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REVENUE ENHANCEMENT AND CHURN PREVENTION FOR TELECOM SERVICE PROVIDERS

A Telecom Event Analytics Framework to Enhance Customer Experience and Identify New Revenue Streams

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Telecom service providers around the world are facing challenging market conditions and revenue declines. High subscriber churn rates – caused by network congestion and increasing competition from Over-The-Top (OTT) services – are the main culprits. As they continue to compete for new customers, their key revenue challenge is to arrest losses by retaining their existing customers and enhancing the income stream from each of these customers. This paper describes the current industry landscape and presents solutions to prevent churn and enhance revenue.

Currently, telecom providers often don't find out about negative experiences that can cause customers to switch providers or the usage patterns that point to a service upgrade opportunity until it's too late. That's because a negative experience isn't known unless the customer reaches out to the call center to report it. To add to that, often there is an additional lag in time before the customer receives an appropriate response, such as an apology or discount. This lag also occurs between the time a new voice or data usage pattern is detected and the time the customer receives an optimized offer for a service upgrade. In current scenario, a timely response from the network to subscriber events are not intelligent or subscriber aware while intelligent and subscriber aware responses are not timely. The lack of timely insight and delayed response time translate into lost revenue.

The solution is a telecom data analytics system that can detect churn risk and revenue enhancement opportunities from live subscriber call behavior and initiate dynamic real time responses. Through the use of near real-time integration and analysis of multiple data sources and predictive statistical models, telecom providers can expect to see a 12% to 25% reduction in churn and up to 40% increase in the average revenue per VIP user. [1]

Industry Landscape

Global telecom service providers are under intense pressure. On one hand, competition and regulations have made it extremely easy for customers to switch networks. On the other hand, OTT players like Skype and Netflix are able to monetize telecom traffic much more efficiently. The result is a trend toward consistently declining revenues and a bleak outlook for growth.

Customer attrition has been a key concern for Communication Service Providers. Service providers lose customer acquisition cost as well as the revenue for a year or more when a customer leaves the network. Market studies mentioned below confirm the severity of the situation.

- Churn costs AT&T, Verizon, Comcast and Time Warner Cable billions of dollars every year [2].
- Roughly 75% of the subscribers signing up every year come from another network—they are already churners [3].
- The churn rate in developing markets ranges from 20% to 70%. In some of these markets more than 90% of all mobile subscribers are on prepaid service. Some operators in developing markets lose in aggregate their entire subscriber base to churn in a year. [4][5]

The low barriers to switching make customers highly sensitive to any negative experience. Regulations like Mobile Number Portability further encourage network switching. Network quality is also an important factor - 45% of smartphone user churn happens due to network quality issues [6]. Clearly, preventing customer churn is a top business priority for service providers. In a recent survey, the world's top 80 telcos ranked improving customer experience and satisfaction as their number one business priority and number one IT investment goal [7].

New technology and new players are also exerting downward pressure on revenue. Global voice revenues are expected to drop at a CAGR of 2.4% and lose $170 billion in value between 2012 and 2020 [8]. Estimates indicate that OTT VoIP alone will contribute to a loss of $479 billion in voice revenue for between 2012 and 2020. [8]

The massive growth of data services and transmission volume has not resulted in an equivalent revenue growth for network service providers. In fact, growth in data traffic and data revenue are expected to be mostly de-coupled. [9] Data traffic is expected to grow at a CAGR of 108% between 2009 and 2014, but data revenue is expected to grow less than 30% in the same period. By 2014, more than 66% of data traffic is expected to be streaming media. So while network service providers are critical to supporting this massive growth in data traffic, most of the revenue will go to the content and OTT players.

To remain viable, telecom service providers need to hold on to the customers they have and find better ways to increase their share of each customer's wallet - they need to improve their ability to detect and convert revenue enhancement opportunities.

Churn Prevention and Revenue Enhancement – The Current State of the Art

There are two main limitations that are negatively impacting telecom revenue:

1. Lack of timely insights
2. Delayed response time

Currently, subscribers who are at the risk of switching or who might be willing to buy additional services are identified based on past data about preferences, segments, usage patterns and call center interactions. Disruptive events, such as negative network experiences or changes in usage patterns, have a significant influence on subscriber behavior regarding churn or revenue enhancement.

There is currently no way to proactively respond to the large number of subscribers who change their provider or service packages without calling the call center. As a consequence, operators are too reactive. They have had very limited success in keeping pace with rapidly changing customer preferences and usage patterns. Usually, by the time they do react the opportunity is lost.

The Key Performance Indicators (KPIs) for churn prevention and revenue enhancement processes are shown below. These metrics, which vary significantly from one market to another, are based on some engagements with Wipro's very large telecom service provider customers. Improving performance on these KPIs is of paramount importance to service providers.

KPI	Churn Rate *For VIP Customers Per Year*	ARPU Growth *For VIP Customers Per Year*	Net Promoter Score	Lead Response Time	Marketing Conversion Rate
Current Benchmark	40%	5%	28%	48 Hours	2%

Figure 1: Customer Experience KPIs for Telcos
Source: Wipro Ltd.

Opportunities to Improve the Process Using Telecom Event Analytics

The reference model described below leverages data collection, integration, analytics, and business rule based, near real-time event processing to reduce churn and boost per subscriber revenue.

Goal: Detect churn risk and revenue enhancement opportunities from live subscriber call behaviour and initiate dynamic near real-time responses.

The solution to a lack of timely insights and a delayed response time is a data infrastructure that has the following features:

1. Gathers near real-time information from multiple sources through:
    - Near real-time integration of network data such as call logs, call detail records, network performance data
    - Detection of significant event patterns from live network data
    - Correlation of network events with contextual insight like customer preferences, usage history, call center interactions and customer segments from business systems
    - Predicting the possible impact of network events in specific contexts
2. Uses predictive analytics and complex event processing to quickly take the right action to mitigate the potential risk or convert the opportunity
    - Awareness of generic, local, and customer-specific data points, such as festivals, sporting events and birthdays while making predictions
    - Application of predictive statistical models such as Logistic Regression/ Cox Proportional Hazards Model, Lifetime Value (LTV) Modelling, Up-Sell Models, Market Basket Analysis, Logistic Regression and Exploratory Data Analysis
    - Complex event processing to identify the next best action
    - The flexibility to change threshold parameters easily to run marketing campaigns based on dynamic feedback from different market segments

The visual below summarizes the functional flow of the event analytics model.

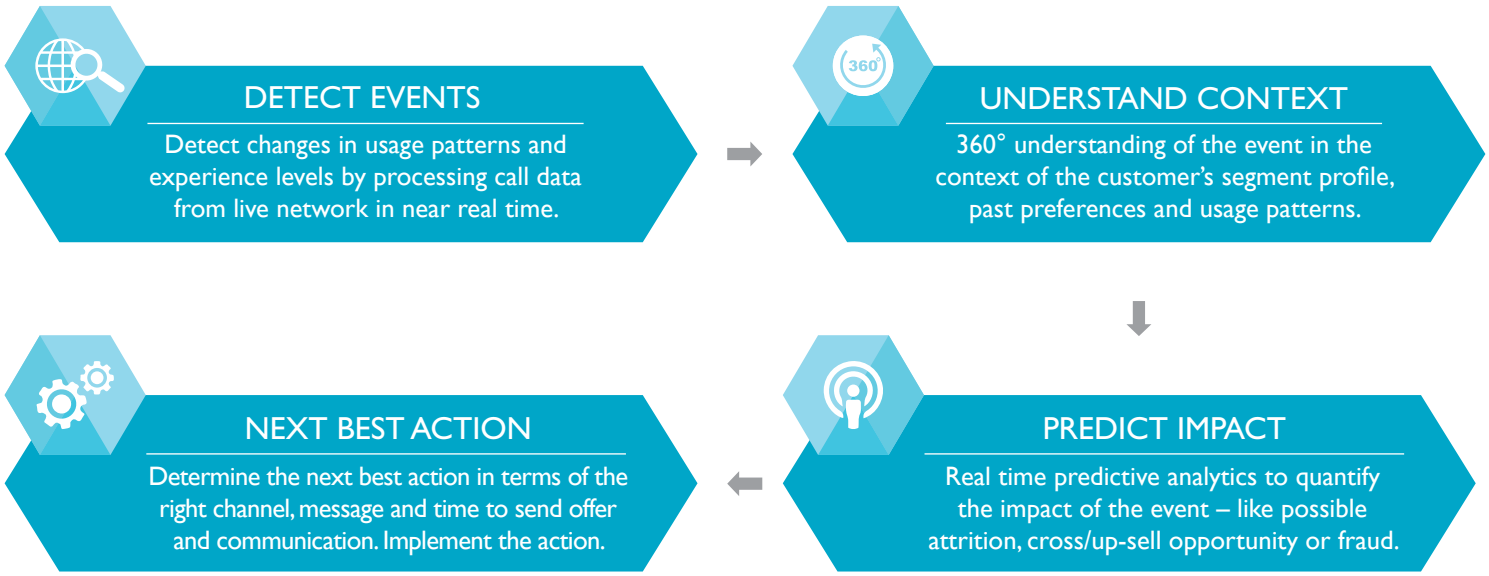

Figure 2: Telecom Event Analytics – Flow
Source: Wipro Ltd.

Telecom Event Analytics – Reference Model

Below is a reference architecture model for a Telecom Event Analytics Solution that meets the goal and requirements described above.

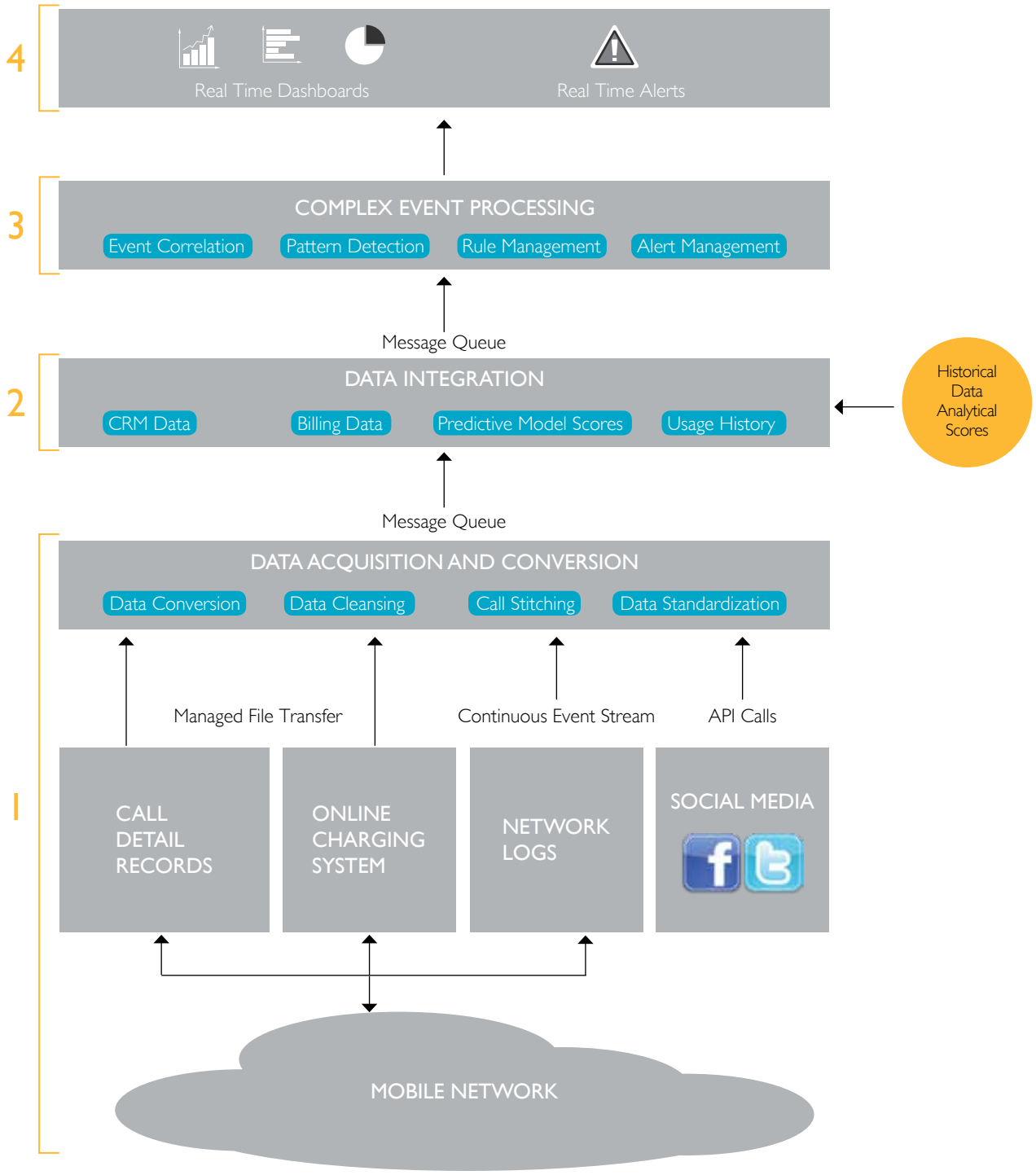

Figure 3: Telecom Event Analytics – Reference Model
Source: Wipro Ltd.

The numbered areas in the diagram correspond to the numbered explanations below.

1. Data Acquisition and Conversion

Data is collected from a wide variety of sources and systems and converted from proprietary to readable and actionable formats in near real-time.

2. Data Integration and Analysis

The collected data is integrated with additional customer data from billing, CRM and other OSS/BSS systems and correlated with knowledge-based predictive models based on historical data.

3. Complex Event Processing and Response

Using complex pattern analysis and business rules, churn risk and revenue enhancement opportunities are detected and an optimal response is formulated and transmitted to outbound channels in near real time. Business rules are programmed through a rule management interface.

4. Real-Time Dashboards

KPIs for all key churn prevention and revenue enhancement opportunities are shown in an easy-to-understand and manage format.

Benefits

Based on our study of operators who applied methods similar to those described above, the following benefits were achieved.

1. **Grow revenue through Cross-Sell and Up-Sell Opportunities.** Predictive modelling based on change in usage behaviour that enables operators to determine a customer's willingness to purchase a certain product and an optimal product price point. This allows operators to dynamically generate differentiated offers and obtain a higher share of the customer's wallet.

2. **Enhanced Customer Satisfaction.** The ability to monitor usage in real-time and take rapid corrective actions that enhance customer experience and reduce churn.

3. **Improved Campaign Management.** Event-based marketing techniques allow operators to customize campaigns for different customer segments, increasing campaign effectiveness and boosting marketing ROI.

The table below (Figure 4) translates these benefits into KPIs [1].

KPI	Churn Rate (For VIP Customers Per Year)	ARPU Growth (For VIP Customers Per Year)	Net Promoter Score	Lead Response Time	Marketing Conversion Rate
Current Benchmark	40%	5%	28%	48 Hours	2%
Expected Impact of Solution Methods	30% - 35%	7%	35%	15 Minutes	5%
Improvement	12% - 25%	40%	25%	95%	150%

Figure 4: Customer Experience KPI Improvements Driven by the Application of Telecom Event Analytics
Source: Wipro Ltd.

Conclusion

Clearly, the competition for customers among rival telecom suppliers is not about to diminish. Churn will continue to be a problem as will the ability to hold on to and maximize the value of VIP customers. The Telecom Event Analytics Reference Model described in this paper enables telecom providers to solve the issues of real-time data analysis and delayed response time. The model offers the means to respond rapidly and appropriately on a customer-by-customer basis to both - negative network experiences that are at the root of churn and changes in usage patterns that signal an opportunity to offer differentiated services to VIP customers.

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About the Author

Anindito De has over 14 years of experience as a consultant, data integration architect and specialist in the telecom, financial services and pharmaceuticals sectors. In his current role, he leads the Strategic Solutions team in the Data Integration practice at Wipro. His present focus is in developing event analytics solutions for enterprises across domains, leveraging Real-Time Analytics and Complex Event Processing technologies.

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