



# Maximize Telecom Analytics:

*Achieve the Elusive Single Version of the Truth*



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*Countless days and weeks are spent trying to reconcile data...*

Accurately reporting subscriber metrics is difficult. Extreme competition drives continual change in the telecom industry as new companies and products emerge and existing companies acquire each other. New products and services drive the need for new metrics, and every business unit is scurrying to produce reports – none of them consistent with each other.

Telecoms and other subscriber-based industries have grappled with this problem for years, yet few have been able to solve it. Countless days and weeks are spent trying to reconcile data, giving credence to the elusive notion of a “single version of the truth.”

Telecom data is complex. Companies work hard to make sense of data from billing systems, customer service applications, and thousands of product and activity codes. Not only are the basic subscriber metrics like new connects, disconnects, and reconnects difficult to get right, it’s even more difficult to track migration between plans, devices, markets.

Further complexity is added when drilling down to features, add-on tariffs, bundles and packages. At the summary level, the numbers may be correct, but the underlying details are either difficult to produce or not accurate. It’s no wonder that different departments end up with different numbers representing the same thing.

Without consistent data and metrics, companies find it nearly impossible to produce an accurate picture of the business. As the market evolves and new products are launched, analysis becomes critical to understand take rates, product and service migrations, customer profitability and loyalty.

*Numbers are often misstated from around 5% to as much as 20%.*

Complex analysis like this is useless without accurate and consistent foundational metrics already in place. Consistent metrics definitions are critical.

Business rules define the metrics, but keeping the rules consistent across the various reporting applications is a challenge. Business rule logic is often found hard-coded in SQL scripts. These rules may show up in scripts that load data into reporting tools, in user queries, or sometimes in both places. The presence of these rules in multiple systems and queries creates an enormous burden on IT staff when any rules are changed or added. With any change or addition to the rules, developers must first consider all impacted source scripts, then locate and code the changes. Logic in multiple places increases the turn-around time and also the chance for errors.

## ***Current Reporting Methods Miss the Mark***

The heart of any telecom company is its customer management system. This system not only bills subscribers, but controls the status of a subscriber's service and features. Dealing with the huge volumes of subscriber transactions including activities, services, and features, presents a huge challenge for telecoms. Companies do their best to get as close to accurate as possible. Some have even come up with clever solutions that seem logical and likely to succeed, but in the end, these methods fall short. Numbers are often misstated as much as 5% to 20%.

Some of the problematic methods used today include:

**Counting Billed Subscribers** - For many companies, counting customers billed at the end of the month seems adequate for an end of period subscriber count. Unfortunately, there are inherent flaws in this simplistic method. Customers receiving bills may no longer be active and active customers may have yet to receive their first bill. If a customer activates service on the 25th of January and will not expect a first bill until the 25th of February, they are not counted in January's end of period subscriber count. Conversely, if a customer cancels service on the 25<sup>th</sup> of January and his bill cycle does not close until the 10<sup>th</sup> of February, he will be counted in January's end of period subscriber count. The problem is exacerbated when tracking individual features on a single subscriber, which may have many ins and outs in a month.

In a prepaid environment, there are no bills at all, leaving telecoms scrambling for other ways to count subscribers.

**Billing System Snapshot** - Many companies falsely believe that the billing system snapshots can provide accurate counts of subscribers. It seems logical that the ending period snapshot should equal the beginning period snapshot plus net activity. For example:

$$\text{Beginning count} + \text{new connects} - \text{disconnects} + \text{reconnects} = \text{Ending count}$$

The problem is that this equation almost never ties out. Subscribers who were counted at the beginning of the month may “disappear” during the month and have no activity to show for it. For a number of reasons, customers cancel and re-establish service, often with changes that make it difficult to link the original customer’s account to the newly established account.

These events also interfere with accurate activity counts. In the snapshot method, disconnect activity is derived by comparing customers who had a status of “active” yesterday to those with a status of “cancelled” today. Administrative account activities, like account and service number changes, can falsely inflate disconnects and new connects.

To overcome the discrepancy in the counting calculation, many companies enter an adjustment figure, often against counts of new subscribers or products.

**Data Input Accuracy** - Source data systems are only as good as the data entered. Customer service reps are often measured on call handling speed. Not only does manual entry introduce a higher rate of input errors, but the call handling speed measurement promotes choosing incorrect input in favor of speed. This is often seen in reports showing higher than



*What was once a regulated, non-competitive business is now an extremely aggressive industry.*

expected percentages of the first item on the drop-down list. Inaccurate coding can lead to miscategorizing activity.

Subscriber-based businesses are often supported by dealers who are commissioned on sales. This type of sales compensation can promote fraudulent behavior. As dealers seek to meet quotas or bonuses, they may look to manipulate the service orders in their favor. Scenarios include dealers offering customers free upgrades in return for cancelling their existing account and opening a new account under the new dealer's code. This creates "phantom churn" where a disconnect was counted even though the customer remains.

### **Prepaid Complexity**

In a prepaid environment, there is even more complexity. Churn may be calculated by looking at how recently the customer topped up or replenished their balance or even used their phone. Customers may throw away one SIM card and start using another before the first one has expired, making it difficult to track true churn. Matching prepaid customer activity is complicated by the lack of customer data available, yet activity like top-up frequency and amounts, breakage rates, incoming vs. outgoing usage is even more key to increasing customer profitability.

### **Lack of Detail**

Most reporting methodologies were developed when the focus was on adding subscribers. Metrics were relatively simple and telecoms were able to manage with summary-level reports. With increased penetration, monitoring product and service upgrades, and tracking churn, has become increasingly important but is difficult to do correctly.

Data from billing and customer management systems makes it nearly impossible to accurately answer necessary questions such as these:

- Were these services added at the same time as the new subscriber?
- Was this a first time upgrade of these products to an existing subscriber?
- Were they reconnects of services the subscriber used to have?
- Were they actually part of a downgrade in service from a more profitable bundle?

Even if organizations are able to deploy these complex business rules with a high-level of accuracy, the rules are often hard-coded into the various source data scripts that produce data for reporting. This hard-coding

makes it extremely difficult and time-consuming to make changes to any of the existing business rules or bring in new sources of data.

Lastly, the inability to accurately analyze subscriber and product-level activity leads to missed marketing opportunities. Understanding associated revenue, usage, and acquisition costs is key in determining overall customer profitability, and is necessary to develop profitable products and services and create a personalized experience for the customer. If companies spend most of their time reconciling subscriber metrics, there is little time left to analyze data and no confidence that the analysis is correct.

### ***Rapid Industry Growth Creates Reporting Challenges***

In the past, the word telecom meant only landline phone companies. Now dramatic market changes bring additional subscriber related businesses into the mix including wireless carriers, internet providers, cable and satellite. What was once a regulated, non-competitive business is now an extremely aggressive industry that has the constant attention of both customers and investors.

Mergers and acquisitions top the telecom news as the industry both grows and consolidates. These newly formed companies are often left with multiple, redundant legacy systems, each with their own set of business rules. IT departments scurry to recode the logic that defines key subscriber metrics.

New products and services have driven the need for additional business metrics. New measures have been defined and developers have had to add the supporting business rules to the mix of existing business rule coding. Over time, the business rule coding is spread across various systems, applications, and reports.

As market penetration reaches a saturation point, competition for existing customers increases. Simple subscriber reporting, while still difficult to do accurately, no longer suffices. Telecom companies need to progress into more complex analytics, incorporating data from multiple source systems for a 360-degree view of the customer. Creating this complete picture allows companies to develop new products and services that meet the changing needs of the market. Understanding prior customer behavior helps a company provide offers that are more personalized and attractive, increasing customer loyalty.

The foundation for performing complex analysis is based on accurate subscriber metrics such as new connects, disconnects, and reconnects. With the basics in place, additional and more complex metrics can be introduced such as migrations, upgrades and downgrades, product-level churn, and even profitability. The combination of these metrics is the cornerstone for more complex data analysis such as predictive behavior modeling.

## ***Rules Engine is Key to Accurate Subscriber Reporting***

In order to effectively manage the complexity of data, systems, and business rules, a common business rules engine is needed. Positioned between the multitude of source systems and subscriber reporting, this engine provides a single point for data definition and translation. By managing all of the business rules in one place, they are easily shared across business units, greatly improving reporting accuracy.

A subscriber rules engine allows IT to remove the hard-coding from individual reports, applications, and systems and be managed in a single location. As the business changes or grows, business rules can be edited or added with ease, greatly reducing IT development time and the risk of coding errors.

The subscriber rules engine serves as a common repository for storing business rules. As the rules are used in data transformation, an audit trail is produced that allows users to trace the data back to its original source.

Once in place, the subscriber rules engine can translate various transactional activities into common metrics for analysis. Sophisticated rules logic is able to link subscribers and activities that appear unrelated in the customer management or billing system. The accurate portrayal of data creates trust among users and reduces the temptation to “game” the system to meet quotas and performance metrics.

Having a subscriber rules engine allows businesses to focus on new and more complex analysis, tracking new products and interpreting customer behavior. Businesses are then free to explore new opportunities by spending more time analyzing the data instead of arguing about it.



## ***What to Look for in a Subscriber Business Rules Solution***

A number of factors should be considered when looking for a business rules solution. Whether developed in house or purchased, the solution should have a single engine that is easy to implement and manage. The business rules solution should support the nuances in telecom data, such as product migrations and bundling. In addition, the solution should be:

**Flexible** - The telecom industry changes continuously and companies must keep up. As new products and services enter the market, new business rules are created and old ones are updated. The engine should make it easy to make changes and add new rules and definitions.

**Scalable** - As businesses grow, existing systems are expanded and new systems are added. It is essential that the subscriber reporting solution be able to handle large volumes of data and accommodate additional growth.

**Compatible** - Whether there is already a data warehouse in place or one is building reports from multiple systems, a subscriber reporting solution should work in any technical environment. It should be compatible with any database system, allowing solutions to be integrated seamlessly.

**Auditable** - New regulations like Sarbanes-Oxley have increased the need for thorough reporting and record-keeping, and subscriber reporting is no exception. Executives are responsible for accurate representations of the business. It is imperative that any subscriber reporting solution be auditable and able to trace any data transformations between the source and the report.

**Vendor knowledge and experience** - Look for an accomplished vendor with several years in the telecom business. They should have in-depth knowledge of subscriber-based businesses, including an understanding of the challenges being faced and the key industry metrics. Experienced vendors bring industry best-practices, making subscriber reporting solutions more relevant and valuable, and saving time having to learn about the business.

With over 10 years of hands-on experience, Scorecard Systems has been in the telecom industry since its competitive infancy.

Scorecard Systems has been working with telecom billing, POS, and service order systems, helping companies find truth in their data. This experience has produced their Subscriber Analysis Application, specific to the tele-

**Scorecard Systems Offers Solution for Subscriber Data**

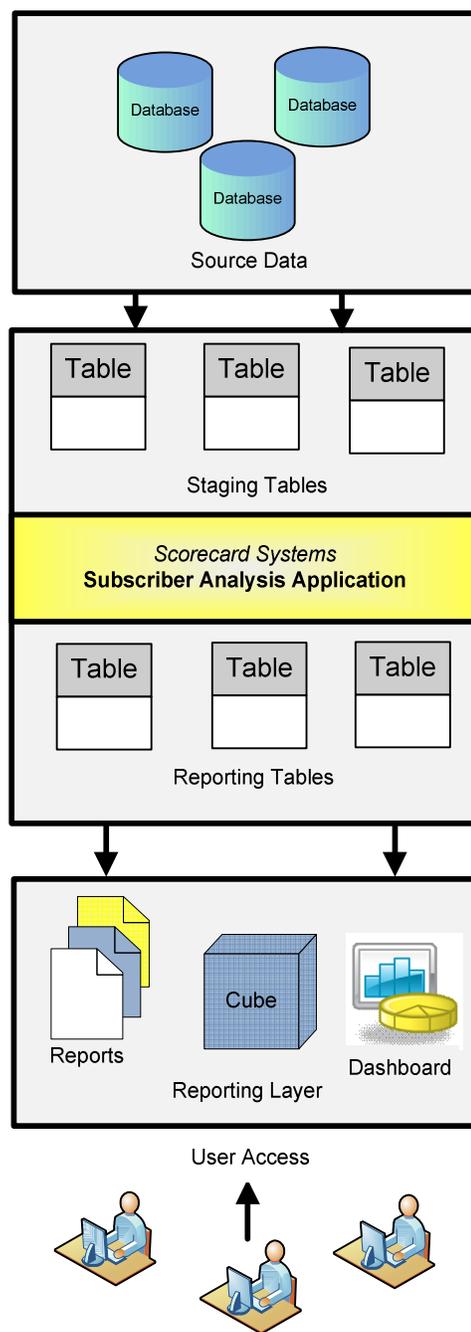
com industry.

Scorecard Systems Subscriber Analysis Application (SAA) provides a single, common repository to easily manage business rules and definitions of subscriber and product level activity.

SAA leverages a table-based methodology, is shaped by years of industry experience, and is customized to fit the particular business and technical environment. SAA can handle the large volumes of telecom data and can scale to fit the growing business.

With SAA, Scorecard Systems delivers a complete solution that includes both software and professional services. A typical engagement begins with a cross-departmental subscriber activity metrics discovery workshop. During the facilitated workshop, Scorecard Systems helps uncover existing metrics and business rules, and shares best practices used in other subscriber-based companies.

With rules and metrics clearly documented, Scorecard's developers work with the IT developers to implement the common business rules engine. Scorecard's Subscriber Analysis Application has the



*Scorecard's Subscriber Analysis Application fits into any business intelligence environment*

flexibility to integrate into any existing BI architecture and can manage feeds from one or multiple sources. Needing only minimal IT help, the SAA application can be up and running in just 90 days.

SAA calculates a nightly delta of subscribers and their attributes, including services and features that were added or removed. It also uses a product map to ensure that features in the same family are linked to track migration paths. Once activity is calculated, the agreed upon business rules are applied and subscriber metrics are made available for reporting and analysis.

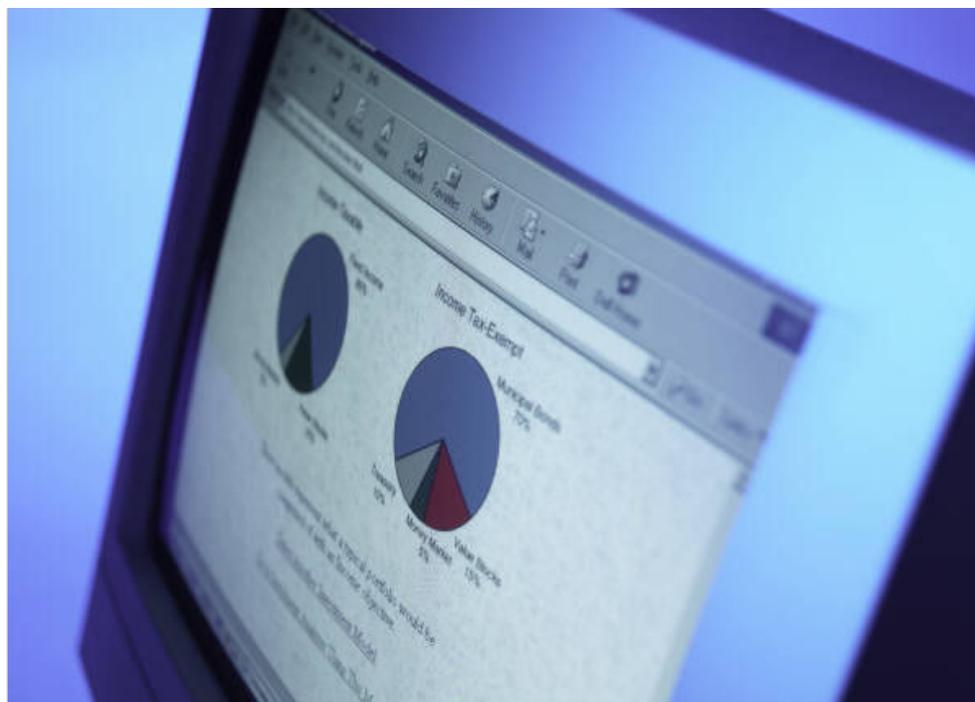
With business rules documented and transformation done in one place, data lineage is quickly traceable in SAA, which provides assurance to auditors that reporting is consistent and accurate. No longer are there disagreements about whose number is right, and executives have confidence in the information that they are given.

In summary, the elusive “single version of the truth” is now on the horizon for telecom companies.

## ***Move toward the Single Version of the Truth***

A single, common business rules repository allows companies to manage definitions and ensure consistent reporting across various business units. Consistent metrics across departments and systems, allow companies to spend time performing complex analysis instead of data reconciliation. With a solid view of the customer, companies are better able to respond quickly to the increasing competition in the market.





To learn more about using Scorecard System's Subscriber Analysis Application to improve subscriber reporting and analytics, contact them at +1 905 737-8378, or visit their website at [www.scorecardsystems.com](http://www.scorecardsystems.com).

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Scorecard Systems is the leader in reporting and analysis solutions for telecommunications companies and has been helping telecom companies produce accurate subscriber metrics since 1996. We support landline and wireless telcos, cable, satellite, and internet providers around the globe. Our solutions drive deeper, more accurate analysis of customer activity, reduce commissions and acquisition costs, and put analytical ability in the hands of end users.

