Securing Ad-Hoc On-Demand Distance Vector Protocol in Wireless Sensor Networks: Working with What the Node Can Offer

ABSTRACT

- Wireless sensor networks (WSNs) are considered to be one of the most important technologies of the 21st century. As a result, WSNs have been used in numerous applications in industry, health monitoring, environmental monitoring, and other related fields.
- However, the unprotected nature of WSN protocols such as the Ad-hoc On-Demand Distance Vector (AODV) Protocol makes them prone to malicious attacks. One such attack is the replay attack.
- A single sensor node has limited computation and communication capabilities, but processing routing information through data structures with acceptable time and space complexity can lead to secure data acquisition and sensing.
- Sensor nodes have limited energy resources, so this attack can have a serious impact on network functionality. In this work, Bloom filters are used to identify the legitimacy of a packet.

EXISTING SYSTEM

- Tang et. al. proposed COF (Connectivity based Outlier Factor) based on link outlier factor chain distance can be divided by the average value of chain distance of its all nearest neighbor point distance, so as to define the outlier factor of data.
- Thus, when the data distribution is sparse and some patterns are distributed, there will be a good effect of outlier detection. Subsequently, Hui Cao and other people proposed DSNOF (Density Similarity Neighbor based Outlier Factor), which can further strengthen the effect of outlier detection when COF presents the case of deviation.

PROPOSED SYSTEM

- In this paper, it will firstly introduce the two main algorithm methods based on LOF, namely, INLOF and COF, then putting focus on the proposed improved algorithms according to the shortcomings of these two kinds of algorithms, moreover it analyzes the time complexity of the algorithm, in the next chapter it will analyze the effectiveness of the proposed algorithm through the experiment.

HARDWARE REQUIREMENTS

- Processor – Pentium –III
- Speed – 1.1 Ghz
- RAM – 256 MB(min)
- Hard Disk – 20 GB
- Floppy Drive – 1.44 MB
- Key Board – Standard Windows Keyboard
- Mouse – Two or Three Button Mouse
- Monitor – SVGA

SOFTWARE REQUIREMENTS

- Operating System : Windows 8
- Front End : Java /DOTNET
- Database : Mysql /HEIDISQL

CONCLUSION

- Replay attacks have an inevitable impact on energy storage
- in WSN nodes. They decrease residual energy and increase
- exchanged protocol and data messages. Bloom filters can salvage energy storages in different levels according to how big
- the WSN is and how long the path of transmission is.

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