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Toward a National Research Network (1988)

Chapter: Front Matter

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Toward A National Research Network

National Research Network Review Committee

Computer Science and Technology Board

Commission on Physical Sciences, Mathematics, and Resources

National Research Council

NATIONAL ACADEMY PRESS
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1988

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This report has been reviewed by a group other than the authors according to procedures approved by a Report Review Committee consisting of members of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine.

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PREFACE

The National Research Network Review Committee (NRNRC) was established under the auspices of the National Research Council's Computer Science and Technology Board (CSTB) to review proposals developed by the Committee on Computer Research and Applications of the Federal Coordinating Council for Science, Engineering, and Technology (FCCSET) for the establishment of a high-performance, national computer network for researchers. Through CSTB, the committee was asked by Gordon Bell (letter dated July 31, 1987), then chairman of the FCCSET Subcommittee on Computer Networking, Infrastructure, and Digital Communications, to consider three sets of issues:

- The technical feasibility of the network proposals,
- The utility of the proposed network to the research community,
- Developments in computer technology that might impinge on the proposed network and the services that might be offered over it.

The committee was subdivided into three subcommittees, each focusing on one of the above sets of issues.

Committee members were selected for expertise in computer and network technology, network-based services, and the conduct of scientific research.

The committee was launched with the expectation that FCCSET would deliver to Congress a report dedicated to the national research network proposals. However, the actual FCCSET report, dated November 20, 1987, was released by the Office of Science and Technology Policy (OSTP) as a combination of the network proposals and other proposals bearing on basic computer science research and computing for science and engineering. This report of the NRNRC primarily addresses the network proposal presented in the final OSTP report (see Appendix A), but it also draws upon background material conveyed in earlier, more detailed drafts from FCCSET (Committee on Computer Research and Applications, FCCSET 1987, Reports from the Workshop on Computer Networks, February 17–19, 1987, San Diego, California, and A Compendium of Supporting Technical Data). One result of the changes leading to the OSTP report was a shift in the committee's emphasis away from specifics of the network proposals and toward a more general discussion of the concept of and parameters for a high-performance computer network. This committee believes that far more detailed planning is required, some guidance for which is provided in this review.

The committee began its deliberations with an initial meeting on September 28, 1987, of the committee chairman and the chairmen of the three subcommittees. Subsequently, each subcommittee met and discussed its assigned issues. The full committee met on November 30, 1987, and April 5, 1988. Committee members received briefings from FCCSET representatives and discussed their reactions to the OSTP proposals and their own views on the merits and ideal attributes of a national research network. Because of its concern with the value of the proposed network to the user community, the committee also sought input from representatives of several scientific disciplines both through direct contacts with researchers and through the use of electronic bulletin boards. The committee's findings as well as a set of issues and recommendations are presented in this report.

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