

Wireless Network Mobility Emulation over Wired Testbeds: A Review

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Abstract— Wireless networks technologies offer the opportunity for the users to move as they continuously use the network. Mobility has a great impact on the network performance, behaviour, and ability to provide consistent service over a wide area network. This capability exists for traditional wireless technologies such as IEEE 802.11a/b/g/n (WLAN), and also for newer technologies such as IEEE 802.16e (WiMAX). Modelling different types of user mobility and behaviour is of primary importance in evaluation of performance and testing of protocols for wireless data networks as the real capability of wireless networks lies in mobility. The evaluation of wireless research is challenging because wireless networks are complex. There is high-variability of conditions depending on environment, motion, etc. Also, to study the mobility, coordinated displacement of wireless nodes has to be monitored, which is a tedious task with a high overhead cost. Moreover, it is very important to be able to repeat the experiments, without compromising with the realism. Hence, wireless emulation is impossible if we use the real wireless hardware and infrastructure, unless the wireless communication conditions are fully controllable. By exploring the benefits and challenges of emulating wireless mobility in various existing wired testbeds, this paper attempts to facilitate the understanding of the implications of wireless emulation and designing mobility emulation framework for existing wired network testbeds.

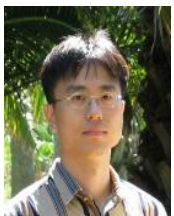
Keywords— Emulation, Wired Testbed, Wireless Testbed, Mobility, Emulab.



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