

## Guest Editorial Preface

# Special Issue on Big Data Analytics Intelligent of Things and Cloud Computing

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Internet of Things (IoT) is associated with Nursing innovative paradigm that seamlessly integrates a mess of good objects with the internet and fusing the physical (real) and the data (cyber, virtual) worlds. The IoT Applications has to address important complexness owing to such difficult problems as giant scale, amounts of information, heterogeneousness, diversity, and dynamicity. Classic distributed systems and web approaches do not seem to be comfortable to unravel these unexampled problems. Advanced knowledge analytics strategies are required to effectively extract value from a range of information sources. The potency is each within the terms of distributed computation (extraction performance) and service intelligence (quality of extracted value). These two aspects of the potency cause the subsequent necessary topics: Big Data analytics and Intelligent of Things and Cloud Computing. Respectively, this special issue collects a diversified variety of works that reflect latest research, development, methodology, and education activity *Big Data Analytics Intelligent of Things and Cloud Computing*.

The work *A highly reliable storage systems based on SSD array for IoE environment* by HooYoung Ahn, Junsu Kim and YoonJoon Lee considers Devices in IoE (Internet of Everything) environment generate massive data from various sensors. To store and process the rapidly incoming large-scale data, SSDs are used for improving performance and reliability of storage systems. However, they have typical problem called write amplification, which is caused by out-of-place updates characteristics. As the write amplification increases, it degrades I/O performance and shortens SSDs' lifetime. This paper presents a new approach to reduce write amplification of SSD arrays. To solve the problem, this paper proposes a new parity update scheme, called LPUS. LPUS transforms random parity updates to sequential writes with additional log blocks in SSD arrays by using parity logs and lazy parity updates.

The work *On Effective Integration of Reliable Routing Mechanism and Energy Efficient Node Placement Technique for Low Power IoT Networks* by Sarwesh P, N Shekar V Shet and K Chandrasekaran considers proposed network architecture: sensor node and relay node are deployed, sensor nodes are responsible for collecting the environmental data and relay nodes are responsible for data aggregation and path computation. In node placement technique, densities of relay nodes are varied based on traffic area, to prevent energy hole problem. In routing technique, energy efficient and reliable path computation is done to reduce number of re transmissions. To adopt IoT scenario, we included IEEE 802.15.4 PHY/MAC radio and IPv6 packet structure in proposed network architecture. Proposed work result shows, proposed architecture prolongs network lifetime.

The work *Performance Analysis for Pareto-Optimal Green Consolidation based on Virtual Machines Live Migration* by Chetan Dhule and Urmila Shrawankar discusses the causes of VM live migration performance overheads and comparison of different overhead optimization techniques on the basis of parameters like accuracy and migration cost. Pareto-Optimal solution is proposed to eliminate the VM performance overheads.

The work *Towards the Service Level Agreements for Smart Healthcare in Cloud* by Mridul Paul and Ajanta Das considers specifically defines service architecture for patients, physicians and diagnostic centers. In order to measure the proposed services, metrics of each SLA parameter is described with its functional and non-functional requirements. This paper also explains a case study implementation of a basic patient service using Google App Engine.

The work *An Approach to Energy Aware Cluster Head Selection for maximizing lifetime improvement in Internet of Things* by Praveen Kumar Reddy Maddikunta and Rajasekhara Babu Madda considers the algorithm exhibits high-energy efficiency that improves the lifetime of IoT nodes. Analysis of implementation reveals the superior performance of the proposed method.

The work *A Framework For Effective Data Analytics in Tourism Sector: Big Data Approach* by Sapna Sinha, Vishal Bhatnagar and Abhay Bansal considers unified IT infrastructure framework named as tAdvisor for effective data analytics using Big Data Analytics approach for increasing productivity in tourism sector. Various challenges and issues related with the implementation of Big Data Analytics is also discussed in the paper.

The work *Fog Computing: Applications, Concepts and Issues* by Chintan Bhatt and C K Bhensdadia considers Fog Computing which provides architectural resolution to deal with some of these issues by providing a layer of intermediate nodes what's referred to as an edge network. These edge nodes provide interoperability, real-time interaction, and if necessary, computational to the Cloud. This paper tries to analyze different fog computing functionalities, tools and technologies and research issues.

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