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Special Interest Group on Operating Systems

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Proceedings of the Ninth ACM Symposium on Operating Systems Principles

10-13 October 1983
Mount Washington Hotel
Bretton Woods, New Hampshire

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Chairperson

Alan J. Smith
Computer Science Division
Dept. EECS
University of California
Berkeley, CA 94720

V. Chairperson

Liba Svobodova
IBM Research Lab
4 Saumerstrasse
CH-8803 Rushlikon
Switzerland

Secretary-Treasurer

Kevin C. Kahn
Intel Corp.
3585 SW 198 Ave.
Aloha, OR 97005

Newsletter Editor

William M. Waite
Dept. of Electrical and
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Contributions to OSR should be sent to the editor, should not ordinarily exceed 1000 words, and should be single-spaced within a 6½ inch by 8½ inch box with at least one inch top and side (1½ inch bottom) margins and in camera-ready form. All letters to the editor will be considered for publication unless accompanied by a request to the contrary. Except for editorial items, all sources of material appearing in OPERATING SYSTEMS REVIEW will be clearly identified. Items attributed to individuals will ordinarily be interpreted as personal rather than organizational opinions. The technical material in this newsletter is not refereed. Deadlines for submitting material are the 14th of March, June, September, and December.

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on
Operating Systems Principles

10-13 October 1983
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Referees

Unlike most previous SOSPs, the 9th SOSP has relied almost entirely on the Program Committee to review submitted papers. There were some cases in which outside referees were used, however, and we wish to acknowledge their important contribution to the Symposium.

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FOREWORD

The Ninth Symposium on Operating System Principles continues the tradition of its eight predecessors by reporting on significant original work in the field. The papers in this proceedings range from design proposals to implementation lessons, from storage allocation to security verification, from data storage to communication protocols. While many focus on topics and issues in distributed systems, the papers as a whole are indicative of the true breadth of the field.

The strong technical history of these symposia and their relative infrequency (bi-annual) exerted considerable influence on the makeup of the program committee and on the reviewing process for the submitted papers. Ten committee members, displaying wide technical diversity, were chosen from six academic institutions and three industrial organizations. More than half were serving on an SOSP program committee for the first time. Departing from the approach followed in recent years, the committee members decided to review most of the papers themselves, consulting outside referees in those cases where special expertise was needed. A two round reviewing process was employed, ensuring that at least three committee members read each submission and that most members read most of the papers. The committee was thus very well informed when it met and selected sixteen papers from a field of eighty-three for inclusion in the symposium. Three outstanding papers were nominated and subsequently accepted for publication in a special issue of the ACM Transactions on Computer Systems. A fourth paper was independently submitted to and accepted by TOCS. In accordance with ACM policy, only extended abstracts of these papers appear in the proceedings.

A good technical program is necessary but not sufficient for a successful conference. In addition to the program committee and other symposium officials, we wish to thank Kathi Anderson, Shannon McElyea, and Muriel Webber, whose diligence and care have greatly contributed to the quality of this conference.

Roy Levin and Dave Redell
Program Committee Co-Chairmen
August, 1983

Ninth ACM Symposium on Operating Systems Principles

11 October 1983

Session I: Communication

Computation and Communication in R: A Distributed Database Manager* 1
(ABSTRACT ONLY*)
B.G. Lindsay, L.M. Haas, C.Mohan, P.F. Wilms and R.A. Yost

Implementing Remote Procedure Calls 3
(ABSTRACT ONLY*)
A. D. Birrell and B. J. Nelson

An Asymmetric Stream Communication System 4
A. P. Black

Session II: Resource Management

Resource Management in a Decentralized System 11
D. H. Craft

A File System Supporting Cooperation Between Programs 20
L. Guarino Reid and P. L. Karlton

Fast Fits: New Methods for Dynamic Storage Allocation 30
(ABSTRACT ONLY*)
C. J. Stephenson

Session III: Special Session

Hints for Computer System Design 33
B. W. Lampson

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Session IV: LOCUS

The LOCUS Distributed Operating System *49*
B. Walker, G. Popek, R. English, C. Kline and G. Thiel

A Nested Transaction Mechanism for LOCUS *71*
E. T. Mueller, J. D. Moore, and G. J. Popek

Session V: Work in Progress

A series of short presentations describing projects currently in progress.

Session VI: Recovery and Reconfiguration

A Message System Supporting Fault Tolerance *90*
A. Borg, J Baumbach, and S. Glazer

Publishing: A Reliable Broadcast Communication Mechanism. *100*
M. L. Powell and D. L. Presotto

Process Migration in DEMOS/MP. *110*
M. L. Powell and B. P. Miller

Session VII: Debate

RESOLVED: *That network Transparency is a Bad Idea*

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Session VIII: Distributed File Access

The TRIPOS Filing Machine, a Front End to a File Server *119*
M. F. Richardson and R. M. Needham

The Distributed V Kernel and its Performance for Diskless Workstations *128*
D. R. Cheriton and W. Zwaenepoel

Session IX: Experience

Experience with Grapevine: The Growth of a Distributed System *140*
(ABSTRACT ONLY*)
M. D. Schroeder, A. D. Birrell, and R. M. Needham

Reflections on the Verification of the Security of an Operating System Kernel *142*
J. Silverman

* In keeping with ACM publication policy, papers that will appear in the ACM Transactions on Computer Systems are reprinted here in extended abstract form only.