A Review of Routing Protocols for Practical Rural Wireless Mesh Networks (WMNs)

Volume 114 - Number 16
Year of Publication: 2015

Authors:
Ayomide Olanrewaju Ajayi
Adebisi Abimbola Adigun
Wasiu Oladimeji Ismaila

10.5120/20062-2114

Abstract

The flexibility of WMNs affords their usage to provide broadband and communications services in many environments including rural domains. Routing protocols are central to the design of rural networks to ensure data availability and efficient performance especially under dynamic conditions of resource-constrained rural areas. In this paper, we review four routing protocols utilized for rural deployments namely AODV, OLSR, OSPF and BATMAN vis-à-vis the most critical metrics for rural requirements. Specifically, the comparative analysis shows the need for an objective evaluation of protocols for rural WMN scenarios. We also noted that metrics such as protocol overhead, convergence time and topology control remains critical for the performance of rural WMNs. Consequently, we argue that an objective performance evaluation offers a reliable selection criterion regarding the most efficient routing protocol when deploying WMNs. The study will further conduct simulation experiments to advocate the modification and synthesis of reliable protocols that will meet varying stringent requirements of remote settings.

References
A Review of Routing Protocols for Practical Rural Wireless Mesh Networks (WMNs)

- D. Johnson, N. Ntlatlapa, and C. Aichele, &quot;A pragmatic approach to mesh routing using batman.&quot; In 2nd IFIP International Symposium on Wireless Communications and Information Technology in Developing Countries, CSIR, Pretoria, South Africa, 6-7 October 2008, 2008.
- Axel Neumann, Ester L’opez and Leandro Navarro; An evaluation of BMX6 for Community Wireless Networks.
- Massimo Reineri, Roberto Rubino, Claudio Casetti and Carla-Fabiana Chiasserini, Experimental Performance Assessment of WMN Routing Protocols with Mobile Nodes, 2011
- Zhu, Yun, Weirong Jiang, and Zhiming Zhang. &quot;Routing Overhead Minimization in Large-Scale Wireless Mesh Networks. &quot;
- C. Adjih, E. Baccelli, and P. Jacquet, &quot;Link State Routing In Wireless Ad-hoc Networks,&quot; Proc. of MILCOM 2003.
- Kaur, Navneet, and Jatinder Singh Saini. Performance enhancement of 802.11 based


**Index Terms**

Computer Science

Wireless

**Keywords**

AODV  OLSR  OSPF  BATMAN  Objective Evaluation.