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1. memo	SEM #5 (pages 57-68), 69 p Part 5/10/01 P. 42, 68 F97-042/#5	11/16/81	P1

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

- P-1 National security classified information [(a)(1) of the PRA].
- P-2 Relating to appointment to Federal office [(a)(2) of the PRA].
- P-3 Release would violate a Federal statute [(a)(3) of the PRA].
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- P-5 Release would disclose confidential advice between the President and his advisors, or between such advisors [(a)(5) of the PRA].
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- F-9 Release would disclose geological or geophysical information concerning wells [(b)(9) of the FOIA].

STRATEGIC EVALUATION MEMORANDUM #5

Long Range Plan
for White House
Information Handling

Office of Planning and Evaluation
The White House

November 16, 1981

MEMORANDUM

THE WHITE HOUSE

WASHINGTON

STRATEGIC EVALUATION MEMORANDUM #5

TO: Edwin Meese

FROM: Richard S. Beal *RSB*

SUBJECT: Long Range Plan for White House Information Handling

DATE: November 16, 1981

This Strategic Evaluation Memorandum (SEM) transmits a report which presents recommendations for improving information and communication systems in the Executive Office of the President (EOP). The report, which was completed in August 1981, complements the Information System for Policy Planning report which we submitted as SEM #4. SEM #4 contained a functional and needs analysis of OPE and OPD and recommendations for short-term improvement. In contrast, this report is more detailed and technical, deals with the entire EOP, and takes a longer range view of needs and proposed solutions.

Increasing automation of information and communication systems in the EOP is inevitable. We have already made important strides in this direction in the past year. The main contribution of this report lies in its documentation of current conditions, resources, and problems, identification of areas needing improvement, and recommendation of strategies for achieving those improvements.

Strategic Evaluation Memorandum No. 5

**Long Range Plan
for
White House Information Handling**

prepared by

Office of Planning and Evaluation
The White House

August 1, 1981

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Preface

There has been a great deal of recent activity and interest in improving Presidential performance through use of information technology. Both the Counsellor to the President and the Chief of Staff are involved, and an executive committee to review proposals has been suggested.

This document offers a long range plan for improvements in information handling to support and enhance the performance of the Presidency. It contains a prescription for action, but it does not attempt to be comprehensive. It focuses on networking as a basic issue, and leaves room for further work in key areas which are touched on lightly if at all: information resource management; abstracting and indexing; data base definition, management and quality control; and the provision, improvement and management of basic EOP computer systems. These are among the subjects not fully dealt with in this document.

What is proposed is not a system, but a network of systems. Just as all the organizational units in the EOP must cooperate in serving the President, so must their respective information systems and resources cooperate. This requires improvements to our present networking, demands a distribution of information management resources, and mitigates against antiquated concepts of "centralized data banks". The need for several additional small computers is certainly implied by the recommendations, but these computers are relegated primarily to communications, switching, message handling, and display support tasks.

In addition to specific action recommendations, this document records and references past efforts, and offers an undifferentiated group of suggestions about what needs to be considered in order to protect against unwarranted or unwise efforts to use information technology to support White House decision making. While no effort is made to tell how policy is made (if that can be told), a lot is said about how to support the information needs of the policy makers.

In a sense, this is an office automation proposal, in that it calls for communication links among word processors, computer terminals, boardroom displays, computers and data bases, and external information services. All these components are presently available, if in short supply, in the EOP. What's missing are the electronic communication links: by and large, physical transportation networks and manual transcription are relied upon to move information from one component to the next.

A considerable portion of this document is devoted to the sensitive subject of security and data protection. Nothing is more important, as those who oppose such efforts as are suggested herein will exploit every perceived weakness in this critical area. Those who would support and use these improvements must be confident that their trust and reliance on information technology is well-founded. In particular, the links between the White House and Cabinet departments must be reliable, protected and well understood. The Cabinet Secretaries will not be able to access White House computers, and White House staff will not be able to access Cabinet department computers. The distinctions outlined at the beginning of Section VII are particularly important and relevant to this issue.

Plans of this type often suffer from lack of sufficient detail to precisely describe intent and guide implementation. Considerable detail concerning the nature of EOP problems and solution proposals has been included herein, especially in places where interdisciplinary efforts (e. g., computers, communications, and television) are required.

This is a multi-purpose document. For the five months since its drafting began, it has been a forcing agent for serious and critical attention to the subject it treats. Upon completion in early August 1981, it will become a decision document for top management. Hopefully thereafter it will be a recipe for action and a tool to inform and educate interested parties. For the proposed management review and EOP network steering committees, it will become the point of departure for the long range action process espoused herein.

Acknowledgement and Disclaimer

This document was written and edited by Edward K. Zimmerman while on detail from the National Telecommunications and Information Administration to the White House, Office of Planning and Evaluation, March through August, 1981. Direction and significant conceptual contributions were provided by Dr. Richard S. Beal. Ideas and peer review were provided by Jon Bellis, Ralph Bledsoe, Robert Chartrand, Joseph Duncan, Sara Kadec, David McManis and Charles Smith. Word processing was provided by members of the staff of the National Telecommunications and Information Administration.

The views herein are those of the author, and do not necessarily represent the positions of the White House or NTIA.

SUMMARY OF RECOMMENDATIONS

Page Rec.
No. No.

Management Recommendations

- 5 M1 Acknowledge need for major improvements in EOP information handling, and authorize a decisive program of implementation of near and long range improvements, according to the networking concepts outlined in this long range plan.
- 32 M2 Recognize the basic and long-standing dichotomy in EOP communications management, and make the changes needed to resolve it.

Detailed Recommendations

- 17 R1 Approve adoption and pursuit of the proposed Information System for Policy Planning (ISPP) concept. To begin implementation, use current office automation and communication products and services to meet OPD and OPE needs.
- 24 R2 Establish a working group on security coordination, and charge them to view EOP security requirements as a continuum, not restricted to national security matters.
- 28 R3 Proceed immediately with the proposed telephone central office exchange improvement program.
- 29 R4 Proceed immediately with the proposed contract to provide additional cable TV services.
- 32 R5 Organize an EOP network steering committee to guide implementation of EOP communications improvement programs, and to assure that near term improvements are consistent with the long range plan.
- 35 R6 Replace and extend the present White House cable TV network with a bi-directional broadband cable bus network, with coverage throughout the EOP for data, video and other multi-point communication service needs.
- 38 R7 Improve present facilities for information display so that the key West Wing and OEOB locations are fully equipped and staffed, and so that display service at any White House/OEOB location can be provided.
- 46 R8 Establish a Cabinet message exchange to facilitate Presidential communications with Secretaries of Cabinet departments.
- 47 R9 Improve present external information service access facilities so that externally-sourced information can be easily combined and edited, and joined with internally-generated information.
- 50 R10 Espouse and participate in an inter-agency message exchange project, to develop and exploit interconnections of existing public and private electronic mail systems.

Synopsis

The first section, **Scope, Goals and Concept**, introduces the subject and ends (page 5) with the principal recommendation of this report for top management action, which is to acknowledge the problem, accept this plan, and authorize action to commence (all recommendations are summarized on the facing page). This long range plan presupposes the existence of the previously proposed Management Systems Review Committee, which would be top management's principal agent for execution of the recommendations herein.

Sections II and III cover immediate needs for the policy process. Section II, **Users and Needs**, describes the requirements and references the Strategic Evaluation Memorandum No. 4. The focus is on the policy areas of EOP operations, but statistics for all EOP units are given. Section III describes the proposed **Information System for Policy Planning (ISPP)**, which among other things would support OPE's strategic planning requirements and the communication and information needs of the Cabinet Council executive secretaries. **Security Considerations** are summarized in Section IV.

Sections V, VI and VII describe EOP-wide problems and required improvements in **Communications Network Development (V)**, **Display Facilities (VI)**, and **External Services and Connections (VII)**. The bulk of the detailed recommendations are explained in these sections. Another important recommendation for top management action is described in Section V (top of page 32).

Implementation Constraints and Strategy for implementing this long range plan are given in Section VIII. References and other backup material are in the Appendices.

The recommendations on the facing page are listed in the order of action group. Top management needs to deal with the first two; the Management System Review Committee can handle the rest, particularly given the EOP steering committee recommended at R5, and a subcommittee of it recommended at R2. The recommended order and groupings for implementation are summarized:

a. To demonstrate the viability of the concept and provide near-term needed services, the first portion of the proposed Information System for Policy Planning (ISPP) should be built onto existing facilities. Activity can start immediately, with cost estimated at under \$2 million. Funds are available, and some activities are already underway (involves recommendations R1, R7 and R8).

b. Top management resolve to have coherence in planning and execution of improvements can be displayed by adopting this plan, and activating the Management Systems Review Committee to oversee elements of it such as telephone and cable TV improvements. Activity can start immediately, and no new funding would be required (involves M1, R3 and R4).

c. To embellish the initial network infrastructure over that called for in the first grouping, decisive action must be taken to resolve management problems, improve internal EOP coordination, and expand the internal information service system. Cost should be under \$1 million (involves M2, R5, R2 and R9).

d. To make these needed information services ubiquitous throughout the EOP, existing major multi-year capital improvement programs must be extended at an estimated additional cost of \$10 to \$30 million, spread over five years (involves R6, R7 and R10).

I. SCOPE, GOALS AND CONCEPT

Introduction and Scope

In February 1981, interested members of the Reagan Administration began informal discussions about the quality and quantity of information handling services available to or within the Executive Office of the President (EOP). In March, a committee was formed by Dr. Richard Beal, Director of the White House Office of Planning and Evaluation, to plan an overall strategy for using and improving information handling services.

A high-priority requirement facing the committee was a plan for meeting the immediate information handling needs of the Office of Policy Development (OPD), the Office of Planning and Evaluation (OPE), the newly-announced Cabinet Councils, and other EOP units which are directly or indirectly involved with policy development -- especially domestic policy. Unlike other EOP functions, no institutionalized information handling facilities exist to serve the White House domestic policy development, planning and evaluation functions, except for standard telephone service and very nominal amounts of mostly manual office equipment. Clearly, early and decisive action is required in this critical area. A major management commitment is required.

Having reached consensus as to the general direction of an EOP-wide program of information handling improvement, it was decided to proceed on two tracks. A fast track was to produce an interim report addressing the short-term needs of OPD and OPE. The committee proceeded to develop a near-term subset of the comprehensive plan, including a design recommendation for a system to meet the immediate OPD, OPE and associated needs. The first version of the interim plan was produced on May 1, 1981. That paper contains such a design recommendation, together with sufficient material from the EOP-wide document drafts to demonstrate consistency with the overall scheme. A second track effort, represented by this paper, was to examine medium- and long- term needs, focusing on the EOP information handling needs as a whole, and especially the role of communications and display facilities.

Goals

Some of the goals are general, and common to any high-pressure policy and decisionmaking environment. Naturally one wants to speed up the various information handling processes; improve their accuracy without a time penalty; improve the use of time; reduce dependence on the costly physical transportation of information; increase the efficiency and effectiveness of vital human-to-human communication, while reducing its use where such synchronous communication is neither required nor productive.

Some goals are more specific and mission-oriented, such as support for the policy, long-range planning and evaluation processes. In this paper, emphasis is being placed on domestic policy process support, in order to bring it up to par with national security policy development.

EOP information-handling system and service improvements must:

- provide immediate help for initial users, such as OPD and OPE.
- be compatible with, or extendable to meet mid- and long-range plans.
- have simplified implementation plans appropriate to EOP constraints.
- be fully coordinated with other interested parties.
- complement, operate or cooperate with existing and independently-developing systems.
- support or accommodate needs of groups relating to the primary users.
- provide adequate protection for private, sensitive and classified information, while meeting the security and other technical requirements of the White House complex.

An example of the last point is the need, in planning and implementing information handling for the OPD and the OPE, to cater to the interests and roles of the Office of Cabinet Affairs, the Staff Secretary, and the NSC staff. Planning for such a system must produce a recipe for cooperation and coordination, which addresses and resolves such concerns as security and compatibility.

EOP information-handling improvements must be human in scale and function. The role and judgement of humans must be supported, not replaced. With advanced communication systems, there must still be those who perform the logical equivalent of switchboard operation. With electronic mail, there still must be mail clerk functions. With on-line systems, there must still be knowledgeable individuals who interpret the information. With word processing, there must still be people who generate and keystroke the words. Where automation is being introduced for the first time, it is important to support the present human and organizational behavior, and to minimize change. It is especially important to maintain proper lines of authority and responsibility over the management and protection of information.

Information technology is not going to solve the real problems faced by the Presidency. The systems and improvements recommended herein may solve or ameliorate the effects of some of the superficial problems in information gathering, reduction, transformation and presentation which tend to mask the real problems in rational management of the policy process. Changes in the behavior of the organization are required to improve the latter, and it would be folly to attempt to introduce communications and information systems as an agent for organizational change.

However, the difference between computer/communication/office systems which can support some improvement in present organizational behavior and those which act as a behavioral change agent is small or non-existent. It is a question of how the system is used. Thus it is a practical matter to install these new information technologies and enjoy the immediate benefits to the present setup and procedures, while awaiting adoption, learning and acculturation by those to whom the use of such tools is new. Then these users, and especially the leadership, can decide how to impose change, in the form of newly practicable discipline and order on the policy process.

While the difference in benefits from these two approaches is real, the cost-benefit ratio is persuasive in either case. The difference can be shown by the kind of usage. For example, in the first case, where improvements are made to present practices, more decisions can be made in time to make a difference. In the second, where organizational behavior is changed, the decisionmaker can know that he has made the best decision possible by concurrence of all involved principals.

Because of the behavioral changes discussed above, over time, information systems tend to change the balance of power. It is necessary to recognize this, and to accommodate and provide for it in new system plans. For instance, there is usually a lot of tension between the EOP staff person seeking access to information and the executive branch agency person responsible for gathering and maintaining it. The EOP person often feels that the agency is not being forthcoming, isn't supplying all the data, or isn't properly documenting its use, origins or weaknesses. The agency person feels that the White House may misuse or misinterpret the data, use it for a political purpose or use raw data before it is interpreted in the context of a finished report.

The basic problems here are management and communication: management, in defining the respective roles of the EOP units and their executive branch information sources out in the various departments and agencies, should design these roles to be complementary, thus avoiding conflict and competition. Good communications are needed to enforce the management decision, and to facilitate appropriate flows of information back and forth between the agencies and the White House. This does not mean EOP on-line access to agency computers. It does imply a network to facilitate White House tasking of agency report preparation, a means of posing questions simultaneously to several agencies to see who best could answer, and a means of delivering the results in a timely fashion and in a form allowing further distribution and processing in the EOP. The decisionmaker needs the information at the point that it makes a difference. "On-line real time" access is rarely necessary, but timely access to decision information is a must.

The President's Cabinet Councils, and cabinet government in general, can work if communications failures which have plagued past efforts can be overcome. Past Presidents have often been handicapped through failure to command the means of receiving or disseminating information within the government. The President can too easily become consumed by detail; or the lines of delegation are so long that the information doesn't arrive, or arrives too late.

Decision-making at the Cabinet Secretary level is not easier, but it is better focused. The discrimination mechanisms for policy information are often at the lower levels of the departments and agencies. The actual managers of federal government information use technology currently unavailable to the White House, but the technology to support the filtering and synopsis is not generally available in Cabinet secretarial offices, much less the White House. An important goal of the proposed system is to connect the cabinet officers to the White House. A consequence of achieving this goal may be for agency resources to be better directed toward meeting the information needs of the principal officials, and that is desirable. There must be a chain of command, with appropriate judgement at each link, and good communications serving each link. In this way, the President's Cabinet Councils can be the focus of delegating the production, execution and evaluation of national policy and planning.

Conceptual Approach

For purposes of analysis and planning, the EOP information handling needs for policy-making and decision support can be viewed in simplified form as **input** -- gathering information from a variety of sources; **processing** -- the developmental activity involving the filtering, interpreting and summarizing of information in preparation for decisionmaking; and **display** -- the presentation and discussion of policy and decision options.

Another necessary categorization is time. A phased plan must be developed which will produce nearly immediate response to present priority demands. To take advantage of a relatively short window of opportunity at the beginning of the new Administration, a near-term phase must be defined. To start the protracted process of making substantial changes in dollar investments and physical plant alterations, a long-range phase must be included.

As a key subset of the EOP, the OPD and OPE information handling needs can be considered in these same terms. **Input** covers the exchange of information among the executive, professional and secretarial staff members of OPD and OPE, with their associates elsewhere in the EOP, and with many points outside the EOP. Among the latter are members of the Cabinet Councils and their staff, and commercial information resources such as the New York Times Information Bank. **Processing** covers the internal information handling needs of the respective organizations and their individual staff members. There is little data processing per se; most of the activity consists of various forms of text preparation and sophisticated text manipulation--sorting, listing, updating and the like. **Display** covers the necessarily interactive process of reviewing the developed policy options, planning the strategies, or evaluating results with the senior decisionmakers.

A key element in the conceptual approach to meeting OPD and OPE needs is the recognition of how the work is broken down by organizational units consisting of groups of two to eight people, who require their own independent information handling facility (e.g., files). At the same time, a significant amount of internal and external communication and information sharing is required. Because of these and other considerations (e.g., security), the planned system must have several independent free-standing information processing and display facilities, interconnected with each other on a 'choice' basis, and connected with central files and a common means of external communication.

It must be clearly understood that this paper is not proposing computer systems per se. While the proposed communication and display systems will facilitate the use of present and future computing resources, their primary functions are to ease office-to-office communications within the EOP, and to facilitate use of externally-sourced information.

Policy Considerations

As if the task were not hard enough already, the systems being planned must conform with existing policies. Here are examples of areas which must be carefully considered:

- telecommunications policy (e.g., telephone limitations)
- information policy (e.g., privacy)
- procurement policy (e.g., OMB Circular A76, and GSA's FPRs and FPMRs)
- security policy (e.g., radiation protection requirements--TEMPEST testing)
- information resource management policy (e.g., PL 96-511 compliance)

These areas will be dealt with in this paper, to the extent required. Each needs further and more detailed consideration which is beyond the scope of this long-range plan.

Long-Range Benefits

By carrying out the proposals and recommendations in this long-range plan, the Executive Office of the President should be able to improve its effectiveness by increasing its productivity in several ways, some of them non-traditional. This is particularly necessary in personnel-intensive areas such as policy option development and in high-ratio (i.e., small staff dealing with many people) areas such as the press office.

The development of a common EOP information utility will, over time, save money by permitting resource leveling and by minimizing redundant facilities, especially in communications and terminal equipment.

If implemented, this proposal should help decrease the isolation of the White House from the people; by allowing more perspectives of the problems facing the nation to be available to EOP staff members; by providing a more effective means of using people resources in executive branch agencies rather than embellishing the EOP staff; and by allowing outreach to more representative samples of American citizens for their opinions. In these ways, we hope to improve the creative process of national policy development.

Principal Recommendation

Above and in the course of this report, there are general and specific recommendations for action. Twelve summary recommendations have been identified and treated in Section VIII in the context of an implementation plan. Of these, two require top management attention, and the principal one of these is a general call for action: to acknowledge the need for major improvements in EOP information handling, and to authorize a decisive program for implementation of both near- and long-term improvements, according to the networking concepts outlined in this long-range plan.

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II. USERS AND NEEDS

Variety

Because of the nature and difficulty of the problems presented to the White House, there is an unusual variety among the users of information, the types and forms of information they need and the ways and media in which it must be handled and then disseminated. This section offers some new material concerning users and their needs, cites past studies on the same subject and refers to the interim report referred to in Section I for further corroboration. While a more complete analysis could obviously be done starting today, the Strategic Evaluation Memo No. 4 (SEM No. 4), Information System for Policy Planning: General System Design Proposal, is still quite useful as a detailed analysis of OPD and OPE functions and their needs.

First drafts of some of the material in this document were adopted for use in SEM No. 4, rearranged and condensed to suit its purpose. Section II of the SEM No. 4 gives an overview of the proposed Information System for Policy Planning (ISPP), describing it in terms of the missions and objectives of the OPD and OPE. Section III of the report describes the users and needs that must be satisfied by ISPP. It is based largely on the analysis of functions, tasks, and corresponding information handling and communications requirements provided in Appendix 2 of the report. These portions of SEM No. 4 document user needs in general and detail, and are incorporated here by reference as part of the justification and rationale for the improvements recommended by this long-range plan. Other supporting material may be found throughout the remainder of this document, and especially in references 2, 4, 5 and 7 listed in the appendix.

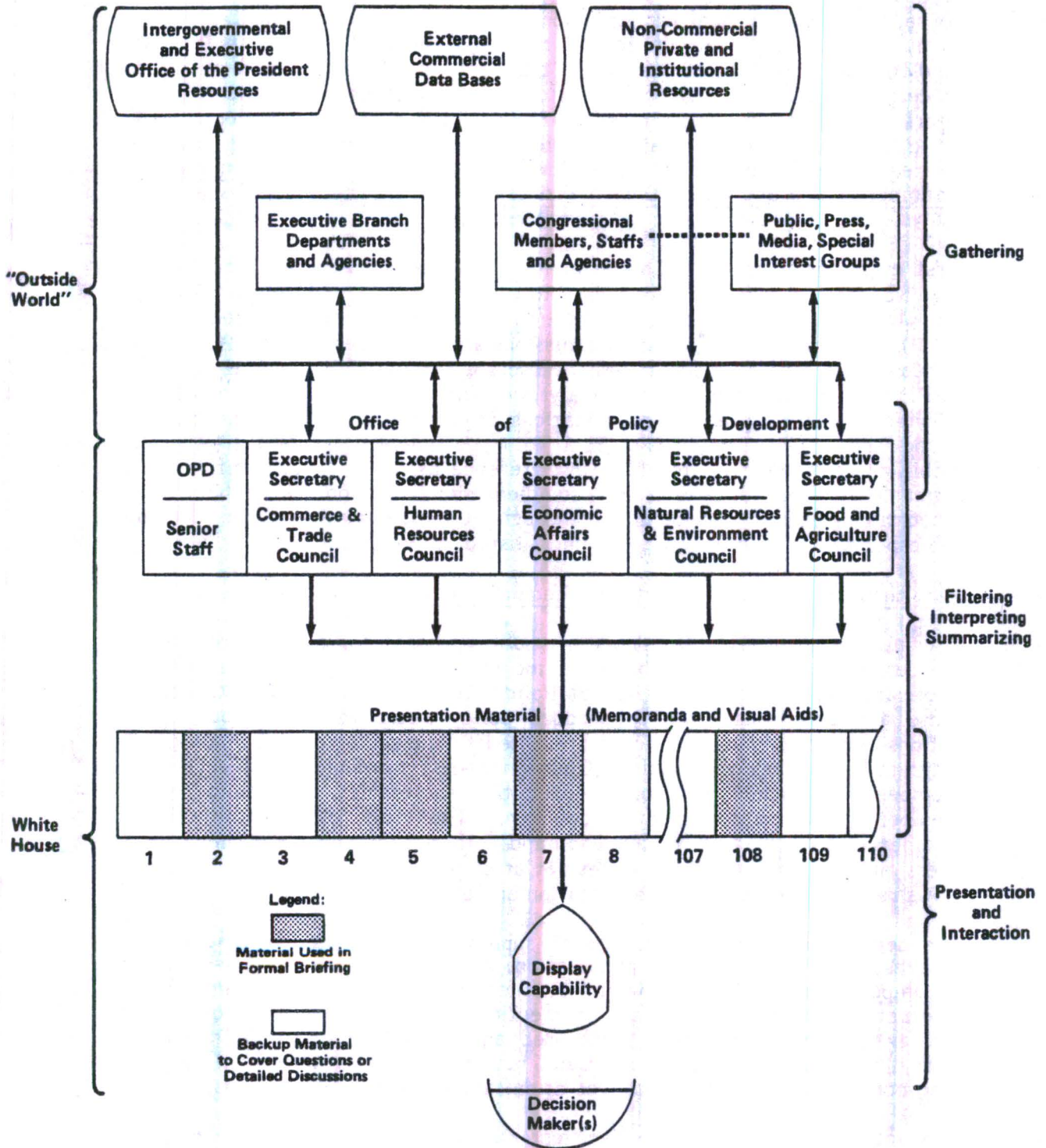
First Gross Assumptions About User Requirements

Information to initiate or support the policy process comes from thousands of sources, represented by the boxes at the top of the diagram on the next page. These inputs come to the Office of Policy Development, which interacts with these and other resources to produce policy initiatives, background papers, options and other materials to be presented to the senior decisionmakers. This diagram recognizes the Cabinet Council process by depicting five OPD staff members who would function as executive secretaries in dealing with the membership of their respective councils. The vital roles of the Office of Cabinet Affairs, Staff Secretary, and others are not depicted in this oversimplified view which also does not attempt to show the similar information flows required for policy implementation and evaluation.

The degree of interaction needed to support this policy development process cleaves naturally between preparation and presentation. The activities encompassed by the "outside world" bracket at the left of the diagram are highly interactive and reiterative; the connections are numerous and complex; the messages range from highly structured and formal to informal/unstructured. Every conceivable medium is used, but the most popular are physically transported paper, telephone conversations and face-to-face meetings.

The activities within the top decisionmaking echelon in the White House are simpler by comparison. Repeated use of the same media, personalities, schedules, formats and style reinforces the difference. Most observers agree that because of those differences, direct connections between these two areas

Office of Policy Development: Policy Information Presentation Process*



*This simplified diagram does not depict the vital policy roles of OPE, OCA, the Staff Secretary, NSC, OMB, or CEA.

are not useful. In practice, such connections are unusual except during crisis management, political leveraging and other such exigency situations.

To facilitate and support the policy process while maintaining its integrity and confidentiality, separate but overlapping information handling services are needed. To the right of the diagram are three brackets suggesting one approach. The first, labeled "Gathering" covers inputs -- from the Cabinet agencies, external data banks, EOP internal resources and the like. The interaction here is supported by several means of interagency message exchange, as noted previously. There are varying levels of sensitivity to these exchanges, from classified materials (e.g., economic impacts of MX program) through sensitive (e.g., policy options paper from a department Secretary) to open (e.g., socio-economic and demographic public data).

The "Filtering, Interpreting, and Summarizing" bracket covers the developmental process wherein OPD staff and others synthesize positions and options, and prepare materials to be used in presentations to the senior decisionmakers. Decisions about level of detail, presentation media, need for back-up material, fall-back options, and the like are made and executed, using a variety of EOP and agency staff support services. The final product is an assembly of materials to be sent to, or to be used in a presentation to, one or a few senior staff members and possibly the President.

The "Presentation and Interaction" bracket covers the delivery and display process, whereby a portion of the material developed by OPD is presented to the decisionmaker, who is likely to react with questions which can be answered by reference to backup material (hopefully in most cases). The order and content of the material to be initially presented is often changed up until the last minute, and there is usually far more backup material prepared than is required. The diagram depicts a medium for presentation material which may contain several hundred pages or frames, only a few of which are used in the formal presentation or summary document.

This diagram focuses on information flows for decisionmaking. Similar paths would be followed for information supporting policy evaluation. But for policy implementation or redirection, the players change: different players populate the middle tier in the diagram. For instance, action might go to the Press Office or the Office of Management and Budget, while OPD assumes a monitoring role. For the purposes of developing a conceptual model for information handling for the Executive Office of the President, focused on White House and OEOB needs, the direction of information flow or the identity of particular players at each stage in the policy process is relatively unimportant. All players are important beyond normal limits of value at their individual points and times in the policy process.

Statistics

It might be useful at this point to get a general idea of who the players are, and how many people are in each major unit of the EOP. This subsection gives some current statistics and estimates which may be useful in sizing current systems and extrapolating future requirements. There is no simple answer to the question, "How many people work at the White House?" partly because it is a national monument and park, partly because of the unique security protection and communication requirements, and partly because of the large number of consultants, detailees, temporary workers and visitors.

Table 1: ESTIMATES OF VARIOUS EOP TERMINALS - MAY 1981

Computer terminals in use or on order - per informal poll

OMB	225
WHO	89
VPO, OPD, OPE	40
OA	90
CEQ	6
USTR	45
OSTP	--
NSC	11
CEA	<u>7</u>
Subtotal	513

plus estimates for terminals in other agencies,
Secret Service, WHCA, spares, surplus, etc. 80

Total 593

Phone Lines - per C & P

456 - 1414	White House	1880
395 - 2000	WHCA Signal	897
395 - 3000	GSA-EOP general	2603
395 - 2020	Secret Service	<u>195</u>
	Total	5575

TV Sets - per WHCA

Currently in use	150
Assumed near-term expansion	<u>50</u>
Total	200

ESTIMATES NOT AVAILABLE

Word Processors
Typewriters

User Population: One measure of communications requirements might be the number of computer terminals -- currently estimated at 600, and TV sets -- about 150. Another measure, giving a better indication of the number of people at work in one job or another, is the number of telephone lines -- over 5000. Bear in mind that the number of full-time paid employees of the EOP proper is around 1500, but that figure does not include the National Park Service, General Services Administration, various military and intelligence units, Secret Service (including Uniformed Division), vendor employees (e.g., cafeteria staff) and others, all of whom require various communications services accounted for in the number of telephone lines. A table of computer and other terminal population estimates is given on the facing page.

Tenure Profile: An agency-by-agency analysis of EOP employment is given in the second table (next page), in which the ranking is related to the number of years of federal service of each employee. As might be expected, the placement reveals those agencies with higher turnover, such as the White House Office, the institutional name for the organization servicing the political employees of the White House proper. A breakout of that unit magnifies the effect. These figures suggest that, contrary to popular opinion, most EOP employees are career civil servants.

People per Terminal: Covering a few EOP agencies whose statistics permit a meaningful comparison, the third table (page 13) shows the ratio of people per computer terminal, in the context of the same kind of tenure ranking as before. The results seem to indicate that the more institutionalized parts of the EOP are better served than the more political groups. Conjecture could provide all sorts of reasons for this, and it probably reflects the constraints of procurement and budget policy, in that the people who populate the more political units simply are not around long enough to 'work the system' to acquire this type of support. There is also some evidence that there are elements within the more institutionalized EOP units who view their role as information gatekeepers, controlling White House access to agency information. Speculatively, this may also help account for the imbalance in direct information system services to the White House.

As a whole, however, these people-to-terminal ratio statistics give a false impression that the EOP is relatively well served, with a 3:1 average ratio. The picture changes when it is understood that many of these terminals serve non-EOP personnel, many are single-function devices (e.g., one which can only access the LEXIS system, or one on which only word processing is done), and many are in heavy concentrations in one office or functional area and not available to the employee population as a whole. These statistics underscore the importance of EOP networking, and of using all existing EOP keyboard devices -- including typewriters and word processors -- as inlets and outlets on the proposed network.

Summary

Current and recent studies of the EOP and similar or supporting organizations corroborate the need to bring better information handling to bear on supporting Presidential activities. Employee and information or communication terminal statistics reveal anomalies of service and user demography which must be understood and catered to or corrected in EOP information handling improvements.

TABLE 2: EOP AGENCIES RANKED BY A GOVERNMENT TENURE MEASURE

<u>Agency in EOP</u>	<u>Total in Agency</u>	<u>Percent with less than four years of service**</u>
Office of Science & Technology Policy	25	8.0
Office of Admin.	134	9.0
Office of Management and Budget	564	9.6
United States Trade Representative	54	14.8
National Security Council	64	15.6
White House Office (operations*)	146	17.1
EOP average	1527	20.1
Council on Environmental Quality	31	22.6
Vice President's Office	24	25.0
Council on Wage and Price Stability	199	26.1
Domestic Policy Staff	46	26.1
WHO (total*)	351	36.5
Council of Economic Advisers	35	45.7
WHO (policy*)	205	50.2

* White House Office numbers are presented three ways: in total, operating units only, and policy units only.

** Figures are based on an Office of Administration analysis of EOP employees in full-time permanent positions as of 12/15/79, considering total length of creditable Federal service. A more reliable measure would be "years of service since last break in service", which would separate the political appointees with some previous service in a different administration from career civil servants in essentially apolitical positions.

TABLE 3: COMPARISONS OF ESTIMATES OF THE NUMBER OF PEOPLE PER TERMINAL IN VARIOUS EOP UNITS, WITH TENURE DATA

<u>Organization</u>	<u>No. of Terminals</u>	<u>No. of People</u>	<u>Ratio of People per terminal</u>	<u>Percent people with 4 or more yrs service</u>
OA	90	134	1.5	91.0
OMB	225	564	2.5	90.4
USTR	45	54	1.2	85.2
NSC	11*	64	5.8	84.4
EOP**	516	1527	3.0	79.9
WHO	89***	351	3.9	63.5
CEA	7	35	5.0	54.3

* Does not count special facilities in East and West Wings

** Averages for EOP as a whole are placed in rank order by the tenure (right-hand) column, for comparison purposes

*** Some of these terminals are used by people who do not show up on the WHO headcount

The table above was prepared from information in Tables 1 and 2. The numbers of terminals are based on May 1981 estimates; the numbers of people are taken from a December 1979 report.

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III. INFORMATION SYSTEMS FOR POLICY PLANNING

Introduction

During the analytical process of studying EOP information needs which began in March 1981, the initial focus was on support for the Office of Policy Development (OPD) and the Office of Planning and Evaluation (OPE). A system concept, Information System for Policy Planning (ISPP) was defined as a logical starting point, given the physical proximity of the two organizations and the close relationship of their respective missions.

The possible scopes of ISPP range from merely serving OPE through service to the entire EOP, plus connections to external resources. This section supposes a starting point somewhere in between, with initial service to OPD and OPE, and with some connections (alphanumeric information only) to other parts of the EOP and the outside world. This point could be the starting point of a bigger project, or it could easily be joined to a more comprehensive effort at a later date. This section focuses in particular on needs for word processing, electronic message service, data base access and inter-office communications--in short, office automation for OPE and OPD.

Information Pathways

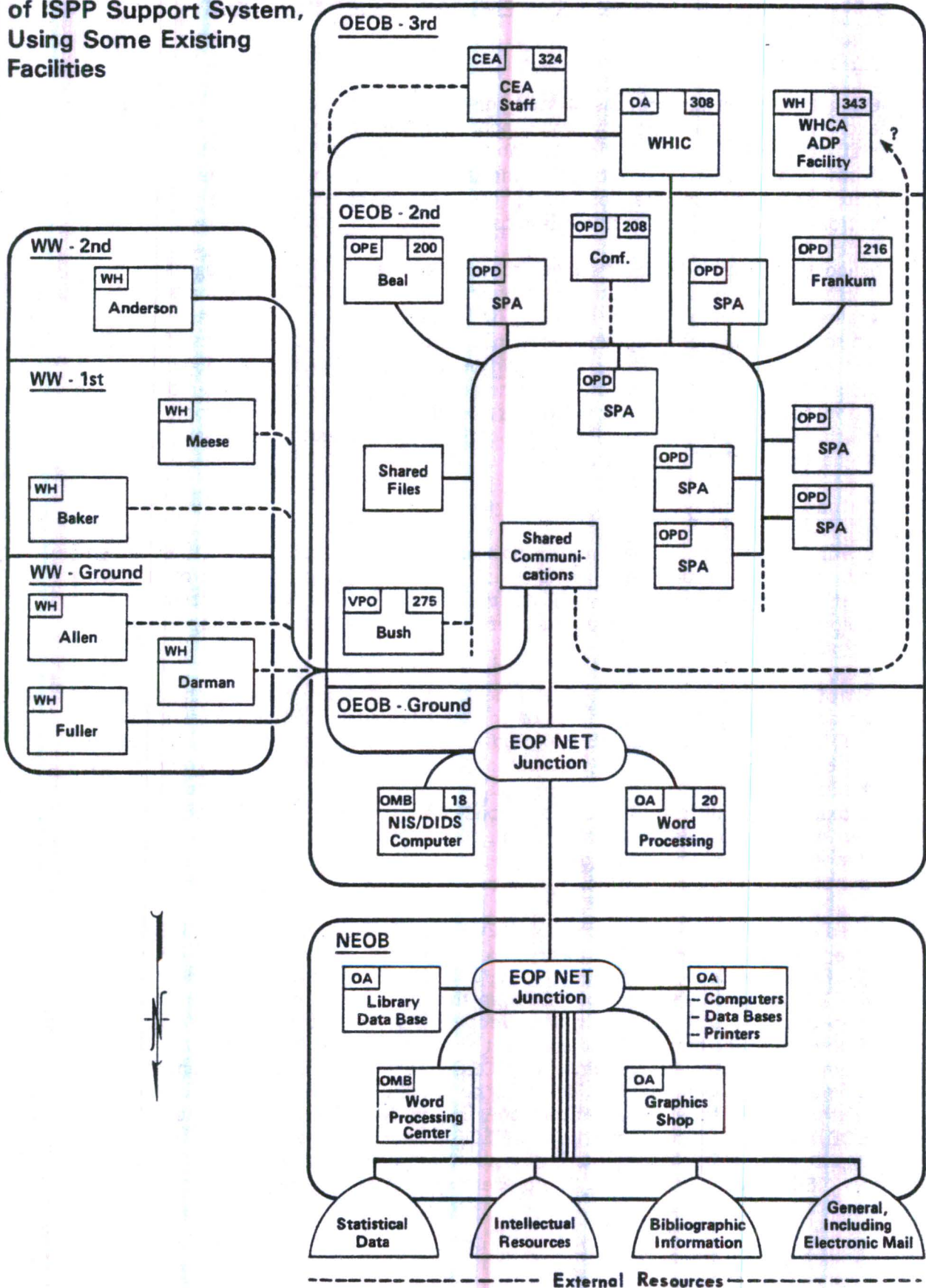
Viewing the preceeding materials on project goals and user needs, communication requirements, and existing and planned information handling facilities, a schematic diagram of the proposed OPD/OPE system can be developed. The following material refers to and explains the diagram on the next page.

Most of the Office of Policy Development offices are spread along the south and west corridors of the second floor of the Old Executive Office Building (OEOB). The Office of Planning and Evaluation is in the southeast corner of the second floor of the OEOB. The blocks on the diagram depict this arrangement, with organization initials, and in some cases actual room numbers indicating the approximate relationships. Limited spaces for communications facilities, and other office equipment are also available in closets and anterooms along the common corridor. The latter determines the path of both physical and electrical communication of information.

Immediately upstairs from the OPD/OPE area, the White House Information Center occupies the EOP Library area. WHIC performs vital information retrieval and research functions for OPD and OPE, among other customers. In Room 20 on the ground floor of OEOB, in the southwest corner of the building, is a high quality word processing and electronic printing facility operated by the Office of Administration (OA) and next to it, the Decision Information Display System (DIDS) computer room. The OEOB terminus for the current EOPNET equipment is in Room 18. This device is connected by private lines running under Pennsylvania Avenue to a similar one in the New Executive Office Building (NEOB), which interconnects the OA NEOB Library data base computer, the OA Computer Facilities Management Division main computer center, and ultimately other NEOB located facilities. The present system has the capability of initiating

Draft Schematic of Proposed System:

Possible Initial Configuration
of ISPP Support System,
Using Some Existing
Facilities



dialout data communications with a wide variety of external information systems and resources (currently about 25 different systems), as depicted at the bottom of the diagram.

Physical, and ultimately electrical, communications with the West Wing of the White House are accomplished across, and ultimately under, West Executive Avenue, to offices such as those for Edwin Meese, Martin Anderson and Craig Fuller.

Within the OPD and OPE office areas on the second floor of the OEOB, staff members are situated in office suites or in single offices. Often, either professional or secretarial staff are isolated in individual offices along the common corridor, occasionally at some distance from the other staff members with whom they work.

Armed with the foregoing, and the case made in Section II and its references, it is recommended that adoption and pursuit of the ISPP concept be approved. To begin implementation, use can be made of some existing and a few new office automation and communications products and services to meet the immediate need in OPE and OPD. Other units can add equipment as desired and justified, but the overall networking concept should be followed. An early extension might be the Cabinet Message Exchange, described in Section VII.

Specific System Support Requirements

Considerable previous thought and study has been done on the subject of the needs outlined thus far (see especially references 3, 6 and 7), and no attempt at further justification will be made here. Based on these past studies and on the foregoing, it appears that current communications and office automation systems products can be used to meet the needs of OPD and OPE, especially in facilitating connections to other EOP units and the outside world.

No computer facility per se is called for, as the intent of this system is to provide connection to the present, or embellished, EOP computer facilities. A modicum of local processing power is prescribed for most text processing and some low-level data processing tasks. It is assumed that if hypothetically equivalent local and centralized processing services are available, the local facility will be preferred because of its instantaneous response time, local storage, and degree of control--issues which must not be underestimated. For instance, many on-line computers are advertised to provide "full" support for 'x' number of terminals with an average interactive response time of 'y' seconds. Normal-environment nominal values for 'y' of five to 15 seconds would be rejected by White House and Executive Office Building users, to whom 2 or 3 seconds sometimes seems like an eternity in this perennial crisis environment.

The architecture of the proposed system should closely follow the real situation depicted in the previous charts. The solid communication lines indicate paths which are likely to be part of an initial configuration, and the dashed lines suggest logically possible (but not necessarily required) extensions.

The basic components of the proposal are:

- word processing work stations;
- professional or executive work stations;

- a shared central file capability;
- a number of shared typewriter quality printing devices;
- a shared medium-capacity "convenience" bulk printing device;
- a shared electronic mail and external commercial facility; and
- means of interconnecting the above facilities with each other, and with other EOP resources as needed.

Display facilities are discussed separately in Section VI.

Description of Components

The following is a general description of the capabilities needed in each of the components listed above. Specific and detailed listings of capabilities, functions and features may be found in the Appendix.

Local Free-standing Word Processor: Each secretary or equivalent should be equipped with a word processing system. There may be as many as 15 such devices in the initial OPD/OPE systems, and it is assumed that a few of them should be "full-function", having a full complement of all the necessary features and options. The remaining word processors might have limited options, in order to minimize size, cost and complexity. Each unit, however, should have full word processing and text editing functions.

The differences would come in areas like records management capability. Some workstations need to be able to perform list processing, correspondence control, issue tracking and similar quasi-data processing applications; some do not. Some workstations need a dedicated impact printer; some do not, or can share one with another workstation.

Executive and Professional Workstation: The ideal executive terminal is voice and touch activated, which explains the success of the telephone in this context. Given today's offerings, some EOP executives would prefer not to have a computer terminal. Some are willing to deal with a simple typewriter-like terminal; some prefer function keys. Only a few are aware of the potential of an emerging class of executive workstations which offer extraordinary access, display, manipulation, graphics and computation capabilities in a way which demands little or no technical skill. Workstations such as the Xerox Star 8010, and ones designed by Data Resources, Inc., are good examples. Such workstations offer a totally different system and means of interaction from that normally used by professional staff.

Many of the professional staff members will wish to have their own workstation, in order to maintain their own files, communicate with internal and external resources, and prepare drafts or in some cases finished products. Each such workstation should function essentially as a typewriter or computer terminal, and have minimal local storage and processing capabilities. On the other hand, each unit should have full capability for internal and external communication, especially with electronic message services.

Impact Printers: A really first-class impact printing device must be used for some applications. The quality standard should be that of an IBM Executive typewriter, implying proportional spacing; there should be no compromise in this area. The value of the final product is so disproportionate to any reasonable cost

to produce it, that great effort should be expended to assure that the aesthetics of the presented document are the best available.

Shared Local Print Facility: Current electronic printing devices save a significant amount of time in document production by eliminating the physical transportation and reproduction steps. The OPD/OPE system should have one such device located nearby to provide multiple collated copies of documents in small to medium volumes, with existing facilities being relied upon for high-volume requirements. This device should be capable of producing simple graphics, as well as alphanumeric text.

Common storage: Though each workstation will have its own local filing capability, a central file/mailroom facility is needed to facilitate information sharing among staff members when desirable, internal electronic message service, facilities for electronic mail for sensitive documents to/from members of the Cabinet Councils or their representatives, archival/institutional memory files, and to facilitate common applications such as issue tracking, calendar management, advanced scheduling and the like. This will require early establishment of sound and practicable records management procedures.

Communications: The communications facilities of the proposed system are fundamental to its success. The needed gains in productivity, reaction time and product quality will result more from improvements in internal and external communications than from the individual workstation improvement. Careful attention should be paid in acquisition and implementation of these facilities. The basic needs are to allow information to be sent from any workstation to any other, and for the system to provide a buffering capability. Of the communications systems presently available to OPD and OPE, none guarantees immediate results, and the telephone is the worst in this regard. OPD/OPE staff must have a facility for communications which does not require two or more persons in synchrony to complete the exchange. Asynchronous, buffered communications are a necessity, especially with the outside world. Means to meet these needs are discussed more fully in Sections V and VII.

Electronic Mail: The foregoing offers the strongest argument for electronic mail. The OPD/OPE system must have electronic mail to facilitate internal staff communications, protection and exchange of sensitive material, and message exchange with the staffs of the departments who will be supporting the members of the Cabinet Councils. The OPD/OPE system must provide electronic mailboxes for the sensitive material, whereas commercial or other electronic mail services should be used for non-sensitive material.

Summary: In presenting a specific proposal to meet the immediate needs for information systems for policy planning, this section gives focus to the discussion in Sections I and II. It offers a plan for near-term action which can be carried out immediately, in anticipation of, but compatible with, the longer-range recommendations presented in subsequent sections.

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IV. SECURITY CONSIDERATIONS

Introduction

In an environment where decisions have such an impact on people's lives and fortunes, it is necessary to protect the information relevant to those decisions, in order to preserve the integrity, credibility and effectiveness of the policy and decisionmaking process. Such protection has been provided for years as a matter of course for defense and national security information, but little thought has been given to the security of information relative to domestic problems. Now, the policy process is becoming continuous, with diminished distinctions between national security and domestic concerns (see Colby article, reference 11). And, a variety of increasingly sophisticated and inexpensive electronic eavesdropping equipment is becoming equally available to friend, competitor and foe.

On balance, electronic communications and automated information systems can be made more secure and reliable than their physical counterparts -- couriers, paper documents and file cabinets. But to achieve adequate communication security in the context of information handling improvements such as are suggested in this long-range plan, very careful coordination and planning of details is required; costs will be more than for similar systems in less demanding environments; and one must rule out the use of some design approaches and equipments which, without the security and reliability issues, might be ideal for the EOP environment.

This section will make specific recommendations regarding security needs for the initial version of the Information System for Policy Planning (ISPP), and will recommend a process for security management for future improvements. The next section will offer more comments on security in the context of communication planning.

Initial Efforts

While various aspects of communication security are being considered in this document, this section will not attempt to be complete or definitive, but rather to cover several items which require early attention. These items include:

- Radiation security requirements for word processors
- Electromagnetic radiation limits for all system components
- Restrictions on type of information processed
- Restrictions on interconnections with existing systems

A general goal of the security component of this proposal is to assure that all new systems, media and communications are equal to or more secure than present practice. Another goal is to leave the responsibility for security of information in the same hands as now -- usually with the individual. Technology, at least at present, offers no easy solution to problems of security in situations where a variety of unclassified, sensitive and classified information is being handled.

TEMPEST

Generally speaking, TEMPEST is the name of the procedure which evaluates and certifies the performance of electronic information handling equipment with respect to undesirable information-bearing electromagnetic radiation from such equipment. In the Executive Office of the President, the Secret Service is responsible for such certification, while the White House Communication Agency (WHCA) and other elements of the Department of Defense provide guidance and technical information. TEMPEST testing is conducted to assure that equipment installed in the complex does not "broadcast" information beyond the confines of the complex.

Electromagnetic interference is a separate concern. There should be efforts to assure that the level of electrical "noise" generated by electronic equipment, regardless of its information content, does not render measurement of similar radiation by other devices difficult or impossible. The standard for measurement is provided by MILSPEC 461, the requirements for which are nearly the same as for TEMPEST.

According to a DoD representative, several prominent word processors are not TEMPEST-qualified. And, experience has shown that even if some of a vendor's products qualify, others may not. Specific name and model number identification should be made. Companies which produce some word processing equipment which is TEMPEST qualified are Lexitron, Videc, Wang, and Xerox. Vendors known to have TEMPEST programs underway for some of their equipment include DEC and IBM.

Given the environment of the EOP, meeting MILSPEC 461 is mandatory for all information handling equipment. While the added stringency of the TEMPEST test has heretofore been reserved for equipment which handles classified information, it is increasingly difficult to point to an office or application where no classified information will be handled. Prudent planning would call for TEMPEST qualification for all workstations. WHCA feels strongly that the TEMPEST criterion should be required in word processing procurement specifications, but that full compliance can be graduated. One proposal is to call for full compliance within six months of installation with no diminution of performance or complication of operation. The Office of Administration, through which much of the equipment in the complex is procured, is establishing a checkoff requirement with the Secret Service and WHCA to assure that proper TEMPEST and MILSPEC 461 requirements are met on procurements.

Type of Information and Connections

At least as initially configured, the ISPP system proposed in Section III will not be secure in the sense that, for instance, the NSC system is. Accordingly, no classified information will be centrally filed or communicated on it. Individual stand-alone workstations may be used to process or display classified portions of documents, but care must be taken to assure that the workstation is not in communication mode, that it is "zeroed out" upon completion of the work, that removable storage media (e.g., floppy discs) are kept in secure storage, and that one-time mylar ribbon cartridges are properly stored and disposed of (burn bag). Other rules may apply.

The proposed ISPP system will interconnect workstations in the White House/Executive Office Building complex with other information resources in and out of the Executive Office of the President, and sensitive (unclassified) information will be handled on the system. The use of new technology does not relieve the user from the responsibility of protecting such information from getting into the wrong hands. No sensitive communications should be made outside the complex until secure communications systems become available.

Exceptions to the foregoing rules will obviously be required, to meet the need to exchange information with the NSC staff, OMB, OCA, the Staff Secretary, Cabinet Council members and others. In such cases, the initial version of the system will rely on conventional media and physical protection. Paper inputs and outputs must be used in situations where electronic system interconnection is not presently feasible; an example is the WHCA computer systems serving NSC and the Staff Secretary.

Stepped Plan and Monitoring

The foregoing suggests steps which must be taken to meet initial security needs. A security monitoring and planning process should be established; a working group representing various EOP interests might be appropriate. There should be overlap and coordination with the communications planning process (see next section). Among the items which should be examined in light of possible mid- and long-range system security requirements are:

- Need for secure facsimile, perhaps compatible with the existing WASHFAX system
- Need for secure voice, in light of existing services, and the Executive Secure Voice (ESVN) proposal
- Need for secure video, for West Wing displays outside of the Situation Room

An important point to be remembered with computer systems is that computer access control should be separate from the computer system. Access then becomes a communication function, and control is enforced by a network access control system which, as a matter of security principle, cannot execute user programs. In establishing such a system, it is important to have a single manager who can mediate among the different providers of computer service and their users, to establish credible and effective computer access security procedures for the variety of levels of information to be dealt with in the EOP.

Reliability

The subject of system reliability must be covered in some detail in a follow-on effort. First thoughts are that any single point of failure in the system should have a mean time between failure of at least 5000 hours; quality of local service should be a serious consideration; and the importance of the free-standing word processor and executive/professional work station in regard to both reliability and security must be remembered. This subject is important, and deserves fuller attention than is given here.

Summary

Informal cooperation among the Office of Administration, WHCA and the Secret Service has already begun to produce some improvements in dealing with thorny security issues. It is proposed that to continue and to institutionalize this cooperation, a working group on security coordination should be established and charged to improve computer and communications security and reliability for the EOP, treating the whole problem, not just national security matters.

V. EOP COMMUNICATION NETWORK DEVELOPMENT

Introduction

This section reinforces the view of communication improvements as the keystone of an EOP program to improve information handling. It begins by making specific recommendations for communication support for the Information System for Policy Planning (ISPP). Intermediate-term recommendations for improvement of present telephone and cable TV facilities are made. A long range improvement program and process are proposed, including prescriptions for both management and technology. Finally, a 20-year view of the planning problem shows the need for institutionalization of planning and execution process.

Present Situation

In planning information-handling systems for the White House and the Old Executive Office Building complex, the most serious security concerns seem to arise over issues of communication. The state of the art in communication technology is such that no system can be said to be absolutely secure. Approaches to this subject have usually involved some concern and occasional controversy, and change is an emotion-laden issue.

Past attempts to rationalize communication systems for the complex have met with little success, and a growing variety of disparate and expensive facilities are in use. This discussion will be limited to wireline communication. Physical pathways for cable are overcrowded. With a few exceptions among older technologies, spare capacity is not available. Overcrowding exacerbates the security problem, and ad-hoc solutions to it are expensive. With this situation it is quite difficult to meet more users' needs better, or to add new services.

Among the present service providers are the White House Communication Agency. WHCA has at least four separate wireline communication systems: a coaxial cable network for television signals, a separate coaxial network to serve its EOB computer video display terminals, a small telephone network serving the "Signal board" for secure voice and other special-need voice traffic, and the facilities serving the Situation Room. The Secret Service has at least two networks: one of coaxial cable for TV surveillance monitors, and an extensive network to support its computer terminals. The Office of Administration (OA) has essentially two networks: a small one in the New Executive Office Building (NEOB) to support computer video display terminals, and a complex of communications multiplexers, switchers, termination equipment and tie lines which connect low and medium speed computer terminals to OA's computers and to a facility for connection to external computer and data base services. The latter facility offers service in NEOB and the Old Executive Office Building (OEOB) via tie lines under Pennsylvania Avenue.

The largest and most pervasive network is the telephone system, operated by the Chesapeake and Potomac Telephone Co. (C&P). It is based on classic "twisted pair" copper wires which connect telephone equipment to an obsolete crossbar branch exchange switch located under the south court of the EOP. The growth capacity for this facility is essentially exhausted. C&P also supplies "twisted pair" tie lines to meet most of the point-to-point connection needs of the other

networks, using existing multi-pair cables in the complex, running down to 1800 G Street, and under Pennsylvania Avenue to the NEOB and the Jackson Place buildings which abut it.

Meeting Short-Term Needs

In order to avoid adding to the problems outlined above, any plan for new or extended service must be done in the context of a long-range planning process. Short-term improvements must be reasonably compatible with long-range plans. Later in this section, establishment of a long-range planning working group will be proposed, and a detailed discussion of the technical approaches to be taken will be provided.

The question of how to meet short-term data communication needs has been discussed informally among the members of the committee who worked on the short-term proposal, their respective staffs, and representatives from some of the present service providers. What follows is a workable solution, but this may evolve as planning progresses and more opinions are sought.

The short-term communication needs are based on the draft schematic diagram for information-handling facilities for the proposed ISPP (see Section III). A number of communicating word processors, executive/professional workstations, printers and storage facilities will presumably be interconnected along the common hallway of the south half of the second floor of the OEOB. There are basically two ways to interconnect these devices, and both assume some shared common point through which communications to other points would run. One way is to use individual lines--either "twisted pair" or small (1/4 inch) cable, between each device and the shared communications facility. Another way is to use a single 1/2 inch cable to follow the path of the hallway, and have each device tapped into it. The latter method is called a "cable bus". The technology is relatively new--about 10 years old, and several organizations sell off-the-shelf components to make the proper connections.

To connect a few of the individual workstations to other points, even before a general-purpose shared communications facility is in place, at least two methods are available. One would be to use C&P-provided tie lines with small and inexpensive devices called "line drivers"; this method would be appropriate to serve initial West Wing service needs, for instance. To meet other short-term needs, the existing service provided by OA should be used. Several connections on the second floor of the OEOB are already in place, and a few others could be installed in a week or so. Once a shared communication facility was in place for workstations on the second floor of the OEOB, the present service could continue to be used for communication with the NEOB and the outside world, until the proposed long-range planning process produced a better solution.

Please note that while such arrangements can provide the communications paths for main-line applications, they have several inherent problems. Full connectivity is not possible -- most terminals connect to only one or two computers; few can connect to the outside world. Connections are difficult: for instance, with an OEOB terminal connected to an NEOB computer via the present arrangements, three sign-ons would be required to obtain computer service. This hodge-podge of services is not "user-friendly".

Beyond Short-Term

Beyond the first few months, but before operational results could be expected from the proposed long-term program, other improvements and new services may be added. Each should be viewed in the context of the conceptual approach suggested by the long-range plan, to assure reasonable end-point compatibility.

A long-standing EOP-wide communication problem is the telephone facility. While the day-to-day service provided by C&P is excellent, their efforts and the quality and variety of services available to the users are limited by the 20-year-old technology of the local branch exchange mentioned earlier. The present 5500-line C&P exchange serving the White House is the oldest type of electro-mechanical exchange in government use in Washington--only the PBX "cord boards" at Department of Interior are older. There are about 40 C&P exchanges serving government agencies in the Washington area, and the White House is served by one of 12 with the older equipment. The rest have been modernized.

New Telephone Exchange

A new exchange, such as Model #1A of the Bell Electronic Switching systems (IAESS) would provide versatility and the proven reliability that the White House demands. Custom calling features such as call forwarding, call waiting, speed dialing (2 digits), and conferencing are standard; other services tailored to particular needs (such as in the Residence) are inherently programmable in this computer-based telephone exchange. Customer control of rearrangements, connection and disconnection of telephone lines, and interception and reference of calls are other standard IAESS capabilities which would be particularly useful here, given the frequent personnel and office moves. Changes with IAESS are made of electronic speeds, versus the days and weeks of waiting for physical wire changes as in present practice. The new exchange can be installed beside the existing one, with no service disruption. If required later, special extensions can be made: switched digital data lines at up to 56 kilobits/second; intra-exchange secure voice; and links to a mobile cellular radiotelephone service, with security.

As recently as February 1981, the C&P Telephone company reiterated their interest in making the change to a IAESS central office exchange at their own expense, requiring only an expression of interest on the part of EOP customers to make judicious use of the new services. It appears that service improvements would commence in a year to 18 months from approval. The technological approach is consistent with the present thinking of the White House Communications Agency, a key decision point.

This change would require minimal change to the physical plant; for the most part, existing wiring would be used. Some users may elect to switch from the present multi-button key sets to different terminal equipment, but this would be gradual, over several years. The proposed change would replace just the central facility, and would not call for rewiring the entire complex. Any other possible solution to this most basic communication problem--telephone service--is at least three and more like five years away, and is likely to be complementary rather than competitive with the improvements to the C&P central office service discussed here. The need to rewire the complex is dealt with at the end of this section.

Another reason to move forward with the C&P service is that it will assure continuity and improvements of the one medium of communication which is now

common to all occupants of all buildings of the EOP/White House and other official EOP units, National Park Service, General Services Administration, Secret Service, Defense Communications Agency and other miscellaneous smaller or temporary units. The telephone is ubiquitous.

A recommendation of this paper is to urge C&P to proceed immediately with the proposed central office exchange improvement program. The improvement is long overdue, and it would be complementary to, not mutually exclusive with, thinking about longer-term improvements.

Cable TV System Improvements

Interim upgrades of video services in the White House/Old Executive Office Building complex are possible, but would generally be limited to extensions of the service now provided by the White House Communications Agency (WHCA) cable TV system. From its "head-end" (signal origination point) in Room 551 OEOB, this network fans out to cover most areas of the OEOB and White House, and is currently carrying about 10 channels of local broadcast TV and videotape originations to about 150 standard TV sets around the complex. There are no cable TV link to the NEOB, the other Jackson Place buildings, the Winder building, or 1800 G Street. The present system could carry more channels, given more equipment at the head-end, and special switch/translator boxes (just as in home cable TV) at each TV set which is to receive the additional channels. Up to 35 channels could readily be accommodated on the present cable, though if more than 20 were used, additional equipment space would be required at the head-end.

Without access to satellite or other external video signal feeds, the WHCA-operated cable TV system does not offer the televised House of Representatives floor proceedings, Ted Turner's Cable News Network, or any of a rich variety of national and regional coverage available to other cable TV operators who have their own satellite dishes. A current improvement proposal would help fill this gap. Artec, the Arlington County cable TV company, has proposed to WHCA to establish a microwave link from their offices to a small microwave dish in an inconspicuous place atop the southern end of the OEOB. With a planned four channels, this service could import and distribute the House proceedings and Cable News on two presently unused standard TV channels on the existing cable. The third channel would be used for reception of any one of about 26 signals from Artec's satellite down-link. Later, it might be devoted to televised Senate floor proceedings, when and if that service is established. The fourth channel would be used for control and signalling, or it could be used to transmit video originating in the complex, via Artec's satellite up-link transmission dish, to anywhere in the world--say, for videoconferencing. Artec is well situated to provide complete House proceedings coverage, as they also provide the distribution of the original signal, via a connection to the House cable bus network which feeds a microwave link from the Capitol Power Plant. Any other source for EOP service (e.g., a satellite down-link in this complex) might not offer the same full coverage. Artec could also facilitate EOP/Capitol Hill teleconferencing, or cross-connection to the Bell & Howell satellite network for public service teleconferences.

WHCA is currently seeking White House approval of the Artec proposal. Supported by the Treasury Department (who would share the benefit via a cable

under East Executive Avenue) and GSA (who would manage the minor physical plant changes), WHCA has already allocated sufficient funds to cover the full cost. Other White House units--Press Office and Congressional Affairs--are said to support the proposal.

A recommendation of this paper is to proceed immediately with the proposed Artec contract. It will provide near-term service at no cost to the White House, and it is consistent with our mid- and long-range plans.

One more note on cable TV: it is possible that the existing coaxial cable network could be used to support other than standard television signals, at least on an interim basis. This might be useful as a stopgap measure until long-range plans are completed and executed.

Premises for Long-Range Planning

In setting forth the outline for a long-range planning process and objective, some assumptions will be made concerning short- and mid-term accomplishments. The long-range planning is tied to other improvements which are needed to support the Information System for Policy Planning (ISPP), or which would complement it. What follows are some early and tentative thoughts as to what some of the resulting capabilities and services might be.

Most of the coming improvements will involve communications, terminal and display portions of the systems. We can assume that the beginnings of an EOP internal message system will be functioning, and that formal documents (e.g., portions of the Strategic Plan) will be displayed to key clients. These two requirements imply a need for electronic mail facilities to handle both simple internal messages and the exchange of formatted documents. As a separate matter, access to electronic mail services external to the EOP would continue to expand. To accommodate the need to exchange graphical materials, classified documents, and other sensitive information with Cabinet Secretaries and others supporting the Councils, a limited number of secure facsimile transceivers will probably be required.

On-line access to services offered by the various Office of Administration computers will have begun. The White House Information Center will be a part of this plan, so that requests for research and information can flow to WHIC by electronic mail, and responses can be delivered electronically to user work stations. Another key use would be WHIC personnel accessing the large variety of external data services on behalf of OPD/OPE personnel who may not have the time or hands-on experience with the service in question to use it.

Near-term West Wing services will focus on delivery of product. Availability of compatible word processing equipment in the West Wing will allow paperless display of even classified documents, by the expedience of physically carrying a storage disc to a briefing. Simple service for electronic delivery of non-classified documents from the OEOB to the West Wing is also practical.

In short, the long-range communication planning must support the present and prospective needs outlined elsewhere in this report, but especially in sections III, IV, VI and VII. The basic nature of the communications facility cannot be overemphasized: it is the foundation on which all else is built.

Incentives for Improvement

There are strong incentives to improve the local area communications network facilities in the EOP. Foremost is the need to improve productivity, defined in ways which are appropriate to the institution and environment. More information per worker is not the desired result. Improvements in quality and timeliness of information are better measures, and their interplay and importance is difficult to understand or explain. It may be difficult for the outsider to understand how the many matters competing for attention in the EOP make scheduling and orderly approaches impractical. Timing becomes everything, and the timely arrival of the right information can have a decisive effect on policy formulation. To the outside observer, it seems confusing and chaotic, and in fact it is. If the problem or policy matter could have been dealt with in a rational fashion with all the facts at hand, the matter would not have reached the White House.

The information quality is mostly a function of the quality and even-handedness of review and filtration. While the decisionmaker and his aides can generally think of people who are qualified to give opinions, communicating with them in time for it to be useful is difficult. Telling skills in affecting decision outcomes include typing speed (how fast can a policy adviser get his or others' thoughts on paper), running speed (from the West Wing to the second floor of the OEOB and back with the 'right' position paper), memory of names and phone numbers (especially home numbers), facility with photocopy equipment (especially when it jams), and finally the combination of maneuvering, intuition and just plain luck in finding out that the decision is about to be made. While efficient and timely means of communication cannot fix these problems, they can certainly help ameliorate their effects, and put the White House decisionmakers on a par with outside influences.

Productivity aside, other incentives to improve EOP communications include cost savings through sharing. Most of the communication lines in use in the EOP are single-purpose. Their total capacity is seriously under-utilized, and is not dynamically re-allocated as needs change — indeed, there is no easy means of doing so. But not only does this lack of sharing push up communication costs, it also breeds single- or limited-purpose terminals and keyboards. While it might be understandable for the White House Information Center to have several different kinds of terminals with which to reach disparate external public and commercial data services, it is inexcusable for an EOP office to have one terminal to access the budget system, another to access the centralized word processing system, another to dial external data bases, not to mention the stand-alone word processors and typewriters. There simply is no centralized communication management in the Executive Office of the President, and that in itself is a strong incentive for improvement.

Better and more sensible communication security is another need. The present piecemeal approach produces potentially harmful gaps, or has actually prevented needed and proper flows of information between offices with different missions. With increasing frequency there is a continuum of concerns between national security and domestic policy interests: foreign weapons sales and regional employment impacts are a well-known example; environmental and regional economic impacts of MX missile basing alternatives is a current concern. Eventually the communications and information handling systems must support this continuum. This cannot happen unless very careful attention is paid to security concerns while planning long-range communication improvements.

Finally, the ability to add new services, and to meet more users' needs better, are incentives for improvement. There are some locations now to which additional services cannot be extended because physical or trunking capacities have been reached.

Establishing a Long-Range Action Process

Past planners of EOP information systems have generally agreed that a common, shared, multi-mode means of inter-organizational communication is essential to meet EOP information handling needs. Some of the problems which have previously barred the implementation of such a system are:

- Security, especially regarding the unavailability of "multi-level secure" (MLS) technology: a guaranteed and practicable means of protecting different levels of security in the same interconnected system. Some feel that MLS is a chimera and unattainable; more practical solutions are available.
- Technology of local area networking. Only in the past 2 or 3 years have off-the-shelf components and plans become available at competitive prices in the marketplace.
- Integration of voice, data and video is a particularly new and attractive approach, unavailable in the 1970s except in custom-built and expensive systems.
- Cost: microcircuits are now commonly used to accomplish interface, translation, protocol and other bridging and switchings, functions which would have been prohibitively expensive earlier.
- Need Perceived: especially in the White House, initiatives such as this one go unnoticed unless there is a simultaneous and acknowledged need seen by the key decisionmakers and users. To be effective, the expressions of need should come from individuals who have learned what services are, and are not, available. While the current favorable position of the stars may not be without precedent in some earlier administration, the preceding barriers were previously decisive.
- Competition: the various organizational units supporting the President, whether or not they are officially a part of the Executive Office of the President, enjoy a certain autonomy and independence reflecting the perceived exclusive nature of their respective missions. For over a hundred years, electronic communications for the Presidency was a military responsibility. While the 40-year history of the EOP as an institution has witnessed the flowering of electronic means of communication for non-defense needs, no presidency has adequately dealt with the basic conflict over communication management responsibility for the President.

The last point above is critical, and it is strongly felt that a rationalization of the present situation is needed. Fundamental and decisive management action in this matter is required. A clue may lie in the earlier point about a continuum of foreign and domestic policy, as is suggested in a recent article by Colby (see reference 11). Incidentally, a current manifestation of this problem is that only the military (WHCA and its parent Defense Communication Agency) has appropriate competence and experience in communications, but is often obliged to limit the scope of its missions. The Office of Administration, on the other hand, does not have equivalent communications expertise or experience.

Recent events and comment suggest the existence of a mutual interest in cooperation on this subject among various EOP units. The office of the Chief Usher is concerned about utilities in and out of the White House proper, and has held informal meetings on the subject with representatives of other units, including GSA and the National Park Service. A utility replacement plan for rewiring the "18 acres" is being evolved and executed. WHCA is currently interested in secure voice and video, and is said to be thinking of an embellished cable network. The National Trust for Historic Preservation must be consulted on any major alterations in the OEOB, and the Committee for the Preservation of the White House has similar interests. The Secret Service is continuously concerned with their radiation detection responsibilities, and wants to sit in at the planning stages of communication and information systems, to assure electromagnetic compatibility and security. The Office of Administration is cooperating with the Secret Service in implementing a sign-off procedure on terminal acquisitions to assure that they meet appropriate radiation standards. OMB is embarking on an ambitious scheme to achieve complete connectivity among all branches in their organization, with links to other EOP and external agencies.

Process Management

Leadership of the long-range action process must reflect the interests of the current Administration, and must rely upon the continuity and corporate memory which career employees of the EOP can provide. To reflect the views of the President and his most senior advisers, it has been suggested that a Management Systems Review Committee be created to review all EOP information systems proposals. The review of communications improvement policy and plans would be one of its responsibilities. Deliberately small, this committee should consist of representatives of the Counsellor to the President, the Chief of Staff, and OMB, the largest EOP component.

This paper recommends establishment of an EOP Network Steering Committee, to be the focus of central management of communications resources for the Executive Office of the President. Reporting initiatives to and taking policy direction from the above-mentioned management committee, this network committee would consist of senior management (deputy-level) representatives from the Office of Administration, the White House Communication Agency, and the Secret Service. The committee would produce instructions and guidance for execution by responsible line managers in their respective organizations, and it would monitor and evaluate the performances of the network. Additional EOP organizations might be brought in to participate in working groups on security coordination (see Section IV recommendation), computer resources or physical plant changes. External experts with EOP experience or other substantive knowledge might be brought in on an advisory or consultative basis.

The network steering committee would encourage the implementation of shared and integrated communication systems for the EOP. Such a group could advise and support individual organization efforts, develop consensus ideas for future developments and perform oversight functions on major EOP-wide implementation plans. The group should view itself as a long-range technical policy and action group, focused on cooperative development and implementation of changes and improvements in cases where the clients are multi-agency and/or the time frame is greater than one year.

The committee would accept this document as a point of departure, maintaining, changing and extending it as an evolutionary long-range plan. But primarily it would focus on implementation, and on removal of the barriers and obstacles that have frustrated the efforts of would-be implementors of previous plans. There are enough ideas--see references 1-6 in the Appendix. Closure is the problem, and it can only be attained by coordination and cooperation demanded by firm and unanimous leadership.

Meeting Long-Range Needs

Perhaps the most important item on the current White House communication needs list is a facility to serve the Cabinet Council/White House information flows. If an EOP communications network such as the one envisaged in this section already existed, extending it to serve the Cabinet Councils would be a trivial matter; the 15 or so EOP offices directly involved would already be interconnected, and a message service would already be in place. In Section VII, a plan to meet the immediate needs is outlined, and implementation of that plan in the overall context of EOP networking is discussed in Section VIII.

Here we will focus on the need to make it relatively easy to support communication-intensive structures such as Cabinet Councils and ad hoc policy groups by having in place the basic means of transporting information before the need arises. One doesn't order up new telephone extensions every time an assignment is changed or new project begun: the terminal equipment on existing lines and trunks is used, or perhaps changed or moved (remember, though, the previous argument that this process itself is too slow). And, to make use of the existing cable TV system, it is usually a matter of a few feet of coaxial cable to connect to the nearest junction. What is needed is a common, integrated, large-capacity communications medium installed so that it can be readily tapped to serve any office location in the Executive Office of the President.

Technology and Ground Rules

Since 1975, practical and inexpensive technologies to meet just such requirements have emerged, and are called local area networks. These are robust media and are suitable for use with sensitive and demanding applications. Operational local area networks exist at Los Alamos National Laboratory and the National Bureau of Standards; similar networks are being installed or planned by the National Library of Medicine, the Central Intelligence Agency, and the House of Representatives. These and other similar installations have most of the following points in common:

- 1) Commitment to undertake the major physical plant changes necessary to accommodate the physical medium--a coaxial cable. This would be required for the EOP. It is a multi-year project, and

could be broken down into reasonable increments. It could be readily coordinated with, and take cost-saving advantage of, the National Park Service wiring improvements program now underway.

- 2) Use of off-the-shelf components. Standard connection hardware, amplifiers, and cable remove risks and minimize costs. Several systems use the same transmission components used for 50-channel cable TV systems. The difference is in how the channels are used--some for video, some for data, voice, etc. For the EOP, such an approach is not only practical, it's the only way to go; experimental technology for operational requirements in the White House is simply unacceptable.
- 3) Separation of communication facility from computer facilities. The local area network becomes an in-house communication utility, shared by all information sources--EOP computers, videotape players, terminals and external information resources. This requires a management commitment to phase out and avoid information systems which dictate the use of unusual, unique or disparate communications media or protocols, unless the vendor (or a third party) can supply an inexpensive interface or translation to make the incompatible device communicate with the rest of the EOP network. This is practical and vital in the EOP.
- 4) Openness to technological change. While off-the-shelf media are installed for current operational use, ground rules are developed to permit modular replacement of components of the communication system as newer technologies ripen. For instance, many experts feel that optical fibre is the medium of the future for local area networks. Today, the electro-optical coupling technology which would be required is not well-developed, outside of certain sensitive, specialized and expensive defense applications. In another area, national standard protocols for cable bus networks have not been decided, but the low cost of microcircuits allows present-day use of de facto standards, and later component swaps when standards are set. In any case, user "transparency" and uninterrupted service are corollaries to keeping the system up to date technologically.
- 5) Careful attention to security considerations. Perhaps best exemplified at Los Alamos, the combination of security management with communication management goes a long way toward resolving the real computer security problem--access. This item goes with 3) above. A variety of communication protection methods and devices are likely to be needed in the EOP, considering the diversity and compartmentation of missions, and the occasional need to provide a totally separate means of communication security.
- 6) Potential user connectivity. The potential for future service requirement for every physical location--indoors or out--is considered. Physical communications media pass within a few feet (say, maximum of 15 meters) of every possible terminal location. It is assumed that one or more services on the cable will become as ubiquitous as the telephone. It is prudent in the case of the EOP to expect fairly frequent change of use of space, and to assume that any

point should be able to originate a signal--even a TV signal, in the case of video conferencing. Bi-directional operation throughout the system is a requirement. Incidentally, one useful characteristic of most coaxial cable bus local area networks is that the location of the source or destination of a given signal can be easily changed--minimal physical change is needed, and little or no computer or central facility notification. Indeed, most terminals and local workstations would operate without centralized control.

- 7) Planning for sufficient capacity, or bandwidth. Careful thought is given to all communication requirements -- voice, data, conventional video, facsimile, telemetry, signaling, environmental controls, and so forth -- now and in the future. Here is an idea of the present total worst-case EOP bandwidth requirements, in megahertz (millions of cycles per second):

	<u>MHz</u>
6000 phone lines, at 10 kHz each	60
10 TV channels, at 6 MHz each	60
	<u>120</u>

As stated elsewhere, this paper recommends continuation of separate facilities for standard voice telephone, while reserving capacity on a separate, new cable network for about 20 channels of conventional television signals. To this should be added bandwidth for about 2000 high-speed (ca. 19.2 Kb) data terminals, and three special-purpose high-fidelity TV or high-resolution computer display signals, at about 30 MHz each. For the EOP, a 400 MHz cable system is not unreasonable, and easily within the state of the art for off-the-shelf components.

- 8) External connectivity. One of the more useful functions of a local network is to offer trunking--a common path--for access to external information resources. These might include TV signals as described earlier in this section, a rich variety of computer data bases, and links to external regional and national data networks and electronic mail services. The very existence of a ubiquitous network with common, one-point-of-contact external interfaces simplifies management, cuts costs, and above all, simplifies the user interface.
- 9) Use of the network for common services. There are usually several applications involving delivery of common services for which a local area network is ideal, and several have been mentioned above. Worth repeating is the independent but common means of facilitating and managing access to external data resources, and to secure classified or sensitive information. Not dealt with in detail here is the assumed presence of a host computer on the network which would offer electronic mailbox service to all users--a service which is fundamental to most, if not all, other office and information management applications in the EOP.

Based on the foregoing, it is a recommendation of this paper that an interconnected broadband cable bus network system be installed through all buildings of the EOP, to provide a common backbone service for data, video and

other multi-point communication service needs. Such a network can start small quickly, but will require two or three years for full implementation. It will ultimately replace the existing White House/Old Executive Office Building cable TV network.

References and Conclusions

While there is little that is original in what is recommended in this section, there seems to be no recent study which takes such an across-the-board view. A 1973 MITRE report, Telecommunications Options for the Executive Office of the President (see Appendix I, reference 1), is relevant and supportive, but out of date for a variety of reasons. The final report of the 1979 Advisory Committee on Information Network Structure and Functions for the Executive Office of the President (reference 3) is useful, but addresses only data, not video. Much is being written and published on local area networks, mostly in current periodical literature. The appendix contains references to several other relevant publications, a synopsis of advertising literature from several local area network vendors, and brief papers on several government agencies' network plans.

The most likely model for evolving an EOP Communications Network, in the opinion of the writer, is to begin by meeting the Cabinet Council connectivity needs, as discussed in Section VII. For the 15 or so EOP offices this could be met with a broadband cable bus network with a medium-scale electronic mailbox host computer functioning in a dual role as gateway for connections to the 35 Cabinet offices, as described in Section VII. This broadband net should gradually be extended as demand, money and architecture allows, under the guidance of the proposed steering committee. It is possible and likely that one or more small baseband ETHERNET networks might develop, interfaced and interconnected via gateways on the broadband net. The present (Tran and Gandalf) facilities would also be connected via gateways to the broadband net, the growth and facilities of which would eventually overtake, and absorb or replace, the Tran and Gandalf systems.

The installation of a complete EOP-wide network is likely to require three to five years, and have a design life of 15 years maximum, counting from 1980, the nominal "on-the-shelf" date of the recommended technology. The steering committee should have a new architectural proposal ready by 1990, for implementation by 1995. By then, optical technology should be fully developed for the EOP environment, and a fully integrated system can be installed--replacing the existing telephone twisted pair loop plant. Four to six years should be allowed for that change, and restoration of those parts of the OEOP damaged or defaced by earlier installations of bulky copperwire systems should be planned to be a part of the upgrade.

VI. EOP DISPLAY FACILITIES

Introduction

Previous sections have touched on the need for display capabilities for the Executive Office of the President. Sections I and II mentioned displays in the context of a decision support system. Section III calls for small-screen displays as part of secretarial, executive and professional workstations. Section V discusses various video display requirements. There are other implied display requirements throughout the paper and key references.

The approach in this section will be different from previous sections in that a more general approach is described. Given the basic communications facilities prescribed in Section V, the recommendations in this section lend themselves to a coherent, step-wise approach. Implementation can be a function of availability of user demand, budgeted funds, and/or support from external agencies with mission justifications to support White House activities.

General Goals of Display Facilities

In the context of this paper, "display" is broadly defined to include nearly every presentation medium but the printed page. The ideal display facility is one with which any visual information can be integrated and presented, regardless of original medium, using electronic media and automated controls. The most familiar example is broadcast television; the best-known analogues in government are the display screens used in NASA launch control rooms, on which a variety of computer, TV and hard-copy material is presented.

The general long-range goals should be: 1) to make such displays possible at any location in the White House/Old Executive Office Building complex; 2) to equip certain frequently-used locations with permanently-installed equipment for such displays; 3) to embellish or build production facilities for creation and preparation of material to be displayed; 4) to assure that communication facility planning caters to display facility needs; and 5) as this is a long term, high cost and multi-client project, insulate the implementation from political and organizational change.

While other parts of this paper provide the rationale for display facilities, what follows are general notes about the benefits of displays per se. For the audience--one or a hundred--displays provide access to the human input channel of greatest bandwidth--the eyes. Properly designed display material and sequences can convey far more information, more rapidly and memorably than any other medium. This is especially so with graphic material, such as pictures, charts, graphs, but is also true for bulleted outlines displayed to reinforce a verbal briefing. For the preparer and presenter, use of displays increases the effectiveness of the time available. This is extremely important with scarce resources such as the President's time, which could be valued at a figure of the order of \$100,000 per second (annual federal budget divided by President's working time).

A side benefit of displays is that preparation forces a certain useful discipline on the presenter. Spending money on good staff, communications and equipment for these displays will help keep the discipline of the medium from creating quality loss or time delays--both are known problems with all display facilities.

However, the same discipline which is forced on the display preparer or presenter in a decisionmaking environment is also needed in preparing the results of the decision for public consumption. There are benefits in facing this problem before, rather than after, the decision process.

If properly coupled with computer and communications services, such display facilities can speed preparation and delivery of material to the decisionmaker; and, by allowing preparation cut-off time to be closer to presentation time, better-filtered and more up-to-date material can be presented. If equipped with appropriate means of recording, storage and playback, such displays can permit random access to a huge variety of visual material, individual selection and viewing, and viewing of sensitive or even classified material. If coupled to external resources (e.g., broadcast and cable TV), such displays put their users on an informational par with the outside world--an equality of access which is sometimes unavailable in the Executive Office of the President.

Improving Present Facilities

This paper recommends a general improvement program for information display facilities, so that the key West Wing and OEOB locations are fully equipped and properly staffed, and so that basic electronic display services at any White House or OEOB location can be provided. As said before, specific user demand should drive the selection of action items from the options and ideas listed below. It is likely that the display requirements for the ISPP (see Section III and the May 1 document) will lead to early action for Room 208 in the OEOB. Specific recommendations for this room are made later in this section.

For the EOP in general, the question is improvement of the present facilities to accommodate media which are in common everyday use for similar purposes outside the EOP. Nothing proposed herein is unusual technology, and with few exceptions, the devices discussed have been used in the EOP at one time or another, usually at considerable cost in time, staff and dollars to the sponsoring agency or company. Together with communications facilities, these improvements would make nominal the presently high cost of displaying, in the EOP, graphical, video and other visual material now used as a matter of daily practice in many federal agencies, not to mention media and industrial concerns.

The only room in the complex which approaches having adequate display facilities is Room 450 in the Old Executive Office Building, the Press Briefing Room. It has rear view projection facilities for slides, film and vu-graphs, but no permanent video projection or origination facilities. At present, video projection is possible only by advance arrangement with the White House Communications Agency (WHCA), using 19" TV monitors on rolling stands, fed by a video line to the nearest access point of the WHCA-operated cable TV network. Such service can be arranged by prior appointment with WHCA in most White House and OEOB locations. Except for Secret Service surveillance systems and one or two small and isolated applications, video generation in the EOP is done by outside organizations, primarily the TV networks. For Room 450 originations, video moves by camera cable to network vans parked temporarily on West Executive Avenue. Originations in the West Wing are fed by portable microwave equipment operated by the TV networks, or taped by the networks' portable videotape recorders.

Room 208, the Old Executive Office Building conference room used for the last decade or so for domestic policy briefings, does not readily lend itself to rear view projection. At present, an Advent screen and projector is used, being fed either from a videotape player in the room, or with high-resolution computer graphics video originating in Room 20 and carried on special cables to Room 208. Vu-graphs depend on prior arrangement to borrow a screen and Vu-graph projector from WHCA; similar steps are needed for 35mm slides or any other medium. Video origination from Room 208 is presently rare.

Except for the Situation Room and certain Secret Service facilities, the key West Wing locations--Oval Office, Cabinet Room and Roosevelt Room--are even more poorly served, with no permanent or temporary display equipment of any sort. Cable TV connections are close by, and equipment can be brought in; video tapes can be taken to the WHCA playback facility in the Old Executive Office Building for "broadcast" to one or more portable TV sets on an unused channel. But each such occasion requires much pre-planning, scheduling and disruption: one can't simply walk in and show the President or his senior advisers a videotape, a 35mm slide show, vu-graphs or a computer display. Even computer terminals and word processor displays are scarce. The primary and nearly the only media are paper, voice and face-to-face, as stated previously. One exception is the presence of TV sets in most offices, for monitoring the local broadcast stations and special feeds as suggested above.

No video connections exist between the White House/OEOB complex and the other buildings housing Executive Office of the President units, such as the Office of Management and Budget in the New Executive Office Building. A capable and experienced graphic arts shop is in the NEOB, and its products are occasionally used, but it is too dependent on manual technology (e.g. drafting table and Speedball pens) and physical delivery (mail and messenger service) to be of much use to decisionmaking functions. The only video equipment known to exist in NEOB is the videotape, TV monitor and vidicon camera equipment occasionally used by the Office of Administration's Personnel Division for training purposes.

Sources of Display Material

Before outlining a facility prescription, it might be useful to outline some sources of demand for display services which exist now, and which would believably develop if adequate production, delivery and ubiquitous display facilities existed:

- National Indicators Systems outputs: a variety of periodic and one-shot briefings being, or planned to be given, would make heavy use of such facilities.
- Present video offerings from WHCA, new video services currently being considered (e.g., House proceedings from C-SPAN, and Cable News Network feeds), plus other new services which could easily be added (e.g., Dow Jones Ticker, UPI newswire).
- National security, intelligence and other classified briefings, using materials currently being prepared for both videotape and videodisc, and on floppy disc (obviously to be shown on stand-alone units only). See reference 8 in the appendix.

- Domestic agency material, such as statistics from the Decision Information Display System, presentations from the National Library of Medicine, Geological Survey, Department of Commerce, and NASA. See reference 15.
- Video conferencing: of EOP personnel with other agencies in D.C., of the President to meetings in various EOP locations (i.e., cameo appearance via TV), and of senior advisers with opinion leaders, federal government employees, etc. across the country.
- Quick look at internal administrative and operating information--budgets, payroll, personnel, travel, etc., from OA offices.
- "Soft-copy" delivery of the myriad press releases, notices of nominations and other internally-generated paper, with optional "hard copy" paper delivery.
- Screening past video from archives in EOP, Congress and networks; reviewing microform archives of past administrations, or earlier days of the current administration.
- Use of 'electronic carousel' slide shows to support majority of meetings and briefings in the EOP.
- Delivery of information from WHIC or NEOB library in an image of the original--tables, maps, pictures, illustrations--from conventional publications in paper or microforms, via high-resolution video.
- Synthesis and pre-publication review, in a verbatim image of what will actually be delivered, of press releases, Presidential and other key correspondence, charts, graphs, key pages from formal publications, and the like.
- Incorporation of selected and edited visual inputs to the policy and planning process, in the outputs, for internal, agency and public consumption (e.g., electronic feeds of alpha-numeric or graphical information to the media).
- Access to local or regional TV programming (e.g., news, civic affairs specials) in other parts of the country--two ways, as is currently available to Senators and Congressmen (see reference 9).

Some of the demands and services outlined above would be fairly easy to accomplish (e.g., videotape briefings) and others would add significant expense (e.g., large numbers of high-resolution video terminals), but all would depend on considerable personnel and telecommunications support services, in addition to the appropriate display facilities themselves.

General Facility Prescription

What follows is an undifferentiated 'wish list' of some of the key resources needed to meet the above. Not to be described in detail in this section is the

underlying communications network, a sine qua non of any worthwhile display facility. It must:

- Be ubiquitous--the physical medium should pass by all offices, and be within reach of each present and potential user.
- Have capacity (spectrum, bandwidth) sufficient for about 20 channels of conventional video, two high-resolution (30 MHz) services, plus adequate capacity for supporting voice and data services.
- Operate in two directions, to permit point-to-point feeds.
- Provide receiving and transmission facilities for interconnection with cable TV agencies, other agency video facilities, and satellite up/downlink services.
- Allow installation of a variety of protection devices, appropriate to individual requirements.

One or more control rooms are going to be required for common switching, access, media conversion and control facilities. A master control commanding the external access facilities and the most expensive common equipment should probably be housed on an upper floor of the EOB. One or more satellite control rooms will be needed in the EOB (e.g., Room 450 backstage), the West Wing (basement?), and the NEOB. Facilities to be present in one or more of these control rooms include (in no particular order of importance):

- Videotape record/playback equipment--professional, and most popular home and portable formats. Mass-dubbing facility is a desirable option.
- Videodisc playback equipment. More than one format is an option.
- Audio/video switching and patching facility. Microprocessor-controlled sequencing and switching programmer, with remote control, is a desirable option.
- Computer interface to allow feed of "frames" of computer-originated alpha-numeric or conventional graphics information into the video formatting process. Optionally add a local character, generator, and local graphics terminal.
- High-resolution input scanning camera, for stills.
- Frame store, for around 200 frames. Option would be 800 frames on-line plus removable disc packs. Needs ability to up- and down-load alphanumeric sequences (for briefings) from computers.
- Equipment for monitoring and managing distribution of high-resolution (e.g., DIDS or microfiche) video images.
- Voice intercom facilities to other control rooms and key display facilities. Option would be remote automated control of centrally-located devices.

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WITHDRAWAL SHEET AT THE FRONT OF THIS FOLDER.

- High-resolution alphanumeric display; full-page-screen type
- High-resolution hard copy impact printer
- High-resolution general purpose display; color and half-tones
- High-resolution color hard copy (photographic or ink)

In some cases the displays above could obviously be provided as part of other equipment--most likely a word processor or executive workstation.

Support Requirements

Ideas on assembling and installing the technology to meet the above prescription are presented in Section VIII. But to assemble and install the right combination of people to make intelligent and effective use requires a different prescription. A three-level approach is suggested:

- User skills: survey and catalog the skills of the users themselves. Many of them bring valuable and applicable experience in various display, computer or word processing systems with them. Take advantage of this talent bank, and build complementary support around it. Encourage these people to help themselves, and make it easy for them to do so.
- Resource centers: the second level is the institutionalized EOP services already in place, in places like the White House Information Center, the Graphics shop in NEOB, and the economists and statisticians in OMB and CEA. The existing skills and services in these places should be identified, listed and marketed to the users. The new users' skills and their needs should be explained to the support staffs. The new display tools should be first introduced to the hands of the usual workers in these shops, to the extent that they are not already familiar with them.
- Agencies: most of the ideas for display material will originate at the executive branch department or agency level. Encourage such communication; make it easy for agency talent to work on EOP problems. Use electronic mail to ease the communication problem; encourage agency staff to submit draft display material--alpha-numeric or graphical--in draft form electronically before freezing the design. Interact with them to improve their proposals and presentations. Invite them to come visit in person at least once early on, to make later telephone and terminal exchanges more meaningful.

The above suggestions could be applied more generally, but are especially needed for the EOP display facilities to work well. Unusual combinations of artistic skills and management savvy are needed to make displays effective. The components and devices are expensive and somewhat esoteric, and one must involve people from agencies who are familiar with use of such equipment--agencies which now have mission responsibility for such presentations and displays.

Finally, there are the usual needs for careful coordination with interested groups, such as WHCA, the Secret Service, the NSC and the Press Office. The individual responsible for implementing this part of the proposal should seek to keep representatives of these groups informed every step of the way.

Summary

Other improvements in EOP information handling can be for naught if the means of product delivery are inadequate. In keeping with the goal of a "less paper" working environment, electronic displays not only provide ideal means of delivery, but also keep the delivery system moving at the speed of light, rather than the speed of a messenger or carrier's automobile. In this section, we have seen how off-the-shelf display technology can be productively linked with computer and communications systems to significantly improve the delivery of information in the Executive Office of the President.

VII. EXTERNAL SERVICES AND CONNECTIONS

Reintroduction to the Communication Problem

The Executive Office of the President requires the services of a large number of people of different talents to acquire, digest, filter and prepare information for presentation in the policy making context. To increase the size of the EOP to accommodate the numbers of experts and opinion leaders likely to be useful is simply not feasible, for physical and political reasons, and because of the dynamics of subject matter interest. The White House must tap executive branch agency resources for subject-area policy support, but this usually creates communications problems, especially with sensitive and classified information. It is this EOP need for connectivity to external support which leads to the demand for inter-agency electronic message service, and other forms of electronic communication.

This section will deal with EOP external information connections in three ways, made distinct primarily by who has nominal control over the content and access to the information. This distinction is quite deliberately drawn, and is intended to be consistent with the current thinking on government public information policy. The three ways are:

- Cabinet Message Exchange--the communication of sensitive policy information created by the EOP, or created at EOP request. The EOP controls access, and manages content control.
- External information service access--retrieval of information from information proprietors who operate their services for the purpose of meeting needs such as those expressed by the EOP. The individual proprietors control the content of and access to their respective systems.
- Intergovernmental message exchange--the communication of a broad variety of non-sensitive information created in the respective organizations. Access is essentially equal to all participants, and content is controlled by individual originators.

Cabinet Message Exchange

The basic problem being dealt with here is that practically everybody but the President and his Cabinet has better means of communication at their disposal than the means which are available to these principals in their immediate offices to permit them to manage the national policy process. Near-term relief to this bottleneck must be made available if the President's Cabinet Council structure is to be effective. Long-term relief is needed to enable any construction of cabinet government in the executive branch.

The immediate need for the Cabinet Councils is suggested by the process definition published by the Press Secretary on February 26. In addition to the National Security Council, five more councils were defined, with interlocking membership of cabinet members.

<u>Council</u>	<u>No. of regular members</u>
Commerce and Trade	9
Human Resources	6
Economic Affairs	8
Natural Resources and Environment	6
Food and Agriculture	6

Twelve Cabinet Members were named to cover from one to four council chairs each, and five act as chairmen* pro tem for their respective councils:

Commerce*	3	Agriculture*	4	HUD	2
State	3	Labor	3	Education	1
Treasury*	2	Transportation	4	Interior*	2
Justice	3	HHS*	2	Energy	1

Three EOP units have substantive responsibilities, with one to three Cabinet Council membership responsibilities each. These are USTR with three, CEA with two and OMB with one.

These 15 units have a total of 35 functional slots to cover on the councils. To this number must be added provisions for ad hoc policy task forces, and provision for any Cabinet Secretary's decision to participate in a group of which he is not usually a member. On the other hand, some departments may choose to manage policy participation centrally, cutting down on the total number of participants.

Within the EOP there are ex-officio council members and other interested parties to be included in the process. This list will give the idea:

Vice President's Office	Office of Management and Budget
Counsellor to the President	White House Information Center
Chief of Staff	Office of Planning and Evaluation
Staff Secretary	Office of Policy Development
Office of Cabinet Administration	(management plus five executive secretaries)

The EOP networking plans should cover connectivity and services among the 15 to 20 EOP officers which may be involved. Provision must be made for connecting this community to the 35 to 50 external offices. To meet this and similar needs, it is recommended that a Cabinet message exchange be established to facilitate Presidential communications with the senior officials of Cabinet departments.

The suggested solution is an electronic mail system in the EOP which can handle upwards of 100 offices as discussed above. Such a facility should be able to handle exactly the same type of correspondence as is presently being handled by couriers, and to a certain extent by telephone. Informal notes and messages could be handled by "computer mail", in the fashion available from commercial services, but because of the sensitivity of these exchanges between the President and his Cabinet, a dedicated central mailbox facility within the EOP would be required.

Each participating Cabinet Secretary's office should have a terminal device--ideally, a communicating word processor which was procured from a list of three or four different brands of equipment whose protocols and standards for information interchange are reasonably compatible within the "mailbox" system. Given such equipment, not only could "computer mail" (such as the agenda for council meetings) be exchanged, but formal documents (such as policy options) prepared on word processing equipment in the immediate office of a Cabinet Secretary could be electronically delivered to similar EOP equipment. Signature authentication is not a problem--it is the exception rather than the rule today with physical media. However, other means of authenticating electronic messages are readily available.

The above arrangement, using conventional dialed telephone communications between the White House and the agencies, would suffice for alpha-numeric information exchange of policy documents--even sensitive ones, given the in-place protections suggested for use. Classified information could not be handled this way, nor could graphics, or messages originating elsewhere (e.g., Congressional correspondence). A likely mate for the suggested word processor "network" would be a secure facsimile device. Sub-minute facsimile units are available which will operate with encryption equipment over voice-grade telephone lines.

It is important to note that this plan for Cabinet message exchange is just that, nothing more. There should not--there must not--be any further White House connection than to the offices of the department heads, the individuals to whom Congress, the courts and the people look for proper stewardship over the information resources of their respective agencies. While the advent of the proposed system may well lead the department head to re-examine and perhaps improve information handling within his own agency, such activity must be free, and be seen to be free of undue or improper White House influence. Here again, the spectre of FEDNET and 'big brother' must be avoided.

Access to External Information Services

The EOP Office of Administration has already arranged for access to over 150 on-line computerized data bases from 14 different government and commercial sources through the White House and EOP Information Centers. However, the results are not deliverable to the end user in electronic form for incorporation into another document, nor is there a single shared external access facility serving the information centers. Ideally, the Office of Administration's Information Management and Services Division (IMSD) should be fully connected to the EOP office automation network suggested above. In this way, research tasking from EOP users could flow quickly to IMSD facilities via electronic mail; communicating word processing equipment in IMSD could be used for access to external data resources via the present (Tran) network or embellished facilities; electronic "cut and paste" techniques could be used to edit and format the request response; and the result could be delivered to one or more users quickly.

It is a recommendation of this paper that steps be taken to improve present external information service access facilities, so that externally-sourced information can be easily combined and edited, and perhaps joined with internally-generated information. No separate effort is required to make this happen. It is a matter of integrating existing external services with the other services described elsewhere in this paper, and embellishing the communications management computer systems to accommodate some additional workload.

Intergovernmental Message Exchange

There are a multitude of requirements for information exchange in electronic form among Federal agencies, and between these agencies and the users of information they produce. Experience has shown (e.g., with GSA's proposed FEDNET, and the subsequent teleprocessing services contract) that when there is no compelling reason not to do so, commercial facilities and services should be used to facilitate such exchanges. While the White House should certainly be able to have equal access to such facilities and services, it would be inappropriate for the Executive Office of the President to offer or manage them.

It is not inappropriate, however, for the EOP to provide leadership in experimentation and evaluation of information exchange services, and to play a stewardship role in transferring the operational responsibility for such services to the private sector when it is determined that the service has gone beyond the experimental stage. An excellent example of such an activity is the Decision Information Display System project. Currently the EOP is supporting a DIDS terminal for its own access, providing leadership for the inter-agency committee which manages DIDS information exchange, and actively seeking a proper and responsible contractual vehicle for transferring the DIDS host facility operational responsibility to the private sector.

DIDS and other such requirements suffer from a common problem: the unavailability of interconnected public electronic message system (EMS) networks to facilitate information interchange. The use of inter-agency electronic mail to support agency office automation activities is similarly stymied. A recent list compiled by the Office of Personnel Management shows 20 Federal agencies who are currently using electronic mail. But at least nine different non-interconnected services are being used. If this problem could be overcome, the EOP could join the list of users. As the bulk of policy-relevant information is non-sensitive, such access could facilitate the Cabinet Council and other ad hoc policy processes by handling the information for which the protection of the proposed Cabinet Message Exchange is not required. In comparing the above list of 20 agencies with the names of agencies on the Cabinet Councils, the only agency not presently using electronic mail somewhere in their respective departments is Labor, and they are presently in the planning stages. Non-members of the Councils which are now using electronic mail include DoD, EPA, FCC, GAO, NSF, OPM and House Information Systems.

Today there are several public electronic message system (EMS) services, including TELENET, TYMNET, GRAPHNET, etc., and many electronic mail services. Some of the latter (TELEMAIL, ONTYME) are available through their respective associated EMS nets, and others (Dialcom, Scientific Time Sharing, COMET et al.) are available via direct dialled or public EMS services. There are several problems however (more details in reference 17):

- There is no common pathway for exchange of electronic mail among the various electronic mail services, and thus to communicate from one customer on one service to a customer on a different service.
- With a few limited exceptions, there are no interconnections among public EMS nets, or between them and private nets.
- The public EMS nets offer only terminal-to-host computer connections, or at most, terminal-to-terminal. They do not offer the

host-to-host protocols necessary for exchange of electronic mail (e.g., TELEMAIL to ONTYME, or ARPANET to COMET), nor do they permit customer host to different customer host exchange of electronic mail and other files.

- There is no forcing function to overcome these deficiencies--to encourage development of standards borne of experience, and to produce service improvements.

Recipe for External Initiative

Interest in this subject is stimulated by increased demand for electronic mail services, the value of which grows as a function of market penetration--the more people one can reach, the more it is used, and significant productivity gains seem to result. However, another interest is emerging from word processor use, especially in the case of shared logic systems and communications options. On its face, it would seem feasible to use communicating word processors just as computer terminals are used in an electronic mail system, enjoying such benefits as multiple delivery and asynchronous communications for the formal messages generally produced using word processing.

Many investigators and vendors are pursuing the intra-organizational needs for informal (i.e., computer-based) and formal (word processor-based) electronic mail. In a few cases, the intra-organizational informal and formal message communication services are integrated, as is being suggested for the EOP. But there is no inter-organizational service of this type, nor is one likely to evolve naturally in the near future, due (among other things) to lack of standards for interoperability. Standards-setting efforts at this juncture would be undesirable and impractical because of the lack of experience, and fast-changing technology.

One of the difficulties of mounting an internetworking experiment is its organizational placement. Past experience (e.g., FEDNET) has shown that such an activity should not be in the Federal government. It would be difficult for an existing commercial service (e.g., TELENET), to do it, due to the highly competitive nature of the market. The requirement, then, is for a relatively non-threatening institution to initiate the proof-of-concept activity; to aggregate the public sector demand for such services and, through experience, work out remaining technical, economic and administrative problems; and then to transfer the customer load to commercial services.

Serious thought should be given to the lending of White House support for an inter-agency project along the lines of the recent MULTINET proposal (see references 16 and 17 in the Appendix). Organized like DIDS, and perhaps depending on an existing group such as the Interagency Information Exchange, or the Interagency Committee for Automatic Data Processing, such a project will work if it is perceived as an experiment, the results of which are to be shared by the participants. Each of them should be represented on a steering committee which reviews progress regularly and provides group input to project management. Participants should include: key government agencies with a policy interest, e.g., FCC, NTIA, ARPA, NSF; federal government user agencies, including legislative branch representation; vendors who are providing some component of service to the project; and project management.

It is a recommendation of this paper that the EOP provide leadership and participation in such a shared-responsibility inter-agency message exchange project, in order to develop and exploit interconnections of existing public and private electronic mail and message systems. Such an activity would be immediately useful in facilitating inter-agency electronic mail, commercial data base access, and DIDS data sharing, plus other applications which would quickly surface once an interconnection facility existed.

Summary

Action is required to bring the proposed Cabinet Message Exchange into existence, and this must be done as soon as possible. This service is a critical part of the Information System for Policy Planning (ISPP). Some access to external information services exists now, and no immediate action is required, but support for these services should be provided in any EOP network development. Intergovernmental message exchange services are also required now, but it is not the White House's job to build them. Encouragement, and later, support and cooperation, should be given to an outside group to initiate this activity.

VIII IMPLEMENTATION CONSTRAINTS AND STRATEGY

Introduction

After a depressing introductory litany of obstacles to improvement of EOP information handling, this final section of the long-range plan develops a strategy for implementing its 12 recommendations by describing logical decision/action groups. The decision process, funding, staff involvement and training are touched on in conclusion.

Constraints

Ordinarily, when a government agency is interested in acquiring or improving information systems, a host of support services, guidelines, regulations and laws come into play to manage and control the process. Typically one would begin with a requirements study. If it were to be a major system, competitive designs would be produced. Extra funding requirements would be met through the budget process. A request for proposals would be issued; bids would be sought and evaluated; a winning vendor would be selected. A separate program for telecommunications facilities would be developed and implemented. Installation and training would be planned, and an initial operation date agreed. In normal circumstances, these steps are not optional.

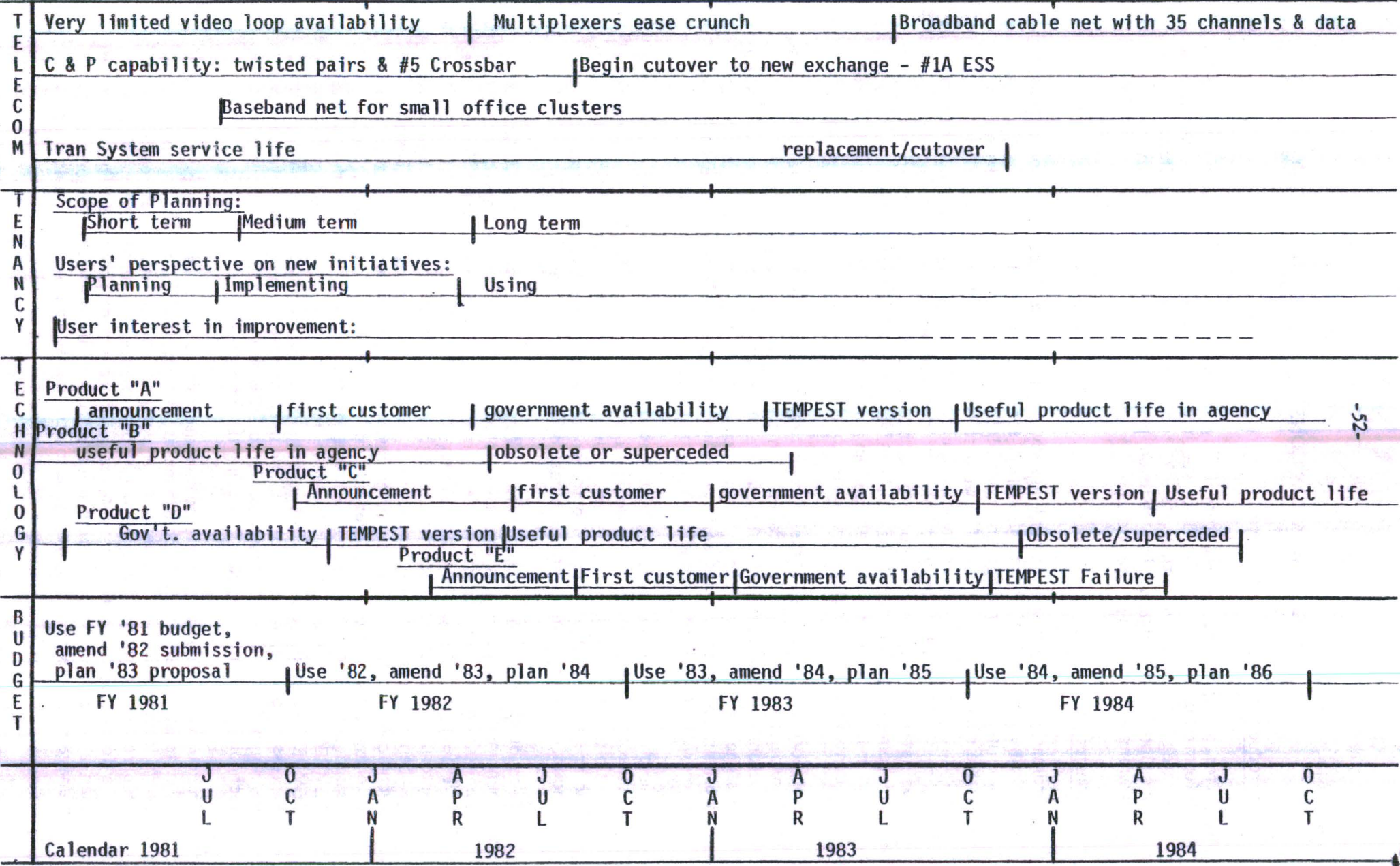
For non-trivial programs, the elapsed time for this process is generally between two to ten years. In many cases, such an approach is impractical for the EOP environment, in which certain constraints limit the flexibility of the system designer and planner. Some of these constraints, while not unique to the EOP, work in combination with some which are unique to further define and limit a narrow 'window' in which one can accomplish something worthwhile.

The chart on the next page shows how the individual constraints operate and interact. Budget-wise, no major initiatives for EOP information systems are possible during the first two years, unless major initiatives had been planned by the previous administration. To the contrary, previous failures, miscalculations and inflation can diminish or eliminate new initiative money.

Technology problems take several forms. The rate of change is currently phenomenal, and one runs the risk of procuring near-obsolete equipment. While some newer, faster and cheaper equipment has been recently introduced in the EOP (e.g., the computer changes from IBM 155 to ITEL AS-5 to IBM 4331) the performance improvements have already been eaten up in increased use, leaving no benefit left for new applications or inflationary effects. The rate of technical change leads to shorter product life and to fewer competitors who are offering truly competitive products of comparable performance, quality and design age. The most vexing technical problem relates to security--so-called TEMPEST compatability, discussed in Section IV. Production of a TEMPEST-tested version of a given peice of equipment usually follows expression of government interest, and in some cases is prohibitively expensive if not impossible. Cost increases of 20 to 150% are not uncommon. In summary, technology presents the classic moving target problem.

The quadrennial election cycle complicates planning and user interest. Planning is at least halted if not discontinued at the boundary. The timing for the key user's interests in improvement, their perspective on new initiatives, and their preparedness to do planning seem to work together to subset the major interest of a four-year cycle to the first year. Improvement programs requiring more than a year from start to finish are difficult, and generally require an early management approval followed by a multi-year execution by organizations with

CONFLICTING CONSTRAINTS ON EOP INFORMATION HANDLING IMPROVEMENTS



relatively little turnover--inside or outside the EOP. The average tenure of non-career EOP staff is 22 months.

The availability of appropriate communications facilities necessarily limits all short- and many medium-term information handling improvements to what can be done with existing facilities. This is particularly true for inter-building connections. There is a de facto moratorium on adding more coaxial cable lines under West Executive Avenue, for instance. Adding any kind of cable throughout the Executive Office Building implies major physical plant changes and thus any EOB change becomes a long-term project. Some interim or single-purpose systems (e.g., secure voice) are added on top of existing single-purpose systems, complicating long-range planning for integrated communication systems.

Implementation Strategy

Given these constraints, implementation is difficult, and strategy becomes everything. An order and strategy for implementing the 12 recommendations of this paper is implied by the contexts in which they are each made. Here we will attempt to pull them together into logical groups, creating an explicit plan for execution. This plan may be said to be a 'straw man', as fast-moving events and unusual opportunities have a way of changing the sequence of things in the EOP. It will doubtless be changed and improved upon in execution.

Demo group: the first grouping is near-term and action-oriented. It consists of a visible and working demonstration of many of the technologies and capabilities discussed in this paper, in actual use satisfying the needs of one or more EOP customers who are crying for support, such as the Office of Planning and Evaluation. This group encompasses implementation of first portions of the ISPP including Cabinet message exchange and a portion of the displays improvement program (R1, R7 and R8--see summary of recommendations on next page). This activity can be started immediately; portions of it are already underway. Total cost would be moderate, estimated at under \$2 million. No major hardware acquisition is required; most of the cost would go toward system integration, interface development and software development. Little or no top management attention is required. Payoff is early and high, while visibility and risk are low.

Resolve group: the second grouping is near-term for initial decision and medium-term for execution, and it is management-oriented. It is intended to display top management resolve in approaching the EOP information handling problem, first by announcing support for the long-range plan and needed improvements (M1), and then by throwing support behind two initiatives which have been in planning for some time--the telephone (R3) and cable TV (R4) improvements. Total cost would be zero, except for some middle management costs in monitoring implementation. C&P is funding R3, and the money for R4 is coming from previous fiscal year budgets. Initial top management attention is required, followed by minimal occasional monitoring. Payoff is prolonged and high, visibility is high and risk is minimal.

Infrastructure group: this group is near-term for initial decision and long-term for execution. It is intended to supply the basic infrastructure to carry out the present and future versions of the long-range plan, by having top management identify the major and fundamental EOP communications management dilemma (M2) and resolve it by creating clear lines of authority (R5, R2). This group includes embellishment of the initial networking demonstration by calling for better external service connections (R9). Total cost would be minimal except for R9, which would be low--under \$1 million, mostly for additional hardware.

TABLE I: SUMMARY OF RECOMMENDATIONS

Management Recommendations

- M1 Acknowledge need for major improvements in EOP information handling, and authorize a decisive program of implementation of near- and long-range improvements, according to the networking concepts outlined in this long-range plan.
- M2 Recognize the basic and long-standing dichotomy in EOP communications management, and make the changes needed to resolve it.

Detailed Recommendations

- R1 Approve adoption and pursuit of the ISPP concept. To begin implementation, use current office automation and communication products and services to meet OPD and OPE needs.
- R2 Establish a working group on security coordination, and charge them to view EOP security requirements as a continuum, not restricted to national security matters.
- R3 Proceed immediately with the proposed telephone central office exchange improvement program.
- R4 Proceed immediately with the proposed contract to provide additional cable TV services.
- R5 Organize an EOP network steering committee to guide implementation of EOP communications improvement programs, and to assure that near-term improvements are consistent with the long-range plan.
- R6 Replace and extend the present White House cable TV network with a bi-directional broadband cable bus network, with coverage throughout the EOP for data, video and other multi-point communication service needs.
- R7 Improve present facilities for information display so that the key West Wing and OEOP locations are fully equipped and staffed, and so that display service at any White House/OEOP location can be provided.
- R8 Establish a Cabinet message exchange to facilitate Presidential communications with Secretaries of Cabinet departments.
- R9 Improve present external information service access facilities so that externally-sourced information can be easily combined and edited, and joined with internally-generated information.
- R10 Espouse and participate in an inter-agency message exchange project, to develop and exploit interconnections of existing public and private electronic mail systems.

Top management attention is required to establish the recommended committees, which would then manage execution of the long-range plan. Payoff is delayed and prolonged, while visibility and risk are negligible.

Ubiquity group: this final grouping is medium-term for initial decision and long term for execution. It addresses the expensive portions of the long-range plan: making the recommended improvements in information handling universally available throughout the EOP. It covers the proposed EOP cable network (R6), the bulk of the display facilities not already implemented as targets of opportunity (R7) and the inter-agency message exchange (R10). Total cost would probably require explicit budgeting, and are guesstimated at \$10 to \$30 million over five years for hardware, software and services. Top management should review and approve specific proposals, with middle management responsible for execution and monitoring. Payoff is very large, but delayed and prolonged, while visibility and risk are low to medium. This is the biggest bullet to bite.

The suggested strategy is to implement the first three groups immediately and simultaneously. Their impact and success will dictate the timing for implementation of the last group, which should probably commence during the second year.

Decision structure, funding and other considerations

There are two levels of decisions required to implement these recommendations. The first two recommendations, M1 and M2, address the fundamental policy issues, and are assumed to require decisions at the Baker-Meese level. The remaining ten recommendations can be acted on by the Management Systems Review Committee and by the proposed EOP network steering committee.

Except for the last grouping of recommendations outlined above, funding requirements to implement these recommendations are moderate, and can come from several available sources:

- existing EOP capital and operating budgets.
- other agencies who have mission responsibilities to support White House activities.
- agencies who will share the benefits of EOP information handling improvements.
- agencies who budget to provide institutional and operational services in the EOP as a government unit, national monument, national park, visitor center, historic place, etc.
- agencies joining the EOP in a joint venture, inter-agency project, or the like.

The last grouping of recommendations--R6 and R7 in particular--will require substantial on-budget multi-year funding, and should be included in forthcoming submissions.

Acceptance of these plans, proposals and recommendations will be made easier by carrying them out in the context of the appropriate existing units in the EOP. By building an institutional basis for long-range planning, the continuity required to sustain it is more likely to result. The Office of Administration should be the general procurer and operator of these new systems and services. The present Mail and Messenger unit should evolve toward accepting responsibility for electronic mail and message systems. The Graphics shop should figure prominently in exploitation of new display technologies, and Central Files should be the proprietor of central microfilm files of correspondence and other documents generated by each Administration. While there may be reasons to depart from this approach, first consideration for responsibility for the automated or electronic information handling should be given to those who have proven their worth and can share their experience in working with the more conventional manual systems and physical media. And, these same individuals can advise when the "old way" is still faster and cheaper than the new technology. The paperless office, if not a myth, is decades away for the White House.

If the EOP support staff does not cooperate in the implementation and use of these recommended new tools, they simply will not work, and precious money and time will have been wasted. By and large, the new tools augment rather than replace human skills. Because of this, plus the incessant demand for more and more services, present EOP institutional staff has little to fear from the advent of these improvements. Instead, the new communications media should make it easier for EOP support staff to reach out for help to their opposite numbers in executive branch agencies in meeting the voracious appetite of the decision process. In this regard, the prescription for a balanced relationship among EOP users, staff and agency personnel at the end of Section VI can be generalized to other areas.

User training is another item which deserves mention in this section on implementation. Here are several ideas: training should be done on-site, preferably by experienced users rather than trainers. Members of training teams should spend some time simply observing their trainees in their environment before the equipment arrives and focused training begins. Off-site training is out of the question: those who you really want to help are simply too busy to go.

Summary

To some, the pursuit of significant improvements in information handling in the Executive Office of the President is a quixotic dream, often for some of the constraining reasons explained at the beginning of this section. It is far easier not to do something, especially in the EOP, than it is to do it. But the President, and the country, deserve better. In the opinion of the writer, the institution called the Presidency is in danger of being bypassed if it cannot meaningfully regain its ability to manage the federal government. The resources available to the President to accomplish this task are people, money and information. The first two are in scarce supply now, and in public service this will always be so. There is too much information, however, and as a resource, it is not being well managed anywhere in government, and especially in the Executive Office of the President. Hopefully, the strategy outlined in this section for implementing the improvements in information handling suggested in this long-range plan will work. If not, perhaps this document can be used as a point of departure for future efforts.

APPENDIX

1. References
2. Detailed Requirements of Office Automation System
3. Examples of Local Area Networks
4. Notes on Recent Network Offerings

APPENDIX I

References

Below are documents explicitly referenced in the foregoing, or are directly relevant to this proposal. Much justification material has been omitted from this document in favor of past studies, whose recommendations are still valid if their technical approach is not, or is dated.

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16. Implications of Local, State, and Federal Government Use of Electronic Mail and Message Services, by Edward K. Zimmerman, in AFIPS EMMS Workshop Proceedings, December 1980.
17. Toward a MULTINET Public Access Computer Resource System (draft concept paper), by Rollin P. Mayer and Dr. Richard J. Nieporent, the MITRE Corporation, Metrek Division, March 1981.

APPENDIX 2

Detailed Requirements for Office Automation System

The requirements listed below were produced based on a long-term analysis of White House operations and standards. Equipment offerings of at least eight vendors were reviewed to produce these specifications. Some characteristics are more important than others, and weights should be assigned and considered in making equipment selection. The groups detailed below relate to the Description of Components in Section III of this document, and covers only OPD/OPE requirements.

System-wide capabilities

Up to 64 separate devices to be interconnected, as below
Up to 15 word processor workstations
Up to 30 executive/professional workstations
Up to 12 high quality impact printers
Shared local print facility
Shared central filing capability
Shared electronic mail and external communication facility
Compatibility with in-house bulk printing services (e.g., IBM 6670 or Xerox 9700)
All equipment operates in a normal office environment without special air conditioning or power source

Optional features

OCR input
Above, with multiple or arbitrary fonts/sizes
Output for photo-typesetting

Local free-standing Word Processor functions and features

Text entry with word wrap (auto return)
Proportional spacing
At any point in entry or revision, text

- insertion
- replacement
- duplication
- deletion
- movement
- movement across pages
- movement to another document
- above five features at character, word, line or user-defined block, with highlighting
- rejustification
- repagination

Automatic functions

- default standard or pre-defined format
- centering, of text and headings

- global string search and replacement or highlighting
- indentation and tabs (at least 10)
- rejustification during/after text changes
- number and decimal alignment
- footnote management
- headers/titles management
- page number generation, with specifiable beginning
- forms creation, with cursor skip/advance

Flush left and/or right, and ragged right justification

Ability to draw solid horizontal and vertical lines (for charts, tables, etc.)

Ability to designate unbreakable text blocks, and to force new page

Ability to preview above results on screen before print

Ability to support and exercise capabilities listed under "High quality impact printer"

Function as terminal (e.g., ASCII asynchronous) to external systems

Function as typewriter, i.e., keyboard direct to impact printer (e.g. for labels, small notes)

Full page display

Partial page display option (at least 24 72-character lines)

Both the above with non-glare (reverse video) option

Local storage—dual drive disk or diskette

Basic information processing facilities

- sorting with single key
- merging of multiple files into one
- basic arithmetic (e.g., sum a column, count no. of records)
- list maintenance and merge/insert for multiple letters
- selection of records based on boolean criterion (e.g., "if code = value")
- inclusion of non-print information in a mailing list (e.g., search, select and sort keys, telephone numbers)

Ability to create, store and invoke sequence of commands ("procedures")

Ability to create and execute rudimentary programs in a high-level language (e.g., BASIC)

Ability to perform all above functions in a free-standing mode, without dependence on a central processor or file

Ability to print documents prepared with above features on the shared printing facility

Ability to combine information from local and central storage file (i.e., two files open to read and one to write, or logical equivalent)

Ability to exercise functions listed under "Electronic mail facility"

Access to common source of date/time, for use in both word processing and records management functions (e.g., "tickler file")

Professional workstation

Standard keyboard (i.e., like typewriter, or general-purpose terminal)

Local storage (e.g., dual mini-diskettes)

Displays at least 24 72-character lines

Hard copy option (low- or medium-quality print)

Has rudimentary text editing facilities

Can function independently (with coupler or modem) as ASCII asynchronous terminal.

Able to create, store, recall and change documents with local storage
Able to transmit/receive documents between local and central file storage
Able to exercise functions listed under "Electronic mail facility"

High quality impact printer

Shareable with 2 or more workstations
Independent (background operation)
Effective (vs. instantaneous) speed over 40 cps
Bi-directional print
High speed bi-directional tab/skip spacing
Bold face (slightly offset overstrike)
Underscore
Multi-font (e.g. serif, sans serif, italic)
Multi-pitch (e.g. 8, 10, 12)
"Orator" type font and mode for speeches
Acoustic cover of own brand
Automatic sheet feeder option
Compatibility with local shared image printer (e.g., identical in appearance?)
Compatibility with in-house bulk printing
Start/restart from arbitrary page
Ability to do multi-part (up to 6 forms)

Shared Local Print facility

Image or page printer for quick look on short documents, and limited numbers
of copies of finished documents
Speed of at least 10 pages per minute
Document appearance same as workstation display and impact printer
Ability to print multiple copies of collated multi-page document
Prints in page (vertical) or landscape (horizontal) format

Common Storage

Password security for files
File sharing with variable privilege (e.g., read only/no alteration)
Access by both word processor and executive/professional workstations
Support of electronic mailboxes

- for all workstations
- for up to 35 external terminals

Support for facilities listed under "Communications capability", as needed
Minimum capacity of 150,000 pages, expandable to 1,000,000 pages
System should maintain catalog, containing for each file:

- Creation date and operator (or workstation) ID
- Size
- Date/time of last revision or replacement
- File name
- Date/time of last access
- Total number of accesses for any purpose
- Access and sharing privilege profile

System should permit authorized access, display and report processing of the above data, and other information necessary for monitoring, archiving and other storage management duties

Communications capability

Any workstation communicate with any other, via central file

Any workstation send files to Print facility, central file or external communications

Support link of EOPNET facility for auto-dial of external facilities (currently via Tran)

External link facility able to support

- up to 8 dial-in/dial-out lines ("ports") reorganization
- asynchronous 300/1200 baud protocols
- bisynch 2780, 3780 or HASP protocol
- up to 4 dedicated lines to other EOP systems/networks

Basic text-stream exchange with some other workstations (e.g., ASCII terminal, communicating word processor) of different brand

Support for external electronic mail facility of up to 35 terminals

Electronic mail facility

Basic "computer mail" format and capability, with "To", "From", "Subject", and "Text" fields (e.g. as in ARPANET's SNDMSG or HERMES)

Copy capabilities

- "cc"
- "bcc", or blind copy
- "fcc" or automatic file copy

Mandatory "From" field--no anonymous messages

Multiple addressees

- in "To" line
- from previously-created named list

Registered mail--date/time stamped return receipt provided

Ability to "forward" a message with comment, or other means of easily incorporating an incoming message into an outgoing one

Ability to "reply" to a message, with automatic generation of "to", "from", and "subject" fields for reply from incoming

Audible notice of arrival of electronic mail at each workstation

Ability to redirect and filter mail for executive/professionals through a secretary

Services above for any workstation on system

Service from any workstation to/from external terminal (up to 35) using central files electronic mailboxes

Support operations of workstation as terminal to/from external electronic mail system

Ability to incorporate formal documents (e.g. created at word processor workstation) into a message

APPENDIX 3

Examples of Local Area Network

Section IV made reference to networks at the Central Intelligence Agency, National Bureau of Standards, and National Library of Medicine. Below is briefing material on these effects.

NLM Local Area Network

The National Library of Medicine has large and complex data communications and audiovisual communications facilities. Data communications-related hardware includes approximately three hundred data terminals, remote job entry systems, word processing systems, microprocessors, minicomputers, and a very large dual processor on-line main frame system. Terminal access is required to various types of systems, some of which are single-access and some multi-access. In addition, there is need for computer-to-computer and terminal-to-terminal communications, and local connection to networks such as TELENET, TYMNET, and the ARPANET. The NLM is also very heavily audiovisual-oriented, having extensive research activities in this area within the Lister Hill National Center for Biomedical Communications, studios and production capabilities in the National Medical Audiovisual Center, and a large modern auditorium, all of which must be interconnected in a variety of ways. As with the data communications, there must also be connectivity with external broadband networks.

The NLM consists of the original Library Building, which has three floors underground and two above ground, and the new Lister Hill Center Building which is a 10-story tower sitting on top of a base consisting of two other floors. It is this new building which contains all of the computers, facilities for audiovisual production, videoprocessing, and video research, and the auditorium.

In view of the need to support extensive audio, video and data communications, and after reviewing of available technology, it was determined that the local area network for the NLM should be based on cable television (CATV) technology. The system selected uses a dual coaxial cable. One cable, the outbound cable, transfers information between the headend and user locations. The other cable, the inbound cable, transfers information from the user locations to the headend. The frequency band pass of the system is 30 MHz to 320 MHz. The range from 54 MHz to 300 MHz is suitable for the transmission of thirty-five television channels or their equivalent. The remainder of the spectrum is suitable for the transmission of narrow band signals as might be used for voice, data, facilities monitoring, and control applications.

The NLM has divided the 300 MHz Cable System into several frequency division information transmission links. Three main links include:

- Data Communication
- Video Distribution
- Document Distribution

Each of these links co-exist on the dual cable system, but occupy different spectrum locations and rely on unique interface equipment. The data

communication link, e.g., terminal-to-terminal and terminal-to-computer, is based on the MITRE Corporation's Bus Interface Network design. Video distribution links (CCTV, MATV) between audiovisual facilities, laboratories and conference facilities use commercially available FM and VSB-AM Systems. NLM's document distribution link is an experimental broadband digital communication link for the transmission of high resolution (200 lines per inch) facsimile copies of medical journals from a central storage system to remote display terminals.

The majority of the terminal-to-computer and terminal-to-terminal data communications will occupy a signal communication channel that uses a time division multiple access technique known as Carrier Sense Multiple Access (CSMA). This technique provides efficient and full connectivity between all terminals and computers connected to the communication channel.

The basic component of the CSMA system, besides the coaxial cable network, is a Bus Interface Unit (BIU) that provides a programmable interface to the cable network. The MITRE Corporation has developed prototype BIUs that accept data from the terminal or computer, buffer the data until the communications channel is free, and then transmits the data as an addressed, variable length, formatted packet. The BIUs also scan each packet on the communication channel for its own address. If a packet is addressed to a specific BIU, the BIU will read the complete packet from the channel into a buffer and then deliver the data to the connected device at the proper rate. Production models of terminal BIUs that are based on the MITRE specification are now available.

The headend of the cable system is located on the lowest level of the Lister Hill Building. The dual distribution cables are run from the headend through conduits, underfloor ducts, cable trays, and suspended ceilings on the first three levels. The dual cable will also be installed in the two utility shafts extending to the 10th floor level. Branches will then be extended into the communications closet on each floor, from which distribution to individual rooms will be made either overhead for wall mounting of outlets, or under the floor through cable trays for floor mounting of outlets. The needs for each room will vary, so that outlets may be single to connect one terminal at a time, or in clusters of four to connect multiple terminals. The scope of the network is indicated by the installation of approximately 8500 feet of main distribution cable, 100,000 feet of drop cable, and 1000 outlets serving more than 200 rooms.

The detailed system design was developed by the MITRE Corporation. The cable installation is being accomplished by M. C. Dean, Electrical Contracting Inc.

This brief summary does not do justice to the complex engineering problems involved in the design and installation of a system that has to handle such a large number of users, multiple systems, and mixed media. Detailed specifications of the system can be made available if specific design features are of interest. Contact Ben Erdman, Deputy Director, Lister Hill National Center for Biomedical Communications.

NBS Net

OPERATIONAL EXPERIENCE WITH THE NBS LOCAL AREA NETWORK, by Robert J. Carpenter, J. Eryx Malcolm, and Michael L. Strawbridge, National Bureau of Standards, Washington D.C., 20234

ABSTRACT

The local area network designed and built at the National Bureau of Standards (NBSNET) has been in routine use since October 1979. It employs a carrier sense multiple access, collision detection (CSMA-CD), protocol with one megabit per second data rate and Manchester encoding on the coaxial distribution cable. The system contains a number of repeater amplifiers because of the site topology and a desire to keep signal levels within a small dynamic range. There are currently 60 user devices which can connect to any other device on the net, including a number of server computers. The user devices are located in eight different buildings, with the most distant separated by more than a kilometer. The system continues to be expanded. The current user devices are primarily graphic and alphanumeric terminals, with a smaller number of mini and microcomputers. Both terminal access and file transfer protocols have been implemented. Most nodes keep traffic and error statistics during each connection and report the information to a central logging node when the connection terminates.

Our experience to date shows that users are often strongly geographically clustered, that the last fifteen meters of the connection to the user are the most difficult and expensive, that a network measurement system is required to identify marginal conditions in the network, and that networks of this type are reliable.

INTRODUCTION

This paper describes operational experiences obtained with the National Bureau of Standards local area network, NBSNET. This network is intended to eventually serve more than a thousand user devices at the National Bureau of Standards Gaithersburg, Maryland, and Boulder, Colorado sites. The following rather detailed description of the network is included in order to give the reader a better understanding of system characteristics.

REQUIRED NETWORK CHARACTERISTICS

Consideration of the characteristics of current and probably future user devices resulted in the following set of required network services:

- 1) Full connectivity between user devices such as terminals, microcomputers, minicomputers, major host computers.
- 2) Ability to screen each user from most characteristics of the distant device with which it is communicating.
- 3) Speed conversion over the range of at least 110 to 9600 baud.
- 4) Flow control to/from user must be either in-band or out-of-band, to suit the user equipment, without restriction on method used at the distant user device.
- 5) Ability to address over 1000 different user nodes: practical electrical and protocol considerations limit the network to a few hundred active user devices simultaneously.
- 6) Cover a site 1.5 km long with 20 buildings.

- 7) Data encryption should be available as an option.
- 8) Most node failures should not affect the communication of other nodes.

Because of the scientific research laboratory environment at the National Bureau of Standards, in which the network is called upon to serve a wide variety of user devices, the user node must be as flexible as possible. For that reason the node is based on a microprocessor. This is programmed to adapt the user device to the network. The node microprocessor also implements a Carrier Sense Multiple Access, Collision Detection (CSMA-CD) protocol similar to Ethernet.

Project SAFE Details

The following notes result from a 27 February briefing by Vaughn Tottman of CIA on the SAFE system being implemented for CIA and DIA. The briefing assumed a knowledge of the application, which briefly is: to provide a comprehensive information handling capability to support the intelligence analysis and interpretive process. The system is to have a rich variety of classified and unclassified internal ("sources and methods") and external (e.g., newswires) inputs, interface to complementary agency resources, full internal electronic mail service, and word processing/text editing facilities. Separate systems are to serve the CIA and DIA; these will be 70 percent software compatible, 100 percent hardware compatible. A projected user population of 2000 at CIA is to be accommodated.

Several individuals such as Dr. Richard Beal, Sarah Kadec and George Rogers have suggested that SAFE technology might have some application for the EOP. These notes should be helpful in considering this possibility.

Gross features of SAFE were determined in 1972, and the design has evolved since. Initial developmental funding came in 1977, and TRW is the prime contractor. Present status is that the detailed design review, signaling design completion, occurred this spring. Various phases of initial operations are spread between end-1982 and 1985.

Two aspects of SAFE seem to have relevance to EOP needs. First, the considerable investment in system integration and software development could be exploited by buying a 'copy' of SAFE for the EOP. A reasonable initial configuration is estimated to cost under \$2 million. However, this probably would not be feasible before 1983, clearly in the "long-term" category of OPD/OPE thinking.

Another aspect of SAFE is interesting: the local area network plans. Both CIA and DIA will use a broadband cable bus network to connect the users' terminals, computers, storage devices and external access points. CIA intends to wire the entire Langley headquarters building with two-way broadband aluminum-clad coaxial cable. Standard Jerrold amplifiers, similar to cable TV equipment, will be used. Bus interference units to connect each device to the cable will cost an estimated \$2,000 in small quantities, reducing to about \$500 in medium quantities. CIA will use BLACKER technology for end-to-end encryption, at a per-unit cost of around \$500. An estimated \$1 million will provide the entire building with access to the cable bus.

This network medium was selected, according to Tottman and confirmed independently, to accommodate not only SAFE traffic, but other requirements as well. An analogue to SAFE will serve highly sensitive Deputy Director for Operations needs on the same bus--different frequency, different encryption.



In summary, it seems that both [redacted] and the broadband cable bus technology could be readily and usefully introduced into the EOP environment--not in the short-term, but possibly as components of the medium- and long-term plans.

APPENDIX 4

Notes on Recent Network Offerings

The items below are references to recent product announcements, sales literature and newspaper or journal clippings on the subject of off-the-shelf offerings in local area network systems.

Network Systems Corporation offers Hyperchannel, a means of interconnecting a wide variety of computers for the purposes of resource sharing. This vendor serves the SAFE project. In the near future, an announcement of a Hyperbus product from local area networks is expected. Contact Michael I. Green, Network System Corporation, 513 W. Maple Avenue, Vienna, VA 22180; tel (703) 281-0455.

Intel, well-known for microchips, is providing copies of their prototype ETHERNET work station interface to about 100 terminal manufacturers. It is assumed that several dozen of these will be offering ETHERNET-compatible devices, in 1982 product announcements. Contact Intel Corp., Santa Clara, CA; tel. (408)987-8086.

3COM offers ENETHERNET transceivers today to interconnect terminals, computers and word processors via ETHERNET. They also sell communication software which, with forthcoming 3COM hardware, allows a DEC computer with UNIX software to communicate via ETHERNET. Contact Ken Morse, 3COM Corp., 3000 Sand Hill Road, Menlo Park, CA 94025; tel. (405)854-3833.

Ungerma-Bass offers a variety of ETHERNET interface units to solve interconnect and protocol problems in the context of office automation systems. While they are a supplier to Xerox, they are evidently offering competitive integrated network engineering services. Contact: Sharon Sickel, Ungerma-Bass, Inc., 2560 Mission College Blvd., Santa Clara, CA 95050; tel. (408)496-0111, extension 237.

Sytek recently acquired Network Resources Corp., which is offering Local Net, a broadband cable/bus network system. NRC manufactures the components, Sytek does the engineering, design, and presumably installation of a very comprehensive offering of interface devices, accommodating IBM as well as conventional protocols. Contact Donald Koller, Sytek, Inc., 6000 Executive Blvd., Suite 205A, Rockville, MD 20852; tel. (301) 984-3000.

Amdax has an alternative to ETHERNET, discussed in an editorial piece in the June 1, 1981 number of Computerworld. It is a broadband cable bus set for TV, data and voice. Contact Ivan Socher, Amdax, 160 Wilber Place, Bohemia, NY 11716; tel. (516)567-7887.

DEC is said to be 12 to 24 months from off-the-shelf ETHERNET compatible product offerings, but the VAX 11/750 and 11/780 processors were recently demonstrated in test mode communicating to Xerox equipment via ETHERNET. Contact David Rogers, Digital Equipment Corp., 200 Forest St., Marlboro, MA 01752; tel. (607)467-6885.

MEMORANDUM

THE WHITE HOUSE
WASHINGTON
(UNCLASSIFIED//SENSITIVE)

STRATEGIC EVALUATION MEMORANDUM #6

To: Edwin Meese
James Baker
Michael Deaver

From: Richard S. Beal

Subject: Coalition Possibilities

Date: September 9, 1981

It is extremely important to remember that the strategic focus in regard to coalition building differs considerably from our possible 1982 election strategy. Obviously, attempting to persuade Democrats to vote with the President is markedly different from targeting Democrats for extinction.

More importantly, there is a geographic difference in focus. In building a Republican-Dixiecrat coalition it is no secret that the greatest efforts, as well as success, was and will continue to be in the South. The 1982 election effort, however, will have to be greatest in the East and Great Lakes states. The majority of vulnerable Democrats, as well as vulnerable Republicans are found in those states. The South, despite the presence of the "new", open seats, will not have as many competitive seats.

THE REPUBLICAN-DIXIECRAT COALITION

The coalition was born in the least likely of times, right after the 1936 election. It began with mainly southern opposition to Roosevelt's plan to pack the Supreme Court. Republicans, who numbered only 89 in the House and 16 in the Senate, sat back and let the conservative Democrats carry the day against Roosevelt.

Those conservative Democrats who were in opposition to Roosevelt on this issue began to make common cause with the Republicans on other domestic issues, particularly major New Deal programs. Roosevelt became incensed and campaigned against some of them in the Democratic primaries in the various states. His efforts were a disaster, as he lost every contest except one House race in Manhattan.

Furthermore, the Republicans gained 75 House seats in the 1938 election. With these newly elected Republicans, the Dixiecrats put an end to any more New Deal legislation. From the 1938 election on there has been a blocking majority, at least, in every Congress with only a few exceptions.

The heyday of the coalition was under President Kennedy. At that time the coalition was led by Charles Halleck in the House and Everett Dirksen in the Senate. Unfortunately, the liberals gained control in 1964. With no Republican President to veto legislation, as under Eisenhower in 1958, a considerable amount of Great Society legislation was passed.

There was a liberal majority during Carter's first two years, but many of the sitting liberals were Watergate babies from strongly GOP districts who were afraid to take the liberal line. With the number of liberals significantly reduced because of the 1978 and 1980 elections, there is a conservative blocking majority again.

Since the Republican-Dixiecrat coalition has almost always been a defensive organization, it may be difficult to predict the success of offensive operations. Only during the 80th Congress (1947-1948) was there significant conservative legislation (Taft-Hartley, constitutional limit on presidential terms). Thus, we must rely on the current political situation to provide an insight to the future of the coalition.

ANALYSIS OF THE 97TH CONGRESS

With the passage of the Reagan Economic Program we have a pretty good idea of coalition prospects in regard to economic matters and partisan tests. Numerous roll call votes were examined as well as various Congressmen and their districts.

There were four key roll call votes in the House: Gramm-Latta I, Key Procedural on Gramm-Latta II, Gramm-Latta II, and the Conable-Hance Tax Cut Bill. The Senate dealt with these issues, but we have not examined the upper body since there was little problem with passage there.

There were also several other important roll call votes on these issues which were looked at, but none have the significance of the four key votes. Many involve final passage of a bill and are thus cheapened in significance.

GRAMM-LATTA I, May 7th

While not foreseen, Gramm-Latta I was an easy victory. 63 Democrats supported the Gramm-Latta substitute, 46 (73%) of them southerners. One of the reasons it was so easy was that it was a general budget-cutting vote. There were two final passage votes. 84 Democrats voted with us on the first and 77 on the second or conference committee final.

KEY PROCEDURAL, June 25th

In the month that followed the Gramm-Latta I victory, the political tide shifted somewhat. The Democratic leadership took steps to keep most of the defectors in line. It became a test of party loyalty for both parties. The Democrats even tried to invoke a "gag" rule on the Republicans, thus necessitating a key procedural vote in order to even consider Gramm-Latta II.

The Key Procedural vote on Gramm-Latta II occurred on Thursday, June 25th and was carried by a 217 to 210 margin. There followed three other votes which were won by tight margins of 219 to 208, 216 to 212, and 214 to 208. Very few members switched sides on these subsequent votes. Members leaving the chamber were more of a factor.

GRAMM-LATTA II, June 26th

The next day it was thought that Gramm-Latta II would have no difficulty in passage. This was not the case as the Democratic leadership got to 5 Democrats who had supported us the day before. Thus, Atkinson (Pa), Bennett (Fl), Roemer (La), Ralph Hall (Tx), and Mottl (Oh) switched sides. Fortunately, 5 other Democrats came over to our side, Holland (SC), Hatcher (Ga), Nelson (Fl), Mica (Fl), and Flipppo (Al). Two Republicans, Schneider (RI), and Dougherty (Pa) voted with the Democrats. Their numbers were made up by Myers (In), who had voted with the Democrats by mistake the day before, and Lewis (Ca) who had not voted in the key vote.

In the Procedural vote on Thursday, 24 of 29 Democrats who supported the President were from the South. The next day, 26 of 29 were from the South. The Gramm-Latta II vote was probably the most significant as far as a test of party discipline because it represented a deterioration from the previous day because of party loyalty, although a case could also be made for the Procedural vote.

CONABLE-HANCE TAX CUT, July 29th

On the Conable-Hance roll call there were 48 Democrats who supported the GOP position, while 1 Republican, Jeffords (Vt), went the other way. 36 of the 48 Democrats were southerners. On final passage that same day all but about 100 Democrats, the hard-core socialists, were in support.

This was a remarkable victory in that the votes were not there a week beforehand. Half a dozen more southerners deserted us but their numbers were more than made up by additional southerners and a few northern liberals and moderate liberals. The effect of the President's speech was to put pressure on some of the southerners who had previously given only partial support as well as to panic a handful of northerners. Perhaps the best example of a panicked northerner is Stanley Lundine of western New York who is an arch liberal but represents an entirely Republican district.

THE AGGREGATE NUMBERS

There were 71 Democrats who helped out on at least one of the four key roll call votes. Twenty went all the way with the President, eleven gave support on 3 of the 4 votes, sixteen helped out on 2 of the 4, and the remaining 24 gave only one vote to the cause.

The group of the twenty represent a total commitment to the President and the Republican cause. The next group, those who supported us on 3 of 4 votes, represent substantial but somewhat grudging support. The next group indicates loose ideological affinity but also more or less partisan opposition. The final group represents only a parting political vote. The rest of the 170+ Democrats who did not support us at all represent mostly the social democrats with a few exceptions such as Jim Jones himself.

Of the twenty who went all the way, about half were from basically Republican districts and half from essentially Democratic districts. Ideologically speaking, 3 were ultra-conservatives, 12 were conservatives, 4 were moderate-conservatives, and 1 was a moderate. (see chart A)

Seventeen were southerners. Three were from Carpetbag districts (A district in which northerners have moved into in substantial numbers), four from Scalawag districts (A district in which southerners have switched to the GOP), and the remaining ten were from unreconstructed Confederate districts (A district in which the 20th century GOP tide has not made great inroads).

OUTLOOK AND STRATEGY TOWARD THE TWENTY

Chances are, most of the twenty or another similar twenty will stay with us on any issue. Historically, twenty southerners have voted with the GOP nearly all of the time. On key votes the southern defection has often gone to 40. On cheap votes the number is likely to be around 60, including even some moderate liberals and moderates.

There have been substantial changes in the South in the last twenty years. In 1961, there were only around 10 Republicans from the South. Now there are 42 Republicans, over one-third of the total. This means that GOP members now represent many of the old Dixiecrat districts. Many of the remaining districts are somewhat liberal in character. This means that we may have reached our full potential in regard to the number of defecting Democrats.

In regard to the twenty it is not likely that we will have any success in capturing their districts in the near future. There are only a few exceptions to this.

OUTLOOK AND STRATEGY TOWARD THE 3 OUT OF 4 GROUP

The next group to examine is the eleven who supported us on 3 of the 4 key votes. Three were conservatives, three moderate conservatives, and five were moderates. Nine of the eleven were southerners. Two were from Carpetbag districts, two from Scalawag districts, and three were from Confederate districts. The other two were special cases. (See chart A)

There were also two northerners in this group, Ron Mottl of suburban Cleveland, and Gene Atkinson of New Castle Pennsylvania. Both are afraid of their constituencies, Mottl because it is Republican and Atkinson because he is afraid he may not have one after reapportionment.

This second group is slightly less conservative than the first group. They gave their support to the President much less enthusiastically. The majority of the group (7 of 11) have genuine concerns over reelection since they represent districts which could easily send a Republican to Washington. Thus, political pressure was the major factor in this group. Typical of this group is Dan Mica of Palm Beach whose district is heavily Republican, but has always been represented by a Democrat.

This group must be considered fair game for the 1982 election, but it is not very likely that this group would yield any additional seats to the Republicans. If we are to come close to gaining control of the House we must register a couple of gains in this group, however. Several of these seats are solidly Republican and might be likely targets.

With these first two groups taken together, there appears to be about 30 solid votes at any given time, which would be sufficient if all Republicans are in line. It is not likely that all GOP will be supportive in the future, particularly in regard to social issues. At worst we can expect 10 to 15 defections. In the past, when there were more eastern Republicans, the number of defecting Republicans was often more than 20. (See Chart B)

OUTLOOK AND STRATEGY TOWARD THE 2 OUT OF 4 GROUP

Thirteen of sixteen in this group were southerners and reflect the historical 50-60 southerners who come along on broad conservative versus liberal issues. Hardly any of the southerners in this group are vulnerable. While there is a small group of conservatives, most tend to be more moderate.

The three northerners in the group are from Republican districts and could be targeted for 1982. We should not neglect this group even though there are only 4 possible targets in this group. Since this group tendered support on only 2 of 4 occasions there need be no second thoughts about going after them. Most members of this group cannot be counted on for future support without considerable pressure put on them, yet most are immune to Republican pressure.

THE ONE-TIMERS

Of the 24 one-timers, most are not likely to be much help in the future. Most of these are liberals or moderate liberals who knuckled under to political pressure from their districts. Many of them voted with us when it became apparent that we were going to win the roll call. This was definitely the case in regard to the tax bill.

The casting of one out of four favorable votes hardly registers support for the President. Several supported us on the first roll call but were upraided by the Democratic leadership and subsequently went into total opposition. It is likely that some of these members will try to claim support for the President based on their one supportive vote. We must be vigilant against this and disseminate the proper lists in plenty of time to the various states.

One important feature of this group is that less than half (11 of 24) were southerners. The majority were northerners with fairly Republican constituencies. The northern group is much more vulnerable than the southern group.

Of the 24, only a third fall into the vulnerable category. In that vulnerable group, however, are a few highly vulnerable types such as Lundine of New York and Albosta of Michigan. Evans of Indiana has already lost his seat to reapportionment, although he is trying to remain in Congress at the expense of another member of the one-timers, group (Jacobs).

THE NON-SUPPORTERS

There were over 170 Democrats who gave us no support whatsoever. This represents a sizeable bloc of the House. It is likely that this group will be joined by most of the one-timers and some of the two-timers. Thus the Democratic leadership can count on 190 to 200 votes on any key issue. This means that we will have to work hard on every key vote in the future.

It also demonstrates two significant additional points. The first is that we really need about 20 more seats for genuine control, regardless of the party breakdown. Secondly, it should be obvious that should we lose 15 to 20 seats in the 1982 elections we will be faced with a hostile House on most key issues. At the very least we will be forced into making greater compromises should this loss occur.

It is extremely significant that the bulk of the vulnerable Democrats in the House did not support the President's package at all. Even though a number of Democrats were scared into supporting us, the fact remains that there are dozens of seats in which non-support of the President could be a major issue in 1982. THIS MUST CONSTITUTE THE MAJOR REPUBLICAN STRATEGY FOR 1982.

Chart D is a list of vulnerable Democrats broken down by the degree of vulnerability color coded by degree of support for the President. Five of the six super vulnerables did not support the President at all, while 26 of 33 vulnerables did not give any support.

Thus, Republican electoral strategy for 1982 need not impact adversely on coalition prospects. Of course, there will be a few minor exceptions but it is fairly obvious that the focus of the two endeavors differs greatly.

There are two sideshows worth mentioning, North Carolina and Oklahoma. Even though both delegations are fairly conservative, the level of support from Democrats in those two states was negligible. Thus, both states should receive considerable attention in 1982.

CONCLUSION

The bottom line on coalition prospecting seems to be ideology. Most of the genuinely conservative Democrats came with us. Some moderate conservatives were supportive and only a few moderates. Those more moderate supporters tended to come from GOP districts. Of the moderate conservatives and moderates who came with us 3 or more times 10 of 13 were from GOP areas. Thus, ideology tempered by political pressure produced the string of victories.

We cannot overlook, however, the number of Democrats from the North who were scared into supporting us on one or two votes. This group could well yield the margin of victory providing the vote is not a party test. On future roll calls we may be able to pick up a scattered handful of these members.

If the GOP is not united on a particular vote we must go deeper into the moderates and moderate conservatives. Yet, on a party line vote, most Republicans will be with us, and on broad ideological votes 50 or 60 Democrats will come along. Prospects are good to win most votes, but it is inevitable that we will eventually lose a few roll calls. AGAIN, WE NEED TO GAIN 20 MORE HOUSE SEATS TO HAVE A REAL WORKING MAJORITY. This is possible, if not by 1982, then by 1984.

CHART A

COALITION POSSIBILITIES ALL SOUTHERN DEMOCRATS

<u>LIBERALS</u>	<u>MODERATE-LIBERAL</u>	<u>MODERATES</u>	<u>MODERATE-CONSERVATIVE</u>	<u>CONSERVATIVES</u>	<u>ULTRA-CONSERVATIVE</u>
LEHMAN (FL) PEPPER (FL) FASCELL (FL) PERKINS (KY) GORE (TN) FORD (TN) LELAND (TX)	MAZZOLI (KY) NATCHER (KY) DERRICK (SC) BONER (TN) FOWLER (GA) BOGGS (LA) LONG (LA) ROSE (NC) SYNAR (OK) BROOKS (TX) WRIGHT (TX) PATMAN (TX) GONZALEZ (TX) FROST (TX)	HUTTO (FL) MICA (FL) TAUZIN (LA) WILSON (TX) FLIPPO (AL) FUQUA (FL) HOLLAND (SC) JONES (TN) ANTHONY (AK) GIBBONS (FL) ANDREWS (NC) ALEXANDER (AK) HEFNER (NC) MATTOX (TX) PICKLE (TX) KAZEN (TX)	IRELAND (FL) EVANS (GA) NELSON (FL) BREAUX (LA) WHITE (TX) BENNETT (FL) GINN (GA) LEVITAS (GA) BEVILL (AL) HUBBARD (KY) MCCURDY (OK) DELA GARZA (TX) WHITTEN (MS) JONES (NC) WHITLEY (NC) NEAL (NC) JONES (OK)	NICHOLS (AL) SHELBY (AL) CHAPPELL (FL) BARNARD (GA) HUCKABY (LA) MONTGOMERY (MS) S. HALL (TX) GRAMM (TX) LEATH (TX) HIGHTOWER (TX) STENHOLM (TX) HANCE (TX) HATCHER (GA) ROEMER (LA) R. HALL (TX) BRINKLEY (GA) BOWEN (MS) FOUNTAIN (NC) ENGLISH (OK) BOUQUARD (TN) JENKINS (GA) WATKINS (OK)	McDONALD (GA) DANIEL (VA)

NON-SOUTHERN DEMOCRATS

LUNDINE (NY) DICKS (WA) HALL (OH) PATTERSON (CA)	GLICKMAN (KS) LONG (MD) ALBOSTA (MI) YOUNG (MO) BIAGGI (NY) GEPHARDT (MO) D'AMOURS (NH) DASCHLE (SD)	MOTTI (OH) ATKINSON (PA) DYSON (MO) LUKEN (OH) YATRON (PA) JACOBS (IN) SKELTON (MO) VOLKMER (MO) HUGHES (NJ) STRATTON (NY)	BYRON (MD) SANTINI (NV) EVANS (IN)	STUMP (AZ)
<p><u>LEGEND</u></p> VOTED WITH PRESIDENT ON 4 ROLL CALL VOTES VOTED WITH PRESIDENT ON 3 ROLL CALL VOTES VOTED WITH PRESIDENT ON 2 ROLL CALL VOTES VOTED WITH PRESIDENT ON 1 ROLL CALL VOTE NO SUPPORT				

CHERRY B

SOFT REPELLEL ICHMS

LIBERAL

MODERATE
LIBERAL

MCDLOSKEY (COP)
MOKINNEY (COT)
CONTE (CNR)
HECKLER (CNR)
PURSELL (CND)
HOLLERBROOK (CND)
GREEN (CNY)
SCHNEIDER (CRD)
JEFFORDS (CMT)

MODERATE

DEMERITES (COT)
MARTIN (CND)
FERMICO (CND)
ROUREM (CND)
FRNALDO (CND)
FISH (CNY)
GILMAN (CNY)
HORSTON (CNY)
DOUGHERTY (CPR)
COYNE (CPR)
MELLISHAM (CPR)
MCRAE (CPR)
MARKS (CPR)
FRITCHARD (CNR)

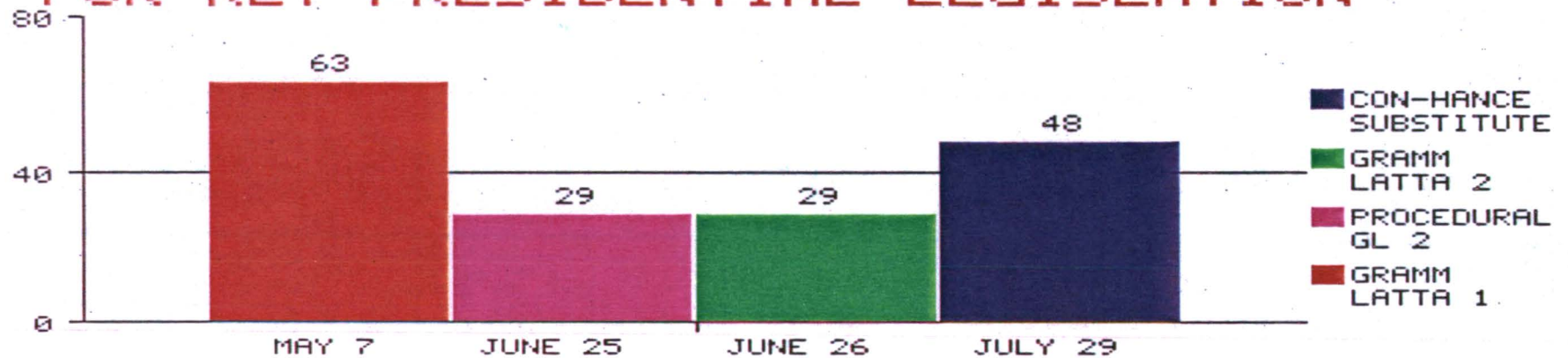
MODERATE
CONSERVATIVE

FRILSBROOK (CND)
FITZLEBY (CND)
LEIGH (CND)
EMERY (CND)
SNOUE (CND)
DUNN (CND)
FRENZEL (CND)
FOREYTHE (CND)
CONABLE (CNY)
WILLIAMS (CND)
COUGHLIN (CPR)

LEGEND:

WOTED WITH THE PRESIDENT ON 4 ROLL GRILL WOTESS
WOTED WITH THE PRESIDENT ON 33 ROLL GRILL WOTESS

DEMOCRATIC CONGRESSIONAL SUPPORT FOR KEY PRESIDENTIAL LEGISLATION



YATRON
LONG
ANDREWS
HOLLAND
BRINKLEY
BARNARD
HUTTO
CHAPPELL
GIBBONS
BEVILL
BOWEN
JONES
ANTHONY
HUCKABY
WILSON
LEATH
STENHOLM
LUKEN
EVANS
YOUNG
STUMP

ATKINSON
BYRON
FOUNTAIN
GINN
LEVITAS
JENKINS
FUQUA
IRELAND
MICA
FLIPPO
MONTGOMERY
NATCHER
TAUZIN
BREAU
R. HALL
HIGHTOWER
HANCE
HALL
JACOBS
SKELTON
PATTERSON

DYSON
DANIEL
DERRICK
HATCHER
MCDONALD
EVANS
BENNETT
NELSON
NICHOLS
SHELBY
BOUQUARD
MAZZOLI
ROEMER
S. HALL
GRAMM
WHITE
ENGLISH
MOTTL
ALBOSTA
VOLKMER
SANTINI

ATKINSON
BYRON
DANIEL
MCDONALD
BARNARD
EVANS
HUTTO
BENNETT
CHAPPELL
IRELAND
NICHOLS
SHELBY
MONTGOMERY
TAUZIN
ROEMER
HUCKABY
BREAU
S. HALL
WILSON
R. HALL
GRAMM
LEATH
HIGHTOWER
WHITE
STENHOLM
HANCE
MOTTL
STUMP
SANTINI

BYRON
DANIEL
HOLLAND
HATCHER
MCDONALD
BARNARD
EVANS
HUTTO
CHAPPELL
IRELAND
NELSON
MICA
NICHOLS
FLIPPO
SHELBY
MONTGOMERY
TAUZIN
HUCKABY
BREAU
S. HALL
WILSON
GRAMM
LEATH
HIGHTOWER
WHITE
STENHOLM
HANCE
STUMP
SANTINI

BIAGGI
LUNDINE
YATRON
ATKINSON
DYSON
BYRON
DANIEL
FOUNTAIN
GINN
HATCHER
BRINKLEY
LEVITAS
MCDONALD
BARNARD
EVANS
HUTTO
FUQUA
CHAPPELL
IRELAND
NELSON
MICA
SHELBY
MONTGOMERY
BOUQUARD
BONER
JONES









HUBBARD
MAZZOLI
ROEMER
HUCKABY
S. HALL
R. HALL
GRAMM
LEATH
HIGHTOWER
STENHOLM
HANCE
MCCURDY
ENGLISH
LUKEN
MOTTL
GLICKMAN
DELA GARZA
STUMP
SANTINI
DICKS
NICHOLS
BOWEN

CHART D

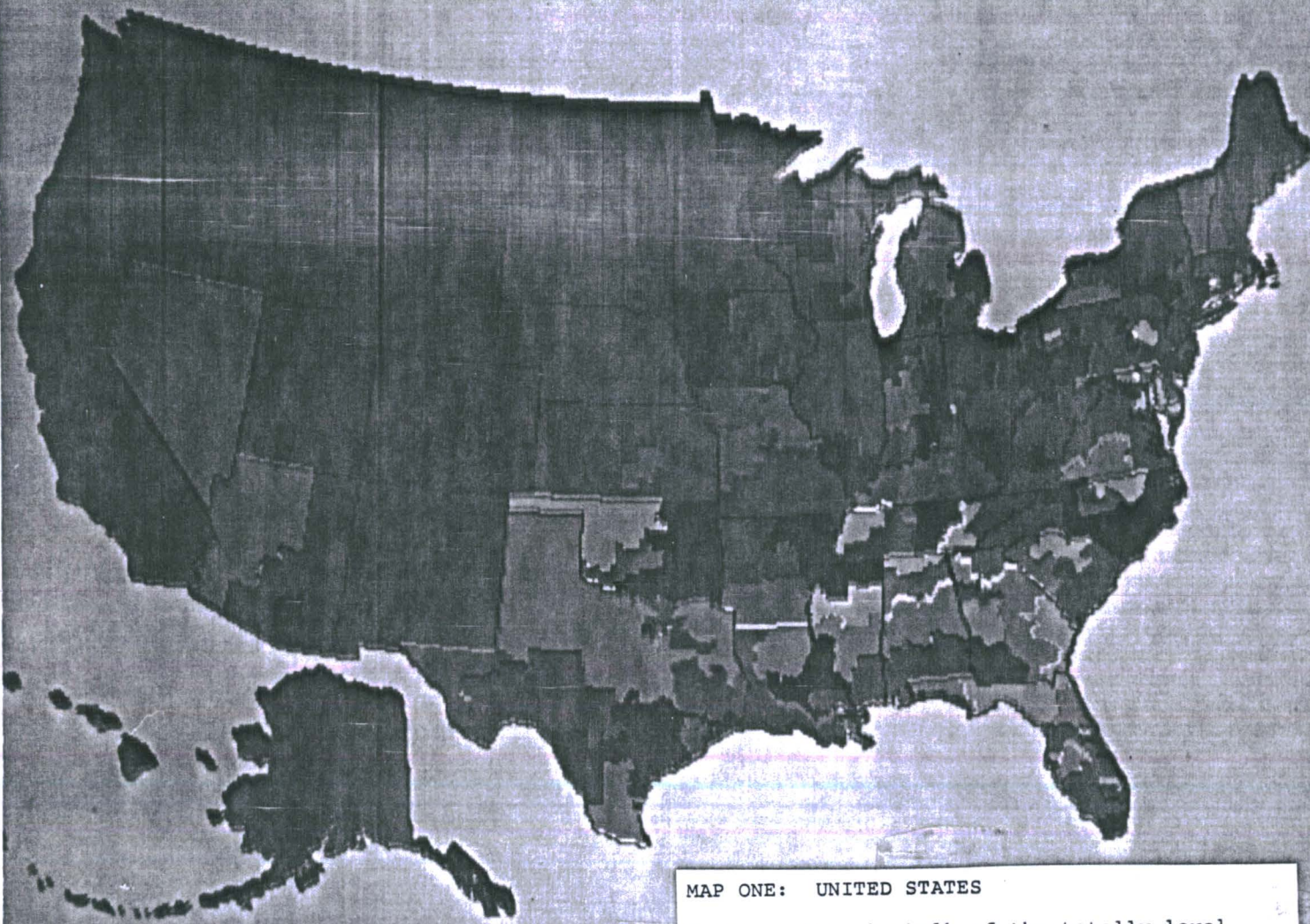
DEMOCRATS ONLY

<u>SUPER VULNERABLE</u>	<u>VULNERABLE</u>		<u>REMOTELY VULNERABLE</u>	
HOWARD (NJ 3) EDGAR (PA 7) MATTOX (TX 5) PATMAN (TX 14) FITHIAN (IND 2) EVANS (IND 6)	FRANK (MA 4) MAVROULES (MA 6) RATCHFORD (CN 5) CONN 6 DOWNEY (NY 2) ZEFERETTI (NY15) PEYSER (NY 23) MCHUGH (NY 27) LUNDINE (NY 39) ERTEL (PA 17) DYSON (MO 1) NEAL (NC 5) DOWDY (MISS 4) R. HALL (TX 4) JONES (OK 1) SYNAR (OK 2) MCCURDY (OK 4) LUKEN (OH 2)	SHAMANSKY (OH12) SHARP (IND 10) SIMON (IL 24) ALBOSTA (MI 10) BONIOR (MI 12) DASCHLE (SD 1) DORGAN (ND) UDALL (AZ 2) WIRTH (CO 2) KOGOYSEK (CO 3) FOLEY (WA 5) WEAVER (OR 4) BROWN (CA 36) PATTERSON (CA38) WOLPE (MI 3)	D'AMOURS (NH 1) GEJDENSON (CN 2) FERRARO (NY 9) OTTINGER (NY 24) NEW JERSEY 1 HUGHES (NJ 2) DWYER (NJ 15) MURTHA (PA 12) WALGREN (PA 18) LONG (MO 2) ANDREWS (NC 4) HEFNER (NC 8) HUTTO (FL 1) NELSON (FL 9) MICA (FL 11) BOUQUARD (TN 3) ROEMER (LA 4) BROOKS (TX 9)	HIGHTOWER (TX 13) WHITE (TX 16) ENGLISH (OK 6) PEASE (OH 13) ECKHART (OH 22) JACOBS (IND 11) TRAXLER (MI 8) ASPIN (WI 1) SMITH (IA 4) HARKIN (IA 5) BEDELL (IA 6) GLICKMAN (KS 4) LOWRY (WA 7) DICKS (WA 6) LANTOS (CA 11) DELLUMS (CA 8)
VOTED WITH PRESIDENT ON 4 VOTED WITH PRESIDENT ON 3 VOTED WITH PRESIDENT ON 2	ROLL CALL VOTES ROLL CALL VOTES ROLL CALL VOTES	VOTED WITH PRESIDENT ON 1 NO SUPPORT		

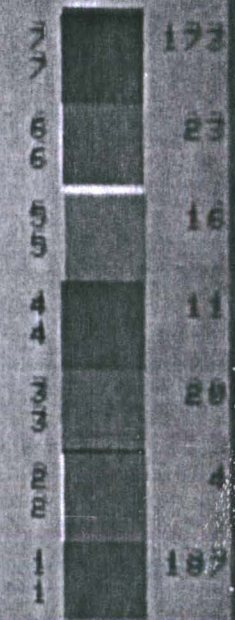
MAP LEGEND

RED		DEMOCRATS WHO GAVE US NO SUPPORT
ORANGE		DEMOCRATS WHO VOTED WITH US 1 OF 4 TIMES
LT. BLUE		DEMOCRATS WHO VOTED WITH US 2 OF 4 TIMES
DK. BLUE		DEMOCRATS WHO VOTED WITH US 3 OF 4 TIMES
PURPLE		DEMOCRATS WHO WENT ALL THE WAY (4 OF 4 TIMES)
LT. GREEN		REPUBLICANS WHO SUPPORTED US ONLY 3 OF 4 TIMES
DK. GREEN		TOTALLY LOYAL REPUBLICANS
GRAY		MEMBER DID NOT VOTE (COTTER)

CONGRESSIONAL VOTING RECORD



LEVEL OF SUPPORT



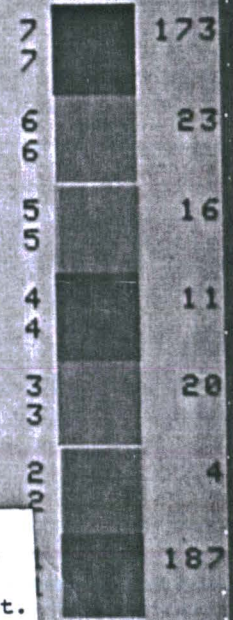
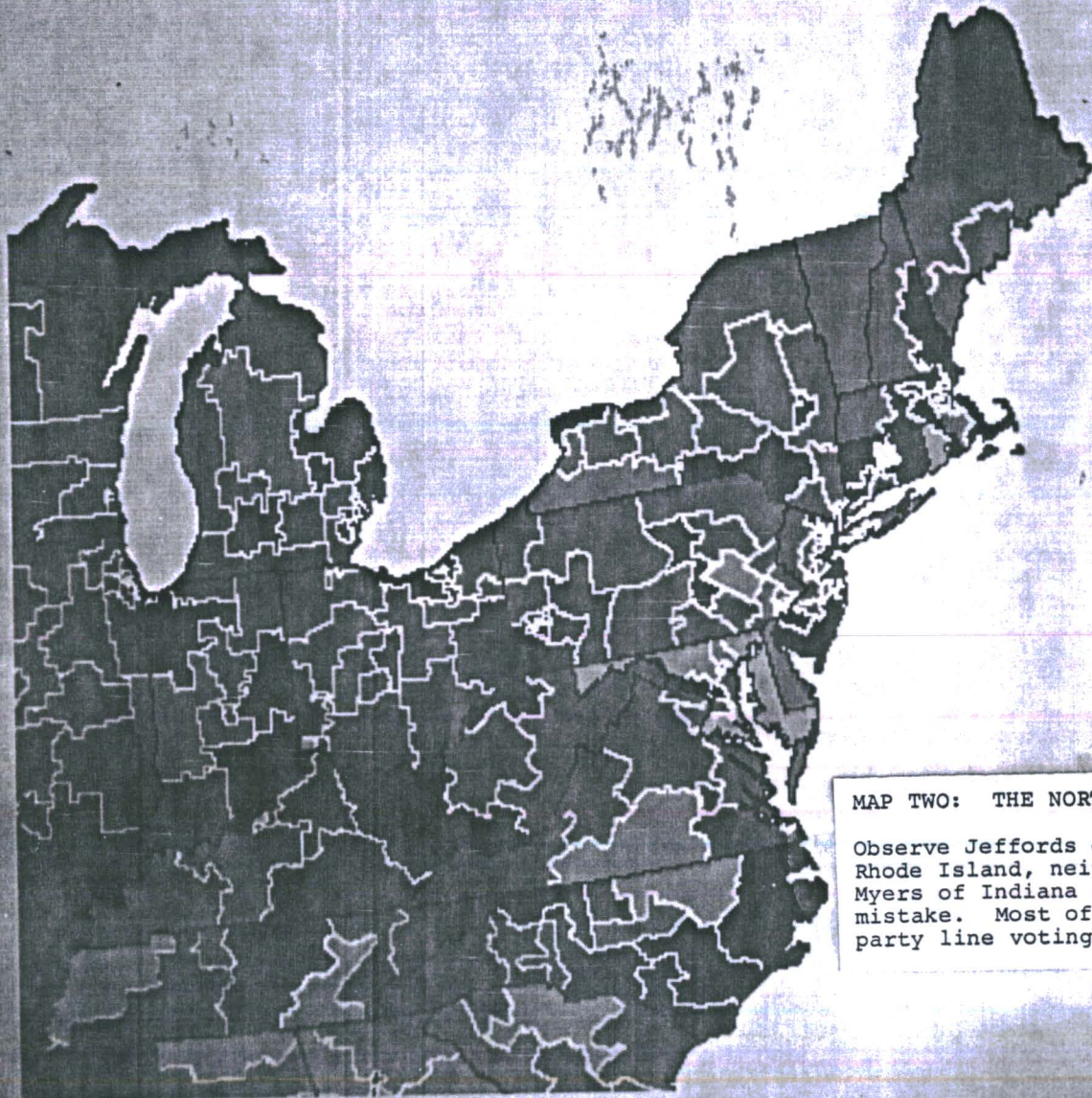
MAP ONE: UNITED STATES

Observe that the bulk of the totally loyal Democrats are from the Deep South. The same is true of the majority of the partially loyal Democrats. Only the Orange category (1 support vote only) is well scattered throughout the country.

DATA NOT AVAILABLE

CONGRESSIONAL VOTING RECORD

LEVEL OF SUPPORT

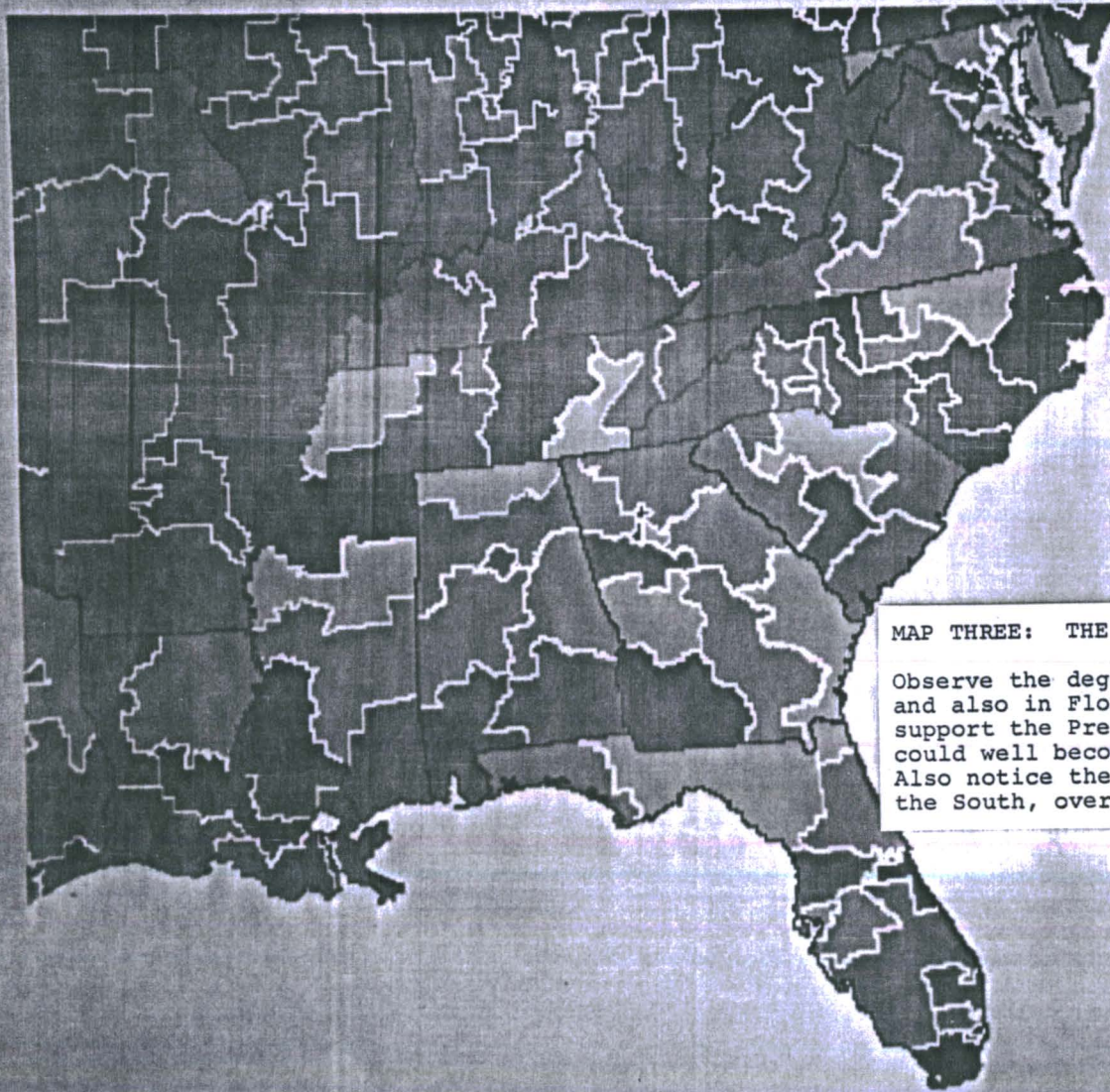


MAP TWO: THE NORTHEAST

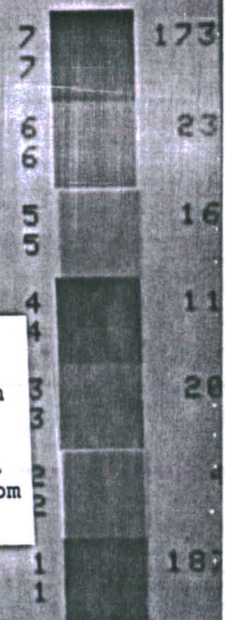
Observe Jeffords of Vermont and Schneider of Rhode Island, neither of whom gave total support. Myers of Indiana cast one vote against us by mistake. Most of the Northeast is strictly party line voting with only a few exceptions.

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CONGRESSIONAL VOTING RECORD



LEVEL OF SUPPORT

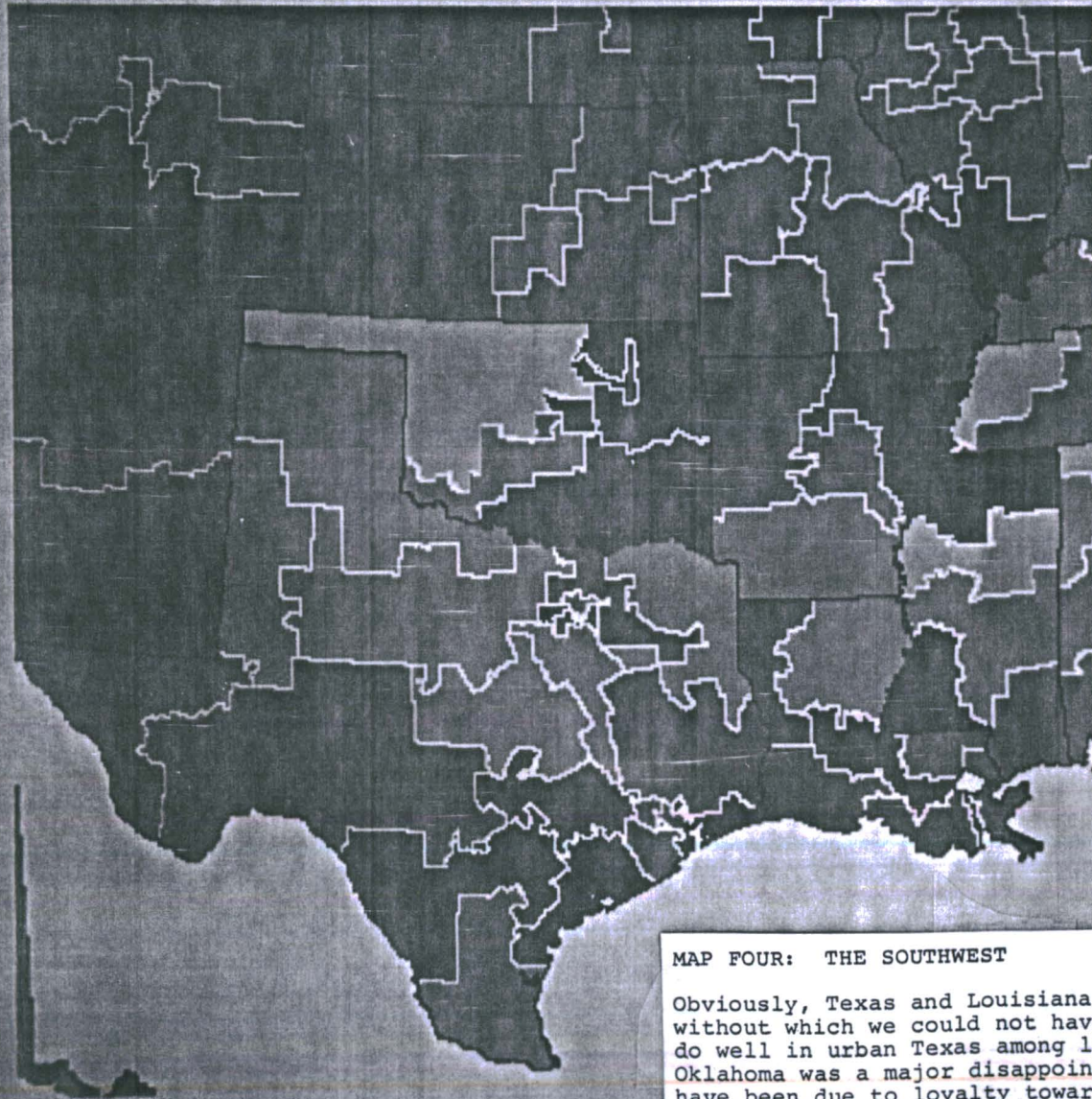


MAP THREE: THE SOUTHEAST

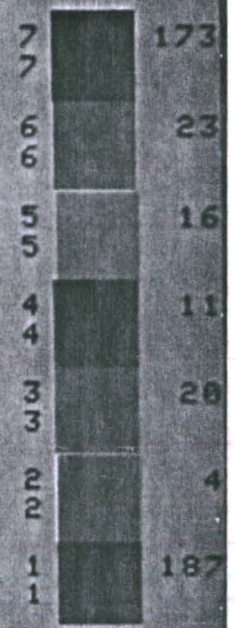
Observe the degree of support in the Deep South and also in Florida. North Carolina did not support the President to any real degree. It could well become a battleground state in 1982. Also notice the large number of Republicans from the South, over a third of the total seats.

DATA NOT AVAILABLE

CONGRESSIONAL VOTING RECORD



LEVEL OF SUPPORT



MAP FOUR: THE SOUTHWEST

Obviously, Texas and Louisiana were key states without which we could not have won. We did not do well in urban Texas among liberal Democrats. Oklahoma was a major disappointment. This may have been due to loyalty toward Jim Jones.

DATA NOT AVAILABLE 2