Pedro de Botelho Marcos - Assistant Professor

Center for Computational Science
Federal University of Rio Grande
Av. Italia, Km 8
Rio Grande, Brazil - 96203-900

Phone: +55 (53) 3237-3083
C3 Building, Office 230
pbmarcos@furg.br
https:/pedrobmarcos.github.io

Academics

Ph.D. in Computer Science, (03/2016-09/2019)
Federal University of Rio Grande do Sul - UFRGS, Brazil
Advisor: Prof. Marinho Barcellos
Thesis title: Towards a Dynamic Internet Interconnection Ecosystem for Improved Wide-Area Traffic Delivery
Keywords: peering, interconnection, IXP, internet measurements, wide-area traffic delivery

Visiting Ph.D. student (09/2017-12/2017)
King Abdullah University of Science and Technology - KAUST, Saudi Arabia
Host: Prof. Marco Canini
Keywords: peering, interconnection agreements, blockchain, wide-area traffic delivery

M.Sc. in Computer Science, (03/2011-01/2013)
Federal University of Rio Grande do Sul - UFRGS, Brazil
Advisor: Prof. Claudio Geyer
Thesis title: Maresia: MapReduce in a simple architecture
Keywords: MapReduce, fault tolerance, Distributed Hash Tables

B.Eng. in Computer Engineering, (03/2006-12/2010)
Federal University of Rio Grande - FURG, Brazil

Research Interests

My research interests lie at the crossroads of theory and practice, with a focus on the Internet more precisely in the interconnection/peering and routing aspects. I have been working on alternatives towards a more dynamic Internet interconnection ecosystem for improved wide-area traffic delivery performance. To achieve such a goal, we have proposed a framework to allow network operators to establish interconnection agreements in short time frames (instead of days or weeks) that benefits from the rich connectivity opportunities of IXPs. Such an approach will improve the operators' responsiveness to the frequent changes in the Internet traffic dynamics, increase utilization of peering ports, and create economic opportunities for reducing costs and/or increase revenue. I am also working in a methodology to understand how BGP-related traffic engineering decisions can compromise the security of Internet routing and their impacts on traffic delivery performance. In the past, I have worked in addressing fault-tolerance aspects in distributed architectures, more specifically on the MapReduce model.

Research Scholarships

Research scholarship - 05/2017-04/2018
Scholarship from the Brazilian National Research and Education Network (RNP), Brazil, to work on the project GT-IPÊ-Analytics on activities related to the network analytics and Internet measurements. Supervisor: Prof. Marinho Barcellos.

Master's scholarship - 03/2011-01/2013
Scholarship from the Coordination for the Improvement of Higher Education Personnel (CAPES), Brazil, to support studies during the masters. Supervisor: Prof. Claudio Geyer.

Undergraduate scholarship - 06/2006-12/2010
Scholarship from the National Council for Scientific and Technological Development (CNPq), Brazil, to work in the SIM-3D project on activities related to digital manufacturing. Supervisors: Prof. Nelson Lopes Duarte Filho and Prof. Silvia Silva da Costa Botelho.

Professional Activities

Assistant Professor, Federal University of Rio Grande - FURG, Brazil, 09/2013-present (currently, I am on leave for a Ph.D. at UFRGS)
Courses: Operating Systems; Computer Networks; Distributed Systems

CTO, Zetaflops - High-Performance Computing Ltda., Brazil, 04/2009-02/2011
Designing and developing solutions that benefit from the parallel processing capabilities of GPUs

Selected Publications

Marcos, Pedro; Chiesa, Marco; Muller, Lucas; Kathiravelu, Pradeeban; Dietzel, Christoph; Canini, Marco; Barcellos, Marinho. *Dynam-IX: a Dynamic Interconnection eXchange*, In: ACM CoNEXT'18, December, 2018.

Marcos, Pedro; Chiesa, Marco; Muller, Lucas; Kathiravelu, Pradeeban; Dietzel, Christoph; Canini, Marco; Barcellos, Marinho. *Dynam-IX: a Dynamic Interconnection eXchange*, In: Posters and Demos of ACM SIGCOMM'18, August, 2018.

Alowayed, Yousef; Canini, Marco; ***Marcos, Pedro***; Chiesa, Marco; Barcellos, Marinho. *Picking a Partner: A Fair Blockchain-Based Scoring Protocol for Autonomous Systems*, In: ACM, IRTF & ISOC Applied Networking Research Workshop 2018 (ANRW'18), July, 2018.

Kathiravelu, Pradeeban; Chiesa, Marco; ***Marcos, Pedro***; Canini, Marco; Veiga, Luís. *Moving Bits with a Fleet of Shared Virtual Routers*. In: IEEE/IFIP Networking'18, May, 2018.

Marcos, Pedro; Wermann, Alexandre; Bertholdo, Leandro; Barcellos, Marinho. *DYNAMIX: A Dynamic Agreement Marketplace on Internet eXchange Points*. In: Student Workshop ACM CoNEXT'16, December, 2016.

Kolberg, Wagner; ***Marcos, Pedro***; Anjos, Julio; Miyazaki, Alexandre; Geyer, Claudio; Arantes, Luciana. *MRSG - A MapReduce simulator over SimGrid*. In: Parallel Computing, v. 39, p. 233-244, 2013.

Duarte Filho, Nelson; Botelho, Silvia; Carvalho, Jonata; ***Marcos, Pedro***; Maffei, Renan; Remor, Rodrigo; Oliveira, Rodrigo; Hax, Vinicius. *An immersive and collaborative visualization system for digital manufacturing*. International Journal, In: Advanced Manufacturing Technology, v. 50, p. 1253-1261, 2010.

Service

External reviewer: IMC'17, SBRC'17
Local organizing committee: SIGCOMM'16

Awards

Travel Grant award PAM'19
3rd-place in the Student Research Competition of the ACM SIGCOMM'18
Travel Grant award ACM SIGCOMM'18
Travel Grant award ACM IMC'17
Travel Grant award ACM CoNEXT'16