Descriptive to Predictive to Prescriptive Analytics: Move Up the Value Chain

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CTO

RAZORSIGHT
What We Do

Deliver cloud based predictive analytics solutions to the communications industry to help streamline business operations, improve customer experiences and increase margins
Our Analytics journey began in 2009 ...
Razorsight Analytics Circa 2009-2010

- Descriptive Analytics
- Multiple Custom ETLs
- RDBMS based solution
- Long running batch workloads
- Contention, Bottlenecks with increased data volume
- Administrative and Maintenance overheads
Solution Architecture

- Nwk Events
- OSS/BSS
- Cost
- Revenue
- 3rd Party Reference data

Meta Data

- Staging ETL
- EDW ETL
- Process Centric ETL

- DW Source Staging
- Enterprise DW

- Profitability Analytics
- Network Analytics
- Subscriber Analytics
- Cost Analytics

- Adhoc
- Reporting
- Dashboard
- Alerts
- Mapping

Web Portal
Razorsight Analytics Circa 2011-2013

- Expanding Descriptive Analytics
- Advent of MPP
- ETLs closer to data
- High performance, but expensive appliances
- Batch workloads, with reduced latencies
- Some contention, bottlenecks remain
- Unable to handle unstructured data
- Storage costs becoming prohibitive
Razorsight Goals 2013-2014

• Implement Predictive Analytics
• Process Big Data
• Design new stack for big data analytics
• Move beyond storing data
How?

“BEGIN WITH THE END IN MIND” Covey 1989
Big Data Analytics Needs

• Horizontal scalability
• At reduced costs
• Ability to process all data structures and formats
• Redundancy and availability
• Processing and Data in one place
• Secure
• In memory processing
• Large ecosystem of development and analytical tools
• Search large volumes of data
• Effective Data Governance
“I think you’ll find that mine is bigger...”
Application Stack

- Web Interface
- Descriptive Analytics Applications
- Predictive Analytics Applications
- Big Data Framework

- Third Party Data
- Industry Data
- Customer Data
- Social Media Data
Framework Technology Components

- Angular
- REST
- Active MQ
- Spring Integration
- Apache Spark
- Scoop
- HUE
- Oozie
- Apache Drill
- ElasticSearch Engine

Hardware Infrastructure Level
- OS/File System Level
- System Application Level

MapR FS (M7)
- NFS
- Unix/Linux
- UI/Control Cluster
- MapR Cluster

ElasticSearch Engine
- NFS
- Unix/Linux

MapR

elasticsearch. spring AngularJS Spark python ActiveMQ
Simplify

<table>
<thead>
<tr>
<th>Customer Health</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Since</td>
<td>5/17/2008</td>
</tr>
<tr>
<td>Past Due Amount</td>
<td>$138.77</td>
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<tr>
<td>Customer Lifetime Value</td>
<td>$92.11</td>
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<tr>
<td>Customer Expected Life (mos.)</td>
<td>7.38</td>
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<tr>
<td>Churn Level</td>
<td>62</td>
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<tr>
<td>Profit Value</td>
<td>27.0%</td>
</tr>
</tbody>
</table>

Next Best Action

Manuel Pellegrini  
(222) 222-2222  
Device: iPhone 5s  
Last Payment: 1/4/2014  
$46.22

Customer Health

- CLV
- Loyalty
- Profitability
- Care Calls
Predictive Analytics
2014-2016 Analytics Initiatives

Which of the following critical pain points and priorities do you think can be resolved by big data and advanced analytics in the next 12 to 24 months? Global

- Data exposure and API enablement: 16%
- Dynamic profiling and enhanced customer segmentation: 17%
- Package design for specific OTT services: 22%
- Customer profitability analysis: 24%
- Pre-emptive service assurance: 25%
- Network dynamic congestion control: 26%
- Pre-emptive customer care: 28%
- Improve revenue assurance and minimize fraud in real time: 32%
- Social network analysis: 33%
- Location-based services and personalized advertising: 40%
- Proactive customer care: 43%
- Churn prediction: 45%
- Targeted offer and campaign management: 46%

Targeted offer & campaign management, churn prediction, location-based services and proactive customer care are the top 4 pain points which operators believe can be resolved by big data and advanced analytics.

Source: Heavy Reading Big Data Survey, 2014, n=80
Complete Customer Profile

1. **WHO?**
   - Who is likely to churn?

2. **WHEN?**
   - When is that churn event likely to occur?

3. **WHY?**
   - Why is the customer likely to churn?
   - Why are they dissatisfied?

4. **WHAT?**
   - What should I spend to save a customer based on their expected future value?

5. **HOW?**
   - How do I most effectively impact the customer’s satisfaction level and create a successful retention action?

6. **WHERE?**
   - Where should you contact the customer (e.g., Channel)?
Retention Economics

Number of Subscribers = 2,000,000
Cost per touch point = $2
Profit/Retention = $220

Standard Campaign
Target: ALL
Response Rate 1%
Cost: $4,000,000
Profit: $400,000

Targeted Campaign
Target: 250,000
Response Rate 3%
Cost: $500,000
Profit: $1,150,000
Behavioral Segmentation

Standard Segmentation

Customer Universe

- Standard Segmentation spans a large swath of the customer base
- Audience targeted by Marketing
- Campaign only reaches 20% of the actual target audience

Micro Segmentation

Customer Universe

- Micro Segmentation covers a more concise portion of the customer base
- Audience targeted by Marketing
- Campaign reaches 80% of the actual target audience

Campaign targeted by Marketing reaches 80% of the actual target audience.
Predictive Analytics Service and Platform

Structured & Unstructured Source Data

Automated Data Preparation

Supervised

Un Supervised

Semi Supervised

Model(s)

Econometric

Statistical

Scientific

Automated Micro Clusters With Statistical Scores

Visualize
Prescriptive Analytics
**Campaign Optimization**

Enhanced Lifecycle

1. **Design Campaign Options**
   - Approach includes:
     - Segmentation
     - Primary research

2. **Design & Execute Tests on Targets**
   - Generate targeted campaign tests based on segmentation & primary research through selected channels

3. **Measure & Design Production Campaigns**
   - Measure campaign tests & select “winners” based on response results, customer value generated, longevity, etc.

4. **Execute & Measure Production Campaigns**
   - Execute production campaigns and refine the approach over time as required

Enhanced Lifecycle campaign optimization approach includes:
- Segmentation
- Primary research
Razorsight Analytics Products

SALES & MARKETING

- Treatment Optimization
  - Proactive Customer Retention
  - Targeted Customer Acquisition

OPERATIONS & CARE

- Touchpoint Optimization
  - Customer Care & Field Service Optimization
  - Predictive Maintenance & Repair Forecasting

EXECUTIVE

- Executive Insights
  - Key Performance Metrics
  - Customer, network and trending insights

ANALYTICS FRAMEWORK

- Data ingestion, Preparation, Processing
- Storage and Data Governance
Virgin Mobile Latin America uses Razorsight Predictive Analytics to support its rapid growth by increasing loyalty and targeting new customers based on data science.

The Business Challenge

- Virgin Mobile Latin America (VMLA) selected Razorsight in 2014 while launching its third MVNO operation in Mexico.
- VMLA wanted to build upon its leadership position in Latin America by proactively addressing customer satisfaction and loyalty via analytics.
- VMLA leverages Razorsight’s predictive analytics platform across all operations including Chile, Colombia and Mexico.
- The marketing team wanted to proactively target customers (prior to non-use) based on data science driven triggers.
- VMLA’s senior executives wanted a centralized view for gathering and reporting KPIs at both the country and corporate levels to ensure consistency in measurement, reporting and strategy.

Razorsight Solutions Deliver

- Razorsight’s Cloud Analytics platform enable VMLA to improve retention efforts by providing a laser-focused marketing strategy, where at-risk subscribers and optimal new customers are scientifically targeted. This results in:
  - 85x increase in probability or likelihood in a top-up
  - Amplified data usage by 19%
  - 52x more minutes of use per subscriber
  - Increased SMS utilization by 41%
Rapid Path to Value

Cloud-based Analytics Apps =
- Rapid turn up
- Lower Risk
- Quick ROI
- No Hardware
- No Software
- No IT Overhead
- No Data Silos
- No Capex

Integration w/ Operational Systems

Data processing & Transformation

Data Science & Mathematical Models

Razorsight Confidential – Not for Disclosure
Predicting Outcomes. Improving Results.