Integration of Fog and IoT with Multiensor Data Gathering

S. Muthuselvan, S. Rajaprakash, K. Karthik, Prasanna, vidhiyadharan C.J

Abstract*: In the already existing system number of internet connected devices rapidly increase, this increased demand real-time, for the standard cloud computing framework, low latency services proving to be always a challenge. While In the** *proposed System, fog computing paradigm serves the demands of the latency sensitive applications in the context of IOT. The IOT is rely on cloud computing by passing information about sensor. This is a decentralized process to gather the information from each and every region of the city. System will check the energy and location of every server. Because whenever server uploads the sensor details it can degrade their energy on every time. So we have to migrate the data by allocating another server which contains the energy to send.***

***Keywords: Database, Insider Attacks, Anomaly Detection, Application Profile, SQL Injection*.**

I. INTRODUCTION

Recent advancements in computer technologies have led to the conceptualization, development, and implementation of cloud computing systems. From its inception, cloud computing has gained widespread popularity due to its applicability in diverse, widespread domains. Cloud\ computing systems are generally based on data centric networks (DCNs), which are treated as the sole, monopolized hubs responsible for computation and storage. For contemporary cloud-based systems, all service requests and resource demands are analyzed and processed within the data centers (DCs). However, with the steep rising of connected device to the net and in the light of the emerging technology of the Internet of things (IoT), the amount of data to be handled by the cloud DCs is paramount. In 2012, global commercialization of IoT-based application systems generated revenue of $4:8 trillion .It is statistically estimated that by 2015, around 25 billion autonomous devices will be connected to the Internet. Cisco estimates that due to IoT, the global corporate profits will also increase approximately by 21 percent. Also, the cloud DCs exhaust massive amount of energy leading to the emission of enormous amount of greenhouse gases (GHGs), especially carbon dioxide (CO_2). This takes a deep toll on the environment In this work, we analyze the suitability of a recent computing paradigm—fog computing to serve the demands of the real-time, latency-sensitive applications in the context of IoT. Fog (From core to edge) computing, a term coined by Cisco in 2012, is a distributed computing paradigm, that empowers the network devices at different hierarchical levels with various degrees of computational and storage capability. These devices are equipped with an 'intelligence' which allows them to examine whether an application request requires the intervention of the cloud computing tier or not. The idea is to serve the requests which demand real-time, low-latency services (e.g., live streaming, smart traffic monitoring, smart parking etc.) by the fog computing devices and the connected work stations and small-scale storage units.

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* Correspondence Author

S. Muthuselvan*,Department of Computer Science and Engineering, Aarupadaiveedu Institute of Technology, Vinayaka Missions Research Foundation ,Chennai , India,

S. Rajaprakash, Department of Computer Science and Engineering, Aarupadaiveedu Institute of Technology, Vinayaka Missions Research Foundation ,Chennai , India ,

K. Karthik,,Department of Computer Science and Engineering, Aarupadaiveedu Institute of Technology, Vinayaka Missions Research Foundation ,Chennai , India,

Prasanna, Department of Computer Science and Engineering, Aarupadaiveedu Institute of Technology, Vinayaka Missions Research Foundation, Chennai, India.

Vidhiyadharan C.J, Department of Computer Science and Engineering, Aarupadaiveedu Institute of Technology, Vinayaka Missions Research Foundation, Chennai, India.

II. MODULES

A. *USER INTERFACE DESIGN*

In this module, user information like all the sensors data is communicated to the local server. We deploy a local server for every zone and every area where by the sensor information like temperature, atmospheric humidity, RFID based sensor values and also what are the instruments we have in our home those sensor values will be stored on the local server. The local server is deployed in area, its duty is to collect all the sensor values and send it to the particular upper layer server. User interface design is to transfer all the sensor value into the local server.

B. *CENTRALIZED SERVER*

In this module, a centralized server is used to collect the all sensor values from the local or regional server which is deployed on every area. The centralized server collects all the data and does data analysis part apply complete analysis of data from the local server. And what are the complaints which are given by the user would be report to the local server. Centralized server will analyze the local server and if there any complaints was arose those complaints will be report to the concern department. Centralized server play vital role in this project.

C. *EMBEDDED SENSOR INTERFACE*

In this module, we connect all the sensor data like temperature, fire sensor, humidity and also RFID tag for vehicle details. We also connect Wifi based sensor data from the house to the local server. The main advantage of every sensor is analyze the atmospheric level and alerts the user in case of any emergency. Apart from that any sort of stolen vehicle is passed through that area those RFID value will be captured from that embedded kit on local server and it will with if there is any complaint was registered on this bike. If so , it will send the vehicle values to the concern department.

D. *DATA ANALYSIS:*

In this module, all the data has been processed whether the temperature is high or low, or any fire is occurred or not like all the information including pollution also we analyze the data. So here we implement the system to identify any natural changes on the atmosphere it will send alert to that particular department. Through this we get an aware about any changes in the atmosphere

E. *Alert System:*

In The Final module, we implement the alert to the concern department based on sensor values and also we will send alert to the police department regarding the stolen vehicle by the reading the RFID card.

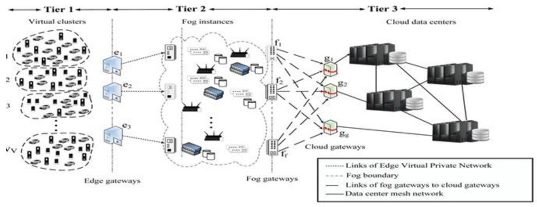
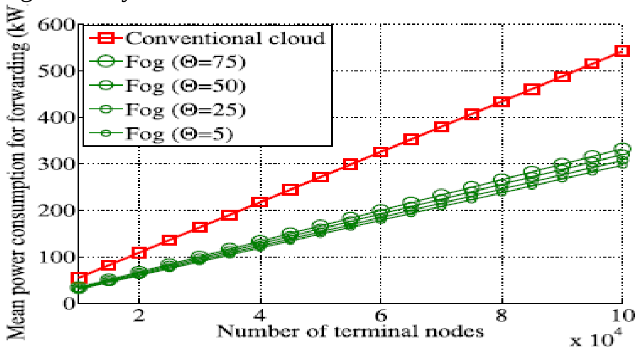


Fig. 1.Architecture Diagram

Value from billions of connected devices. Press release. Power ConsumptionThe power consumption for due to the individual effects of data forwarding, computation, and data storage, and due to their collective effect is analyzed in this subsection. Although with the increase in the number of TNs in the lowest tier, the mean power consumption due to data forwarding increases linearly, the impact of the change in the power consumption for different magnitudes of Q is observed to be very low. However, compared to a conventional cloud computing framework, this mean power consumption was significantly less.



III. CONCLUSION

The task centers around analyzing the suitability of fog computing within the framework of IoT. The target of the paper is to produce a mathematical type of fog computing and assess its applicability in the context of IoT where it's pivotal to generally meet the demands of the latency-sensitive applications running at the network-edge. The work further performs a comparative performance evaluation of cloud computing with that of fog computing for an environment with high number of Internet-connected devices demanding real-time services. Results clearly depict the enhanced performance of fog computing both in terms of the provisioned QoS and eco-friendliness under such situations. We eventually justify fog paradigm as an improved, eco-friendly computing platform that can support IoT better compared to the existing cloud computing paradigm.

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AUTHORS PROFILE

Mr. S. Muthuselvan, M.E., (Ph.D) currently is working as Assistant Professor Gr. II, Aarupadai Veedu Institute of Technology an ambit institution of Vinayaka Mission's Research Foundation (Deemed to be University), Tamil Nadu, India. Published more than 17 national and international journal and organizing committee for four international conference, two national conference and Five years of industry experience, 11 years of teaching experience with 6 years of research experience. He has peer Reviewed Manuscripts in reputed international Journals and Conferences. He is a member in following professional societies: CSI and MISTE. Area of the interests is DBMS, Data Mining and Data Analytics.

Dr.S.Rajaprakash M.sc, M.Phil M.E Ph.D. currently working as Associate professor of CSE in Aarupadai Veedu Institute of Technology an ambit institution of Vinayaka Missions Research Foundation (Deemed to be University), Tamil Nadu, India. He has 18 years of experience in academics, research, and development activities. Published 18 research papers in referred Journals and Conferences. His area of Interest Artificial Intelligence, Computational Intelligence, Discrete Mathematics and Automata theory. .Received grants from Tamil Nadu State Council for Science and Technology .He has peer Reviewed Manuscripts in reputed international Journals and Conferences. He is a member in following professional societies: CSI and ISTE and Ramanujam Mathematical Society.

Mr. K.Karthik ME (Ph.D) currently working as Assistant professor Aarupadai Veedu Institute of Technology an ambit institution of Vinayaka Missions Research Foundation (Deemed to be University), Tamil Nadu, India published more than 7 national and international journal and conference and organizing committee for 4 international conference, 2 national conference and 15 years of teaching experience with 4 years of research experience. He is a member in following professional societies: CSI and ISTE.

Prasanna, Final year student ,Department of Computer Science and Engineering, Aarupadaiveedu Institute of Technology, Vinayaka Missions Research Foundation, Chennai, India.

Vidhiyadharan C.J, Final Year Student **,** Department of Computer Science and Engineering, Aarupadaiveedu Institute of Technology, Vinayaka Missions Research Foundation, Chennai, India.