Editorial

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Biographical notes: V. Vijayakumar is currently working as a Professor and Associate Dean of the School of Computing Science and Engineering in VIT University. He is involved in many research and development activities, he has also organised many national/international seminars/workshops/symposiums/ conferences/special sessions in the area of cloud computing and big data which includes ISBCC'16 in India, CCCA'14 in Vietnam and CCNC'14 in the USA. He had authored many books. He is the reviewer for Springer's *Journal of Super Computing*. He is the guest editor for few special issue journals of Inderscience and IGI Global. He is a member of ACM, ISTE, CSTA and IAENG.

D. Rekha is currently working as a Senior Assistant Professor in VIT University. She has more than 13 years of experience which includes seven years in teaching and four years in research. She is also a Division Chair of Network and Security Research Group, her area of research includes wireless sensor networks, multihop networks, evolutionary algorithms, mobile cloud computing and internet of things. She published many papers in reputed journals. She served as a general and technical program chair of numerous conferences.

Xiao-Zhi Gao received his PhD degree from the Helsinki University of Technology (currently Aalto University), Finland in 1999. He was appointed as a Docent (Adjunct Professor) at the same university in 2004. He is currently working as a Senior Research Fellow at the Lappeenranta University of Technology, Finland.

This special issue is focused on the issues and challenges in wireless sensor networks (WSNs) and cloud computing, which is now a major threat to our technical environments. It discusses emerging problems in sensor network and cloud environment. WSN consists of a large number of self-powered sensor nodes, which are connected together to exchange and share their information and data. During the past decades, the

WSN has been widely applied in such emerging areas as environment protection, battle field monitoring, and surrounding surveillance. It has the distinguishing features of low cost, small size, and economical power consumption. However, the communications among the wireless sensor nodes sometimes are not efficient enough to ensure the optimal coverage of the targeted regions. Fortunately, cloud computing, a future computing paradigm, is well capable of providing ideal services for the implementation of the WSN. In other words, built on the cloud computing-based platform, the storage and processing of the data collected by the sensors in the WSN can be effectively managed.

The International Symposium on Big Data and Cloud Computing Challenges (ISBCC) is an annual event organised by the School of Computing Sciences, VIT University, Chennai Campus. ISBCC 2016 is the third edition of the conference. VIT University was established with the aim of providing quality higher education on par with international standards. It persistently seeks and adopts innovative methods to improve the quality of higher education on a consistent basis. VIT University Ranked No. 1 Private Engineering Institution by MHRD, Government of India (NIRF-2016 ranking).

The 20% is the acceptance ratio of the special issue under ISBCC 2015 International conference.

In particular, in this issue the reader can find research papers on different topics, all interesting and related to WSNs and cloud computing challenges. Some of these are outlined below.

In the paper by Bharat S. Rawal et al., the split-protocol theory was developed for load balancing and quicker data communication. Split-protocol computing paradigm uses web services on geographically distributed web servers on the cloud. A system of large split-servers that form the cloud to handle computing and storage task that would otherwise create a massive CPU utilisation with the traditional individual server. Split-protocol was implemented on private cloud for internal data servers of the organisation, not made available to the general public. The split concept emerged from the HTTP/TCP/IP network protocol implementation. The split-system model with given sets of constraints can produce better throughput than conventional equivalent server systems.

The paper by B. Prabadevi and N. Jeyanthi deals with the network attacks caused by sniffing the sensitive data over the network. Of various types of sniffing attacks, this paper deals with ARP sniffing which causes most of the LAN attacks (wired and wireless LAN coexist). ARP sniffing causes poisoning of ARP cache or spoofing. Through ARP sniffing the attacker tries to know the (IP, MAC) pair of victims system available in ARP table/or ARP request-reply packet passed over the network and either exploits victims resources or creates a situation to deny victims services for its legitimate users. This in-turn causes MITM, DoS or DDoS attacks. The major cause for these attacks is lack of effective authentication mechanisms with ARP or RARP protocols used for address resolution. This paper provides the working of ARP protocol and a method to mitigate the attacks caused by ARP cache poisoning.

Finally, as editors of this special issue, we would like to congratulate with all the authors, reviewers and journal staff, for the realisation of this work. Each of them contributed to the making of a collection of research papers that, in our opinion, represents a step forward in the research on WSN and cloud computing challenges.

Our special thanks go to the Editor-in-Chief for her continuous support.