Advanced Network Technology

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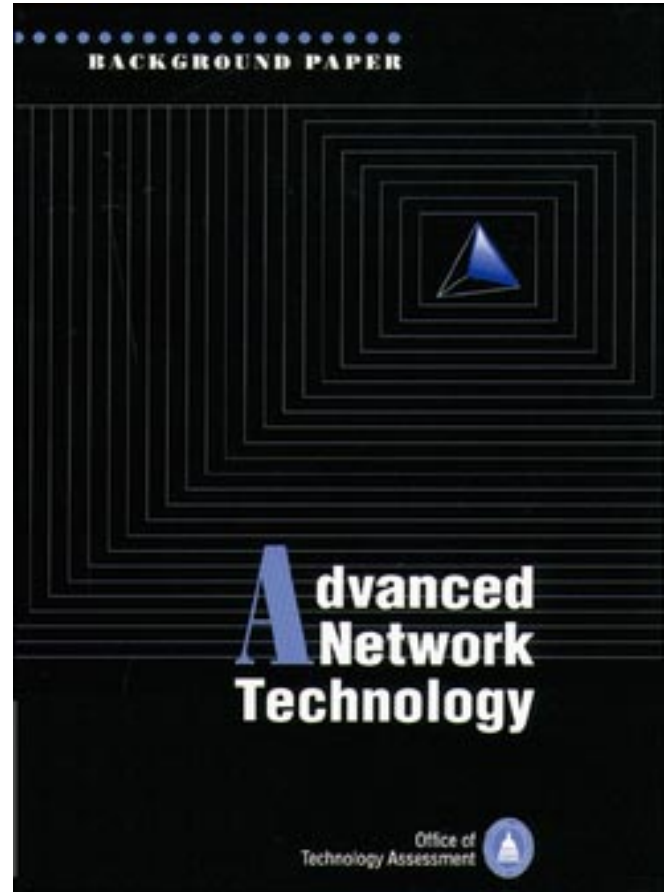
BACKGROUND PAPER

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Office of Technology Assessment

Foreword

Computer networks are having dramatic impacts on our lives. What were once esoteric tools used only by scientists and engineers are becoming more widely used in schools, libraries, and businesses. At the same time, researchers are working to develop even more capable networks that promise to change fundamentally the way we communicate.

This background paper analyzes technologies for tomorrow's information superhighways. Advanced networks will first be used to support scientists in their work, linking researchers to supercomputers, databases, and scientific instruments. As the new networks are deployed more widely, they will be used by a broader range of users for business, entertainment, health care, and education applications.

The background paper also describes six test networks that are being funded as part of the High Performance Computing and Communications Program. These test networks are a collaboration of government, industry, and academia, and allow researchers to try new approaches to network design and to attack a variety of research questions, Significant progress has been made in the development of technologies that will help achieve the goals of the High-Performance Computing Act of 1991.

This is the third publication from OTA's assessment on information technology and research, which was requested by the House Committee on Science, Space, and Technology and the Senate Committee on Commerce, Science, and Transportation. The first two background papers, *High Performance Computing & Networking for Science* and *Seeking Solutions: High-Performance Computing for Science,* were published in 1989 and 1991, respectively.

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