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RELAY NODE DRIVEN DISTRIBUTIONAL DATA BROADCASTING SCHEME FOR SECURED VEHICULAR AD HOC NETWORK COMMUNICATION

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***Abstract*— Broadcasting has been one of the most important and widely used communication techniques for information dissemination, from herald in ancient times to the current state-of-the-art communication in vehicular ad-hoc network. Spontaneously, broadcast communication has two significant metrics such as security and reliability. The existing broadcast algorithm employs only local information by means of periodic beacon messages and more retransmissions occurs when superior number of neighbor nodes arise in the VANET. In recent times the distributional data broadcasting scheme plays a vital role in VANET for effective and secure communication. Proposal work develops the Relay node Driven Distributional Data Broadcasting (RDDDB) Scheme for fault tolerance on the vehicular Ad-hoc network Communication. The RDDDB Scheme follows a k-Parent overflow Tree which focuses on detection of Rejection Broadcast Message Attacks (RBMA). k-Parent Overflow Tree (k-POT) model is a fault tolerant tree model which is more reliable and secure. k-POT is robust against RBMA with less retransmission even on higher number of nodes occurrence in VANET. Relay node Driven Distributional Data Broadcasting (RDDDB) Scheme outperforms well in terms of reliability, security and fault control when compared with Acknowledgment-Based Broadcast Protocol in VANET.**

I. INTRODUCTION

In a vehicular ad hoc network (VANET), vehicles correspond with each other and possibly with infrastructure nodes. Node connectivity and the quantity of data that can be exchanged are restricted by the period and quality of the communication links traditional among nodes, which are strong-minded by the space and time dynamics of moving vehicles.

However, most of the obtainable studies suppose that nodes are uniformly random distributed in an area and they are either stationary or move according to the random waypoint model, which are obviously inadequate to detain the spatial distribution of vehicles and their movements. In fact, vehicle movements, chiefly in urban environments, are limited by the road topologies, buildings, etc., and affected by traffic density, which is single-minded by road capacity, traffic control, and driver behaviors.

There are also recent works that aspire to model connectivity of vehicles on a one-dimensional highway. The space development between vehicles is exponentially distributed and introduces a robustness factor to imprison the effect of disturbance on VANET connectivity. Stochastic traffic model for VANETs in signalized urban road systems. The proposed model is a collective of the fluid model [3] and stochastic model and further can then be approximated by the density dependent speed profile.

Optimal deployment of traffic control and security infrastructure [4] is investigated both in the static and dynamic cases and further investigation of other suitable fuzzy membership functions as well as learning algorithms other than fictitious play.

II. METHODOLOGY

The architecture Diagram of RDDDB Scheme in VANET is shown in the Fig.1

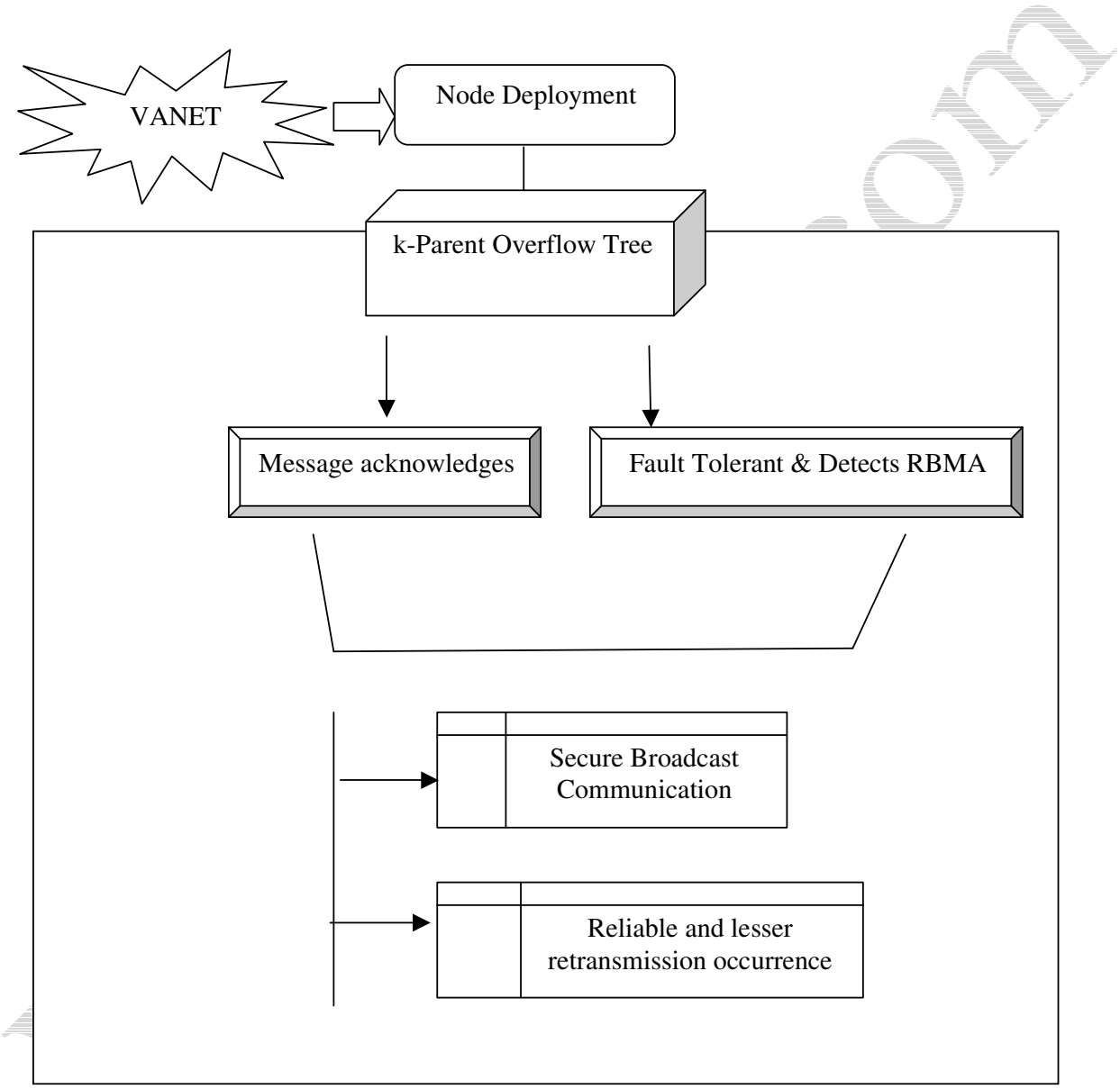

Fig.1 Architecture Diagram of RDDDB Scheme

In k-POT Model is carried out once at the beginning after node deployment, to construct the k-parent tree. Once constructed, all the subsequent message broadcasts and acknowledgments flow along the k-POT. k-POT is an excellent fault-

tolerant Model and prevents RBMA. RDDDB is the first fault-tolerant tree model for securing broadcast communication in VANET. Acknowledgments is used after the node deployment in order to enhance the model's detection rate.

k-POT, a novel distributed k-parent overflow tree model, that has a detection rate close to that of static tree based broadcasting. k-POT is the first tree model that achieves broadcast reliability close to that of blind overflow with reduced redundant retransmissions. k-POT model employs a reputation and trust-based framework for securing broadcast communication in VANET. k-POT is also the first fault tolerant tree model for securing broadcast communication in VANET.

III. CONCLUSION

Relay node Driven Distributional Data Broadcasting (RDDDB) Scheme developed a fault tolerance on the vehicular Ad-hoc network Communication. The RDDDB Scheme follows a k-Parent Overflow Tree focuses mainly on detection of Rejection Broadcast Message Attacks (RBMA). k-POT Model efficiently addresses both reliability and security metrics of broadcasting in VANET. k-Parent Overflow Tree (k-POT) model is a fault tolerant tree model which employ a reputation and trust-based framework for reliable broadcasting. k-POT is robust against RBMA with less retransmission even on higher number of nodes occurrence in VANET. Relay node Driven Distributional Data Broadcasting (RDDDB) Scheme outperforms well in terms of reliability, security and fault control when compared with Acknowledgment-Based Broadcast Protocol in VANET.

References

[1] Francisco Javier Ros., Pedro Miguel Ruiz., and Ivan Stojmenovic., " Acknowledgment-Based Broadcast Protocol for Reliable and Efficient Data Dissemination in Vehicular Ad Hoc Networks," IEEE TRANSACTIONS ON MOBILE COMPUTING, VOL. 11, NO. 1, JANUARY 2012

[2] [2] Christoph Sommer., Reinhard German., and Falko Dressler., "Bidirectionally Coupled Network and Road Traffic Simulation for Improved IVC Analysis," IEEE TRANSACTIONS ON MOBILE COMPUTING, VOL. 10, NO. 1, JANUARY 2011

[3] [3] Ivan Wang-Hei Ho., Kin K. Leung., and John W. Polak., " Stochastic Model and Connectivity Dynamics for VANETs in Signalized Road Systems," IEEE/ACM TRANSACTIONS ON NETWORKING, VOL. 19, NO. 1, FEBRUARY 2011

[4] [4] Tansu Alpcan., and Sonja Buchegger., "Security Games for Vehicular Networks," IEEE TRANSACTIONS ON MOBILE COMPUTING, VOL. 10, NO. 2, FEBRUARY 2011

[5] [5] Rongxing Lu., Xiaodong Lin., Tom H. Luan., Xiaohui Liang., and Xuemin (Sherman) Shen, "Pseudonym Changing at Social Spots: An Effective Strategy for Location Privacy in VANETs," IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY, VOL. 61, NO. 1, JANUARY 2012

[6] [6] Xiaomin Ma., Jinsong Zhang., Xiaoyan Yin., and Kishor S. Trivedi., " Design and Analysis of a Robust Broadcast Scheme for VANET Safety-Related Services," IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY, VOL. 61, NO. 1, JANUARY 2012

[7] [7] Kyung-Ah Shim., "CPAS: An Efficient Conditional Privacy-Preserving Authentication Scheme for Vehicular Sensor Networks," IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY, VOL. 61, NO. 4, MAY 2012

[8] [8] Jaehoon (Paul) Jeong.,Shuo Guo., Yu (Jason) Gu., Tian He., David H.C. Du., "Trajectory-Based Statistical Forwarding for Multihop Infrastructure-to-Vehicle Data Delivery," IEEE TRANSACTIONS ON MOBILE COMPUTING, VOL. 11, NO. 10, OCTOBER 2012

[9] [9] Thrasyvoulos Spyropoulos., Konstantinos Psounis., Cauligi S. Raghavendra., "Efficient Routing in Intermittently Connected Mobile Networks: The Multiple-Copy Case," IEEE/ACM TRANSACTIONS ON NETWORKING, VOL. 16, NO. 1, FEBRUARY 2008.