

Mobile Computing

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OPEN ACCESS

Volume : 6

Special Issue : 1

Month : September

Year: 2018

ISSN: 2321-788X

Impact Factor: 3.025

Citation:

Kalpana, R. (2018).

Mobile Computing.

Shanlax International Journal of Arts, Science and Humanities, 6(S1), pp.111–114.

DOI:

<https://doi.org/10.5281/zenodo.1411001>

Abstract

Advances in wireless networking have prompted a new concept of computing, called mobile? Computing? In? Which? Users? Carrying? Portable? Devices? Have? Access? To? a? Shared infrastructure, independent of their physical location. Mobile computing has fast become a crucial fresh prototype in nowadays world of networked computing systems. This provides flexible? Communication between people and continuous access to networked services. Mobile computing is revolutionizing the way computers are used and in the coming years, this will become even more? Perceptible? Although? Many? Of? The? Devices? Themselves? Will? Become? Smaller? Or? Even invisible to users. This paper explicable different types of? Mobile system ? that are used in the distributed environment. It also explains mobility service architecture, technology, application and demerits of mobile computing. Finally, this paper explains the future direction of mobile computing.

Introduction

A technology that allows transmission of data, via a computer, without aving to be connected to a fixed physical link. An extension of this technology is the ability to send and receive data across these cellular networks. This is the principle of mobile computing. Mobile data communication has become a very dominant and rapidly evolving technology as it allows users to transmit data from remote locations to other remote or fixed locations. This proves to be the solution to the biggest problem of business people on the move - mobility.

History

- The Beginning Most credit Guglielmo Marconi, “the father of radio”, with the initiation of wireless technology 1894 Marconi experimented with Hertzian Waves (radio waves) to produce and detect waves over long distances 1896 Marconi established the Wireless Telegraph & Signal Company, the first radio factory 1901 St John’s, New Foundland, Marconi received the first transAtlantic wireless signal from Poldhu, England.
- Evolution of Wireless Technology 1905 the first distress signal sent using Morse Code 1919 Radio Corporation of America (RCA) was incorporated, and consumer radio broadcasts for news and entertainment soon became popular During World War II the US Military used wireless signals with encryption to send battle plans and instructions US Military started the shift to radio data transmission technology

- The Beginning of Wireless Technology In 1947 researchers in AT&T Bell Labs conceived the idea of cellular phones. They realized that by using small service areas or cells, they could reuse the frequency. This, in turn, can enhance the traffic capacity of mobile phones. AT&T requested the Federal Communication Commission (FCC) to allocate a large number of radio-spectrum frequencies so that widespread mobile telephone service would become feasible.
- Evolution of Wireless Network The first wireless network was commissioned in Germany in 1958. It was called A-Netz and used analog technology at 160 MHz. Only outgoing calls were possible in this network. That is to say that a connection set-up was possible from the mobile station only. This system evolved into B-Netz operating at the same 160 MHz. It was possible to receive an incoming call from a fixed telephone network, provided that the location of the mobile station was known.
- IEEE Standard for Wireless Networking 1990 IEEE 802 Executive Committee established the 802.11 Working Group to create a wireless LAN standard. 1997 working group approved IEEE 802.11 as the world's first wireless LAN standard new standards are continuously being developed by the Institute of Electrical and Electronics Engineers.

Devices

- **Ultra-Mobile PC (discontinued)**
- **Robots**
- **Wearable computer**
- **Carputer**
- **Portable computer(discontinued)**

A portable computer is a computer that is designed to be moved from one place to another and includes a display and keyboard. PDA, laptop, smartwatch, smartphone, tablet PC are examples. When introduced in the 20th century, sometimes the term denoted little more than the presence of a carrying handle. When smaller packages could pack more computer power, they were made with batteries, keyboards, displays and other features built-in. They replaced ones that lacked these features.

- **Personal digital assistant/Enterprise digital Assistant (discontinued)**

A personal digital assistant (PDA), also known as a handheld PC is a mobile device that functions as a personal information manager. PDAs were largely discontinued in the early 2010s after the widespread adoption of highly capable smart phones, in particular, those based on iOS and Android.

Laptop

A laptop, often called a notebook or "notebook computer", is a small, portable personal computer with a "clamshell" form factor, an alphanumeric keyboard on the lower part of the "clamshell" and a thin LCD or LED computer screen on the upper part, which is opened up to use the computer. Laptops are folded shut for transportation, and thus are suitable for mobile use. Although originally there was a distinction between laptops and notebooks, the former being bigger and heavier than the latter, as of 2014, there is often no longer any difference. Laptops are commonly used in a variety of settings, such as at work, in education, in playing games, Internet surfing, for personal multimedia and general home computer use.

Smartphone

A laptop, often called a notebook or "notebook computer", is a small, portable personal computer with a "clamshell" form factor, an alphanumeric keyboard on the lower part of the "clamshell" and a thin LCD or LED computer screen on the upper part, which is opened up to use the computer. Laptops are folded shut for transportation, and thus are suitable for mobile use. Although initially there was a distinction between laptops and notebooks, the former being bigger and heavier than the latter, as of 2014, there is often no longer any difference.

Tablet Computer

A tablet computer that lacks a keyboard (also known as a non-convertible tablet) is shaped like a slate or a paper notebook. Instead of a physical keyboard, it has a touchscreen with some combination of virtual keyboard, stylus and handwriting recognition software. Tablets may not be best suited for applications requiring a physical keyboard for typing, but are otherwise capable of carrying out most of the tasks of an ordinary laptop.

Limitations

- Range and bandwidth: Mobile Internet access is generally slower than direct cable connections, using technologies such as GPRS and EDGE, and more recently HSDPA, HSUPA, 3G and 4G networks and also the proposed 5G network.
- Security standards: Security is a serious concern while concerning the mobile computing standards on the fleet.
- Power consumption: When a power outlet or portable generator is not available, mobile computers must rely entirely on battery power.
- 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 bad.
- 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.
- Human interface with a 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.

Major Advantages

- Location Flexibility
- Saves Time
- Enhanced Productivity
- Ease of Research
- Entertainment

Conclusion

Today's computing has rapidly grown from being confined to a single location. With mobile computing, people can work from the comfort of any location they wish to as long as the connection and the security concerns are properly factored. In the same light, the presence of high-speed connections has also promoted the use of mobile computing.

Being an ever growing and emerging technology, mobile computing will continue to be a core service in computing, and Information and Communications Technology.

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