



A DISTRIBUTED THREE-HOP ROUTING PROTOCOL TO INCREASE THE CAPACITY OF HYBRID WIRELESS NETWORKS

¹Dr C Suresh Kumar, ²Dr M Sreenivasulu, ³Dr G.S.S.Rao, ⁴Dr Chandra Naik
^{1,2,3,4} Professor, Department of Computer Science and Engineering,
Malla Reddy College of Engineering, Hyderabad.

ABSTRACT:

Hybrid wireless networks combining the advantages of both mobile ad-hoc networks and infrastructure wireless networks have been receiving increased attention due to their ultra- high performance. An efficient data routing protocol is important in such networks for high network capacity and scalability. However, most routing protocols for these networks simply combine the ad-hoc transmission mode with the cellular transmission mode, which inherits the drawbacks of ad-hoc transmission.

INTRODUCTION

Over the past few years, wireless networks including infrastructure wireless networks and mobile ad-hoc networks (MANETs) have attracted significant research interest. Wireless devices such as smart-phones, tablets and laptops, have both an infrastructure interface and an ad-hoc interface. As the number of such devices has been increasing sharply in recent years, a hybrid transmission structure will be widely used in the near future

In a mobile ad-hoc network, with the absence of a central control infrastructure, data is routed to its destination through the intermediate nodes in a multi-hop manner. The multi-hop routing needs on-demand route discovery or route maintenance.

However, direct combination of the two transmission modes inherits the following problems that are rooted in the ad-hoc transmission mode.

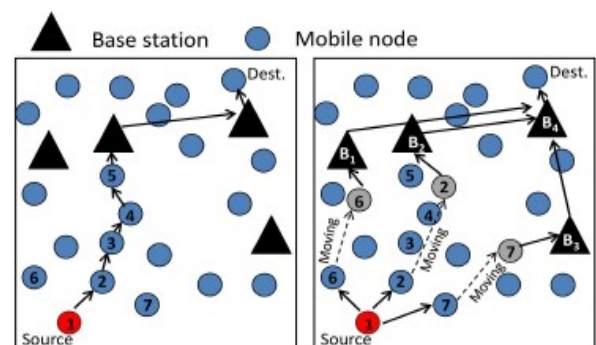
Existing system

A hybrid wireless network synergistically combines an infrastructure wireless network and a mobile ad-hoc network to leverage their advantages and overcome their shortcomings, and finally increases the throughput capacity of a wide-area wireless network. A routing protocol is a critical component that affects the throughput capacity of a wireless network in data transmission.

Proposed System

- Considering the widespread BSEs, the mobile nodes have a high probability of encountering a BS while moving. Taking advantage of this feature, we propose a Distributed Three-hop Data Routing protocol (DTR). In DTR a source node divides a message stream into a number of segments.

- Each segment is sent to a neighbour mobile node. Based on the QOS requirement, these mobile relay nodes choose between direct transmission or relay transmission to the BS. In relay transmission, a segment is forwarded to another mobile node with higher capacity to a BS than the current node. In direct transmission, a segment is directly forwarded to a BS.



(a) Traditional routing algorithm on the uplink direction. (b) Our proposed routing algorithm on the uplink direction.

SYSTEM ARCHITECTURE:

CONCLUSION

Hybrid wireless networks have been receiving increasing attention in recent years. current hybrid wireless networks simply combine the routing protocols in the two types of networks data transmission, which prevents them from achieving higher system capacity. we propose a Distributed Three-hop Routing (DTR) data routing protocol that integrates the dual features of hybrid wireless networks in the data transmission process. In DTR, a source node divides a message stream into segments and transmits them to its mobile neighbors, which further forward the segments to their destination through an infrastructure network.

REFERENCES

- [1] H Luo , R. Ramjee, P. Sinha, L. Li, and S. Lu. Ucan: A unified cell and ad-hoc network architecture. In Proc. of MOBICOM,2003.
- [2] P. K. McKinley , H. Xu, A. H. Esfahanian ,and L. M. Ni. Unicast based multicast communication in wormhole-routed direct networks. TPDS ,1992.
- [3] H. Wu, C. Qiao, S. De, and O. Tonguz. Integrated cell and ad hoc relaying systems: iCAR. J-SAC,2001.
- [4] Y. H. Tam, H. S. Hassanein , S. G. Akl , and R. Benkoczi . Optimal multi-hop cellular architecture for wireless communications. In Proc. Of LCN,2006.
- [5] Y. D. Lin and Y. C. Hsu. Multi-hop cellular: A new architecture for wireless communications. In Proc. of INFOCOM, 2000.
- [6] P. T. Oliver, Dousse, and M. Hasler. Connectivity in ad hoc and hybrid networks. In Proc. of INFOCOM, 2002.