

Customer Segmentation For a Mobile Telecommunications Company Based on Service Usage Behavior

By:
Shohin Aheleroff

Advisor:
Dr. Gholamian

Jun 2011

Abstract:

Competition between the mobile operators is becoming more based on subscriber's behavior. In order to improve mobile operator's competitiveness and customer value, several data mining technologies can be used. One of the most important data mining technologies is customer clustering and segmentation. This targeting practice has been proven manageable and effective for mobile telecommunications industry. Most telecommunications carriers cluster their mobile customers by billing system data. This paper discusses how to cluster mobile customers based on their call detail records and analyze their consumer behaviors. Finally, the subscribers categorized in four loyal groups and the strategy to apply has been suggested in a specific life cycle.

I. INTRODUCTION

Mobile operator's profits and ARPU (Average Revenue Per User) are facing great challenges. Customer's demand and requirements of services has been changed. In order to improve mobile operator's competitiveness and customer value, several data mining technologies can be used. One of most important data mining technologies is customer clustering analysis to categorize potential customers into distinct groups for distinctive contact strategies. With the rapid growing marketing business, data mining technology is imply more important role in the demands of analyzing and utilizing the large scale information gathered from customers especially large amount call detailed record of mobile customers. Information about customer's behavior is required to segment and personalize products and services along with business strategy and planning.

But most of them segment customers only by personal information such as age, gender and address from special points, rather than from their actual behavior. Furthermore, one of the key purposes of customer segmentation is customer retention to increase the loyalty and avoid churning. This paper focused on proposing a customer segmentation framework based on actual customer behavior.

II. Research methodology

This study is designed to discover the patterns of use for mobile services based call/event detailed records including major service usage information and not personal information. There are many clustering method, for example, fuzzy clustering method, system clustering method, dynamic clustering method and K-means clustering method. But the K-means method of cluster detection is most commonly used in practice that the number of clusters is an input. Based on business and infrastructure constrain generally operators are comfortable to have as few as five unique segments, while other require as many as twenty segments to satisfy their data-driven marketing needs. The decision of how many customer segments a company should create is largely dictated by the particular make-up of their customer base and the organizations ability to develop and deliver unique segment specific marketing treatments.

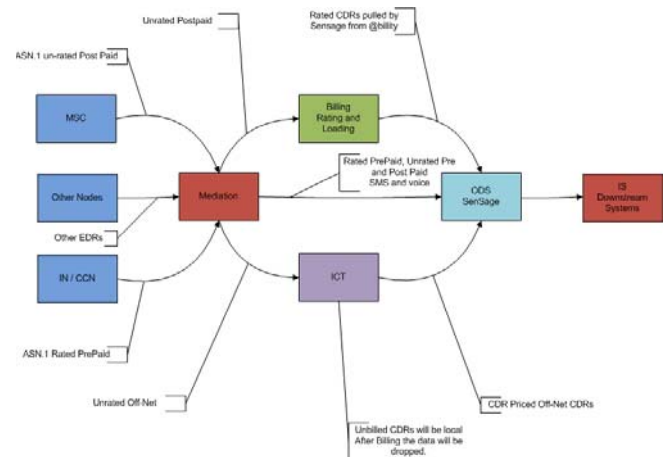


Fig.1 Data flow from Network Elements to IS downstream systems

III. Prepare the data for clustering

I found a set of valuable information to identify core needs of subscribers based on their call detail record instead of their personal information such as gender, address and income. A Call Detail/Data Record contains at a minimum the following: