Chapter 1.24
Dynamic Pricing Based on Net Cost for Mobile Content Services

Nopparat Srikhutkhao
Kasetsart University, Thailand

Sukumal Kitisin
Kasetsart University, Thailand

INTRODUCTION

In the past few years, the mobile phone's performance has increased rapidly. According to IDC's Worldwide Mobile Phone 2004-2008 Forecast and Analysis, sales of 2.5G mobile phones will drive market growth for the next several years, with sales of 3G mobile phones finally surpassing the 100 million annual unit mark in 2007. Future mobile phones can support more than 20,000 colors. With the advancements in functionality and performance of mobile phones, users will use them for all sorts of activities, and that will increase mobile content service requests. Currently, the pricing of mobile content service is up to each provider; typically they implement a fixed price called a market price because the providers do not have a formula to estimate the price according to the actual cost of their services. This article proposes a dynamic pricing model based on net cost for mobile content services.

BACKGROUND

A mobile phone today can support various format data causing mobile content service popularity among all mobile phone users. They can request a music VDO clip, a song, or a mobile phone game program. The price of each mobile content service differs for each different format of data. For example, the price of a true-tone ring tone is 35 baht (Sanook.com, 2005), while a Java game download costs 40 baht (Siam2you, 2005).

Conventionally, an operator set a fixed market price for each mobile content service. The prices can vary from operator to operator. The pricing has not been calculated based on the net cost for

the requested service. Therefore, the set price can be lower or much higher than the actual cost. To come up with a way for a provider to be able to set a mobile content service price based on its actual cost, the provider must be able to quantify its actual cost for service. This article presents mobile content service interaction models and formulas for estimating the actual cost of a mobile content service; a provider can refer to these models and formulas when pricing its services.

Data Formats

The previous section discusses improving the performance of mobile devices and the variety of content available. We can classify mobile content service into four types: audio, image, video, and application (ClearSky Mobile Media, 2005). Users can request an audio clip and use it as their ring tone. They can leave voice messages for each other or download an mp3 song for their entertainment (Nokia, 2005; Sony Ericsson, 2005; Samsung, 2005). The audio content can be of three sub-types: monophonic (Sonic Spot, 2005), polyphonic (Cakewalk, 2005), and true tone. Image format can be either static or dynamic/animation. Users can request a music VDO clip and play it on their mobile phones, and apparently, a few companies have started to provide NetTV on mobile phones as well. Lastly, an example of application content users widely request could be a Java game application.

Parties in Mobile Content Services

Providing mobile content services involves many parties. We consider the following five participants (Bratsberg & Wasenden, 2004; Andreas, 2001). The first party is a user requesting mobile content services. The second party is a mobile operator (MO), which is the owner of a mobile phone service frequency. When a user requests mobile content service, the user will send a request to his or her content provider through the MO's network. The third party is a content provider (CP), which is an organization to serve mobile contents. The MO may or may not have license on the contents. The fourth party is the content owner (CO), which could be a person or an organization that has authorization for legal distribution of the mobile contents. And the last party is a content aggregator (CA), a middleman between a user and a content provider. The CA can help increase the channel to serve mobile content services.

Request and Response Formats

When a user wants to use a mobile content service, he or she makes a request for the desired content from a CA or CP. Then the CA or CP responds to the user with the requested content. Requests and responses can be of the following four types: a Web request through a Web page, a short message service (SMS), an interactive voice responder (IVR), or a WAP request via a mobile internet WAP page. When the CA or CP responds successfully, the response can be sent using one of these four formats: a short message service (SMS), a smart message, a WAP push format, and a multimedia message service (MMS).

Mobile Content Service Models

We categorized all mobile content services into the following interaction models based on involved parties and content providing methods.

Model 1: Parties involved are user, MO, and CP. A user requests content from a CP by using an SMS, IVR, WAP, or Web request. For any request format except a Web request, the request is sent to the CP through the MO's network. For a Web request format, the request is transferred to the CP directly. After the CP processes the request, the CP will reply to the user with the requested content information in the form of a WAP push, a WAP URL, or a bookmark. For a monophonic ring tone request, the CP will send content information in a smart message format.