

Selecting Location-based services in mobile cloud computing

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Abstract—Mobile cloud computing (MCC) is the most promising cloud solution for the future mobile environment. It aims to integrate mobile devices with cloud computing, and provide to mobile users an online access to unlimited cloud resources. Furthermore, MCC has changed the concept of mobile devices from primitive gadget to full computers that accommodate work, personal and mobility needs. Thus, in this paper we introduce a middleware that provides an intelligent behavior for selecting and adapting cloud services according to the current user's context. Besides, we propose a context-aware algorithm aiming to exploit location and preference cost of mobile user to select the adequate cloud resource.

Keywords—mobile cloud computing; middleware; cloud computing; mobile computing; context.

I. INTRODUCTION

Despite the significant improvements of mobile environments, mobile devices still encounter resource scarcity such as limited computing power, memory, and battery life, among others. To overcome this resource restriction, it has been suggested to exploit cloud computing resources via the wireless network.

Thanks to the advancement in cloud computing, mobile devices can take the benefits of cloud infrastructures such as large-scale computing power with elastic, virtualization, and pay-as-you-go notion. As a result, mobile client exploits cloud infrastructures in order to overcome their traditional limitations. Therefore, the recent collaboration, called mobile cloud computing, is a new concept that aims to improve mobile services and remove the limitations of mobile devices. For example, M-Health service is typically hosted on cloud servers accessed via communication networks. Cloud servers collect and process all the patients' service data. Hence, M-Health service facilitates efficient patient treatment for medical consultation by sharing personal health information among healthcare cloud providers.

The collaboration between cloud computing and mobile computing will change the way we consume remote services. So, mobile devices access to the cloud server to consume the unlimited cloud resources at any time, even though they are not

similar to the traditional terminal devices. Since, they have sensing capabilities to gather contextual information of mobile user environment. The most cited definition of context is [1]: "Context is any information that can be used to characterize the situation of entities (i.e. whether a person, place or object) that is considered relevant to the interaction between a user and an application, including the user and the application themselves. Context is typically the location, identity and state of people, groups and computational and physical objects". Therefore, mobile contextual information can aid the provider to deliver adoptive, efficient, and context-aware services for users which demand to consume suitable service according to their actual situation. So, it is necessary to benefit from such information for mobile cloud services' improvement.

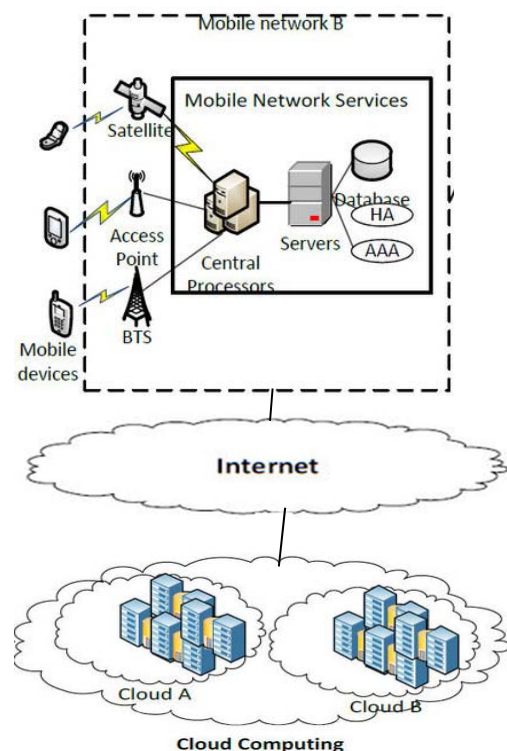


Fig. 1. Mobile cloud computing architecture