BY THE COMPTROLLER GENERAL

Report To The Chairman, Committee On Government Operations, House Of Representatives

OF THE UNITED STATES

Social Security Administration's Data Communications Contracts With Paradyne Corporation Demonstrate The Need For Improved Management Controls

In 1981, the Social Security Administration entered into a $115 million contract - the largest in the agency's history - with the Paradyne Corporation to install over 1,800 data communications terminals in 1,350 Social Security offices nationwide A second contract with Paradyne, designed to enhance the data transmission capabilities of the Paradyne terminals, was signed in September 1982 and terminated in April 1983

Due to numerous inadequacies in the agency's management of these contracts, a 1982 internal structural realignment which weakened internal controls over the acquisition of data communications equipment, and inadequate oversight by both the Department of Health and Human Services and the General Services Administration, SSA acquired a data communications system which did not begin consistently meeting contractual performance requirements until nearly two years after the first terminals were installed

These weaknesses in SSA's systems acquisition process continue to exist and present a threat to the integrity of major upcoming systems procurements An SSA official has informed us that the agency plans to improve the data communications procurement process

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON D C 20548

B-213963

The Honorable Jack Brooks
Chairman, Committee on
Government Operations
House of Representatives

Dear Mr. Chairman:

In response to your July 28, 1983, request, we have completed a review of the Social Security Administration's (SSA's) two contracts with the Paradyne Corporation for improving the agency's data communications network. Your letter also asked us to determine the status of SSA's Systems Modernization Program (an ongoing, multiyear, $500-million-plus agency effort to resolve its chronic computer problems and move SSA to state-of-the-art technology), with special emphasis on modernization activities aimed at improving agency software and strengthening systems personnel resources. This latter set of concerns is being addressed in a separate ongoing GAO review and will be discussed in a future report. However, in reviewing SSA's contracts with Paradyne, we analyzed the impact of Paradyne's data communications improvement activities at SSA on agency efforts to automate its field office operations--a major component of systems modernization. The results of that audit work are discussed in this report. (See app. IV.)

The primary SSA/Paradyne contract--a lease-with-option-to-purchase, firm-fixed-price, hardware contract awarded competitively in March 1981 and valued at about $115 million--called for Paradyne to install more than 1,800 new terminals to replace SSA's deteriorating and obsolete data communications equipment located primarily in 1,350 agency field offices nationwide. Those offices depend heavily on this equipment for timely access to centrally stored and processed data that supports such basic agency services as issuing social security numbers, maintaining worker earnings records, and taking claims for benefits. Paradyne began installing the terminals in SSA's field offices on June 30, 1981, and by September 1982 (when SSA purchased 841 terminals for $15.9 million), it had installed a total of 1,368 terminals.

The follow-on contract, a sole-source award made in September 1982 for modifying terminal software and valued at more than $2.5 million, called for Paradyne to enhance the data transmission capabilities of its terminals in SSA offices by modifying

the operating system of these terminals. The enhancements were aimed at using the programmable features of the Paradyne terminals to provide users with (1) specific data formatting and editing capabilities, (2) improved transaction input capabilities (i.e., the ability to prioritize the transmission of input transactions, to continue entering transactions into the terminal even when there is a network failure, and to accommodate mass data entry and subsequent verification), and (3) improved transaction output capabilities (i.e., the ability to have printer traffic stored at the terminal site instead of being immediately printed, thus enabling the user to preview the stored material and then select and assign priority to that which is to be printed). This cost-plus-fixed-fee contract was terminated for the convenience of the government in April 1983.

Our findings, conclusions, and recommendations are briefly summarized below. Details on the major SSA management deficiencies we identified are presented in appendices I, II, and III. Appendix IV provides background information on SSA's data communications network, the relationship of network modifications to the agency's Systems Modernization Program, and prior GAO reports discussing agency deficiencies in acquiring automatic data processing (ADP) and data communications resources. It also highlights earlier GAO assessments of data communications network upgrade activities.

As your letter points out, there have been numerous allegations of fraud and misrepresentation concerning the SSA/Paradyne contracts. These allegations are currently the subject of multiple grand jury proceedings, a civil enforcement action by the Securities and Exchange Commission, and a $70-million-plus civil lawsuit against Paradyne by a losing bidder. To avoid conflict with these numerous ongoing legal actions, we limited our work to addressing only those issues associated with SSA's contract management activities. In this regard, we reviewed contract activities to determine whether (1) overall agency management of the two contract actions was adequate, (2) the sole-source award of the software enhancement contract was properly justified, and (3) past and pending decisions to purchase leased Paradyne equipment were based on reliable information and appropriate assumptions.

DEFICIENT SYSTEMS ACQUISITION PRACTICES AND WEAKENED INTERNAL CONTROLS THREATEN FUTURE SSA PROCUREMENTS

We found significant deficiencies in SSA's management of its terminal replacement contract with Paradyne, as discussed on pages 5 and 6. These deficiencies were prevalent throughout SSA's entire terminal acquisition effort, beginning in June 1980 when the solicitation for the terminals was issued, and extend to SSA's current dilemma--deciding whether to purchase the 1,033 Paradyne terminals that are still being leased.

SSA's procurement practices were further weakened by a 1982 structural realignment of SSA's Office of Systems. The realignment was designed to facilitate agency implementation of its Systems Modernization Program, with particular changes directed at streamlining the systems procurement process to expedite the many systems modernization acquisitions.

One effect of these changes was to weaken the agency's internal controls over the data communications procurement process, particularly with regard to controls designed to ensure that procurement proposals are technically adequate and cost effective.

Prior to the realignment, the office responsible for developing data communications specifications (procurement requests) was organizationally independent of the office responsible for evaluating the adequacy of such specifications. Each office reported directly and separately to a senior agency official--the Associate Commissioner, Office of Systems. This arrangement was compatible with one objective of Office of Management and Budget (OMB) Circular A-123--minimizing the risk of loss to the government by assigning work in such a way that no individual controls all key phases of an activity or transaction. We question whether SSA's 1982 realignment is well suited to the achievement of this objective.

The 1982 realignment had two main features. First, it merged the key procurement functions of specifications development and review into one office. Second, it lowered the level within SSA at which judgments are made as to the adequacy of proposed specifications. The realignment lodged responsibility for both specifications development and review in the Director of the Office of Systems Engineering (OSE). Thus, the same office that generates developmental (systems modernization-related) data communications specifications now reviews its own specifications for technical adequacy and cost effectiveness. Though different staff perform these two functions, they work at the direction of and report to the same office head.[1] Additionally, the technical review function operates at a lower organizational level than it did before 1982 and, as a result of the realignment, no longer reports directly or separately to senior agency management. Instead, technical review staff now report to the individual in charge of developing the specifications they are tasked with scrutinizing.

A second effect of the realignment was to reduce the scope and depth of SSA's data communications acquisition technical review process. For example, SSA's Administrative Directives

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[1]An SSA systems official told us that at the time of the realignment, systems management did not perceive the internal control risks associated with this commingling of responsibilities.

System Guide 200-5, which contained specific instructions for reviewing procurements, was suspended and modified. According to SSA management, the modified guide was needed because the realignment had rendered many of the guide's policies and procedures obsolete. The revised guide contained only general and abbreviated references to specification reviews, and called for the initial review of each developmental acquisition proposal to be completed within 3 working days--not nearly enough time to perform a technical review with the scope and depth of those done before the realignment.

The weakening of internal controls was illustrated in two SSA procurement actions shortly after the realignment. Citing the frequency of performance problems, the office responsible for technical reviews before the 1982 realignment opposed the purchase of the 841 leased Paradyne terminals. In 1981, this same office had also opposed awarding a sole-source software contract to Paradyne because it believed much of the work could be accomplished in-house and the balance could be awarded on a competitive basis. Before the realignment, the reservations of this office had been sufficient to prevent both procurement actions from progressing. Within a month after the realignment, both actions were approved when the responsibility for reviewing them and recommending their approval became vested in the same office head who had originally and unsuccessfully requested them. Further, neither received a technical review. Before the realignment, the technical review office's recommendation for approval was a prerequisite for procurements to proceed.

In our opinion, the realignment and the subsequent deemphasis on the technical review process are not likely to enhance the potential for an independent and thorough technical review. We discussed this issue with SSA's Associate Commissioner for Systems Integration. According to the Associate Commissioner, systems management now recognizes the weaknesses resulting from the realignment, and plans to move the review function from OSE to a higher structural level within the Office of Systems. In addition, the Associate Commissioner intends to expand and improve the technical review process for developmental specifications by assigning additional personnel with ADP procurement skills to the Office of Systems technical acquisition review staff.

Because these weaknesses continue to exist, however, they present a threat to the integrity of major upcoming systems procurements, such as the agency's planned acquisition of 17,000 new data communications terminals (see p. 8).

Further, inadequate oversight of SSA's ADP/data communications procurements, especially by the Department of Health and Human Services (HHS), increased the opportunity for these problems to occur. For example, although the Department's Assistant Secretary for Management and Budget is responsible for overseeing and reviewing all ADP and data communications procurement actions by component agencies, HHS, in accordance with its

normal practices, delegated the authority for managing and overseeing the Paradyne procurements to SSA. As a result, SSA received little, if any, departmental level guidance in the key phases of the terminal replacement contract (solicitation development, preaward equipment testing, postaward acceptance testing, and measuring continuing equipment performance). Similarly, although the General Services Administration (GSA) was providing special systems procurement assistance to SSA throughout the period in which the agency was acquiring the Paradyne equipment, it monitored neither of the SSA contracts with Paradyne and thus was not in a position to ensure that SSA properly conducted these acquisitions. In spite of its recognized need to assist SSA in ADP and data communications procurements, the General Services Administration, after issuing the delegation of procurement authority to HHS, provided no further oversight of SSA's contracts with Paradyne. (See app. I, pp. 9-11.)

SSA'S MANAGEMENT OF ITS HARDWARE AND SOFTWARE PROCUREMENTS FROM PARADYNE WAS DEFICIENT

As a result of SSA's procurement activities with the Paradyne Corporation, the agency acquired a data communications system which, according to an SSA analysis, did not begin to meet contractual system availability requirements on a consistent basis until April 1983--more than 2 years after contract award. Moreover, because SSA changed its strategy for modernizing its data communications system (by deciding not to enhance the Paradyne terminals to provide local processing capabilities as discussed in app. IV), the Paradyne equipment provides no appreciable increase in processing capability over the system it replaced. We found significant weaknesses in SSA's management which contributed to these deficiencies. For example:

--Although General Services Administration guidance to federal agencies for preparing ADP equipment solicitations recommends that agencies express their requirements in terms of specific operational workloads (such as transaction volume and descriptions, file description, record size, and timing or turnaround restrictions for a given workload), SSA's solicitation for replacement terminals contained only general equipment performance specifications for individual terminal system components (such as printer and card reader speeds). As a result, SSA could not be sure that the proposed equipment would be able to meet its needs. According to an agency official who helped prepare the solicitation, SSA had not expressed requirements in terms of specific workloads on past data communications acquisitions and felt no need to do so on this procurement. (See app. II, p. 13.)

--General Services Administration guidance to federal agencies for selecting and acquiring ADP equipment requires that equipment performance be validated prior to

contract award. For all major competitive acquisitions, GSA strongly encourages agencies to use benchmark tests--in which representative agency computer programs and workloads are run on vendor equipment to validate system performance. At a minimum, performance validation is to prove that all proposed system components have the capability to meet solicitation requirements and that they operate efficiently as a system. Despite the magnitude and significance of its terminal replacement effort, SSA did not rigorously test the capabilities of competing vendors' proposed products before awarding a contract. Instead, the agency permitted each vendor to structure its own equipment demonstration and, if certain hardware components were not available, to substitute written analysis for actual tests of product ability to meet solicitation requirements. SSA officials informed us that benchmark tests were not used because SSA wanted to minimize costs to vendors. (See app. II, pp. 14 and 15.)

--When Paradyne's equipment failed 10 days of acceptance testing (without a single pass), SSA and Paradyne suspended testing and negotiated an acceptance testing agreement and a major contract modification. Although the stated purpose of this action was to clarify certain ambiguous specifications in the contract (including the provision of performance requirements not previously specified in the contract or the solicitation), these changes so liberalized acceptance testing requirements that Paradyne's chances of passing were greatly increased. (See app. II, pp. 17 and 18.)

--The sole-source justification that SSA and the General Services Administration developed to support the second Paradyne contract award was based on assumptions that (1) SSA lacked authority to permit vendors other than Paradyne to work on the software and (2) any such work by others would relieve Paradyne of its responsibilities for terminal operating system reliability and integrity. It is our position that these assumptions were inconsistent with the terms of the terminal replacement contract and SSA should have given greater consideration to the alternative of awarding this contract competitively. (See app. II, pp. 22-24.)

SSA ANALYSES OF WHETHER TO BUY LEASED PARADYNE TERMINALS NOT COMPLETE

SSA's July 1982 decision to exercise an option under the first Paradyne contract to purchase 841 leased Paradyne terminals for $15.9 million was based on the prospect of avoiding substantial future leasing costs. However, it gave little emphasis to equipment performance problems. (A December 1983 SSA study showed that from July 1981 through July 1982 the Paradyne equipment had met contractual system availability requirements during

only 2 months and did not begin to meet such requirements consistently until April 1983.) The July purchase decision was conditioned on Paradyne's agreeing to upgrade[2] the terminals to be purchased.

In a March 1984 assessment of whether to purchase the remaining 1,033 leased Paradyne terminals, SSA has recognized that terminal performance problems are still occurring. For example, although the Paradyne equipment is meeting contractual performance requirements on a consistent basis, the assessment points out that the equipment failure rate is still three to four times that of similar terminal installations. Nevertheless, SSA's terminal performance data indicate that the Paradyne equipment performance has improved significantly, and the assessment indicates that the performance level is now high enough to justify purchase. SSA is considering making this $16.2 million purchase contingent on Paradyne's first making further upgrades to selected systems to reduce the equipment failure rate, at no additional cost to the government. In its purchase assessment SSA concludes that this next upgrade could be considered the last in a series intended to correct system malfunctions. (See app. III, p. 25.)

The March 1984 terminal purchase assessment favored purchase, estimating that purchase of the Paradyne terminals would result in a savings of $8.3 million over the next 3 years. However, the assessment contained a questionable assumption concerning the projected length of equipment use in local offices, leading to a potential overstatement of the amount of leasing costs that might be avoided. The assessment assumed that the terminals will remain in SSA's local offices for the next 3 years--an assumption which is inconsistent with a tentative SSA decision (based on a separate analysis conducted to help plan SSA's data communications strategy under its Systems Modernization Program) to replace all Paradyne terminals in local offices as soon as practicable. Depending on how successfully this strategy is implemented, savings resulting from purchase could fall to $1 million. Furthermore, a decision to purchase would need to give consideration to how the terminals would be used if moved from local offices and the cost of relocating and adapting the terminals to such other uses.

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[2]GAO's use of the term "upgrade" in this report refers to various changes to the terminals to correct system performance problems, as discussed in app. II, p. 16. These changes were intended to help the terminals meet minimal system availability requirements specified by the contract, not to enhance terminal capabilities.

SSA IS PLANNING MAJOR NEW DATA COMMUNICATIONS PROCUREMENTS UNDER SYSTEMS MODERNIZATION

SSA plans to undertake major new data communications acquisitions during calendar year 1984. An SSA official estimates that the agency will spend about $70 million during fiscal years 1984 and 1985 on these acquisitions, with additional expenditures in fiscal year 1986 and beyond.

A series of procurements, all but one of which are to be fully competitive, is aimed at acquiring a new data communications network. At the time of our work, SSA was awaiting delegations of procurement authority from the General Services Administration to release vendor solicitations and was expecting to award contracts by September 1984.

SSA also expects to undertake a fully competitive procurement of more than 17,000 new terminals, with contract award targeted for December 1984. The agency expects to replace the Paradyne equipment in SSA offices through this procurement.

CONCLUSIONS

SSA's terminal replacement contract with Paradyne was the largest in the agency's history. The contract, valued at about $115 million, required Paradyne to install more than 1,800 new terminals in SSA's offices nationwide. SSA depends heavily on this data communications system for timely access to data needed to issue social security numbers, maintain worker earnings records, and take claims for benefits. A second contract with Paradyne was intended to enhance the data transmission capabilities of the terminals and was valued at more than $2.5 million.

Weaknesses in SSA's management of its terminal replacement contract with Paradyne Corporation resulted in the acquisition of a data communications system that, according to a 1983 SSA study, did not begin meeting contractual performance requirements on a consistent basis until 2 years after contract award. Although system performance has steadily improved, SSA's March 1984 assessment of whether to purchase the remaining leased Paradyne terminals concludes that the system is still experiencing an equipment failure rate three to four times that of similar terminal installations.

SSA's 1982 purchase of the 841 leased terminals and its sole-source contract award to Paradyne point to inherent flaws in the systems procurement management structure at the agency, specifically (1) internal control deficiencies resulting primarily from the 1982 structural realignment of SSA's Office of Systems and (2) inadequate oversight of SSA's procurement activities by the Department of Health and Human Services. These management weaknesses and organizational deficiencies have

combined to render the Office of Systems vulnerable to questionable procurement practices. Until corrected, they will continue to threaten the integrity of SSA's systems procurement process in general and its systems modernization acquisitions in particular.

The problems experienced on the Paradyne contracts are of particular concern because of two pending terminal procurement actions at SSA: the proposed purchase of the remaining leased Paradyne terminals and the upcoming acquisition of 17,000 new terminals under the Systems Modernization Program. Before deciding whether to purchase the remaining leased Paradyne terminals, SSA needs to (1) determine that Paradyne has succeeded in reducing equipment failures to a rate approximating that experienced by similar systems and (2) obtain a clearer idea of whether and how the Paradyne equipment should be further used at the agency. SSA can then use this information in reassessing the lease/purchase question. In addition, SSA needs to exercise caution in proceeding with its planned acquisition of 17,000 new terminals under its systems modernization strategy, making sure that the poor procurement practices used during the Paradyne acquisitions are not repeated.

RECOMMENDATIONS TO THE SECRETARY OF HEALTH AND HUMAN SERVICES

We recommend that the Secretary direct the Commissioner of Social Security to do the following:

--Provide for greater depth and scope in technical reviews of ADP and data communications acquisition proposals by reviewing the superseded version of Administrative Directives System Guide 200-5 and identifying for incorporation into the current version, those specific and detailed proposal review instructions needed to achieve thorough technical reviews.

--Review SSA's systems organizational structure and make adjustments to provide for separation of functions within the procurement process for systems modernization-related data communications acquisitions, especially with regard to separating the procurement request (specifications development) function from the technical specifications review function.

--Limit requests for further delegations of procurement authority from GSA for acquiring ADP and data communications resources until HHS and GSA agree that SSA's systems procurement process is sufficiently strengthened. Such requests should be restricted to those systems procurements which all three organizations agree cannot be deferred without jeopardizing agency operations.

--Defer further consideration of the agency proposal to spend $16.2 million to purchase the remaining leased

Paradyne terminals until (1) equipment failures have been reduced to a rate approximating that experienced by similar systems and (2) the agency has a clearer idea of what further use should be made of the Paradyne equipment at SSA. At that time, all viable alternatives for meeting SSA's needs should be carefully considered--including replacement of the Paradyne terminals through the upcoming terminal acquisition effort.

--Ensure that the poor procurement practices used on the Paradyne acquisitions are not repeated on the upcoming 17,000-plus terminal procurement by (1) closely reviewing the validity of the procurement justification; (2) performing an independent, in-depth review of the technical specifications contained in the pending solicitation to ensure that they include unambiguous and workload-specific criteria for measuring vendor equipment performance during preaward and acceptance testing; and (3) using appropriately stringent performance validation techniques in conducting preaward and acceptance tests.

We further recommend that the Secretary direct the Assistant Secretary for Management and Budget to actively monitor all phases of ongoing and future SSA procurement actions requiring HHS approval. Such close attention would help ensure that required procurement procedures are followed throughout the procurement process, especially in the areas of defining requirements, preparing vendor solicitations, modifying contracts, and testing vendor products. In addition, the Assistant Secretary should monitor SSA's reconsideration of whether to buy the remaining leased Paradyne equipment to see that the agency has all the information it needs to make an informed decision.

OBJECTIVES, SCOPE, AND METHODOLOGY

In your July 28, 1983, letter, you asked us to review all SSA contracts with the Paradyne Corporation to see if the numerous allegations of questionable contract-related activities are accurate, and to identify any actions that are needed. In this regard, we reviewed contract activities to determine whether (1) overall agency management of the two contract actions was adequate, (2) the sole-source award of the software enhancement contract was properly justified, and (3) past and pending decisions to purchase leased Paradyne equipment are based on reliable information and appropriate assumptions.

Our work was performed in accordance with generally accepted government auditing standards, except that (1) we did not obtain formal agency or contractor views on this report and (2) our access to SSA's documents was somewhat restricted because of ongoing investigations by other federal agencies, as discussed in appendix IV. We encountered numerous instances of conflicting explanations from agency officials regarding the Paradyne hardware and software contracts, and we were told that certain

documents concerning the software effort and the vendor demonstrations of proposed equipment could not be found. Certain SSA officials were reluctant to discuss in detail many pertinent issues after being contacted by officials of investigative agencies. Due to this second limitation, we were unable to determine precisely the extent to which management deficiencies (as opposed to any misconduct) contributed to SSA's procurement problems.

In focusing primarily on SSA's efforts to manage the acquisition of a major data communications system, we have addressed only those areas of concern bearing on SSA's contract management practices. We did not review other ADP procurements supporting the Systems Modernization Program. We have made no attempt to confirm or refute the numerous allegations of wrongdoing upon which other ongoing investigations are focused, and thus have drawn no conclusions related to such allegations.

We performed our review at SSA headquarters in Baltimore, Maryland; Security and Exchange Commission offices in Atlanta, Georgia; General Services Administration offices in Washington, D.C., and in Falls Church, Virginia; and Department of Health and Human Services offices in Washington, D.C. At each of these locations we reviewed and analyzed pertinent documentation and held discussions with appropriate agency officials. We also held discussions with representatives of the Federal Bureau of Investigation, at their request, and met with officials of the Paradyne Corporation, the Sigma Data Corporation, and the MITRE Corporation. Because MITRE was evaluating Paradyne terminal performance at the time of our work, we did not conduct a similar analysis. Further, since MITRE's evaluation involved extensive visits to SSA field locations, we limited our audit efforts to SSA headquarters offices. We conducted our work from December 1983 to May 1984.

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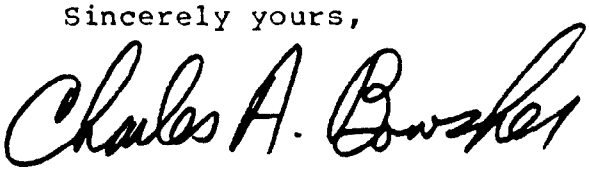
Unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days from its issue date. At that time, we will send copies to interested parties and make copies available to others upon request.

Sincerely yours,



Comptroller General
of the United States

ORGANIZATIONAL AND OVERSIGHT WEAKNESSES MADE SSA VULNERABLE TO QUESTIONABLE SYSTEMS PROCUREMENT PRACTICES

A 1982 structural realignment of the Social Security Administration's (SSA's) Office of Systems was designed to ease implementation of the agency's Systems Modernization Program, with particular changes aimed at streamlining the procurement process to expedite the many systems modernization acquisitions. One effect of these changes, however, was to weaken agency internal controls over the data communications procurement process by (1) placing the responsibility for reviewing developmental (systems modernization-related) acquisition proposals within the same office responsible for generating them (weakening the separation between key procurement functions) and (2) substantially reducing the scope and depth of technical proposal reviews for all ADP and data communications procurements related to systems modernization (eliminating the thorough technical analyses needed to ensure effective agency systems development).

Further, inadequate oversight of SSA's ADP/data communications procurements, especially by the Department of Health and Human Services (HHS), increased the opportunities for these problems to occur. For example, although the Department's Assistant Secretary for Management and Budget is responsible for overseeing and reviewing all ADP and data communications procurement actions for component agencies, that office, in accordance with its normal practices, delegated the authority for managing and overseeing the Paradyne acquisitions to SSA. As a result, SSA received little, if any, departmental level guidance in key phases of the terminal replacement contract (e.g., solicitation development, preaward equipment testing, postaward acceptance testing, and measuring equipment performance). Similarly, although the General Services Administration (GSA) was providing special systems procurement assistance to SSA throughout key phases of the Paradyne acquisitions, it monitored neither of the SSA contracts with Paradyne and thus was not in a position to ensure that SSA properly conducted these acquisitions. In spite of its recognized need to assist SSA in ADP and data communications procurements, General Services, after issuing the delegation of procurement authority to Health and Human Services, withdrew from further active involvement in SSA's contracts with Paradyne.

STRUCTURAL CHANGES WEAKENED INTERNAL CONTROLS OVER SSA'S SYSTEMS PROCUREMENT PROCESS

OMB Circular A-123, issued October 28, 1981, and revised August 16, 1983, prescribes policies and standards to be followed by executive departments and agencies in establishing and maintaining internal controls in their program and administrative activities. One objective of Circular A-123 is to minimize

the risk of loss to the government by assigning work in such a way that no individual controls all key phases of an activity or transaction. As discussed below, we question whether SSA's 1982 realignment was in conformity with this objective.

Additionally, in following the intent of Circular A-123, an agency's systems procurement process should ensure adherence to applicable laws, regulations, and policies. An independent and thorough technical proposal review function strengthens control over ADP/data communications acquisitions by making available to management in-depth analyses of such key issues as whether agency needs as specified in a given proposal are technically justified, whether benefits offered by a proposal exceed its costs, and whether there are any less costly alternatives for meeting specified needs. Because at any given time SSA is proceeding with numerous ADP and data communications acquisitions costing many millions of dollars, such a technical review function is especially crucial at SSA. SSA had a better technical review process before the 1982 structural realignment,[1] but changes associated with the realignment severely weakened this process. This weakness contributed to the problems SSA encountered in conducting its Paradyne procurements.

Organizational structure before July 1982

Before the July 1982 realignment of SSA's Office of Systems, the Office of Systems Planning and Control (OSPC), a component that had no responsibility for developing systems proposals, performed technical reviews of ADP and data communications procurements proposed by other Office of Systems components. One such component was the Office of Data Communications, which was responsible for the operation of SSA's data communications network. Because it separated the acquisition proposal development function from the proposal review function, this structure satisfied the separation of duties standard contained in Circular A-123.

From 1978, when OSPC was created, until the 1982 realignment, top management in the Office of Systems emphasized thorough technical review of acquisition proposals. During this time the detailed ADP procurement policy and procedures guidance set forth in SSA's Administrative Directives System (ADS) Guide

[1]Although the technical review function prior to the realignment allowed for in-depth reviews, we were informed that no formal technical review was performed on the terminal replacement solicitation because of the need to expedite the procurement and because the solicitation had already received technical review by user groups.

200-5 was strengthened.[2] This guidance served as criteria for OSPC's technical review staff, the Division of Resource Acquisition Management. Their duties included

--acting as a technical screen for SSA's contracting office and providing technical assistance and advice to individual contracting officers as needed;

--evaluating cost/benefit analyses on individual proposed acquisitions;

--evaluating proposed technical specifications to determine if they were justified;

--determining whether proposed requirements maximized the opportunity for full and open competition; and

--identifying alternative, less costly methods of achieving proposed objectives.

1982 realignment

The July 1982 structural realignment of the Office of Systems was aimed generally at facilitating agency implementation of its Systems Modernization Program. Under the realignment, primary responsibility for planning and managing ADP/data communications procurements was assigned to the Office of the Associate Commissioner for Systems Integration. Some of the organizational changes were directed particularly at streamlining the systems procurement process to expedite the many systems modernization acquisitions.

The 1982 realignment had two main features. First, it merged the key procurement functions of specifications development and review into one office (the Office of Systems Engineering (OSE)). Second, it lowered the level within SSA at which judgments are made as to the adequacy of proposed specifications. The realignment lodged responsibility for both specifications development and review in the Director of the Office of Systems Engineering. Thus, the same office that develops or generates developmental data communications specifications now reviews its own specifications for technical adequacy and

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[2]These and other initiatives undertaken by the Office of Systems during that time to improve management of ADP/data communications procurements are discussed in our March 31, 1980, letter report to the Commissioner of SSA, entitled "Improving Social Security Administration Procedures for Acquiring ADP and Telecommunications Resources."

cost-effectiveness. Though different staff perform these two functions (development in the Division of Data Communications Technology and review in the Division of Acquisition, Resources and Evaluation), they work at the direction of and report to the same office head. Additionally, the technical review function operates at a lower organizational level than it did before 1982 and, as a result of the realignment, no longer reports directly or separately to senior agency management. Instead, technical review staff now report to the individual in charge of developing the specifications they are tasked with scrutinizing.

We discussed the separation of duties issue with SSA's Associate Commissioner for Systems Integration in May 1984. According to the Associate Commissioner, systems management now recognizes the weaknesses resulting from the realignment, and plans to move the specification review function from OSE to a higher structural level within the Office of Systems.

Following the realignment SSA management reduced the scope and depth of technical acquisition specification reviews. In August 1982, the then-Associate Commissioner for Systems Integration (now Deputy Commissioner for Systems) suspended further use of ADS Guide 200-5 and charged the unit responsible for developmental specification reviews--the Division of Acquisition, Resources and Evaluation--with revising the guidance to streamline the systems procurement process. In the Associate Commissioner's view, this action was needed because the realignment rendered many of the policies and procedures in the guide obsolete. Since the revised guide did not officially become effective until February 1984, draft versions were used in the interim by the division as criteria for its specification reviews. While the superseded guide contained specific instructions for conducting technical reviews, the revised version contained only general and abbreviated references to specification review.

According to the division official who developed the revised version of ADS Guide 200-5, the division reviews developmental procurement packages to ensure that they are complete but performs no actual technical review. He indicated that procurement justifications are generally accepted at face value, without any technical analysis. In this regard, division guidance calls for the initial review[3] of each developmental acquisition

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[3]Since July 1983, the Division of Acquisition, Resources and Evaluation has performed its specification reviews in two phases. In the first phase the acquisition package is reviewed to ensure that it contains all required documentation. If any material is missing, the second phase begins and a project manager is assigned to work with the requestor to provide the needed material. If no problems are identified during the first phase, the second phase simply involves another review of the package for completeness.

proposal to be completed within 3 working days--not nearly enough time to perform a technical review with the scope and depth of those done before the realignment.[4] Accordingly, little or no meaningful, independent, technical review of proposed developmental acquisitions is performed.

Realignment changed procurement decisions

The weakening of internal controls was illustrated in two SSA procurement actions shortly after the realignment. Citing the frequency of performance problems, the office responsible for technical reviews prior to the 1982 realignment opposed the purchase of the 841 leased Paradyne terminals. In 1981, this same office had also opposed awarding a sole-source software contract to Paradyne because it believed much of the work could be accomplished through in-house efforts and the balance could be awarded on a competitive basis. Before the realignment, the reservations of this office had been sufficient to prevent both procurement actions from progressing. Within a month after the realignment, both actions were approved when the responsibility for reviewing them and recommending their approval became vested in the same office head who had originally and unsuccessfully requested them. Further, neither received a technical review. Before the realignment, the technical review office's recommendation for approval was a prerequisite for procurements to proceed.

Our review of files maintained by OSE's Division of Acquisition, Resources and Evaluation identified no evidence of any in-depth technical analysis performed for the sole-source software contract proposal (considered to be developmental). A division official told us that in accordance with its normal procedures, the division conducted no technical analysis of this proposal. It performed only a procurement documentation review

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[4]Federal Procurement Regulations (FPR 1-4.1106) provide 20 working days for GSA to review an agency's procurement request package. This package includes the solicitation document's technical specifications and associated justification and analysis documents. GSA's review is aimed primarily at determining whether the requesting agency has conducted the proper studies and that maximum practicable competition will be achieved. A rigorous analysis of technical specifications to ensure that an agency's minimum needs are properly expressed could extend the review process beyond 20 working days.

to make sure all documentation needed to process the acquisition was present.[5]

If meaningful technical reviews had been performed, following the guidance used before the realignment, SSA might have avoided many of the problems it subsequently encountered on these efforts (see app. II). In May 1984, the Associate Commissioner for Systems Integration told us that his office plans to expand and improve the technical review process for developmental specifications, assigning additional personnel with ADP procurement skills to the Office of Systems' technical acquisition review staff.

PROCUREMENT CONTROLS SHOULD BE REINSTATED

The primary objective of the 1982 Office of Systems structural realignment--to facilitate the modernization of SSA's ADP and data communications systems as quickly as possible--is, in our view, a valid and necessary agency goal. Nevertheless, SSA actions to speed up systems modernization acquisitions would not appear to contribute to agency systems modernization goals if they result in the acquisition of systems resources that do not meet SSA needs. Internal control weaknesses arising from the realignment introduced too great a threat to the integrity of SSA's systems procurement process, regardless of the increased procurement timeliness expected. Although our work has not addressed questions of alleged misconduct concerning the SSA/Paradyne contracts, we believe the agency's reduction of internal controls over systems procurements has helped to create a climate with greater potential for misconduct to occur. SSA needs to strike a better balance between trying to expedite systems modernization acquisitions and maintaining effective internal controls--especially those of appropriate separation of duties and meaningful, independent, technical reviews of acquisition specifications. Such controls are necessary to protect the integrity of SSA's systems procurement process in general and its systems modernization acquisitions in particular.

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[5]Similarly, we found no evidence that the July 1982 recommendation to purchase 841 leased Paradyne terminals was preceded by a thorough analysis of system performance--despite recognized performance problems. Neither OSPC (reviewing authority for all procurements before the realignment and for operational systems after the realignment) nor the Division of Acquisition, Resources, and Evaluation (reviewing authority for developmental systems after the realignment) performed a technical review of this recommendation.

DEPARTMENT OF HEALTH AND HUMAN SERVICES NEEDS TO BETTER MONITOR SSA'S COMPUTER ACQUISITIONS

HHS' Assistant Secretary for Management and Budget is responsible for overseeing and reviewing all ADP and data communications procurement actions for component agencies. In meeting these responsibilities, the Office of the Assistant Secretary is to ensure that agency procurements (1) have immediate and long-range benefits for the agency, (2) are cost effective from the standpoint of improving agency operations, (3) comply with all applicable procurement regulations, and (4) utilize competitive acquisition procedures to the maximum extent possible.

In carrying out these oversight responsibilities with respect to SSA's data communications procurements from Paradyne, HHS (1) reviewed SSA's agency procurement requests for the terminal and software acquisitions and (2) conducted a post-award review of the Paradyne terminal replacement contract file. HHS did not become involved in key phases of the terminal replacement procurement (e.g., solicitation development, preaward equipment testing, postaward acceptance testing, and measuring continuing equipment performance) nor in the development of the justification for awarding the terminal software contract on a sole-source basis. In effect, HHS, in accordance with its normal practices, redelegated management and oversight authority for these activities to SSA after GSA delegated procurement authority to HHS. As a result, SSA received little, if any, guidance from HHS in the key phases of the Paradyne procurements. We believe the Paradyne experience demonstrates the need for additional HHS involvement in SSA's procurement actions.

Limited HHS involvement in monitoring SSA's data communications procurement activities

In early 1980, SSA submitted to HHS several agency procurement requests associated with its data communications network improvement plan, including one for the competitive terminal replacement effort. Once reviewed and approved by HHS, these documents served as the justification for obtaining delegations of procurement authority from GSA. HHS reviewed these requests, approved them, and forwarded them to GSA. The HHS review was aimed at determining in the early stages of the procurement process whether the requested procurement was really needed, whether the proposed procurement method was the most cost beneficial (and was otherwise appropriate), and whether the proposal complied with federal procurement regulations.

HHS also performed a postaward review of the Paradyne terminal replacement contract file based on the requirements of GSA's Federal Property Management Regulations. HHS found that certain key documents were not in the file. These included (1) the cost and benefit study supporting the determination of need and requirements analysis (per FPMR 101-35.207) and (2) a comparative cost analysis to determine the least costly alternative for meeting agency needs (per FPMR 101-35.209). Further, HHS found no documentation supporting the decision to purchase the leased terminals in September 1982. According to personnel in the HHS component that performed the review, SSA was unable to provide the missing documentation. Despite the absence of these documents, HHS gave SSA a minimally satisfactory rating for the Paradyne file because the HHS reviewers concluded that the documents had been completed (based on references made to them in other documents in the file) but then misplaced by SSA.

These reviews composed the substance of HHS involvement with the SSA/Paradyne contracts. According to HHS officials, once GSA delegates procurement authority to HHS and that authority is passed on to SSA, HHS' involvement ends. It is not HHS policy to become involved in or to monitor (1) solicitation development, (2) bid proposal cost review, (3) preaward testing, (4) review of best and final offers, (5) contract award, (6) postaward acceptance testing, or (7) evaluation of continuing equipment performance. As discussed in appendix II, we found serious deficiencies in SSA's management of several of these key contracting phases.

Little HHS effort to implement congressional recommendations for improving oversight of SSA systems acquisitions

In a report dated September 30, 1982, the House Committee on Government Operations cited the lack of HHS direction over management of SSA's computer systems procurements as a factor contributing to the agency's serious systems problems.[6] The Committee indicated that HHS had not taken decisive and thorough steps to monitor and approve SSA's procurement efforts. The Committee recommended that the Secretary take immediate action to correct SSA's procurement and management problems. These recommendations included requiring (1) long-range solutions to SSA's computer problems, to meet the agency's future needs; (2) cost and benefit analyses; and (3) full and open competition in all alternatives considered to meet SSA's future needs. To

[6]See app. IV, pp. 35-36 for a general discussion of these problems and their relationship to SSA's Systems Modernization Program.

facilitate SSA's compliance, the Committee further recommended that HHS closely monitor and approve all management and procurement actions taken by SSA.

In a November 1982 response to the Committee's recommendations, the then-Secretary of HHS stated that it would be counterproductive to prompt implementation of SSA's Systems Modernization Program for HHS to review SSA's management practices and structure. Moreover, with respect to the recommendations concerning HHS' central responsibilities for monitoring its operating agencies' computer systems, the then-Secretary further stated that HHS already had substantial controls in place and was constantly reviewing their effectiveness. He added that when it becomes apparent that additional controls are needed, they will be implemented.

In this regard, we believe that the poor procurement practices SSA displayed in its contracts with Paradyne (as summarized above and discussed in more detail in apps. II and III) add credence to the Committee's conclusion that HHS needs to closely monitor SSA systems procurement actions. Effective HHS oversight of SSA's activities in conducting the major phases of its Paradyne procurements might have enabled the agency to avoid some of the problems it encountered on these acquisitions. The lack of effective oversight activities increased the opportunity for SSA's systems procurement management shortcomings to exist and associated adverse effects to occur. Substantially strengthened oversight by HHS is needed for those SSA systems procurement actions requiring HHS approval, to help ensure that past procurement errors do not recur on future SSA acquisitions.

GSA RELIED ON HHS AND SSA TO OVERSEE PARADYNE CONTRACTS

GSA monitored neither of the SSA contracts with Paradyne, and thus was not in a position to ensure that SSA properly conducted these acquisitions. A GSA official told us that GSA reviewed a draft of SSA's terminal replacement solicitation in April 1980. This review was to verify that the solicitation incorporated certain GAO and GSA recommendations on SSA's terminal replacement approach (see app. IV, pp. 32 and 33), and to ensure consistency throughout the document with respect to quantities specified and costs projected. After resolution of a

technical issue,7 GSA delegated procurement authority to HHS on April 30, 1980. According to a GSA official, contract administration and monitoring responsibility shifted entirely to HHS at that point, and GSA thereafter did not monitor terminal replacement activities. GSA personnel further stated, however, that GSA is authorized to perform such monitoring and does so for selected procurements.

Although SSA's sole-source terminal software contract was awarded through GSA's Federal Conversion Support Center (see app. II, p. 19), GSA relied heavily on SSA staff for developing the sole-source justification, and totally on SSA for monitoring contractor performance to ensure compliance with the contract's technical requirements. GSA staff were responsible only for contracting office functions, such as approving the sole-source justification and processing the contract modifications and termination actions.

Since 1978, GSA has recognized a continuing need to provide special systems procurement assistance to SSA because of the significance of the agency's systems problems. This assistance was especially noteworthy between 1980 and 1982, a period during which key phases of the Paradyne procurements occurred. For example, from mid-1980 to mid-1982, GSA assigned an agency liaison officer to work full-time at SSA with senior agency management, providing consultation on systems planning. Also, during mid-1981 the senior manager of GSA's Office of Software Development assisted SSA officials in analyzing selected aspects of a major agency procurement strategy for competitively replacing the equipment making up SSA's major ADP systems. GSA expected these two officials also to help SSA find alternatives to proposed sole-source procurements. (During late 1981 and early 1982, these GSA officials provided major assistance to SSA in developing the agency's original plan for undertaking its Systems Modernization Program.)

Further, as a condition of its April 1982 delegation of procurement authority to HHS for replacing SSA's data communications host computers, GSA required both HHS and SSA to give it a formal presentation about every 6 months on the progress and status of the Systems Modernization Program. According to the delegation document, the purpose of this requirement was to

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7The technical issue raised by GSA involved SSA's approach to placing applications software in the data communications network--a GAO concern in late 1979 (see HRD-82-19, Dec. 10, 1981). In response to GSA's concern in this area, SSA modified its solicitation to restrict the processing of applications software to the terminals.

ensure that GSA would understand SSA system requirements sufficiently to provide the procurement assistance or delegations of procurement authority necessary for successful modernization. (To date, SSA has given GSA four such presentations: in July 1982, January 1983, October 1983, and May 1984.)

Given this extensive GSA interest in SSA's systems acquisitions, and considering the magnitude and importance of SSA's data communications improvement effort, we believe that GSA should have, at a minimum, made its delegation of procurement authority conditional upon HHS providing GSA with periodic procurement status reports. As in its April 1982 conditional delegation authority[8] for replacing SSA's data communications host computers, such action would have not only required HHS to more closely monitor SSA's management of the Paradyne procurement, but also would have kept GSA current on the procurement status.

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[8]Officials at SSA and HHS could not locate copies of the final delegation of procurement authority. We located a copy of the draft delegation authority in SSA's contracting office files. GSA informed us that they had put their file on the terminal replacement contract in storage.

SSA'S CONTRACTS WITH PARADYNE:

A PROGRESSION OF POOR PROCUREMENT PRACTICES

On March 27, 1981, SSA awarded a competitive data communications terminal replacement contract to the Paradyne Corporation of Largo, Florida. This contract, worth about $115 million and thus the largest ever awarded by SSA, called for Paradyne to supply the agency and its field offices with a minimum of 1,850 programmable microcomputer systems,[1] each having a systems life of 96 months after installation. The contract further called for Paradyne to supply related software, including the operating system software for controlling terminal system operations.

The new terminal systems were intended not only to replace SSA's deteriorating and obsolete data communications terminal equipment but also to play a major role in SSA's Data Communications Utility[2] Program. This program is a major component of the agency's multiyear, $500-million-plus Systems Modernization Program (SMP). (See app. IV.)

The hardware for each system generally was to include a programmable controller,[3] a printer, and two keystations. Several hundred selected systems also were to include a card reader. Phased installation in SSA field offices nationwide began in June 1981 and was completed in July 1983. Through March 1984, SSA had expended about $40.8 million under this contract.

SSA'S PROCUREMENT OF PARADYNE TERMINALS WAS SERIOUSLY FLAWED

SSA inadequately managed its hardware procurement effort with Paradyne, as shown by the serious deficiencies we found in major phases of this procurement action, described below. One cause

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[1]A contract option permitting SSA to acquire additional terminal systems was exercised in June 1982, enabling SSA to install 24 more systems.

[2]This refers to a data communications network configuration in which all terminals and host computers are connected through a common "backbone" network capable of supporting all classes of data communications requirements.

[3]A control device in a data communications network through which one or more terminals and other peripheral equipment are connected to access a single communications line.

of procurement problems was compression of acquisition timeframes.[4]

Terminal workload specifications and detailed software documentation requirements not included in SSA's solicitation

The General Services Administration's handbook entitled "Guidance to Federal Agencies on the Preparation of Specifications, Selection, and Acquisition of Automatic Data Processing Systems" recommends that agencies express their requirements in terms of specific operational workloads. This includes transaction volume and descriptions, record size, file description, and timing or turnaround restrictions for a given workload. The advantage of such a workload description is that it allows each vendor to configure its proposed equipment to best meet agency requirements.

SSA's solicition for replacement terminals did not cite the specific types or volumes of operational workloads that the terminal configuration would have to process, or the time periods in which processing would have to occur for such specific workloads. To the extent performance was addressed, it was expressed in terms of general equipment performance specifications for individual terminal system components (e.g., minimum printer speeds of 180 characters per second, minumum card reader speeds of 200 cards per minute).[5] As a result, SSA could not be sure that the proposed equipment would meet its needs. According to an agency official who helped prepare the solicitation, SSA had not expressed requirements in terms of specific workloads on past data communications acquisitions and felt no need to do so on this procurement.

Another solicitation deficiency was in the requirements for documenting terminal operating system software. In addressing software documentation (e.g., system/subsystem specifications, computer program specifications and flowcharts, users manual, and program maintenance manual), the solicitation required only that respondents adhere to Federal Information Processing Standards

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[4]SSA accelerated its planned terminal replacement schedule (from solicitation issuance to final installation) by 5 months in order to avoid extending the maintenance contract on its existing terminals, which had reached the end of their systems life. To do this, SSA had to severely compress key elements of the procurement process. For example, the interval between contract award and initiation of acceptance testing was cut in half--from 2 months to 1 month.

[5]Expressing requirements in this way can, if not done very carefully, result in biasing the solicitation toward a particular vendor or vendors. In addition, such a method does not take into account the fact that a given vendor may be able to process the agency's workload with, for example, a faster printer and a slower tape system than that specified.

Publications 24 and 30. (Publication 24 establishes standard flowcharting symbols[6] and Publication 30 provides for the preparation of a one-page narrative summary[7] describing vendor-provided software for establishing a centralized registry of selected government software.) Adherence to Publication 38,[8] which gives guidelines for preparing more detailed software documentation, was not required. SSA later recognized the need for more detailed documentation of the terminal operating system software, and thus decided to provide for its preparation as part of the agency's subsequent $2.5 million sole-source software contract with Paradyne (see p. 19). Under this contract, SSA was to pay Paradyne more than $457,000 (about 18% of the total contract value) for documenting all terminal operating systems software according to the provisions of Publication 38.

Because the maximum practicable competition among offerors who are capable of meeting agency needs will ensure that the government's ADP needs are satisfied at the lowest overall cost, we believe these software documentation requirements should have been included in the original competitive terminal solicitation. This would have facilitated acquisition of detailed operating system software documentation at a potentially lower cost than that subsequently set under SSA's sole-source software contract with Paradyne.

Inadequate preaward testing of competing vendors' equipment

The General Services Administration handbook cited above requires that equipment performance be validated before contract award. For all major competitive acquisitions, GSA strongly encourages agencies to use "benchmark" tests. In these tests, representative agency computer programs and workloads are run on vendor equipment to validate system performance. At a minimum, performance validation is to prove that all proposed system components are capable of meeting solicitation requirements and operate efficiently as a system.

SSA did not use benchmarking techniques to test competing vendors' proposed products before contract award because, according to agency officials, SSA wanted to minimize costs to vendors. Instead, SSA used operational capability demonstrations as the testing mechanism. These demonstrations were supposed to show whether

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[6]"Flowchart Symbols and Their Usage in Information Processing," FIPS PUB 24, U.S. Department of Commerce, National Bureau of Standards, June 30, 1973.

[7]"Software Summary for Describing Computer Programs and Automated Data Systems," FIPS PUB 30, U.S. Department of Commerce, National Bureau of Standards, June 30, 1974.

[8]"Guidelines for Documentation of Computer Programs and Automated Data Systems," FIPS PUB 38, U.S. Department of Commerce, National Bureau of Standards, Feb. 15, 1976.

each vendor's proposed equipment was capable of meeting the requirements stated in SSA's solicitation. They did not meet this objective, however, because they (1) did not require that vendors demonstrate actual equipment in meeting solicitation requirements and (2) did not document testing or provide programs or workload file mixes, as required by detailed demonstration guidelines prepared by SSA's contract office.

SSA's solicitation permitted each vendor to structure its own demonstration. If certain hardware components were not available, the vendor was allowed to substitute written analysis for actual tests of the product's ability to meet solicitation requirements. According to an operational capability demonstration test team member, all but one of the six vendors demonstrating proposed equipment submitted some written analysis in lieu of actual tests. This approach compromised the purpose of the demonstrations (which was to establish that system components could operate efficiently as a system), and decreased SSA's ability to identify actual or potential performance problems.

SSA's contract office had prepared guidance for the agency's test team to use for evaluating the demonstrations. This guidance provided a reasonable testing methodology for ensuring that vendor equipment would meet SSA's needs. The test team, however, did not use this guidance in evaluating equipment performance. For example, the guidance stated among other things that the test team should prepare a test package of material, including computer programs and files,[9] to evaluate vendor equipment. The guidance particularly noted that the demonstration package should contain "complete program documentation." According to SSA's demonstration test team leader, however, test documentation was never prepared due to time constraints. Thus, no test programs or workload mixes were ever developed, which restricted SSA's evaluation of vendors in preaward testing and the related technical analyses of vendors' proposed equipment.

SSA's intent to acquire only marketable equipment not achieved

As noted previously, SSA's vendor solicitation for replacement terminals did not contain adequate equipment performance specifications. In the solicitation, however, SSA required that respondents' products were to be "off the shelf" items, with proven marketability--i.e., products that had been formally announced and

[9]Such programs and files were needed for testing vendor systems against standard SSA workloads.

available for delivery on or before the solicitation closing date--prototypes were not acceptable.[10] This requirement, in our view, was intended to ensure that the replacement terminals would function properly within 30 days after contract award (this allowed 20 working days for Paradyne to ensure protocol and software compatability with the SSA data communications system), thereby avoiding any interruption in SSA's service to its beneficiaries. Evidence we examined during our review indicates, however, that the terminal system Paradyne offered and SSA subsequently acquired was unable to meet this intended level of performance. This view is based primarily upon the following factors.

--Paradyne's terminals encountered such significant performance problems that acceptance testing was suspended and acceptance testing requirements modified. A December 1983 SSA study shows that the Paradyne system did not begin to consistently meet contractual performance requirements until April 1983.

--According to an SSA internal study, during the first 16 months of the contract Paradyne made numerous changes (upgrades) to the terminal controller in attempting to solve system performance problems. These included four hardware changes, four versions of the terminal operating system software, and five versions of firmware[11]--in 21 different combinations. As late as August 1982, 17 different versions of the terminal controller were being used by SSA.

--Paradyne signed a licensing agreement with Microsoft (a software firm) for the adaptation of Microsoft's Xenix operating system to the Paradyne equipment subsequently delivered to SSA. The agreement was dated March 5, 1981, (although the date of signature is unclear)--almost 3 months after Paradyne passed its operational capability demonstration and only 3 weeks before it received the contract award from SSA. As of mid-May 1981, more than 6 weeks after award of the contract, Paradyne and Microsoft had still not succeeded in adapting this operating system to Paradyne's equipment.

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[10]SSA's concern with the "prototype" issue is reflected in the fact that during the proposal review process--and prior to the operational capability demonstrations--SSA challenged one vendor because its proposal appeared to be offering prototype equipment. The question of whether Paradyne offered SSA a prototype system, in violation of solicitation requirements, is raised in ongoing civil lawsuits filed against Paradyne (see app. IV). We have attempted only to assess whether or not Paradyne's product met SSA performance needs--both expressed and intended.

[11]Computer instructions or data stored permanently on memory circuits (chips) inside the central processing unit. These instructions or data cannot be changed by other software and are not lost when power is turned off. In this instance the firmware contained elements of the terminal operating system.

A properly developed operational capability demonstration should have shown that the system Paradyne was offering was not capable of meeting SSA's requirements. SSA might have used such results to question whether Paradyne's system (or that offered by any vendor) was fully developed at that time. Even though the demonstration did not make this clear, acceptance testing problems strongly indicated the inadequacies of the Paradyne system, as discussed below.

Questionable changes to performance requirements helped Paradyne terminals pass acceptance testing

On April 30, 1981, SSA began acceptance testing of the first 16 terminal systems Paradyne delivered, which had been installed for testing purposes at agency headquarters.[12] These terminals displayed immediate performance problems (e.g., print copy was not consistent with material displayed on the video screen). When the terminals failed 10 days of testing (without a single pass) SSA and Paradyne suspended testing and negotiated an acceptance testing agreement[13] and a major contract modification[14] which changed key terminal operating standards in both the solicitation and the contract. Although SSA's stated primary purpose for taking this action was to clarify certain ambiguous specifications in the contract, including the provision of performance requirements not previously specified in the contract or solicitation, these changes made the criteria for passing acceptance testing (first cited in the original solicitation) much more liberal.

One of the changes resulting from the contract modification eliminated the acceptance test requirement that the measurement of consecutive test hours be restarted from zero whenever a terminal failure occurred. This, in effect, negated the purpose of acceptance testing by greatly reducing SSA's ability to determine whether a given terminal could in fact meet contractual requirements for sustained operation over a specified interval of time within a given standard of quality.

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[12]The contract required Paradyne to deliver 16 controllers, 16 printers, 3 card readers, and 48 keystations.

[13]This agreement was executed by an SSA official and a former subordinate who represented Paradyne.

[14]Although one of the stated purposes of this contract modification was to clarify ambiguous contract provisions, it actually introduced some additional ambiguity. For example, one section required Paradyne to "exert its best efforts" to provide certain critical terminal functions "at least as fast as" the terminals being replaced, without further definition of quantified time. This requirement, in our view, lacks substance because of the subjectivity associated with determining compliance, and is therefore illusory. In addition, a December 1983 internal SSA report assessing terminal upgrade activities noted that another section of the contract modification made the method of calculating system availability ambiguous.

Another change resulting from the acceptance testing agreement altered the contract requirement that all 16 terminals pass specific functional capability tests each day during the testing period. Under the revised testing procedures, all 16 terminals could be passed on the basis of tests that were actually performed on only one or two terminals randomly selected each day. These types of changes so liberalized acceptance test requirements that Paradyne's chances of passing were greatly increased.

INDICATIONS OF LONGSTANDING TERMINAL PERFORMANCE PROBLEMS

During the early months of the contract, terminal users encountered frequent instances of poor system performance. For example, in August 1981, SSA's district office in Roanoke, Virginia, reported that between mid-July and mid-August it had experienced at least 238 separate terminal system malfunctions requiring manual corrective actions by field office employees. Similarly, in September 1981, SSA's New York Regional Office complained to agency headquarters that of its seven field offices in which Paradyne equipment had been installed, three were experiencing an average of eight to ten such terminal system malfunctions per day. This caused extra work and much frustration for field office personnel. In the regional office's view, SSA was accepting terminals that did not function adequately for field office needs.

In May 1983, SSA's Deputy Commissioner for Systems directed Office of Systems personnel to assess agency efforts to improve its data communications system. The assessment was based on agency data accumulated since the Paradyne terminals were first installed, and included a survey of users of similar systems. In a report completed in December 1983, the study team concluded that the "record does reflect the continuing existence of a systemic operating problem" with the Paradyne terminal system. The study indicates that the Paradyne system did not begin to consistently meet the contractual requirement for 98-percent system availability until April 1983--22 months after initial terminal acceptance. Further, the report indicates that between July 1981 and August 1983, the system met the availability requirements only 46 percent of the time (12 out of 26 months).[15] The study also noted that, as of

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[15]Until this assessment was undertaken, SSA's records on system performance indicated that the Paradyne equipment had been meeting contractual system availability requirements on a monthly basis since July 1981. This assessment identified errors in SSA's methodology for determining system availability, which had resulted in the agency not assessing Paradyne approximately $155,000 in maintenance credits (offsets against Paradyne charges to SSA for maintaining the terminals, due SSA if the terminals do not meet contractual performance requirements). SSA personnel told us in February 1984 that the agency was preparing to assess Paradyne these maintenance credits.

that time, the equipment was failing[16] at a rate of four to six times that experienced by users of similar systems surveyed during the study.[17]

SSA performance data on terminal operations through April 1984 indicated that the overall system availability rate had improved and was meeting contractual requirements as the result of a terminal software upgrade. However, a second SSA terminal performance assessment (completed in March 1984) pointed out that the equipment was still failing at a rate of three to four times that for a similar terminal installation previously surveyed.

JUSTIFICATION FOR SOLE-SOURCE PARADYNE SOFTWARE CONTRACT INADEQUATE

Your July 28, 1983, request letter expressed concern that SSA's second contract with Paradyne--a software contract awarded on a sole-source basis--was allegedly passed on to a subcontractor in its entirety. In reviewing the contract, we were unable to find evidence that Paradyne passed the entire contract on to a subcontractor. SSA did not, however, in our view, adequately justify the sole-source award of this contract to Paradyne. Based on our findings, we believe the agency should have given greater consideration to the alternative of awarding this contract competitively.

Background on SSA software contract with Paradyne

On September 8, 1982, through the General Services Administration's Federal Conversion Support Center, SSA awarded a sole-source software contract valued at more than $2.5 million to Paradyne Corporation. Under a major portion of this contract, Paradyne was to enhance the data transmission capabilities of its terminals in SSA offices by modifying the terminal software. Paradyne was to receive more than $1.8 million (about 72% of total contract payments) for making these modifications, and the remainder for (1) documenting all terminal software (about $457,000) and (2) developing a comprehensive work plan for conducting the required terminal software modification and documentation tasks (about $266,000). This activity was a part of SSA's plan for improving its data communications network. (See app. IV, p. 34.)

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[16]An equipment failure occurs when Paradyne equipment fails, necessitating Paradyne sending a field engineer to correct the problem.

[17]The system availability computation is based on the number of hours the system is inoperative and not on the frequency of equipment failures. Thus, a terminal may still meet the system availability rate even though it experiences numerous equipment failure "occurrences."

On December 14, 1982, SSA issued a separate vendor solicitation--this one competitive--also valued at an estimated $2.5 million, to develop applications software[18] for the Paradyne terminals that would automate certain manual field office operations. The agency suspended the effort in January 1983 in order to revise the solicitation. SSA encountered substantial delays in revising the solicitation and finally canceled it on March 18, 1983, with the intent of subsequently issuing a new version. At about the same time, however, the agency was developing a new technical approach to providing field offices with local processing capabilities. SSA determined that this new approach was more in line with its Systems Modernization Program, and not only would provide local processing capabilities cheaper and faster than by modifying the Paradyne terminals, but also offered more system flexibility. As a result, SSA never reissued the applications software solicitation and also had GSA terminate the sole-source operating system software contract with Paradyne on April 29, 1983. By then SSA had paid Paradyne $550,000 under the effort, and Paradyne had delivered only one product--a work plan for conducting the required terminal software modification and documentation tasks. Paradyne has submitted a final bill charging the government an additional $252,000 for work on this contract, and as of early July 1984 SSA and GSA were evaluating the charges.

Because the purpose of this contract was to enhance the data transmission capabilities of the Paradyne equipment (see pp. 1 and 2 of letter) and not to provide it with local processing capabilities, we are not certain that SSA's stated justification for its termination is totally accurate. SSA's Deputy Commissioner for Systems suggested another reason for terminating the sole-source software contract: agency concern over becoming locked into additional contracts with Paradyne which would have been necessary to finally achieve the objective of local processing. He said these contracts would have cost SSA "hundreds of millions." In a January 1983 unsolicited proposal to SSA, upon which the agency never acted, Paradyne suggested one such sole-source upgrade. The estimated cost to the agency was more than $42 million for hard disk equipment, additional software, and other enhancements, plus maintenance charges of almost $600,000 per month over the estimated 8-year-plus system life of the added equipment.

Entire Paradyne software contract not passed on to a subcontractor as alleged

According to SSA records, at least 60 percent of the $550,000 the agency paid Paradyne for work on the sole-source software contract went to subcontractors, but we were unable to

[18]Computer programs (instructions) created to solve specific user problems. Weekly payroll, order-processing, and sales report generation programs are examples.

determine the precise amounts paid to individual subcontractors. Because the Paradyne software contract was terminated prior to completion, we could not determine what portion of total projected contract expenditures might have eventually gone to subcontractors. However, it appears that Paradyne did not plan to pass on the software contract in its entirety to either a single subcontractor or a group of subcontractors.

According to a January 17, 1983, contract modification, Paradyne estimated that total subcontracting costs would amount to about $847,000, or about one-third of total contract costs. These subcontracting efforts were to be split among five companies, with costs expected to range from about $74,000 to about $469,000. However, an underestimate of the hourly rate to be paid to documentation personnel caused the subcontracting cost estimate to be increased to $871,000. The actual agreements Paradyne entered into with four subcontractors had estimated values totaling about $1,015,000.

Sole-source software contract awarded despite opposition within SSA

The sole-source software contract award to Paradyne followed nearly a year's effort by an SSA data communications official to convince SSA's approval authorities to award a similar contract to Paradyne on a sole-source basis.[19] This attempt was originally unsuccessful because both SSA's contracting office and the Office of Systems component then responsible for reviewing and approving ADP and data communications procurements believed that much of the required work could be accomplished through in-house efforts and the balance could be awarded on a competitive basis. The sole-source contract to Paradyne was awarded after an internal Office of Systems structural realignment in mid-1982 transferred the review and approval

[19]The original document package favoring a sole-source award was not available for our review from the SSA, HHS, and GSA offices involved in this contracting effort. SSA personnel told us that the package provided for both the required operating system software enhancements and the application software upgrades. By mid-1982 SSA had decided to pursue the application software upgrades through a separate competitive procurement action.

authority for ADP and data communications procurements to the Office of Systems Integration.[20] The then-head of the Office of Systems Integration (now Deputy Commissioner for Systems) informed us that he supported award of the contract to Paradyne because once the applications upgrades had been split off as a separate competitive procurement, the remaining tasks were, in his opinion, valid as sole-source objectives. Further, he said he decided that GSA should award the contract because he believed it would speed up the process.

Sole-source justification inconsistent with terminal contract provisions

As discussed on page 19, SSA's sole-source software contract with Paradyne not only required the contractor to modify software for its terminals (the major element of this contract), but also called for Paradyne to document all terminal software. This documentation task, in our view, should have been included as part of SSA's earlier terminal replacement solicitation. It also could have been carried out competitively since it would have been legal and technologically feasible to do so had SSA acquired the rights to Paradyne's operating system (see below). Further, we believe the major element of the contract--the software modification requirements--could also have been awarded competitively.

On June 21, 1982, GSA signed a statement, which was then jointly issued by GSA and SSA, setting forth the justification for awarding a sole-source contract to Paradyne. The statement cited two reasons for a sole-source award:

--Although software modification work required third-party access to the Paradyne operating system source code, SSA lacked the authority to grant such access.

--Modification of the terminal software by any firm other than Paradyne would eliminate Paradyne's responsibility for the integrity and reliability of the operating system and could compromise the software guarantees and the equipment availability terms and conditions Paradyne was required to meet under the terminal contract.

We believe these reasons are questionable because each appears inconsistent with the provisions of the terminal replacement contract.

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[20]Details on this structural realignment are presented in app. I, pp. 3-5.

SSA could have acquired unlimited rights to Paradyne's terminal software

SSA and GSA assumed that the government had no rights to the Paradyne operating system. According to SSA's terminal replacement contract with Paradyne, however, the government has unlimited rights to software (1) identified in the contract itself as a separate line item and (2) specifically developed and generated (i.e., designed and developed) under the contract.

SSA satisfied the first condition through the terms of the terminal replacement contract, which specifically identified the "Operating Software" as an item to be provided by Paradyne, and listed software and its associated costs as a separate item. With respect to the second condition, the development schedule under the Paradyne/Microsoft agreement, for the adaptation of Microsoft's XENIX operating system to Paradyne's equipment (see p. 16), was to run from March 23 (only 4 days before award of the terminal contract) to May 14, 1981. As late as May 19, 1981, Microsoft and Paradyne were still working on the adaptation of XENIX to the Paradyne equipment. Terminal acceptance testing was suspended on May 14, 1981, and resumed on June 1, 1981. Given these factors, we believe Paradyne relied on the negotiated delay in acceptance testing to complete its adaptation of XENIX. In our judgment, SSA could have treated granting this delay as consideration to Paradyne for its adaptation of XENIX for and under the terminal replacement contract. Had SSA pursued this matter, we believe the agency could have either claimed unlimited rights to the Paradyne adaptation of XENIX or acquired such rights as part of the negotiations leading to the delay in acceptance testing.[21] Such action would have enabled SSA at least to compete the sole-source software contract among XENIX-licensed vendors.

Paradyne retained responsibility for integrity and reliability of unchanged operating system software

SSA and GSA apparently misinterpreted provisions of the terminal replacement contract. The contract states in part that

> "No credit shall be due the Government for operating software malfunctions when (i) the malfunction is not attributable solely to the Contractor supplied software; and/or (ii) the Government has made any additions, alterations or otherwise modified the operating software."

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[21]We found no conclusive evidence that SSA recognized that the Paradyne adaptation of XENIX was developed after the terminal replacement contract award, even though terminal software problems surfaced during acceptance testing. (See p. 17.)

We believe SSA and GSA interpreted this language to mean that any modification to the operating system relieved Paradyne of all responsibility for the system's integrity and reliability. In our view, this interpretation is inconsistent with another terminal contract provision specifically addressing the subject of government modifications to software. This section states in part that

> "If software defects result from program portions which have been added or modified by the Government, then the Government, not the vendor, is responsible for any resulting adverse effects. However, if vendor provided portions are defective, then the vendor is responsible for any resulting adverse effects."

Reading these sections together, we believe that Paradyne is relieved of liability only for those software segments that the government changes, and not for unchanged segments. Thus, in our view, the SSA/GSA interpretation of responsibility for operating system integrity and reliability was not a valid reason for awarding a sole-source contract to Paradyne.

SSA ANALYSES OF WHETHER TO BUY LEASED PARADYNE TERMINALS NOT COMPLETE

SSA's $15.9 million purchase of 841 leased Paradyne terminals in September 1982 was based on substantial projected savings in leasing costs, but it gave little emphasis to continuing equipment performance problems. Prior to the July 1982 purchase decision, top Office of Systems officials had opposed purchasing the equipment because of these performance problems. The approval was contingent on Paradyne's agreeing to upgrade the terminals to be purchased. These upgrades may have improved system performance; however, SSA and contractor studies completed in late 1983 and early 1984 indicate that the Paradyne equipment did not begin to meet contractual availability requirements consistently until April 1983.

A March 1984 assessment performed by agency officials recommended that SSA purchase the remaining 1,033 leased Paradyne terminals. This assessment concluded that although terminal performance problems continue to exist (the equipment failure rate is still three to four times higher than that of similar installations surveyed by SSA--see app. II, p. 19), SSA would save leasing costs by buying the terminals and continuing to use them for the next 3 years. This analysis recommended making the $16.2 million purchase contingent on Paradyne first making upgrades to selected systems, including some previously purchased, at no additional cost to the government. The purpose of the upgrade is to reduce the equipment failure rate.

SSA's March 1984 terminal purchase assessment favored purchase, estimating that purchase of the Paradyne terminals would result in a savings of $8.3 million over the next 3 years. However, the assessment contained a questionable assumption concerning the projected length of equipment use in local offices, leading to a potential overstatement of the amount of leasing costs that might be avoided. The assessment assumed that the terminals will remain in SSA's local offices for the next 3 years--an assumption which is inconsistent with a tentative SSA decision (based on a separate analysis conducted to help plan SSA's data communications strategy under its Systems Modernization Program) to replace all Paradyne terminals in local offices as soon as practicable. Depending on how successfully this strategy is implemented, savings resulting from purchase could fall to $1 million. Furthermore, a decision to purchase would need to give consideration to how the terminals would be used if moved from local offices and the cost of relocating and adapting the terminals to such other uses.

SSA'S 1982 PURCHASE OF LEASED PARADYNE TERMINALS DOWNPLAYED PERFORMANCE PROBLEMS

The hardware contract with Paradyne is a lease-with-option-to-purchase agreement which provides that SSA will accumulate purchase option credits at a rate of 76 percent of monthly lease

costs up to 80 percent of the purchase price of each terminal system. Under the contract, the maximum credits would be reached 24 months after the first terminal was installed and operating (June 1, 1981) and remain available until either SSA buys the terminal systems or the contract expires.

Before exercising such a lease-to-purchase option, an agency should determine that the equipment being leased demonstrates a level of performance and reliability that justifies purchase. The agency can then make an appropriate tradeoff between cost and performance factors.

On September 30, 1982, SSA exercised its purchase option and spent $15.9 million to buy 841 leased terminals already installed in SSA offices. The purchase was made despite continuing objections from key Office of Systems officials. They had opposed the purchase because of continuing terminal performance problems.[1] They believed Paradyne should correct the problems before SSA purchased the equipment.

The terminal purchase decision was made primarily on the basis of substantial projected lease cost savings to the government. SSA's purchase analysis concluded that the cost to purchase the terminals on September 30, 1982, would equal the cost to continue leasing them until January 1985. Assuming a system life of 8 years after terminal installation, SSA projected that it would save about $37.8 million in lease costs by purchasing the equipment.[2]

Although SSA's July 1982 approval of the terminal purchase gave little emphasis to equipment performance, the agency later attempted to address terminal performance problems by requiring Paradyne--as a condition of the September purchase agreement--to upgrade the terminals to be purchased at no further cost to the government.[3]

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[1]See app. II, pp. 18 and 19. For example, SSA terminal performance data for the 13-month period prior to the purchase decision (July 1981 through July 1982) show that the Paradyne terminals met the contractual system availability requirement of 98% during only 2 months.

[2]Although these lease cost savings projections were substantial at the time of SSA's analysis, it now appears that actual lease cost savings from the terminal purchase may be substantially less because the equipment may not be used by SSA for its full 8-year systems life. See app. III, pp. 28 and 29.

[3]Another SSA effort to address terminal performance problems was using performance to select the terminals to be purchased. This resulted in selection of terminals that had not necessarily accrued maximum purchase option credits, thus reducing SSA's projected lease cost savings by about $1.9 million.

SSA'S 1984 ASSESSMENT OF WHETHER TO BUY REMAINING LEASED TERMINALS IS INCOMPLETE

As of mid-June 1984, SSA was considering whether to buy or continue leasing the remaining 1,033 leased Paradyne terminals, on which the maximum purchase option credits had been reached in June 1983. In March 1984, staff in SSA's Office of Systems analyzed the desirability of again exercising the purchase option provision in the terminal replacement contract to buy these terminals. This analysis indicated that if SSA purchased the leased terminals by May 1, 1984, total purchase costs of $16.2 million would about equal the cost of continuing to lease them for another 23 months. Assuming that SSA would continue using the terminals for 3 years, or 13 months beyond this 23-month break-even point, SSA estimated that purchasing the terminals would save about $8.3 million in lease costs during those 13 months. Further, SSA projected additional savings of $800,000 in monthly lease costs for any remaining system life after 3 years.

Based on this analysis, the staff recommended purchasing the remaining leased Paradyne equipment. As of mid-June, SSA officials were still considering whether to approve and implement the recommendation.

Our work indicates that the Office of Systems staff analysis and resulting purchase recommendation are based on questionable assumptions about further use of the Paradyne equipment. Resolution of these factors could show that purchasing the remaining leased Paradyne terminals is not in the best interests of SSA.

Assumption about length of use may no longer be valid

Before purchasing leased equipment, an agency needs to make sure that the action is consistent with future equipment needs and other acquisitions planned or in process. Of particular importance are the proposed length of use of the leased equipment and the extent to which alternative uses affect agency operating costs. These factors can directly affect the comparison of (1) the total costs of continuing to lease with (2) the total costs of purchase.

In performing its lease/purchase analysis, SSA assumed that the Paradyne equipment would be used in local offices for another 3 years. That assumption may not now be valid in light of other conclusions SSA has reached concerning how it plans to meet its data communications objectives under its ongoing Systems Modernization Program. Depending on timing, implementation of these plans could increase the costs and/or decrease the savings associated with purchasing the Paradyne equipment.

Amount of savings to be realized depends on timing of equipment replacement

SSA now plans to discontinue using Paradyne equipment in local offices, and to replace it as soon as practicable. This plan is part of the data communications utility component of SSA's Systems Modernization Program. At the time of our work, SSA was planning to start replacing the Paradyne equipment in May 1985 and complete the replacement by May 1986.

Timing of this replacement effort is a key factor in determining the savings to be realized from purchasing the Paradyne equipment. Many variables exist that could adversely affect these target dates. For example, if site preparation problems surface or GSA's approval takes longer than 20 days, the schedule could slip. Nevertheless, if SSA succeeded in replacing all terminals by May 1986--only one month beyond the 23-month break-even point the agency used for its terminal purchase analysis--the avoidance of leasing costs from purchase would be minimal.

Annual decline of lease costs from phased terminal replacement not considered by SSA

In concluding that purchase of the remaining leased Paradyne equipment would save $8.3 million in lease costs after 3 years of use, SSA's lease/purchase analysis assumed that all 1,033 terminals in local offices would remain in the local offices for the full 3 years. Thus, the $8.3 million savings estimate was based on total lease costs for all 1,033 terminals over the entire 3-year period.

SSA's terminal replacement strategy under systems modernization includes a phased approach under which a given number of Paradyne terminals would be replaced monthly,[4] starting in May 1985. This would result in a reduction in lease costs each year as the Paradyne equipment is replaced.[5]

Depending on the number of terminals replaced each year during the replacement period, the resulting reduction in lease costs could alter the results of SSA's lease/purchase analysis. For example, if a phased terminal replacement began in May 1985, as scheduled, purchasing the equipment could result in a savings

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[4]SSA installed up to about 100 terminals per month in local offices between June 1981 and July 1983. If SSA repeats this rate of replacement under the current proposal, then SSA could replace approximately one-half of the leased terminals in each fiscal year, assuming the replacement started in May, as planned.

[5]Under the Paradyne contract, SSA can discontinue the annual lease of terminals at the end of each fiscal year.

of about $1 million--the amount by which total lease costs would exceed total purchase costs incurred through the end of terminal replacement. On the other hand, if the planned terminal replacement is delayed, purchasing the equipment could result in substantial savings. (According to agency officials the terminals will have no offsetting salvage value.)

Potential costs and benefits of moving Paradyne equipment not included in lease/purchase analysis

Although SSA has tentatively decided not to continue using Paradyne equipment in local offices, senior agency managers apparently have not yet determined whether (or how) SSA might otherwise use the Paradyne equipment in its planned data communications network. Nevertheless, the agency has been identifying alternatives for using the Paradyne equipment once it is removed from local offices. One alternative currently receiving serious consideration by SSA officials is moving the Paradyne equipment to SSA processing centers.[6]

Although SSA recently analyzed the costs associated with such a move as part of the agency's data communications planning under systems modernization, this analysis was not factored into the terminal purchase recommendation. Further, SSA has not determined whether the Paradyne equipment can meet processing center needs. Inclusion of these factors could change the lease/purchase analysis results.

SSA's current data communications plans under systems modernization call for placing new terminals in the processing centers by 1988. An SSA analysis recommends that if SSA purchases the remaining Paradyne terminals they be relocated to processing centers and used until they are replaced with the new terminals. To purchase and relocate the terminals and maintain them for the 3 years would cost about $31 million (about $15 million for relocation and maintenance and $16 million for purchase). SSA did not include these relocation and maintenance costs in its lease/purchase analysis, or the benefits to be

[6]SSA's eight processing centers include six program service centers, the Office of Disability Operations, and the Division of International Operations. The program service centers--located across the nation--service the Retirement and Survivors Insurance program by reviewing claims prepared at local offices, certifying benefit payments, maintaining beneficiary records, and manually processing items that the automated system cannot handle. The Office of Disability Operations, located at agency headquarters, provides similar services for the Disability Insurance program. The Division of International Operations, also located at headquarters, handles Retirement and Survivors Insurance transactions for people residing outside the United States.

derived from processing center use. The benefits have not yet been assessed; it is not clear that the Paradyne terminals would serve processing center needs. Agency officials have recommended that the equipment be tested to determine its suitability for use in processing centers.

Whether or how the Paradyne equipment should be further used at SSA needs to be fully considered before a terminal purchase decision is made. Regardless of how SSA might use this equipment, a number of outstanding operational issues would have to be resolved. Any unresolved issues could prevent SSA from using the equipment effectively. These operational issues include

--whether performance of the Paradyne equipment can be sufficiently improved (see app. II, pp. 18 and 19);

--whether the Paradyne controllers and printers can be made compatible with the new data communications utility (see app. IV, p. 34), and if so, whether this would be timely and cost effective;

--whether the Paradyne equipment can perform all functions planned for terminals in the data communications utility and, if not, whether cost-effective terminal upgrades to provide these functions can be made;

--whether those functions not supported by the Paradyne equipment, if any, are critical to transactions processed by SSA offices in which the equipment is installed; and

--whether SSA could avoid or sufficiently minimize the potential costs and other adverse effects of the lack of terminal uniformity within individual SSA offices.[7]

SSA is confronted with a dilemma. On one hand, the agency believes purchase of the remaining 1,033 leased Paradyne terminals would enable it to avoid substantial future lease costs. On the other hand, it recognizes that the equipment continues to display performance problems.

If upgrades recommended by SSA substantially reduce equipment failures and SSA obtains a clearer idea of how the Paradyne equipment should be further used, the agency would be in a better position to make an informed lease/purchase decision; presently it cannot. The agency should obtain this information and reconsider the lease/purchase question. The results of this reconsideration should be viewed in the context of other viable alternatives for meeting SSA's data communications requirements.

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[7]According to key Office of Systems officials, using two terminal systems in individual offices not only would require additional training and two different sets of operating instructions, manuals, etc., but also would place the additional burden on workers of having to learn to use both systems.

BACKGROUND ON SSA'S DATA COMMUNICATIONS NETWORK AND ASSOCIATED GOVERNMENT AND CONTRACTOR ACTIVITIES

FUNCTIONS AND COMPONENTS OF SSA'S DATA COMMUNICATIONS NETWORK

SSA depends heavily on its data communications network to perform its mission. For example, field offices need timely access to data stored and processed at SSA's central computer facility in order to issue social security numbers, maintain earnings records, take claims for program benefits, and process changes. These field office requests for data and resulting responses from the central computer facility must be transmitted quickly. Without its data communications network, SSA would be virtually unable to provide timely service to millions of Americans as well as to other federal, state, and private organizations.

Description of the network before improvements

SSA's data communications network dates back to 1966, when the agency agreed with the General Services Administration to be a prime user of GSA's Advanced Record System (ARS) network. In 1981, before SSA's network improvement plan was implemented, the system comprised various types of equipment, some more sophisticated than others. Its primary components included the following.

- --Three types of terminals for data entry: ARS teletypewriter equipment, SSA Data Acquisition and Response System (SSADARS) interactive video display units located primarily in local offices, and key-to-disk recording equipment in the program service centers.

- --Modems (devices that interface between a computer device and a communication line) and local communication lines to connect the SSADARS terminals to the concentrators.

- --Concentrators, or minicomputers, to receive data entry and query messages; condense, edit, and reformat them; send them on to the front-end processors; and direct responses to the proper field office terminal.

- --High-speed trunk lines to connect the concentrators and the front-end processors.

- --Front-end processors to interface between the trunk lines and host computers by translating incoming data into a format acceptable to the hosts, and vice-versa for output.

- --Host computers to process all data messages, direct all administrative messages to the proper destinations, provide on-line query access for the terminals, and provide output delivery to field office output devices.

SSA'S NETWORK IMPROVEMENT OBJECTIVES

SSA developed an approach for improving its data communications network as early as 1976. Agency goals for the improvement included ensuring that the new network would be adaptable to future changes in processing requirements. In addition, SSA identified specific problems with the existing network--and especially with the terminals--which the improvement was to solve. First, the SSADARS terminal equipment, acquired in 1973 and approaching the end of its system life, broke down frequently and lacked self-diagnostic and certain security capabilities. Second, SSA had found ARS equipment to be slow, noisy, inefficient, and more costly to support than to convert to SSADARS. Third, the key-to-disk terminal equipment in the program service centers did not have on-line querying and edit capabilities and was not suitable for the program service centers' operational structure. Finding it expensive and inefficient to operate these three terminal subsystems, SSA concluded that in improving its data communications network it should acquire a single terminal system.[1]

PRIOR GAO REVIEW OF SSA'S DATA COMMUNICATIONS IMPROVEMENT PLAN

During 1979, with assistance from GSA, we reviewed SSA's plan to improve its data communications network in response to an October 1978 request from the Chairman, House Committee on Government Operations. Our primary review objective then was to ensure that the plan would enable SSA to meet one of its major network goals--attaining sufficient flexibility for meeting future data communications requirements. Because this prior review was aimed only at assessing the improvement approach SSA had developed, we completed our work before the June 1980 issuance of SSA's terminal solicitation document and the subsequent contract awards to Paradyne. We thus did not assess the agency's management of resulting procurement actions. We provided our review results to the Committee staff in January 1980 and recounted and detailed them in a 1981 report to the Chairman.[2]

A major finding developed during our review of SSA's proposed terminal replacement strategy (which called for acquiring

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[1]SSA also determined that modems and local communication lines needed to be improved and concentrator capacity needed to be increased to speed up deteriorating system response time and accommodate increasing workloads and future system expansion. These efforts, however, are not addressed in this report.

[2]"Solving Social Security's Computer Problems: Comprehensive Corrective Action Plan and Better Management Needed" (HRD-82-19, Dec. 10, 1981).

a microprocessor-based, nonprogrammable device) was that such an acquisition could, in our view, seriously restrict SSA's future data processing operations. We felt the proposed nonprogrammable terminal was not easily adaptable to future changes in processing requirements and restricted the network architecture to the current method of operation, thereby precluding local office data processing. In this regard, we felt that SSA could achieve significant savings in its field office operations by performing certain data processing functions at the local level. Thus, we recommended that SSA modify its terminal replacement plans so that an "intelligent," programmable terminal could be obtained, thereby providing maximum flexibility for future agency data processing needs.

SSA officials generally agreed in concept with our recommendation but took a strong stand in favor of proceeding immediately without revising their approach, primarily due to their concern that such a revision would cause unacceptable delays in replacing the terminals. Thus, although they agreed that agency operations would eventually require programmable terminals, they stated that obtaining such equipment would have to be deferred to follow-on acquisitions.

Following subsequent in-depth discussions between the GAO-GSA review team and SSA technical staff, SSA agreed to modify its pending replacement terminal procurement action to provide for programmable terminals and direct local storage (which would increase the memory capacity of the terminals). This reflected SSA's concurrence that incorporation of these advanced features would provide the replacement terminal with greater systems life and future flexibility. In December 1979, however, SSA decided to proceed by acquiring a programmable terminal without direct local storage, but with the option of adding both more memory and direct local storage in the future. SSA believed this decision represented the most effective and unrestrictive approach to meeting its then-undefined future needs.

After analyzing SSA's rationale for this decision, we concluded that it represented an acceptable compromise approach for addressing our concerns, and we expressed our concurrence in January 1980. That assessment of SSA's decision, in effect, completed our work on this review.

RELATIONSHIP OF SSA'S DATA COMMUNICATIONS NETWORK IMPROVEMENT EFFORTS TO ITS SYSTEMS MODERNIZATION PROGRAM

In March 1982, in response to critical deficiencies in SSA's computer systems, SSA's Commissioner initiated a broad-based, multiyear, $500-million-plus Systems Modernization Program (SMP). The primary objective of this effort is to resolve the agency's chronic computer problems and move SSA to state-of-the-art computer technology by addressing the basic underlying causes of SSA's systems problems and integrating, for the first time, hardware, software, and communications solutions to

these problems.[3] The SMP was to be conducted in three distinct levels (or phases):

--Level I, the "survival" phase (first 18 months);

--Level II, the "transition" phase (next 18 months); and

--Level III, the "state-of-the-art" phase (final 24 months).

The original SMP plan document defined four modernization areas to be pursued concurrently, and a fifth was added as part of SSA's first annual SMP Plan Update. Each SMP area (or program) is designed to contribute to an overall improvement in SSA's systems operations:

--The Software Engineering Program provides for a top-down review of agency requirements and a rebuilding of SSA's software systems from the bottom up.

--The Data Base Integration Program is to eliminate the agency's heavy dependence on magnetic tape for data storage and to produce a modern, integrated, data base-oriented system.

--The Capacity Upgrade Program is to provide SSA with the computer power needed to process current and future workloads.

--The Data Communications Utility[4] Program is to provide SSA's field offices with a greatly enhanced ability to enter data into and access data from SSA's central computers.

--The Systems Operation Management Program is to modernize the operational management of SSA's programmatic, administrative, and data communications systems.

For each of these five programs, the SMP identified major projects to be undertaken and the results expected during each SMP phase.

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[3]In early 1982, GAO conducted a limited review of the original SMP plan document. The results of that review are contained in a May 28, 1982, report to Senator Lawton Chiles entitled "Examination of the Social Security Administration's Systems Modernization Plan" (GAO/HRD-82-83).

[4]This refers to a data communications network configuration in which all terminals and host computers are connected through a common "backbone" network capable of supporting all classes of data communications requirements.

Paradyne terminals no longer to be used to meet systems modernization objectives

A 1983 SSA decision not to enhance the Paradyne terminals to provide local processing capabilities, as originally planned under the agency's Systems Modernization Program, reflected a change in the agency's approach to meeting its field office automation objectives under systems modernization. Under this new approach, SSA no longer plans to use the Paradyne terminals to support field office automation. Milestones for automating currently manual field office operations and processes--a major systems modernization objective--have been significantly extended.

Although SSA initiated the Paradyne terminal procurement before SMP implementation, this procurement and the follow-on, sole-source software procurement were integral parts of the SMP Data Communications Utility Program.[5] In the original SMP plan, dated February 1982, SSA planned to complete installation of the Paradyne equipment and enhance it to meet specific field office automation objectives and to support the agency's new state-of-the-art data communications system. This approach was to be undertaken in stages:

--By September 1983, SSA planned to have (1) installed the Paradyne terminals in field offices, (2) completed the necessary terminal hardware and software enhancements to support local processing, and (3) designed specific user applications to be automated locally using the enhanced Paradyne equipment.[6]

--By September 1984, SSA planned to have begun processing user applications at local offices using the enhanced Paradyne equipment. This use of terminal "local intelligence" capabilities for automating manual field office operations was expected to improve public service nationwide.

--By March 1986, SSA planned to have begun installing its new data communications utility. These plans clearly included use of the Paradyne terminals, which were to have been further enhanced during the period March 1985 to March 1986 as part of the acquisition phase for the data communications utility.

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[5]Funds for the lease and purchase of the Paradyne equipment were included in original SMP budget estimates.

[6]In its March 1983 Systems Modernization Program Plan Update, SSA identified several user applications (functions) to be automated in local offices, including district office case management control, preparation of claims applications and earnings record requests, and benefit payment computations.

As of December 1982, SSA, in carrying out these plans, had

--installed about 1,600 of the more than 1,800 Paradyne terminals to be placed in agency field offices;

--awarded (with General Services Administration assistance) a software contract to Paradyne for enhancing terminal data transmission capabilities through operating system modifications (see app. II, p. 19); and

--issued a competitive vendor solicitation for development of applications software (to be processed on the Paradyne terminals) to automate certain manual field office operations.

During early 1983, SSA was developing a new technical approach to providing field offices with local processing capabilities. SSA determined that this new approach was more in line with the data communications utility portion of its Systems Modernization Program. It not only would provide local processing capabilities cheaper and faster than by modifying the Paradyne terminals, but also offered more system flexibility. The agency therefore decided not to enhance the Paradyne terminals to provide processing capabilities at local offices. It also abandoned further efforts to award a terminal applications software contract and had the General Services Administration terminate its operating system software contract with Paradyne.

Under its new technical approach, SSA plans to pilot test the automation of various local office terminal applications no earlier than February 1985, using existing non-Paradyne equipment. SSA anticipates beginning a phased implementation in all offices directly involved in claims processing in February 1986, with completion expected by February 1988. Not satisfied with this delayed schedule, the current acting Commissioner has begun new field office automation and management information initiatives, including the acquisition of personal computers, through which she hopes to accelerate field office automation progress.

GAO BID PROTEST DECISIONS CONCERNING SSA'S TERMINAL REPLACEMENT CONTRACT

Sperry Univac protests

On April 8, 1981, Sperry Univac Division of Sperry Corporation--one of the unsuccessful bidders on SSA's terminal replacement contract--formally protested to GAO the contract award to Paradyne, contending that it was entitled to the award because its proposal had the lowest evaluated cost under the amended proposal evaluation criteria contained in the solicitation. Sperry Univac maintained that the award was improperly made to Paradyne after SSA abandoned the stated criteria and employed different criteria to evaluate Univac's proposal. Our decision of March 22, 1982, denied the protest, concluding that SSA

properly rejected Sperry Univac's revised best and final offer because it did not conform to the maintenance pricing structure mandated by the solicitation.

On March 26, 1982, Sperry Univac requested that we reconsider our March 22 decision which, according to Univac, ignored the argument that SSA's criteria for evaluating proposal costs were defective. Specifically, Univac challenged the solicitation amendment that established, for cost evaluation purposes, that all contract options would be considered exercised in the 24th month. Univac argued that SSA never intended to exercise all options by that time. Our decision of July 7, 1982, reaffirmed our March denial, concluding that the solicitation amendment did not alter SSA's right, clearly set forth in the solicitation, to exercise options at various times during the life of the contract.

Sigma Data protests

On April 22, 1983, M/A-COM Sigma Data, Inc. (Sigma Data)--another unsuccessful bidder on the terminal replacement contract--formally protested to GAO[7] the contract award to Paradyne, citing the Securities and Exchange Commission's (SEC's) March 1983 allegations against Paradyne (see below) as an indication that Paradyne had committed a massive fraud against the government and the other competitors for the contract. Sigma Data acknowledged that allegations alone are not sufficient to sustain a protest to GAO, but requested that GAO consider its protest on the basis of evidence that may subsequently be presented to support SEC's allegations and any further relevant information that may be presented by investigating agencies and by Sigma Data. In addition, Sigma Data requested that GAO direct SSA to reimburse Sigma Data for its proposal preparation costs. Our decision of May 12, 1983, dismissed as premature both the protest and the claim for reimbursement because resolution of the issues raised by SEC depends upon evidence ultimately to be presented in court litigation.

On July 22, 1983, Sigma Data filed a second protest and claim for reimbursement of proposal preparation costs, restating its earlier position and contending that its protest was "now ripe for consideration by GAO." Sigma Data noted that subsequent to GAO's May 12 dismissal of its original protest, the pretrial discovery phase of SEC's action against Paradyne had disclosed evidence to support SEC's allegations of misconduct by Paradyne. Our decision of September 6, 1983, again dismissed both the protest and the claim for reimbursement. In our view, protest of a contract award made more than 2 years earlier was

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[7]In June 1981, SSA denied Sigma Data's April 1981 protest to the agency.

academic, since Paradyne's hardware deliveries were substantially complete and changes in available technology and agency needs would undoubtedly necessitate issuance of a new solicitation should the original award be invalidated for any reason. We dismissed the claim for reimbursement of proposal preparation costs because it was based on allegations of wrongdoing by an offeror rather than by the government.

SSA'S DEALINGS WITH PARADYNE ARE THE SUBJECT OF ONGOING CIVIL LITIGATION AND CRIMINAL INVESTIGATIONS

Civil litigation

In March 1983, SEC filed suit against Paradyne, charging the firm with violations of the Securities Act of 1933, as amended, 15 U.S.C. §77q(a)(1976) and the Securities Exchange Act of 1934, as amended, 15 U.S.C. §§78j(b) and 78m(a). In its complaint, SEC alleges that Paradyne, in connection with the preaward operational capability demonstration tests conducted by SSA under the terminal replacement procurement, used dummy equipment; used equipment made by a competitor but altered it to appear to be Paradyne's; and altered other equipment so that the processing rates appeared to be met when in fact they were not; so that, in sum, the tests were rigged and fraudulent. Specifically, the SEC contends that in responding to SSA's terminal solicitation, Paradyne falsely represented that a Paradyne microcomputer system that would meet SSA's needs already existed at that time. According to SEC's complaint, Paradyne did not have such an "off the shelf" data communications terminal to bid, as required by the solicitation, but instead sold SSA a prototype model even though the solicitation clearly stated that prototype terminals would not be acceptable.

In March 1984, Sigma Data filed a civil complaint for damages against Paradyne, seeking more than $70 million in compensatory and punitive damages. In its complaint, Sigma Data charges that Paradyne employed fraudulent actions (including mail fraud), misrepresentations, and other misconduct to obtain the terminal replacement contract, and contends that the contract would otherwise have been awarded to Sigma Data. As of early June 1984, this action--like the SEC action--had not yet gone to trial.

Criminal investigations

Besides the civil actions described above, federal investigations within the criminal justice system were also ongoing at the time of our work. These criminal investigations related to certain activities associated with the data communications upgrade effort at SSA.

In late February 1984, the former Director of SSA's Office of Data Communications was charged with attempting to extort more than $400,000 from a California software company in return

for assurances that the firm would be selected as a subcontractor on a $4 million data communications software contract to be awarded to Paradyne. The Office of Data Communications played a key role in the award of the terminal replacement contract to Paradyne and in subsequent decisions related to terminal acceptance testing, contract modifications, and SSA's September 1982 purchase of 841 leased terminals.

PAST SSA PROBLEMS IN ACQUIRING ADP AND DATA COMMUNICATIONS RESOURCES

Four earlier GAO reports[8] [9] [10] [11] discuss deficiencies in SSA's systems acquisition planning, and weaknesses in agency administrative procedures for acquiring ADP and data communications resources. The following list generally describes each type of weakness identified by our earlier work and refers (by footnote) to the specific report(s) in which it is discussed.

--Acquisitions made or proposed without delegations of procurement authority from GSA.[8] [10]

--Acquisitions made or proposed without adequate justification of need.[8] [9] [10]

--SSA systems procurement activities not adequately monitored by HHS.[8]

--Status of ongoing acquisitions not sufficiently monitored by SSA.[10]

--Acquisitions made using other than fully competitive procurement procedures.[11]

--SSA's procurement schedule may not have provided sufficient time for agency and HHS procurement reviews and associated approvals.[8]

--Contracting officers not involved during early stages of acquisitions.[8]

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[8]"Improving the Acquisition of Computer Systems" (B-164031(4), Jan. 24, 1974).

[9]Letter report on allegations questioning the need for SSA's proposed computer facilities building (HRD-77-8, Nov. 17, 1976).

[10]"Improving Social Security Administration Procedures for Acquiring ADP and Telecommunications Resources" (B-112942, Mar. 31, 1980).

[11]"Solving Social Security's Computer Problems: Comprehensive Corrective Action Plan and Better Management Needed" (HRD-82-19, Dec. 10, 1981).

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