Analisa performansi aplikasi video streaming pada jaringan mobile IPv6 = Analysis of video streaming application performance on mobile IPv6 network

Dedi Supriyatna, author

Abstrak

Perkembangan internet berbasis IP telah meningkat dengan pesat yang menyebabkan berkembangnya teknologi pengiriman media streaming. Streaming memungkinkan menampilkan media tanpa harus menunggu keseluruhan media diterima lengkap terlebih dahulu oleh client. Pada skripsi ini telah dibuat sebuah jaringan kecil yang berbasiskan mobile IPv6. Pembangunan jaringan mobile IPv6 sesuai dengan RFC 3755. Komponen-komponen dari jaringan mobile IPv6 tersebut yaitu Home Agent, Correspondent Node, Mobile Node, Foreign Network, dan Home Network. Tiga buah skenario dilakukan untuk mengetahui performansi aplikasi video streaming. Pengukuran parameter Quality of Service berupa delay, jitter, packet loss dan throughput dilakukan pada saat mobile node tidak berpindah network (pada skenario satu dan dua) maupun pada saat proses handover (pada skenario tiga). Pengukuran dilakukan dengan cara streaming video dari server ke client dengan menggunakan aplikasi VLC, kemudian menangkap paket-paket tersebut dengan menggunakan aplikasi wireshark. Dari hasil percobaan diketahui bahwa Quality of Service pada parameter delay saat proses handover dari home network ke foreign network dan begitu juga sebaliknya sangat rendah sebesar 8,3% jika dibandingkan pada saat mobile node tidak berpindah network. Hal ini disebabkan adanya pemutusan koneksi dengan network yang lama sebelum membangun koneksi dengan network yang baru. <hr>The development of IP-Based Internet has been growing rapidly and impacted the data streaming technology. Streaming allows the user to see the video without any compulsion to wait for the video to be full downloaded on the client side. The aim of this thesis is to implement the mobile IPv6 network and to analyze the performance of the video streaming application that runs through the mobile IPv6 network. A small mobile IPv6 network has been built in this project and the network was configured according to the RFC 3755 IETF standard, this network contains several nodes such as Home Agent, Correspondent node, Mobile node, foreign network, and home network. Application performance was tested through three scenarios. The parameters that used to analyze the Quality of Service are delay, jitter, packet loss, and throughput. At the first and the second scenario the parameters were analyzed when the mobile node was fixed (static) while at the third scenario analysis was conducted when the mobile node was moving (handover). The parameters were measured by running the streaming video from server to client using VLC application, and the packets ran through the network were captured with wireshark. The Result shows that when the mobile node is in the handover process, the delay parameter of the QoS is very low approximately 8,3% compared with the delay when the mobile node is in static condition. This difference is caused by the extra time spent at the turnover process of the network from the previous one to the new network.