Optimal and Suboptimal Routing Based on Partial CSI in Random Ad-hoc Networks

ABSTRACT

In this paper we consider routing in random wireless-adhoc-networks (WANETs), where each node is equipped with a single antenna. Our analysis uses a proper model of the physical layer together with an abstraction of higher communication layers. In this work, we present the exact optimal solution for the scenario analyzed. The optimal routing is given as a maximization of a routing metric which depends solely on the known partial channel state information (CSI) and includes an expectation with respect to the interference statistics. The optimal routing scheme is important because it gives an upper bound on the performance of any other routing scheme. We also present sub-optimal routing schemes that only use part of the available knowledge and require much lower computational complexity. Numerical results demonstrate that the performance of the low complexity schemes is close to optimal and outperforms other tested routing schemes.

EXISTING SYSTEM

- In existing system, three sub-optimal, low-complexity routing schemes that can be evaluated in a closed form.

- The routing scheme is very close to the optimal routing (given only local information at each transmitting node). The simplicity of the scheme, together with its near optimality make it a good candidate for routing in practical single antenna WANETs.

- This structure enables easy integration with other routing schemes that take additional constraints into account.

PROPOSED SYSTEM

- A novel routing schemes for WANETs is proposed.

- Specifically, the decisions on the next-hop are based on the locations of the nodes, and the selections are independent among nodes.

- At very high channel gains the achievable rate increases very slowly, and hence the routing metrics are much less sensitive.

SYSTEM REQUIREMENTS

HARDWARE REQUIREMENTS

•Processor   -   Intel core i3

•RAM   - 2B

•Hard Disk   - 20 GB

SOFTWARE REQUIREMENTS

•Operating System : LINUX

•Tool : Network Simulator-2

•Front End : OTCL (Object Oriented Tool Command Language)

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