2015 IEEE MESH NETWORK PROJECT LIST BASED ON NS2

1. E-MAntNet: An ACO-Based Energy Efficient Routing Protocol for Mobile Ad Hoc Networks

In mobile ad hoc networks (MANETs), nodes are mobile and have limited energy resource that can quickly deplete due to multi-hop routing activities, which may gradually lead to an un-operational network. In the past decade, the hunt for a reliable and energy-efficient MANETs routing protocol has been extensively researched. This paper proposes a novel AntNet-based routing scheme for MANETs (so-called MAntNet), and an its enhanced energy-aware version (so-called E-MAntNet), for which the routing decisions are facilitated based on the nodes' residual energy. These protocols were evaluated through simulations using NS2, showing that E-MAntNet outperforms both MAntNet and E-AODV, in terms of network residual energy, network lifetime, number of established connections, and the number of dead nodes in the network, where E-AODV is an energy-aware version of AODV.
Keywords —Mobile ad hoc networks (MANETs), multi-path routing, energy aware routing, Ant Colony Optimization (ACO).

2. Re-Organizable Wireless Mesh Network Using ARS

In recent year wireless communication is most widely used, but there is also traffic in surrounding environment, while transferring the data from source to destination. This can be possible due to channel interference, various obstacles, which result in link failure causes poor performance, require expensive network management for their recovery. To maintain the network performance Autonomous network reconfiguration system (ARS) is used which autonomously reconfigure and recover from local link failure. Through NS2 based simulation ARS has been im plemented and evaluated. ARS improves the channel efficiency better than other recovery methods for example reroute and greedy channel

3. Transmission Energy Management for Wireless Ad-hoc Network

Remaining energy is the energy of the nodes after transreceiving data in network. This energy of nodes is the main parameter to control the energy consumption of wireless mobile ad-hoc networks. An optimum remaining energy is required to maintain life of network. In this paper, transmission energy management is proposed to optimize energy consumption of nodes in network. Transmission energy consumption is inversely proportional to remaining energy of node in network. NS2 simulation model is used to analysis energy consumption of nodes
in network and results show that varying the transition and receiving energy affects the remaining energy of nodes in network

4. Impact of realistic simulation on the evaluation of mobile Ad-hoc routing protocols

Today's advanced simulators facilitate thorough studies on Vehicular Ad-hoc NETworks (VANETs).However the choice of the physical layer and the mobility models in such simulators is a crucial issue that greatly impacts the results. Realistic simulation of routing protocols in VANETs is still an open question.Indeed, only a few works address routing protocols comparison performed under realistic conditions. This paper compares common reactive, pro-active, hybrid and geographic routing protocols by using a simulation platform integrating a realistic physical layer and mobility models. It also presents and analyzes several reactive protocols enhancements propositions dedicated to the VANETs context such as multi-path routing, but also protocols tuning which allows it to adapt faster. They have all received a lot of attention and are typically proposed to increase the reliability of data transmission. This paper study the behavior of each protocol in different situations and analized their advantages and drawbacks. Results presented in this paper gives an important explanation on the contradictory results found in similar works. Finally, our

realistic simulations show that reactive protocols are the best suited for VANETs, and more especially the DYMO protocol.

5. **PSR: A Lightweight Proactive Source Routing Protocol For Mobile Ad Hoc Networks**

Opportunistic data forwarding has drawn much attention in the research community of multihop wireless networking, with most research conducted for stationary wireless networks. One of the reasons why opportunistic data forwarding has not been widely utilized in mobile ad hoc networks (MANETs) is the lack of an efficient lightweight proactive routing scheme with strong source routing capability. In this paper, we propose a lightweight proactive source routing (PSR) protocol. PSR can maintain more network topology information than distance vector (DV) routing to facilitate source routing, although it has much smaller overhead than traditional DV-based protocols [e.g., destination-sequenced DV (DSDV)], link state (LS)-based routing [e.g., optimized link state routing (OLSR)], and reactive source routing [e.g., dynamic source routing (DSR)]. Our tests using computer simulation in Network Simulator 2 (ns-2) indicate that the overhead in PSR is only a fraction of the overhead of these baseline protocols, and PSR yields similar or better data transportation performance than these baseline protocols

6. **Clustering of Mobile Ad Hoc Networks: An Approach for Black Hole Prevention**

This paper addresses security and performance issues ofMANET. A novel cluster oriented concept is proposed to enhance security and efficiency of the network. Proposed strategy insures the optimum performance of MANET in presence of black hole attack. The simulation of the proposed methodology is carried out using NS2 network simulator and the simulation results reflects the performance of scheme for detection and prevention of the black hole

OTHERS

1. Behavior Malware Detection in Delay tolerant Sensor N/W

The delay-tolerant-network (DTN) model is becoming a viable communication alternative to the traditional infrastructural model for modern mobile consumer electronics equipped with short-range communication technologies such as Bluetooth, NFC, and Wi-Fi Direct. Proximity malware is a class of malware that exploits the opportunistic contacts and distributed nature of DTNs for propagation. Behavioural characterization of malware is an effective alternative to pattern matching in detecting malware, especially when dealing with polymorphic or obfuscated malware. In this paper, we first propose a general behavioural characterization of proximity malware which based on Naive Bayesian model, which has been successfully applied in non-DTN settings such as filtering email spams and detecting botnets. We identify two unique challenges for extending Bayesian malware detection to DTNs ("in sufficient evidence vs. evidence collection risk" and "filtering false evidence sequentially and distributedly"), and propose a simple yet effective method, look-ahead, to address the challenges. Furthermore, we propose two

extensions to look-ahead, dogmatic filtering and adaptive look-ahead, to address the challenge of "malicious nodes sharing false evidence". Real mobile network traces are used to verify the effectiveness of the proposed methods

2. **Efficient and Consistent Path Loss Model for Mobile Network Simulation**

The accuracy of wireless network packet simulation critically depends on the quality of wireless channel models. Path loss is the stationary component of the channel model affected by the shadowing in the environment. Existing path loss models are inaccurate, require excessive measurement or computational overhead, and/or often cannot be

made to represent a given environment. This paper contributes a flexible path loss model that uses a novel approach for spatially coherent interpolation from available nearby channels to allow accurate and efficient modeling of path loss. We show that the proposed model, called Double Regression (DR), generates a correlated space, allowing both the sender and the receiver to move without abrupt change in path loss. Combining DR with a traditional temporal fading model, such as Rayleigh fading, provides an accurate and efficient channel model that we integrate with the NS-2 simulator. We use measurements to validate the accuracy of the model for a number of scenarios. We also show that there is substantial impact on simulation behavior when path loss is modeled accurately. Finally, we show that unlike statistical models, DR can make a simulation representative of a given environment by using a small number of seeding measurements. Thus, DR provides a cost-effective
alternative to ray tracing or detailed site surveys.

3. STARS: A Statistical Traffic Pattern Discovery System for MANETs

Many anonymity enhancing techniques have been proposed based on packet encryption to protect the communication anonymity of mobile ad hoc networks (MANETs). However, in this paper, we show that MANETs are still vulnerable under passive statistical traffic analysis attacks. To demonstrate how to discover the communication patterns without decrypting the captured packets, we present a novel statistical traffic pattern discovery system (STARS). STARS works passively to perform traffic analysis based on statistical characteristics of captured raw traffic. STARS is capable of discovering the sources, the destinations, and the end-to-end communication relations. Empirical studies demonstrate that STARS achieves good accuracy in disclosing the hidden traffic patterns.

4. Zone based node replica detection using trust values

Wireless sensor networks (WSN) are susceptible to various kinds of attack, and node replication attack is one of them. It is considered to be one of the most serious attacks in WSN. In this type of attack, an adversary deploys clones of a legitimate node. These clones participate in all network activities and behave identically same as the legitimate node. Therefore, detection of clones in the network is a challenging task. Most of the work reported in the literature for clone detection is location dependent. In this paper, we have proposed a location independent zone-based node replica detection technique. In the proposed scheme, the network is dynamically divided into a number of zones. Each zone has a zone-leader, and they share their membership list among themselves. It is the responsibility of the zoneleader to detect the clone. The proposed technique is a deterministic one.We have compared our scheme with LSM, RED, and P-MPC and observed that it has a higher clone detection probability and a lower communication cost.