



National Security and
International Affairs Division

B-275506

December 16, 1996

The Honorable Franklin D. Raines
Director, Office of Management
and Budget

Dear Mr. Raines:

We recently issued a report on National Aeronautics and Space Administration (NASA) infrastructure to the Chairman, Subcommittee on National Security, International Affairs, and Criminal Justice, House Committee on Government Reform and Oversight.¹ That report noted NASA's plans to consolidate the management and operation of its supercomputer resources. NASA's goals include operating from fewer locations with more efficient use of both inhouse and purchased supercomputing capability. During our fieldwork on that assignment, our contacts with three other agencies indicated that (1) NASA's efforts to reduce the cost of its supercomputer activity could have applicability to other agencies and (2) there has been no study of the governmentwide potential for more efficient use of supercomputer resources.

The purpose of this letter is to summarize our preliminary findings and elicit your views on whether your office would be the most appropriate sponsor of an assessment of the governmentwide potential for consolidating and sharing supercomputers and reducing supercomputer costs. To that end, we are asking that you or your designee respond to the questions at the end of this letter by January 13, 1997.

SUMMARY

NASA uses supercomputers to support some space mission operations and a variety of research projects. In March 1995, NASA began studying ways to cut its supercomputer costs by consolidating supercomputer management and operations. Currently, NASA is using a multi-step process to study its use of supercomputers, as summarized below:

¹NASA Infrastructure: Challenges to Achieving Reductions and Efficiencies (GAO/NSIAD-96-187, Sept. 9, 1996).

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- A consolidation team was formed with representatives from NASA's field centers that operate supercomputers, under the general oversight of headquarters' personnel from interested program offices and the Office of the Chief Information Officer.
- The team initially reviewed how NASA manages its supercomputers and recommended that the management of NASA's supercomputers be consolidated under a single office. This recommendation was accepted by NASA management, and the new Supercomputer Management Office was established at the Ames Research Center.
- The team then studied NASA's present and future supercomputer capabilities and requirements. The team considered the feasibility of consolidating NASA's supercomputer resources at fewer physical locations, increasing shared use of supercomputers, and meeting some requirements through commercial supercomputers. The team's recommendations included (1) reducing NASA's supercomputer sites from seven to three, with future consideration of a single site; (2) increasing inter-unit sharing of supercomputers; and (3) conducting cost-benefit analyses to identify consolidation opportunities and requirements that could be met by commercial supercomputers.
- The team is currently conducting cost-benefit and related analyses in support of future sharing, consolidation, and commercial purchase decisions.

During our work at NASA, it became apparent that there could be similar opportunities at other federal agencies. Although identifying such opportunities was beyond the scope of our work, we did briefly discuss that potential with supercomputer personnel at various management levels in NASA and three other federal agencies--the National Institutes of Health, the National Science Foundation, and the Department of Energy--that use supercomputers extensively.

These managers indicated that some interagency sharing of supercomputers is being done, but they agreed there were further opportunities for more efficient use of supercomputer resources and that a governmentwide study of such opportunities was desirable. However, none of them knew of any planned or ongoing efforts to do so. Several of the managers said that consolidation of supercomputers among agencies could reduce government costs while still meeting users' needs.

Some of the managers cautioned that not all supercomputers should be consolidated.² Several believe that a thorough examination of each supercomputer's operating environment, with particular consideration of the missions they perform, would be needed to properly assess consolidation opportunities. Several also noted that specific cost-benefit analyses should be performed.

Further support for exploring the potential of supercomputer consolidation is provided by the High Performance Computing and Communications (HPCC) Program. Earlier this year, HPCC managers described numerous benefits achieved through interagency coordination and cooperation under this program, including (1) reduced supercomputing costs and duplication of effort and resources among agencies, and (2) increased supercomputing and telecommunications capabilities and sharing of data. While the HPCC program focuses on research and development supercomputers, similar methods could be used to improve management and use of production supercomputers.

As you are aware, federal agencies are exploring ways to make their operations more efficient and effective in accordance with the Government Performance and Results Act (GPRA) and the National Performance Review (NPR). As part of the efforts to implement GPRA and the more recent Clinger-Cohen Act, your office has asked agencies to link their information technology investments to program missions and goals. Thus, we believe that your office is well positioned to sponsor a governmentwide study of supercomputer consolidation and sharing opportunities.

Such a study would be consistent with Executive Order 13001, "Federal Information Technology," which directs federal agencies to improve the government's procurement and use of information technologies, in part by improving cooperation with and sharing of agency information systems. The Order establishes the Chief Information Officers Council as the principal interagency forum to improve federal agency information technology practices, including the use and sharing of federal information resources.

Supercomputer consolidation efforts could help agencies meet GRPA and NPR objectives by identifying federal supercomputer

²One example cited was the use of supercomputers in weather forecasting. It might not be appropriate to share such supercomputers because some weather situations require that forecasters have timely access to supercomputers.

resources that could be shared or consolidated and supercomputer requirements that could be met from commercial sources without adversely impacting on the programs they support. While NASA's specific approach may not be directly transferable to other federal agencies, it could provide a useful starting point from which to begin examining how greater supercomputer efficiency might be accomplished within and among federal agencies.

QUESTIONS

Would the Office of Management and Budget be the most appropriate sponsor of a study of the governmentwide potential for consolidating and sharing supercomputers and reducing supercomputer costs?

If not, which organization would be?

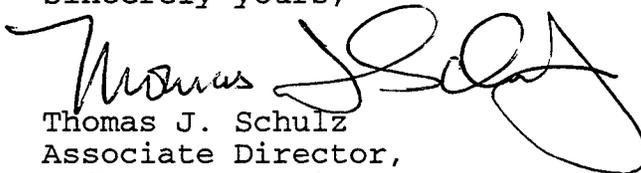
If so, will your office initiate such a study? If not, why not?

Would the Chief Information Officer Council be the most appropriate organization to direct and oversee the study? If not, what organization would be?

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We are sending copies of this letter to the Chairmen and Ranking Minority Members of the Senate Committee on Governmental Affairs and the House Committee on Government Reform and Oversight. Copies are also being sent to other interested parties, including the Administrator of NASA. Your response to our inquiry will be provided the same distribution. If you or your designee have any questions, please contact me or Mr. Frank Degnan, Assistant Director, at (202) 512-4841.

Sincerely yours,


Thomas J. Schulz
Associate Director,
Defense Acquisition Issues

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