

# Chapter 75

## Realm Towards Service Optimization in Fog Computing

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### **ABSTRACT**

*Fog Computing provides resources as a service. Various providers are providing the best form of Quality of Services (QoS) which works in the principal of pay per use. Now it is important to connect the Internet of Things (IoT) services in fog computing. The strategy for choosing a service provider is assessed by which cloud provider provides what.*

### **1. INTRODUCTION**

The Fog Computing paradigm comes with the rapid growth of Internet of Things and solving the problems which are occurring in the cloud computing such as connectivity issues, very high latency, low capacity of data management, etc. The concept of fog computing dealing with the IoT and solving many issues of cloud computing such as data management and its processing due to the presence of devices. The quality of service and the speed of service in fog computing is increasing in a rapid speed. So, at this time, the research says that fog computing is the best one working with IoT. The performance efficiency is also increasing in a rapid way for the IoT end users. Due to the concept of edge computing this is moving in a faster speed to provide the services. The fog computing consists of providing large number of system connectivity, low latency rate, distributed locations, mobility, wireless access, high speed of data streaming, working with the real time applications, etc. The fog computing is also working for the concept of virtualization platform for the calculation of information or resource providing or storing in the computing data centers. The Fog Computing technology distinctive from all other technologies which clarify the large extends of use in the environment. The research domain deals with the smart wireless applications and networking (SWAN). This technology starts with the social networking which

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deals with the public domain as well as private domain. The trend goes to mobile (smartphone/wireless) where the developments start rapidly. Due to growth the data analytic (Big Data/data science) comes under (Figure 1). The Whizz is the Fog Computing which is exploring the world. The Future is with the Internet of Things (IoTs) according to Buyya (2016, 2017, 2018). The Fog Computing is changing in very high speed in the field of its services such as SaaS, IaaS, PaaS, etc., which works in the environment to provide facility to the users. Fog Computing is the awesome way of doing the business applications to explore its services for public use. The term Fog computing consists of many organizations, datacenters, Cloud service providers, and Cloud brokers. These always ready to perform on three basic principles i.e. at any time, at any Place, at anyone according to Buyya (2009). Now days each and every person is in the race and they are capable of paying any amount of money, but they do not want to compromise with the time. Time is the major factor in proving the service. So, each and every person in this world wants to get best service in best time by Buyya (2016, 2017 & 2018). To accomplish the undertaking, every association makes the web and eye to eye openings where Fog-based totally suppliers and quit customers can meet, arrange, and out about the difficulties and advantages of embracing Cloud primarily based advances to boost challenge extensive skill ability, adequacy, and cost-investment budget. Such events will encompass profoundly engaged industry-precise or doubtlessly problem-particular introductions approximately Fog-based totally improvements i.e. medicinal services and life sciences, consumer and packaged goods, telecommunications and technology, aerospace and defense, etc. According to Cisco (Atlam, 2018) fog computing is the technology which provides many important benefits to large computing environment basically for IoT. Similar to cloud computing fog providers provide service to the IoT for the data management and processing. When IoT works with the fog computing then fog working as FaaS (Fog as a service) which is provided by the different service providers. It's forming the new startup of the service in the computing world. The FaaS working with the big and small both types of companies to operate and deploy the services in both the sectors. Most of the benefits the fog computing is providing are emerging IoT applications and challenges encountered. Some of the well-known organizations are as follows: Cloud Security Alliance, Distributed Management Task Force (DMTF), National Institute of Standards and Technology (NIST), Open Cloud Consortium (OCC), etc. In this paper the major discussion is in the Fog computing internal consistent which play a vital role in future of Cloud computing? This article is divided into two parts. The first part explains the internal consistent and their role and the second part deals with the role of each part to calculate the experiments.

## **2. BACKGROUND**

The research in the state of art towards fog computing is very large and working with the start of mainframe computing. The concept of fog computing works with distributed geographically resource management and computations with the large number of edge devices. The information is being communicated in the high speed and in vast area.

According to researcher, Vaquero and Roderio-Merino (2017) defined fog computing in such a way that "It's a computing system where a lot of devices working in ubiquitous and decentralized way are communicating and potentially cooperate among them and with the network to perform information storage management and its processing which being dealing with the middle ware that is fog computing brokers" One of the researcher (Wen, 2017) defines fog computing " A system where the distributed resources or information is stored, provided, managed, connected to anywhere, anytime along the IoT".

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