

# MOBILE COMPUTING.



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# Birth From TeleGraph.

- **The Birth of Telecommunications: The Telegraph**
- **From Telegraph to “The Birth of Radio”, 1867-1896.**
- **Transoceanic Communication**
- **Voice over Radio**
- **Cellular Mobile Telephony**
- **Wired Local Area Networks**
- **Wireless Local Area Networks**

# MOBILE COMPUTING ?

- According to a Dictionary:
- Mobile: Able to move freely.
- Computing: The activity of using a computer.

## Mobile Computing



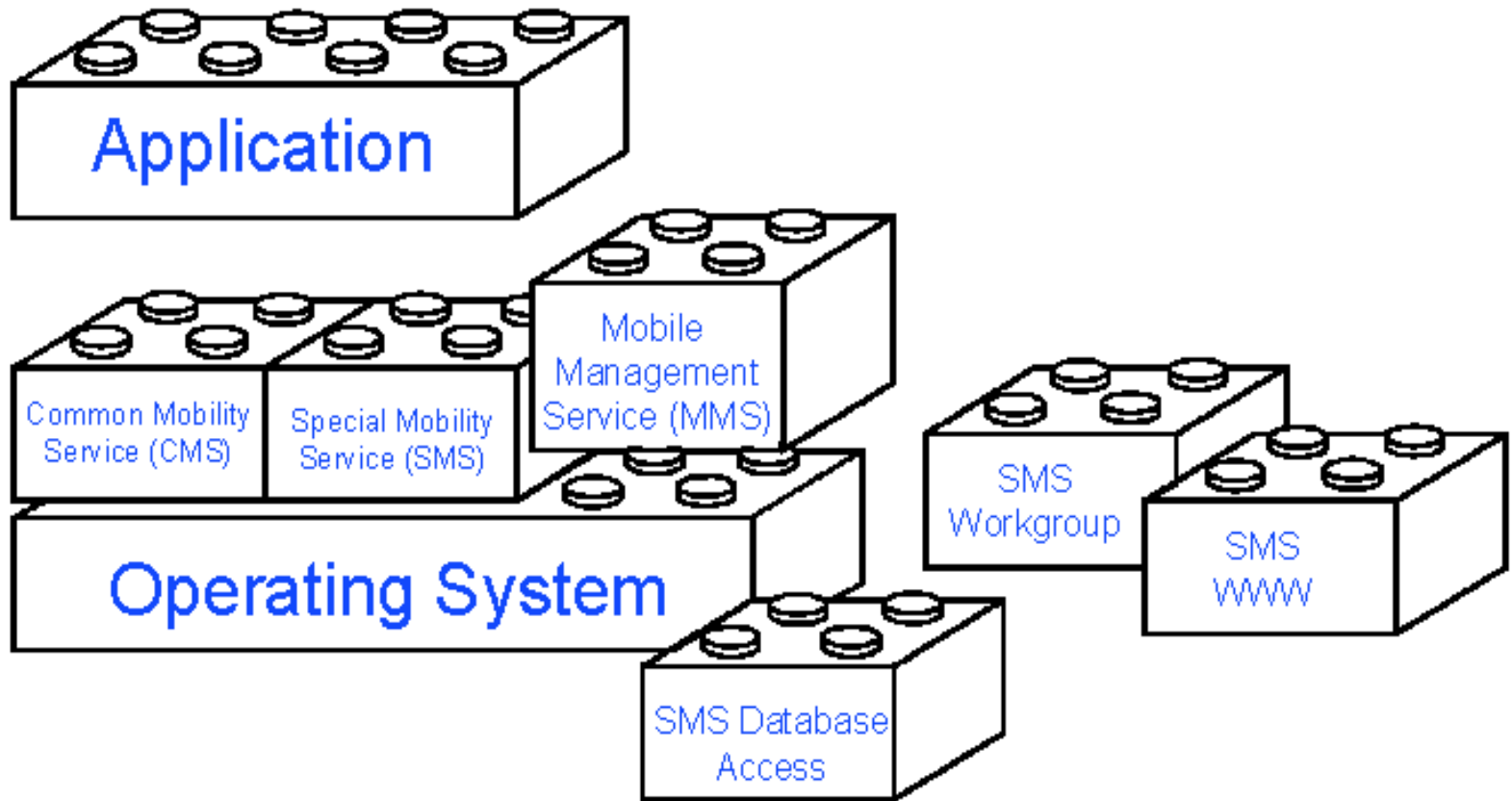
☞ **Able to communicate(or to access information) anytime, and anywhere.**



# MOBILE COMPUTING ?

- Mobile computing evolved during the last few years as a result of shrinking portables and growing (wireless) networks.
- It enlarges the usability of computers, but raises demanding challenges.
- A mobile user has to deal with the problems of slow expensive connection lines, frequent interruption of wireless connections, and limited host performance.
- "Requirements for mobile services are stability, bandwidth/cost considerations, integration into the familiar environment, application transparency, security and extendibility.

# MOBILE COMPUTING ARCHITECTURE



# ARCHITECTURE.

- First Group: The services Designed to overcome a common restrictions of mobile computing, which arise mainly from the slowness, insecurity and wireless connection lines utilized by the mobile user. These services are called *common mobility services* (CMS).
- Second Group: The services handles the management and administration of mobile users moving around and connecting their portables to networks at different places. These services are called *mobility management services* (MMS) .
- Third Group: The necessary tasks are adapt certain existing applications to mobile usage are implemented by high level services, which are called *special mobility services* (SMS).

# ARCHITECHTURE.

- Our Mobile System Architecture supports applications by a middleware stub.
- Based on these architecture prototypes for Mobile Database Access (MODBC), Mobile Information Access (MWWW) and Mobile File Access (MLDAP) have been built to demonstrate the usability of the proposed approach.



# MOBILE COMPUTING OPERATING SYSTEM(OS)

- A mobile operating system, also referred to as mobile OS, is the operating system that operates a smartphone, tablet, PDA, or other digital mobile devices.
- Modern mobile operating systems combine the features of a personal computer operating system with touchscreen, cellular, Bluetooth, Wi-Fi, GPS(Global positioning System), camera, video camera, speech recognition, voice recorder, music player, Near field communication, personal digital assistant (PDA), and other features.
- Apple Computer, which introduced the Newton Message Pad in 1993, was one of the first companies to offer PDAs.





# Mobile Operating Systems

- **Android from Google . (free and open source)**
- Android was developed by a small startup company that was purchased by Google Inc in 2005, and Google continues to update the software.
- Android is a Linux-derived OS backed by Google, along with major hardware and software developers that form the Open Handset Alliance
- Released on November 5th 2007, the OS received praise from a number of developers upon its introduction. Android releases prior to 2.0 (1.0, 1.5, 1.6) were used exclusively on mobile phones.
- Most Android phones, and some Android tablets, now use a 2.x release. Android 3.0 was a tablet-oriented release and does not officially run on mobile phones.
- The current Android version is 4.1. Android releases are nicknamed after sweets or dessert items like Cupcake (1.5), Frozen Yogurt (2.2), Honeycomb (3.0), Ice Cream Sandwich (4.0) and Jelly Bean (4.1).
- From Q2 of 2009 to the second quarter of 2010, Android's worldwide market share rose 850% from 1.8% to 17.2%. On 15 November 2011, Android reached 52.5% of the global smartphone market share.

# Android Version's

Version	Code name	Release date	<u>API</u> level	Distribution (November 1, 2012)
<u>4.2</u>	<u>Jelly Bean</u>	November 13, 2012	17	
<u>4.1.x</u>	<u>Jelly Bean</u>	July 9, 2012	16	2.7%
<u>4.0.3 - 4.0.4</u>	<u>Ice Cream Sandwich</u>	December 16, 2011	15	25.8%
<u>3.2</u>	<u>Honeycomb</u>	July 15, 2011	13	1.4%
<u>3.1</u>	<u>Honeycomb</u>	May 10, 2011	12	0.4%
<u>2.3.3-2.3.7</u>	<u>Gingerbread</u>	February 9, 2011	10	53.9%
<u>2.3-2.3.2</u>	<u>Gingerbread</u>	December 6, 2010	9	0.3%
<u>2.2</u>	<u>Froyo</u>	May 20, 2010	8	12.0%
<u>2.0-2.1</u>	<u>Éclair</u>	October 26, 2009	7	3.1%
<u>1.6</u>	<u>Donut</u>	September 15, 2009	4	0.3%
<u>1.5</u>	<u>Cupcake</u>	April 30, 2009	3	0.1%

# BLACKBERRY FROM RIM

- This OS is focused on easy operation and was originally designed for business.
- Recently it has seen a surge in third-party applications and has been improved to offer full multimedia support.
- Currently Blackberry's App World has over 50,000 downloadable applications.
- RIM's future strategy will focus on the newly acquired QNX, having already launched the BlackBerry Playbook tablet running a version of QNX and expecting the first QNX smartphones in early 2012.

## iOS FROM APPLE.

- The Apple iPhone, iPod , iTouch, iPad, and second-generation Apple TV all use an operating system called iOS, which is derived from Mac OS X.
- Native third party applications were not officially supported until the release of iOS 2.0 on July 11th 2008.
- Before this, “jailBreaking” allowed third party applications to be installed, and this method is still available.
- Currently all iOS devices are developed by Apple and manufactured by Fox Conn or another of Apple's partners.

# iOs 6

iOS 6 running on [iPhone 4](#)

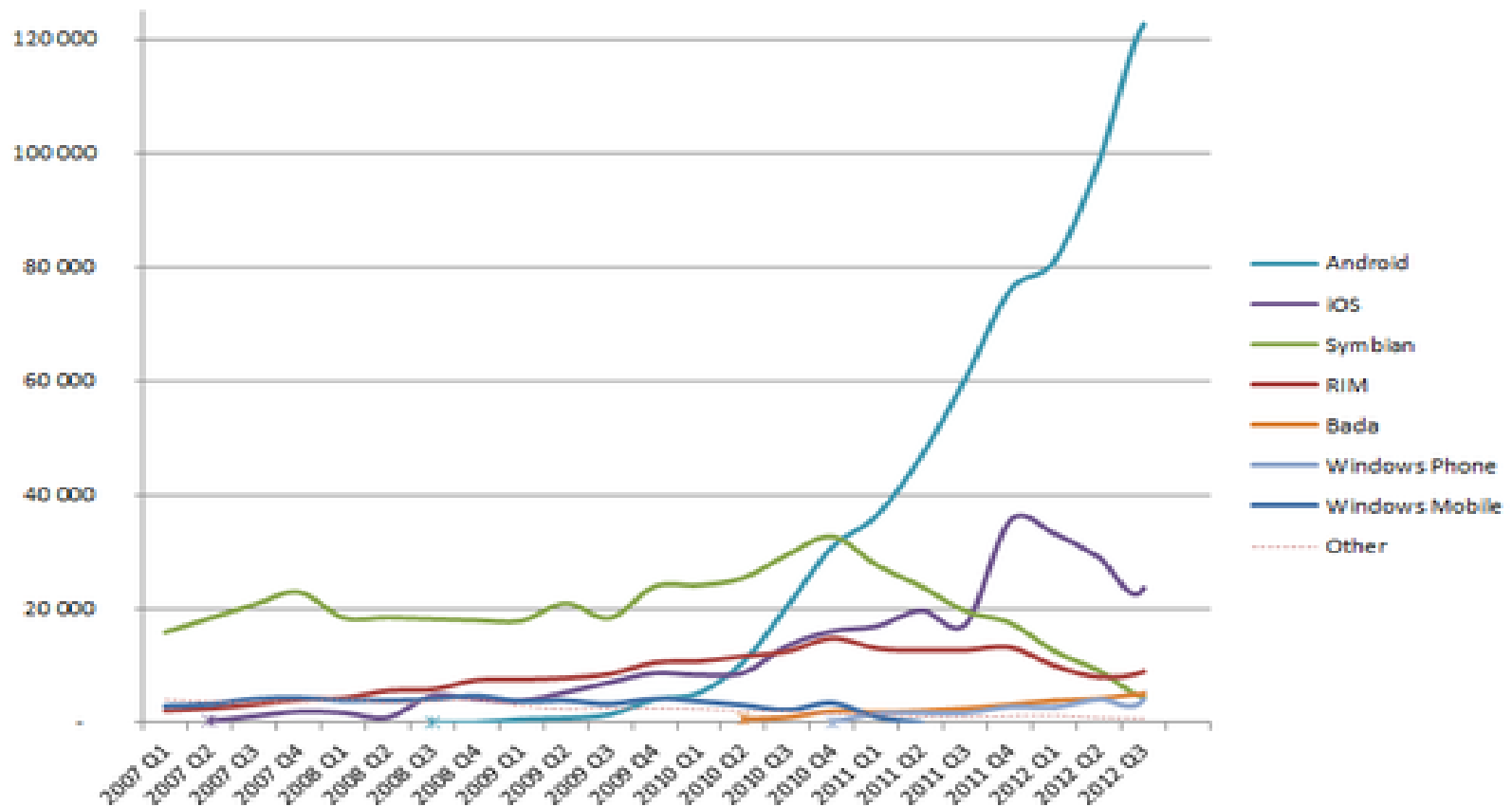
<b><a href="#">Company / developer</a></b>	<a href="#">Apple Inc.</a>
<b>Programmed in</b>	<a href="#">C</a> , <a href="#">C++</a> , <a href="#">Objective-C</a>
<b>OS family</b>	<a href="#">OS X</a> , <a href="#">Unix</a>
<b>Working state</b>	Current
<b>Source model</b>	Closed, with open-source components
<b>Initial release</b>	June 29, 2007
<b><a href="#">Latest stable release</a></b>	iPhone 3GS and later iPad 2 and later iPad mini iPod touch 4th generation and later <a href="#">6.0.1</a> (November 1, 2012; 29 days ago) Apple TV 2nd & 3rd generation <a href="#">5.1 (Build 10A406E)</a> (September 24, 2012)
<b><a href="#">Latest unstable release</a></b>	<a href="#">6.1 (Build 10B5105c)</a> (November 12, 2012; 18 days ago) <sup>[±]</sup>

# Windows Phone from Microsoft

- On February 15th, 2010, Microsoft unveiled its next-generation mobile OS, Windows Phone.
- The new mobile OS includes a completely new over-hauled UI inspired by Microsoft's "Metro Design Language".
- It includes full integration of Microsoft services such as Microsoft Sky Drive and Office, XBox Music, Xbox Video, XBox Live games and Bing, but also integrates with many other non-Microsoft services such as Facebook and Google Accounts.
- The new software platform has received some positive reception from the technology press.

# MARKET SHARE OF DIFFERENT MOBILE OS

World-Wide Smartphone Sales (Thousands of Units)



# BLUETOOTH

- **Bluetooth** is a wireless technology standard for exchanging data over short distances (using short-wavelength radio transmissions in the band from 2400–2480 MHz) from fixed and mobile devices, creating personal area networks (PANs) with high levels of security.
- Created by telecoms vendor Ericsson in 1994, it was originally conceived as a wireless alternative to data cables.
- It can connect several devices, overcoming problems of synchronization.
- Bluetooth is managed by the Bluetooth Special Interest Group, which has more than 17,000 member companies in the areas of telecommunication, computing, networking, and consumer electronics.

# BLUETOOTH

- To use Bluetooth wireless technology, a device has to be able to interpret certain Bluetooth profiles, which are definitions of possible applications and specify general behaviors that Bluetooth enabled devices use to communicate with other Bluetooth devices.
- These profiles include settings to parametrize and to control the communication from start. Adherence to profiles saves the time for transmitting the parameters anew before the bi-directional link becomes effective.

Version	Data rate	Maximum application throughput
Version 1.2	1 <a href="#">Mbit/s</a>	0.7 Mbit/s
Version 2.0 + EDR	3 Mbit/s	2.1 Mbit/s
Version 3.0 + HS	See <a href="#">Version 3.0+HS</a> .	
Version 4.0	See <a href="#">Version 4.0LE</a> .	



# Security

- Bluetooth implements confidentiality, authentication and key derivation with custom algorithms based on the SAFER + block cipher.
- Bluetooth key generation is generally based on a Bluetooth PIN, which must be entered into both devices. This procedure might be modified if one of the devices has a fixed PIN (e.g., for headsets or similar devices with a restricted user interface).
- During pairing, an initialization key or master key is generated, using the algorithm. The stream cipher is used for encrypting packets, granting confidentiality, and is based on a shared cryptographic secret, namely a previously generated link key or master key.
- Those keys, used for subsequent encryption of data sent via the air interface, rely on the Bluetooth PIN, which has been entered into one or both devices.

# MOBILE IP

- **Mobile IP** (or **IP mobility**) is an Internet Engineering Task Force (IETF) standard communications protocol that is designed to allow mobile device users to move from one network to another while maintaining a permanent IP address.
- In many applications sudden changes in network connectivity and IP address can cause problems. Mobile IP was designed to support seamless and continuous Internet connectivity.
- Mobile IP is most often found in wired and wireless environments where users need to carry their mobile devices across multiple LAN subnets.
- The home network of a mobile device is the network within which the device receives its identifying IP address (home address).
- A foreign network is the network in which a mobile node is operating when away from its home network.

# SMS

- **Short Message Service (SMS)** is a text messaging service component of phone, web, or mobile communication systems, using standardized communications protocols that allow the exchange of short text messages between fixed line or mobile phone devices.
- SMS text messaging is the most widely used data application in the world, with 3.6 billion active users, or 78% of all mobile phone subscribers.
- The term "SMS" is used as a synonym for all types of short text messaging, as well as the user activity itself, in many parts of the world. SMS is also being used as a form of direct marketing known as SMS marketing.
- A Flash SMS is a type of SMS that appears directly on the main screen without user interaction and is not automatically stored in the inbox. It can be useful in cases such as an emergency (for example, a fire alarm).
- Silent messages, often called "silent sms, "stealth sms," will not show up on the display, nor is there a signal when they are received. However, at the mobile provider some data is created (for example, the subscriber identification ). This kind of message is sent especially by the police to locate a person or to create a complete movement profile of a person.

# Conclusion

- Our Lives have Already been positively by using wireless communicating.
- The wireless transmission of both power and data will never be as efficient as their wired counterparts. Also privacy and security are better when using wired networks.
- The Possibility exists that signals radiated by wireless transmission devices are not that healthy.
- Life can be more stressful if the mobile office is taken home.

**THANK YOU...**