

## Preface

Many users today interact dynamically with computers through the use of terminals. But not all users have a thorough knowledge of computers. As a result, applications and systems are being designed with ease of use as a prime objective. Computers participate in their own resource management and installation management; often, they have access to other computers and thus can supply users with myriad services. The papers in this issue explore this era of dynamic interaction between user and computer.

Remote job entry facilities have existed for some time. Recent communications advances have resulted in networks of computers capable of passing information and jobs among themselves. Remote job entry programs have been expanded to take advantage of these computer networks, so that job-related information can be sent between programming systems. Jobs can be directed to systems that have special hardware or software features, extra processing power, or needed application programs. This concept of job networking can also aid in conversion to new systems and in balancing work loads. The paper by Crabtree defines job networking and discusses its evolution, value, and uses. Included is a brief description of a large IBM internal network.

Related to, but not part of, the Advanced Communications Function, which provides networking capability for Systems Network Architecture (SNA), is a program that brings job networking to Multiple Virtual Storage (MVS). This program is described in the paper by Simpson and Phillips. The program, Network Job Entry (NJE) for Job Entry Subsystem 2 (JES2), was designed with compatibility and user transparency as objectives. The paper discusses how those objectives were achieved. With the computer assuming the task of selecting the proper resources for executing the job at hand, the terminal user can submit his job and receive his output without concern for where the job runs.

Users interacting dynamically with computers can expand their own capabilities. Our third paper, by Musgrave, tells how the graphic designer can use the computer as a tool for design. With a graphic display system operating under an experimental program developed at the IBM San Jose Research Center, the author has been able to manipulate color and form and mix images to create collage effects. With the computer's speed and storage capacity, the designer can test many alternatives quickly and economically. The computer enhances the designer's flexibility and creativity. This experimental graphics system has been used to create cover designs for several recent issues of the IBM Systems Journal and the IBM Journal of Research and Development.

Concurrent with the growing use of communications terminals has been an increase in the use of display terminals. Particularly

with SNA, which enables a single terminal to handle many applications, display terminals are frequently the choice. In many time-sharing applications, traditionally a typewriter terminal environment, the display terminal has displaced the hard-copy terminal. This has resulted in problems related to line orientation, hard-copy output needs, and logs for reviewing what has taken place. The TSO Session Manager is a program that has been developed to address such problems and take full advantage of the capabilities of the display terminal under TSO. The paper by McCrossin, O'Hara, and Koster discusses this program, introducing the concepts of streams, windows, and scrolling. The program is based on a prototype developed at the IBM Thomas J. Watson Research Center. The paper summarizes user experience with that prototype.

Remote users are subject to frustration by systems that are down or appear to run in degraded fashion. Quick identification and correction of problems are essential for the satisfactory operation of a communications system, whether large or small. DEMF (Display Exception Monitoring Facility), an expanded version of an earlier installation management aid, FERS (Facilities Error Recognition System), is used by IBM customer engineers and customer personnel to display error statistics gathered from many sources. The paper by Ford discusses the development of FERS and DEMF and the use of these service aids in problem solving.

The growth in computer usage and user needs has led to the development of more complex operating systems for controlling the computer environment. The operating system has assumed a major role in resource management and therefore must be tuned to each individual environment. MVS was designed specifically with this requirement in mind. The vehicle for tuning MVS is the Systems Resource Manager, which contains most of the control algorithms. The paper by Beretvas describes the techniques for "first stage" tuning, or rough tuning, of an MVS system, in which a repetitive cycle of observation and correction is used. Beretvas discusses the parameters to be tuned, the tools to use, and the techniques for evaluating and controlling the tuning process.

Recently, several good books on data communications have been published. Two of those books are reviewed in this issue. They explore telecommunication protocols, SNA, and other communications-related topics of importance. I wish to thank the reviewers, Dr. Paul Green and Dr. Frank Corr, for their contributions.

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Editor