Telecom Case study - CLV
**Business Situation**

A Top Canadian Telecom player increased his revenues by 3% using Customer Life time Value.

The client wanted to understand the lifecycle of their customers. It also wanted to identify the drivers for Customer Lifetime value and how it impacts the overall revenue figures.

**Challenge:**

In Telecommunications industry, customer monthly margin and customer survival curve are the two major components of customer lifetime value.

The customer lifetime value is the net present value of customers calculated profit, over a certain number of months. Here is the formula to calculate customer lifetime value:

\[ \text{LTV} = MM \cdot \sum_{i=1}^{T} \left( \frac{p_i}{1 + \frac{r}{12}} \right) \]

Where MM is the monthly margin for the last three months for existing customers, or the last month's monthly margin for newly acquired customer. MM is either calculated from accounting models or estimated through a set of regression models. \( T \) is the number of months in consideration to calculate customer lifetime value; it could be 24, 36, or some other number that makes the most business sense. \( r \) is the discount rate. \( p_i \) is the series of customer survival probabilities (customer survival curve) from month 1 through Month \( T \), where \( p_1 = 1 \). \( p_i \) is estimated through customer survival model.

**Approach**

Customer lifetime value can be implemented in multiple ways. It was used as a customer segmentation tool to segment customer value. We also deployed it to segment customers by their churn behavior. We suggested to the client to use Customer Lifetime Value to measure marketing campaign efficiency as well in next phase. The results from the customer survival curve estimation were used to devise strategies to extend customers expected life span.

Survival Model methodology was deployed for this exercise. At first Data was pulled from several enterprise applications, like customer usage demographics etc, and all were merged to create one dataset. After completion of this step, all variables were prepared according to the standard methodology while paying attention to correlations between variables. All the bias in the Data was removed using Statistical techniques. The model thus generated was not only predicting Churn probability of customers but also the timeframe when they would most likely churn from the base. After completion of this phase data was run through the Proportional Hazards regression model. This model gave us probability of customer churn through the whole time period of analysis.

**Tech Stack**

Customer data for usage and demographics was stored in DB2 database while Network logs came from different systems. Customer service data was from CRM database. These were all extracted through SAS. SAS was used for developing the Survival Model whereas Tableau was used as the visualization software for the final deliveries.
Benefits & Suggestions

This study presents an application to model customer lifetime value - the net present value of customers calculated profit, over a certain number of months, using survival analysis techniques. Customer lifetime value is a powerful and straightforward measure that synthesizes customer profitability and churn (attrition) risk at individual customer level. For existing customers, customer lifetime value can help companies develop customer loyalty and treatment strategies to maximize customer value. For newly acquired customers, customer lifetime value can help companies develop strategies to grow the right customers. Customer lifetime value in this study is essentially based upon customers “single product” value. It can be extended to incorporate cross-sell probabilities to estimate customer lifetime value in a multiple product scenario.