OPERATING SYSTEMS REVIEW is an informal quarterly publication of the ACM Special Interest Group on Operating Systems (SIGOPS), whose scope of interest includes: Computer operating systems and architecture for multiprogramming, multiprocesssing, and time sharing; resource management; evaluation and simulation; reliability, integrity, and security of data; communications among computing processors; and computer system modeling analysis.

Membership in SIGOPS (at $8 per annum) is open to ACM members and associate members and student members (at $4 per annum); non-ACM members may join also (at $22 per annum). Non-members of SIGOPS may subscribe to OPERATING SYSTEMS REVIEW at $14 per year. All SIGOPS members receive OPERATING SYSTEMS REVIEW.

SIGOPS membership application forms are available from ACM National Headquarters (or see back cover of this issue), 1133 Avenue of the Americas, New York, New York 10036, telephone (212) 265-6300. Change of address and other matters pertaining to the SIGOPS mailing list should be directed to ACM National Headquarters, not to any of the SIGOPS officers.

Contributions to OSR should be sent to the editor, and 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.
Eighth Symposium on Operating Systems
Principles

General Chairperson

John Howard - IBM Research, San Jose

Program Chairperson

David P. Reed - MIT

Program Committee

David Cheriton - University of British Columbia
Dorothy Denning - Purdue University
Jim Gray - Tandem Computers
John Howard - IBM Research, San Jose
Anita Jones - Carnegie-Mellon University
Butler Lampson - Xerox PARC
Edward Lazowska - University of Washington
Alan Smith - University of California, Berkeley

Local Arrangements

Sara Dake - Registration
Jim Gray - Catering
Gene McDaniel - Wine
8SOSP Referees

Sten Andler
Greg Andrews
J.L. Baer
Joel Bartlett
A. Bernstein
Andrew Birrell
Russ Blake
Toby Bloom
J.C. Browne
Roy Campbell
David Clark
Robert Cook
Geoffrey Cooper
George Cox
Doug Currie
Yogen Dalal
Roger Dannenberg
J. Demco
Ivor Durham
Malcolm Easton
P.H. Enslow
Robert Filman
Michael Fischer
Brett Fleisch
Harry Forsdick
Robert Fowler
James Frankel
W.D. Frazer
David Gifford
R.L. Gordon
Wayne Gramlich
P. Harter
Andrew Herbert
Maurice Herlihy
Thomas H. Hinke
Warren Jessop
Paul Johnson
Dennis Kafura
Stephen Kent
R.B. Kieburitz
Walter Kohler
S. Krakowiak
David Lamb
Gerard Le Lann
Keith Lantz
Richard Leblanc
Roy Levin
Henry Levy
Bruce Lindsay
Steven Lipner
Barbara Liskov
John Livesey
David Lomet
Allen Luniewski
Uli Manber
Paul McJones
John Motzner
Philip Mills
M.F. Mitoma
R.M. Needham
Peter Neumann
Jerre D. Noe
John Ousterhout
J. Peterson
Wil Plouffe
Michael Powell
Ram Rao
Loretta Reid
Glenn Ricart
William Riddle
David Russell
Jerome Saltzer
M. Satyanarayanan
Ashok Saxena
Donald Sceiza
Richard Schantz
Robert Scheifler
Roger Schell
Fred Schneider
Michael Schroeder
Karsten Schwans
Peter Schwarz
A. Shaw
Mark Sherman
J.F. Shoch
A. Silberschatz
Barbara Simons
Karen Solins
Marvin Solomon
Eugene Stark
Eric Stephenson
B. Stroustrup
T.J. Teixeira
Doug Terry
Ken Thompson
William E. Weihl
Maurice Wilkes
Robin Williams
Jim Wylie
John Zahorjan
Foreword

Like its predecessors of the past 14 years, the Eighth Symposium on Operating Systems Principles represents the diversity and vigor of the field. The program speaks for itself. I know that I found that reading the papers was fun -- hardly a tedious task at all.

All in all, 103 papers were submitted. The competition was strong — only 23 papers were accepted — less than one in four. Of these, six were nominated to be considered for inclusion in a special issue of Communications of the ACM; five of these were accepted by a second refereeing process managed by Anita Jones. Only extended abstracts for those papers appear here.

The refereeing process, conducted under tight timing constraints, went well. Unlike other conferences, SOSP tries to maintain a high standard of refereeing. Most papers were read by four of the program committee members, myself, and two outside referees. Each outside referee who volunteered was given from one to four papers in his/her area. The outside referees often perform a special service that I value highly. They usually provide many helpful comments to the author(s) to aid in revision. However, I have the general impression that the average quality of outside referee reports is decreasing somewhat. This time a larger fraction of the reports received seemed to concentrate on rating the papers only. I hope this is not indicative of a general trend.

Like many conferences, this one could not have been put together without a lot of help. In addition to the referees, I'd like to thank Debra Fagin, whose help has been invaluable.

David P. Reed
Program Chairperson
October, 1981
Conference Program

14 December 1981

Session I: Verifying Systems Properties

Session Leader: John Howard

Proving Real-Time Properties of Programs with Temporal Logic
Arthur Bernstein, Paul Harter

Design and Verification of Secure Systems
John Rushby

Session II: Systems

Session Leader: Edward Lazowska

A NonStop TM Kernel
Joel Bartlett

Observations on the Development of an Operating System
Hugh Lauer

Session III: Remote Data Storage

Session Leader: Butler Lampson

The FELIX File Server
Marek Fridrich, W. Older

A Comparison of Two Network-Based File Servers
James Mitchell, Jeremy Dion

A Reliable Object-Oriented Repository for a Distributed Computer System
Liba Svobodova

Session IV: Computer-Computer Communication

Session Leader: David Reed

Sequencing Computation Steps in a Network
Andrew Herbert, Roger Needham

Accent: A Communication Oriented Network Operating System Kernel
Richard Rashid, George Robertson

Performing Remote Operations Efficiently on a Local Computer Network
Alfred Spector
15 December 1981

**Session V: Memory Management**

Session Leader: Alan Smith

*Converting a Swap-Based System to do Paging in an Architecture Lacking Page-Referenced Bits*
Ozalp Babaoglu, William Joy

*WSClock -- A Simple and Effective Algorithm for Virtual Memory Management*
Richard Carr, John Hennessy

*A Study of File Sizes and Functional Lifetimes*
M. Satyanarayanan

**Session VI: Protection Techniques**

Session Leader: Dorothy Denning

*Hierarchical Take-Grant Protection Systems*
Matt Bishop

*Cryptographic Sealing for Information Secrecy and Authentication*
David Gifford

**Session VII: The iMAX-432 Operating System**

Session Leader: Anita Jones

*A Unified Model and Implementation for Interprocess Communication in a Multiprocessor Environment*
G. Cox, W. Corwin, K. Lai, F. Pollack

*iMAX: A Multiprocessor Operating System for an Object-Based Computer*

*The iMAX-432 Object Filing System*
F. Pollack, K. Kahn, R. Wilkinson
16 December 1981

Session VIII: Distributed Systems
Session Leader: David Cheriton

The Architecture of the Eden System

A Distributed UNIX System Based on a Virtual Circuit Switch

LOCUS: A Network Transparent, High Reliability Distributed System

Session IX: User-Oriented Systems
Session Leader: Jim Gray

Grapevine: An Exercise in Distributed Computing
Andrew Birrell, Roger Levin, Roger Needham, Michael Schroeder

BRUWIN: An Adaptable Design Strategy for Window Manager/Virtual Terminal Systems
Norman Meyrowitz, Margaret Moser