our floor is a very real cost to Bell as is the technicians' opportunity costs every time we call them up to repair the unit. 1c2

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evenif we had franked (whatever that means) the long distance, the $30,000 would have been included since it represents an increamental construction of plant ultimately(we install plant continually so that the traffic people are able to meet certain quality criteria(say,9 out of 10 calls get through first time). 1c4

Biggest real cost is salary and loaded costs of personnel - here is a very rough calculation. 1c5

(I am including learning curve costs, costs associated with spending amount of time 'showing off' system, and costs associated with managing implementation of hardware) 1c6

DMA-$45K x 10%=4,5K 1c6a

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IMM-20K x 75%=15K 1c6d

PF-$25K x 20%=10K 1c6e

PIW-$25K x 20%=10K 1c6f

clerks and secretaries(no idea) 1c6g

the total is $55k + per year. 1c6h

Total =30,000+9,000+15,000+40,000+55,000=$149,000 + 1c7

if we had computer in Montreal, cost would still be 149,000-30,000=119,000 to each user since the implementation costs and learning costs would be expected in each new location. 1c7a

t

(J31171) 16-OCT-74 06:22; Title: Author(s): Phil Feldman/PF;
Distribution: /PF; Sub-Collections: NIC; Clerk: PF;

PF 16-OCT-74 06:35 31172

Some thoughts on Comp, Augmented Comm,

<BEDFORD>ACM,NLS;1, 2-OCT-74 13:29 MIKE ; 1

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PF 16-OCT-74 06:35 31172

Some thoughts on Comp. Augmented Comm.

(J31172) 16-OCT-74 06:35; Title: Author(s): Phil Feldman/PF;
Distribution: /MIKE PF; Sub-Collections: NIC; Clerk: PF;

JHB 16-OCT-74 08:17 31174

Copies of msgs re: Load/suspension

These msgs received before and after request change suspend job -Q4- threshold,... For the record. (There were additional msgs sent to FEEDBACK).

JHB 16-OCT-74 08:17 31174

Copies of msgs re: Load/suspension

11-OCT-74 1034-PDT STONE: Load/Suspension
Distribution: NORTON, BAIR
Received at: 11-OCT-74 10:34:39 1

I have been suspended half the time today. The latest time I never even made it all the way into NNLS, be for it happened. Again the plea for the ability to ^c at least and get out of it. Just to let you know that things are as usua
Regard
Stoney 1a

14-OCT-74 1015-PDT STONE: Suspended Jobs
Distribution: BAIR, kennedy
Received at: 14-OCT-74 10:15:27 2

Thanks for getting the suspended job load up to 15...It was really becomming intolerable around here
Regard
Stoney 2a

JHB 16-OCT-74 08:17 31174

Copies of msgs re: Load/suspension

(J31174) 16-OCT-74 08:17;;;; Title: Author(s): James H. Bair/JHB;
Distribution: /JCN([INFO-ONLY]) FEED([INFO-ONLY]) ;
Sub-Collections: SRI-ARC; Clerk: JHB;

PSO Work Schedule - as far as we know

The schedule for Donna and Sharon is identical: 1

Monday	1030 - 1700 (every other week)	1a
Tuesday	1230 - 1700	1b
Wednesday	1030 - 1700	1c
Thursday	1230 - 1700	1d
Friday	1030 - 1700	1e

Duayne is scheduled for: 2

Monday	1430 - 1700	2a
Tuesday	0815 - 1000 and 1530 - 1700	2b
Wednesday	1500 - 1700	2c
Thursday	1430 - 1700	2d
Friday	1430 - 1700	2e

RJC 18-OCT-74 10:53 31176

PSO Work Schedule - as far as we know

(J31176) 18-OCT-74 10:53;;;; Title: Author(s): Roberta J. Carrier/RJC; Distribution: /ELF([ACTION]) RJC([ACTION]) TJB([ACTION]) ; Sub-Collections: NIC; Clerk: RJC;

I'd be very much interested in hearing from the architect community about the effect that the increased memory at Office-1 has had on your users' activities. Since I've finally gotten to a level (and found the time) to use NLS actively you should be hearing more from me. Also I'I've finally been included in KWAC (through some act of whoomever). If there's any way I can be of assistance to you or your users let me know. Remember I'm just "downstairs" from ARC. 1

(J31178) 18-OCT-74 13:50;;;; Title: (Unrecorded) Title:
Author(s): Michael A. Placko/MAP2; Sub-Collections: NIC; Clerk: MAP2;

MAP2 18-OCT-74 14:20 31179

Effect of expanded memory at Office-1

I'd be very interested in hearing from the architect community about the effect that the increased memory at Office-1 has had on your users' activities. Since I've finally gotten to a level of some comfort with NLS (and now have the time) you should be hearing more from me. Also, I haven't been hearing from you through some oversight (I wasn't until recently included in KWAC). If there's any way I can be of assistance to you or your users let me know. Remember that I'm just "downstairs" from ARC. --Mike 1

Effect of expanded memory at Office-1

(J31179) 18-OCT-74 14:20;;;; Title: (Unrecorded) Title:
Author(s): Michael A. Placko/MAP2; Distribution: /KWAC([ACTION]) ;
Sub-Collections: NIC KWAC; Clerk: MAP2;

RSR 18-OCT-74 16:17 31180

pls

How are you coming with the planning numbers? Are you using PLS?
Let's see some numbers. 1

RSR 18-OCT-74 16:17 31180

pls

(J31180) 18-OCT-74 16:17;;;; Title: (Unrecorded) Title:
Author(s): Robert S. Ratner/RSR; Distribution: /JCN([ACTION]) RSR([
INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: RSR;

MIKE 21-OCT-74 12:43 31182

MIKE meeting with President of LM Ericcson Canada Ltd.

Poxter and Lunsfeld are visiting directors from Sweden; they wanted to see a demo of the Sears AOS. Carnell is President, LME Canada. He contacted KSH to get demo. KSH contacted me, who in turn contacted the seminar people, who in turn indicated they were busy all afternoon and wouldn't be able to help. 1

Persisting, we arranged for them to vacate on of their offices equipped with a 12-button Touchtone and a speakerphone; Pierre Brosseau demonstrated it for us. 2

They were generally impressed with the performance of the system. They didn't realize that Sears already had a large catalogue order business before getting into this automated routine. They seemed quite surprised that anyone in hi right mind would order from a catalogue rather than going to a store to actually see the merchandise. Oh well, I have the same problem. 3

I left them with some copies of strticles on the AOS, as well as some of the latest Business Planning papers outlining what we are doing. 4

They seemed generally pleased with the opportunity to see the demonstration, and KSH seemed pleased with my feedback. 5

MIKE 21-OCT-74 12:43 31182

MIKE meeting with President of LM Ericcson Canada Ltd.

(J31182) 21-OCT-74 12:43; Title: Author(s): Michael T. Bedford/MIKE;
Distribution: /LHD; Sub-Collections: NIC; Clerk: MIKE;

MIKE 22-OCT-74 07:35 31183

letter from LHD to Cameron at DOC re Singer's study on use of telephone (written by MIKE for LHD)

I signed this letter in your absense and sent it out.

letter from LHD to Cameron at DOC re Singer's study on use of telephone (written by MIKE for LHD)

Mr. A.D. Cameron
Research Co-ordinator
Social Policy & Programs Branch
Department of Communications
100 Metcalfe Street
Ottawa, Ontario K1A 0C8

Dear Mr. Cameron:

Thank you very much for the copy of Ben Singer's report on the social Functions of the Telephone.

I have not yet had a chace to review the report in detail, but even a cursory review indicates that a great deal of effort has gone into this work. The results are quite far ranging, and I believe that any research team involved in urban telecommunications studies should be aware of its contents. It would be rare to find a team that could employ all the results presented here, but I can well imagine groups such as ourselves turning to the report often as a sourcebook.

I believe that the narrative summary accompanying the tabulated data indicate a slight bias toward the operations of the phone company as currently manifested in our suservice to the public. I am thinking of the portrayal of respondents' attitudes towards potential new services, otowards our long distance rate structure, and similar, more minor issues. But I think Dr. Singer would agree that these are qite minor points when compared to the scope of his work and to the concise nature of the tables, which are capable of speaking for themselves in most cases.

I welcome Dr. Singer's contribution to the field of urban telecommunications research. His report will constitute a valuable addition to our futures research data base. I hope that you will see fit to grant the proposed extension to this study, especially if the "refining of the analysis" that you mentioned deals with a differentiaton of the sample according to socio-economic variables of interest to this department.

Yours sincerely,

Lawrence H. Day
Staff Supervisor - Business Planning

MIKE 22-OCT-74 07:35 31183

letter from LHD to Cameron at DOC re Singer's study on use of telephone (written by MIKE for LHD)

(J31183) 22-OCT-74 07:35; Title: Author(s): Michael T. Bedford/MIKE; Distribution: /LHD; Sub-Collections: NIC; Clerk: MIKE;

elephant meeting

contradiations have been alledged in our description of the elephant. 1

the review meeting will be at 3:00 in the project room. 2

a recursive redefinition plan should emerge. 3

PCR 22-OCT-74 07:42 31184

elephant meeting

(J31184) 22-OCT-74 07:42;;;; Title: Author(s): Pat C. Roberts/PCR;
Distribution: /JHB([ACTION]) DVN([INFO-ONLY]) ; Sub-Collections:
NIC; Clerk: PCR; Origin: < PROBERTS, MEMO,NLS;2, >, 22-OCT-74
07:40 PCR ;;;;####;

PCR 22-OCT-74 08:36 31185

unuseable files in directory!

please! arrange things so that files that the user can not load, or read, or edit, are not shown in the directory. or....give us some indication of the rationale for same. stan taylor 1

PCR 22-OCT-74 08:36 31185

unuseable files in directory!

(J31185) 22-OCT-74 08:36;;;; Title: Author(s): Pat C. Roberts/PCR; Distribution: /FEED([ACTION]) JHB([INFO-ONLY]) JCN([INFO-ONLY]) RWW([INFO-ONLY]) ; Sub-Collections: NIC; Clerk: PCR;

Test to see if the system is working

TITLE: Test to see if the system is working
COMMENT:
AUTHOR(S):EJK
NUMBER:31186

DISTRIBUTE FOR ACTION TO: jnb jcn
DISTRIBUTE FOR INFO-ONLY TO: dls
SUBCOLLECTION(S):
KEYWORD(S):
HANDLING INSTRUCTION:
RECORDING INSTRUCTION:
OFFLINE ITEM -- LOCATED AT:
RFC NUMBER:
OBSOLETES ITEM NUMBER(S):
ACCESS STATUS:
UPDATE TO ITEM NUMBER(S):
INSERT LINK TO FOLLOW:
FORWARD ITEM NUMBER:
MESSAGE: I have seen no journal mail appear in over two weeks, Even though I have sent some - nothing has appeared in my Author branch since the 4th of Oct, Stuff that I sent to myself has never arrived, SHOULD I WORRY????? If this is a general problem you already know about and are working on don't bother to reply,
BRANCH AT:
PLEX AT:
GROUP AT:
FILE:
SEND THE MAIL,

EJK 22-OCT-74 11:27 31186

Test to see if the system is working

(J31186) 22-OCT-74 11:27;;;; Title: Author(s): Edmund J. Kennedy/EJK; Distribution: /JHB([ACTION]) JCN([ACTION]) DLS([INFO-ONLY]) ; Sub-Collections: RADC; Clerk: EJK;

JTH 22-OCT-74 11:46 31187

brl ident group

@lease update the brl group and change the coordinator to dft. yt
may be updated but the coordinator must be changed anyway. 1

JTH 22-OCT-74 11:46 31187

brl ident group

(J31187) 22-OCT-74 11:46;;;; Title: Author(s): John T. Harrison/JTH; Distribution: /FEED([ACTION]) BRL([INFO-ONLY]) JCN([INFO-ONLY]) JHB([INFO-ONLY]) MLK([INFO-ONLY]) JAKE([INFO-ONLY]) SMT([INFO-ONLY]) ; Sub-Collections: NIC BRL; Clerk: JTH;

MIKE 22-OCT-74 12:00 31188

notes on SPRITE and the T/A on the Wired City

sorry this is late; I realize that the first few sections in this are somewhat misdirected; you should be able to chop them off with no disservice to the remaining, subsequent sections.

notes on SPRITE and the T/A on the Wired City

The first use of the SPRITE technique is underway now. The Business Planning Group is conducting a technology assessment of future home communications services - services that have come to be associated with the notion of the "wired city". 1

In the popular literature on this subject, the "wired city" is portrayed as providing its citizens with a fully interactive broadband capability linking them to all their neighbors and to commercial and governmental data banks; the cashless society has become a reality, and electronic mail has supplanted conventional delivery systems. The Business Planning Group does not believe that the costs associated with a commuications environment such as this could be supported for many, many years to come, and more importantly, there are some very real questions pertaining to the desirability of these services (as percieved by potential users, as well as by the potential NON-users, whose independence might be threatened by the widespread but not universal implementation of such services). 2

The process of technology assessment attempts to determine what the consequences (both favorable and unfavorable) of the introduction of these types of services may be. There are a number of different "impact areas" to be explored and developed, and for this purpose, the SPRITE technique seems ideally suited. The SPRITE teams participating in the current study include representatives from these six groups: 3

housewives 3a

students 3b

consumerists 3c

educators 3d

welfare workers 3e

communicatons researchers 3f

Both rounds of questionnaires have been completed by the panelists, and the results are now being coded and analyzed. The initial hypotheses generated in the development of the SPRITE technique appear to have been validated: 4

The panelists appeared to respond much more comprehensively in response to the qualitative feedback of round one than they did to the quantitative (statistical summaries) feedback. 4a

The different SPRITE teams did, in fact, have different

perceptions regarding the evolution of the services studied; these differences in perception were reflected in their responses to points raised by panelists from other teams. 4b

There was little or no change observed in the great majority of numerical responses. 4c

The panelists took advantage of the ability to comment on the researcher's study plan and suggested some significant modifications to the questionnaire which were incorporated in the second round. 4d

It is still too early too relate any substantive results pertaining to the subject matter of the study. It does not appear that any of the services studies will result in any major dysfunctional consequences, but this does not mean that dysfunctional consequences can be ruled out entirely. What appears to be developing from the partially analyzed data is the impression that the services can indeed be developed to benefit a wide range of interest groups, to the disservice of none, but that a sustained and comprehensive planning role must accompany this development. 5

MIKE 22-OCT-74 12:00 31188

notes on SPRITE and the T/A on the Wired City

(J31188) 22-OCT-74 12:00; Title: Author(s): Michael T. Bedford/MIKE; Distribution: /PIW; Sub-Collections: NIC; Clerk: MIKE;

EGO BOOSTER TEST

THIS IS A TEST FILE AS CREATED FROM HAVRE DE GRACE VIA THE ANTS AT BRL , THE CONTENTS OF THIS FILE ARE NOT NECESSARILY THE THOUGHTS OF THE OWNER, WE SHALL SEE WHAT EVOLVES FROM THIS EXERCISE, 1

A POSSIBLITY IS SUCCESS, 1a

GOOD, 1a1

LIMITED, 1a2

FANTASTIC, 1a3

A POSSIBILITY IS FAILURE, 1b

ABSOLUTE, 1b1

PARTIAL, 1b2

SUICIDAL, 1b3

SEVENTY SIX TROMBONES, 2

EIGHTY EIGHT ELEPHANTS LEAD THE BIG PARADE, 3

COST ACCRUAL METHOD VERSUS ACCOUNTS RECEIVABLE METHOD, 4

TYPING IS A CHORE FOR THE UNITIATED, 5

EGO BOOSTER TEST

(J31189) 22-OCT-74 16:27;;;; Title: Author(s): Donald F. Taylor/DFT;
Distribution: /JTH([INFO-ONLY]) DFT([INFO-ONLY]) ;
Sub-Collections: NIC; Clerk: DFT; Origin: < DTAYLOR,
MELTEST.NLS;3, >, 22-OCT-74 16:15 DFT ;;;;####;

NSW Meeting with AFSDC

DLS 23-OCT-74 06:13 31191

Note last paragraph on Col Wells,

NSW Meeting with AFSDC

The purpose of this meeting was to elicit desired changes in NLS from the initial NSW customers. Dick Watson of SRI, had prepared a shopping list of possible additions and modifications which could be encorporated into NLS in the general areas of Documentation and COBOL programming. About 2/3rds of the time was spent in gaining a better understanding of the AFDSC programming environment, their problems and needs. A similar session will be held at AFDSDC at Gunter on the 10th and 11th. From these two sessions there will emerge a consolidated list of changes to be made in NLS with the limited manpower available under the FY-75 NSW effort. 1

Some of the AFDSC systems described to us are listed below, with a brief description of their characteristics: 2

Military Assistance Program (MAP) 2a

This system supports the MAP program, which is directly funded by Congress. Many of the queries are therefore one of a kind from Congressmen. It currently contains 160K records of 192-234 characters each. There are from 200 to 4000 transactions a week, which are received on cards via Autodin. There are 27,000 lines of COBOL code, with 3 people running, modifying and maintaining the system. 2a1

The primary problems are: 2a1a

lack of adequate documentation. 2a1a1

lack of manpower. 2a1a2

Aerospace Vehicale and Flying Hour program (pA) 2b

This program is a modeling system which supports the flying hour allocation analysts in Air Staff. It gives various views of force status, force attrition and force programming. It is run almost daily and receives particullarly heavy use during the budget exercises. The force programming (which is used to allocate flying machines and hours to the major commands) is the most heavily used subsystem. It contains 5 major COBOL programs plus some GMAP coding. In addition there are some 24 programs which produce standard reports and tapes which they ship to some of the major commands (logistics and manpower were mentioned). The system is operational, highly locked into the G635 hardware/software, supported by 3 people and 2 part time college students. The users run the system from consoles in their work areas. 2b1

Their primary problems are: 2b1a

lack of adequate documentation. 2b1a1

lack of manpower 2b1a2

EDP Utilization--Peggy Harper 2c

This program keeps track of the computers under AFDAA's control, their down time and utilization statistics. It is used to highlight installations with excessive down-time. There are 140K records one one tape and 120K on another, containing history for a number of years back. There are 14 COBOL programs (20K is the largest), and the system makes use of utility routines available within AFDSC (EDSEL, DEAR, SEX). The data base is updated once a month via input from Autodin. There are lots of 1 time special requests in addition to the standard monthly reports produced. 2c1

Their problems are: 2c1a

lack of adequate documentation 2c1a1

lack of computer time to do program development. 2c1a2

ACDMIS 2d

Col Robbins created a requirements document for an ACD Management Information System in 1970. He then left ACD for a time, and returned in the Fall of 71 to find that nothing had ben done. General Robbins then created a task force to work on the ACDMIS. It is just now starting to come into being. The basic purpose of the system is to track large computer based system acquisitions, ie WWMCCS, MACIMS, MAJCOM Update, ALS, etc. It consists of 4 modules 2d1

Milestone tracking 2d1a

Economic analysis 2d1b

Inventory 2d1c

Budget 2d1d

There are 3-5 programmers working on it. They do an extensive amount of code stealing. IDS is used as the basic database system, with some 100-150 programs written in COBOL, FORTRAN and DATA QUERY running against it. It runs under the TSS, with an average range of 5-12 users on during normal duty hours. The system supports 52 different types of terminals. 2d2

NSW Meeting with AFSDC

I chated briefly with Col Wells, after a demo of NLS to him and his staff on the second day. He felt that his approval of the 6180 buy was contingent on more support from RADC. He seemed concerned that RADC was not giving him the support on MULTICS that he had been lead to expect. Some one from here should contact him and get this straightened out,,maybe Col Krutz.

3

DLS 23-OCT-74 06:13 31191

NSW Meeting with AFSDC

(J31191) 23-OCT-74 06:13;;;; Title: Author(s): Duane L. Stone/DLS; Distribution: /RDK([ACTION]) JLM([INFO-ONLY]) FJT([INFO-ONLY]) ; Sub-Collections: RADC; Clerk: DLS;

RJC 23-OCT-74 10:31 31192

statement of work - First version Lt Kennedy

Nettie, this is the first version of the SOW - I am sending you a later version so disregard this one...Bobbie

statement of work - First version Lt Kennedy

PR NO: 1

1.0 OBJECTIVE: The objective of this work is to acquire a basic hardware configuration that will provide an interactive graphics display capability that will be used as a Research and Development tool in support of mapping, charting and geodetic applications within the Defense Mapping Agency Aerospace Center (DMAAC). This basic system will automate the process of editing large data bases of graphical information residing on a Univac 1108 system. The graphics display system must have good expansion potential to increase capabilities in the areas of total system storage and interactive input devices. 2

2.0 BACKGROUND: The automation problem to be solved is primarily concerned with interactively editing existing digitized charts, maps and geodetic information. This information resides in large scale data bases within a Univac 1108 computer system. It is desired that the user shall be able to select and extract data base segments to be displayed on a refreshed CRT device. The device information will then be interactively edited and returned to the original data base. An important consideration is that the proposed system should not significantly increase te present workload of the Univac 1108. Therefore, the editing process will be performed off-line of the 1108 and the display system will either contain or be controlled by a mini-computer. The graphics systems must be capable of displaying the following types of information: Alphanumerics in a textual mode, random vectors, and vector with random alphanumeric annotation. Specific interactive input devices will include a keyboard function switches, and a light pen. The desired system is shown in Figure 1. 3

3.0 AREAS OF CONSIDERATION: Not applicable. 4

4.0 TASKS/TECHNICAL REQUIREMENTS: The following items covered in this section are mandatory requirements. Alternate items will be considered only if the vendor clearly offers more cost effective items that meet or exceed the following minimum performance standards. 5

4.1 MINI-COMPUTER: The following is a list of mandatory characteristics of the mini-computer. 6

4.1.1: HARDWARE: 7

4.1.1.1 WORD LENGTH: The minimum word length will be 16 bits. 8

4.1.1.2 MEMORY CYCLE TIME: The memory cycle time shall be one microsecond or less. 9

4.1.1.3 MEMORY SIZE: The minimum memory size shall be at least 16K words of 16 bit mainframe memory field expandable to 32K words. 10

4.1.2 SOFTWARE: The vendor will supply its standard utility and support package. A FORTRAN IV Compiler will be included. 11

4.1.3 INPUT DEVICES: The following input devices with interfacing will be supplied by the vendor. 12

4.1.3.1 KEYBOARD: An alphanumeric keyboard will be supplied. The output will be ASII encoded. The key assignment and positions shall be the same as an ASR33 TTY keyboard. 13

4.1.3.2 FUNCTION KEYS: There shall be a minimum of six programmable function keys or switches supplied. These switches may, at the vendor's option, be included as an integral part of the keyboard or as a separate unit. 14

4.1.3.3 LIGHT PEN: One light pen with appropriate interface and cabling will be supplied. 15

4.1.3.4 PAPER TAPE READER: One high speed paper tape reader with interface will be supplied. The reader shall meet the following specifications: Reading rate of at least 300 characters per second, accepts one inch wide eight channel, ten characters per inch paper tape produced on an IBM Model 1012 Paper Tape Punch or equivalent. 16

4.1.4 HARDCOPY UNIT: A graphic hardcopy device shall be included. The device shall be slaved to the primary system CRT. Initiating of the copying process shall be program or operator controlled. 17

4.1.5 INTERFACING: The vendor shall meet the following interfacing requirements. 18

4.1.5.1 HARDWARE: The vendor will interface to the host Univac 1108 through the communication Terminal Module Controller (CTMC) via a communication Terminal Module (CTM). User will supply a CTM-VI Model F0991-00. This CTM is RS232C compatable. The primary constraint is 9600 baud half duplex minimum data rate. The vendor will supply all the hardware, all cabling and software necessary to effect the interfacee. 19

4.1.5.2 SOFTWARE: The vendor shall supply the software necessary to interface the graphics system with the Univac 1108 Exec. 8 executive. Reference is made to Univac document Up-4144 programmer Reference Manual and User's Conference notes from October 1973, specifically the article on Communications Control Routines (CCR) entitled "CCR Designer's Guide". The user will supply the latter upon request of the winning vendor. Interface softwae for transfers from the DMAAC

Univac 1108 will be installed by DMAAC personnel. The vendor shall provide technical consultation to resolve any problems associated with the interface software. The interface capability required is such that: 20

4.1.5.2.1 The Univac 1108 can be used to enter source language programs for execution on the graphics system. 21

4.1.5.2.2 The graphics system shall interact with large data bases residing on the Univac 1108. 22

4.2 DISPLAY PROCESSOR: The display processor shall provide the following display capabilities. 23

4.2.1 The viewable display resolution shall be no less than 1024 x 1024 points. 24

4.2.3 The display processor shall scissor or clip any portion of an image that falls outside the defined viewing area of the display CRT. This capability shall be a function of the hardware. 25

4.2.5 The display processor shall have the hardware capability to scale images by the following factors: 1/4, 1/2, 1, 2, 4. 26

4.2.6 The display processor shall have the hardware capability of generating arcs/circles of specified center and radius. 27

4.2.7 The hardware vector generator must be capable of generating at least 2000 inches of vectors without flicker. Endpoint closure shall be within 2 per cent. 28

4.2.8 The processor shall have the capability to display the standard 96 character ASCII set. 29

4.2.8.1 The processor shall be capable of display at least one page of text, consisting of at least 35 lines with at least 72 characters per line. A full page of text shall be displayed without flicker. 30

4.2.8.2 The character size shall be not less than 0.12 inches high and not less than 0.10 inches wide. 31

4.2.8.3 The character generator shall be program accessible for annotation of graphs and other images. 32

4.3 The CRT display monitor shall meet the following minimum requirements. 33

4.3.1 The minimum height and/or width of the viewing area shall be 13 inches. The longer dimension of the usable viewing area, if any,

shall be oriented horizontally. The aspect ratio shall not be less than 3:4. 34

4.3.2 The CRT spot diameter shall be less than 0.02 inches (20 mils), as measured at the half-luminance points, at any point within the usable viewing area. 35

4.3.3 The disply CRT shall be direct view with the image refreshed by the mini-computer. The refresh rate shall be no less than 30 frames per second. 36

4.3.4 The line luminance brightness shall be no less than 40 foot lamberts. 37

4.3.5 The full screen width repositioning time, settling to within 2% of the final addressed position, shall be less than 25 microseconds. 38

4.4 VENDOR SUPPORT REQUIREMENTS: 39

4.4.1 The vendor shall supply the following documentation. Identified documents may, as offered by the vendor, be bundled. 40

4.4.1.1 The vendor shall furnish three copies of operating manuals describing the functional use of the proposed equipment. 41

4.4.1.2 The vendor shall furnish five copies of programmer manuals describing programmer techniques consistent with the installed system configuration. 42

4.4.1.3 The vendor will furnish three copies of documentation (source and/or assembly listings) describing all delivered software. 43

4.4.1.4 The vendor must supply a comprehensive maintenance package (hardware and/or software) to test, detect, and isolate malfunctions in all equipment delivered. 44

4.4.2 MAINTENANCE CERTIFICATION: The vendor must certify that all engineering changes, that have been announceed by the Original Equipment Manufacturer (OEM), have been installed on all delivered items at the time of installation and that the equipment is certified as eligible for a maintenance contract with OEM. 45

4.4.3 Proposals shall specify the types of maintenance services normally made available. The bidder/offerer shall include the following information: Frequency and duration of normal preventive maintenance and their designated point of contact for servicing equipment malfunctions. Maintenance shall be priced separately. 46

4.4.4 The winning vendor shall include all inter- and intra- cabling necessary for complete system operation. 47

4.4.5 TRAINING: The selected vendor must provide maintenance and programmer/operator training. Vendors will supply comprehensive course curricula and a time schedule citing when courses are offered. Separate prices are requested for courses offered at the vendor's facility and also for courses to be offered at DMAAC, St. Louis, Missouri. 48

4.4.6 Acceptance testing will be performed in accordance with the requirements listed in this document. Preliminary testing shall be conducted at the contractor's facility by contractor personnel and witnessed by the contracting officer or his duly authorized representative. The winning vendor will submit a final test plan to the contracting officer at least 30 days in advance of the final test date. Final acceptance testing shall be conducted at the place of installation by the contractor and witnessed by the contracting officer or his duly authorized representative. 49

4.4.6.1 The preliminary testing will be waived at the contracting officers discretion if all the equipment to be installed consists of off-the-shelf items. 50

4.4.6.2 Final testing will include thorough mechanical, electrical, and visual inspection and test to determine that the quality of all materials and workmanship is in compliance with the requirements of this document. Particular attention shall be given to the following: 51

4.4.6.2.1 Completeness. 52

4.4.6.2.2 Nameplates, identification markings and labels. 53

4.4.6.2.3 Finishes. 54

4.4.6.2.4 The fit of components in their rspective positions. 55

4.4.6.2.5 Check of safety features and interlocks. 56

4.4.6.2.6 Loose fastening and securing devices or parts. 57

4.4.6.2.7 Condensation. 58

4.4.6.2.8 Accessibility of components and parts for servicing. 59

4.4.6.2.9 Cable runs between components including plugs and receptacles. 60

4.4.5.2.10 Grounding connections. 61

4.4.6.2.11 Other visual defects. 62

4.4.7 The physical configuration of the system shall be based on the use of a desk-like console. Vendors will describe and/or picture their mechanical/physical layout. 63

4.4.8 The equipment shall be capable of operating under the following environmental constraints: 64

4.4.8.1 The available site is approximately 7 feet by 12 feet with a 9-foot ceiling height. The floor is concrete overlaid with asbestos/vinyl tile and has a loading capacity of 250 lbs per square foot. Access door dimensions are 5 x 7 feet. An appropriate overhead cable through/conduit will be installed by DMAAC. 65

4.4.8.2 The available site distance is less than 200 feet from the host Univac 1108. 66

4.4.8.3 AVAILABLE FACILITIES: 67

4.4.8.3.1 Available power is 115 VAC(+10%) 6 OHZ and 230 VAC (+ 10%) 60 HZ both at 30 amps. 68

4.4.8.3.2 Air conditioning such that the temperature is 65 + 5 and the relative humidity is 55% + 5%. 69

statement of work - First version Lt Kennedy

(J31192) 23-OCT-74 10:31;;;; Title: Author(s): Roberta J. Carrier/RJC; Distribution: /DRL2([ACTION]) RJC([INFO-ONLY]) ; Sub-Collections: NIC; Clerk: RJC; Origin: <LORETO>GDSD.NLS;1, 19-SEP-74 13:51 DRL2 ;####;

RJC 23-OCT-74 10:46 31193

Statement of Work - Lt Kennedy

Nettie, this is the latest version. File it away in a safe place...Bobbie

ROME AIR DEVELOPMENT CENTER

GRIFFISS AIR FORCE BASE

NEW YORK

STATEMENT OF WORK

FOR

INTERACTIVE GRAPHICS TERMINAL

PR-I-54764

DATED: 21 OCTOBER 1974

Statement of Work - Lt Kennedy

1.0 Objective: The objective of this work is to acquire a basic hardware configuration that will provide an interactive graphics display capability that will be used as a Research and Development tool in support of mapping, charting and geodetic applications within the Defense Mapping Agency Aerospace Center (DMAAC). This basic system will automate the process of editing large data bases of graphical information residing on a Univac 1108 system. The graphics display system must have good expansion potential to increase capabilities in the areas of total system storage and interactive input devices.

2.0 Background: The automation problem to be solved is primarily concerned with interactively editing existing digitized charts, maps and geodetic information. This information resides in large scale data bases within a Univac 1108 computer system. It is desired that the user shall be able to select and extract data base segments to be displayed on a refreshed CRT device. The displayed information will then be interactively edited and returned to the original data base. An important consideration is that the proposed system should not significantly increase the present workload of the Univac 1108. Therefore, the editing process will be performed off-line of the 1108 and the display system will either contain or be controlled by a mini-computer. The Graphics systems must be capable of displaying the following types of information: Alphanumerics in a textual mode, random vectors, and vectors with random alphanumeric annotation. Specific interactive input devices will include a keyboard, function switches, and a light pen. The desired system is shown in Figure 1.

3.0 Areas of Consideration: Not applicable.

4.0 Tasks/Technical Requirements: The following items covered in this section are mandatory requirements. Alternate items will be considered only if the vendor clearly offers more cost effective items that meet or exceed the following minimum performance standards.

4.1 Mini-Computer: The following is a list of mandatory characteristics of the mini-computer.

4.1.1: Hardware:

4.1.1.1 Word Length: The minimum word length will be 16 bits.

4.1.1.2 Memory Cycle Time: The memory cycle time shall be one microsecond or less.

4.1.1.3 Memory Size: The minimum memory size shall be at least 16K words of 16 bit mainframe memory field expandable to 32K words.

4.1.1.4 Bootstrap Loader: A read only memory (ROM) Bootstrap shall be included for loading programs. The bootstrap loader must be capable of loading from both a paper tape reader and a read/write cassette.

4.1.2 Software: The vendor shall supply that software normally bundled with the hardware. It shall include the following:

4.1.2.1 Fortran IV compiler.

4.1.2.2 Source language assembler.

4.1.2.3 Debugger allowing the user to examine and change locations, single instruction execute, and set breakpoints.

4.1.2.4 Linker for linking and relocating user programs.

4.1.2.5 Text editor to permit modifying source programs via the CRT and keyboard.

4.1.2.6 Mathematical library.

4.1.2.7 Graphic drawing package using Fortran subroutine calls.

4.1.2.8 Subroutine package to support the light pen, keyboard, function switches, paper tape reader, read/write cassette, and hardcopy unit.

4.1.2.9 Vendor supplied software shall be supplied in read/write cassette form.

4.1.2.10 All software supplied by the vendor must be capable of being compiled or assembled at DMAAC. This requirement is to avoid receiving object code for which there is no source.

4.1.3 Input Devices: The following input devices with interfacing and software device handlers will be supplied by the vendor.

4.1.3.1 Keyboard: An alphanumeric keyboard will be supplied. The output will be ASCII encoded. The keyboard shall be capable of generating all 128 ASCII characters.

4.1.3.2 Function Keys: There shall be a minimum of six programmable function keys or switches supplied. These switches may, at the vendor's option, be included as an integral part of the keyboard or as a separate unit.

4.1.3.3 Light Pen: One light pen with appropriate interface and cabling will be supplied. The light pen hardware or software must provide the current X, Y beam position information, and the position in the display list of the item causing the hit.

4.1.3.4 Paper Tape Reader: One high speed paper tape reader with interface will be supplied. The reader shall meet the following specifications: Reading rate of at least 300 characters per second, accepts one inch wide eight channel, ten characters per inch paper tape produced on an IBM Model 1012 Paper Tape Punch or equivalent.

4.1.3.5 Cassette: One read/write cassette with interface shall be included.

4.1.4 Hardcopy Unit: A graphic hardcopy device shall be included. The device shall be slaved to the primary system CRT. Initiating of the copying process shall be program or operator controlled. The software device handler shall be included. Hardcopy size shall be no less than 8.5 inches square and shall be produced in 30 seconds or less.

4.1.5 Interfacing: The vendor shall meet the following interfacing requirements. The vendor will interface to the host Univac 1108 through the Communication Terminal Module Controller (CTMC) via a communication Terminal Module (CTM). User will supply a CTM-VI Model F0991-00. This CTM is RS232C compatible. The primary constraint is 9600 baud, half duplex minimum data rate. The vendor will supply all the hardware, including cabling, necessary to effect the interface.

4.1.5.1 Vendor shall be responsible for all installation, including coordination with UNIVAC personnel.

4.2 Display Processor: The display processor shall provide the following display capabilities.

4.2.1 The viewable display resolution shall be no less than 1024 x 1024 points.

4.2.2 The addressable image space shall be no less than 2048 x 2048 points.

4.2.3 The display processor shall scissor or clip any portion of an image that falls outside the defined viewing area of the display CRT. This capability shall be a function of the hardware.

4.2.4 The display processor shall provide a hardware capability to translate an image in both the X and Y directions with scissoring or clipping of the image outside the normal viewing area.

4.2.5 The display processor shall have the hardware capability to scale images from zero to 2X with at least 256 degrees of scaling.

4.2.6 The display processor shall have the hardware capability of generating arcs/circles of specified center and radius.

4.2.7 The hardware vector generator must be capable of generating at least 2000 inches of vectors without flicker. Endpoint closure shall be within one display element. The vector generator shall be capable of generating both absolute and relative vectors.

4.2.8 The processor shall have the capability to display the standard 96 character ASCII set.

4.2.8.1 The processor shall be capable of display at least one page of text, consisting of at least 35 lines with at least 72 characters per line. A full page of text shall be displayed without flicker.

4.2.8.2 The character size shall be not less than 0.12 inches high and not less than 0.10 inches wide.

4.2.8.3 The hardware character generator shall be operable in a text mode, generating its own spacing constants, and in a random mode for annotation of graphs and other images.

4.3 The CRT display monitor shall meet the following minimum requirements.

4.3.1 The minimum of the height and width of the viewing area shall each be 13 inches.

4.3.2 The CRT spot diameter shall be less than 0.015 inches (15 mils), as measured at the half-luminance points, at any point within the usable viewing area.

4.3.3 The display CRT shall be direct view with the image refreshed by the mini-computer. The refresh rate shall be no less than 30 frames per second.

4.3.4 The line luminance brightness shall be no less than 40 foot lamberts.

4.3.5 The full screen width repositioning time, settling to within one display element of the final addressed position, shall be less than 25 microseconds.

4.4 Vendor Support Requirements:

4.4.1 The vendor shall supply the following documentation. Identified documents may, as offered by the vendor, be bundled.

4.4.1.1 The vendor shall furnish three copies of operating manuals describing the functional use of the proposed equipment.

4.4.1.2 The vendor shall furnish five copies of programmer manuals describing programmer techniques consistent with the installed system configuration.

4.4.1.3 The vendor will furnish three copies of documentation (source listings, assembly listings, and flow diagrams) describing all delivered software.

4.4.1.4 The vendor must supply a comprehensive maintenance package (hardware and software) to test, detect, and isolate malfunctions in all equipment delivered. This package shall include three copies of maintenance manuals, logic diagrams, electronic schematics, and preventive maintenance procedures together with a suggested spare parts listing.

4.4.1.5 All documentation (manuals, software source listings, etc.) will be delivered to DMAAC St Louis, Mo, no later than 14 days after

the receipt of purchase order. This is to allow DMAAC personnel to become familiar with the graphics system and begin host computer programming prior to equipment delivery.

4.4.2 Maintenance Certification: The vendor must certify that all engineering changes, that have been announced by the Original Equipment Manufacturer (OEM), have been installed on all delivered items at the time of installation and that the equipment is certified as eligible for a maintenance contract with OEM.

4.4.3 Proposals shall specify the types of maintenance services normally made available. The bidder/offerer shall include the following information: Frequency and duration of normal preventive maintenance and their designated point of contact for servicing equipment malfunctions. Maintenance shall be priced separately.

4.4.4 The winning vendor shall include all inter- and intra-cabling necessary for complete system operation.

4.4.5 Training: The selected vendor must provide maintenance and programmer/operator training. Vendors will supply comprehensive course curricula and a time schedule citing when courses are offered. Separate prices are requested for courses offered at the vendor's facility and also for courses to be offered at DMAAC, St. Louis, Missouri.

4.4.6 Acceptance testing will be performed in accordance with the requirements listed in this document. Preliminary testing prior to equipment delivery shall be conducted at the contractor's facility by contractor personnel and witnessed by the contracting officer or his duly authorized representative. The winning vendor will submit a final test plan to the contracting officer for approval at least 30 days in advance of the final test date. Final acceptance testing shall be conducted at the place of installation by the contractor and witnessed by the contracting officer or his duly authorized representative.

4.4.6.1 The preliminary testing will be waived at the contracting officer's discretion if all the equipment to be installed consists of off-the-shelf items.

4.4.6.2 Final testing will include thorough mechanical, electrical, and visual inspection and test to determine that the quality of all

performance parameters, materials, and workmanship is in compliance with the requirements of this document. Particular attention shall be given to the following:

4.4.6.2.1 Completeness.

4.4.6.2.2 Nameplates, identification markings and labels.

4.4.6.2.3 Finishes.

4.4.6.2.4 The fit of components in their respective positions.

4.4.6.2.5 Check of safety features and interlocks.

4.4.6.2.6 Loose fastening and securing devices or parts.

4.4.6.2.7 Condensation.

4.4.6.2.8 Accessibility of components and parts for servicing.

4.4.6.2.9 Cable runs between components including plugs and receptacles.

4.4.5.2.10 Grounding connections.

4.4.6.2.11 Other visual defects.

4.4.7 The physical configuration of the system shall be based on the use of a desk-like console. Vendors will describe and/or picture their mechanical/physical layout.

4.4.8 The equipment shall be capable of operating under the following environmental constraints:

4.4.8.1 The available site is approximately 7 feet by 12 feet with a 9-foot ceiling height. The floor is concrete (no false flooring) overlaid with asbestos/vinyl tile and has a loading capacity of 250 lbs per square foot. Access door dimensions are 5 x 7 feet. An appropriate overhead cable trough/conduit will be furnished and installed by DMAAC. The vendor shall supply the appropriate cabling.

4.4.8.2 The available site distance is less than 200 feet from the host Univac 1108.

4.4.8.3 Available Facilities:

4.4.8.3.1 Available power is 115VAC(+10%) 60HZ and 230VAC (+ 10%) 60HZ both at 30 amps.

4.4.8.3.2 Air conditioning such that the temperature is 65 + 5 and the relative humidity is 55% + 5%.

Statement of Work - Lt Kennedy

(J31193) 23-OCT-74 10:46;;;; Title: Author(s): Roberta J. Carrier/RJC; Distribution: /DRL2([ACTION]) RJC([INFO-ONLY]) ; Sub-Collections: NIC; Clerk: RJC; Origin: < LORETO, REWORK.NLS;1, >, 21-OCT-74 06:49 RJC ;;;;<LORETO>REWORK.NLS;1, 16-OCT-74 13:07 DRL2 ;####;

RJC 23-OCT-74 11:17 31194

New NLS

We are playing with the New NLS, and decided to send you a short message,,,Bobbie & Sharon! 1

New NLS

(J31194) 23-OCT-74 11:17;;;; Title: Author(s): Roberta J. Carrier/RJC; Distribution: /DRL2([ACTION]) RJC([INFO-ONLY]) ; Sub-Collections: NIC; Clerk: RJC;

my initial paper on the storet system (less than one page)

STORET is an information storage and retrieval system designed to aid Bell Canada and Bell-Northern Research managers to coordinate their preparation of the Bell-funded research programs at BNR. 1

The system is maintained by H. Q. Planning for the use of the SERTT working committee. This committee includes representatives from H.Q. Engineering and H.Q. Planning, Eastern and Western Region Engineering, CCNS, and Bell-Northern Research. The committee meets regularly to review and develop the research programs for the coming year, and it is essential that each of the committee members has the most recent and up-to-date version of the Bell and BNR views for each research program. 2

To this end, STORET provides each of the committee members (through his local time-sharing coordinator) with the following types of information: 3

i.) the most up-to-date version of the Bell and BNR views 3a

ii.) the minutes of the previous meetings of the committee. 3b

iii.) memos and other interim correspondence from H.Q. Planning to the different committee members 3c

p 3d

iv.) the agenda for the upcoming meeting of the committee 3e

MIKE 24-OCT-74 06:03 31195

my initial paper on the storet system (less than one page)

(J31195) 24-OCT-74 06:03; Title: Author(s): Michael T. Bedford/MIKE;
Distribution: /PAN; Sub-Collections: NIC; Clerk: MIKE;

summary of my meeting with Bill Simmons - Oct. 17/74

Visit with Bill simmons, New York City - Oct. 17/74 1

Bill Simmons, John Moore (Rixie), and Mary Wallace 1a

Reviewed different Consensor capabilities 1b

sample situations that could develop in use that would be indicative of a particular type of behavior in a group, 1b1

ie, how different individual weightings can affect distribution, how different rating schemes used in combination could indicate discripancies within group, etc. 1b1a

I am now convinced that this thing, the Consensor, could be one of BPG's most "profitable" investment, in terms of "visibility" within the senior management echelons, as well as increasing our ability to get at underlying issues surrounding many of our meetings. 1c

I suggest we set up a permanent Consensor room, using the large conference room. We could equip this room so that meetings could be held using the Consensor with no more than 2-3 minutes notice. 1d

I further recommend acquiring the necessary apparatus to turn any room into a Consensor room, given 1-2 hours notice. 1e

- the network of wires and jacks that plug into the display board and the 16 individual voting modules is cumbersome in its "portable" form, hence the recommendation for a permanent room with all wiring neatly strapped out of view. 1e1

- display panel and 16 voting modules are easily portable; the strapped connecting wires and jacks are not portable and we should have a duplicate, portable of connections (extra cost is $50 per station, in either an 8-station or 16-station mode (ie $400 or $800) 1e2

- to set up a conference in another room, we'd take our display board, our voting units, and our portable connecting harness to the room; clamp the jacks and harness to a conference table hook up the harness to the display board, and be in business. 1e3

- cost for this type of configuration is $9300, including 6 mos. maintenance contract, and 4-5 days training on the use and application of it (in Montreal). 1e4

MIKE 24-OCT-74 06:06 31196
summary of my meeting with Bill Simmons - Oct. 17/74

(J31196) 24-OCT-74 06:06; Title: Author(s): Michael T. Bedford/MIKE; Distribution: /LHO; Sub-Collections: NIC; Clerk: MIKE;

DLS 24-OCT-74 09:11 31197

Feedback Paths, IMLAC program

Regarding <MJOURNAL>24230, "Subjective help in isolating Office-1 problems", why do we need another feedback loop? I think that the current FEEDBACK system works pretty well, for subjective as well as objective complaints and (occasionally) praise. I would personally vote for discouraging, rather than encouraging alternate feedback loops from springing up. There should be some easy way for the FEEDBACK monitor to screen his inputs and syphon off subjective ones from KWAC. 1

Now that I have said that, I will give a couple of subjective comments. 2

The system response has been very good since the installation of the additional core and other load shifting changes. The network now appears to be the limiting factor in user perceived response. 2a

The IMLAC software has become very "fragile" with NLS-8. The program crashes frequently--10-12 times a day is not uncommon. A lot of trash appears in the TTY simiulation window, as a screen is recreated...often causing it to crash. If too many commands are stacked up, while waiting for a screen to refresh, it will crash. The program that we have is over a year old. I would be interested in finding out if there will be any attention given to the IMLAC. If none is planned (as I suspect), then what would motive someone to give some attention ($$)? 2b

I would still argue that the performance of the IMLAC is superior to the various displays using the line processor. One can see his invisibles, one can postion his cursor without waiting for the screen to recreate, one can even think of drawing lines with it, and when everything else is down one can play space war. (I won't argue about the cost). I understand that there is an IMLAC at ARPA which is not being used..reportedly because no one understands how to obtain and load a program. There is one at the ARC, which if you guys aren't going to use for program development and debugging, you can ship to us as contract residue. 2b1

My point is simply that the IMLAC still has some life in it, and shouldn't be allowed to decay into uselessness. 2c

DLS 24-OCT-74 09:11 31197

Feedback Paths, IMLAC program

(J31197) 24-OCT-74 09:11;;;; Title: Author(s): Duane L. Stone/DLS;
Distribution: /FEED([ACTION]) EJK([INFO-ONLY]) JLM([INFO-ONLY
]) RLL([INFO-ONLY]) ; Sub-Collections: RADC; Clerk: DLS;

DLS 24-OCT-74 09:32 31198

Transition to NLS-8...a Myth?

At the last KWAC meeting I was lead to believe that several things would happen: 1

1. A journal item would be sent to the KWAC, giving us one last hack at the plan to transfer to NLS-8. 1a

2. That messages would start to appear saying that NLS-8 was available on a try-it-you'll-like-it basis. To be followed by a count down to the day when it would be very difficult to find NLS-7. 1b

3. That a document was to be sent to the KWAC, and/or their respective managers asking for projections for Office-1/2 slots for the next calendar year. 1c

Either I misunderstood the sequence of events that was to have transpired, or they have happened and some how I have missed them, or they haven't happened and the transferal to NLS-8 during October is a myth. 2

DLS 24-OCT-74 09:32 31198

Transition to NLS-8...a Myth?

(J31198) 24-OCT-74 09:32;;;; Title: Author(s): Duane L. Stone/DLS; Distribution: /FEED([ACTION]) JCN([ACTION]) KWAC([INFO-ONLY]) JLM([INFO-ONLY]) EJK([INFO-ONLY]) ; Sub-Collections: RADC KWAC; Clerk: DLS;

Experiences in Preparing an Address List

A number of lessons were learned during our recent exercise using NLS to prepare a distribution list and print labels for Don Mark. The list (approximately 800 addresses) came from a number of sources and contained errors and duplications. For posterity, some of the rules to follow are listed below: 1

KEEP THE FORMAT CONSISTENT--The one we found useful was 1a

Duane L. Stone
RADC/ISIM
Griffiss AFB NY 13441 1a1

The entire address should be treated as a single statement, since this facilitates editing, sorting, and modifying by program. 1a1a

Phone numbers and other information about the person should be entered at a lower level, so that it can be easily turned off when it comes time to make the labels. 1a1a1

PERFORM MENTAL EDITING ON INPUT--It is much easier to edit the input mentally, than it is to edit using the system after the fact. 1b

Titles such as "Director of Advanced Planning" should be eliminated...also Mr, Dr, Jr, Ms, III etc. Military rank can be retained if necessary, but should be listed in the form Maj, John Jones, not John Jones, Maj USAF. In so doing, it will be necessary to violate many of the addressing conventions implied or explicitly specified by regulation. 1b1

MAKE THE RULES EXPLICIT--This is especially true when more than one person will be doing the inputing. 1c

The multiple ways individuals input the addresses contributed substantially to the editing time necessary to assure some conformity. 1c1

USE THE SYSTEM FOR REPTITIVE JOBS--several user Programs and the substitute and sort commands were used to make the job easier. 1d

Don't edit each statement seperately to assure the uniformity of state address codes. Use the Substitute Plex command (carefully!) to make the strings: [Vernon N.Y.], [Vernon, New York], etc. all come out Vernon NY. 1d1

The following program was used to create NLS names out of the individual's last name. One could easily then use the Jump to Name command to locate a specific address for editing. 1d2

```
PROGRAM makename % adds an NLS name to a statement, based on
the visible preceding the first literal carriage return %        1d2a

   DECLARE TEXT POINTER sf, beg, end;                            1d2a1

   (makename)PROCEDURE;                                          1d2a2

      IF FIND "sf (EOL) < sNP "end sPT "beg > THEN               1d2a2a

         BEGIN                                                   1d2a2a1

            ST sf _ "(, beg end, "), SF(sf) SE(sf);              1d2a2a1a

         RETURN(TRUE);                                           1d2a2a2

         END                                                     1d2a2a3

      ELSE RETURN(FALSE);                                        1d2a2b

      END,                                                       1d2a2c

   FINISH                                                        1d2a3
```

Once the names have been added to each address, the sort plex command will put them in alphabetic order. This makes it very easy to visually spot duplicates. 1d3

The following program was used to add a name to the address, which was the zipcode. A sort then allows one to visually determine if there are any "unusual" addresses associated with the zipcode, and puts any statements without zipcodes at the end of the file. 1d4

```
PROGRAM zipname % adds an NLS name to a statement, based on
the last visible in a statement. In the case where a
statement is an address, it picks up the zipcode (if there
is one). %                                                       1d4a

   DECLARE TEXT POINTER beg, end;                                1d4a1

   (zipname)PROCEDURE;                                           1d4a2

      IF FIND (ENDCHR) < sNP "end sPT "beg > THEN                1d4a2a

         BEGIN                                                   1d4a2a1

            ST end _ "(, "Z, beg end, "), SF(end) SE(end);       1d4a2a1a

         RETURN(TRUE);                                           1d4a2a2
```

```
        END                                                    1d4a2a3

      ELSE RETURN(FALSE);                                      1d4a2b

      END,                                                     1d4a2c

    FINISH                                                     1d4a3
```

similar sorts could have been made on state and possibly on the company name. They were not. The purpose would be to obtain different views of the file to allow easy checking for inconsistencies and errors. 1d5

BEWARE THE CUSTOMER--or perhaps this should be worded, take the time to explain the whole approach to the customer. 1e

There were several times when Nelson, through his insistance to see output, ended up wasting his time and the PSO time by editing a partially completed list. The biggest damage done was to forsake the grouping of addresses by company. We can easily go from a list grouped by company to a straight list for generating labels, but it is next to impossible to go the other way, without extensive manual editing. 1e1

Experiences in Preparing an Address List

(J31199) 24-OCT-74 11:59;;;; Title: Author(s): Duane L. Stone/DLS; Distribution: /FJT([INFO-ONLY]) RJC([INFO-ONLY]) JLM([INFO-ONLY]) RN2([INFO-ONLY]) ELF([INFO-ONLY]) EJK([INFO-ONLY]) RBP([INFO-ONLY]) ; Sub-Collections: RADC; Clerk: DLS;

RFC 660
NIC 31202

Postel

D. Walden
BBN-NET
October 23, 1974

74
~~83~~ 643

SOME CHANGES TO THE IMP AND THE IMP/HOST INTERFACE

In the next few weeks several changes will be made to the IMP software including changes to the IMP/Host software interface as specified in BBN Report No. 1822, Specifications for the Interconnection of a Host and an IMP. These changes come in four areas: a) decoupling of the message number sequences of Hosts; b) Host/Host access control; c) expansion of the message number window from four to eight; and d) provision for messages outside the normal message number mechanism. All changes are backward compatible with possible minor exceptions in timing.

a. Decoupling of the Host/Host message number sequences:
Since 1972 the IMP system has provided for exactly four messages to be outstanding at a time between any pair of IMPs, and thus, a total of only four messages between all the possible pairs of Hosts on the two IMPs. Because all the pairs of Hosts on the two IMPs have had to share the four outstanding messages, it has been quite possible for the various Hosts to interfere with each other. To remove this possibility of interference, the IMP's message number logic will soon be changed to allow a separate message number sequence between each pair of Hosts.

To keep manageable the space required to maintain the Host/Host message sequences above that presently are required for the IMP/IMP message sequences, the Host/Host sequences will be taken dynamically from a limited pool of possible sequences. The pool will be sufficiently large to seldom interfere with a pair of Hosts wishing to communicate. In no case will Hosts be prevented from communicating. In the event that the Hosts on an IMP desire to simultaneously communicate with so many other Hosts that the pool would be exhausted, the space in the pool is quickly multiplexed in time among all the desired Host/Host conversations so that none is stopped although all are possibly slowed.

b. Host/Host access control:
Upon instructions from ARPA, we will soon add a Host/Host access control mechanism to the IMPs. Any pair of Hosts wishing to communicate is checked (via bits in the IMP) to verify that they have administrative permission to communicate. This check normally is made whenever a pair of Hosts attempts to communicate after not having communicated for two minutes. If the pair of Hosts is not allowed to communicate, a special type of Destination Dead Message (sub-code 3) is returned to the source Host. The default case initially will be to allow all Hosts to communicate with each other.

Message number window:
Once the message number sequences are on a Host/Host rather than IMP/IMP basis, the number of messages that will be permitted to be outstanding at a time between a pair of Hosts will be expanded from four to eight, permitting increased Host/Host throughput in some cases.

d. Message outside the normal mechanism:
For certain limited experiments which are being carried on using the network, it is thought to be desirable for specified Hosts to be able to communicate outside the normal ordered, error controlled message sequences. Thus, the following expansion to the IMP/Host protocol is being provided.

i. a single packet message coming from the source Host to the source IMP with a (new) special message type, 3, will be put directly into the IMP store-and-forward logic with a mark saying the packet is this special kind of message. A multi-packet message of type 3 will be discarded.

ii. such messages (packets) are routed normally to the destination IMP, possibly arriving out of order.

iii. at the destination IMP, messages of the special type will be put directly on the destination Host output queue skipping the reassembly logic and marked with a special (new) IMP to Host message type, also 3.

iv. there is no source-to-destination retransmission logic, no reassembly, no RFNMs, no incomplete transmissions, etc.

v. if at any time there are insufficient resources in the network to handle one of these special messages (e.g., the destination Host won't take it), the message will be discarded.

vi. by using the special message type between the Host and the IMP, the normal message number mechanism is preserved for all the Host/Host transmissions which presently depend on it.

Because the uncontrolled use of this mechanism will degrade the performance of the network for all users, the set of Hosts permitted to use this mechanism will be regulated by the Network Control Center.

Please file this note with your copy of BBN Report 1822 until that document is updated.

NWG/RFC# 661 JBP 25-NOV-74 10:57 31203
Protocol Information

Network Working Group J. Postel (SRI-ARC)
Request for Comments: 661 23 November 1974

NIC: 31203

Protocol Information

This file contains information on the various protocols in the ARPA Network. An effort will be made to keep the information current, but this depends on the cooperation of the users of this file to convey any information about protocol developments, or corrections to this information to Jon Postel at SRI-ARC.

This is a compendium of all the protocol related activity and most of this activity is with experimental protocols, for those protocols which are official standards the designation "[Official]" will be appended to the name.

Much of the documentation of protocols appears as Requests for Comments (RFCs) and many of these are available on line. When a document is accessible on line a pointer to that source will be given. Also note that recent RFCs are on line at Office-1 in directory <NETINFO> with names of the form RFCnnn.TXT where nnn is replaced by the RFC number.

This file is on line as:

Pathname: [SRI-ARC]<POSTEL>PROTOCOL-INFORMATION.TXT

and also [SRI-ARC]<POSTEL>PROTOCOL-INFORMATION.NLS

IMP-IMP

surface

Contact:

McKenzie, Alex, (MCKENZIE@BBN)

Documents:

Heart, F, et, al, "The Interface Message Processor for the ARPA Computer Network," AFIPS Conference Proceedings, 36:551-567, SJCC 1970,

People:

John McQuillan (MCQUILLAN@BBN)

Schedule:

Recent developments:

satellite

Contact:

Randy Rettberg (RETTBERG@BBN)

Documents:

People:

Kahn, Robert, (Kahn@ISI)

Schedule:

Recent developments:

IMP-HOST

IMP-Host [Official]

Contact:

McKenzie, A. (McKenzie@BBN)

Documents:

"Specification for the Interconnection of a HOST and an IMP," BBN Report 1822, Revised March 1974.

McQuillan, J. "Host Alive/Dead Logic," BBN Memorandum to Technical Liaisons, 18-July-74.

Burchfiel, J. "Ready Line Philosophy and Implementation," NIC 30872, RFC 642, 5-July-74.

Walden, D. "Some Changes to the IMP and the IMP/HOST Interface," RFC 660, 23-Oct-74.

[Office-1]<NETINFO>RFC660.TXT

People:

McKenzie (MCKENZIE@BBN)

Walden (WALDEN@BBN)

Postel (POSTEL@SRI-ARC)

Burchfiel (BURCHFIEL@BBN)

McQuillan (MCQUILLAN@BBN)

Schedule:

Recent developments:

The "link number" field has been extended form 8 to 12 bits and renamed the "message identification" field. Message type 6 now is used to indicate a reason for a type 7 (destination dead) message. (See BBN1822).

There has been some recent changes to the Ready line interpretation by the IMP for deciding the alive/dead status of a host.

Important changes to the IMP and IMP/HOST Interface announced in RFC 660 23-Oct-74.

HOST-HOST

ncp - standard host-to-host [Official]

Contact:

Postel, Jon, (POSTEL@SRI-ARC)

Documents:

McKenzie, A, "Host/Host Protocol for the ARPA Network," NIC 8246, Jan 1972

Postel, J, "Assigned Link Numbers," RFC604, NIC21186, 26-Dec-73,

People:

Postel, Jon, (POSTEL@SRI-ARC)

McKenzie, Alex, (MCKENZIE@BBN)

Schedule:

Recent developments:

ncp - standard host-to-host [Experimental]

Contact:

Postel, Jon, (POSTEL@SRI-ARC)

Documents:

McKenzie, A, "Host/Host Protocol for the ARPA Network," NIC 8246, Jan 1972

Postel, J, "Assigned Link Numbers," RFC604, NIC21186, 26-Dec-73,

Burchfiel, et, al, "Tip-Tenex Relibility Improvements" RFC 636 NIC 30490 June 1974,

People:

Postel, Jon, (POSTEL@SRI-ARC)

McKenzie, Alex, (MCKENZIE@BBN)

Burchfiel, Jerry (BURCHFIEL@BBN)

Walden, Dave (WALDEN@BBN)

Schedule:

Recent developments:

The BBN TIP and TENEX groups have specified and are implementing additional protocol commands with the intention of providing better reliability and surviability over system malfunctions, The additional protocol commands are for cleaning up partly closed connections and resynchronizing the allocation values on open connections, (See RFC 636),

tcp - Transmission Control Protocol

Contact:

Cerf, Vint, (CERF@ISI)

Documents:

Cerf, V, and R, Kahn, "A Protocol for Packet Network Intercommunication," IEEE Transactions on Communication Vol COM-22 No 5, May 1974,

[parc-maxc]<cerf>TCPSPEC3,NLS

Mader, E, "A Protocol Experiment," RFC 700, NIC 31020,

[ISI]<CERF>TCP-CHANGES,

People:

Cerf at SU-DSL

Tomlinson at BBN

Kirstein at London

Postel at SRI-ARC

Schedule:

Some experinents now running,
Implementation of full protocol to begin by 15-Oct-74,

Recent developments:

Specification completed august 4th, but some work still in progress on handling of single message conversations, A new sequencing scheme (proposed by Tomlinson) may be utilized, The addressing field is now used as 4 bit format, 4 bit network, 16 bit TCP, and 24 bit process&port,
Crocker has suggested a 64 bit path address to be parsed and reformatted by the gateways along the route, There is reluctance to experiment with too many things at once

though.

(28-Oct-74) A file indicating some of the changes in the specifications since the 4-Aug-74 document is now available as [ISI]<CERF>TCP-CHANGES. The areas of change are "Initial Sequence Number", "Socket definition", "Additional User System Calls", Packet Format", and "Discussion of opening and closing (SYN, REL)".

(23-NOV-74) Specifications for test implementation are now said to be ready on 1-DEC-74, and a implementation completed by 1-FEB--74.

nvp - Network Voice Protocol

Contact:

Cohen, Danny, (COHEN@ISI)

Documents:

The current specification is in an on-line file at isi in the directory voice as nvp.lst.

pathname = [isi]<voice>nvp.lst

"Specifications for the Network Voice Protocol (NVP)" NSC Note 43

People:

Recent developments:

New specification document available (10-Oct-74).

"Specifications for the Network Voice Protocol (NVP)" NSC Note 43

Packet radio

Contact:

Kahn, Robert, (KAHN@ISI)

Documents:

People:

Schedule:

Recent developments:

Network Debugging Protocol

Contact:

Eric Mader (Mader@BBN)

Documents:

Mader, E. "Network Debugging Protocol," NIC 30873, RFC 643, July-74.

People:

Schedule:

Recent Developments:

This is a protocol for a PDP-11 cross-network debugger.

HOST-FRONTEND

Host-Front End

Contact:

Michael Padlipsky (MAP@CASE-10)

Documents:

Padlipsky, M. "A Proposed Protocol for Connecting Host Computers to ARPA-Like Networks via Front-End Processors," RFC 647, NIC 31117, 12-Nov-74.

[Office-1]<NETINFO>RFC647.TXT

People:

padlipsky at MITRE Washington (MAP@CASE-10)

Postel at SRI-ARC (POSTEL@SRI-ARC)

McConnell at Illiac (JOHN@I4-TENEX)

Schedule:

Recent developments:

This is a suggested simple protocol for connecting host to front end computers which are in turn connected to the network.

PROCESS-PROCESS

ICP - Initial Connection protocol [Official]

Contact:

Postel, Jon, (POSTEL@SRI-ARC)

Documents:

Postel, J, "Official Initial Connection Protocol," NIC 7101 11-June-71,

Wolfe, S, [no title] RFC 202 NIC 7155 26-July-71,

Postel, J, "Official Telnet-Logger Initial Connection Protocol," NIC 7103 15-June-71,

People:

Postel at Sri-arc

Schedule:

Recent developments:

Telnet

Old Telnet

Contact:

Postel, Jon, (POSTEL@SRI-ARC)

Documents:

Postel, J, "Telnet Protocol," RFC318 3-April-72,

People:

Schedule:

Recent developments:

New Telnet [Official]

Contact:

Postel at SRI-ARC

Documents:

NIC 18639 "TELNET Protocol Specifications" AUG 73

NIC 18640 "Telnet Option Specification" Aug 73

Telnet Options

NIC 15389 "Binary Transmission"

NIC 15390 "Echo"

NIC 15391 Reconnection"

NIC 15392 "Suppress Go Ahead Option"

NIC 15393 "Approximate Message Size Negotiation"

NIC 31154 "Status" RFC 651 25-Oct-74,

[Office-1]<NETINFO>RFC651.TXT

NIC 16238 "Timing Mark"

NIC 19859 "Remote Controlled Transmission and Echoing" 1-Nov-73,

NIC 20196 "Output Line Width" 13-Nov-73,

NIC 20197 "Output Page Size" 13-Nov-73,

NIC 31155 "Output Carriage Return Disposition" RFC 652 25-Oct-74,

[Office-1]<NETINFO>RFC652.TXT

NIC 31156 "Output Horizontal Tab Stops" RFC 653 25-Oct-74,

[Office-1]<NETINFO>RFC653.TXT

NIC 31157 "Output Horizontal Tab Disposition" RFC 654 25-Oct-74,

[Office-1]<NETINFO>RFC654.TXT

NIC 31158 "Output Form Feed Disposition" RFC 655 25-Oct-74,

[Office-1]<NETINFO>RFC655.TXT

NIC 31159 "Output Vertical Tab Stops" RFC 656 25-Oct-74,

[Office-1]<NETINFO>RFC656.TXT

NIC 31160 "Output Vertical Tab Disposition" RFC 657 25-Oct-74

[Office-1]<NETINFO>RFC657.TXT

NIC 31161 "Output Line Feed Disposition" RFC 658 25-Oct-74.

[Office-1]<NETINFO>RFC658.TXT

NIC 16239 "Extended Options List"

People:

Jon Postel at Sri-Arc (POSTEL@SRI-ARC)

Alex McKenzie at BBN (MCKENZIE@BBN)

Doug Dodds at BBN (DODDS@BBN)

Dave Crocker at UCLA-NMC (DCROCKER@ISI)

Kurt Barthelmess at UCSD (BOWLES@ISI)

Schedule:

All Hosts were to have been running the new Telnet (both user and server) by 1 January 1974.

Recent developments:

A significant number of server systems now have new telnet implementations. (See RFC 702).

Note: the server program is to be available on socket 23 decimal (27 octal).

The Status Option has been revised to take advantage of the Subcommand feature and to reduce the amount of data transmitted to report the option status.

Seven new options have been defined to allow control of the format effectors Carriage Return, Line Feed, Form Feed, Horizontal Tab, and Vertical Tab.

FTP

Old File Transfer

Contact:

Jon Postel at SRI-ARC (POSTEL@SRI-ARC)

Documents:

McKenzie, A. "File Transfer Protocol," NIC 14333, RFC 454, 16-Feb-73.

People:

Schedule:

Recent developments:

New File Transfer

Contact:

Jon Postel at SRI-ARC (POSTEL@SRI-ARC)

Documents:

Neigus, N. "File Transfer Protocol," NIC 17759 RFC 542 12-July-73.

Postel, J. "Revised FTP Reply Codes," NIC 30843 RFC 640 5-June-74.

People:

Jon postel at SRI-ARC (POSTEL@SRI-ARC)

Nancy Neigus at BBN (NEIGUS@BBN)

Ken Pogran at MIT-Multics (Pogran.CompNet@MIT-Multics)

Wayne Hathaway at NASA AMES (Hathaway@AMES-67)

Mark Krilanovich at UCSB (Krilanovich@UCSB-MOD75)

Kurt Barthelmess at UCSD (BOWLES@ISI)

Schedule:

Recent developments:

Pathnames

Contact:

Jon Postel at SRI-ARC (POSTEL@SRI-ARC)

Documents:

Crocker, D. "Network Standard Data Specification Syntax," RFC 645, NIC 30899, Jul-74.

People:

Dave Croocker at UCLA-NMC (DCROCKER@ISI)

Schedule:

Recent developments:

File Access Protocol

Contact:

John Day (Day.CAC@MIT-Multics)

Documents:

Day, J, "Memo to FTP Group: File Access Protocol," RFC 520, NIC 16819, 25-Jun-73

People:

Ken Pogran (Pogran.CompNet@MIT-Multics)

Schedule:

Recent developments:

Mail

Current Mail

Contact:

Jon Postel at SRI-ARC (POSTEL@SRI-ARC)

Documents:

page 26 of RFC 454 (see old file transfer),

Bhushan, A, "Standardizing Network Mail Headers," NIC 18516, RFC 561, 5-Sep-73

Sussman, J, "FTP Error Code Usage for More Reliable Mail Service," RFC 630, NIC 30237, 10-Apr-74,

Thomas, B, "On the Problem of Signature Authentication for Network Mail," NIC 30874, RFC 644, 22-July-74,

People:

Julie Sussman at bbn (SUSSMAN@BBN)

Bob Thomas at bbn (BTHOMAS@BBN)

Schedule:

Recent developments:

Concern over the authentication of the author of network

messages has led to the concept of an authorized mail sending process (see RFC 644).

Proposed Mail

Contact:

Postel at SRI-ARC (POSTEL@SRI-ARC)

Documents:

White, J. "A Proposed Mail Protocol," NIC 17140, RFC 524, 13-Jun-73.

Crocker, D. "Thoughts on the Mail Protocol Proposed in RFC 524," NIC 17644, RFC 539, 7-JULY-733.

White, J. "Response to Critiques of the proposed Mail Protocol," NIC 17993, RFC 555, 27-July-73.

People:

Jim White at SRI-ARC (WHITE@SRI-ARC)

Postel at SRI-ARC (POSTEL@SRI-ARC)

Schedule:

Recent developments:

RJE - Remote Job Entry

Contact:

Jon Postel at SRI-ARC (POSTEL@SRI-ARC)

Documents:

Bressler, B. "Remote Job Entry Protocol," RFC 407, NIC 12112, 16-Oct-72

Krilanovich, M. "Annoncement of RJS at UCSB," RFC 436, NIC 13700, 10-Jan-73.

People:

Schedule:

Recent developments:

RJS - CCNs Remote Job Service

Contact:

Robert Braden at UCLA-CCN (BRADEN@UCLA-CCN)

Documents:

Braden, R, "Interim NETRJS Specification," RFC 189, NIC 7133, 15-July-71.

Braden, R, "Update on NETRJS," RFC 599, NIC 20854, 13-Dec-73.

People:

Robert Braden (BRADEN@UCLA-CCN)

Steve Wolfe (WOLFE@UCLA-CCN)

Schedule:

Recent developments:

Graphics

Contact:

Robert Sproull (SPROULL@PARC-MAXC)

Documents:

Sproull, R, and E, Thomas, "A Networks Graphics Protocol," NIC 24308, 16-Aug-74.

People:

Robert Sproull (SPROULL@PARC-MAXC)

Elaine Thomas (Thomas@MIT-Multics)

James Michener at MIT-DMS (JCM@MIT-DMS)

Schedule:

Recent developments:

New document available from Robert Sproull.

Data Reconfiguration Service

Contact:

Jon Postel at SRI-ARC (POSTEL@SRI-ARC)

Documents:

Anderson, B, "Status Report on Proposed Data Reconfiguration Service," NIC 6715, RFC 138, 28-April-71.

Feah, "Data Reconfiguration Service at UCSB," RFC 437, NIC 13701, 30-June-74.

People:

Schedule:

Recent developments:

RSEXEC

Contact:

Thomas, Bob, (BTHOMAS@BBN)

Documents:

People:

Schedule:

Recent developments:

Line Processor Protocol

Contact:

Don Andrews at SRI-ARC (ANDREWS@SRI-ARC)

Documents:

[SRI-ARC]<hardy>lpprot.nls

[SRI-ARC]<HARDY>prot.txt

People:

Martin Hardy at SRI-ARC (HARDY@SRI-ARC)

Don Andrews at SRI-ARC (ANDREWS@SRI-ARC)

Schedule:

Recent developments:

PROGRAMS

Neted - Network Standard Editor [Official]

Contact:

Michael Padlipsky (MAP@CASE-10)

Documents:

Padlipsky, M. "NETED: A Common Editor for The ARPA Network," RFC 569, NIC 18972, 15-Oct-73.

People:

Padlipsky at MITRE (MAP@CASE-10)

Postel at SRI-ARC (POSTEL@SRI-ARC)

Hathway at AMES (HATHAWAY@AMES-67)

Schedule:

Recent developments:

NATIONAL SOFTWARE WORKS

The National Software Works is developing a set of protocols for its use of the ARPA Network, other uses of these protocols is encouraged.

The procedure call protocol is intended to facilitate the sharing of resources in the network at the subroutine level. The procedure call protocol will be used to split nls into a front end and back end components. Procedure call protocol is also to be used in the nsw as the basis for communication between the works manager, the tool bearing hosts, and front desk procedure packages.

The documents cited below give a view of the Procdure Call Protocol and its use.

Contact:

Jim White (WHITE@SRI-ARC)

Jon Postel (POSTEL@SRI-ARC)

Documents:

These documents are the second published version of the Procedure Call Protocol and NSW protocol -- PCP/NSW Version 2. Version 2 is SUBSTANTIALLY different than Version 1; it and all intermediate, informally distributed PCP/NSW documents are obsoleted by this release.

The first document, PCP, is the place the interested reader should start. It gives the required motivation for the Protocol and states the substance of the Protocol proper. The reader may then, if he chooses, read the next three documents: PIP, PSP, and PMP. The latter has the most to offer the casual reader; the programmer faced with coding in the PCP environment should read all three. The next three documents -- PCPFMT, PCPHST, and PCPFRK -- are of interest only to the PCP implementer. The next document -- HOST -- is a preliminary thought about how the NSW might use the standard HOST-HOST protocol NCP. The last four documents -- EXEC, FILE, BATCH, and LLDBUG -- describe procedure packages needed to carry out NSW functions, but such packages may well be useful in other contexts.

Version 2 consists of the following documents. Each is available on-line in two forms: as an NLS file and as a formatted text file. The Journal number (e.g. 24459) refers to the former, of course, and the pathname (e.g. [SRI-ARC]<NLS>PCP.TXT) to the latter, accessible via FTP using USER=ANONYMOUS and PASSWORD=GUEST (no account required). Hardcopy is being forwarded by US Mail to all those who have expressed an interest in PCP. If you don't

receive a copy and would like one of this and/or future releases, send a note to that effect to WHITE@SRI-ARC:

PCP (24459,) "The Procedure Call Protocol"

This document describes the virtual programming environment provided by PCP, and the inter-process exchanges that implement it.

Pathname: [SRI-ARC]<NLS>PCP.TXT

PIP (24460,) "The Procedure Interface Package"

This document describes a package that runs in the setting provided by PCP and that serves as a procedure-call-level interface to PCP proper. It includes procedures for calling, resuming, interrupting, and aborting remote procedures.

Pathname: [SRI-ARC]<NLS>PIP.TXT

PSP (24461,) "The PCP Support Package"

This document describes a package that runs in the setting provided by PCP and that augments PCP proper, largely in the area of data store manipulation. It includes procedures for obtaining access to groups of remote procedures and data stores, manipulating remote data stores, and creating temporary ones.

Pathname: [SRI-ARC]<NLS>PSP.TXT

PMP (24462,) "The Process Management Package"

This document describes a package that runs in the setting provided by PCP and that provides the necessary tools for interconnecting two or more processes to form a multi-process system (e.g. NSW). It includes procedures for creating, deleting, logically and physically interconnecting processes, and for allocating and releasing processors.

Pathname: [SRI-ARC]<NLS>PMP.TXT

PCPFMT (24576,) "PCP Data Structure Formats"

This document defines formats for PCP data structures, each of which is appropriate for one or more physical channel types.

Pathname: [SRI-ARC]<NLS>PCPFMT.TXT

PCPHST (24577,) "PCP ARPANET Inter-Host IPC Implementation"

This document defines an implementation, appropriate for mediating communication between Tenex forks, of the IPC primitives required by PCP.

Pathname: [SRI-ARC]<NLS>PCPHST.TXT

PCPFRK (24578,) "PCP Tenex Inter-Fork IPC Implementation"

This document defines an implementation, appropriate for mediating communication between processes on different hosts within the ARPANET, of the IPC primitives required by PCP.

Pathname: [SRI-ARC]<NLS>PCPFRK.TXT

HOST (24581,) "NSW Host Protocol"

This document describes the host level protocol used in the NSW. The protocol is a slightly constrained version of the standard ARPANET host to host protocol. The constraints affect the allocation, RFNM wait, and retransmission policies.

Pathname: [SRI-ARC]<NLS>HOST.TXT

EXEC (24580,) "The Executive Package"

This document describes a package that runs in the setting provided by PCP. It includes procedures and data stores for user identification, accounting, and usage information.

Pathname: [SRI-ARC]<NLS>EXEC.TXT

FILE (24582,) "The File Package"

This document describes a package that runs in the setting provided by PCP. It includes procedures and data stores for opening, closing, and listing directories, for creating, deleting, and renaming files, and for transfering files and file elements between processes.

Pathname: [SRI-ARC]<NLS>FILE.TXT

BATCH (24583,) "The Batch Job Package"

This document describes a package that runs in the setting provided by PCP. It includes procedures for creating and deleting batch jobs, obtaining the status of a batch job, and communicating with the operator of a batch processing host. This package is implemented

at the host that provides the batch processing facility.

Pathname: [SRI-ARC]<NLS>BATCH.TXT

LLDBUG (24579,) "The Low-Level Debug Package"

This document describes a package that runs in the setting provided by PCP. It includes procedures for a remote process to debug at the assembly-language level, any process known to the local process. The package contains procedures for manipulating and searching the process' address space, for manipulating and searching its symbol tables, and for setting and removing breakpoints from its address space. Its data stores hold process characteristics and state information, and the contents of program symbol tables.

Pathname: [SRI-ARC]<NLS>LLDBUG.TXT

People:

Schedule:

A demonstration of the National Software Works concept is to be performed in July 1975.

Recent developments:

The set of documents cited above is available.

ADDRESS ASSIGNMENTS

Assigned Links

Contact:

Jon Postel (POSTEL@SRI-ARC)

Documents:

Link Assignments:

Decimal	Octal	Use
0	0	Control Messages
1	1	Reserved
2-71	2-107	Regular Messages
72-152	110-230	Reserved
153	231	TIP Status Reporting
154	232	TIP Accounting
155-158	233-236	Internet Protocol
159-191	237-277	Measurements
192-195	300-303	Message Switching Protocol
196-255	304-255	Experimental Protocols

People:

Schedule:

Recent developments:

Assigned Sockets

Contact:

Jon Postel (POSTEL@SRI-ARC)

Documents:

Socket Assignments:

General Assignments:

Decimal	Octal	Use
0-63	0-77	Network Wide Standard Function
64-127	100-177	Hosts Specific Functions
128-223	200-337	Reserved for Future Use
224-255	340-377	Any Experimental Function

Specific Assignments

Decimal	Octal	Use
1	1	Old-Telnet
3	3	Old File Transfer
5	5	Remote Job Entry

7	7	Echo
9	11	Discard
11	13	Who is on or Systat
13	15	Date and Time
15	17	Who is up or Netstat
19	23	Character generator or Ttytst
21	25	New File Transfer
23	27	New Telnet
65	101	Speech Data Base at LL-TX-2
67	103	Datacomputer at CCA
69	105	CPYNET
71	107	NETRJS (EBCDIC) at UCLA-CCN
73	111	NETRJS (ASCII) at UCLA-CCN
75	113	NETRJS (TTY) at UCLA-CCN
77	115	any private RJE server
232-237	350-355	Authorized Mailer at BBN
239	357	Graphics
241	361	NCP Measurement
243	363	Survey Measurement
245	365	LINK
247	367	TIPSRV
249-255	371-377	RSEXEC

People:

Schedule:

Recent developments:

NWG/RFC# 661 JBP 25-NOV-74 10:57 31203
Protocol Information

(J31203) 25-NOV-74 10:57;;;; Title: Author(s): Jonathan B.
Postel/JBP; Distribution: /NLG([INFO-ONLY]) NAG([INFO-ONLY])
SRI-ARC([INFO-ONLY]) ; Sub-Collections: NIC NWG SRI-ARC NLG NAG;
RFC# 661; Clerk: JAKE; Origin: < NETINFO, RFC661,NLS;2, >,
25-NOV-74 08:10 JAKE ;;;;####;

RSR 25-OCT-74 10:33 31204

Promotion for DOT (UMTA)

AT the most recent Institute Transportation Program Committee meeting Fran Greehan told me that he thought there were people in Umta that would be receptive to AKW promotion and demo, This is in addition to the interest Stan Price expressed to me a month or so ago. Fran will get names and send them to you. Let me know when yyou might next be in WDC with time, and I will remind Fran to get the names. 1

RSR 25-OCT-74 10:33 31204

Promotion for DOT (UMTA)

(J31204) 25-OCT-74 10:33;;;; Title: Author(s): Robert S. Ratner/RSR; Distribution: /JCN([ACTION]) DCE([INFO-ONLY]) RSR([INFO-ONLY]) RLL([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: RSR;

notes on the response toac usage of NLS

Here is a partial copy of the response that I will send out sometime next week, It will go to all of KWAC and I hope to get more response about it from new members. 1

The text is not finished and there are many spelling errors, however you should be able to use it. 2

SYSTEM RESPONSE TIME 3

The response to this question now becomes a moot isue due to the installation of the increased memory package. 3a

PROMPTS (too many? meaningful?) 4

The prompts seem to be usefull during the first stages of learning the system. They seem to be somewhat of A nunance thereafter, It is true that they can be turned off ,however, it would be convienient to control them through a viewspec so that they can be turned on when within another subsystem other than Base 4a

Noise Words: These seem to be quite useful and some find them more useful than the prompts, It seems that more of these would be welcome. 4a1

COMMANDS (too complex? better in DNLS?) 5

The suggestions within this catagory cover a wide range, Chief among the suggestion is the fact that many commands do not seem to reflect their function as judged from the command name, For example, Force Case . Other commands seem overly complex and may be better broken into two commands. The Show Directory command for example, In the TNLS version of NLS many of these commands leave the terminal page with a mass of prompts, echos and renders the command line a rather garbled mess of characters, Show Directory, Jump Word Next,,,etc, and several other are good examples of this, After using several of these commands the terminal paper bares little resemblance to the act performed in the system. 5a

FEEDBACK (response time?) 6

The consensus is that FEEDBACK is doing a good job of aiding the users and informing them of action taken on their suggestions, No complain was convayed to me about FEEDBACK, in fact the responce was in in a tone complimenting FEEDBACK. 6a

SUBSYSTEMS (is HELP really useful?) 7

HELP* 7a

SENDMAIL* 7b

It is felt that the default option in this system should be "interogate" More work is needed on the "Interogate " command to make it cleaner and more strightforward. The delivery as "unrecorded" show be identical to "sndmsg" in TENEX. 7b1

TENEX* 7c

It would be a good idea to change the TENEX herald when in this subsystem. It is easy to think you are at the EXEC level and re-enter NLS or try to logout. Why not use "TENX" as the herald rather than "@" ? 7c1

CALCULATOR* 7d

Is this subsystem really available? It cant be found. 7d1

INDENTIFICATION* 7e

This subsystem contain many errors due to the turn around of personal at the various companys/labs etc. Ideally, this system should hae the feature that will enable the archetects to chang and update information that pertain to their office. Also the chairman or coordinator of a group such as KWAC should have the abality to upday this data base as names are added. 7e1

USER PROGRAMS 8

SYSTEM BUGS 9

DOCUMENTATION 10

TRANSITION PERIOD (what length of time?) 11

notes on the response toac usage of NLS

(J31205) 25-OCT-74 11:36;;;; Title: Author(s): Robert M. Sheppard/RMS2; Distribution: /JHB([INFO-ONLY]) ; Sub-Collections: NIC; Clerk: RMS2; Origin: < SHEPPARD, NOTE,NLS;2, >, 25-OCT-74 11:32 RMS2 ;;;;####;