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Measurement-driven mobile data traffic modeling in a large metropolitan area

Abstract

Understanding mobile data traffic demands is crucial to the evaluation of strategies addressing the problem of high bandwidth usage and scalability of network resources, brought by the pervasive era. In this talk, I will present my works on a detailed measurement-driven modeling of smartphone subscribers[1] mobile traffic usage in a metropolitan scenario. For this, a large-scale dataset collected inside the core of a major 3G network of Mexico[1]s capital was used. We first analyse individual subscribers routinary behaviour and observe identical usage patterns on different days.This motivates us to choose one day for studying the subscribers[1] usage pattern (i.e., [3]when[2] and [3]how much[2] traffic is generated) in detail. We then classify the subscribers in four distinct profiles according to their usage pattern. We finally model the usage pattern of these four subscriber profiles according to two different journey periods: peak and non-peak hours. We show that the synthetic trace generated by our data traffic model consistently imitates different subscriber profiles in two journey periods, when compared to the original dataset.

Biographical Sketch

Aline Carneiro Viana is a CR1 at INRIA Saclay - Ile de France. She received her habilitation from Université Pierre et Marie Curie, Paris, France in 2011. From November 2009 to October 2010, Dr. Viana was in a sabbatical leave at the Telecommunication Networks Group (TKN) of the Technischen Universität Berlin (TU-Berlin), Germany. Dr. Viana got her PhD in Computer Science from the University Pierre et Marie Curie -Paris VI in 2005. After having hold a postdoctoral position at IRISA/INRIA Rennes - Bretagne Atlantique in the PARIS research team, she obtained a permanent position at INRIA Saclay - Ile de France, in 2006. Dr. Viana's research addresses the design of solutions for self-organizing and dynamic networks with the focus on: opportunistic routing and data dissemination, data and structure organization in autonomous distributed systems, opportunistic forwarding protocols, and social mobile wireless networks. She presented papers in these fields in conferences such as ACM MobiHoc, IEEE SECON, IEEE Infocom, ACM MSWiM, IEEE PERCOM and journals such as IEEE Transaction on Mobile Computing, Pervasive and Mobile Computing (PMC) Elsevier, Ad Hoc Networks Elsevier, ACM Computing Surveys, Computer Networks Elsevier, main conferences and journals on mobile and wireless network community. She is also Associate Editor of ACM Computer Communication Review (ACM CCR).