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Research Dimensions of Advanced Mobile Computing Technology Security Issues for the Complex Applications

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Abstract: Computers are one of the major inventions of the world. The invention of computer has changed the world. During these days every field of life seems to be computerized. Later in the 21st century a new technology was introduced in the world known as mobile computing. Now-a-days computers are modified into mobile computers known as laptops.Advancements in the fields of computers & telecommunications technology resulted in mobiles.Latest advancements of mobile computing made it possible for complex applications to get solutions accurately & fastly.This paper focus on recent trend security issues with their applicability requirements.

Keywords:

1. Introduction

Mobile computing is a form of human–computer interaction by which a computer is expected to be transported during normal usage[2]. Mobile computing has three aspects: mobile communication, mobile hardware, and mobile software. The first aspect addresses communication issues in ad-hoc and infrastructure networks as well as communication properties, protocols, data formats and concrete technologies. The second aspect is on the hardware, e.g., mobile devices or device components. The third aspect deals with the Mobile computing is taking a computer and all necessary files and software out into the field.Mobile computing: being able to use a computing device even when being mobile and therefore changing location. Portability is one aspect of mobile computing.Mobile computing is the ability to use computing capability without a pre-defined location and/or connection to a network to publish and/or subscribe to information .Mobile Computing[9] is a variety of wireless devices that has the mobility to allow people to connect to the internet, providing wireless transmission to access data and information from where ever location they may be.

2. Devices

Many types of mobile computers have been introduced since the 1990s including the computer,Personal digital assistant,smartphone,tablet computer,ultramobile PC,wearable computer[11].

3. Limitations

- Insufficient bandwidth[16]: Mobile Internet access is generally slower than direct cable connectionsHigher speed wireless LANs are inexpensive but have very limited range.
- Security standards: When working mobile, one is dependent on public networks, requiring careful use of VPN. Security[21] is a major concern while concerning the mobile computing standards on the fleet. One can easily attack the VPN through a huge number of networks interconnected through the line.
- Power consumption: When a power outlet or portable generator is not available, mobile computers must rely entirely on battery power. Combined with the compact size of many mobile devices, this often means unusually expensive batteries must be used to obtain the necessary battery life.
- Transmission interferences: Weather, terrain, and the range from the nearest signal point can all interfere with signal reception. Reception in tunnels, some buildings, and rural areas is often poor.
- Potential health hazards: People who use mobile devices while driving are often distracted from driving and are thus assumed more likely to be involved in traffic accidents. (While this may seem obvious, there is considerable discussion about whether banning mobile device use while driving reduces accidents or not.) Cell phones may interfere with sensitive medical devices. There are allegations that cell phone signals may cause health problems.
- Human interface with device: Screens and keyboards tend to be small, which may make them hard to use. Alternate input methods such as speech or handwriting recognition require training[22].

4.Advantages

1)Improved decision making:

Mobile Computing lets you conduct business at the point of activity. The ability to collect, access and evaluate critical business information quickly and accurately means better decision making that can have a far-reaching effect on company's ability to compete successfully[1].

2) Increased productivity[8] and reduced costs:

Mobile computing can lead to increased individual productivity, increased sales per sales person, more service calls per repair person, less time spent by professionals on administrative work, and much more--all of which ultimately translates into higher sales at lower cost. And, on-the-spot invoice production in service vehicles can lead to shorter payment cycles and better cash flow.

3) Improved customer relations:

The success of a business can often be measured by its ability to satisfy customers. Mobile computers gives your field worker the ability to answer customer questions, check order status and provide other services anytime their customers need them from wherever they happen to be.

4) Portability:The main benefit of mobile computers is that you do not have to bind yourself to a certain place. It is possible to dor work while sitting in a car or a train& communicate with other people while sitting anywhere in the world. Chat online with friends and family members, office work while sitting anywhere.

5) Economy: When people can do their work while sitting anywhere they will do more work. This will play an important role in the economy of the country and the world.

5. Security Issues Involved In Mobile Computing

i) Mobile security or mobile phone security has become increasingly important in mobile computing. It is of particular concern as it relates to the security of personal information now stored on the smart phone. More and more users and businesses use smart phones as communication tools but also as a means of planning and organizing their work and private life. Within companies, these technologies are causing profound changes in the organization of information systems and therefore they have become the source of new risks. Indeed, smart phones collect and compile an increasing amount of sensitive information to which access must be controlled to protect the privacy of the user and the intellectual property of the company.

ii) All smartphones, as computers, are preferred targets of attacks. These attacks exploit weaknesses related to smart phones that can come from means of communication likes SMS,MMS,WIFI NETWORKS. There are also attacks that exploit software vulnerabilities from both the web browser and operating system.

iii) Different security counter-measures are being developed and applied to smart phones, from security in different layers of software to the dissemination of information to end users. There are good practices to be observed at all levels, from design to use, through the development of operating systems, software layers, and downloadable apps.

6. Conclusions

With developments of latest technologies[15] mobile computing still requires many other technologies to be collaborated for fulfilling the changing needs of users world wide, Mobile computing promises to provide any kind of functionality for challenging requirements but it has to resolve & enhance in various disciplines to convert promise into real things.

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