JOHN RUSSELL LANGE
Curriculum Vitae

Northwestern University
Department of Electrical Engineering and Computer Science
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Research Interests

My research focuses on the design of core systems software capable of fully utilizing next generation hardware environments while at the same time being amenable to dynamic resource managers. My research is based specifically in the context of high performance computing. To increase the applicability of high performance systems, I seek to provide unmodified applications transparent access to high performance resources. My research predominantly uses virtualization mechanisms to achieve these goals. My methods are based on the design, implementation and evaluation of experimental systems.

Education

2004 - Present	*Northwestern University* Ph.D. in Computer Science, Expected: 2010 Thesis: Symbiotic Virtualization Advisor: Peter A. Dinda M.S. in Computer Science, June 2006
2003	*Northwestern University* B.S. in Computer Science B.S. in Computer Engineering

Employment

Winter 2009	Adjunct Lecturer, *Northwestern University*
6/07 - 9/08	Software engineer, *Neokast LLC*
Summer 2007	*Symantec Research Labs*
Summer 2006	*Symantec Research Labs*
2004 - present	Graduate Research Assistant, *Northwestern University*
1/04 - 9/04	Research Associate, *International Center for Advanced Internet Research*
6/02 - 12/03	Research Assistant, *Northwestern University*
Summer 2001	Software Developer, *Medical Metrics Inc*
Summer 2000	IT Intern, *Fulbright and Jaworski, LLP.*
1/99	IT Intern, *Rice University*
8/98 - 9/99	System Administrator, *The Kinkaid School*
8/01 - present	Co-founder/Board Member, *Artifex.org*

Teaching

Winter 2009	Taught MSIT short course on Resource Virtualization and the Enterprise
Winter 2007	Teaching Assistant for Introduction to Electrical Engineering
Winter 2006	Teaching Assistant for Resource Virtualization
Fall 2006	Teaching Assistant for Operating Systems
Fall 2006	Teaching Assistant for Probabilistic Systems and Random Signals

Co-Advised Students

Steven Jaconette	Co-advised Northwestern University undergraduate NSF REU (Summer 2009)
Andy Gocke	Co-advised Northwestern University undergraduate NSF REU (Summer 2009)
Rob Deloatch	Co-advised University of Maryland undergraduate Northwestern SROP program (Summer 2009)
Matt Wojcik	Co-advised Northwestern University undergraduate NSF REU (Summer 2008)
Peter Kamm	Co-advised Northwestern University undergraduate NSF REU (Summer 2008)

Honors

2007 - 2008	*Symantec Graduate Research Fellowship Recipient*

Professional Activities

Program Committee — HPDC 2010
The 19th International Symposium on High Performance Distributed Computing

Student Activities Co-Chair — HPDC 2010
The 19th International Symposium on High Performance Distributed Computing

Program Committee — VPACT 2010
The 3rd International Workshop on Virtualization Performance: Analysis, Characterization, and Tools

Program Committee — VTDC 2010
The 4th International Workshop on Virtualization Technologies in Distributed Computing

Program Committee — MMCS 2009
The 1st Workshop on Managed Many-Core Systems

Program Committee — VTDC 2009
The 3rd International Workshop on Virtualization Technologies in Distributed Computing

Program Committee — HPCVirt 2009
The 3rd Workshop on System-level Virtualization for High Performance Computing

Program Committee — GOBS 2007
The 1st International Workshop on Grid over Optical Burst Switching Networks

Co-Founder
Northwestern Graduate Research Seminar

Software

Palacios VMM	OS Independent Embeddable Virtual Machine Monitor Released as open source under BSD license Downloaded over 1000 times as of July 2009
EmNet	Empathic home network traffic optimization system
Speculative VNC	Extended VNC client with embedded Markov predictor
Virtuoso	Distributed management service for a virtual machine marketplace Server management service and web based frontend interface
VTL	Framework for implementing transparent network services
VNET	Layer 2 overlay network for networking of wide area distributed virtual machines
PERSONA	Network path component resource scheduler for circuit switched optical networks

References

Peter Dinda	Northwestern University	pdinda@northwestern.edu
Russ Joseph	Northwestern University	rjoseph@eecs.northwestern.edu
Fabian Bustamante	Northwestern University	fabianb@cs.northwestern.edu
Patrick Bridges	University of New Mexico	bridges@cs.unm.edu
Karsten Schwan	Georgia Institute of Technology	karsten.schwan@cc.gatech.edu

Publications

Journals

L. Xia, J. Lange, P. Dinda, C. Bae, **Investigating Virtual Passthrough I/O on Commodity Devices**, *Operating Systems Review*, Volume 43, Number 3, July 2009 — OSR

J. Mambretti, D. Lillethun, J. Lange, J. Weinberger, **Optical Dynamic Intelligent Network Services (ODIN): An Experimental Control-Plane Architecture for High-Performance Distributed Environments Based on Dynamic Lightpath Provisioning**, *IEEE Communications Magazine*, Volume 44, Number 3, March 2006 — IEEE Communications

A. Sundararaj, M. Sanghi, J. Lange, P. Dinda, **An Optimization Problem in Adaptive Virtual Environments**, *Performance Evaluation Review*, Volume 33, Number 2, September 2005 — PER

Conferences

J. Lange, K. Pedretti, T. Hudson, P. Dinda, Z. Cui, L. Xia, P. Bridges, M. Levenhagen, R. Brightwell, A. Gocke, S. Jaconette, **Palacios: A New Open Source Virtual Machine Monitor for Scalable High Performance Computing**, *Proceedings of the 24th IEEE International Parallel & Distributed Processing Symposium, To Appear* **Acceptance Rate: 24%** — IPDPS 2010

J. S. Miller, J. Lange, P. Dinda, **EmNet: Satisfying the Individual User Through Empathic Home Networks**, *Proceedings of IEEE INFOCOM 2010, To Appear* **Acceptance Rate: 17.5%** — INFOCOM 2010

J. Lange, J. S. Miller, P. Dinda, **EmNet: Satisfying the Individual User Through Empathic Home Networks: Summary (poster)**, *Proceedings of ACM Sigmetrics 2009* — SIGMETRICS 2009

J. Lange, P. Dinda, S. Rossoff, **Experiences with Speculative Remote Display**, *Proceedings of the USENIX Annual Technical Conference*, **Acceptance Rate: 19%** — USENIX 2008

J. Lange, P. Dinda, F. Bustamante, **Vortex: Enabling Cooperative Selective Wormholing for Network Security Systems**, *Proceedings of the 16th IEEE International Symposium on Recent Advances in Intrusion Detection*, **Acceptance Rate: 16%** — RAID 2007

J. Lange, P. Dinda, **Transparent Network Services via a Virtual Traffic Layer for Virtual Machines**, *Proceedings of the 16th IEEE International Symposium on High Performance Distributed Computing*, **Acceptance Rate: 20%** — HPDC 2007

A. Sundararaj, M. Sanghi, J. Lange, P. Dinda, **Hardness of Approximation and Greedy Algorithms for the Adaptation Problem in Virtual Environments (Poster)**, *Proceedings of the 3rd IEEE International Conference on Autonomic Computing* — ICAC 2006

J. Lange, A. Sundararaj, P. Dinda, **Automatic Dynamic Run-time Optical Network Reservations**, *Proceedings of the 14th IEEE International Symposium on High Performance Distributed Computing*, **Acceptance Rate: 17%** — HPDC 2005

Workshops

L. Xia, J. Lange, P. Dinda, **Towards Virtual Passthrough I/O on Commodity Devices**, *Proceedings of the 1st Workshop on I/O Virtualization* — WIOV 2008

A. Sundararaj, M. Sanghi, J. Lange, P. Dinda, **An Optimization Problem in Adaptive Virtual Environments**, *Proceedings of the 7th Workshop on Mathematical Performance Modeling and Analysis* — MAMA 2005

Technical Reports

J. Lange, K. Pedretti, T. Hudson, P. Dinda, Z. Cui, P. Bridges, S. Jaconette, M. Levenhagen, R. Brightwell, P. Widener, **Palacios and Kitten: High Performance Operating Systems For Scalable Virtualized and Native Supercomputing**, *Department of Electrical Engineering and Computer Science, Northwestern University*, July 2009 — NWU-EECS-09-14

J. S. Miller, J. Lange, P. Dinda, **EmNet: Satisfying the Individual User through Empathic Home Networks**, *Department of Electrical Engineering and Computer Science, Northwestern University*, April 2009 — NWU-EECS-09-05

J. Lange, P. Dinda, **An Introduction to the Palacios Virtual Machine Monitor – Release 1.0**, *Department of Electrical Engineering and Computer Science, Northwestern University*, November 2008 — NWU-EECS-08-11

D. Choffnes, J. Lange, A. Kuzmanovic, **Rethinking the Use of Parallel TCP in Web Browsers**, *Department of Electrical Engineering and Computer Science, Northwestern University*, October 2006 — NWU-EECS-06-15

A. Sundararaj, M. Sanghi, J. Lange, P. Dinda, **Hardness of Approximation and Greedy Algorithms for the Adaptation Problem in Virtual Environments**, *Department of Electrical Engineering and Computer Science, Northwestern University*, July 2006 — NWU-EECS-06-06

A. Shoykhet, J. Lange, P. Dinda, **Virtuoso: A System for Virtual Machine Marketplaces**, *Department of Computer Science, Northwestern University*, July 2004 — NWU-CS-04-39

B. Cornell, J. Lange, P. Dinda, **An Implementation of Diffusion in the Linux Kernel**, *Department of Computer Science, Northwestern University*, September 2002 — NWU-CS-02-12

Patents

P. Dinda, A. Sundararaj, J. Lange, A. Gupta, B.Lin, **Methods and Systems for Automatic Inference and Adaptation of Virtualized Computing Environments** — Patent # 20080155537