

WELCOME

Mobile Applications Testing



NETWORK: WiFi (Hotspots)

- ❖ A **HOTSPOT** is a physical location where people may obtain Internet access, typically using **Wi-Fi** technology, via a wireless local area network (WLAN) using a router connected to an internet service provider.
- ❖ A **WiFi connection** is established using a wireless adapter to create **HOTSPOTS** - areas in the vicinity of a wireless router that are connected to the network and allow users to access internet services.
- ❖ The term **HOTSPOT** is used to define an area where **WiFi** access is available. It can either be through a closed wireless network at home or in public places such as restaurants or airports.

Equipment is inexpensive (many newer computers have the needed hardware built in), and Wi-Fi hotspots remains free in some locales. Availability can be a problem, specifically in most suburban and rural areas.



NETWORK: BLUETOOTH

- ❖ **Bluetooth** is a wireless technology standard for exchanging data over short distances
- ❖ You can use Bluetooth with cell phones, PDAs, laptops, palmtops, printers, baby monitors, garage openers and other external devices.
- ❖ Bluetooth networking transmits data via low-power radio waves. It communicates on a frequency of **2.45 gigahertz**
- ❖ This frequency band has been set aside by international agreement for the use of industrial, scientific and medical devices (ISM).

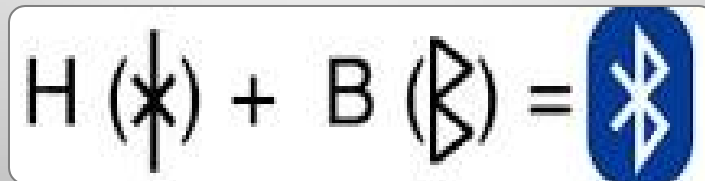


NETWORK: BLUETOOTH Facts

- ❖ The maximum distance for a Bluetooth network is about 30 feet
- ❖ Bluetooth requires very little power to use (befitting its design, which concentrates on battery-operated devices)
- ❖ Slow compared with the 802.11b network standard.
- ❖ No base station is required for Bluetooth communications between devices.

FUN FACT:

The **Bluetooth symbol** is a bind-rune, which means that it is formed from two runes that are merged together. Runes are the ancient Norse letters that, according to mythology, Odin discovered and gave to gods and humans. Runes have been used for over thousand years (probably a lot longer).



NETWORK: BROADBAND

- ❖ **MOBILE BROADBAND** is the marketing term for wireless Internet access through a portable modem, mobile phone, USB wireless modem, tablet or other mobile devices.

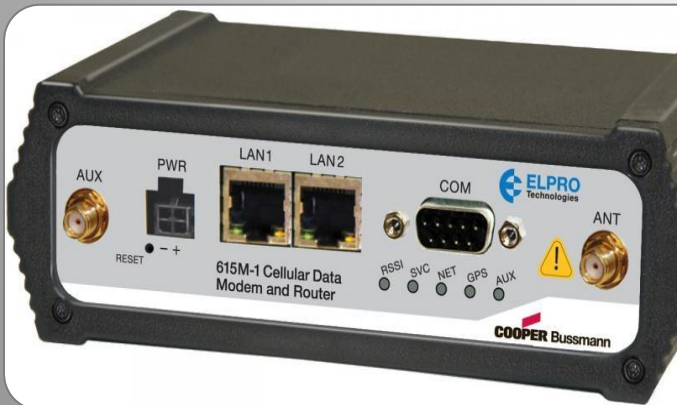


- ❖ A barrier to **MOBILE BROADBAND** use is the coverage provided by the mobile phone networks.
 - *This may mean no mobile phone service or that service is limited to older and slower mobile broadband technologies.*
 - *Customers will not always be able to achieve the speeds advertised due to mobile data coverage limitations including distance to the cell tower.*
 - *In addition, there are issues with connectivity, network capacity, application quality, and mobile network operators' overall inexperience with data traffic.*
 - *Peak speeds experienced by users are also often limited by the capabilities of their SmartPhone or other mobile device.*

NETWORK: Cellular Modem

Three main types of cellular modems:

- ❖ **Cell phones** - using phones as modems to enable Internet access on computers, aka **tethering**
- ❖ **Cellular cards** - portable **network adapters** that plug into computers, aka **aircards**
- ❖ **Cellular routers** - portable **network routers** that contain built-in cellular modems



NETWORK: 1G to 4G

EVOLUTION



1G
1981



2G
1992



3G
2004



4G
2011



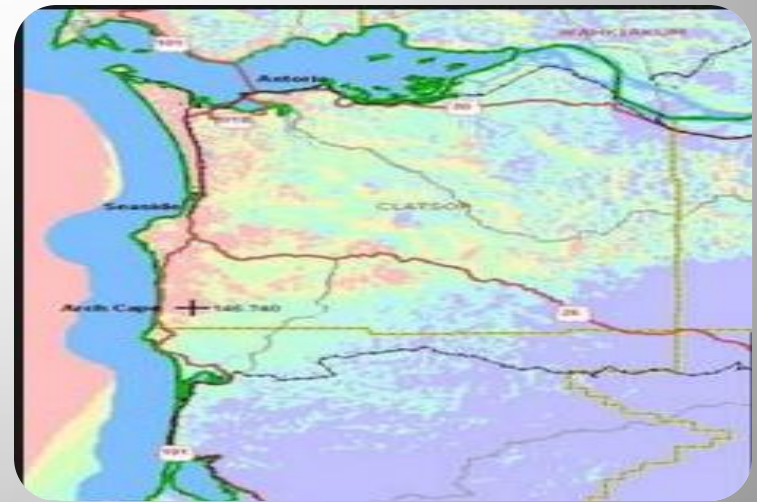
5G
2020

NETWORK: 1G to 4G Evolution

- ❖ **1G** analog signal used by cellular towers
- ❖ **2G** technology upgraded the analog signal to digital and powered the inclusion of sending text messages across the network
- ❖ **3G** technology made use of electromagnetic wavelengths, known as spectrum, to broadcast a wireless broadband signal that allowed users to access the Internet and download applications using a 3G data card or a handheld mobile device
- ❖ **4G** called an “ultra-broadband” access for mobile devices. 4G networks are based on an all Internet protocol packet switching instead of circuit switching

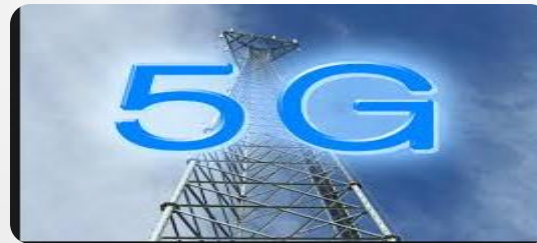
NETWORK: 1G to 4G Service Coverage Facts

- ❖ In 2011, 90% of the world's population lived in areas with 2G coverage while 45% lived in areas with 2G and 3G coverage, and 5% lived in areas with 4G coverage.
- ❖ By 2017 more than 90% of the world's population is expected to have 2G coverage, 85% is expected to have 3G coverage, and 50% will have 4G coverage.



NETWORK: is 5G around the corner ?

- ❖ Aug 28, 2013 – Huawei (Chinese company) intends to introduce commercial 5G networks by 2020, a service touted as "100 times faster" than current 4 G networks.
- ❖ May 15, 2013 - Samsung says it has successfully tested technology that will be at the core of 5G mobile connectivity.



Mobile Ecosystem

Mobile World Statistics

Carriers/Service Providers

Network

Manufactures

Devices

Platforms/OS

Frameworks

API-Apps

Services

MANUFACTURES / MAKERS

Rank	Manufacturer	Units (M)	Market Share	Q4 2014 Share	Supported OS
1	Samsung	82.8	24.3%	20.1%	Android, Tizen, Windows
2	Apple	61.6	17.9%	20.1%	iOS
3	Lenovo	18.7	5.5%	6.6%	Android (Tizen)
4	Huawei	17.5	5.1%	6.6%	Android (Tizen)
5	LG	15.4	4.5%	4.2%	Android
6	Xiaomi	15.0	4.4%	4.6%	Android
7	ZTE	12.5	3.5%	3.6%	Android, Firefox
8	Coolpad/Young	11.5	3.4%	4.0%	Android
9	TCL/Alcatel	9.7	2.8%	4.5%	Android
10	Vivo	9.3	2.7%	3.1%	Android
	Others	97.1			
Total		340.8			

MANUFACTURES / MAKERS

Responsible for :

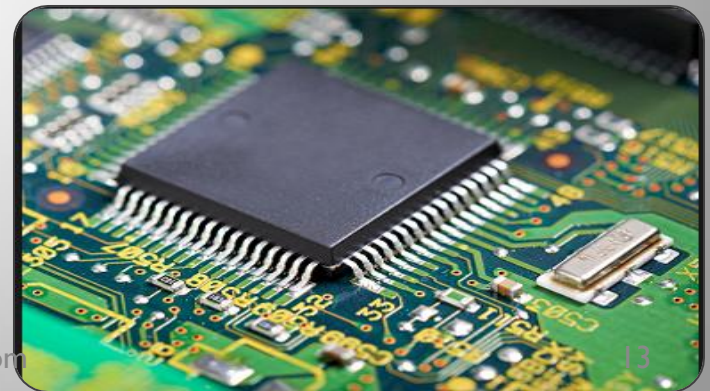
Concept and Prototyping:

- Designs, features, and interface options (like keypad or touchscreen)
- The phone's weight, scale, size, portability

Hardware and Software:

- Printed circuit board, LCD screen, keypad, antenna, microphone, speaker and battery
- Firmware/OS
- GPS and WiFi capabilities

Documentation.



Mobile Ecosystem

Mobile World Statistics

Carriers/Service Providers

Network

Manufactures

Devices

Platforms/OS

Frameworks

API-Apps

Services

Devices



Devices

Handheld PC, Palm-size PC, Pocket PC, Pocket computer, Palmtop PC



PDA Electronic Organizer, Mobile Phone, Feature Phone, SmartPhone, Phablet



PMP, DAP



E-Reader



Handheld Game Console



Portable/Mobile Data Terminal

Devices: Principals of Mobile Computing



Portability

Facilitates movement of device(s) within the mobile computing environment



Connectivity

Ability to continuously stay connected with minimal amount of lag/downtime, without being affected by movements of the device



Social Interactivity


Maintaining the connectivity to collaborate with other users, at least within the same environment



Individuality

Adapting the technology to suit individual needs.

Devices : FeaturePhone vs SmartPhone



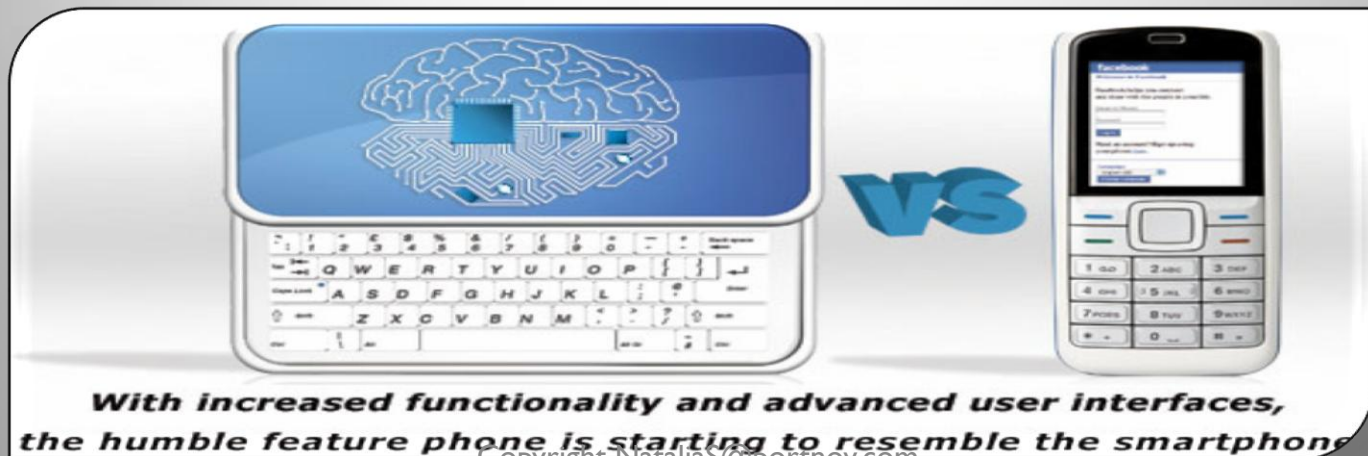
SmartPhones are those which have advanced computing capability than Feature phones

FeaturePhones are low-end device with lower-price

Devices : FeaturePhone vs SmartPhone

In short :

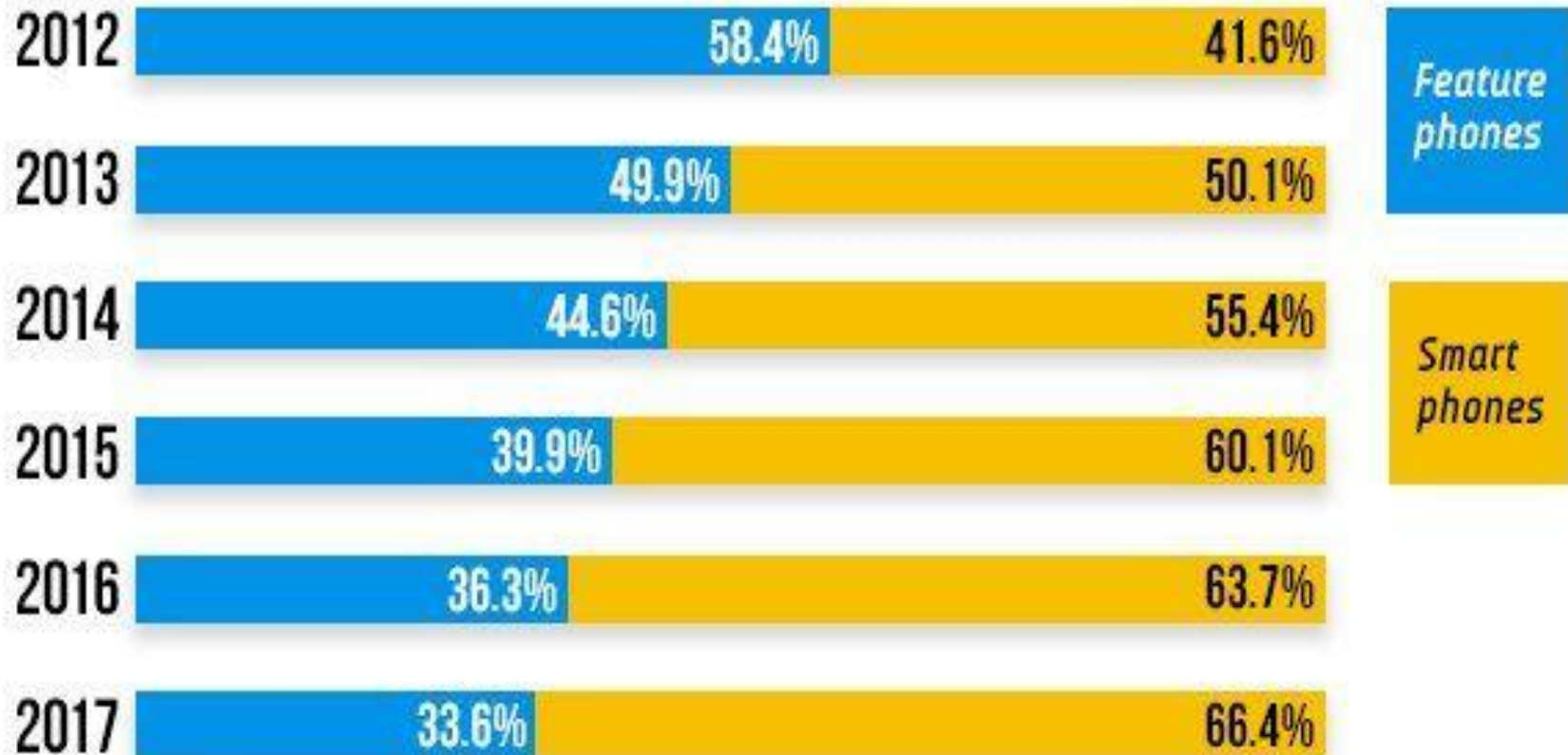
- ❖ *SmartPhones usually have a wider array of key features.*
- ❖ *These can include a full Web browser, 3G or 4G network support, Flash player capability, GPS, higher-resolution camera, third-party application support , video conferencing and more*



Devices :

FeaturePhone vs SmartPhone Comparison Data

Predicted smartphone v feature phone shipments worldwide 2012-2017



Source: International Data Corporation (IDC), "Worldwide Quarterly Mobile Phone Tracker"

HEAVYLIGHT

HEAVYLIGHT

Devices :

JAILBREAKING : iOS

JAILBREAKING

process of modifying iOS system kernels to allow file system read and write access.

JAILBREAKING TOOLS

(and exploits) remove the limitations and security features built by the manufacturer Apple (the "jail")

JAILBREAKING TOOLS

allow users to run code not approved and signed by Apple.



Devices :

UNLOCKING : IPHONE

An **UNLOCKED** iPhone

can be used with any carrier, not just those that have been approved by Apple.

many **UNLOCKING** solutions only work with certain iOS models

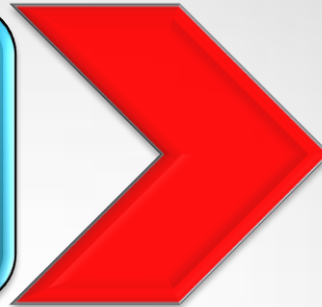
Factory IMEI **UNLOCKS** is a popular solution that works with all iPhone models.



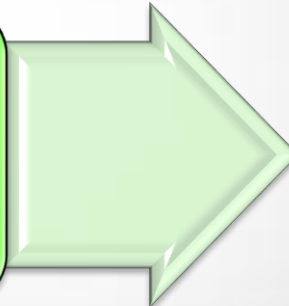
Devices :

ROOTING : ANDROID OS

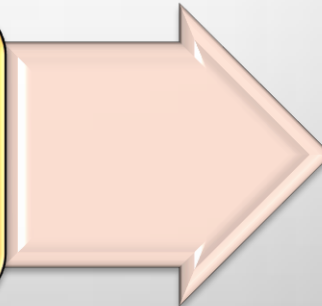
Rooting is the Android equivalent of jailbreaking, a means of unlocking the operating system



you can install unapproved apps, deleted unwanted bloatware,



update the OS, replace the firmware or customize anything



Devices :

ROOTING : GLOSSARY

ROOT

- Rooting means you have root access to your device

ROM

- A ROM is a modified version of Android.

KERNEL

- A kernel is the component of your operating system that manages communications between your software and hardware.

RADIO

- Radios are part of your phone's firmware that controls your cellular data, GPS, Wi-Fi, and other things like that.

FLASH

- Flashing essentially means installing something on your device, whether it be a ROM, a Kernel, or a Recovery

Devices :

ROOTING : GLOSSARY

BOOTLOADER

- Lowest level of software on a device, running all the code that's necessary to start OS

RECOVERY

- Software on a device that allow user to make backups, flash ROMs, and perform other system-level tasks

NANDROID

- From most third-party recovery modules, user can make device backups called nandroid backups.

ADB

- ADB stands for Android Debug Bridge

BRICK

- Breaking device during flashing or other acts.