Foreword and Editorial

International Journal of Future Generation Communication and Networking

We are very happy to publish this issue of an International Journal of Future Generation Communication and Networking by Science and Engineering Research Support Society.

This issue contains 11 articles. Achieving such a high quality of papers would have been impossible without the huge work that was undertaken by the Editorial Board members and External Reviewers. We take this opportunity to thank them for their great support and cooperation.

The paper “An Improved Method for Probabilistic Voting-based Filtering using Blacklists in Sensor Networks”, analyzes that false report injection attacks and false vote injection attacks can be perpetrated easily by malicious attackers on the application layer in a wireless sensor network. These attacks drain the lifetime of the sensor nodes and prevent the forwarding of legitimate reports in the sensor network. A probabilistic voting-based filtering scheme (PVFS) was proposed in order to drop these two types of attacks simultaneously in intermediate cluster heads. This paper proposes a method to improve the detection power and energy savings by using a blacklist in every cluster head. The blacklist stores each compromised node ID and false key. The performance of the proposed method against these attacks was evaluated and compared to that of PVFS. The simulation results reveal that the proposed method enhances the average energy consumption and security level of each cluster head as compared with PVFS.

Paper “Implementation of Vertical Handoff in Heterogeneous Networks” presents a study on Vertical Handoff (VHO) which is a major concern for different heterogeneous networks. VHO can be user requested or based on some criteria already designed by the researcher of that particular algorithm. In this paper a new implementable procedure has been introduced. It’s a mechanism, in which multiple users having access to different networks can execute the VHO, in such a manner that when the handoff takes place it do not interrupt any ongoing call or data session. A server and clients have been created. A call was established and it was maintained by Session Initiation Protocol during switching from one network to another.

In the paper “Novel Self-Compacting Buffer Schemes to Improve Performance of Systems with Network on Chip”, authors present three novel input buffer schemes for systems with network on chip. These proposed buffer schemes are based on a self-compacting buffer, and can provide larger available buffer space per physical channel for communicating applications. These schemes outperform existing approaches. DAMQshr has similar performance using only sixty three percent of the buffer size that is used in traditional implementation for NoCs. DAMQman provides an excellent technique to optimize buffer management, and provides a good throughput when the network has a larger load. In addition, they also have better utilization of the available buffer space.

The paper “Mathematical Modeling and Simulation Study of Delay-Sensitive Algorithm to Enhance Quality of Service in Mobile Networks”, proposed a Delay-Sensitive Routing for NEMO (DSRNEMO) to enhance the QoS in NEMO environment with respect to delay
parameter. The objectives of this paper are to derive a mathematical model for DSRNEMO and to simulate the operations of DSRNEMO. The outcome of the mathematical model and simulation results show that the DSRNEMO gives better results than the existing algorithm, NEMO. Ultimately, this paper contributes to enhance the QoS in mobile networks.

The Authors of “Naming Service Using an Improved Meta-table for Migration of Mobile Agent in Sensor Network Environment” presents a design of an improved MetaTable that is divided into MetaData where information on the sensor data server is stored and SubMetaData where various types of information on sink nodes and data on sensor nodes connected with the sink nodes is stored. Also, Authors propose the efficient method of naming service on the sensor network by using the proposed MetaTable. The migration of mobile agent depends on the information of MetaData and SubMetaData referred to, and the reliability of the migration information is determined by mutual cooperation between a naming agent and each sensor server.

Paper “Line Topology Estimation of Indoor power Lines Using Multipoint Single Ended Loop Testing” presents an investigation of various methods to estimate the topology of a power line. A two step procedure comprising of a set of correlation time domain Reflectometry (CTDR) measurements based on Single Ended Loop Testing (SELT) and an initial topology estimate as a first step, followed by a comparison with frequency domain Reflectometry (FDR) measurement as a second step to finally ascertain the power line topology.

In the paper “NETCONF-based Integrated Management for Internet of Things using RESTful Web Services”, Authors tries to solve its integrated management problem considering the rapid development of Internet of Things. The aim of this paper is then to introduce new-generation network management standardization that is NETCONF and propose the use of RESTful Web Services from the viewpoint of lightweight requirements for integrated management of Internet of Things. The definitions of management operations based on NETCONF over HTTP for integrated management of Internet of Things have been discussed. Two typical integrated management scenarios for Internet of Things are provided, in order to validate the feasibility of the proposed approach.

The paper “A Study on Dynamic Adaptive Streaming System over HPPT for Various Streaming Services” is focused on the validation of streaming service which conventionally used to provide with one original image by developing and testing the images adaptively played with BITRATE suiting to network status through converting original image into BITRATE of several screen quality to provide streaming service without blockage even under limited network environment.

The paper “A Novel Mobility Prediction Algorithm Based on LSVR for Heterogeneous Wireless Networks” combines support vector regression with local prediction to propose a novel mobility prediction algorithms based on local support vector regression (LSVR) to overcome deficiency on low prediction accuracy for complex and irregular trajectory for existing mobility prediction algorithms based on GPS (Global Positioning System). Simulation results show that LSVR algorithm achieves high prediction accuracy for a size of historical data in three typical mobile scenes.
The Authors of “Performance Comparison of Adaptive Power Control in UMTS for Indoor Propagation” presents a study and analysis of the performance of different power control methods in indoor propagation environment. Authors perform a comparative analysis of a number of adaptive methods for power control in UMTS for different outdoor environments and power control techniques for different indoor propagation models. Performance evaluation was carried out on the basis of overall spectral efficiency (SE) and power control error (PCE).

Paper “An OVSF Code Based Routing Protocol for Clustered Wireless Sensor Networks” proposed an improved routing protocol based on OVSF code in clustered sensor networks, considering the disadvantages of the TDMA mechanism which has been used in LEACH series protocols, such as long time delay and high energy consumption. LEACH series protocols are low energy consumption adaptive clustering routing protocols in wireless sensor networks which were firstly proposed by MIT scholars. Facilitated by its orthogonality and incoherence, the transmission can be realized based on the demands of the node, but not the time slot, during which the member node has to transmit data to the cluster heads. The simulation results show that the proposed OVSF code based routing protocol greatly reduces delay and energy consumption compared with TDMA based protocols.

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