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Analisis kinerja protokol routing Ad hoc On - Demand Distance Vector (AODV) pada jaringan ad hoc hybrid ; perbandingan hasil simulasi dengan NS-2 dan implementasi pada testbed dengan PDA = Ad Hoc on-Demand Distance Vector (AODV) routing protocol performance evaluation on hybrid ad hoc network : comparison of result of Ns-2 simulation and implementation on testbed using PDA

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Abstrak

Pada Mobile Ad hoc NETwork (MANET), node yang dilengkapi dengan peralatan wireless memiliki kemampuan untuk mengelola dan mengorganisasi secara mandiri, walaupun tanpa kehadiran suatu infrastruktur jaringan. Jaringan ad hoc hybrid, memungkinkan beberapa node yang bergerak bebas (mobile) membangun komunikasi yang seketika (instant) dan terbebas dari ketergantungan pada infrastruktur dapat mengakses ke Local Area Network (LAN) atau ke Internet. Fungsi dari jaringan ad hoc sangat tergantung pada routing protocol yang menentukan jalur atau rute diantara node. Ad hoc On-demand Distance Vector (AODV) adalah salah satu routing protocol pada jaringan ad hoc yang bersifat reactive. Protokol ini adalah salah satu protokol yang paling banyak diteliti dan digunakan. Pada penelitian ini dilakukan pengkajian protokol AODV dengan membangun suatu testbed menggunakan Personal Computer, beberapa Laptop (sistem operasi Linux Red Hat 9.0 dan Fedora Core 2), serta Personal Digital Assitant (PDA). Penelitian ini juga membuat package yang lengkap dengan cara cross compilation untuk PDA iPAQ. Hasil yang didapat dari analisa simulasi protokol AODV dengan menggunakan Network Simulator NS-2 didapatkan rata-rata packet delivery ratio 99,89% , end-to-end delay sebesar 0,14 detik dan routing overhead sebesar 1.756,61 byte per detik. Kemudian hasil pengukuran simulasi dibandingkan dengan hasil pengukuran testbed. Dari hasil pengukuran testbed didapatkan packet delivery ratio adalah sebesar 99,57%, end-to-end delay sebesar 1,004 detik dan routing overhead sebesar 1.360,36 byte per detik.
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Abstract
In Mobile Ad hoc NETwork (MANET), node supplemented with wireless equipment has the capacity to manage and organise autonomously, without the presence of network infrastructures. Hybrid ad hoc network, enable several nodes to move freely (mobile) to create instant communication. Independent from infrastructure. They could access the Local Area Network (LAN) or the Internet. Functionalities of ad hoc network very much dependent on the routing protocol that determines the routing around node. Ad hoc On-demand Distance Vector (AODV) is one of routing protocols in ad hoc network which has a reactive characteristic. This protocol is the most common protocol being researched and used. In this Research, AODV protocol investigation was conducted by developing a testbed using Personal Computer, several Laptops (the Linux Red Hat operation system 9.0 and Fedora Core 2), and Personal Digital Assistant (PDA). This research also made a complete package by mean of cross compilation for PDA iPAQ. In general, results obtained from the simulation of AODV protocol using Network Simulator NS-2 are packet delivery ratio 99.89%, end-to-end delay of 0.14 seconds and routing overhead of 1,756.61 byte per second. Afterwards results from simulation were compared to results from testbed. Results obtained from testbed are

as follows: the packet delivery ratio is 99.57%, the end-to-end delay is 1.004 seconds and the routing overhead is 1,360.36 byte per second.