

Preface

The first paper in this issue of the Systems Journal continues the exploration of telecommunications topics initiated in previous issues with a description of a communications network management program. Also included in this issue are papers presenting some of the new software systems of the 8100 Information System and reviews of two recent books on queuing theory and modeling of computer performance.

With the growth in computer networks and large communications-oriented applications, the need for an organized approach to the management and control of these environments is becoming more evident. The concept of communications network management is to provide an organized, somewhat automated yet flexible system that aids management in functions such as operations, problem determination, change control, performance, accounting, and security. In this and future issues we will look at different ways to accomplish this control. One approach to communications network management is to provide centralized control which is integrated into the Systems Network Architecture user network. This kind of approach is illustrated in the paper by Weingarten, which focuses on two program products that provide centralized operator control and problem determination capabilities for a network.

When IBM announced the 8100 Information System, a new full-function operating system specifically designed to support distributed processing was also announced. This operating system, Distributed Processing Programming Executive (DPPX), is the subject of several papers in this issue. The paper by Kiely presents an overview of DPPX, outlining the structure of the operating system and the particular characteristics that uniquely support distributed processing. Albrecht and Thomason describe the input-output facilities of DPPX, emphasizing the layered structure and architecture of these services in their paper. The

data management facilities of DPPX are discussed in the paper by Fitzgerald and Goodrich. A layered structure, an improved concept of device independence, and the use of catalogs are key design features enabling the data management component to meet its objectives.

Another software program used with the 8100 Information System is the Data Base and Transaction Management System (DTMS). This data base/data communication product was designed in concert with the base operating system for the 8100, DPPX. The paper by Waters follows the progress of DTMS from initial design criteria to completed program structure.

The final paper is a technical essay by Lorin discussing the nature of distributed systems, design processes associated with the distribution of processing, and the conditions under which expected benefits may occur. Among the motivations for distributed processing discussed are centralized management, reliability, systems growth, and close user interface. This essay, like several papers in previous issues, attempts to identify major issues and considerations in the development of a distributed data processing environment.

I wish to thank Stan Winkler and Tom Giammo for their reviews of two recent books, *Modeling and Analysis: An Introduction to Performance Evaluation Methodology* by H. Kobayashi, and *Probability, Statistics, and Queueing Theory with Computer Science Applications* by A. O. Allen.

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