

# Network Segmentation to Target High-Risk Customers

## TeraCrunch Socratez™ Platform Modules

### DATA PREPARATION

Identifying fields for the model, conversion of categorical data types to numeric types, featurization of text data, and joining of relevant tables in a relational database. Data imputation for missing values

### FEATURE ENGINEERING

Feature engineering is the process of using knowledge of the data to create features that make machine learning algorithms work. Coming up with features is difficult, time-consuming, requires expert knowledge.

### MODEL TRAINING

Explores & identifies best options from a range of machine learning models (generalized linear models, decision trees, random forests, gradient boosted decision trees and neural networks).

### TEST & SIMULATION

Explores changes in predictions if inputs are changed. This allows exploration of the underlying causal effects in the model.

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## Case Study

Construction of a segmentation model based on interactions with the network in order to locate and target customers more likely to churn

## About The Client

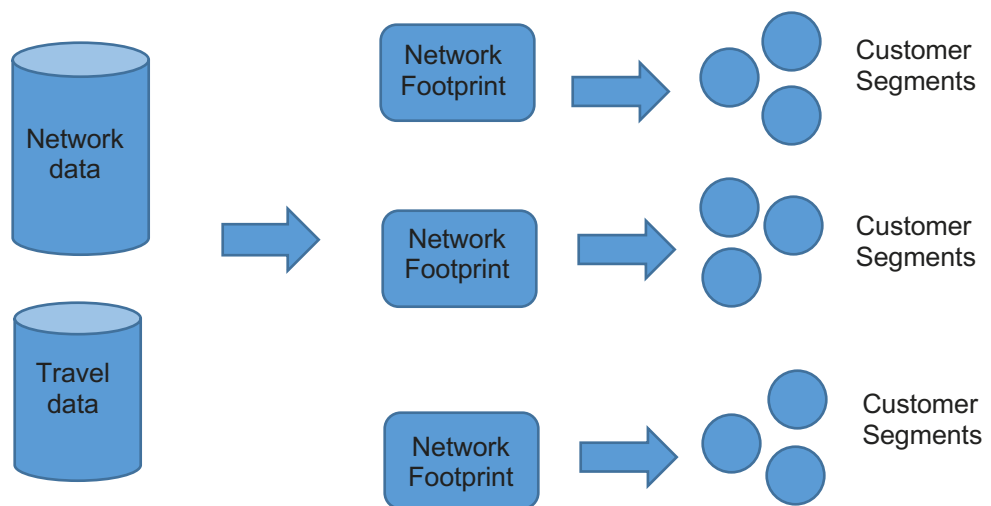
Telecom Service Provider/Retailer

## Problem Overview

Customers perceive fluctuations in network performance differently, and reactions are varied. The client needed a way to properly identify groupings of customers and their propensity to churn in order to proactively assist those customers.

## TeraCrunch Solution

- Based on all data towers used in a month, a central location was calculated for each customer.
- Distances between the central location and towers were used to calculate the customer's traveling spread in that month.
- Cell tower usage and studies on travel in the United States were utilized in order to determine distance groupings for the above spreads.
- The exercise was repeated over a three-month period of time and each customer was categorized based on the distance and variability of their travel, giving them their network footprint group.
- Each network footprint was then clustered to determine natural groupings within each network footprint.
- The clusters showed distinct patterns in churn and device purchasing behaviors, giving the client manageable groups to target to reduce customer churn.



## Impact on the business

This solution is used by the client to understand why customers may be experiencing the same network but perceive it differently. By better understanding the customers, the client can target potential high-risk customers and reduce overall churn and increase customer satisfaction.