

## ANALISA PERFORMANSI DYNAMIC SOURCE ROUTING (DSR) PADA WIRELESS AD HOC NETWORK (PERFORMANCE ANALYSIS OF DYNAMIC SOURCE ROUTING (DSR) IN WIRELESS AD HOC NETWORKS)

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### Abstrak

Jaringan ad hoc adalah kumpulan dari beberapa mobile host yang membentuk suatu jaringan yang bersifat sementara tanpa ada infrastruktur dan administrasi terpusat dengan karakteristik topologi yang dinamis. Hal ini menimbulkan masalah dalam hal routing dimana konvensional routing tidak didesain untuk topologi yang dinamis. Routing konvensional seperti RIP dan OSPF juga menyebabkan pemborosan bandwidth, resource CPU, memory, storage, dan battery power. Suatu node pada jaringan ad hoc dapat berupa Personal Digital Assistans (PDA) dan laptop dimana sering kali sangat terbatas pada resource seperti kapasitas CPU, memori, daya baterai, dan bandwidth. Hal ini berarti bahwa protokol routing harus dapat meminimalkan kontrol trafik misalnya periodik update message. Selain itu protokol routing harus reaktif, dimana hanya akan mencari atau menentukan suatu route ketika menerima request khusus.

Pada tugas akhir ini disimulasikan mekanisme routing pada jaringan wireless ad hoc berbasis 802.11 WLAN dengan menggunakan routing DSR dimana memiliki perbedaan karakteristik seperti mobilitas dan skalabilitas. Fitur utama dari DSR adalah source routing dimana node pengirim mengetahui secara lengkap setiap hop yang dilalui untuk mencapai tujuan. Paket data membawa source route dan diletakkan pada header paket.

Pada simulasi terlihat bahwa DSR memiliki performansi yang sangat bagus dalam routing overhead dan throughput ketika mobilitas tinggi. Di lain pihak, konvensional routing seperti DSDV performansinya turun ketika mobilitas tinggi.

### Kata Kunci :

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### Abstract

An ad hoc network is a collection of wireless mobile host forming a temporary network without the aid of any established infrastructure or centralized administration that has dynamic topologies characteristics. It is caused routing problems that the conventional routing does not design in such dynamic topology. Conventional routing like RIP and OSPF also caused wastes of bandwidth, CPU resource, memory, storage, and battery power.

The node in an ad hoc network can consist of Personal Digital Assistants (PDA) and laptops and are often very limited in resource such as CPU capacity, memory capacity, battery power, and bandwidth. This mean that the routing protocol should try to minimize the control traffic, such as periodic update message. Instead the routing protocol must be reactive, thus only calculate route upon receiving a specific request.

This final assignment simulate how routing mechanism in wireless ad hoc network based on 802.11 wireless LAN which using DSR protocol that have different characteristic both mobility and scalability. The key feature of DSR is the use of source routing that the sender knows the complete hop-by-hop route to the destination. The data packets carry the source route in the packets header.

The simulation have shown that DSR perform very well on routing overhead and throughput when mobility is high. In the otherhand, the routing protocol based on table driven routing like DSDV decrease in performance when mobility is high.

### Keywords :

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