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Abstract

Trust management frameworks play a very important role in securing the mobile ad hoc networks against various insider attacks that could occur during data forwarding. The success of a trust management framework greatly depends upon the proper design of each of its major components including the direct trust computation component as well as the indirect trust computation component. Specifically, the indirect trust computation component should be robust to handle the dishonest recommendations. The current paper shows the application of a trust model involving a robust indirect trust computation component called as RecommFilter which has been proposed in our earlier work. It can overcome the various attacks caused by dishonest recommenders. The application involves the integration of the trust model with a routing protocol based upon a reliability measure called as Path Allegiance metric (PAM) which is a cumulative value obtained through the trust values of the on-path nodes upon each other. Experimental results show that the proposed scheme along with PAM routing protocol is robust to different dishonest recommendation attacks and accurate in the detection of dishonest recommenders.

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- A. Jøsang, R. Ismail, and C. Boyd, "A survey of trust and reputation systems for online service provision," *Decis. Support Syst.*, vol. 43, no. 2, pp. 618–644, 2007
- A. Whitby, A. Josang, J. Indulska, Filtering out unfair ratings in bayesian reputation systems, in: *Proceedings of the Third International Joint Conference on Autonomous Agents and Multi Agent Systems*, 2004, pp. 106–117.
- S. Buchegger, J. -Y. L. Boudec, A robust reputation system for p2p and mobile ad-hoc networks, in: *Proceedings of the 2nd Workshop on Economics of Peer-to-Peer Systems*, 2004, pp. 1–6.
- S. Chen, Y. Zhang, Q. Liu, and J. Feng, "Dealing with dishonest recommendation: The trials in reputation management court," *Ad Hoc Networks*, pp. 1603-1618, 2012
- H. Yu, S. Liu, A. C. Kot, C. Miao, and C. Leung, "Dynamic witness selection for trustworthy distributed cooperative sensing in cognitive radio networks," in *Proc. 13th IEEE Int. Conf. Commun. Technol.*, pp. 1-6, Sep. 2011
- C. Zouridaki et al. , "A Quantitative Trust Establishment Framework for Reliable Data Packet Delivery in MANETs," *Proc. 3rd ACM Wksp. Sec. Ad Hoc and Sensor Networks*, Alexandria, VA, Nov. 7, 2005
- C. Zouridaki, B. L. Mark, M. Hejmo, R. K. Thomas, E-Hermes: a robust cooperative trust establishment scheme for mobile ad hoc networks, *Ad hoc Networks* 7 (2009) 1156–1168.

- Shirina Samreen, Dr. G. Narsimha, "Dynamically Adaptive Recommender Filtering Scheme to defend against Dishonest Recommenders in a MANET", *International Journal of Science and Research*, Vol. 4, Issue 5, pp. 388-398, 2015
- G. Shafer, *A Mathematical Theory of Evidence*, Princeton University Press, Princeton, NJ, 1976
- F. Li, J. Wu, Mobility reduces uncertainty in MANETs, in: *Proceedings of INFOCOM'07*, 2007, pp. 1946–1954
- A. L. Josselme, D. Grenier, and E. Bosse, "A new distance between two bodies of evidence," *Information Fusion*, vol. 2, no. 2, pp. 91–101, 2001

Index Terms

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Self-promoting attack

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