

Ravi Kokku

Research Staff Member
NEC Laboratories America, Inc.
4 Independence Way, Suite 200
Princeton, NJ 08540

<http://www.nec-labs.com/~ravik>
Email: ravik@nec-labs.com
Phone: (609) 951-2671
Fax: (609) 951-2483

EDUCATION

- Ph.D.** Computer Sciences
(August 05) The University of Texas at Austin
Dissertation: *ShaRE: Runtime System for High-performance Virtualized Routers*
Advisor: Prof. Harrick Vin
- M.S.** Computer Sciences
(May 2004) The University of Texas at Austin
- B.Tech (Hons.)** Computer Science and Engineering
(June 1997) Indian Institute of Technology (IIT), Kharagpur, India

RESEARCH INTERESTS

Networks and Operating Systems. Current focus areas are application-aware resource management in WiMAX networks, and wireless network virtualization. In the past, I have worked on power control and beamforming issues in Enterprise and Vehicular WiFi networks, and resource management issues in wide area data replication and multi-service routers.

WORK AND RESEARCH EXPERIENCE

- 09/05-Present Research Staff Member, NEC Laboratories America, Princeton, NJ
- 05/01-08/01 IBM Austin Research Laboratory, Austin, Tx
- 05/00-08/00 IBM Austin Research Laboratory, Austin, Tx
- 06/97-01/00 Hughes Software Systems, Gurgaon, India
- 05/96-08/96 National Remote Sensing Agency, Hyderabad, India

AWARDS AND HONORS

1. SEEDS 2008 award for innovative project proposal from NEC Laboratories America, 2008.
2. Best paper award at BROADNETS 2008.
3. IBM Doctoral fellowship – 2001-02, '02-03, and '03-04.
4. Recognition as outstanding student of Center for Advanced Studies, IBM-Austin, in 2003.
5. Recognition for outstanding academic achievement by Department of Computer Sciences, UT Austin, in 2001.
6. Award paper at 6th International Workshop on Web Caching and Content Distribution, WCW'01.
7. Award paper at 5th International Conference on Advanced Computing, ADCOMP'97.
8. Award from Hughes Network Systems (customer) for contribution to the Thuraya satellite system, in 1999.

PUBLICATIONS

1. *Symphony: Synchronous Two-phase Rate and Power Control in Wireless LANs*. Kishore Ramachandran, Ravi Kokku, Honghai Zhang and Marco Gruteser. In the IEEE/ACM Transactions on Networking Journal, 2010.
2. *R2D2: Regulating Beam-shape and Rate as Directionality Meets Diversity*. Kishore Ramachandran, Ravi Kokku, Karthik Sundaresan, Marco Gruteser, and Sampath Rangarajan. In the Seventh International Conference on Mobile Systems, Applications, and Services (ACM MOBISYS), Krakow, Poland, June 2009.
3. *Towards Adaptive Beamforming in Indoor Wireless Networks: An Experimental Approach*. Sriram Lakshmanan, Karthik Sundaresan, Ravi Kokku, Amir Khojastepour and Sampath Rangarajan. In INFOCOM minisymposium, Brazil, April 2009.
4. *Routelet Placement for Multipath Transport*. Mihaela Enachescu and Ravi Kokku. In the 5th International Conference on Broadband Communications, Networks and Systems (BROADNETS), September 2008, London, UK. **Best Paper Award**.
5. *Enabling Location-Specific Real-time Mobile Applications*. Ravi Kokku, Karthik Sundaresan and Geoff Jiang. In Third ACM MOBIARCH, Seattle, WA, August 2008.
6. *Synchronous Two-phase Rate and Power Control in Wireless LANs*. Kishore Ramachandran, Ravi Kokku, Honghai Zhang and Marco Gruteser. In the Sixth International Conference on Mobile Systems, Applications, and Services (ACM MOBISYS), Colorado, June 2008.
7. *On the Effectiveness of Switched-beam Antennas in Indoor Environments*. Marc Blanco, Ravi Kokku, Kishore Ramachandran, Sampath Rangarajan and Karthik Sundaresan. In the Passive and Active Measurement Conference (PAM), Ohio, April 2008.
8. *Run-time System for Scalable Network Services*. Upendra Shevade, Ravi Kokku, Harrick Vin. In the 27th IEEE Conference on Computer Communications (INFOCOM), April 2008, Phoenix, Arizona.
9. *A Multipath Routing Architecture for Background Data Transfers*. R. Kokku, A. Bohra, S. Ganguly and A. Venkataramani. In the 27th IEEE Annual Conference and Computer Communications (INFOCOM). May 2007, Anchorage, Alaska.
10. *Processor Scheduler for Multi-service Routers*. R. Kokku, U. Shevade, N. Shah, Ajay Mahimkar, Tae Won Cho and H. Vin. In the 27th IEEE Real-Time Systems Symposium (RTSS). Dec 2006, Rio De Janeiro, Brazil.
11. *A Case for Run-time Adaptation in Packet Processing Systems*. R. Kokku, T. Riche, A. Kunze, J. Mudigonda, J. Jason, and H. Vin. In the ACM SIGCOMM Computer Communications Review, Vol. 34, Issue 1, Jan 2004. Also appeared in the 2nd Workshop on Hot Topics in Networks (HOTNETS-II), Nov 2003, Boston, MA.
12. *NPS: A Non-interfering Deployable Web Prefetching System*. R. Kokku, P. Yalagandula, A. Venkataramani, and M. Dahlin. In the 4th USENIX Symposium on Internet Technologies and Systems (USITS), Mar 2003, Seattle, WA.
13. *TCP Nice: A Mechanism for Background Transfers*. A. Venkataramani, R. Kokku, and M. Dahlin. In the 5th Symposium on Operating Systems Design and Implementation (OSDI 2002), Dec 2002, Boston, MA.
14. *Half-pipe Anchoring: An Efficient Technique for Multiple Connection Handoff*. R. Kokku, R. Rajamony, L. Alvisi, and H. Vin. In the 10th IEEE International Conference on Network Protocols (ICNP 2002), Nov 2002, Paris, France.
15. *Operating System Support for Massive Replication*. A. Venkataramani, R. Kokku, and M. Dahlin. In the 10th ACM SIGOPS European Workshop (SIGOPS 2002), Sep 2002, St. Emilion, France.
16. *The Potential Costs and Benefits of Long-term Prefetching*. A. Venkataramani, P. Yalagandula, R. Kokku, S. Sharif, and M. Dahlin. In the Computer Communications journal, 25 (4) (2002) pp. 367-375. Also appeared in the 6th International Workshop on Web Caching and Content Distribution (WCW 2001), Jun 2001, Boston, MA. Selected as an **award paper** at the workshop and forwarded to the journal.

17. *DDSCHEd: A Distributed Dynamic Real-time Scheduling Algorithm*. A. Bhattacharjee, R. Kokku, R. Mall, and A. Pal. In the special issue of *Parallel and Distributed Computing Practices* journal. Vol 1. No 4, Dec 1998. Also appeared in the 5th International Conference on Advanced Computing (ADCOMP '97), Dec 1997, Chennai, India. Selected as an **award paper** at the conference and forwarded to the journal.

PATENTS

1. ISSUED: *Distributed Shared Memory for Server Clusters*. R. Kokku, R. Rajamony and F. Rawson. #6829637, Dec. 2004. Affiliation: IBM Research.
2. ISSUED: *Method and System for Background Replication of Data Objects*. M. Dahlin, A. Venkataramani, R. Kokku and P. Yalagandula. Application #7,418,494, Apr. 2004. Affiliation: The University of Texas at Austin.
3. ISSUED: *Multipath Routing Architecture for Large Data Transfers.*, R. Kokku, A. Bohra, S. Ganguly and R. Izmailov. # US7643427, Jan. 2010. Affiliation: NEC Laboratories America, Inc.
4. FILED: *Method and System for Dynamic Power Management in Wireless Local Area Networks*. R. Kokku, S. Ganguly and V. Navda. Affiliation: NEC Laboratories America, Inc.
5. FILED: *Slotted Sectorized Scheduling with Steerable Directional Antennas in Wireless LANs*. R. Kokku, S. Ganguly and V. Navda. Affiliation: NEC Laboratories America, Inc.
6. FILED: *Synchronous Two-phase Rate and Power Control in wireless LANs*. R. Kokku and Kishore Ramachandran. Affiliation: NEC Laboratories America, Inc.
7. FILED: *Controlled Dissemination of Information in Mobile Networks*. R. Kokku, K. Sundaresan and G. Jiang. Affiliation: NEC Laboratories America, Inc.
8. FILED: *Uplink Connectivity for Mobile Clients*. R. Kokku, K. Ramachandran and K. Sundaresan. Affiliation: NEC Laboratories America, Inc.
9. FILED: *Systems and Methods for Adaptive Beamforming in Wireless Networks*. S. Lakshmanan, K. Sundaresan, R. Kokku and M. A. Khojastepour, Affiliation: NEC Laboratories America, Inc.
10. FILED: *Methods and Systems for Rate Matching and Rate Shaping in a Wireless Network*. R. Kokku, R. Mahindra, H. Zhang and S. Rangarajan, Affiliation: NEC Laboratories America, Inc.

POSTERS AND TECHNICAL REPORTS

1. *FLORA: Mechanisms for User-Assisted Mobile Services*. Ravi Kokku, Guofei Jiang, Mohammad Khojastepour and Karthik Sundaresan, Poster at the 7th International Conference on Mobile Systems, Applications, and Services (ACM MOBISYS) June 2009, Krakow, Poland.
2. *S3: Slotted Sectorized Scheduling in Wireless LANs*. S. Ganguly, R. Kokku, V. Navda and S. Das, Poster at the 5th International Conference on Mobile Systems, Applications, and Services (ACM MOBISYS) June 2007, Puerto Rico.
3. *Coscaling Threads and Frequency to Tame Power Consumption*. R. Kotla, R. Kokku, and M. Dahlin. Poster at the Fourth Austin Conference on Energy-Efficient Design (ACEED). Mar 2005, Austin, TX.
4. *Safe Speculative Replication*. M. Dahlin, A. Iyengar, R. Kokku, A. Nayate, A. Venkataramani, P. Yalagandula. Technical Report.
5. *Slotted Symmetric Power Control in Wireless LANs*. Vishnu Navda, Ravi Kokku, Samrat Ganguly, Samir Das. NEC Labs technical report.
6. *Supporting Run-time Adaptation in Packet Processing Systems*. V. Balakrishnan, R. Kokku, A. Kunze, H. Vin, and E. Johnson. UT-Austin Technical Report UT-TR-04-46, 2004.

TALKS

1. R2D2: Regulating Beam-shape and Rate as Directionality Meets Diversity. at *ACM MOBISYS* in June 2009.
2. Empowering Next-generation Enterprise WLANs, at *Microsoft Research, Bangalore and IIIT-Hyderabad*, in 2008.
3. A Multipath Background Network Architecture, at *IEEE Infocom* in May 2007.
4. Processor Scheduler for Multi-service Routers, at *IEEE Real-Time Systems Symposium (RTSS)* in Dec 2006.
5. ShaRE: A Run-Time System for High-Performance Virtualized Routers, at *Microsoft Research, Redmond, WA* in April 2005.
6. A Run-time Adaptation Architecture for Packet Processing Systems, at *Intel Communications Architecture Lab, Portland, OR* in December 2004.
7. A Case for Run-time Adaptation in Packet Processing Systems, at the *2nd workshop on Hot Topics in Networks (HOTNETS-II)* in November 2003.
8. NPS: A Non-interfering Deployable Web Prefetching System, at the *4th USENIX Symposium on Internet Technologies and Systems (USITS 2003)* in March 2003.
9. Half-pipe Anchoring: An Efficient Technique for Multiple Connection Handoff, at the *10th IEEE International Conference on Network Protocols (ICNP 2002)* in November 2002, and at the *2nd Annual Austin Center for Advanced Studies Conference, IBM Austin* in February 2002.
10. Issues in Improving Web Server Performance, at the *1st Annual Austin Center for Advanced Studies Conference, IBM Austin* in February 2001.

PROFESSIONAL SERVICE

1. Program Committee Member for Mobicom 2010, Mobicom 2009 and WinMee 2009.
2. PhD Dissertation Committee Member for Kishore Ramachandran, WINLAB, Rutgers University.
3. Peer Reviewer for many leading conferences and journals including Mobicom, Infocom, IEEE/ACM Transactions on Networking, ACM Transactions on Mobile Computing, IEEE Transactions on Parallel and Distributed Systems journal, Conference on Dependable Systems and Networks, ACM Symposium on Operating Systems Principles and IEEE Real-Time Systems Symposium
4. Representative of Computer Sciences in the University of Texas at Austin Graduate Student Assembly, 2002-03.