



# **Mobile Information Device Programming (1)**

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# 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

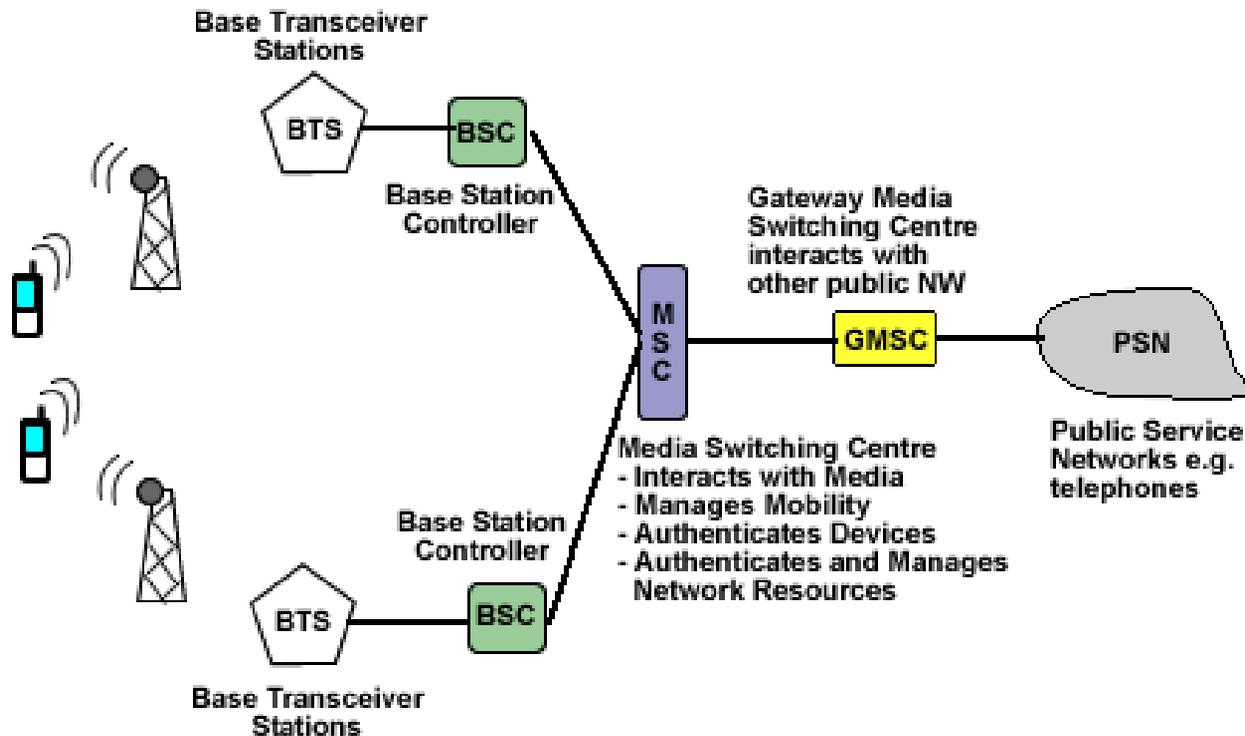


# The Internet

- 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



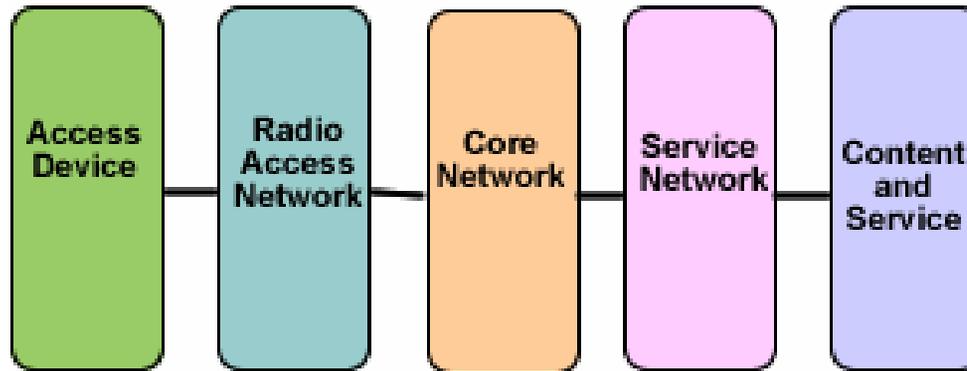
# Wireless Systems Architecture (Current)



**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

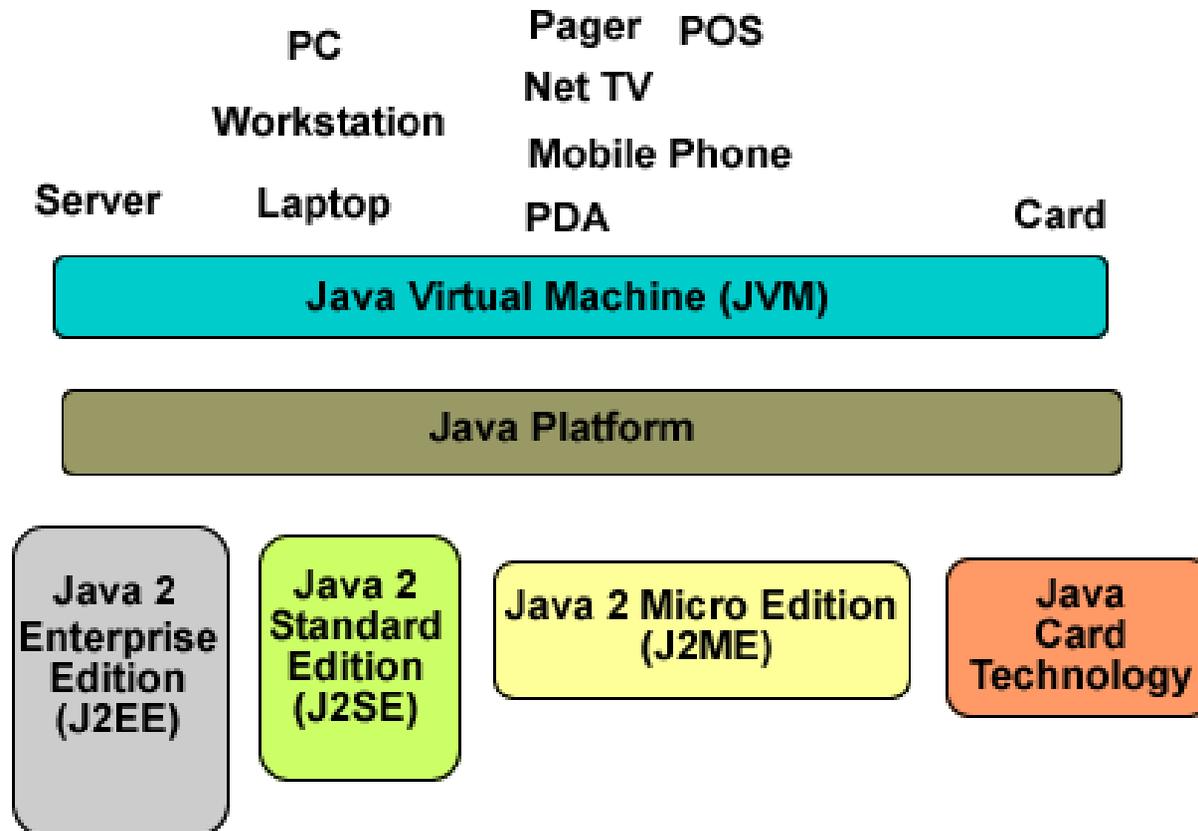


# Overview of Java Platform and Java Micro Edition (JME)

- 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



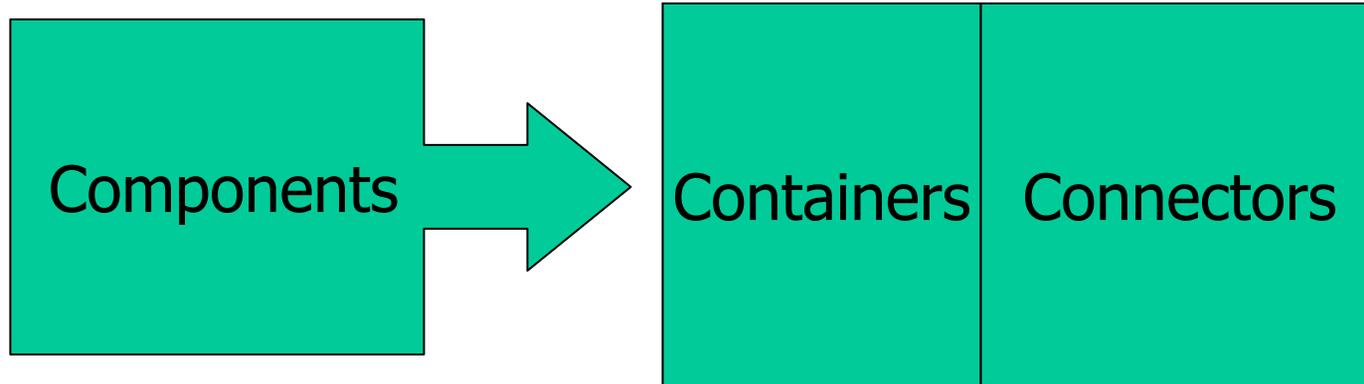


# Overview of J2EE

- 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)

