



Combine real-time predictive social network analytics with advanced churn models to retain customers

Allowing telecommunications carriers and cable operators to align their processes around a common view of their most *influential* customers

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Overview

The IBM® Real-Time Customer Insight Suite (RTCIS) delivers predictive business intelligence (BI) extraction and recommendations from massive sources of data to deliver unprecedented insight, allowing telecommunications carriers and cable operators to align their processes around a common view of their most *influential* customers. It applies a winning combination of executive-level real-time dashboards, a proven data collection system, state-of-the-art parallel and online algorithms and end-to-end parallel processing to provide telecommunications service providers and cable operators with the real-time customer insights needed to reduce churn and build longer-lasting – and more profitable – relationships with subscribers.

Identifying *influential* subscribers

The Predictive Churn module within the RTCIS leverages advanced social analytics with IBM Cognos® BI and performance management software and IBM Cognos Now! operational dashboards. It allows telcos and cable providers to identify their most influential customers – and those of their competitors – and helps them build stronger and longer-lasting subscriber relationships, inspire marketing innovation and deliver a measurable competitive advantage. RTCIS helps service providers gain a competitive advantage by gaining swift answers to the following questions:

- Which valued customers are most likely to churn?
- What is the overall impact of their defections?
- How can we most effectively mitigate churn?

RTCIS allows marketing, sales, customer service, operations, product management and finance departments to align their processes around a common view of the most influential customers. This is a major paradigm shift and provides early adopters with a measurable competitive advantage in their markets. The RTCIS Predictive Churn module helps communications service providers leverage BI and performance management to identify likely churn candidates days or even weeks before they are likely to leave – so that high-value subscribers can be retained and nurtured.

Retaining high-value subscribers

In today's highly volatile and competitive market, subscribers can switch telecommunications service providers and cable providers with greater ease and speed than ever before. Keeping high-value subscribers loyal is central to business success and growth.

Predictive analytics has proven its worth for many as a technique for identifying likely churn candidates and targeting retention efforts. This approach leverages a wide range of customer data, but has traditionally lacked the ability to utilize real-time information to provide access to immediate indicators of potential subscriber churn. When predictive analytics is combined with social network analysis capabilities contained in RTCIS, telcos and cable operators gain the ability to better prioritize their retention efforts toward influential subscribers. The risk level assigned is linked to the risk of losing the whole group of subscribers influenced by the identified leaders of a social network.

Identifying these groups and their leaders—and recognizing in real-time when they are an immediate churn risk—complements and adds value to traditional predictive approaches and enables service providers to take timely action to retain the subscribers who are truly most valuable—in terms of the revenue they influence. This insight—combined with the right offer at the right time—can lead to exponential gains in the effectiveness of churn management strategies.

Targeting the competition's subscribers

Not all leaders of social groups belong to the same subscriber base. Sometimes, the leader of a social network is a customer of the competition. The RTCIS Predictive Churn solution can identify these leaders who both influence the most potential revenue and at the same time are most likely to cause churn. In this manner, competitive leader identification can be a major business advantage because the results can be integrated into existing sales and marketing operations for targeted customer acquisition campaigns.

Addressing social networks

Service providers typically think of their subscribers as individuals. However, they are also members of social networks consisting of friends, family members, colleagues and people who share common interests and shared mobility and behavioral patterns. A high proportion of their telephone calls will typically be within these interconnected groups.

Social network groups typically have a leader, recognizable by calling patterns and the degree to which they are connected to other group members—and these leaders are often highly influential. A leader of a social network who switches telecommunications carriers is likely to trigger similar defection within the group—and may even take the whole group with them. And all groups inevitably link to other groups, giving the potential for waves of defection to ripple throughout the subscriber base.

Real-Time Customer Insight Suite churn mitigation benefits

- Reduce churn and the associated replacement acquisition costs.
- Understand the true value of a subscriber based on revenue influence.
- Drive down retention marketing costs through more accurate and focused targeting.
- Leverage early feedback into retention campaign effectiveness to improve results.
- Prioritize retention efforts toward high-value customers at immediate risk.
- Maximize offer acceptance rates via context-aware recommendations.
- Increase market share and revenues by retaining influential customers and cross-selling additional services.

These patterns of influencers and the effects of their actions have redefined the way service providers calculate the relative value of customers. RTCIS and its Predictive Churn module enable social network analysis to identify groups and leaders from call detail records (CDRs), so service providers can detect churn candidates in real time – even before the CDRs are deposited into the data warehouse.

A holistic approach

This solution is unique in leveraging the best of both approaches – existing traditional predictive analytics and social network analysis – applied to both offline and real-time churn detection. Traditional churn models, based on a wide range of sources – demographics, calling behavior, media and web activity, attitudes, service center interactions, etc. – become even smarter by incorporating social network information. This increases their accuracy and effectiveness in identifying high-value, high-risk subscribers to target in retention campaigns.

To augment real-time churn management capabilities, RTCIS can leverage existing predictive models to provide a more accurate assessment of an influencer's propensity to defect. The overall effect is to deliver greater accuracy and timeliness in detecting churn risk among high-value, revenue-influencing subscribers.

Predictive churn analytics

Many churn prediction applications already exist but they all have a fundamental weakness – they rely on traditional key performance indicators (KPIs) that provide a “*rear-view mirror*” perspective because they only assess data that is already in the data warehouse. They therefore provide meaningful churn analysis only when the customer data is available from the data warehouse.

As good as these offline applications may be, they often serve to tell service providers everything they need to know about subscribers that have already defected. This often leads to a cycle of marketing campaigns that by definition are rear-view oriented as well. RTCIS incorporates social network analytics to provide a lifecycle view of subscribers. This solution enables predictive churn analytics by identifying group leaders of social networks that are likely to churn—before they actually cancel their service and take their business to a competitor.

While traditional, batch-oriented offline analytics are the status quo, real-time information drives predictive churn analytics that enable faster and more informed decision-making across multiple departments. Predictive churn analytics based on real-time customer data allows telcos and cable operators to leverage BI earlier in the business cycle so they can look as far forward into the business cycle as possible and initiate workflow processes to better retain existing subscribers.

Modular technologies

IBM Research Labs has been on the forefront of social network analytics research for years. RTCIS leverages IBM's Timely Analytics for Business Intelligence (TABI) algorithms to help carriers more accurately predict the likelihood of defections. Unlike traditional offline methods that warehouse and analyze historical data, IBM's solution perceives patterns by analyzing massive amounts of data as it is created, allowing service providers to act on this analysis much earlier in the business cycle.

When this solution identifies a customer at risk of defecting, the service provider now has a better opportunity to proactively deliver a contextually relevant offer designed to mitigate churn. TABI is based on the modular combination of two technologies from the IBM Research Labs—a massive collection system (MCS) that performs revenue-assurance and BI analysis on CDRs, and a parallel machine learning toolbox that provides a scalable and high-performance churn mitigation solution. TABI collects data and formats it according to user specifications. After

formatting, one-or more of the following analytic operations can be applied to the data to generate the appropriate BI model:

- **Prediction**, where forecasts can be made according to the KPIs of each user or entity in the data.
- **Clustering**, where users or entities are divided into classes according to the similarities between them.
- **Connectivity Graph Analysis** for analyzing the data according to links between users.
- **Association Rule Mining**, where correlation between data items can be automatically determined.

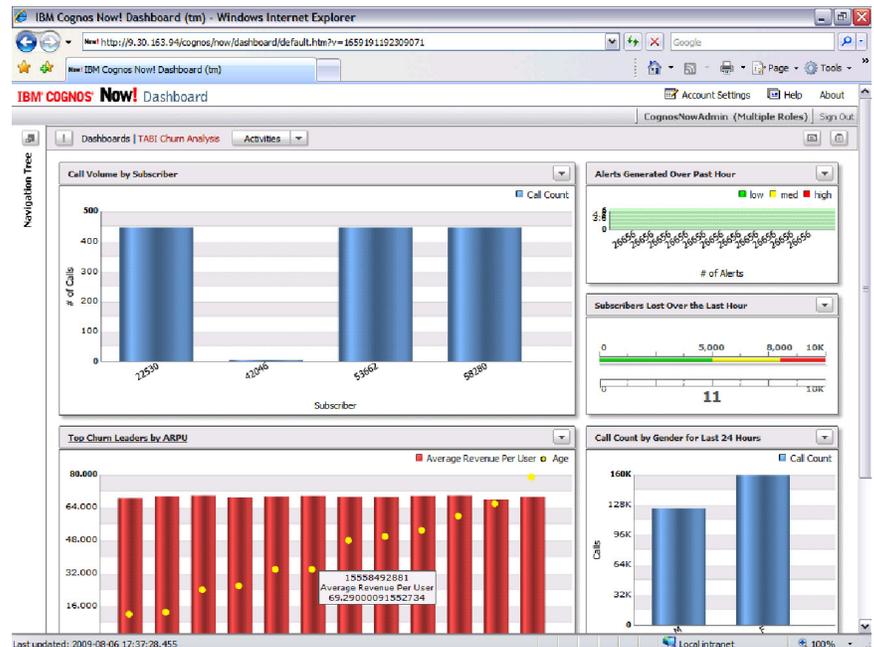
Increasing lift

In data analytics, the term “lift” is often used as a measure of the performance of a model at predicting or classifying cases, measured against a random choice model. Lift metrics are routinely used by service providers to attempt to pre-identify subscribers who are high-risk candidates to switch to another service provider, and RTCIS leverages BI, performance management, social networks and real-time analytics to help service providers increase lift factors. For example, a lift of five at a threshold of 1% means that if a call center contacts the 1% of subscribers ranked most likely to defect, the service provider would expect to see five times more subscribers who planned to defect in this population than in a random sample of the general population.

While offline churn analytics for telecommunications organizations rarely exceed a lift factor of 5 (at a 1% threshold), real-time predictive churn analytics can deliver a lift of 8-12 by allowing service providers to more swiftly identify subscribers who are likely to defect so they can put programs in place to encourage them to stay as valued customers. This solution extracts CDR data in real time – directly from the mediation application or the switches themselves – before that data is entered into a warehouse. It identifies group leaders likely to influence churn within social networks, and can prioritize group leaders to more accurately execute retention programs.

Easy access to timely information

Organizations can access real-time predictive analysis through operational dashboards for continuous monitoring of time-sensitive KPIs and metrics. This solution includes IBM Cognos Now!, which delivers operational dashboards to continuously monitor KPIs and operational metrics to minimize customer defections and proactively identify group leaders of social networks who are likely to encourage other subscribers to defect.

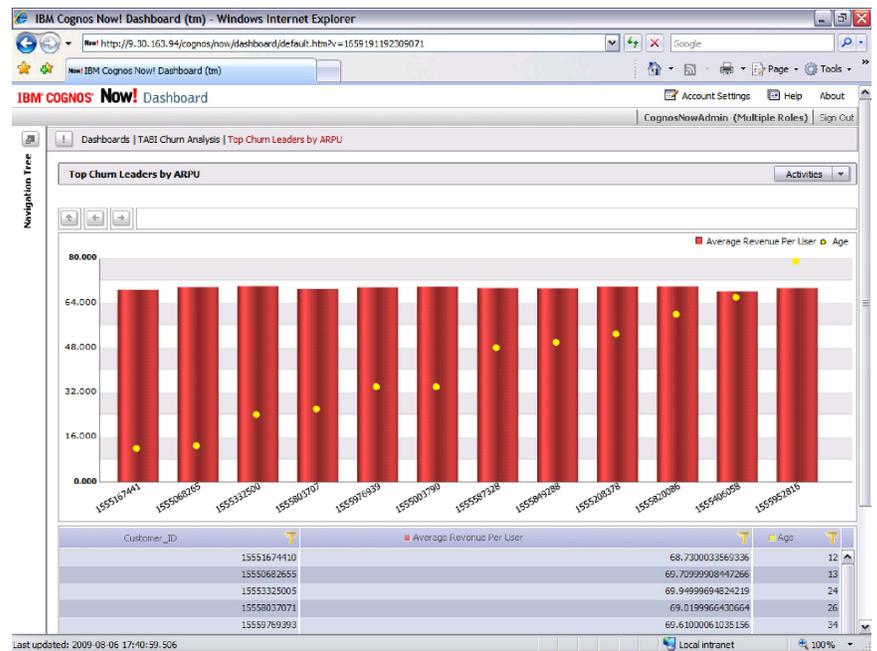


Telcos can display dashboards that identify group leaders likely to churn within 24 hours.

Because RTCIS operates in real time but stores little data, it achieves another strategic advantage – it can accelerate the performance of traditional customer service, marketing, sales, product management and operation support applications. For customers already using third-party data warehouses, the additional insight provided by RTCIS accelerates the return on investment for those applications.

Turning insight into action

Identifying churn candidates means nothing – unless you can take effective action to retain them. RTCIS includes a recommendation engine that suggests the most appropriate treatment given the individual’s past activities correlated to the behavior of similar subscribers. It also provides retention teams and marketers with insights into customer propensities and product preferences, and an understanding of how particular offers or marketing campaigns are received and how effective they are for particular customer profiles. This allows the best human expertise to be combined with powerful predictive models to ensure the offers made have the best chance of ensuring retention.



Churn candidates can be prioritized by their average revenue per user (ARPU) impact.

Sample use cases

RTCIS and the Predictive Churn module provide measurable benefits to multiple departments within telcos and cable operators. RTCIS is complemented by layered marketing applications designed to drive measurable ROI to departments throughout the organization. It enables cradle-to-grave marketing processes, complements existing churn applications and provides quantitative insights that allow multiple departments to improve productivity and take proactive steps to retain existing subscribers and acquire new ones. Each department gains insight into the specific issues that can be addressed via a set of correlating KPIs and key performance predictors (KPP). The following are just a few sample use cases:

Marketing departments

A better and more immediate understanding of the customer enables proactive marketing campaigns that prevent customer defections and drive sustainable revenue growth. Telcos and cable operators can improve the value of marketing investments and tailor retention campaigns toward subscribers highly likely to defect.

Campaigns can become more successful when targeted toward specific group demographics, and marketing departments can implement measurable up-selling campaigns to increase ARPU levels for high-risk or influential subscribers. This solution also improves the ability of a service provider to deliver measurable results from advertising programs, since the ROI of advertisements can be more easily predicted and demonstrated to advertisers. RTCIS and the Predictive Churn module help marketing departments come closer to answering, *“Where is my next revenue coming from, how big will it be and how long will it last?”*, and allow marketers to develop carefully targeted offers to group leaders likely to influence acceptance by multiple subscribers in a social network.

Sales departments

Sales departments can focus efforts more granularly and more productively on retaining existing subscribers and increasing ARPU from existing customers. Churn analysis data can be automatically exported into existing sales management applications for increased forecasting accuracy and early trend identification, and sales management can further leverage the results to design sales territories and select retail sales locations based on social network behavior within geographies with the highest concentration of leaders – and their mobility and travel patterns.

Because group leaders influence multiple consumers within a social network, they can be targeted for sales promotions and sales departments can more swiftly and accurately measure the results of promotions. For example, targeting the leader on a new product or service introduction creates interest in a group and appeals to a group leader's followers – who might not have otherwise considered the new product or service. Sales departments can also leverage the results to more productively attract new subscribers by targeting the highest-value subscribers of competitors.

Customer service departments

RTCIS and the Predictive Churn module help customer service departments to proactively allocate resources to prevent churn among high-risk subscribers. They can generate timely alerts for call center outreach programs to better retain subscribers and capitalize on cross-selling and up-selling opportunities. Group leaders determined to be high flight-risk subscribers can be prioritized in subscriber queues so they can receive higher service levels when they access support via the call center or by self-service web applications.

Targeting group leaders with compelling offers at the right time allows agents to focus on the highest revenue influencers, and more accurate and timely subscriber profiling allows customer service departments to propose up-sell and cross-sell product offers based on social network preferences and consumer behavior. The ability to implement contextual marketing allows customer service departments to more productively implement outbound support programs while avoiding the risk of annoying customers by contacting them at inappropriate times or via inappropriate channels.

Operations departments

Early identification of group leaders within social networks gives operations departments greater strategic ability to impact revenue, control expense and collaborate with sales and marketing departments. Trouble ticket closure times for group leaders can be tracked and measured, and network operations departments can reduce the costs of truck rolls by prioritizing service calls for subscribers most likely to influence the retention of other subscribers.

Group leaders are not always the highest spending customers. For example, given a situation of multiple service outings and limited truck availability for dispatch, operations departments can more effectively prioritize restoration of service to geographic areas with the highest concentrations of group leaders.

Technicians can be measured not only on traditional ticket/service restoration metrics, but also on the service quality delivered to group leaders. Dispatching routes and schedules can be mapped for proactive service inspections and courtesy calls to group leaders, and group leaders can be prioritized in service dispatch queues and given a higher priority with call-ahead dispatching and priority scheduling.

Product management

Technology plays an increasingly important factor in the market perception of a telecommunications provider. To remain relevant and competitive, service providers need to continually monitor the perception and success of their products and services in order to achieve the seemingly impossible goal of rapidly developing and delivering a wider spectrum of products that appeal to the needs of a diverse customer base. Product managers can gain insight regarding the impact of products and service on churn and retention management. Successful products can be enhanced to increase APRU levels and market share – and faltering products can be improved to correct deficiencies. Product gaps created by the availability of new, innovative technologies can be quickly addressed to improve customer acquisition and retention.

Finance departments

Telecommunications carriers and cable companies can implement real-time financial modeling based on social analytics to reduce churn, increase ARPU and optimize free cash flow. RTCIS and the Predictive Churn module can usually be implemented across the organization and deliver measurable results within 30 days, and the organization typically receives a full ROI for investments in this solution in less than six months.

Financial projections and ROI can usually be estimated by providing six weeks of historical CDR data and four weeks of actual churn results, allowing finance departments to accurately model ROI before deployment. RTCIS and the Predictive Churn module are a true cross-functional solution that aligns, marketing, sales, customer service, operations product management and finance departments around common goals – reducing churn, increasing ARPU levels and acquiring new subscribers.

Proof of concept

The before-versus-after performance results of the IBM Real-Time Customer Insight Suite can be measured in a simple proof of concept requiring virtually no effort from a carrier or cable operator, with measurable results delivered in a matter of weeks. Contact IBM to find out how you can quickly improve your customer retention campaign with measurable results by deploying RTCIS with the Performance Churn module.



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