Analyzing the Critical Issues of Mobile Users in Cloud Computing

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Abstract

Cloud computing has recently emerged as a new paradigm for hosting and delivering services over the Internet. Mobile Cloud Computing is widely accepted as a concept that can significantly improve the user experience when accessing mobile services. By removing the limitations of mobile devices with respect to storage and computing capabilities and providing a new level of security, it is expected that it will find broad acceptance on the business as well as consumer side. This work mainly concentrates to analyze the mobile devices and applications during offloading of services between cloud and devices to save energy. In addition, the minimal path to the cloud servers from mobile devices will be carried out to minimize the network latency.

Keywords: mobile cloud computing, mobile computing, mobile agent

I INTRODUCTION

The concept of Mobile Cloud Computing (MCC) intends to make the advantages of Cloud Computing available for mobile users but will provide additional functionality to the"cloud" as well. Mobile Cloud Computing (MCC) will help to overcome limitations of mobile devices in particular of the processing power and data storage. It might also help to extend the battery life by moving the execution of commutation-intensive application "to the cloud".

However, a significant gain in battery stand-by time will require that the wireless connectivity for the MCC operation is at least as energy-efficient as the state of the art. MCC is also seen as a potential solution for the fragmented market of mobile operating systems with currently eight major operating systems. Other benefits that might be realized by the introduction of MCC are an increased security level for mobile devices achieved by a centralized monitoring and maintenance of software, and a one-stop shopping option for users of mobile devices since Mobile Cloud Operators (MCOs) can simultaneously act as virtual network operators, provide e-payment services, and provide software, data storage, etc. as a service. Along with the advantage brought by wireless network, mobile environment faces more challenges. [1] Firstly, in a wireless environment, there are many obstacles. As a result, mobile communication is characterized by lower bandwidths, high error rates and more frequent spurious disconnections. Secondly, the character of mobile environment, mobility causes the fast address migration and dynamic configuration which makes it more difficult for the system to answer the queries from users efficiently and timely. Thirdly, the portable device in the mobile environment always can't have powerful computing ability and storage ability. That means the mobile host can't support enough computing and storage ability for some complex services which are needed by users.[1]

The rest of this paper is organized as follows: in section II, I will bring in an AI based agent and An Intelligent Algorithm. Section III will concise the concept of agent and algorithm for mobile users in cloud computing. In Section IV, I will conclude the whole paper and a future work for a better solution.

II PREFACE ABOUT AGENT & ALGORITHM

Smart mobile applications, even when delivered via the cloud, will still be limited by the mobile-device interface, with its small screen size and all-thumbs keyboard. And it is here, perhaps, that AI will evolve to benefit cloud-delivered applications the most, specifically as an intelligent agent interface capable of scheduling meetings and performing the myriad other tasks mobile users require. "Intelligent agents and mobile devices are a match made in heaven," Lassila says. Over time, mobile devices could become the principal means by which users interact with "agents that by and large operate autonomously and perform tasks for their owner.'" Interestingly, the development of agents may be constrained more by user acceptance than by technology availability via the cloud. "There seems to be certain resistance on the part of users of having automated and autonomous systems do too much for them," Lassila says. But that may not be the case everywhere.

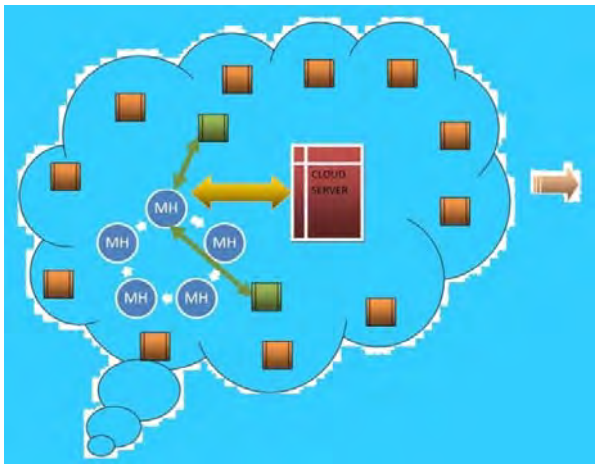
"Intelligent agents will gain wider acceptance in markets wherepeople cannot live without a mobile phone," Poon reasons. "I wouldn't be surprised to see IA-enabled mobile devices taking off in Korea and Japan." Regardless of where it occurs, AI will inevitably be incorporated in mobile cloud applications, Malaka believes.

"In the field of building intelligent mobile assistance systems, AI is not only a nice add-on but a necessary prerequisite," he says. [2] An Intelligent algorithm will go well with mobile users to provide optimal solution in the cloud computing. [5] [6]

III THE CONCEPT OF AN AI BASED AGENT AND AN INTELLIGENT ALGORITHM:

An AI based Agent may be located either at mobile node or at any one cloud system. Whenever the mobile node wants services from cloud it passes its request to the cloud, the intelligent agent will tell the information about mobile device storage, processing capability, location details and neighbor details to the cloud system and to the adjacent mobile devices which is having the services corresponding to the mobile request. If an adjacent mobile device is having the same service , the intelligent agent at that mobile device will response to requested mobile device., if not it will pass to the other mobile devices which is currently being involved with the requested services. The offering is going on up to the required services finding out either at any one mobile devices or at any one cloud systems. For the intelligent processing of agent, the agent will be designed and developed using the AI based methodologies.

Proposed Cloud for Mobile Users:



If any mobile device is lost, we need to register the information to any one cloud systems and to any one mobile device. Any one try to boot the lost or stolen mobile device the agent located at that device will contact automatically to the neighbor or the cloud systems then the intelligent agent at neighbor or the cloud systems will give some instructions to the bootstrap procedure of the stolen or lost mobile device that it will not be even booted. If any application functions processing in any cloud systems are lost or damaged then that information is being passed around the devices and cloud systems to make the alternate arrangement and other means.

An AI based agent will always watch over the mobile devices status and applications functions details always during offloading of the applications in between mobile devices and cloud computing systems to save energy both in mobile devices and cloud systems.

An Intelligent Algorithm will locate the systems or devices which are having the capability of running the applications functions and are very closer to the mobile devices in cloud computing. An Intelligent algorithm may be deployed in cloud server or system which is surrogated in around the cloud to minimize the network latency.

IV. CONCLUSION

In this paper, I give an abstraction over the mobile agent & algorithm to provide a new way for securing the mobile devices and optimal solution for accessing the services in mobile cloud environment. However more efforts are needed to improve the efficiency of the agent and algorithm.

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