ATTACHMENT: Part 1:   System Requirements   1

COST PER UNIT   1a

The basic retail sale price per terminal, before modifications
that are made to accommodate the other requirements listed in
this attachment, should be under $4000.   1a1

COMPUTER SYSTEM INTERFACE   1b

The computer system configuration we wish to interface your
terminals to is a Digital Equipment Corporation PDP-10.   The
terminals would communicate with the PDP-10 System via telephone
or private transmission lines to the DEC "DC10" Data Line
Scanner at SRI. (The DC10 unit accommodates any device which
uses five- or eight-level serial teletype code at speeds up to
2400 Baud, and interfaces to the PDP-10 input/output bus.)   We
would like you to describe how this interface would be
accomplished, and to provide estimates for the method of
interfacing.   1b1

DISPLAY   1c

Data transmission   1c1

full duplex, 1200 or 2400 Baud
switch-selectable parity (odd, even, none) at the terminal   1c1a

Special characteristics   1c2

64 - 80 characters per line, 25 - 30 lines or more;   1c2a

upper and lower case alphabet, plus numerals and special
characters defined below;   1c2b

optional blinking of any character or characters displayed;   1c2c

character-addressable output from computer to display;   1c2d

capability for using the "mouse" for local control (i.e.,
control at the terminal) of the movement of a cursor-like
marker;   1c2e

NOTE: The "mouse" is defined below.   1c2e1

capability to write any output character into the same
position as another already-displayed character, with both
characters superposed on one another;   1c2f

NOTE: There will not be a need to have more than five of
these superpositions at any one time.   1c2f1

capability to erase any displayed character without affecting
the other displayed characters;   1c2g

capability to make so-called "invisible" characters, for
example, blank, horizontal tab, carriage return, etc.,
alternately visible and invisible with a simple two-position
switch attached to the keyboard;   1c2h

NOTE: This capability is desirable, but not absolutely
necessary.   1c2h1

EXTENDED KEYBOARD   1d

Two special keyboard-type of devices are to be interfaced to
your standard keyboard, in the manner described below. Your
standard keyboard with these two additional devices added will
provide an "extended" keyboard for the terminal.   1d1

The two devices are relatively simple, as shown in the attached
drawings. One, the keyset, supplements (and in a sense
duplicates) the functions of a standard keyboard. The other,
the mouse, controls the position of a visible cursor-like marker
on the display screen, as well as providing additional input and
control characters.   1d2

You need not consider the question of manufacturing the keyset
or the mouse, although it would be interesting to us as a
separate issue if you cared to estimate this.   1d3

KEYBOARD   1e

The keyboard layout should be that of the attached drawing. The
"feel" of the keys to an expert typist, as well as the presence
of "rollover", will be important factors in judging the quality
of the keyboard.   1e1

The following keyboard characters and special function keys are
required. (Notes: (a) In the table below, the data
transmission codes of the characters are given on the right. (b)
The up-arrow followed by a character denotes the equivalent of
holding down the control key on a teletype while striking the
character. (c) Parenthesized numbers on the left refer to notes
that follow the table.)   1e2

                                                                1e2a

CHARACTERS			OCTAL TRANSMISSION CODES	
(3)	↑a	backspace character	001	1e2b
	↑b		002	1e2c
	↑c		003	1e2d
	↑d		004	1e2e
				1e2f
	↑e		005	1e2g
	↑f		006	1e2h
	↑g	ring bell	007	1e2i
	↑h		010	1e2j
				1e2k
(1)	↑i	horizontal tab	011	1e2l
	↑j	line feed	012	1e2m
	↑k		013	1e2n
	↑l		014	1e2o
				1e2p
(1)	↑m	carriage return	015	1e2q
	↑n		016	1e2r
	↑o		017	1e2s
	↑p		020	1e2t
				1e2u
	↑q		021	1e2v
	↑r		022	1e2w
	↑s		023	1e2x
	↑t		024	1e2y
				1e2z
	↑u		025	1e2a*
	↑v		026	1e2aa
(3)	↑w	backspace word	027	1e2ab
(3)	↑x	command delete	030	1e2ac
	↑y		031	1e2ad
	↑z		032	1e2ae
				1e2af
(4)	↑K	escape and "alt mode"	033	1e2ag
(4)	↑L		034	1e2ah
(4)	↑M		035	1e2ai
(4)	↑N	separator	036	1e2aj
(4)	↑O		037	1e2ak

1e2al
1e2am
1e2an
1e2ao

4

(1)	space	040	1e2ap
			1e2aq
	" # $ % & ' ( )	041 - 051	1e2ar
	* + , - . /	052 - 057	1e2as
	0 1 ... 9	060 - 071	1e2at
	: ; < = > ? @	072 - 100	1e2au
			1e2av
	A B ... Z	101 - 132	1e2aw
	[ ] ↑ ←	133 - 137	1e2ax
		140	1e2ay
	a b ... z	141 - 172	1e2az
			1e2b*
(2)	overbar	173	1e2ba
(2)	underline	174	1e2bb
		175	1e2bc
		176	1e2bd
(3)	rubout	177	1e2be
			1e2bf
			1e2bg

Notes: 1e2bh

(1) The space (i.e., blank) character causes horizontal
incrementing at all times. It is optionally displayed as
a distinctive "u", under control of a two-position switch
at the terminal.

   The carriage return causes return to left margin at all
times. It is optionally displayed as a backwards "c" with
an arrow head at the bottom, under control of the same
two-position switch that controls the space character.

   The tab causes horizontal incrementing at all times,
under control of the central computer. It is optionally
displayed as a forward-pointing arrow, under control of
the same two-position switch that controls the space
character.   1e2bh1

(2) The underline and overbar characters are displayed
outside the normal character space and do not cause
horizontal incrementing.   1e2bh2

(3) The backspace character, backspace word, command
delete, and rubout are special function keys on the
keyboard. Each function key causes the appropriate code,
as indicated in the above table, to be transmitted to the
central computer, but causes no special symbol to be

displayed on the CRT.   Note that the backspacing function
key codes are different from the ASCII representation of
these functions.   1e2bh3

(4) The control-shift characters (control-shift K, L, M,
N, O) are not to be generated from the keyboard except
through special function keys such as the "escape"
(alt-mode).   Control-shift N (octal 036) is not to be
generated by any special key since it is used as a
separator (see Input/Output Formats section, below).   1e2bh4

                                                                   1e2bi
MOUSE   1f

General Comments   1f1

   There are two different versions of the mouse, one an analog
   device, the other a digital device.   For either device, the
   movement of the mouse controls the movement of the
   cursor-like marker.   This marker may be any distinguishable
   character, such as an up-arrow, a box, a cross, etc.   1f1a

   A hardware component that uses the mouse output directional
   signals to move the marker would have to be designed, built,
   and made part of the terminal.   We request that your proposal
   include an estimate for doing this work.   1f1b

   We envision that you would provide a single input connector
   such that two eight-bit parallel binary signals --- (X,Y)
   coordinates ---   could be plugged in to drive the
   cursor-like marker, and four or five pushbutton signals could
   provide data for transmission to the computer.   1f1c

      This could be simply a removable jumper plug in the signal
      path at the point where the mouse signals become two
      eight-bit (X,Y) binary codes and the pushbutton signals
      are five-bit binary codes.   1f1c1

      This auxiliary input plug would also have to provide the
      following DC power for use with the analog mouse: 1f1c2

         +15 volts at 50 milliamps
         -15 volts at 50 milliamps
         + 5 volts at 500 milliamps.   1f1c2a

Analog Mouse   1f2

   The analog mouse rests on two wheels and a ball bearing

6

support pin so that it can easily be moved around on a flat
surface.   Movement of the mouse causes its wheels, which are
perpendicular to one another, to resolve the motion into its
X and Y components. Low torque potentiometers, on whose
shafts the wheels are mounted, convert the X,Y travel into
analog voltage for driving the cursor-like marker.   1f2a

The analog mouse is depicted in the attached photograph and
logic diagram.   1f2b

Digital Mouse   1f3

On the digital mouse, which also moves on a flat surface,
four digital pulses are provided to indicate up, down, left,
or right movement. Characteristics of this mouse are the
following (at the present time, we have neither photograph
nor logic diagram for this device):   1f3a

   (1) Directional signal outputs are TTL.   1f3a1

   (2) Pushbutton signal outputs are TTL.   1f3a2

   (3) The pulse rate from each of the four directional lines
   is 200 pulses per inch.   1f3a3

   (4) The interface hardware would have to supply +5   volts
   to the mouse, and a current of the order of 500
   milliamps.   1f3a4

   (5) The connector between the digital mouse and your
   interface will be a PC edge connector, with   9   or   10
   wires: 4   for the north, south, east, and west pulses;   4
   or   5   for the buttons on the mouse;   and   1   for ground.
   North and south pulses would not occur simultaneously, of
   course, nor would east and west. But north with east or
   west, and south with east or west, are legitimate
   simultaneous combinations.   1f3a5

Mouse Button Logic   1f4

   Although there are only three buttons on the analog mouse
(see attached photograph) and four buttons on the digital
mouse, we anticipate that a future version of the mouse will
have five buttons. Therefore, we require that there be a
five-bit register locally (i.e., at the terminal) to hold the
results of button depressions and button releases on the
mouse.   1f4a

   Each button depression causes the corresponding bit to be

7

set in the register. Each button release causes the
corresponding bit to be reset. Information is sent to the
computer whenever a mouse button is depressed, as well as
whenever a mouse button is released. The mouse character
sent should be the "OR" of all the mouse buttons held down
just after a button is depressed and the "OR" of all the
mouse buttons held down just after a button is released.
(Note that simultaneous depression or release of two or more
buttons is a permissible event.) The format of the
information sent to the computer is described in the section,
"Input/Output Formats".   1f4b

The following octal mouse button codes are required (data
transmission codes on the right).   1f4c

		1f4c1
OCTAL MOUSE BUTTON CODE	OCTAL TRANSMISSION CODE	1f4c2
00	100	1f4c3
01 command accept	101	1f4c4
02 command delete	102	1f4c5
03 center dot	103	1f4c6
04 backspace character	104	1f4c7
05	105	1f4c8
06 backspace word	106	1f4c9
07	107	1f4c10
10-37	110-137	1f4c11

                                                                   1f4c12
KEYSET   1g

A five-bit register is required locally (at the terminal) to
hold the results of key depression on the keyset. Each key
depression causes the corresponding bit to be set in the
register. Keyset data are transmitted to the computer only when
all keys are released after one or more keys have been
depressed. The character (combination of bits) that was last in
the register when all keys are released is transmitted to the
computer. The register is then reset. Note that the release of
any single key on the keyset while other keys are held down
should not cause the corresponding bit in the register to be
reset.   1g1

The keyset is depicted in the attached photograph and logic
diagram.   1g2

The following octal keyset codes are required. (Data
transmission codes are on the right.)   1g3

OCTAL KEYSET CODE	OCTAL TRANSMISSION CODE	1g3b
00 - 37	040 - 077	1g3c

1g3d

INPUT/OUTPUT FORMATS   1h

"Output" means data transmitted from the central computer to the
terminal. Output character format is byte serial, seven-bit
ASCII plus parity.   1h1

"Input" means data transmitted from the terminal to the central
computer. Input character format is byte serial, seven-bit
ASCII plus parity, and takes several different forms, as
follows: 1h2

  (1) MOUSE   1h2a

      When one or more mouse buttons are simultaneously
   depressed, or when one or more mouse buttons are
   simultaneously released, four successive characters are to be
   sent to the computer: 1h2b

      first, a "separator" character, octal code 36;   1h2b1

      second, the mouse button character, as defined above;   1h2b2

      third and fourth, the coordinates of the current position
      of the special cursor-like marker (the marker that is
      controlled by the mouse), the coordinates being either a
      single binary number or an (x,y) coordinate pair.   1h2b3

        NOTE: The option as to which of these two forms should
        be used to represent the coordinates of the marker is
        up to you. We encourage you to choose whichever is
        simplest for your existing scheme of representing
        character coordinate position. The only requirement is
        that the octal representation of the coordinate's value
        be outside the range of data transmission codes used
        for control characters.   1h2b3a

  (2) KEYSET   1h2c

      Whenever all the keyset keys are released, two characters
   are sent to the computer: 1h2d

      first, a "separator" character, octal code 36;   1h2d1

      second, the keyset character, as defined above;   1h2d2

(3) KEYBOARD   1h2e

When a keyboard key is depressed, only one character is
to be sent to the computer: namely, the keyboard character.
There are two exceptions to this rule, however: 1h2f

Both the "center dot" keyboard character and the "command
accept" keyboard character must be treated like a mouse
character. That is, each causes four characters to be
sent to the computer in a manner similar to the scheme
described above in (1).   1h2f1

In the four-character sequence which is transmitted to the
computer when one of these two keyboard keys is depressed,
the second character in the sequence should be whichever
of the two characters, command accept or center dot, was
depressed.   1h2f2

NOTE: Both the "command accept" and "center dot"
keyboard characters may be generated by the mouse, also
(see character code descriptions for the MOUSE, above).
For each of these characters, the code to be
transmitted to the computer is the code that the mouse
transmits, whether the character is generated from the
keyboard or generated from the mouse.   1h2f2a

2

ATTACHMENT: Part 2: Questionnaire 3

For the terminal which you would modify to satisfy the system requirements in Part 1 of this attachment, please provide answers to the following questions. 3a

GENERAL CHARACTERISTICS 3b

1. Cost per unit 3b1

    --- basic retail sale price of one unit, excluding quantity discounts, optional features, installation fees, and maintenance contracts. 3b1a

    --- basic retail sale price of one unit if 10 units are purchased 3b1b

2. Display area size (h,w in inches) 3b2

    --- height and width, in inches, of the area of the screen used to display characters. 3b2a

3. Character generation technique 3b3

    --- dot matrix (5x7, 9x11, etc.), stroke, other. 3b3a

4. Spot diameter (mils) 3b4

    --- diameter of the focused spot on the screen, in mils. 3b4a

5. Size of character (h,w in inches) 3b5

    --- height and width, in inches, of the character font used. 3b5a

6. Maximum number of characters per line 3b6

7. Maximum number of displayable lines 3b7

8. Maximum displayable character positions 3b8

    --- characters per line multiplied by the number of lines. Does not include characters stored in memory but not displayed. 3b8a

9. Number of characters in memory 3b9

    --- number of characters which can be in the terminal's local memory at one time. 3b9a

10. Type of memory   3b10

    --- delay line, core, MOS/LSI, etc.   3b10a

11. Transmission rate   3b11

    --- bits per second   3b11a

12. Code for output   3b12

    --- USASCII, etc.   3b12a

13. Size of terminal, including keyboard (h,w,d in inches)   3b13

    --- height, width, and depth of the terminal, in inches,
assuming that the keyboard is attached to, or flush with, the
CRT case.   3b13a

14. Is keyboard detachable?   3b14

    --- yes, no, or optional   3b14a

15. Is controller separate?   3b15

    --- is the controller logic built into the terminal or not? 3b15a

16. Size of controller, if separate (h,w,d in inches)   3b16

17. Operating environment   3b17

    --- ambient temperature, relative humidity, power
requirements   3b17a

EDITING CAPABILITIES   3c

1. Type of addressing scheme   3c1

    --- how is a character that is displayed on the screen
addressed from the central computer, i.e., is it addressed
with a (line-number, character-within-line) pair. or with a
single number that gives absolute position on the screen?   3c1a

2. Cursor   3c2

   a. Type of cursor   3c2a

    --- blinking, character-underlined, box (or other marker)
superposed on character, etc.   3c2a1

12

b. Cursor movement control   3c2b

   --- can it move one character-space or line-space at a
time?   3c2b1

   --- how many characters or lines per second in "repeat"
mode?   3c2b2

   --- is cursor movement under local control? under
computer control?   3c2b3

   --- must the cursor be positioned before text can be
placed at a given location on the screen?   3c2b4

   --- can the cursor position be transmitted to the central
computer under local control? under computer control?   3c2b5

c. Tabulating feature   3c2c

   --- can tabs be set so that the cursor can be moved to a
predetermined position, to the right or down?   3c2c1

   --- can this be done under local control? under computer
control?   3c2c2

3. Insert/Delete   3c3

   For each of the following, state whether the facility
exists, and whether it can be under local control, and under
computer control.   3c3a

a. Character insert   3c3b

   --- displace a designated character and move those to the
right of it one space to the right.   3c3b1

b. Character delete   3c3c

   --- erase a designated character, and move those to the
right of it one space to the left.   3c3c1

c. Line insert   3c3d

   --- move a designated line and all subsequent lines down
one line.   3c3d1

d. Line delete   3c3e

--- replace a designated line with the line below it, and
move all subsequent lines one line up.   3c3e1

4. Scroll Screen   3c4

   For each of the following, state whether the facility
   exists, and whether it can be under local control, and under
   computer control.   3c4a

   a. Roll-up feature   3c4b

      --- on an N-line screen, does typing an (N+1)st line
      cause the top line to disappear, all other lines to shift
      up, and the (N+1)st line to appear at the bottom?   3c4b1

   b. Roll-down feature   3c4c

      --- if roll-up exists, can the top line be made to
      reappear and line N+1 to disappear, thereby reversing
      the effect of roll-up?   3c4c1

5. Split Screen   3c5

   a. Can data in various parts of the screen be transmitted to
   the central computer without sending the entire display?   3c5a

   b. Can data be transmitted from the central computer to the
   terminal for display at designated areas of the screen
   without transmitting the entire display contents (i.e., can
   data be transmitted to the terminal and displayed at selected
   areas without the central computer having to regenerate what
   is already being displayed)?   3c5b

CUSTOMER SERVICE   3d

   1. Date first delivery of this terminal was made to a customer   3d1

   2. Number of terminals delivered to all customers   3d2

   3. Representative list of customers using this terminal   3d3

   4. Locations of maintenance personnel   3d4

(J11495) 15-AUG-72 14:24;   Title: Author(s): Michael D. Kudlick/MDK;
Distribution: Augmentation Research Handbook, Kirk E. Kelley, N. Dean
Meyer, Kay F. Byrd, Ralph Prather, James E. White, Jacques F. Vallee,
Diane S. Kaye, Paul Rech, Michael D. Kudlick, Don Limuti, William R.
Ferguson, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Douglas C.
Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper,
Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne B. North,
James C. Norton, Cindy Page, William H. Paxton, Jeffrey C. Peters, Jake
Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth
E. Victor, Donald C. Wallace, Richard W. Watson, Don I. Andrews/SRI-ARC;
Sub-Collections: SRI-ARC; Clerk: MDK;
Origin: <KUDLICK>TERMINALS.NLS;63, 9-AUG-72 15:47 MDK ;

REQUEST FOR PROPOSAL: LOW-COST ALPHANUMERIC CRT   17 AUG 72

Gentlemen: 1

   Stanford Research Institute invites you to submit a proposal for
modifying, delivering, interfacing, and installing ten of your
alphanumeric CRT display terminals at SRI.   2

   This request describes the three main technical requirements: the
computer interface, the keyboard extensions, and the overall system
requirements for the terminal. (These are given in the attachment.)
The display terminal model that you choose for the basis of making
your proposal should meet the specifications and system requirements
given in the attachment.   3

   The SRI Augmentation Research Center has, during the past year,
made its On-Line Interactive System "NLS" available to all users of
the U.S. Government's Advanced Research Projects Agency (ARPA)
computer network. In particular, it acts as the Network Information
Center for the ARPA Network, a role which attracts nationwide users to
its system.   This usage is expected to increase significantly during
the next year. Consequently the Augmentation Research Center is
investigating the feasibility of interfacing low-cost display
terminals to its system via the ARPA Network.   4

   Your proposal should arrive at SRI by September 15, 1972, and be
addressed to:

                  Stanford Research Institute
                  333 Ravenswood Avenue
                  Menlo Park, California 94025
                  Attention: Mr. Daniel F. McNamara
                              Director of Material   5

   The proposal should have two main components: 6

   (1) The system requirements for display, mouse, and keyset (given
   in Part 1 of the attachment) should be answered with a technical
   description of your proposed way of meeting each requirement, and
   an estimate of the cost and lead time needed to meet each
   requirement. (For example, there is a special input data format
   which will entail that one or more hardware registers and logic be
   added to your standard keyboard. We would need estimates for this
   additional hardware.)   6a

   (2) Answers to the questionnaire in Part 2 of the attachment should
   be provided.   6b

   Three copies of your proposal are requested, each of which should
contain all the elements of cost in detail necessary in your opinion
to perform the effort contemplated. If a proposal is not to be
submitted, this RFP is to be returned to SRI.   7

This request does not commit SRI or the government to pay any costs incurred in the submission of the proposal, or to procure or subcontract for services or supplies in connection with the submission of the proposal. Further, this Request for Proposal does not commit SRI or the government to pay any costs incurred by you in anticipation of a contract.   8

In evaluating your proposal, we will consider deviations from our specifications provided that they meet the overall design goals, and that costs and other factors are acceptable. The criteria that we will use to evaluate your proposal include: 9

  - capability to meet our specifications   9a

  - cost and lead time   9b

  - visual quality of displayed text, and manual feel of the
keyboard   9c

  - reliability and serviceability of the equipment   9d

  - location of maintenance personnel   9e

If you have any questions about the above requirements, or about the details of any of the attached information, please call me at SRI, (415) 326 6200 ext 2180.   10

Sincerely,

Daniel F. McNamara
Director of Material   11

                                                                      12

SUGGESTED MANUFACTURERS. (Address to "Vice President, Marketing)   13

    Computek   Model 100   13a

        14411 Hammlin Street
        Suite 1112
        Van Nuys, Callifornia 90230
        (213)390-7777   13a1

    Computer Communications, Inc. CC-30, CC-335   13b

        5933 West Stauson Ave.
        Culver City, California 90230
        (213)390-7777   13b1

        James M. Sigler
        Marketing Representative
        Computer Communications, Inc.
        820 Airport Boulevard
        Burlingame, California 94010
        (415)342-5500   13b2

    Computer Consoles   ---   13c

        1257 University Avenue
        Rochester, New York 14607
        (716)473-7180   13c1

    Computer Terminal Corporation   Datapoint 3300   13d

        9725 Datapoint Drive
        San Antonio, Texas 78229
        (512)696-4520   13d1

    Conographic Corporation   13e

        380 Green Street
        Cambridge, Massachusetts 02139
        (617)491-5820   13e1

    Delta Data Systems   Telterm I, Telterm II   13f

        22527 Crenshaw Boulevard
        Torrance, California 90505
        (213)325-9431   13f1

        Mr. Robert Abrams
        Wm. J. Purdy Company
        770 Airport Boulevard

Burlingame, California 94010
(415)342-0877   13f2

Digital Equipment Corporation   VT05, VT06   13g

146 Main Street
Maynard, Massachusetts 01754
(617)897-5111   13g1

Four-Phase Systems   System IV/70   13h

19420 North Tantau Avenue
Cupertino, California 95014
(408)255-0990   13h1

Hazeltine Corporation   2000   13i

Greenlawn, New York 11740
(516)261-7000   13i1

Honeywell Information Systems   VIP 765   13j

200 Smith Street
Waltham, Massachusetts 02154
(617)891-8400   13j1

ITT Data Equipment and Systems Division   Asciscope Display   13k

International Telephone and Telegraph Corporation
East Union Avenue
East Rutherford, New Jersey 07073   13k1

Princeton Electronic Products, Inc.   PEP-801   13l

P O Box 101
North Brunswick, New Jersey   08902   13l1

Raytheon Data Systems   PTS 100, Model 2   13m

1415 Boston-Providence Turnpike
Norwood, Massachusetts 02062
(617)762-6700   13m1

Donald T. Metzger
Senior Marketing Representative
Raytheon Data Systems Company
1818 Gilbreth Road
Suite 226

Burlingame, California 94010
(415)692-4640   13m2

Sanders Data Systems   720; others (?)   13n

Mr. Wayne Galusha
Sanders Data Systems
Daniel Webster Highway South
Nashua, New Hampshire 03060
(603)880-6660   13n1

Saturn Systems, Inc.   13o

Jack Dixon, President
1031-L East Duane
Sunnyvale, California 94086
(408)732-4270   13o1

Univac   Uniscope 100   13p

P.O. Box 500
Blue Bell, Pennnsylvania 19422
(215)825-2560   13p1

Vector General   13q

8399 Topanga Canyon Boulevard
Canoga Park, California 91304
(213)346-3410   13q1

XEROX Corporation   13r

Palo Alto Research Center
3408 Hillview Avenue
Palo Alto, California 94304
(415)493-1600   13r1

Note for DPCS re Apollo Experience Reports and X(11460,)

Someday an augmented DPCS will handle such as the Apollo
Experience Reports: See X(11460,) for listing of those AERs that
SRI has (as of 10 July 1972).   1

Note for DPCS re Apollo Experience Reports and X(11460,)

(J11497)   15-AUG-72 14:39;   Title: Author(s): Douglas C.
Engelbart/DCE; Distribution: Walt Bass, N. Dean Meyer/WLB NDM;
Sub-Collections: SRI-ARC; Clerk: KFB;

the phone company is in the process of checking out our lines
for the dial in service. if users have any feedback please
express
it via the journal or any other way.   don limuti

1

(J11498)   15-AUG-72 16:14;   Author(s): Don Limuti/DL; Distribution:
Augmentation Research Handbook, Kirk E. Kelley, N. Dean Meyer, Kay F.
Byrd, Ralph Prather, James E. White, Jacques F. Vallee, Diane S. Kaye,
Paul Rech, Michael D. Kudlick, Don Limuti, William R. Ferguson, Linda L.
Lane, Marilyn F. Auerbach, Walt Bass, Douglas C. Engelbart, Beauregard
A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Mil E.
Jernigan, Harvey G. Lehtman, Jeanne B. North, James C. Norton, Cindy
Page, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara E.
Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth E. Victor, Donald
C. Wallace, Richard W. Watson, Don I. Andrews/SRI-ARC; Sub-Collections:
SRI-ARC; Clerk: DL;

Thanks for Taxon

I'm very greatful for your corrections in Taxon. But I can't help
pointing out (and demonstrating links) that you made one whale of
a mistake yourself (journal,11374,1b1a)   1

Thanks for Taxon

(J11499)   15-AUG-72 17:37;   Title: Author(s): Dirk H. van
Nouhuys/DVN; Distribution: Richard E. Fikes/REF; Sub-Collections: NIC;
Clerk: DVN;

Reply about POD Seminars

I agree that POD seminars may include technical subjects. I am
interested in all the seminar subjects you list.   1

Reply about POD Seminars

(J11502) 16-AUG-72 9:43; Title: Author(s): Dirk H. van Nouhuys/DVN;
Distribution: Kenneth E. Victor/KEV; Sub-Collections: SRI-ARC PODAC;
Clerk: DVN;

Fairly Firm Tentative Plans for ICCC Meeting In WDC

You will be staying at the Washington Hilton.
RWW JEW — Arrival Oct. 19 — Departure Oct. 27
CHI DVN — Arrival Oct. 20 — Departure Oct. 27
DCE JCN — Arrival Oct. 22 — Departure Oct. 27 (suite with twin
attached)
WLB JFV — Arrival Oct. 23 — Departure Oct. 27
JBN MFA — Arrival Oct. 23 — Departure Oct. 27
MDK PR — Arrival Oct. 23 — Departure Oct. 27
One of you (probably RWW) will be staying over one more night.   1

Fairly Firm Tentative Plans for ICCC Meeting In WDC

(J11503)   16-AUG-72 12:38;   Title: Author(s): Kay F. Byrd/KFB;
Distribution: Richard W. Watson, James E. White, Charles H. Irby, Dirk
H. van Nouhuys, Douglas C. Engelbart, James C. Norton, Walt Bass,
Jacques F. Vallee, Jeanne B. North, Marilyn F. Auerbach, Michael D.
Kudlick, Paul Rech/RWW JEW CHI DVN DCE JCN WLB JFV JBN MFA MDK PR;
Sub-Collections: SRI-ARC; Clerk: KFB;

This Friday, August 18, at 1:30 p.m. I shall share with those of
you who are interested in "EST" some of my experiences at the
training seminars. Please let me know if you intend to attend.   1

(J11505)   16-AUG-72 14:00;   Title: Author(s): Paul Rech/PR;
Distribution: Augmentation Research Handbook, Kirk E. Kelley, N. Dean
Meyer, Kay F. Byrd, Ralph Prather, James E. White, Jacques F. Vallee,
Diane S. Kaye, Paul Rech, Michael D. Kudlick, Don Limuti, William R.
Ferguson, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Douglas C.
Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper,
Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne B. North,
James C. Norton, Cindy Page, William H. Paxton, Jeffrey C. Peters, Jake
Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth
E. Victor, Donald C. Wallace, Richard W. Watson, Don I. Andrews/SRI-ARC;
Keywords: EST; Sub-Collections: SRI-ARC; Clerk: LLL;

A fast pattern matcher compiler

see (11135,) and (11153,) for history; distribute further as needed

A fast pattern matcher compiler

Design for a fast pattern matcher for L10   1

Idea: every subpattern can exit in a number of different ways: 2

   (S) Success, with the scan pointer pointing to the last
   character successfully matched;   2a

   (SIP) Success, with the scan pointer incremented one character
   beyond the last character matched and the skipped character
   available in a register CHAR;   2b

   (F) Match failure, with the scan pointer at a unpredictable
   place;   2c

   (FIP) Match failure, with the scan pointer advanced by exactly
   one character as for SIP;   2d

   (LF) Length failure, with the scan pointer at an unpredictable
   place.   2e

A subpattern may also have more than one entry point: 3

   (E) The normal entry, with the scan pointer pointing just
   before the first character to test;   3a

   (IE) Entry with the scan pointer incremented and the first
   character to test in CHAR.   3b

The subpattern compiler gets told where to branch on the various
conditions.   4

Some kinds of subpatterns involve saving and restoring the state
of the scan: this state is contained in the scan pointer PTR and
the remaining character count COUNT (held in registers).   5

   Since the requirements for saved states can be determined by
   the compiler, the space can be allocated in the procedure
   frame and accessed with MOVEM and MOVE rather than PUSH and
   POP.   5a

   The save and restore operations are denoted in the programs
   below by [SAVE] and [RESTORE] respectively.   5b

   Note that a pattern with an IE can also be entered through a
   SAVE; in such cases, the RESTORE leads to a FIP or SIP rather
   than F or S exit.   5c

Now to enumerate the various kinds of subpatterns.   6

(and) p1 AND p2   6a

  [SAVE]   6a1

  p1(F=fexit, FIP=fipexit, S=l1, SIP=l1, LF=lfexit)   6a2

  l1:   6a3

  [RESTORE]   6a4

  p2   6a5

(or) p1 OR p2; also p1 / p2   6b

(not) NOT p1   6c

  [SAVE]   6c1

  p1(F=l1, FIP=sipexit, S=fexit, SIP=fexit, LF=l1)   6c2

  l1:   6c3

  [RESTORE]   6c4

  (fall through on S)   6c5

(scan) [p1]   6d

  Code for the normal case: 6d1

    l1:   6d1a

      [SAVE]   6d1a1

      p1(F=l2, FIP=l1, S=sexit, SIP=sipexit, LF=lfexit)   6d1a2

    l2:   6d1b

      [RESTORE]   6d1b1

      IBP PTR   6d1b2

      SOJG COUNT,l1   6d1b3

      (fall through on LF)   6d1b4

  If p1 does not have a F exit, the [SAVE] and the code
starting at l2 can be omitted.   6d2

(count) n1$n2 p1   6e

    First part: 6e1

      If n1=0, nothing.   6e1a

      If n1=1: p1(F=fexit, FIP=fipexit, S=l2, SIP=l2a,
LF=lfexit).   6e1b

      Otherwise (n1>1):   6e1c

        MOVEI T,n1   6e1c1

        MOVEM T,W1   6e1c2

          W1 is allocated in the procedure frame like the
SAVE storage.   6e1c2a

        l0:   6e1c3

          p1(F=fexit, FIP=l0a, S=l1, SIP=l1a, LF=lfexit)   6e1c3a

        l0a: 6e1c4

          MOVE T,W1   6e1c4a

          CAIE T,n1   6e1c4b

          JRST fexit   6e1c4c

          JRST fipexit   6e1c4d

        l1:   6e1c5

          SOSLE W1   6e1c5a

          JRST l0   6e1c5b

          JRST l2   6e1c5c

        l1a: 6e1c6

          SOSLE W1   6e1c6a

          JRST l0   6e1c6b

          JRST l2a   6e1c6c

    Second part: 6e2

A fast pattern matcher compiler

If n2=n1, nothing (l2->sexit, l2a->sipexit).	6e2a
Otherwise (n2>n1):	6e2b
l2a:	6e2b1
MOVEI T,n2-n1	6e2b1a
MOVEM T,W1	6e2b1b
JRST ientry	6e2b1c
l2:	6e2b2
MOVEI T,n2-n1	6e2b2a
MOVEM T,W1	6e2b2b
l4:	6e2b3
p1(S=l3, SIP=l3a, F=fexit, FIP=sipexit, LF=sexit)	6e2b3a
l3:	6e2b4
SOSL W1	6e2b4a
JRST l4	6e2b4b
JRST fexit	6e2b4c
l3a:	6e2b5
SOSL W1	6e2b5a
JRST ientry	6e2b5b
JRST fexit	6e2b5c
Some obvious omissions are possible if p1 lacks some of its exit possibilities.	6e3
(arb) $ p1	6f
Code for all cases:	6f1
l1:	6f1a
[SAVE]	6f1b

        p1(F=l2, FIP=sipexit, S=l1, SIP=IE(p1), LF=l2)   6f1c

        l2:   6f1d

        [RESTORE]   6f1e

        (fall through on S)   6f1f

    Note that this pattern cannot fail.   6f2

    The IE of the pattern is the IE of p1, if any.   6f3

(char) 'ch   6g

    The code is the same for all cases, namely: 6g1

        SOJLE COUNT,lfexit   6g1a

        ILDB CHAR,PTR   6g1b

        ientry: 6g1c

        CAIE CHAR,'ch   6g1d

        JRST fipexit   6g1e

        (fall through on S)   6g1f

    The CAIE can become a CAIN to interchange the S and FIP
    exits.   6g2

    The first two instructions are unnecessary if the code is
    always entered through its IE.   6g3

(str) "str"   6h

    if str is only one character long, treat like (char).   6h1

    Otherwise: 6h2

        SOJLE COUNT,lfexit   6h2a

        ILDB CHAR,PTR   6h2b

        ientry: 6h2c

        CAIE CHAR,"str"[1]   6h2d

        JRST fipexit   6h2e

```
        CAIGE COUNT,size-1                                    6h2f

        JRST lfexit                                          6h2g

        MOVEI T1,size-1                                      6h2h

        MOVE T2,[pointer to first char of str]              6h2i

        l1:                                                 6h2j

        ILDB CHAR,PTR                                       6h2k

        ILDB T3,T2                                          6h2l

        CAME CHAR,T3                                        6h2m

        JRST fexit                                          6h2n

        SOJN T1,l1                                          6h2o

        SUBI COUNT,size-1                                   6h2p

        (fall through on S)                                 6h2q
```

As for (char), the first two instructions are unnecessary
if the subpattern is only entered through its IE.   6h3

(class) charclass   6i

   The code is the same for all cases, namely: 6i1

```
        SOJLE COUNT,lfexit                                  6i1a

        ILDB CHAR,PTR                                       6i1b

        ientry:                                             6i1c

        MOVSI T,bits                                        6i1d

        TDNN T,CLASSTAB(CHAR)                               6i1e

        JRST fipexit                                        6i1f

        (fall through for sexit)                            6i1g
```

   The TDNN can become a TDNE to interchange the S and FIP
exits.   6i2
```

By combining bits, one can produce fast tests for things
like UL OR D.                                                        613

(any) CH                                                            6j

   This is the pattern that matches any single character.       6j1

   Code:                                                        6j2

      SOJLE COUNT,lfexit                               6j2a

      IBP PTR                                          6j2b

      ientry:                                          6j2c

      (fall through on S)                              6j2d

   If the pattern is always entered through its IE, no
instruction are needed at all.                                     6j3

Other patterns (like NAME, TIME, ...) are handled by
subroutines.                                                        6k

Some useful code fragments for dealing with byte pointers:          7

To back up PTR:                                                     7a

  ADD PTR,[XWD 070000,0]                                         7a1

  JUMPG PTR,.+2                                                   7a2

  ADD PTR,[XWD 350000,1]                                         7a3

To advance pointer by T1 characters (>=0):                          7b

  Code:                                                          7b1

    IDIVI T1,5                                                 7b1a

    ADD PTR,T1                                                 7b1b

    SUB PTR,IBPTAB(T2)                                         7b1c

    JUMPG PTR,.+2                                              7b1d

    ADD PTR,[XWD 440000,1]                                    7b1e

  Table IBPTAB:                                                   7b2

A fast pattern matcher compiler

```
        XWD 000000,0                                        7b2a

        XWD 070000,0                                        7b2b

        XWD 160000,0                                        7b2c

        XWD 250000,0                                        7b2d

        XWD 340000,0                                        7b2e
```

A fast pattern matcher compiler

(J11506) 16-AUG-72 15:09;   Title: Author(s): L. Peter Deutsch/LPD;
Distribution: William H. Paxton, Charles H. Irby, William S. Duvall,
Harvey G. Lehtman, Diane S. Kaye, Dirk H. van Nouhuys/WHP CHI WSD HGL
DSK DVN; Sub-Collections: NIC; Clerk: LPD;

Quick Questions re. AMES file transfer

Two questions. 1) Have you been doing any experimenting with the file

transfer programs? I have no indication that you have.

2) Is it O.K. if I delete the files I originally transferred to BBN (in <EE210>)? We're having to spend extra money in storing them on our account.

Waiting for your reply...J.Pickens.   1

Quick Questions re. AMES file transfer

(J11530)   17-AUG-72 14:36;   Title: Author(s): John R. Pickens/JRP;
Distribution: John R. Pickens, William P. Jones/JRP WPJ;
Sub-Collections: NIC; Clerk: JRP;

Bressler learns to use the journal

I have gained access to a TIP at BBN and have
started using other systems from it.

1

Bressler learns to use the journal

(J11531) 17-AUG-72 14:47;   Title: Author(s): Robert D. Bressler/RDB2; Distribution: Robert D. Bressler, Michael A. Padlipsky, William W. Plummer, Robert E. Kahn, Richard W. Watson, Peggy M. Karp, Robert H. Thomas, James E. White, Dr. Vinton G. Cerf, Robert M. Metcalfe, Albert Vezza, Diane C. Roberts, Alex A. McKenzie/XIC3; Sub-Collections: NIC XIC3; Clerk: RDB2;

Are you doing anything about a network graphics meeting ?   1

(J11532)   17-AUG-72 14:53;   Author(s): Jonathan B. Postel/JBP;
Distribution: Charles H. Irby/CHI; Sub-Collections: NIC; Clerk: JBP;

Facilitator report

facilitator information   1

    Dick Gans
    Radiation Measurement Group
    UCLA
    (213) 477-7531

                                                                        1a

    Has a need for general purpose interactive BASIC or FORTRAN
    service using a Textronics 4010 terminal at about 1200 baud.
    I suggested that he contact A. Bhushan at Multics, R Thomas at
    BBN, J. Winett at LL, and W. Hathway at AMES. also suggested
    that access via a TIP is a better choice than via a host.

                                                                        1b

    Herbert Hecht
    Aerospace Corp
    El Segundo, Calif.
    (213) 648-6260

                                                                        1c

    Aerospace is charged with developing software standards for
    the air force and are interested in arpa network protocols.

                                                                        1d

Facilitator report

(J11533) 17-AUG-72 15:26; Title: Author(s): Jonathan B. Postel/JBP;
Distribution: Jerry J. Powell, Jeanne B. North, Bruce A. Dolan, Alex A.
McKenzie, John T. Melvin, Robert M. Metcalfe, Robert E. Kahn, Jonathan
B. Postel, Peggy M. Karp, James E. White, Steve D. Crocker/NF;
Sub-Collections: NIC NF; Clerk: JBP;

NEW NLS

New NLS is here.   Please report bugs immediately to Diane Kaye,
Harvey Lehtman, Dave Hopper (re Journal), or Charles Irby.
Backup is <subsys>oldnls.sav;333.   1

NEW NLS

(J11535) 17-AUG-72 23:13; Title: Author(s): Harvey G. Lehtman/HGL;
Distribution: Augmentation Research Handbook, Kirk E. Kelley, N. Dean
Meyer, Kay F. Byrd, Ralph Prather, James E. (Jim) White, Jacques F.
Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Don Limuti,
William R. Ferguson, Linda L. Lane, Marilyn F. Auerbach, Walt Bass,
Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D.
Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne B.
North, James C. Norton, Cindy Page, William H. Paxton, Jeffrey C.
Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van
Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I.
Andrews/SRI-ARC; Sub-Collections: SRI-ARC; Clerk: HGL;

this is title
COMMENT:template technology
AUTHOR(S):DS

template technology
AUTHOR(S):D

this is title
COMMENT:template technology
AUTHOR(S):DS

message   1

this is title
COMMENT:template technology
AUTHOR(S):DS

(J11536) 18-AUG-72 8:53; Title: Author(s): Diane S. Kaye/DSK;
Sub-Collections: SRI-ARC; Clerk: DSK;

reply to sdis dialogue. journal #11331

Subject: SDIS Journal item # 11331.   1

In reading your dialogue It seems apparent that you are looking
for an area to focus your efforts upon,   2

I would like to take this opportunity to suggest that you
consider your minority Hardware Group. We represent, on a small
and manageable scale, the needs of many other people, groups and
tasks.   3

   (ie: Xdoc, updating, filtering, text input/output, graphic
   input/output, record keeping, analysis, communications,
   cataloging retriving, etc)   3a

We also are very close to home and willing to participate.   4

reply to sdis dialogue. journal #11331

(J11537) 18-AUG-72 9:10;   Title: Author(s): Martin E. Hardy/MEH;
Distribution: Michael D. Kudlick, Jacques F. Vallee, Jeanne B. North,
Elizabeth J. Feinler/MDK JFV JBN JAKE; Sub-Collections: SRI-ARC; Clerk:
MEH;
Origin: <HARDY>SDIS.NLS;3, 17-AUG-72 13:30 MEH ;

template technology
COMMENT:
AUTHOR(S):DS

AUTHOR(S):D

template technology
COMMENT:
AUTHOR(S):DS

This is a test to see if the running DNLS will complete a journal
branch submission using the template format.   1

   The system should give number feedback to the user file,   1a

   I suppose, but I don't know about getting into sticky partial
   copy, updating and locked file problems.   1b

   Another test will be made to determine if ident group
   expansion is done properly.   1c

   Also, all the various error paths should be checked out.   1d

template technology
COMMENT:
AUTHOR(S):DS

(J11538) 18-AUG-72 9:14;   Title: Author(s): Diane S. Kaye/DSK;
Sub-Collections: SRI-ARC; Clerk: DSK;

Memo to Bob Wing   1

From: Dirk van Nouhuys   2

Subject: Can You Help Us with Printer Noise in the Conference
Room?   3

    When our printer prints, its noise really obtrudes on
discussions being held in our adjacent conference room. Can you
conjure up some SRI activity to remedy this for us? (Like, try
as a start insulating the print-room ceiling -- probably a lot of
noise comes over the wall.)   4

Memo to Bob Wing   1

From: Dirk van Nouhuys   2

Subject: Can You Help Us with Printer Noise in the Conference
Room?   3

    When our printer prints, its noise really obtrudes on
discussions being held in our adjacent conference room. Can you
conjure up some SRI activity to remedy this for us? (Like, try
as a start insulating the print-room ceiling -- probably a lot of
noise comes over the wall.)   4

(J11540) 18-AUG-72 10:54;   Title: Author(s): Dirk H. van Nouhuys/DVN;
Distribution: James C. Norton, Douglas C. Engelbart/jcn   dce   ;
Sub-Collections: SRI-ARC; Clerk: DVN;
Origin: <LANE>MEMO-WING.NLS;2, 24-JUL-72 17:17 LLL ;

More on the dialup lines

This morning I got some noise characters on line 8221 --
otherwise I haven't experienced any problems.   There was a
rubout, a 176, a 175, a b, a P, and an 8.   1

More on the dialup lines

(J11541) 18-AUG-72 10:58; Title: Author(s): L. Peter Deutsch/LPD;
Distribution: Don Limuti/DL; Sub-Collections: NIC; Clerk: LPD;

JEANNE,

PLEASE DELETE THE FOLLOWING INDIVIDUALS FROM THE LISTING IN THE
EXTENDED DIR. OF NET. AFF.:
        PHM
        SBT
        AHV
        DCW2.

PLEASE ADD ERIKA PEREZ (703) 893-3500 EXT 2887.

PLEASE CHANGE THE EXTENSION NUMBERS OF THE FOLLOWING TO:
        EHF   2397
        JJP   2887

        THANX,
        ERNIE FORMAN   1

(J11542) 18-AUG-72 11:36; Author(s): Ernest H. Forman/EHF;
Distribution: Jeanne B. North/NICSTA; Sub-Collections: NIC NICSTA;
Clerk: EHF;

a new system hardware configuration is planned.   the layout is
shown on the arc general bulletin board.
comments are appreciated.   don limuti

1

(J11543)   18-AUG-72 12:27;   Author(s): Don Limuti/DL; Distribution:
Augmentation Research Handbook, Kirk E. Kelley, N. Dean Meyer, Kay F.
Byrd, Ralph Prather, James E. (Jim) White, Jacques F. Vallee, Diane S.
Kaye, Paul Rech, Michael D. Kudlick, Don Limuti, William R. Ferguson,
Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Douglas C. Engelbart,
Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby,
Mil E. Jernigan, Harvey G. Lehtman, Jeanne B. North, James C. Norton,
Cindy Page, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara
E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth E. Victor,
Donald C. Wallace, Richard W. Watson, Don I. Andrews/SRI-ARC;
Sub-Collections: SRI-ARC; Clerk: DL;

All ARC Meeting to Dicuss ICCC

There will be an all ARC meeting at 11:00 Wed. Aug 23 to bring
people up to date on the International Computer Communications
Conference network demo and ARC's plans to participate, to
discuss some of the things we hope to get out of it etc.   1

All ARC Meeting to Dicuss ICCC

(J11544)   18-AUG-72 14:29;   Title: Author(s): Richard W. Watson/RWW;
Distribution: Augmentation Research Handbook, Kirk E. Kelley, N. Dean
Meyer, Kay F. Byrd, Ralph Prather, James E. (Jim) White, Jacques F.
Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Don Limuti,
William R. Ferguson, Linda L. Lane, Marilyn F. Auerbach, Walt Bass,
Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D.
Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne B.
North, James C. Norton, Cindy Page, William H. Paxton, Jeffrey C.
Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van
Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I.
Andrews/SRI-ARC; Sub-Collections: SRI-ARC SRI-ARC; Clerk: RWW;

subject: G.E. video projector   1

   Conversation with G.E. sales manager, (Mr. Jerrold P.
Gundersen) (Home entertainment Business Div.).   1a

      Basically his reply was: 1a1

         They could modifiy their monochrome projector to
         accommodate our special line-rate, (875) and the
         standard line-rate (525), The cost for their standard
         model is 30,000 dollars. Our special line-rate
         requirements add 4,497. The extra lens we need add 1,500
         and the remote control 500. Total cost is then $36,497.   1a1a

         They would consider splitting the cost of having a demo
         here, (approximatly $1,000 ea.), or would pay all costs
         if we gave them a purchase order, (containing an
         acceptance clause of course). The demo would be with
         their standard 525 lines model.   1a1b

      Limitations: 1a2

      Method for changing "line-rate".   1a2a

         A card must be exchanged to convert from one
         "line-rate" to another.   1a2a1

         We must purchase a card for each line rate we want
         readily available on site.   1a2a2

         It requires technical help to make this change. (The
         state of the art is such that it could have been
         automatic, it's too bad it's not.)   1a2a3

      Warm up time.   1a2b

         One hour warm up time is required to reach correct
         writing oil temperature for the "light-valve",
         (projector tube).   1a2b1

            A standby mode is provided, which does not shorten
            the life of the "light-valve", but does maintain
            the oil temperature.   1a2b1a

            From the standby mode, only four minutes is
            required before a clear picture is present on the
            screen.   1a2b1b

      Advantages: 1a3

video projector

High light output   1a3a

    Screen brightness, with a flat screen, is 600 to 750
    lumens.   1a3a1

Contrast ratio   1a3b

    Is (100 to 1) for their monochrome model, under
    negligible ambient light.   1a3b1

Power requirements   1a3c

    Plugs into any standard a.c. wall socket, (117 volts
    at 20 amps).   1a3c1

Screen Projection   1a3d

    May be either front or rear.
    (Is not switch selectable, but can be easily
    accomplished by moving two wires)   1a3d1

Flexibility   1a3e

    The projector is relatively small, (approximately
    2'x2' by 5' high)   1a3e1

    The projection head can be separated from its base
    and operated up to 8 feet away.   1a3e2

    An optional remote control unit is available for
    extensions up 200 feet.   1a3e3

    Picture width adjusts from 2 to 20 feet.   1a3e4

    Picture distance is a function of picture width.
    Three lens are available   1a3e5

        standard: 3   times picture width = 6' to   60'
        option 1:   1.5 times picture width = 3' to   30'
        option 2:   6   times picture width =12' to 120'   1a3e5a

    Synchronization
    Syncs to either commercial or industrial, composite
    or noncomposite.   1a3e6

Operating characteristics and cost.   1a4

    The "light-valve", (projection tube), is warranted for
    1,000 hours. Typically they have been lasting between

1,500 and 1,800 hours. (at 5 hours a week approximately
18 months of tube life could be expected).   1a4a

The cost of replacement is $8,000. (8 dollars an hour
tube operating cost), based on warranty life span.   1a4b

Questions and Replies: 1b

Aspect ratio:
4 x 3   1b1

Optional remote control unit   1b2

   -what does it contain;
    All controls but contrast and power.   1b2a

   -what is its maximun remote distance
   200 feet (length must be specified a time of order.)   1b2b

   -cost
   $500.   1b2c

Is it necassary to pump down befor use;
No, but there is a one hour warm up time required to heat
the writing oil. The projector can be left in standby mode,
then only 4 minutes are required. Standby mode does not
shorten the life of the "light-valve".   1b3

LIGHT VALVE (projector tube)   1b4

   -what is its life;
   It is warranted for 1,000 hours, but they typically have
   been lasting between 1,500 and 1,800 hours.   1b4a

   -how long does it take to get a replacement;
   They try to stock one for immediate delivery.   1b4b

   -what is its cost;
   $8,000 plus your old one. ($11,000 outright)   1b4c

-modification to run 875/525 line rate   1b5

   -what is the cost;
   Could be as much as $10,000 or $12,000. A firm cost
   would be given upon request. (this includes updating
   documentation, etc)
   Firm cost (received on 8/17/72): $4,497.   1b5a

video projector

        -how long will it take to make the modification;
        approximatly 30 days   1b5b

      -how much does the total projector package cost;
      with sync mods, extra lens, and remote control, between
      $38,000 and $45,000 (depends on the exact cost of the sync
      mods.)
      Exact cost received. total package cost $36,497.   1b6

      -can we get a demo here at SRI at 875 line rate;
        No, only at 525 with the following conditions:
      If they, (G.E.), had a purchase order to show intent, the
      acceptance, of course, would be it working at our line rate
      with good resolution. They would also consider splitting
      the demo cost, about $1,000 each, without a purchase order.   1b7

      -is it movable from room to room without a lot of
      difficulty;
      Yes   1b8

      -what are the a.c power requirements;
      117 volts A.C. at 20 amps.   1b9

      -if we bought one how long before we could get it delivered
      to SRI;
      30 days, This would be their standard monochrome model at
      525 lines. (The modifications to 875 line-rate would be
      done here at SRI by their field personnel.)   1b10

      -Will it accept video tape with sound;
      Yes   1b11

      -Does a speaker come with it;
      Yes, but its not a very high quality one.   1b12

   -If we recorded a video tape with industrial sync will it play
   back ok to the projector;
   Yes   1c

   -can you sync it to industrial sync as well as commercial;
   Yes   1d

video projector

(J11545) 18-AUG-72 15:15; Title: Author(s): Martin E. Hardy/MEH;
Distribution: Augmentation Research Handbook, Kirk E. Kelley, N. Dean
Meyer, Kay F. Byrd, Ralph Prather, James E. (Jim) White, Jacques F.
Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Don Limuti,
William R. Ferguson, Linda L. Lane, Marilyn F. Auerbach, Walt Bass,
Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D.
Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne B.
North, James C. Norton, Cindy Page, William H. Paxton, Jeffrey C.
Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van
Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I.
Andrews/SRI-ARC; Sub-Collections: SRI-ARC; Clerk: MEH;
Origin: <HARDY>PROJECTOR.NLS;20, 18-AUG-72 15:04 MEH ;

Note to JBP re: next Network Graphics Meeting
COMMENT:
AUTHOR(S):CH

AUTHOR(S):C

Note to JBP re: next Network Graphics Meeting
COMMENT:
AUTHOR(S):CH

John,
No I am not doing anything about a Network Graphics Meeting.   I
am very busy these days and would have a difficult time
organizing and hosting such a Meeting until after the ICCC
meeting. Who else could host the next meeting? Is Al Vezza or
Jim Michner the coordinator? Sorry if I have held things up, but
it was not my understanding that we were definitly going to host
the next meeting.
   -- Charles.   1

Note to JBP re: next Network Graphics Meeting
COMMENT:
AUTHOR(S):CH

(J11546) 20-AUG-72 13:38;   Title: Author(s): Charles H. Irby/CHI;
Sub-Collections: SRI-ARC; Clerk: CHI;

test message

John,
No I am not doing anything about a Network Graphics Meeting. I
am very busy these days and would have a difficult time
organizing and hosting such a Meeting until after the ICCC
meeting. Who else could host the next meeting? Is Al Vezza or
Jim Michner the coordinator? Sorry if I have held things up, but
it was not my understanding that we were definitly going to host
the next meeting.
     -- Charles.   1

test message

(J11547) 20-AUG-72 13:51;   Title: Author(s): Charles H. Irby/CHI   ;
Distribution: Charles H. Irby/chi   ; Sub-Collections: SRI-ARC; Clerk:
CHI;

Shopping for Facilitators

Carrying forward what I outlined of in (Journal, 11265,) I am
trying to expose interested parties to professinals who might
teach us skills in communication of conflict.   1

I called Arthur Hastings.   2

   He would be interested in a continuing relationship where a
   special interest group would meet with him for a couple of
   hours every 3 weeks or so to learn and experience techniques
   in communication and conflict.   2a

   He will come in for about an hour starting 3 o'clock August 23
   to present his ideas.   2b

      Please come.   2b1

I also talked to Victor Lovell of the Psychodrama workshop.   3

   He also might be interested in continuing consulting.   3a

   He did not, however, feel that it would be very useful for him
   to come and describe what he and his co-workers do.   3b

   He suggested instead that potential meembers of the special
   interest group come to one of the open psychodrama workshops
   that they offer on Tuesday nights and see what was happening.   3c

   In suggesting we visit there, however, he asked me to
   emphasize the difference in goals between their regular
   workshops and ARC POD activities.   3d

      In the Tuesday workshops workshops they strive for
      substantial personality changes.   3d1

      He says most of the same techniques can be used for
      improving working relationships and in any arrangement he
      would have with us would have the more limited goal.   3d2

   I suggest that several of us go Tuesday, August 29. It seems
   to me an advantage if several of us go together to compare
   notes. See me for maps and other arrangements.   3e

The name of Ann Armstrong has also been suggested. I have not
yet gotten in touch with her, but I plan to.   4

Shopping for Facilitators

(J11548)   21-AUG-72 10:43;   Title: Author(s): Dirk H. van Nouhuys/DVN;
Distribution: Elizabeth J. Feinler, Augmentation Research Handbook, Kirk
E. Kelley, N. Dean Meyer, Kay F. Byrd, Ralph Prather, James E. (Jim)
White, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick,
Don Limuti, William R. Ferguson, Linda L. Lane, Marilyn F. Auerbach,
Walt Bass, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E.
Hardy, J. D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G.
Lehtman, Jeanne B. North, James C. Norton, Cindy Page, William H.
Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De
Riet, Dirk H. van Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard
W. Watson, Don I. Andrews/SRI-ARC; Keywords: Hastings Lovel Armstrong;
Sub-Collections: PODAC SRI-ARC; Clerk: DVN;
Origin: <VANNOUHUYS>SHOPPING.NLS;1, 21-AUG-72 10:34 DVN ;

title - 16 chars
COMMENT:10 chars**
AUTHOR(S):DS

10 chars**
AUTHOR(S):D

title - 16 chars
COMMENT:10 chars**
AUTHOR(S):DS

this is only a message*   1

title - 16 chars
COMMENT:10 chars**
AUTHOR(S):DS

(J11550) 21-AUG-72 11:04;   Title: Author(s): Diane S. Kaye/DSK;
Sub-Collections: SRI-ARC; Clerk: DSK;

Note on how to fix SRI's implementation of the NVT

Smokey,

Ray Tomlinson says that if you call "network" terminals
Model 37 TTY's instead of TI's everything will work fine.
He says that everything about the two device types is
identical except that a 37 TTY doesn't have padding characters
between the CR and LF. He thinks that the 37 TTY is "device
number 2". (incidentally, the padding is AWFUL even when
using a real model 37 through the net, as I'm doing now)   1

Note on how to fix SRI's implementation of the NVT

(J11551)   21-AUG-72 14:07;   Title: Author(s): Alex A. McKenzie/AAM;
Distribution: Donald C. Wallace/DCW; Sub-Collections: NIC; Clerk: AAM;

TNLS Beginners Guide Error.

TNLS Beginners Guide Table-of-Contents.   It came to my attention
while trying to use the TNLS Beginners Guide (version 7 Aug 72)
that the page numbers cited do not match up with the actual text.
For instance, the section called "Command Summary and Help"
occurs on page 63 and not on page 53 as cited in the
table-of-contents.   Perhaps there is still time to redo the page
numbers N.   (NOTE: I am sending this as a journal message so that
I can get the practice of sending messages.   You are probably
already aware of what I am writing.)   1

TNLS Beginners Guide Error.

(J11553)   21-AUG-72 17:04;   Title: Author(s): Elizabeth J. Feinler/JAKE; Distribution: Dirk H. van Nouhuys, Marilyn F. Auerbach/DVN MFA; Sub-Collections: SRI-ARC; Clerk: JAKE;

SONY TV

Jim, take a look at the Sony T.V. on station 44. (console in
front of Erby's office) It is scanning at standard T.V. line
rate. (525) You might work on-line with it to get a feel for it.
Its on loan and will be returned Tuesday 8/22, about 9:00.
martin..   1

SONY TV

(J11554)   21-AUG-72 17:05;   Title: Author(s): Martin E. Hardy/MEH;
Distribution: James C. Norton/JCN; Sub-Collections: SRI-ARC; Clerk: MEH;

Could all those who ate/or drank at last firday's party please
contribute $2/person ($1/person for drinkers only) to cover the
cost of the food and drinks. Thank you. kev   1

(J11555)   22-AUG-72 1:20;   Author(s): Kenneth E. Victor/KEV;
Distribution: Elizabeth J. Feinler, Augmentation Research Handbook, Kirk
E. Kelley, N. Dean Meyer, Kay F. Byrd, Ralph Prather, James E. (Jim)
White, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick,
Don Limuti, Ferg R. Ferguson, Linda L. Lane, Marilyn F. Auerbach, Walt
Bass, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J.
D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne
B. North, James C. Norton, Cindy Page, William H. Paxton, Jeffrey C.
Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van
Nouhuys, Kenneth E. Victor, Smokey C. Wallace, Richard W. Watson, Don I.
Andrews/SRI-ARC; Sub-Collections: SRI-ARC; Clerk: KEV;

Call to Meet onthe 4-Day Week

This message is to call a meeting to discus the experiement with
a work week of 4 ten-hour days for memebers of PSO.
(Hjournal,11220,) (hjournal,11330,) We will meet tomorrow, the
23rd, at 9 AM in the Parsley room. Anyone from ARC who is
interested should feel free to come and speak.   1

Call to Meet on the 4-Day Week

(J11556)   22-AUG-72 8:58;   Title: Author(s): Dirk H. van Nouhuys/DVN;
Distribution: Elizabeth J. Feinler, Augmentation Research Handbook, Kirk
E. Kelley, N. Dean Meyer, Kay F. Byrd, Ralph Prather, James E. (Jim)
White, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick,
Don Limuti, Ferg R. Ferguson, Linda L. Lane, Marilyn F. Auerbach, Walt
Bass, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J.
D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne
B. North, James C. Norton, Cindy Page, William H. Paxton, Jeffrey C.
Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van
Nouhuys, Kenneth E. Victor, Smokey C. Wallace, Richard W. Watson, Don I.
Andrews/SRI-ARC; Sub-Collections: SRI-ARC; Clerk: DVN;

Follow thru recommendations for G.E. projector. (journal #11545)

there is a journal file called Video Projector (#11545). It is
contents is specifications on the G.E. video projector and my
conversations with their sales personnel.   1

My recommendation is, if we buy it, buy it converted for both
line rates (525/875), regardless of the outcome of the Sony TV
experiment.   2

Also, I am at a stand off as far as getting a demo here. They
essentually want a firm commitment, (P.O.), if they demo
successfully. I couldn't give it to them.   3

My recommendation on this matter is as follows:
 (I have already initiated parts 1 and 2.   4

    1.   Record a video tape from one of our consoles at the 525
    line rate.   4a

       A draw back of 1/2 inch video tape is resolution. It is
       only 200 lines. Standard TV is between 600 and 700 lines.
       The G.E. projector is spec'ed at 700 lines. Regardless of
       these in differences, doing this would obtain at least a
       basis to work from.   4a1

    2.   Send the recorded video tape to G.E. and let them
    evaluate it on their projector screen. (if possible)   4b

    3. Notify Purchasing of our exact intent, (want, will or maybe
    ), about purchasing the G.E. projector.   4c

       (ie: put purchasing between us and G.E.)   4c1

    4. Let Purchasing handle the demo, commitment, etc, from here
    on out.   4d

                                                                            5

Follow thru recommendations for G.E. projector. (journal #11545)

(J11557) 22-AUG-72 9:45;   Title: Author(s): Martin E. Hardy/MEH;
Distribution: James C. Norton/JCN; Sub-Collections: SRI-ARC; Clerk: MEH;
Origin: <HARDY>PRO/RECOM.NLS; 4, 22-AUG-72 9:12 MEH ;

File Control instructions for simple NETINFO queries

A very simple-minded retrieval system that saves casual users
the trouble to learn about NLS file structures is described. It
is applied to the on-line query of ARPANET information with the
ICCC conference as a target for demonstration. The service will
be maintained after the Conference. Instructions for update and
maintenance of the data-base are given.

File Control instructions for simple NETINFO queries

On-line ARPANET information: Instructions for update and
maintenance of the NETINFO file.   1

   There has long been a need for on-line information about
   ARPANET, giving such items as types of computers, available
   services, up-to-date staff listings, etc. for each site.   1a

   At the occasion of the ICCC Conference we are developing such
   a service based on the Resource Notebook.   1b

   The service at this point consists of: i) a primitive query
   language that has the sole purpose of saving a casual user the
   trouble to learn NLS commands or to acquire an understanding
   of our file structure and ii) a suitably-organized information
   file called NETINFO.   1c

   This document is NOT intended as a user's Guide, its purpose
   is to give a set of simple instructions to access and maintain
   NETINFO so that this information service can remain available
   to ARPANET users beyond the October demonstration.   1d

      NETINFO is an NLS file under the NIC Directory. Its
      branches are named in such a way that they correspond to
      user commands. These commands are listed and explained in
      the first branch of the file, called (h) for "help". To
      maintain consistency with the conventions of the rest of
      the system this branch is accessed by the user typing a
      question mark.   1d1

      The other branches are: (c) the index of computers
      available on the net, (p) an index of programs offered
      on-line, (t) an index of terminals, (s) the list of the
      sites.   1d2

      The file also contains for each site a branch (whose name
      is the site name or ident, although naming problems have
      yet to be completely resolved) that gives its complete
      identification and location, and six detail branches
      numbered as follows: 1d3

         1. Personnel   1d3a

         2. Equipment   1d3b

         3. Network data   1d3c

         4. Operating System   1d3d

         5. Login procedure   1d3e

    6. Programs   1d3f

    7. Documentation   1d3g

In order to maintain this file, one simply alters the text
stored under any branch, paying attention to items that are
also indexed in the main tables of computers, terminals,
programs, etc.   1d4

Additional index tables can be added to the file under some
new name (preferrably a single letter that has not been
used as a branch name yet) but care should then be taken to
alter the "help" branch to give the user information about
this new command.   1d5

When the name of a site is altered, this change must take
place in the site index branch, in every index table, and
in the seven branches giving specific information about
that site.   1d6

In order to add a new site, one would create new branches
under that site name and also change the indices.   1d7

The important property of this approach is that it gives
the person updating the file the power to create new user
commands. The program does no parsing in the classical
sense and relies on branch names corresponding to user
commands, with few exceptions. These commands terminate
with either carriage return or command accept. When we feel
comfortable that casual users can effectively use this
first phase of the query language, more complex functions
will be introduced into the program.   1d8

File Control instructions for simple NETINFO queries

(J11558) 22-AUG-72 9:39;   Title: Author(s): Jacques F. Vallee/JFV;
Distribution: Elizabeth J. Feinler, Augmentation Research Handbook, Kirk
E. Kelley, N. Dean Meyer, Kay F. Byrd, Ralph Prather, James E. (Jim)
White, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick,
Don Limuti, Ferg R. Ferguson, Linda L. Lane, Marilyn F. Auerbach, Walt
Bass, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J.
D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne
B. North, James C. Norton, Cindy Page, William H. Paxton, Jeffrey C.
Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van
Nouhuys, Kenneth E. Victor, Smokey C. Wallace, Richard W. Watson, Don I.
Andrews/SRI-ARC; Sub-Collections: NIC SRI-ARC; Clerk: JFV;
Origin: <VALLEE>INSTRUC.NLS;2, 22-AUG-72 9:32 JFV ;

Problems with Half-duplex Terminals

It is presently quite difficult to use a hardware half-duplex
terminal with the NIC (I have the IBM 2741 especially in mind.
Its line-turnaround is quite obnoxious). The EXEC allows for the
existence of such terminals, but now that there is no "NET TTY"
any more, NLS has no half-duplex mode tha I know about. Both
Alex and I like to use the 2741 with NLS. Can we expect to see a
fix? Also, are you amenable to having the EXEC start up thinking
the terminal is a 37 instead of a TI?
     Thanx,
          Joel

1

Problems with Half-duplex Terminals

(J11559)   22-AUG-72 9:58;   Title: Author(s): Joel B. Levin/JBL;
Distribution: Smokey C. Wallace, Richard W. Watson, James E. (Jim)
White, Alex A. McKenzie/DCW RWW JEW AAM; Sub-Collections: NIC; Clerk:
JBL;

Historic response to historic mail.

rmm to rdb2

Historic response to historic mail.

Got your historic first message to me.
I assume that rdb2 is Robert Bressler, right?
Keep those letters coming.
MSP progress?

1

Historic response to historic mail.

(J11560)   23-AUG-72 8:54;   Title: Author(s): Robert M. Metcalfe/RMM;
Distribution: Robert D. Bressler/RDB2; Sub-Collections: NIC; Clerk: RMM;

martin on hardware diagnostics

Subject: Hardware Diagnostics (first cut)   1

   Notes: This is a first cut at trying to define what I think we
   need in the way of diagnostics. I avoided commenting on what
   we have now or how we could implement this. My attempt was
   only to define needs at the first level.   1a

   It seems to me that are three classes of diagnostics needed by
   us here at A.R.C..   1b

      1. (PASS/FAIL) Diagnostics that check, on a pass fail
      basis, the condition of the running system's hardware.   1b1

      2. (PATCHER) Diagnostics that detect hardware reported
      errors and then diagnose, and possibly implement a software
      cure that enables keeping the device usable and the system
      running.   1b2

      3. (TROUBLESHOOTING) Diagnostics that aid and help hardware
      troubleshooting.   1b3

   *** PASS/FAIL diagnostics should simply be a device exerciser,
   one that yields a "confidence level", as to the system's
   condition.   1c

      It should be a job program that automatically starts up and
      makes one pass every time the system is restarted.   1c1

      It should enter into logical diagnosis only to identify the
      particular device, or devices, not functioning.   1c2

      It should exercise each device in a manner that is as
      similar to the running system's utilization of it as
      possible.   1c3

      Its seems to me that the development of the PASS/FAIL
      diagnostics need very little input from maintenance
      personnel.   1c4

   *** PATCHER diagnostics should provide a mechanism to more
   effectively use a device and allow for scheduled maintenance.   1d

      It should detect and define all (hard or soft) hardware
      reported errors, then automatically output that information
      to the logging teletype and a file designated specifically
      for storing historical data.   1d1

      It should have the capability to diagnose on-line.   1d2

martin on hardware diagnostics

It should have the capability to change a devices
'operating-space' and 'operating-flow' on-line.   1d3

Examples:
My intention here is not to be flawless, but to exhibit
some finite examples that show, in my opinion, a very valid
and important need for some software support in this area.
If this type of system was a reality the maintenance job
would be less frustrating and the system would be up more.
Up more by the fact that the system would be more flexible
and efficiently utilized.   1d4

  Drum reported data error
  The program should diagnose the bad page address, then
  delete it from the Drum's writing space.   1d4a

  Display Controller reported elapsed time error
  The program should rewrite its unit reference cell then
  send a new start command. If error persists, the program
  should continue diagnosis to find if its dependent on a
  particular command table entry or not, etc, etc, etc.   1d4b

  Line Printer reported data error
  The program should determine what buffer area in excore
  it occurred in, move it, try again.   1d4c

A solution to the drum problem I see as a absolute
necessity. It is plain stupid to disable the complete
swapping device because of a software incompleteness.
Especially when during heavy loads it seems we only utilize
between 1/2 and 2/3 its capacity.   1d5

The foregoing raises some questions: 1d6

  If you can successfully patch around hardware failures,
  when will you fix it?   1d6a

    My claim is they will become random scheduled
    maintenance events. Its better to have random
    scheduled maintenance than to have random unscheduled
    maintenance as we have now.   1d6a1

  What about system loading when a device requires
  diagnostic attention?   1d6b

    It is better to increase the load average
    significantly to define and implement a patch around,
    (for seconds or even minutes), than to die or lose
    the use of a device unexpectedly for hours.   1d6b1

2

martin on hardware diagnostics

*** TROUBLESHOOTING diagnostics should be extremely flexible
and well documented; such that, a person needing some special
program mode of action could easily determine its possibility
thru a simple process.   1e

   The diagnostic package should be designed around a modular
   concept, to allow flexibility in the arrangement of its
   "operating-flow" and program appendums.   1e1

   Program operating languages, methods and documentation,
   should be as simular to each other as possible. (ie: use of
   console switches, program call names, names of transfer
   starting and stopping address, program rentry names,
   program start-up and stopping methods, type out formats,
   etc.)   1e2

   It should be flexible enough such that reconfiguration of
   its "operating-flow" could be done relatively quickly, by a
   non-programmer.   1e3

      (my definition of non-programmer is as follows: any
      person that knows enough about programming, and our
      assembly language, to basically understand it. (He is
      not a novice user, but also is not a programmer.)   1e3a

   Ideally all hardware troubleshooting programs could be
   flexible enough such that one could link together all of
   them in any particular order, each with specific
   "operating-flows", and then run all of them, as one,
   (multiplexed).   1e4

      This would help tremendously in trouble-shooting device
      interference problems.   1e4a

   The HARDWARE TROUBLESHOOTING diagnostics should be
   specified by the maintenance personnel when ever possible.   1e5

   These diagnostics should exist in two forms; "stand-alone"
   and "on-line".   1e6

      The "on-line" diagnostics would obviously be limited,
      and less flexible than the "stand-alone" versions.   1e6a

         Their effects on the running system would have to be
         well defined.   1e6a1

         The purpose of these "on-line" diagnostics should be
         to exercise a device, in any one of its
         "operating-flows", and diagnose on a limited scale.   1e6a2

3

Their diagnostics capabilities should be dependent
on system load.   1e6a2a

 They should exercise in a fashion simular to the
fore mentioned PASS/FAIL type, but with extended
"operating-flow" control.   1e6a2b

EXAMPLE; The bryant drum reports most of its
error, and type, but doesn't diagnose actual
fault. Neccessary then is a program to forces
the fault and does some limited diagnostics.
(Typical case: Drum reported check field error.
History has shown that you need not write a
complete page. Something like 3 or 4 words will
do. Therefore the program needs only to write 3
words, sense for a reported error; compare and
then type out.)   1e6a2b1

These "on-line" diagnostics would then allow
maintenance personnel to repeat, control, and
observe the fault condition for analysis.   1e6a2c

This also would provide a nice tool for testing a
repaired device, on-line, before utilizing it in
the running system.   1e6a2d

martin on hardware diagnostics

(J11562) 23-AUG-72 10:53;   Title: Author(s): Martin E. Hardy/MEH;
Distribution: Elizabeth J. Feinler, Augmentation Research Handbook, Kirk
E. Kelley, N. Dean Meyer, Kay F. Byrd, Ralph Prather, James E. (Jim)
White, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick,
Don Limuti, Ferg R. Ferguson, Linda L. Lane, Marilyn F. Auerbach, Walt
Bass, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J.
D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne
B. North, James C. Norton, Cindy Page, William H. Paxton, Jeffrey C.
Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van
Nouhuys, Kenneth E. Victor, Smokey C. Wallace, Richard W. Watson, Don I.
Andrews/SRI-ARC; Sub-Collections: SRI-ARC; Clerk: MEH;
Origin: <HARDY>DIAGNOSTICS.NLS;39, 18-AUG-72 17:03 MEH ;

the phone lines for the dialin service have been serviced
and no complaints are heard. alas

1

(J11563)   23-AUG-72 10:57;   Author(s): Don Limuti/DL; Distribution:
Elizabeth J. Feinler, Augmentation Research Handbook, Kirk E. Kelley, N.
Dean Meyer, Kay F. Byrd, Ralph Prather, James E. (Jim) White, Jacques F.
Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Don Limuti, Ferg
R. Ferguson, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Douglas C.
Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper,
Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne B. North,
James C. Norton, Cindy Page, William H. Paxton, Jeffrey C. Peters, Jake
Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth
E. Victor, Smokey C. Wallace, Richard W. Watson, Don I. Andrews/SRI-ARC;
Sub-Collections: SRI-ARC; Clerk: DL;

Message from JHB, aug. 72

 There is a short message for you at (bair,ahi,1:wm) from Bair.
(branch 1 only)   1

Message from JHB, aug. 72

(J11564)   23-AUG-72 12:23;   Title: Author(s): James H. Bair/JHB;
Distribution: Dirk H. van Nouhuys, James C. Norton, Douglas C.
Engelbart, Paul Rech/DVN(for your action) JCN(for your action) DCE(for
your information) PR(for your information); Sub-Collections: RADC;
Clerk: JHB;

BARB: I GOT THE PAPER (TNLS BEGINNERS GUIDE) THANKS ITS GREAT

STAN

1

(J11565)   23-AUG-72 13:28;   Author(s): Stanley Cohen/SC; Distribution: Barbara E. Row/BER; Sub-Collections: NIC; Clerk: SC;

Reply to JBL on a NETTY Device

Joel,
We are aware of the 2741 problem, version 129 of tenex did not
come with a net tty type device. We will have such a device
shortly and net users will default to it rather thn a Ti. If they
want some other device such as 33 or ti they can set it in the
EXEC or wirh a NLS command.   1

Reply to JBL on a NETTY Device

(J11566) 23-AUG-72 13:50; Title: Author(s): Richard W. Watson/RWW;
Distribution: Joel B. Levin/JBL; Sub-Collections: SRI-ARC; Clerk: RWW;

Magical Archive System Noted

I find the archive EXEC command very confusing even while sitting
with <journal>9968 in front of me. I hope i havent screwed things
up again. Until further notice i will regard the archive as
dangerous black magic and leave it alone. thanks for your help.   1

Magical Archive System Noted

(J11568)   23-AUG-72 15:09;   Title: Author(s): Jonathan B. Postel/JBP;
Distribution: Kenneth E. Victor, James E. (Jim) White/KEV JEW;
Sub-Collections: NIC; Clerk: JBP;

More on compiling patterns

See (11135,), (11153,), and (11506,) for history.

More on compiling patterns

I have now printed out the code generated for Dirk's content
analyzer pattern in (11135,) and the results are just what I
expected: compiling that pattern open as suggested in (11506,)
would produce about an order of magnitude improvement in speed,
possibly more. I think it would be very instructive for some of
you to look at this code. The relevant NLS routines are READC,
CCT, CHRCT, BEGARB, INCARB, ENDARB, PCP, SCP, BFS, amd FECHC1. I
will also make Xerox-type copies of the machine code and attempt
to distribute them to the people who are receiving this message.   1

More on compiling patterns

(J11569)   23-AUG-72 15:20;   Title: Author(s): L. Peter Deutsch/LPD;
Distribution: James C. Norton, Michael D. Kudlick, Richard W. Watson,
Charles H. Irby, Harvey G. Lehtman, Paul Rech, Douglas C. Engelbart,
Dirk H. van Nouhuys, William H. Paxton, William S. Duvall, Diane S.
Kaye/JCN MDK RWW CHI HGL PR DCE DVN WHP WSD DSK; Sub-Collections: NIC;
Clerk: LPD;