

Dr. Craig Partridge

Education

Harvard University

1979-1992

Ph.D. in Computer Science, 1992. Dissertation topic: "Late-Binding RPC: A Paradigm for Distributed Computation in a Gigabit Environment."

M.Sc. in Computer Science, 1988. Thesis topic: "Implementing the Reliable Data Protocol (RDP)."

A.B., *cum laude*, in Medieval European History, 1983. Dean's List all semesters.

Professional Honors

Fellow (1999) of the Institute for Electrical and Electronic Engineers (IEEE).

Fellow (2004) of the Association for Computing Machinery (ACM).

Associate (2002), U.S. National Academy of Sciences

Experience

Chief Scientist

1998-

Principal Scientist

1997-1998

Division Scientist

1995-1997

Senior Scientist

1987-1995

Scientist

1983-1987

BBN Technologies, Cambridge MA

BBN is one of the world's premier independent high-tech research laboratories. I am Research Director for BBN's Networking Business Unit, a group of 100 some people, roughly two-thirds of whom have Masters or Ph.D. degrees. I am responsible for research direction for the department, including assisting with proposals, idea generation, and liaison with funding agencies. Areas of special interest include transport protocol design, wireless networks, traffic analysis, high-speed networks, and protocol performance.

As a Chief Scientist, I am also a BBN Vice President and have some (modest) company-wide management responsibilities.

While at BBN, I've been responsible for a number of innovations, including: designing how Internet email is routed; fixing TCP/IP's retransmission timers (with P. Karn); and leading the design of the first high-performance gigabit IP router.

Adjunct Professor of Computer Science

2008-

University of Michigan

I give occasional lectures at Michigan and serve on doctoral dissertation committees.

Chair, ACM SIGCOMM

1999-2003

The Association for Computing Machinery's Special Interest Group in Computer Communication is the professional society for data communications specialists.

Series Co-Editor, Addison-Wesley's Professional Computing Series

1999-2005

The Professional Computing Series has been in existence since the late 1980s and boasts some of the most notable technical books in print, including Stevens' *TCP/IP Illustrated*, Gamma *et al.*'s *Design Patterns* and Perlman's *Interconnections: Bridges and Routers*. I joined Brian Kernighan as a Series Co-Editor and was responsible for the networking books in the series.

Consulting Associate Professor in Computer Science 1999-2001
Consulting Assistant Professor in Computer Science 1992-1999
Stanford University

Taught Computer Science 341 (CS349 in 1992), *Advanced Topics in Networking*, a graduate course of about 50 students, and Computer Science 244A, *Introduction to Networking*, a course of about 200 upper-level undergraduate and graduate students in alternating years. Supervised several graduate students.

Adjunct Professor in Computer Science 1997-1998
Univ. California Berkeley

Co-taught (with Steve McCanne) Computer Science 268, the graduate reading course in networking.

Instructor
Networld+Interop 1990-2000

Networld+Interop® was a major industry conference in data networking held in a dozen cities worldwide. In 1999 and 2000, I taught a one-day tutorial on building multigigabit and terabit routers. From 1990 through 1999, I taught a two-day course on gigabit networking to an average of 125 students in both the US and Japan.

Editor-in-Chief
IEEE Network Magazine 1992-1994

IEEE *Network Magazine* was the flagship data communications publication of the IEEE Communications Society.

Visiting Research Fellow
Swedish Institute of Computer Science 1990-1991
Kista, Sweden

Worked on gigabit networking issues for the the Multi-G project, a national gigabit networking research project during sabbatical year at SICS.

Editor-in-Chief
ACM SIGCOMM Computer Communication Review 1988-1991

Computer Communication Review is the quarterly publication of the Special Interest Group on Computer Communication (SIGCOMM) of the Association for Computing Machinery (ACM).

Corporate Advisory Boards

Technical Advisory Board, Oricane AB (2007-present).

Technical Advisory Board, WISENET Project, Sweden (2007-present).

Technical Advisory Board, Arbor Networks (2001-2010).

Technical Advisory Board, Matrix.Net (2001-2003).

Technical Advisory Board, Broadband Access Systems (2000).

Research Advisory Board, Hewlett-Packard/SICS Internet Research Institute (1997-1999).

Societies and Technical Groups and Public Service

Member of IEEE and ACM and the Internet Society, ACM SIGCOMM, and IEEE Communications Society. Co-Chair of the Internet End-To-End Services Research Group, the Internet Engineering Task Force (former chair of several working groups), and previously the Area Director on Host and User Services for the Internet Engineering Steering Group (the board which directs standards development for the TCP/IP protocol suite).

Chair, National Research Council panel on “The Internet Under Crisis Conditions: Learning from September 11th”

(report issued in 2002). Member, National Research Council panel on “Internet Navigation and the Domain Name System” (report issued in 2005). Member, National Research Council panel on “Internet in the Evolving Information Infrastructure” (report issued in 2000). Member, National Research Council Board of Assessment of NIST Programs (1999-2001). Contributor to the report of the President’s Information Technology Advisory Council, February 1999.

General Chair for ACM SIGCOMM ’96 (Stanford). Co-General Chair for International Conference on the Future Internet (2008-2009). Program Committee Co-chair (with Steve Pink) for ACM SIGCOMM 1994, Program Committee member for ACM SIGCOMM Conference (1989-2003,2007), ACM HOTNETS (2007, Steering Committee 2008-2010), ACM Architectures for Networking and Communications Systems ANCS (2007-2009). ACM Internet Measurement Conference (2006,2008,2010). ACM Mobihoc (2011), ACM Multimedia (1992), ACM Workshop on Programmable Routers for Extensible Services of Tomorrow (2010), ACM Workshop on Re-Architecting the Internet (2008-2010), Asian Internet Engineering Conference - AINTEC (2008), Conference on Future Internets (2008-2010), Hot Interconnects (1997 and 1998), IFIP 6.1/6.4 Workshop on Protocols for High-Speed Networks (1990, 1992 and 1999), IFIP 6.1 Workshop on High Performance Networks (1992, 1994, 1995), IFIP Networking 2009, IEEE Global Internet (2007-2010). IEEE OpenArch ’99, Guest Editor, *Computer Communication Review* Jan 2005 issue on “Measuring the Internet’s Vital Statistics.”

Member, Curriculum Committee, Interop Graduate Institute (1996-1997). Publicity Chair for ACM SIGCOMM Conference (1990, 1991, 1993). Reviewer for the National Science Foundation (numerous proposals and panels), the Office of Technology Assessment and the National Academy of Sciences. Member, NSF Workshop on Network Research Testbeds (2002). Chair of NSF Workshop on Scalable Information Infrastructure (1998). Chair of DARPA/NSF Workshop on the Future of Gigabit Networking (1994).

ACM Distinguished Lecturer (2007-2010), Keynote speaker, 1994 IEEE Conference on Local Computer Networks (Minneapolis, MN). Keynote speaker, 1994 USENIX Workshop on High Speed Networks (Berkeley, CA). Keynote speaker, 1995 ASCI Conference (Amsterdam).

Member ACM/IEEE Steering Committee for *IEEE/ACM Transactions on Networking* (1993-1995). Awards Committee, IEEE Communications Society (1997-1999). Fellows Committee, IEEE Communications Society (2000-2002). Nominating Committees for the IEEE Communications Society (1993-1995) and the Internet Society (1994, 1996, 1997). Award Committee Chair, Internet Society (1999-2000).

Book reviewer for Prentice Hall, Addison-Wesley, Artech House, McGraw-Hill, and Macmillan publishers as well as ACM *Computing Reviews*. Member of the ACM SIGCOMM Executive Board, the IEEE Publications Board, and the IEEE Technical Committee on Operating Systems Standards Subcommittee (POSIX). Technical editor for *The Journal of High Speed Networks* (1992-1996). Technical Editor for *IEEE/ACM Transactions on Networking* (1997-2000). Editorial Board member, *IEEE Annals of the History of Computing* (2010-present).

Research Contracts

Major (unclassified) contracts with which I have been closely involved:

- *Network Science Collaborative Technology Alliance* (ARL). Project has created a distributed, multi-institution, research lab focused on network science. Proposal co-author and key personnel. Funding of \$60M. (2009-present).
- *GENI Project Office* (NSF). Project is creating a national suite of experimental network infrastructures. Proposal co-author and Outreach Director. Funding in excess of \$15M. (2007-2009).
- *ADROIT* software radio project (DARPA). Project demonstrated a working cognitive radio. Key personnel. (2004-2006).
- *Connectionless Networks* (DARPA). Project created a low energy radio that supports high data rates and high availability. Funding of \$15 million. Key personnel. (2003-2005).
- *Future of Optical Networks* (NSF). Project sketched the intellectual trajectory of optical network research and made recommendations for where NSF could make an impact. Funding of \$70K, 2004-2005. Principal

investigator.

- *Next Generation Wireless Networks* (DARPA). Project developed and demonstrated cognitive algorithms for wireless channel assignment. Funding of \$2M. Principal investigator in 2004.
- *FASTJam* (DARPA). Project showed that it was possible to trace topologies and traffic flows in wireless networks even if all transmissions are encrypted (and thus cannot be read by the observer). Funding of \$1.4M, 2001-2004. Proposal author and Principal investigator.
- *TCP Enhancements* (NASA). Funding of \$800K. 1996-1999. Project showed that TCP pacing worked for high-bandwidth, long-delay networks and demonstrated the limitations extended acknowledgements on such links. Proposal author and Principal investigator.
- *SPIE* (DARPA). Project demonstrated the ability to trace packet traffic without modifying the packet header and while storing minimal information in routers -- introduced Bloom filters to the networking community. Funding of \$2 million, 1999-2002. Developer of some of the key patented technologies.
- *FIRE* (DARPA). Project demonstrated the ability to dynamically reprogram how routers create routing tables. Funding of \$1.8M, 1998-2000. Primary author of proposal and Principal investigator.
- *Smart Packets* (DARPA). An active networks project, this effort demonstrated the potential to apply active networking (where packets carry code that affect their handling) to network management. Funding of \$1M, 1996-1998. Primary author of proposal and Principal Investigator.
- *Multigigabit Router* (DARPA). Demonstrated the world's first router capable of handling multiple 2.5Gbps channels and invented key concepts as *forward tables* which are now a common feature of all high end routers. Funding in excess of \$5M, 1995-1997. Primary author of proposal and Principal Investigator.
- *SONET Long Link Emulator* (DARPA). Project developed a device to insert (adjustable) delays akin to satellite links into SONET links. Funding of \$600K. 1991-1992. Author of proposal.
- *Gigabit Networking Project* (DARPA). Project solved a variety of enabling problems in gigabit networking for DARPA, including ATM header design issues (leading to AAL5) and switching architectures. Funding of \$2 million, 1988-1994. Co-author of proposal and member of key personnel.
- NSFNET Network Service Center (NSF). An outreach effort for NSFNET. Funding of \$2M, 1986-1993. Director of Technical Services.
- *The Computer Science Network*, CSNET (NSF). CSNET was the first commercial Internet Service Provider, created by NSF and DARPA to serve the academic community. 1984-1989. Member of senior technical staff.
- NAVCAMS LAN (US Navy). After the invasion of Grenada, the Navy realized it needed to upgrade its electronic order distribution network, and this project was tasked with designing the successor network. 1984-1985. Funding of \$300K. Co-author of proposal.

Patents

7,574,597. *Encoding of signals to facilitate traffic analysis*. D. Cousins, C. Partridge, W.T. Strayer, R. Krishanan, and T. Saxena. Filed Aug 2002. Issued 11 August 2009.

7,543,077. *Ternary content addressable memory embedded in a central processing unit*. W.C. Milliken, C. Partridge and A.W. Jackson. Filed Sep 2000. Issued 2 June 2009.

7,359,966. *Methods and systems for passive information discovery using Lomb periodogram processing*. T. Saxena, D. Cousins, C. Partridge, W. Strayer. Filed Sep 2002, issues 15 April 2008.

7,170,860. *Method and system for passively analyzing communication data based on frequency analysis of encrypted data traffic, and method and system for deterring passive analysis of communication data*. C. Partridge, W.T. Strayer and D.B. Cousins. Filed 19 October 2001. Issued 30 January 2007.

6,981,158. *Method and apparatus for tracing packets*. L. Sanchez, W.T. Strayer and C. Partridge. Filed 14 June 2001. Issued 27 December 2005.

6,526,062. *System and method for scheduling and rescheduling the transmissions of cell objects of different traffic types*. W. Milliken, S. Kolhalmi, P.P. Carvey, R.L. Pettyjohn, S. Sassower, and C. Partridge. Issued 25 February

2003.

6,370,579. *Method and apparatus for striping packets over parallel communications links.* C. Partridge. Filed 21 October 1998. Issued 9 April 2002.

6,160,819. *Method and apparatus for multiplexing bytes over parallel communications links using data slices.* C. Partridge and W.C. Milliken. Filed 19 February 1998. Issued 12 December 2000.

6,160,811. *Data packet router.* C. Partridge and W.C. Milliken. Filed 12 September 1997. Issued 12 December 2000.

Approximately a dozen patent applications in process.

Publications - Journal Articles

C. Partridge, "Realizing the Future of Wireless Data Communications," *Communications of the ACM*, to appear.

G. Troxel, E. Blossom, S. Boswell, A. Caro, I. Castineyra, A. Colvin, T. Dreier, J. Evans, N. Goffee, K. Haigh, T. Hussain, V. Kawadia, D. Lapsley, C. Livadas, A. Medina, J. Mikkelson, G. Minden, R. Morris, C. Partridge, V. Raghunathan, R. Ramanathan, P. Rubel, C. Santivanez, T. Schmid, D. Sumorok, M. Srivastava, R. Vincent, D. Wiggins, A. Wyglinski, and S. Zahedi, "Enabling Open-source Cognitively-controlled Collaboration among Software-defined Radio Nodes," *Computer Networks*, Vol. 52, No. 4, pp. 898-911, 2008.

C. Partridge, "Technical Development of Internet Email," *IEEE Annals of the History of Computing*, Vol. 30, No. 2, Apr-Jun 2008, pp. 3-29.

J. Redi, S. Kolek, K. Manning, C. Partridge, R. Rosales-Hain, R. Ramanathan, and I. Castineyra, "JAVeLEN - An ultra-low energy ad hoc wireless network," *Ad Hoc Networks*, Vol. 6, No. 1, January 2008, pp. 108-126.

C. Partridge, "10 Papers for the Ph.D. Student in Networking," *ACM Computer Communication Review*, Vol. 37, No. 2, April 2007, pp. 107-108.

C. Partridge and S. Blumenthal, "Data Networking at BBN," *IEEE Annals of the History of Computing*, Vol. 28, No. 19, Jan-Mar 2006, pp. 56-71.

D.D. Clark, C. Partridge, R.T. Braden, B. Davie, S. Floyd, V. Jacobson, D. Katabi, G. Minshall, K.K. Ramakrishnan, T. Roscoe, I. Stoica, J. Wroclawski, and L. Zhang, "Making the World (of Communications) a Different Place," *ACM Computer Communication Review*, Vol. 35, No. 3, July 2005, pp. 91-96.

R. Krishnan, J.P.G. Sterbenz, W.M. Eddy, C. Partridge and M. Allman, "Explicit transport error notification (ETEN) for error-prone wireless and satellite networks," *Computer Networks*, 46(3), October 2004, pp. 343-362.

A.C. Snoeren, C. Partridge, L.A. Sanchez, C.E. Jones, F. Tchakountio, B. Schwartz, S.T. Kent, and W.T. Strayer, "Single-Packet IP Traceback" *IEEE/ACM Transactions on Networking*, Vol. 10, No. 6, December 2002.

C. Partridge, A.C. Snoeren, W.T. Strayer, B. Schwartz, M. Condell and I. Castineyra, "FIRE: Flexible Intra-AS Routing Environment," *IEEE Jour. Selected Areas in Communications*, Vol. 19, No. 3, March 2001, pp. 410-425.

B. Schwartz, A.W. Jackson, W.T. Strayer, W. Zhou, R.D. Rockwell, and C. Partridge, "Smart Packets for Active Networks," *ACM Trans. Computer Systems*, Vol 18, No. 1, Feb 2000, pp. 67-88.

J.C.R. Bennett, C. Partridge and N. Shtetman, "Packet Reordering is Not Pathological Network Behavior," *IEEE/ACM Trans. on Networking*, Vol. 7, No. 6, December 1999, pp. 789-798.

C. Partridge. "Viewpoint: Embedded wireless connects Net to all and all to Net," (invited article), *IEEE Spectrum*, Vol. 36, No. 1, January 1999, pp. 38.

J. Stone, M. Greenwald, C. Partridge, and J. Hughes, "Performance of Checksums and CRCs over Real Data," *IEEE/ACM Trans. on Networking*, Vol 6, No. 5, October 1998, pp. 529-543. (Heavily revised version of ACM SIGCOMM '95 paper).

C. Partridge, P. Carvey, E. Burgess, I. Castineyra, T. Clarke, L. Graham, M. Hathaway, P. Herman, A. King, S. Kohlami, T. Ma, J. Mcallen, T. Mendez, W. Milliken, R. Osterlind, R. Pettyjohn, J. Rokosz, J. Seeger, M. Sollins, S. Storch, B. Tober, G. Troxel, D. Waitzman and S. Winterble, "A Fifty Gigabit per Second IP Router," *IEEE/ACM*

Trans. on Networking, Vol. 6, No. 3, June 1998, pp. 237-248. [Reviewed in *ACM Computing Reviews*, January 1999, pp. 72-3].

C. Partridge, T. Strayer, A.W. Jackson, and B. Schwartz, "Active Networking and End-to-End Arguments (editorial)," *IEEE Network Magazine*, Vol. 12, No. 3, May/June 1998, pp. 67-69.

C. Partridge and T. Shepard, "TCP/IP Performance over Satellite Links," *IEEE Network*, Vol. 11, No. 5, September 1997, pp. 44-49.

C. Partridge. "Viewpoint: Staying ahead of the elephants" (invited article), *IEEE Spectrum*, Vol. 33, No. 1, January 1996, pp. 36-7.

J. Escobar, C. Partridge and D. Deutsch. "Flow Synchronization Protocol," *IEEE/ACM Transactions on Networking*, Vol. 2, No. 2, April 1994.

C. Partridge and S. Pink. "A Faster UDP," *IEEE/ACM Transactions on Networking*, Vol. 1, No. 4, August 1993, pp. 429-440. [Reviewed in *ACM Computing Reviews*, December 1994, p. 640].

C. Partridge. "Protocols for High-Speed Networks: Some questions and a few answers," *Computer Networks and ISDN Systems*, Vol. 25, No. 9, pp. 1019-1028. Invited paper based on an address at IFIP Symposium on Protocol Specification, Verification and Testing (PSTV).

C. Partridge and S. Pink. "An Implementation of the Revised Internet Stream Protocol (ST-2)," *Internetworking: Research and Experience*, Vol. 3, No. 1, pp. 27-54.

P. Karn and C. Partridge. "Improving Round-Trip Time Estimates in Reliable Transport Protocols," in *ACM Transaction on Computer Systems*, November 1991. (Revised version of SIGCOMM '87 paper). [Reviewed in *ACM Computing Reviews*].

L.N. Cassel, C. Partridge, and J. Westcott. "Network Management Architectures and Protocols: Problems and Approaches," *IEEE Jour. Selected Areas of Communications*, Vol. 7, No. 7, September 1989. [Named Best BBN Publication in Computer and Communication Sciences for 1989].

C. Partridge and G. Trewitt. "The High-Level Entity Management System (HEMS)," *IEEE Network*. March 1988.

C. Partridge. *How Slow is One Gigabit Per Second?*, *ACM SIGCOMM Computer Communication Review*, Vol. 20, No. 1, January 1990, pp. 44-53, also published as BBN Report #7080, June 1989.

C. Partridge, C. Mooers and M. Laubach. "The CSNET Information Server: Automatic Document Distribution Using Electronic Mail," in *ACM SIGCOMM Computer Communication Review*. November 1987.

Publications - Books

C. Partridge. *Gigabit Networking*. Addison-Wesley Publishers (1993). [Numerous reviews, including *ACM Computing Reviews*, February 1995, pp. 85-6. Translated into French and Japanese.]

C. Partridge, ed. *Innovations in Internetworking*. Artech House Publishers (1988).

Publications - Book Chapters

C. Partridge and F. Kastenholz. "Technical Requirements for Choosing IP the Next Generation," in A. Mankin and S. Bradner, ed., *IPng; Internet Protocol Next Generation*. Addison-Wesley Publishers (1995). [A revised version of RFC 1726].

C. Partridge. Preface to R. Händel, R. Huber and S. Schröder, *ATM Networks: Concepts, Protocols, Applications*, 2nd and 3rd editions. Addison-Wesley Publishers (1994 and 1998).

C. Partridge and K. McCloghrie. "Network Management in TCP/IP Protocol Suite," in *Handbook of Computer Communications Standards, Volume 3, 2nd edition: The TCP/IP Protocol Suite*, by William Stallings et. al., pp. 198-231. McMillan Press (1989).

Publications - Refereed Conferences

- K. Haigh, T.S. Hussain, C. Partridge and G.D. Troxel, "Rethinking Network Architectures for Cognitive Control," *Microsoft Research Cognitive Wireless Networking Summit*, 2008.
- N. Riga, I. Matta, A. Medina, C. Partridge and J. Redi, "An Energy-conscious Transport Protocol for Multi-Hop Wireless Networks," *Proc. ACM CoNext 2007*, December 2007, New York, New York.
- C. Partridge, A. Arsenaault and S. Kent, "IP Assurance and the Transition to IP Version 6 (IPv6)," *Proc. MILCOM 2007*, October 2007, Orlando, Florida.
- G.D. Troxel, E. Blossom, S. Boswell, A. Caro, I. Castineyra, A. Colvin, T. Dreier, J.B. Evans, N. Goffee, K.Z. Haigh, T. Hussain, V. Kawadia, D. Lapsley, C. Livadas, A. Medina, J. Mikkelson, G.J. Minden, R. Morris, C. Partridge, V. Raghunathan, R. Ramanathan, C. Santivanez, T. Schmid, D. Sumorok, M. Srivastava, R.S. Vincent, D. Wiggins, A.M. Wyglinski, and S. Zahedi, "Adaptive Dynamic Radio Open-source Intelligent Team (ADROIT): Cognitively-controlled Collaboration among SDR Nodes," in *Proc. IEEE Workshop on Networking Technologies for Software Defined Radio (SDR)*, September 2006, Reston, VA.
- C. Santivanez, R. Ramanathan, C. Partridge, R. Krishnan, M. Condell, and S. Polit, "Opportunistic Spectrum Access: Challenges, Architecture, Protocols", in *Proceedings of the 2nd Annual International Wireless Internet Conference (WICON)*, August 2006, Boston, MA.
- C. Partridge, "Authentication for Fragments," *Proc. ACM HOTNETS 2005*, College Park, Maryland, November 2005.
- N. Riga, A. Medina, I. Matta, C. Partridge, J. Redi and I. Castineyra, "Transport Protocols for Energy Constrained Environments," Work in Progress Session, ACM SIGCOMM 2005.
- D.D. Clark, C. Partridge, J.C. Ramming, and J.T. Wroclawski, "A Knowledge Plane for the Internet," *Proc. ACM SIGCOMM 2003*, Karlsruhe, Germany, August 2003.
- D. Cousins, C. Partridge, K. Bongiovani, A.W. Jackson, R. Krishnan, T. Saxena, and W.T. Strayer, "Understanding Encrypted Networks Through Signal and Systems Analysis of Traffic Timing," *Proc. 2003 IEEE Aerospace Conference*, Big Sky, MT, March 2003.
- C. Partridge, D. Cousins, A.W. Jackson, R. Krishan, T. Saxena and T. Strayer, "Using Signal Processing to Analyze Wireless Data Traffic," *Proc. ACM Workshop on Wireless Security (WiSe)*, Atlanta, GA, September 2002.
- A.C. Snoeren, C. Partridge, L.A. Sanchez, C.E. Jones, F. Tchakountio, S.T. Kent and W.T. Strayer, "Hash-Based IP Traceback," *Proc. ACM SIGCOMM 2001*, San Diego, CA, August 2001.
- L.A. Sanchez, W.C. Milliken, A.C. Snoeren, f. Tchakountio, C.E. Jones, S.T. Kent, C. Partridge, and W.T. Strayer, "Hardware Support for a Hash-Based IP Traceback," DARPA Information Survivability Conference and Exposition (DISCEX) II, 12-14 June 2001, Anaheim, California, pp. 146-152, vol II.
- J. Stone and C. Partridge, "When the CRC and Checksum Disagree," *Proc. ACM SIGCOMM 2000*, Stockholm, Sweden, August 2000.
- C. Partridge, A. Snoeren, W.T. Strayer, B. Schwartz, M. Condell and I. Castiñeyra, "FIRE: Flexible Intra-SA Routing Environment," *Proc. ACM SIGCOMM 2000*, Stockholm, Sweden, August 2000.
- J. Kulik, R. Coulter, D. Rockwell and C. Partridge, "Paced TCP for High Delay-Bandwidth Networks," IEEE Workshop on Satellite Based Information Systems, Rio de Janeiro, December 1999.
- B. Schwartz, A.W. Jackson, W.T. Strayer, W. Zhou, R.D. Rockwell, and C. Partridge, "Smart Packets for Active Networks," *Proc. IEEE OpenArch '99*, March 1999.
- C. Partridge, J. Hughes and J. Stone, "Performance of Checksums and CRCs over Real Data," *Proc. ACM SIGCOMM '95*, August 1995, pp. 68-76.
- S.E. Speer, R. Kumar, and C. Partridge. "Improving UNIX Kernel Performance Using Profile Based Optimization,"

Proc. 1994 Winter USENIX Conference, San Francisco, January 1994.

P. Gunningberg, C. Partridge, T. Sirotkin and B. Victor, "Delayed evaluation of gigabit protocols," *Proc. 2nd MultiG Workshop*, Stockholm, June 1991.

J. Escobar and C. Partridge. "A Proposed Segmentation and Re-Assembly (SAR) Protocol for Use with Asynchronous Transfer Mode (ATM)," *Proc. 2nd IFIP Workshop on High-Speed Networking*, November 1990, Elsevier Science Publishers.

K. McCloghrie, M.T. Rose, and C. Partridge. "Defining a Protocol-Independent Management Information Base," *Proc. IFIP TC 6/WG 6.6 Symp. on Integrated Network Management*, Boston, May 1989.

C. Partridge. "Integrating Network Measurement Agents into the OSI Management Architecture," *Proc. IFIP TC 6/WG 6.6 Symp. on Integrated Network Management*, Boston, May 1989.

L. Lanzillo and C. Partridge. "Implementation of Dial-up IP for UNIX Systems," *Proc. 1989 Winter USENIX Conf.*, San Diego, Calif.

C. Partridge and M.T. Rose. "A Comparison of External Data Formats," in *Message Handling Systems and Distributed Applications*, ed. (Proceedings of IFIP Workshop on Message Handling) E. Stefferud and O. Jacobsen, Elsevier-North Holland, 1989.

C. Partridge. "A UNIX Implementation of HEMS" in *Proc. of the 1988 Winter USENIX Conf.*, Dallas, Texas. February 1988.

P. Karn and C. Partridge. "Improving Round-Trip Time Estimates in Reliable Transport Protocols," in *Proc. of ACM SIGCOMM '87*, Stowe, Vt. August 1987.

C. Partridge. "Implementing the Reliable Data Protocol (RDP)," in *Proc. of the 1987 Summer USENIX Conf.* Phoenix, Ariz. June 1987.

C. Partridge. "Mail Routing using Domain Names: An Informal Tour," in *Proc. of the 1986 Summer USENIX Conf.*, Atlanta, Ga. June 1986.

Internet Standards and Technical Notes

B.E. Carpenter and C. Partridge, "Internet Requests for Comments (RFCs) as Scholarly Publications," *ACM Computer Communication Review*, Vol. 40, No. 1, January 2010, pp. 31-33.

M. Allman, S. Floyd and C. Partridge, "Increasing TCP's Initial Window," *Internet Working Group Requests for Comments*, no. 3390, October 2002.

C. Partridge and A.W. Jackson, "IPv6 Router Alert Option," *Internet Working Group Requests for Comments*, no. 2711, October 1999.

T. Shepard and C. Partridge, "When TCP Starts Up With Four Packets Into Only Three Buffers," *Internet Working Group Requests for Comments*, no. 2416, September 1998.

M. Allman, S. Floyd and C. Partridge, "Increasing TCP's Initial Window," *Internet Working Group Requests for Comments*, no. 2414, September 1998.

C. Partridge, "How to Increase the Chances Your Paper is Accepted at ACM SIGCOMM," *Computer Communication Review*, Vol. 28, No. 3, July 1998, pp. 70-74.

B. Braden, D. Clark, J. Crowcroft, B. Davie, S.

Deering, D. Estrin, S. Floyd, V. Jacobson, G. Minshall, C. Partridge, L. Peterson, K. Ramakrishnan, S. Shenker, J. Wroclawski, and L. Zhang, "Recommendations on Queue Management and Congestion Avoidance in the Internet," *Internet Working Group Requests for Comments*, no. 2309, April 1998.

S. Shenker, C. Partridge and R. Guerin, "Specification of Guaranteed Quality of Service; RFC-2212," *Internet Working Group Requests for Comments*, no. 2212, September 1997.

C. Partridge. "IP Echo Host Service; RFC-2075," *Internet Working Group Requests for Comments*, no. 2075, Jan-

uary 1997.

C. Partridge, "Using the Flow Label in IPv6; RFC-1809," *Internet Working Group Requests for Comments*, no. 1809, June 1995.

C. Partridge and F. Kastenholz, "Technical Requirements for Choosing IP The Next Generation; RFC-1726," *Internet Working Group Requests for Comments*, no. 1726, December 1994. [Revised and reprinted in Mankin and Bradner, *IPng*. See above].

C. Partridge, T. Mendez, and W. Milliken. "Host Anycasting Service; RFC-1546," *Internet Working Group Requests for Comments*, no. 1546. DDN Network Information Center (NIC), November 1993.

C. Partridge. "A Proposed Flow Specification; RFC-1363," *Internet Working Group Requests for Comments*, no. 1363. DDN Network Information Center (NIC), SRI-International, Menlo Park, Calif. September 1992.

C. Partridge. "Today's Programming for KRFC AM 1313 - Internet Talk Radio; RFC-1313," *Internet Working Group Requests for Comments*, no. 1313. DDN Network Information Center (NIC), SRI-International, Menlo Park, Calif. 1 April 1992. (Humor).

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- Evan M. Cooke, *Exposing Internet Address Use to Enhance Network Security*, University of Michigan. Ph.D. awarded in 2007. I was on Dr. Cooke's thesis committee.
- Mikael Sundström, *Time and Space Efficient Algorithms for Packet Classification and Forwarding*, Luleå University of Technology, Sweden, 2007. I was Dr. Sundström's thesis opponent.
- Per Lindgren, *A Multi-Channel Network Architecture Based on Fast Circuit Switching*, Kungl. Tekniska Högskolan, Stockholm, Sweden, 1996. I was Dr. Lindgren's thesis opponent.
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mary advisor.

Hugh Holbrook, *A Channel Model for Multicast*, Stanford University. Ph.D. awarded in 2001. I was a member of Dr. Holbrook's thesis committee.

Dan Li, *Scalable Reliable Multicast and its Application to Web Caching*, Stanford University. Ph.D. awarded in 2000. I was a member of Dr. Li's thesis committee.

Suvo Mitra, *Iolus: A Framework for Scalable Secure Multicasting*, Stanford University. Ph.D. awarded 1999. I was Dr. Mitra's primary advisor.

Stuart Cheshire, *Consistent Overhead Byte Stuffing*, Stanford University. Ph.D. awarded 1998. I was a member of Dr. Cheshire's thesis committee.

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Miscellaneous

Designer of the UNIX library routines *ascii2addr()* and *addr2ascii()*.