# Integrated Revenue Optimization  - The Next Step in Communications Service Provider Competitive Advantage

## Introduction

Most Communications Service Providers (CSPs) have in-house functions for revenue assurance (RA), cost and margin management (CM), and fraud management (FM).  In incumbent providers, these departments grew up as separate adjuncts to traditional CSP operations, and with those disparate origins came unique staff skills and knowledge, operational processes and vernacular.  Similarly, software applications—whether vendor-supplied or developed in-house—addressed these functions uniquely.

More recently, advances in server, database and analytical software technologies have promoted the development of multi-function platforms.  Vendor solutions harness the similarity of input streams, data management techniques, case management, workflows, and even output requirements to consolidate the software under one proverbial roof. But for most established CSPs, the functions remain distinct. It is only in the emerging markets, where these functions may not be as entrenched, that platforms are being installed with multiple component applications.

There exists now an opportunity to learn from this experience and consider the future direction of RA, CM and FM. Instead of multiple entities, each with its own application, CSPs are urged to consider the emerging domain of 'integrated revenue optimization'. Done well, this function will improve a CSP's top line, provide valuable input to company strategy and improve the customer experience.

## The Origins and State of RA, CM and FM

To understand how these functions reached this point, a brief review of their origins is warranted. Consider the following:

*Revenue Assurance:*   In the mid-1990's, as retail per-minute rates plummeted in the mature economies, CSP billing operations staff began to look for improvements to overall costs.  In so doing, they targeted process and system gaps that resulted in revenue 'leakage', that is, services properly provisioned and in operation that were not being invoiced to the customer.  This was usually due to an error in the 'business' side of an order that prevented its completion. Initial efforts consisted of comparing files of call detail records (CDRs) from the switches or mediation system(s) to those accompanying a bill.  For the accountants, this understatement of revenues represented a perilous drain on margins, as the CSP had incurred all the costs associated with the usage, but was receiving no compensation for same.

Once the switch-to-bill reconciliation issues were uncovered, billing operations and IT personnel rushed to plug the leaks and implement preventive measures against future leakage.  Root cause analysis of subsequent problems revealed an overabundance of errors, such as: features that were not ordered but activated; rate table input mistakes; and hastily-launched services lacking equipment returns processes.

Within 10 years, most major CSPs had RA teams and some collection of automated tools in place. Owing to the significant recovery of revenue, the RA function took on C-level significance and teams

began to track down and remedy weaknesses across the entire 'order to cash' lifecycle. Today, revenue assurance systems are in place to automate the audits and quality checks expected in an operational environment. Many years of learning have been instantiated in the software, with some providing status dashboards on daily operations, alerts for out-of-balance conditions and even automatic short-term corrections that may later be corrected in the source application or process.

***Cost and Margin Management:*** Since Revenue Assurance is about retail Accounts Receivable, Cost (and Margin) Management is about Accounts Payable for access and interconnect charges from other CSPs[1]. Following the first wave of CSP privatization in the 1980's, CSP finance departments began to dig deeply into these access and interconnect charges as a way to reduce network cost, which in traditional networks averages 45 percent of revenue. That's a 45 percent inventory cost, even before the other Cost of Services items are taken into consideration. For many CSPs, saving just one percent on Cost of Services adds roughly four percent to profits, making the CM function clearly worth the investment.

Today, CM applications automatically ingest files and match supplier invoices to access circuit inventory, carefully considering circuit location, specifications and start/stop dates. It then uses case management techniques to log discrepancies, issue disputes with the supplier CSPs and track the disputed item to resolution. These same applications check feature invoices and call detail from interconnecting CSPs for other measures of settlement associated with some form of reciprocity.

Industry estimates generally settle in the three to six percent error rate for supplier invoices. Again, a six percent decrease in costs could have the effect of one quarter's profit – just by ensuring a tighter payables process.

***Fraud Management:*** Theft of telecom services is no small matter. In its most recent survey, The Communications Fraud Control Association (www.cfca.org) estimated 2009 worldwide losses due to fraud at as much as $US 80 billion, up a whopping 34 percent from its 2005 survey and estimated to be 4.5 percent of total CSP revenues.

FM is an investigative activity that never ends, one that yields deeper insight with every increase in sophistication. Moreover, the kinds of fraud that are perpetrated against operators continually change. In the 1990's, fraud was rampant in calling cards and PBXs. As mobile services gained market favor, phone and SIM card theft, account hacking, and roaming fraud all increased in kind. And some mobile resellers perpetrated 'dealer' fraud by establishing bogus customer accounts, selling equipment and services to those phantom customers, collecting the sales commission and then disconnecting the account and sale prior to the CSP's account update cycle. This yielded millions in dealer commissions for non-existent customers.

Much like RA and CM, Fraud Management (FM) began in a unique operational department: Network Security. CSPs generally built their own FM applications and housed them in a physically distinct infrastructure as the ultimate form of data security. By the 1990s, FM vendors began to arrive on the scene; and today, many RA suppliers also offer FM products as part of their overall platform.

Central to an FM application's value is its ability to scan billions of network events to identify patterns of activity. Today, FM applications continually 'learn' and are updated by vendors to incorporate potential fraud scenarios as identified by industry participants.

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[1] This is not the same as interconnect/settlements/partner management activities which are wholesale billing functions from one CSP to another.

## The Whole is Greater Than the Sum of Its Parts

Given the origins and current states of these functions, it is safe to say there is meaningful overlap in the source data and operational functions used in RA, CM and FM as depicted in Figure 1 below. Clearly, event records such as CDRs[2] are essential for understanding ongoing activity, whether legitimate or fraudulent. Additional input such as customer account data, orders, supplier invoices, network inventory records and contract terms, for both customers and suppliers, form the basis of a robust effort, be it RA, CM or FM.

**Figure 1 – Data and Function Overlap Abounds Today**
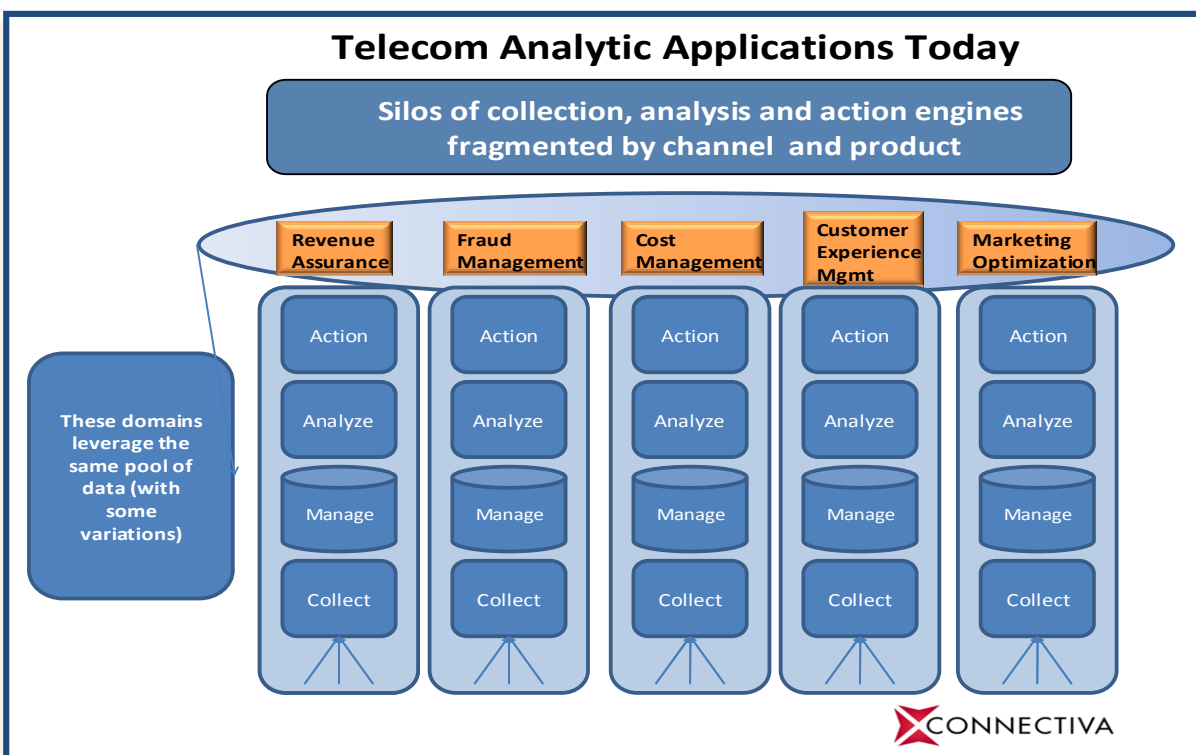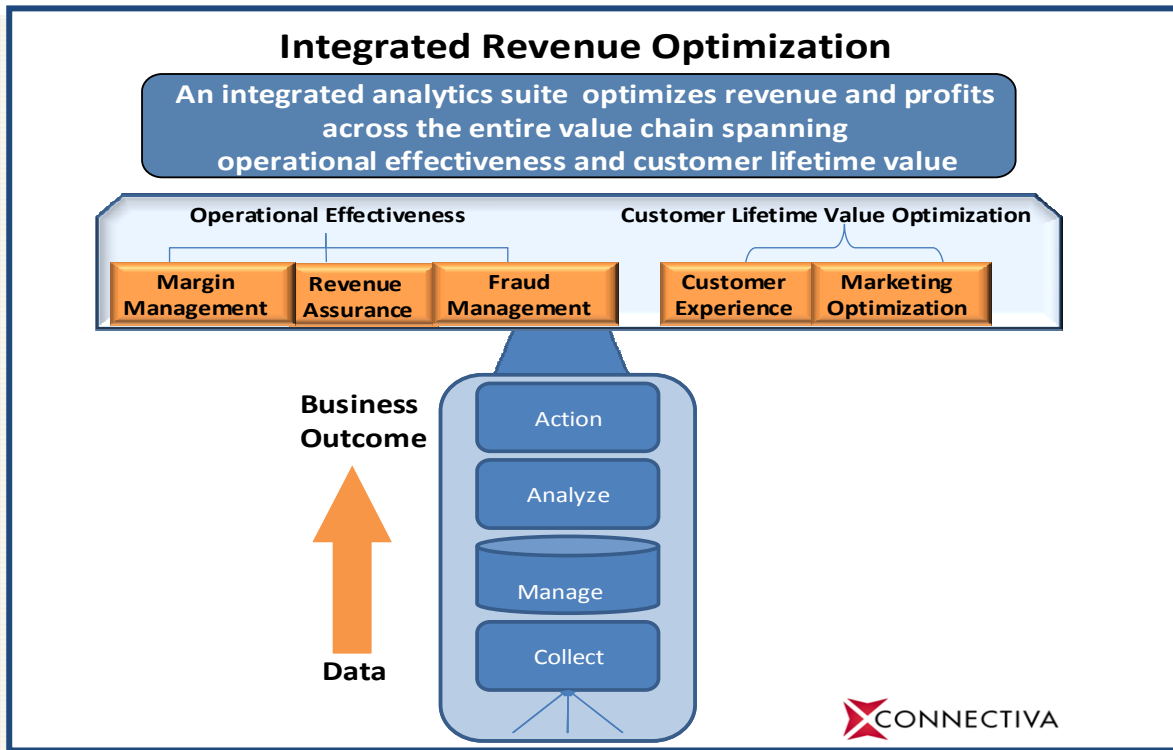


*Source: Connectiva Systems*

And with today's IT capability, Stratecast believes it is wise to reconsider discrete applications for these overlapping functions, in favor of a base platform that orchestrates the supporting activity, such as:

- Data acquisition, such as ETL (Extract, Transform & Load)

- Database Management (administration, data dimensioning, troubleshooting and tuning)

- User Management (role-based permissions & hierarchies, usage logging, violation alerts)

- Platform Management (configuration control, production logging, tracking & maintenance)

- Output & Visualization (reports, dashboards, process control thresholds and alerts)

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[2] Correlated packets from an IP infrastructure are generally referred to as 'IPDRs', and collectively, network transaction records of all types are known as 'xDRs'. In this paper, the term 'CDR' is used to represent the entirety of the type.

As depicted in Figure 2 below, these common supporting functions can then be connected to mission-specific activities for RA, CM & FM.

**Figure 2 –Support Functions May be Combined for RA, CM & FM**

Understandably, FM requires a level of user and transaction security that is unique to its function, but again, Stratecast is persuaded the appropriate technology controls exist to ensure adequate 'firewalls' are put in place.

The benefit, of course, is a common audit platform that exists to oversee CSP operations, whether in real-time, near-real-time, batch or ad hoc mode. This 'chassis' of data handling logically pays for itself with the first vertical application, yielding an operating cost 'free ride' for additional applications. Further, application and output/visualization functionality such as reconciliation, case management or dashboard activity can be shared across the applications. Finally, it is foreseeable that some functions may operate together, wherein the functionality is combined into a single report, dashboard or application workflow. Examples include cost to revenue matching, order to invoice reconciliation and a consolidated operational system of process alerts or revenue recovery meters.

## Enter The Revenue Optimization Platform

With the notion of a cross-functional platform in place, CSPs are encouraged to embrace the value of 'revenue optimization', that is, the ability to maximize revenue and margin and minimize costs at every turn. Analytical capabilities augment the standard operational fare by evaluating revenue, cost and profit margin at more discrete levels, such as by bundle, offer, product, or even customer. Once this is seen as possible, the next intuitive leap is to evaluate the likely combinations of services and features favored by one's customer base. It is then just a small step to actually forecast—or predict—the likelihood of a new offer being accepted, based on prior experiences. Once these small steps—and those like them—have been taken, a CSP has the fundamentals for a Revenue Optimization Platform, as seen in Figure 3 below.

**Figure 3 – Combine Functions to Reduce Overlap, Take Advantage of Synergies**
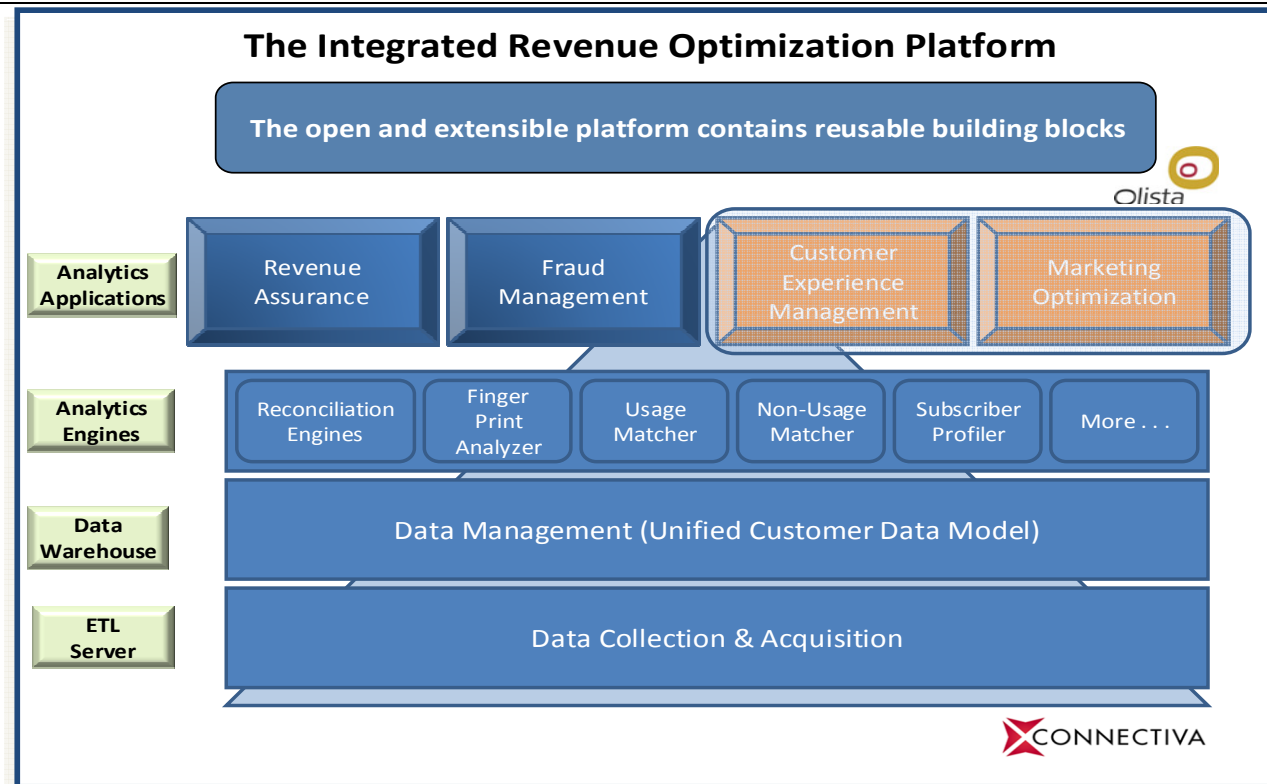


*Source: Connectiva Systems*

In fact, several CSPs have extended their operational audit activities such as RA to an integrated optimization role. For example, orders, usage, network cost and account data are evaluated so as to provide feedback to product managers on demand. Within a day or two of an offer or promotion launch, these executives can monitor offer take-up, according to any characteristic they choose, such as geographic regions where competition is most intense, buyer demographics, service/feature/handset combinations or any other combination of attributes that can be discerned from the input data. They can also see if customers are switching from other offers that may be more or less profitable. With this near-real-time view of the market's acceptance of an offer, progress can be tracked to ensure optimal

profitability.  In earlier days, these same product managers would have had to wait 60 or even 90 days for this data to come out of the billing cycle for revenue-only reports that may have been of little use in tracking a 3-month promotion.  And these engines are big *and* fast, capable of handling hundreds of terabytes of data in seconds, rather than hours or days.

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### The Last Word

Revenue Assurance (RA), Cost and Margin Management (CM) and Fraud Management (FM) each grew out of their respective core functions, and by way of extension, each with their own way of doing business.  While not inherently bad, the overlap in data did eventually prove inefficient.

**Today, Stratecast is persuaded there is a better alternative, i.e., a common data, user and platform management activity for maximum re-use of the underlying RA, CM and FM structure**.  Likewise, there are application analysis and case management/workflow functions that are reusable across these functions, other than those specifically required for fraud data security.  Done well, these functions graduate from post hoc investigations to predictive and pre-emptive moves to forestall fraud, minimize network overpayments and ensure all rightfully owed revenue is billed.

Taken to the next logical step, this platform becomes the basis for an Integrated Revenue Optimization activity, one that seeks out opportunities to reduce cost, eliminate fraud and maximize profitability for a CSP.  Technically speaking, this is all within reach.  The remaining obstacles concern process integration, organizational alignment, and the necessary negotiation across departments.  Make no mistake, this is not insignificant change, but it is available to those willing to move in this direction.

Lastly, given the strength of its data handling and inherent forensic analytical capabilities, it is reasonable to consider the Integrated Revenue Optimization platform as the foundational element in a longer term Customer Experience Management environment, where network service quality data is co-mingled with internal operational results so that the customer care agent or other CSP representative is given the full 360-degree view of the customer so necessary to ensure a satisfactory experience.

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