

## BIBLIOGRAPHY

- Agerwala, 1979:** T. Agerwala. Putting Petri Nets to Work. *IEEE Computer*, 85–94, Dec. 1979.
- Aho, Garey and Ullman, 1972:** A. V. Aho, M. R. Garey and J. D. Ullman. The transitive reduction of a directed graph. *SIAM Journal on Computing*, 1(2), 131–137, Jun. 1972.
- Allen, 1983:** J. Allen. Maintaining Knowledge About Temporal Intervals. *Communications of the ACM*, 26(11), 832–843, Nov. 1983.
- Allman et al., 1998:** M. Allman, C. Hayes, and S. Ostermann. An Evaluation of TCP with Larger Initial Windows. Submitted to *ACM Computer Communication Review*, Mar. 1998. <http://gigahertz.lerc.nasa.gov/~mallman/papers/initwin.ps>
- Amer et al., 1993:** P. Amer, C. Chassot, T. Connolly, and M. Diaz, Partial Order Transport Service for Multimedia Applications: Reliable Service. *Proc. 2<sup>nd</sup> High Performance Distributed Computing Conf (HPDC)*, 272–280, Spokane, WA, Jul. 1993.
- Amer et al., 1994:** P. Amer, C. Chassot, T. Connolly, M. Diaz, and P. Conrad, Partial Order Transport Service for Multimedia and Other Applications. *IEEE/ACM Transactions on Networking*, 2(5), 440–456, Oct. 1994.
- Amer et al. 1999:** P. Amer, S. Iren, G. Sezen, P. Conrad, M. Taube, and A. Caro. Network-conscious GIF image transmission over the Internet. *Computer Networks*, 31(7), 693–708, Apr. 1999.
- Aurrecochea et al., 1998:** C. Aurrecochea, A. T. Campbell, and L. Hauw. A Survey of QoS Architectures. ACM/Springer Verlag *Multimedia Systems Journal*, Special Issue on QoS Architecture, 6(3), 138–151, May 1998.
- Bolinger and Bronson, 1995:** D. Bolinger and T. Bronson, *Applying RCS and SCCS*. O'Reilly & Associates, Inc. Sebastopol, CA, 1995.

- Bolot, 1993:** J.-C. Bolot, End-to-end packet delay and loss behavior in the Internet. *Proc. SIGCOMM '93*, 289–298, San Francisco CA, Sep. 1993.
- Braun and Diot, 1995:** T. Braun, and C. Diot. Protocol Implementation Using Integrated Layer Processing, *Proc. SIGCOMM '95*, 151–161, Sep. 1995.
- Campbell et al., 1994:** A.T Campbell, G Coulson, and D. Hutchison. A Quality of Service Architecture. *Computer Communication Review*, 24(2), 6-27, Apr. 1994.
- Campbell et al., 1998:** A. T. Campbell, A. A. Lazar, H. Schulzrinne, and R. Stadler. Building Open Programmable Multimedia Networks. *Computer Communications Journal*, 21(8), 758–770, Jun. 1998.  
<http://www.comet.columbia.edu/~campbell/papers/comet.ps.gz>.
- Caro, 1998:** A. Caro, ReMDoR 2.0:Remote Multimedia Document Retrieval Over Partially-Ordered, Partially-Reliable Transport Protocols. Honors Thesis for the degree Bachelor of Science with Distinction, University of Delaware, May1998.
- Chamberlain, 1994:** S. Chamberlain, Automated Information Distribution in Bandwidth-Constrained Environments, *Proc. 1994 IEEE/AFCEA Military Communications Conference (MILCOM '94)*, Ft Monmouth, NJ; Oct. 1994; 537-541 (Vol 2).
- Chandranmenon and Varghese, 1995:** Girish P. Chandranmenon and George Varghese. Trading Packet Headers for Packet Processing. *Proc. SIGCOMM '95*, 162–173.
- Clark et al., 1989:** David Clark, V. Jacobson, J. Romkey, and H. Salwen. An Analysis of TCP Processing Overhead. *IEEE Communications Magazine*, 27(6), Jun. 1989.
- Clark and Tennenhouse, 1990:** D. Clark and D. Tennenhouse. Architectural Considerations for a New Generation of Protocols. *Proc. SIGCOMM '90*.
- Conrad et al., 1996:** P. Conrad, E. Golden, P. Amer, and R. Marasli. A multimedia document retrieval system using partially-ordered/partially reliable transport service. *Proc. Multimedia Computing and Networking (MMCN'96)*. San Jose, CA, Jan. 1996.

- Conrad et al., 1997:** P. Conrad, P. Amer, E. Golden, S. Iren, R. Marasli, A. Caro, Transport QoS over unreliable networks: no guarantees, no free lunch. *Proc. Fifth International Workshop on Quality of Service (IWQoS'97)*, 315–318 Columbia University, New York, May 1997.
- Conrad et al., 1998:** P. Conrad, P. Amer, M. Taube, G. Sezen, S. Iren, and A. Caro. Testing environment for innovative transport protocols. *Proc. IEEE MILCOM '98*, Boston, Oct. 1998.
- DeRose and Durand, 1994:** S. DeRose and D. Durand, *Making Hypermedia Work: A User's Guide to HyTime*. Kluwer Academic Publishing, Norwell MA, 1994.
- Diot and Gagnon, 1999:** C. Diot, F. Gagnon. Impact of out-of-sequence processing on the performance of data transmission. *Computer Networks*, 31(5), 475-492, Mar. 1999.
- Dempsey, 1994:** B. Dempsey. Retransmission-Based Error Control For Continuous Media Traffic In Packet-Switched Networks. Ph. D. Dissertation, University of Virginia, 1994.
- Dempsey et al., 1996:** B. Dempsey, J. Liebeherr, and A.C. Weaver. On Retransmission-Based Error Control for Continuous Media Traffic in Packet-Switching Networks. *Computer Networks and ISDN Systems*, 28(5), 719–736. <ftp://ils.unc.edu/pub/bert/isdn96.ps>.
- Ebert and Willig, 1999:** J-P. Ebert, A. Willig. A Gilbert-Elliot bit error model, and the efficient use in packet level simulation. Technical University-Berlin technical report TKN-99-002. [http://www-tkn.ee.tu-berlin.de/bibl/ours/tkn\\_report02.ps.gz](http://www-tkn.ee.tu-berlin.de/bibl/ours/tkn_report02.ps.gz)
- Edwards and Muir, 1995:** A. Edwards, and S. Muir. Experiences implementing a high performance TCP in user-space. *Proc. SIGCOMM'95*, Cambridge MA, Aug. 1995. Also published as *Computer Communications Review*, 25(4), 196–205.
- Elliot, 1963:** E. Elliot, Estimates of error rates for codes on burst-noise channels. *Bell System Technical Journal*, 42(1977), Sep. 1963.
- Ferrari et al., 1991:** D. Ferrari, G. Serazzi, A. Zeigner. *Measurement and Tuning of Computer Systems*. Prentice-Hall, 1983.

- Fielding et al., 1998:** , R. Fielding, J. Gettys, J. C. Mogul H. Frystyk, L. Masinter, P. Leach, T. Berners-Lee. *Hypertext Transfer Protocol -- HTTP/1.1*. HTTP Working Group Internet Draft <draft-ietf-http-v11-spec-rev-06> Nov. 18, 1998, in progress. <http://www.w3.org/Protocols/HTTP/1.1/draft-ietf-http-v11-spec-rev-06.txt>.
- Floyd, 1991:** S.Floyd. Connections with Multiple Congested Gateways in Packet-Switched Networks Part 1: One-way Traffic. *Computer Communication Review*. 21(5), 30–47, Oct. 1991. <ftp://ftp.ee.lbl.gov/papers/gates1.ps.Z>
- Floyd and Fall, 1999:** S. Floyd, and K. Fall. Promoting the Use of End-to-End Congestion Control in the Internet. *IEEE/ACM Transactions on Networking*, 7(4), 458–472, Aug. 1999. <http://www.aciri.org/floyd/papers/collapse.may99.ps>.
- Gehrlein, 1986:** W. Gehrlein. On methods for generating random partial orders. *Operations Research Letters*, 5(6), 285–291, Dec. 1986.
- Gettys et al., 1987:** J. Gettys, R. Newman, R. Scheifler. *Xlib-C Language X Interface*. Massachusetts Institute of Technology and Digital Equipment Corporation, 1987. [http://www.unix.digital.com/faqs/publications/base\\_doc/POSTSCRIPT/V40/x\\_window\\_system.ps](http://www.unix.digital.com/faqs/publications/base_doc/POSTSCRIPT/V40/x_window_system.ps)
- Gilbert, 1963:** E. Gilbert, Capacity of a burst-noise channel. *Bell System Technical Journal*, 39, 1253–1265, Sep. 1960.
- Golden, 1997:** E. Golden, *TRUMP: Timed Reliable Unordered Message Protocol*, MS Thesis, Department of Computer and Information Sciences, University of Delaware, Dec. 1997.
- Hamblin, 1972:** C. Hamblin. Instants and Intervals. *Proc. 1st Conf. Int. Soc. for the Study of Time*, J. T. Fraser et al., Eds. Springer Verlag, New York, 1972, 324–331.
- Heller and Ferguson, 1994:** D. Heller and P. Ferguson. *Motif Programming Manual, second edition* (Volume 6A of O'Reilly X Windows series). O'Reilly, 1994.
- Hoe, 1995:** J. Hoe. Startup Dynamics of TCP's Congestion Control and Avoidance Schemes. MS Thesis, Massachusetts Institute of Technology, 1995. <http://ana-www.lcs.mit.edu/anaweb/ps-papers/hoe-thesis.ps>

- Hoe, 1996:** J. Hoe, Improving the Start-up Behavior of a Congestion Control Scheme for TCP. *Proc. SIGCOMM'96*.  
<http://www.acm.org/sigcomm/sigcomm96/program.html>
- Hoepner, 1991:** P. Hoepner. Synchronizing the Presentation of Multimedia Objects—ODA Extensions. *Multimedia, Systems Interaction and Applications. Proc. 1st Eurographics Workshop*, Stockholm Sweden, Apr. 1991. Springer Verlag, 1991.
- Hutchinson and Peterson, 1988:** N. Hutchinson and L. Peterson. Design of the x-Kernel. *Proc. SIGCOMM'88*, 65–75.
- Hutchinson and Peterson, 1991:** N. C. Hutchinson and L. L. Peterson. The x-Kernel: An architecture for implementing network protocols. *IEEE Transactions on Software Engineering*, 17(1), 64–76, Jan. 1991.
- Iren et al., 1998a:** S. Iren, P. Amer, P. Conrad. Network-conscious compressed images over wireless networks. *Proc. IDMS '98*, Oslo Norway. Published as *Lecture Notes in Computer Science*, 1483, 49–158, Springer Verlag, Sep.1998.
- Iren et al., 1998b:** S. Iren, P. Amer, P. Conrad. NETCICATS: Network-conscious image compression and transmission system. *Proc. MIS '98*, Istanbul, Sep. 1998. Published as *Lecture Notes in Computer Science*, 1508, 57–68, Springer Verlag, 1998.
- Iren et al., 1998c:** S. Iren, P. Amer, A. Caro, P. Conrad, G. Sezen, and M. Taube. Network-conscious compressed image transmission over battlefield networks. *Proc. MILCOM '98*, Boston, Oct. 1998.
- Iren et al., 1999a:** S. Iren, P. Amer, and P. Conrad. The Transport Layer: Tutorial and Survey. *Computing Surveys*, 31(4), 360-404, Dec. 1999.
- Iren, 1999b:** S. Iren, Network-Conscious Image Compression. Ph.D. Dissertation, Department of Computer and Information Sciences, University of Delaware, 1999.
- Iren and Amer, 2000:** S. Iren and P. Amer. SPIHT-NC: Network Conscious Zerotree Encoding. *Proc. Data Compression Conference 2000*, Snowbird Utah, 313–322, Mar. 2000.

- Jacobs and Eleftheriadis, 1997:** S. Jacobs and A. Eleftheriadis, A Real Time Protocol that Guarantees Fairness with TCP, submitted to *IEEE/ACM Transactions on Networking*.  
<http://www.ctr.columbia.edu/~sej/publications/papers/ton.ps.gz>.
- Jacobson, 1998:** V. Jacobson, Congestion Avoidance and Control, *Proc. SIGCOMM'88*, 314–329, Aug. 1988.
- Jacobson and Karels, 1992:** V. Jacobson and M. Karels, Congestion Avoidance and Control. Revised 1992 version of (Jacobson, 1998) with crucial corrections in Appendix on RTO calculation. Available only online at: <http://www-nrg.ee.lbl.gov/papers/congavoid.pdf>.
- Jacobson et al., 1996:** V. Jacobson, C. Leres, and S. McCanne. Unix manual page for tcpdump. Lawrence Berkeley National Laboratory, University of California, Berkeley, CA. <ftp://ftp.ee.lbl.gov/tcpdump.tar.Z>
- Jain, 1991:** R. Jain. *The Art of Computer Systems Performance Analysis*. J. Wiley, 1991.
- Jamin et al., 2000:** S. Jamin, C. Jin, Y. Jin, D. Raz, Y. Shavitt, and L. Zhang. On the Placement of Internet Instrumentation. *Proc. IEEE Infocom 2000*.
- Karn and Partridge, 1987:** P. Karn and C. Partridge. Improving Round-Trip Estimates in Reliable Transport Protocols. *Proc. SIGCOMM'97*, 2–7, Aug. 1987.
- Lakshman and Madhow, 1997:** T. Lakshman, and U. Madhow. The Performance of Networks with High Bandwidth-delay Products and Random Loss. *IEEE/ACM Transactions on Networking*, 5(3), 336–350, Jun. 1997.  
<http://www.comm.csl.uiuc.edu/~madhow/publications.html>.
- Le Gall 1991:** D. Le Gall. MPEG: a video compression standard for multimedia applications. *Communications of the ACM*, 34(4), 46-58, Apr. 1991.
- Little and Ghafoor, 1990:** T. Little and A. Ghafoor. Synchronization and Storage Models for Multimedia Objects. *IEEE Journal on Selected Areas in Communication*, 8(3), 413–427, Apr. 1990.
- Little and Ghafoor, 1991:** T. Little and A. Ghafoor. Multimedia Synchronization Protocols for Broadband Integrated Services. *IEEE Journal on Selected Areas in Communication*, 9(9), 1368-1382, Dec. 1991.

- Maeda and Bershad, 1993:** Protocol Service Decomposition for High-Performance Networking, *ACM SIGOPS '93*, 244-255.
- Marasli et al., 1996a:** R. Marasli, P. Amer, P. and P. Conrad. Retransmission-Based Partially Reliable Services: An Analytic Model. *Proc. IEEE Infocom*, Mar. 24–28, 1996, San Francisco, CA.  
<http://www.cis.udel.edu/~amer/PEL/poc/postscript/infocom96.ps>.
- Marasli et al., 1996b:** R. Marasli, P. Amer, P. Conrad. Optimizing partially ordered transport services for multimedia applications. In *Multimedia Modeling: Towards The Information Superhighway* (Courtiat, Diaz, Senac, eds), World Scientific Pub Co, 185–204, 1996.
- Marasli et al., 1997a:** R. Marasli, P. Amer, P. and P. Conrad. An analytic model of partially ordered transport. *Computer Networks and ISDN Systems*, 29(6). 675–699, May 1997.
- Marasli, 1997b:** R. Marasli. *Partially Ordered and Partially Reliable Transport Protocols: Performance Analysis*, 1997, PhD Dissertation, CIS Dept., University of Delaware.
- Marasli et al., 1998:** R. Marasli, P. Amer, and P. Conrad. Metrics for quantifying partially ordered transport services. *Proc. 6th Int'l Conf on Telecommunication Systems*, Nashville, Mar. 1998.
- Mathis and Mahdavi, 1996:** Forward Acknowledgement: Refining TCP Congestion Control. *Proc. SIGCOMM 96*, Aug. 1996.
- Mathis et al., 1997:** M. Mathis, J. Semke, J. Mahdavi, and T. Ott. The Macroscopic Behavior of the TCP Congestion Avoidance Algorithm. *Computer Communication Review*, 27(3), Jul. 1997.  
[http://www.psc.edu/networking/papers/model\\_ccr97.ps](http://www.psc.edu/networking/papers/model_ccr97.ps)
- McKusick et al., 1996:** M. McKusick (Editor), K. Bostic, M. Karels (Editor). *The Design and Implementation of the 4.4BSD Operating System*. Addison-Wesley, 1996.
- Metzger et al., 1999:** P. Metzger, Chair, IETF Secure Shell (secsh) Working Group Charter. <http://www.ietf.org/html.charters/secsh-charter.html>.
- Mogul, 1995:** J. Mogul, The Case for Persistent-Connection HTTP. *Proc. SIGCOMM'95*, 299–313.

- New et al., 1992:** D. New, J. Rosenberg, G. Cruz and T. Judd. Requirements for Network Delivery of Stored Interactive Multimedia. *Proc. NOSSDAV'92*, published as *Lecture Notes in Computer Science*, 712, 157–163, Springer-Verlag, 1992.
- Nichols et al., 1996:** B. Nichols, D. Buttlar, and J. Farrell. *Pthreads Programming*. O'Reilly, 1996.
- Nye, 1992:** A. Nye, *Xlib Programming Manual*. (Volume 1 of O'Reilly X Windows series.) O'Reilly, 1992.
- O'Malley and Peterson, 1992:** S. W. O'Malley and L. L. Peterson. A dynamic network architecture. *ACM Transactions on Computer Systems*, 10(2), 110–143, May 1992.
- Pan and Schulzrinne, 1998:** P. Pan and H. Schulzrinne, YESSIR: A Simple Reservation Mechanism for the Internet. *Proc. NOSSDAV'98*, Cambridge, UK, Jul. 8-10, 1998.
- Paxson, 1996:** V. Paxson, End-to-end Routing Behavior in the Internet. *Proc. SIGCOMM'96*, 25-38.
- Pérez-Luque and Little, 1996:** M. Pérez-Luque and T. Little. A Temporal Reference Framework for Multimedia Synchronization. *IEEE Journal on Selected Areas in Communication*. 14(1), 26–51, Jan. 1996.
- Peterson, 1977:** J. Peterson. Petri Nets. *Computing Surveys*, 9(3), 223–252, Sep. 1977.
- Peterson and Davie, 1996:** L. Peterson and B. Davie. *Computer Networks: A Systems Approach*. The Morgan Kaufmann Series in Networking, David Clark, Series Editor, 1996.
- Rody and Karmouch, 1995:** A Remote Presentation Agent for Multimedia Databases. *Proc. IEEE International Conference on Multimedia Computing and Systems (ICMCS'95)*, 223–230, Washington DC, May 1995.
- Rosenberg et al., 1992a:** J. Rosenberg, R. Kraut, L. Gomez and C. Buzzard, Multimedia Communications for Users, *IEEE Communications Magazine*, 20–36, May 1992.
- Rosenberg et al., 1992b:** J. Rosenberg, G. Cruz and T. Judd. Presenting Multimedia Documents Over a Digital Network. *Computer Communications*, 15(6), 374-380, Aug. 1992.

- RealNetworks, 1997:** RealVideo Technical White Paper, 1997, RealNetworks Inc., Seattle, WA. <http://www.real.com/devzone/library/whitepapers/overview.html>.
- RFC908:** D. Velten, R. Hinden, and J. Sax. Reliable Data Protocol. Internet RFC908, Jul. 1984.
- RFC1045:** D. Cheriton. VMTP: Versatile Message Transaction Protocol: Protocol Specification. Internet RFC1045, February 1988
- RFC1094:** Sun Microsystems. NFS: Network File System Protocol Specification. Internet RFC1094, Mar. 1989.
- RFC1151:** C. Partridge and R. Hinden. Version 2 of the Reliable Data Protocol. Internet RFC1151, Apr. 1990.
- RFC1379:** R. Braden. Extending TCP for Transactions-Concepts. Internet RFC1379, Nov. 1992.
- RFC1693:** T. Connolly, P. Amer, and P. Conrad. An Extension to TCP: Partial Order Service. Internet RFC1693, Nov. 1994.
- RFC1813:** B. Callaghan, B. Pawlowski, and P. Staubach. NFS version 3 protocol specification. Internet RFC1813, Jun. 1995.
- RFC1644:** R. Braden. T/TCP-TCP Extensions for Transactions, Functional Specification. Internet RFC1379, Jul. 1994.
- RFC1661:** W. Simpson, Editor. The Point-to-Point Protocol (PPP). Internet RFC1661, Jul. 1994.
- RFC2068:** R. Fielding, J. Gettys, J. C. Mogul, H. Frystyk and T. Berners-Lee. Hypertext Transfer Protocol -- HTTP/1.1. Internet RFC2068, Jan. 1997.
- RFC2414:** M. Allman, S. Floyd, and C. Partridge. Increasing TCP's Initial Window. Internet RFC 2414, Sep. 1998.
- RFC2416:** T. Shepard, and C. Partridge. When TCP Starts Up With Four Packets Into Only Three Buffers. RFC 2415, Sep. 1998.

- Rutledge et al., 1998:** L. Rutledge, L. Hardman, J. van Ossenbruggen, and D. C. A. Bulterman. Structural Distinctions Between Hypermedia Storage and Presentation. *Proc. 6th ACM international conference on Multimedia (ACM MULTIMEDIA '98)*. 145–150, Bristol, England, Sep. 1998. <http://www.acm.org/pubs/articles/proceedings/multimedia/290747/p145-rutledge/p145-rutledge.pdf>
- Schnepf et al., 1995:** J. Schnepf and J. Konstan and D. Du. Doing FLIPS: FLExible Interactive Presentation Synchronization. *Proc. International Conference on Multimedia Computing and Systems (ICMCS '95)*, 213–222. Washington DC, May 1995.
- Stallings, 1997:** W. Stallings. *Data and Computer Communications. Fifth Edition*, Prentice-Hall, 1997.
- Stevens, 1994:** W. Richard Stevens. *TCP/IP Illustrated Volume 1: The Protocols*. Addison Wesley Longman, 1994.
- Stevens, 1996:** W. Richard Stevens. *TCP/IP Illustrated Volume 3: TCP For Transactions, HTTP, NNTP, And The Unix Domain Protocols*. Addison Wesley Longman, 1996.
- Stevens, 1998:** W. Richard Stevens. *UNIX Network Programming, Volume 1: Networking APIs, Sockets and XTI*. Prentice Hall, 1998.
- Stewart et al., 2000:** R. R. Stewart, Q. Xie, K. Morneault, C. Sharp, H. J. Schwarzbauer, T. Taylor, I. Rytina, M. Kalla, L. Zhang, and V. Paxson. Stream Control Transmission Protocol. IETF sigtran Working Group, Internet Draft <draft-ietf-sigtran-sctp-\*.txt> (work in progress).
- Szabo and Wallace, 1991:** B. Szabo and G. Wallace, Design considerations for JPEG Video and Synchronized Audio in a Unix Workstation Environment. *Proc. USENIX*, Nashville TN, 1991.
- Thekkath et al., 1993:** C. Thekkath, T. Nguyen, E. Moy, and E Lazowska. Implementing Network Protocols at User Level. *Proc. SIGCOMM '93*, 64–73.
- Urbano et al., 1999:** J. Urbano, A. Mendes, E. Monteiro, and P. Amer. Specification of order and reliability in SMIL documents. *Proc WIAPP '99, IEEE Workshop on Internet Applications*, San Jose, Jul. 1999.

- Valdes, Tarjan and Lawler, 1982:** J. Valdes, R. Tarjan, and E. Lawler. The recognition of series parallel digraphs. *SIAM J. Computing*, 11(2), 298–313, 1982.
- V.34, 1998:** Recommendation V.34: A modem operating at data signaling rates of up to 33 600 bit/s for use on the general switched telephone network and on leased point-to-point 2-wire telephone-type circuits. International Telecommunications Union, February 1998.
- W3C 1998:** World Wide Web Consortium. Synchronized Multimedia Integration Language (SW). W3C Recommendation, Jun. 1998.  
<http://www.w3c.org/TR/REC-smil>
- Wright and Stevens, 1995:** G.R. Wright and W.R. Steven., *TCP/IP Illustrated Volume 2 The Implementation*. Addison-Wesley, 1995.
- Wynblatt, 1995:** M. Wynblatt, Position Statement on Multimedia Synchronization. *Proc. IEEE Workshop on Multimedia Synchronization*, Tysons Corner, VA, May 1995. <http://hulk.bu.edu/sync95/papers/wynblatt.ps>.
- Young, 1995:** D. Young. *Motif Debugging and Performance Tuning*. Prentice-Hall, 1995.
- Zhang et al., 1993:** L. Zhang, S. E. Deering, D. Estrin, S. Shenker and D. Zappala. RSVP: A Resource Reservation Protocol, *IEEE Network*, Sep. 1993.

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INNOVATIONS IN A MULTIMEDIA APPLICATION CONTEXT**

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