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USE CASES

H2O for Real Time Insurance Analytics

Insurance organizations understand the power of analytics: small differences in the ability to predict losses can make or break a company. That is why insurers have always invested heavily in the people and tools needed to understand risk.

Two key factors drive today's insurance market. The first of these is speed and agility: for personal and commercial lines, customers expect insurance providers to offer rapid and responsive pricing. The second is large scale data sets: every insurer, without exception, is investing in tools to manage the flood of data and to develop deep risk insights.
Insurers across the spectrum of the business increasingly turn to H2O for scalable and open source predictive analytics.
A sampling of current industry users includes:

- A top mutual US Property/Casualty company
- The reinsurance business of a global life insurer
- One of the world's leading auto insurance organizations
- The U.S. life insurance and investments subsidiary of a global insurer
- A multi-national provider of personal and commercial lines

These organizations turn to H2O because it provides them with the ability to deliver better predictive models more quickly and to work with large scale data sets in a cost-effective way. In the sections that follow, we offer more detail into how insurers leverage H2O.

Leveraging Large Scale Data Sets to Retain Customers

Policy retention is critical for any insurer, especially in highly competitive personal lines. A leading mutual insurance company (among the top five in U.S. premiums written) used SAS/STAT to develop a retention model for its property/casualty book of business. Running the model in SAS, however, required running the policies for each state separately; this process took an entire weekend, and could only be done once a month.

In today's fast-moving consumer markets, a month is a lifetime. Increasingly, the company found that by the time they contacted "at-risk" policyholders, the customer had already departed.

Seeking to run the retention model more frequently and in a single pass, the company's R&D department experimented with several tools, including Python, R, Vowpal Wabbit and H2O. Using H2O, the company runs the model on their entire book of business in **hours** rather than **days**.

Speed matters, and so does quality. Running the most advanced machine learning algorithms ***nationwide instead of state by state***, the company detects patterns and interactions that were hidden with the old methods. These new insights enable the company to more effectively target its retention effort, reducing wasted effort and improving results of the program.

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User-Based Insurance Pricing

Usage-based insurance is a huge shift in how consumers think about and interact with their insurance company. It reaches beyond traditional non-driving rating variables like age, driving record and marital status that have been used for decades to set pricing and it moves to measuring actual driving, which has proven to carry more than twice the predictive power of traditional insurance rating variables.[1]

A leading U.S. auto insurance company with more than 10 million policyholders seeks to better price insurance policies based on individual driving behavior and local driving conditions. To do this, the company uses hourly records from thousands of weather stations – more than a million records a month, while pulling real time telematics data from more than 2 million vehicles. The company has collected an overwhelming 10 billion miles of driving data and is still counting. Today, the UBI based pricing model is responsible for more than $2 billion of the company's auto insurance written premium.[1]

To manage this flood of data, the company uses a large Hadoop cluster. Hadoop is an excellent low-cost way to store huge datasets, but Hadoop alone lacks a capability for sophisticated predictive analytics. Many of the company's analysts use R for advanced analytics; but R by itself cannot scale to Hadoop-level data volumes, and extracting the data to an analytic server is time consuming.

H2O provides this company with the solution it needs for predictive analytics on large scale data sets. H2O is fully co-located in the company's Hadoop cluster, so analysts can discover insights in the data without extracting it or taking samples. H2O supports the sophisticated methods actuaries require, including Generalized Linear Models (with Tweedie distributions) and Cox Proportional Hazards models.

The company's R users interact with H2O through an interface that converts users' R expressions into H2O commands. R users work with data in H2O using familiar R syntax. However, no data passes through R itself; all of the work is performed in H2O where it is deployed, in the Hadoop cluster.

H2O enables this company to fully leverage its investment in new data to develop better loss models. By more accurately predicting losses for current and prospective policies, the company bolsters its competitive position in the market by offering the best rates to the most attractive customers.

Data-driven Business

Retaining customers and developing customized insurance rates: these are the key drivers of success in the insurance market today. Across the spectrum of the insurance business, H2O helps organizations deliver.

About H2O.ai

H2O.ai is focused on bringing AI to businesses through software. Its flagship product is H2O, the leading open source platform that makes it easy for financial services, insurance and healthcare companies to deploy AI and deep learning to solve complex problems. More than 9,000+ organizations and 90,000+ data scientists depend on H2O for critical applications like predictive maintenance and operational intelligence. The company -- which was recently named to the CB Insights AI 100 -- is used by over a third of Fortune 500 enterprises, including 8 of the world's 10 largest banks, 7 of the 10 largest insurance companies and 4 of the top 10 healthcare companies. Notable customers include Capital One, Progressive Insurance, Transamerica, Comcast, Nielsen Catalina Solutions, Macy's, Walgreens, Kaiser Permanente, and Aetna.

[1] Telematics Wire