

## Broadband Wireless Networking in the Era of Big Data

**Abstract.** Organizations accumulate huge amounts of data from various systems, however more often the data is stored but not organized or analyzed by these organizations. Mobile Service Providers (MSPs) in their efforts to provide more efficient heterogeneous networks (HetNets) deal daily with huge amount of signaling data characterized by the same features of Big Data. The successful implementation of a Big Data System (BDS) involves having the required infrastructure in place to process the data. There are three key areas involved with a Big Data infrastructure which include: data acquisition, data organization, and data analysis. Since Big Data involves higher velocity, volume and variety, an organization must have the ability to capture this data. With more dependence on mobile communications, MSPs need to employ a system to efficiently extract and analyze network utilization. This research proposes the utilization of BDS to determine if it brings a value to MSPs and their customers. This work discusses the design, implementation and utilization aspects of a Hadoop system that can help MSPs delve deep into their big data stores to analyze the potential of adding value to the organization. A system architecture for the BDS supporting the HetNets operations will be presented together with the recommendations of an analytics framework to act as a decision support system for wireless traffic monitoring and control. This framework will help MSPs in forecasting the network traffic and adjusting different network operating parameters which in turn provide a better customers experience and higher return on investment.

**Biography.** Dr. Tamer Omar is an Assistant professor with the Department of Technology Systems at East Carolina University. Dr. Omar earned his Ph.D. from the Electrical Engineering department at Iowa State University, USA, his MBA with emphasis on MIS from the Arab Academy for Science and Technology, Egypt and his B.S. degree in Electrical Engineering from Ain Shams University, Egypt. Dr. Omar's research interests include wireless network architectures, resources allocation in wireless networks, heterogeneous networks, self-organized networks, big data implementation and analysis, RDBMS and decision support systems. Dr. Omar has 6 years of experience in academia and more than 10 years of industrial experience in different ICT positions.



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Friday February 10, 2016  
1:00pm – 1:50pm  
Room: SCITEC 0144A

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