Mobile Computing Framework

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***Abstract* - Mobile computing is important due to rise in the number of portable computers. A mobile network can be a remote site, secured communication with the home or business network. This mobile network solves many issues related to security and scalability. Ranging from wireless laptops to cellular phones and WiFi/Bluetooth-enabled PDAs to wireless sensor networks, mobile computing its impact on our daily lives. If iPhones and the other handheld devices has spurred excitement and interest in this evolving field. We will investigate some standard protocols and platforms, and the capabilities of the next-generation proposed solutions. we will find to gain an improved where the field is headed, or what are the important remaining unanswered technical challenges. Mobile computing is new style of computer access of the two currently dominant trends: portable computer (computer industry) and wireless communication (telecommunication industry). This paper discusses some key issues realizing a mobile computing wireless environment by examine the characteristics required of main component: wireless communications network, co-ordination software and mobile computers.**

***Keyword* - GPRS (General Packet Radio Service), LAN (Local Area Network), WAN (Wide Area Network), NMT (Nordic Mobile Telephone), AMPS (Advanced Mobile Phone Service), GSM (Global System Mobile) DCS (Digital Communication System), PCS(Personal Communication System).**

I. INTRODUCTION

Mobile Computing is a technology that enables people to access network services. Mobile computing is Using in small size portable computers, hand-helds, and other small wearable devices To run stand-alone applications (or access remote applications) via wireless networks: , Cellular, Bluetooth, W-LANs, W-Packet Data networks, By: nomadic and mobile users (animals, agents, trains, cars, cell phones. ALL the activities of business also conducted over a wireless telecommunications network or from mobile devices [1]. The originate of Mobility can move toward resource or away from scarcity. Mobile Computing is technologies that enable people to access network services at anywhere and anyplace. Nomadic computing is synonymous with mobile computing. The Information can be accessed via mobile device is plagued by the low bandwidth which is available, and the poor connection maintenance, or the poor security. The new hardware and software techniques must be developed. For example, the applications need to be high space to fit in the limited memory on the mobile devices. And for the Internet enabled device, good old TCP/IP stack can't be used so it takes much space and it is not optimized for minimal power consumption.

A new hardware technology solution is Bluetooth that has been proposed to overcome this barrier. And Any of the device with a Bluetooth will be able to communicate with any other device having a similar Bluetooth.

In the past, the cellular phone companies have shown the interesting growth pattern. and the number of customers has been steadily increasing. Typical the data services includes e-mail, Internet browsing and chat. GSM networks provide a special type of service that is called GPRS that allows the information to be sent and received across the network.

II. EXISTING MOBILE COMPUTING NETWORK ARCHITECTURE

During the 1980 used the analogue technology. The most well known system were NMT900 (Nordic Mobile Telephone) and AMPS (Advanced Mobile Phone Service). In the 1990 digital cellular technology introduced with GSM (Global System Mobile) the most widely accepted system. and the Other systems are the DCS1800 (Digital Communication System) or PCS1900 (Personal Communication System).

A cellular network consists of mobile unit linked with the switching equipment, which interconnect the different parts of the network. The technology is hidden from view. A number of adjacent cells grouped together form an area The Mobile Switching Centre is heart of a cellular radio system. It is also responsible for the routing, and switching, calls from the source to the destination. The MSC may be connected to other MSC on the same network or to the PSTN.

Mobile operating system milestones mirror the development of mobile phone and smart phones: [5]

- 1979–1992 Mobile phones use embedded systems to control operation.
- 1993 The first smart phone.
- 2000 Symbian becomes the first modern mobile OS on a smartphone
- 2007 Apple iPhone with iOS is introduced as an iPhone, "mobile phone" and "internet communicator."
- 2013 Canonical announced Ubuntu Touch, a version of the Linux distribution expressly designed for smartphones.
- 2013 BlackBerry released their new operating system for smartphones and tablets.

Mobile computing technology is categories in four dimensions

(1) Switching methods (wireless delivery):[2]

- Radio based network systems
- cellular communications network
- wireless packet data network

- Satellite network

(2) Mobile information access device:[2]
- Personal Digital Assistant
- Palmtops

(3) Mobile data internetworking standards and equipments:[2]
- Personal Digital Assistant
- IrDA

(4) Mobile computing based business application:[2]

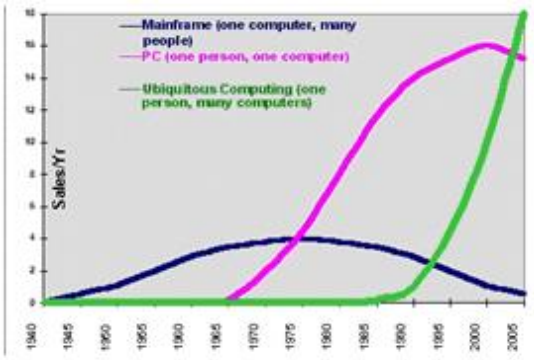

Figure-1 (Major Trends in Computing) [4]

III. MOBILE FRAMEWORK

The Mobile computing is an important and evolving technology. Mobile computing enables the mobile personnel to interact with fixed organizational information system and effectively communicate by physical location. A Mobile computing may be implement on many of hardware/ software, or other communications technologies. and The technologies must designed to achieve business need required from overall organizational information system. The mobile computing framework can be assist the information technology to determining the applicability of mobile technology to organizational problem. the Mobile computing is versatile and strategic technology that can improve the information's quality and accessibility.

The name MOBILE is derived from the first letter in each of the six categories that make up the framework.

M : the need for mobility
O : the need to improve operations
B : the need to break business barriers
I : the need to improve information quality
L : the need to decrease transaction lag
E : the need to improve efficiency

Figure-2 (Android V/S Symbian) [3]

Symbian : Symbian is a very popular platform but for only one reason, cheapest smart phone OS out there. it is good, all other platforms are better, and even more importantly will get even better over time, Symbian is finally starting to loose ground.
Windows Phone: it is better for business solutions, windows phone is more a end consumer product, oriented to the social networking and online boom.
Blackberry: Great at keeping your data safe, while not as good as iOS or Android as a platform it offers many things that no other hardware does.
Android : The API is easy to use with basically infinte tools, its as flexible as iOS without all the crazy restrictions

IV. ADAPTING TO CHANGE

The mobile computing is evolving. And more advanced and the mobile technologies will be discovered. The key to be integrating the new technologies into the organizational system will be adaptability, forward thinking, long life learning, and the use of tools like the Mobile framework. And The result will be hardware/software, and the other communications systems that are more mobile and capable of accomplish the objective of the organization.

V. SOME TECHNICAL AND OTHER ISSUES WITH THE MOBILE COMPUTING

1. **Insufficient bandwidth**
   When we access the Mobile internet that is generally slower than the direct cable connections, using technologies such as EDGE or GPRS, and the more recently using 3G networks. These networks are generally available within a particular range of the commercial cell phone towers. and the Higher speed wireless LANs and WANs are inexpensive, and have very limited range.
2. **Transmission interferences**
   The range from the nearest signal point can be all interfere with the signal reception. and the Reception in tunnels, rural areas and buildings, are often poor.
3. **Potential health hazards**
   More accidents are related to drivers who were talking through a mobile device. Mobile Phones may be interfere with the sensitive medical devices. There are allegations that the Mobile phones signal may cause the health problems.

VI. APPLICATION

1. **Financial and Mobile banking Service :** The Customers can use mobile handset to access the account, pay bills, or transfer the funds.
2. **Mobile Wallet :** Enable the cardholder to make purchase with a single click from the wireless device.
3. **Wireless Shopping :** Online vendors allow to customers to shop from the wireless device.
4. **mobile portal :** A customer interaction channel that aggregates content and services for mobile users.

VII. CONCLUSION

Mobile computing is benefits for the organizations that select to integrate the technology into fixed organizational information system. Mobile computing is made by the portable computer hardware/software, and the communication systems which can interact with a non-mobile organizational information system from normal or the fixed workplace. Mobile computing is potentially strategic technology and versatile that improves the quality of the information and the accessibility. it also increases the operational efficiency and the management effectiveness.

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