

Adaptive cluster based routing protocol with ant colony optimization for mobile ad-hoc network in disaster area

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Abstrak

Pada upaya rehabilitasi pascabencana, ketersediaan fasilitas telekomunikasi memiliki peranan yang sangat penting. Namun, proses untuk memperbaiki fasilitas telekomunikasi di daerah bencana memiliki resiko jika dilakukan oleh manusia. Oleh karena itu, metode jaringan yang dapat bekerja secara efisien, efektif, dan mampu mencapai area seluas mungkin diperlukan. Penelitian ini memperkenalkan sebuah protokol routing berbasis klaster bernama Adaptive Cluster Based Routing Protocol (ACBRP), yang dilengkapi dengan metode Ant Colony Optimization, dan diimplementasikan pada simulator yang dikembangkan penulis. Setelah data dianalisis dan dilakukan uji statistik, disimpulkan bahwa protokol routing ACBRP beroperasi lebih baik daripada protokol routing AODV maupun DSR.

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Abstract

In post-disaster rehabilitation efforts, the availability of telecommunication facilities takes important role. However, the process to improve telecommunication facilities in disaster area is risky if it is done by humans. Therefore, a network method that can work efficiently, effectively, and capable to reach the widest possible area is needed. This research introduces a cluster-based routing protocol named Adaptive Cluster Based Routing Protocol (ACBRP) equipped by Ant Colony Optimization method, and its implementation in a simulator developed by author. After data analysis and statistical tests, it can be concluded that routing protocol ACBRP performs better than AODV and DSR routing protocol.