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A simulation of traffic equilibration multi-path routing in ad hoc networks. (English)

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Summary: Limited battery life is a known problem with mobile computers. In multi-hop ad hoc networks mobile nodes' excessive energy consumption leads to extinction of nodes and network partition. As communication is the main cause for energy consumption, we need to develop routing methods that prevent overloading of nodes. For this we propose the use of network equilibration. By distributing traffic to several routes according to traffic equilibrium we achieve longer network lifetime and maintain better connectivity. On the other hand, this kind of multi-path routing, carried out here by the use of load balancing cost functions, is a form of congestion control. Network congestion control decreases packet collisions and eventually leads to better throughput. This paper reports a study of ad hoc routing covering equilibrated routing, simulation and performance evaluation in terms of energy consumption and network lifetime.

MSC:

68M10 Network design and communication in computer systems

Keywords:

equilibrated routing; performance evaluation; energy consumption; network lifetime

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