Unlocking the Potential of Big Data to Stop Telco Customer Churn

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One of your friends, a current 3G network user, receives a short message from the customer care center when he is shopping on a weekend morning. It’s a telecom package offer: prepaid one-off tariff plus a gift mobile phone. In fact, the current subscription of your friend is about to expire and he is thinking of switching to another network and buying a new mobile phone. Just hours before, he has been browsing B2C websites through the 3G connection to check on the price of this mobile phone mentioned in that message and comparing all available packages online. The message comes just in time with a tempting offer! Better still, this guy also finds that the problems of slow 3G services, micro-blog and Internet browsing in his new apartment are solved without his consciousness. With a light heart, your friend steps into the nearest telecom business hall.

Does this story sound like a fairy tale? How can a mobile operator successfully keep his customer from churn? Perhaps you also have realized that in an era when big data see rapid development, we’ll soon get used to such retention stories.

**Importance of Customer Churn Prediction Model**

In an era of rapid business growth, most of the mobile operator's attention is focused on the development of new customers and exploration in new areas, that is, emphasis on the increment. Today, the mature technology and saturated market have led to fierce competition between telecom operators and users are free to choose the more cost-effective packages or better quality of service, that is, they can always be ready to migrate to another network, hence the customer churn. According to the statistics of Customer Satisfaction Manual of the American Marketing Association, the cost of retaining a customer is 1/5 of that of acquiring a new customer. For a mobile communications market with less and less incremental customers, lower churn rate means less cost used to reduce revenue loss. Therefore, mobile operators have to be concerned about the customer churn and hence the increasingly hot topic of “revitalizing the stock customers”. Commonly used customer retention measures are prepaid packages, tariff for free or handset for free. If operators have the ability to more accurately predict in advance which users may leave, they are more likely to take earlier actions to prevent the churn and thus minimize the losses.

Telecom managers want to understand when and which customers may leave. The churn prediction model, by analyzing historical and current data, extracting key data for decision support, and uncovering hidden relationships and patterns, can help the managers predict behaviors that may occur in the future. The churn prediction model is a hot research field in recent years. Operators have spent a lot of time and effort to create and improve the model.
and have achieved certain results. For example, T-Mobile, a mobile operator, integrated large data applications in multiple IT systems and by combining huge history data of customers and analyzing customer transactions and interactions, it extracted pre-churn characteristics of lost customers and therefore more accurately predicted the churn rate in the first quarter of 2011, and managed to have the churn rate fall by half in the US region.

**Defects of Current Customer Churn Prediction Model**

An accurate churn prediction model depends largely on the comprehensiveness, quantity and quality of the available data. A number of factors such as brand, bandwidth, terminal, service, consumption behavior, tariff, convenience, change of work place and user experience can be the incentive to churn, however, operators can never get to know all customer information but make assumptions based on limited available information, that is, to infer a holistic picture with a glimpse. In this case, even if not completely wrong, the picture can hardly get near to optimal. Therefore, a telecom operator needs to make efforts to collect and integrate more new data sources of customer information from emerging contact points so as to get better in-depth insight into individual desires, preferences and decision-making processes of their customers.

It’s found in the study of actual churn events and churn environment that a great relevance exists in many ways of the lost customers. That is to say, predictive factors can be identified in regular behaviors or conditions before a churn event happens. For example, You may find that before some customer stops a service, his service consumption significantly drops by every month, his monthly call initiation attempt percentage falls and he may have repeatedly called to complain about the service. Now if another customer also meets these criteria, he represents a quite high churn risk too. At present, most of the telecom companies are making extensive use of the customer, service and network data extracted from the business analysis, CRM, billing, and network management systems for the customer churn analysis modeling. These data include age, gender, occupation, type of terminal, call records, traffic, complaints, home region, location, survival time, date of churn and payment information. By examining these data, operators expect to draw meaningful predictions. Although such a way allows operators to predict customer churn to some extent, they can in no way learn about the real incentive of customer migrations and thus cannot make prompt moves to keep customers from switching to other networks, for instance, whether the customer is simply upgrading to a better quality network.

Market research firm Synovate had conducted a market survey on mobile phone users in 8000-plus cities of Ukraine, Russia, India, Indonesia and Argentina and found that 48% (more than 70% in Indonesia) of users believed that the network quality was the primary factor that drove their choice of telecom operators. That is to say, a user is most likely to give up a network if he finds the call is not clear, network coverage is not wide enough, web pages are often hard to open or his twitter is slow to update. Therefore, the churn prediction model is added with the user experience evaluation so as to more accurately spot these users and to greatly improve the success rate of retention.
Customer Churn Prediction Model Improved with the CDR and IPDR

The Call Detail Record (CDR) and Internet Protocol Detail Record (IPDR) are important data sources for quantifying and analyzing user experience and behavior. However, due to the technical complexity and the lack of a standard, the CDR and IPDR data have not yet been widely utilized by operators to make customer churn prediction analysis.

The CDR and IPDR data can be used as a new type of data source by telecom operators in varied applications. From the data operators can learn to whom the calls are made, how often the calls are made, where the user is located, how good the signal is, how long the service is used, what web pages the user has browsed, what mobile Internet applications the user has used, how often the applications are used and how good the application performance is. These new data sources are greatly helpful for information analysis. Once the new data are combined with the existing churn prediction model, characterized user experience will be sorted out through deep data mining and on this basis, operators will understand their customers better and learn more about the relations between factors looming prior to a churn event. With such knowledge collected, operators can then put the network quality issue into more accurate analysis for how it has led up to the customer churn and see how the future churn rate can be and as a result, a network optimization strategy can be worked out to retain customers as many as possible.

Thanks to the years of experiences in the user experience management and the distinguished insights into CDR and IPDR data analysis, the ZTE UniCare technical service solutions provide operators with customized, end-to-end complete CEA user experience guarantee and OC operational consultation, in a bid to help operators to rapidly improve network performance, and analyze and address the customer churn problem.

Conclusion

Our big data era of mobile Internet is witnessing the explosion of a variety of new and powerful data sources and telecom operators are striving to remain competitive. We can see the broad application prospects of the CDR and IPDR data sources in the customer churn management field. Operators need to invest more in building a sophisticated and user experience-centered customer churn prediction model, with which better customer churn prediction can be made, more accurate customer retention programs can be implemented and as a result, new revenue growth sources are secured.