



Mobile Information Device Programming (1)

Lecturer: Alireza Mousavi
School of Engineering & Design
www.brunel.ac.uk/~emstaam



Why Mobile Computing

- Mobility has become the main requirement of business and commerce
- There is an exponential growth in usage of wireless devices such as: mobile phones, PDA and other handheld devices
- Due to this large market acceptance businesses are aligning themselves to accommodate the new technology
- The technology is becoming more reliable and accessible



Cultural Impact of Wireless Technology

- Shift from manufacturing-based economical structure to information-based economical model
- Changes in employment market:
 - Home-based vs. Office-based
 - Outsourcing and sub-contracting
 - Globalisation and Individual Mobility (freedom of movement)
- Effortless installation and configuration making the use of technology possible with little or no physical constraints
- Acceptability in the Society



Capabilities of Mobile Phones and other Devices

- Making Phone Calls
- Exchange data with other devices
- Short-Message-Services (SMS)
- Online access to the WWW (Mobile Sites)
- Access email services
- Provide organiser functionality
- Games
- Take photos
- Streaming and Video Clips
- Computing facilities and basic programming facilities
- Networking with other devices

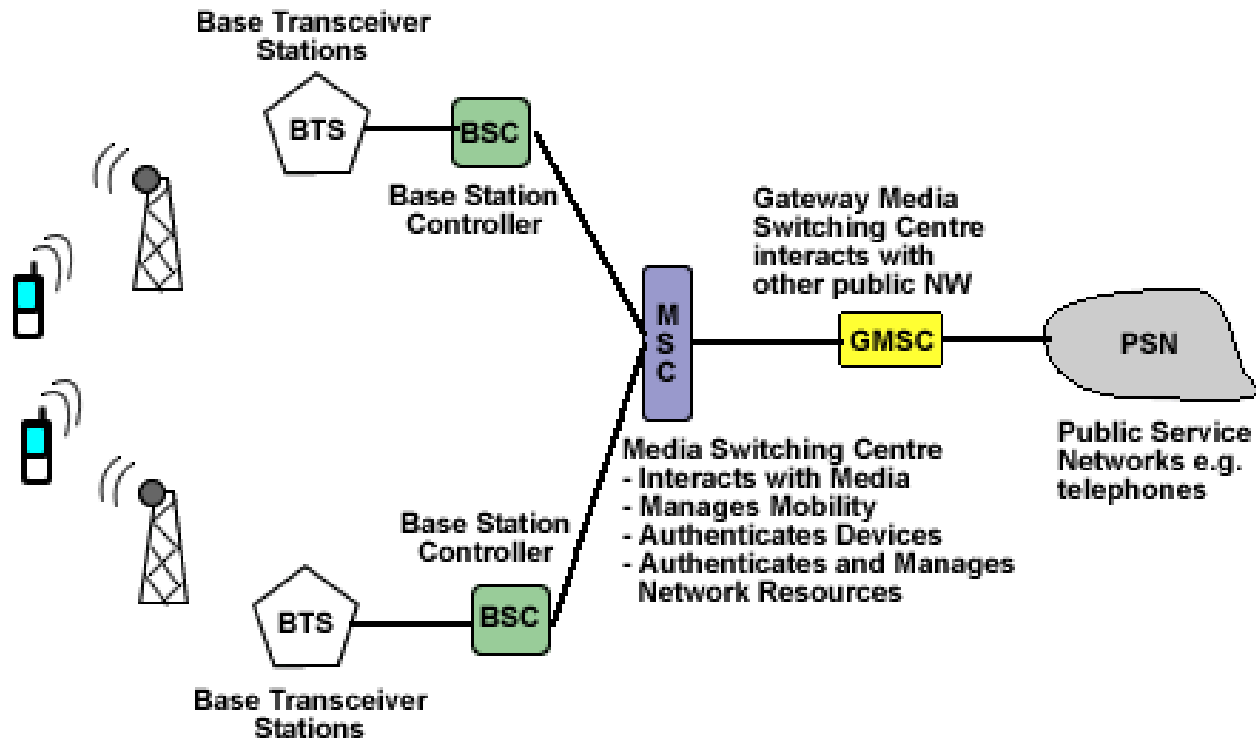


The Internet

- The Internet provides the capability to transfer and browse information on the WWW
- Its based on Data Transfer Protocols such as:
 - Transmission Control Protocol (TCP)
 - Internet Protocol (IP)
 - User Datagram Protocol (UDP)
 - File Transfer Protocol (FTP)
 - Hypertext Transfer Protocol (HTTP)
 - Voice Over IP (VOIP)
 - Wireless Access Protocol (WAP) → mobile devices
- Convergence of wired and wireless world



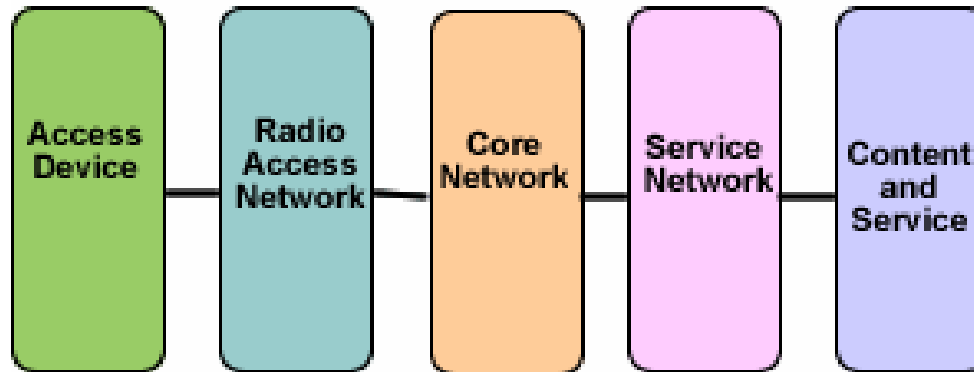
Wireless Systems Architecture (Current)



Current Wireless Network Structures



Wireless Systems Architecture (Possible Future Scenario)



Future Architecture of Wireless Systems



Contribution of Wireless Technology to e-Commerce*

- Mobile Commerce is the natural continuation of electronic commerce
- Real-Time information provision
- Reduced access limitations: Anywhere – Anytime
- Customer Relation Management
- Commercial and Information Services suitable only for mobile device users
- Cheaper equipment, fashionable accessories and subscription fees

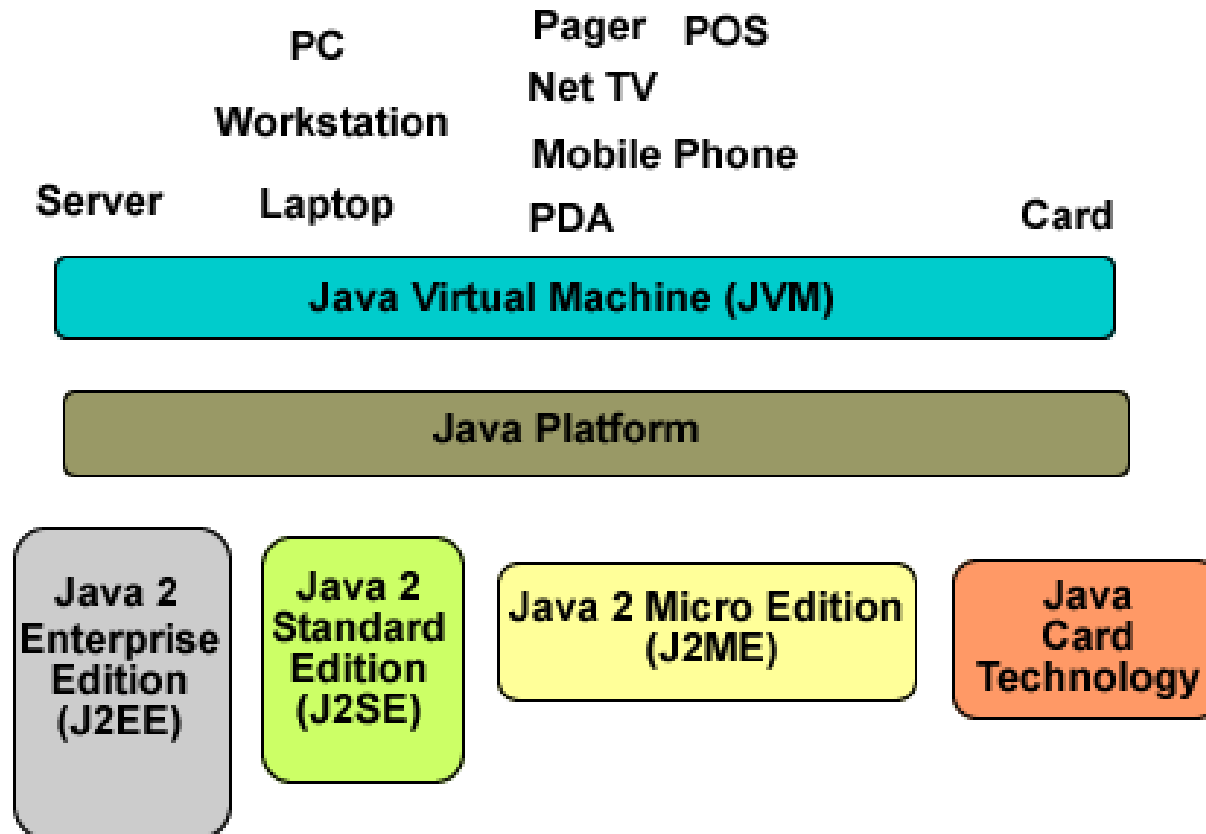


Overview of Java Platform and Java Micro Edition (JME)

- In order to appreciate the application of JME one must have an understanding of Java technology
- Java technology is a suite of technologies that interoperate to provide a robust application environment



Java Platform



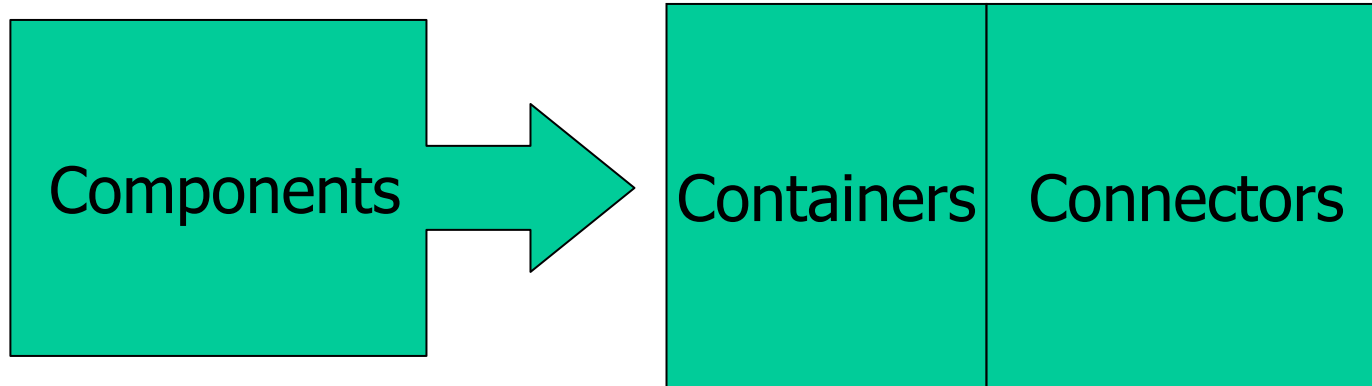


Overview of J2EE

- Provides a framework for standardised, modular and reusable component-based systems
- Is designed for web-based enterprise systems
- Enables the integration of various components of enterprise systems



J2EE Platform





J2EE Component Architecture

- Enterprise JavaBeans(JSB)
 - Session Beans for business workflow
 - Entity Beans for data management
 - Message Beans for asynchronous business processing
- Servlets
 - Extend the functionality of web servers
 - Remove performance and platform problems
 - Enables the usage of Java programming language APIs
- JavaServer Pages(JSP)
 - Provide client side dynamic web content
 - Enable developers to build dynamic web pages without needing to code
 - Utilise XML tag libraries and simplifies development



Overview of J2SE

- Is designed for client applications that can run on standard PCs or through web-based interface
- J2SE provides services that include:
 - Networking
 - Security
 - Threading
 - Memory management
 - Dynamic code base
- J2SE consists of three major areas:
 - Java programming language
 - Java Virtual Machine
 - Java platform reference implementation



J2EE and J2SE Platform (Schematic)

