An operating systems reading list

Darrell D. E. Long

May 9, 1994

This reading list is maintained using *refdbms* (available from ftp.cse.ucsc.edu:/pub/refdbms). It started as a collection of graduate operating systems course reading lists, but has been added to by my students and by others around the wI hope you take a few moments to look it over (you may find yourself listed), and send me any correct

that you have. The prefered method, of course, is for you to do it using *refdbms* – but that requires a commitment of disk space and the time to compile it (the pay-off is high, so think about it). If you don't run *refdbms,* just send me the changes in the mail and I will make them as soon as I can.

References

[1] Robert Abbot and Hector Garcia-Molina. Scheduling real-time transactions. *SIGMOD Record*, **17**(1):71–81, Mar. 1988.

[2] Curtis Abbott. Efficient editing of digital sound on disk. *J. Audio Eng. Soc.*, **32**(6):394–402, 1984.

[3] Robert Abbott and Hector Garcia-Molina. Scheduling real-time transactions with disk resident data. Technical report CS-TR-207-89. Princeton University, Feb. 1989.

[4] Gary M. Abshire and Kenneth L. White. Techniques and Suggestions for Presenters. *IEEE Transactions on Professional Communication*, **PC-21**(3):97–100, Sep. 1978.

[5] Walid Abu-Safah, Harlan Husmann, and David Kuck. On Input/Output speed-up in tightly-coupled multiprocessors. Technical report UIUCDCS-R-84-1182. Department of Computer Science, University of Illinois at Urbana-Champaign, 1984.

[6] M. Accetta, R. Baron, W. Bolosky, D. Golub, R. Rashid, A. Tevanian, and M. Young. Mach: a new kernel foundation for UNIX development. *Proceedings of the USENIX 1986 Summer Conference (Atlanta)*, pages 93–112. USENIX Association, Berkeley, CA, Jun. 1986.

[7] Mike Accetta, Robert Baron, David Golub, Richard Rashid, Avadis Tevanian, and Michael Young. Mach: A new kernel foundation for unix development. Technical report. Department of Computer Science, Carnegie-Mellon University, Pittsburgh, Pennsylvania, Aug. 1986.

[8] Rakesh Agrawal and Ahmed K. Essat. Location Independent Remote Execution in NEST. *IEEE Transactions on Software Engineering*, **SE-13**(8):905–12, Aug. 1987.

[9] M. Ahamad, J. E. Burns, P. W. Hutto, and G. Neiger. Causal memory. *Proc. of the 5th Int. Workshop on Distributed Algorithms* (Delphi, Greece), pages 9–30. LNCS 579, Springer-Verlag, Delphi, Greece, 1991.

[10] Mustaque Ahamad, Partha Dasgupta, and Richard J. LeBlanc Jr. Fault-tolerant atomic computations in an object-based distributed system. Technical report GIT–ICS–88/54. Georgia Institute of Technology, Dec. 1988.

[11] M. Ahamed and M. J. Bernstein. Multicast communication in UNIX. *Proceedings of the 5th International Conference on Distributed Computing Systems* (Denver, CO), May 1985.

[12] Selim G. Akl. Digital signatures: A tutorial survey. *IEEE Computer*, Feb. 1983.

[13] J. E. Allchin. *An Architecture for Reliable Decentralized Systems.* PhD thesis, published as Ph.D. Thesis. Georgia Tech, Atlanta, GA, 1983.

[14] A. O. Allen,. *Probability, Statistics and Queueing Theory.* Academic Press, 1978.

[15] Jose Nuno Almeida, J. Cabral, and A. Alves. End-to-end synchronization in packet-switched networks. *Network and Operations System Support for and Video, Second International Workshop*, pages 84–93, Ralf Guido Herrtwich, editor, Nov. 1991.

[16] Guy Almes, Andrew Black, Ed Lazowska, and Jerry Noe. The Eden system: A technical review. *IEEE Transactions on Software Engineering*, **SE–11**(1):43–59, Jan. 1985.

[17] Guy T. Almes. Integration and distribution in the Eden system. Technical report 83–01–02. University of Washington, 1983.

[18] P. A. Alsberg, G. G. Bedford, J. D. Day, and E. Grapa. Multi-Copy Resiliency Techniques. Technical report CAC-202. Center for Advanced Computation, University of Illinois, 1976.

[19] P. A. Alsberg and J. D. Day. A Principle for Resilient Sharing of Distributed Resources. *Second International Conference on Software Engineering.* IEEE., 1976.

[20] D. P. Anderson, R. G. Herrtwich, and C. Schaefer. SRP: A resource reservation protocol for guaranteed-performance communication in the internet. Technical report UCB/CSD 90/596. University of California, Berkeley, Sep. 1990.

[21] D. P. Anderson, S. Y. Tzou, R. Wahbe, R. Govindan, and M. Andrews. Support for continuous media in the DASH system. Technical report UCB/CS 89/537. University of California, Berkeley, Oct. 1989.

[22] David Anderson. Meta-scheduling for distributed continuous media. Technical report UCB/CSD 90/599. University of California, Berkeley, Oct. 1990.

[23] David Anderson, Ramesh Govindan, and George Homsy. Abstractions for distributed continuous media in a network window system. Technical report UCB/CSD 90/596. University of California, Berkeley, Oct. 1990.

[24] David Anderson, Ramesh Govindan, George Homsy, and Robert Wahbe. Integrated digital continuous media: a framework based on mach, x11, and tcp/ip. Technical report UCB/CSD 90/566. University of California, Berkeley, Oct. 1990.

[25] David P. Anderson. Meta-scheduling for distributed continuous media. *Pr*
sium on Operating Systems Principles, 1991.

[26] David P. Anderson, Domenico Ferrari, P. Venkat Rangan, and Shin-Yuan Tzou. The Dash Project: Issues in the Design of Very Large Distributed Systems. Technical report UCB/CSD 87/338. Computer Science Division EECS, University of California, Jan. 1987.

[27] David P. Anderson, Yoshitomo Osawa, and Ramesh Govindan. Real-time disk storage and retrieval of digital audio/video data. *13th ACM Symposium on Operating Systems Principles*, 1991.

[28] David P. Anderson, Yoshitomo Osawa, and Ramesh Govindan. Real-time disk storage and retrieval of digital audio/video data. Technical report TR UCB CSD 91/646. aug 1991.

[29] Thomas E. Anderson, Brian N. Bershad, Edward D. Lazowska, and Henry M. Levy. Scheduler activations: effective kernel support for the user-level management of parallelism. *SOSP.* (Asilomar, Pacific Grove, CA), pages 95–109. ACM. SIGOPS, Oct. 1991.

[30] Gregory Andrews, Richard Schlichting, R. Hayes, and Titus Purdin. The design of the Saguaro distributed operating system. *IEEE Transactions on Software Engineering*, **SE–13**(1):104–18, Jan. 1987.

[31] Gregory R. Andrews. Synchronizing resources. *ACM Transactions on Programming Languages and Systems*, **3**(4):405–30, 1981.

[32] Gregory R. Andrews and Fred B. Schneider. Concepts and notations for concurrent programming. *ACM Computing Surveys*, **15**(1):3–43, 1983.

[33] Martin Andrews. Guaranteed Performance for Continuous Media in a General Purpose Distributed System. M.S. thesis. University of California, Berkeley, 1989. Master's thesis.

[34] Krysztof R. Apt and Jean Luc Richier. Real Time Clocks Versus Virtual Clocks. In M. Broy, editor, *Control Flow and Data Flow: Concepts of Distributed Programming*, volume F14 of NATO Advanced Study Institute Series, pages 475–503. Springer-Verlag, 1985.

[35] Krysztof R. Apt and Jean Luc Richier. Real time clocks versus virtual clocks. Technical report 84-34. Université Paris, Jul. 1984.

[36] Raymond K. Asbury and David S. Scott. FORTRAN I/O on the iPSC/2: Is there read after write? *Proceedings of the Fourth Conference on Hypercubes, Concurrent Computers and Applications* (Monterey). IEEE, Mar. 1989.

[37] M. Stella Atkins, Garnik Haftevani, and Wo Shun Luk. An efficient kernel-level dependable multicast protocol for distributed systems. *Proceedings of the Eighth Symposium on Reliable Distributed Systems*, pages 94–101. IEEE, 1989.

[38] Josè M. Bernabèu Aubàn, Phillip W. Hutto, and M. Yousef A. Khalidi. The architecture of the Ra kernel. Technical report GIT–ICS–87/35. Georgia Institute of Technology, 1987.

[39] M. A. Auslander, D. C. Larkin, and A. L. Scherr. The Evolution of the MVS Operating System. *IBM Journal of Research and Development*, **25**(5):471–82, Sep. 1981.

[40] Baruch Awerbuch. Complexity of network synchronization. *Journal of the ACM*, **32**(4):804–23, Oct. 1985.

[41] Ö. Babaoğlu and W. Joy. Converting a Swap-Based System to do Paging in an Architecture Lacking Page Reference Bits. *SOSP.*, pages 78–85. ACM., 1981.

[42] M. J. Bach. *The Design of the UNIX Operating System.* Prentice-Hall, 1986.

[43] M. J. Bach and S. J. Buroff. Multiprocessor UNIX Systems. *AT&T Bell Laboratories Technical Journal*, **63**(8):1733–50, Oct. 1984.

[44] B. R. Badrinath, Arup Acharya, and Tomasz Imielinski. Impact of Mobility on Distributed Computations. *Operating Systems Review*, pages 15–20, Apr. 1993.

[45] Mary G. Baker, John H. Hartman, Michael D. Kupfer, Ken W. Shirriff, and John K. Ousterhout. Measurements of a distributed file system. *SOSP.*, pages 198–212, Oct. 1991.

[46] T. P. Baker and Kevin Jeffay. Corset and lace: Adapting Ada runtime support to real-time systems. *Proceedings of the 1987 Real Time Systems Symposium*, 1987.

[47] T. P. Baker and Alan Shaw. The cyclic executive model and Ada. *The Journal of Real-Time Systems*, **1**(1), 1989.

[48] Roland Balter. Locally Distributed Operating Systems Analysis and Classification. Comandos (834). Laboratoire de Génie Informatique, Dec. 1986.

[49] Anindo Banerjea and B. A. Mah. The real-time channel administration protocol. *Network and Operations System Support for and Video, Second International Workshop*, pages 160–70, Ralf Guido Herrtwich, editor, Nov. 1991.

[50] Amotz Bar-Noy, Danny Dolev, Cynthia Dwork, and H. Raymond Strong. Shifting gears: Changing algorithms on the fly to expedite Byzantine agreement. *Proceedings of the Sixth ACM Symposium on Principles of Distributed Computing* (Vancouver, British Columbia), pages 42–51. ACM SIGOPS-SIGACT, Aug. 1987.

[51] Amnon Barak and Amnon Shiloh. A distributed load-balancing policy for a multicomputer. *SOFTWARE - PRACTICE AND EXPERIENCE*, Sep. 1985.

[52] D. Barbara, H. Garcia-Molina, and A. Spauster. P Dynamic Vote Reassignment. *Sixth International Conference on Distributed Computing Systems*, pages 37–44. IEEE., 1986.

[53] Daniel Barbara and Hector Garcia-Molina. Mutual exclusion in partitioned distributed systems. *Distributed Computing*, **1**:119–32, 1986.

[54] Joel F. Bartlett. A 'NonStop' Operating System. *Eleventh Hawaii International Conference on System Sciences*, volume 3, pages 103–17, 1978.

[55] Joel F. Bartlett. A non-stop kernel. *Proceedings of the Eighth Symposium on Operating Systems Principles*, pages 22–9. ACM, Dec. 1981.

[56] Jon Barwise. Three views of common knowledge. *Proceedings of the Second Conference on Theoretical Aspects of Reasoning about Knowledge* (Pacific Grove, California), pages 365–80, Moshe Y. Vardi, editor, Mar. 1988.

[57] Forest Baskett, John H. Howard, and John T. Montague. Task Communication in DEMOS. *SOSP.* Published as *OSR.*, **11**(5):23–31, Nov. 1977.

[58] Micah Beck, T. K. Srikanth, and Sam Toueg. Implementation issues in clock synchronization. Technical report TR 86-749. Department of Computer Science, Cornell University, May 1986.

[59] Brian Beckett. *Introduction to Cryptology.* Blackwell Scientific Publications, 1988.

[60] S. M. Bellovin. Security problems in the tcp/ip protocol suite. *Computer Communications Review*, **19**(2):32–48, Apr. 1989.

[61] M. Ben-Ari. *Principles of Concurrent Programming.* Prentice-Hall, 1982.

[62] Michael Ben-Or. Another advantage of free choice: Completely asynchronous agreement protocols. *Proceedings of the Second ACM Symposium on Principles of Distributed Computing* (Montreal, Quebec), pages 27–30. ACM SIGOPS-SIGACT, Aug. 1983.

[63] A. Bensoussan, C. T. Clingen, and R. C. Daley. The Multics Virtual Memory: Concepts and Design. *CACM.*, **15**(5):308–18, May 1972.

[64] J. Bentley. The Back of the Envelope. *CACM.*, **27**(3):180–4, Mar. 1984.

[65] J. Bentley. The Envelope is Back. *CACM.*, **29**(3):176–81, Mar. 1986.

[66] James C. Berets and Richard M. Sands. Introduction to Cronus. Technical report. BBN Systems and Technologies Corp., Jan. 1989.

[67] Robert Berhard. Breaching system security. *IEEE Spectrum*, pages 24–31, Jun. 1982.

[68] Arthur Bernstein. A loosely coupled system for reliably storing data. *IEEE Transactions on Software Engineering*, **SE–11**(5):446–54, May 1985.

[69] Arthur Bernstein and Paul Harter. Proving real-time properties with temporal logic. *Proceedings of the Eighth ACM Symposium on Operating Systems Principles* (Pacific Grove, California), pages 1–11. ACM SIGOPS, Dec. 1981.

[70] P. A. Bernstein and N. Goodman. An Algorithm for Concurrency Control and Recovery in Replicated Distributed Databases. *ACM Transactions on Database Systems*, **9**(4):596–615, Dec. 1984.

[71] P. A. Bernstein, V. Hadzilacos, and N. Goodman. *Concurrency Control and Recovery in Database Systems.* Addison-Wesley, 1987.

[72] P. A. Bernstein and D. W. Shipman. The Correctness of Concurrency Control Mechanisms in a Systems for Distributed Database – (SDD-1). *ACM Transactions on Database Systems*, **5**(2), Mar. 1980.

[73] P. A. Bernstein, D. W. Shipman, and J. B. Rothnie. Concurrency Control in a System for Distributed Databases (SDD-1). *ACM Transactions on Database Systems*, **5**(2):18–51, Mar. 1980.

[74] Philip A. Bernstein and Nathan Goodman. Approaches to Concurrency Control in Distributed Data Base Systems. *National Computer Conference*, pages 813–20, 1979.

[75] Philip A. Bernstein and Nathan Goodman. A proof technique for concurrency control and recovery algorithms for replicated databases. *Distributed Computing*, **1**, 1986.

[76] Philip A. Bernstein and Nathan Goodman. Multiversion concurrency control — theory and algorithms. *ACM Transactions on Database Systems*, **8**(4):465–83, Dec. 1983.

[77] Philip A. Bernstein and Nathan Goodman. Serializability theory for replicated databases. *Journal of Computer and System Sciences*, **31**(3):355–74, Dec. 1986.

[78] Philip A. Bernstein, Vassos Hadzilacos, and Nathan Goodman. *Concurrency Control and Recovery in Database Systems.* Addison-Wesley, 1987.

[79] B. Bershad, T. Anderson, E. Lazowska, and H. Levy. Lightweight Remote Procedure Call. *TOCS.*, **8**(1):37–55, Feb. 1990.

[80] Brian N. Bershad, Thomas E. Anderson, Edward D. Lazowska, and Henry M. Levy. User-level Interprocess Communication For Shared Memory Multiprocessors. *TOCS.*, **9**(2):175–98, May 1991.

[81] Brian N. Bershad, Dennis T. Ching, Edward D. Lazowska, Jan Stanislow, and Michael Schwartz. A remote procedure call facility for heterogenous compute systems. Technical report 86-09-10. University of Washington, Department of Computer Science, Sep. 1986.

[82] K. Birman. Replication and Fault Tolerance in the Isis System. Technical report 85 668. Cornell University, 1985.

[83] Kh. Exploiting replication. In S. Mullender, editor, *Lecture notes, Arctic 88: An advanced course on distributed systems.* Addison-Wesley, Jun. 1989.

[84] K. Birman, T. Joseph, T. Raeuchle, and A. El-Abbadi. Implementing Fault-Tolerant Distributed Objects. *IEEE Transactions on Software Engineering*, **SE-11**, Jun. 1985.

[85] K. P. Birman and T. A. Joseph. Exploiting Virtual Synchrony in Distributed Systems. *SOSP.*, pages 123–38. ACM., Nov. 1987.

[86] Ken Birman and Robert Cooper. The ISIS Project: Real experience with a fault tolerant programming system. European SIGOPS Workshop, Sep. 1990. To appear in Operating Systems Review, April 1991; also available as Cornell University Computer Science Department Technical Report TR90-1138.

[87] Ken Birman and Tommy Joseph. Exploiting replication in distributed systems. *Distributed Systems* (New York), pages 319–68, Sape Mullender, editor. ACM Press, 1989.

[88] Ken Birman, Andre Schiper, and Pat Stephenson. Fast causal multicast. Technical report TR90-1105. Cornell University Computer Science Department, Ithaca, NY, Apr. 1990. Submitted to ACM Transactions on Computer Systems.

[89] Kenneth Birman, Andre Schiper, and Patrick Stephenson. Lightweight causal and atomic group multicast. *ACM Transactions on Computer Systems*, **9**(3), Aug. 1991.

[90] Kenneth A. Birman, Robert Cooper, and Barry Gleeson. Programming with process groups: Group and multicast semantics. Technical report. Cornell University Computer Science Department, Feb. 1991. Technical Report TR91-1185.

[91] Kenneth P. Birman. Replication and Fault-Tolerance in the ISIS System. *SOSP.*, Dec. 1985.

[92] Kenneth P. Birman, A. El Abbadi, W. Dietrich, T. A. Joseph, and T. Rauchle. An overview of the ISIS project. Technical report TR 84-642. Department of Computer Science, Cornell University, Oct. 1984.

[93] Kenneth P. Birman and Thomas A. Joseph. Reliable communication in the presence of failures. *ACM Transactions on Computer Systems*, **5**(1):47–76, Feb. 1987.

[94] Kenneth P. Birman and Thomas A. Joseph. Reliable Communication in the Presence of Failure. *TCOS.*, **5**(1):47–76, Feb. 1987.

[95] Kenneth P. Birman, Thomas A. Joseph, Kenneth Kane, and Frank Schmuck. *ISIS — A Distributed Programming Environment User's Guide and Reference Manual*, first edition. Department of Computer Science, Cornell University, Mar. 1988.

[96] Kenneth P. Birman, Thomas A. Joseph, and Frank Schmuck. Isis Documentation: Release 1. Technical report 87-849. Department of Computer Science, Cornell University, Jul. 1987.

[97] Kenneth P. Birman, Thomas A. Joseph, Frank Schmuck, and Pat Stephenson. Programming with Shared Bulletin Boards in Asynchronous Distributed Systems. Technical report 86-772. Department of Computer Science, Cornell University, Aug. 1986.

[98] A. D. Birrell, J. V. Guttag, J. J. Horning, and R. Levin. Synchronization Primitives for a Multiprocessor: A Formal Specification. *SOSP.*, pages 94–102. ACM., Nov. 1987.

[99] A. D. Birrell and B. J. Nelson. Implementing Remote Procedure Calls. *TOCS.*, **2**(1):39–59, Feb. 1984.

[100] Andrew Birrell. Secure communication using remote procedure calls. *ACM Transactions on Computer Systems*, **3**(1):1–14, Feb. 1985.

[101] Andrew Birrell, Butler Lampson, Roger Needham, and Michael Schroeder. A global authentication service without global trust. *Proceedings of the IEEE Symposium on Security and Privacy*, 1986.

[102] Andrew D. Birrell, Michael B. Jones, and Edward P. Wobber. A Simple and Efficient Implementation for Small Databases. *SOSP.*, pages 149–54. ACM., Nov. 1987.

[103] Andrew D. Birrell, Roy Levin, Roger M. Needham, and Michael D. Schroeder. Grapevine: An Exercise in Distributed Computing. *CACM.*, **25**(4):260–74, Apr. 1982.

[104] Graham M. Birtwistle and others. *SIMULA begin.* Auerbach, Lund, Sweden, 1973.

[105] Matt Bishop. How to write a setuid program. *;login:*, **12**(1):5–11, 1987.

[106] D. Bitton and J. Gray. Disk shadowing. Technical report UIC EECS 88-1. University of Illinois at Chicago, Feb. 1988.

[107] Dina Bitton and Jim Gray. Disk shadowing. *Proceedings of the Fourteenth VLDB Conference*, 1988.

[108] Andrew Black, Norman Hutchinson, Eric Jul, and Henry Levy. Object structure in the Emerald system. *OOPSLA '86 Conference* (Portland, Oregon), pages 78–86. ACM, 1986.

[109] David L. Black and et al. Translation Lookaside Buffer Consistency: A Software Approach. *ASPLOS.*, pages 113–22, Apr. 1989.

[110] Michael R. Blaha, William J. Premerlani, and James E. Rumbaugh. Relational database design using an object-oriented methodology. *CACM*, **31**(4):414–27, Apr. 1988.

[111] Mike Blasgen, Jim Gray, Mike Mitoma, and Tom Price. The convoy phenomenon. *Operating Systems Review*, **13**(2):20–5, Apr. 1979.

[112] Barbara Blaustein and Micheal Siegel. Correctness Conditions for Highly Available Replicated Databases. *PODC.*, pages 11–28. ACM., 1986.

[113] Joshua J. Bloch, Dean S. Daniels, and Alfred Z. Spector. A Weighted Voting Algorithm for Replicated Directories. *JACM.*, **34**(4):859–909, Oct. 1987.

[114] Daniel G. Bobrow, Jerry D. Burchfiel, Daniel L. Murphy, and Raymond S. Tomlinson. TENEX, a Paged Time Sharing System for the PDP-10. *CACM.*, **15**(3):135–43, Mar. 1972.

[115] Barry Boehm. The Hardware/Software Cost Ratio: Is It A Myth? *IEEE Computer*, **16**(3):78–80, Mar. 1983.

[116] W. Bolosky, R. Fitzgerald, and M. Scott. Simple but Effective Techniques for NUMA Memory Management. *SOSP.*, pages 19–31. ACM., Dec. 1989.

[117] J. A. Bondy and U. S. R. Murty. *Graph Theory with Applications.* North Holland, 1976.

[118] Grady Booch. Object-Oriented Development. *IEEESE.*, **SE-12**(2):211–21, Feb. 1986.

[119] Kellogg S. Booth. Authentication of signatures using public key encryption. *CACM.*, Nov. 1981.

[120] H. Boral and D. DeWitt. Database machines: an idea whose time has passed? *Proceedings of the 1983 International Workshop on Database Machines*, pages 166–87. Springer-Verlag, 1983.

[121] Anita Borg, J. Baumbach, and S. Glazer. A message system supporting fault tolerance. *Proceedings of the Ninth ACM Symposium on Operating Systems Principles* (Bretton Woods, New Hampshire), pages 90–9. ACM SIGOPS, Oct. 1983.

[122] Anita Borg, Wolfgang Blau, Wolfgang Graetsch, Ferdinand Herrmann, and Wolfgang Oberle. Fault tolerance under Unix. *TOCS.*, **7**(1):1–24, Feb. 1989.

[123] W. Bouricius, W. Carter, and P. Schneider. Reliability Modeling Techniques for Self-Repairing Computer Systems. *Twenty-fourth National Conference of the ACM.*, pages 295–309. ACM., 1969.

[124] Gabriel Bracha. An asynchronous $\lfloor (n-1)/3 \rfloor$-resilient consensus protocol. *Proceedings of the Third ACM Symposium on Principles of Distributed Computing* (Vancouver, British Columbia), pages 154–62. ACM SIGOPS-SIGACT, Aug. 1984.

[125] Gabriel Bracha. *Randomized Agreement Protocols and Distributed Deadlock Detection Algorithms.* PhD thesis. Cornell University, Jan. 1985. Department of Computer Science Technical Report 85-657.

[126] Gabriel Bracha. Asynchronous Byzantine agreement protocols. *Information and Computation*, **75**(2):130–43, Nov. 1987.

[127] Gabriel Bracha. An $O(\log n)$ expected rounds randomized Byzantine generals protocol. *Journal of the ACM*, **34**(4):910–20, Oct. 1987.

[128] Gabriel Bracha and Sam Toueg. Distributed deadlock detection. *Distributed Computing*, **2**:127–38, 1987.

[129] Gabriel Bracha and Sam Toueg. A distributed algorithm for generalized deadlock detection. *Proceedings of the Third ACM Symposium on Principles of Distributed Computing* (Vancouver, British Columbia), pages 285–301. ACM SIGOPS-SIGACT, Aug. 1984.

[130] Gabriel Bracha and Sam Toueg. Asynchronous consensus and broadcast protocols. *Journal of the ACM*, **32**(4):824–40, Oct. 1985.

[131] A. Brandwajn. Models of DASD subsystems: basic model of reconnection. *Performance Evaluation*, **1**:263–81. North-Holland, 1981.

[132] brinkley Sprunt, Lui Sha, and John P. Lehoczky. Aperiodic task scheduling for hard-real-time systems. *The Journal of Real-Time Systems*, **1**(1), 1989.

[133] F. B. Brooks. *The Mythical Man-Month.* Addison-Wesley, 1975.

[134] F. P. Brooks Jr. No Silver Bullet — Essence and Accidents of Software Engineering. *IEEE Computer*, pages 10–19, Apr. 1987.

[135] Brown and Lew. Look-ahead cache cuts disk transfer time, increases throughput. *Computer Technology Review*, **7**(9), Jul. 1987.

[136] Mark R. Brown, Karen N. Kolling, and Edward A. Taft. The Alpine File System. *ACM Transactions on Computer Systems*, **3**(4):261–93, Nov. 1985.

[137] D. R. Brownbridge, L. F.Marshall, and B. Randell. The newcastle connection or unixes of the world unite. *Software — Practice and Experience*, **12**(12):1147–62, Dec. 1982.

[138] J. C. Browne, A. G. Dale, C. Leung, and R. Jenevein. A parallel multi-stage I/O architecture with self-managing disk cache for database management applications. *Database Machines: Proceedings of the Fourth International Workshop on Database Machines.* Springer-Verlag, Mar. 1985.

[139] Mary Fran Buehler. Report Construction: Tables. *IEEE Transactions on Professional Communication*, **PC-20**(1):29–32, Jun. 1977.

[140] P. Buneman, S. Davidson, and A. Watters. A semantics for complex objects and approximate queries. *Proceedings of the Seventh ACM Symposium on Principles of Database Systems* (Austin, Texas), pages 305–14. Association for Computing Machinery, Mar. 1988.

[141] R. B. Bunt. Scheduling Techniques for Operating Systems. *IEEE Computer*, pages 10–17, Oct. 1976.

[142] W. A. Burkhard, B. E. Martin, and J.-F. Pâris. The Gemini Fault-Tolerant File System Test-bed. *Third International Conference on Data Engineering1987.*

ff143ff M. Burrows, M. Abadi, and R. Needham. A Logic of Authentication. TOCS., **8**(1):18–36, Feb. 1990.

[144] Michael Burrows, MartínAbadi, and Roger Needham. Authentication: A practical study in belief and action. *Proceedings of the Second Conference on Theoretical Aspects of Reasoning about Knowledge* (Pacific Grove, California), pages 325–42, Moshe Y. Vardi, editor, Mar. 1988.

[145] How to Polish Your Writing. *Business Week*, pages 106–10, Jul. 1981.

[146] Jeffrey Buzen and Annie Shum. I/O Architecture in MVS/370 and MVS/XA. *Computer Measurement Group Transactions*, **54**:19–26, 1986.

[147] Luis Felipe Cabrera. The Influence of Workload on Load Balancing Strategies. *Usenix Association Summer Conference*, pages 446–58, Jun. 1986.

[148] Luis Felipe Cabrera, Edward Hunter, Michael J. Karels, and David A. Mosher. User-process communication performance in networks of computers. *IEEE Transactions on Software Engineering*, **14**(1):38–53, Jan. 1988.

[149] Luis-Felipe Cabrera and Jim Wyllie. QuickSilver Distributed File Services: An Architecture for Horizontal Growth. Technical report RJ 5578 (56697). IBM Almaden Research Center, Apr. 1987.

[150] Luis Felipe Cabrera and Jim Wyllie. QuickSilver Distributed File Services: An Architecture for Horizontal Growth. *Second IEEE Conference on Workstations*, Mar. 1988.

[151] Lisa A. Call, David L. Cohrs, and Barton P. Miller. CLAM – An Open System for Graphical User Interfaces. *OOPSLA'87 Conference*, pages 277–87, Norman Meyrowitz, editor. ACM., Oct. 1987.

[152] Roy Campbell, Vincent Russo, and Gary Johnston. The design of a multiprocessor operating system. *Usenix C++ Workshop Proceedings* (Santa Fe, NM), pages 109–26. Usenix Association, Nov. 1987.

[153] L. Cardelli, J. Donahue, L. Glassman, M. Jordan, B. Kalsow, and G. Nelson. Modula–3 report. Digital Systems Research Center. Digital Equipment Corporation, Palo Alto, CA, 1988.

[154] Luca Cardelli. Building User Interface by Direct Manipulation. Technical report 22. Digital Systems Research Center, Oct. 1987.

[155] Nicholas Carriero and David Gelernter. The S/Net's Linda kernel. *ACM Transactions on Computer Systems*, **4**(2):110–29, May 1986.

[156] John L. Carroll, Darrell D. E. Long, and Jehan-François Pâris. Block-Level Consistency of Replicated Files. *Seventh International Conference on Distributed Computing Systems*. IEEE., 1987.

[157] Tushar Deepak Chandra, Vassos Hadzilacos, and Sam Toueg. The weakest failure detector for solving consensus. Technical report 92-1293. Department of Computer Science, Cornell University, 1992.

[158] K. M. Chandy and J. Misra. The drinking philosophers problem. *ACM Transactions on Programming Languages and Systems*, **6**(4):632–46, Oct. 1984.

[159] K. Mani Chandy, L. M. Haas, and Jayadev Misra. Distributed deadlock detection. *ACM Transactions on Computer Systems*, **1**(2):144–56, May 1983.

[160] K. Mani Chandy and Leslie Lamport. Distributed snapshots: Determining global states of distributed systems. *ACM Transactions on Computer Systems*, **3**(1):63–75, Feb. 1985.

[161] K. Mani Chandy and Jayadev Misra. How processes learn. *Distributed Computing*, **1**(1):40–52, 1986.

[162] Albert Chang and Mark F. Mergen. 801 Storage: Architecture and Programming. *TOCS.*, **6**(1):28–50, Feb. 1988.

[163] E. J. H. Chang. Echo algorithms: depth parallel operations of graphs. *IEEE Transactions on Software Engineering*, **SE–8**(4):391–400, Jul. 1982.

[164] J. M. Chang and N. F. Maxemchuk. Reliable Broadcast Protocols. *TOCS.*, **2**(3), Aug. 1984.

[165] Sheng chang Cheng, John Stankovic, and Krithivasan Ramamritham. Scheduling Algorithms for Hard Real-Time Systems – a brief survey. In John Stankovic and Krithivasan Ramamritham, editors, *Hard Real-Time Systems: a Tutorial*, pages 150–73. Computer Society Press of the IEEE, 1988.

[166] Peter Chen, Garth Gibson, Randy H. Katz, David A. Patterson, and Martin Schulze. Two papers on RAIDs. Technical report UCB/CSD 88/479. University of California, Berkeley, Dec. 1988.

[167] Peter M. Chen and David A. Patterson. Maximizing performance in a striped disk array. Technical report UCB/CSD 90/559. University of California, Berkeley, Feb. 1990.

[168] D. R. Cheriton. The V Distributed System. *CACM.*, **31**(3):314–33, Mar. 1988.

[169] David Cheriton and Willy Zwaenepoel. The distributed V kernel and its performance for diskless workstations. *Proceedings of the Ninth ACM Symposium on Operating Systems Principles* (Bretton Woods, New Hampshire), pages 129–40. ACM SIGOPS, Oct. 1983.

[170] David R. Cheriton. *Multi-Process Structuring and the Thoth Operating System*. PhD thesis. University of Waterloo, 1979.

[171] David R. Cheriton. The V Kernel: A Software Base for Distributed Systems. *IEEE Software*, pages 19–42, Apr. 1984.

memory: A decentralized approach to distributed system
design. *Proceedings of the 6th International Conference of Distributed Computing Systems.* IEEE Computer Society Press, May 1986.

[173] David R. Cheriton. Vmtp: A transport protocol for the next generation of operating systems. *Proceedings of the Symposium on Communications Architectures & Protocols*, pages 406–15. ACM SIGCOMM, Sep. 1986.

[174] David R. Cheriton and Stephen E. Deering. Host Groups: A Multicast Extension for Datagram Internetworks. *Ninth Data Communication Symposium.* IEEE. and ACM. SIGCOMM, Sep. 1985.

[175] David R. Cheriton, M. A. Malcolm, L. S. Melen, and G. R. Sager. Thoth, A Portable Real-Time Operating System. *CACM.*, **22**(2):105–15, Feb. 1979.

[176] David R. Cheriton, Michael A. Malcolm, Lawrence S. Melen, and Gary R. Sager. Thoth, A Portable Real-Time Operating System. *CACM.*, **22**(2):105–15, Feb. 1979.

[177] David R. Cheriton and Timothy P. Mann. Decentralizing a Global Naming Service for Improved Performance and fault Tolerance. *TOCS.*, **7**(2):147–83, May 1989.

[178] David R. Cheriton and Marvin M. Theimer. Preemptable remote execution facilities for the v-system. *Proceedings of the 10th Symposium on Operating Systems Principles*, 1985.

[179] David R. Cheriton and Carey L. Williamson. Network Measurement of the VMTP Request-Response Protocol in the V Distributed System. Technical report STAN-CS-87-1145. Department of Computer Science, Stanford University, Feb. 1987.

[180] David R. Cheriton and Wily Zwaenepoel. Distributed Process Groups in the V Kernel. *TOCS.*, **3**(2):77–107, May 1985.

[181] Prasaad R. Chintamaneni and Xiaoping Yuan. Scheduling tasks in a real-time system. Technical report UMIACS-TR-88-15. University of Maryland, Feb. 1988.

[182] HT. Chou, David J. DeWitt, Randy H. Katz, and Anthony C. Klug. Design and implementation of the Wisconsin storage system (Wiss). *Software Practices and Experience*, **15**(10):943–62, Oct. 1985.

[183] Wesley W. Chu and Holger Opderbeck. Program Behavior and the Page-Fault Frequency Replacement Algorithm. *IEEE Computer*, pages 29–38, Nov. 1976.

[184] Israel Cidon, Inder Gopal, and Roch Guerin. Bandwith Management and Congestion control in plaNET. *IEEE Communications*, pages 44–64, Oct 1991.

[185] B. E. Clark and M. J. Corrigan. Application System/400 performance characteristics. *IBM Systems Journal*, **28**(3):407–23, 1989.

[186] D. D. Clark and L. Svobodova. Design of distributed systems supporting local autonomy. *Proceedings 20th IEEE Computer Society International Conference*, pages 438–44. IEEE, Feb. 1980.

[187] W. A. Clark. The Functional Structure of OS/360. *IBM Systems Journal*, **5**(1):30–51., 1966.

[188] Brian A. Coan. A Compiler that Increases the Fault-Tolerance of Asynchronous Protocols, 1987. Unpublished manuscript.

[189] Brian A. Coan. Efficient Agreement using Fault Diagnosis, Apr. 1988. Unpublished manuscript.

[190] Brian A. Coan. A communication-efficient canonical form for fault-tolerant distributed protocols. *Proceedings of the Fifth ACM Symposium on Principles of Distributed Computing* (Calgary, Alberta), pages 63–72. ACM SIGOPS-SIGACT, Aug. 1986. Revised edition dated August 7th 1986.

[191] Brian A. Coan. *Achieving Consensus in Fault-Tolerant Distributed Computer Systems: Protocols, Lower Bounds, and Simulations.* PhD thesis. Massachusetts Institute of Technology, Jun. 1987.

[192] Brian A. Coan, Danny Dolev, Cynthia Dwork, and Larry Stockmeyer. The distributed firing squad problem. *Proceedings of the Seventeenth ACM Symposium on Theory of Computing* (Providence, Rhode Island), pages 335–45. ACM SIGACT, May 1985.

[193] Brian A. Coan, Brian M. Oki, and Elliott K. Kolodner. Limitations on database availability when networks partition. *Proceedings of the Fifth ACM Symposium on Principles of Distributed Computing* (Calgary, Alberta), pages 187–94. ACM SIGOPS-SIGACT, Aug. 1986.

[194] E. G. Coffman, M. J. Elphick, and A. Shoshani. System Deadlocks. *Computing Surveys*, **3**(2):67–78, Jun. 1971.

[195] E. G. Coffman Jr and L. Kleinrock. Computer Scheduling Methods and Their Countermeasures. *AFIPS Conference Proceedings, 1968 SJCC*, volume 32, pages 11–21, 1968.

[196] J. Collins. Transaction processing on the Tandem NonStop computer: requestor/server structures. Technical report SEDS-001. Tandem, Jan. 1982.

[197] Eric Cooper. Replicated procedure call. *Proceedings of the Third ACM Symposium on Principles of Distributed Computing* (Vancouver, British Columbia), pages 220–32. ACM SIGOPS-SIGACT, Aug. 1984.

[198] Eric Cooper. Replicated distributed programs. *Proceedings of the Tenth ACM Symposium on Operating Systems Principles* (Orcas Island, Washington), pages 63–78. ACM SIGOPS, Dec. 1985.

[199] Robert Cooper and Ken Birman. Supporting large scale applications on networks of workstations. *Proceeating Systems* (Washington D. C.), pages 25–8. IEEE, Sep. 1989. Order No. 2003.

[200] George Copeland, William Alexander, Ellen Boughter, and Tom Keller. Data placement in Bubba. *ACM SIGMOD Conference '88*, pages 99–108, Jun. 1988.

[201] F. J. Corbato. Sensitive Issues in the Design of Multi-Use Systems. Technical report MAC-M-383. MIT Project MAC, Dec. 1968.

[202] Fernando J. Corbato, Marjorie Merwin-Daggett, and Robert C. Daley. An Experimental Time-Sharing System. *AFIPS Conference Proceedings Spring Joint Computer Conference*, pages 335–44, 1962.

[203] Michael F. Coulas, Glenn H. Macewen, and Genevieve Marquis. Rnet: A hard real-time distributed programming system. *IEEE Transactions on Computers*, **36**(8), 1987.

[204] Harvey Cragon. The Myth of the Hardware/Software Cost Ratio. *IEEE Computer*, **15**(12):100–1, Dec. 1982.

[205] F. Cristian. Reaching Agreement on Processor Group Memberhsip in Synchronous Distributed Systems. Technical report RJ 5964. IBM Almaden Research Center, Aug. 1990. Revised from March, 1988.

[206] Flaviu Cristian. Reaching agreement on processor group membership in synchronous distributed systems. Technical report RJ5964. IBM Research Laboratory, Mar. 1988.

[207] Flaviu Cristian. Probabilistic clock synchronization. Technical report RJ6432. IBM Research Laboratory, Oct. 1988.

[208] Flaviu Cristian, Houtan Aghili, and H. Ray Strong. Approximate clock synchronization despite omission and performance faults and processor joins. *Proceedings of the Sixteenth International Symposium on Fault-Tolerant Computing* (Vienna, Austria). IEEE., Jul. 1986.

[209] Flaviu Cristian, Houtan Aghili, H. Ray Strong, and Danny Dolev. Atomic broadcast: From simple message diffusion to Byzantine agreement. Technical report RJ5244. IBM Research Laboratory, San Jose, California, Jul. 1986. An earlier version appeared in the 1985 Proceedings of the International Symposium on Fault-Tolerant Computing.

[210] Flaviu Cristian, Houtan Aghili, H. Ray Strong, and Danny Dolev. Atomic broadcast: From simple message diffusion to Byzantine agreement. *Proceedings of the Fifteenth International Symposium on Fault-Tolerant Computing* (Ann Arbor, Michigan), pages 200–6. IEEE., Jun. 1985. A revised version appears as IBM Technical Report RJ5244.

[211] Flaviu Cristian and Robert Dancey. Fault-tolerance in the advanced automation system. Technical report RJ7424. IBM Research Laboratory, San Jose, California, Apr. 1990.

[212] Thomas W. Crockett. Specification of the Operating System Interface for Parallel File Organizations, 1988. In unpublished form.

[213] J. Crowcroft and K. Paliwoda. A multicast transport protocol. *Proceedings of the Symposium on Communications Architectures & Protocols* (Stanford, California), pages 247–56. ACM SIGCOMM, Aug. 1988.

[214] R. L. Cruz. *A Calculus for Network Delay and a Note on Topologies of Interconnection Networks*. PhD thesis, published as Ph.D. dissertation. University of Illinois, 1987.

[215] Helen Custer. *Inside Windows NT*. Microsoft Press, 1993.

[216] R. C. Daley and J. B. Dennis. Virtual Memory, Processes, and Sharing in Multics. *CACM.*, **11**(5):306–12, May 1968.

[217] Peter Danzig. Finite buffers and fast multicast. *Proceedings of the ACM Conference on Measurement and Modelling of Computer Systems* (Berkeley, California). ACM SIGMETRICS, 1989.

[218] Partha Dasgupta, Richard JLeBlanc Jr, and William F. Appelbe. The clouds distributed operating system. Technical report GIT-ICS-88/45. School of Information and Computer Science, Georgia Institute of Technology, Nov. 1988.

[219] Partha Dasgupta, Jr Richard J. LeBlanc and WIlliam F. Appelbe. The Clouds distributed operating system: Functional description, implementation details and related work. *8th Inter. Conf. on Distributed Computing Systems* (San Jose, CA), pages 2–9. IEEE, Jun. 1988.

[220] D. Davčev and W. A. Burkhard. Consistency and Recovery Control for Replicated Files. *Tenth Symposium on Operating Systems Principles*, pages 87–96. ACM., 1985.

[221] Jean-Pierre David, Marc Legendre, and Stèphane Natkin. Un Protocole de Diffusion Fiable pour les Réseaux Locaux Industriels. *Techniques et Sciences Informatiques*, **6**(2):187–90, 1987.

[222] Susan B. Davidson. Optimism and consistency in partitioned distributed database systems. *ACM Transactions on Database Systems*, **9**(3):456–81, Sep. 1984.

[223] Susan B. Davidson, Hector Garcia-Molina, and Dale Skeen. Consistency in partitioned networks. *Computing Surveys*, **17**(3):341–70, Sep. 1985.

[224] Susan B. Davidson and Aaron Watters. Partial computation in real-time database systems. *Proceedings of Fifth Workshop on Real-Time Software and Operating Systems*, pages 117–21, 1988.

[225] R. A. Day. How to Write a Scientific Paper. *IEEE Transactions on Professional Communication*, **20**(1):32–7, Jun. 1977.

[226] Lorenzo de and Martha Evans. Is There Really Trouble With Unix? *CHI'83 Conference*, pages 125–9, Dec. 1983.

[227] D. Decouchant, S. Krakowiak, M. Meysembourg, and M. Riveill. A Synchronization Mechanism for Typed Objects in a Distributed System, Sep. 1988. Presented to the OOPSLA '88 Workshop on Object-Based Concurrent Programming.

[228] S. Deering. Multicast routing in internetworks and extended LANs. *Proceedings of the Symposium on Communications Architectures & Protocols* (Stanford, California), pages 55–64. ACM SIGCOMM, Aug. 1988.

[229] Stephen E. Deering and David R. Cheriton. Multicast routing in datagram internetworks and extended LANs. *ACM Transactions on Computer Systems*, **8**(2):85–110, May 1990.

[230] Alan Demers, Dan Greene, Carl Hauser, Wes Irish, John Larson, Scott Shenker, Howard Sturgis, Dan Swinehart, and Doug Terry. Epidemic algorithms for replicated database maintenance. *Proceedings of the Sixth ACM Symposium on Principles of Distributed Computing* (Vancouver, British Columbia), pages 1–12. ACM SIGOPS-SIGACT, Aug. 1987.

[231] Dorothy E. Denning. Protecting public keys and signature keys. *IEEE Computer*, Feb. 1983.

[232] Dorothy E. Denning and Peter J. Denning. Data Security. *Computing Surveys*, **11**(3):227–49, Sep. 1979.

[233] Dorothy E. Denning and Giovanni Maria Sacco. Timestamps in key distribution protocols. *CACM.*, Aug. 1981.

[234] Dorothy E. R. Denning. *Cryptography and Data Security.* Addison-Wesley, Reading, Massachusetts, 1982.

[235] Peter J. Denning. Working Sets Past and Present. *IEEE Transactions on Software Engineering.*, **SE-6**(1):64–84, Jan. 1980.

[236] Jack B. Dennis and Earl C. Van Horn. Programming semantics for mutliprogrammed computations. *CACM.*, **9**(3), Mar. 1966.

[237] Department of Defense, Fort George G. Meade, Maryland. *Department of Defense trusted computer system evaluation criteria*, 1985. CSC-STD-001-83.

[238] M. L. Dertouzos and A. K. L. Mok. Multiprocessor on-line scheduling of hard real-time tasks. *IEEE Transactions on Software Engineering*, **15**(12):1497–506, 1989.

[239] Yves Deswarte, Jean-Charles Fabre, Jean-Michel Fray, Jean-Claude Laprie, and David Powell. Saturne: un système réparti tolérant les fautes et les intrusions. *Techniques et Sciences Informatiques*, **6**(2):191–5, 1987.

[240] D. DeWitt and D. Schneider. A performance evaluation of four parallel join algorithms in a shared-nothing multiprocessor environment. *Proceedings of the ACM SIGMOD Conference*, (Portland, OR), May 1989.

[241] D. J. DeWitt, S. Ghandeharizadeh, and D. Schneider. A performance analysis of the GAMMA database machine. *Proceedings of the ACM SIGMOD Conference*, pages 350–60, (Chicago, IL.), Jun. 1988.

[242] David J. DeWitt, Raphael Finkel, and Marvin Solomon. The Crystal Multicomputer: Design and Implementation Experience. *IEEE Transactions on Software Engineering*, **SE-13**(8):953–66, Aug. 1987.

[243] David J. DeWitt, Robert H. Gerber, Goetz Graefe, Michael L. Heytens, Krishna B. Kumar, and M. Muralikrishna. GAMMA: A high performance dataflow database machine. Technical report TR-635. Department of Computer Science, University of Wisconsin-Madison, Mar. 1986.

[244] P. C. Dibble, M. L. Scott, and C. S. Ellis. Bridge: A high-performance file system for parallel processors. *Proceedings of the Eighth International Conference on Distributed Computing Systems*, pages 154–61. San Jose, CA, Jun. 1988.

[245] W. Diffie and M. Hellman. Multiuser cryptographic techniques. *Proceedings of the AFIPS 1976 National Computer Conference* (Montvale, New Jersey), pages 109–12. AFIPS Press, 1976.

[246] W. Diffie and M. Hellman. Exhaustive cryptanalysis of the nbs data encryption standard. *IEEE Computer*, Jun. 1977.

[247] W. Diffie and M. Hellman. New directions in cryptography. *IEEE Transactions on Information Theory*, **IT-22**(6):644–54, Nov. 1976.

[248] Whitfield Diffie and Martin Hellman. Privacy and Authentication: An Introduction to Cryptography. *Proceedings of the IEEE*, **67**(3):397–427, Mar. 1979.

[249] E. W. Dijkstra. Hierararchical Ordering of Sequential Processes. In C. A. R. Hoare and R. H. Perrot, editors, *Operating Systems Techniques*. New York, 1972.

[250] E. W. Dijkstra. Guarded commands, nondeterminacy, and formal derivation of programs. *CACM.*, **18**(8):453–7, 1975.

[251] E. W. Dijkstra. The Structure of the 'THE' Multiprogramming System. *CACM.*, **11**(5):341–6, May 1968.

[252] W. A. Doeringer, D. Dykeman, M. Kaiserwerth, B. W. Meister, H. Rudin, and R. Williamson. A Survey of Light-Weight Transport Protocols for High-Speed Networks. *IEEE Transactions Communications*, **38**(11):2025–39, Nov. 1990.

[253] Danny Dolev. The Byzantine generals strike again. *Journal of Algorithms*, **3**(1):14–30, 1982.

[254] Danny Dolev, Cynthia Dwork, r. On the minimal synchronism needed for distributed consensus. *Journal of the ACM*, **34**(1):77–97, Jan. 1987.

[255] Danny Dolev and H. Ray Strong. Authenticated algorithms for Byzantine agreement. *SIAM Journal on Computing*, **12**(4):656–66, Nov. 1983.

[256] F. Donelson, Smith Kevin Jeffay, and Donald L. Stone. Kernel support for live digital audio and video. *Network and Operations System Support for and Video, Second International Workshop*, pages 10–21, Ralf Guido Herrtwich, editor, Nov. 1991.

[257] F. Douglis and J. Ousterhout. Process migration in the Sprite operating system. *7th Inter. Conf. on Distributed Computing Systems* (Berlin, West Germany), pages 18–25. IEEE, Sep. 1987.

[258] Fred Douglis and John Ousterhout. Log-structured file systems. *Proceedings of the IEEE COMPCON Conference* (San Francisco). IEEE, Feb. 1989.

[259] Fred Douglis and John Ousterhout. Transparent Process Migration: Design Alternatives and the Sprite Implementation. *Software Practice and Experience*, **21**(7), Jul. 1991.

[260] Kevin Driscoll and Kenneth Hoyme. The airplane information management system: An integrated real-time flight-deck control system. *Proceedings of the 1992 Real Time Systems Symposium*, 1992.

[261] Rogério Drummond. *Impact of Communication Networks on Fault-Tolerant Distributed Computing.* PhD thesis. Cornell University, Jun. 1986. Department of Computer Science Technical Report 86-748.

[262] M. Dubois, C. Scheurich, and F. Briggs. Memory access buffering in multiprocessors. *Proceedings of the 13th Annual International Symposium on Computer Architecture*, pages 434–42, Jun. 1986.

[263] Cynthia Dwork, Nancy Lynch, and Larry Stockmeyer. Consensus in the presence of partial synchrony. *Journal of the ACM*, **35**(2):288–323, Apr. 1988.

[264] Cynthia Dwork, Nancy Lynch, and Larry Stockmeyer. Consensus in the presence of partial synchrony. *Proceedings of the Third ACM Symposium on Principles of Distributed Computing* (Vancouver, British Columbia), pages 103–18. ACM SIGOPS-SIGACT, Aug. 1984.

[265] Cynthia Dwork and Yoram Moses. Knowledge and common knowledge in a Byzantine environment I: Crash failures. *Proceedings of the First Conference on Theoretical Aspects of Reasoning about Knowledge* (Pacific Grove, California), pages 149–69, Joseph Y. Halpern, editor, Mar. 1986. To appear in *Information and Computation*.

[266] D. L. Eager. Robust Concurrency Control in Distributed Databases. Technical report CSRG-135. Computer Systems Research Group, University of Toronto, 1981.

[267] D. L. Eager, Ed Lazowska, and John Zahorian. A comparison of receiver-initiated and sender-initiated adaptive load sharing. *Performance Evaluation*, **6**(1):53–68, Mar. 1986.

[268] D. L. Eager and K. C. Sevcik. Achieving Robustness in Distributed Database Systems. *ACM Transactions on Database Systems*, **8**(3):354–81, Sep. 1983.

[269] Daniel Edelson. How objective mechanisms facilitate the development of large software systems. *SIGPLAN Notices*, **20**(9):54–62, 1987.

[270] Daniel Edelson and Ira Pohl. Solving C's shortcomings: Use C++. *Computer Languages*, 1989. in press.

[271] J. I. Egan and T. J. Teixeira. *Writing a UNIX Device Driver*. Wiley, 1988.

[272] Mark W. Eichin and Jon A. Rochlis. With microscope and tweezers: An analysis of the internet virus of november 1988. *Proceedings of the IEEE Symposium on Security and Privacy*, pages 326–33, May 1989.

[273] A. El-Abbadi, D. Skeen, and F. Cristian. An Efficient, Fault-Tolerant Protocol for Replicated Data Management. *Fourth SIGACT-SIGMOD Symposium on Principles of Database Systems*, pages 215–28. ACM., 1985.

[274] A. El-Abbadi and S. Toueg. Availability in Partitioned Replicated Databases. *Fifth SIGACT-SIGMOD Symposium on Principles of Database Systems*, pages 240–51. ACM., 1986.

[275] Amr El Abbadi. *A Paradigm for Concurrency Control Protocols for Distributed Databases*. PhD thesis. Cornell University, Aug. 1987. Department of Computer Science Technical Report 87-853.

[276] Amr El Abbadi and Sam Toueg. Maintaining availability in partitioned replicated databases. Technical report TR 85-721. Department of Computer Science, Cornell University, 1985.

[277] Amr El Abbadi and Sam Toueg. Maintaining availability in partitioned replicated databases. *ACM Transactions on Database Systems*, **14**(2), Jun. 1989.

[278] C. A. Ellis. Consistency and Correctness of Duplicate Database Systems. *OSR.*, **11**, 1977.

[279] C. S. Ellis and R. A. Floyd. The Roe File Systems. *Third Symposium on Reliability in Distributed Software and Database Systems*. IEEE., 1983.

[280] Carla Schlatter Ellis and David Kotz. Prefetching in file systems for MIMD multiprocessors. *Proceedings of the 1989 International Conference on Parallel Processing*, Aug. 1989.

[281] P. H. Enslow. What is a *Computer*, **11**(1):13–21, Jan. 1978.

[282] ESmith and DAnderson. Flamingo: Object-oriented abstractions for user interface management. *Usenix C++ Conference Proceedings*. Usenix Association, 1986.

[283] K. P. Eswaran, J. N. Gray, R. A. Lorie, and I. L. Traiger. The notion of consistency and predicate locks in a database system. *CACM.*, **19**(11):624–33, Nov. 1976.

[284] A. Evans, W. Kantrowitz, and E. Weiss. A user authentication scheme not requiring secrecy in the computer. *CACM*, **17**:437–42, Aug. 1974.

[285] Robert S. Fabry. Capability-Based Addressing. *CACM.*, **17**(7):403–12, Jul. 1974.

[286] Ronald Fagin and Joseph Y. Halpern. Uncertainty, belief, and probability. Technical report RJ6191. IBM Research Laboratory, Apr. 1988.

[287] Ronald Fagin and Joseph Y. Halpern. I'm OK if you're OK: On the notion of trusting communication. *Proceedings of the Symposium on Logic in Computer Science* (Ithaca, New York), pages 280–92. Ithaca, New York, Jun. 1987. Also appears as IBM Technical Report RJ5600.

[288] Ronald Fagin and Joseph Y. Halpern. Reasoning about knowledge and probability: Preliminary report. *Proceedings of the Second Conference on Theoretical Aspects of Reasoning about Knowledge* (Pacific Grove, California), pages 277–94, Moshe Y. Vardi, editor, Mar. 1988.

[289] Ronald Fagin and Joseph Y. Halpern. Belief, awareness, and limited reasoning. Technical report RJ4657. IBM Research Laboratory, May 1986. Also appears in the 1985 Proceedings of IJCAI.

[290] Ronald Fagin, Joseph Y. Halpern, and Nimrod Megiddo. A logic for reasoning about probabilities. Technical report RJ6190. IBM Research Laboratory, Apr. 1988.

[291] Ronald Fagin, Joseph Y. Halpern, and Moshe Y. Vardi. A model-theoretic analysis of knowledge: Preliminary report. *Proceedings of the Twenty-Fifth IEEE Symposium on Foundations of Computer Science* (West Palm Beach, Florida), pages 268–78. IEEE, Oct. 1984. Also appears as IBM Technical Report RJ4373.

[292] Ronald Fagin and Moshe Y. Vardi. Knowledge and implicit knowledge in a distributed environment: Preliminary report. *Proceedings of the First Conference on Theoretical Aspects of Reasoning about Knowledge* (Pacific Grove, California), pages 187–205, Joseph Y. Halpern, editor, Mar. 1986. Also appears as IBM Technical Report RJ4990.

[293] Ronald Fagin and Moshe Y. Vardi. An internal semantics for modal logic: Preliminary report. *Proceedings of the Seventeenth ACM Symposium on Theory of Computing* (Providence, Rhode Island), pages 305–15. ACM SIGACT, May 1985. Also appears as IBM Technical Report RJ4656.

[294] Joseph Falcone. A programmable interface language for heterogenous distributed systems. *ACM Transactions on Computer Systems*, **5**(4):330–51, Nov. 1987.

[295] David J. Farber and K. Larson. The structure of the distributed computer system. *Proceedings of the Symposium of Computer Communications and Teletraffic*, Apr. 1972.

[296] Rik Farrow. Security for superusers, or how to break the unix system. *UNIX/World*, pages 65–70, May 1986.

[297] Stuart Faulk and David Parnas. On synchronization in hard real-time systems. *CACM.*, **31**(3):274–87, Mar. 1988.

[298] R. J. Feiertag and E. I. Organick. The Multics Input/Output System. *SOSP.* Published as *OSR.*, pages 35–41, 1971.

[299] Alan D. Fekete. Asynchronous approximate agreement. *Proceedings of the Sixth ACM Symposium on Principles of Distributed Computing* (Vancouver, British Columbia), pages 64–76. ACM SIGOPS-SIGACT, Aug. 1987.

[300] D. Ferrari. Performance Evaluation. In *Encyclopedia of Computer Science and Technology*, pages 245–68. Marcel Dekker, 1990.

[301] D. Ferrari. The Improvement of Program Behavior. *IEEE Computer*, **9**(11):39–47, Nov. 1976.

[302] Domenico Ferrari. Considerations on the Insularity of Performance Evaluation. *IEEE Transactions on Software Engineering*, **SE-12**(6):678–83, Jun. 1986.

[303] Domenico Ferrari. Design and applications of a delay jitter control scheme for packet-switching internetworks. *Network and Operations System Support for and Video, Second International Workshop*, pages 72–83, Ralf Guido Herrtwich, editor, Nov. 1991.

[304] C. Fidge. Timestamps in message-passing systems that preserve the partial ordering. *Proceedings of the 11th Australian Computer Science Conference*, 1988.

[305] Alan Filipski and James Hanko. Making unix secure. *Byte*, pages 113–28, Apr. 1986.

[306] Ross S. Finlayson and David R. Cheriton. Log Files: An Extended File Service Exploiting Write-Once Storage. *SOSP.*, pages 139–48. ACM., Nov. 1987.

[307] Michael J. Fischer. The consensus problem in unreliable distributed systems (a brief survey). Technical report DCS/RR-273. Department of Computer Science, Yale University, Jun. Neil Immerman. Foundations of knowled

report 426. Department of Computer Science, Yale University, 1985.

[309] Michael J. Fischer and Neil Immerman. Foundations of knowledge for distributed systems. *Proceedings of the First Conference on Theoretical Aspects of Reasoning about Knowledge* (Pacific Grove, California), pages 171–85, Joseph Y. Halpern, editor, Mar. 1986.

[310] Michael J. Fischer, Nancy Lynch, and Michael Merritt. Easy impossibility proofs for distributed consensus problems. *Distributed Computing*, **1**:26–39, 1986.

[311] Michael J. Fischer, Nancy A. Lynch, and Michael S. Patterson. Impossibility of distributed consensus with one faulty process. *Journal of the ACM*, **32**(2):374–82, Apr. 1985.

[312] Michael J. Fischer and Lenore D. Zuck. Reasoning about uncertainty in fault-tolerant distributed systems. Technical report 643. Department of Computer Science, Yale University, Aug. 1988.

[313] Michael J. Fischer and Lenore D. Zuck. Relative knowledge and belief (extended abstract). Technical report 589. Department of Computer Science, Yale University, Dec. 1987.

[314] Michael J. Fischer and Lenore D. Zuck. Uncertain knowledge in distributed systems. Technical report 604. Department of Computer Science, Yale University, Jan. 1988.

[315] Tom Fisher. Real-time scheduling support in ultrix-4.2 for multimedia communication. Technical report. Tenet Group, Univerity of California Berkeley and International Computer Science Intitute, 1993.

[316] G. S. Fishman. *Principles of Discrete Event Simulation.* Wiley and Sons, 1978.

[317] Robert Fitzgerald and Richard F. Rashid. The Integration of Virtual Memory Management and Interprocess Communication in Accent. *TOCS.*, **4**(2):147–77, May 1986.

[318] Robert J. Flynn and Haldun Hadimioglu. A distributed Hypercube file system. *Proceedings of the Third Conference on Hypercube Concurrent Computers and Applications*, pages 1375–81, 1988.

[319] SAVA Software Philosophy Overview, 1989. FMC Corporation.

[320] J. Fotheringham. Dynamic Storage Allocation in the Atlas Computer, Including an Automatic Use of Backing Store. *CACM.*, **4**(10):435–6, Oct. 1961.

[321] Edward D. Fox. Advances in interactive digital multimedia systems. *ieeetcm*, pages 9–21, Oct. 1991.

[322] Werner L. Frank. The History of Myth No. 1. *Datamation*, pages 252–6, May 1983.

[323] Alan O. Freier and Keith Marzullo. Mtp: An atomic multicast transport protocol. Technical report TR 90-1141. Cornell University, Dept. of Computer Science, Upson Hall, Ithaca, NY 14853, July 1990.

[324] S. French. *Sequencing and Scheduling: an Introduction to the Mathematics of the Job Shop.* Ellis Horwood Ltd., 1982.

[325] Daniel P. Friedman and Christopher T. Haynes. An abstraction of timed preemption. Technical report CSTR-178. Indiana University, Aug. 1985.

[326] Vered Gafni. A tasking model for reactive systems. *Proceedings of the 1989 Real Time Systems Symposium*, 1989.

[327] R. S. Gains and N. Shapiro. Some security principles and their application to computer security. *Operating Systems Review*, **12**(3):19–28, Jul. 1978.

[328] J. Gait. Easy entry: The password encryption problem. *Operating Systems Review*, **12**(3):54–60, Jul. 1978.

[329] H. Garcia-Molina. Elections in Distributed Computer Systems. *IEEE Transactions on Computers*, **C-31**:48–59, 1982.

[330] H. Garcia-Molina and D. Barbara. Optimizing the Reliability Provided by Voting Mechanisms. *Fourth International Conference on Distributed Computing Systems*, pages 340–6. IEEE., 1984.

[331] Hector Garcia-Molina and Daniel Barbara. How to Assign Votes in a Distributed System. *JACM.*, **32**(4):841–55, Oct. 1985.

[332] Hector Garcia-Molina and Boris Kogan. Achieving high availability in distributed databases. *Proceedings of the Third International Conference on Data Engineering* (Los Angeles, California). Los Angeles, California, Feb. 1987.

[333] Hector Garcia-Molina, F. Pitelli, and S. Davidson. Applications of Byzantine agreement in database systems. Technical report TR 316. Princeton University, Jun. 1984.

[334] Hector Garcia-Molina and Kenneth Salem. The impact of disk striping on reliability. *IEEE Database Engineering Bulletin*, **11**(1):26–39, Mar. 1988.

[335] Hector Garcia-Molina and Annemarie Spauster. Message ordering in a multicast environment. *Proceedings 9th International Conference on Distributed Computing Sytems*, pages 354–61. IEEE, Jun. 1989.

[336] M. R. Garey and D. S. Johnson. Complexity results for multiprocessor scheduling under resource constraints. *SIAM Journal of Computing*, **4**:397–411, 1975.

[337] M. R. Garey and D. S. Johnson. Approximation Algorithms for Bin Packing Problems: A Survey. In G. Ausiello and M. Lucertini, editors, *Analysis and Design of Algorithms in Combinatorial Optimization*, pages 147–72. Springer-Verlag, 1981.

[338] Michael R. Garey and David S. and Intractability, A Guide to the Theory of NP-Completeness. W. H. Freeman and Company, 1979.

[339] E. J. Gaudion. Today IBM Announces Yesterday. *Datamation*, pages 53–4, Feb. 1973.

[340] D. P. Gaver. Stochastic Modeling: Ideas and Techniques. In G. Louchard and G. Latouche, editors, *Probability Theory and Computer Science.* Academic Press, 1983.

[341] Narain H. Gehani. Broadcasting sequential processes. *IEEE Transactions on Software Engineering*, **SE-10**(4):343–51, 1984.

[342] K. Geihs, H. Eberle, B. Schöner, and M. Seifert. Distributed Object Sharing in Heterogeneous Environments. Technical report 43.8610. IBM European Networking Center, 1986.

[343] K. Geihs, B. Schöner, U. Hollberg, H. Schmutz, and H. Eberle. An Architecture for the Cooperation of Heterogeneous Operating Systems. *Computer Network Symposium.* IEEE., Apr. 1988.

[344] R. Geist, R. Reynolds, and E. Pittard. Disk scheduling in System V. *Proceedings of ACM SIGMETRICS*, **15**(1):59–68, May 1987. Performance Evaluation Review.

[345] Robert Geist and Stephen Daniel. A continuum of disk scheduling algorithms. *ACM Transactions on Computer Systems*, **5**(1):77–92, Feb. 1987.

[346] Robert Genter. Unix as a Virtual Machine Environment. *Usenix Summer Conference*, pages 475–85, Jun. 1986.

[347] R. H. Gerber and D. J. DeWitt. The impact of hardware and software alternatives on the performance of the Gamma database machine. *Computer Sciences Technical Report*, **708**. University of Wisconsin, Madison, Jul. 1987.

[348] Chuck M. Geschke, Jim H. Morris Jr, and Ed H. Satterthwaite. Early experience with Mesa. *CACM.*, **20**(8):540–53, 1977.

[349] James Gettys. Problems Implementing Window Systems in UNIX. *Winter Usenix Technical Conference*, pages 89–97, Jan. 1986.

[350] Dipak Ghosal and Satish Tripathi. Analysis of a distributed database system with site failures. Technical report UMIACS–TR–89–70. Institute for Advanced Computer Studies, University of Maryland, 1989.

[351] Garth Gibson, Lisa Hellerstein, Richard M. Karp, Randy H. Katz, and David A. Patterson. Coding techniques for handling failures in large disk arrays. Technical report UCB/CSD 88/477. University of California, Berkeley, Dec. 1988.

[352] Garth A. Gibson, Lisa Hellerstein, Richard M. Karp, Randy H. Katz, and David A. Patterson. Failure correction techniques for large disk arrays. *Third International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS III)*, Apr. 1989.

[353] D. K. Gifford. Weighted Voting for Replicated Data. *Seventh Symposium on Operating System Principles*, pages 150–61. ACM., 1979.

[354] D. K. Gifford. Weighted voting for replicated data. *Proceedings Seventh Symposium on Operating System Principles* (Pacific Grove), pages 150–61. ACM, 1979.

[355] D. K. Gifford. Cryptographic Sealing for Information Secrecy and Authentication. *CACM.*, **25**(4):274–86, Apr. 1982.

[356] David K. Gifford, Roger M. Needham, and Michael D. Schroeder. The Cedar file system. *CACM.*, **31**(3), Mar. 1988.

[357] O. Gihr and P. J. Kuehn. Comparison of Communication Services with Connection-Oriented and Connectionless Data Transmission. *Proceedings of the International Seminar on Computer Networking and Performance Evaluation*, Sep. 1985.

[358] Virgil D. Gligor. Distributed System security. *ICDCS.* IEEE., Sep. 1987.

[359] B. V. Gnedenko. *Mathematical Methods in Reliability Theory.* Academic Press, 1968.

[360] Ted Goeltz. Why not DES? *Computers and Security*, May 1986.

[361] Adele Goldberg. *Smalltalk-80. The Interactive Programming Environment.* Addison-Wesley Publishing Company, Reading, MA, 1984.

[362] Adele Goldberg and David Robson. *Smalltalk-80: The Language and Its Implementation.* Addison-Wesley Publishing Company, Reading, MA, 1983.

[363] Robert P. Goldberg. Survey of Virtual Machine Research. *IEEE Computer*, pages 34–45, Jun. 1974.

[364] David Golub and et al. Unix as an Application Program. *USENIX Summer Conference*, pages 87–95, Jun. 1990.

[365] N. Goodman, D. Skeen, A. Chan, U. Dayal, R. Fox, and D. Ries. A Recovery Algorithm for a Distributed Database System. *Second Symposium on Principles of Database Systems*, pages 8–15. ACM., 1983.

[366] Nathan Goodman and Philip Bernstein. The failure and recovery problem for replicated databases. *Proceedings of the Second ACM Symposium on Principles of Distributed Computing* (Montreal, Quebec), pages 63–75. ACM SIGOPS-SIGACT, Aug. 1983.

[367] Ajei Gopal, Ray Strong, Sam Toueg, and Flaviu Cristian. Early-delivery atomic broadcast. *Proceedings of the Tenth ACM Symposium on Principles of Distributed Computing* (Qeubec City, Quebec), pages 297–310. ACM SIGOPS-SIGACT, Aug. 1990.

[368] Ajei Gopal and Sam Toueg. Inconsistency and contamination. *Procethe Eleventh ACM Symposium on Principles of Distributed Computing* (Montreal, Quebec). ACM SIGOPS-SIGACT, Aug. 1991.

[369] R. L. Gordon and J. C. Lamb. A Close Look at Brooks' Law. *Datamation*, pages 81–6, Jun. 1977.

[370] Ramesh Govindan and David P. Anderson. Scheduling and IPC mechanisms for continuous media. *Proc. of the 13th ACM Symposium on Operating Systems Principles*, 1991.

[371] A. Goyal and A. N. Tantawi. A Measure of Guaranteed Availability and its Numerical Evaluation. *IEEE Transactions on Computers*, **C-37**:25–32, 1988.

[372] Frederick T. Grampp and Robert H. Morris. UNIX Operating System Security. *AT&T Bell Laboratories Technical Journal*, **63**(8):1649–71, Oct. 1984.

[373] James Gray. Notes on database operating systems. In R. Bayer, R. M. Graham, and G. Seegmuller, editors, *Operating Systems: An Advanced Course*, volume 66 of Lecture Notes on Computer Science. Springer-Verlag, 1978. Also appears as IBM Technical report RJ2188.

[374] Donald Greenberg. Computers and architecture. *Scientific American*, **264**(2):104–9, Feb. 1991.

[375] M. Guillemont, J. Lipkis, D. Orr, and M. Rozier. A second-generation micro-kernel based UNIX: lessons in performance and compatibility. *Proceedings of the Usenix Winter'91 Conference*, 22:13, Jan. 21 1991.

[376] Robert F. Gurwitz, Michael A. Dean, and Richard E. Schantz. Programming support in the Cronus distributed operating system. *6th Inter. Conf. on Distributed Computing Systems*, pages 486–93. IEEE, 1986.

[377] V. H. Haase. Real-time behavior of programs. *IEEE Transactions on Software Engineering*, **SE–7**(5):494–501, 1981.

[378] Ibrahim Habib and Tarek Saadawi. Controlling flow and avoiding congestion in broadband networks. *IEEE communications*, pages 46–53, Oct 1991.

[379] Vassos Hadzilacos. Byzantine agreement under restricted types of failures (not telling the truth is different from telling lies). Technical report 18-83. Department of Computer Science, Harvard University, 1983.

[380] Vassos Hadzilacos. Connectivity requirements for Byzantine agreement under restricte types of failures. *Distributed Computing*, **2**(2):95–103, 1987.

[381] Vassos Hadzilacos. *Issues of Fault Tolerance in Concurrent Computations*. PhD thesis. Harvard University, Jun. 1984. Department of Computer Science Technical Report 11-84.

[382] Vassos Hadzilacos. A knowledge theoretic analysis of atomic commitment protocols (preliminary report). *Proceedings of the Sixth ACM Symposium on Principles of Database Systems* (San Diego, California), pages 129–34. ACM SIGACT, Mar. 1987.

[383] Robert Hagmann. Reimplementing the Cedar File System Using Logging and Group Commit. *SOSP.* Published as *OSR.*, **17**:155–62, 1987.

[384] Daniel C. Haibert and Patrick D. O'Brien. Using Types and Inheritance in Object-Oriented Programming. *IEEE Software*, **4**(5):71–9, Sep. 1987.

[385] Joseph Y. Halpern. Reasoning about knowledge: an overview. *Proceedings of the First Conference on Theoretical Aspects of Reasoning about Knowledge* (Pacific Grove, California), pages 1–17, Joseph Y. Halpern, editor, Mar. 1986.

[386] Joseph Y. Halpern and Ronald Fagin. A formal model of knowledge, action, and communication in distributed systems: Preliminary report. *Proceedings of the Fourth ACM Symposium on Principles of Distributed Computing* (Minaki, Ontario), pages 224–36. ACM SIGOPS-SIGACT, Aug. 1985.

[387] Joseph Y. Halpern and Ronald Fagin. Modelling knowledge and action in distributed systems. Technical report RJ6303. IBM Research Laboratory, Jun. 1988.

[388] Joseph Y. Halpern and Yoram Moses. A guide to the modal logic of knowledge and belief. *Proceedings of the Ninth International Joint Conference on Artificial Intelligence*, pages 480–90, 1985.

[389] Joseph Y. Halpern and Yoram Moses. Knowledge and common knowledge in a distributed environment. *Proceedings of the Third ACM Symposium on Principles of Distributed Computing* (Vancouver, British Columbia), pages 50–61. ACM SIGOPS-SIGACT, Aug. 1984. A revised version appears as IBM Technical report RJ4421.

[390] Joseph Y. Halpern and Yoram Moses. Knowledge and common knowledge in a distributed environment. Technical report RJ4421. IBM Research Laboratory, Aug. 1987. An earlier version appeared in the *Proceeding of the Third ACM Symposium on the Principles of Distributed Computing*, August 1984. To appear in the *Journal of the ACM.*

[391] Joseph Y. Halpern, Yoram Moses, and Mark R. Tuttle. A knowledge-based analysis of zero knowledge. *Proceedings of the Twentieth ACM Symposium on Theory of Computing* (Chicago, Illinois), pages 132–47. ACM SIGACT, May 1988.

[392] Joseph Y. Halpern, Barbara Simons, Ray Strong, and Danny Dolev. Fault-tolerant clock synchronization. *Proceedings of the Third Computing* (Vancouver, British Columbia), pages 89–102. ACM SIGOPS-SIGACT, Aug. 1984.

[393] Joseph Y. Halpern and Moshe Y. Vardi. The complexity of reasoning about knowledge and time, I: Lower bounds. Technical report RJ5764. IBM Research Laboratory, Aug. 1987.

[394] Joseph Y. Halpern and Moshe Y. Vardi. The complexity of reasoning about knowledge and time: Extended abstract. *Proceedings of the Eighteenth ACM Symposium on Theory of Computing* (Berkeley, California), pages 304–15. ACM SIGACT, May 1986. A revised version appears as IBM Technical Report RJ5764.

[395] Joseph Y. Halpern and Lenore D. Zuck. A little knowledge goes a long way: Simple knowledge-based derivations and correctness proofs for a family of protocols. *Proceedings of the Sixth ACM Symposium on Principles of Distributed Computing* (Vancouver, British Columbia), pages 269–80. ACM SIGOPS-SIGACT, Aug. 1987. A revised version appears as IBM Technical Report RJ5857.

[396] M. Hammer and D. Shipman. Reliability Mechanisms for SDD-1: A System for Distributed Databases. *ACM Transactions on Database Systems*, **5**(2):431–66, Mar. 1980.

[397] James G. Hanko, Eugene M. Kuerner, J. Duane Northcutt, and Gerard A. Wall. Workstation support for time-critical applications. *Network and Operations System Support for and Video, Second International Workshop*, pages 4–9, Ralf Guido Herrtwich, editor, Nov. 1991.

[398] Per Brinch Hansen. *Operating System Principles.* Prentice-Hall, 1973.

[399] Per Brinch Hansen. Distributed processes: A concurrent programming concept. *CACM.*, **21**(11):934–41, 1978.

[400] Frank Harary. The maximum connectivity of a graph. *Proceedings of the National Academy of Sciences*, volume 48, pages 1142–46, 1962.

[401] Frank Harary. *Graph Theory.* Addison-Wesley, 1969.

[402] Michael Gonzalez Harbour and Lui Sha. An application-level implementation of the sporadic server. Technical report. 1991.

[403] Paul K. Harter Jr. Response times in level-structured systems. *ACM Transactions on Computer Systems*, **5**(3):232–48, Aug. 1988.

[404] R. Haskin, Y. Malachi, W. Sawdon, and G. Chan. Recovery Management in QuickSilver. *TOCS.*, **6**(1):82–108, Feb. 1988.

[405] Roger Haskin, Yoni Malachi, Wayne Sawdon, and Gregory Chan. Recovery Management in QuickSilver. *SOSP.*, pages 75–86, Nov. 1987.

[406] Mark Hayter and Derek McAuley. The desk area network. *OSR.*, **25**(4):14–21, Oct. 1991.

[407] A. A. Heddaya, M. Hsu, and W. E. Weihl. Two phase gossip: Managing distributed event histories. *Information Sciences*, **49**(1,2,3):35–57, Oct./Nov./Dec. 1989. Special issue on databases.

[408] Dietmar Hehmann, Ralf Guido Herrtwich, Werner Schulz, Thomas Sch—tt, and RRalf Stienmetz. Implementing heits architecture and implementation strategy of the heidlebreg high-speed transport system. *Network and Operations System Support for and Video, Second International Workshop*, pages 33–44, Ralf Guido Herrtwich, editor, Nov. 1991.

[409] P. Heidelberger and S. Lavenberg. Computer Performance Evaluation Methodology. *IEEE Transactions on Computers*, **C-33**(12):1195–220, Dec. 1984.

[410] M. E. Hellman. The mathematics of public-key cryptography. *Scientific American*, Aug. 1979.

[411] R. L. Henderson and A. Poston. MSS-II and RASH: A mainframe UNIX-based mass storage system with a rapid access storage hierarchy file management system. *Proceedings of the 1989 Winter USENIX Conference (San Diego).* USENIX Association, Berkeley, CA, Jan. 1989.

[412] Dr.A. J. Herbert and Prof.J. Monk, editors. *ANSA Reference Manual.* Advanced Networked Systems Architecture, Jun. 1987.

[413] Maurice Herlihy. Optimistic Concurrency Control for Abstract Data Types. *PODC.*, pages 206–17. ACM., Aug. 1986.

[414] Maurice Herlihy. A quorum consensus replication method for abstract data types. *ACM Transactions on Computer Systems*, **4**(1):32–53, Feb. 1986.

[415] Maurice P. Herlihy and Jeannette M. Wing. Axioms for concurrent objects. Technical report 86-154. Department of Computer Science, Carnegie Mellon University, Oct. 1986.

[416] I. S. Herschberg. The hacker's comfort. *Computers and Security*, **6**:133–8, 1987.

[417] Amir Herzberg and Shlomit Pinter. Public protection of software. *ACM Transactions on Computer Systems*, **5**(4):371–93, Nov. 1987.

[418] Dan Hildebrand. An architectural overview of qnx. *Usenix Workshop on Micro-Kernels and Other Kernel Architectures*, Apr. 1992.

[419] Albert Hoagland. Information Storage Technology: A Look at the Future. *IEEE Computer*, pages 60–7, Jul. 1985.

[420] C. A. R. Hoare. Communicating Sequential Processes. *CACM.*, **21**(8):666–77, Aug. 1978.

[421] C. A. R. Hoare. The Emperor's Old Clothes. *CACM.*, **24**(2):75–83, Feb. 1981.

[422] C. A. R. Hoare. Monitors: An Op*CACM.*, **17**(10):549–57, Oct. 1974.

[423] Carole B. Hogan. Protection imperfect: The security of some computing environments. *Operating Systems Review*, pages 7–27, Jul. 1988.

[424] W. W. Chu L. J. Holloway, M. Lan, and K. Efe. Task allocation in distributed data processing. *Computer*, **13**(11):57–70, Nov. 1980.

[425] Frank Hoorneart. Fast RSA-hardware: Dream or reality? *EUROCRYPT 88*, 1988.

[426] William E. Hopkins. Experience in using C++ for software system development. *Usenix C++ Workshop Proceedings* (Santa Fe, NM), pages 328–44. Usenix Association, Nov. 1987.

[427] Chris Horn and Alexis Donnelly. Architectural Aspects of the Comandos Platform, Apr. 1989. submitted to the Second International Workshop on Distribution and Objects, Karlsruhe.

[428] John H. Howard, Michael L. Kazar, Sherri G. Menees, David A. Nichols, M. Satyanarayanan, Robert N. Sidebotham, and Michael J. West. Scale and Performance in a Distributed File System. *TOCS.*, **6**(1):51–81, Feb. 1988.

[429] R. A. Howard. *Dynamic Probabilistic Systems*, volume II. John Wiley, 1971.

[430] M. Hsu and V. Tam. Transaction synchronization in distributed shared virtual memory systems. Technical report. Harvard University, Jan. 1989.

[431] M. Hsu and V. Tam. Managing databases in distributed virtual memory. Technical report. Harvard University, Mar. 1988.

[432] T. C. Hu. *Combinatorial Algorithms.* Addison-Wesley, 1982.

[433] Harlan Edward Husmann. High-Speed Format Conversion and Parallel I/O in Numerical Programs. Technical report. Department of Computer Science, University of Illinois at Urbana-Champaign, Jan. 1984. Available as TR number UIUCDCS-R-84-1152. Master's thesis.

[434] Imprimis Technology. *ArrayMaster 9058 Controller*, 1989.

[435] Herb Jacobs. A User-tunable Multiple Processor Scheduler. *Winter Usenix Technical Conference*, pages 183–91, 1986.

[436] Farnam Jahanian and Aloysius Ka Lau Mok. Safety analysis of timing properties in real-time systems. *IEEE Transactions on Software Engineering*, **SE–12**(9), Sep. 1986.

[437] N. K. Jaiswal. *Priority Queues.* Academic Press, 1968.

[438] S. Jajodia. Managing Replicated Files in Partitioned Distributed Database Systems. *Third International Conference on Data Engineering*, pages 412–18. IEEE., 1987.

[439] S. Jajodia and D. Mutchler. Dynamic Voting. *SIGMOD International Conference on Data Management*, pages 227–38. ACM., 1987.

[440] S. Jajodia and D. Mutchler. Enhancements to the Voting Algorithm. *Thirteenth VLDB Conference*, pages 399–405, 1987.

[441] S. Jajodia and D. Mutchler. Integrating Static and Dynamic Voting Protocols to Enhance File Availability. *Fourth International Conference on Data Engineering*, pages 144–53. IEEE., 1988.

[442] Kevin Jeffay. On kernel support for real-time multimedia applications. *Proc. Third IEEE Workshop on Workstation Operation Systems*, 1993. to appear.

[443] Kevin Jeffay, Donald L. Stone, and Daniel E. Poirier. Yartos, kernel support for efficient, predictable real- time systems. *Proc. Joint IEEE Workshop on Real-Time Operating Systems and Software*, 1991. fall.

[444] Kevin Jeffay, Donald L. Stone, and F. D. Smith. Transport and display mechanisms for multimedia conferencing across packet-switched networks. Technical report. University of North Carolina, 1993.

[445] David Jefferson, Brian Beckman, Fred Wieland, Les Blume, Mike DiLoreto, Phil Hontabas, Prine Laroche, Kathy Studevant, Jack Tupman, Van Warren, John Wedel, Herb Younger, and Steve Bellenot. Distributed Simulation and the Time Warp Operating System. *SOSP.* Published as *OSR.*, pages 77–93, Nov. 1987.

[446] David L. Jobusch and Arthur E. Oldehoeft. A survey of password mechanisms: Weaknesses and potential improvements. part 1. *Computers and Security*, **8**(7):587–604, 1989.

[447] David L. Jobusch and Arthur E. Oldehoeft. A survey of password mechanisms: Weaknesses and potential improvements. part 2. *Computers and Security*, **8**(8):675–89, 1989.

[448] O. G. Johnson. Three-dimensional wave equation computations on vector computers. *IEEEPROC.*, **72**, Jan. 1984.

[449] R. E. Johnson and Fred Schneider. Symmetry and similarity in distributed systems. TR 85-xx. Department of Computer Science, Cornell University, Feb. 1985.

[450] A. Jones and W. Wulf. Towards the design of secure systems. *Software Practice and Experience*, **5**:321–6, 1975.

[451] Anita K. Jones. The Narrowing Gap Between Language Systems and Operating Systems. *Proceedings of IFIP*, pages 869–73, 1977.

[452] M. B. Jones, R. F. Rashid, and M. Thompson. Matchmaker: An interprocess specification language. *ACM Conference on POPL*. Association for Computing Machinery, Jan. 1985.

[453] Michael B. Jones and Richard F. Rashid. Mach and Matchmaker: Kernel and language support ted distributed syst

1986.

[454] Mathai Joseph and Paritosh Pandya. Finding response times in a real-time system. *The Computer Journal*, **29**(5):390–5, 1986.

[455] T. Joseph and K. Birman. Low cost management of replicated data in fault-tolerant distributed systems. *ACM Transactions on Computer Systems*, **4**(1):54–70, Feb. 1986.

[456] Thomas Joseph and Kenneth Birman. Low cost management of replicated data in fault-tolerant distributed systems. *ACM Transactions on Computer Systems*, **4**(1):54–70, Feb. 1989.

[457] W. Joy and others. 4.2BSD system manual. Technical report. UC Berkeley, Jul. 1984.

[458] Jeffrey Joyce, Greg Lomow, Konrad Slind, and Brian Unger. Monitoring Distributed Systems. *TOCS.*, **5**(2):121–50, May 1987.

[459] Eric Jul and et al. Fine-Grained Mobility in the Emerald System. *TOCS.*, **6**(1):109–33, Feb. 1988.

[460] M. Frans Kaashoek, Andrew S. Tanenbaum, Susan Flynn Hummel, and Henri E. Bal. An efficient reliable broadcast protocol. *Operating Systems Review*, **23**(4):5–19, Oct. 1989.

[461] Richard Y. Kain and Carl E. Landwehr. On access checking in capability-based systems. *Proceedings of the IEEE Symposium on Security and Privacy*, 1986.

[462] Randy H. Katz. Winged memory. *UNIX Review*, pages 59–66, Sep. 1989.

[463] Randy H. Katz, John K. Ousterhout, David A. Patterson, and Michael R. Stonebraker. A project on high performance I/O subsystems. *IEEE Database Engineering Bulletin*, **11**(1):40–7, Mar. 1988.

[464] James A. Katzman and H. Robert Taylor. Guardian/Expand: A NonStop Network. Technical report. Tandem Computers., 1978.

[465] J. Kepecs and Marvin Solomon. SODA: a simplified operating system for distributed applications. *Proceedings of the Third ACM Symposium on Principles of Distributed Computing* (Vancouver, British Columbia), pages 208–19. ACM SIGOPS-SIGACT, Aug. 1984.

[466] Teemu Kerola and Herb Schwetman. Monit: A performance monitoring tool for parallel and pseudo-parallel programs. *Proceedings of the Conference on Measurement and Modeling of Computer Systems*, pages 163–74. ACM SIGMETRICS, 1987.

[467] R. B. Kieburtz and A. Silberschatz. Comments on "communicating sequential processes". *ACM Transactions on Programming Languages and Systems*, **1**(2):218–25, 1979.

[468] T. Kilburn, D. B. G. Edwards, M. J. Lanigan, and F. H. Sumner. One Level Storage System. *IRE Transactions on Electronic Computers*, **EC-11**(2):223–35, Apr. 1962.

[469] T. J. Killian. Processes as files. *Proceedings of the USENIX 1984 Summer Conference (Salt Lake City)*, pages 203–7. USENIX Association, Berkeley, CA, Jun. 1984.

[470] Michelle Y. Kim. *Synchronously Interleaved Disk Systems with their Application to the Very Large FFT.* PhD thesis. IBM Thomas J. Watson Research Center, Yorktown Heights, New York 10598, 1986. IBM Report number RC12372.

[471] Michelle Y. Kim. Synchronized disk interleaving. *IEEECOMP.*, **C-35**(11):978–88, Nov. 1986.

[472] James J. Kistler and M. Satyanarayanan. Disconnected Operation in the Coda File System. *SOSP.*, Oct. 1991.

[473] S. R. Kleiman. Vnodes: An architecture for multiple file system types in Sun UNIX. *Proceedings of the USENIX 1986 Summer Conference (Atlanta)*, pages 238–47. USENIX Association, Berkeley, CA, Jun. 1986.

[474] Leonard Kleinrock. *Queueing Theory*, volume I: Theory, First edition. John Wiley and Sons, 1975.

[475] Neal Koblitz. *A Course in Number Theory and Cryptography.* Springer-Verlag, 1987.

[476] Philip D. L. Koch. Disk file allocation based on the Buddy system. *ACM Transactions on Computer Systems*, **5**(4):352–70, Nov. 1987.

[477] Stephen G. Kochan and Patrick Wood. *UNIX System Security.* Hayden Book Co., 1985.

[478] Boris Kogan and Hector Garcia-Molina. Update propogation in Bakunin data networks. *Proceedings of the Sixth ACM Symposium on Principles of Distributed Computing* (Vancouver, British Columbia), pages 13–26. ACM SIGOPS-SIGACT, Aug. 1987.

[479] Gina Kolata. Flaws found in popular code. *Science*, Jan. 1983.

[480] Richard Koo. *Techniques for Simplifying the Programming of Distributed Systems.* PhD thesis. Cornell University, Aug. 1987. Department of Computer Science Technical Report 87-85x.

[481] Richard Koo and Sam Toueg. Checkpoint and rollback-recovery for distributed systems. *IEEE Transactions on Software Engineering*, **SE–13**(1):23–31, Jan. 1987.

[482] Hermann Kopetz and Wilhelm Ochsenreiter. Clock synchronization in distributed real-time systems. *IEEECOMP.*, **C-36**(8):933–40, Aug. 1987.

[483] D. L. Kreider, R. G. Kuller, and D. R. Ostberg. *Elementary Differential Equations.* Addison-Wesley, 1968.

[484] Nancy P. Kronenberg, Henry M. Levy, and William D. Strecker. VAXclusters: A Closely-Coupled Distributed System. *TOCS.*, **4**(2):130–46, May 1986.

[485] Clyde P. Kruskal, Larry Rudolph, and Marc Snir. Efficient Synchronization on Multiprocessors with Shared Memory. *PODC.*, pages 218–28. ACM., Aug. 1986.

[486] Michael D. Kupfer. Sprite on Mach. *Third USENIX Mach Symposium*, pages 307–22. USENIX Association, Apr. 1993.

[487] Rivka Ladin, Barbara Liskov, and Liuba Shrira. Lazy replication: Exploting the semantics of distributed services. *Proceedings of the Tenth ACM Symposium on Principles of Distributed Computing* (Qeubec City, Quebec), pages 43–58. ACM SIGOPS-SIGACT, Aug. 1990.

[488] L. Lamport. Time, Clocks, and the Ordering of Events in a Distributed System. *CACM.*, **21**(7):558–65, Jul 1978.

[489] L. Lamport. How to make a multiprocessor that correctly executes multiprocess programs. *IEEE Trans. on Computers*, **C-28**(9):690–1, Sep. 1979.

[490] L. Lamport, R. Shostak, and M. Pease. The Byzantine Generals Problem. *TOPLAS.*, **4**(3):382–401, Jul 1982.

[491] Leslie Lamport. Solved problems, unsolved problems and non-problems in concurrency. *ACM Operating System Review*, **19**(4):34–44, 1985.

[492] Leslie Lamport. On interprocess communication; part I: Basic formalism. *Distributed Computing*, **1**(2):77–85, 1986.

[493] Leslie Lamport. On interprocess communication; part II: Algorithms. *Distributed Computing*, **1**(2):86–101, 1986.

[494] Leslie Lamport. A Formal Basis for the Specification of Concurrent Systems. In Y. Paker et al., editor, *Distributed Operating Systems. Theory and Practice*, volume F28 of NATO Advanced Study Institute Series, pages 3–47. Springer-Verlag, 1987.

[495] Leslie Lamport. Using time instead of timeout for fault-tolerant distributed systems. *ACM Transactions on Programming Languages and Systems*, **6**(2):254–80, Apr. 1984.

[496] Leslie Lamport. A fast mutual exclusion algorithm. *ACM Transactions on Computer Systems*, **5**(1):1–11, Feb. 1987.

[497] Leslie Lamport. Synchronizing time servers. Technical report 18. Digital Systems Research Center, Jun. 1987.

[498] Leslie Lamport. A theorem on atomicity in distributed algorithms. Technical report 28. DEC Systems Research Center, May 1 1988.

[499] Leslie Lamport and Michael Fischer. Byzantine generals and transaction commit protocols. Technical report 62. SRI International, Apr. 1982.

[500] Leslie Lamport and P. M. Melliar-Smith. Synchronizing clocks in the presence of faults. *Journal of the ACM*, **32**(1):52–78, Jan. 1985.

[501] Leslie Lamport and Peter M. Melliar-Smith. Byzantine clock synchronization. *Proceedings of the Third ACM Symposium on Principles of Distributed Computing* (Vancouver, British Columbia), pages 68–74. ACM SIGOPS-SIGACT, Aug. 1984.

[502] B. W. Lampson, editor. *Distributed Systems – Architecture and Implementation.* Springer-Verlag, 1983.

[503] B. W. Lampson. Hints for Computer System Designers. *IEEE Software*, pages 11–28, Jan. 1984.

[504] B. W. Lampson. A Note on the Confinement Problem. *CACM.*, **16**(10):613–15, Oct. 1973.

[505] Butler W. Lampson. Hints for Computer System Design. *SOSP.* Published as *OSR.*, **17**(5):33–48, 1983.

[506] Butler W. Lampson and David D. Redell. Experiences with Processes and Monitors in Mesa. *CACM.*, **23**(2):105–17, Feb. 1980.

[507] Hugh C. Lauer. Observations on the Development of an Operating System. *SOSP.* Published as *OSR.*, **15**(5):30–6, Dec. 1981.

[508] Hugh C. Lauer and Roger M. Needham. On the Duality of Operating Systems Structures. *OSR.*, **13**(2):3–19, Apr. 1979.

[509] Hugh C. Lauer and Ed H. Satterthwaite. The impact of Mesa on system design. *Proceedings of the Fourth International Conference on Software Engineering*, pages 174–82. IEEE, 1979.

[510] A. Law and J. Carson. A Sequential Procedure for Determining the Length of a Steady-State Simulation. *Operations Research*, **27**:1011–125, 1979.

[511] A. Law and R. Mills. *Statistical Analysis of Simulation Output Data Using SIMSCRIPT II. 5.* CACI, 1988.

[512] James W. Layl and C. L. Liu. Scheduling algorithms for multiprogramming in a hard real-time environment. *JACM.*, pages 46–61, Feb. 1973.

[513] Ed Lazowska, Hank Levy, Guy Almes, Michael J. Fischer, Rob Folwer, and S. Vestal. The architecture of the Eden system. *Proceedings of the Eighth ACM Symposium on Operating Systems Principles* (Pacific Grove, California), pages 148–59. ACM SIGOPS, Dec. 1981.

[514] Edward Lazowska, John Zahorjan, G. Scott Graham, and Kenneth L. Sevcik. *Quantitative System Performance: Computer System Analysis Using Queueing Network Models.* Prentice Hall, 1984.

[515] Didler Le Gall. Mpeg: A video compression standard for multimedia applications. *CACM.*, **34**(4):47–59, Apr. 1991.

[516] David B. Leblang and Robert P. Chase Jr. Computer-aided software engineering in a distributed environment. *Proceedings of the Software Engineering Symposium on Practre Development Environments*, pages 104–12. ACM SIGSOFT/SIGPLAN, 1984.

[517] Edward K. Lee, Peter M. Chen, John H. Hartman, Ann L. Chervenak Drapeau, Ethan L. Miller, Randy H. Katz, Garth A. Gibson, and David A. Patterson. RAID-II: A Scalable Storage Architecture for High-Bandwidth Network File Service. Technical report 92/672. UC Berkeley, 2/1992.

[518] Insup Lee and Susan B. Davidson. Adding time to synchronous process communications. *IEEECOMP.*, **C-36**(8):941–8, Aug. 1987.

[519] S. J. Leffler, R. S. Fabry, and W. N. Joy. A 4.2bsd interprocess communication primer. Technical report UCB/CSD 83/145. University of California, Berkeley, Jul. 1983.

[520] S. J. Leffler, M. K. McKusick, M. J. Karels, and J. S. Quarterman. *The Design and Implementation of the 4.3BSD UNIX Operating System.* Addison-Wesley, 1989.

[521] Sam Leffler. Measuring and Improving the Performance of 4.2BSD. *Usenix Association Software Tools User's Group Summer Conference*, pages 237–52, Jun. 1984.

[522] D. J. Lehmann. Knowledge, common knowledge, and related puzzles. *Proceedings of the Third ACM Symposium on Principles of Distributed Computing* (Vancouver, British Columbia), pages 62–7. ACM SIGOPS-SIGACT, Aug. 1984.

[523] D. W. Leinbaugh. Guaranteed response times in a hard real-time environment. *IEEE Transactions on Software Engineering*, **SE–6**(1):85–91, 1980.

[524] Daniel Lenoski, James Laudon, Truman Joe, David Nakahira, Luis Stevens, Anoop Gupta, and John Hennessy. The DASH Prototype: Logic Overhead and Performance. *IEEE Transactions on Parallel and Distributed Systems*, **4**(1):41 to 61, Jan 1993.

[525] R. Levin and D. D. Redell. An Evaluation of the Ninth SOSP Submissions. *Operating Systems Review*, **17**(3):35–40, Jul. 1983.

[526] H. M. Levy and P. H. Lipman. Virtual Memory Management in the VAX/VMS Operating System. *IEEE Computer*, pages 35–41, Mar. 1982.

[527] Peter Leydekkers and Bertjan Teunissen. Synchronization of multimedia data streams in open distributed environments. *Network and Operations System Support for and Video, Second International Workshop*, pages 94–104, Ralf Guido Herrtwich, editor, Nov. 1991.

[528] Kwei Jay Lin and Ming Ju Lin. Enhancing availability in distributed real-time databases. *SIGMOD Record*, **17**(1):34–43, Mar. 1988.

[529] B. Liskov, D. Curtis, P. Johnson, and R. Scheifler. Implementation of Argus. *Proceedings of the Eleventh ACM Symposium on Operating Systems Principles* (Austin, Texas), pages 111–22. ACM SIGOPS, Nov. 1987.

[530] Barbara Liskov. On linguistic support for distributed programs. *Proceedings of Principles of Programming Languages*, pages 53–60, 1981.

[531] Barbara Liskov. Distributed programming in Argus. *CACM*, **31**(3):300–12, 1988.

[532] Barbara Liskov. Practical uses of synchronized clocks in distributed systems. Technical report 72. Programming methodology group, MIT, Cambridge, MA, Aug. 1991. Invited address, Tenth ACM Symposium on Principles of Distributed Computing (PODC), 1990.

[533] Barbara Liskov and Rivka Ladin. Highly-available distributed services and fault-tolerant distributed garbage collection. *Proceedings of the Fifth ACM Symposium on Principles of Distributed Computing* (Calgary, Alberta), pages 29–39. ACM SIGOPS-SIGACT, Aug. 1986.

[534] Barbara Liskov and Rivka Ladin. Highly-Available Distributed Services and Fault-Tolerant Distributed Garbage Collection. *PODC.*, pages 29–39. ACM., Aug. 1986.

[535] Barbara Liskov and R. Scheifler. Guardians and actions: Linguistic support for robust, distributed programs. *ACM Transactions on Programming Languages and Systems*, **5**(3):381–404, Jul. 1983.

[536] Barbara Liskov and William Weihl. Specifications of distributed programs. *Distributed Computing*, **1**:102–18, 1986.

[537] Barbara Liskov and William Weihl. Programming Methodology Group Progress Report. Technical report 56. Massachusetts Institute of Technology, Laboratory for Computer Science, Aug. 1987.

[538] Barbara Liskov and S. Zilles. Programming with abstract data types. *SIGPLAN Notices*, **9**:50–9, Apr. 1974.

[539] C. L. Liu and J. W. Layland. Scheduling algoritms for multiprocessing in a hard real-time environment. *Journal of the ACM*, **20**:46–61, 1973.

[540] C. L. Liu and James W. Layland. Scheduling algorithms for multiprogramming in a hard-real-time environment. *Journal of the ACM*, **20**(1), 1973.

[541] J. W. S. Liu, Kwei Jay Lin, and X. Song. Scheduling hard real-time transactions. *Proceedings of Fifth Workshop on Real-Time Software and Operating Systems*, pages 112–16, 1988.

[542] M. Livny, S. Khoshafian, and H. Boral. Multi-disk management algorithms. *Proceedings of the 1987 ACM Sigmetrics Conference on Measurement and Modeling of Computer Systems*, pages 69–77, May 1987. (Performance Evaluation Review, vol 15, no 1).

[543] Darrell D. E. Long, John L. Carroll, and A Study of the Reliability of Internet Sites. *SRDS.* (Pisa, Italy), pages 177–86. IEEE., Oct. 1991.

[544] Darrell D. E. Long and Jehan-François Pâris. On Improving the Availability of Replicated Files. *Sixth Symposium on Reliability in Distributed Software and Database Systems*, pages 77–83. IEEE., 1987.

[545] Darrell D. E. Long and Jehan-François Pâris. Regeneration Protocols for Replicated Objects. *Fifth International Conference on Data Engineering.* IEEE, Feb. 1989.

[546] Darrell D. E. Long and Jehan-François Pâris. A Realistic Evaluation of Optimistic Dynamic Voting. *Seventh Symposium on Reliable Distributed Systems.* IEEE., Oct. 1988.

[547] Darrell D. E. Long, Jehan-François Pâris, and John L. Carroll. Reliability of Replicated Data Objects. *Eighth International Conference on Computers and Communication.* IEEE., Mar. 1989.

[548] Carlyn M. Lowery. Protocols for providing performance guarantees in a packet-switching internet. Technical report TR-91-002. International Computer Science Institute, 1991.

[549] W. P. Lu and M. K. Sundareshan. A hierarchical key management scheme for end-to-end encryption in Internet environments. *Proceedings of the IEEE Symposium on Security and Privacy*, 1986.

[550] Henry C. Lucas Jr. Performance Evaluation and Monitoring. *Computing Surveys*, **3**(3):79–91, Sep. 1971.

[551] Robert W. Lucky. That Dreaded NIH Syndrome. *IEEE Spectrum*, page 16, Jan. 1983.

[552] Jennifer Lundelius and Nancy Lynch. A new fault-tolerant algorithm for clock synchronization. *Proceedings of the Third ACM Symposium on Principles of Distributed Computing* (Vancouver, British Columbia), pages 75–88. ACM SIGOPS-SIGACT, Aug. 1984.

[553] Nancy Lynch, Barbara Blaustein, and Michael Siegel. Correctness conditions for highly available replicated databases. *Proceedings of the Fifth ACM Symposium on Principles of Distributed Computing* (Calgary, Alberta), pages 11–28. ACM SIGOPS-SIGACT, Aug. 1986.

[554] Bob Lyon and G. Sager. Overview of the Sun network file system. Technical report. Sun Microsystems, Jan. 1985.

[555] M. Maekawa, K. Kawachiya, M. Ohta, J. Hamano, and K. Shimizu. Object management and address space of GALAXY holonic processing system. Technical report 86–15. University of Tokyo, 1986.

[556] Mamoru Maekawa, Arthur E. Oldehoeft, and Rodney R. Oldehoeft. *Operating Systems: Advanced Concepts.* Benjamin/Cummings, 1987.

[557] Messac Makpangou and Kenneth Birman. Designing application software in wide area network settings. Technical report 90-1165. Department of Computer Science, Cornell University, 1990.

[558] Frank Manola. How to Get Even with Database Conference Program Committees. *Database Engineering*, **4**(1):30–6, Sept. 1981.

[559] Tom Manuel. Breaking the data-rate logjam with arrays of small disk drives. *Electronics*, **62**(2):97–100, Feb. 1989.

[560] J. Alves Marques, R. Balter, V. Cahill, P. Guedes, N. Harris, C. Horn, S. Krakowiak, A. Kramer, J. Slattery, and G. Vandome. Implementing the Comandos architecture. *Esprit '88: Putting the Technology to Use* (North Holland), pages 1140–57. North Holland, 1988.

[561] K. Maruyama and S. E. Smith. Optimal reorganization of distributed space disk files. *CACM*, **19**(11):634–42, Nov. 1976.

[562] Keith Marzullo. *Maintaining the Time in a Distributed System.* PhD thesis. Stanford University, Department of Electrical Engineering, June 1984.

[563] Keith Marzullo, Robert Cooper, Mark Wood, and Kenneth Birman. Tools for distributed application management. *IEEE Computer*, Aug. 1991.

[564] Keith Marzullo and Susan Owicki. Maintaining the time in a distributed system. *Proceedings of the Second ACM Symposium on Principles of Distributed Computing* (Montreal, Quebec), pages 295–305. ACM SIGOPS-SIGACT, Aug. 1983.

[565] Keith Marzullo and Amitabh Shah. Harary Networks: Connectivity for highly available real-time distributed databases. Technical report TR 90-1070. Department of Computer Science, Cornell University, Jan. 1990.

[566] Keith Marzullo and Doug Wiebe. Jasmine: a software system modeling facility. *Second Software Engineering Symposium on Practical Software Development Environments.* ACM SIGSOFT/SIGPLAN, 1986.

[567] Henry Massalin and Calton Pu. Threads and Input/Output in the Synthesis Kernel. *SOSP.* Published as *OSR.*, **23**(5):191–201, Dec. 1989.

[568] Masters. Improve disk subsystem performance with multiple serial drives in parallel. *Computer Technology Review*, **7**(9), Jul. 1987.

[569] F. Mattern. Time and global states in distributed systems. *Proceedings of the International Workshop on Parallel and Distributed Algorithms.* North-Holland, 1989.

[570] R. L. Mattson, J. Gecsei, D. R. Slutz, and I. L. Traiger. Evaluation Techniques for Storage Hierarchies. *IBM Systems Journal*, pages 78–117, 1970.

[571] Murray S. Mazer. A knowledge theoretic account of recovery in distributed case of negotiated commitment. *Proceedings of the Second Conference on Theoretical Aspects of Reasoning about Knowledge* (Pacific Grove, California), pages 309–24, Moshe Y. Vardi, editor, Mar. 1988.

[572] Gene McDaniel. Metric: A Kernel Instrumentation System for Distributed Environments. *SOSP.* Published as *OSR.*, **11**(5):93–9, Nov. 1977.

[573] M. A. McGregor. Approximation Formulas for Reliability with Repair. *IEEE Transactions on Reliability*, **R-12**:64–92, 1963.

[574] Paul R. McJones and Garret F. Swart. Evolving the Unix System Interface to Support Multithreaded Programs. Technical report 21. Digital Research Center, Sep. 1987.

[575] M. K. M^{c}Kusick, W. N. Joy, S. J. Leffler, and R. S. Fabry. A Fast File System for UNIX. *TOCS.*, **2**(3):181–97, Aug. 1984.

[576] C. McMinn, R. Markowitz, J. Wharton, and W. Grunmann. Silicon Operating System Standardizes Software. *Electronics*, pages 135–9, Sept. 1981.

[577] L. W. McVoy and S. R. Kleiman. Extent-like performance from a Unix file system. *USENIX-Conference*, 1991.

[578] Ronald Meadows. FMC/SAVA 12Mhz HSRB Parameters, 1993. Draft.

[579] D. A. Menasce, G. J. Popek, and R. A. Muntz. A Locking Protocol for Resource Coordination in Distributed Databases. *ACM Transactions on Database Systems*, **5**, 1980.

[580] Clifford W. Mercer, Stefan Savage, and Hideyuki Tokuda. Processor capacity reserves for multimedia operating systems. Technical report CMU-CS-93-157. Carnigie Mellon University, 1993.

[581] Michael Merritt. Elections in the presence of faults. *Proceedings of the Third ACM Symposium on Principles of Distributed Computing* (Vancouver, British Columbia), pages 134–42. ACM SIGOPS-SIGACT, Aug. 1984.

[582] Bertrand Meyer. Cépage: Towards Computer-Aided Design of Sofware. Technical report TR-CE-7/GP. Interactive Software Engineering, Incorporated, Mar. 1987.

[583] Marc Meyer. Does Unix Matter? *Datamation*, pages 73–6, Dec. 1986.

[584] V. Miller. Use of elliptic curves in cryptography. *CRYPTO 85*, 1985.

[585] Pascale Minet. Un Réseau local pour un environnement industriel automatisé. *Techniques et Sciences Informatiques*, **6**(2):182–6, 1987.

[586] T. Minoura and G. Wiederhold. Resilient Extended True-Copy Token Scheme for a Distributed Database Systems. *IEEE Transactions on Software Engineering*, **SE-8**:173–89, 1982.

[587] S. Mishra, L. L. Peterson, and R. D. Schlichting. A Membership Protocol Based on Partial Order. Technical report. University of Arizona, 1990.

[588] James G. Mitchell and Jeremy Dion. A Comparison of Two Network-Based File Servers. *CACM.*, **25**(4):233–45, Apr. 1982.

[589] Jeffrey C. Mogul, Richard F. Rashid, and Michael J. Accetta. The Packet Filter: An Efficient Mechanism for User-level Network Code. *SOSP.* Published as *OSR.*, **21**(5):39–51, Nov. 1987.

[590] Abha Moitra. Scheduling algorithms for hard real-time systems. *Proceedings of 6 FST-TCS* (New Delhi, India). New Delhi, India, Dec. 1986.

[591] Abha Moitra. Analysis of hard real-time systems. Technical report TR 85-693. Department of Computer Science, Cornell University, Jul. 1985.

[592] Warren A. Montgomery. Measurements of Sharing in Multics. *SOSP.* Published as *OSR.*, **11**(5):85–90, Nov. 1977.

[593] James A. Moorer. The Lucasfilm audio signal processor. *Computer Music Journal*, **6**(3):22–32, 1982.

[594] Moren. Design of controllers is key element in disk subsystem throughput. *Computer Technology Review*, Spring 1988.

[595] Carroll Morgan. Global and logical time in distributed systems. *Information Processing Letters*, **20**:189–94, May 1985.

[596] D. E. Morgan and D. J. Taylor. A Survey of Methods of Achieving Reliable Software. *IEEE Computer*, pages 44–53, Feb. 1977.

[597] D. Morris, G. R. Frank, and C. J. Theaker. Machine-Independent Operating Systems. *Proceedings of IFIP*, pages 819–25, 1977.

[598] J. Morris, M. Satyanarayanan, M. Conner, J. Howard, D. Rosenthal, and F. D. Smith. Andrew: A Distributed Personal Computing Environment. *CACM.*, **29**(3):184–201, Mar. 1986.

[599] Robert Morris and Ken Thompson. Password Security: A Case History. *CACM.*, **22**(11):594–7, Nov. 1979.

[600] Yoram Moses. Resource-bounded knowledge. *Proceedings of the Second Conference on Theoretical Aspects of Reasoning about Knowledge* (Pacific Grove, California), pages 261–76, Moshe Y. Vardi, editor, Mar. 1988.

[601] Yoram Moses, Danny Dolev, and Joseph Y. Halpern. Cheating husbands and other stories: a case study of knowledge, action, and communication. *Distributed Computing*, **1**(3):167–76, 1986.

[602] Yoram Moses and Mark R. Tuttle. Programming simultaneous actions using common knowledge. *Algorithmica*, **3**(1):121–69, 1988.

[603] Yoram Moses and Mark R. Tuttle. Programming simultaneous actions using common knowledge. *Proceedings of the Twenty-Seventh IEEE Symposium on Foundations of Computer Science* (Toronto, Ontario), pages 208–21. IEEE, Oct. 1986. An expanded version appears as MIT/LCS Technical Report 369, February 1987.

[604] Yoram Moses and Orly Waarts. Coordinated traversal: $(t+1)$-round Byzantine agreement in polynomial time. *Proceedings of the Twenty-Ninth IEEE Symposium on Foundations of Computer Science* (White Plains, New York), pages 246–55. IEEE, Oct. 1988.

[605] J. E. Moss. Nested transactions and reliable distributed computing. *Proceedings of Second Symposium on Reliability in Distributed Software and Database Sysytems*, pages 33–9, 1982.

[606] S. J. Mullender and A. S. Tanenbaum. A Distributed File Service Based on Optimistic Concurrency Control. *SOSP.*, pages 51–62, 1985.

[607] S. J. Mullender and A. S. Tanenbaum. The design of a capability-based distributed operating system. *The Computer Journal*, Mar. 1986.

[608] Sape J. Mullender. Distributed Systems Management in Wide Area Networks. *Proceedings of the NGI-SION Informatica Syposium*, pages 415–24, 1984.

[609] Sape J. Mullender. A distributed file service based on optimistic concurrency control. *Operating Systems Review*, **19**(5):51–62, Dec. 1985.

[610] Sape J. Mullender, Andrew S. Tanenbaum, and Robbert van Renesse. Using sparse capabilities in a distributed operating system. *Proceedings Sixth International Conference on Distributed Computing Systems*, pages 558–63, 1986.

[611] Sape J. Mullender, Guido van Rossum, Andrew S. Tanenbaum, Robbert van Renesse, and Hans van Staveren. Amoeba – A Distributed Operating System for the 1990s. *IEEE Computer*, pages 44–53, May 1990.

[612] Trygve Nagell. *Introduction to Number Theory.* Chelsea Publishing Company, 1964.

[613] Klara Nahrsted and Jonathan M. Smith. The integrated media approach to networked multimedia systems. Technical report. University of Pennsylvania, 1992.

[614] National Bureau of Standards, Washington, D.C. *Data Encryption Standard*, Janurary 1977. Federal Information Processing Standards Publication 46.

[615] National Computer Security Center, Fort George G. Meade, Maryland. *Trusted network interpretation of the trusted computer system evaluation criteria*, Jul. 1987. NCSC-TG-005.

[616] National Research Network Review Committee. *Toward a National Research Network.* Computer Science and Technology Board, National Research Council, Washington, D. C., 1988.

[617] S. Navaratnam, S. Chanson, and G. Neufeld. Reliable group communication in distributed systems. *8th Inter. Conf. on Distributed Computing Systems* (San Jose, CA), pages 439–46. IEEE, Jun. 1988.

[618] R. M. Needham, A. J. Herbert, and J. G. Mitchell. How to connect stable memory to computer. *Operating Systems Review*, **17**(1):16, Jan. 1983.

[619] R. M. Needham and M. D. Schroeder. Using Encryption for Authentication in Large Networks of Computers. *CACM.*, **21**(12):993–9, Dec. 1978.

[620] R. M. Needham and M. D. Schroeder. Authentication revisited. *Operating Systems Review*, Jan. 1987.

[621] R. M. Needham and R. D. H. Walker. The Cambridge CAP Computer and Its Protection System. *SOSP.*, pages 1–10, Nov. 1977.

[622] Gil Neiger. *Techniques for Simplifying the Design of Distributed Systems.* PhD thesis. Cornell University, Aug. 1988. Department of Computer Science Technical Report 88-933.

[623] Gil Neiger. Knowledge consistency: A useful suspension of disbelief. *Proceedings of the Second Conference on Theoretical Aspects of Reasoning about Knowledge* (Pacific Grove, California), pages 295–308, Moshe Y. Vardi, editor, Mar. 1988.

[624] Gil Neiger and Sam Toueg. Substituting for real time and common knowledge in asynchronous distributed systems. *Proceedings of the Sixth ACM Symposium on Principles of Distributed Computing* (Vancouver, British Columbia), pages 281–93. ACM SIGOPS-SIGACT, Aug. 1987. An expanded version appears as Cornell University Department of Computer Science Technical Report 86-790. To appear in the *Journal of the ACM.*

[625] Gil Neiger and Sam Toueg. Automatically increasing the fault-tolerance of distributed systems. *Proceedings of the Seventh ACM Symposium on Principles of Distributed Computing* (Toronto, Ontario), pages 248–62. ACM SIGOPS-SIGACT, Aug. 1988.

[626] Gil Neiger and Sam Toueg. Substituting for real time and common knowledge in distributed systems. Technical report TR 86-790. Department of Computer Science, Cornell University, Nov. 1986. Revised July 1987.

[627] M. N. Nelson, B. B. Welch, and J. K. Ousterhout. Caching in the Sprite Network File System. *TOCS.*, **6**(1):134–54, Feb. 1988.

[628] A. N. Netravali, W. D. Roome, and K. Sabnani. Design and Implementation of a High-Speed Transport Protocol. *IEEE Transactions Communications*, **38**(11):2010–24, [629] O. Nevalainen and M. Vesterinen. Determining bl

The Computer Journal, **20**(3):245–7, 1975.

[630] S. Ng. Pitfalls in designing disk arrays. *Proceedings of the IEEE COMPCON Conference* (San Francisco). IEEE, Feb. 1989.

[631] Spencer Ng. Some design issues of disk arrays. *Proceedings of the IEEE COMPCON Conference*, pages 137–42, Spring 1989. San Francisco, CA.

[632] Van Nguyen and Kenneth J. Perry. Knowledge, communication, and time. *IFIP Working Group 2.6 Working Conference on Knowledge and Data* (Albufeira, Portugal). Albufeira, Portugal, Nov. 1986.

[633] David A. Nichols. Using Idle Workstations in a Shared Computing Environment. *SOSP.*, pages 5–12. ACM., Nov. 1987.

[634] V. F. Nicola, V. G. Kulkarni, and K. S. Trivedi. Queueing Analysis of Fault-Tolerant Computer Systems. *IEEE Transactions on Software Engineering*, **SE-13**:363–75, Mar. 1987.

[635] J. D. Noe and A. Andreassian. Effectiveness of Replication in Distributed Computing Networks. *Seventh International Conference on Distributed Computing Systems*, pages 508–13. IEEE., 1987.

[636] J. D. Noe and A. Andreassian. Effectiveness of replication in distributed computer networks. *7th Inter. Conf. on Distributed Computing Systems* (Berlin, West Germany), pages 508–13. IEEE, Sep. 1987.

[637] Donald A. Norman. The Trouble With UNIX. *Datamation*, pages 139–50, Nov. 1981.

[638] Patrick O'Brien, Bruce Bullis, and Craig Schaffert. Persistent and Shared Objects in Trellis/Owl. *Proceedings of the International Workshop on Object-Oriented database Systems*, pages 113–23. IEEE., Sep. 1986.

[639] U. S. Department of Defense. *Programming Language Ada: Reference Manual.* Springer-Verlag, 1981.

[640] Derek Oppen and Yogen Dalal. The Clearinghouse: A decentralized agent for locating named objects in a distributed environment. *ACM Transactions on Office Information Systems*, **1**(3):230–53, Jul. 1983.

[641] Dave Otway and Ed Oskiewicz. REX: A remote execution protocol for object-oriented distributed applications. *7th Inter. Conf. on Distributed Computing Systems* (Berlin, West Germany), pages 113–18. IEEE, Sep. 1987.

[642] Dave Otway and Owen Rees. Efficient and timely mutual authentication. *Operating Systems Review*, Jan. 1987.

[643] J. K. Ousterhout, A. R. Cherenson, F. Douglis, M. N. Nelson, and B. B. Welch. The Sprite Network Operating System. *IEEE Computer*, pages 23–36, Feb. 1988.

[644] J. K. Ousterhout, H. Da Costa, D. Harrison, J. A. Kunze, M. Kupfer, and J. G. Thompson. A Trace-Driven Analysis of the UNIX 4.2BSD File System. *SOSP.*, pages 15–24. ACM., Dec. 1985.

[645] J. K. Ousterhout, D. A. Scelza, and P. S. Sindhu. Medusa: An Experiment in Distributed Operating System Structure. *CACM.*, **23**(2):92–105, Feb. 1980.

[646] John Ousterhout. Log-structured file systems. *Proceedings of the IEEE COMPCON Conference*, pages 124–9, Spring 1989. San Francisco, CA.

[647] John Ousterhout and Fred Douglis. Beating the I/O bottleneck: A case for log-structured file systems. *ACM Operating Systems Review*, **23**(1):11–28, Jan. 1989.

[648] John Ousterhout and Fred Douglis. Beating the I/O bottleneck: A case for log-structured file systems. Technical report UCB/CSD 88/467. University of California, Berkeley, Oct. 1988.

[649] John K. Ousterhout and John H. Hartman. ZEBRA: A Striped Network File System. Technical report 92/683. UC Berkeley, 28 Apr. 1992.

[650] Özalp Babaoğlu. Engineering fault-tolerant distributed computing systems. Technical report TR 86-755. Department of Computer Science, Cornell University, May 1986.

[651] Özalp Babaoğlu. On the reliability of consensus-based fault-tolerant distributed computing systems. *ACM Transactions on Computer Systems*, **5**(4):394–416, Nov. 1987.

[652] Özalp Babaoğlu and Rogério Drummond. (Almost) no cost clock synchronization. *Proceedings of the Seventeenth International Symposium on Fault-Tolerant Computing* (Pittsburgh, Pennsylvania), pages 42–7. IEEE., Jul. 1987.

[653] Özalp Babaoğlu and Rogério Drummond. Communication-time tradeoffs for reliable broadcast protocols. Technical report 85-687. Department of Computer Science, Cornell University, Jun. 1985.

[654] Özalp Babaoğlu and Rogério Drummond. Streets of Byzantium: Network architectures for fast reliable broadcasts. *IEEE Transactions on Software Engineering*, **11**(6):546–54, Jun. 1985.

[655] Özalp Babaoğlu and Rogério Drummond. (Almost) no cost clock synchronization. Technical report 86-791. Department of Computer Science, Cornell University, Nov. 1986. Also appears in Proceedings of the Seventeenth International Symposium on Fault-Tolerant Computing, July 1987.

[656] Özalp Babaoğlu and Rogério for fast reliable broadcasts. *Proceedings of the Fourth Symposium on Reliability in Distributed Software and Database Systems* (Silver Spring, Maryland), pages 2–10. Silver Spring, Maryland, Oct. 1984.

[657] Özalp Babaoğlu, Pat Stephenson, and Rogério Drummond. The impact of communication network properties on reliable broadcast protocols. *Distributed Computing*, **1**(4):177–89, 1988.

[658] Tim Levin Steven J. Padilla and Cynthia E. Irvine. A formal model for unix setuid. *Proceedings of the IEEE Symposium on Security and Privacy*, pages 73–81, May 1989.

[659] Prakash Panangaden and Kim Taylor. Concurrent common knowledge: a new definition of agreement for asynchronous systems. *Proceedings of the Seventh ACM Symposium on Principles of Distributed Computing* (Toronto, Ontario), pages 197–209. ACM SIGOPS-SIGACT, Aug. 1988.

[660] Prakash Panangaden and Kim Taylor. Concurrent common knowledge: a new definition of agreement for asynchronous systems. Technical report TR 86-802. Department of Computer Science, Cornell University, Dec. 1986.

[661] C. Papadimitriou. The serializability of concurrent updates in databases. *Journal of the ACM*, **26**(4):631–53, Oct. 1979.

[662] Christos Papadimitriou. *The Theory of Database Concurrency Control*, first edition. Computer Science Press, 1986.

[663] Rohit Parikh. Logics of Knowledge, Games and Dynamic Logic. In Mathai Joseph and R. K. Shyamasundar, editors, *Proceedings of the Fourth Conference on Foundations of Software Technology and Theoretical Computer Science*, volume 181 of Lecture Notes on Computer Science, pages 202–22. Springer-Verlag, Dec. 1984.

[664] Rohit Parikh and R. Ramanujam. Knowledge, Information and Protocols (extended abstract), 1985. Unpublished manuscript.

[665] Rohit Parikh and R. Ramanujam. Distributed Processes and the Logic of Knowledge. In Rohit Parikh, editor, *Proceedings of the Conference on Logics of Programs*, volume 193 of Lecture Notes on Computer Science, pages 256–68. Springer-Verlag, Jun. 1985.

[666] J.-F. Pâris. Voting with a Variable Number of Copies. *Sixteenth Fault-Tolerant Computing Symposium*, pages 50–5. IEEE., 1986.

[667] J.-F. Pâris. Voting with Witnesses: A Consistency Scheme for Replicated Files. *Sixth International Conference on Distributed Computing Systems*, pages 606–12. IEEE., 1986.

[668] J.-F. Pâris. Efficient Management of Replicated Data. *International Conference on Database Theory*, 1988.

[669] Jehan-François Pâris and Walter A. Burkhard. On the Availability of Dynamic Voting Schemes. Technical report 86-090. University of California, San Diego, 1986.

[670] Jehan-François Pâris and Darrell D. E. Long. Efficient Dynamic Voting Algorithms. *Fourth International Conference on Data Engineering*, pages 268–75. IEEE., 1988.

[671] Arvin Park. IOSTONE: a synthetic file system performance benchmark. Technical report CS-TR-074-87. Department of Computer Science, Princeton University, Jan. 1987.

[672] Arvin Park. Providing fault tolerance in parallel secondary storage systems. Technical report CS-TR-057-86. Department of Computer Science, Princeton University, Nov. 1986.

[673] D. L. Parnas. On the Criteria to be Used in Decomposing Systems into Modules. *CACM.*, **15**(12):1053–8, Dec. 1972.

[674] D. L. Parnas and D. P. Siewiorek. Use of the Concept of Transparency in the Design of Hierarchically Structured Systems. *CACM.*, **18**(7):401–8, Jul. 1975.

[675] Colin J. Parris and Domenico Ferrari. A dynamic connection management scheme for guaranteed performance services in packet-switching integrated services networks. *Proc. of the 1993 ACM Conf. on Multimedia*, 1993. to appear.

[676] Ketan Patel, Brian C. Smith, and Lawrence A. Rowe. Performance of a software mpeg video decoder. *Network and OS Support for Digital Audio and Video, Third International Workshop*, Aug. 1992. (to appear).

[677] D. A. Patterson, G. Gibson, and R. H. Katz. A Case for Redundant Arrays of Inexpensive Disks (RAID). *SIGMOD.*, pages 109–16. ACM., 1988.

[678] David A. Patterson, Garth Gibson, and Randy H. Katz. A case for redundant arrays of inexpensive disks (RAID). Technical report UCB/CSD 87/391. University of California, Berkeley, Dec. 1987.

[679] M. Pease, R. Shostak, and Leslie Lamport. Reaching agreement in the presence of faults. *Journal of the ACM*, **27**(2):228–34, Apr. 1980.

[680] Kenneth J. Perry. A Framework for Agreement, 1987. Unpublished manuscript. Received February 1987.

[681] Kenneth J. Perry. *Early Stopping Protocols for Fault-Tolerant Distributed Agreement.* PhD thesis. Cornell University, Feb. 1985. Department of Computer Science Technical Report 85-662.

[682] Kenneth J. Perry and Sam Toueg. Distributed agreement in the presence of processor and communication faults. *IEEE Transactions on Softwar Mar. 1986.*

ff683ff Robert E. Perry. Audience Requirements for Technical Speakers. IEEE Transactions on Professional Communication, **PC-21**(3):91–6, Sept. 1978.

[684] Tekla Perry and Paul Wallich. Can Computer Crime Be Stopped? *IEEE Spectrum*, pages 34–45, May 1984.

[685] G. L. Peterson. Myths about the mutual exclusion problem. *Information Processing Letter*, **12**(3):115–16, 1978.

[686] L. Peterson, N. Hutchinson, S. O'Malley, and M. Abbot. RPC in the *x*-Kernel: Evaluating New Design Techniques. *SOSP.*, pages 91–101. ACM., Dec. 1989.

[687] L. L. Peterson. The Profile Naming System. *TOCS.*, **6**(4):341–64, Nov. 1988.

[688] Larry Peterson. Preserving context information in an IPC abstraction. *Sixth Symposium on Reliability in Distributed Software and Database Systems*, pages 22–31. IEEE, Mar. 1987.

[689] Larry L. Peterson, Nick C. Bucholz, and Richard Schlichting. Preserving and using context information in interprocess communication. *ACM Transactions on Computer Systems*, **7**(3):217–46, Aug. 1989.

[690] Charles P. Pfleeger. *Security in Computing.* Prentice Hall, 1989.

[691] Kenneth A. Pier. A retrospective on the Dorado, a high-performance personal computer. Technical report. XEROX PARC, Aug. 1983.

[692] Paul Pierce. A concurrent file system for a highly parallel mass storage subsystem. *Proceedings of the Fourth Conference on Hypercubes, Concurrent Computers and Applications* (Monterey). IEEE, Mar. 1989.

[693] F. Pitelli and Hector Garcia-Molina. Data processing with triple modular redundancy. Technical report TR-002-85. Princeton University, Jun. 1985.

[694] G. M. J. Pluimakers and J. van Leeuwen. Authentication: A concise survey. *Computers and Security*, Jun. 1986.

[695] Ira Pohl and Daniel Edelson. A–Z: C language shortcomings. *Computer Languages*, **13**(2), 1988.

[696] Vassilios G. Polimenis. The Design of a File System that Supports Multimedia, 1990. In unpublished form.

[697] G. Popek, B. Walker, J. Chow, D. Edwards, C. Kline, G. Rudisin, and G. Thiel. Locus: A Network Transparent, High Reliability Distributed System. *Eighth Symposium on Operating System Principles*, pages 169–77. ACM., 1981.

[698] Gerald J. Popek and Bruce J. Walker. *The LOCUS Distributed System Architecture*. The MIT Press, 1985.

[699] A. Poston. A high performance file system for UNIX. *Proceedings of the 1988 UNIX and Supercomputers Workshop*. USENIX Association, Berkeley, CA, Nov. 1988.

[700] David Powell, Pacal Martin, and Douglas Seaton. La Tolérance aux Fautes dans les systèmes répartis: l'Approche Delta-4. *Techniques et Sciences Informatiques*, **6**(2):196–200, 1987.

[701] Michael Powell and Barton Miller. Process migration in demos/mp. *Proceedings of the 9th Symposium on Operating Systems Principles*, 1983.

[702] Michael Powell and Dave L. Presotto. Publishing: A reliable broadcast communication mechanism. *Proceedings of the Ninth ACM Symposium on Operating Systems Principles* (Bretton Woods, New Hampshire), pages 100–9. ACM, Oct. 1983. Proceedings published as *Operating Systems Review* 17(5).

[703] Michael L. Powell. The DEMOS File System. *SOSP.* Published as *OSR.*, **11**(5):33–42, Nov. 1977.

[704] June M. Power and Steve R. Wilbur. Authentication in a heterogeneous environment. *Computers and Security*, May 1987.

[705] Terrence W. Pratt, James C. French, Phillip M. Dickens, and Stanley A. Janet. A comparison of the architecture and performance of two parallel file systems. *Proceedings of the Fourth Conference on Hypercubes, Concurrent Computers and Applications* (Monterey). IEEE, Mar. 1989.

[706] C. Pu, J. D. Noe, and A. Proudfoot. Regeneration of Replicated Objects: A Technique and its Eden Implementation. *Second International Conference on Data Engineering*, pages 175–87. IEEE., 1986.

[707] Calton Pu. *Replication and Nested Transactions in the Eden Distributed System*. PhD thesis. University of Washington, 1986.

[708] Calton Pu, Henry Massalin, and John Ioannidis. The synthesis kernel. *Computing Systems*, **1**(1), Winter 1988.

[709] J. S. Quarterman, A. Silbershatz, and J. L. Peterson. 4.2BSD and 4.3BSD as Examples of the UNIX System. *ACM Computing Surveys*, **17**(4):379–418, Dec. 1985.

[710] John Quarterman and Josiah Hoskins. Notable Computer Networks. *CACM.*, **29**(10):932–71, Oct. 1986.

[711] Michael Rabin. Randomized Byzantine generals. *Proceedings of the Twenty-Fourth IEEE Symposium on Foundations of Computer Science* (Tucson, Arizona), pages 403–9. IEEE, Nov. 1983.

[712] Umakishore Ramachandran, Mustaque Ahamad, and M. Yousef Amin Khalidi. Unifying synchronization and data transfer in maintaining coherence of distributed shared memory. Technical report GIT-ICS-88/23. SchoGeorgia Institute of Technology, Jun. 1988.

[713] Umakishore Ramachandran and M. Yousef Amin Khalidi. An implementation of distributed shared memory. Technical report GIT-ICS-88/50. School of Information and Computer Science, Georgia Institute of Technology, Dec. 1988.

[714] Umakishore Ramachandran and M. Yousef Amin Khalidi. Programming with distributed shared memory. Technical report GIT-ICS-88/38. School of Information and Computer Science, Georgia Institute of Technology, Oct. 1988.

[715] Krithivasan Ramamritham and John Stankovic. Dynamic task scheduling in hard real-time distributed systems. *IEEE Transactions on Software*, **1**(3):65–75, 1984.

[716] Krithivasan Ramamritham and John Stankovic. Distributed scheduling of tasks with deadlines and resource requirements. *IEEECOMP.*, **34**(12):1130–43, 1985.

[717] Srinivas Ramanathan and P. Venkat Rangan. Feedback techniques for intra-media continuity and inter-media synchronization in distributed multimedia systems. *The Computer Journal*, 1993. to appear.

[718] P. Venkat Rangan and Srinivas Ramanathan. Adaptive feedback techniques for synchronized multimedia retrieval over integrated networks. *IEEE/ACM Transactions on Networking*, 1993. to appear.

[719] P. Venkat Rangan, Srinivas Ramanathan, Harrick M. Vin, and Thomas Kaeppner. Techniques for multimedia synchronization in network file systems. *Computer Communications Journal*, 1993.

[720] P. Venkat Rangan and Harrick M. Vin. Designing file systems for digital video and audio. *Proc. of the 13th ACM Symposium on Operating Systems Principles*, 1991.

[721] P. Venkat Rangan and Harrick M. Vin. Efficient storage techniques for digital continuous multimedia. *IEEE Trans. on Knowledge and Data Engineering*, Aug. 1993. to appear.

[722] P. Venkat Rangan, Harrick M. Vin, and Srinivas Ramanathan. Designing an on-demand multimedia service. *IEEE Communications*, pages 52–64, 1992.

[723] P. Venkat Rangan, Harrick M. Vin, and Srinivas Ramanathan. Communication architectures and algorithms for media mixing in multimedia conferences. *IEEE/ACM Transaction on Networking*, **1**(1), Feb. 1993.

[724] P. Venkata Rangan. *Trust Relationships, Naming, and Secure Communications in Large Distributed Computer Systems.* PhD thesis, published as Ph.D. Thesis. UC Berkeley, 1988.

[725] Srinivas Ramanathan.P. Venkat Rangan and Harrick M. Vin. Integrating virtual reality, teleconferencing, and entertainment into multimedia home computers. Technical report. University of California San Deigo, 1993.

[726] R. Rashid, A. Tevanian, M. Young, D. Golub, R. Baron, D. Black, W. Bolosky, and J. Chew. Machine-Independent Virtual Memory Management for Paged Uniprocessor and Multiprocessor Architectures. *ASPLOS.*, pages 31–9. ACM., Oct. 1987.

[727] Richard Rashid and G. G. Robertson. Accent: A communication oriented network operating system kernel. *Proceedings of the Eighth ACM Symposium on Operating Systems Principles* (Pacific Grove, California), pages 64–75. ACM SIGOPS, Dec. 1981.

[728] Richard F. Rashid. From RIG to Accent to Mach: the Evolution of A Network Operating System. *Fall Joint Computer Conference*, pages 1128–37, 1986.

[729] Richard F. Rashid and et al. Machine-Independent Virtual Memory Management for Paged Uniprocessor and Multiprocessor Architectures. *IEEE Transactions on Computers*, **37**(8):896–908, Aug. 1988.

[730] A. Reddy and P. Banerjee. Evaluation of multiple-disk I/O systems. *Proceedings of the 1989 International Conference on Parallel Processing*, 1989. To appear.

[731] A. L. Reddy, P. Banerjee, and Santosh G. Abraham. I/O embedding in hypercubes. *Proceedings of the 1988 International Conference on Parallel Processing*, volume 1, pages 331–8, 1988.

[732] David D. Redell, Yogen K. Dalal, Thomas R. Horsley, Hugh C. Lauer, William C. Lynch, Paul R. McJones, Hal G. Murray, and Stephen C. Purcell. Pilot: An Operating System for a Personal Computer. *CACM.*, **23**(2):81–92, Feb. 1980.

[733] David Reed. Implementing atomic actions on decentralized data. *ACM Transactions on Computer Systems*, **1**(1), Feb. 1983.

[734] James A. Reeds and Peter J. Winberger. File security and the UNIX system crypt command. *AT&T Bell Laboratories Technical Journal*, **63**(8):1673–83, Oct. 1984.

[735] Brian Reid. Lessons from the UNIX Breakins at Stanford. *Software Engineering Notes*, **11**(5):29–35, Oct. 1986.

[736] Peter Reiher. *Problems of Large Scale Distributed Systems*. PhD thesis. University of California, Los Angeles, Department of Computer Science, Aug. 1987.

[737] Mike Reiter, Kenneth Birman, and Keith Marzullo. How to securely replicate services. Technical report 92-1287. Department of Computer Science, Cornell University, 1992.

[738] Aleta Ricciardi and Kenneth Birman. Using process groups to implement failure detection in asynchronous environmenceedings of the Eleventh ACM Symposium on Principles of Distributed Computing (Montreal, Quebec). ACM SIGOPS-SIGACT, Aug. 1991.

[739] A. P. Rifkin, M. P. Forbes, R. L. Hamilton, M. Sabrio, S. Shah, and K. Yueh. Rfs architectural overview. *Proceedings of the USENIX 1986 Summer Conference (Atlanta)*, pages 248–59. USENIX Association, Berkeley, CA, Jun. 1986.

[740] D. M. Ritchie. A Stream Input-Output System. *AT&T Bell Laboratories Technical Journal*, **63**(8):1897–910, Oct. 1984.

[741] Dennis M. Ritchie. On the security of unix. *4.2BSD UNIX System Manager's Manual*, 1977.

[742] Dennis M. Ritchie and Ken Thompson. The UNIX Time-Sharing System. *CACM.*, **17**(7):365–75, Jul. 1974.

[743] R. L. Rivest, A. Shamir, and L. Adleman. A Method for Obtaining Digital Signatures and Public-Key Cryptosystems. *CACM.*, **21**(2):120–6, Feb. 1978.

[744] Lynda E. Robbins, John M. Carroll, Robert B. Mowat, and David Wiseman. The password predictor – a training aid for raising security awareness. *Computers and Security*, **7**(5):475–81, 1988.

[745] Neville Robbins. *Beginning Number Theory*. Wm. C. Brown Publishers, 1993.

[746] J. M. Robson. Worst case fragmentation of first fit and best fit storage allocation strategies. *The Computer Journal*, **20**(3):242–4, 1975.

[747] R. Rodriguez, M. Koehler, and R. Hyde. The generic file system. *Proceedings of the USENIX 1986 Summer Conference (Atlanta)*, pages 260–9. USENIX Association, Berkeley, CA, Jun. 1986.

[748] Mendel Rosenblum and John K. Ousterhout. The design and implementation of a log-structured file system. *ACM Transactions on Computer Systems*, **10**(1):26–52, Feb. 1992.

[749] Mendel Rosenblum and John K. Ousterhout. The design and implementation of a log-structured file system. *SOSP.* (Asilomar, Pacific Grove, CA), pages 1–15. ACM. SIGOPS, Oct. 1991.

[750] Charles B. Ross. IBM-370 Channel Architecture. *Computer Measurement Group Conference*, pages 459–67, 1979.

[751] J. M. Roth, G. S. Kendall, and S. L. Decker. A network sound system for unix. *1985 International Computer Music Conference* (Burnaby, B.C., Canada), pages 61–7, Aug. 1985.

[752] J. B. Rothnie, P. A. Bernstein, S. Fox, N. Goodman, M. Hammer, T. A. Landers, C. Reeve, D. W. Shipman, and E. Wong. Introduction to a System for Distributed Databases (SDD-1). *ACM Transactions on Database Systems*, **5**(2):1–17, Mar. 1980.

[753] J. B. Rothnie, N. Goodman, and P. A. Bernstein. The Redundant Update Methodology of SDD-1: A System for Distributed Databases (The Fully Redundant Case). Technical report CCA 77-02. Computer Corporation of America, 1977.

[754] M. Rozier, V. Abrossimov, M. Armand, F. Hermann, C. Kaiser, S. Langlois, P. Leonard, and W. Neuhauser. The chorus distributed system. *Computer Systems*, pages 299–328, Fall 1988.

[755] Harry Rudin. Trends in Computer Communications. *IEEE Computer*, page 33, Nov. 1986.

[756] Vincent Russo, Gary Johnston, and Roy Campbell. Process management and exception handling in multiprocessor operating systems using object-oriented design techniques. *OOPSLA '88 Conference*, pages 248–58. ACM, Sep. 1988.

[757] Robert Rutherford, F. Brent Dubach, and Charles Shub. Process-originated migration in a heterogeneous environment. *Computer Science Department, University of Colorado at Colorado Springs*, 1989.

[758] G. R. Sager and R. B. Lyon. Distributed file system strategies. *Unix Review*, May 1985.

[759] K. Salem and H. Garcia-Molina. Disk striping. Technical report 332. EECS Department, Princeton University, Dec. 1984.

[760] Kenneth Salem and Hector Garcia-Molina. Disk striping. *Proceeding of the Second International Conference on Data Engineering*, pages 336–42. IEEE, Feb. 1986.

[761] J. H. Saltzer. Research problems of decentralized systems with largely autonomous nodes. *Operating Systems Review*, **12**(1):43–52, Jan. 1978.

[762] J. H. Saltzer, D. P. Reed, and D. D. Clark. End-to-End Arguments in System Design. *TOCS.*, **2**(4):277–88, Nov. 1984.

[763] Jerome H. Saltzer and John W. Gintell. The Instrumentation of Multics. *CACM.*, **13**(8):495–500, Aug. 1970.

[764] Jerome H. Saltzer and Michael Schroeder. The Protection of Information in Computer Systems. *Proceedings of the IEEE*, **63**(9):1278–308, Sept. 1975.

[765] Russel Sandberg, David Goldberg, Steve Kleinman, Dan Walch, and Bob Lyon. Design and Implementation of the Sun Network Filesystem. *Summer Usenix Conference*, pages 119–30, Jun. 1985.

[766] Russell Sandberg. The Sun Network File System: Design, implementation and experience. *Sun Microsystems, Inc. Technical Report*, 1986.

[767] Russell Sandberg. The Sun Network File System: Design, Implementation and Experience. *Sun Microsystems, Inc. Technical Report*, 1986.

[768] R. Sansom, D. Julin, and R. Rashid. Extending a capability based system Technical report. Carnegie-Mellon University, Apr. 1986.

[769] M. Satyanarayanan. Scalable, Secure, and Highly Available Distributed File Access. *IEEE Computer*, **23**(5):9–21, May 1990.

[770] M. Satyanarayanan, John Howard, David Nichols, Robert Sidebotham, Alfred Spector, and Michael West. The ITC Distributed File System: Principles and Design. *SOSP.* Published as *OSR.*, **19**(5), 1985.

[771] M. Satyanarayanan, J. J. Kistler, P. Kumar, M. E. Okasaki, E. H. Siegel, and D. C. Steere. Coda: A Highly Available File Systems for a Distributed Workstation Environment. *IEEE Transactions on Computers*, **39**(4):447–59, Apr. 1990.

[772] Richard E. Schantz, Robert H. Thomas, and Girome Bono. The architecture of the Cronus distributed operating system. *6th Inter. Conf. on Distributed Computing Systems*, pages 250–9. IEEE, 1986.

[773] A. Schiper, J. Eggli, and ASandoz. A new algorithm to implement causal ordering. *Proceedings of the 3rd International Workshop on Distributed Algorithms, Lecture Notes on Computer Science 392*, pages 219–32. Springer-Verlag, 1989.

[774] Richard D. Schlichting and Fred B. Schneider. Fail-stop processors: an approach to designing fault-tolerant computing systems. *ACM Transactions on Computer Systems*, **1**(3):222–38, Aug. 1983.

[775] David A. Schmidt. *Denotational Semantics, A Methodology for Language Development.* Allyn and Bacon, 1986.

[776] Eric E. Schmidt. *Controlling Large Software Development in a Distributed Environment.* PhD thesis. University of California, Berkeley, Department of Computer Science, Dec. 1982.

[777] F. Schmuck and J. Wyllie. Experience with transactions in quicksilver. *Proceedings of the Twelveth ACM Symposium on Operating Systems Principles* (Litchfield Park, Arizona), pages 239–53. ACM SIGOPS, Nov. 1989.

[778] Frank Schmuck. *The use of Efficient Broadcast Primitives in Asynchronous Distributed Systems.* PhD thesis. Cornell University, 1988.

[779] Fred B. Schneider. Synchronization in distributed programs. *ACM Transactions on Programming Languages and Systems*, **4**(2):179–95, Apr. 1982.

[780] Fred B. Schneider. The state machine approach: a tutorial. Technical report TR 86-800. Department of Computer Science, Cornell University, Dec. 1986. Revised June 1987.

[781] Fred B. Schneider. Byzantine generals in action: Implementing fail-stop processors. *ACM Transactions on Computer Systems*, **2**(2):145–54, May 1984.

[782] Fred B. Schneider, David Gries, and Richard D. Schlicting. Fault-tolerant broadcasts. *Science Of Computer Programming*, pages 1–15, 1984.

[783] Ben Schneiderman. Direct Manipulation: A Step Beyond Programming Languages. *IEEE Computer*, pages 57–69, Aug. 1983.

[784] Ben Schneiderman. Human Factors Experiments in Designing Interactive Systems. *IEEE Computer*, pages 9–19, Dec. 1979.

[785] Linus Schrage. Optimal Scheduling Rules for a Single Processor. *Seventh Hawaii Conference on Information Sciences and Systems*, pages 31–2, 1974.

[786] Jeff Schriebman. Structured Methodology Brings Order to Porting the Unix Operating System. *Electronics*, pages 151–3, May 1984.

[787] M. D. Schroeder, A. D. Birrell, and R. M. Needham. Experience with Grapevine: the Growth of a Distributed System. *TOCS.*, **2**(1):3–23, Feb. 1984.

[788] M. D. Schroeder and M. Burrows. Performance of Firefly RPC. *SOSP.*, pages 83–90, 1989.

[789] Michael D. Schroeder, Andrew D. Birrell, and Roger M. Needham. Experience with Grapevine: the Growth of a Distributed System. *TOCS.*, **2**(1):3–23, Feb. 1984.

[790] Michael D. Schroeder and et al. Autonet: a High-speed, Self-configuring Local Area Network Using Point-to-point Links. Technical report. DEC Systems Research Center, Apr. 1990.

[791] Michael D. Schroeder and Jerome H. Saltzer. A Hardware Architecture for Implementing Protection Rings. *CACM.*, **15**(3):157–70, Mar. 1972.

[792] Martin E. Schulze. Considerations in the design of the RAID prototype. Technical report UCB/CSD 88/448. University of California, Berkeley, Aug. 1988.

[793] Karsten Schwan, Tom Bihari, Bruce W. Weide, and Gregor Taulbee. High-Performance Operating System Primitives for Robotics and Real-Time Control Systems. *TOCS.*, **5**(3):189–231, Aug. 1987.

[794] Karsten Schwan, Ahmed Gheith, and Hongyi Zhou. From chaosbase to chaosarc : A family of real-time kernels. *Proceedings of the 1990 Real Time Systems Symposium*, 1990.

[795] Michael F. Schwartz, John Zahorjan, and David Notkin. A Name Service for Evolving, Heterogeneous Systems. *SOSP.*, pages 52–62. ACM., Nov. 1987.

[796] M. L. Scott and A. L. Cox. An Empirical Study of Message-Passing Overhead. *ICDCS.* (Berlin), pages 536–43, Sep. 1987.

[797] Michael L. Scott and Raphael A. Finkel. A Simple Mechanism for Type Security Across Compilation Units. *IEEE Transactions on Software Engineering*, Oct. Seberry and Josef Pieprzyk. *Cryptography: An Introduction*

Hall, 1989.

[799] J. Seguin, G. Sergeant, and P. Wilms. A Majority Consensus Algorithm for the Consistency of Duplicated and Distributed Information. *First International Conference Distributed Computing Systems*, pages 617–24. IEEE., 1979.

[800] Lui Sha and John B. Goodenough. Real-time scheduling theory and Ada. Technical report CMU/SEI-88-TR-14. Carnegie-Mellon University, 1989.

[801] Lui Sha and John B. Goodenough. Real-time scheduling theory and ada. Technical report CMU/SEI-88-TR-14. Carnegie-Mellon University, 1989.

[802] Lui Sha, Ragunathan Rajkumar, and John P. Lehoczky. Concurrency control for distributed real-time databases. *SIGMOD Record*, **17**(1):82–98, Mar. 1988.

[803] Lui Sha, Ragunathan Rajkumar, and John P. Lehoczky. Priority inheritance protocols: An approach to real-time synchronization. Technical report. Carnegie Mellon University Departments of CS, ECE and Statistics, May 1988.

[804] Amitabh Shah and Keith Marzullo. Trade-offs between replication and availability in distributed databases. Technical report TR 89-1065. Department of Computer Science, Cornell University, 1989.

[805] Amitabh Shah and Sam Toueg. Distributed snapshots in spite of failures. Technical report TR 84-624. Department of Computer Science, Cornell University, Jul. 1984. Revised February 1985.

[806] A. Udaya Shankar and Simon S. Lam. Time-dependent distributed systems: Proving safety, liveness and real-time properties. *Distributed Computing*, pages 61–79, 1987.

[807] Marc Shapiro. Structure and encapsulation in distributed systems: The proxy principle. *6th Inter. Conf. on Distributed Computing Systems*. IEEE, 1986.

[808] Marc Shapiro. The design of a distributed object-oriented operating system for office applications. *Esprit Conference* (Brussels, Belgium), Nov. 1988.

[809] Stephen Sherman, Forest Baskett III, and J. C. Browne. Trace Driven Modeling and Analysis of CPU Scheduling in a Multiprogramming System. *CACM.*, **15**(12):1063–9, Dec. 1972.

[810] Kentaro Shimizu, Mamoru Maekawa, and Jun Hamano. Hierarchical object groups in distributed operating systems. *8th Inter. Conf. on Distributed Computing Systems* (San Jose, CA), pages 18–24. IEEE, Jun. 1988.

[811] J. F. Shoch. Internetwork naming, addressing, and routing. *Proceedings 17th IEEE Computer Society International Conference*, pages 72–9. IEEE, Sep. 1978.

[812] J. F. Shoch and J. A. Hupp. The 'Worm' Programs – Early Experience with a Distributed Computation. *CACM.*, **25**(3):172–80, Mar. 1982.

[813] John F. Shoch and Jon A. Hupp. Measured Performance of an Ethernet Local Network. *CACM.*, **23**(12):711–21, Dec. 1980.

[814] Roger K. Shultz. A Decentralized Embedded Operating System Supporting Distributed Execution of Ada Tasks. In USENIX Association, editor, *Workshop on Experiences with Distributed and Multiprocessor*. USENIX Association, 1989.

[815] Alex Siegel, Kenneth Birman, and Keith Marzullo. Deceit: A flexible distributed file system. Technical report 89-1042. Department of Computer Science, Cornell University, 1989.

[816] Abraham Silberschatz and James L. Peterson. *Operating System Concepts, Alternate Edition*. Addison-Wesley, 1988.

[817] J. Silverman. *The Arithmetic of Elliptic Curves*. Springer-Verlag, 1986.

[818] Mukesh Singhal, Ajoy Kumar, and Ming T. Liu. A model for distributed decicion making: An expert system for load balancing in distributed systems. *IEEE Transactions on Software Engineering*, 1987.

[819] Andrea H. Skarra, Stanley B. Zdonik, and Stephen P. Reiss. An Object Server for an Object-Oriented Database System. *Proceedings of the International Workshop on Object-Oriented Database Systems*, pages 196–204. ACM., Sep. 1986.

[820] D. Skeen. A Quorum-Based Commit Protocol. *Sixth Berkeley Workshop on Distributed Data Management and Computer Networks*, pages 69–80. University of California, 1982.

[821] D. Skeen. Determining the Last Process to Fail. *TOCS.*, **3**:15–30, 1985.

[822] D. Skeen and M. Stonebraker. A Formal Model of Crash Recovery in a Distributed Systems. *IEEE Transactions on Software Engineering*, **SE-9**:219–28, May 1983.

[823] Dale Skeen. Determining the last process to fail. *ACM Transactions on Computer Systems*, **3**(1):15–30, Feb. 1985.

[824] Dale Skeen. *Crash recovery in a distributed database system*. PhD thesis. University of California at Berkeley, Department of EECS, June 1982.

[825] A. J. Smith. Optimization of I/O systems by cache disks and file migration: A summary. *Performance Evaluation*, **1**(3):249–62, 1981.

[826] A. J. Smith. Disk cache—miss ratio analysis and design considerations. *ACM Transactions on Computer Systems*, **3**(3):161–203, Aug. 1985.

[827] A. J. Smith. Bibliography on file and I/O system optimization and related topics. *Operating Systems ReviewOct. 1981.*

ff828ff Alan Jay Smith. Input/Output Optimization and Disk Architectures: A Survey. Performance Evaluation, **1**:104–17, 1981.

[829] Alan Jay Smith. Long Term File Migration: Development and Evaluation of Algorithms. *CACM.*, **24**(8):521–32, Aug. 1981.

[830] Alan Jay Smith. Miss ratio analysis and design considerations. *ACM Transactions on Computer Systems*, **3**(3):161–203, Aug. 1985.

[831] Alan Jay Smith. Analysis of Long Term File Reference Patterns for Application to File Migration Algorithms. *IEEE Transactions on Software Engineering*, **SE-7**(4):403–17, Jul. 1981.

[832] Alan Jay Smith. Research and Development Trends for Memory Hierarchies. *Workshop on Future Directions in Computer Architecture and Software*, pages 62–71, May 1986.

[833] Jonathan Smith. A survey of process migration mechanisms. *Operating Systems Review*, Nov. 1988.

[834] Karen E. Smith and Stanley B. Zdonik. Intermedia: A Case Study of the Differences Between Relational and Object-Oriented Database Systems. Technical report CS-87-18. Brown University, Department of Computer Science, 1987.

[835] Eugene H. Spafford. The internet worm program: An analysis. Technical report CSD-TR-823. Department of Computer Sciences, Purdue University, Department of Computer Sciences, Purdue University, West Lafayette, IN 47907-2004, Nov. 1988.

[836] Alfred Spector and David Gifford. Case study: the space shuttle primary computer system. *CACM.*, **27**(9):874–900, Sep. 1984.

[837] Alfred Z. Spector. Performing Remote Operations Efficiently on a Local Computer Network. *CACM.*, **25**(4):246–60, Apr. 1982.

[838] T. K. Srikanth. *Designing Fault-Tolerant Algorithms for Distributed Systems Using Communication Primitives.* PhD thesis. Cornell University, Feb. 1986. Department of Computer Science Technical Report 86-739.

[839] T. K. Srikanth and Sam Toueg. Simulating authenticated broadcasts to derive simple fault-tolerant algorithms. *Distributed Computing*, **2**(2):80–94, 1987.

[840] T. K. Srikanth and Sam Toueg. Optimal clock synchronization. *Proceedings of the Fourth ACM Symposium on Principles of Distributed Computing* (Minaki, Ontario), pages 393–402. ACM SIGOPS-SIGACT, Aug. 1985.

[841] T. K. Srikanth and Sam Toueg. Simulating authenticated broadcasts to derive simple fault-tolerant algorithms. Technical report TR 84-623. Department of Computer Science, Cornell University, Jul. 1984.

[842] T. K. Srikanth and Sam Toueg. Optimal clock synchronization. *Journal of the ACM*, **34**(3):626–45, Jul. 1987.

[843] Richard Staehli and Jonathan Walpole. Constrained-Latency Storage Access. *IEEE Computer*, **26**(3):44–53, Mar. 1993.

[844] John A. Stankovic and Krithi Ramamritham. The design of the spring kernel. *Proceedings of the 1987 Real Time Systems Symposium*, 1987.

[845] John A. Stankovic and Wei Zhao. On real-time transactions. *SIGMOD Record*, **17**(1):4–10, Mar. 1988.

[846] D. Steinberg and T. Learmont. The multimedia file system. *Proceedings of the 1989 International Computer Music Conference* (Columbus, Ohio), pages 307–11, Nov. 1989.

[847] J. G. Steiner, C. Neuman, and J. I. Schiller. Kerberos: An Authentication Service for Open Network Systems. *Winter USENIX Conference*. USENIX Association, 1988.

[848] Pat Stephenson. *Fast Causal Multicast.* PhD thesis. Cornell University, Feb. 1991.

[849] Scott M. Stevens. Next generation network and operating system requirements for continuos time media. *Network and Operations System Support for and Video, Second International Workshop*, pages 197–208, Ralf Guido Herrtwich, editor, Nov. 1991.

[850] Clifford Stoll. Stalking the wily hacker. *CACM.*, **31**(5):484–97, May 1988.

[851] Harold S. Stone. Parallel Querying of Large Databases: A Case Study. *IEEE Computer*, **20**:11–21, Oct. 1987.

[852] M. Stonebraker. Concurrency Control and Consistency of Multiple Copies of Data in Distributed Ingres. *IEEE Transactions on Software Engineering*, **SE-5**:188–94, May 1979.

[853] Michael Stonebraker. Operating System Support for Database Management. *CACM.*, **24**(7):412–18, Jul. 1981.

[854] Michael Stonebraker, Randy Katz, David Patterson, and John Ousterhout. Considerations in the design of a RAID prototype. Technical report UCB/ERL M88/19. University of California, Berkeley, Mar. 1988.

[855] Michael Stonebraker, Randy Katz, David Patterson, and John Ousterhout. The design of XPRS. Technical report UCB/ERL M88/19. University of California, Berkeley, Mar. 1988.

[856] David P. Stotts. A comparative survey of concurrent programming languages. *SIGPLAN Notices*, **17**(10):76–87, 1982.

[857] Ray Strom and S. Yemeni. Optimistic recovery in distributed systems. *ACM Transactions on Computer Systems*, **3**(3):204–26, Apr. 1985.

[858] Reinhard Stroste and Herbert Eberle. Kernel Service Call. Tec IBM European Networking Center, Jan. 1987.

[859] Bjarne Stroustrup. *The C++ Programming Language.* Addison-Wesley, 1986.

[860] Bjarne Stroustrup. What is "Object-Oriented Programming"? *European Conference on Object-Oriented Programming*, G. Goos and J. Hartmanis, editors. Springer-Verlag, Lecture Notes in Computer Science no. 276, Jun. 1987.

[861] Sun Microsystems, Inc., 2550 Garcia Ave., Mountain View, CA 94043. *Networking on the Sun Workstation*, revision B edition, Feb. 1986.

[862] L. Svoboda. A Reliable Object-Oriented Data Repository for a Distributed Computer System. *SOSP.* Published as *OSR.*, **15**:47–58, Dec. 1981.

[863] Liba Svobodova. File servers for network-based distributed systems. *ACM Computing Surveys*, **16**(4):353–98, Dec. 1984.

[864] Liba Svobodova. Performance monitoring in computer systems: A structured approach. *Operating Systems Review*, **15**(3):39–50, Jul. 1981.

[865] Liba Svobodova. Resilient distributed computing. *IEEE Transactions on Software Engineering*, **SE–10**(3):257–68, May 1984.

[866] Daniel Swinehart, Gene McDaniel, and David Boggs. WFS: A Simple Shared File System for a Distributed Environment. *SOSP.* Published as *OSR.*, **13**(5):9–17, 1979.

[867] Clemens Szyperski and Giorgio Ventre. A characterization of multi-party interactive multimedia applications. Technical report TR-93-006. Tenet Group, Univerity of California Berkeley and International Computer Science Intitute, 1993.

[868] Carl D. Tait. Techniques for building a highly available distributed file system. Technical report CUCS-497-89. Columbia University, Sep. 1989.

[869] Andrew Tanenbaum. *Computer Networks*, second edition. Prentice Hall, 1988.

[870] Andrew S. Tanenbaum. *Operating System Design and Implementation*. Prentice-Hall, 1987.

[871] Andrew S. Tanenbaum. Network protocols. *ACM Computing Surveys*, **13**(4):453–89, Dec. 1981.

[872] Andrew S. Tanenbaum and Robbert Van Renesse. Distributed Operating Systems. *Computing Surveys*, **17**(4):419–70, Dec. 1985.

[873] Bradley Taylor. A framework for network security. *Sun Technology*, Spring 1988.

[874] R. N. Taylor. A general-purpose algorithm for analyzing concurrent programs. *CACM.*, **26**(5):362–76, 1983.

[875] Warren Teitelman. A tour through Cedar. *IEEE Software*, **1**(2):44–73, Apr. 1984.

[876] D. B. Terry and D. C. Swinehart. Managing Stored Voice in the Etherphone System. *TOCS.*, **6**(1):3–27, Feb. 1988.

[877] Doug Terry. Caching hints in distributed systems. *IEEE Transactions on Software Engineering*, **SE–13**(1):48–54, Jan. 1987.

[878] Jack A. Test. Multi-Processor Management in the Contentrix Operating System. *Winter Usenix Technical Conference*, pages 173–82, 1986.

[879] Avadis Tevanian Jr, Richard F. Rashid, David B. Golub, David L. Black, Eric Cooper, and Michael W. Young. Mach Threads and the Unix Kernel: The Battle for Control. Technical report CMU-CS-87-149. School of Computer Science, Carnegie-Mellon University, Aug. 1987.

[880] M. M. Theimer and K. A. Lantz. Finding Idle Machines in a Workstation-Based Distributed System. *ICDCS.* (San Jose), pages 112–22, Jun. 1988.

[881] Thinking Machines, Incorporated. *Connection Machine Model CM-2 Technical Summary*, May 1989.

[882] R. H. Thomas. A Majority Consensus Approach to Concurrency Control. *ACM Transactions on Database Systems*, **4**:180–209, 1979.

[883] Robert H. Thomas. A majority consensus approach to concurrency control for multiple copy database. *ACM Transactions on Database Systems*, **4**(2):180–209, Jun. 1979.

[884] K. Thompson. UNIX time sharing system: UNIX implementation. *Bell System Technical Journal*, **57**(6):1931–46, Jul. 1978. part 2.

[885] Ken Thompson. Reflections on trusting trust. *CACM.*, **27**(8):761–3, Aug. 1984.

[886] Hideyuki Tokuda and Makoto Kotera. A real-time tool set for the arts kernel. *Proceedings of the 1988 Real Time Systems Symposium*, 1988.

[887] Hideyuki Tokuda and Clifford W. Mercer. Arts: A distributed real-time kernel. *ACM Operating Systems Review*, **23**(3), 1989.

[888] Ronald M. Tol. A small real-time kernel proven correct. *Proceedings of the 1992 Real Time Systems Symposium*, 1992.

[889] Martin Tompa. Zero knowledge interactive proofs of knowledge (a digest). *Proceedings of the Second Conference on Theoretical Aspects of Reasoning about Knowledge* (Pacific Grove, California), pages 1–12, Moshe Y. Vardi, editor, Mar. 1988.

[890] Josep Torrellas and John Hennessey. Estimating the performance advantages of relaxing consistency in a shared memory multiprocessor. Technical report CSL-TN-90-365. Computer Systems Laboratory, Stanford University, Feb. 1990.

[891] Sam Toueg. Randomized Byzantine agreements. *Proceedings of the Third A*
ples of Distributed Computing (Vancouver, British Columbia), pages 163–78. ACM SIGOPS-SIGACT, Aug. 1984.

[892] Sam Toueg, Kenneth J. Perry, and T. K. Srikanth. Fast distributed agreement. Technical report TR 84-621. Department of Computer Science, Cornell University, Jul. 1984. Revised December 1984.

[893] Sam Toueg, Kenneth J. Perry, and T. K. Srikanth. Fast distributed agreement. *SIAM Journal on Computing*, **16**(3):445–57, Jun. 1987.

[894] Don Towsley and Satish Tripathi. A single server priority queue with server failures and queue flushing. Technical report UMIACS–TR–89–25. Institute for Advanced Computer Studies, University of Maryland, 1989.

[895] K. S. Trivedi, R. A. Wagner, and T. M. Sigmon. Optimal selection of CPU speed, device capacities, and file assignments. *J. ACM*, **27**(3):457–73, Jul. 1980.

[896] Kishor S. Trivedi. *Probability & Statistics with Reliability, Queueing, and Computer Science Applications*. Prentice Hall, 1982.

[897] A. Tucker and A. Gupta. Process Control and Scheduling Issues for Multiprogrammed Shared-Memory Multiprocessors. *SOSP.*, pages 159–66, 1989.

[898] Lewis W. Tucker and George G. Robertson. Architecture and applications of the Connection Machine. *IEEE Computer*, pages 26–38, Aug. 1988.

[899] Jonathan S. Turner. New directions in communications (or which way to the information age?). *IEEE Communications Magazine*, **24**(10), Oct. 1986.

[900] D. Ungar. Generation scavenging: A non-disruptive high performance storage reclamation algorithm. *Proc. Software Engineering Symposium on Practical Software Development Environments*, pages 157–67, Apr. 1984.

[901] United States Department of Defense. *Reference Manual of the Ada Programming Language*, ANSI/MIL-STD 1815A edition, Jan. 1983.

[902] Premkumar Uppaluru, W. Kevin Wilkinson, and Hikyu Lee. Reliable servers in the JASMIN distributed system. *Proceedings of the Seventh International Conference on Distributed Computing*, pages 105–12. IEEE Computer Society, 1987.

[903] Paramesh Vaidyanathan and Scott F. Midkiff. Performance evaluation of communication protocols for distributed processing. *Computer Communications*, **13**(5):275–82, June 1990.

[904] Robbert van Renesse, Andrew S. Tanenbaum, Hans van Staveren, and Jane Hall. Connecting RPC-based distributed systems. *7th Inter. Conf. on Distributed Computing Systems* (Berlin, West Germany), pages 28–34. IEEE, Sep. 1987.

[905] R. van Rennesse and A. S. Tanenbaum. Voting with Ghosts. *Eighth International Conference on Distributed Computing Systems*. IEEE., 1988.

[906] R. van Rennesse, A. S. Tanenbaum, and A. Wilschut. The Design of a High-Performance File Server. *ICDCS.*, pages 22–7. IEEE., Jun. 1989.

[907] George Varghese and Tony Lauck. Hashed and Hierarchical Timing Wheels: Data Structures for the Efficient Implementation of a Timer Facility. *SOSP.*, pages 25–38. ACM., Nov. 1987.

[908] Joost S. M. Verhofstad. Recovery Techniques for Database Systems. *Computing Surveys*, **10**(2):167–95, Jun. 1978.

[909] Paulo Veríssimo, LuísRodrigues, and Mário Baptista. Amp: A highly parallel atomic multicast protocol. *Proceedings of the Symposium on Communications Architectures & Protocols* (Austin, Texas), pages 83–93. ACM SIGCOMM, Sep. 1989.

[910] Harrick M. Vin and P. Venkat Rangan. Designing a multi-user hdtv storage server. *IEEE Journal on Selected Areas in Communication*, **11**(1), Jan. 1993.

[911] Harrick M. Vin and P. Venkat Rangan. Designing file systems for digital video and audio. *OSR.*, **25**(5):69–79, Oct. 1991.

[912] I. M. Vinogradov. *An Introduction to the Theory of Numbers.* Pergamon Press, 1955.

[913] Prasad Vishnubhotla. Synchronization and scheduling in ALPS objects. *8th Inter. Conf. on Distributed Computing Systems* (San Jose, CA), pages 256–64. IEEE, Jun. 1988.

[914] Victor L. Voydock and Stephen T. Kent. Security mechanisms in high-level network protocols. *ACM Computing Surveys*, Jun. 1983.

[915] Bruce Walker, Gerald Popek, Robert English, Charles Kline, and Greg Theil. The LOCUS distributed operating system. *SOSP.* (Bretton Woods, New Hampshire). Published as *OSR.*, **17**(5):49–70, Oct. 1983.

[916] R. W. Watson and S. A. Mamrak. Gaining Efficiency in Transport Services by Appropriate Design and Implementation Choices. *TOCS.*, **5**(2):97–120, May 1987.

[917] Stuart Wecker. Computer Network Architectures. *IEEE Computer*, pages 58–72, Sept. 1979.

[918] Mark Wegman. What it's Like to be a POPL Referee, or How to Write an Extended Abstract so that it is more likely to be accepted. *SIGACT News*, **17**(4):50–1, 1986.

[919] P. Wegner and S. A. Smolka. Processes, tasks and monitors: A comparative study of concurrent programming primitives. *IEEE Transactions on Software Engineering*, **SE-9**(4):446–62, 1983.

[920] Peter Wegner. Dimensions of Object-Based Technical report CS-87-14. Brown University, Department of Computer Science, Jul. 1987.

[921] William Weihl. Data-dependent concurrency control and recovery. *Proceedings of the Second ACM Symposium on Principles of Distributed Computing* (Montreal, Quebec), pages 63–75. ACM SIGOPS-SIGACT, Aug. 1983.

[922] Brent Welch. The Sprite remote procedure call. Technical report UCB/CSD 86/302. UC Berkeley, Jul. 1986.

[923] Brent B. Welch and John K. Ousterhout. Pseudo-Devices: User-Level Extensions to the Sprite File System. *USENIX Summer Conference*, pages 37–49, Jun. 1988.

[924] Brent B. Welch and John K. Ousterhout. Prefix tables: A simple mechanism for locating files in a distributed system. *Proceedings of the 6th International Conference of Distributed Computing Systems.* IEEE Computer Society Press, May 1986.

[925] Jennifer L. Welch. Simulating synchronous processors. *Information and Computation*, **74**(2):159–71, Aug. 1987.

[926] Jennifer L. Welch and Nancy Lynch. A new fault-tolerant algorithm for clock synchronization. *Information and Computation*, **77**(1):1–36, Apr. 1988.

[927] John Wilkes. DataMesh – project definition document. Technical report HPL-CSP-90-1. Hewlett-Packard Laboratories, Feb. 1990.

[928] John Wilkes. DataMesh – an introduction. Technical report HPL-DSD-89-59. Hewlett-Packard Laboratories, Sep. 1989.

[929] M. Wilkes and R. Needham. *The Cambridge CAP Computer and its Operating System.* Computer Science Library, 1979.

[930] Maurice Wilkes and Roger Needham. The Cambridge model distributed system. *Operating Systems Review*, **14**(1):21–9, Jan. 1980.

[931] Williams. A Modification of the RSA Public-Key Encryption Procedure. *IEEE Transactions on Information Theory*, **IT-26**(6):726–9, Nov 1980.

[932] Nicklaus Wirth. *Programming in Modula-2.* Springer–Verlag, New York, 1982.

[933] Nicolaus Wirth. Design and implementation of modula. *Software — Practice and Experience*, **7**:67–84, 1977.

[934] Niklaus Wirth. Towards a discipline of real-time programming. *CACM.*, **20**(8), Aug. 1977.

[935] Andrew Witkowski, Kumar Chandrakumar, and Greg Macchio. Concurrent I/O system for the Hypercube multiprocessor. *Proceedings of the Third Conference on Hypercube Concurrent Computers and Applications*, pages 1398–407, 1988.

[936] Bernd Wolfinger and Mark Moran. A Continuous Media Data Transport Service and Protocol for Real-time Communication in High Speed Networks, 1992. Tenet Working Group.

[937] Bernd Wolfinger and Mark Moran. The real-time channel administration protocol. *Network and Operations System Support for and Video, Second International Workshop*, pages 171–82, Ralf Guido Herrtwich, editor, Nov. 1991.

[938] C. K. Wong. On some discrete optimization problems in mass storage systems. *Lecture Notes in Computer Science*, volume 88, pages 75–93. Springer-Verlag, 1980.

[939] Mark Wood. *Constructing reliable reactive systems.* PhD thesis. Cornell University, Department of Computer Science, Dec. 1991.

[940] W. Wulf, E. Cohen, W. Corwin, A. Jones, R. Levin, C. Pierson, and F. Pollack. HYDRA: The Kernel of a Multiprocessor Operating System. *CACM.*, **17**(6):337–45, Jun. 1974.

[941] William A. Wulf and C. G. Bell. C.mmp – A multi-mini-processor. *Fall Joint Computer Conference*, pages 765–77, 1972.

[942] William A. Wulf and Samuel P. Harbison. Reflections in a Pool of Processors – an Experience Report on C.mmp/Hydra. *AFIPS Conference Proceedings, 1978 NCC*, pages 939–51, 1978.

[943] A. Wupit. Comparison of Unix Network Systems. *ACM Conference on Personal and Small Computers*, pages 99–108, Dec. 1983.

[944] C. W. Xu, L. M. NI, and T. B. Gendreau. A distributed algorithm for load balancing. *IEEE Transactions on Software Engineering*, 1985.

[945] V. Yodaiken and K. Ramamritham. Verification of a Reliable Broadcast Algorithm. In J. Vytopil, editor, *Formal Techniques in Real-Time and Fault-Tolerant Systems*, Lecture Notes in Computer Science, 571. Springer-Verlag, 1992.

[946] Michael Young. The Duality of Memory and Communication in the Implementation of a Multiprocessor Operating System. *SOSP.* Published as *OSR.*, **21**(5):63–76, 1987.

[947] Clement Yu, Wei Sun, Dina bitton, Qi Yang, Richard Bruno, and John Tullis. Efficient placement of audio data on optical disks for real-time applications. *CACM.*, **32**(7):862–71, 1989.

[948] Xiaoping Yuan and Ashok Agrawala. Evaluation of a decomposition approach for real-time scheduling using a stochastic model. Technical report UMIACS-TR-90-58. University of Maryland, Apr. 1990.

[949] Edward R. Zayas. Attacking the Process Migration Bottleneck. *SOSP.*, pages 13–24. ACM., Nov. 1987.

[950] H. Zedan. *Real-Time Systems: Theory and Applications.* North-Holland, 1989.

[951] Eberhard Zehendner and Theo Ungerer. The ASTOR architecture. *7th Inter. Conf. on Distributed Computing Systems* (Berlin, West Germany), pages 424–31. IEEE, Sep. 1987.

[952] Wei Zhao. *A heuristic approach to scheduling hard real-time tasks with resource requirements in distributed systems.* PhD thesis, published as Ph.D. dissertation. University of Massachussetts, Amherst, 1986.

[953] Wei Zhao, Krithi Ramamritham, and John Stankovic. Preemptive scheduling under time and resource constraints. *IEEECOMP.*, **36**(8):949–60, 1987.

[954] S. Zhou. A Trace-Driven Simulation Study of Dynamic Load Balancing. *IEEE Transactions on Software Engineering*, **14**(9):1327–41, Sep. 1988.

[955] S. Zhou, H. Da Costa, and A. J. Smith. A File System Tracing Package for Berkeley UNIX. *Tenth Usenix Conference*, pages 407–19. Usenix Association, 1985.

[956] H. Zimmerman. OSI reference model — the ISO model of architecture for open systems interconnection. *IEEE Trans. on Communications*, **28**:425–32, 1980.

[957] Willy Zwaenepoel. Protocols for Large Data Transferts Over Local Networks. *Ninth Symposium on Data Communications*, pages 22–32, Sep. 1985.