**CoCoWa: A Collaborative Contact-Based Watchdog for Detecting Selfish Nodes**

**ABSTRACT:**

Mobile ad-hoc networks (MANETs) assume that mobile nodes voluntary cooperate in order to work properly. This cooperation is a cost-intensive activity and some nodes can refuse to cooperate, leading to selfish node behaviour. Thus, the overall network performance could be seriously affected. The use of watchdogs is a well-known mechanism to detect selfish nodes. However, the detection process performed by watchdogs can fail, generating false positives and false negatives that can induce to wrong operations. Moreover, relying on local watchdogs alone can lead to poor performance when detecting selfish nodes, in term of precision and speed. This is specially important on networks with sporadic contacts, such as delay tolerant networks (DTNs), where sometimes watchdogs lack of enough time or information to detect the selfish nodes. Thus, we propose collaborative contact-based watchdog (CoCoWa) as a collaborative approach based on the diffusion of local selfish nodes awareness when a contact occurs, so that information about selfish nodes is quickly propagated. As shown in the paper, this collaborative approach reduces the time and increases the precision when detecting selfish nodes.

**EXISTING SYSTEM:**

The impact of node selfishness on MANETs has been studied in credit-payment scheme. In credit-payment scheme it is shown that when no selfishness prevention mechanism is present, the packet delivery rates become seriously degraded, from a rate of 80 percent when the selfish node ratio is 0, to 30 percent when the selfish node ratio is 50 percent. The number of packet losses is increased by 500 percent when the selfish node ratio increases from 0 to 40 percent. A more detailed study shows that a moderate concentration of node selfishness (starting from a 20 percent level) has a huge impact on the overall performance of MANETs, such as the average hop count, the number of packets dropped, the offered throughput, and the probability of reachability. In DTNs, selfish nodes can seriously degrade the performance of packet transmission. For example, in two-hop relay schemes, if a packet is transmitted to a selfish node, the packet is not re-transmitted, therefore being lost.

**DISADVANTAGES OF EXISTING SYSTEM:**

* Increase the selfish nodes
* Increase the packet loss
* Reduce the throughput
* Increase overhead
* In DTNs, selfish nodes can seriously degrade the performance of packet transmission. For example, in two-hop relay schemes, if a packet is transmitted to a selfish node, the packet is not re-transmitted, therefore being lost.

**PROPOSED SYSTEM:**

* This project introduces Collaborative Contact-based Watchdog (CoCoWa) as a new scheme for detecting selfish nodes that combines local watchdog detections and the dissemination of this information on the network. If one node has previously detected a selfish node it can transmit this information to other nodes when a contact occurs. This way, nodes have second hand information about the selfish nodes in the network.
* The goal of our approach is to reduce the detection time and to improve the precision by reducing the effect of both false negatives and false positives. In general, the analytical evaluation shows a significant reduction of the detection time of selfish nodes with a reduced overhead when comparing CoCoWa against a traditional watchdog.
* The impact of false negatives and false positives is also greatly reduced. Finally, the pernicious effect of malicious nodes can be reduced using the reputation detection scheme. We also evaluate CoCoWa with real mobility scenarios using well known human and vehicular mobility traces.

**ADVANTAGES OF PROPOSED SYSTEM:**

* Reduce the selfish nodes
* Increase the throughput
* Decrease the overhead

**SYSTEM ARCHITECTURE:**

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**BLOCK DIAGRAM:**

**CoCoWa**

**Detect the selfish nodes**

**Use local watchdog detection scheme**

**If detect the selfish node**

**Send that information to other nodes**

**Reduce detection time**

**Reduce the effect of false positives and false negatives**

**SYSTEM SPECIFICATION**

**Hardware Requirements:**

* System : Pentium IV 3.5 GHz.
* Hard Disk : 40 GB.
* Floppy Drive : 1.44 Mb.
* Monitor : 14’ Colour Monitor.
* Mouse : Optical Mouse.
* Ram : 1 GB.

**Software Requirements:**

* Operating system : Windows XP or Windows 7, Windows 8.
* Coding Language : Java – AWT,Swings,Networking
* Data Base : My Sql / MS Access.
* Documentation : MS Office
* IDE : Eclipse Galileo
* Development Kit : JDK 1.6