Mobile Internet and Handheld Devices for Virtual Communities

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**INTRODUCTION**

With the introduction of the Internet, virtual communities have revolutionized traditional communities and boosted sharing and exchanges of information, and common interests, ideas, and feelings. Recently, the emergence of wireless and mobile networks has made possible the admission of the Internet accessed by desktop or notebook computers to the mobile Internet accessed by handheld devices, which has brought great impact on virtual communities. Figure 1 shows the growth in demand for handheld computing devices (not including smart cellular phones) through 2007, as predicted by the research firm In-Stat/MDR (PalmInfocenter.com, 2003). The mobile Internet has introduced new virtual communities and has the existing communities reach new members or topics because it allows the community members to communicate with each other from anywhere and at anytime.

This article discusses the mobile technologies, especially the mobile Internet and handheld devices, for virtual communities and their influence on the communities. Three themes of this discussion are as follows:

1. **The mobile Internet:** It is a part of the Internet whose contents are specifically designed for mobile users who use handheld devices such as smart cellular phone to access the mobile contents. The following topics related to the mobile Internet will be discussed: (1) mobile applications, (2) mobile handheld devices, (3) mobile middleware, (4) wireless and wired networks, and (5) host computers.

2. **Internet-enabled mobile handheld devices:** They are small general-purpose, programmable, battery-powered computers such as PDAs (personal digital assistants) and smart cellular phones. The following components of handheld devices will be examined: (1) mobile operating systems, (2) mobile central processing units, (3) microbrowsers, (4) input/output devices, (5) memory, and (6) batteries.

3. **The virtual communities using mobile technologies:** Many traditional virtual communities have been greatly affected by mobile technologies because they allow the community members to communicate with each other from anywhere and at anytime. This boosts sharing and exchanges of information, and common interests, ideas, and feelings.

**BACKGROUND**

This section provides background information of the three themes of this article: (1) the mobile Internet, (2) Internet-enabled mobile handheld devices, and (3) the virtual communities using mobile technologies.

**The Mobile Internet**

The convergence of mobile technologies and the Internet has brought the mobile Internet to the general public. The conventional Internet is designed for the accesses from the desktop or notebook computers, whereas the contents of mobile Internet are specifically designed for the mobile users who use Internet-enabled mobile handheld devices such as smart cellular phones to access the mobile Internet (Goodman, 2000). The mobile Internet includes five major topics: (1) mobile applications, (2) mobile handheld devices, (3) mobile middleware, (4) wireless and wired networks, and (5) host computers, which will be discussed later.

**Internet-Enabled Mobile Handheld Devices**

Virtual-community users interact with other users by using small wireless Internet-enabled devices, which come with several aliases such as handhelds, palms, PDAs,
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A virtual community is a collection of people sharing common interests, ideas, and feelings over the Internet or other collaborative networks (Rheingold, 1993). Traditional communities use desktop or notebook computers for communication. The virtual communities discussed in this article are the ones where members heavily use the mobile Internet and Internet-enabled mobile handheld devices for communication.

MAIN THRUST

This section details the three themes of this article: (1) the mobile Internet, (2) mobile handheld devices, and (3) the virtual communities using mobile technologies.

The Mobile Internet

To explain how the mobile Internet works for the virtual-community users, Figure 2 shows a flow chart of how a virtual-community user’s request is processed by the mobile Internet. The mobile Internet includes five major topics: (1) mobile applications, (2) mobile handheld devices, (3) mobile middleware, (4) wireless and wired networks, and (5) host computers. A brief introduction of each topic is given below.

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Figure 2. A flow chart of virtual-community user’s request processed in the mobile Internet

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Figure 1. Forecast of demand for mobile handheld computing devices

Forecast of handheld computing devices demand

Source: In-Stat/MDR, 2003

Units (millions)

2001 2002 2003 2004 2005 2006 2007

0 5 10 15 20 25

Figure 1. Forecast of demand for mobile handheld computing devices

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