JDH 24-JUN-75 12:48 32817

Re 32787, Journal delivery missed for PWO

1 I've checked your Identfile entry and your initial file and everything seems to be in order. Except where an initial file or its partial copy is accidentaly deleted, I don't know of any problems with the system which could cause you to miss some items and receive others. A system bug involving apostrophes in directory namesis always a possibility to consider, but I would expect it to be consistant. We will try to backtrack some item you missed if we can find one. 1

JDH 24-JUN-75 12:48 32817

Re 32787, Journal delivery missed for PWO

(J32817) 24-JUN-75 12:48;;;; Title: Author(s): J. D. Hopper/JDH; Distribution: /PWO([ACTION]) JCP([INFO-ONLY]) FEED([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: JDH;

1 32817 Distribution
1a Pat Whiting O'Keefe, Jeffrey C. Peters, Special Jhb Feedback,

JMB 24-JUN-75 14:54 32819

An informal request

1 Was anything interesting or important to our work with clients discussed during the ARC-APP meeting June 5th? I would like to get up to date on Applications news. 1

JMB 24-JUN-75 14:54 32819

An informal request

(J32819) 24-JUN-75 14:54;;;; Title: Author(s): Jeanne M. Beck/JMB; Distribution: /US([ACTION]) ; Sub-Collections: SRI-ARC US; Clerk: JMB;

1 32819 distribution
ia Priscilla A. Wold, Jeanne M. Beck, Pamela K. Allen, Rita Hysmith,
Sandy L. Johnson,

JMB 24-JUN-75 14:56 32820

More on weekly reports

1 I suggest that the weekly reports carry the dates of the week covered--both in the title of the Journal item and somewhere in the text of the item you go to (only Mond, Tues, etc, there now). I got so many copies of weekly reports (many duplicates) that I could not tell from the date of submission which week was described. 1

2 Let's have a Sendmailform in the source file that contains standardized info for mailing the report. The address of the source will always refer only to the branch itself. I'll show you; the following would be our source file: 2

3 TITLE: USER SERVICES WEEKLY REPORT: WEEK OF XXXXX
DISTRIBUTE FOR INFO-ONLY TO: US
BRANCH AT: ,d
3

3a USER SERVICES WEEKLY REPORT: WEEK OF XXXXX 3a

3a1 JMB: 3a1

3a2 SGR: 3a2

3a3 RH: 3a3

3a4 PKA: 3a4

3a5 PAW2: 3a5

JMB 24-JUN-75 14:56 32820

More on weekly reports

(J32820) 24-JUN-75 14:56;;;; Title: Author(s): Jeanne M. Beck/JMB; Distribution: /US([ACTION]) ; Sub-Collections: SRI-ARC US; Clerk: JMB;

1 32820 Distribution
1a Priscilla A. Wold, Jeanne M. Beck, Pamela K. Allen, Rita Hysmith,
Sandy L. Johnson,

JMB 24-JUN-75 15:04 32821

Bug report

1 Several times today and yesterday I have attempted to delete a short branch, and gotten only the response "NLS system error". Each time the only solution was to Quit NLS and enter it again. So this error appeared in successive runs of NLS, but not every time I attempted such a deletion. Please investigate as it is an inconvenience. 1

JMB 24-JUN-75 15:04 32821

Bug report

(J32821) 24-JUN-75 15:04;;;; Title: Author(s): Jeanne M. Beck/JMB; Distribution: /FEEDBACK([ACTION]) ; Sub-Collections: SRI-ARC FEEDBACK; Clerk: JMB;

1 32821 Distribution
1a Special Jhb Feedback,

FGB 24-JUN-75 17:51 32822

elf messages

1 The file ELF-MSG contains some recent information about ELF releases, It can be read via the TENEX TYPE command (i.e., "ty Elf-Msg(cr)"), It will be around for a week or so before it goes away. Regards, Frank 1

FGB 24-JUN-75 17:51 32822

elf messages

(J32822) 24-JUN-75 17:51;;;; Title: Author(s): Frank G. Brignoli/FGB; Distribution: /NAVIMP([ACTION]) ; Sub-Collections: NIC NAVIMP; Clerk: FGB;

1 32822 Distribution
1a John C. McGilvary, James Peterson Shores, I, Larry Avrunin, Frank G. Brignoli, Edward Lewis Aiken, George Egeland, John J. Zenor, Robert D. Archer, Paul C. Bishop, J. Gregory Noel, Eugene P. Stemple, Robert A. Unger, Connie Heitmeyer,

1 Greg, 1

1a Please pass the following on to Gil Myers, 1a

1b Within the next day or so, the following individuals should be valid users of the namini directory (password mini), 1b

1b1 Robert D. Archer RDA 1b1

1b2 C. Michael Chernick CMC 1b2

1b3 James Peterson Shores JPS 1b3

1b4 Lou M. Robertson LMR 1b4

1b5 Manley W. Turner MWT 1b5

1b6 Richard R. Wolff RRW 1b6

1b7 Honey Sue Elovitz HSE 1b7

1b8 Gilbert B. Myers GBM 1b8

1b9 Henry G. Steubing HGS 1b9

1b10 Jack M. Zyphur JMZ2 1b10

1c Training in using NLS is available if desired. Some documentation will be sent out within the next few weeks, 1c

2 Regards, 2

3 Frank 3

NAVMINI Directory

(J32823) 24-JUN-75 18:09;;;; Title: Author(s): Frank G. Brignoli/FGB; Distribution: /JGN([ACTION]) ; Sub-Collections: NIC; Clerk: FGB;

1 NSW Protocols Weekly Status Report: 25-JUN-75 1

1a JIM WHITE 1a

1a1 Major Responsibility: PDP-10 DPS 1a1

1a2 Accomplished Last Week 1a2

1a2a - Completed CLI-driven debugging phase. 1a2a

1a2a1 CLI now successfully signs into DPS (SIPR), readys itself for incoming procedure calls (RDYPR), creates a remote process (CRTPS, intra-host) which it believes to be the WM but which is really another instance of the CLI, and attempts to open two WM packages (OPNPKS). The open attempt is refused by the remote DPS because the packages don't exist. 1a2a1

1a2b - Verified the following major sections of code via the above. 1a2b

1a2b1 Internal L10 environment multiplexing, the VJSYS mechanism, intra-host inter-process communication, the basic call-return mechanism, 90% of the support procedures which underly all of DPS. Yet to be verified is the VJUSR mechanism. 1a2b1

1a3 Scheduled Next Week 1a3

1a3a - Begin CLI-NLSBE-driven debugging phase 1a3a

1a3a1 Substitute NLSBE for second, created instance of the CLI, and proceed with debugging, in close cooperation with Dave Maynard and Charles Irby. At the completion of this debugging phase, the NLS split will be complete and DPS will be sufficiently stable that it may be released to COMPASS. 1a3a1

1a3b - Code inter-host inter-process communication. 1a3b

1b LARRY GARLICK 1b

1b1 Major Responsibility: PDP-11 DPS 1b1

1b2 Accomplished Last Week 1b2

1b2a - Added a PDP10/PDP11 compile-time switch to DPS source to skip compilation of features unneeded by the FE. The procedures thus eliminated comprise 2.5K words on the PDP-10

(the full DPS implementation is 15,5K of executable code and read-only tables), 1b2a

1b2b - Began designing the DPS user interface for the PDP-11 by exploring the various basic-communication-mechanism alternatives (e.g., EMT, SIGNAL/WAIT), 1b2b

1b2c - Continued to gain general ELF familiarity. 1b2c

1b3 Scheduled Next Week 1b3

1b3a - Begin a written user interface spec (like DPSJSYS for the PDP-10), 1b3a

1b3b - Continue to gain general ELF familiarity. 1b3b

NSW Protocols Weekly Status Report: 25-JUN-75

(J32824) 25-JUN-75 09:52;;;; Title: Author(s): James E. (Jim) White/JEW; Distribution: /SRI-ARC([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: JEW; Origin: < WHITE, PROSTS,NLS;2, >, 25-JUN-75 09:49 JEW ;;;;####;

1 32824 Distribution

1a Harvey G. Lehtman, James C. Norton, Jeffrey C. Peters, Dirk H. Van Nouhuys, Kenneth E. (Ken) Victor, Richard W. Watson, Don I. Andrews,
1b Laura J. Metzger, Karolyn J. Martin, Jan A. Cornish, Larry L. Garlick, Priscilla A. Wold, Pamela K. Allen, Delorse M. Brooks, Beverly Boli, Rita Hysmith, Log Augmentation, Joseph L. Ehardt, Raymond R. Panko, Susan Gail Roetter, Robert Louis Belleville, Rene C. Ochoa, Ann Weinberg, Joan Hamilton, Adrian C. McGinnis, Robert S. Ratner, David S. Maynard, Robert N. Lieberman, Sandy L. Johnson, James H. Bair, Jeanne M. Leavitt, Rodney A. Bondurant, Jeanne M. Beck, Marcia L. Keeney, Elizabeth K. Michael, Jonathan B. Postel, Elizabeth J. Feinler, Kirk E. Kelley, N. Dean Meyer, James E. (Jim) White, Douglas C. Engelbart, Martin E. Hardy, J. D. Hopper, Charles H. Irby

LJM 25-JUN-75 10:41 32825

1 Contraditions have been alledged in our description of the elephant 1

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

3 A recursive redefinition plan should emerge 3

LJM 25-JUN-75 10:41 32825

elephant Meeting

(J32825) 25-JUN-75 10:41;;;; Title: Author(s): Laura J. Metzger/LJM; Distribution: /JHB([ACTION]) ; Sub-Collections: SRI-ARC; Clerk: LJM; Origin: < METZGER, MEMO3,NLS;1, >, 25-JUN-75 10:22 LJM ;;;;####;

Demo for NSA

EJK 25-JUN-75 12:18 32826

Comments can be included.

EJK 25-JUN-75 12:18 32826

Demo for NSA

1 Just a simple demo of the sendmail subsystem. This is being sent at about 1520 on 25 Jun 75. 1

EJK 25-JUN-75 12:18 32826

Demo for NSA

(J32826) 25-JUN-75 12:18;;;; Title: Author(s): Edmund J. Kennedy/EJK; Distribution: /EJK([ACTION]) DLS([INFO-ONLY]) ; Sub-Collections: RADC; Clerk: EJK;

LAC 25-JUN-75 12:19 32827

NSW plan, part III- Operating Plan

Here is the reconstituted Part III of the plan, for your review.

1 PART III: OPERATING PLAN 1

1a NSW Management 1a

1a1 At the 8 April 1975 NSW Steering Committee meeting a plan for managing the NSW for the next three years was accepted. This plan parcels responsibilities to each of the three NSW funding groups, ARPA, AFDAA, and RADC, in order to smoothly coordinate the multiple activities required to make the NSW a viable system. These activities include system integration of extensive software/hardware deliverables from multiple contractors, acquisition and integration of tools for the expected software development centers, operation of the NSW, and the conduction of experiments with users to determine software productivity enhancements. A Project Management Office will monitor these activities, analyzing and reducing information to be presented to the NSW Steering Committee for long range planning. The following offices will be established to accomplish this organization. 1a1

1a2 1. PROJECT MANAGEMENT OFFICE - AFDSDC 1a2

1a2a The NSW Steering Committee is a body which of necessity can meet only only periodically, composed of personnel who have other responsibilities both within and external to the project. There is, however a recognized need for a full time time extension of the Steering Committee, to perform the very necessary task of providing policy guidance and overall project management when the Steering Committee is not in session. Responsibilities of this full time representative of the Committee will include providing policy guidance and interpretation to all phases of the effort, managing the financial and budgetary aspects of the project, coordinating and directing the efforts of the various Offices and Contractors, and providing a central locus for all questions from Management and external organizations pertaining to every aspects of the project. The Project Management Officer will be the individual tasked with these responsibilities. 1a2a

1a2b The PMO will be provided by AFDSDC, and will also serve as the Chief of the System Integration Office (to be discussed later). He will be a field-grade officer (or civilian equivalent) and will draw upon the resources of the System Integration Office for assistance as required. His areas of responsibility include: 1a2b

1a2c Steering Committee Representative 1a2c

1a2c1 Between meetings of the Steering Committee, the PMO

will be the Committee's direct representative, empowered to make policy decisions and direct the efforts of Contractors and Offices. All such actions will be documented and distributed for information to the individual members of the Steering Committee. When possible, the PMO will attempt to coordinate any major decisions with the Steering Committee members prior to releasing the decision. 1a2c1

1a2c2 The PMO will be responsible for researching, documenting and preparing proposed positions for Steering Committee approval on issues of major policy importance. In cases where differences of opinion exist among various project personnel/organizations, the PMO will be responsible for collecting and summarizing position papers representing all viewpoints. 1a2c2

1a2c3 The PMO will select, with Steering Committee concurrence, an NSW Measurements and Evaluation Office and/or contractor(s), and direct such efforts as are necessary to evaluate and improve the cost effectiveness of the total system. 1a2c3

1a2d Financial Management 1a2d

1a2d1 The PMO will be responsible for the preparation and maintenance of the Project Budgets, for the tracking of expendatures, and for highlighting opportunities which require additional or diverted funding. The PMO will review budgets and plans of related projects for opportunities for joint funding, and to insure neither "gaps" or "overlaps" exist. Such project financial information will be distributed by the PMO as directed by the Steering Committee. 1a2d1

1a2e Coordination and Direction of Project Efforts 1a2e

1a2e1 The PMO will coordinate and direct the work of all other Project Offices and Contractors within the guidelines of the policies directed by the Steering Committee and Commanders of the participating Organizations. He will be responsible for determining priorities for resources, when necessary, to best meet Total Project goals. 1a2e1

1a2f Management and External Interface 1a2f

1a2f1 The PMO will maintain overall project visibility and answer (or task the appropriate individual(s) to

answer) all questions pertaining to the project, both from the management of the participating Organizations, and from external agencies. The PMO will actively seek out other Air Force and DOD projects which could be useful to the NSW effort, or which should be aware of the the goals and progress of the NSW. 1a2f1

1a3 2. TOOL SELECTION, ACQUISITION, AND INTEGRATION OFFICE - RADC 1a3

1a3a Introduction 1a3a

1a3a1 The National Software Works is an environment which consists of the set of core functions including the Works Manager and Front-end, and a set of tools. The Works Manager and Front-end provide a consistent file system and user interface to a distributed set of software programing tools which aid the user in the various stages of computer program development, debugging, documentation, and maintenance. 1a3a1

1a3a2 As in other industries, the productivity of the programer in a software factory is related to the sophistication of his "tool kit". It is current practice for programing shops to build up a set of tools matched to the needs of that set of programers. However, because of limitations within the local computer facility with regard to size and budgetary constraints, it is often the case that tool kits are not adequate to meet new software development project requirements. For example, the development of a new avionics computer requires a new set of assemblers, loaders, compilers, and debuggers. 1a3a2

1a3a3 The NSW will not obviate the requirement to develop these sets of tools required to support software development. Rather, it is anticipated that a tool technology transfer can occur among projects through the use of a network based tool repository. A more global view of tool development requirements will result in centers of expertise which assume the responsibility of tool development for classes of tools. For example, computer language control centers will emerge which provide uniform compiler front-ends with mechanisms for producing code generation back-ends for different machines. A user request for a compiler for a specific language would result in a duplication of the compiler front end and an implementation of the code generation portion of the compiler, with the compiler running as an NSW tool on a different machine. 1a3a3

1a3a4 Within this context of the requirement for NSW tools to support programing development, RADC has been charged with the responsibility for the selection, acquisition, and integration of tools within the National Software Works environment. The following are the responsibilities associated with this task. 1a3a4

1a3b Responsibilities 1a3b

1a3b1 Software Development Tool Index 1a3b1

1a3b1a An index of available software development tools will be compiled which will eventually represent the sum total of applicable tools owned by contractors and research centers. Characteristics of each tool such as its host, its programing language, its function, file input/output requirements, limitations, and cost of execution will be outlined. Requests from users concerning specific tool existence can be handled by reference to the tool index which will eventually be on-line to NSW users. Selected tools can then be procured, modified, and installed in an appropriate TBH for the NSW user. An index of NSW tools will also be maintained. Specific classes of tools include the following: 1a3b1a

1a3b1a1 Language processors- compilers, preprocessors 1a3b1a1

1a3b1a2 Debuggers 1a3b1a2

1a3b1a3 Management- programing support libraries 1a3b1a3

1a3b1a4 Measurement 1a3b1a4

1a3b1a5 Documentation 1a3b1a5

1a3b1a6 Design Aids- simulators 1a3b1a6

1a3b2 NSW Tool Installation 1a3b2

1a3b2a RADC will be responsible for publishing and maintaining tool installation guidelines which specify requirements for converting ordinary tools to NSW tools. Initially, these guidelines will originate from the major contractors of the NSW core software. Technical expertise on tool installation that is gained locally as tools for RADC TBH's are integrated within the NSW will be offered to other tool

installers. RADC will offer specific aid to tool installers through in-house efforts or by managing the procurement of services for tool integration. 1a3b2a

1a3b2b As each new tool is installed, it will be validated through this office to ensure conformance to an established set of standards which reflect proper interfaces to FE, WM, and the TBH. 1a3b2b

1a3b3 Tool Kit Selection 1a3b3

1a3b3a It is anticipated that NSW users will be grouped in areas of programing activity. Each group will require its own programing environment and tool kit which is related to the type of activity of the site. For example, programers of communications software may have a different tool kit then ones writing base level COBOL software. There will also be overlapping tools such as editers used by both groups. 1a3b3a

1a3b3b The first cluster of programers will emerge at the Data Systems Design Center where an estimated 700 programers will be on-line to the NSW within six years. A second cluster will emerge at the Data Services Center. As the advantages of using the NSW become apparent to the programer community, it is expected that many other groups will begin to use the NSW. 1a3b3b

1a3b3c It is the responsibility of RADC to interact with potential NSW user groups and ascertain their particular programing development tool requirements. Working closely with the user groups in an advisary role, RADC will suggest those tools which are most applicable and available. 1a3b3c

1a3b4 RADC TBH Installation 1a3b4

1a3b4a As a research center in the development of software tools, RADC has a vested interest in becoming an active member of the NSW community through the installation of our computers as tool bearing hosts. Currently, it is planned to augment our MULTICS and GCOS computer systems to become TBH's and install a subset of our existing tools in the NSW environment to conduct experiments. Technical expertise will be gained through such installation which will reflect in a growing knowledge of general tool integration and

will aid in closing the loop in our role as tool installation advisors, 1a3b4a

1a3b4b The tools which RADC will provide will be in support of a number of experiment which are currently being planned in the following areas which have been detailed earlier in the Plan, 1a3b4b

1a3b5 Programer Productivity Measurements 1a3b5

1a3b5a It has long been desired to determine the effect on programing efficiency of a proper and adequate set of tools and a discipline for programing. A number of experiments are being planned which attempt to measure this process and answer many of the questions that have been posed. The effect of structured programing techniques with programer support libraries on production efficiency, readibility, and maintainability of produced software will be determined. The NSW and its tool environment can provide an ideal environment for conducting such tests, 1a3b5a

1a3b6 Language Control Facility 1a3b6

1a3b6a An attempt will be made to determine the effect of networking on the problem of maintaining computer languages. A centralized facility with tools for compiler specification, generation, and maintenance of compilers which are available to a wide range of users should tend to stabilize those languages. Changes due to language evolution will be made centrally resulting in fewer dialects, 1a3b6a

1a4 3. SYSTEM INTEGRATION OFFICE - AFDSDC 1a4

1a4a There is a pressing need at this stage of the project for the formation of a full-time office to handle the system integration tasks involved in completing the development of the core NSW system and guiding the development phase of the augmentation of the system to fully satifisfy the requirements of the participating organizations, 1a4a

1a4a1 Currently these tasks are being handled by the Steering Committee, either individually or as a group. However, since the full Committee only meets periodically, and since each individual member has full technical and managerial visibility over only his own

specific area of responsibility, this function is not adequately being performed. 1a4a1

1a4a2 The results have been some project slippages (which probably, in hindsight, might have been either averted or reduced had such a office existed), as well as some misunderstandings and a sluggishness in defining certain critical interfaces. Although the problems so far have been relatively minor (due primarily to the small number of people involved), as the system and project expands to support production environments, the lack of such a single contact point for all integration issues holds the potential for allowing minor difficulties to explode into massive problems. 1a4a2

1a4a3 Another major problem with the current arrangement is that the Steering Committee is too involved with technical and scheduling issues to spend adequate time on the policy and guidance tasks which are the true purpose of that committee. With the Project Management Office (PMO) and Systems Integration office in operation, the Steering Committee will be able to go back to these issues which are critical to the long range success of the overall NSW project. 1a4a3

1a4a4 The third problem is that there is not currently a single office with complete visibility of all user requirements of all the participating organizations. For the Demonstration system, this was acceptable, as the number and scope of requirements was purposely quite limited. Thus communications between the various users and contractors has been sufficient. However, as we move towards a production system, the requirements will become much more varied, numerous and complex, and the current proceedures simply will not be sufficient. What will be required is a single office with broad visibility of all current and projected requirements. 1a4a4

1a4b Because the Design Center will be the largest initial user of the NSW, the System Integration office will be organized and staffed by AFDSDC/SYO, and located at Gunter AFS. The three to four man full-time staff will be responsible for the following areas: 1a4b

1a4c Technical management and review of system evolution 1a4c

1a4c1 Prepare and/or compile concept documentation for PMO and Contractors. 1a4c1

1a4c2 Review and evaluate contractor-prepared detailed product specifications to insure operational requirements will be met. Propose changes as appropriate. 1a4c2

1a4c3 Coordinate contractor efforts; facilitate and monitor inter-contractor communication. 1a4c3

1a4c4 Maintain close contact with Technical Coordination contractor. Keep complete project milestone projections and history files. Monitor completion of milestones, both with respect to date completed and valid delivery of systems which meet product specifications. Coordinate/prepare proposals for PMO to minimize impact of any projected slippages. 1a4c4

1a4c5 Arrange and support Conceptual and Design reviews by Steering Committee, Advisory group, and/or selected external agencies at appropriate points in development of NSW total system, and of key component subsystems. 1a4c5

1a4c6 Document and distribute results of all reviews, complaints/suggestions for technical improvements, and other inputs to conceptional/technical model of NSW. 1a4c6

1a4c7 Explore and propose extensions to current design concepts to improve NSW's user interface, cost effectiveness, efficiency, flexibility, generality and/or reliability in the operational environments of current and projected users. 1a4c7

1a4c8 Capture best versions of source and object code, and procedures for loading and executing same, prior to end of contractual periods (to insure continuity of project). 1a4c8

1a4d Project Information 1a4d

1a4d1 Prepare and maintain briefings (to be presented as directed by PMO) for potential NSW participants and users. 1a4d1

1a4d2 Prepare, maintain, and distribute "Public relations" type documentation on project. 1a4d2

1a4d3 Answer inquiries about conceptual and planning aspects on NSW from external organizations. 1a4d3

1a4d4 Answer scheduling and integration inquiries from PMO. 1a4d4

1a4e Configuration Selection 1a4e

1a4e1 Prepare (or supervise preparation of) technical and policy evaluations of distributed vs. regionalized vs. centralized location of Tool Bearing Hosts. 1a4e1

1a4e2 Prepare (or supervise preparation of) RFP and/or sole-source hardware specifications for Framework computers, Frontend computers, standard terminal configurations, any other large scale hardware procurements required to implement or expand production system. 1a4e2

1a4e3 Prepare, update, and distribute planning guidelines for configuration requirements to support different classes and levels of work within NSW. 1a4e3

1a4e3a Prepare configuration requirements for AFDSDC projected expansion plans. 1a4e3a

1a4e3b Provide assistance to AFDSC, RADC in preparing configuration plans to meet workload requirements. 1a4e3b

1a4e3c Assist potential users in developing configuration requirements. 1a4e3c

1a4f Release Control and Acceptance Testing. 1a4f

1a4f1 Develop procedures for testing/verifying new versions of Framework and basic support tools prior to release for general usage. 1a4f1

1a4f2 Conduct pre-release Environmental System Tests of new releases of Framework, basic support tools. Report results to Steering Committee. 1a4f2

1a4g System Documentation. 1a4g

1a4g1 Develop requirements and standards for system and user documentation, disseminate as appropriate. 1a4g1

1a4g2 Maintain a complete and up-to-date library of system and user documentation. 1a4g2

1a4g3 Monitor Contractors to insure documentation produced is consistent, complete, and in accordance with contract requirements and standards. 1a4g3

1a5 4. NSW OPERATIONS OFFICE - RADC 1a5

1a5a NSW Operations 1a5a

1a5a1 The goal of efforts in this functional area is to develop a stable, reliable, responsive and cost-effective service to NSW users. Since the NSW is the first of a class of distributed systems, aimed specifically at augmenting the programing environment of AF organizations and their contractors, special consideration must be given to its operation while it is still in development. Development funds and effort must be applied to devising operational policies and procedures if the NSW is to successfully make the transition from a R&D project to an operational system. 1a5a1

1a5a1a The three NSW components requiring primary attention are: 1a5a1a

1a5a1a1 The Works Manager, which provides a unified file and accounting system 1a5a1a1

1a5a1a2 The Front End, which provides a coherent user interface to tools and the WM 1a5a1a2

1a5a1a3 The "core tools", consisting of NLS and a Project Management tool 1a5a1a3

1a5a1b The protocols that define the component and tool interfaces are also a critical part of the NSW, since they are the communications medium between the NSW components. 1a5a1b

1a5a2 These components and protocols have elements of hardware, software, procedures, training and people that must be coordinated, before one can say that the NSW is operating properly. 1a5a2

1a5b Constraints 1a5b

1a5b1 There will be parallel operation and development within the NSW world. Parts of the NSW and versions of the parts will be considered operational at any point in time. Criteria for deciding when a component or version moves from developmental to operational status must be clearly defined. 1a5b1

1a5b2 Although the underlying mechanisms of the NSW should be almost "invisible" to the user, they must be highly visible to the operators and maintainers. Several levels of documentation on the system, its components and

its protocols must be developed and maintained to support system management, maintenance, tool installation, training and trouble shooting. 1a5b2

1a5b3 An environment must be created where tools can be readily added, deleted and modified to meet the needs of a growing NSW user community. 1a5b3

1a5b3a Guidelines, standards and ultimately certification procedures must be developed to allow the orderly modification of the core system and the addition of new tools and tool bearing hosts. 1a5b3a

1a5b4 The financial manipulations necessary to purchase the access to tools and computer resources should also be as painless as possible. Contractual mechanisims must be established to provide for acquisition, accounting and billing for computer resources. 1a5b4

1a5b5 Mechanisms have to be established to handle problems on a real-time basis and to provide feedback to system developers on efficiency and effectiveness. 1a5b5

1a5b6 The NSW is dependent on the ARPANET for its basic communication for the forseeable future. Its components will run under different operating systems on several brands of hardware. These underlying hardware/software/communication systems must themselves be stable and reliable, if the NSW is to attain a service status. 1a5b6

1a5c Approach 1a5c

1a5c1 The approach in dealing with the above issues and bringing the NSW into the AF inventory will be to establish a NSW Operations Center (NOC). It will be established in-house at RADC and initially manned internally. As the NSW grows and the required level of manning increases, it will be supported by contactual assistance. After resolution of the key issues, establishment of operating policy and shakedown of procedures, the management of the NOC will be turned over to an AF (or DOD, if the Army and Navy join) organization with an operational mission. 1a5c1

1a5c1a The NOC will use that portion of the NSW that is operational at any instant in time to perform its functions. The policy and procedures developed should

therfore be based on practical experience rather than on intuitive speculation. 1a5c1a

1a5c1b RADC will act as a broker, in planning for and procuring computer resources, training and documentation. They will monitor resource useage via the WM and issue the necessary invoices, and perform the contractual paperwork necessary to meet invoices from TBH and tool suppliers. 1a5c1b

1a5c2 RADC has accepted this responsibility and is qualified to manage the NSW operations because of: 1a5c2

1a5c2a experience with the ARPANET and NLS 1a5c2a

1a5c2b experience gained in setting up the WUS 1a5c2b

1a5c2c contractual focal point for NSW development 1a5c2c

1a5c2d contact with other AFSC S/W development projects 1a5c2d

1a5c2e within the mission to do "advanced development,,,fine tuning, engineering, cost effectiveness" 1a5c2e

1a5c2f source of funds which can be used to support operational goals 1a5c2f

1a5d TASKS 1a5d

1a5d1 The following tasks need to be accomplished during FY76 to place the NSW in a position where it can begin operation. 1a5d1

1a5d1a Documentation--NLS will be used to develop, deliver and update all NSW documentation. 1a5d1a

1a5d1a1 establish a NSW documentation framework. 1a5d1a1

1a5d1a2 develop a descriptive NSW systems document. 1a5d1a2

1a5d1a2a develop a WM functional description document. 1a5d1a2a

1a5d1a2b develop a FE functional description document. 1a5d1a2b

1a5d1a2c develop a protocol functional description document, 1a5d1a2c

1a5d1a3 develop a TBH specification document, 1a5d1a3

1a5d1a4 develop a tool installation guide, 1a5d1a4

1a5d1a4a develop a CML guide for tool installers, 1a5d1a4a

1a5d1a5 develop a PMT functional description document, 1a5d1a5

1a5d1a6 User guides 1a5d1a6

1a5d1a6a develop a NSW userguide, 1a5d1a6a

1a5d1a6b modify the NLS userguide, 1a5d1a6b

1a5d1a7 Help data bases 1a5d1a7

1a5d1a7a update the NLS help data base, 1a5d1a7a

1a5d1a7b develop a WM help data base, 1a5d1a7b

1a5d1b Computer Resources--TENEX and MULTICS for the first year, 1a5d1b

1a5d1b1 develop an integrated plan for computer resources required to support DSDC, DSC and RADC, 1a5d1b1

1a5d1b2 establish contractual procedures for acquiring the necessary resources, 1a5d1b2

1a5d1b2a determine an equitable means of distributing NSW overhead, 1a5d1b2a

1a5d1b3 establish contractual procedures for "automatic" billing and payment, 1a5d1b3

1a5d1b4 establish WM resource useage reports (detail, format and frequency), 1a5d1b4

1a5d1b5 maintain historical resource useage record for future expenditure rate estimation, 1a5d1b5

1a5d1c Training 1a5d1c

1a5d1c1 establish course material and conduct training sessions in use of NSW and NLS. 1a5d1c1

1a5d1c2 establish sylabus for training trainers at DSDC, DSC and RADC. 1a5d1c2

1a5d1c3 define and implement basic lessons for NSW and NLS in SCHOLAR. 1a5d1c3

1a5d1d Trouble shooting 1a5d1d

1a5d1d1 establish NOC feeback capability for accumulating, classifying and analyzing problems and responses. 1a5d1d1

1a5d1d2 Install WATS lines between NOC, the users and the principle NSW developers. 1a5d1d2

1a5d1d3 establish fault isolation procedures. 1a5d1d3

1a5d1e Contractual 1a5d1e

1a5d1e1 interact with procurement to establish a smooth money transfer mechanism where there is: 1a5d1e1

1a5d1e1a an NSW overhead that must be equitably distributed across users, 1a5d1e1a

1a5d1e1b multiple suppliers of TBH's and tools, 1a5d1e1b

1a5d1e1b1 with a mix of GFE, not for profit and profit, 1a5d1e1b1

1a5d1e1c multiple users of subsets of these tools, 1a5d1e1c

1a5d1e1d where the exact user-supplier matrix cannot be completely determined ahead of time, 1a5d1e1d

1a6 5, NSW MEASUREMENT AND ANALYSIS OFFICE - Not Assigned 1a6

1a6a There is a continuing need for an office charged with the responsibility of providing techniques and manpower to measure the effect of using the tools and facilities provided by the NSW upon the individual users and the organizations of which they are a part. An Office of Measurements and Evaluation will be formed to fill this need. At this time, its functions are relatively clear, but an organization with the expertise and experience to fulfill

this responsibility has yet to be selected. One of the first duties of the Program Management Officer will be to prepare a proposal for Steering Committee approval, designating the organization selected to be the Meaurement and Evaluation Office. 1a6a

1a6b Tasks: 1a6b

1a6b1 The Measurements and Evaluation office will be charged with the following responsibilities: 1a6b1

1a6b2 To develop measures and procedures for evaluating productivity of data automation personnel. This includes at least the following catagories : 1a6b2

1a6b2a System Analysts 1a6b2a

1a6b2b Development Programmers 1a6b2b

1a6b2c Maintenance Programmers 1a6b2c

1a6b2d Documentors 1a6b2d

1a6b2e Administrative Support Personnel 1a6b2e

1a6b2f (Project Managers?) 1a6b2f

1a6b3 To select, evaluate, and prepare data on productivity of representative groups of such personnel at AFDSDC, both with and without NSW. Care must be taken in the handling of these tests to insure no bias is allowed to creep in, as the results will bear heavily on both the future direction and speed at which the project moves. 1a6b3

1a6b4 To prepare an evaluation on the economic costs and benefits of NSW support on the test group, and to extrapolate as closely as possible the economic trade-offs as applied to the full Center. The evaluation should be briefed to both AFDSDC and NSW management. 1a6b4

1a6b5 To perform, at a somewhat later date, a similiar analysis of AFDSC use of NSW 1a6b5

1a6b6 To recommend, where appropriate, changes in the concepts of operation to improve the cost effectiveness of the NSW operation. 1a6b6

1a6b7 To document the methods and results in detail, so

that similiar tests can be carried out by new members of the NSW community as they join. 1a6b7

1a6b8 To serve as a central clearinghouse of techniques and results of productivity measurements in the software development environment. 1a6b8

1a6b9 To maintain constant visibility over the success of NSW efforts to increase productivity; to perform additional testing where appropriate as new features and facilities are added to the NSW; to propose and implement new procedures and measures as appropriate. 1a6b9

1a6b10 To gather and evaluate user and management reaction pertaining to non- quantative measures of project success, including user and management reaction to the system, changes in work patterns, job satisfaction, etc. 1a6b10

1b Interim Operation 1b

1b1 The NSW should be viewed as an in-house DOD system, regardless of whether the hardware is government-owned, leased and operated by the government, or operated by private concerns. The overall system must be managed by a government organization which understands the operation of reliable, cost effective computer services. That managing organization will maintain the central accounting files, monitor performance, enforce standards, and provide general support to the system's users. If the NSW satisfies current expectations, the managing organization will probably have to be a separate DOD agency, to provide balanced support to all three services. RADC, as one of the operational organizations participating in the development effort has been tasked take responsiblity for the interim operation. 1b1

1b2 Computer hardware to support the initial operation of the NSW is an important issue. Requirements have been identified for GCOS, MULTICS, and IBM 360/370 development machines. Additional B4700 capacity is also needed. 1b2

1b2a The IBM 360/370 requirement and the B4700 requirement can both be satisfied by adding SADSC to the ARPANET. For the 360 requirement, there is also an option of connecting the machine at Eglin AFB. 1b2a

1b2b The only available GCOS machine is System C at AFDSC. It is already saturated, however, so it will be able to support NSW users only if its capacity is expanded. Backup

is also needed. The best solution is to replace or enhance AFDSC System C, and find at least one and hopefully two other GCOS machines. Likely candidates are Create at Wright-Pat AFB, the Air University H6060, and the H6060 at Hdq AFSC. They are identified because they could be attached to existing ARPANET IMPS. Another solution would be to attach the GE Mark III system to the ARPANET! The NSW Framework will be able to control access through the ARPANET to users on valid DOD business. 1b2b

1b2c The RADC MULTICS is the logical choice to provide an unclassified MULTICS development environment. MIT can be used for backup and access to special software. 1b2c

1b2d Connection of SADSC, AFDSC System C, RADC MULTICS, and one additional GCOS service are provided for in the budget. 1b2d

NSW plan, part III- Operating Plan

(J32827) 25-JUN-75 12:19;;;; Title: Author(s): Lawrence A. Crain/LAC; Distribution: /MAW([ACTION]) WGC([ACTION]) NSW([INFO-ONLY]) ; Sub-Collections: NIC NSW; Clerk: LAC; Origin: < DSDC-SYD, PART-III-NSW,NLS;1, >, 25-JUN-75 12:09 LAC ;;;;####;

1 32827 Distribution

1a Mike A. Wingfield, William E. Carlson, Jan A. Cornish, Larry L. Garlick, Elizabeth J. Feinler, Kirk Sattley, Ronald P. Uhlig, James B. Lloyd, Frank J. Natoli, Peter C. Waal, Elizabeth K. Michael, William E. Carlson, Steve D. Crocker, David L. Carlstrom, Robert M. Balzer, Richard W. Watson, Lawrence A. Crain, Anthony A.L. Baggiano, Mike A. Wingfield, Jonathan B. Postel, Robert E. Millstein, Duane L. Stone, James E. (Jim) White, Albert J. Mayhan, Albert Vezza, Charles H. Irby, Eugene W. Stubbs, David L. Retz, Stephen T. Walker,

DAP 25-JUN-75 12:46 32828

Your msg of 12 June

re <hjournal, 32741>

Your msg of 12 June

DAP 25-JUN-75 12:46 32828

1 Ray,

I tried using the commands branch in the referenced file...it bogs down in the middle of 5b. It takes the period in ".s <CA>" as a command and executes it, then it says "Playback C:" and stops dead in its tracks...

Any ideas on why it behaves in this way? The branch presumably works for you or you wouuldn't have sent it out...

David 1

DAP 25-JUN-75 12:46 32828

Your msg of 12 June

(J32828) 25-JUN-75 12:46;;;; Title: Author(s): David A. Potter/DAP;
Distribution: /RA3Y([ACTION]) ; Sub-Collections: NIC; Clerk: DAP;

DAP 25-JUN-75 13:14 328

ETSMEMO Revisited

32829

The columnar format in the Subject block still does wierd things sometimes. Run this file thru the output processor and you'll see what I mean...why should this subject block get spread across three lines?

ETSMEMO Revisited

DAP 25-JUN-75 13:14 328

Memorandum for: MR. WILLINGHAM

cc: Mr. Manning

Subject: Bob Bhaerman's (potential) Visit

Date: 28 JUN 75
From: David A. Potter

Mr. Manning forwarded to me your memo of June 13 (Subject: Letter from the American Federation of Teachers). If you do invite Bob Bhaerman down, I would certainly appreciate an opportunity to get together with him during his visit; as Win said, he is both a friend and a colleague.

ETSMEMO Revisited

(J32829) 25-JUN-75 13:14;;;; Title: Author(s): David A. Potter/DAP;
Distribution: /NDM([ACTION]) JCN([INFO-ONLY]) ; Sub-Collections:
NIC; Clerk: DAP; Origin: < POTTER, WILLINGHAM,NLS;1, >,
25-JUN-75 11:48 DAP ;;;; ####;

DAP 25-JUN-75 13:18 32830

ETSMEMO 2

An additional comment on Etsmemo, especiallly if you get around to any modifications.

1 A valuable modification to ETSMEMO, LETTER, and any other programs that produce files formatted for the output processor would be the addition of a "" directive to the origin statement. This eliminates a wasted blank leader page from the output. 1

DAP 25-JUN-75 13:18 32830

ETSMEMO 2

(J32830) 25-JUN-75 13:18;;;; Title: Author(s): David A. Potter/DAP;
Distribution: /NDM([ACTION]) JCN([INFO-ONLY]) ; Sub-Collections:
NIC; Clerk: DAP;

EJK 25-JUN-75 14:25 32831

Printers, Latest Status Report 25 Jun 75 1730

1 The printer on Port 4 is up and working. I just tried it and it looks pretty good. My file was just a short one, but there were no errors that I could see. Moran has it looking better than it has in months. 1

EJK 25-JUN-75 14:25 32831

Printers, Latest Status Report 25 Jun 75 1730

(J32831) 25-JUN-75 14:25;;;; Title: Author(s): Edmund J. Kennedy/EJK; Distribution: /RADC([INFO-ONLY]) ; Sub-Collections: RADC; Clerk: EJK;

1 32831 Distribution

1a William E. Rzepka, Rocco F. Iuorno, Thomas J. Bucciero, Roger B. Panara, John L. McNamara, Joe P. Cavano, Duane L. Stone, Marcelle D. Petell, Thomas F. Lawrence,

1b Samuel L. Ruple, Stephen P. Sutkowski, Richard Calicchia, William W. Patterson, Francis J. Hilbing, Robert K. Walker, Frank P. Sliwa, Joe F. Femia, Roger W. Weber, Melville J. Draper, Robert D. Krutz, James W. Hyde, David T. Craig, Fred N. Dimaggio, Robert E. Doane, Robert J. Kenyon, Richard Nelson, William F. Stinson, Daniel R. Loreto, John B. McLean, Murray L. Kesselman, Edward F. LaForge, Agatha C. Deconde, Alan R. Barnum, Larry M. Lombardo, Anna A. Cafarelli, Roberta J. Carrier, Donna R. Robilotta, Richard H. Thayer, Frank J. Tomaini, Mike A. Wingfield, Edmund J. Kennedy, Ray A. Liuzzi, Donald VanAlstine, Deane F. Bergstrom, Frank S. LaMonica

Experimental Sort Command

Optionally allows reverse sorts, ignoring case, and beginning from other than the first character in the statement. This documentation updates 26039.

1 The user-attachable subsystem "SORT" holds a Sort Branch/Group/Plex command with the following options: 1

1a Alphabetic -- ignores upper/lower case 1a

1b Reverse -- reverses order 1b

1c Content Analyzer call -- calls the current Content Analyzer filter program; sort begins reading statement from resultant character position CCPOS (or from beginning of statement if no program has been instituted) 1c

1c1 Powerful sorting algorithms can be created when the CA program reformats the data into a string and leaves the CCPOS in the string. The string must be an EXTERNAL. 1c1

1c2 If the CA program sets the global text pointer "p1" in the statement (or string) which holds CCPOS, the sort will stop reading characters when it encounters p1. Note that p1 must be after CCPOS to have an effect when the scan direction is left-to-right, or before CCPOS when the scan direction is right-to-left. Otherwise it will read to the end of the statement as usual. Statements which appear identical to the sort algorithm will be left in their original order. 1c2

2 These options may be combined. Any number of them may be specified in any order (after bugging the branch/group/plex to be sorted). If no options are specified, the command is identical to the standard Sort command (in syntax and in effect). The command exists in the following class-3 user-attachable subsystem: 2

2a <XPROGRAMS, SORT,SUBSYS,> 2a

NDM 25-JUN-75 15:41 32832

Experimental Sort Command

(J32832) 25-JUN-75 15:41;;;; Title: Author(s): N. Dean Meyer/NDM;
Distribution: /SRI-ARC([INFO-ONLY]) ; Sub-Collections: SRI-ARC;
Updates Document(s): 26039; Clerk: NDM;

1 32832 Distribution

1a Harvey G. Lehtman, James C. Norton, Jeffrey C. Peters, Dirk H. Van Nouhuys, Kenneth E. (Ken) Victor, Richard W. Watson, Don I. Andrews,
1b Laura J. Metzger, Karolyn J. Martin, Jan A. Cornish, Larry L. Garlick, Priscilla A. Wold, Pamela K. Allen, Delorse M. Brooks, Beverly Boli, Rita Hysmith, Log Augmentation, Joseph L. Ehardt, Raymond R. Panko, Susan Gail Roetter, Robert Louis Belleville, Rene C. Ochoa, Ann Weinberg, Joan Hamilton, Adrian C. McGinnis, Robert S. Ratner, David S. Maynard, Robert N. Lieberman, Sandy L. Johnson, James H. Bair, Jeanne M. Leavitt, Rodney A. Bondurant, Jeanne M. Beck, Marcia L. Keeney, Elizabeth K. Michael, Jonathan B. Postel, Elizabeth J. Feinler, Kirk E. Kelley, N. Dean Meyer, James E. (Jim) White, Douglas C. Engelbart, Martin E. Hardy, J. D. Hopper, Charles H. Irby

DVN JHB 26-JUN-75 08:36 32833

Dialog On Change in Command Language in Format Subsystem

1 25-JUN-75 1506-PDT BAIR: insert format command in FORMAT subsys
Distribution: VANNOUHUYS AT BBNB, VANNOUHUYS, weinberg at bbnb, meyer, bair, feedback, beck
Received at: 25-JUN-75 15:06:03-PDT 1

1a Dirk, Ann says that you have written some documentation that refers to the insert format command, There is an error in the COMed format Library which cites the command as "Format File...", I would like to to have the software changed to agree with the document if the repercussions are not drastic, How does this impact on your document? We want to release the change tomorrow (thurs).... Jim 1a

2 Jim,
I only got your message on Thursday because I don't normally log in to Office-1 every day. In the mean time I have given you a draft of the Format Sample Session. As you can see it is not a serious matter to change that document at this stage, don't forget, however, that you will have to change NLS-8 Help and notify us so we can change NLS8 8,5 Help. There are arguements that one version or the other "would make more sense to the user" but it doesn't seem to make much difference to me. I'm game....Dirk 2

DVN JHB 26-JUN-75 08:36 32833

Dialog On Change in Command Language in Format Subsystem

(J32833) 26-JUN-75 08:36;;;; Title: Author(s): Dirk H. Van Nouhuys, James H. Bair/DVN JHB; Distribution: /DMB([ACTION] dirt and dpcs notebooks please) JHB([ACTION] I thought this should be recorded and brought to the atention of various people so I took the liberty of journalizing your message with my reply) DIRT([INFO-ONLY]) DPCS([INFO-ONLY]) ; Sub-Collections: SRI-ARC DIRT DPCS; Clerk: DVN;

1 32833 Distribution

1a Thomas L. Humphrey, Jeanne M. Leavitt, Kirk E. Kelley, Duane L. Stone, Elizabeth J. Feinler, N. Dean Meyer, Dirk H. Van Nouhuys, Douglas C. Engelbart, James C. Norton, Richard W. Watson, Charles H. Irby,

1b Delorse M. Brooks, James H. Bair, Jonathan B. Postel, Priscilla A. Wold, Rita Hysmith, Pamela K. Allen, Delorse M. Brooks, Elizabeth F. Finney, Beverly Boli, Lawrence A. Crain, Kirk Sattley, Susan Gail Roetter, Robert N. Lieberman, Ann Weinberg, Kenneth E. (Ken) Victor, Douglas C. Engelbart, James H. Bair, Elizabeth K. Michael, Richard W. Watson, Elizabeth J. Feinler, Harvey G. Lehtman, Kirk E. Kelley, Laura E. Gould, Jeanne M. Beck, Dirk H. Van Nouhuys, James C. Norton, Delorse M. Brooks, Elizabeth F. Finney, Beverly Boli, Joseph L. Ehardt, James H. Bair, Robert N. Lieberman, Pat Whiting O'Keefe, James H. Bair, Robert Louis Belleville, Ann Weinberg

Beverly Boli Will Become DIRT Coordinator

DVN 26-JUN-75 08:39 32834

1 Marcia, after July 1, please change the DIRT coordinator to Beverly Boli.

1

Beverly Boli Will Become DIRT Coordinator

DVN 26-JUN-75 08:39 32834

(J32834) 26-JUN-75 08:39;;;; Title: Author(s): Dirk H. Van Nouhuys/DVN; Distribution: /MLK([ACTION]) DMB([ACTION] dirt notebook please) DIRT([INFO-ONLY]) ; Sub-Collections: SRI-ARC DIRT; Clerk: DVN;

1 32834 Distribution

1a Marcia L. Keeney, Delorse M. Brooks, Jonathan B. Postel, Priscilla A. Wold, Rita Hysmith, Pamela K. Allen, Delorse M. Brooks, Elizabeth F. Finney, Beverly Boli, Lawrence A. Crain, Kirk Sattley, Susan Gail Roetter, Robert N. Lieberman, Ann Weinberg, Kenneth E. (Ken) Victor, Douglas C. Engelbart, James H. Bair, Elizabeth K. Michael, Richard W. Watson, Elizabeth J. Feinler, Harvey G. Lehtman, Kirk E. Kelley, Laura E. Gould, Jeanne M. Beck, Dirk H. Van Nouhuys, James C. Norton,

DVN 26-JUN-75 08:56 32835

Other Vacation Time This Summer

1 In addition to the week beginning July 7 mentioned in (25992,) I would like to be away the week beginning August 4th, if nobdoy forsees problems. 1

DVN 26-JUN-75 08:56 32835

Other Vacation Time This Summer

(J32835) 26-JUN-75 08:56;;;; Title: Author(s): Dirk H. van Nouhuys/DVN; Distribution: /DOCPLAN([INFO-ONLY]) DIRT([INFO-ONLY]) ; Sub-Collections: SRI-ARC DOCPLAN DIRT; Clerk: DVN;

1 32835 Distribution
ia Jeanne M. Beck, Dirk H. Van Nouhuys, James C. Norton,
ib David R. Brown, Glenn A. Sherwood, N. Dean Meyer, Kathey L. Mabrey, Norman R. Nielsen, Thomas L. Humphrey, Robert Louis Belleville, Elizabeth K. Michael, Richard W. Watson, James C. Norton, Robert N. Lieberman, Pat Whiting O'Keefe, Douglas C. Engelbart, Dirk H. Van Nouhuys, Jonathan B. Postel, Priscilla A. Wold, Rita Hysmith, Pamela K. Allen, Delorse M. Brooks, Elizabeth F. Finney, Beverly Boli, Lawrence A. Crain, Kirk Sattley, Susan Gail Roetter, Robert N. Lieberman, Ann Weinberg, Kenneth E. (Ken) Victor, Douglas C. Engelbart, James H. Bair, Elizabeth K. Michael, Richard W. Watson, Elizabeth J. Feinler, Harvey G. Lehtman, Kirk E. Kelley, Laura E. Gould

RA3Y 26-JUN-75 13:51 32836

no mail since June 23

1 dI haven't received any mail since June 23. Some has been sent to me; in fact, RLL received a7 author copy. 1

RA3Y 26-JUN-75 13:51 32836

no mail since June 23

(J32836) 26-JUN-75 13:51;;;; Title: Author(s): Raymond R. Panko/RA3Y; Distribution: /FEEDBACK([ACTION]) JDH([ACTION]) ; Sub-Collections: SRI-ARC FEEDBACK; Clerk: RA3Y;

NSW Support For AFDSDC Documentation

28 JUN 75

LAC 26-JUN-75 14:18 32837

NSW Support For
AFDSDC Documentation
draft version,split;draft version

Betty, this is a draft of a plan I've been working on re how we will convert to NSW support for our documentation environment, Might give you a better idea on where I think we are giong, comments/suggestions welcome %Larry

*draft*page

NSW Support For
AFDSDC Documentation
draft version,split;draft version

INTRODUCTION

This plan provides for the evaluation and implementation of a Documentation Support Environment for the Air Force Data Systems Design Center. The Environment will be based on the National Software Works (NSW) system, and will be used for the management and publication of documents. The system will make extensive use of off-line editing capabilities inherent in Directorate-level Documentation Center and Division-level subcenter hardware configurations. The project will be in three phases, a Feasibility and Economic Evaluation, a Capture/Conversion Phase, and a Production Phase. In conjunction with the conversion to automated support, there will also be a conversion, proceding at a somewhat slower pace initially, to Computer Output Microfiche as the media for producing documentation.

NSW Support For
AFDSDC Documentation
draft version,split;draft version

THE DOCUMENTATION ENVIRONMENT-1978

The Documentation Environment in 1978 will be significantly different from that of today. The reasons necessitating these changes are primarily economic, but the need for responsiveness and control of a large, fluid, and growing database of system and user documentation i also a significant factor. The overall goal of this effort is to allo the AFDSDC to produce better quality, more accurate and more timely Documentation for Air Force use at a lower total cost. The environmen will be geared to support all Air Force manuals the Design Center produces, as well as the numerous one-time, large (>35-50 pages) documents prepared by AFDSDC Directorates. The latter class includes DARs, DPPs, OR Reports and the like.

Directorate Level Documentation Centers

The entry, editing, proofing, and management of information in the documentation will remain within the Directorate currently supporting each document or manual. There are several reasons for this, including the need for continuity during the Conversion effort, and the fact that the Directorate level seems to have the best visibility and control over the information within the respective manuals. Furthermore, this is the level which currently appears most capable of fully and efficiently utilizing the relatively expensive hardware required to support the effort. Ther will be Documentation Centers in each of the five Functional and three Technical Directorates, a center shared by the Offices of Plans and Program Management, and a center in the Headquarters section which will also support the Teleprocessing and Audit agenc functions.

During the conversion phase of the effort, there will also be approximately 5 Subcenters which will be located in selected Divisions which manage a high volume of documentation, to speed th capture/conversion process. These Subcenters will move as needed throughout AFDSDC. Thus, as a Division completes the capture process, its subcenter will be transfered to another Division

requiring added support. At the end of the Conversion Phase, these subcenters will either be eliminated, or permanantized where they will be most fully utilized, perhaps supporting more than one division within a single high-volume Directorate.

Documentation Center Configurations

Each Directorate-level center will be an essentially complete stand-alone text preparation facility with local editing, and draft-quality hardcopy capability. These stations will have medium speed communications circuits with the NSW Access Computer, and in high volume Directorates, will be upgraded to two-dimensional display facilities with high speed communications.

The heart of the local editing capability will be a CRT termina with a local cassette tape unit. Such stations will allow off-line entry of information, as well as limited "line-at-a-time" editing and correction. The station will also have a selectable interface with a 30 or 120 CPS impact printin terminal. This interface will allow the configuration to be use as a stand-alone editing station, with hardcopy capability. In addition to this, the printing terminal will also be equipped with a Dial in/out modem (ie, selectable answer/ originate mode so that it can be used to directly access the NSW Network Communications Subsystem Computer (and thus print in parallel with other work being accomplished on the CRT/Cassette station) or dialed up (with human intervention) from a subcenter, giving such subcenters a quasi-local print capability also.

The Subcenters will also be Terminal/Cassette stations, but wit Dial-out communications only and without printers (except as discussed above). The primary purpose of such subcenters is to augment the off-line entry/correction capability of the Directorate station, as well as to give limited additional on-line capability, as required. Sections of documents recorded on cassette at such stations, however, will usually be moved into the NSW via the higher speed communications lines of the Directorate Center.

NSW Support For
AFDSDC Documentation
draft version,split;draft version

Graphics/Publication Support Activity

The Graphics/Publication center will serve the AFDSDC as a whole, and will provide very powerful features. The station will include two-dimensional text and graphics editing display system, and a separate, high quality printer. The Display system will be used fo major editing of already captured information, for capture and editing of graphic information (such as diagrams, flow charts, graphs, etc which must appear in documentation), for formatting th raw textual information into USAF standard publication styles, and for preparing local proofs of documents to be published via COM at a distant service location. It should be noted that the Directorat centers and subcenters will only manage the information in the manuals they support; the final Publication formatting of the manuals will be centrally controlled by the Graphics/Publication center.

Most of the work of entering the necessary formatting directive into the text stream of the manuals will be done automatically by special Formatting tools. These tools will insert the required format directives to produce any of a number of standard USAF formats; the operator's primary task will be to insure the correctness of the results of this process, and to handle any special requirements which may occur.

Quality Control checks

One of the most important requirements upon the new Documentation Environment is to maintain or exceed the current standards for quality and accuracy of the final product. To secure this end, the environment will employ some very advanced technology, and will eliminate "correction errors" (ie., errors that are commonly made while a new "corrected" version is being typed). Still, there remains the need for several human checks at various stages of the process to insure maximum quality in the resultant document. See Appendix II for a discussion of the checks to be made as various stages of the production process.

NSW Support For
AFDSDC Documentation
draft version,split;draft version

Product Media Options

AFDSDC will have available several possible media for output from the system. Primary among these will Computer Output Microfiche. Master fiche will be produced via a commercial Service Bureau, and flown to GAFS for the quickest possible turnaround. For Block Release, this turnaround should run on the order of 36-48 hours from the time a COM Publication Directory is sent to the Service Bureau to the time the master fiche have been returned for a final quality control step before duplication. Duplicates will be made at the Air University Micropublication facility, and distributed with the Block Release tapes. Non-Block Release material will also be published using this facility, but response will not be as rapid outside the Block Release cycle.

If for any reason COM is not an acceptable media for a specific document, there will also be camera-ready copy or Photo-offset plates available from the Service Bureau with similiar turnaround times.

Finally, there will be options of two grades of locally-produced hardcopy, which can be reproduced via current channels. Output for this procedure will be from the System-75 printer for high quality or from the NSW Network Communications Subsystem machine's printer for medium quality, but at higher speed.

Interface With Other Systems and Environments

National Software Works (NSW)

The Documentation Environment implemented under this project will be an integral part of the NSW, and thus will have access to the powerful and useful features of the NSW total environment. All accounting and recording of system use and usage patterns will be monitored by the NSW Framework. NSW will simplify funding procedures for procuring the necessary externa computer support, and will allow pinpointing any bottlenecks in

the procedures which could be streamlined or more efficiently supported by automated aids. (Such management visibility may allow the Center to identify and correct any problem areas in the documentation production cycle which currently are not apparent).

Since AFDSDC programming will also be done in the NSW environment, the documentor will have available Source code, an will be able to capture sample print output of systems being documented.

The NSW communications subsystems will also be of great value i allowing multiple organizations working on parts of the same document to distribute advanced copies for review and correctio among the workers. It will also provide a built-in mechanism fo coordination of the final document.

Finally, although this system is sized for the support of Documentation only, any excess capacity can be addressed toward augmenting the office environment in anticipation of the Office Automation subproject of the total NSW effort.

However, from the outset, it should be noted that this Offic Augmentation support is dependant upon the existence of EXCESS Documentation capacity. Obviously, costs involve dictate that this excess capacity be limited to a low level, only enough to insure reasonable response during peak load periods. Thus this subproject should not be viewed as a solution to current, very real, and somewhat different problems in the administrative office support environment. That effort is a different NSW subproject, and will need to be addressed, planned, and funded for in parallel with, and slightly later than, this effort.

This is not to say there will not be significant amounts of overlap between the two efforts- there certainly will. It must be stressed, however, that if the resources planned for this effort are diverted in an ill-conceived effort to aid the administrative environment, both efforts will be endangered.

Other Text Systems

Stand-alone systems

The NSW-based Documentation Environment will be capable of taking input from stand-alone text manipulation systems, suc as the IBM Communicating Magnetic Card typewriter, MTST, and SAVIN Wordmasters, as well as others which have any sort of communication capability or have an interface capability wit other computers.

These systems are not currently envisioned as being integral parts of the Capture phase of the project, as they are significantly inferior to the CRT/cassette configuration in several important respects. Primary amon these are speed (such units typically top out at 15 char/sec), noise level (the CRT is essentially silent in the office environment, reducing disturbance of other workers), interface characteristics (such systems which d communicate tend to do so in half duplex or line-at-a-tim mode, making good user interface features such as prompting and command completion operations difficult), editing capability (these systems tend to have only line-at-a-time editing, whereas CRTs can manipulate 20-30 lines as a paragraph), and cost (most of the current systems are as expensive or more so than terminal station with equivalent capabilities). In some cases, additional software efforts would also be required to interface the non-standard communications protocols of these devices.

However, the units also offer significant advantages: the printed copy produced tends to be very good quality; the units are more familiar, and thus less "scary" to the inexperienced clerical personnel; the units lend themselves to the type of text preparation usually done i administrative support of the organization; the price of hardware is the sole cost of using the editing features; and trends indicate that such costs will steadily decreas while capabilities increase. Thus, such systems seem to b very good candidates for the Office Augmentation tasks, and thus may possibly be used eventually in support of

some of the documentation tasks. Given these characteristics, it is unreasonable to completely rule ou the use of such devices, especially for information capture.

Therefore, the Documentation subproject of the NSW total project will evaluate the usability of these systems during the Evaluation and Conversion phases, both as a possible alternative to CRT/cassette units as the division-level capture subcenter, and as the configuratio base of the Office Augmentation environment to be implemented somewhat later. In conjunction with this evaluation, at least one of these units will be procured for use in one of the capturing Divisions in both a documentation support and an office augmentation role. Based on the results of this experiment, additional such units may be procured for use in either or both roles. On of the chief goals of this particular experiment will be to gain actual usage experience to evaluate how much overlap between Documentation and Office Augmentation can and should occur.

Online Editing Systems

The environment will also be capable of using the facilities of other text processing systems supported on ARPANET computers, or on local computers which are compatible with ARPANET.

The group of ARPANETed editors of interest includes SOS, TECO, and some others which will be available under NSW. The do not offer the large-document and database management facilities necessary to support the total environment, but are usable for smaller documents such as letters, memos, and capturing new sections of larger documents, as well as handling the page-at-a-time requirements of those documents which have not been converted to COM. The NLS editor will obviously also handle such small scale editing, but its higher cost to use is not fully justified by the relatively simple requirements for such tasks. Thus, these cheaper

services may be utilized when a particular task can be supported by their lesser capabilities.

Another ARPANETed system of particular interest is the B4700. The current B4700 system is connected to several CRTs for th PARMIS system. These CRTs, with a relatively minor field modification to support upper/lower case, could be used for the capture of text during the Conversion and Production phases. Software is currently available from AFDSDC/SC which would allow these terminals to be used to enter and edit a screen full of text, then store the information to disk file accessible to the NSW. With appropriate scheduling, this capability could be made available several hours per day, augmenting the capture capabilities of the Directorates, probably reducing the requirements for subcenters, and allowing some reductions in the amount of external computer resources required to support the effort. The project will explore this concept more fully as part of the available options for capture subcenters.

In the class of local, non-NSW systems, one system of interest is the Honeywell H6000 currently at AFDSDC and shared between Air University and the Design Center. Even though the GCOS EDITOR system also does not provide a sufficient environment for management of documentation of th scale with which AFDSDC must concern itself, it is a reasonable alternative for entry and editing of smaller sections of documents. The administrative overhead would be excessive to use this system as a regular integral part of the DSDC Documentation Environment (unless the H6000 were interfaced with NSW), but it would be usable on an occasiona basis, for instance if Air University wished to use NSW facilities to publish documents prepared originally on the H6000.

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EVALUATION PHASE

During the last half of CY75, there will be a three-pronged evaluatio effort, leading up to a final Production Decision in January of 1976. The purpose of these evaluations is to insure the system will be usable, adequate, and cost effective. Each of these three areas will be deeply explored. A preliminary report on the operational feasibility of the system will be released on 15 Nov 75, with the final report of economic and operational analyses by 15 Dec. A detailed plan for the Evaluation Phase operations will be released in July 75.

Evaluation-level production Usage

During the latter half of the current year, there will be continue and expanded usage of the NLS system in a production mode and experimental usage of the NSW system. The users of each of these systems will be queried periodically to gauge their reactions to the usability and human interface of the two systems (which will later merge into one), and for any suggestions for improvement. This study will be undertaken by the NSW System Integration Office and the local System Architect. The results will be briefed to AFDSDC management, and used for input to further development work under the auspices of the NSW project. The primary purpose of this effort will be to insure the system is the best possible to suppor the AFDSDC production environment, and to identify any improvement which would increase the usability of the system.

Adequacy Review

After several months of such limited system usage have been logged the System Integration Office will sponsor a review of the system to insure that the proposed facility will be capable of meeting al AFDSDC requirements to support the Total Documentation Environment

The result of this effort will be a very detailed product description of the standard system to be used to support AFDSDC, with a list of any requirements the planned system will not suppor and a plan to cover these requirements. This document will also be briefed to management and any unsupported requirements will be input to the overall NSW plan for high priority support.

Final Economic Analysis

A detailed economic analysis of the costs and benefits of the proposed facility will be completed by the end of 1975. This analysis will use cost and utilization figures garnered from the experimental NSW and production NLS usage to develop the most acurate funding estimates thus far available. This will serve as the final input to the Production Decision process.

Production Decision

Assuming the indicators from all these studies are positive, a final Production decision will be made in Jan 76 to commit the Center to going completely to on line NSW support for the Documentation workload by Oct, 1977. This production decision will initiate the Conversion Phase.

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CONVERSION PHASE

The Conversion phase of the project will be the most difficult. This is due to the requirements to continue to maintain the current level of support for the end users' documentation, while at the same time converting to a radically different method of producing the product. In addition, there is the fact that for about a 15 month period there will be documents in several different stages of conversion- ranging from no effort yet begun, through automated support but hardcopy distribution, clear to total support with COM output.

The basic goal of the Conversion phase will be to move from the current environment to the one to be provided as part of this project as smoothly, rapidly, and with the least additional cost and effort possible. To meet this goal, a complex system of hardware, software, trained personnel, computer resources, information capture efforts, and user information efforts must be made to come together under rather tight time constraints. This section will discuss how conversion will be accomplished.

Hardware

The hardware to support this effort includes the various Entry & Editing terminal stations, Communications support, upgrades to the Network Connection Subsystem computer, and upgrades to existing/ne terminal systems. Hardware, and the associated facility support have probably the longest lead time of any component of the total Conversion process, and appear to be most likely to delay the effort, so selection and procurement of the necessary items needs to begin early in the cycle.

Terminal Stations

Although there is currently a fairly good general specification for the terminals and related equipment required to support the

environment, exact specifications must be developed before an order can be made. The terminals for the various stations selected have a large impact on the chances for success of the project, as the users will always be working either directly with, or through, these stations when doing their work. If the components selected do not support this workload as naturally, effectively, and understandably as possible, the user will be alienated from the beginning, and thus will not be able to take full advantage of the capabilities being offered. The selection takes on even more importance when it is recognized that the stations so selected may well become something of a standard fo such stations throughout the NSW user community within the Air Force and DOD.

Thus, a fairly extensive study will be required before the fina selection can be made. The specific terminals to be used will b selected as part of the NSW effort, and will be one of the firs tasks of the System Integration Office. Target date for the selection report is 30 Sept 75.

Communications Support

Access to the environment will require a mixture of communications facilities, ranging from simple dial-up circuits to dedicated, high-speed lines. The latter, especially, require a significant amount of lead time, and thus planning. AFDSDC/DC will be required to provide support in the specification and procurement of the necessary circuits, and in expediting their installation.

Network Connection Subsystem Computer Upgrades

It will be necessary to upgrade the PDP-11 system ordered to support the NSW Demonstration effort. It will not be clear how much of an upgrade will be required until the Demonstration system has been in operation for a period of time, and performance characteristics can be measured. At a minimum, upgrades to the Communications interfaces (more modems and controllers) will be needed. It will probably be necessary to add local immediate access storage to support a larger number o terminals effeciently. It may be necessary to add an additional

smaller PDP-11 processor to support the B4700 interface, freein the main processor for terminal support. Such decisions will be made when the necessary performance information on the initial system has been gathered and evaluated, again by the System Integration Office as part of the larger NSW effort.

Terminal Upgrades

If the capabilities of the several existing terminals within th Design Center are to be best utilized, some upgrades will probably be necessary. Two obvious upgrades would be to add cassettes to some of the current dial-up stations, and (if the B4700 key-to-disk effort to be pursued by SC is successful) to modify the PARMIS CRTs for upper/lower case. Other changes migh also allow cost-effective options. Furthermore, as the Directorate level personnel become more experienced and workloa grows, some Directorate stations may require upgrading to two-dimensional display configurations. Proposals for such upgrades will be part of the Terminal Station selection developed by the System Integration Office.

Software

It is expected that to support the Documentation Environment properly and completely, during the Evaluation phase, and later during Conversions and Production efforts, there will be identifie minor, and perhaps some few major, required changes to the software. This is, of course, in addition to the remaining amount of software development, modification, and tuning already schedule for the period leading up to implementation of NSW and implementation of the Documentation Environment at AFDSDC. Such efforts will have to be managed, and requirements for changes/ enhancements compiled, coordinated, and tasked to the proper organization or contractor.

Focal point for such efforts will be the NSW System Integration Office, working in close conjunction with the System Architect, Rome Air Development Center, and the tool purveyors. Enhancements

and changes, if of a broad, general value to the entire NSW community (or a large portion thereof), will be arranged and funde by the NSW project, Software work which is of only local interest will be funded by the local organization(s) with the operational requirement (ie, AFDSDC in the present case), and will be channele through the NSW project as extensions to current contracts wheneve possible, This will simplify the financial and managerial arrangements, and provide visibility for multiple organizations with the same or similiar requirements which could be jointly funded to reduce individual costs to the involved organizations. Also, it will allow review of requirements to assure that a proposed capability is not already existing or under development elsewhere, and thus needs not be funded again.

Training

It will be necessary to train to a significant number of AFDSDC personnel to use the portions of the total environment with which they will be dealing, This training will range from only a few hours to a few weeks, depending upon the position the user will fill in the overall environment. The System Architect will be OPR for planning and providing this training, supported by SRI, SCDA and some CAI systems.

Requiring the least training will be the personnel who will capture and correct information off line at the directorate stations and Division subcenters. These personnel will only require a rudimentary knowlege of how the entire system works, and a working knowledge of how use their specific portion of th total system, the CRT/Cassette unit in a stand-alone, offline mode, plus the method of transfering this stored information into the Directorate online file space, Due to the relative simplicity of the system with which they will be dealing, training of such personnel should be accomplished in less than day. Preliminary estimates would be 2-4 hours. SCDA will provid a course, developed by the System Architect, to at least one clerk/typist in each Division.

The next level up the scale of required training will be the Directorate users with primary responsibility for moving the captured information into the NSW environment, and for using th teletypewriter version of the online editors to manipulate this textual information. Such people will have to know significantl more about the terminals, using the NSW, and using the On-line Editing system. The training level of these users will have to be slightly above that of current NLS users because of the more extensive scope of their job (ie, supporting online as well as off-line editing). Training will require approximately 4-6 days. The SCHOLAR Computer Aided Instruction system will be use to provide introductory training, with the System Architect and SRI personnel providing more advanced training. At least two personnel from each Directorate should be trained. Two to three additional days training for experienced users will be required prior to the upgrading of any Directorate station to a two-dimensional display station.

At the third level will be the personnel who handle the Graphics/Publications center. These individuals will be using the Display version of the editor, which is considerably more powerful, but in turn requires more training because of its greater complexity. In addition, these individuals will be the ones using the online graphics capability of the system which will also require some training; will be in charge of formatting the raw textual information the Directorate centers provide into standard USAF formats; and will proof the final formatted document. Such personnel will thus require approximately two weeks of training. Two to three persons will be trained by SRI and the System Architect.

The final person up the ladder will be the System Architect, wh will be the top local authority on the system, answering questions for all the other users, developing any special procedures required to handle special applications or requirements, and serving as the interface between the local users and the SRI organization which maintains the systems and develops new features. As such, he will have to be completely knowlegable in all phases of the system, and will be required t know intimately every aspect of each of the three previous jobs It is estimated that two to three weeks will be required to

train this individual, He will be the person in charge of local training after that, One person will be trained to this level, and will then be responsible for providing the majority of the training for AFDSDC users, He will also be responsible for training one of the Graphics/Publications specialists to serve as his backup,

Computer Resources

Several types of computer resources will be required to support th conversion and Production phases of the project, These resources will be procured through the NSW project, to simplify contracting, allow maximum flexibility, and provide good overall project visibility,

Editing Service

Computer time on the computer running the Text Editor system (NLS) will need to be procured in sufficient quantity to suppor the capture efforts and later the production effort, Due to the early begining of the Capture phase, this will initially be computer time not directly controled by the NSW Framework, By the time Capture has been completed, however, the entire workload will have also moved under the NSW environment, Preliminary estimates are that about 25% of a TENEX machine will be required, (This figure could possibly be be reduced significantly if offline capabilities and local resources can b utilized as fully as is hoped,)

Mass Storage

Also required will be a mass online storage facility, so that the master library of documentation can be available with reasonable response, yet at an acceptable cost, This storage will be located at the CCA Datacomputer and will eventually require approximately half a million pages of disk,

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Additionally, there will be a requirement for computer time to support the NSW Framework controlling the total environment. This will be procured as part of the NSW project.

COM Publication

Finally, COM service for producing the COM master fiche will be required. This service, which will be initially procured throug the NSW project and Stanford Research Institute, is estimated t cost aproximately $20/master versus a $250 minimum run charge. (Duplicates will be produced and funded locally.)

After evaluating the effectiveness of COM as a documentation media during the last quarter of 1976 (when about 10% of the total documentation will be converted into COM), a decision wil be made as to whether COM is indeed suitable for the large majority of the documentation. If this decision is positive, an experience indicates that Service Bureau supported operation will not be sufficient, AFDSDC will procure (probably in conjunction with AU and ECI) a COM facility for the GAFS area which will be suitable to support the Documentation environment See Appendix III for a more detailed discussion of the advantages and disadvantages of various means of COM support.

Information Capture

The largest and most time-consuming task of the Conversion phase o the project will be to capture the large volume of existing documentation in machine readable form. This current hardcopy documentation, which contains over ###,### pages, will have to be keystroking and converted into NSW files in a rapid, yet orderly fashion. At the same time, it is not a possible to simply freeze this documentation at some stage and stop everything while the capture process procedes; during the entire conversion process, th base of documentation must be viewed as a fluid entity, continuall undergoing updates and revisions. It is also not an option to contract for the work to be done by some external commercial service. This would require a great deal of additional funding, an

would be plagued by the the fluid nature of the documentation. Thu the only remaining reasonable option is for the Center to capture its own documentation database with current personnel.

Given these constraints, the best method of capturing this information appears to be to convert entire documents as they undergo significant updates. The documentation that AFDSDC support has a very high turnover rate (estimated at approximately Nn% annually). Thus, if the documentation is captured at a similiar rate, most of it will be captured within the time constraints of the proposed conversion phase. Of course, it is recognized that some of the documentation is much less volatile than other and Thus, to capture these relatively stable documents there will be some additional typing workload which would have otherwise been defered. This is, very simply, a price which must be paid. With th introduction of the environment which this project will provide, this "extra" work should at least be significantly faster and less costly than to retype the documents manually on standard typewriters.

Selection of the timing of the capture process will be left mainly to the Directorate which supports the manuals, with some guidance from the NSW Project Office. As general guidelines, any document undergoing major revision (changes to more than about one-third of the pages) and any new documents should be converted as part of the revision or initial typing processes. The next priority is documents undergoing minor revisions- ie, less than one-third of the pages. Finally, as time permits, relatively static documents should be captured. It will be left to the individual Directorates to develop schedules to insure the capture of all documents which they support by the end of the conversion process. All such schedules will be coordinated by the NSW project office, and will be understood to be flexible to meet changing requirements. Preliminary schedules will be required by 1 Jan 76.

The actual conversion process will be in five steps:

1. Capture: The document will be typed onto offline cassette tape at the Directorate station or division subcenter. A hardcopy will be generated and reviewed for typographical errors, and any such errors will be corrected offline.

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2, Entry: The corrected cassette file will be moved into the ARPANET/NSW via the 1200 baud connection at the Directorate station, or via the lower speed communications of the subcenter It will then be converted into an NLS file (during non-duty hours if operational schedules permit). Any final editing will be done online within NLS. Again, a hardcopy will be generated for review and revision. A copy of the final correct version will be archived, for backup if required.

3, Formatting: The text file will be passed to the Graphics/ Publication Support Activity, which will merge any necessary graphics into the file (see below), make a copy for archiving (replacing the copy from the previous step), and then insert th appropriate formatting commands. The document will then be sent to the local high-quality printing terminal to produce hardcopy (if the document is to be published in hardcopy; this hardcopy is not required for documents to be converted to COM simultaneously.)

4.Publication:

4a, Documents being published in hardcopy will be published from the hardcopy produced in the previous step, through the current channels and procedures. To decouple publishing and capture problems, it is expected that each document will be republished in this manner once, as soon as it is converted.

4b. Some documents (primarily those already being published via manual microfiche) will have their first publication fro this hardcopy via the current procedures for publishing in fiche at the AU Step-and-Repeat facility. The second and all subsequent versions of these documents will use the COM facility.

4c, After a document has been successfully published in either hardcopy or manual fiche, final conversion to COM wil be scheduled. For those manuals going out as fiche already, this conversion will be relatively trivial. On the other hand, those manuals still in paper will require a more massive change to the end user's environment, and thus will not be converted as rapidly, to minimize impact and adverse

user reaction, plans for convertion to COM/Fiche should be part of the capture schedule prepared by the Directorates, t allow maximum advance notice to the user community. Documents will be converted to COM as rapidly as possible, consistent with the requirements of the end user, and with AF/DA constraints. (See Appendix III for further discussion on COM Conversion).

5. Maintenance: Any subsequent changes to the manual will be made using the Documentation environment, and released via the then-current method for each particular manual. There will be somewhat different scenarios for the maintenance of documents being published in COM versus those which have not yet been converted, and are still maintained in hardcopy. See Appendix I for a more detailed discussion on the concept of operation for supporting the maintenance of documentation once it has been captured.

Graphics Capture And Conversion

As soon as the Directorates have prepared the original individual schedules for conversion of manuals, current copies of any flow charts, diagrams, or other graphic material contained within the document will be provided to the Graphics/Publication Support Activity.

Using the Directorate conversion schedules as a guideline for priorities, the Graphics/Publications specialists will capture, correct and save this graphic material for later merging into the appropriate online document. This capture should be complet at least one month prior to the scheduled completion of conversion of any associated document, so that there is time fo proofing the graphics by the responsible Directorate.

Whenever a figure changes, regardless of whether the including document has been converted or not, the responsible Directorate will provide a replacement copy of the changed diagram, so that the library can be kept current. In the case that the figure ha not yet been captured, the new hardcopy will simply be used to replace the old one, and an appropriate annotation of the updat made. If the figure has already been captured, the online

master will be recalled, edited, and a proof of the new version supplied to the responsible Directorate for approval before th new version is merged into the online master library.

Target completion date for this effort is Oct, 1977 to have approximately 90% of the documentation converted to automated support, and for 90% conversion to COM as the distributed media. See Appendix IV for a more detailed schedule.

"Selling" the system

With any such major change to an automated support system, there comes some initial reluctance upon the part of the prospective users to give up the "security blanket" of current procedures and make the change to the new system. Such reaction, if hostile enough, can jeopardize the chances for success of the whole project, by reducing user acceptance and usage levels and thus making the new system appear to be far less effective than it actually could be. To combat such problems, prior to and in parallel with the rest of the Evaluation and Conversion Phases, there will be a campaign to inform the projected users about the environment in which they will be working, and to disperse the normal clouds of rumor and misunderstanding which commonly accompany such conversions.

One of the first steps in this campaign will be to present demonstrations to the projected USERS of the system. These demonstrations will be to small audiences- 8 to 10 people- to allow maximum interaction between the demonstrator (System Architect) and the eventual users. These demonstrations will be geared to simulating the actual steps these people will take to do their work, and should be as realistic as possible, to avoid the double pitfall of promising too much (which leads to a feeling of betrayal when the system doesn't pan out) or not showing enough (which leaves the potential user with the notion that the system will not do all that is required, and thus is "worthless").

Management personnel should communicate their reasoned support for the new system to their workers. Accuracy and sincerity is critical; it is far better for the manager to communicate an attitude of receptive skepticism than to make clear by obviousl false and put-on enthusiasm that he holds no hope at all for the success of the project and is just going along because he was directed to do so. Of course, the best attitude is one of rational optimism, and the Project will provide demonstrations and discussions for top and middle management in an effort to foster such attitudes.

In conjunction with support of the project, there must also be a willingness to examine and, if necessary, to implement new procedures for accomplishing the work. Such changes will be kept to a minimum, but it simply makes no sense to use systems such as those which will be provided as multimillion-dollar typewriters. New technology will require some new techniques; and with these, some changes to the way we do things.

Personnel selected to use the system should be, as much as possible, people who really want to learn to use the new facility. Learning to use this new technology requires a certai attitude notably lacking in the standard military version of th "volunteer". Especially in the early phases of the project, negativist attitudes can be very contagious in the classroom environment, reducing effectiveness of training for not only th student in question but for the others attending the class. A positive attitude is also contageous and should be sought in al early users.

Schedules for implementation should recieve wide distribution. Again it is counterproductive to keep people in the dark about what to expect, and when.

By now, it is certainly apparent that all of the previous discussion should be obvious to any manager worth the title. To such people, appologies are extended for the time it has taken to cover this section. However -and this can not be stressed too much success or failure of this effort hinges, as much as any other single factor, on providing the proper organizational and emotiona

environment for its implementation! Thus, this process is critica
and cannot be left to chance.

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APPENDIX I: SCENARIOS FOR MAINTENANCE OF DOCUMENTATION

This appendix outlines the concept of operations for maintaining the AFDSDC Documentation database after it has been captured and loaded. The key features of this concept are:

1. Maximum use of off-line editing capabilities for entry of requests for changes and replacement information

2. On-line communications between Division level (where changes will be prepared) and Directorate level (where the changes to the online files will actually be made)

3. Maintenance of Database integrity until changes have been approved at all levels

4. A single unified operation supporting operational procedures somewhat specialized to best support the two different kinds of en products produced by the system.

Phase 1: Determining Changes To Be Made.

The first phase of the process of making changes is similiar no matter whether the document media is COM or Hardcopy. The individual responsible for the document will request this Directorate Documentation Center make a working copy of the relevant section(s) of the document to be changed. The Directorate operator will go into the online Master Documentation Library, recall the appropriate document master file, copy those sections o interest into a working file assigned to the author of the changes and create a double-spaced working hardcopy of the online work file. This copy will be given to the Author.

It is important to note at this stage that the COM documents an the hardcopy documents will be stored in a somewhat different form in the online master library. COM documents will be stored

as NLS files. However, because of the fixed page orientation of hardcopy documents, and because the NLS system may not yet be fully capable of handling page at a time formatting changes, these will be stored as formatted sequential text (ASCII) files.

In both cases, the files will be accurate and up-to-date representations of the respective documents. However, by storin the hardcopy documents in text form, it will be possible to retain the necessary page layout information for publishing updates. (With COM, framing will change automatically with each new release, and thus is not required to be saved between releases.) This text-form storage will make handling hardcopy documents somewhat more cumbersome than those converted to COM (although less so than currently), and they will be edited usin a different subsystem which will not be as fully automatic as the prime editing system. When the paged formatting extension t NLS has been implemented, these separate systems of maintenance will be eliminated.

The author will pencil in his changes on the hardcopy, and give th hardcopy to the directorate operator (or, if he has one, to his Division subcenter operator). The changes to be made will be captured to cassette offline, and corrected. These changes will be in the form of a narative of the changes to be made, similar to th way changes are now specified for hardcopy documents in the field. In fact, if the document is still in hardcopy, these directions fo changes, after being used to update the master file, will be used to prepare such change orders.

For example, the following could be part of such a change request:

****

Change the word "Pentagon" in para 1.3.5 to "Pentagon or AFDSDC"

Replace para 3.4.5.6 with:

In all instances, Murphy's Law and the Peter Principal will be observed. Failure to do so may result in

disciplinary action, Violations will be reported, in quadruplicate, to the Good Taste Monitor, using the form O-96,

Delete paragraphs 3,5,7 through 3,5,12

....etc.....

These directions will be read into an online file and linked to th original working copy file,

Phase 2: Making The Changes

The Directorate operator will use the Directorate station to actually make the requested changes to the online working file, an then create a change notice file, a hardcopy of the pages as they existed in the old master file, and a hardcopy of the new pages (for hardcopy documents); or a hardcopy of the original and new versions of the changed sections only (for COM documents) for fina review by the author. This will also be a working hardcopy, and as it is passed up the approval chain, additional changes may be marked in. After the approval hardcopy has been reviewed by the final member in the Directorate approval chain, he will return it to the Directorate operator, who will make any changes directed in the approval process, and return a new, correct hardcopy to the final reviewer for approval.

phase 3: Formatting And Graphics Insertion

The approved Workfile will be passed to the Graphics/ Publication support activity, where any necessary new graphics will be inserte (COM only; for hardcopy, format commands will be added to leave necessary 'holes'), then the file will be run through the formatting subsystem.

In the case of a COM document, the formatting process will prepare a COM file, and from it a COM proof file simulating the new fiche to be produced. This proof file will be output as a line-printer proof of the text of the entire fiche. Graphic hardcopy of any frames containing new graphics will be printed. The original of this will go to Quality Control, and a duplicat copy (carbon copy of the printed information, and a Xerox of th new Graphics frames) will be given to the Directorate. The work-file will be returned to the Directorate control.

In the case of a Hardcopy document, the changes requested will be used to prepare a change notice. Changes to short sections will be entered into the change notice file directly. Changes t longer sections will be made and changed pages prepared (complete with point numbering, if required), and appended to the end of the change notice file.

Phase 4: Quality Control Review and Revision

Any changes to COM documents requested by Quality Control will be made by the Directorate, and the workfile will be updated and passed to the Graphics/Publication activity. A new hardcopy will b printed of the appropriate sections for final review by Quality Control, then the workfile will be merged with the old master to form a new master. This new master will be moved into the master library, replacing the previous version, and a copy will be made and placed in the COM publication directory.

For hardcopy publications, the change notice will be passed throug Quality Control and the Directorate for changes/approval. When approved, the changes will be merged into the master document and the change notice file placed in the hardcopy Publication directory.

phase 5: publication

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The documents will be published to the appropriate media as alread
discussed in the main section of this plan.

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APPENDIX II: PRODUCT ACCURACY AND QUALITY CHECKS

One of the most important requirements upon the new Documentation Environment is to maintain or exceed the current standards for qualit and accuracy of the final product. To secure this end, the environmen will employ some very advanced technology, and will eliminate "correction errors" (ie., errors that are commonly made while a new "corrected" version is being typed). Still, there remains the need fo several human checks at various stages of the process to insure maximum quality in the resultant document.

The first check will be by the Directorate/Division level typist who captures the document. This person will be primarily looking for typographical errors at entry. Due to the ability of the configurations to do local editing during entry, these will be corrected immediately. After a final check that the captured document matches the information in the original hardcopy (or handwritten draft), a hardcopy of the taped information will be generated and given to the author.

The author will check for both typographical accuracy and content, marking any correction to be made. These will be made by the secretar in local mode, and a new hardcopy will be generated for the author's final approval. Then the file will be moved online. The hardcopy of the text will be checked by the author and the other individuals in the Directorate approval chain. This should flush out the last typographical, style, and information errors, as well as allowing for any last minute changes to be inserted. Once the text is approved by the Directorate, the working file will be passed to the control of th Graphics/Publication Activity.

Here, the necessary figures will be merged in, and the document will be formatted into the appropriate standard format. A hardcopy proof o the document, complete with figures, will be generated, and given to

release control for final proofing. A duplicate will also be made and returned to the Directorate in parallel, to have a final check on the assembled document. Any changes required by release control will be made by the Directorate (text) or the Graphics/Publications Activity (graphisc or formatting), as appropriate.

When release control and the Directorate have approved the proofs, th working file will be merged into the Master library, and a copy store in the publication directory.

Note that at any point up to the time the publication directory is transmitted to the Service Bureau, last minute changes can be made Such changes will not affect the information in the rest of the document, so it will be sufficient for Release Control to just check new sections. It should also be noted that the directory access controls makes it impossible to make such changes without authorization, and that the system keeps a record of when, and by whom, changes were made, so it is a simple procedure to extract only updated sections for final review.

Judicious use of this capability should greatly improve the timeliness of the document, and should also reduce the Release Control workload for reviewing changes to existing documents. (The same by-change-date extraction will work to retrieve only changes made during the current cycle to an already approved document, and will indicatethe identity of the person(s) who made the update(s) if any questions come up).

However, care should be taken to assure that this capability is not abused, shifting all the workload down to the last seconds before cutoff deadlines.

At the appropriate time in the Block Release cycle, the COM publication directory will be moved to the Service Bureau, and the Fiche masters will be prepared. There will be a visual quality check by Service Bureau personnel, then the masters will be flown to AFDSDC

for final quality control checking. This check will be only to insure the readability of the master, and its suitability for reproduction, as information errors will have already been shaken out before the fiche was requested, and error levels across the Net are almost non-existent (about 1 bit in one trillion).

The fiche masters will be then photographically reproduced by the Ai University Micropublication center, given a final quality check by Release Control personnel, and distributed with the Block Release or as otherwise appropriate.

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APPENDIX III: COMPUTER OUTPUT MICROFICHE (COM) SUPPORT FOR PUBLICATION

The publication of Air Force Standard Documentation in Microfiche format is an area which offers both massive cost savings and the opportunity to significantly improve the product with which the user in the field must work. On the other hand, much of the promised savings are made possible by economies of scale, and the great speed offered by Computer Output Microfilmers, and COM is sufficiently different from current Documentation media that a well-planned and cautious implementation of the conversion is imperative if the maximu advantages of the media are to be fully exploited.

Operational Requirements

To effectively support the AFDSDC mission, the following requirements are placed on a COM Facility/Service Organization:

Turnaround for Block Release Fiche must be less than or equal to 4 hours from the time the files are provided to the publication facility to the time the master fiche are available at AFDSDC.

This requirement is made necessary by the very tight time constraints under which the Block Release cycle must work. Somewhat simplifying the task will be the fact that this proces will be required only once each month, on a date pre-specified well in advance. It is hoped that this constraint will allow scheduling of the workload by the COM Facility or Service Organization so that all required resources can be poised to go at the start of the cycle.

Turnaround for non-Block Release Fiche must be less than or equal to 10 days.

Publication of documentation outside the Block release cycle is less time critical, and at the same time it is not as commom. This type of service requirement will be rare, but some allowance must be made for it.

The master fiche must be 48x, conforming to MIL-STD-399 specification MIL-F-80242 for 48x microfiche. There is a requirement for simple graphics for the inclusion of flow charts and other graphic material, for the ability to overlay both forms and half-tone photographs, for at least two distinct character fonts or underlining or italics, for a minimum of two distinct character sizes, for a minimum of two levels of boldness, and a requirement for sufficient resolution and contrast to allow the production of high quality duplicates in quantities of up to 4000 from the master. Desirable features are reverse (white on black) images, 24x capability, and proportional spacing. A local facility must be able to accept 9-track tape from a PDP-11, B4700, and H6000. A service bureau must be capable of processing a tape made at the hardware of the Network node near their facility.

Local Facility vs Service Bureau- An Evaluation

There has been much discussion as to whether AFDSDC should procure COM services from a Service Bureau, or install a local COM Facility. This section will discuss both the advantages and disadvantages of both types of operation.

A local COM facility could be installed either at AFDSDC or somewhere within the Montgomery area, and would service both AFDSD and Air University requirements, as well as providing a service to other federal agencies and Contractor around the Network. Such an operation has several distinct merits.

It would provide the best possible turnaround to meet the Block Release requirements, and would maximize AFDSDC control and responsiveness of the process. The system would also be usable for producing in Fiche format other products the Center uses internall (such as listings of the operating system and large functional systems). It would provide an opportinity to evaluate and experiment with applications (including Graphics) for COM in anticipation of possible Base-level requirements. It would allow unification of COM requirement between Air University (especially

the Extension Course Institute) and the Center, allowing joint funding to reduce individual organizational costs.

On the other hand, there are several very significant disadvantages. Perhaps the biggest is simply the high cost of a facility which would meet the requirements. It appears an absolute minimum system would be in the range of $150-250,000 purchase price, plus several thousand a month for maintenance and supplies. This costs must be balanced by use, which, in the case of the AFDSDC requirement would be less than about 3-4% of the machine when the Documentation project is fully implemented. Air University appears to be able to provide an additional 10-15% utilization, but their operational requirements are such that they can operate with a much less powerful system (which is thus much cheaper). Some additional workload could be generated by acting as a service bureau for other network sites, but in the next couple years, this amount appears to be rather insignificant. Although the cost tradeoffs of COM are such that the 20% level is probably economically feasable, it is unattractive to procure a local COM facility of the class AFDSDC will require until the Center is firmly committed to producing COM. In the interim, the cheaper facility soon to be installed at Air University, together with AFDSDC service procured externally is vastly more cost effective.

Other problems which must be faced before a decision to install local COM should be made include Training, Personnel, Facilities requirements, and Maintenance. The latter is especially significant, as it tends to somewhat counteract the Responsiveness arguement. The reason is that response time to fix a COM Recorder in Montgomery would be significantly longer than to fix a machine located in or near some major area of Computer utilization such as San Francisco, Boston, Washington, or Los Angeles. Furthermore, a relatively small operation such as what AFDSDC would run would tend to be economically overshadowed by the much bigger operations in these areas, making it more difficult to get replacement parts. Thus, hardware problems (which can be counted on to occur at the worst possible time) would cause a much more significant impact on a local operation than if COM were being procured via Service Bureau. In fact, it is likely that a service bureau's hardware problems could be almost totally transparent, as most have more

than one machine, which allows backup capability economically impossible in Montgomery at the current time.

Another significant advantage of Service Bureau operation, especially in the early phases of the effort, is that it will allo the people who are writing and maintaining the Publication subsystem software to interact much more closely with experienced COM operations and maintenance personnel, allowing more rapid isolation and correction of any software problems and better response to requirements for extension of the system's capabilities.

Finally, working with a Service Bureau in the early stages of the project would make it simpler to arrange for emergency backup service for a local system, should it be decided to install such a system eventually.

Operating Plan

For the above reasons, the project will procure any necessary COM service from a service bureau, via Stanford Research Institute, at least through the end of FY77. During the early part of FY77, when a significant but still relatively small portion of the Centers Documentation is being produced by COM, a study will be conducted to determine the desirability of COM as a medium for the entire Documentation effort, and to determine whether service bureau operation will be sufficient to support the operational requirements of the Center.

If so, the center will select a Service Bureau for full operationa support, and write a direct contract to replace the subcontract through SRI.

If Service Bureau operation is determined to be unacceptable, the Center will procure its own COM facility, take over production of COM for Air University, and actively solicit additional cost-reimbursable contracts with other ARPANET organizations so as to fully utilize the COM facility, and also to provide a ballancin

credit for external computer resources the Center must use. In thi
case, the COM facility will be a general NSW service, and
contracting/funding/accounting will be handled by the NSW
accounting mechanisms and channels.

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APPENDIX IV: PROPOSED SCHEDULE

Jul 75	Financial Requirements; Operational Test Plan
Aug-Nov75	Operational Feasibility Test Using NLS-8,5 Outside NSW; Demonstrations
Nov 75	Preliminary Feasibility Report; Order 5 E&E Stations
Dec 75	Economic/Feasibility Study Complete
Jan 76	Production Decision; Select Divisions Requiring Subcenters; Order Remaining Stations, Subcenters; Begin Training First Increment Of Users;
Feb 76	Install First Increment Of E&E Stations; Preliminary Conversion Schedules Due From Directorates; Begin Capture Effort
Mar 76	Train Second E&E User Increment; Train Capture Users; First Manuals Online
Apr 76	Install Remaining E&E Stations And Subcenters; Captur Underway Center-Wide; First Publication Using System (Hardcopy)

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Dec 76	50% converted, 10% using COM
Apr 77	75% converted, 25% using COM
Oct 77	90% converted, 90% using COM

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(J32837) 26-JUN-75 14:18;;;; Title: Author(s): Lawrence A. Crain/LAC; Distribution: /EFF([ACTION]) ; Sub-Collections: NIC; Clerk: LAC; Origin: < CRAIN, DOCUMENTATION-PLAN,NLS;16, >, 26-JUN-75 14:09 LAC ;;;; ####;

RA3Y 26-JUN-75 15:06 32838

use stats

1 As of the end of Thursday, we still do not have all the data you need. Hopefully tomorrow, Friday, it will be in. 1

RA3Y 26-JUN-75 15:06 32838

use stats

(J32838) 26-JUN-75 15:06;;;; Title: Author(s): Raymond R. Panko/RA3Y; Distribution: /MEJ([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: RA3Y;

Recent Message Committee Dialog for Week through June 27

1 26-JUN-75 1045-EDT myer: ISI's IA Project distribution: STUTZ AT ISIB, [isi]<farber>messagegroup.list;, Message-ID: <[BBN-TENEXA]26-JUN-75 10:45:50-EDT,ROURKE> Received at: 26-JUN-75 08:00:38-PDT 1

1a Rob: 1a

1b I read with interest your account of the IA project, Given the current effort in refining and testing MSG, I would have thought you planned to make it a part of your military service. 1b

1c Question: is this the case or are the two projects completely unrelated. 1c

1d Ted Myer 1d

2 25-JUN-75 1528-EDT myer: Message Annotation and Related Security Issues Distribution: [ISI]<FARBER>MESSAGEGROUP.LIST: Received at: 25-JUN-75 12:42:53-PDT 2

2a Message-ID: <[BBN-TENEXA]25-JUN-75 15:28:41-EDT,ROURKE> 2a

2b Here are some thoughts on annotation, suggested by:

- Stefferud 13 Jun Message Filing Function
- Farber 13 Jun Answer to the Above
- Vezza 19 Jun General Comments

The following approaches toward annotation could be implemented rather quickly within the framework of our existing message systems. It might make sense to put up one or more of them on an experimental basis. 2b

2c 1. We could make it possible to annotate existing messages by adding new header fields. How about NOTES for plain text and FKEYS (standing for "File Keys") to hold key words? Attaching the new fields could be done by a command (how about "ANNOTATE"?) or an option to WRITE (which is like MOVE and PUT in MSG.) 2c

2d We would propose an initial cut that would avoid file shuffling by combining annotation with the transfer of messages into new files. Later, if message files get more structured, it should be possible to annotate messages in place. 2d

2e The Filter option would be extended to permit selective retrieval based on the new fields (it now handles the standard RFC-680 headers). 2e

2f This annotate feature would help preserve message integrity by segregating the added information. If you saw NOTES or FKEYS on a message, you could assume they were not part of the original. We could enforce this convention by making it impossible to SEND messages containing these fields. You would have to work a good deal harder, however, to authenticate the notations themselves. 2f

2g 2. We could make it possible to copy messages out of a file into the active work area of Mailsys. Once copied in this fashion, the fields of a message could be added to, edited, replaced, deleted, etc. using the present manipulation commands. It would then be possible to re-file the modified message. 2g

2h To help preserve integrity with this scheme, the system could add a "MODIFIED-BY" header field each time a message was put through the change operation. The added field would identify the manipulator, and possibly the date the changes were made. 2h

2i 3. An entirely different approach would disallow any modification of messages, once SENT. Instead, annotation would be accomplished by encapsulating existing messages in new ones, with the new message bearing such special header fields and notes as might be desired. 2i

2j A crude version of this can be accomplished right now with the FORWARD or INCLUDE commands. For example, you can set up a message containing any pattern of header fields you wish (including KEYWORDS), begin the text with your annotations, and then INCLUDE the message(s) you wish to annotate. It would not be difficult to embody something like the above operation in a special, prompted annotation sequence. 2j

2k The above are some rather rough first thoughts on how to do annotation. Questions: Does any of them seem like a desirable approach? If so, which makes most sense? Are there sufficient security measures in the first two? Would it make sense to put up one or more of these on a temporary, experimental basis? Your comments are invited. 2k

21 Incidentally, on the subject of security, we are going to have to
make some system changes before the measures suggested above can have much effect. For example, right now if you're sufficiently careful about it, you can use an ordinary text editor to make any changes you want to an existing message file. As long as such free access is allowed to message files, I don't see how we can preserve message integrity. 21

2m Regards, 2m

2n Ted Myer 2n

3 25-JUN-75 1511-PDT ELLIS at USC-ISI: Secretaries answering Boss' mail Distribution: [ISI]<FARBER>MESSAGEGROUP.LIST: Received at: 25-JUN-75 15:11:38-PDT 3

3a Dave: 3a

3b I share your concern about the secretary "ghosting" problem. Your suggestion for an answer.msg file does create a good "tickler" file. However, the basic problem is that a recipient of a message sent via a secretary is somewhat confused by the name in the "FROM" field and is unable to use the MSG "answer" command correctly. The original message committee considered this problem a serious one and recommended that there be a "SENDER" field which is machine verified and that the "FROM" field be filled in - if different - to represent the authorizor of the message. 3b

3c Another possibility which doesn't lengthen (vertically) the header
is to extend the "FROM" field with a ",for so and so," to be filled
in by the secretary. 3c

3d Probably neither of the above are doable in the short term. 3d

3e Regards, Tom 3e

4 25-JUN-75 1001-EDT Nancy Goodwin: Mail from BBN-TENEX Distribution: [ISI]<FARBER>MESSAGEGROUP.LIST:, WALKER AT ISI, tasker at isi, Message-ID: <[BBN-TENEX]25-JUN-75 10:01:17-EDT.NGOODWIN> Received at: 25-JUN-75 07:26:47-PDT 4

4a Steve, 4a

4b Thanks for adding my name to the message group list. I have been

interested in the exhange of ideas about the user interface, and especially like the idea of establishing a single list of command names for message handling systems. The transfers among Mailsys, MSG, and HG have been frustrating, as I try to remember which command is used for which action. 4b

4c Jon and I thought the message group would be interested in our
recommendation that a display-oriented message handling system should be developed for use by the computer-naive. (Experts might like it too.) This will be discussed in the paper we are preparing for you, but the lag between final draft, publication, and distribution, and the speed of the current exchange of ideas among the group, lead us to think it would be useful to introduce this recommendation to the group now. 4c

4d I would have sent it to the message group directly, but have not
yet managed to get the group name accepted as an address by Mailsys, or managed to penetrate the mysteries of FTP to get a copy in my own directory, and have no patience left for typing them all out. There is something wrong with the available instructional material in this regard - I find none that is helpful. 4d

4e Regards, 4e

4f Nancy 4f

4g ****** ****** ****** ****** ****** ****** 4g

4h Recommendation for a display-oriented message handling system:
(from draft of MITRE paper, prepared for ARPA, 6-23-75) 4h

4i Rather than searching for the best syntax for a
typewriter-oriented users' language, it would be worthwhile to carry the concept of a display-oriented text editor further, and design an entire message handling system which is
display-oriented. 4i

4j a computer-naive user should not have to think in terms of
commands and arguments when interacting with the message handling system. A display-oriented system could present options to the user, which could then be rearranged if necessary before computer processing, but which would not require the user to be concerned with syntax at all. With a display-oriented system, the user's

typing would be minimized; this would, in turn, reduce the errors he would and could make. 4j

4k Obviously, typing is necessary during message creation and
editing, and when entering comments or changes to a message. However, typing as a means for interaction with the system could be reduced, and possibly eliminated. Message reading and manipulation especially lend themselves to a structured sequence, in which typing would be minimal. 4k

4l For example, suppose a list of 20 messages is in the current
file. Instead of typing "READ 1,2,3" or its equivalent, the user could select READ from a list of displayed options (using lightpen, mouse, cursor moving keys, etc.) select the messages he wants to see, and use an ENTER key when the list is complete. The messages would then be displayed as though the command list had been typed, except that no typing or syntax errors would have been possible. To move messages to another file, the appropriate command would be selected, the list of messages would be selected, and then a list of message files would be displayed. (An area for entering new file names could be provided.) After selecting the target file, the messages would be moved, and the list of messages and options displayed again. If the user tried to enter a list of messages before selection of a READ or MOVE command, either an error message could be presented, or that sequence could be allowed. 4l

4m Only those options that were valid at a particular point in the
job sequence would be displayed at a given time. The user would not, however, have to be trapped into an undesired sequence. Escape options could always be included on the menu. 4m

4n Use of a display-oriented sequence is dependent on two factors:
high speed transmission, so that lists of options could change very quickly and prompts could be presented without impeding the user's progress; and, use of a video display terminal, so that whole pages of text and options could be presented at once, and so that options could be selected, messages selected, etc. 4n

5 24-JUN-75 1152-PDT DCROCKER at USC-ISI: Helping Secretaries Answer Boss' Mail Distribution: [ISI]<FARBER>MESSAGEGROUP.LIST;, [isi]<ucla-doc>folk.atsgroup: Received at: 24-JUN-75 12:05:00-PDT 5

5a Since it is very common for secretaries to answers mail for their

bosses, I have been trying to think of a clean way for our current mail systems to be used to that effect, At ISI, I am told, secretaries simply log into their bosses' directory and "ghost" responses; that seems to me to be the wrong idea, 5a

5b The following seems to be workable and I would like to solicit
comments on it: 5b

5c Using MSG (for the moment) Boss PUTs appropriate messages into a
pre-designated file, such as ANSWER.MSG, When convenient, the secretary CONNECTS to Boss' directory and starts MSG with automatic read-in of ANSWER.MSG, MSG automatically flags Recent messages (added to the file since it was last read) so the secretary will easily be able to tell what new mail needs responding to, The secretary then tells MSG to Answer each piece of mail, allowing him/her to also send a copy (through the * facility in SNDMSG; Mailsys should offer an improvement to this, since the * thing only works on existing files) to RESPONSES.MSG (or whatever) which will also be in Boss' directory, 5c

5d Boss will then be able to easily tell what messages have been
answered, and will have a copy of the response, 5d

5e The above obviously is not as smooth as one would want, but
suggests what tailored functions might be useful, such as a command which does PUTs only to a file like ANSWER.MSG, so Boss does not have to remember the name, 5e

5f Comments? Dave, 5f

6 24-JUN-75 1110-PDT AMC at USC-ISI: Army Materiel Command
Interests in Message Systems Distribution:
[ISI]<FARBER>MESSAGEGROUP.LIST:, gilbert at office-1, arntson at office-1, cianflone at office-1, mitchell at office-1, dsmith at office-1, gunn at office-1, uhlig at office-1, Message-ID:
<[USC-ISI]24-JUN-75 11:10:24-PDT,AMC> Received at: 24-JUN-75
11:21:47-PDT 6

6a I have been sitting back for some time watching the messages flow
through my mail box on the various message systems, The recent message from Tom Ellis on Command Mnemonics and from Rob Stotz on the ISI IA Project have acted as a catalyst to finally get me to say something (in addition to the fact that I am about to disappear for two weeks beginning this Saturday), 6a

6b For those of you unfamiliar with our "experiment" in Army
Materiel Command, we have been using OFFICE 1 for communication among seven of the key managers in data processing in Army Materiel Command (AMC). The "experiment" portion of our use is about to end and we hope to write up the results this summer. In general, we have had the same kind of experience in improved communication that ARPA had when they began using a message system on the network. Continuing major cuts in the Army Materiel Command work force plus some fairly major reorganizations which are now being planned are leading us to give serious consideration to adopting an on-line computer based message system for key managers throughout the command. We are in the early stages of trying to define what such a system needs to look like. There is some similarity to the IA Project however that project deals more with formal message handling, in so far as I can tell, rather than the more innormal message traffic that we hope to use it for within AMC. Possibly, when we get done, the IA Project and what we want to do in AMC will merge together into a good total message handling system. 6b

6c Since we are aiming more at the informal communications we are
not terribly concerned with the DOD traditions that Tom Ellis mentions in his message on Command Mnemonics. Our primary concern is that the message system be easily usable by noncomputer science people, some of whom are actively hostile to computers in general. The demonstrations that we have given to various noncomputer science, non technical personnel around AMC have generally been well received. But one must know far too much "computerese" to use any of the existing systems. 6c

6d It is clear that we need a simple text editor which can be
invoked to change the message body however, we would perfer that one not have to go through a separate action to send a message after that. Furthermore, the fixed order in which the other portions of the message appear and are prompted are desirable for our purposes. 6d

6e Disposing of messages needs also to be very simple. The current
ability to move messages with the move command in msg appear to fill the bill for what we need. However we do need the ability to add notes to a message at the point in the text where we want to make a note 6e

6f We have a strong need for teleconferencing because our key

managers are greatly dispersed geographically, The message system that we eventually adopt needs a teleconference capability, We don't want message handling and teleconferencing to be in two separate systems, Because of this we also want to make it easy in the middle of a message based teleconference to link to a data bank somewhere in AMC to pick up information which is needed at that point in time, An FTP type capability, simple to use for the novice, would meet the need very nicely. 6f

6g For technical reasons we may have to go to the one copy per group
feature, such as Rob Stotz cites in the IA project, However, it would be better if this were transparent to the end user, This is based on problems we have had in getting some of the people involved in our current experiment to understand that this is the way the journal works at OFFICE 1. 6g

6h As we get better definition on our requirements during the next
few months I will put additional messages into the network to keep you all current on our thinking, This message is only intended to be introductory. 6h

6i Ron Uhlig 6i

7 23-JUN-75 1542-PDT STEFFERUD at USC-ISI:
[ISI]<FARBER>MessageGroup.List: Distribution: WATSON AT BBN-TENEXB,
[isi]<farber>messagegroup.list: Received at: 23-JUN-75 16:00:18-PDT 7

7a Hi Dick: 7a

7b At first I was a bit bothered by the printout of the SEND list in your messages, and then I noticed that they were shorter than they were supposed to be. 7b

7c When Dave Farber accepted the "keeper of the lists" job, he volunteered
me to help with the chore, Dave is away on vacation. 7c

7d I note that you must be using an old list. The current list is enclosed for your use, and the use of everyone on the list. 7d

7e The master list is stored in:
[ISI]<FARBER>MessageGroup.LIST and in
[ISI]<FARBER>MSGRP.MAILING-LIST
and both are read accessible for your convenience. 7e

7f MSGRP is a slightly abreviated list excluding those who have asked

Dave to help them avoid too much junk mail. I will include both in this message. 7f

7g [ISI]<Farber>MessageGroup.List:
@BBN,NGoodwin,Burchfiel,Myer,Gilbert,
@ISI,Mealy,Tasker,Mclindon,Walker,Farber,Stefferud,Ellis,
Kirstein,Iseli,DCrocker,PBaran,
@ISIb,Vittal,Stotz,
@Office-1,Uhlig,Watson,
@Mit-DMS,Vezza,
@I4-TENEX,PIRTLE, 7g

7h [ISI]<Farber>MessageGroup.List:
@BBN,Burchfiel,Myer,Gilbert,NGoodwin,
@ISI,Mealy,Tasker,Mclindon,Walker,Farber,Stefferud,Ellis,
Kirstein,Iseli,DCrocker,PBaran,
@ISIb,Vittal,Stotz,
@Office-1,Uhlig,Watson,
@Mit-DMS,Vezza 7h

7i Dick, I am glad to see you in this dialogue and I am looking forward to reading the paper as soon as I can get it out on a printer. I hope all of us at ISI are not keeping a copy. My Directory for one in impossible to keep from going over allocation with the flood of text I am receiving. 7i

7j Best regards to you all, Stef 7j

7k PS: I have no explanation for the duplicate heading on the different
lists. I am just sending you what I found in the files, with a bit of compression in the number of lines consummed. S 7k

8 23-JUN-75 1420-PDT TASKER at USC-ISI: MAILSYS; creation prompting Distribution: [ISI]<FARBER>MESSAGEGROUP.LIST: Received at: 23-JUN-75 14:38:37-PDT 8

8a Ted Myer suggested that I share the text of my 19 Jun 1975 1759-PDT reply to his 18 Jun 1975 22:42:33-EDT message with the group: 8a

8b Ted: 8b

8c I read with great interest your note to the msggroup about MAILSYS and NMSG and found myself agreeing with you: NMSG DOES do a better job at the message management, and MAILSYS DOES do a better job at creation. 8c

8d My only serious concern with MAILSYS message creation

is apparently being addressed already by you guys; prompting. The military user currently is used to a prompting message creation system (the message creation form DD173) and would probably feel more comfortable (at least initially) with some prompting. (I find that I myself spend more time creating the header in MAILSYS due, in part, to the lack of prompting). The military user will probably want to tailor prompting for his informal traffic use and call on a common DD173 one for the record messages. I would suggest that the formal message prompting might actually prompt for the required fields and then list the other fields as guidance, as opposed to requiring the operator to discard every field he doesn't want to use. This is my own guess -- if the prompting is flexible, we can let the real user find out what he wants. (I'm sure you guys have thought about this more seriously and in more depth than I have, so please excuse me if this is presumptuous). 8d

8e In any case, I really like the manipulation flexibility you now provide, and I am very much interested in what your thinking has been in this area and what the creation prompting capabilities look like when they're ready. 8e

8f Sitting here in the offices of a potential military user (CINCPAC J6), I am extremely gratified and excited to see the msg group interacting and that those interactions appear to be converging around real capabilities that I think can be sold to the operational military guy. A scant three or four months ago I never would have even hoped for the current state of affairs and the direction it indicates. 8f

8g Aloha,
Pete

8g

9 22-JUN-75 1631-PDT STEFFERUD at USC-ISI: MAILER, MAILSTAT, ETC.
Distribution: [ISI]<FARBER>MESSAGEGROUP.LIST; Received at: 22-JUN-75 16:40:47-PDT 9

9a Dave Crocker's question about MAILER sending mail out of order prompts me to ask why MAILER and MAILSTAT and SNDMSG (and XMAIL?) are not in agreement on how to handle HOST name recognition. 9a

9b It seems to me that SNDMSG recognizes HOSTs with a minimum type-in and without confusion between upper and lower cases. 9b

9c Mailstat will accept HOST names in either case, but will not recognize
anything less than the full typeout of the HOST name. 9c

9d Then, after renaming a HOST or a DIRECTORY name for MAILER, after
MAILER refuses to mail an improperly addressed msg for instance,
MAILER refuses to recognize lowercase directory or HOST names, 9d

9e I may have some of the details wrong but the inconsistencies are
a fact. Would some one please track down the true facts, and then take action to make them consistent. The SNDMSG reconition and handling rules seem to be prefered over the others, though some rethinking of the whole thing might be appropriate in the context of Tom Ellis' suggestion about Command Standards and Dave Crocker's distertation on Command Strucures and their reconition and invocation. 9e

RWW 27-JUN-75 08:38 32840

Recent Message Committee Dialog for Week through June 27

(J32840) 27-JUN-75 08:38;;;; Title: Author(s): Richard W. Watson/RWW; Distribution: /SRI-ARC([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: RWW;

1 32840 Distribution

1a Harvey G. Lehtman, James C. Norton, Jeffrey C. Peters, Dirk H. Van Nouhuys, Kenneth E. (Ken) Victor, Richard W. Watson, Don I. Andrews,

1b Laura J. Metzger, Karolyn J. Martin, Jan A. Cornish, Larry L. Garlick, Priscilla A. Wold, Pamela K. Allen, Delorse M. Brooks, Beverly Boli, Rita Hysmith, Log Augmentation, Joseph L. Ehardt, Raymond R. Panko, Susan Gail Roetter, Robert Louis Belleville, Rene C. Ochoa, Ann Weinberg, Joan Hamilton, Adrian C. McGinnis, Robert S. Ratner, David S. Maynard, Robert N. Lieberman, Sandy L. Johnson, James H. Bair, Jeanne M. Leavitt, Rodney A. Bondurant, Jeanne M. Beck, Marcia L. Keeney, Elizabeth K. Michael, Jonathan B. Postel, Elizabeth J. Feinler, Kirk E. Kelley, N. Dean Meyer, James E. (Jim) White, Douglas C. Engelbart, Martin E. Hardy, J. D. Hopper, Charles H. Irby

PKA 27-JUN-75 09:48 32841

test

Please disregard this dumb message,

1 Today is Friday. Are you going to have a good weekend? What are you going to do for excitement? 1

PKA 27-JUN-75 09:48 32841

test

(J32841) 27-JUN-75 09:48;;;; Title: Author(s): Pamela K. Allen/PKA;
Distribution: /LJM([ACTION]) SGR([ACTION]) PAW2([INFO-ONLY])
; Sub-Collections: SRI-ARC; Clerk: PKA;

1 This is yet another of our great course on how to use the system. 1

PKA 27-JUN-75 09:51 32842

test2

(J32842) 27-JUN-75 09:51;;;; Title: Author(s): Pamela K. Allen/PKA;
Distribution: /PAW2([ACTION]) LJM([INFO-ONLY]) SGR([INFO-ONLY
]) ; Sub-Collections: SRI-ARC; Clerk: PKA;

test3

LJM 27-JUN-75 09:59 32843

ignore this information

test3

1 soup 1

1a vegetable 1a

1b cream of mushroomCream of mushroom soup is not very expensive and can be served alone or can be used may good suauces to use on roasts for a quickhjftr dinner, to create 1b

2 entree 2

2a salmon 2a

2a1 with cream sauce 2a1

2b prime ribs 2b

LJM 27-JUN-75 09:59 32843

test3

(J32843) 27-JUN-75 09:59;;;; Title: Author(s): Laura J. Metzger/LJM; Distribution: /JHB([INFO-ONLY]) JMB([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: pKA;