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Smart phone—the choice of client platform for mobile commerce

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Abstract

In this article, we present a theoretical foundation for proposing smart phone as the choice of client platform for mobile commerce (M-Commerce). After describing smart phone's great market potential and its popularity in telecom world, we provide the details of system requirements and the ideal characteristics of the client platform from system viewpoint and from benchmark metrics aspect. Although the current smart phone design still has some way to go before its becoming an ultimate platform, the improvement in smart phone design and the technological advances will reach the stage of its being used as M-Commerce platform over the next few years. We thus advance the notion of smart phone as the choice of client platform in M-Commerce world, pending resolving some technical issues. We believe the theoretical foundation proposed in this paper provides a sound framework for designing smart phone ideally suited for its use in M-Commerce.

Keywords: Smart phone; Telecom world; M-Commerce platform

1. Introduction

If one views the development of information technology over the last four decades, one might classify 1960s as the era of mainframes; 1970s as the age of minis; 1980s the decade of PC (personal computer); while 1990s saw the emergence of Internet. Today we are witnessing the convergence of computing, Internet, and wireless communication [15,19,22]. This post-PC era is characterized by the widespread use of portable and wireless handheld mobile devices such as data collection terminals, gaming terminals, PDAs (personal digital assistants), smart phones, and others.

Just as the fixed E-Commerce (electronic commerce) became a business phenomenon with the popularity of PCs, the prevalent use of the mobile devices would eventually lead to the development and acceptance of M-Commerce (mobile commerce) in the U.S. [16,17,21]. While there are many successful examples of E-Commerce such as Amazon.com, Ebay.com, Priceline.com, the trial runs in M-Com-

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merce had been sporadic in Europe and Asia, such as UK, Japan, and Korea. The ubiquity of M-Commerce, a segment of E-Commerce, is still years away [1,2,24].

While in E-Commerce, a transaction is typically conducted on a desk-top computer, a transaction for M-Commerce occurs between the mobile client platform/device and the target objects/service and/or distribution platform. The essential element for M-Commerce is mobility and the mobile client devices have limited processing capability, restricted memory, small display screens, a tiny keyboard, and limited battery life.

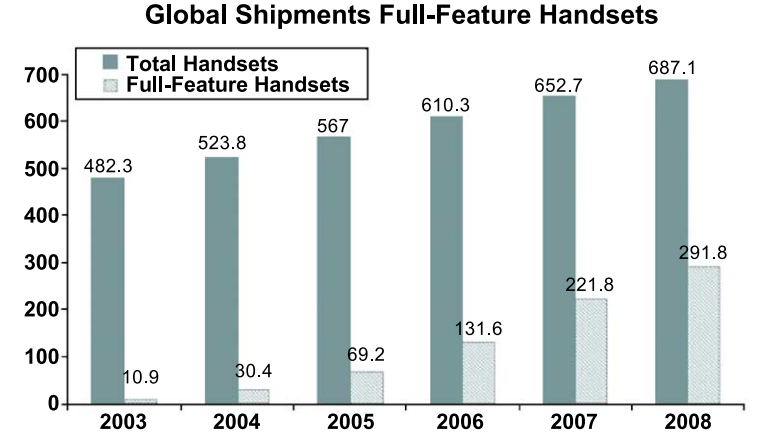
The type of client platform/device, suitable for M-Commerce, should be already in widespread use and popular among the users. An obvious platform is the over 1.5 billion cell phones already in use worldwide and new cell phones are being shipped currently at the rate of 500 million units per year [20]. Most of the cell phones are used for voice communication, and are not suitable for M-Commerce. However, a new kind of cell phone with data and other useful capability, called smart phone or full-feature handset, is growing at faster rate than voice-centric cell phone [7].

There were over 12 million units of smart phone shipped in year 2003. The market research companies IDC and Gartner are projecting the annual volume of smart phone shipments at almost 30 million units in year 2004 and could reach 150 million units by the year 2008 [23]. The diagram shown in Fig. 1 demonstrates an even more aggressive market forecast from Zelos Group, with smart phone shipments as more than 40% of total cell phone shipments of close to 700 million units in 2008 [25].

Therefore, it is logical to consider the smart phone as the client platform for M-Commerce. Indeed, most of the current trial runs in Europe and Asia are centered on the smart phone as the vehicle of transaction.

Although the estimated future growth of smart phones seems to satisfy the popularity of its being considered as the client platform for M-Commerce, the specifications of today's smart phone is still far from being adequate for the monetary transactions required for M-Commerce.

In this article, we will examine the client platform requirements from system viewpoint and from benchmark metrics aspect. We then describe the current smart phone characteristics including product review and the major system components requisite of M-Commerce transactions. Most of the currently available smart phones are classified according to the operating systems (OSs) they adopt. Finally, the analysis and testing of smart phone as client device for M-commerce systems are presented in a qualitative and subjective



	2003	2004	2005	2006	2007	2008
Total Handset Shipments	482.3	523.8	567	610.3	652.7	687.1
Full-Feature Handset Shipments	10.9	30.4	69.2	131.6	221.8	291.8
Percentage Full-Feature Handsets	2.3%	5.8%	12.2%	21.6%	34.0%	42.5%

Source: Zelos Group, Inc.

Fig. 1. Global cell phone and smart phone shipment market forecast.