

Komondor: a Wireless Network Simulator for Next-Generation High-Density WLANs

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Abstract— Komondor is a wireless network simulator for next-generation wireless local area networks (WLANs). The simulator has been conceived as an accessible (ready-to-use) open source tool for research on wireless networks and academia. An important advantage of Komondor over other well-known wireless simulators lies in its high event processing rate, which is furnished by the simplification of the core operation. This allows outperforming the execution time of other simulators like ns-3, thus supporting large-scale scenarios with a huge number of nodes. In this paper, we provide insights into the Komondor simulator and overview its main features, development stages and use cases. The operation of Komondor is validated in a variety of scenarios against different tools: the ns-3 simulator and two analytical tools based on Continuous Time Markov Networks (CTMNs) and the Bianchi's DCF model. Results show that Komondor captures the IEEE 802.11 operation very similarly to ns-3. Finally, we discuss the potential of Komondor for simulating complex environments - even with machine learning support - in next-generation WLANs by easily developing new user-defined modules of code.

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