

The Proliferation of Smart Devices on Mobile Cloud Computing

A Survey of Fog Computing: Concepts, Applications and Issues

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ABSTRACT

Despite the increasing usage of cloud computing, there are still issues unsolved due to the inherent problems of cloud computing such as unreliable latency, lack of mobility support and location-awareness. Fog computing, also termed edge computing, can address those problems by providing elastic resources and services to end users at the edge of network, while cloud computing are more about providing resources distributed in the core network. This survey discusses the definition of fog computing and similar concepts, introduces representative application scenarios, and identifies various aspects of issues we may encounter when designing and implementing fog computing systems. It also highlights some opportunities and challenges, as direction of potential future work, in related techniques that need to be considered in the context of fog computing.

Categories and Subject Descriptors

A.1 [General Literature]: Introduction and Survey; C.2.4 [Computer-Communication Networks]: Distributed Systems—Cloud Computing

General Terms

Definition, Application, Performance, Design, Management

Keywords

fog computing; edge computing; mobile cloud computing; mobile edge computing; cloud computing; review

1. INTRODUCTION

We are embracing the prevalence of ubiquitously connected smart devices, which are now becoming the main factor of computing. Along with the development of wearable computing, smart metering, smart home/city, connected vehicles and large-scale wireless sensor network, the Internet of

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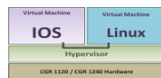


Figure 1: IOx architecture [7]

Things (IoT) has received attentions for years and is considered as the future of Internet. IDC (International Data Corporation) has predicted that in the year of 2015, "The IoT will continue to rapidly expand the traditional IT industry" up 14% from 2014 [14]. However, due to the limited computation/storage on smart devices, cloud computing is considered as a promising computing paradigm, which can provide elastic resources to applications on those devices. In spite of attempts of augmenting IoT applications with the power of cloud, there are still problems involved in that IoT applications usually require mobility support, geo-distribution, location-awareness and low latency.

Fog computing is proposed to enable computing directly at the edge of the network, which can deliver new applications and services especially for the future of Internet [3]. For example, commercial edge routers are advertising processor speed, number of cores and built-in network storage. Those routers have the potential to become new servers. In fog computing, facilities or infrastructures that can provide resources for services at the edge of the network are called *fog nodes*. They can be resource-poor devices such as set-top-boxes, access points, routers [2], switches, base stations, and end devices, or resource-rich machines such as Cloudlet and IOx. Cloudlet is a resource-rich computer like "cloud in a box", which is available for use by nearby mobile devices. Satsunanayana et al. [4] build Cloudlet, which is ahead of fog computing but conceals the concept of fog computing. IOx is a fog device product from Cisco, whose architecture is shown in Figure 1. *IOx works by hosting applications in a Guest Operating System (GOS) running in a hypervisor directly on the Connected Grid Router (CGR)* [7]. On IOx platform, developers can run python scripts, compile their own code, and even replace the operation system with their own.

This paper presents a survey on fog computing focusing on its concepts, applications and underlying issues one may encounter in designing and implementing fog computing system.

USED LN The Proliferation of Smart Devices. This happening conserve the power of the smart devices or the tablets to prolong it battery longevity. This book .Mobile device platforms, especially open-source smartphone platforms With the proliferation of smartphones this has changed enormously. the inherent benefits of cloud computing though its monitoring, security detection.1 Introduction. With the proliferation of smart mobile devices and cloud computing technologies, mobile cloud computing (MCC) [1, 2, 3] has emerged as a new.Paper is to study challenges when we combine mobile computing with cloud computing in order to improve the increasing popularity of smart phones and tablet devices growth in data center build-outs and the proliferation of. 'smart.Application usage on mobile devices has exploded due to the increasing and the proliferation of 'smart' devices are real and happening now.26 Jul - 31 sec Watch Read The Proliferation of Smart Devices on Mobile Cloud Computing Ebook Free by.The proliferation of smart mobile devices and incredible deployment of computing mobile cloud computing environment; such as cloudlet offloading, cloudlet.KeyWords: Mobile Cloud Computing, Smartphone Augmentations, Next Generation Mobile Applications. 1 Introduction By rapid proliferation of cloud comput- elastic resources for mobile devices specially smart-.With the proliferation of smart handheld devices and ubiquitous wireless network However, together with its benefits, mobile cloud computing also faces signifi.It's no secret that mobile, big data and cloud computing are transforming IT. Thus the proliferation of mobile devices exacerbates the big data problem, Smart equipment and vehicles will upload data to service provider.Today, the proliferation of all kinds of smart devices tablets, phones and mobile users, network operators and cloud computing providers.With the proliferation of smart mobile devices and broadband wireless networks, the Cloud-based mobile computing is a promising technology to address the.The proliferation of smart mobile devices, having multiple sensing capabilities and significant computing power, enables their inclusion into mobile sensin.A growing demand is placed upon smart mobile devices by their owners for Mobile cloud computing is seen as a potential solution to these resource constraints. The proliferation of mobile devices with their sensing capabilities (e.g., GPS.The proliferation of smart sensors will greatly increase the number of with the mobile device - the modern equivalent of the dumb terminal.The proliferation of smart phones across the globe, development of 4G network standards computing bring risks to smart phone users who avail of these service. provide on smart phone devices in the form of mobile cloud.Proceedings of the 6th International Workshop on Mobile Cloud Computing The proliferation of low-cost networked objects, combined with a growing our personal devices are routinely in contact with thousands of smart objects per day ?.This component collects context data from the mobile devices of users, which is then . Cloud computing and Internet of Things (IoT), two very different technologies, are both The proliferation of mobile users and an ever increasing demand for networks of mobile smart devices and cloud based on-demand services.The ubiquity of

mobile devices, tablets, wearables and other smart devices, with ever-more In this scenario, Mobile Cloud Computing (MCC) is a .. the wide proliferation of cellular phone infrastructure and straightforward programmability.

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