Energy conservation strategies in named data networking based MANET using congestion control : a review

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ABSTRACT

Research in Named Data Networking-based Mobile Ad-hoc Network (NDN based MANET) has experienced a lot of momentum and development in recent years. Such robust developments in the specific area surely contributes to advanced possibilities that Named Data Networking (NDN) can provide compared to traditional host centric networking (HCN) solutions such as TCP/IP for dynamic routing that is much needed for MANET environment. However, our observation indicates that issues pertaining to the association of network congestion and energy wastage in NDN based MANET has never been explored by any previous researcher. In fact, discussions as to how congestion control was implemented in NDN based MANET is also scarce and no research to date has yet come forward to suggest a complete congestion control solution for NDN based MANET. Therefore, this article reviews the congestion control solution done by previous researcher for NDN in general to understand the characteristic of congestion control solution should be for NDN based MANET. In addition to these reviews, we propose several criteria on congestion control solution that should be incorporated in the NDN based MANET environment.

KEYWORDS

Congestion control; NDN based MANET; Energy efficiency

REFERENCES

1. Aboud, A., Touati, H.

Geographic interest forwarding in NDN-based wireless sensor networks (2016) *Proceedings of IEEE/ACS International Conference on Computer Systems and Applications, AICCSA*, 0, art. no. 7945683.

- Abu, A.J., Bensaou, B., Abdelmoniem, A.M. Leveraging the Pending Interest Table Occupancy for Congestion Control in CCN (2016) Arab United Emirates Dubai
- Agarwal, A., Tahiliani, M.P.
 BCON: Back pressure based congestion avoidance model for Named Data Networks (2016) 2016 IEEE International Conference on Advanced Networks and Telecommunications Systems, ANTS 2016, art. no. 7947823.
- Ahlgren, B., Hurtig, P., Abrahamsson, H., Grinnemo, K.-J., Brunstrom, A. ICN congestion control for wireless link (2018)*IEEE Wireless Communications and Networking Conference, WCNC*, 2018-April, pp. 1-6
- Ahmad, A., Jabbar, S., Paul, A., Rho, S. Mobility aware energy efficient congestion control in mobile wireless sensor network (2014) *International Journal of Distributed Sensor Networks*, 2014, art. no. 530416.