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Mobility and Reputation consideration in Manets

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Abstract: Mobility is main problem in manets. Node movement increases the chance for potential contactors to gather more trust information and evidence, thus enlarging the scope of reputation qualified candidate nodes popularly. Micro Mobility and macro mobility are two movements we have to consider. So checking mobility is main important. Existing system uncertainty deeply impacts a node's anticipation of others' behavior and decisions during interaction, After defining a way to reveal and compute the uncertainty in trust opinions we consider mobility, one of the important characteristics of MANETs, to efficiently reduce uncertainty and to speed up trust convergence. In existing System, Two different categories of mobility-assisted uncertainty reduction schemes are provided: the proactive schemes exploit mobile nodes to collect and broadcast trust information to achieve trust convergence; the reactive schemes provide the mobile nodes methods to get authenticated and bring their reputation in the original region to the destination region. In this paper, we consider mobility to support our reputation system. Two types of mobility are included based on distance.

Keyterms: mobility, trust information, manets

Introduction: Mobility is main feature in Manets. In Manets node to node connectivity is checked. If mobiles are moving then handover increases based on distance. MOBILE ad hoc networks (MANETs) aim to provide wireless network services without relying on any infrastructure. The main challenge in MANETs comes from their self-organized and distributed nature. There is an inherent reliance on collaboration between the participants of a MANET in order to achieve the aimed functionalities.

Collaboration is productive only if all participants operate in an honest manner. Therefore, establishing and quantifying trust, which is the driving force for collaboration, is important for securing MANETs. Trust can be defined as the firm belief in the competence of an entity to act dependably, securely, and reliably within specified context. It represents a MANET participant's anticipation of other nodes' behavior when assessing the risk involved in future interactions. Here, the participant is usually called the trustor, and other nodes are called the trustee. The trust relationship usually builds on the basis of the trustor's past direct interaction experiences and others' recommendations related to the trustee. The abstracted value from past experiences and recommendations is defined as the trustee's reputation. Many reputation systems have been proposed in literature. Most of them sharply divide the recorded behavioral information into right or wrong. For example, in the EigenTrust model [1], behavioral information is obtained by counting the number of "satisfactory" and "unsatisfactory" \interactions, and the difference between these two values is stored as reputation. Besides lacking a precise semantic, this information has abstracted away any notion of time. In EigenTrust, value 0 may represent both "no past interaction" and "many unsatisfactory past interactions." Consequently, one cannot verify exact properties of past behavior based on this information alone.

Two types of mobility schemes are to be considered. One is micro mobility which stands for minimum distance. Another stands for macro mobility which is long distance.

Previous Works: In existing System, a one-dimensional representation of belief, disbelief, and uncertainty is extended from the subjective logic [2]. Each node keeps a belief and disbelief value toward other nodes as a prediction of their future behavior. As these two values are only predictions, uncertainty always exists. We use a triplet to represent a node's opinion (b,d, u) b,d,u are designate belief, disbelief, and uncertainty, respectively.

Our approach: When the requirement is a short convergence time to quickly start a trust-based application, or a controllable cost, the above two mobility models will offer extreme options. However, these two methods are not flexible enough and we lack a way to find a trade-off between convergence time and cost to satisfy different application objectives. Here, we present a two-level controlled mobility model, which is called hierarchical scheme. In hierarchical scheme, we divide the whole network into several regions, allowing each region to contain a specified number of grids, and choose mobility models for inter- and intraregion movement. Hierarchical scheme combines the advantages of the above two models and offers more options for MANET implementation. Various kinds of clustering mechanisms have been proposed in the MANETs [8], [9]. After using one of the existing clustering mechanisms, this hierarchical scheme can be applied on top of the clusters.

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Algorithm 1. VoteForMove
1: while t<Tlimit
2: if m<mthreshold
3: get opinion(node)
4:else if m>=mthreshold
5:Get opnion(node,Supervisor)
4: end while
5: Compute(b; d; u) for each node;
6: if the largest b in all the opinions satisfy b >= Bmin then
7: Vote the node with the largest b;
8: Wait (elected moving node)
9: else
10: Continue();
11: end if;
In this algorithm, movement is calculated based on distance. If m is within threshold then it is called micro mobility. Micro mobility doesn't require confirmation from supervisor. Because movement is within distance. But Macro mobility requires confirmation from nearest supervisor. This supervisor acts as Foreign agent from one place to another place. All nodes will store mobile behavior but supervisor will store particular opinion only.

Algorithm 2. Vote Gathering
1:Counter++;
2: if counter>=threshold then
Start move();
Broadcast();
4: end if;

This algorithm shows counter increment. If counter meets threshold then node broadcasts information to all nodes including supervisor. And it starts moving.The moving nodes repeat the local contact process after they arrive in the capital. The pause time period in the capital allows them to build trust between each other and the local nodes of the capital. One node, which is commonly trusted by all moving nodes, will be elected to be the keeper of that region through a process similar to Algorithms 1 and 2. The keeper selects several nodes it trusts as supervisors, which will travel between regions to collect information and feed it back to the keeper.

Conclusion:

We study the impact of nodes' behavior inconsistency on our reputation system. Our approach finds well in all types of mobility schemes like micro and macro mobility. This approach well says about moving mobility. Uncertainty is one important metric in MANETs. Certainty-oriented reputation systems can achieve good detection rates while keeping the false positive rate at a low level. With proactive or reactive schemes, we can efficiently disseminate trust and reduce uncertainty by exploiting nodes' movement. All the schemes illustrate the uncertainty reduction effect with the assistance of mobility. Different mobility schemes provide different tradeoffs between delay, cost, and uncertainty. The controlled mobility-based schemes appear to offer better performance in terms of uncertainty reduction.

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