

{tag}

{/tag}

IJCA Proceedings on National  
Workshop-Cum-Conference on Recent Trends in Mathematics and Computing 2011

© 2012 by IJCA Journal

RTMC - Number 5

Year of Publication: 2012

Authors:

Koushik Majumder

Subir Kumar Sarkar

{bibtex}rtmc1037.bib{/bibtex}

## Abstract

The gateway discovery in hybrid network is considered as a critical and challenging task and with decreasing pause time and greater number of sources it becomes even more complex. Due to the scarcity of network resources in MANET, the efficient discovery of the gateway becomes a key issue in the design and development of future hybrid networks. In this paper the AODV reactive routing protocol is extended to support the communication between the MANET and the Internet. We have described the design and implementation of the various gateway discovery approaches and carried out a systematic simulation based performance evaluation of them using NS2 under different network scenarios. The performance differentials

are analyzed on the basis of two QOS parameters - packet delivery fraction and average end-to-end delay.

### Refer

### ences

- C. K. Toh. Ad-Hoc Mobile Wireless Networks, Prentice Hall, 2002.
- S. Corson and J. Macker. "Mobile Ad hoc Networking (MANET): Routing Protocol Performance Issues and Evaluation Considerations", IETF MANET Working Group RFC-2501, January 1999.
- Jermy I. Blum, Azim Eskandarian and Lance J. Hoffman. "Challenges of inter-vehicle Ad hoc Networks", IEEE transactions on Intelligent Transportation Systems, Vol. 5 No. 4 Dec. 2004.
- E. M. Royer and C. K. Toh. "A Review of Current Routing Protocols for Ad hoc Mobile Wireless Networks", IEEE Personal Communications Magazine, April 1999, pp. 46-55. Proceedings of The National Workshop-Cum-Conference on Recent Trends in Mathematics & Computing 2011 The Technological Institute of Textile & Sciences, Bhiwani, Haryana May 21, 2011 471
- C. R. Dow. "A Study of Recent Research Trends and Experimental Guidelines in Mobile Ad-Hoc Networks", in Proceedings of 19th International Conference on Advanced Information Networking and Applications, IEEE, Vol. 1, pp. 72-77, March 2005.
- <http://www.ietf.org/html.charters/manet-charter.html>
- U. Jonsson, F. Alriksson, T. Larsson, P. Johansson and G. Q. Maguire Jr. MIPMANET – Mobile IP for Mobile Ad Hoc Networks, The First IEEE/ACM Annual Workshop on Mobile Ad Hoc Networking and Computing (MobiHOC 2000), Boston, Massachusetts, USA, August 11, 2000, pp. 75-85.
- Y. Sun, E. Belding-Royer and C. Perkins. Internet Connectivity for Ad hoc Mobile Networks, International Journal of Wireless Information Networks, Special Issue on Mobile Ad Hoc Networks (MANETs): Standards, Research, Applications, 9(2), April, 2002.
- J. Broch, D. A. Maltz and D. B. Johnson. Supporting Hierarchy and Heterogeneous Interfaces in Multi-Hop Wireless Ad Hoc Networks, Proceedings of the Workshop on Mobile Computing, Perth, Australia. June 1999.
- R. Wakikawa, J. T. Malinen, C. E. Perkins, A. Nilsson and A. J. Tuominen. Global connectivity for IPv6 mobile ad hoc networks, draft-wakikawa-MANET-globalv6-03.txt, 23 October, 2003.
- P. Ratanchandani and R. Kravets. A Hybrid Approach to Internet Connectivity for Mobile Ad Hoc Networks, Proceedings of the IEEE Wireless Communications and Networking Conference (WCNC), New Orleans, Louisiana, USA, 16-20 March, 2003.
- J. Lee et al. Hybrid Gateway Advertisement Scheme for Connecting Mobile Ad Hoc Networks to the Internet, Proceedings of 57th IEEE VTC 2003, Jeju, Korea, vol. 1, pp. 191-195, April, 2003.
- C. E. Perkins. Ad hoc networking, Addison Wesley, 2001.
- K. Fall and K. Vardhan. Eds., 1999, Ns notes and documentation, available from <http://www.mash.cd.berkeley.edu/ns/>.
- Network Simulator-2 (NS2) <http://www.isi.edu/nsnam/ns>

- IEEE Computer Society LAN MAN Standards Committee. Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications, IEEE Std 802. 11-1997. The Institute of Electrical and Electronics Engineers, New York, 1997.

**Index Terms**

Computer Science  
Technology  
Emerging Trends in

**Keywords**

Mobile Ad Hoc Network Internet Gateway Discovery Approaches Performance  
Study Packet  
Delivery Fraction  
Average End-to-end Delay