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A method to estimate efficiency of the connection control mechanisms in wireless self-organizing networks. (English. Russian original) [Zbl 1255.93053](#)
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Summary: An original method to estimate efficiency of the algorithms for opening and closing links in the wireless self-organizing networks (mesh networks) was proposed. It can be used to develop a mathematical model of the algorithm standardized in the mesh network specification IEEE 802.11s. The proposed method was shown to be sufficiently general and applicable to developing the models of other link management algorithms.

MSC:

93B40 Computational methods in systems theory (MSC2010)

Software:

[ns-3](#)

Full Text: [DOI](#)

References:

- [1] IEEE 802.11s STANDARD for Information Technology–Telecommunications and Information Exchange between Systems–Local and Metropolitan Area Networks–Specific Requirements–Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications Amendment: Mesh Networking, 2011, <http://standards.ieee.org> .
- [2] IEEE Standard for Information Technology–Telecommunications and Information Exchange between Systems–Local and Metropolitan Area Networks–Specific requirements–Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications, 2007, <http://standards.ieee.org> .
- [3] Vishnevskii, V.M., Lakontsev, D.V., Safonov, A.A., and Shpilev, S.A., Mesh-Networks: Pending Standard IEEE 802.11s, *Elektronika: NTB*, 2008, no. 3, pp. 98–106.
- [4] Huang, Y.C., Bhatti, S., and Parker, D., Tuning OLSR, *Proc. 17 Ann. IEEE Int. Sympos. Personal, Indoor and Mobile Radio Commun., PIMRC'06*, Helsinki, 2006.
- [5] Voorhaen, M. and Blondia, C., Analyzing the Impact of Neighbor Sensing on the Performance of the OLSR Protocol, *Proc. 4 Int. Sympos. Model. Optim. Mobile, Ad Hoc, and Wireless Networks (WiOpt06)*, Boston, 2006.
- [6] Jacquet, P. and Clausen, T., Optimized Link State Routing Protocol (OLSR), IETF, 2003 (<http://www.ietf.org/rfc/rfc3626.txt>).
- [7] Nayebe, A., Karlsson, G., and Sarbazi-Azad, H., Evaluation and Design of Beaconing in Mobile Wireless Networks, *Ad Hoc Netw.*, 2011, no. 9, pp. 368–386.
- [8] The Official Linux Wireless wiki. Linux Wireless (<http://wireless.kernel.org/>).
- [9] The ns-3 Network Simulator (<http://www.nsnam.org/>).
- [10] Ogier, R., Templin, F., and Lewis, M., Topology Dissemination Based on Reverse-Path Forwarding (TBRPF), IETF, 2004 (<http://tools.ietf.org/html/rfc3684>).
- [11] Kudryavtsev, L.D., *Kurs matematicheskogo analiza (Course of Mathematical Analysis)*, vol. 2, Moscow: Drofa, 2004.

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