

Bibliography

- [1] Patrice Abry and Darryl Veitch. Wavelet analysis of long range dependent traffic. *IEEE Transactions on Information Theory*, 44(1):2–15, January 1998.
- [2] I. F. Akyildiz, W. Su, Y. Sankarasubramaniam, and E. Cayirci. A survey on sensor networks. *IEEE Communications Magazine*, 40(8):102–114, August 2002.
- [3] Alan Allan, Don Edenfeld, William H. Joyner, Jr., Andrew B. Kahng, Mike Rodgers, and Yervant Zorian. 2001 technology roadmap for semiconductors. *IEEE Computer Magazine*, 35(1):42–53, January 2002.
- [4] Applied Micro Circuits Corporation, AMCC. *nPX5700, 10 Gbps Traffic Manager / Switch Fabric*, 2003. <http://www.amcc.com/cardiff/docManagement/displayProductSummary.jsp?prodId=nPX5700>.
- [5] Bill St. Arnaud, Jing Wu, and Bahman Kalali. Customer controlled and managed networks. Technical report, Canarie, 2003.
- [6] Ilia Baldine, George N. Rouskas, Harry H. Perros, and Dan Stevenson. Jump-start: a just-in-time signaling architecture for WDM burst-switched networks. *IEEE Communications Magazine*, 40(2):82–89, February 2002.
- [7] A. Banerjee, J. Drake, J. Lang, B. Turner, D. Awduche, L. Berger, K. Kompella, and Y. Rekhter. Generalized Multiprotocol Label Switching: An overview of signaling enhancements and recovery techniques. *IEEE Communications Magazine*, 39(1):144–150, January 2001.

- [8] A. Banerjee, J. Drake, J. Lang, B. Turner, K. Kompella, and Y. Rekhter. Generalized Multiprotocol Label Switching: An overview of routing and management enhancements. *IEEE Communications Magazine*, 39(6):144–150, June 2001.
- [9] Dhritiman Banerjee and Biswanath Mukherjee. Wavelength-routed optical networks: linear formulation, resource budgeting tradeoffs, and a reconfiguration study. *IEEE/ACM Transactions on Networking*, 8(5):598–607, 2000.
- [10] Paul Baran. Introduction to distributed communications networks. Memorandum RM-3420-PR, Rand Corporation, August 1964.
- [11] Paul Baran. On distributed communication networks. *IEEE Transactions on Communications*, 12(1):1–9, March 1964.
- [12] Jon C. R. Bennett, Craig Partridge, and Nicholas Shectman. Packet reordering is not pathological network behavior. *IEEE/ACM Transactions on Networking (TON)*, 7(6):789–798, 1999.
- [13] G. Bernstein, B. Rajagopalan, and D. Spears. OIF UNI 1.0 — controlling optical networks. White paper, Optical Internetworking Forum, 2001.
- [14] Dimitri Bertsekas and Robert Gallager. *Data networks (2nd ed.)*. Prentice-Hall, Inc., 1992.
- [15] David J. Bishop, C. Randy Giles, and Gary P. Austin. The Lucent LambdaRouter: MEMS technology of the future here today. *IEEE Communications Magazine*, 40(3):75–79, March 2002.
- [16] S. Blake, D. Black, M. Carlson, E. Davies, Z. Wang, and W. Weiss. RFC 2475: An architecture for differentiated services, December 1998.
- [17] E. Blanton and M. Allman. On making TCP more robust to packet reordering. *ACM Computer Communication Review*, 32(1), January 2002.
- [18] R. Braden, L. Zhang, S. Berson, S. Herzog, and S. Jamin. RFC 2205: Resource ReSerVation Protocol (RSVP) — version 1 functional specification, September 1997.

- [19] Robert Braden. RFC 1122: Requirements for Internet hosts — communication layers, October 1989.
- [20] Robert Braden, David Clark, and Scott Shenker. RFC 1633: Integrated Services in the Internet architecture: an overview, June 1994.
- [21] Ira Brodsky. How IP-based networks will conquer telecom. *Network World*, May 1999.
- [22] N. Brownlee, C. Mills, and G. Ruth. RFC 2722: Traffic flow measurement: Architecture, October 1999.
- [23] Nevil Brownlee and kc claffy. Understanding Internet traffic streams: Dragonflies and tortoises. *IEEE Communications Magazine*, 40(10):110–117, October 2002.
- [24] BT. BT world communications report 1998/9. Technical report, British Telecommunications, plc., May 1998.
- [25] BTexact. Carrier requirements of core IP routers 2002. White paper, British Telecommunications, plc., February 2002. http://www.btexact.com/white_papers/downloads/WP113.pdf.
- [26] International Bureau. Report on international telecommunications markets: 1999. Technical report, US Federal Communications Commission, January 2000.
- [27] D. M. Burns, V. M Bright, S. C. Gustafson, and E. A. Watson. Optical beam steering using surface micromachined gratings and optical phase arrays. In *Proceedings of the SPIE*, pages 99–110, San Diego, CA, July 1999.
- [28] Cahners. 2001 business ISPs: Service, size, and share. advanced carrier business report. Technical report, Cahners, October 2001.
- [29] Cahners. Information alert newsletter. Volume #23. Technical report, Cahners, July 2001.

- [30] CAIDA, Cooperative Association for Internet Data Analysis. *Mapnet: Macroscopic Internet Visualization and Measurement*, 2002. <http://www.caida.org/tools/visualization/mapnet/>.
- [31] CAIDA, Cooperative Association for Internet Data Analysis. *OC48 analysis summary: Distributions of traffic stratified by application*, 2002. http://www.caida.org/analysis/workload/oc48/stats_20020109/apps_index.xml.
- [32] Calient Networks. *The DiamondWave Family of Photonic Switches*, 2002. http://www.calient.net/files/DATA_SHEET.pdf.
- [33] Jin Cao, William S. Cleveland, Dong Lin, and Don X. Sun. On the nonstationarity of internet traffic. In *Proceedings of ACM SIGMETRICS*, pages 102–112, 2001.
- [34] CellStream. The ”unofficial” MPLS service provider list. Technical report, CellStream, Inc., Global Consulting Services, August 2002. http://www.cellstream.com/MPLS_List.htm.
- [35] C. David Chaffee. SONET vs. IP over photons: Debate and reality. *Business Communications Review*, pages 14–16, March 1999.
- [36] Cheng-Shang Chang, Duan-Shin Lee, and Yi-Shean Jou. Load balanced birkhoff-von neumann switches, part i: one-stage buffering. *Computer Communications*, 25:611–622, 2002.
- [37] H. Jonathan Chao, Cheuk H. Lam, and Eiji Oki. *Broadband Packet Switching Technologies: A Practical Guide to ATM Switches and IP Routers*. John Wiley & Sons, October 2001. ISBN: 0471004545.
- [38] G. A. Chidi. VoIP taking 6 percent of international calls. *ITworld.com*, November 2001. <http://www.itworld.com/Net/3303/IDG011106VoIPvolume/>.
- [39] Byung-Gon Chun. TCP Switch implementation. Cs344 class project report, Stanford University, 2001. http://klamath.stanford.edu/TCPSwitching/TCPSwitchImplementation_ByungGon.pdf.

- [40] Ciena. *CIENA MultiWave CoreDirector*, 2001. <http://www.ciena.com/downloads/products/coredirector.pdf>.
- [41] Cisco Systems. *Cisco IOS NetFlow Technology Data Sheet*, 2000. http://www.cisco.com/warp/public/cc/pd/iosw/prodlit/iosnf_ds.pdf.
- [42] Cisco Systems. *Cisco 12416 Internet Router: Data Sheet*, 2001. http://www.cisco.com/warp/public/cc/pd/rt/12000/12416/prodlit/itro_ds.htm.
- [43] David D. Clark. The design philosophy of the DARPA Internet protocols. In *Proceedings of ACM SIGCOMM*, pages 106–114, Stanford, CA, August 1988. ACM.
- [44] Scott Clavenna. Optical signaling systems. *Light Reading*, January 2002. http://www.lightreading.com/document.asp?site=lightreading&doc_id=7098.
- [45] William S. Cleveland, Dong Lin, and Don X. Sun. IP packet generation: statistical models for TCP start times based on connection-rate superposition. In *Proceedings of ACM SIGMETRICS*, pages 166–177, 2000.
- [46] Matthew Coakeley. Virtual concatenation: Knowing the details. *ComDesign, an EE Times community*, November 2002. http://www.commsdesign.com/design_corner/OEG20021112S0006.
- [47] Kerry Coffman and Andrew Odlyzko. *Handbook of Massive Data Sets*, chapter Internet growth: Is there a “Moore’s Law” for data traffic? J. Abello, P. M. Pardalos, and M. G. C. Resende editors, Kluwer, 2001.
- [48] Kerry Coffman and Andrew Odlyzko. *Optical Fiber Telecommunications IV B: Systems and Impairments*, chapter Growth of the Internet. I. P. Kaminow and T. Li, eds., Academic Press, 2002.
- [49] J. W. Cohen. The multiple phase service network with generalized processor sharing. *Acta Informatica*, 12:245–284, February 1979.

- [50] ATM Forum Technical Committee. Private network-network interface specification v.1.1. Technical report, ATM Forum, April 2002.
- [51] T1 Committee. Synchronous Optical Network (SONET) - automatic protection switching. Technical Report T1.105.01-2000, ANSI Standard, March 2000.
- [52] R. W. Conway, W. L. Maxwell, and L. W. Miller. *Theory of Scheduling*. Addison Wesley, Reading, MA, 1967.
- [53] A. Copley. Optical Domain Service Interconnect (ODSI): Defining mechanisms for enabling on-demand highspeed capacity from the optical domain. *IEEE Communications Magazine*, 38(10):168–174, October 2000.
- [54] Corvis. *Corvis ON (All-Optical switch)*, 2002. http://www.corvis.com/Corvis/media/r1/ON_LR.pdf.
- [55] J. Cowie, A. Ogielski, B. Premore, and Y. Yuan. Global routing instabilities during Code Red II and Nimda worm propagation. http://www.renesys.com/projects/bgp_instability, September 2001.
- [56] Mark Crovella and Azer Bestavros. Self-similarity in World Wide Web traffic: Evidence and possible causes. In *Proceedings of SIGMETRICS'96: The ACM International Conference on Measurement and Modeling of Computer Systems.*, Philadelphia, Pennsylvania, May 1996.
- [57] Mark Crovella, Murad Taqqu, and Azer Bestavros. *A Practical Guide To Heavy Tails: Statistical Techniques and Applications*, chapter Heavy-Tailed Probability Distributions in the World Wide Web, pages 3–26. R. Adler, R. Feldman, and M. Taqqu, editors. Birkhäuser Verlag, Boston, 1998.
- [58] Vinodh Cuppu, Bruce L. Jacob, Brian Davis, and Trevor N. Mudge. A performance comparison of contemporary DRAM architectures. In *Proceedings of ACM/IEEE ISCA*, pages 222–233, 1999.
- [59] A. Daum. Broadband: The revolution's on hold in Europe just now. Technical report, GartnerG2, Inc., 2001.

- [60] Dell’Oro. DSL’s road to recovery begins in 2003, according to Dell’Oro Group 5 year forecast. Press release, Dell’Oro Group, July 2002.
- [61] Dell’Oro. Ethernet switch market grew 16% in 4Q01, according to Dell’Oro Group. Press release, Dell’Oro Group, February 2002.
- [62] A. Demers, S. Keshav, and S. Shenker. Analysis and simulation of a fair-queueing algorithm. In *Proceedings of ACM SIGCOMM*, pages 1–12, Austin, TX, September 1989.
- [63] Information Technology Dept. *Traffic between Purdue University and the Indiana GigaPoP*. Purdue University, 2003. <http://mrtg.noc.purdue.edu/data/math-g190-c6509-01/math-g190-c6509-01-ge-gigapop.html>.
- [64] Andrea Detti and Marco Listanti. Impact of segments aggregation on TCP Reno flows in optical burst switching networks. In *Proceedings of IEEE Infocom*, pages 1803–1812, 2002.
- [65] N. Duffield, C. Lund, and M. Thorup. Charging from sampled network usage. In *Proceedings of ACM SIGCOMM Internet Measurement Workshop*, November 2001.
- [66] Chris Edwards. Panel weighs hardware, software design options. *EE Times*, June 2000. <http://www.eetimes.com/story/OEG20000607S0043>.
- [67] S. G. Eick, P. Schuster, A. Mockus, T. L. Graves, and A. F. Karr. Visualizing software changes. Technical Report 113, National Institute of Statistical Sciences, December 2000.
- [68] Tarek S. El-Bawab and Jong-Dug Shin. Optical packet switching in core networks: Between vision and reality. *IEEE Communications Magazine*, 40(9):60–65, September 2002.
- [69] David Emberley, Sterling Perrin, and Thomas S. Valovic. More is not enough: Bandwidth end use forecast and analysis, 2000-2005. Analyst brief, IDC, February 2002.

- [70] C. Estan and G. Varghese. New directions in traffic measurement and accounting. In *Proceedings of ACM SIGCOMM*, pages 323–336, 2002.
- [71] EZchip, Technologies. *NP-1, OC-192 Network Processor*, 2003. http://www.ezchip.com/html/pr_np-1.html.
- [72] M. D. Fagen. *A History of Engineering and Science in the Bell System: The Early Years (1875-1925)*. Bell Telephone Laboratories, New York, 1975.
- [73] Anja Feldmann. *Self-similar Network Trac and Performance Evaluation*, chapter Characteristics of TCP connection arrivals, pages 367–399. K. Park and W. Willinger, editors. John Wiley and Sons, 2000.
- [74] Anja Feldmann, Jennifer Rexford, and Ramon Cáceres. Reducing overhead in flow-switched networks: An empirical study of web traffic. In *Proceedings of IEEE Infocom*, pages 1205–1213, 1998.
- [75] Domenico Ferrari. Real-time communication in an internetwork. *Journal of High Speed Networks IOS Press*, 1(1):79–103, 1992.
- [76] I. Foster, C. Kesselman, J. Nick, and S. Tuecke. The physiology of the grid: An open grid services architecture for distributed systems integration. Technical report, Open Grid Service Infrastructure WG, Global Grid Forum, June 2002.
- [77] Charles Fraleigh. *Provisioning IP Backbone Networks to Support Delay Sensitive Traffic*. PhD thesis, Electrical Engineering Dept., Stanford University, 2002.
- [78] S. Ben Fredj, T. Bonald, A. Proutiere, G. Regnle, and J. Roberts. Statistical bandwidth sharing: A study of congestion at flow level. In *Proceedings of ACM SIGCOMM*, pages 111–122, 2001.
- [79] Aysegul Gençata and Biswanath Mukherjee. Virtual-topology adaptation for WDM mesh networks under dynamic traffic. In *Proceedings of IEEE Infocom*, volume 1, pages 48–56, June 2002.

- [80] The Globus Project. *Globus Toolkit*, 2003. <http://www.globus.org/toolkit/>.
- [81] Walter J. Goralski. *SONET, 2nd Edition*. McGraw-Hill Professional, 2000.
- [82] Pakaj Gupta. *Algorithms for Routing Lookups and Packet Classification*. PhD thesis, Computer Science Dept., Stanford University, 2001.
- [83] P. M. Hagelin, U. Krishnamoorthy, J. P. Heritage, and O. Solgaard. Cross-connect switch using micromachined mirrors. *IEEE Photonics Technology Letters*, 12(7):882–885, July 2000.
- [84] Mor Harchol-Balter and Allen B. Downey. Exploiting process lifetime distributions for dynamic load balancing. *ACM Transactions on Computer Systems*, 15(3):253–285, 1997.
- [85] Martin Hoffmann, Peter Kopka, and Edgar Voges. Low-loss fiber-matched low-temperature PECVD waveguides with small-core dimensions for optical communication systems. *IEEE Photonic Technology Letters*, 9(9):1238–1240, 1997.
- [86] Ching-Fang Hsu, Te-Lung Liu, and Nen-Fu Huang. Performance analysis of deflection routing in optical burst-switched networks. In *Proceedings of IEEE Infocom*, pages 66–74, 2002.
- [87] Frank Ianna. *Ianna Outlines Plan to Evolve the AT&T Network*. AT&T, March 1999. <http://www.att.com/technology/ip/iannaplan.html>.
- [88] Industry Analysis Division, Common Carriers Bureau. Trends in telephone service. Report, US Federal Communications Commission, August 2001.
- [89] Information Sciences Institute. *The Network Simulator, ns-2*, 2002. <http://www.isi.edu/nsnam/ns/>.
- [90] Sundar Iyer, Supratik Bhattacharyya, Nina Taft, Nick McKeown, and Christophe Diot. An approach to alleviate link overload as observed on an IP backbone. In *Proceedings of IEEE Infocom*, San Francisco, California, April 2003.

- [91] Sundar Iyer, Ramana Rao Kompella, and Nick McKeown. Analysis of a memory architecture for fast packet buffers. In *IEEE Workshop on High Performance Switching and Routing*, Dallas, Texas, May 2001. IEEE Workshop on High Performance Switching and Routing.
- [92] Sundar Iyer and Nick McKeown. Making parallel packet switches practical. In *Proceedings of IEEE Infocom*, pages 1680–1687, Anchorage, Alaska, March 2001.
- [93] Sundar Iyer and Nick McKeown. Maintaining packet order in two-stage switches. In *Proceedings of IEEE Infocom*, pages 1032–1042, New York, NY, June 2002.
- [94] Juniper Networks. *T640 Internet Routing Node: Datasheet*, 2002. <http://www.juniper.net/products/dsheet/100051.html>.
- [95] R.E. Kahn, S.A. Gronemeyer, J. Burchfiel, and R.C. Kunzelman. Advances in packet radio technology. *Proceedings of the IEEE*, 66(11):1468–1496, November 1978.
- [96] Leonard Kleinrock. *Queueing Systems, Volume I: Theory*, volume 1. Wiley-Interscience, New York, 1975.
- [97] Leonard Kleinrock. Principles and lessons in packet communications. *Proceedings of the IEEE*, 66(11):1320–1329, November 1978.
- [98] Paul Korzeniowski. VoIP-still only a drop in the bucket. *Voice 2001, Business Communications Review*, pages 78–80, February 2001.
- [99] Eric Krapf. Can they really rebuild the PSTN? *Business Communications Review*, pages 36–44, May 2000.
- [100] Jason Krause. How low can they go? *The Industry Standard*, September 1999.
- [101] U. Krishnamoorthy, K. Li, K. Yu, D. Lee, J.P. Heritage, and O. Solgaard. Dual mode micromirrors for optical phased array applications. *Sensors and Actuators: A. Physical*, 97-98C:22–26, May 2002.

- [102] R. Kuhn. Sources of failure in the public switched telephone network. *IEEE Computer*, 30(4):31–36, April 1997.
- [103] Editor L. Berger. RFC 3471: Generalized Multi-Protocol Label Switching (GM-PLS), Signaling Functional Description, January 2003.
- [104] Editor L. Berger. RFC 3473: Generalized Multi-Protocol Label Switching (GM-PLS) Signaling, Resource ReserVation Protocol-Traffic Engineering (RSVP-TE) Extensions, January 2003.
- [105] C. Labovitz, R. Wattenhofer, S. Venkatachary, and A. Ahuja. Resilience characteristics of the Internet backbone routing infrastructure. In *Proceedings of the Third Information Survivability Workshop*, Boston, MA, October 2000.
- [106] Craig Labovitz, Abha Ahuja, Abhijit Bose, and Farnam Jahanian. Delayed Internet routing convergence. *IEEE/ACM Transactions On Networking*, 9(3):293–306, June 2001.
- [107] Craig Labovitz, Abha Ahuja, and Farnam Jahanian. Experimental study of Internet stability and wide-area backbone failures. In *Proceedings of FTCS*, Madison, WI, June 1999.
- [108] Steve Lin and Nick McKeown. A simulation study of ip switching. In *Proceedings of ACM SIGCOMM*, pages 15–24, Cannes, France, September 1997.
- [109] C. Liu, Z. Dutton, C. H. Behroozi, and L. V. Hau. Observation of coherent optical information storage in an atomic medium using halted light pulses. *Nature*, 409:490–493, January 2001.
- [110] Peter Lothberg. A view of the future: The IP-only Internet. NANOG meeting #22, May 2001. <http://www.nanog.org/mtg-0105/lothberg.html>.
- [111] Lucent Technologies. *WaveStar OLS 1.6T Brochure*, 2001. http://www.lucent.com/livelink/152114_Brochure.pdf.

- [112] Lucent Technologies. *LambdaXtreme Transport*, 2002. http://www.lucent.com/livelink/0900940380004c3f_Brochure_datasheet.pdf.
- [113] G. Varghese M. Shreedar. Efficient fair queuing using deficit round robin. In *Proceedings of ACM SIGCOMM*, pages 231–242, Cambridge, MA, September 1995.
- [114] Ratul Mahajan, David Wetherall, and Tom Anderson. Understanding BGP misconfiguration. In *Proceedings of ACM SIGCOMM*, 2002.
- [115] Matrix.net. *Internet Ratings*, 2002. <http://ratings.miq.net/>.
- [116] N. Maxemchuk, I. Ouveysi, and M. Zukerman. A quantitative measure of topology lifetime for telecommunications networks. In *Proceedings of the Conference on Global Communications (GLOBECOM)*, volume 1, pages 690–694, December 2000.
- [117] David E. McDysan and Darren L. Spohn. *ATM Theory and Applications*. McGraw-Hill Osborne Media, 1998.
- [118] McKinsey&Company and Goldman Sachs. *US communications infrastructure at a crossroads: oportunities among gloom*, August 2001.
- [119] Lee McKnight and Brett Leida. Internet telephony: Costs, pricing, and policy. In *Twenty-fifth Annual Telecommunications Policy Research Conference, Alexandria, VA*, September 1997.
- [120] Alberto Medina, Nina Taft, Kave Salamatian, Supratik Bhattacharyya, and Christophe Diot. Traffic matrix estimation: Existing techniques compared and new directions. In *Proceedings of ACM SIGCOMM*, pages 161–174, August 2002.
- [121] Merrill Lynch. *Optical Systems*, August 2002. Technical Report.
- [122] Dejan Milojicic, Erik Brewer, Fred Douglis, Peter Druschel, Gary Herman, and Munindar Singh. Internet technology. *IEEE Concurrency*, 8(1), January - March 2000.

- [123] Cyriel Minkenberg. *On packet switch design*. PhD thesis, Eindhoven University of Technology, 2001.
- [124] Partha P. Mitra and Jason B. Stark. Nonlinear limits to the information capacity of optical fibre communications. *Nature*, 411:1027–1030, June 2001.
- [125] Pablo Molinero-Fernández. *Ns-2 models used in the TCP Switching simulations*, 2002. <http://klamath.stanford.edu/TCPswitching>.
- [126] C. Siva Ram Murthy and Mohan Gurusamy. *WDM Optical Networks: Concepts, Design, and Algorithms*. Prentice Hall, 2001.
- [127] National Telecommunications and Information Administration. Falling through the net: Defining the digital divide. Technical report, US Department of Commerce, 1999.
- [128] NetEconomy. Circuit vs. packet: the debate intensifies. *the NetEconomy*, October 2001.
- [129] Peter Newman, Greg Minshall, and Thomas L. Lyon. IP Switching — ATM under IP. *IEEE/ACM Transactions on Networking*, 6(2):117–129, 1998.
- [130] T. H. Ning. Why BiCMOS and SOI BiCMOS? *IBM Journal of Research and Development*, 46(2/3), 2002.
- [131] NLANR. *NLANR network traffic packet header traces*, 2001. <http://moat.nlanr.net/Traces/>.
- [132] Nortel Networks. *OPTera Connect HDX optical switch*, 2002. <http://www.nortelnetworks.com/products/01/optera/connect/hdx/techspec.html>.
- [133] Nua Internet Surveys. *How Many On-line?*, April 2002. http://www.nua.ie/surveys/how_many_online/n_america.html.
- [134] Mike O'Dell. Keynote speech. ACM SIGCOMM conference, August 2002.

- [135] Andrew Odlyzko. Data networks are mostly empty and for good reason. *IT Professional*, 1(2):67–69, Mar/Apr 1999.
- [136] Andrew Odlyzko. Content is not king. *First Monday*, 6(2), February 2001. http://www.firstmonday.dk/issues/issue6_2/odlyzko/.
- [137] Opnix, Inc. *The Internet Traffic Report*, 2002. <http://www.internettrafficreport.com/>.
- [138] Editor P. Ashwood-Smith and Editor L. Berger. RFC 3472: Generalized Multi-Protocol Label Switching (GMPLS) Signaling, Constraint-based Routed Label Distribution Protocol (CR-LDP) Extensions, January 2003.
- [139] Jitedra Padhye, Victor Firoiu, Don Towsley, and Jim Krusoe. Modeling TCP throughput: A simple model and its empirical validation. In *Proceedings of ACM SIGCOMM*, pages 303–314, Vancouver, CA, September 1998.
- [140] Konstantina Papagiannaki, Nina Taft, Zhi-Li Zhang, and Christophe Diot. Long-term forecasting of Internet backbone traffic: Observations and initial models. In *Proceedings of IEEE Infocom*, San Francisco, California, April 2003.
- [141] A. K. Parekh and R. G. Gallager. A generalized processor sharing approach to flow control in integrated services networks: The single-node case. *IEEE/ACM Transactions on Networking*, 1(3):344–357, June 1993.
- [142] David Passmore. Why convergence will succeed. *Business Communications Review*, pages 16–18, November 1999. <http://www.bcr.com/bcramag/1999/11/p16.asp>.
- [143] David Patterson, Thomas Anderson, Neal Cardwell, Richard Fromm, Kimberly Keeton, Christoforos Kozyrakis, Randi Thomas, and Katherine Yelick. A case for intelligent RAM. *IEEE Micro Magazine*, 17(2):34–44, April 1997.
- [144] David Patterson and John Hennessy. *Computer Architecture. A Quantitative Approach*. Morgan Kaufmann Publishers, second edition edition, 1996.

- [145] Vern Paxson and Mark Allman. RFC 2988: Computing TCP's retransmission timer, November 2000.
- [146] Vern Paxson and Sally Floyd. Wide area traffic: the failure of Poisson modeling. *IEEE/ACM Transactions on Networking*, 3(3):226–244, 1995.
- [147] A. L. Penenberg. The war for the poor. *Forbes Magazine*, September 1997.
- [148] Radia Perlman. *Interconnections: Bridges, Routers, Switches, and Internetworking Protocols (2nd edition)*. Addison-Wesley, 1999. ISBN: 0201634481.
- [149] B. Pesach, G. Bartal, E. Refaeli, A. J. Agranat, J. Krupnik, and D. Sadot. Free-space optical cross-connect switch by use of electroholography. *Applied Optics*, 39(5):746–758, February 2000.
- [150] Christian Schmutzler Peter Tomsu. *Next Generation Optical Networks: The Convergence of IP Intelligence and Optical Technologies*. Prentice Hall, 1st edition, 2001. ISBN: 013028226X.
- [151] D. F. Phillips, A. Fleischhauer, A. Mair, R. L. Walsworth, and M. D. Lukin. Storage of light in atomic vapor. *Physical Review Letters*, 86(5):783–786, 2001.
- [152] Jon Postel. RFC 791: IP: Internet Protocol, September 1981.
- [153] Jon Postel. RFC 793: TCP: Transmission Control Protocol, September 1981.
- [154] Private communication. Source requested not to be identified, April 2002.
- [155] C. Qiao and M. Yoo. Optical burst switching (OBS) - a new paradigm for an optical Internet. *IEEE Journal of High Speed Networks*, 8(1), 1999.
- [156] Light Reading. Optical provisioning: Light years ahead. *Light Reading*, August 2000.
- [157] RHK. Diversification paid off as ON market shrank in 2001. Report #1079, RHK, Telecommunication Industry Analysis, May 2002.

- [158] RHK. IP edge: Cisco slips in 2001, Juniper triples its share. Report #1101, RHK, Telecommunication Industry Analysis, May 2002.
- [159] RHK. Nortel claims top spot in race for MSS market share. Report #1102, RHK, Telecommunication Industry Analysis, May 2002.
- [160] RHK. North American telecom capex to turn up in 2004. Press release #154, RHK, April 2002.
- [161] RHK. Special report: Juniper makes gains in core and edge router markets. Industry News #114, RHK, Telecommunication Industry Analysis, February 2002.
- [162] RHK. United States Internet traffic experiences annual growth of 100%, but just 17% revenue growth. Press release #157, RHK, Telecommunication Industry Analysis, May 2002.
- [163] Fabio Ricciato, Stefano Salsano, Angelo Belmonte, and Marco Listanti. Off-line configuration of a MPLS over WDM network under time-varying offered traffic. In *Proceedings of IEEE Infocom*, volume 1, pages 57–65, June 2002.
- [164] L. G. Roberts. The evolution of packet switching. *Proceedings of the IEEE*, 66(11):1307–1313, November 1978.
- [165] E. Rose, A. Viswanathan, and R. Callon. RFC 3031: Multiprotocol Label Switching Architecture, January 2001.
- [166] ITU Telecommunication Standardization Sector. *Network node interface for the synchronous digital hierarchy (SDH)*. International Telecommunication Union, Recommendation G.707/Y.1322 edition, 2000.
- [167] ITU Telecommunication Standardization Sector. *Architecture for the Automatic Switched Optical Network (ASON)*. International Telecommunication Union, Recommendation G.8080/Y.1304 edition, November 2001.

- [168] ITU Telecommunication Standardization Sector. *Architecture for the Automatic Switched Transport Network (ASTN)*. International Telecommunication Union, Recommendation G.807/Y.1302 edition, November 2001.
- [169] ITU Telecommunication Standardization Sector. *Link capacity adjustment scheme (LCAS) for virtual concatenated signals*. International Telecommunication Union, Recommendation G.7042/Y.1305 edition, February 2003.
- [170] Sprint ATL. *Sprint network traffic flow traces*, 2002. <http://www.sprintlabs.com/Department/IP-Interworking/Monitor/>.
- [171] SWITCH, Swiss Education and Research Network. Floma: Pointers and software. <http://www.switch.ch/tf-tant/floma/software.html>.
- [172] Andrew S. Tanenbaum. *Computer networks* (3rd ed.). Prentice-Hall, Inc., 1996.
- [173] Lucent Technologies. Lucent Technologies announces record-breaking 320-channel optical networking system. Press release, Lucent Technologies, April 2000.
- [174] Tellium. *Aurora optical switch*, 2002. <http://www.tellium.com/documents/brochures/aos.pdf>.
- [175] F. A. Tobagi et al. Modeling and measurements techniques in packet communication networks. *Proceedings of the IEEE*, 66(11):1423–1447, November 1978.
- [176] Massimo Tornatore, Guido Maier, and Achille Pattavina. WDM network optimization by ILP based on source formulation. In *Proceedings of IEEE Infocom*, volume 1, June 2002.
- [177] J. Turner. Terabit burst switching. *IEEE Journal of High Speed Networks*, 8(1), 1999.
- [178] A. V. Turukhin, V. S. Sudarshanam, M. S. Shahriar, J. A. Musser, B. S. Ham, and P. R. Hemmer. Observation of ultraslow and stored light pulses in a solid. *Physical Review Letters*, 88(023602), 2002.

- [179] University of Maryland. *The Code Decay Project*. <http://www.cs.umd.edu/~aporter/html/evolution.html>.
- [180] US Census. Industry quick report. Technical report, US Department of Commerce, 1997. <http://factfinder.census.gov/servlet/IQRBrowseServlet>.
- [181] M. Veeraraghavan, M. Karol, R. Karri, R. Grobler, and T. Moors. Architectures and protocols that enable new applications on optical networks. *IEEE Communications Magazine*, 39(3):118–127, March 2001.
- [182] C. Villamizar and C. Song. High performance TCP in ANSNET. *ACM Computer Communication Review*, 24(5):45–60, 1994.
- [183] Walter Willinger, Vern Paxson, and Murad Taqqu. *A Practical Guide to Heavy Tails: Statistical Techniques and Applications*, chapter Self-similarity and Heavy Tails: Structural Modeling of Network Traffic, pages 27–54. R. Adler, R. Feldman, and M. S. Taqqu, editors. Birkhäuser Verlag, Boston, 1998.
- [184] The Yankee Group. *Operational Costs of IP networks; Service Providers' experiences and requirements*, 2001.
- [185] Shun Yao, Biswanath Mukherjee, S. J. Ben Yoo, and Sudhir Dixit. A unified study of contention-resolution schemes in optical packet-switched networks. *accepted for publication in Journal of Lightwave Technology*, April 2003.
- [186] Shun Yao, Fei Xue, Biswanath Mukherjee, S. J. Ben Yoo, and Sudhir Dixit. Electrical ingress buffering and traffic aggregation for optical packet switching and its effect on TCP-level performance in optical mesh networks. *IEEE Communications Magazine*, 40(9):66–72, September 2002.
- [187] H. Yasaka, H. Sanjoh, H. Ishii, Y. Yoshikuni, and K. Oe. Repeated wavelength conversion of 10 Gb/s signals and converted signal gating using wavelength-tunable semiconductor lasers. *IEEE Journal of Lightwave Technology*, 14(6):1042–1047, June 1997.

- [188] M. Yoo, C. Qiao, and S. Dixit. Optical burst switching for service differentiation in the next-generation optical Internet. *IEEE Communications Magazine*, 39(2):98–104, February 2001.
- [189] Yin Zhang, Lee Breslau, Vern Paxson, and Scott Shenker. On the characteristics and origins of Internet flow rates. In *Proceedings of ACM SIGCOMM*, pages 161–174, August 2002.