ANALISIS UNJUK KERJA PADA TOKEN BASED CONGESTION CONTROL DI JARINGAN OPORTUNISTIK

SKIRPSI

Diajukan untuk Memenuhi Salah Satu Syarat

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Program Studi Informatika

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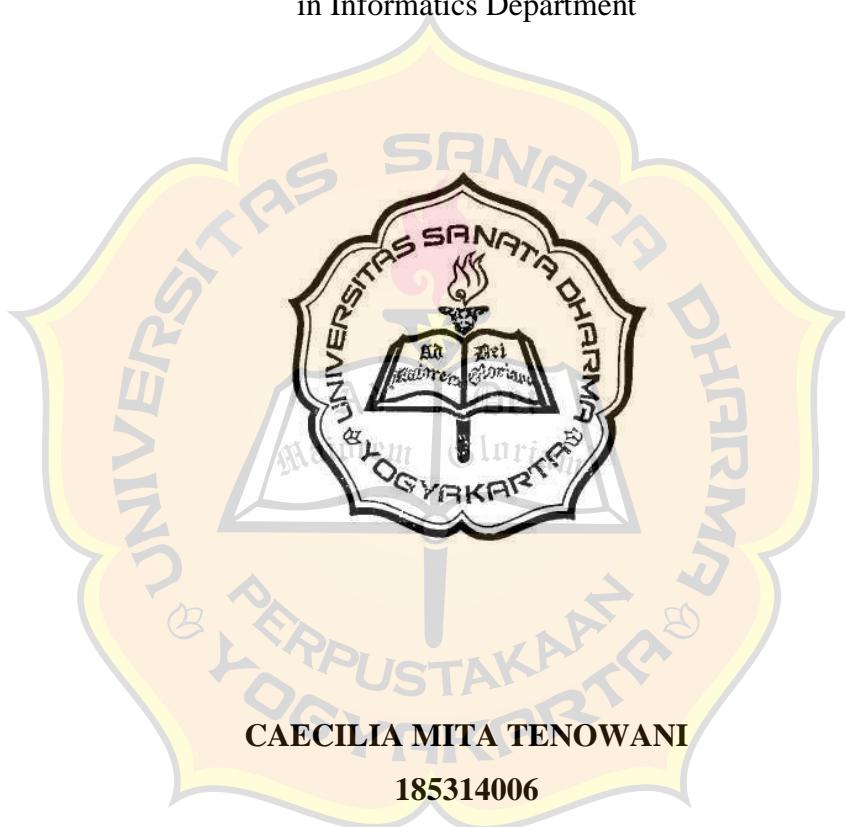
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ABSTRAK

Delay Tolerant Network (DTN) merupakan jaringan nirkabel tanpa infratruktur yang memiliki konektivitas terputus-putus dan penundaan yang lama karena *node* DTN yang terus bergerak. Pengiriman pesan dalam DTN menggunakan mekanisme *store-cary-forward*, dimana *node* akan menyimpan pesan di dalam *buffer*-nya sebelum diteruskan ke node lain. *Buffer* merupakan sumber daya yang terbatas, sehingga diperlukan *congestion control strategy* yang tepat agar dapat mencegah kemacetan. Untuk mengatasi hal tersebut, maka diterapkan *Token Based Congestion Control* (TBCC) dengan *Epidemic Routing Protocol* sebagai strategi penerusan pesan. Pada penelitian ini, penulis akan mengevaluasi *delivery probability*, *end-to-end latency*, *message drop*, dan *buffer occupancy* pada pergerakan *Random Waypoint* dengan GCC dan *Haggle3-Infocom5* sebagai pengukuran unjuk kerja. Berdasarkan hasil analisis, pengujian TBCC mampu menghasilkan unjuk kerja yang lebih baik dibandingkan dengan *Epidemic Routing* tanpa *congestion control*. Walaupun *end-to-end latency* yang dihasilkan TBCC relatif rendah, namun *Epidemic Routing* tanpa *congestion control* masih sedikit lebih unggul karena dengan sistem *flooding*.

Kata Kunci: *Delay Tolerant Network, Epidemic Routing, Congestion Control Strategy, Token Based Congestion Control*.

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ABSTRACT

Delay Tolerant Network (DTN) is a wireless network without infrastructure that has intermittent connectivity and long delays due to constantly moving DTN nodes. Sending messages in DTN uses a store-cary-forward mechanism, where the node will store messages in its buffer before being forwarded to other nodes. Buffers are a limited resource, so a proper congestion control strategy is needed in order to prevent congestion. To overcome this, Token Based Congestion Control (TBCC) is implemented with the Epidemic Routing Protocol as a message forwarding strategy. In this study, the authors will evaluate delivery probability, end-to-end latency, message drop, and buffer occupancy on Random Waypoint movement with GCC and Haggle3-Infocom5 as performance measurements. Based on the analysis, TBCC testing is able to produce better performance compared to Epidemic Routing without congestion control. Although the end-to-end latency produced by TBCC is relatively low, Epidemic Routing without congestion control is still slightly better because of the flooding system.

Keywords: Delay Tolerant Network, Epidemic Routing, Congestion Control Strategy, Token Based Congestion Control.