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AN OVERVIEW OF SIMULATION OF PRIVATECLOUD ENHANCING MOBILE DEVICE PERFORMANCE

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Abstract: This research implements and develops cross-platform architecture for connecting mobile devices to the WS. The architecture includes a platform independent design of mobile service client and a middleware for enhancing the interaction between mobile clients and WS. The middleware also provides a personal service mashup platform for the mobile client. Finally, the middleware can be deployed on Cloud Platforms, like Google App Engine and Amazon EC2, to enhance the scalability and reliability.

Keywords: Cloud, web services, MCC (Mobile cloud computing), search engine, middleware.

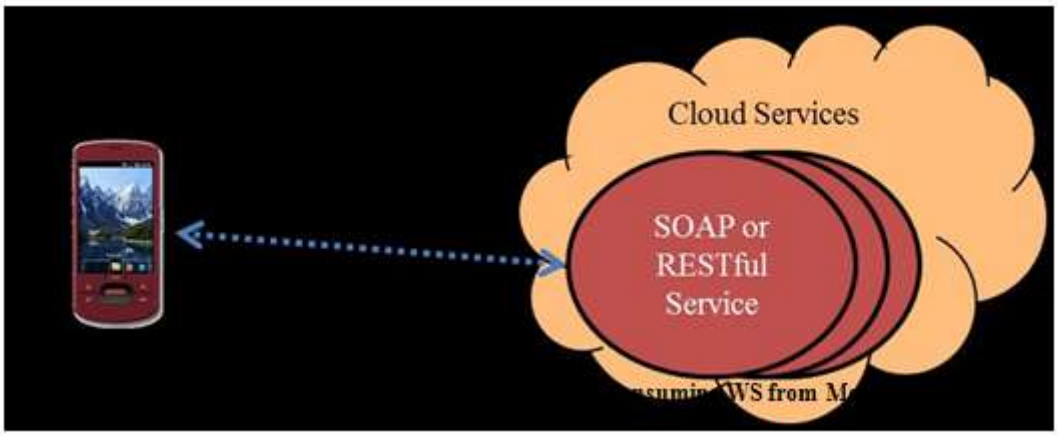
I. INTRODUCTION

Today, mobile devices like iPhone, Blackberry, Android, have included applications that consume WS from popular websites, such as Google, Facebook, and Twitter. However, there are problems in connecting mobile devices to existing WS. Firstly, WS need to provide optimization for mobile clients. For example, the size of the WS messages needs to be reduced to fit the bandwidth of mobile clients. Secondly, mobile clients have to adapt to different kinds of WS, for example, SOAP and RESTful WS. The growing number of mobile clients and availability of WS also drives the needs of customizing and personalize service mashups. This thesis investigates how we can stimulate Cloud which can help mobile clients connect to existing WS.

II. CLOUD AND CLOUD COMPUTING

What is cloud computing?Cloud computing as a paradigm, which shifts the location of computing infrastructure to the network in order to reduce the costs associated with the management of hardware and software resources.

Cloud Platforms usually refer to application hosts that offer computational power, storage and Web access. Two well-known Cloud Platforms are Amazon Elastic Cloud Computing (EC2) and Google App Engine (GAE).



EC2 is based on virtualization, where each EC2 instance is a Virtual Machine (VM). Users can choose different Operating Systems (OS) and hardware architectures to run on their VMs.

III .CHALLENGES ACCESSING WS OVER CLOUD:

There are several challenges in the process of consuming Web Services from mobile clients.

Challenge1. Loss of connection: The interaction between client and service requires a stable connection. However, due to the mobility of the clients and the wireless network setup, mobile clients can be temporarily removed from the previous connected network and later may enter to another network. In such incidents, either service requests or responses may fail to be delivered to their destination.

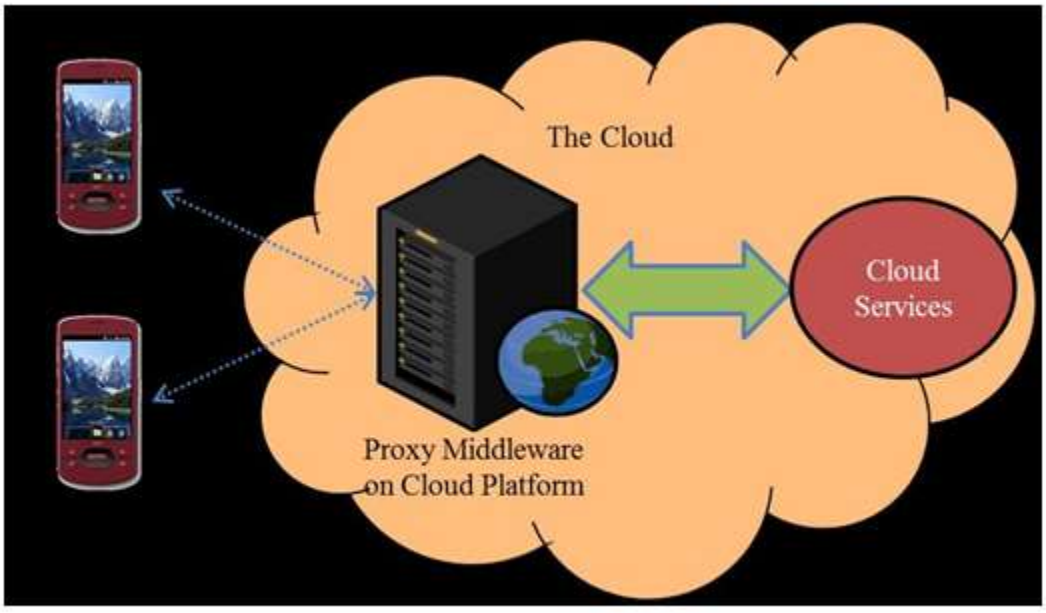
Challenge2. Bandwidth/Latency: Cell networks have limited bandwidth and are often billed based on the amount of data transferred. However, even a simple SOAP message often contains a large chunk of XML data, which consumes a lot of bandwidth and the transmission can cause major network latency. In addition, the SOAP message contains mostly XML tags that are not all necessary for mobile clients.

Challenge3. Limited resources: Mobile clients are "thin clients" with limited processing power. The limitations are intrinsic to mobility and not just the shortcomings of current technology .For example, a service mashup involve parsing and combining different WS results requires a lot of computation. The challenges are minimizing the data processing on mobile clients and extending processing power beyond mobile clients. In addition, many mobile platforms do not include necessary libraries for SOAP WS.

IV.THE IDEA OF MOBILE CLOUD COMPUTING:

To overcome these challenges, the paper proposes a Mobile Cloud Computing (MCC) architecture which connects mobile devices to the Cloud Computing. The MCC architecture includes a mobile client and a middleware design.

There are two approaches to implement the mobile client: native applications and embedded browser applications. Native applications are built with specific programming languages supported by the mobile platforms. However, embedded browser applications can run HTML and JavaScript in the embedded browser and use interfaces exposed by native application.



Consuming WS from Mobile Client through Proxy Middleware

The middleware acts as a proxy that is hosted on the Cloud platforms which provide mobile clients access to Cloud services. The

middleware improves interaction between mobile clients and Cloud Services, for example, adaptation, optimization and caching. The middleware also provides extended functions to mobile clients, such as service mashup. In general, the middleware enhances the functionality, reliability and compatibility of the interaction between mobile clients and Cloud Services.

V. CONCLUSION AND FUTURE SCOPE:

Here this middleware and the corresponding components facilitates our cloud with the extra capabilities which lead to enhance the performance of mobile device as well, this sort out the overall network bandwidth issue ,insufficient resource moreover provide the connection stability. However we can further work on the alternate of middleware even on the mobile device side. We can work on various techniquesto customize middleware for the implementation on cloud which will give better results in limited cost.

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