Chapter 6

Mobile, Wireless and Pervasive Computing

Information Technology For Management 6th Edition

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Learning Objectives

- Discuss the characteristics and attributes of mobile computing and m-commerce
- Describe the drivers of mobile computing
- Understand the technologies that support mobile computing
- Describe wireless standards and transmission networks
- Discuss m-commerce applications in financial and other services, advertising, and providing of content
- Describe the applications of m-commerce within organizations

Learning Objectives (Continued)

- Describe consumer and personal applications of m-commerce
- Describe some non-Internet m-commerce applications
- Describe location-based commerce (l-commerce)
- Discuss the key characteristics and current uses of pervasive computing
- Describe the major inhibitors and barriers of mobile computing and m-commerce

Mobile Computing – Value Chain

M-commerce is a complex process involving a number of operations and entities (customers, merchants, mobile operators, etc.).

Link	Function	Provider
Transport	Maintenance and operation of the infrastructure supporting data communication between mobile users and application providers	Technology platform vendors
Enabling services	Server hosting, data backup, and system integration	Infrastructure equipment vendors
Transaction support	Mechanisms for assisting with transactions, security, and billing	Application platform vendor
Presentation services	Conversion of content of Internet-based applications to applications suitable for mobile devices	Application developer
Personalization support	Gathering of users' preferences, information, and devices in order to provide individualized applications	Content developer
User applications	General and specialized applications for mobile users	Mobile service provider
Content aggregators	Design and operation of portals that offer categorized information and search facilities	Mobile portal provider

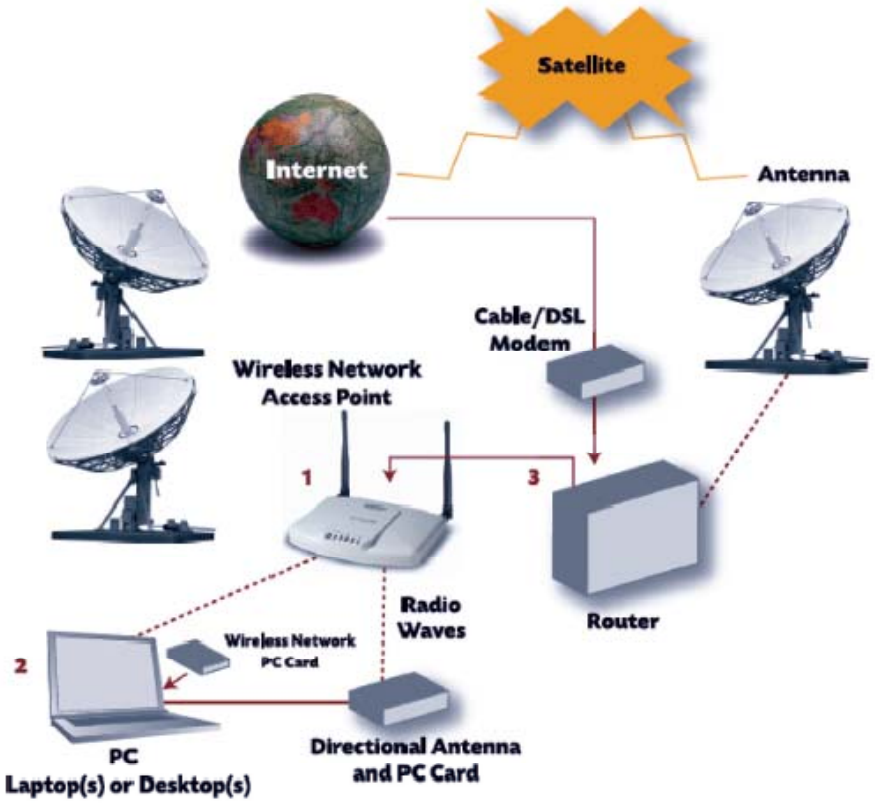
Problems with Wi-Fi

- **Roaming** – users cannot roam from hotspot to hotspot if the hotspots use different Wi-Fi network services
- **Security** – because Wi-Fi uses radio waves, it is difficult to protect
- **Cost** – commercial Wi-Fi services are low cost but not free and each service has its own fees and separate accounts for users to logon

WiMax

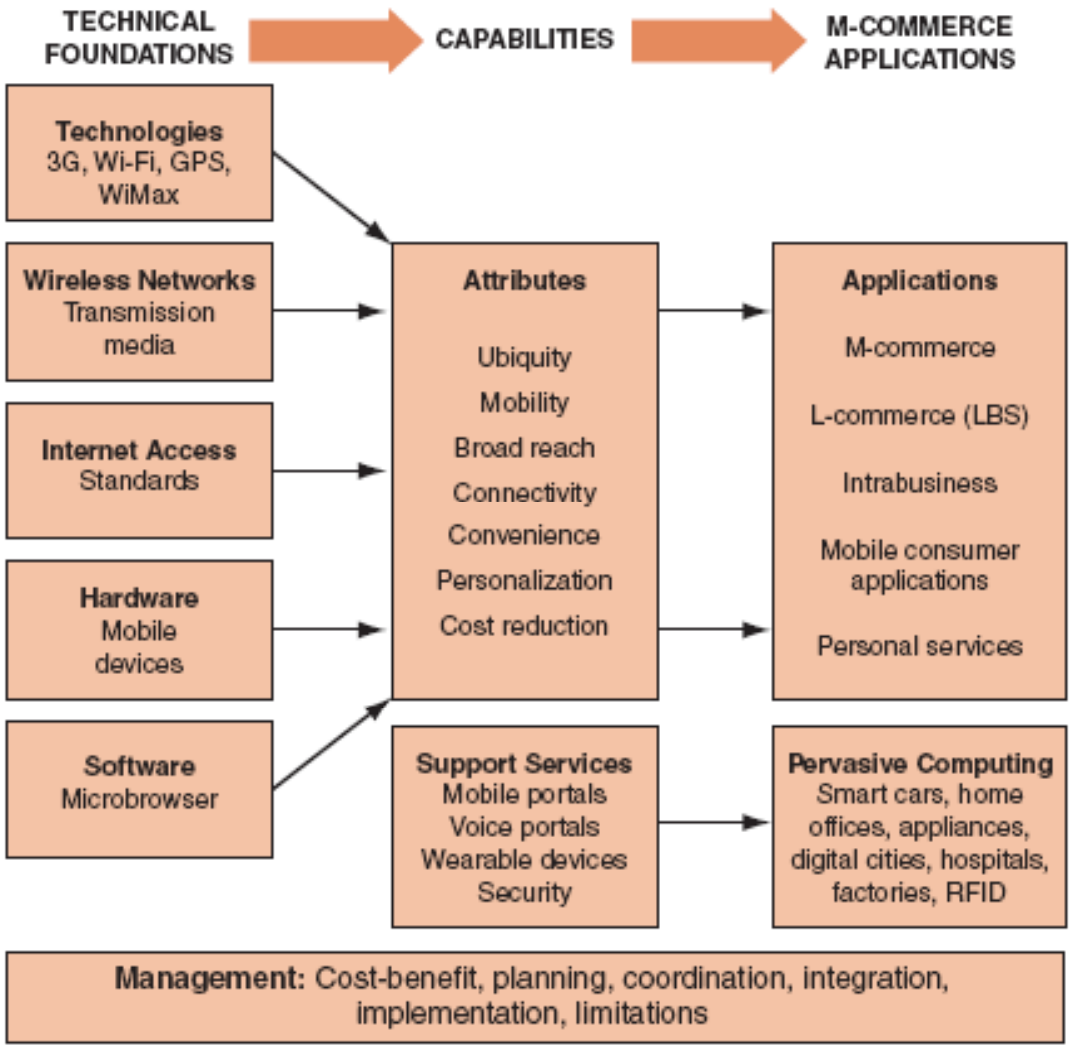
- **Worldwide Interoperability for Microwave Access**, popularly known as **WiMax**, is the name for IEEE standard 802.16
  - Wireless access range of up to 31 miles;
  - Data transfer rate of 75 Mbps;
  - Secure system that offers voice and video.

Mobile Computing Infrastructure – WWAN's

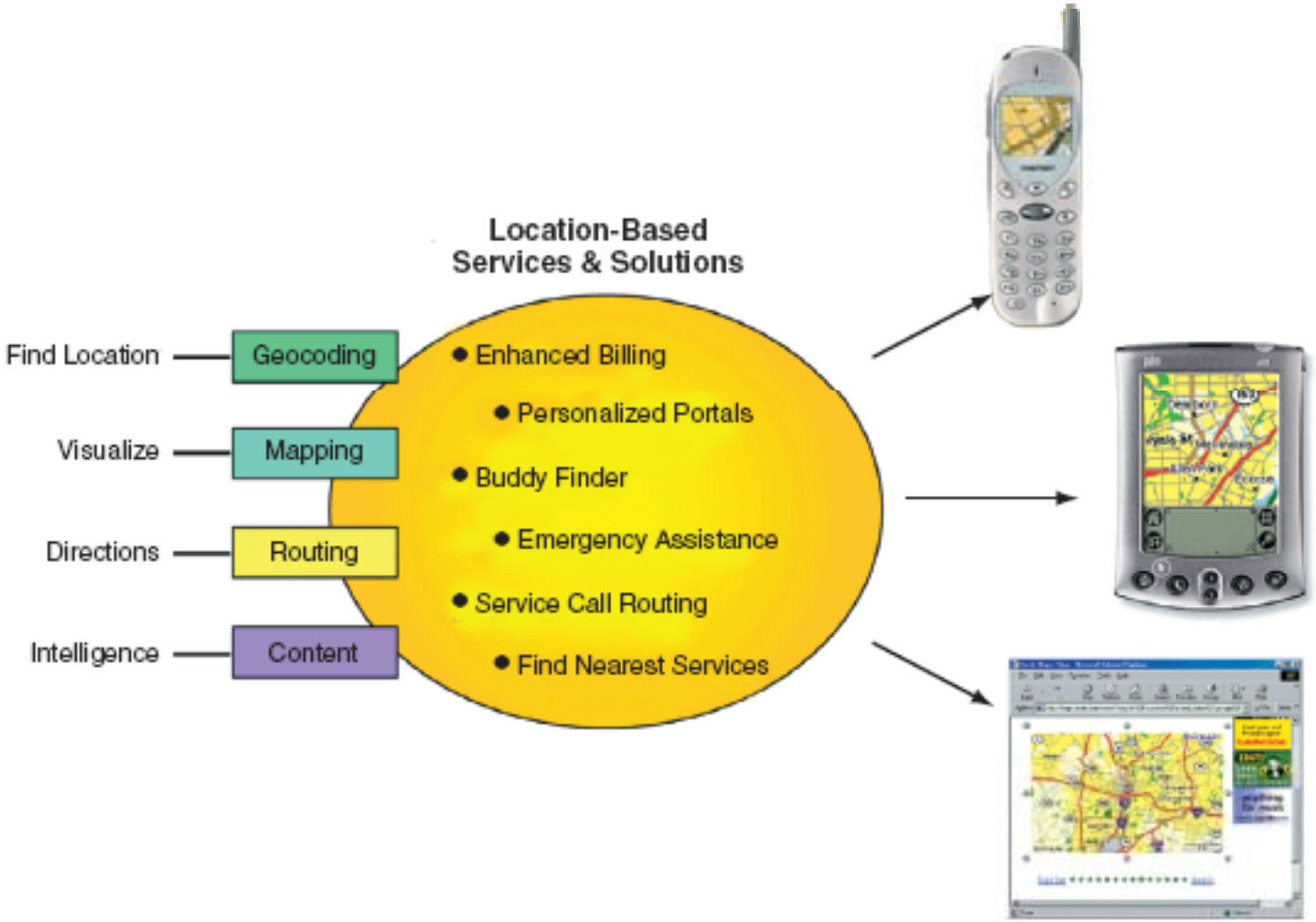


1 Radio-equipped access point connected to the internet (or via a router). It generates and receives radio waves (up to 400 feet).
2 Several client devices, equipped with PC cards, generate and receive radio waves.
3 Router is connected to the internet via a cable or DSL modem, or is connected via a satellite.

Landscape of Mobile Computing



Mobile Computing – L-Commerce Applications



Managerial Issues

- **Comparing wireless to synchronized mobile devices.** In many cases, transmitting data in the evening or using a docking device is sufficient. In others, real time communication is needed, justifying a wireless system.
- **Timetable.** Although there has been much hype about m-commerce, only a small number of large-scale mobile computing applications have been deployed to date. The most numerous applications are in e-banking, stock trading, emergency services, and some B2B tasks. Companies still have time to carefully craft an m-commerce strategy.
- **Setting applications priorities.** Finding and prioritizing applications is a part of an organization's e-strategy. Although location-based advertising is logically attractive, its effectiveness may not be known for several years. Therefore, companies should be very careful in committing resources to m-commerce. For the near term, applications that enhance the efficiency and effectiveness of mobile workers are likely to have the highest payoff.

Managerial Issues (Continued)

- **Just a buzzword?** In the short run, mobile computing, m-commerce, and especially l-commerce, may be just buzzwords due to the many limitations they now face. However, in the long run, the concepts will be increasingly popular. Management should monitor the technological developments and make plans accordingly.
- **Choosing a system.** The multiplicity of standards, devices, and supporting hardware and software can confuse a company planning to implement mobile computing. An unbiased consultant can be of great help. Checking the vendors and products carefully, as well as who is using them, is also critical.

Chapter 6

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