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M-CRM on Cloud Computing by (m-learning)

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ABSTRACT

Todays ,organization want to provide the best possible experience to each and every customer, every time and every where they engage with organization . organizations want to know each customer inside and out, and empower every individual in businesses to deliver consistent, top-notch customer experiences . All this is possible with m-CRM investment. In this paper we describe how Implementation CRM by m-learning tools. But The implementation of m-learning need to enterprise m-LMS that expensive and Very complicated .In order to decrease cost and complexity , m-learning can Launch on cloud computing.

Keywords

m-learning ,CRM, cloud computing, 3Mobile Cloud Computing (MCC)

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INTRODUCTION

M-Learning means a learning environment that instructors and students can access the learning system with portable devices and wireless network. With mobile technology, the educational environment is becoming better than before in ubiquity, instant connectivity, personalization, and self-directed learning-community (Jung, 2004).

Gong(2004) analyzed m-Learning qualities with four characteristics:

First, in m-Learning environment we can learn anywhere even if we are moving.

Second, we can access the learning system that we want, whenever we request and where we need. This characteristic gives us a chance of self-regulated learning.

Third, it gives a chance to enlarge learning resources. Each leaner can choose the material as his or her learning style and level, and it helps studying over individual differences.

Forth, m-Learning gives us the possibility of learning with real contexts.

These let learners study and experience not separately, so that studying in m-Learning environments becomes actual learning.

Nowadays, mobile devices such as cell phones can be regarded as a computer, but it still has some problems. It is mobile learning involves the flow of information to and from a learner or group of learners.

In this paper we review the flow of information from a server to a learner's mobile Device by looking at the many ways that users can retrieve information using mobile technologies. Retrieving information can include learning materials prepared by instructors or it can be information that is available to the learner on an "on-demand" basis as public information. But, because of the rise of mobile learning technologies, there is a definite shift from just-in-case training to just-in-time training(Tucker,2009).

But, The past 8 to 10 years have changed the idea of learning in important ways. There is now an emphasis on the user-centered learning and a push to use the unique "affordances" of mobile learning to do things that previously were not even possible. [1]

In past ,e-learning launched by enterprise LMS but m-learning can be set up on cloud computing to decrease complexity and cost of enterprise m-LMS .

1. CLOUD COMPUTING

In science, cloud computing is a synonym for distributed computing over a network and means the ability to run a program on many connected computers at the same time. The phrase is also, more commonly used to refer to network-based services which appear to be provided by real server hardware, which in fact are served up by virtual hardware, simulated by software running on one or more real machines. Such virtual servers do not physically exist and can therefore be moved around and scaled up (or down) on the fly without affecting the end user - arguably, rather like a cloud.[13]

1.1 Service models

Cloud computing providers offer their services according to several fundamental models:[14] infrastructure as a service (IaaS), platform as a service (PaaS), and software as a service (SaaS) where IaaS is the most basic and each higher model abstracts from the details of the lower models. Other key components in anything as a service (XaaS) are described in a comprehensive taxonomy model published in 2009,[15] such as Strategy-as-a-Service, Collaboration-as-a-Service, Business Process-as-a-Service, Database-as-a-Service, etc. In 2012, network as a service (NaaS) and communication as a service (CaaS) were officially included by ITU (International Telecommunication Union) as part of the basic cloud computing models, recognized service categories of a telecommunication-centric cloud ecosystem.[16]

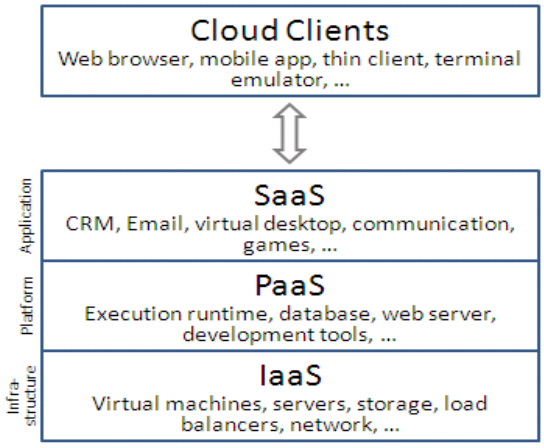

Fig1-service models

1.2 Cloud management

Legacy management infrastructures, which are based on the concept of dedicated system relationships and architecture constructs, are not well suited to cloud environments where instances are continually launched and decommissioned.[11] Instead, the dynamic nature of cloud computing requires monitoring and management tools that are adaptable, extensible and customizable.[12]

1.3 Mobile Cloud Computing (MCC)

Mobile Cloud Computing (MCC) is the state-of-the-art mobile distributed computing paradigm comprises three heterogeneous domains of mobile computing, cloud computing, and wireless networks aiming to enhance computational capabilities of resource-constrained mobile devices towards rich user experience.[17][18] MCC provides business opportunities for mobile network operators as well as cloud providers.[19] More comprehensively, MCC can be defined as "a rich mobile computing technology that leverages unified elastic resources of varied clouds and network technologies toward unrestricted functionality, storage, and mobility to serve a multitude of mobile devices anywhere, anytime through the channel of Ethernet or Internet regardless of heterogeneous environments and platforms based on the pay-as-you-use principle."[20] MCC realizes its vision leveraging computational augmentation approaches by which resource-constraint mobile devices can utilize computational resources of varied cloud-based resources.[17] In MCC, there are four types of cloud-based resources, namely distant immobile clouds, proximate immobile computing entities, proximate mobile computing entities, and hybrid (combination of the other three model).[17] Giant clouds such as Amazon EC2 are in the distant immobile groups whereas cloudlet or surrogates are member of proximate immobile computing entities . Smartphones, tablets, handheld devices, and wearable computing devices are part of the third group of cloud-based resources which is proximate mobile computing entities.[21]

Applications are run on a remote server and then sent to the user. Because of the advanced improvement in mobile browsers thanks to Apple, Google, Microsoft and Research in Motion, nearly every mobile should have a suitable browser. This means developers will have a much wider market and they can bypass the restrictions created by mobile operating systems.

Mobile cloud computing gives new company chances for mobile network providers. Several operators such as Vodafone,[22] Orange and Verizon have started to offer cloud computing services for companies.

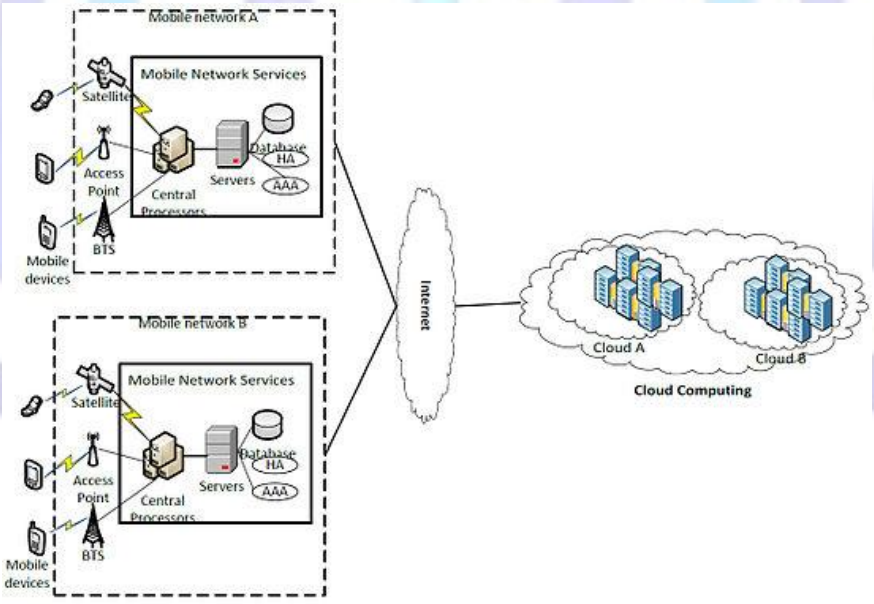

Fig2.Mobile cloud computing architecture

2. Customer relationship management (CRM)

Customer relationship management (CRM) is a model for managing a company's interactions with current and future customers. It involves using technology to organize, automate, and synchronize sales, marketing, customer service, and technical support.[1]

2.1 e-CRM or electronic customer relationship marketing

concept is a fancy way of saying "I create newsletters." It also uses net environment i.e., intranet, extranet and internet. Electronic CRM concerns all forms of managing relationships with customers making use of information technology

(IT). eCRM is enterprises using IT to integrate internal organization resources and external "marketing" strategies to understand and fulfill their customer's needs. [9]Traditional providers have recently moved into the cloud-based market via acquisitions of smaller providers: Oracle purchased RightNow in October 2011[4] and SAP acquired Success Factors in December 2011.[5]

Many CRM vendors offer subscription-based web tools (cloud computing) and software as a service (SaaS). Some CRM systems are equipped with mobile capabilities, making information accessible to remote sales staff.[] Salesforce.com was the first company to provide enterprise applications through a web browser, and has maintained its leadership position.[3]The era of the "social customer"[6] refers to the use of social media (Twitter, Facebook, LinkedIn, Google Plus, Pinterest, Instagram, Yelp, customer reviews in Amazon, etc.) by customers. CR philosophy and strategy has shifted to encompass social networks and user communities. Another related development is vendor relationship management (VRM), which provide tools and services that allow customers to manage their individual relationship with vendors.

2.1.1 e-CRM strategy components

When enterprises integrate their customer information, there are three e-CRM strategy components:.[7]

1. Operational: Because of sharing information, the processes in business should make customer's need as first and seamlessly implement. This avoids multiple times to bother customers and redundant process. The small size of the send and receive data via sms possible. Ofcourse multi-choise forms are acceptable way to gather information from old customers.
2. Analytical: Analysis helps company maintain a long-term relationship with customers.
3. Collaborative: Due to improved communication technology, different departments in company implement (intra organizational) or work with business partners (inter organizational) more efficiently by sharing information.

3. MOBILE CRM

One subset of Electronic CRM is Mobile CRM (m-CRM). This is defined as "services that aim at nurturing customer relationships, acquiring or maintaining customers, support marketing, sales or services processes, and use wireless networks as the medium of delivery to the customers.[10]However, since communications is the central aspect of customer relations activities, many opt for the following definition of mCRM: "communication, either one-way or interactive, which is related to sales, marketing and customer service activities conducted through mobile medium for the purpose of building and maintaining customer relationships between a company and its customer(s).[11]

3.1 CRM by m-learning on cloud computing

Mobile learning involves the flow of information to and from a learner Or group of learners the flow of information froma server to a learner's mobile device by looking at the many ways that users can retrieve information using mobile technologies. Retrieving information can include learning materials prepared by instructors or it can be information that is available to the learner on an "on-demand" basis as public information. But, because of the rise mobile learning technologies, there is a definite shift from just-in-case training to just-in-time training(Tucker,2009). [1]

At the simplest level, mobile devices can act as clients that retrieve information from servers —whether the server is a massive server farm "in the cloud,"or a simple coded tag on an object. This means that the information is not necessarily stored in the learner's memory, but is updated and used "just-in-time." this is a two-way transaction Information is requested and sent to the user. Or information is "pushed" to users if they have subscribed to a feed of that information. Where information is gathered by the user and then sent to a server for storage and/or analysis. however, the use of mobile devices to gather information makeseach user a node in a network that can be used to drive a kind of collective intelligence. [1]

In addition to each customer gaining new knowledge, a group of networked learners can also become smarter. Examples of retrieving information using mobile learning technologies for CRM include:

3.1.1Customer educational

Customer education via mobile devices is the provision of mobile learning programs and information for people who buy a company's products and/or services. Mobile customer education can take the form of short video clips, answers to frequently asked questions, interactive tutorials, and searchable help files.

Customer education is a very new application of mobile learning in corporate environments.

The mobile phone companies—both carriers and handset suppliers—are among the first to offer customer education as part of their services. For example, MetroPCS, the fifth largest mobile carrier in the United States, now sends educational "idle screen" messages to customers based on their interests and need. . MetroPCS subscribers may elect to receive optional content messages, like weather forecasts, Local gas prices, and sports scores, along with occasional offers from local and national retailers" (Ankeny, 2009). [1]

Behind the scenes, a mobile customer relationship management (CRM) program supports the customer education program. For example,send multi –choise form to feedback from customer.

3.1.2 RSS feed

An alternative method for gathering information from the Internet is to subscribe to an Internet feed. The most common type of feed technology is RSS (no one is quite sure of the origins of this acronym, but it is thought to originally stand for “really simple syndication ”or “rich site summary”). RSS feeds are picked up by special readers that list the headlines for all items in the feed. There are also several alternative technologies, the most common one being Atom. In order to receive content from an RSS feed, you need to have a feed reader.

3.1.3 Customer media channel :

Perhaps the most successful use of digital media for mobile learning to date has been the development and deployment of audio and video podcasts. Podcasting is the name for sharing media files designed for devices like the iPod and other digital audio-video players. It is another way of distributing content online that is now being

Used in education and training settings.

It is even possible to use a mobile phone to produce a podcast, a technique known as “cellcasting,” pioneered by OnPoint Digital in Savannah, Georgia. For example, send help manual on rich media file to customer .(video , podcast ,…)

3.1.4Location based information

Knowing the location of users is one of the most important pieces of information needed for designing mobile learning experiences. Retrieving information to lie on top of a picture of what you are looking at is now possible with several “augmented reality” applications. For example, this information are useful to detect place of car accident to Simultaneously inform police officer, insurance company,….

3.1.5 Map and satellite photo

Given that users can take mobile devices almost everywhere they go, the provision of maps and satellite views of a particular geographic area is a natural .The inclusion of global positioning system (GPS) functionality in most smartphones today means that any mobile device can detect its user’s location on a map in real time.

3.1.6Job Aids

Given that most people own a mobile phone,it is not surprising that analysts predict that mobile learning will include giving just-in-time assistance to people on the job. This type of assistance is often referred to as performance support, meaning that the business objective is to help employees work more efficiently and effectively by having easy and immediate access to the information. Training and development experts Bob Mosher and Conrad Gottfredson (2009)even see the need to distinguish between m-learning and m-support.

For example repairman can get help by his smartphone to diagnosis defect of car. [1]

Advantages of mobile CRM

The mobile channel creates a more personal direct connection with customers.

It is continuously active and allows necessary individuals to take action quickly using the information.

Typically it is an opt-in only channel which allows for high and quality responsiveness.

Overall it supports loyalty between the customer and company, which improves and strengthens relationships.[8]

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