

Performance comparisons of AODV, secure AODV and adaptive secure AODV routing protocols in free attack simulation environment.

ABSTRACT

There have been various secure routing protocols proposed for mobile ad hoc networks. Most of these protocols are analyzed by three standard techniques: simulation, security analysis and real network testbed. In this paper, Ad Hoc On-Demand Distance Vector (AODV) routing protocols was selected as the basis of the entire simulations. Due to the needs of securing the routing in the wireless ad hoc networks, Secure AODV (SAODV) was developed to add security to original AODV which includes cryptographic operations that can have a significant impact on the routing performance. To get better performance while maintaining the secure routing, Adaptive SAODV (A-SAODV) was developed based on the SAODV implementation, which was claimed to introduce some improvement on the routing compared to the SAODV. Based on this justification, some analysis and studies are made on the performance and impacts using AODV, Secure AODV (SAODV) and Adaptive Secure AODV (A-SAODV) in a free-attack simulation environment to analyze these routing protocols and make some comparisons on the performance. The collection of simulation results will show the performance impact of security implementation into the original AODV after the implementations of SAODV and A-SAODV into the networks.

Keyword: Routing protocols (Computer network protocols); AD hoc networks (Computer networks); Computer simulation; Computer security; Cryptographic.