Turning telecommunications call details to churn prediction: a data mining approach

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Abstract: As deregulation, stew technologies, and new competitors open up the mobile telecommunications industry, churn prediction and management has become of great concern to mobile service providers: A mobile service provider wishing to retain its subscribers needs to be able to predict which of them may be at-risk of changing services and will make those subscribers the focus of customer retention efforts. In response to the limitations of existing churn-prediction systems and the unavailability of customer demographics in the mobile telecommunications provider investigated, we propose, design, and experimentally evaluate a churn-prediction technique that predicts churning from subscriber contractual information and call pattern changes extracted from call details. This proposed technique is capable of identifying potential churners at the contract level for a specific prediction time-period. In addition, the proposed technique incorporates the multi-classifier class-combiner approach to address the challenge of a highly skewed class distribution between churners and non-churners. The empirical evaluation results suggest that the proposed call-behavior-based churn-prediction technique exhibits satisfactory predictive effectiveness when more recent call details are employed for the churn prediction model construction. Furthermore, the proposed technique is able to demonstrate satisfactory or reasonable predictive power within the one-month interval between model construction and churn prediction. Using a previous demographics-based churn-prediction system as a reference, the lift factors attained by our proposed technique appear largely satisfactory.

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