

Varun Marupadi

CONTACT INFORMATION	Duke University Department of Computer Science P.O.Box 90129 Durham, NC 27708-0129	Phone: (919) 660-6586 Cell: (919) 218-4737 Email: varun@cs.duke.edu http://www.cs.duke.edu/~varun
EDUCATION	Duke University MS in Computer Science Advisor: Jeffrey S. Chase	Durham, NC December 2009
	University of Madras Bachelor of Engineering in Computer Science and Engineering	Chennai, India May 2004
RESEARCH	<p>Built a system for on-demand leasing of networks of federated cloud computing services as part of the GENI-ORCA project at Duke University and RENCI. The system allows virtualization of networks at any level from physical fiber to best-effort bandwidth that connect cloud computing clusters at the edges with specific control over the network topology (using NDL and associated Java tools for description and control). Used the system to control and provision a metro-scale optical network connecting the universities in the area.</p> <p>Built a control framework architecture for clients to seamlessly utilize cloud services from multiple independent providers. The architecture allows for complex coordination and sequencing strategies among the providers, as well as automatically inferring some constraints implied by dependencies. This allows users to easily integrate services from multiple cloud computing providers.</p> <p>Implemented dynamic virtual networks using Xen virtualization technology that are able to route over wide area networks. The virtual network appears identical to a physical subnet to any application at layer-3 and above. Used such dynamically created networks to run a 3-tier web service, with each tier at a different physical site, all with no change to the web service software itself.</p> <p>Created a privacy system for users of location and “presence-aware” applications to control and safely participate in presence sharing networks. Ran game theoretic analysis to show that the system is pareto efficient and that freeloading is an infeasible strategy.</p>	
EXPERIENCE	VMware Inc. Intern	Summer 2008 Cambridge, Massachusetts
	<p>Built a framework to enable clustered applications to self scale their resource utilization in response to load, time of day, datacenter utilization and other feedback signals. This would allow resource utilization to more closely track service utilization and lead to greater efficiencies in the datacenter and cost savings in a cloud environment.</p>	
	NetApp Inc. Intern	Summer 2006 Sunnyvale, California
	<p>Built a fast communication channel on Xen virtualization technology to allow fast VM-to-VM communication over memory pages. Changes to the Xen hypervisor kernel allowed virtual machines hosted by the same hypervisor to access extremely low overhead communication capabilities.</p>	

Duke University
Student Intern

Summer 2005

Department of Computer Science

Built a database-backed web service for internal use by the department. Designed and created a database schema in MySQL for keeping track of graduate student information. Also designed and implemented a PHP front end running on Apache to interact with the database, with authentication and multiple levels of security clearance and user roles.

PUBLICATIONS

“Cutting Corners: Workbench Automation for Server Benchmarking”

Piyush Shivam, **Varun Marupadi**, Jeff Chase, Thileepan Subramaniam and Shivrath Babu

In Proceedings of the 2008 Usenix Annual Technical Conference, June 2008

“Harnessing Virtual Machine Resource Control for Job Management”

Laura Grit, David Irwin, **Varun Marupadi**, Piyush Shivam, Aydan Yumerefendi, Jeff Chase and Jeannie Albrecht

In Proceedings of the 1st Workshop on System-level Virtualization for High Performance Computing (HPCVirt), March 2007

“SmokeScreen: Flexible Privacy Controls for Presence-Sharing”

Landon P. Cox, Angela Dalton and **Varun Marupadi**

In Proceedings of the 5th International Conference on Mobile Systems, Applications, and Services (MobiSys), June 2007

“Presence Exchanges: Toward Sustainable Presence-Sharing”

Landon P. Cox, Angela Dalton and **Varun Marupadi**

In Proceedings of the 7th IEEE Workshop on Mobile Computing Systems and Applications (WMCSA), April 2006

TEACHING

Graduate Distributed Information Systems

Fall 2007

ASSISTANTSHIPS

Graduate Networks and Distributed Systems
Systems and Networks

Spring 2007

Spring 2006

Dr. Jeffrey Chase

Designed and ran graduate student labs, provided personal tutoring and conducted supplementary classes

Operating Systems

Spring 2005

Operating Systems

Fall 2004

Dr. Robert Wagner

Ran labs and recitation sessions, provided personal tutoring

TECHNICAL SKILLS

C/C++, Java, PHP, Perl, Python, HTML/Javascript

Xen and VMware (ESX, Workstation and Server) virtualization technology

Windows, Linux/Unix, ZFS, LVM and Netapp administration

J2EE and JSP, Tomcat, Velocity, Jetty, SOAP, XML-RPC, NDL and OWL

GRADUATE

Advanced Operating Systems

Distributed Information Systems

COURSEWORK

Computer Networks

Advance Computer Architecture

Design and Analysis of Algorithms

Artificial Intelligence

Computer Security

Self-Interested Computing

Statistical Forecasting

Advanced Database Systems

Mathematical Methods for Systems Analysis

Mathematical Modelling of Continuous Systems

REFERENCES

Will be provided upon request