

Massimiliano Marcon

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RESEARCH INTERESTS

I am broadly interested in the areas of networking and distributed systems. My current research projects focus on (a) preserving privacy when sharing user-generated content in online social networks, (b) enabling efficient and cost-effective bulk content delivery in the Internet, and (c) making Internet access networks more transparent. As part of these projects, I have measured and analyzed real-world systems as well as designed and deployed new systems.

EDUCATION

Doctor of Philosophy in Computer Science *Expected: October 2011*
Max Planck Institute for Software Systems
Advisor: Krishna Gummadi

Master of Science in Computer Science *December 2004*
University of Udine, Italy

“Erasmus” exchange student *October 2001 - March 2002*
Paris XIII University, France

PROFESSIONAL EXPERIENCE

Research staff member *2006 - present*
Max Planck Institute for Software Systems

Visitor at Telefonica Research Labs *February 2009*
Barcelona, Spain

Research staff member *February 2005 - February 2006*
University of Karlsruhe, Germany

Internship at Malz++Kassner GmbH *July / August 2003*
Braunschweig, Germany
Development of professional CAD/CAM software

SKILLS

System design and development in **C/C++** (proficient), **Python** (proficient), **Perl** (proficient), and **Java** (good knowledge); **Web development in HTML, PHP** (good knowledge) and **JavaScript** (proficient); development of embedded software for wireless routers (**OpenWrt**); experience with network simulators (**ns-2, OMNeT++**), linear solvers (**CPLEX**), and relational databases (**MySQL**).

SYSTEM EXPERIENCE

Regaining control over sharing of user-generated content: Users who upload personal content to online social networks to share it with others often feel that they are losing control over their content. To give users more control over their personal content, I designed and deployed *Stratus* [9], a system that enables Internet users to share personal photos and media files (audio and video) directly from home. At the core of Stratus is an inexpensive personal web server, which I built using low-power, always-on modern residential gateways. I deployed Stratus in 10 households. I showed that Stratus can deliver content from users' homes with good availability and performance. I also implemented a Facebook application that enables Stratus users to easily share personal content from home with any of their Facebook friends.

Increasing privacy awareness in online social networks: Thanks to online social networks, Internet users are quickly becoming active publishers of content. Because the content published on online social networks is often of personal nature, access control and privacy are key concerns. I recently designed and implemented *Primo*, a Facebook application whose goal is to make people aware of “who can see what” in their online social network neighborhood. Specifically, Primo quizzes users about their privacy expectations in order to expose misconfigurations in their privacy settings.

Efficient and cost-effective bulk content delivery in transit ISPs: Transit ISPs today run over-provisioned backbone networks designed around peak load. As a result, a considerable amount of spare capacity exists. I proposed and evaluated *NetEx* [6][10], a network-level design that opportunistically uses the spare capacity in transit ISPs to deliver bulk content that can be transferred in the background. I collected real traffic data from commercial ISPs to show that NetEx can considerably increase the ISPs' capacity. At the same time, NetEx doesn't slow down existing interactive traffic, such as web browsing or VoIP.

Cost-optimal traffic shaping policies for access ISPs: Access ISPs today rate limit traffic from their users in order to reduce the peak (or 95th percentile) usage in their networks. Using data from 35 access networks, I showed [1] that access ISPs can considerably decrease their peak network usage by deploying traffic shapers that only rate limit a small number of very large flows. I also showed how intelligent queuing techniques at the network level can greatly reduce the performance penalty incurred by these large flows.

Transparency in access networks: I contributed to the design and development of *Glasnost* [2], a system that makes access networks more transparent to their users. Internet users can easily run Glasnost to test whether some ISP is traffic shaping or blocking their network traffic. Glasnost runs within a user's browser and is designed to be easily extended with additional tests for new protocols. Glasnost has already been employed by more than 600,000 users from over 3,000 ISPs worldwide, and it's currently part of [Measurement Lab](#). Users can access Glasnost from [this URL](#). Glasnost results were widely reported in popular news media, and received attention from telecom regulators around the world.

CONFERENCE PAPERS

- [1] **The Local and Global Effects of Traffic Shaping in the Internet**
Massimiliano Marcon, Marcel Dischinger, Krishna P. Gummadi, and Amin Vahdat
Proceedings of the 3rd Conference on Communication Systems and Networks
COMSNETS 2011
January 4-8, 2011, Bangalore, India
[\[PDF\]](#) [\[BibTex\]](#)
- [2] **Glasnost: Enabling End Users to Detect Traffic Differentiation**
Marcel Dischinger, Saikat Guha, Massimiliano Marcon, Krishna P. Gummadi, Ratul Mahajan, and Stefan Saroiu
Proceedings of the 7th USENIX Symposium on Networked Systems Design and Implementation
NSDI 2010
April 28-30, 2010, San Jose, USA
[\[PDF\]](#) [\[BibTex\]](#)
- [3] **Measurement and Analysis of Online Social Networks**
Alan Mislove, Massimiliano Marcon, Krishna P. Gummadi, Peter Druschel, and Bobby Bhattacharjee
Proceedings of the 7th ACM Internet Measurement Conference
IMC 2007
October 24-26, 2007, San Diego, USA
[\[PDF\]](#) [\[BibTex\]](#)

WORKSHOP PAPERS

- [4] **Linyphi: An IPv6-Compatible Implementation of SSR**
Pengfei Di, Massimiliano Marcon, and Thomas Fuhrmann
Proceedings of the 3rd International Workshop on Hot Topics in Peer-to-Peer Systems
Hot-P2P 2006
April 25-29, 2006, Rhodes Island, Greece
[\[PDF\]](#) [\[BibTex\]](#)

- [5] **Sharing Social Networking Content from Home:
A Measurement-driven Feasibility Study**
Massimiliano Marcon, Bimal Viswanath, Meeyoung Cha, and Krishna P. Gummadi
*Proceedings of the 21st International Workshop on Network and Operating Systems Support for Digital Audio and Video
NOSSDAV 2011*
June 1-3, 2011, Vancouver, Canada
[\[PDF\]](#) [\[BibTex\]](#)

POSTERS

- [6] **NetEx: Efficient and Cost-effective Internet Bulk Content Delivery**
Massimiliano Marcon, Nuno Santos, Krishna P. Gummadi, Nikolaos Laoutaris, Pablo Rodriguez, and Amin Vahdat
*Poster at the 6th ACM/IEEE Symposium on Architectures for Networking and Communications Systems
ANCS 2010*
October 25-26, 2010, La Jolla, USA
[\[PDF\]](#) [\[BibTex\]](#)
- [7] **The Local and Global Effects of Traffic Shaping in the Internet**
Massimiliano Marcon, Marcel Dischinger, Krishna P. Gummadi, and Amin Vahdat
*Poster at the 14th ACM Conference of the Special Interest Group on Data Communications
SIGCOMM 2008*
August 17-22, 2008, Seattle, USA
[\[PDF\]](#) [\[BibTex\]](#)

TECHNICAL REPORTS

- [8] **The Local and Global Effects of Traffic Shaping in the Internet**
Massimiliano Marcon, Marcel Dischinger, Krishna P. Gummadi, and Amin Vahdat
Technical Report MPI-SWS-2010-004, MPI-SWS, September 2010
[\[PDF\]](#) [\[BibTex\]](#)

RECENT SUBMISSIONS

- [9] **Regaining Control over User Generated Content Sharing**
Massimiliano Marcon, Bimal Viswanath, Meeyoung Cha, and Krishna P. Gummadi
*Submitted to the ACM SIGCOMM Workshop on Home Network
HomeNets 2011*
[\[PDF\]](#)
- [10] **NetEx: Cost-effective Bulk Data Transfers for Cloud Computing**
Massimiliano Marcon, Nuno Santos, Krishna P. Gummadi, Nikolaos Laoutaris, Pablo Rodriguez, and Amin Vahdat
*Submitted to the 2nd ACM Symposium on Cloud Computing
SOCC 2011*
[\[PDF\]](#)

**LANGUAGE
SKILLS**

English (fluent), **Italian** (native), **German** (fluent), **French** (proficient)

OTHERS

Marathon runner (Munich 2010, 3h44m)
Guitar player

REFERENCES**Krishna Gummadi**

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