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**INTRODUCTION:**

In paper[6] ; Cloud Computing model is a proficient option to owning and supervising private Data Centers for customers facing Web applications and batch processing. Several factors provide to the economy of scale of mega Data Centers. Cloud computing frees the enterprise and the end user from the specification of many details. This happiness becomes a problem for low-sensitive applications, which require nodes in the region to meet their delay requirements. Internet of Things (IoTs), requires portability support and geo-distribution in addition to location knowledge and less delay. We argue that a new program is required to meet these needs; such a program we call Fog Computing, because the fog is a cloud close to the ground. Fog Computing authorize a new variety of applications and services. In this paper we also discuss about Fog Computing sample and its characteristics and those programs that supports Fog services.

In paper[7]; The Internet of Things (IoT) has proved to be a real change in Information and Communication Technologies (ICT). It imagines a world in which every single object, from a computer to a not communicating "dumb" thing can join the Internet. Such gadgets may not only exchange data, but they can also store and process them as well as collect them from the surrounding environment through sensors. Besides, people can take part in this ambitious scenario, consuming and producing data through their smartphones and wearable devices. The IoT is strongly disruptive: with the widespread distribution of these “smart” devices, cities may finally transform into Smart Cities which can be sensed and controlled, and a large number of services may be envisioned for the betterment of citizens’ lives. these services to become real, the great amount of collected. In order for data (i.e., the Big Data) needs to be processed and the obtained insights need to be retrieved. However, data processing and information delivery cannot be performed by the IoT devices themselves because of their limited physical resources. To overcome this issue, the IoT devices may offload the collected data and computation onto In 2012, Bonomi et al. [1] proposed Fog Computing, which is also known as Edge Computing, as the ideal paradigm to support the resource-constrained IoT devices. Indeed, Fog Computing, which is not supposed to replace the centralized Cloud but to coexist and cooperate with it, distributes Cloud Computing technologies and principles (i.e., virtualization, scalability, pay-per-use model) anywhere along the Cloud-to-Things continuum and particularly at the network edge, in close proximity to the IoT devices. Fog Computing is a relatively new concept; therefore, it still presents a large number of challenges and open issues to be solved. Some of the most fascinating have to be faced in order to provide mobility support to the end devices: the aforementioned advantages of Fog Computing need to be continuously guaranteed, not only when nodes are static, but also when they move from one place to another. Nodes mobility compromises Fog Computing benefits indeed, as, when a node moves, the distance between it and the Fog node that hosts the Fog application component increases. In this paper[7], we investigate the issue of mobility support in a Fog environment, focusing on a specific category of mobile nodes: the mobile IoT devices.

In paper [8]; An observation on the Internet of Things (IoT) trend in a 2017 Gartner report [1] is the movement away from cloud-, Thing-, and gateway-centric IoT implementations to the edge (also referred to as fog computing or edge computing in the literature). In such an implementation, the bulk of the application logic, data storage, and analytics are placed on the actual device instead of a cloud or gateway server. This can result in significant bandwidth saving for the heterogeneous communication network. One potential application of fog computing is in vehicle-based settings, such as the integration of fog computing with conventional vehicle ad hoc networks (VANET) to form the Internet of Vehicles (IoV) or vehicular fog computing. In the latter architecture, vehicles are regarded as intelligent devices that are mobile and equipped with multiple sensors, and have the computational/ communication capability to gather useful traffic information. The information is gathered not only from the intra-vehicle sensors but also from the environment external to the vehicle(s). Fog nodes can be deployed at the edge of vehicular networks to efficiently and effectively collect, process, organize, and store traffic data in real time. When acquiring and processing a large amount of data from urban/highway areas via smart vehicles, vehicular fog computing architecture can facilitate or provide a wide range of vehicle-based services to the driver and passengers, such as smart traffic control, road safety improvement, and entertainment services. Similarly, there are potential applications in Internet of Battlefield Things deployment. Fog computing, especially vehicular fog computing, is still in its early stage, with many unresolved and under-explored technical and operational challenges, ranging from architecture to clear use cases to security issues and so on. There has been interest in fog computing not only from academia, but also from the industry such as the establishment of the Open Fog Consortium. Vehicular fog computing is one area that is relatively under-studied, despite the increasing trend in smart vehicles in practice. One potential solution to reduce the communication overhead is to have the server be geographically closer to the vehicle to serve the vehicle-based applications’ demands in real time. This will require a significant investment in the underpinning infrastructure. However, to ensure optimal quality of protection (QoP) and quality of service (QoS), we need to strike a balance between performance, security, and privacy requirements. In this article, we discuss the architecture, use cases, and security issues in this emerging vehicular fog computing paradigm.

In paper[9]; The Internet of Things (IoT) is likely to be incorporated into our daily life, in areas such as transportation, healthcare, industrial automation, smart home, and emergency response. The IoT enables things to see and sense the environment, to make coordinated decisions, and to perform tasks based on these observations. Cloud Computing has been seen as the main enabler for IoT applications with its ample storage and processing capacity. Cloud-supported IoT systems face several challenges including high response time, heavy load on cloud servers and lack of global mobility. In the era of Big Data, it may be inefficient to send the extraordinarily large amount of data that swarms of IoT devices generate to the cloud, due to the high cost of communication bandwidth, and due to the high redundancy of data (for instance, constant periodic sensor reading). Instead of moving data to the cloud, it may be more efficient to move the applications and processing capabilities closer to the data produced by the IoT. This concept is referred to as “data gravity,” and fog computing is well suited to address this matter. In the era of Big Data, it may be inefficient to send the extraordinarily large amount of data that swarms of IoT devices generate to the cloud, due to the high cost of communication bandwidth, and due to the high redundancy of data (for instance, constant periodic sensor reading). Instead of moving data to the cloud, it may be more efficient to move the applications and processing capabilities closer to the data produced by the IoT. This concept is referred to as “data gravity,” and fog computing is well suited to address this matter.

In paper[10]; Fog computing is a new paradigm of distributed computing to extend the cloud to the network edge and provide efficient data access, computation, networking, and storage. Fog computing enables a new breed of services at the edge to deliver a wide variety of applications for Internet of Things (IoT) devices. It also supports mobility, location awareness, heterogeneity, large scalability, low latency, and geo distribution. Generally speaking, the goals of the fog computing paradigm are to reduce the data volume and traffic to cloud servers, decrease latency, and improve quality of service (QoS). The growing ubiquity of connected devices and sensors in smart grids, health care systems, wireless sensor networks, and smart homes forms a collective computing network, or the IoT. According to Gartner , 2.6 million IoT devices will be used in 2016, which is an increase of about 30 percent from 2015. IoT devices have inherently challenging characteristics such as low computation power, bandwidth, battery, and storage. In return, these characteristics affect the user experience and QoS. Typical IoT applications have a real-time requirement that can’t be fulfilled with traditional cloud computing. We claim that fog computing offers an ideal solution to tackle these challenges. This research discussed how fog computing can improve multiple aspects in IoT applications.