A PROBABILISTIC MISBEHAVIOR DETECTION SCHEME TOWARDS EFFICIENT TRUST ESTABLISHMENT IN DELAY-TOLERANT NETWORKS

ABSTRACT
Malicious and selfish behaviors represent a serious threat against routing in Delay/Disruption Tolerant Networks (DTNs). Due to the unique network characteristics, designing a misbehavior detection scheme in DTN is regarded as a great challenge. In this paper, we propose iTrust, a probabilistic misbehavior detection scheme, for secure DTN routing towards efficient trust establishment. The basic idea of iTrust is introducing a periodically available Trusted Authority (TA) to judge the node’s behavior based on the collected routing evidences and probabilistically checking. We model iTrust as the Inspection Game and use game theoretical analysis to demonstrate that, by setting an appropriate investigation probability, TA could ensure the security of DTN routing at a reduced cost. To further improve the efficiency of the proposed scheme, we correlate detection probability with a node’s reputation, which allows a dynamic detection probability determined by the trust of the users.

EXISTING SYSTEM
In the misbehaviors detection in DTNs, most of which are based on forwarding history verification (e.g., multi-layered credit, three-hop feedback mechanism, or encounter ticket), which are costly in terms of transmission overhead and verification cost. The security overhead incurred by forwarding history checking is critical for a DTN since expensive security operations will be translated into more energy consumptions, which represents a fundamental challenge in resource constrained DTN. The existing misbehavior detection schemes work well for the traditional wireless networks, the unique network characteristics including lack of contemporaneous path, high variation in network conditions, difficult to predict mobility patterns, and long feedback delay, have made the neighborhood monitoring based misbehavior detection scheme unsuitable for DTNs.
EXISTING TECHNIQUE

Misbehavior detection schemes

DISADVANTAGE

- Transmission overhead and verification cost is high in the misbehaviors detection.
- Occur long feedback delay and high variation in network condition.

PROPOSED SYSTEM

A Probabilistic Misbehavior Detection Scheme to achieve efficient trust establishment in DTNs. Different from existing works which only consider either of misbehavior detection or incentive scheme, we jointly consider the misbehavior detection and incentive scheme in the same framework. The proposed iTrust scheme is inspired from the Inspection Game [8], a game theory model in which an inspector verifies if another party, called inspectee, adheres to certain legal rules. In this model, the inspectee has a potential interest in violating the rules while the inspector may have to perform the partial verification due to the limited verification resources. Therefore, the inspector could take advantage of partial verification and corresponding punishment to discourage the misbehaviors of inspectees. Furthermore, the inspector could check the inspectee with a higher probability than the Nash Equilibrium points to prevent the offences, as the inspectee must choose to comply the rules due to its rationality.

PROPOSED TECHNIQUE

Probabilistic Misbehavior Detection

ADVANTAGE

- Reduce the Packet delivery rate
It reduce the detection overhead, if the Probabilistic Misbehavior Detection Scheme without compromising the detection performance.

System Requirements:

Hardware Requirements:

System : Pentium IV 2.4 GHz.
Hard Disk : 40 GB.
Floppy Drive : 1.44 Mb.
Monitor : 15 VGA Colour.
Mouse : Logitech.
Ram : 512 Mb.

Software Requirements:

Operating system : Windows 7.
Coding Language : C#.net, Asp.net
IDE : VisualStudio 2010