Kenneth P. Birman

Cornell University; 435 Gates Hall; Ithaca, NY 14853
(607) 227-0894; ken@cs.cornell.edu
http://www.cs.cornell.edu/ken

Research Areas

Performance of ML systems for inference, knowledge retrieval, fine-tuning. Distributed systems consistency, fault-tolerance, scalability, performance.

Education

1981 Ph.D., University of California, Berkeley; Computer Science
Thesis: The relationship between signal representation and learning in ECG analysis.
1979 M.S., University of California, Berkeley; Computer Science
1978 B.A., Columbia University; Computer Science

Professional Experience

1994 - N. Rama Rao Professor of Computer Science Department.
2001-2009 Founder and Senior Partner, Web Sciences LLC, Ithaca, NY
1997-2000 President and CEO, Reliable Network Solutions, Inc., Ithaca, NY
1988-1993 President and CEO, ISIS Distributed Systems Inc., Ithaca, New York
1982-1988 Assistant Professor, Computer Science Department, Cornell University
1982 Visiting Scientist, Cardiology Department, Columbia University
Medical database design and development.
1981 Visiting Researcher, Cardiology Department, University of Vienna, Austria Research on medical databases and pattern recognition.

Awards and Honors

ACM Fellow: 1998
IEEE Fellow: 2014
IEEE Tsutomu Kanai Award: 2009
ACM SIGOPS Hall of Fame Award (with T. Joseph), 2013 for "Exploiting Virtual Synchrony in Distributed Systems. 11th SOSP, Dec 1987.
Asian-Pacific AI Association Fellow (AAIA): 2023
Academy of the International Artificial Intelligence Industry Alliance (AIIA). 2024
IEEE Technical Committee on Distributed Processing Outstanding Achievement Award: 2009
Cisco "Technology Visionary" award: 2007
Stephen and Marilyn Miles Excellence in Teaching Award: 2000

Invited Lectures

Vortex: A High-Efficiency Framework for ML Inference and Knowledge Retrieval. 14th IEEE Ubiquitous Computing, Electronics and Mobility Conference (UEMCON keynote), Oct. 2024.
Cascade: A Platform for Fast, Focused Edge Intelligence. Keynote at the International Symposium on Parallel Computing and Distributed Systems (PCDS) Singapore (Sept 2024), AFRL Rome (May 2024), Microsoft Research (Sept. 2023), Cisco (January 2024), UC Irvine, Oct 2023. MIT CSAIL, April 6, 2023. QSTP/Quark (India) August 2023. EduKCircle Phillipines (April 2023).
Enabling the Intelligent IoT Edge: Microsoft Nov. 2022. GE Edge 2022. Univ. Bologna Industrial Affiliates Program. January 2022 (3-lecture tutorial version); ApPLIED 2022 (Keynote), July 2022; IEEE Computing and Communication Conference (Keynote), Jan 2022; Toronto ML Symp., Nov 2021. IEEE Future Networks AI/ML Workshop 2021. Amity University, Kolkata (India). April 20, 2020.
STEMY 2020 (high school event for pre-college STEM students), August 16, 2020. IEEE 5G World Forum 2020, Sept 10, 2020.
Derecho: Blindingly Fast RDMA Replication for Cloud and Edge Services. Tutorial at the ACM Symposium on operating systems principles, Oct 2019.

Derecho: Group Communication over RDMA. 10th IEEE Ubiquitous Computing, Electronics and Mobility Conference (UEMCON 2019) (keynote), WCF (Cornell-Weill Workshop on Research in Cloud Computing) Sept 2019, Akraino Summit (Aug. 19), 18th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid '18), Workshop on Clusters, Clouds, and Data for Scientific Computing (CCDSC '18), 2018 IEEE Sarnoff Symposium, U.T.Dallas, Huawei Research Labs, University of Cambridge, Oxford University, Technion University, Microsoft Research, Yahoo!. Tel Aviv University, Luxembourg University, U.C. Berkeley, Stanford University, University of Chicago, Argonne National Labs, University of Virginia, Mellanox, Infinidat, Intel, VMWare, SanDisk.
Building a Smart World: Ethical puzzles posed by the Internet of Things. Princeton Envision the Future 2018 (organized by Princeton undergraduates).
Leveraging RDMA to Build a Real-Time Cloud for the Internet of Things. Keynote talk: MesosCon (Denver, June 1, 2016); IBM (July 14, 2016); Sandia (July 26, 2016); JaneStreet (August 9, 2016), Google (August 10, 2016).
Ultra-fast RDMA Networks and Fast Persistent Memories Will Enable a Smarter World. International SanDisk Technology Conference. March 9, 2016
CTO Forum: Leveraging the Hybrid Cloud. Rethinking Innovation, Palo Alto, February 2016
Can the Cloud Support Demanding Real-Time Applications? (Distinguished lecture). UT San Antonio: 1-19-16. UConn Storrs: 11-16-15.
Reflections on the History of Operating Systems Research in Fault Tolerance. SOSP History Day, Monterey CA, November 2015. Video and associated essay available at http://sigops.org/sosp/sosp15/history/index.html.
Keynote speaker, Internet of Energy Virtual Summit on Tuesday, Dec. 16. Topic: "Building a Scalable Platform to Query Smart Meters While Preserving Customer Privacy"
Keynote speaker, 4th Workshop on Autonomic Distributed Systems - WoSiDA 2014 (at the 32nd Brazilian Symposium on Computer Networks and Distributed Systems). Florianópolis, Brazil, 05/09/2014
Keynote speaker, Workshop on Assured Cloud Computing – WACC 2014, University of Illinois Urbana Champaign, 05/26/2014
Invited Speaker, Cloud Computing & Assurance for Critical DoD Initiatives, Washington, DC, April 23 – 25, 2013.
Invited Speaker, Advanced Energy Conference. "Advanced Data Center and Strategic Directions", New York, NY, April 30 – May 1, 2013.
Invited Speaker, Microsoft. "Adapting High Assurance Distributed Computing Techniques for Cloud- Scale Settings". May 20, 2013
Keynote Speaker, DSN, 43rd Annual IEEE/IFIP International Conference on Dependable Systems and Networks. "Adapting High Assurance Distributed Computing Techniques for Cloud-Scale Settings". Budapest, June 24 – 27, 2013.
Distinguished Lecture, Adapting High Assurance Distributed Computing Techniques for Cloud-Scale Settings? Drexel University, Philadelphia, October 2013.
Keynote Speaker, LADA, 39th ACM SIGPLAN-SIGACT Principles of Programming Languages. Philadelphia, PA, January 25 – 27, 2012.
Colloquium Speaker, Princeton University. "Adapting High Assurance Distributed Computing Techniques for Cloud-Scale Settings", Princeton, November 13, 2012
Distinguished Lecture, Can Cloud Computing Systems Guarantee Strong Consistency? Purdue University, IN, December 1, 2011.
Distinguished Lecture, Can Cloud Computing Systems Guarantee Strong Consistency? University of Minnesota, Indianapolis, MN, October 2011.
Distinguished Lecture, Can Cloud Computing Systems Guarantee Strong Consistency? University of Minnesota, Indianapolis, MN, October 2011.
Invited Lecture, Cloud Futures 2010: Advancing Research with Cloud Computing. Redmond, WA, April 8 – 9, 2010.

Is Distributed Consistency a Menace? Using Gossip to Rescue Consistency Mechanisms. Keynote speaker: IEEE International Conference on Peer to Peer Systems (P2P) 2009, First Infosys/Microsoft Workshop on Cloud Computing (Mysore, India, 2010).
Keynote Speaker, 29th Int'l Conference on Distributed Computing Systems (ICDCS 2009). Montreal, Quebec, Canada. June 2009.
Distinguished Lecture, Technion University Colloquium Series, Haifa, IL. December 2008
Colloquium Speaker, Ben Gurion University, Ber Shevit, IL, December 2008.
Invited Lecture, Hebrew University, Jerusalem, IL, December 2008.
Distinguished Lecture, Triangle Distinguished Lecture Series. University of North Carolina, Chapel Hill, NC. November 2008.
Distinguished Lecture, Harvard University Colloquium Series. Harvard University, Harvard, MA. November 2008.
Distinguished Lecture, Cray Colloquium Lecture Series. University of Minnesota, Duluth, MN. October 2008
Keynote Speaker, 5th IEEE International Conference on Autonomic Computing. Chicago, IL. June 2008.
Scalable Management for Global Services. Keynote speaker: International Conference on Autonomic Computing (ICAC) 2008.
Creating a Trustworthy Active Web. Winter School: Hot Topics in Distributed Computing (HTDC 2008), INRIA Rhone Alps, La Plagne France.
A History of the Virtual Synchrony Model. Invited talk, 30-year perspective on replication, Monte Verita, Ascona, Switzerland, November 2007. (Proceedings to be published by Springer Verlag).
Challenges of Scale in Massive Data Centers: Keynote speaker: COMSWARE 2007, Third ACM Workshop on Scalable Trusted Computing (2006), International Workshop on Gossip Communication (2006). McGill University, Microsoft Research (Cambridge), Intel Research Forum on Autonomic Computing, University of Glasgow, International Conference on Software Engineering (ICSE-04).
2004 (varied dates).
After the Internet: University of California at Berkeley, CITRIS Institute, Feb. 2002, CUNY Graduate Center, Nov. 2002.
Navigating in the Storm: A Distributed Computing Infrastructure for Autonomic Computing: Almaden Institute, San Jose, California, April 2002.
Scalability Challenges and Solutions for Emerging Networks: Keynote Speaker: NCA '01, Boston, Massachusetts, February 2002
Next Generation Internet: Unsafe at any Speed? Keynote Speaker: ISDCS '01, April 2001; University of Rochester, November 2000; IBM T.J. Watson Research Center, March 2000; Keynote: Middleware 2000; U. Michigan (Ann Arbor) Sept. 1999, Brown University, January 1998; University of Virginia, April 1998; CERN, July 1998; Lucent Bell Laboratories, October 13, 1998.
Building Secure and Reliable Network Applications: Salvador di Bahia, June 1999; Campinas, Brazil, July 8-12, 1996; Bologna, Italy, May 20-24, 1996.
Costs of Layering in Horus: Tromso, Norway, Summer 1996. Siemens AG Munich, 1996. INRIA (Paris, France), 1996. INESC (Lisbon, Portugal), 1996. University of Paris VI, 1996. EPFL (Lausanne, Switzerland), 1996. Dassault Aviation, 1996. French Air Traffic Control Research Agency (STNA, Toulouse), 1996. Dartmouth College, Summer 1995.

Patents

Reliable time delay-constrained cluster computing. United States Patent 6393581, May 21, 2002. Co-inventors: Roy Friedman; Kenneth P. Birman; Srinivasan Keshav; Werner Vogels.
Transparent fault tolerant computer system. United States Patent 5,968,185, October 19, 1999. Co- inventors: Thomas C. Bressoud, John E. Ahern, Kenneth P. Birman, Robert C. B. Cooper, Bradford B. Glade, Fred B. Schneider and John D. Service.
Distributed architecture for an intelligent coprocessor. United States Patent 5,883,939, March 16, 1999. Co-inventors: Roy Friedman and Kenneth P. Birman.

Advisory Roles

Federal Energy Reliability Commission: In 2020, provided written testimony concerning proposed new NERC guidelines for use of cloud computing in "smart" power grid systems
French Civil Aviation Organization, DGAC (Damien Figarol, Director): 4-Flight Platform. (2013-2016)
ISO-NE, ISO-NY and NYPA (Eugene Litvinov, CIO): Designing a cloud-hosted infrastructure to manage the Northeastern Electric Power Grid. (2013-2018)
U.S. Air Force (Offices of the Deputy Chief Management Officer, the XO, CIO, and the CTO). Cloud Computing opportunity and challenges for the USAF. (2008-2014)
National Science Foundation: Chair, CISE/CNS Committee of Visitors, 2009-2010
DARPA: Co-chair, ISAT study to create that agency's first cybersecurity research programs, 1995. This single ISAT ultimately resulted in 8 DARPA security research efforts. The work was co-funded by then DoD DDR&E Dr. Anita Jones.
U.S. Dept of Treasury (Brian Peretti, Deputy Undersecretary for Critical Infrastructure Protection). Security and Reliability risks to the Financial Sector (2002-2008).

PhD Students Advised

Jan 1986	Thomas A. Joseph	Low Cost Management of Replicated Data
May 1987	Thomas Raeuchle	Efficient Concurrency Control for Typed Objects
May 1988	Frank Schmuck	The Use of Efficient Broadcasts Protocols in Asynchronous Distributed Systems
Dec 1989	Ken Kane	Log-Based Recovery in Asynchronous Distributed Systems
Dec 1990	Pat Stephenson	Fast Ordered Multicasts
Sep 1992	Aleta Ricciardi	Implementing Fail-Stop Processes in Asynchronous Distributed Systems
May 1993	Michael Reiter	A Security Architecture for Fault-Tolerant Systems Multicast Flow Control on Local Area Networks
Jan 1995	Guerney Hunt	Multicast Flow Control on Local Area Networks
Dec 1996	Bradford Glade	A Scalable Architecture for Reliable Publish/Subscribe Communication in Distributed Systems
May 1995	Michael Kalantar	The Performance and Scalability Characteristics of Multicast Protocols
Aug 1995	David Cooper	Private Communications for Mobile Computing
Aug 1996	David Karr	Specification, Composition and Automated Verification of Layered Communication Protocols
Jan 1998	Mark Hayden	The Ensemble System
May 1998	Katie Guo	Scalable Group Communication Protocols
May 1998	Alexey Vaysburd	The Maestro Toolkit
May 2001	Zhen Xiao	Efficient Error Recovery For Reliable Multicast
May 2004	Tibor Janosi	Automated Stock Brokerage Architecture
July 2004	Ken Hopkinson	Overcoming Communication, Distributed System, and Simulation Challenges: A Case Study Involving the Protection and Control of the Electric Power Grid Using a Utility Intranet Based on Internet Technology
May 2004	Ben Atkin	Network Aware Adaptation in Mobile File Systems
May 2004	Indranil Gupta	Building Scalable Solutions to Distributed Computing Using Probabilistic Components
Sept 2005	Ranveer Chandra	MultiNet: Connecting to Multiple IEEE 802.11 Networks Using a Single Wireless Card
May 2008	Krzysztof Ostrowski	Quicksilver Scalable Multicast Platform
May 2008	Mahesh Balakrishnan	Proactive Error Correction in Scalable Communication Protocols
May 2014	Qi Huang	Caching in Cloud Computing Platforms
Aug 2016	Zhiyuan Teo	IronStack: Networking for Mission-Critical Systems

Aug 2018	Theo Gkountouvas (MS)	GridCloud: Scalable Platform for Smart Grid Applications
May 2021	Edward Tremel	Privacy-Preserving Data Mining
Aug 2022	Sagar Jha	Integrating RDMA into Data Replication Tools
	Alicia Yang	Vortex System
	Yifan Wang	Arca System
	Tianchen Yuan	Multicomponent ML Inference and Knowledge Retrieval
	Shouxu Lin	Optimized Communication Primitives for SFT

Books

Guide to Reliable Distributed Systems: Building High-Assurance Applications and Cloud-Hosted Services (Texts in Computer Science). Kenneth P. Birman. Springer. 2012.
Reliable Distributed Systems: Technologies, Web Services, and Applications. Kenneth P. Birman. Springer. 2010.
Theory and Practice in Distributed Systems. International Workshop, Dagstuhl Castle, Germany, September 5 - 9, 1994. Selected Papers (Lecture Notes in Computer Science).
Kenneth P. Birman, Friedemann Mattern and Andre Schiper (Eds.) Springer. 1995.
Reliable Distributed Computing with the Isis Toolkit. Kenneth P. Birman and Robbert Van Renesse. IEEE Computer Society Press. Los Alamitos, Ca. 1994.

Journal Articles

1. Enhancing Transparency in Buyer-Driven Commodity Chains for Complex Products: Extending a Blockchain-Based Traceability Framework Towards the Circular Economy. Takkar, R.; Birman, K.; Gao, H.O. MDPI Appl. Sci. 2025, 15, 8226. https://doi.org/10.3390/app15158226
2. Accelerating Visual Anomaly Detection in Smart Manufacturing with RDMA-Enabled Data Infrastructure. Wang Y, Yuan T, Yang Y, He M, Wu R, Birman KP. Special Issue on Advanced Condition Monitoring and Fault Analysis in Industrial Electronics, MDPI Electronics. 2025; 14(12):2427. https://doi.org/10.3390/electronics14122427
3. Derecho: Fast State Machine Replication for Cloud Services. Sagar Jha, Jonathan Behrens, Theo Gkountouvas, Matthew Milano, Weijia Song, Edward Tremel, Robbert Van Renesse, Sydney Zink, and Kenneth P. Birman. ACM Trans. Comput. Syst. 36, 2, Article 4 (April 2019), 49 pages. DOI: https://doi.org/10.1145/3302258
4. GridCloud: Infrastructure for Cloud-based Wide Area Monitoring of Bulk Electric Power Grids. Dave Anderson, Theo Gkountouvas, Ming Meng, Ken Birman, Anjan Bose, Carl Hauser, Eugene Litvinov, Xiaochuan Luo, Frankie Zhang. in IEEE Transactions on SmartGrid. June 2019.
5. A Cloud-Hosted Synchrophasor Data Sharing Platform. Eugene Litvinov, Xiaochuan Luo, Qiang Zhang, Ken Birman, Theodoros Gkountouvas, Dave Anderson, Carl Hauser, Anjan Bose. Chapter in Power System Grid Operation Using Synchrophasor Technology, pp. 477-498. Sarma Nuthalapati (editor), Springer-Verlag Series on Power Electronics and Power Systems. June 2018. ISBN: 978-3319893778.
6. Anonymous, Fault-Tolerant Distributed Queries for Smart Devices. Edward Tremel, Ken Birman, Robert Kleinberg, and Márk Jelasity. ACM Trans. Cyber-Phys. Syst. (TCPS) 3, 2, Article 16 (October 2018), 29 pages. DOI: https://doi.org/10.1145/3204411.
7. Building a Secure and Privacy-Preserving Smart Grid. Ken Birman, Márk Jelasity, Robert Kleinberg, Edward Tremel. SIGOPS Oper. Syst. Rev. 49, 1 (January 2015), 131-136.
8. Integrated Approach to Data Center Power Management. Lakshmi Ganesh, Hakim Weatherspoon, Tudor Marian, Kenneth P. Birman. IEEE Transactions on Computers. Volume 62, Issue 6, pp 1086-1096. June 2013.
9. Toward a reliable, secure and fault tolerant smart grid state estimation in the cloud. Ketan Maheshwari, Marcus Lim, Lydia Wan, Ken Birman, Robbert van Renesse. Published in the proceedings of IEEE/PES ISGT. pp 1-6. February 2013

10. Overcoming CAP with Consistent Soft-State Replication. Kenneth P. Birman, Daniel A. Freedman, Qi Huang and Patrick Dowell. IEEE Computer Magazine (special issue on “The Growing Impact of the CAP Theorem”). Volume 45. pp 50-58. February 2012.
11. Routers for the Cloud. Can the Internet Achieve 5-Nines Availability? Andrei Agapi, Kenneth P. Birman, Robert Broberg, Chase Cotton,Thilo Kielmann, Martin Millnert, Rick Payne, Robert Surton, and Robbert VanRenesse. IEEE Internet Computing. Volume 15. Issue 5. pp.72 - 77. September, October 2011.
12. Maelstrom: Transparent Error Correction for Communication Between Data Centers. Mahesh Balakrishnan, Tudor Marian, Kenneth P. Birman, Hakim Weatherspoon, Lakshmi Ganesh. ACM Transactions on Networking. Volume 19, No 3, pp 617-629. June 2011.
13. Towards A Cloud Computing Research Agenda. Kenneth P. Birman, Gregory Chockler, Robbert van Renesse. ACM SIGACT News Distributed Computing Column. Volume 40, Issue 2, pp. 68-80. June 2009.
14. Edge Mashups for Service-Oriented Collaboration. Kenneth P. Birman, Jared Cantwell, Daniel Freedman, Qi Huang, Petko Nikolov, and Krzysztof Ostrowski. IEEE Computer. Volume 42, Number 5, pp 90-94. May 2009
15. Slicing Distributed Systems. Vincent Gramoli, Ymir Vigfusson, Ken Birman, Anne-Marie Kermarrec, Robbert van Renesse. IEEE Transactions on Computers, Special Issue on Autonomic Network Computing. Volume 58, Issue 11, pp 1444-1455. June 2009.
16. Adaptive Gravitational Gossip: A Gossip-Based Communication Protocol with User-Selectable Rates. Kenneth Hopkinson, Kate Jenkins, Kenneth Birman, James Thorp, Gregory Toussaint, and Manu Parashar. IEEE Transactions on Parallel and Distributed Systems. Volume 20, No. 12 , pp 1830 - 1843. February 2009.
17. The Monoculture Risk Put into Context. Fred B. Schneider and Ken Birman. IEEE Security & Privacy. Volume 7, No. 1, pp 14-17. January/February 2009.
18. Program Committee Overload in Systems. Ken Birman and Fred B. Schneider. Comm. of the ACM, Volume 52, No. 5, pp 34-37.Febrary 2009.
19. SENSTRAC: Scalable Querying of SENSor Networks from Mobile Platforms Using TRACking- Style Queries. Stefan Pleisch and Ken Birman. International Journal of Sensor Networks. Volume 3, Issue 4, pp 266-280. June 2008.
20. Active and Passive Techniques for Group Size Estimation in Large-Scale and Dynamic Distributed Systems. Dionysios Kostoulas, Dimitrios Psaltoulis, Indranil Gupta, Ken Birman, Al Demers. Journal of Systems and Software. Volume 80, Issue 10, pp 1639-1658. October 2007.
21. Extensible Architecture for High-Performance, Scalable, Reliable Publish-Subscribe Eventing and Notification. Krzysztof Ostrowski, Ken Birman, and Danny Dolev. International Journal of Web Services Research. Volume 4, Number 4, pp 18-58. October-December 2007.
22. SENSTRAC: Scalable Querying of SENSor Networks from Mobile Platforms Using TRACking- Style Queries. Stefan Pleisch and Ken Birman. International Journal of Sensor Networks (IJSNet). Volume 76, Issue 3, pp 185-204. May 2007.
23. The Untrustworthy Services Revolution. Ken Birman. IEEE Computer (ISSN 0018-9162). Volume 39, No .2, pp. 98-100. February 2006.
24. Navigating in the Storm: Using Astrolabe to Adaptively Configure Web Services and Their Clients. Ken Birman, Robbert van Renesse, and Werner Vogels. Cluster Computing Special Issue: Autonomic Computing. (ISSN 1386-7857 (Paper) 1573-7543 (Online)). Volume 9, No. 2. pp127-139. April 2006.
25. EPOCHS: Integrated Cots Software For Agent-Based Electric Power And Communication Simulation. Hopkinson, K.M.; Giovanini, R.; Wang, X.; Birman, K.P.; Coury, D.V.;Thorp, J.S. Proceedings of the 2003 Winter Simulation Conference, later published in IEEE Transactions on Power Systems. Volume 21, No. 2, pp 548 - 558. February 2006.
26. Can Web Services Scale Up? Ken Birman. IEEE Computer. Volume 38, Number 10, pp 107-110. October 2005

27. Autonomic Computing - A System-Wide Perspective. Robbert van Renesse and Kenneth P. Birman. "Autonomic Computing: Concepts, Infrastructure, and Applications". pp 35-48. ed. Manish Parashar and Salim Hariri, CRC press. January 2006.
28. Reliable Distributed Systems Technologies, Web Services, and Applications. Ken Birman, 2005, 668 p. 145 illus., Springer Verlag. Hardcover ISBN: 0-387-21509-3.
29. Like it or not, Web Services are Distributed Objects! K.P. Birman, Communications of the ACM, Volume 47, No.12, pp 60-62. December 2004.
30. Scalable, Self-Organizing Technology for Sensor Networks. Kenneth P. Birman, Saikat Guha, Rohan Murty. Advances in Pervasive Computing and Networking, Bulent Yeler, ed. Springer Science+Business Media, Inc. New York, NY, Pg. 1-15.
31. Overcoming Communications Challenges in Software for Monitoring and Controlling Power Systems. K.P. Birman, J. Chen, K. Hopkinson, R.J. Thomas, J.S. Thorp, R. van Renesse, and W. Vogels. Proceedings of the IEEE. Vol. 9, No. 5. May 2005.
32. Scalable, Self-Organizing Technology for Sensor Networks. Kenneth P. Birman, Saikat Guha, Rohan Murty. Advances in Pervasive Computing and Networking, Bulent Yeler, ed. Springer Science+Business Media, Inc. New York, NY, Pg. 1-15
33. Overcoming Communications Challenges in Software for Monitoring and Controlling Power Systems. Kenneth P. Birman, Jie Chen, Ken Hopkinson, Bob Thomas, Jim Thorp, Robbert van Renesse, Werner Vogels. October 2003
34. The League of SuperNets, Ken Birman, IEEE Internet Computing, vol. 7, no.5, 2003, pp.92-96
35. Astrolabe: A Robust and Scalable Technology for Distributed System Monitoring, Management, and Data Mining. Robbert van Renesse, Kenneth Birman and Werner Vogels. ACM Transactions on Computer Systems, May 2003, Vol.21, No. 2, pp 164-206
36. Fighting Fire with Fire: Using Randomized Gossip to Combat Stochastic Scalability Limits. Indranil Gupta Kenneth P. Birman and Robbert van Renesse. (ed. Nong Ye) Special Issue of Quality and Reliability of Computer Network Systems, Journal of Quality and Reliability Engineering International, May/June 2002, Vol. 18, No. 3, pp 165-184.
37. An Agent Based Current Differential Relay for use with a Utility Intranet. D.V. Coury, K. M. Hopkins, K. P. Birman. IEEE Transactions on Power Delivery, January 22, 2002, Vol. 17, No. 1, pp. 47-53.
38. Using AVL Trees for Fault-Tolerant Group Key Management. Ohad Rodeh, Ken Birman, Danny Dolev. International Journal of Information Security (IJIS), Vol. 1, No 2, pp 84-99. February 2002; published online: October 26, 2001.
39. The Architecture and Performance of the Security Protocols in the Ensemble Group Communication System. Ohad R odeh, Ken Birman, Danny Dolev. ACM Transactions on Information Systems and Security (TISSEC).
40. Technology Requirements for Virtual Overlay Networks. IEEE Systems, Man and Cybernetics: Special issue on Information Assurance, Vol. 31, No 4, pp 319-327. July 2001.
41. Next Generation Internet: Unsafe at Any Speed? IEEE Computer, Special Issue on Infrastructure Protection, Vol. 33, No 8, pp54-88. August 2000.
42. Optimized Group Rekey for Group Communications Systems, Ohad Rodeh, Ken Birman, Danny Dolev, Network and Distributed System Security 2000, February 2000, San Diego, California. (Extended version available as Cornell University, Computer Science TR99-1764.)
43. A Dynamic Light-Weight Group Service. Luis Rodrigues, Katherine Guo, Paulo Verissimo, and Kenneth P. Birman. Journal of Parallel and Distributed Computing 2000, Vol. 60, pp 1449-1479. (2002)
44. Bimodal Multicast. ACM Transactions on Computer Systems, Vol. 17, No. 2, pp 41-88, May, 1999. Kenneth P. Birman, Mark Hayden, Oznur Ozkasap, Zhen Xiao, Mihai Budiu and Yaron Minsky.

45. A Review of Experiences with Reliable Multicast. K. P. Birman. Software Practice and Experience 29(9), pp 741-774. July 1999.
46. Virtual Synchrony. The Encyclopedia of Distributed Computing. Joseph Urban and Partha Dasgupta, eds. Kluwer Academic Publishers, K. Birman.
47. Middleware Support for Distributed Multimedia and Collaborative Computing. Software: Practice and Experience, July, 1999. Kenneth P. Birman, Roy Friedman, Mark Hayden and Injong Rhee.
48. Building Adaptive Systems Using Ensemble. Software Practice and Experience, 28(9), pp. 963- 979, July 1998. R. van Renesse, K. Birman, M. Hayden, A. Vaysburd, D. Karr.
49. The Maestro Approach to Building Reliable Interoperable Distributed Applications with Multiple Execution Styles. Theory and Practice of Object Systems. 1998. 4:2. Alexey Vaysburd and Ken Birman.
50. Building Secure and Reliable Network Applications. (book) Manning Publications and Prentice Hall. Dec 1996. Ken Birman.
51. Software for Reliable Networks. Scientific American, May 1996, 274(5): 64-69. K. Birman and R. van Renesse.
52. Horus: A Flexible Group Communications System. Communications of the ACM. 39(4): 76-83. Apr 1996. R. van Renesse, S. Maffeis, and K. Birman.
53. The Design and Implementation of a Private Message Service for Mobile Computers. WINET: Journal of Wireless Network; Issue - Recent Advances in Wireless Networking Technology, 1(3), 297-309, Oct 1995. D. Cooper and K. Birman.
54. Theory and Practice in Distributed Systems. (book) K. Birman, F. Mattern and A. Schiper, eds. Springer Verlag LNCS, Jul 1995 938. Jul 1995.
55. Reliability Through Consistency. IEEE Software (Special Issue on Safety and Reliability), May 1995. With Bradford Glade.
56. A Security Architecture for Fault-Tolerant Systems. ACM Transactions on Computer Systems}, 12 (4): 340-371, Nov 1994. M. Reiter, K. Birman and R. van Renesse.
57. A Response to Cheriton and Skeen's Criticism of Causal and Totally Ordered Communication. Operating Systems Review, Jan 1994, 28(1).
58. Fault-Tolerant Programming using Process Groups. Distributed Open Systems, R. van Renesse and K. Birman. Jan 1994, 96-112.
59. Reliable Distributed Computing with the Isis Toolkit (book) IEEE Computer Society Press, 1994, Los Alamitos, Ca. K. Birman and R. van Renesse, eds.
60. Light-Weight Process Groups in the ISIS System. Distributed Systems Engineering. Mar 1994. 1:29-36. B. Glade, R. Cooper, R. van Renesse and K. Birman.
61. How to Securely Replicate Services. M. Reiter and K. Birman. ACM Transactions on Programming Languages and Systems. 16(3): 986-1009. May 1994.
62. Integrating Runtime Consistency Models for Distributed Systems. Journal of Parallel and Distributed Systems, Nov 1994, 23:158-176. Kenneth Birman.
63. The Process Group Approach to Reliable Distributed Computing. Communications of the ACM, Dec 1993, 36(12): 37-53. Kenneth Birman.
64. Lightweight Causal and Atomic Group Multicast. ACM Transactions on Computer Systems, Aug 1991, (3): 272-314. K. Birman, A. Schiper and P. Stephenson.
65. Tools for Distributed Application Management. IEEE Computer, Aug. 1991, 24(8): 42-51. K. Marzullo, M. Wood, K. Birman and R. Cooper.
66. The ISIS Project: Real Experience with a Fault Tolerant Programming System Operating Systems Review. Ken Birman and R. Cooper. pp 103-107. April 1991.
67. Communication Support for Reliable Distributed Computing Lecture Notes in Computer Science (1990), 124-137, (with T. Joseph)
68. Reliable communication in presence of failures. Kenneth P. Birman, Thomas A. Joseph. ACM Transactions on Computer Systems, Vol. 5, No. 1, Feb. 1987
69. The Relationship Between Signal Representation and Learning in ECG Analysis. Ph.D. Thesis, University of California, Berkeley, June 1981.

Conference Publications

1. Data Consistency Challenges in AI Applications. K. Birman, J. Hashim, E. Tremel, Y. Yang. PaPoC '26: Proceedings of the 13th Workshop on Principles and Practice of Consistency for Distributed Data. April 27, Edinburgh, UK.
2. Passing the Baton: High Throughput Distributed Disk-Based Vector Search with BatANN. N. Anh Dang, B. Landrum, K. Birman. VLDB '26: 19th International Conference on Very Large Database Systems. August 31-Sept 3, 2026, Boston MA.
3. Keep Your Friends Close: Leveraging Affinity Groups to Accelerate AI Inference Workflows. T. Garrett, W. Song, R. Vitenberg, K. Birman. 18th ACM Systems and Storage Conference (SYSTOR 25), Sept. 10, 2025. Haifa, Israel.
4. Diagnosing and Resolving Cloud Platform Instability with Multi-modal RAG LLMs. Yifan Wang and Kenneth P. Birman. 5th Workshop on Machine Learning and Systems (EuroMLSys '25), March 30–April 3, 2025, Rotterdam, Netherlands. ACM, New York.
5. Enhancing transparency in buyer-driven commodity chains for complex products: A blockchain-based traceability framework demonstrated through an apparel supply chain simulation. R. Takkar, K. Birman, and H. O. Gao. 6th International Conference on Industry 4.0 and Smart Manufacturing (ISM '24), Prague, Nov. 2024
6. Navigator: A Decentralized Scheduler for Latency-Sensitive AI Workflows. Y. Yang, A. Merlina, W. Song, T. Yuan, K. Birman and R. Vitenberg. IEEE Conference on Edge Computing and Communications (EDGE), Shenzhen, China, 2024, pp. 35-47.
7. Gupta, A., Hao, Y., Yang, Y., Yuan, T., Wieland, M., Basran, P. S., & Birman, K. (2024). Digital Twin-Driven Teat Localization and Shape Identification for Dairy Cow (Student Abstract). Proceedings of the AAAI Conference on Artificial Intelligence, 38(21), 23510-23511. https://doi.org/10.1609/aaai.v38i21.30450
8. Verifying a C implementation of Derecho's coordination mechanism using VST and Coq. Ramana Nagasamudram, Lennart Beringer, Ken Birman, Mae Milano, David A. Naumann. Proc. NFM'24: The NASA Formal Methods Symposium, June 2024.
9. Monotonicity and Opportunistically- Batched Actions in Derecho. 25th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS23), Ken Birman, Sagar Jha, Mae Milano, Lorenzo Rosa, Weijia Song, Edward Tremel. New Jersey, Oct 2-4, 2023.
10. Yifan Wang, Weijia Song, Yuting Yang, Charif Mahmoudi, Shashank Shekhar, Kenneth P. Birman. Dash: A Low Code Development Platform for AI Applications in Industry. 2023 IEEE 14th Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON). Columbia University, USA. October 12-14, 2023.
11. Cascade: An Edge Computing Platform for Real-time Machine Intelligence (Invited paper). Weijia Song, Yuting Yang, Thompson Liu, Andrea Merlina, Thiago, Garrett, Roman Vitenberg, Lorenzo Rosa, Aahil Awatramani, Zheng Wang, Ken Birman. ApPLIED 2022 (Salerno, Italy).
12. Stabilizer: Geo-Replication with User-defined Consistency. Pengze Li, Lichen Pan, Xinzhe Yang, Weijia Song, Zhen Xiao, Ken Birman. ICDCS 2022 (Bologna, Italy)
13. Spindle: Techniques for optimizing atomic multicast on RDMA. Sagar Jha, Lorenzo Rosa, Ken Birman. ICDCS 2022 (Bologna, Italy).
14. DerechoDDS: Strongly Consistent Data Distribution for Mission-Critical Applications. Lorenzo Rosa, Weijia Song, Luca Foschini, Antonio Corradi, Ken Birman. IEEE MILCOM, Nov. 2021 (San Diego, CA).
15. DerechoDDS: Efficiently leveraging RDMA for fast and consistent data distribution.
16. Lorenzo Rosa, Sagar Jha, Ken Birman. 6th International Workshop on Critical Automotive Applications: Robustness & Safety (CARS 2021), Munich Germany, Sept. 2021.
17. Reliable, Efficient Recovery for Complex Systems with Replicated Subsystems. Edward Tremel, Sagar Jha, Weijia Song, David Chu, Ken Birman. IEEE DSN 2020.

18. Cloud-based Data Exchange Infrastructure for Wide Area Monitoring of Bulk Electric Power Grids. D. Anderson, S. Sahasrabuddhe, A. Bose, C. Hauser, T. Gkountouvas, W. Song, Y. Liao, K. Birman, E. Litvinov, X. Luo, F. Zhang, A. Darvishi, G. Stefopoulos, A. Ettlinger. Council on Large Electric Systems (CIGRE), Paris, France, pp 1-10, August 26 - 31, 2018.
19. RDMC: A Reliable Multicast for Large Objects. Jonathan Behrens, Sagar Jha, Ken Birman, Edward Tremel. IEEE DSN '18, Luxembourg, June 2018.
20. The Freeze-Frame File System. Weijia Song, Theo Gkountouvas, Ken Birman, Qi Chen, and Zhen Xiao. Seventh ACM Symposium on Cloud Computing (SoCC '16), Marcos K. Aguilera, Brian Cooper, and Yanlei Diao (Eds.). ACM, New York, NY, USA, 307-320. Nov. 2016.
21. A Cloud-Hosted Synchrophasor Data Sharing Platform. Eugene Litvinov, Xiaochuan Luo, Qiang Zhang, Ken Birman, Theodoros Gkountouvas, Dave Anderson, Carl Hauser, Anjan Bose. March 2017. Chapter in Power System Grid Operation Using Synchrophasor Technology, Springer-Verlag. Expected publication date: March 2018.
22. Treating Software-Defined Networks Like Disk Arrays. Z Teo, Ken Birman, Robbert van Renesse. 2nd IEEE International Conference on Network Software and Virtualization (Netsoft 2016). Seoul, June 2016.
23. Anonymous Data Collection for the Smart Grid. Edward Tremel, Ken Birman, Márk Jelasity, and Robert Kleinberg. In 2016 IEEE Power and Energy Society General Meeting, Boston, MA, July 2016.
24. Experience with 3 SDN Controllers in an Enterprise Setting. Zhiyuan Teo, Ken Birman, Robbert Van Renesse. IEEE DSN Workshop on Dependability Issues in SDN and IFV (DISN), June 28, 2016.
25. Reflections on the History of Operating Systems Research in Fault Tolerance. Ken Birman. Essay accompanying ACM History Day talk, Monterey CA, November 2015. In SOSP History Day 2015 (SOSP '15).
26. Cache Serializability: Reducing Inconsistency in Edge Transactions, Intl. Conference on Distributed Computing Systems (ICDCS), IEEE 35th International Conference on, June 29 2015–July 2 2015.
27. Characterizing Load Imbalance in Real-World Networked Caches. Qi Huang, Helga Gudmundsdottir, Ymir Vigfusson, Daniel Freedman, Ken Birman, Robbert van Renesse. HotNets 2014: Thirteenth ACM Workshop on Hot Topics in Networks. Oct 2014.
28. A Private Framework for Distributed Computation. Edward Tremel, Ken Birman, Robert Kleinberg, Mark Jelasity. The 8th Workshop on Large-Scale Distributed Systems and Middleware, LADIS 2014. Cambridge, UK. October 2014.
29. Software Defined Networks and Gossip Protocols.Robert Soule, Ken Birman, Nate Foster. The 8th Workshop on Large-Scale Distributed Systems and Middleware, LADIS 2014. Cambridge, UK. October 2014.
30. Mission-Critical Cloud Computing for Next-Generation Power Applications. Thoshitha Gamage, David Anderson, David Bakken, Kenneth Birman, Anjan Bose, Carl Hauser, Ketan Maheshwri, and Robbert van Renesse. In Smart Grids: Clouds, Communications, Open Source, and Automation. Editors David Bakken and Kris Iniewski. CRC Press. ISBN 9781482206111. 2014.
31. IronStack: Performance, stability and security for power grid data networks. Zhiyuan Teo, Vera Kutsenko, Ken Birman, and Robbert van Renesse. The 1st International Workshop on Trustworthiness of Smart Grids (ToSG). Atlanta, GA. June 2014 (in conjunction with DSN).
32. MiCA: A Compositional Architecture for Gossip Protocols. Lonnie Princehouse, Rakesh Chenchu, Zhefu Jiang, Kenneth P. Birman, Nate Foster, and Robert Soule. European Conference on Object Oriented Programming, ECOOP 2014, in Sweden in July 2014.

33. Practical Experience Report: The Performance of Paxos in the Cloud. Parisa Jalili Marand, Samuel Benz, Fernando Pedone, Ken Birman. The 33rd IEEE Symposium on Reliable Distributed Systems (SRDS 2014) Nara, Japan, October 6-9, 2014
34. Distributional Differential Privacy for Large-Scale Smart Metering. Márk Jelasity, Kenneth P. Birman. 2nd ACM Information Hiding and Multimedia Security Workshop (IH&MMsec). Pp 141 – 146. Salzburg, Austria. 2014.
35. The Analysis of Facebook Photo Caching. Qi Huang, Ken Birman, Robbert van Renesse, Wyatt Lloyd, Sanjeev Kumar, Harry Li. The 24th ACM Symposium on Operating Systems Principles SOSP. Pittsburgh. November1- 4, 2013.
36. Hosting Dynamic Data in the Cloud with Isis2 and the Ida DHT. Ken Birman and Heesung Sohn. ACM Workshop on Timely Results in Operating Systems (TRIOS), at SOSP. Pittsburgh. November 1-4 2013.
37. Ordering Transactions with Prediction in Distributed Object Stores. Ittay Eyal, Ken Birman, Idit Keidar (Technion) and Robbert van Renesse. Workshop on Large Scale Distributed Systems (LADIS), at SOSP. Pittsburgh. November 2-3, 2013.
38. Compositional Gossip Protocols for Infrastructure Management. Lonnie Princehouse, Ken Birman, Nate Foster . Workshop on Large Scale Distributed Systems (LADIS), at SOSP. Pittsburgh. November 2-3, 2013.
39. Application-Driven TCP Recovery. Robert Surton, Ken Birman, and Robbert van Renesse. IEEE/IFIP International Conference on Dependable Systems and Networks. Budapest. June 2013.
40. Evaluating Cloud Computing Techniques for Smart Power Grid Design Using Parallel Scripting. Ketan Maheshwari, Ken Birman, Justin M. Wozniakz, Devin Van Zandt. 13th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid), 2013.
41. Live Network Streaming with Utilities and Cost. Ymir Vigfusson, Ken Birman, Daniel A. Freedman, Qi Huang, Kristjan Jonsson, Gunnar Sigurbjornsson. LADIS'12, July 16–18, 2012, Madeira, Portugal.Beyond Power Proportionality: Designing Power-Lean Cloud Storage.
42. "The Future Internet - Future Internet Assembly 2013: Validated Results and New Horizons" - Lecture Notes in Computer Science, Vol. LNCS 7858 - ISBN 978-3-642-38081-5 (2013) Lakshmi Ganesh, Hakim Weatherspoon, Ken Birman. IEEE (NCA 2011. Cambridge MA. August, 2011.
43. Instrumentation for exact packet timings in networks. Daniel A. Freedman, Tudor Marian, Jennifer H. Lee, Ken Birman, Hakim Weatherspoon, Chris Xu. Proceedings of the 2011 IEEE International Instrumentation and Measurement Technology Conference (I2MTC '11). Binjiang, Hangzhou, China. May, 2011.
44. Overcoming the “D” in CAP: Using Isis2 To Build Locally Responsive Cloud Services. K. P. Birman, Q. Huang, D. Freedman. Technical report, Cornell University (April 2011).
45. Running Smart Grid Control Software on Cloud Computing Architectures. Kenneth P. Birman, Lakshmi Ganesh, and Robbert van Renesse. Workshop on Computational Needs for the Next Generation Electric Grid, Cornell University, April, 2011. Ithaca, NY.
46. Virtually Synchronous Methodology for Dynamic Service Replication. Ken Birman, Dahlia Malkhi, Robbert van Renesse. November 18, 2010. Also available as Microsoft Research TechReport MSR-2010-151.
47. Kevlar: A Flexible Infrastructure for Wide-area Collaborative Applications. Qi Huang, Daniel A. Freedman, Ymir Vigfusson, Ken Birman, and Bo Peng. ACM/IFIP/Usenix 11th International Middleware Conference (Middleware 2010), Bangalore, India, Nov 29 - Dec 3, 2010.
48. Exact Temporal Characterization of 10 Gbps Optical Wide-area Network. Daniel A. Freedman, Tudor Marian, Jennifer H. Lee, Ken Birman, Hakim Weatherspoon, Chris Xu. 10th ACM SIGCOMM Conference on Internet Measurement (IMC 2010). Melbourne, Australia. November 1-3, 2010.

49. Enabling Tactical Edge Mashups with Live Objects. Daniel Freedman, Ken Birman, Krzys Ostrowski, Mark Linderman, Robert Hillman, Albert Frantz Proceedings of the 15th International Command and Control Research and Technology Symposium (ICCRTS '10), Information Sharing and Collaboration Processes and Behaviors Track. Santa Monica, CA, USA. June 22- 24, 2010.
50. Dr. Multicast: Rx for Data Center Communication Scalability. Ymir Vigfusson, Hussam Abu- Libdeh, Mahesh Balakrishnan, Ken Birman, Robert Burgess, Haoyuan Li, Gregory Chockler, Yoav Tock Eurosys, April 2010 (Paris, France).
51. Quilt: A Patchwork of Multicast Regions. Qi Huang, Ken Birman, Ymir Vigfusson, Haoyuan Li. 4th ACM International Conference on Distributed Event0Based Systems (DEBS2010). Cambridge, United Kingdom. July 2010
52. Self-Replicating Objects for Multicore Platform. Krzysztof Ostrowski, Chuck Sakoda, and Ken Birman. 24th European Conference on Object-Oriented Programming (ECOOP 2010).
53. History of the Virtual Synchrony Replication Model. Ken Birman. Appears in Replication:Theory and Practice. B. Charron-Bost, F. Pedone, A. Schiper (Eds) Springer Verlag, 2010. Replication, LNCS 5959, pp. 91–120, 2010.
54. Code-Partitioning Gossip. Lonnie Princehouse and Ken Birman. 5th Workshop on Programming Languages and Operating Systems (PLOS 09). Big Sky, MT. 11 October 2009.
55. Storing and Accessing Live Mashup Content in the Cloud. Krzysztof Ostrowski and Ken Birman. Proceedings of the 3rd ACM SIGOPS International Workshop on Large Scale Distributed Systems and Middleware (LADIS 2009).
56. GO: Platform Support For Gossip Applications. Ymir Vigfusson, Ken Birman, Qi Huang, Deepak Nataraj. Proceedings of IEEE P2P. pp 222 – 231. Seattle, WA. September, 2009.
57. Building Collaboration Applications That Mix Web Services Hosted Content with P2P Protocols. Ken Birman, Jared Cantwell, Daniel Freedman, Qi Huang, Petko Nikolov, Krzysztof Ostrowski. Proceedings of IEEE International Conference on Web Services (ICWS). Los Angeles, CA. July 2009.
58. Sharing Private Information Across Distributed Databases. Siegenthaler, M. and Birman, K. IEEE International Symposium on Network Computing and Applications (IEEE NCA09), Boston, MA, 9-11 July 2009.
59. WS-OBJECTS: Extending Service-Oriented Architecture with Hierarchical Composition of Client-Side Asynchronous Event-Processing Logic. Krzysztof Ostrowski, Ken Birman. IEEE 7th International Conference on Web Services (ICWS 2009) July 6-10, 2009, Los Angeles, CA, USA
60. Privacy Enforcement for Distributed Healthcare Queries. Siegenthaler, M. and Birman, K. Pervasive Health 2009, London, UK, 1-3 April 2009
61. Live Distributed Objects for Service Oriented Collaboration. Ken Birman, Jared Cantwell, Daniel Freedman, Qi Huang, Petko Nikolov, Krzysztof Ostrowski. Third International Conference on Intelligent Technologies for Interactive Entertainment (Intetain '09), Demo Track. Amsterdam, The Netherlands. June 22, 2009.
62. Optimizing Information Flow in the Gossip Objects Platform. Ymir Vigfusson, Ken Birman, Qi Huang, and Deepak Nataraj. LADIS '03: Proceedings of the 3rd Large-Scale Distributed Systems and Middleware Workshop. Volume 44, Issue 2, pp 71 – 76. October 2009
63. Smoke and Mirrors: Reflecting Files at a Geographically Remote Location Without Loss of Performance. Hakim Weatherspoon, Lakshmi Ganesh, Tudor Marian, Mahesh Balakrishnan (MSR), and Ken Birman. 7th USENIX Conference on File and Storage Technologies (FAST '09). San Francisco, CA. February 24-27, 2009.
64. Dr. Multicast: Rx for Datacenter Communication Scalability. Ymir Vigfusson, Hussam Abu- Libdeh, Mahesh Balakrishnan, Ken Birman, Yoav Tock. HotNets VII: Seventh ACM Workshop on Hot Topics in Networks. October 6-7, 2008. Calgary, Canada.

65. Bosco: One-Step Byzantine Aysnchronous Consensus. Yee Jiun Song, Robbert van Renesse. The 22nd International Symposium on Distributed Computing (DISC 2008), Arcachon, France, September, 2008.
66. Sliver: A Fast Distributed Slicing Algorithm (Brief Announcement). Vincent Gramoli, Ymir Vigfusson, Ken Birman, Anne-Marie Kermarrec, Robbert van Renesse. Principles of Distributed Computing (PODC). Toronto, Canada. August 2008.
67. QuickSilver Scalable Multicast (QSM). Krzysztof Ostrowski, Ken Birman, Danny Dolev. 7th IEEE International Symposium on Network Computing and Applications (IEEE NCA 2008). Cambridge, MA. July 2008.
68. Supporting Scalability and Adaptability via ADAptive Middleware And Network Transports (ADAMANT). Joe Hoffert, Douglas Schmidt, Mahesh Balakrishnan, Ken Birman. OMG Workshop on Distributed Object Computing for Real-time and Embedded Systems. July 2008, Washington
69. Tempest: Soft State Replication in the Service Tier. Tudor Marian, Mahesh Balakrishnan, Ken Birman, Robbert van Renesse. DSN-DCSS 2008: 38th Annual IEEE/IFIP International Conference on Dependable Systems and Networks, Anchorage, AL. June 24-27, 2008
70. Maelstrom: Transparent Error Correction for Lambda Networks. Mahesh Balakrishnan, Tudor Marian, Ken Birman, Hakim Weatherspoon, Einar Vollset. USENIX Symposium on Networked System Design and Implementation (NSDI 08). April 2008.
71. Exploiting Gossip for Self-Management in Scalable Event Notification Systems. Ken Birman, Anne-Marie Kermarrec, Krzysztof Ostrowski, Marin Bertier, Danny Dolev, Robbert Van Renesse. Distributed Event Processing Systems and Architecture Workshop (DEPSA). June 2007.
72. Scalable Publish-Subscribe in a Managed Framework. Krzysztof Ostrowski, Ken Birman. In ICDCS 2007; November, 2006.
73. The QuickSilver Properties Framework. Krzysztof Ostrowski, Ken Birman, Danny Dolev. Abstract, presented at the OSDI'06 poster session, Seattle, WA, November 2006.
74. Scalable Multicast Platforms for a New Generation of Robust Distributed Applications. Ken Birman, Mahesh Balakrishnan, Danny Dolev, Tudor Marian, Krzysztof Ostrowski, Amar Phanishayee Proceedings The Second IEEE/Create-Net/ICST International Conference on Communication System software and Middleware (COMSWARE). Bangalore, India. January 7-12, 2007.
75. Scalable Group Communication System for Scalable Trust. Krzysztof Ostrowski, Ken Birman. First ACM Workshop on Scalable Trusted Computing (ACM STC 2006). Fairfax, VA. November 3, 2006.
76. PLATO:Predictive Latency-Aware Total Ordering. Mahesh Balakrishnan, Ken Birman, and Amar Phanishayee. SRDS 2006: 25th IEEE Symposium on Reliable Distributed Systems, Leeds, UK. October 2006.
77. Cognitive Adaptive Radio Teams. Richard Lau, Stephanie Demers, Yibei Ling, Bruce Siegell, Einar Vollset, Ken Birman, Robbert vanRenesse, Howie Shrobe, Jonathan Bachrach, Lester Foster. 2006 International Workshop on Wireless Ad-hoc and Sensor Networks, (IWWAN 2006). New York, NY. June 2006.
78. Network-Aware Adaptation Techniques for Mobile File Systems. Benjamin Atkin, Ken Birman. In Proceedings of the The 5th IEEE International Symposium on Network Computing and Applications (IEEE NCA06). Cambridge, MA. June 2006. Best paper award.
79. Reliable Multicast for Time-Critical Systems. Mahesh Balakrishnan and Ken Birman. In Proceedings of the First IEEE Workshop on Applied Software Reliability (WASR 2006), Philadelphia, PA. June 2006.
80. How the Hidden Hand Shapes the Market for Software Reliability. Ken Birman, Coimbatore Chandersekaran, Danny Dolev, and Robbert van Renesse. In Proceedings of the First IEEE Workshop on Applied Software Reliability, Philadelphia, PA. June 2006.

81. Extensible Web Services Architecture for Notification in Large-Scale Systems. Krzysztof Ostrowski and Ken Birman. In Proceedings of the 2006 IEEE International Conference on Web Services (ICWS 2006). Chicago, IL, September 2006.
82. SENSTRAC: Scalable Querying of SENSor Networks from Mobile Platforms Using TRACking- Style Queries. Stefan Pleisch and Ken Birman. Third IEEE International Conference on Mobile Ad-hoc and Sensor Systems. Vancouver, Canada. October 9-12, 2006.
83. Mistral: Efficient Flooding in Mobile Ad-hoc Networks. S. Pleisch, M. Balakrishnan, K. Birman, and R. van Renesse. In Proceedings of the Seventh ACM International Symposium on Mobile Ad Hoc Networking and Computing (ACM MobiHoc 2006). Florence, Italy May 2006.
84. A Scalable Services Architecture. Tudor Marian, Ken Birman, and Robbert van Renesse. IEEE Symposium on Reliable Distributed Systems (SRDS 2006). Leeds, UK. October 2006.
85. Slingshot: Time-Critical Multicast for Clustered Applications. Mahesh Balakrishnan, Stefan Pleisch, Ken Birman. IEEE Network Computing and Applications 2005 (NCA 05). Boston, MA
86. Decentralized Schemes for Size Estimation in Large and Dynamic Groups. Dionysios Kostoulas, Dimitrios Psaltoulis, Indranil Gupta, Ken Birman, Al Demers. IEEE Network Computing and Applications 2005 (NCA 05). October, 2005, Boston, MA.
87. Building network-centric military applications over service oriented architectures. Kenneth Birman, Robert Hillman, Stefan Pleisch. SPIE Defense and Security Symposium 2005. March 29-31, 2005. Orlando, Florida.
88. Bringing Autonomic, Self-Regenerative Technology into Large Data Centers. Kenneth Birman. New Developments in Software Development Workshop, (NDIST 04), Dec. 7-10, 2004, St. John, US Virgin Islands.
89. Adding High Availability and Autonomic Behavior to Web Services. Ken Birman, Robbert van Renesse, Werner Vogels. In the Proceedings of the 26th Annual International Conference on Software Engineering (ICSE 2004). May 23 - 28, 2004. Edinburgh, Scotland.
90. A Churn-Resistant Peer-to-Peer Web Caching System. Indranil Gupta, Prakash Linga, Ken Birman, 2003 ACM Workshop on Survivable and Self-Regenerative Systems (CCS-10), George Mason University, Fairfax, VA, October 31, 2003
91. Kelips: Building an Efficient and Stable P2P DHT Through Increased Memory and Background Overhead. Indranil Gupta, Ken Birman, Prakash Linga, Al Demers and Robbert van Renesse. 2nd Annual Workshop on Peer-to-Peer Systems (IWP2P 03), Oakland, California. (Feb. 2003)
92. Evaluation of an Adaptive Transport Protocol. Benjamin Atkin and Ken Birman. ACM INFOCOM 03, April 1-3, 2003, San Francisco, CA.
93. The Power of Epidemics: Robust Communication for Large-Scale Distributed Systems. Werner Vogels, Robbert van Renesse, and Ken Birman. Proceeding of HotNets-I '02: First Workshop on Hot Topics in Networks, special issue of the ACM SIGCOMM Computer Communication Review, Princeton, NJ. Volume 33, Issue 3, pp 131 – 135. October 2003.
94. The Surprising Power of Epidemic Communication. Ken Birman. Proceedings of the International Workshop on Future Directions in Distributed Computing (FuDiCo 2002). Bertinoro, Italy, June 2002. Springer-Verlag.
95. Scalable Management and Data Mining Using Astrolabe. van Renesse, Robbert, Birman, Kenneth P., Dumitriu, Dan and Vogels, Werner. Proceedings of the First International Workshop on Peer-to-Peer Systems (IPTPS). Cambridge, Massachusetts. March 2002.
96. A Collaborative Infrastructure for Scalable and Robust News Delivery. Werner Vogels, Chris Re, Robbert van Renesse and Ken Birman. In the Proceedings of the IEEE Workshop on Resource Sharing in Massively Distributed Systems (RESH'02), Vienna, Austria, July 2002.

97. Collaborative Content Delivery: A Peer-to-Peer Solution for Web-Based Publish/Subscribe. Werner Vogels, Robbert van Renesse and Ken Birman. First International Workshop on Peer-to Peer Systems (IPTPS 2002).
98. Scalable Data Fusion Using Astrolabe. Ken Birman and Robbert van Renesse and Werner Vogels. In proceedings of the Fifth International Conference on Information Fusion 2002. (IF 2002). July 2002.
99. Optimizing Buffer Management for Reliable Multicast. Zhen Xiao, Robbert van Renesse and Kenneth Birman. Proceedings of the International Conference on Dependable Systems and Networks (DSN 02), June 2002.
100. Scalable Fault-tolerant Aggregation in Large Process Groups. Indranil Gupta, Robbert van Renesse, Kenneth P. Birman. International Conference on Dependable Systems and Networks (DSN '01, previously FTCS) Goteborg, Sweden, July 2001.
101. Spinglass: Secure and Scalable Communications Tools for Mission-Critical Computing. Kenneth P. Birman, Robbert van Renesse and Werner Vogels. International Survivability Conference and Exposition. DARPA DISCEX-2001, Anaheim, CA, June 2001.
102. A Gossip Protocol for Subgroup Multicast. Kate Jenkins and Ken Birman. International Workshop on Applied Reliable Group Communication (WARGC 2001), Phoenix, Arizona, April 2001.
103. Providing Efficient, Robust Error Recovery Through Randomization. Zhen Xiao and Ken Birman. International Workshop on Applied Reliable Group Communication (WARGC 2001), Phoenix, Arizona, April 2001.
104. Anonymous Gossip: Improving Multicast Reliability in Ad-Hoc Networks. Ranveer Chandra, Vanogupalen Ramasubramanian, Ken Birman. International Conference on Distributed Computing systems (ICDCS 2001), Phoenix, Arizona, April 2001.
105. A Randomized Error Recovery Algorithm for Reliable Multicast. Zhen Xiao and Ken Birman. IEEE Infocom 2001, April 2001, Alaska.
106. Improving the Protection of EHV Teed Feeders Using Local Agents. Coury, D.V.; Thorp, J.S.; Hopkinson, K.M. & Birman, K.P. IEEE Seventh International Conference on Developments in Power System Protection, 9 - 12 April 2001, Amsterdam, The Netherlands.
107. Using Epidemic Techniques for Building Ultra-Scalable Reliable Communications Systems. Werner Vogels, Robbert van Renesse, and Ken Birman. Workshop on New visions for Large- Scale Networks: Research and Applications, Vienna, VA, March 2001.
108. Throughput Stability of Reliable Multicast Protocols. ADVIS' 2000, Dokuz Eylul University, Izmir, Turkey, October 25-27, 2000. Oznur Ozkasap, Ken Birman.
109. A Probabilistically Correct Election Protocol for Large Groups. DISC 2000, Toledo, Spain, October 4-6, 2000. Indranil Gupta, Robbert Van Renesse, Ken Birman.
110. A Simulation Model for an Epidemic Multicast Protocol, Ohad Rodeh and Ken Birman, BAS2000 Conference (5th Computer Networks Symposium), Bilkent University, Ankark, Turkey, June 15- 16, 2000.
111. Technology Challenges for Virtual Overlay Networks, IEEE Systems, Man, and Cybernetics Information Assurance and Security Workshop, Ken Birman, June 6-7, 2000, West Point, New York.
112. Agent Technology Applied to Adaptive Relay Settings for Multi-Terminal Lines, D.V. Coury, J.S. Thorp, K.M. Hopkinson, K.P. Birman, Cornell University, Computer Science TR2000-1792, March 2000, IEEE Summer Power Conference (PES-2000).
113. The Horus and Ensemble Projects: Accomplishments and Limitations. Ken Birman, Robert Constable, Mark Hayden, Christopher Kreitz, Ohad Rodeh, Robbert van Renesse, and Werner Vogels. Proceedings of the DARPA Information Survivability Conference & Exposition (DISCEX '00). Hilton Head, South Carolina. Volume 1, pp 149 – 161. January 2000.
114. Bimodal Multicast. Invited Lecture. First Workshop on Networked Group Communication, Pisa Italy (Nov. 1999).

115. Efficient Buffering in Reliable Multicast Protocols. In Proc. of the First Workshop on Networked Group Communication. Pisa, Italy. (November 1999). Ozkasap, Oznur, van Renesse, Robbert and Birman, Kenneth and Xiao, Zhen Zhao.
116. Optimized Group Rekey for Group Communication Systems. Network and Distributed System Security Symposium, San Diego, CA, February 2000. (with Ohad Rodeh, Ken Birman, and Danny Dolev.)
117. Casually Ordered Multicast: The Conservative Approach. Michael Kalantar and Ken Birman. International Conference on Distributed Computing Systems (ICDCS '99), July 1999.
118. Building Reliable, High-Performance Communication Systems from Components. In Proc. of the 17th ACM Symposium on Operating System Principles, Kiawah Island Resort, SC, December 1999. Xiaoming Liu, Christoph Kreitz, Robbert van Renesse, Jason Hickey, Mark Hayden, Ken Birman, and Robert Constable.
119. Efficient Buffering in Reliable Multicast Protocols. In Proc. of NGC'99. Pisa, Italy, November 1999. (with Oznur Ozkasap, Robbert van Renesse, Kenneth Birman, and Zhen Xiao.)
120. The Design and Architecture of the Microsoft Cluster Service -- A Practical Approach to High- Availability and Scalability. Werner Vogels, Dan Dumitriu, Ken Birman, Rod Gamache, Mike Massa, Rob Short, John Vert, Joe Barrera, Jim Gray. Proceedings of the 28th symposium on Fault-Tolerant Computing, Munich, Germany. Pp 422-431. June 1998.
121. Six Misconceptions about Reliable Distributed Computing. Proceedings of the Eighth ACM SIGOPS European Workshop, Sintra, Portugal, September 1998. (with W. Vogels, R. van Renesse.)
122. Reliable Multicast Goes Mainstream. Kenneth P. Birman IEEE TCOS Spring 1998 Bulletin, Vol 10, No 1 (Feb 1998) p 12-26
123. Moving the Ensemble Groupware System to Windows NT and Wolfpack. Proceedings of USENIX Windows NT Workshop, Seattle, WA. August 11-13, 1997. (with W. Vogels, K. Guo, M. Hayden, T. Hickey, R. Friedman, S. Maffeis, R. van Renesse, A. Vaysburd.)
124. Middleware Support for Distributed Multimedia and Collaborative Computing. ACM Multimedia Computing and Networking Conference, 1998. (with R. Friedman, M. Hayden, I. Rhee.)
125. Building Secure and Reliable Network Applications. Proceedings of World Wide Computing and its applications, 1997. Tsukuba, Japan. March 1997.
126. Dynamic Light-Weight Groups. To appear in ICDCS 97, (Month). (with K. Guo.)
127. Using Group Communication Technology to Implement a Reliable and Scalable Distributed IN Coprocessor. TINA '96, (Sept). (with R. Friedman.)
128. Preserving Privacy in Network of Mobile Computers. Cooper and Birman. Proceedings of the 1995 IEEE Symposium on Research in Security and Privacy. Oakland, CA.
129. A Group Communication Approach for Mobile Computing. Workshop on Mobile Computing Systems and Applications. Santa Cruz, California, Dec 8-9, 1994. (with K. Cho.)
130. Uniform Actions in Asynchronous Distributed Systems. Thirteenth Annual ACM Symposium on the Principles of Distributed Computing. (with D. Malki, A. Ricciardi, and A. Schiper.)
131. Understanding Partitions and the ``No Partition'' Assumption. IEEE Proc of the 4th Workshop on Future Trends of Distributed Systems, Lisbon, Sep 1993. 354-360. K. Birman, A. Ricciardi and A. Schiper.
132. Reliable Enterprise Computing Systems. Workshop on Hardware and Software Architectures for Fault-Tolerance: Perspectives Towards a Synthesis, Le Mont Saint-Michel, France, June 1993.

133. Light-Weight Process Groups. Proceedings of the Open Forum '92 Technical Conference, Utrecht, The Netherlands, Nov 23-27, 1992, 323-336. (with B. Glade, R. Cooper, R. van Renesse.)
134. Maintaining Consistency in Distributed Systems (extended abstract). Fifth ACM SIGOPS European Workshop, Le Mont Saint-Michel, France, Sep 21-23, 1992.
135. The Cost of Order in Asynchronous Systems. Springer-Verlag Lecture Notes in Computer Science, 1992. (with A. Ricciardi and P. Stephenson.)
136. Reliable Multicast between Microkernels. Proceedings of the USENIX Workshop on Micro- Kernels and Other Kernel Architectures, Seattle, Washington, Apr 27-28, 1992, 269-283. (with R. van Renesse, R. Cooper, B. Glade, P. Stephenson.)
137. Integrating Security in a Group Oriented Distributed System. 1992 IEEE Symposium on Research in Security and Privacy, Oakland, California, May 4-6, 1992, 18-32. (with M. Reiter and L. Gong.)
138. Using Process Groups to Implement Failure Detection in Asynchronous Environments Proceedings of the 10th Annual ACM Symposium on Principles of Distributed Computing, Montreal, Quebec, Canada, Aug 19-21, 1991, 341-353, (with A. Ricciardi.)
139. Fault-Tolerance in Sixth Generation Operating Systems International Workshop on Operating Systems of the 90's and Beyond, Dagstuhl Castle, Germany, Jul 8-12, 1991.
140. The ISIS Project: Real Experience with a Fault Tolerant Programming System. ACM/SIGOPS European Workshop on Fault-Tolerance Techniques in Operating Systems, Bologna, Italy, 1990. (with R. Cooper.)
141. A Brief Overview of The ISIS Distributed Programming Toolkit and The Meta Distributed Operating System. 1989 Workshop on Operating Systems for Mission Critical Computing, for the Institute for Defense Analyses, University of Maryland, College Park, Maryland, Sep 1989. (with K. Marzullo.)
142. Protocols in Large Workstation Networks: A Position Statement. Workshop on Workstation Operation Systems, Boston, Massachusetts, Nov 1987. (with A. Gopal.)
143. Fault-Tolerant Process Groups - A Tool for Building Effective Distributed Software. Workshop on Workstation Operation Systems, Boston, Massachusetts, Nov 1987. (with T. A. Joseph.)
144. RNFS - A Highly Available Network File Service. Workshop on Workstation Operation Systems, Boston, Massachusetts, November 1987. (with S. Armstrong et. al.)
145. Exploiting Virtual Synchrony in Distributed Systems. 11th ACM Symposium on Operating Systems Principles, Dec 1987, (with T. Joseph).
146. Communication Support for Reliable Distributed Computing. Proc. Asilomar Workshop on Fault Tolerant Distributed Computing, March 1986, Ken Birman and T. Joseph.
147. Replication and Fault-Tolerance in the ISIS System. 10th ACM Symposium on Operating Systems Principles, Dec 1985, 79-86.
148. Implementing Fault-Tolerant Distributed Objects. 4th Symposium on Reliability in Distributed Systems and Database Systems, Silver Springs, Maryland, Oct 1984, SE-11, 6, 502-508, K. Birman, T. Joseph, T. Raeuchle, and A. El Abbadi.
149. A Programming Environment for Multichannel Signal Processing. Proc. Computers in Cardiology, Utah, Sep 1984, 189-200.
150. MDB-1: A New System for Data Management in Medical Environments. Proc. Computers in Cardiology, Utah, Sep 1984, 309-312, K. Birman, G. Joskowicz, et. Al.
151. Extending Resilient Object Types Efficiently. Second GI/NTG/GMR Conference on Fault-Tolerant Computing Systems.
152. The Relationship Between Signal Representation and Learning in ECG Analysis. Proc. Computers in Cardiology, Oct 1981, 355-358.
153. Network Support for a Distributed Database System. Proceedings of the Fourth Berkeley Workshop on Distributed Data Management and Networks, San Francisco, California, May 1979, K. Birman and L. A. Rowe.

154. A Shape Oriented System for Automated Holter ECG Analysis. Proc. Computers in Cardiology, Stanford, California, Sep 1978, 217-220, K. Birman, L. M. Rolnitzky and J. T. Bigger.

Technical Reports

1. Cascade: A Platform for Delay-Sensitive Edge Intelligence. Song, Weijia, Thiago Garrett, Yuting Yang, Mingzhao Liu, Edward Tremel, Lorenzo Rosa, Andrea Merlina, Roman Vitenberg, and Ken Birman. arXiv preprint arXiv:2311.17329 (2023).
2. Low-Latency ML Inference by Grouping Correlated Data Objects and Computation. Garrett, Thiago, Weijia Song, Roman Vitenberg, and Ken Birman. arXiv preprint arXiv:2312.11488 (2023).
3. Spindle: Techniques for optimizing atomic multicast on RDMA. Sagar Jha, Lorenzo Rosa, Ken Birman. arXiv:2110.00886. Technical report, October 2021.
4. CloudMake: A Tool for Dynamic Configuration of Distributed Applications. Theo Gkountouvas, Ken Birman, David Anderson. November 2017.
5. Quilt: A Patchwork of Multicast Regions. Qi Huang, Ken Birman, Ymir Vigfusson, Haoyuan Li. January 2010
6. Virtually Synchronous Methodology for Building Dynamic Reliable Services. Ken Birman, Dahlia Malkhi, Robert Van Renesse. January 2010
7. Achieving Reliability Through Distributed Data Flows and Recursive Delegation. Krzysztof Ostrowski, Ken Birman, Danny Dolev, and Chuck Sakoda.
8. FWP: Featherweight User-Mode Processes with Fast Reflexes. Tudor Marian, Hakim Weatherspoon, Mahesh Balakrishnan (Microsoft Research, Silicon Valley), Ken Birman, Robbert van Renesse. Technical Report. 2009.
9. Dr. Multicast: Rx for Data Center Communication Scalability. Ymir Vigfusson, Hussam Abu- Libdeh, Mahesh Balakrishnan, Ken Birman, and Yoav Tock. Cornell University Technical Report (TR 1813\11587). November 2009
10. SOLO: Self Organizing Live Objects. Qi Huang (Huazhong University of Science and Technology), Ken Birman. Technical Report. December 2008.
11. Ajil: Distributed Rate-limiting for Multicast Networks. Hussam Abu-Libdeh, Ymir Vigfusson, Ken Birman, and Mahesh Balakrishnan (Microsoft Research, Silicon Valley). Technical Report. December 2008.
12. Sliver: A Fast Distributed Slicing Algorithm. Vincent Gramoli, Ymir Vigfusson, Ken Birman, Anne- Marie Kermarrec, Robbert van Renesse. Technical Report. December 2007
13. Declarative Reliable Multi-Party Protocols Krzysztof Ostrowski, Ken Birman, Danny Dolev. Cornell University Technical Report (TR2007-2088). April, 2007.
14. Implementing High-Performance Multicast in a Managed Environment Krzysztof Ostrowski, Ken Birman, Danny Dolev. Cornell University Technical Report (TR2007-2088). April, 2007.
15. Properties Framework and Typed Endpoints for Scalable Group Communication. Krzysztof Ostrowski, Ken Birman, Danny Dolev. Cornell University Technical Report (July, 2006).
16. QuickSilver Scalable Multicast. Krzysztof Ostrowski, Ken Birman, and Amar Phanishayee. Cornell University Technical Report (April, 2006).
17. The Power of Indirection: Achieving Multicast Scalability by Mapping Groups to Regional Underlays. Krzysztof Ostrowski, Ken Birman, and Amar Phanishayee. Cornell University Technical Report (November, 2005).
18. Ricochet: Low-Latency Multicast for Scalable Time-Critical Services. Mahesh Balakrishnan, Ken Birman, Amar Phanishayee, and Stefan Pleisch. Cornell University Technical Report.
19. Kache: Peer-to-Peer Web Caching Using Kelips. Prakash Linga, Indranil Gupta, and Ken Birman. June 2004
20. Practical algorithms for Size estimation in Large and Dynamic groups. D. Psaltoulis, D. Kostoulas, I. Gupta, K. Birman, A. Demers. February 2004.

21. Building Scalable Solutions to Distributed Computing Problems using Probabilistic Components. Kenneth P. Birman and Indranil Gupta. Cornell Technical Report.
22. MFS: An Adaptive Distributed File System for Mobile Hosts. Benjamin Atkin and Kenneth P. Birman. Cornell University Technical Report
23. Ensemble Security. Ohad Rodeh, Kenneth P. Birman, Mark Hayden, Zhen Xiao, and Danny Dolev. (TR98-1703)
24. Dynamic Virtual Private Networks. Ohad Rodeh, Ken Birman, Mark Hayden, Danny Dolev. (TR98- 1695)
25. Bimodal Multicast. Kenneth Birman, Mark Hayden, Oznur Ozkasap, Zhen Xiao, Mihai Budiu, and Yaron Minsky. (TR98-1683)
26. Reliable Multicast Goes Mainstream. Kenneth P. Birman IEEE TCOS Spring 1998 Bulletin, Vol 10, No 1 (Feb 1998) p 12-26
27. GSGC: An Efficient Gossip-style Garbage Collection Scheme for Scalable Reliable Multicast. Katherine Guo, Mark Hayden, Robbert van Renesse, Werner Vogels and Kenneth P. Birman. (TR 97-1656).
28. Using Software Design patterns to Build Distributed Environmental Monitoring applications. Dag Johansen, Kjetil Jacobsen, Nils P. Sudmann, Kare, J. Lauvset, Kenneth P. Birman, and Werner Vogels. (TR97-1655)
29. Dynamic Virtual Private Networks. Ohad Rodeh, Ken Birman and Mark Hayden. (TR 97-1654).
30. Hierarchical Message Stability Tracking Protocols. Katherine Guo, Robbert van Renesse, Werner Vogels, and Ken Birman. (TR97-1647).
31. Building Adaptive Systems Using Ensemble. Robbert van Renesse, Ken Birman, Mark Hayden, Alexey Vaysburd, and David Karr. (TR97-1638).
32. The Maestro Group Manager: A Structuring Tool for Applications with Multiple Quality of Service Requirements. Ken Birman, Roy Friedman and Mark Hayden. (TR97-1619)
33. A Dynamic Light-Weight Group Service. Ken Birman. (TR96-1611).
34. Using Group Communication Technology to Implement a Reliable and Scalable Distributed IN Coprocessor. Roy Friedman and Ken Birman. (TR96-1605).
35. A Transparent Light-Weight Group Service. Luis Rodrigues, Katherine Guo, Antonio Sargento, Robbert van Renesse, Brad Glade, Paulo Verissimo and Ken Birman. (TR96-1585).
36. Trading Consistency for Availability in Distributed Systems. Roy Friedman and Ken Birman. (TR96-1579).
37. Deciding in Partitionable Networks. Roy Friedman, Idit Keidar, Dalia Malki, Ken Birman and Danny Dolev. (TR95-1554).
38. Protocol Composition in Horus. Robbert Van Renesse and Kenneth P. Birman. (TR95-1505).
39. Horus: A Flexible Group Communications System. Robbert Van Renesse, Kenneth P. Birman, Bradford B. Glade, Katie Guo, Mark Hayden, Takako Hickey, Dalia Malki, Alex Vaysburd and Werner Vogels. (TR95-1500).
40. Achieving Critical Reliability with Unreliable Components and Unreliable Glue. Mark Hayden and Kenneth P. Birman. (TR95-1493).
41. Uniform Actions in Asynchronous Distributed Systems. Dalia Malki, Kenneth P. Birman, Aleta M. Ricciardi and Andre Schiper. (TR94-1447).
42. Design and Performance of Horus: A Lightweight Group Communications System. Robbert van Renesse, Takako M. Hickey and Kenneth P. Birman. (TR94-1442).
43. Performance of the ISIS Distributed Computing Toolkit. Kenneth P. Birman and Timothy Clark. (TR94-1432).
44. A Group Communication Approach for Mobile Computing Mobile Channel: an ISIS Tool for Mobile Services. Kenjiro Cho and Kenneth P. Birman. (TR94-1424).
45. A Response to Cheriton and Skeen's Criticism of Causal and Totally Ordered Communication. Kenneth P. Birman. (TR93-1390).

46. Understanding Partitions and the ``No Partition'' Assumption. Aleta M. Ricciardi, Andre Schiper and Kenneth P. Birman. (TR93-1355).
47. A Security Architecture for Fault-Tolerant Systems. Michael K. Reiter, Kenneth P. Birman and Robbert Van Renesse. (TR93-1354).
48. Consistent Failure Reporting in Reliable Communication Systems. Kenneth P. Birman and Bradford B. Glade. (TR93-1349).
49. Process Membership in Asynchronous Environments. Aleta M. Ricciardi and Kenneth P. Birman. (TR93-1328).
50. Using the ISIS Resource Manager for Distributed, Fault-Tolerant Computing. Timothy Clark and Kenneth P. Birman. (TR92-1289).
51. Integrating Security in a Group Oriented Distributed System. Michael K. Reiter, Kenneth P. Birman and Li Gong. (TR92-1269).
52. Options for Adding Group Semantics to Ports. January 1992, Department of Computer Science, Internal Report, (with R. van Renesse, B. Glade, P. Stepenson).
53. Design Alternatives for Process Group Membership and Multicast. Ken Birman, Robert Cooper and Barry Gleeson. (TR91-1257).
54. Programming with Process Groups: Group and Multicast Semantics. January 1991 (being revised), Department of Computer Science, Technical Report 91-1185, (with R. Cooper and B. Gleeson).
55. Designing Application Software in Wide Area Network Settings. Messac Makpangou and Kenneth P. Birman. (TR90-1165)
56. The ISIS Project-Real Experience with a Fault-Tolerant Programming System. Kenneth P. Birman and Robert Cooper. (TR90-1138)
57. Tools for Distributed Application Management. Kenneth P. Birman, Robert Cooper, Keith Marzullo and Mark D. Wood. (TR90-1136).
58. Fast Causal Multicast. Kenneth P. Birman, Andre Schiper and Patrick Stephenson. (TR90-1105).
59. ISIS and META Projects: Progress Report. Kenneth P. Birman, Robert Cooper and Keith Marzullo. (TR90-1103).
60. Supporting Large Scale Applications on Networks of Workstations. April 1989, Department of Computer Science, (with R. Cooper).
61. Deceit: A Flexible Distributed File System. Alexander Siegel, Kenneth P. Birman and Keith Marzullo. (TR89-1042).
62. How Robust Are Distributed Systems?. Kenneth P. Birman. (TR89-1014).
63. The Role of Order in Distributed Programs. Keith Marzullo and Kenneth P. Birman. (TR89-1001).
64. Causally Consistent Recovery of Partially Replicated Logs. Kenneth P. Kane and Kenneth P. Birman. (TR88-949).
65. ISIS - A Distributed Programming Environment - Version 2.0, User's Guide and Reference Manual. K. Birman R. Cooper, T. A. Joseph, K. P. Kane, F. Schmuck).
66. Reliable Broadcast Protocols. Thomas A. Joseph and Kenneth P. Birman. (TR88-918).
67. Exploiting Virtual Synchrony in Distributed Systems. Kenneth P. Birman and Thomas A. Joseph. (TR87-811).
68. Programming with Shared Bulletin Boards in Asynchronous Distributed Systems. Kenneth P. Birman, Thomas A. Joseph, Frank B. Schmuck and Patrick Stephenson. (TR86-772).
69. Communication Support for Reliable Distributed Computing. Kenneth P. Birman and Thomas A. Joseph. (TR86-753)
70. ISIS: A System for Fault-Tolerance in Distributed Systems. Kenneth P. Birman. (TR86-744).
71. Reliable Communication in the Presence of Failures. Kenneth P. Birman and Thomas A. Joseph. (TR85-694).

72. Low Cost Management of Replicated Data in Fault-Tolerant Distributed Systems. Kenneth P. Birman and Thomas A. Joseph. (TR84-644).
73. An Overview of the ISIS Project. IEEE Distributed Processing Technical Committee Newsletter. Kenneth P. Birman, Amr El Abbadi, Wally Dietrich, Thomas A. Joseph and Thomas Raeuchle. (TR84-642).
74. Implementing Fault-Tolerant Distributed Objects. Kenneth P. Birman, Thomas A. Joseph, Thomas Raeuchle and Amr El Abbadi. (TR84-594).
75. ISIS: An Environment for Constructing Fault-Tolerant Distributed Systems. (TR 83-552) (with D. Skeen, A. El Abbadi, W. C. Dietrich and T. Raeuchle).
76. The Relationship Between Signal Representation and Learning in ECG Analysis. Ph.D. Thesis, University of California, Berkeley, June 1981.

Professional Activities

Tutorials: Derecho was selected for a 4-hour tutorial slot at ACM SIGOPS SOSP 2019. These tutorials are a new addition to the event, and we are one of the first to "win" such a slot, in a highly selective process.

Advisory Roles: The National Academies-GAO Panel, Cybersecurity technologies for critical infrastructure protection, 2003, Washington, DC; ISAT Working Group on Survivability of the Nation's Critical Infrastructure, 1995; Member: Strategic Advisory Board Member, Centre for Strategic Cyberspace + Security Science (2012-), Associated Editor, ACM Computing Classification System (2010); Cap Gemini Cloud Computing Visionary" interview featured in corporate and annual report (2009-2010) Editorial Activities: Editorial Board: PeerJ CS Journal (2014-2016), Advisory Board, Software Practice and Experience (2002-2014), Wiley; Advisory Board, Kluwer Academic Publishers - International Journal on Network Computing (2002); Editorial Advisory Board, Wiley Press - Cluster Computing (2000- present); Advisory Board, Cluster Computing (1998-present); Editor-in-Chief, Association of Computing Machinery - Transactions on Computer Systems (1993-1998); Associate Editor, Association of Computing Machinery - Transactions on Computer Systems (1988-1993); Editor, IEEE Transactions on Parallel and Distributed Computing (1992-1993); ACM; Advisory Board for The Journal of High Performance Distributed Computing (Wiley) (1996-2004).

Reviewer: National Science Foundation; European Research Foundation, Swiss National Research Council, ESPRIT, Norwegian Research Council, Israeli Research Foundation, Canadian Research Foundation.

Conference PCs: (partial list): NSDI 2026, Eurosys 2026, OSDI 2025, ASPLOS 2024, Eurosys 2024, ApPLIED 2023, NSDI 2023, OSDI 2023, OSDI 2022, ICDCS 2022, Middleware 2021, USENIX ATC 2020, ACM SOCC 2019, ApPLIED 2019, USENIX ATC 2019, ICDCS 2018, DSN 2018, SOCC 2017, ICDCS 2016, DSN 2016, PSCC 2016, OOPSLA 2015, DSN 2015, ICDCS 2015. Program committee chair, ACM Workshop on Timely Results in Operating Systems (TRIOS 2014, at OSDI 2014). Program Committee for the Cloud Computing and Data-Center Systems track of the 33rd IEEE International Conference on Distributed Computing Systems (ICDCS 2013), Middleware '13 PC, ECOOP '13 PC, Program Committee Member, ICAC 2012, ICP2P 2012, ECOOP 2013, ICDCS 2012, " Distributed OS and Middleware", Middleware (2011), LADIS (2011) ACM (SOCC 2011),First ACM Symposium on Cloud Computing (SOCC 2010), Workshop on Large Scale Distributed Computing (LADIS 2008), International Conference on Web Services (ICWS 2007), Program Committee co-chair; International Conference on Distributed Computing Systems (ICDCS-2007), International Conference on Autonomic Computing (ICAC 2007), Network Systems Design and Implementation (NSDI 2008), 20th Symposium on Operating Systems (SOSP-05), Program Committee Chair; 2003 ACM Symposium on Operating Systems Principals (SOSP-03); International Workshop

on Future Directions in DistRibuted Computing (FuDiCo 2002); ICDCS 2001 (International Conference on Distributed Computing Systems); NGC 2000 (Networked Group Communications); ISCIS'99, Ege University, Izmir, Turkey; TINA ’99; TINA '96 (The Convergence of Telecommunications and Distributed Systems Technologies) (Program Committee co-chair); HPDC-3 (Conference), FTPDS-9 (Conference), Real-Time Systems Symposium; Software Track; Third International Symposium on High Performance Distributed Computing (HPDC-3); 12th Symposium on Reliable Distributed Systems, to be held October 6-8, 1993; ACM Principles of Distributed Computing, 1993; Cornell Faculty Fellows in Service; Symposium on Reliable Distributed Systems (SRDS-10); Fault Tolerant Computing Systems (FTCS 21); First IEEE Workshop on Replicated Data; IEEE-Purdue Workshop on Design Principles for Experimental Distributed Computing Systems; Sixth Symposium on Reliability in Distributed Systems and Database Systems; Tenth Symposium on Reliable Distributed Systems; First and Second IEEE SIGCOMM Workshop on Workstation Operating Systems; Workshop on Replicated Data Management; General Chair, Fingerlakes '89: An Advanced Course on Distributed Systems; Tenth Symposium on Reliable Distributed Systems, 9/30-10/2/1991, Palazzo Dei Congressi, Pisa, Italy; First and Second IEEE Workshops on Workstation Operating Systems; Workshop on the Management of Replicated Data; Unix International Vision 2000 Steering Committee; Chairman, Unix International High Availability Systems Working Group; Chairman, OSF 1/AD Working Group on High Availability and group services; The 12th Symposium on Reliable Distributed Systems; 14th IEEE Real-Time Systems Symposium, Raleigh-Durham, NC; Workshop on Grand Challenge Applications and Software Technologies and the Joint Agency HPCC Conference on Grand Challenges for High Performance Computing, Pittsburgh, PA.

Other Professional Activities: IEEE Fellow selection committee (2016-), IEEE Carter Award selection committee (2016-2017), IEEE Fellows selection committee (2015-2017), External advisory panel for Computer Science area review: IST Vienna Austria, April 2013. Academic Evaluation Committee of the Institute of Science and Technology of Austria (2013), Advisory Board of the Scottish National Science Foundation (2010-), Advisor to the CIO and XC of the Air Force, Research studies for the Air Force Research Labs (various), Advisory Board of the Department of Computer Engineering, Ecole Polytechnique Federal de Lausanne, Switzerland (2001-2005); Software architecture consultant to French Air Traffic Control Agency (STNA) 1992-1998, New York Stock Exchange (1991-1993), Swiss Exchange (1993-1996), Hiper-D (prototype of next generation Naval AEGIS system, Motorola Iridium System (1992-1993). Highly Assured Computing Workshop, 1995; Unix International Academic Advisory Panel on Kernel Architectures, 1992; Institutional Infrastructure Grants, 1991; National Science Foundation Review Panel for Research Initiation Awards, 1989; Unix International Technical Advisory Board (1989-1990); Technical Advisory Group of the Center for Computer Applications and Software Engineering, Syracuse University; Kernel Architecture Work Group, Unix International.