

Luca Niccolini

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CURRENT

Riverbed Technology, San Francisco - Member of Technical Staff (QoS) since Mar. 2012

- Lead the effort to expose QoS and path-selection configuration and metrics through a REST API.
- Implemented QoS support for the Path-Selection feature on the WAN optimization appliance, with particular focus on performance in 10 Gbps networks.
- Designed and implemented a mechanism to add QoS support for protocols not recognized by the DPI engine
- Conducted alpha/beta release evaluation at customer site and remotely

EDUCATION

Ph.D., Computer Engineering Jan. 2009 - Mar. 2012

University of Pisa, Italy.

Thesis: *On the Energy Efficiency of Networked Systems*.

Master of Science, Computer Engineering – Networking and Multimedia 2006 - 2008

Bachelor of Science, Computer Engineering 2003 - 2006

University of Pisa, Italy. Graduated summa cum laude.

Master Thesis: *Energy efficient scheduling of VoIP traffic in IEEE 802.16 wireless networks*.

EXPERIENCE

University of California at Berkeley – Visiting Scholar July 2011 - Mar. 2012

- Modeled energy-performance tradeoffs in packet processing applications to study power saving algorithms design space.
- Evaluated the model through experiments in a 10 Gbps network with routers and middleboxes running the *RouteBricks* software stack. [<http://routebricks.org>]

Intel Research Berkeley – Research Intern Sept. 2010 - Mar. 2011

- Studied energy inefficiencies in enterprise network equipment and designed an algorithm to dynamically choose the optimal number of active cores and their clock speed in a high-speed router.
- Implemented the algorithm in a 10 Gbps Click-based software router. Modified the Linux kernel, the Intel *ixgbe* driver and Click to support low-power primitives.
- Improved energy efficiency up to 50% compared to previous implementation, without sacrificing performance.

- Designed, deployed and maintained a distributed packet monitoring service for PlanetLab Europe. The service allows PlanetLab Europe users to deploy custom network monitoring modules and guarantees traffic isolation between different applications.
- Developed an optimized version of the *CoMo* open source software for network monitoring.
[<http://como.sourceforge.net>]

PUBLICATIONS AND PATENTS

Patent application: Method and Apparatus for Path Selection

S. Modi, J. Wu, A. Gupta, D. Srinivasa, G. Levy, L. Niccolini, S. Sankaran Kutty
United States - RIV-0934 - pending

Building a power-proportional software router

L. Niccolini, G. Iannaccone, S. Ratnasamy, J. Chandrashekar, L. Rizzo.
In USENIX Annual Technical Conference 2012.

An Energy case for Hybrid Datacenters

B-G. Chun, G. Iannaccone, G. Iannaccone, R. Katz, G. Lee, L. Niccolini.
In ACM Operating Systems Review, January 2010.

Last-Meter Smart Grid Embedded in an Internet-of-Things Platform

Spano, E. and Niccolini, L. and Pascoli, S.D. and Iannaccone, G.
In IEEE Transactions on Smart Grid, August 2014.

A passive network monitoring service for PlanetLab Europe

L. Niccolini, G. Iannaccone, G. Iannaccone, A. Lo Duca.
In the 4th Workshop on Real Overlays and Distributed Systems, ROADS 2009.

SKILLS

Proficient in C/C++ and Python.

Experience with Javascript, CSS, HTML, SQL, shell scripting, Matlab, Java, Hadoop MapReduce.

Looking with interest at the Go Programming Language, in my spare time.

AWARDS AND CERTIFICATIONS

Graduated Research Fellowship, University of Pisa, 2009 - 2011.

Cisco Networking Academy Program - CCNA certification, 2006.

REFERENCES

Gianluca Iannaccone

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Luigi Rizzo

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