

Stanford



Nick McKeown

Kleiner Perkins, Mayfield, Sequoia Capital Professor in the School of Engineering and Professor of Computer Science, Emeritus

Electrical Engineering

Bio

BIO

McKeown researches techniques to improve the Internet. Most of this work has focused on the architecture, design, analysis, and implementation of high-performance Internet switches and routers. More recently, his interests have broadened to include network architecture, backbone network design, congestion control; and how the Internet might be redesigned if we were to start with a clean slate.

ACADEMIC APPOINTMENTS

- Professor Emeritus, Electrical Engineering

HONORS AND AWARDS

- Fellow, American Academy of Arts and Sciences (2015)
- Honorary PhD, ETH (Zurich) (2014)
- Lifetime Achievement Award, ACM Sigcomm (2012)
- Fellow, National Academy of Engineering (NAE) (2010)
- Computers and Communications Award, IEEE Koji Kobayashi (2009)
- ACM Fellow Lovelace Medal, British Computer Society (2007)
- Fellow, IEEE (2005)
- Fellow, Royal Academy of Engineering (UK) (2005)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Board Member, P4 Language Consortium (P4.org) (2014 - present)
- Board Member, Open Networking Lab (ON.Lab) (2013 - present)
- Board Member, Open Networking Foundation (ONF) (2010 - present)

PROFESSIONAL EDUCATION

- PhD, UC Berkeley (1995)

Teaching

COURSES

2020-21

- Advanced Topics in Networking: CS 244 (Spr)

- Introduction to Computer Networking: CS 144 (Aut)

STANFORD ADVISEES

Doctoral Dissertation Advisor (AC)

Serhat Arslan

Master's Program Advisor

Nathan Bhak

Doctoral (Program)

Serhat Arslan, Gedeon Nyengele, Sundararajan Renganathan

Publications

PUBLICATIONS

- **Programming Protocol-Independent Packet Processors** *ACM SIGCOMM COMPUTER COMMUNICATION REVIEW*
Bosshart, P., Daly, D., Gibb, G., Izzard, M., McKeown, N., Rexford, J., Schlesinger, C., Talayco, D., Vahdat, A., Varghese, G., Walker, D.
2014; 44 (3): 87-95
- **Automatic Test Packet Generation** *IEEE-ACM TRANSACTIONS ON NETWORKING*
Zeng, H., Kazemian, P., Varghese, G., McKeown, N.
2014; 22 (2): 554-566
- **Enlarging the SIGCOMM Tent** *ACM SIGCOMM COMPUTER COMMUNICATION REVIEW*
McKeown, N.
2014; 44 (1): 63-65
- **Forwarding Metamorphosis: Fast Programmable Match-Action Processing in Hardware for SDN** *SIGCOMM Conference*
Bosshart, P., Gibb, G., Kim, H., Varghese, G., McKeown, N., Izzard, M., Mujica, F., Horowitz, M.
ASSOC COMPUTING MACHINERY.2013: 99-110
- **Downton Abbey Without the Hiccups: Buffer-Based Rate Adaptation for HTTP Video Streaming**
Huang, T., Johari, R., McKeown, N.
2013
- **Making Use of All the Networks Around Us: A Case Study in Android** *COMPUTER COMMUNICATION REVIEW*
Yap, K., Huang, T., Kobayashi, M., Yiakoumis, Y., McKeown, N., Katti, S., Parulkar, G.
2012; 42 (4): 455-460
- **Header Space Analysis: Static Checking for Networks**
Kazemian, P., Varghese, G., McKeown, N.
2012
- **Reproducible Network Experiments using Container Based Emulation**
Handigol, N., Heller, B., Jeyakumar, V., Lantz, B., McKeown, N.
2012
- **Where is the Debugger for my Software-Defined Network?** *HotSDN 2012, Helsinki, Finland (Best Student Presentation Award)*
Handigol, N., Heller, B., Jeyakumar, V., Mazieres, D., McKeown, N.
2012: 6
- **Designing packet buffers for router linecards** *IEEE-ACM TRANSACTIONS ON NETWORKING*
Iyer, S., Kompella, R. R., McKeown, N.
2008; 16 (3): 705-717
- **Designing a fault-tolerant network using valiant load-balancing** *27th IEEE Conference on Computer Communications (INFOCOM 2008)*
Zhang-Shen, R., McKeown, N.

IEEE.2008: 301–305

- **Ethane: Taking control of the enterprise** *ACM SIGCOMM 2007 Conference*
Casado, M., Freedman, M. J., Pettit, J., Luo, J., McKeown, N., Shenker, S.
ASSOC COMPUTING MACHINERY.2007: 1–12
- **Why flow-completion time is the right metric for congestion control** *COMPUTER COMMUNICATION REVIEW*
Dukkipati, N., McKeown, N.
2006; 36 (1): 59-62
- **Routers with very small buffers** *IEEE INFOCOM 2006 Conference/25th IEEE International Conference on Computer Communications*
Enachescu, M., Ganjali, Y., Goel, A., McKeown, N., Roughgarden, T.
IEEE.2006: 1833–1843
- **Designing a predictable Internet backbone with Valiant Load-balancing** *13th International Workshop on Quality of Service (IWQoS 2005)*
Rui, Z. S., McKeown, N.
SPRINGER-VERLAG BERLIN.2005: 178–192
- **Sizing router buffers** *ACM/SIGCOMM 2004 Conference on Computer Communications*
Appenzeller, G., Keslassy, I., McKeown, N.
ASSOC COMPUTING MACHINERY.2004: 281–92
- **Buffers: How we fell in love with them and why we need a divorce.** *12th Annual IEEE Symposium on High Performance Interconnects*
McKeown, N.
IEEE.2004: 1–1
- **Scaling Internet routers using optics** *SIGCOMM 2003 Conference*
Keslassy, I., Chuang, S. T., Yu, K., Miller, D., Horowitz, M., Solgaard, O., McKeown, N.
ASSOC COMPUTING MACHINERY.2003: 189–200
- **Achieving 100% throughput in an input-queued switch** *INFOCOM 96 Conference*
McKeown, N., Mekkittikul, A., Anantharam, V., Walrand, J.
IEEE-INST ELECTRICAL ELECTRONICS ENGINEERS INC.1999: 1260–67
- **Matching output queueing with a combined input/output-queued switch** *Infocom 99 Meeting*
Chuang, S. T., Goel, A., McKeown, N., Prabhakar, B.
IEEE-INST ELECTRICAL ELECTRONICS ENGINEERS INC.1999: 1030–39
- **The iSLIP scheduling algorithm for input-queued switches** *IEEE-ACM TRANSACTIONS ON NETWORKING*
McKeown, N.
1999; 7 (2): 188-201
- **Matching output queueing with a combined input output queued switch** *18th Annual Joint Conference of the IEEE Computer and Communications Societies (INFOCOM 99)*
Chuang, S. T., Goel, A., McKeown, N., Prabhakar, B.
IEEE.1999: 1169–1178
- **A Fast Switched Backplane for a Gigabit Switched Router** *Business Communications Review*
McKeown, N.
1997: 30
- **THE BAY BRIDGE - A HIGH-SPEED BRIDGE ROUTER** *IFIP TRANSACTIONS C-COMMUNICATION SYSTEMS*
McKeown, N., Edell, R., Le, M. T.
1993; 9: 203-218
- **Democratizing the Network Edge** *ACM SIGCOMM COMPUTER COMMUNICATION REVIEW*
Peterson, L., Anderson, T., Katti, S., McKeown, N., Parulkar, G., Rexford, J., Satyanarayanan, M., Sunay, O., Vandat, A.
2019; 49 (2): 31–36
- **Frequency Stabilized Lasers for Coherent Fiber Interconnects in the Datacenter**
Blumenthal, D. J., Ballani, H., Behunin, R., Bowers, J. E., Costa, P., Lenoski, D., McKeown, N., Morton, P., Papp, S. B., Rakich, P. T., IEEE

IEEE.2019

- **p4v: practical verification for programmable data planes** *SIGCOMM '18 Proceedings of the 2018 Conference of the ACM Special Interest Group on Data Communication*
Liu, J., Hallahan, W., Schlesinger, C., Sharif, M., Lee, J., Soulé, R., Wang, H., Ca#caval, C., McKeown, N., Foster, N.
2018: 490-503
- **Flow Caching for High Entropy Packet Fields** *ACM SIGCOMM Workshop on Hot Topics in Software Defined Networking (HotSDN)*
Shelly, N., Jackson, E. J., Koponen, T., McKeown, N., Rajahalme, J.
ASSOC COMPUTING MACHINERY.2014
- **A Buffer-Based Approach to Rate Adaptation: Evidence from a Large Video Streaming Service** *SIGCOMM Conference*
Huang, T., Johari, R., McKeown, N., Trunnell, M., Watson, M.
ASSOC COMPUTING MACHINERY.2014: 187-98
- **OSNT: Open Source Network Tester** *IEEE NETWORK*
Antichi, G., Shahbaz, M., Geng, Y., Zilberman, N., Covington, A., Bruyere, M., McKeown, N., Feamster, N., Felderman, B., Blott, M., Moore, A. W., Owezarski, P.
2014; 28 (5): 6-12
- **Maturing of OpenFlow and Software-defined Networking through deployments** *COMPUTER NETWORKS*
Kobayashi, M., Seetharaman, S., Parulkar, G., Appenzeller, G., Little, J., van Reijndam, J., Weissmann, P., McKeown, N.
2014; 61: 151-175
- **Rethinking IP Core Networks** *JOURNAL OF OPTICAL COMMUNICATIONS AND NETWORKING*
Das, S., Parulkar, G., McKeown, N.
2013; 5 (12): 1431-1442
- **pFabric: Minimal Near-Optimal Datacenter Transport** *SIGCOMM Conference*
Alizadeh, M., Yang, S., Sharif, M., Katti, S., McKeown, N., Prabhakar, B., Shenker, S.
ASSOC COMPUTING MACHINERY.2013: 435-46
- **Design Principles for Packet Parsers**
Gibb, G., Varghese, G., Horowitz, M., McKeown, N.
2013
- **Design Principles for Packet Parsers** *9th ACM/IEEE Symposium on Architectures for Networking and Communications Systems (ANCS)*
Gibb, G., Varghese, G., Horowitz, M., McKeown, N.
IEEE.2013: 13-24
- **Real Time Network Policy Checking using Header Space Analysis**
Kazemian, P., Chang, M., Zeng, H., Varghese, G., McKeown, N., Whyte, S.
2013
- **pFabric: minimal near-optimal datacenter transport**
Alizadeh, M., Yang, S., Sharif, M., Katti, S., McKeown, N., Prabhakar, B.
2013
- **Leveraging SDN Layering to Systematically Troubleshoot Networks**
Heller, B., Scott, C., McKeown, N., Shenker, S., Wundsam, A., Zeng, H.
2013
- **Late-binding: how to lose fewer packets during handoff**
Yap, K., Huang, T., Yiakoumis, Y., McKeown, N., Katti, S.
2013
- **Forwarding metamorphosis: fast programmable match-action processing in hardware for SDN**
Bosshart, P., Gibb, G., Kim, H. S., Varghese, G., McKeown, N., Izzard, M.
2013
- **Rethinking IP Core Networks** *Journal of Optical Communications and Networking*

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- Das, S., Parulkar, G., McKeown, N.
2013: 12
- **The Controller Placement Problem** *COMPUTER COMMUNICATION REVIEW*
Heller, B., Sherwood, R., McKeown, N.
2012; 42 (4): 473-478
 - **Multi-Server Generalized Processor Sharing** *24th International Teletraffic Congress (ITC)*
Yap, K., McKeown, N., Katti, S.
IEEE COMPUTER SOC.2012: 161–168
 - **Why OpenFlow/SDN Can Succeed Where GMPLS Failed** *38th European Conference and Exhibition on Optical Communications (ECOC)*
Das, S., Parulkar, G., McKeown, N.
IEEE.2012
 - **Putting Home Users in Charge of their Network**
Yiakoumis, Y., Huang, T., Yap, K., Katti, S., Johari, R., McKeown, N.
2012
 - **Confused, Timid, and Unstable: Picking a Video Streaming Rate is Hard**
Huang, T., Handigol, N., Heller, B., McKeown, N., Johari, R.
2012
 - **Automatic Test Packet Generation**
Zeng, H., Kazemian, P., Varghese, G., McKeown, N.
2012
 - **Outsourcing Network Functionality**
Gibb, G., Zeng, H., McKeown, N.
2012
 - **Why OpenFlow/SDN Can Succeed Where GMPLS Failed** *ECOC Technical Digest*
Das, S., Parulkar, G., McKeown, N.
2012: 3
 - **Maturing of OpenFlow and Software Dened Networking through Deployments** *Elsevier*
Kobayashi, M., Seetharaman, S., Parulkar, G., Appenzeller, G., van Reijndam, J. J., Weissmann, P., McKeown, N. W.
2012; 14: 50
 - **Deconstructing Datacenter Packet Transport** *11th ACM SIGCOMM Workshop on Hot Topics in Networks (HotNets)*
Alizadeh, M., Yang, S., Katti, S., McKeown, N., Prabhakar, B., Shenker, S.
ASSOC COMPUTING MACHINERY.2012: 133–138
 - **SDN Based Unified Control Architecture** *25th IEEE Photonics Conference (IPC)*
Das, S., Parulkar, G., McKeown, N.
IEEE.2012: 778–779
 - **INTERPRETATION OF REFLECTANCE SPECTRA OF CLAY MINERAL-SILICA MIXTURES: IMPLICATIONS FOR MARTIAN CLAY MINERALOGY AT MAWRTH VALLIS** *CLAYS AND CLAY MINERALS*
McKeown, N. K., Bishop, J. L., Cuadros, J., Hillier, S., Amador, E., Makarewicz, H. D., Parente, M., Silver, E. A.
2011; 59 (4): 400-415
 - **Optimizing a Virtualized Data Center** *COMPUTER COMMUNICATION REVIEW*
Erickson, D., Heller, B., Yang, S., Chu, J., Ellithorpe, J., McKeown, N., Parulkar, G., Rosenblum, M., Whyte, S., Stuart, S.
2011; 41 (4): 478-479
 - **MPLS-TE and MPLS VPNs with OpenFlow** *COMPUTER COMMUNICATION REVIEW*
Sharafat, A. R., Das, S., Parulkar, G., McKeown, N.
2011; 41 (4): 452-453

- **Architecting for Innovation** *COMPUTER COMMUNICATION REVIEW*
Koponen, T., Shenker, S., Balakrishnan, H., Feamster, N., Ganichev, I., Ghodsi, A., Godfrey, P. B., McKeown, N., Parulkar, G., Raghavan, B., Rexford, J., Arianfar, S., Kuptsov, et al
2011; 41 (3): 24-36
- **Integrated Photonics for Low-Power Packet Networking** *IEEE JOURNAL OF SELECTED TOPICS IN QUANTUM ELECTRONICS*
Blumenthal, D. J., Barton, J., Beheshti, N., Bowers, J. E., Burmeister, E., Coldren, L. A., Dummer, M., Epps, G., Fang, A., Ganjali, Y., Garcia, J., Koch, B., Lal, et al
2011; 17 (2): 458-471
- **Separating Authentication, Access and Accounting: A Case Study with OpenWiFi** *Stanford University NEC OPENFLOW-TR*
Yap, K., Yiakoumis, Y., Kobayashi, M., Katti, S., Parulkar, G., McKeown, N.
2011: 6
- **Slicing Home Networks**
Yiakoumis, Y., Yap, K., Katti, S., Parulkar, G., McKeown, N.
2011
- **Initial thoughts on custom network processing via waypoint services**
Gibb, G., Zeng, H., McKeown, N.
2011
- **MPLS with a Simple OPEN Control Plane**
Das, S., Sharafat, A. R., Parulkar, Guru, M., McKeown, N.
2011
- **Application-Aware Aggregation and Traffic Engineering in a Converged Packet-Circuit Network**
Das, S., Yiakoumis, Y., Parulkar, Guru, M., Singh, P., Getachew, D., Desai, P. D., McKeown, N. W.
2011
- **Optical Packet Buffers for Backbone Internet Routers** *IEEE-ACM TRANSACTIONS ON NETWORKING*
Beheshti, N., Burmeister, E., Ganjali, Y., Bowers, J. E., Blumenthal, D. J., McKeown, N.
2010; 18 (5): 1599-1609
- **Ripcord: A Modular Platform for Data Center Networking** *ACM SIGCOMM 2001 Conference 2010*
Heller, B., Erickson, D., McKeown, N., Griffith, R., Ganichev, I., Shenker, S., Zarifis, K., Moon, D., Whyte, S., Stuart, S.
ASSOC COMPUTING MACHINERY.2010: 457-58
- **OpenRoads: Empowering Research in Mobile Networks** *COMPUTER COMMUNICATION REVIEW*
Yap, K., Kobayashi, M., Sherwood, R., Huang, T., Chan, M., Handigol, N., McKeown, N.
2010; 40 (1): 125-126
- **Towards Software-Friendly Networks**
Yap, K., Huang, T., Dodson, B., Lam, Monica, S., McKeown, N.
2010
- **PhoneNet: a Phone-to-Phone Network for Group Communication within an Administrative Domain**
Huang, T., Yap, K., Dodson, B., Lam, Monica, S., McKeown, N.
2010
- **ElasticTree: Saving Energy in Data Center Networks**
Heller, B., Seetharaman, S., Mahadevan, P., Yiakoumis, Y., Sharma, P., Banerjee, S., McKeown, N. W.
2010
- **OpenPipes: Making Distributed Hardware Systems Easier.**
Gibb, G., McKeown, N.
2010
- **Delivering Capacity for the Mobile Internet by Stitching Together Networks**
Yap, K., Katti, S., Parulkar, G., McKeown, N.

2010

- **Blueprint for Introducing Innovation into Wireless Mobile Networks**

Chan, M., Handigol, N., McKeown, N., Parulkar, G.

2010

- **Can the Production Network Be the Testbed?**

Sherwood, R., Gibb, G., Yap, K., Appenzeller, G., Casado, M., McKeown, N.

2010

- **A Network in a Laptop: Rapid Prototyping for Software-Defined Networks.**

Lantz, B., Heller, B., McKeown, N.

2010

- **FPGA Research Design Platform Fuels Network Advances** *Xcell Journal, Fourth Quarter*

Blott, M., Ellithorpe, J., McKeown, N., Vissers, K., Zeng, H.

2010: 6

- **Packet and Circuit Network Convergence with OpenFlow** *Conference on Optical Fiber Communication (OFC)/Collocated National Fiber Optic Engineers (NFOEC)*

Das, S., Parulkar, G., McKeown, N., Singh, P., Getachew, D., Ong, L.

IEEE.2010

- **Experimental Demonstration of OpenFlow Control of Packet and Circuit Switches** *Conference on Optical Fiber Communication (OFC)/Collocated National Fiber Optic Engineers (NFOEC)*

Gudla, V., Das, S., Shastri, A., Parulkar, G., McKeown, N., Kazovsky, L., Yamashita, S.

IEEE.2010

- **Rethinking Enterprise Network Control** *IEEE-ACM TRANSACTIONS ON NETWORKING*

Casado, M., Freedman, M. J., Pettit, J., Luo, J., Gude, N., McKeown, N., Shenker, S.

2009; 17 (4): 1270-1283

- **Viewpoint Scaling the Academic Publication Process to Internet Scale** *COMMUNICATIONS OF THE ACM*

Crowcroft, J., Keshav, S., McKeown, N.

2009; 52 (1): 27-30

- **A Packet Generator on the NetFPGA Platform** *17th Annual IEEE Symposium on Field Programmable Custom Computing Machines*

Covington, G. A., Gibb, G., Lockwood, J. W., McKeown, N.

IEEE COMPUTER SOC.2009: 235-238

- **Delegating Network Security with More Information** *1st Workshop Research on Enterprise Networking*

Naous, J., Stutsman, R., Mazieres, D., McKeown, N., Zeldovich, N.

ASSOC COMPUTING MACHINERY.2009: 19-26

- **Encouraging Reusable Network Hardware Design** *IEEE International Conference on Microelectronic Systems Education*

Covington, G. A., Gibb, G., Naous, J., Lockwood, J. W., McKeown, N.

IEEE.2009: 29-32

- **Unifying Packet and Circuit Switched Networks** *IEEE Globecom Workshops (Gc Workshops 2009)*

Das, S., Parulkar, G., McKeown, N.

IEEE.2009: 33-38

- **The Stanford OpenRoads Deployment** *4th ACM International Workshop on Wireless Network Testbeds, Experimental Evaluation and Characterization (WiNTECH 2009)*

Yap, K., Kobayashi, M., Underhill, D., Seetharaman, S., Kazemian, P., McKeown, N.

ASSOC COMPUTING MACHINERY.2009: 59-66

- **Simple Unified Control for Packet and Circuit Networks** *Digest of the LEOS Summer Topical Meeting*

Das, S., Parulkar, G., McKeown, N.

IEEE.2009: 147-148

- **Buffer Sizing results for RCP Congestion Control under Connection Arrivals and Departures** *COMPUTER COMMUNICATION REVIEW*
Lakshmikantha, A., Srikant, R., Dukkupati, N., McKeown, N., Beck, C.
2009; 39 (1): 6-15
- **NetFPGA - An open platform for teaching how to build gigabit-rate network switches and routers** *IEEE TRANSACTIONS ON EDUCATION*
Gibb, G., Lockwood, J. W., Naous, J., Hartke, P., McKeown, N.
2008; 51 (3): 364-369
- **NOX: Towards an operating system for networks** *COMPUTER COMMUNICATION REVIEW*
Gude, N., Koponen, T., Pettit, J., Pfaff, B., Casado, M., McKeown, N., Shenker, S.
2008; 38 (3): 105-110
- **OpenFlow: Enabling innovation in campus networks** *COMPUTER COMMUNICATION REVIEW*
McKeown, N., Anderson, T., Balakrishnan, H., Parulkar, G., Peterson, L., Rexford, J., Shenker, S., Turner, J.
2008; 38 (2): 69-74
- **Experimental Study of Router Buffer Sizing** *8th ACM SIGCOMM Internet Measurement Conference*
Beheshti, N., Ganjali, Y., Ghobadi, M., McKeown, N., Salmon, G.
ASSOC COMPUTING MACHINERY.2008: 197-210
- **Implementing an OpenFlow Switch on the NetFPGA platform**
Naous, J., Erickson, D., Covington, A., Appenzeller, G., McKeown, N.
2008
- **Designing a Fault-Tolerant Network Using Valiant Load-Balancing**
Zhang-Shen, R., McKeown, N.
2008
- **The Effectiveness of Whitelisting: a User-Study**
Erickson, D., Casado, M., McKeown, N.
2008
- **Performing Time-Sensitive Network Experiments**
Beheshti, N., Ganjali, Y., Ghobadi, M., McKeown, N., Naous, J., Salmon, G.
2008
- **Obtaining high throughput in networks with tiny buffers** *16th International Workshop on Quality of Service (IWQoS 2008)*
Beheshti, N., Ganjali, Y., Goel, A., McKeown, N.
IEEE.2008: 72-76
- **Guaranteeing quality of service to peering traffic** *27th IEEE Conference on Computer Communications (INFOCOM 2008)*
Zhang-Shen, R., McKeown, N.
IEEE.2008: 2146-2152
- **Stability analysis of explicit congestion control protocols** *IEEE COMMUNICATIONS LETTERS*
Balakrishnan, H., Dukkupati, N., McKeown, N., Tomlin, C. J.
2007; 11 (10): 823-825
- **NetFPGA - An open platform for gigabit-rate network switching and routing** *IEEE International Conference on Microelectronic Systems Education*
Lockwood, J. W., McKeown, N., Watson, G., Gibb, G., Hartke, P., Naous, J., Raghuraman, R., Luo, H.
IEEE COMPUTER SOC.2007: 160-161
- **Packet Scheduling in Optical FIFO Buffers** *High-Speed Networking Workshop (In Conjunction with IEEE Infocom 2007), Anchorage, AK*
Beheshti, N., Ganjali, Y., McKeown, N.
2007: 4
- **Experimenting with Buffer Sizing in Routers**
Beheshti, N., Ganjali, Y., Naous, J., McKeown, N.
2007

- **Can Overlay hosting services make ip ossification irrelevant** *cabernet.cs.princeton.edu*
Turner, J., McKeown, N.
2007: 4
- **Prototyping fast, simple, secure switches for ethane** *15th Annual IEEE Symposium on High-Performance Interconnects*
Luo, J., Pettit, J., Casado, M., Lockwood, J., McKeown, N.
IEEE COMPUTER SOC.2007: 73–79
- **Building a RCP (Rate control protocol) test network** *15th Annual IEEE Symposium on High-Performance Interconnects*
Dukkipati, N., Gibb, G., McKeown, N., Zhu, J.
IEEE COMPUTER SOC.2007: 91–98
- **Update on buffer sizing in Internet routers** *COMPUTER COMMUNICATION REVIEW*
Ganjali, Y., McKeown, N.
2006; 36 (5): 67-70
- **Buffer sizing in all-optical packet switches** *Conference on Optical Fiber Communications/National Fiber Optic Engineers Conference*
Beheshti, N., Ganjali, Y., Rajaduray, R., Blumenthal, D., McKeown, N.
OPTICAL SOC AMERICA.2006: 1367–1369
- **The Clack Graphical Router: Visualizing Network Software**
Wendlandt, D., Casado, M., Tarjan, P., McKeown, N.
2006
- **SANE: A protection architecture for enterprise networks** *15th USENIX Security Symposium*
Casado, M., Garfinkel, T., Akella, A., Freedman, M. J., Boneh, D., McKeown, N., Shenker, S.
USENIX ASSOC.2006: 137–151
- **RCP-AC: Congestion control to make flows complete quickly in any environment** *IEEE INFOCOM 2006 Conference/25th IEEE International Conference on Computer Communications*
Dukkipati, N., McKeown, N., Fraser, A. G.
IEEE.2006: 3002–3006
- **Part I: Buffer sizes for core routers** *COMPUTER COMMUNICATION REVIEW*
Wischik, D., McKeown, N.
2005; 35 (3): 75-78
- **Part III: Routers with very small buffers** *COMPUTER COMMUNICATION REVIEW*
Enachescu, M., Ganjali, Y., Goel, A., McKeown, N., Roughgarden, T.
2005; 35 (3): 83-89
- **The throughput of a buffered crossbar switch** *IEEE COMMUNICATIONS LETTERS*
Lin, M., McKeown, N.
2005; 9 (5): 465-467
- **Using hardware to configure a load balanced switch** *12th Annual IEEE Symposium on High Performance Interconnects*
Arekapudi, S., Chuang, S. T., Keslassy, I., McKeown, N.
IEEE COMPUTER SOC.2005: 70–78
- **Teaching Networking Hardware**
Casado, M., Watson, G., McKeown, N.
2005
- **The Virtual Network System**
Casado, M., McKeown, N.
2005
- **Building Packet Buffers with Interleaved Memories**
Shrimali, G., McKeown, N.
2005

- **Processor sharing flows in the Internet** *13th International Workshop on Quality of Service (IWQoS 2005)*
Dukkipati, N., Kobayashi, M., Rui, Z. S., McKeown, N.
SPRINGER-VERLAG BERLIN.2005: 271–285
- **Routing in a highly dynamic topology** *2nd Annual IEEE-Communications-Society Conference on Sensor and Ad Hoc Communications and Networks (SECON 2005)*
Ganjali, Y., McKeown, N.
IEEE.2005: 164–175
- **Building packet buffers using interleaved memories** *IEEE Workshop on High Performance Switching and Routing (HPSR 2005)*
Shrimali, G., McKeown, N.
IEEE.2005: 1–5
- **Optimal load-balancing** *24th Annual Joint Conference of the IEEE Computer and Communications Societies*
Keslassy, I., Chang, C. S., McKeown, N., Lee, D. S.
IEEE COMPUTER SOC.2005: 1712–1722
- **Reconfigurable networking hardware: A classroom tool** *13th Symposium on High Performance Interconnects*
Casado, M., Watson, G., McKeown, N.
IEEE COMPUTER SOC.2005: 151–157
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