NIC (Dick Watson)		1
NIC Phase 1 Operational Requirements		1a
Features:	Status:	1a1
Journal		1a1a
Hardcopy distribution	almost	1a1a1
Online distribution	working	1a1a2
Net distribution implemented	being	1a1a3
Online entry	working	1a1a4
Hardcopy entry	working	1a1a5
Obsoletes/updates implemented	being	1a1a6
Functional documents planning-design		1a1a7
ID System	almost	1a1b
Individuals	working	1a1b1
Groups	almost	1a1b2
Initial DEX	close	1a1c
Training	in progress	1a1d
Liaisons	in progress	1a1d1
Station agents	need plan	1a1d2
Other key individuals	in progress	1a1d3
Documentation	in progress	1a1e
TNLS guide	done	1a1e1
Directory	almost	1a1e2
Locator	almost	1a1e3

Journal guide	done	1a1e4
Locator guide	almost	1a1e5
Resource notebook online	in progress	1a1e6
Directory production automatically	close	1a1f
Master Catalog System, Phase 1	in design	1a1g
NIC Catalog	exists	1a1h
Handle offline document input and distribution	working	1a1i
Entry of new items to catalog	ongoing	1a1j
General Network Information and referral	working	1a1k
Connection to Network	done?	1a1l
NCP		1a1l1
Telnet		1a1l2
File and other protocols		1a1l3
IMLAC support	almost	1a1m
Ongoing Station Agent Support	needs some attention	1a1n
Initial Tenex tuning	in progress	1a1o
Detailed list of NIC clerical tasks	started	1a1p
Plan for clerical expansion		1a1p1
NIC Phase 2, Operational Requirements		1b
Features:	Status:	1b1
Resource allocation control		1b1a
Resource accounting		1b1b
Improved DEX		1b1c

Mixed text graphics		1b1d
Improved Tenex performance		1b1e
PDP-10 expansion plan		1b1f
Design of possibilities for distributed DSS		1b1g
Archival file system	design in progress?	1b1h
Redesign master catalog system	study ongoing	1b1i
Sets	design in progress	1b1j
Active locator	easy	1b1k
More net documentation online		1b1l
Documentation		1b1m
DNLS Guide	in progress	1b1m1
Better catalog query design	need to know what we want	1b1n
Expanded subcollection handling ability		1b1o
Index production		1b1o1
Prototype subgroup using our tools?		1b1p
Action items --?	easy with sets	1b1q
Notices		1b1r
New addition NIC collection perform	need to	1b1r1
Better handling of obsolete items		1b1s
Microfilm study-prototype here?		1b1t
Training		1b1u
CAI-study - ?		1b1u1

Better procedures methods	1b1u2
Better Station Agent liaison	1b1v
Real understanding of our clerical costs	1b1w
Our own Xerox	1b1x
Need a workroom for clerical people	1b1y
Citation chains	1b1z

DSS (Bill Duvall)	2
Have Journal	2a
ID	2a1
Number	2a2
Technical problems	2b
Functional documents	2b1
File system	2b2
Set system	2b3
Manual	2b3a
Automatic	2b3b
Master catalog system	2b4
Backlinks	2b5
Comments	2b6
Distributed over Network	2b7
Methodology problems	2c
Nobody answers	2c1
Not capturing enough items	2c2
HOW should techniques be used by different disciplines or what do they require	2c3
What DSS techniques offline, online are being used in the world now	2c4

What does independent prototype running here mean?	3b2
What documentation here will use DPCS	3b3
Reports	3b3a
Pulled together our past reports, proposals	3b3b
Designs, requirements	3b3c
How to get people to use it	3b4

SEAS (Charles Irby) 4

Have 4a

NLS files as source code 4a1

Techniques of coding 4a2

What techniques are presently in use? 4a3

Need 4b

A write-up on present software practices and standards using NLS. 4b1

Better debugging tools 4b2

Good documentation practices - methods to aid 4b3

User level 4b3a

System structure 4b3b

Utilities available - calling sequences 4b3c

Comments 4b3d

Cross reference 4b4

Techniques of many people using same files and building systems from pieces 4b5

Needs to know what techniques and programs exist in outside world and easy ways to bring into ARC 4b6

Using ARC techniques to create programs to run on remote machines 4b7

Tools needed for architectural coordination 4b8

Methods of evaluating design approaches 4b9

Methods for studying user requirements 4b10

Methods for stating user information processing requirements (See works of ISDOS Project, University of Michigan) 4b10a

Training - evaluation of SE's	4b11
What is a software engineer as contrast a coder. How do our people fit in this scale	4b12
Maintenance procedures - records	4b13
programming methodology needs creation, discovery, documentation	4b14

Handbook (Doug Engelbart) 5

What is and has been done in outside world to aid planning and implementation of handbook type material. 5a

Techniques 5b

Indexing techniques - 5b1

Glossary 5b1a

Handling of fonts, character sets, equations, graphics 5b2

Quality hardcopy 5b3

Editorial control - coordinator 5b4

Functional document creation, cataloging 5b5

Design of Handbook 5b6

Handling mixed online, offline information 5b7

Sets 5b8

Special views of Journal online? 5b9

Design of special views 5b10

Review procedures - distribution, followup 5b11

References 5b12

Action items 5b13

Control of style 5b14

Control of technical quality 5b15

Control of updates 5b16

Maintaining liaison with many contributors 5b17

Mixed text, graphics, tables 5b18

Implies good documentation of requirements, designs at different levels 5c

Need to get people to document	5c1
Need design of ARC Handbook	5c2

PBMS (Jim Norton)	6
Permits orderly evolution of	6a
Planning framework	6a1
Decision points, roles	6a2
Communication between buyers, sellers	6a3
Role development	6b
Data Base	6c
Input techniques - implies getting the info from people	6c1
View techniques by detailed task, by stages of larger tasks, by individual, pusher.	6c2
Personnel availability, vacations, leave, etc.	6c3
Resource accounting projecting system	6d
Calculator	6d1
Graphics	6d2
Pricing	6d3
Bidding system	6d4
Billing	6d5
Estimating	6d6
By detailed task	6d6a
Interface to Journal	6e
Project Organization	6f
Roles	6f1
Policies	6f2
Personnel development	6f3
Resource accounting	6g

Planning - Baseline; long range, medium range, short range 6h

Further development for meeting needs 6i

- Contract procedure - standards 6i1
- Follow-up conventions 6i2
- When is contract finished? 6i3
- What games could we play as if we were in real marketplace 6i4
- Establish way to see big goals clearly and way to see how they are being met 6i5

Review planning techniques, tools in outside World 6j

RINS (Doug Engelbart)	8
Catalog system	8a
Set system	8b
Query system	8c
Selection acquisition	8d
How do we decide what ARC or other groups need to know?	8e
How do we get it distributed to the right selective dissemination of information	8f
There are services in outside that do some of above	8g
How does a RINS work for network groups?	8h
How do we get people here involved to put stuff in, use it? (See our ONR proposal)	8i
Identify those key areas where we don't know enough and draw in information	8j

Costs of services	9q
Guarantees	9r

Service Marketing Techniques (Dick Watson)	10
What services do people need outside relative to what we do?	10a
How to match what we have or want to offer with these needs?	10b
What competitive services are available to them?	10c
What will people pay for classes of services?	10d
Handling of visitors	10e
Slides	10e1
Handout material	10e2
Documentation to serve a marketing function (Good ARC Augmentation overview)	10f
Characteristics required in out-front people	10g
Bidding system	10h
Pricing systems	10i
Contracting with multi-clients	10j
Financing techniques	10k
Guarantees	10l
Feedback of marketing information to delivery, development	10m
Match between marketing and longrange goals	10n
Close customer liaison	10o
Really learn how people are using our system	10p
Need integrated augmentation subsystem products	10q
Knowing people's names and their functions, possible needs - intelligence system	10r

Operational Services	11
Hardware	11a
Operating system	11b
NLS	11c
What operational state	11d
How new systems come up - certified	11e
How new hardware is chosen	11f
Bug collection and handling	11g
Feedback to users so they know bug handled	11g1
Having what we offer work reliably	11h
Effective maintenance procedures	11h1
Hardware	11h1a
Software	11h1b
System documentation	11i
Diagnostics procedures - who runs	11j
Access to systems by operational people	11k
What characteristics, roles required for maintenance people	11l
Expansion plan and schedule	11m
Who designs	11m1
When and what gets handed over to Operations	11n
Training of operations people in use of the system	11o
Awareness of Operations of developments and delivery plans, principles	11p
What things, tasks should be done by ARC, what contracts to outside people	11q

Personnel policies for people working odd times	11r
Measurements of how system is running	11s
Recording of problems, crashes, etc., net usage	11t
What future for operational people	11u
Which of above are most critical	11v
How to know most critical at any point in time	11w
Ideas	11x

(J7653) ; Title: Author(s): Richard W. Watson, James C. Norton/RWW JCN;
Distribution: Douglas C. Engelbart, Richard W. Watson, James C. Norton,
Charles H. Irby, William S. Duvall, Ed K. Van De Riet/DCE RWW JCN CHI
WSD EKV; Sub-Collections: SRI-ARC; Clerk: JCN;
Origin: <NORTON>J7653.NLS;1, 18-OCT-71 8:37 JCN ;.RTJ=0; .LSP=0
18-OCT-71 8:51;

eq;.RTJ=0; .LSP=0 18-OCT-71 8:53; .HJOURNAL=

PEOPLE PRESENT: 1

DCE 1a

RWW 1b

JCN 1c

EKV 1d

CHI 1e

Others if needed 1f

SUGGESTED TOPICS 2

1. ARC Management Structure 2a

How it is developing 2a1

How to draw in others 2a2

Need for writing up the arrangement 2a3

2. Personnel topics 2b

3. Review of activity status 2c

EKV: Service System 2c1

Hardware 2c1a

Software 2c1b

RWW: NIC 2c2

JCN: Baseline -- PBMS 2c3

CHI: Software Developments 2c4

EKV: Hardware Developments 2c5

4. Important questions: 2d

eq;.RTJ=0; .LSP=0 18-OCT-71 8:53; .HJOURNAL=

18-OCT-71 8:53 7654
Agenda for ARC Executive Committee Meeting
Friday, 9/17 2:00 pm

eq;.RTJ=0; .LSP=0 18-OCT-71 8:53; .HJOURNAL=

(J7654) ; Title: Author(s): James C. Norton/JCN; Distribution: James C. Norton/JCN; Sub-Collections: SRI-ARC; Clerk: JCN;
Origin: <NORTON>J7654.NLS;1, 18-OCT-71 8:38 JCN ; .H1=" Agenda for ARC Executive Committee Meeting
Friday, 9/17 2:00 pm

eq;.RTJ=0; .LSP=0 18-OCT-71 8:53;

AGENDA 1

TIME: 3:00 to 4:00/4:30 1a

PEOPLE PRESENT: 1b

DCE 1b1

RWW 1b2

JCN 1b3

EKV 1b4

CHI 1b5

WHP -- for CHI in October 1b6

Others if needed 1b7

OTHER TOPICS AS APPROPRIATE 1c

SUGGESTED TOPICS 1d

1. ARC Management Structure 1d1

Status of DCE/JCN writing on ARC Executive Committee 1d1a

(Committee "E" ?) 1d1a1

Set up meeting for ARC -- Try Wed. 9/22 11:00 am? 1d1b

2. ARC organization -- (see -- 7656,) notes 1d2

3. Review of activity status (mostly brief) 1d3

EKV: Service System 1d3a

Hardware 1d3a1

EKV's immediate plans and needs 1d3a1a

See Hardware Crisis Strategy (xxxx,). 1d3a1a1

Plans for preventative maintenance, particularly regarding Oct 10 NIC course needs (from RWW) 1d3a1b

Software 1d3a2

New TENEX system is up?? Journal to be operational now?? 1d3a2a

When will new NLS be up? What is in the way? Who is it depending on? 1d3a2b

RWW: NIC 1d3b

Question of multiple stations .. costs, charges 1d3b1

JCN: Baseline -- PBMS 1d3c

CHI: Software Developments 1d3d

EKV: Hardware Developments 1d3e

4. Other 1d4

RADC 1d4a

Their proposal, our response 1d4a1

NOTES 2

Most time was spent on the hardware situation 2a

Item 2. ARC organization (3b) was deferred to a future meeting. 2b

We agreed that two hardware engineers should be hired immediately (there are currently two candidates), and that Jim Baer (from SRI Digital Development Group) would be brought in to help EKV with initial documentation tasks. 2b1

EKV will be mainly involved in information transfer from RDB during the next two weeks , but will still be part of weekly EMC meetings. 2b2

We also agreed that we should obtain three months commitment from Cybernex for help from RDB..at a low level, but still responsive to urgent needs at ARC when they arise. 2b3

Items from NIC (3c2) on down were also deferred. 2c

18-OCT-71 8:56 7655
Agenda and Notes for ARC EMC Meeting
Tuesday, 9/21

(J7655) ; Title: Author(s): James C. Norton/JCN; Distribution: James C. Norton/JCN; Sub-Collections: SRI-ARC; Clerk: JCN;
Origin: <NORTON>J7655.NLS;2, 18-OCT-71 8:39 JCN ; .RTJ=0; .LSP=0
18-OCT-71 8:56;

This is a rough schedule of activities for Larry Tesler during his stay at ARC. 1

Oct-Nov '71 2

Learn NLS as user 2a

Work on some MPS project 2b

such as implement string system 2b1

Perhaps help on other ARC programming projects 2c

Dec-April 3

Learn NLS from inside 3a

work over the NLS seminar transcriptions and make other contributions to NLS documenation 3a1

Work on NLS programming projects 3b

May-June 4

Work on minimal redesign of NLS to be compatible with MPS and rewrite of NLS in MPL 4a

Help debug new NLS/MPS 4b

July-Aug 5

Second pass over NLS design to improve use of MPS facilities and to improve machine independence 5a

machine dependence should be isolated in some small number of modules 5a1

Implementation of second pass NLS -- this should be the start of a library of generally useful modules 5b

Documentation of NLS/MPS 5c

(J7658) ; Title: Author(s): William H. Paxton/WHP; Distribution: James C. Norton/JCN; Sub-Collections: SRI-ARC; Clerk: JCN;
Origin: <NORTON>J7658.NLS;1, 18-OCT-71 8:40 JCN ; .RTJ=0;
18-OCT-71 8:58;

AGENDA 1

TIME: 3:00 to 4:00/4:30 1a

PEOPLE PRESENT: 1b

RWW 1b1

JCN 1b2

EKV 1b3

WHP -- for CHI in October 1b4

Others if needed 1b5

SUGGESTED TOPICS 1c

1. ARC organization -- 1c1

2. Review of activity status (mostly brief) 1c2

EKV: Service System 1c2a

Hardware 1c2a1

EKV's immediate plans and needs 1c2a1a

Plans for preventative maintenance, particularly regarding Oct 10 NIC course needs (from RWW) 1c2a1b

Software 1c2a2

Journal to be operational now?? 1c2a2a

When will new NLS be up? What is in the way? Who is it depending on? 1c2a2b

RWW: NIC 1c2b

Question of multiple stations .. costs, charges 1c2b1

JCN: Baseline -- PBMS 1c2c

Agenda and Notes for ARC EMC Meeting Tuesday, 9/28

(J7659) ; Title: Author(s): James C. Norton/JCN; Distribution: James C. Norton/JCN; Sub-Collections: SRI-ARC; Clerk: JCN;
Origin: <NORTON>J7659.NLS;4, 18-OCT-71 8:40 JCN ; .RTJ=0; .LSP=0
18-OCT-71 9:01;

, 9-JAN-72 23:29 WSD ;

(J7660) ; Title: Author(s): Charles H. Irby/CHI; Distribution: James C. Norton/JCN; Sub-Collections: SRI-ARC; Clerk: JCN;
Origin: <NORTON>J7660.NLS;2, 18-OCT-71 8:41 JCN ; .RTJ=0;
18-OCT-71 9:05;

.H1P=2Proposal for Primitive debugging, Terminal linking, and, DNLS complex commands

OBJECTIVES 1

Primitive debugging system 1a

Capabilities for source-code level debugging and incremental compilation (at the procedural level). 1a1

Terminal linking and broadcasting 1b

Provide terminal linking and broadcasting capabilities for DNLS users. 1b1

Allow a user in DNLS to see a portion of his TTY-simulation display area. 1b1a

DNLS complex commands 1c

Provide a facility for DNLS which allows complex commands to keep visible a larger amount of accumulated state information. 1c1

APPROACH 2

By making minor changes to DDT and L10, optional changes to the monitor, and providing a fairly simple debugging submode in NLS we can give our software engineers a primitive but effective source level debugging and incremental compilation system. If the optional changes are made to the monitor, we can also allow DNLS users to see an abbreviated view of his TTY simulation (with commands to expand it), thus allowing him to see what is typed on his TTY-simulation display area. This allows such users to receive emergency messages which are broadcast to all users, allows others to link to his terminal (and him to others), allows him to see compiler syntax errors, and so forth, without his leaving DNLS. This monitor change is optional because it can be simulated within DNLS for the purposes of the debugger and complex command state display. 2a

CHANGES NEEDED 3

DDT Changes 3a

Implement an additional entry port into DDT which will allow a user program in the same address space to make the following requests of DDT. In the following, "value" = 36-bit number, "symbol" = byte-pointer to a string which terminates with a zero-character. 3a1

value ← LOOKUP(symbol) 3a1a

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Look up the symbol in the symbol table and return its associated value. 3a1a1

symbol ← SCAN(value) 3a1b

Scan the symbol table and return a string (symbol + displacement) for the symbol whose associated value is closest to the passed value. 3a1b1

DEFINE(symbol, value) 3a1c

Add the new symbol and associated value to the end of symbol table. 3a1c1

MARKSYMTBL() 3a1d

Mark the current end of the symbol table. 3a1d1

POPSYMTBL() 3a1e

Move the end of the symbol table back to the last mark. 3a1e1

L1O Changes 3b

When compiling user programs 3b1

IN NLS at L1O startup 3b1a

MARKSYMTBL() 3b1a1

In L1O 3b1b

To define a new symbol 3b1b1

DEFINE(symbol, value) 3b1b1a

At the end of the compilation 3b1b2

To resolve undefined external symbols 3b1b2a

value ← LOOKUP(symbol) 3b1b2a1

NOTE: In the Goto Program submode, the pop stack and clear stack functions must use POPSYMTBL(). 3c

NOTE: The DDT and L1O changes should be made immediately so that user program symbols are available for debugging and so that user programs can reference any symbol in NLS. 3d

.H1P=2Proposal for Primitive debugging, Terminal linking, and, DNLS complex commands

When these changes have been made the branch (SEQFIL, PSYM) should be deleted. 3d1

Display jsies changes 3e

Change the ADA (Allocate a Display Area) jsys to accept a type parameter as follows: 3e1

Random display area (da); as now. 3e1a

Sequential display area: when writing strings into this type of da the STRDA jsys would take care of CR, LF, forced line breaks, and scrolling off the top of the da. 3e1b

Change STRDA jsys so that it handles sequential da's properly. NOTE: This symplifies the changes that have been made to the TTY routines in the monitor for TTY-simulation. 3e2

Add a jsys which allows a user program to request that one of its sequential da's become a copy of the TTY-simulation da for that console. 3e3

NOTE: This implies that the TTY routines which write characters onto the TTY-simulation da also check to see if there is a TTY-sim copy da and write the characters there also. This automatically allows the user supplied da to contain only as much as will fit of the real TTY-simulation da. 3e3a

At the time the da becomes a copy, it contents are not altered. If it was empty it will remain empty until subsequent output to the tty or until it is written onto by the user program. 3e3a1

NOTE: The user program may write independently onto the TTY-sim copy da without going through the TTY mechanisms. The STRDA jsys will keep things straight. 3e3b

NOTE: This change has been planned for some time. There seems to be significant advantage in doing it now, since it allows a clean way for user programs to display info for the user, allows for terminal linking without leaving DNLS, and allows DNLS users to see what is being typed on their TTY-simulation (for broadcast messages and compiler errors, etc.). 3e3c

NOTE: This could be simulated for NLS purposes until

the monitor can be changed, but the TTY-simulation copy features would be difficult to simulate. 3e3d

NLS Changes 3f

At startup 3f1

For DNLS, allocate a sequential da of about two lines by 40 characters, positioned where the message area is now (above the CFL). (The message area might go away if we see an adequate way to simulate it with the sequential da???) 3f1a

Request that the monitor make that da a copy of the TTY-simulation from now on (note that it will remain empty until something is typed onto the TTY-simulation). 3f1b

In display area submode 3f2

Add a command which will allow the user to specify that one of his text display areas is to become the TTY-sim copy (this allows for expansion of the TTY-sim for extended use, e.g., for linking to another terminal or watching compiler messages, or for debugging). 3f2a

The selected da is deallocated and a sequential da is allocated in the same position. The monitor is requested to make it the TTY-sim copy (the monitor forgets the other one and uses the new one). The old TTY-sim is cleared. If the user later deletes the TTY-sim copy (by moving a neighbor boundary over it or by an explicit command?) then go back to using the NLS supplied one. 3f2a1

<dactrl, findda>, <dspgen, alldsp>, and <dspgen, seldsp> must be changed to ignore text area da's which are being used as seq da's. 3f2b

Add a debugging mode (for user programs and NLS itself). 3f3

Provide some DDT-like functions oriented toward NLS command structure and internal environment. 3f3a

Global data display 3f3a1

Always display a field and allow the user to change the contents of the field by typing a "literal CA". 3f3a1a

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Allow the user to set a Record Pointer (RP) and request that fields of that record be displayed (no check for correctness will be made). 3f3a1b

For simple variables, the RP is set to the address of the variable and a special field pointer (36-bit field) will be used. 3f3a1c

Linefeed, uparrow, equal, and slash commands should also be provided. 3f3a1d

(LF bumps RP, ↑ decremets RP) 3f3a1d1

It might also be useful to provide string display facilities. 3f3a1e

Call stack frame display. 3f3a2

Maintain a pointer to a frame on the call stack. 3f3a2a

Allow the user to display the return loc for this frame, local #1, local #2, ... 3f3a2b

Allow the user to move the frame pointer forward and backward in the stack. 3f3a2c

Allow the user to set the frame pointer to the frame corresponding to some procedure. 3f3a2d

The stack marks are followed back, looking at return loc - 1 for an address field which corresponds to the given procedure. 3f3a2d1

Provide a trace of the calls that were made. 3f3a2e

Break points 3f3a3

Allow "n" break points which can only be set at the beginning of procedures or at labels within procedures. 3f3a3a

When a break point is taken, the stack must be correct (cannot simply replace command at the break point location with a jsr or pushj or call0 because that instruction may be adding the appropriate displacement to the stack pointer, as is often the case at the beginning of procedures). 3f3a3a1

.H1P=2Proposal for Primitive debugging, Terminal linking, and, DNLS complex commands

Allow usual proceed and start commands. 3f3a3b

provide a command to display the location of the n break points. 3f3a3c

Allow the user to replace a procedure by either a program (or procedure) in his user program buffer or by another procedure in NLS. 3f3a4

This allows for incremental compilation at the procedure level, test break points (the procedure can determine whether to break), and insertion of procedures between other procedures. 3f3a4a

This implies that there are mechanisms to continue the old procedure (as with break points) and to activate the debugger as if a break point occurred (not really necessary, but would be nice). 3f3a4a1

Also allow the immediate execution of calls to procedures (parameters can only be constants or simple variables -- no expressions) but probably not the immediate execution of PDP-10 instructions. 3f3a4b

The parsing of general expressions for procedure call parameters is difficult compared to the other things being contemplated here and will not be done. 3f3a4b1

In all of the above, DDT would be used as a symbol table manager to convert user supplied (bugged or typed) symbols into values and to convert values into symbols. 3f3a5

The interface to the symbol table manager (DDT) should be through routines which will later be compatible with the MPL symbol table manager. 3f3a5a

The command language should be compatible with the eventual MPL debugger. 3f3a6

It may be necessary to switch call stacks when a break point is executed, but I do not think so at present. 3f3b

This implies that the instruction that gets replaced is not one necessary to make the stack correct and

that the instruction that replaces that instruction is a call0 type instruction, not a pushj or jsr. 3f3b1

The typical situation when debugging will probably be to have one's text area split with one part being the TTY-sim copy, which will be used by the debugger to show information. 3f3c

Note that any procedure will be able to write in this area without disturbing the rest of the program (hopefully). This means that one can insert procedures that type useful information for the user to see. 3f3d

When a break point occures the state of the CFL will be saved so that the debugger can use the CFL. The proceed command will restore the CFL to its original state 3f3e

This is not strictly necessary since the debugger could communicate in tty mode. I prefer a consistent way of communicating with the user, however, and suggest the use of the CFL for the debugger. Saving the state amounts to saving the stringrs CFLSTR, CFLARW, the CFLPOS, and the state flags AROWON, QMRKON. 3f3e1

Use seq da for complicated commands. 3f4

Complicated commands like the Journal and Ident commands could make use of the sequential da to display accumulated state information. They may even automatically provide the seq da if it is not already available or is not large enough. 3f4a

TIME ESTIMATES (excluding complex command changes) 4

overall 4a

two man weeks. 4a1

DDT 4b

2 man days 4b1

L10 4c

1 man day 4c1

NLS 4d

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4 man days 4d1

MONITOR 4e

3 man days 4e1

18-OCT-71 9:16 7667

.H1P=2Proposal for Primitive debugging, Terminal linking, and, DNLS complex commands

(J7667) ; Title: Author(s): Charles H. Irby/CHI; Distribution: Douglas C. Engelbart, Richard W. Watson, William S. Duvall, William H. Paxton, Mary S. Church, Harvey G. Lehtman, J. D. Hopper, James C. Norton, Walter L. Bass, Bruce L. Parsley/DCE RWW WSD WHP MSC HGL JDH JCN WLB BLP; Sub-Collections: SRI-ARC; Clerk: JCN;
Origin: <NORTON>J7667.NLS;4, 18-OCT-71 8:42 JCN ; .RTJ=0;
18-OCT-71 9:16;

JCN 4-OCT-71 8:43 7678

DSSplan Outline request

I am now ready to review your firtst DSS plan outline, in draft state even. Can you have something by Tomorrow? 1

JCN 4-OCT-71 8:43 7678

DSSplan Outline request

(J7678) 4-OCT-71 8:43; Title: Author(s): James C. Norton/JCN; Distribution: William S. Duvall/wsd; Sub-Collections: SRI-ARC; Clerk: JCN;

** DRAFT ** JCN 4 JAN 72 7679

Initial Requirements for ARC Handbook Document Collection

One of the proposed Baseline activities for ARC is the development of a "Handbook" and a system for continually revising and updating its content and form. 1

This activity is just starting to be planned now, with DCE as the pusher - at least until another appropriate person comes along. 1a

We have been discussing the coming ARC Handbook for many months, but have yet to start collecting and organizing the documents (or views) that will comprise its core. 2

I have asked Marilyn to collect all existing documents that would be part of the Handbook and be sure that they are entered into the Journal and shelved together with the ARC access copies. 3

We will then arrange the Baseline, current dialog, and outdated dialog documents in separate shelf groupings with corresponding shelf listing. 3a

Doug has ideas (surprise, surprise) about many parts of this design and should be included in the process. 3b

Here is a rough outline of the types of things We will include in the initial Handbook collection: 4

SHELF LISTING 5

ARC HANDBOOK 5a

1. Current System Features 5a1

a. From user standpoint 5a1a

TNLS Users Guide 5a1a1

Journal System Users Guide 5a1a2

Old DNLS Users Guide badly outdated ..with supplements? 5a1a3

Output Processor Users Guide and supplements 5a1a4

(see Journal index for pieces?) 5a1a4a

Smokey's Operator's Guide in preparation 5a1a5

Journal Clerical users guide .. see BLP 5a1a6

Baseline Clerical uusers guide .. see BLP 5a1a7

Initial Requirements for ARC Handbook Document Collection

DEX Users Guide .. see DVN 5a1a8

Nic User guide ??? 5a1a9

TENEX Users Guide 5a1a10

PDP10 User Guide (?) 5a1a11

JSYS Manual? 5a1a12

Information Service Operating Procedures (see--7681) 5a1a13

Any others not listed here? 5a1a14

b. From design standpoint 5a1b

Designs for NLS features (completed ones) 5a1b1

Where they exist..most dont 5a1b1a

Try DEX 5a1b1a1

Sorter 5a1b1a2

Some of Walter's stuff? 5a1b1a3

Perhaps Mimi's ident stuff has this kind of documentation 5a1b1a4

NOTE: Most future designs will come out of the Baseline Planning process, having been updated as the designs change during implementation. Note that the Handbook will not contain designs of features that are not yet in operational use 5a1b1b

Key hardware documents 5a1b2

(do these last to give Ed some breathing room, but don't omit) 5a1b2a

c. From detail standpoint (code, diagrams,+) 5a1c

Perhaps start with listing from Smokey for TENEX 5a1c1

Whats date..when appropriate to get next update?? 5a1c1a

NLS listing current one? 5a1c2

Whats date..when appropriate to get next update?? 5a1c2a

2. Reports and Proposals 5a2

For now, 5a2a

the recent RADC (2), NASA (1) reports 5a2a1

and ONR and RADC Proposals 5a2a2

the 1962 AFOSR Report 5a2a3

3. Principles of Design 5a3

Most to come 5a3a

Study of Baseline catalog and preparation of "initial guide" to relevant documents ? or what? 5a3b

4. References to Relevant Dialog 5a4

Study of Baseline catalog and preparation of "initial guide" to relevant documents ? or what? 5a4a

Initial Requirements for ARC Handbook Document Collection

(J7679) ; Title: Author(s): James C. Norton/JCN; Distribution: Marilyn F. Auerbach, Douglas C. Engelbart, Bruce L. Parsley, J. D. Hopper, Richard W. Watson/mfa dce blp jdh rww; Sub-Collections: SRI-ARC; Clerk: JCN;
Origin: <NORTON>J7679.NLS;1, 4-OCT-71 10:28 JCN ; .RTJ=0;
4-OCT-71 10:40; .HJOURNAL=" 4-OCT-71 10:40 7679";

Summary of current cost funding vs committed costs: as of 9/18/71
(cost only, fee excluded)

Funds: ($000)	RADC 8457			ONR 8622			Combined ARC
	Est	Act	Bal	Est	Act	Bal	Balance
Personnel	1,204	929	275	71	55	16	291
Facility	1,044	796**	248	-	-	-	248
Travel	7	11	-4	1	1	-	-4
Consultants	40	35	5	-	-	-	5
Reports	2	8	-6	1	-	1	-5
Documents	-	-	-	2	-	2	2
Tot costs	2,297	1,779	518	75	56	19	537

** not including future lease commitments

Committed Funds ($000)

Period	Pres staff#	@78%	Facility	Other**	Total
10 9/19 on	40.0 (75%)		15.0	1.0	56.0
11	53.5		27.0	1.0	81.5
12	53.5		27.0	1.0	81.5
13	53.5		27.0	1.0	81.5
1	53.5		27.0	1.0	81.5
2 (2/8/72)	26.8		13.0	1.0	40.8
Total	280.8		136.0	6.0	422.8
Reserve for ONR last 2 months:					3.0
Balance "uncommitted": (537.0 - 425.8)					111.2

* assume Univac drums retained

** Other= Books,subscriptions,report costs, NIC copy/mail costs, and other small items. At 2k/period, its high, but sufficient to cover unexpected items.

(see -- staff)

Probable:		
DIA 100% rate =	5.0	
JAF = (incl past unpaid bills)	5.0	
Operator	3.0 ?	
Higher than 78% time sold:		
Each 1%= about .5k /period		
(or for 5 periods, 2.5k)		
therefore, 83% for two periods =	5.0 extra	
Early discpacs (12/1 delivery assumed)	10.0 ??	
Total Probable :		28.0 ?
Balance "uncommitted" less 28.0 Probable		83.2

Staff				2
(MFA)	Auerbach, M.F.			2a
(WLB)	Bass, W.L.			2b
(RDB)	Bates, R.D. ← replace			2c
(MSC)	Church, M.S.			2d
(WSD)	Duvall, W.S.			2e
(DCE)	Engelbart, D.C.			2f
(BAH)	Hardeman, B.A.			2g
(MEH)	Hardy, M.E.			2h
(FPH)	Hocker, F.P. ← replace			2i
(JDH)	Hopper, J.D.			2j
(CHI)	Irby, C.H.			2k
(MEJ)	Jernigan, M.E.			2l
(LLL)	Lane, L.L.			2m
(HGL)	Lehtman, H.G.			2n
(JTM)	Melvin, J.T.			2o
(JBN)	North, J.B.			2p
(JCN)	Norton, J.C.			2q
(CXP)	Page, C.			2r
(BLP)	Parsley, B.L.			2s
(WHP)	Paxton, W.H.			2t
(JCP)	Peters, J.C.			2u
(JxR)	Ratliff, J.			2v
(BER)	Row, B.E.			2w
(EKV)	Van De Riet, E.K.			2x
(DVN)	Van Nouhuys, D.H.			2y
(DCW)	Wallace, D.C.			2z
(RWW)	Watson, R.W.			2a*
Total salaries: per period		28.2 k	30.4 /month * avg 1.16	2aa
			* JCN checked detail 9/29 am	2aa1
Slight increase to 2/72:		28.7		2aa2
less 11.5% vac, sick:		25.4		2aa3
x 78% sold:		19.8		2aa4
+ Borrowed:		.8		2aa5
Total salary:		20.6		2aa6
x 1.263 (+PB) :		26.1		2aa7
x 2.05 (+OH) :		53.5		2aa8
Total proj pers costs:		53.5	(sal x 1.9 or 2.0 with fee)	2ab

Monthly and period facility costs 3
Computer Facility Support revised 9/27/71

3a

Lease Cost after 3/71	monthly	period		3a1
PDP-10:	16,674	15,400		3a1a
Bryant disc maint.	800	740		3a1b
Bryant drum maint.	162	150		3a1c
Univac drums	6,723	6,252		3a1d
Line Printer	1,038	965		3a1e
Terminal rental	1,540	1,430		3a1f
Maintenance and Operation	1,250	1,160	(high??)	3a2
Telephone expenses	1,454	1,352		3a3
Total	29,641	27,549	use: 27.0 k	

3a4

Details: 3a4a
Computer Facility Support (annual figures) 3a4a1
Lease Cost 3a4a1a

3a4a1a1

Computer Facility		$ 423,264	3a4a1a2
PDP-10:	$ 400,176		3a4a1a2a
(SRI P.O. #: 13477B)			3a4a1a2a1
24 Mo. @ $ 16,674			3a4a1a2a2
Basic lease	$ 13,320		3a4a1a2a2a
Tax	666		3a4a1a2a2b
Maintenance	$ 2,688		3a4a1a2a2c
Bryant disc maint.	19,200		3a4a1a2b
(SRI PO B 54148)			3a4a1a2b1
Bryant drum maint.	3,888		3a4a1a2c
(SRI PO B 54677)			3a4a1a2c1
Data Products Line Printer		24,300	3a4a1a3
(SRI P.O. # B 51531)			3a4a1a3a
Terminal rental		37,000	3a4a1a4
Total monthly rate:	1,540		3a4a1a4a
Teletypes (Mod 33)	3 @ $ 50 = 150		3a4a1a4a1
Texas Instruments	10 @ $146 = 1,460		3a4a1a4a2
Couplers	2 @ $ 15 = 30		3a4a1a4a3
Telephone expenses		34,895	3a4a1a5
Datasets - 24 mo at 360/mo		8,650	3a4a1a5a
3 - 103s at $35.00	105.00/mo		3a4a1a5a1
1 - 103s at $35.00	35.00/mo		3a4a1a5a2
3 - 202s at $70.00	210.00/mo		3a4a1a5a3
Lines to Occidental		15,860	3a4a1a5b
Dataline 24 mo at	334/mo= 8,000		3a4a1a5b1
Voiceline 24 mo at	328/mo= 7,860		3a4a1a5b2
NIC service		10,385	3a4a1a5c
Fixed cost 24 mo at	132/mo= 3,185		3a4a1a5c1
Toll calls 24 mo at	300/mo= 7,200		3a4a1a5c2

3a4a1a6

Maintenance and Operation 3a4a1b

			3a4a1b1
Maintenance Materials		11,500	3a4a1b2
			3a4a1b2a
Such as:			3a4a1b2a1
Picture tubes 20 @ $ 75=	$ 1,500		(P.O.64901)
			3a4a1b2a2
PEP parts replacements	$ 5,000		3a4a1b2a3
Other	$ 5,000		3a4a1b2a4
			3a4a1b2a5
Operating Supplies		18,500	3a4a1b3
			3a4a1b3a
Mag tape 200 @ $15 =	3,000		3a4a1b3a1
(SRI Comp Center)			3a4a1b3a1a
Paper tape, printer paper,etc.=	3,500		3a4a1b3a2
Xerox for NIC dist	12,000		3a4a1b3a3
			3a4a1b3a4
			3a4a1b3b
			3a4a1b4

(J7680) ; Title: Author(s): James C. Norton/JCN; Distribution: James C. Norton/JCN; Sub-Collections: SRI-ARC; Clerk: JCN;
Origin: <NORTON>J7680.NLS;1, 18-OCT-71 8:43 JCN ; .RTJ=0;
.LSP=0 18-OCT-71 9:23;

<DOCUMENTATION>WSD.NLS;2, 4-JAN-72 20:03 WSD ; 1

(J7681) ; Title: Author(s): James C. Norton/JCN; Distribution: Jeanne B. North, Richard W. Watson, Bruce L. Parsley/jbn rww blp;
Sub-Collections: SRI-ARC; Clerk: JCN;
Origin: <NORTON>J7681.NLS;2, 4-OCT-71 9:54 JCN ; .RTJ=0;
4-OCT-71 10:03; .HJOURNAL=" 4-OCT-71 10:03 7681";

This note was prompted by the appearance of Execute STatus and Execute SEcondary in 1-OCT-71 NLS (as described in (VANNOUHUYS, OCTOBERNLSFEST,). I believe that this break with tradition is inconvenient for the user and unnecessary, and that better alternatives are available. 1

I believe that a better choice in this instance would be to make secondary distribution a subcommand of the Journal subsystem. 2

There have been several comments to the effect that all Journal functions should be accessed this way anyway. 2a

In general, I feel that NLS's pattern of always responding to single-letter commands is very valuable. In the few cases (Execute and Goto) where this is unworkable, I favor something like the TENEX altmode convention, i.e. the user types as many characters as needed and then can request completion if he feels unsure. 3

NLS should also take action on altmode appearing in a file name and complete it visibly just as TENEX would. In fact, a CA could complete the name and another one would trigger the command, e.g. e[xecute] j CA[ournal] CA. In these cases the name should probably be collected in the name window rather than the command feedback area. 3a

(J7682) ; Title: Author(s): L. Peter Deutsch/LPD; Distribution: William S. Duvall, Charles H. Irby, William H. Paxton, Bruce L. Parsley, Mary S. Church, Harvey G. Lehtman, James C. Norton/wsd chi whp blp msc hgl jcn; Sub-Collections: SRI-ARC; Clerk: JCN;
Origin: <NORTON>J7682.NLS;2, 4-OCT-71 9:06 JCN ; .RTJ=0;
4-OCT-71 9:10; .HJOURNAL=" 4-OCT-71 9:10 7682";

DVN 4-OCT-71 9:45 7683

10/1 NLS
An Oktober NLS Fest including Goto Program

Early in the morning of October first a New NLS Was brought up. I have assembled this skeletal information about new features as I have when new systems came up since May (journal,7391). 1

Bruce Parsely is now writing documents that further explain the User Sequence Generator (journal,7715) and the Baseline Records (journal, 7717) 1a

GOTO PROGRAM SUBSYSTEM 2

The following is a description fo the Goto Program "subsystem "of NLS. It is meant for users. 2a

First, two things internal to the submode need to be described: 2b

The user program stack: 2b1

There is a stack. Each entry in the stack contains the symbolic name of a program that has been compiled and a pointer to the compiled code. It is a last in, first out stack 2b1a

The user program buffer: 2b2

There is a buffer in NLS into which programs are compiled -- the compiled code lives there. New programs are compiled starting at the first free location in the buffer. 2b2a

The submode is entered by typing G and P (Goto Programs). There are the following commands: 2c

Content analyzer pattern compile: 2c1

This compiles a content analyzer pattern into the buffer, puts its name in the stack, and institutes it as the content analyzer program for the display area where the cursor was on the last CA. 2c1a

The pattern may be indicated in either of two ways: 2c1b

a bug selection -- the pattern is taken as the characters from the bug mark to a semi-colon or the end of the statement. 2c1b1

by typing the pattern 2c1b2

DVN 4-OCT-71 9:45 7683

10/1 NLS
An Oktober NLS Fest including Goto Program

(J7683) 4-OCT-71 9:45; Title: Author(s): Dirk H. van Nouhuys/DVN; Distribution: L. Peter Deutsch, James G. Mitchell, Alan C. Kay, Marilyn F. Auerbach, Walter L. Bass, Roger D. Bates, Mary S. Church, William S. Duvall, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, Fred P. Hocker, J. D. Hopper, Mil Jernigan, Harvey G. Lehtman, John T. Melvin, Jeanne B. North, James C. Norton, William H. Paxton, Barbara E. Row, Ed K. Van De Riet, Don C. Wallace, Richard W. Watson, Don I. Andrews, James H. Bair, Duane L. Stone, Thomas F. Lawrence, Stan L. Mantiply, John W. McConnell, David M. Grothe, Alex A. McKenzie, Dirk H. van Nouhuys/lpd jgm ack mfa wlb rdb msc wsd dce ban meh fph jdh mej hgl jtm jbn jcn whp ber ekv dcw rww dia jhb dls tfl slm jwm dmg aam DVN; Sub-Collections: SRI-ARC; Clerk: DVN;
Origin: <VANNOUHUYS>OCTOBERNLSFEST.NLS;3, 4-OCT-71 9:29 DVN ;

to specify a compiled program to be the keyprogram for a particular display area. 10b1b2a

the (WORD / BUG) is the name of a compiled program which must also be the name of a procedure in the program. 10b1b2a1

syntax: 'g 'p 'i (WORD / BUG) CA 'k CA; 10b1b2b

Goto Program Deinstitute (WORD / BUG) CA; 10b1b3

is the only way to turn off a key program to get back the default program. 10b1b3a

This command removes the program (WORD / BUG) from any uses to which it may have been instituted. 10b1b3b

Merges into the first plex from the second plex. 10a2c1

note: the merge command does not sort. it expects two inputs presorted according to the current key program. (see key selection below). 10a2d

syntax: 10a2e

'g 'm ('b ADDR ADDR/ 'g ADDR ADDR ADDR ADDR/ (CA/ 'p) ADDR ADDR) CA; 10a2e1

(in TNLS, an extra CA is required at the end when the system asks: "Keep changes?". 10a2e1a

Key selection 10b

Both the Sort and Merge commands use sort keys which may be specified. 10b1

If no key selection is made, the system uses a default key as follows: 10b1a

The key consistes of the character codes of the statement up to the first '@ after the first character or up to the end of the statement. 10b1a1

This default key is expected to be improved upon assuming we get suggestions from users. 10b1a2

Specifying a key procedure involves two "Goto Program" commands. These commands should be documented in more detail elsewhere. See BLP. 10b1b

Goto Program L10 10b1b1

to compile a key selection program. 10b1b1a

Instruction in writing key selection programs is beyond the scope of this memo. The specifications for the calling parameters to key procedures are given in (hopper,j7666,). (will be Journal entry 7666) 10b1b1a1

syntax: 'g 'p 'l ADDR CA; 10b1b1b

Goto Program Institute (WORD / BUG) CA Keypgm CA; 10b1b2

NEW SYNTAX FOR DNLS EXECUTE STATUS ed 9

In DNLS the syntax for execute status now matchesthan in TNLS:

e[execute] st[atus] f[file] (CA is not necessary)
v[iewspecs]
l[instack] 9a

SORT AND MERGE FEATURES 10

new commands 10a

Goto Sort 10a1

Branch 10a1a

Sorts the first subplex of the specified branch. 10a1a1

Group 10a1b

Sorts the specified group. 10a1b1

Plex 10a1c

Sorts the specified plex. 10a1c1

syntax: 10a1d

'g 's ('b ADDR/ 'g ADDR ADDR/ (CA/ 'p) ADDR) CA; 10a1d1

(in TNLS, an extra CA is required at the end when the system asks: "Keep changes?". 10a1d1a

Goto Merge 10a2

Branch 10a2a

Operates on the first subplexes of the specified branches. Merges into the first branch from the second branch. The second branch's subplex is moved, leaving the branch with no substructure. 10a2a1

Group 10a2b

Merges into the first group from the second group. 10a2b1

Plex 10a2c

DNLS Load File 4

The DNLS Load File command specification has been changed slightly. It does not check the validity of the file name until after the viewspecs have been specified. This means the viewspecs will get large immediately after the CA after typing in the file name. Now you won't get any error messages about the file name until after the viewspecs have been specified. We will probably change this later, but it would be quite awkward to do it now (for obscure reasons internal to NLS). 4a

Goto L1O SUPERSEDED 5

This command has been supercseded by the L1O program compile command in the Goto Programs submode (journal,7716). 5a

NEW VIEWSPECS: and P 6

These two new viewspecs turn any existing user sequence generator (journal,7715) programs on and off, respectively. 6a

k VIEWSPEC 7

There is a new meaning for the k viewspec. 7a

If the k viewspec is on (and there is a content analyzer program in force), all statements that don't pass the content analyzer program are discarded until the first one passes. Thereafter the content analyzer is not used. 7a1

In other words, it's like having the i viewspec on until something passes, and then turning it off. The k viewspec is effective each time a new sequence is started, e.g., all jump commands, t viewspec, TNLS Print command. 7a2

It is analogous to doing a Jump to Content, but where the content can be a complex pattern. 7a3

Peter Deutsch suggested this idea. 7a4

TNLS EXECUTE OWNERSHIP 8

The Execute Ownership (declare default directory for links in that file) command is now in TNLS also. 8a

Syntax: e[xecute] o[wnweahip] CA 8a1

The user sequence generator program for the display area (or the word None) 2c8a4

The user key program (or the word NOne) 2c8a5

The display area is where the bug was at the last CA. 2c8b

Degugging aids/hints. 2d

The stack lives at location upggstk. Look in there and you'll find the starting locations of the compiled programs. 2d1

In lieu of symbols, start you're procedure with declarations like: 2d2

DECLARE x1 = proc1, x2 = proc2, etc. 2d2a

Then you can find out at least where each of your procedures starts so breakpoints can be set. 2d2b

If L10 tells you you have undefined symbols that you meant to be NLS procedures or data (as opposed to your own), go into DDT while NLS is loaded and find out the address of the symbol. Declare it with a SET declaration in your program and everything will work fine until a new NLS is reloaded. Ask an NLSer to put the symbol in PSYM, so it'll be defined in the next NLS. 2d3

All of L10, including the user interaction parts, are available to user programmers. So you can talk to your program -- make your own commands. They'll get executed when you do a Goto Programs Execute <pgmname>. 2d4

OUTPUT PROCESSOR COMMAND REPLACED 3

The Output Processor command has been replaced by the Output Compiler command. The effect of the new command is exactly the same as the old one. The command specification is exactly the same except for typing a C instead of a P. Also, the name of the compiler is not checked until after the output file is specified. If there is a mistake specifying the name of the compiler, the command will ask you for the name of the output file, then discover the mistake about the compiler name, ask you to respecify the compiler name, then ask you to respecify the output file name. If there is a mistake in the output file name, it will not ask you to respecify the compiler name. 3a

the nth program in the stack where the bottom entry is number 1. 2c3e

Deinstitute program <pgmname>: 2c4

This deinstitutes the indicated program in all display areas, i.e., it is no longer an active key program, etc. 2c4a

Note that the program remains in the stack and its compiled code in the buffer. Thus it may be reinstituted later. 2c4b

Which program to deinstitute is indicated in the same way as above. 2c4c

Execute program <pgmname>: 2c5

This transfers control to the indicated program. No parameters are passed. The return of control is hoped for. 2c5a

Which program to execute is indicated in the same way as above. 2c5b

Pop program from stack: 2c6

The top program on the stack is deleted, i.e., it is deinstituted, its name removed from the stack, and its space in the buffer marked as free. 2c6a

Reset program stack: 2c7

All programs are deinstituted, the stack cleared, and the buffer marked as empty. 2c7a

Status of user programs: 2c8

The following information is displayed: 2c8a

The names of all the programs in the stack -- starting at the bottom. 2c8a1

The remaining free space in the buffer. 2c8a2

The content analyzer program for the display area (or the word None) 2c8a3

In either case the command appends a semi-colon on the end of the pattern for you. 2c1c

The name of the program is the characters CI plus a number plus the first 5 characters of the pattern. 2c1d

Content analyzer programs are associated with display areas. Each display area may have one or none. 2c1e

L1O user program compile: 2c2

This compiles an L1O program into the buffer, puts its name in the stack, but does NOT institute it as a content analyzer program. 2c2a

The start L1O program is indicated by a bug selection. 2c2b

The name of the program is the visible following the word PROGRAM or FILE in the selected statement. 2c2c

Institute program <pgmname> as: 2c3

This "institutes" the indicated program as either: 2c3a

Content analyzer 2c3a1

Sequence Generator 2c3a2

Key extractor 2c3a3

There are descriptions elsewhere of what user Sequence generator or Key extractor programs are used for. 2c3b

"Institute" means to make the indicated program the active key program or the active content analyzer or sequence generator program for the display area where the bug was at the last CA. 2c3c

The program must have been compiled previously with any of the Execute Content analyzer, Goto Program L1O, or Goto Program Content analyzer commands. In other words, it must be in the stack. 2c3d

Which of the programs in the stack may be indicated by typing a name, or bug selecting a word that is a name, or by typing or selecting a number. The number n means

A Simple Bid Scheduler for Tenex 1

The current Tenex scheduler uses a priority scheme in which a dismissed process increases in priority at a rate proportional to the elapsed (real) time that it has been dismissed. (See Andrews' studies for details). 1a

By allowing the user to determine the rate at which the process's priority increases it should be possible to give the user some control over the quality of service he receives. The rate would be proportional to the user's current "bid". Thus doubling the bid will double the rate at which the priority increases and (roughly) cut the response time in half. 1b

Implementation 1c

There must be a JSYS to set the job bid and a corresponding EXEC command to execute the JSYS. Bids will be positive (nonzero) integers. (With the accounting method described below, a bid of zero would result in free service when the system had nothing else to do -- this could be allowed if we want to make a gift of the machine to user's who will work at odd times). 1c1

There should be another JSYS to read the bid of a job. 1c2

The SYSTAT command should list the current bid for each user. 1c3

The routine in the scheduler which computes the priority of each process will use the bid as a multiplicative factor with the elapsed time on queue. Thus the time-on-queue used in computing the priority will be the real elapsed time multiplied by the bid. This will be the only change necessary in the scheduler. 1c4

Accounting 1d

The charge made for service will be influenced by the user's bid. 1d1

A possible formula for determining charge would be 1d2

bid * (c * ComputeTime + d * DiscTransfers) + s * DiscSpace 1d2a

where 1d2b

ComputeTIme is seconds of CPU used 1d2c

c is basic rate for CPU 1d2d

DiscTransfers is the number of page transfers to and from disc 1d2e

This does not include swapping transfers. It is meant to be a number which depends only on the activity of the process itself and not on the activity of other processes sharing the facility. 1d2e1

d is basic rate for a disc transfer 1d2f

DiscSpace is the average number of pages stored on the disc 1d2g

This would be measured in page-days and would be accumulated on a daily basis. Charge for the disk space for shared subsystems would have to be worked out. 1d2g1

s is the rate for disc storage 1d2h

This formula is intentionally designed to make the charge for a particular operation be dependent only on the features of the operation (i.e. the amount of CPU time needed and the number of disc transfers) and the bid. 1d3

This allows the user to predict how much it will cost to perform an operation based on past experience with similar tasks. 1d4

The time required to complete the operation will vary with the overall system load, but the charge will be the same. 1d5

Conclusions 1e

The bid scheduling and accounting described above would be relatively easy to implement and should provide at least a first approximation of user control over system response. 1e1

The development of an acceptable accounting formula will certainly require experience and evolution. I realize that the independence of charge from overall system load is a "principle" that will provoke debate but it has the attractive features of simplicity and predictability. It should at least provide a reasonable first attempt at accounting. 1e2

A Simple Bid-Scheduling Scheme

(J7684) 4-OCT-71 10:58; Title: Author(s): William H. Paxton/WHP; Distribution: Walter L. Bass, Mary S. Church, William S. Duvall, Douglas C. Engelbart, J. D. Hopper, Charles H. Irby, Harvey G. Lehtman, John T. Melvin, Jeanne B. North, James C. Norton, Bruce L. Parsley, Ed K. Van De Riet, Dirk H. van Nouhuys, Don C. Wallace, Richard W. Watson, Don I. Andrews, L. Peter Deutsch, James G. Mitchell/wlb msc wsd dce jdh chi hgl jtm jbn jcn blp ekv dvn dcw rww dia lpd jgm; Sub-Collections: SRI-ARC; Clerk: WHP;
Origin: <PAXTON>BIDS.NLS;4, 1-SEP-71 21:52 WHP ;

This is a test message.

(J7685) 4-OCT-71 15:08; Title: Author(s): Chuck S. Kline/CSK;
Distribution: Jon B. Postel/JBP; Sub-Collections: NIC; Clerk: CSK;

CSK 4-OCT-71 15:58 7686

Test Message.

, 4-OCT-71 14:43 CSK ; 1

This is a test message to myself. 1a

CSK 4-OCT-71 15:58 7686

Test Message.

(J7686) 4-OCT-71 15:58; Title: Author(s): Chuck S. Kline/CSK;
Distribution: Chuck S. Kline/CSK; Sub-Collections: NIC; Clerk: CSK;

Licklider is organizing a special session on the general topic of "interactive communication," as part of the forthcoming NWG meeting at MIT, 10-12 Oct 71. 1

It is possible tha I could attend, if the session were held on Sunday, Oct. 10, since I am already committed to being in New York on Saturday, and Pittsburgh Monday evening. I assured him that somebody from ARC would aim for his session, and that I would let him know who he (or they) will be as soon as our plans became firm. 1a

He is thinking of a relatiely small group, including only people really interested in getting something going. Not too concerned with detailed protocol as with intent and approach for this general type of Network usage. 1b

He doesn't have any particularly firm or strong notions yet about what they will try to develop -- mainly it is to launch some activity toward what we would term "collaborative dialogue." 2

He said that, although he envisions an ultimate development the sort of nice interactie-graphic, real-time intercommunication that many people dream of, he would be extremely happy to see an initial activity get going with any kind of communication via the Network, even just the exchange of text messages. 2a

I mentioned to him that it sounded as though the NIC Journal features would serve for this purpose, and outlined briefly the recorded-dialogue approach we've taken. He expressed interest in finding out about it, and I promised to see that he got whatever reference material was available (perhaps just aiming him at items in his local NIC collection). 2b

(J7698) 5-OCT-71 15:53; Title: .HED="Phone Log: Call to DCE by J.C.R. Licklider re. special workshop on "Network Dialogue" at Oct NWG meeting at MIT"; Author(s): Douglas C. Engelbart/DCE; Distribution: Richard W. Watson, William S. Duvall, James C. Norton/rww wsd jcn; Sub-Collections: SRI-ARC; Clerk: DCE;

JBP 5-OCT-71 16:36 7699

MESSAGE

I LOGGED IN AS DIRECTED AT 1625 5OCT71.

1

JBP 5-OCT-71 16:36 7699

MESSAGE

(J7699) 5-OCT-71 16:36; Title: Author(s): Jon B. Postel/JBP;
Distribution: John T. Melvin/JTM; Sub-Collections: NIC; Clerk: JBP;

the need for procedure for updating user documentation is pressing. I would appreciate receiving your comments as soon as possible.

BACKGROUND 1

Now that we have succeeded in producing some documents for users outside ARC that are already being used, we must face the problem of how to institute and conduct a program of revising these documents in response to new system features as well as complaints/suggestions/etc. from our user community. Clearly, there is a need for "User Documentation Maintenance (MUD)" whose function will be the culling and coordination of all data relevent to keeping our user groups up to date. 1a

By user documentation I mean documents like the NIC TNLS User Guide, the NIC Journal System User Guide, the Output Processor User Guide, Deferred Execution User Guide, etc. 1a1

Already I have received numerous pieces of input for the next revision of the TNLS User Guide; these run the gamut from typographical errors to new commands. Currently, the more significant bits of information are kept in a file called FOLKLORE to which users have access. However, owing to the lack of a well-defined procedure for maintaining this file, the probability of its usefulness at this time is minimal. 1b

The procedure proposed here for maintaining documentation is but a beginning - hopefully, our techniques will evolve with practice. 1c

USER DOCUMENTATION MAINTAINENCE PROCEDURES 2

1. Information received as input to the next revision of any user document is recorded on a "Request for Document Revision" form (see -- ,4). These forms constitute a Revision Log which is kept by MUD. These forms are recorded both on- and offline. 2a

ONLINE - a user accesses a file, (7770,), which at any given time contains the skeleton of the "request for Document Revision" form. The user should output the file immediately to another file, <documentation>request, write on the file as appropriate, and update to old version. This filename will be checked daily at ARC (by MUD) for new versions. New versions are then culled at the end of each day by copying and appending them to yet another file <documentation> log. The latter is then processed for hardcopy output by MUD and the revision forms thus obtained are merged with forms obtained offline. For this point on, no distinction is made as to whether a request was received on- or offline. 2a1

OFFLINE - a user "tells" (by any offline media) someone at ARC about some problem, suggestion, etc, re user documentation. The user should be referred to MUD who will actually complete the revision form. 2a2

2. MUD will make at least three hard copies of each revision form. One (if submitted by a Network participant) will be attached to the form for the NIC Message Log for Site contacts and given to whomever appropriate in NIC. (The NIC Message Log attachment is probably necessary for consistency of NIC bookkeeping procedures.) Another will be passed on to appropriate technical personnel (i.e., if the request warrants consideration by the techincal staff at ARC). 2b

3. MUD will keep a hardcopy log of all revision requests, probably by CATNUM and in chronological order. 2c

4. Confirmed changes to user documentation will be added to the online version of the FOLKLORE file at least once a week. Hardcopy distribution (via the Journal) of FOLKLORE should occur at two week intervals (minimum). 2d

5. The next revision target date of any user document will ALWAYS be scheduled by MUD. However, the actual publication date of any revision is much a matter dictated by the nature of its content and the discretion of MUD. 2e

6. An effort will be made to follow up suggestions, comments, etc. from outside users by confirming (via the Journal) anything acted upon of any significance, again, at the discretion of MUD. 2f

RELEVENT MISCELLANEA 3

In practice - 3a

The procedure outlined here MUST apply to input from the technical staff at ARC as well as to users on the outside. ALL material pertinent to user documentation maintenance must be controlled via this log. 3a1

MUD will use the Baseline Record System as a source of information regarding new features. As it is improbable that technical staff will personally initiate all revision requests described here - it will be the responsiblity of MUD to ferret out the details of any system addition or change relevent to user documentation and fill out the form accordingly. 3a2

Needs - 3b

I envision a need for two new print directives which will enable MUD to call out additions and changes in revised editions of user documentation. These directives will cause the text " **" or any text specified by the user to trail statement numbers on the right, one directive is needed to apply to the current statement, and the other to apply to the current branch. 3b1

Personnel - 3c

MUD will be entered as a task in the Baseline Record System with the following personnel: 3c1

Pusher MFA 3c1a

Alternates CXP, BER 3c1b

DOCUMENT REVISION FORM 4

ONLINE VERSION 4a

REQUEST FOR DOCUMENT REVISION 4a1

(Instructions: output this file immediately to the file <documentation>request; to complete this request use the substitute command and specify text for the character "*") 4a2

Document Title * 4a3

CATNUM * 4a4

Type of Change: (typo, error, omission, new system feature, new document feature ,or system modification) * 4a5

Content of Change:
Statement # * 4a6

Description * 4a7

Reported by: * 4a8

Site: * 4a9

(Instructions: when you are done output this file to old version; thank you) 4a10

OFFLINE VERSION 4b

REQUEST FOR DOCUMENT REVISION 4b1

Document Title ..... CATNUM..... 4b2

Type of Change: (typo, error, omission, new system feature, new document feature ,or system modification)
..... 4b3

Content of Change: 4b4

Statement # Description
....
.....
.....
.....
(use attachment if necessary) 4b4a

Reported by: ..... Site: 4b5

Date: ..... Time: ..... Media: 4b6

Received by: 4b7

--- 4b7a

ARC confirmation: (sign-off by technical personnel if needed, and by documentation maintenance) 4b8

Action Taken: 4b9

FOLKLORE UPDATE 4b9a
Version #: ..... Branch Name: .....
Date: 4b9a1

DOCUMENT REVISION 4b9b
Scheduled Date: ..... Actual Date: .....
CATNUM: ..... Statement #: 4b9b1

DESIGN PROPOSAL FOR DOCUMENTATION UPDATE PROCEDURES

(J7703) 6-OCT-71 15:22; Title: Author(s): Marilyn F. Auerbach/MFA; Distribution: Charles H. Irby, Richard W. Watson, Dirk H. van Nouhuys, William H. Paxton, William S. Duvall, James C. Norton, Jeanne B. North, Douglas C. Engelbart, Barbara E. Row, Cindy Page, Walter L. Bass/chi rww dvn whp wsd jcn jbn dce ber cxp wlb; Sub-Collections: SRI-ARC; Clerk: MFA;
Origin: <AUERBACH>UPDATEPROC.NLS;18, 6-OCT-71 14:45 MFA ;

Link/Advise -Refuse Default

Ideas for Smokey on the Link/advise refuse question: 1

We should have refuse links/advise be everyone's default setting. 1a

This will help prevent link attempts from disturbing work sessions where special concentration or isolation is required -- at least in a better way than the present accept links default. 1a1

The message to a linking user should something like: "in refuse links mode - still ringing". 1b

The user being linked to should get the message: !BELL! during the entire time the attempt is being made -- even if the other user hangs on in hope. This should not be done in an irritating way as far as notifying the user being linked to, however..even if the BELL does go away after the next character is typed. 1c

The user being linked to should be able to ask: "who?" and get the username of the other party..without the other party seeing the query. 1d

Otherwise, he should be able to change mode to accept links blindly or just ignore the link attempt.. like when he's too busy to answer. 1e

What do you think? I'd like to see a better version of this plan from you with inputs or comments from RWW, JTM, CHI, WSD, WHP ++? soon. OK? 1f

JCN 6-OCT-71 15:38 7705

Link/Advise -Refuse Default

(J7705) 6-OCT-71 15:38; Title: Author(s): James C. Norton/JCN; Distribution: William S. Duvall, Richard W. Watson, John T. Melvin, Marilyn F. Auerbach, Douglas C. Engelbart, Don C. Wallace, Charles H. Irby, William H. Paxton, Don I. Andrews/wsd rww jtm mfa dce dcw chi whp dia; Sub-Collections: SRI-ARC; Clerk: JCN;

AKB 10-OCT-71 14:28 7706

REQUEST FOR DOCUMENTS

PLEASE SEND LITERATURE ON JOURNAL AND NLS AND OTHER GOOD
CLASSROOM DEMONSTRATIONS TO:
PROFESSOR MARTIN GREENBERGER
THE JOHNS HOPKINS UNIVERSITY
BALTIMORE, MARYLAND 21218
(301) 366-3300 EXT 895

1

AKB 10-OCT-71 14:28 7706

REQUEST FOR DOCUMENTS

(J7706) 10-OCT-71 14:28; Title: Author(s): Abhay K. Bhushan/AKB; Distribution: John T. Melvin, Richard W. Watson, James C. Michener/JTM RWW JCM; Sub-Collections: NIC; Clerk: AKB;

JGM 10-OCT-71 15:48 7707

sym110 update

SYML10 has been changed slightly by the addition of two new procedures, assocse and rmvse, and by a slight change to addctx. The changes should not affect any existing programs of the MPS group. The updated documentation is on <MPS>LIBSYM. 1

JGM 10-OCT-71 15:48 7707

sym110 update

(J7707) 10-OCT-71 15:48; Title: Author(s): James G. Mitchell/JGM; Distribution: William H. Paxton, L. Peter Deutsch, James G. Mitchell/whp lpd jgm; Sub-Collections: NIC; Clerk: JGM;

a Journal test

this is a test at he middle ofthe nic thing, but a test anyway 1

WSD 11-OCT-71 6:36 7708

a Journal test

(J7708) 11-OCT-71 6:36; Title: Author(s): William S. Duvall/WSD; Distribution: William S. Duvall, Harvey G. Lehtman, Richard W. Watson, John T. Melvin/wsd hgl rww jtm; Sub-Collections: SRI-ARC; Clerk: WSD;