Resource Allocation Robust to Traffic and Channel Variations in Multihop Wireless Networks

ABSTRACT

- In the formulated problem, there are probabilistic constraints, which are difficult to handle.
- Effective methods are provided that can transform the probabilistic constraints to convex constraints.
- As the resource allocation does not need instantaneous channel instantaneous traffic rate information, it is robust to channel and traffic variations, with very little communication and computation overhead.
- We provide methods to transform probabilistic constraints to closed-form constraints.

EXISTING SYSTEM

- In a multihop wireless network, the traffic at each node and the channel over each link may fluctuate with time.
- Thus, traditional optimal resource allocation needs to be computed for each moment with instantaneous information of channel states over all links and the traffic rates at all nodes, leading to huge communication overhead and computation cost.
- To solve this challenge, in this correspondence, we propose to use robust resource allocation, in which the only needed information is the mean and variance of the wireless channels and the traffic rates.

PROPOSED SYSTEM

- In this paper, we investigate resource allocation for multihop wireless networks that is robust to variations of channel states and traffic rates.
- For the cases with known and sampled statistics of channel states and traffic rates, optimization problems subject to constraints on SNR outage, rate outage, and traffic outage are formulated.
- The transformations are proved to make the problems convex, and thus, the problems can be solved by existing convex optimization methods.

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)

REFERENCE

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