IJournals: International Journal of Social Relevance & Concern
ISSN-2347-9698
Volume 5 Issue 12 December 2017

Revenue Assurance for 3G - An Introduction

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Introduction

The reducing ARPU from voice services is driving and will continue to drive the need for data services which are not only innovative but also have a value proposition for the Indian consumer. The new subscribers are going to come from the rural areas and if they have to be catered to, the operators need to provide locally relevant content. This is possible only if greater bandwidth is available. Hence, the acceptance of 3G will be a turning point in the Indian telecom industry.

The technical issues surrounding the delivery of 3G services to customers are complicated and they often strain a company's resources. Even after those services have been deployed, many telcos find that it is still very difficult to ensure that those 3G services are being accurately billed for and collected.

There is a major shift occurring in the role of modern Revenue Assurance. It is morphing before our eyes from a passive, reactive group that looks for lost seconds and misplaced pennies, to becoming a dynamic first line of defense, responsible for identifying and anticipating major revenue failure exposures created by the too rapid deployment of ill conceived products, untenable billing models, and unreasonable and overly complex rate plans.

Contents

What is Revenue Assurance ?

Revenue Assurance is a combination of organizational structure, processes, technology and information responsible for monitoring the revenue process. Its activities are designed to provide assurance that business processes and systems are performing as developed, in order to:Reduce the risk of revenue leakage, by ensuring that risks have been identified and appropriately addressed.

- Promote operational efficiency, by analyzing processes and systems, identifying gaps and design flaws which drive up operating costs.

- Effectively communicate business risks to management, in order to allow informed decisions and eliminate surprises (dashboard/monitoring).

Need for Revenue Assurance

Merger Pressures :

Facing the continuous scrutiny and pressure from regulatory authorities, telecom operators need to report there shareholders and public the proof of the numbers .In some countries they need to specifically report to Internal Audit process.

Regulatory Act :

Telecom Authority of India and Department of Telecommunication guidelines makes this a mandatory activity for all telecom service providers.

Profit Pressures :

The Telcos are facing tough competition on one hand and on the other hand the revenues per user are diminishing, in this scenario they need to understand where they have missed the revenues and in future how these leakages could be plugged and prevented.

As per industry study every year on an average a Telecom operator losses 8- 10 % of there revenue by not being able to bill customers for the services provided. These losses turn into billion of dollars every year

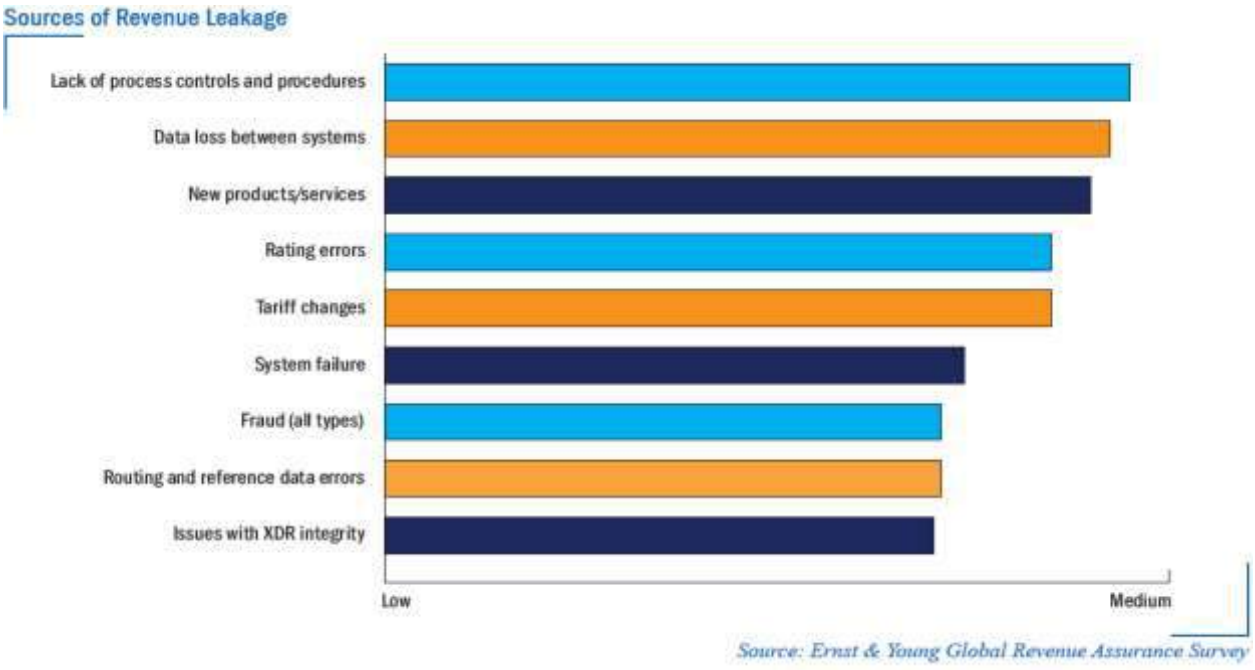
Innovation Pressures :

For telecommunications companies, the last five years have generated more radical innovation of network infrastructures and business operating assumptions than all the years before that combined. Each month, hundreds of new technologies, products, price plans, and marketing approaches force network and systems managers to continuously stretch and challenge their revenue management capabilities. As the rate of this innovation increases, the failure rate for RA systems will undoubtedly grow as well.

Time to Market :

Finally time to market remains a vital factor for launching new products and services. Correspondingly it needs to be monitored whether the benefits of the services have passed to the relevant beneficiary.

Sources for Revenue Leakage



Where do leakages occur ?

Lack of process controls and procedures

Data loss between systems

New products/ services

Rating errors

Tariff changes

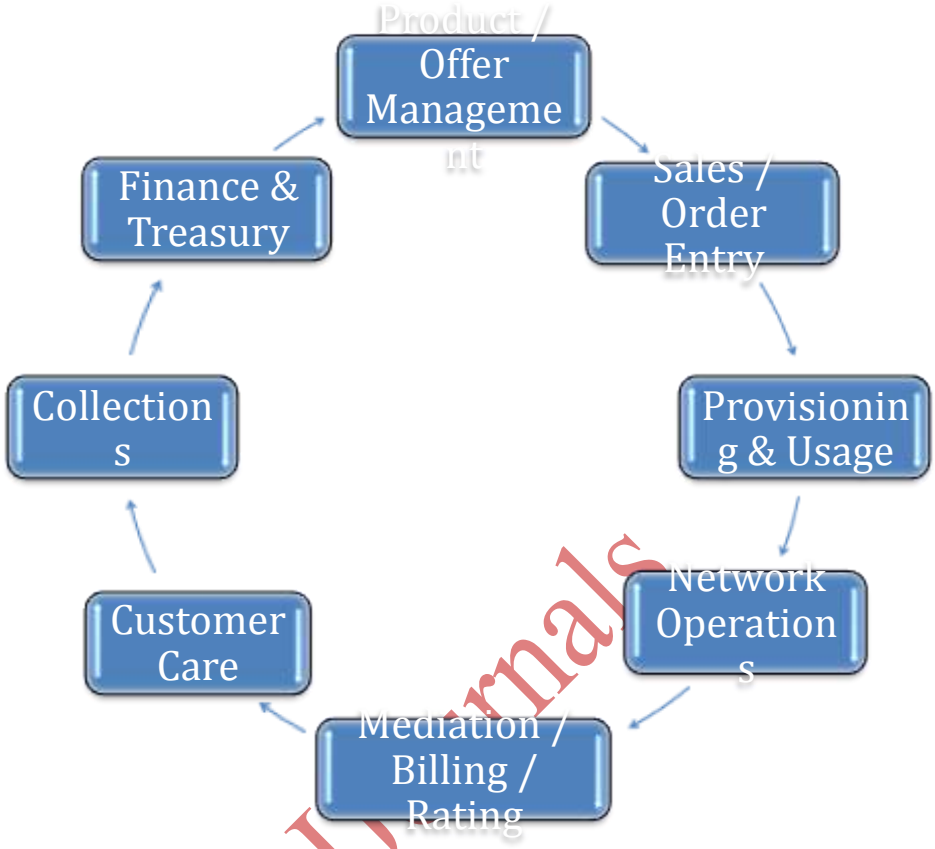
System Failure

Fraud

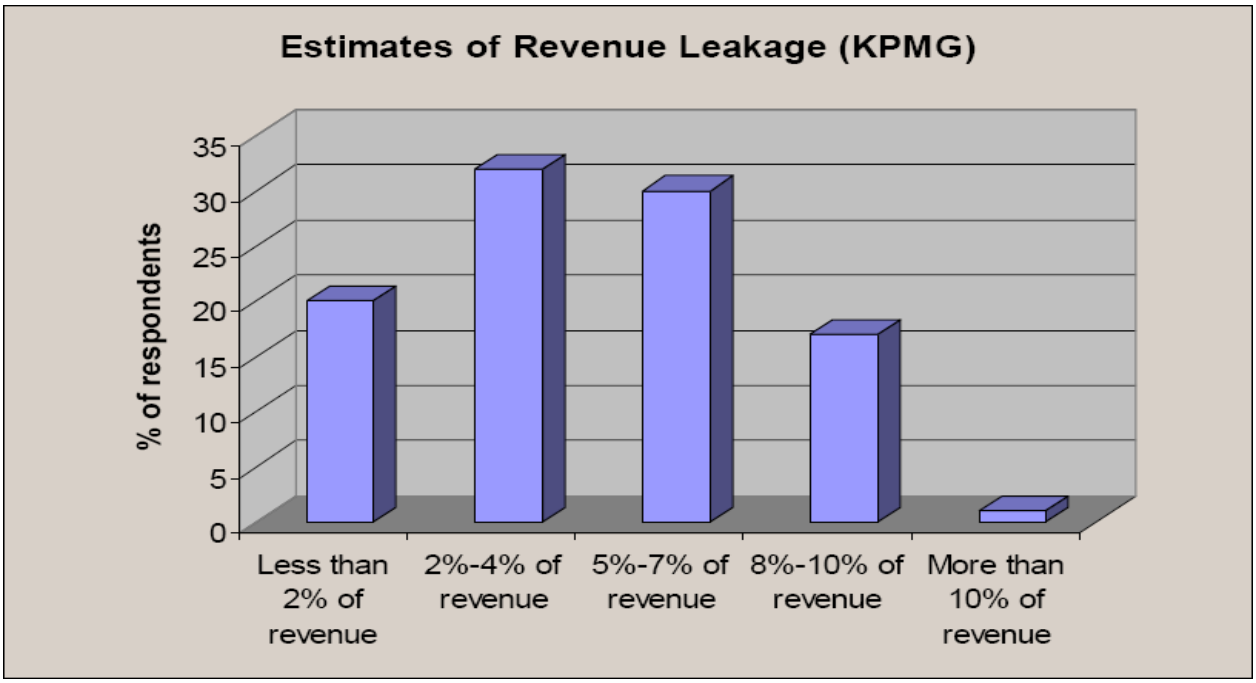
1. **Network Related**
   - ✓ Signalling error on switches
   - ✓ Call records not passed from switches
   - ✓ Call records not processed correctly by Mediation
   - ✓ Call records not processed correctly by Billing system
   - ✓ System Errors
   - ✓ Data Corruption
   - ✓ System capacity mismatches
   - ✓ Failure to activate or provision the customer properly
   - ✓ Failure to track customer activity properly
2. **Mediation Related**
   - ✓ Failure to filter records correctly
   - ✓ Failure to balance batches
   - ✓ Failure to clear suspense files
   - ✓ Incorrect application of policies
   - ✓ Incorrect formatting of CDR to forward
   - ✓ Dropped records
   - ✓ Duplicated records
3. **Billing Related Leakage**
   - ✓ Confusion over who bills what
   - ✓ Usage beyond billing stop
   - ✓ Incorrect call plans
   - ✓ Incorrect pricing tables or pricing plans
   - ✓ Over Discounting
   - ✓ Billing Errors
4. **Other Areas**
   - ✓ Poor suspense management
   - ✓ Incorrect Billing set up

- ✓ Late Billing
- ✓ Correct amount, wrong currency
- ✓ Billing the wrong elements(e.g. Volume instead of duration)

Order to Cash Process



Estimate of Revenue Leakage



Revenue Process Flow

Components of RA Framework

Revenue Assurance Vs Fraud

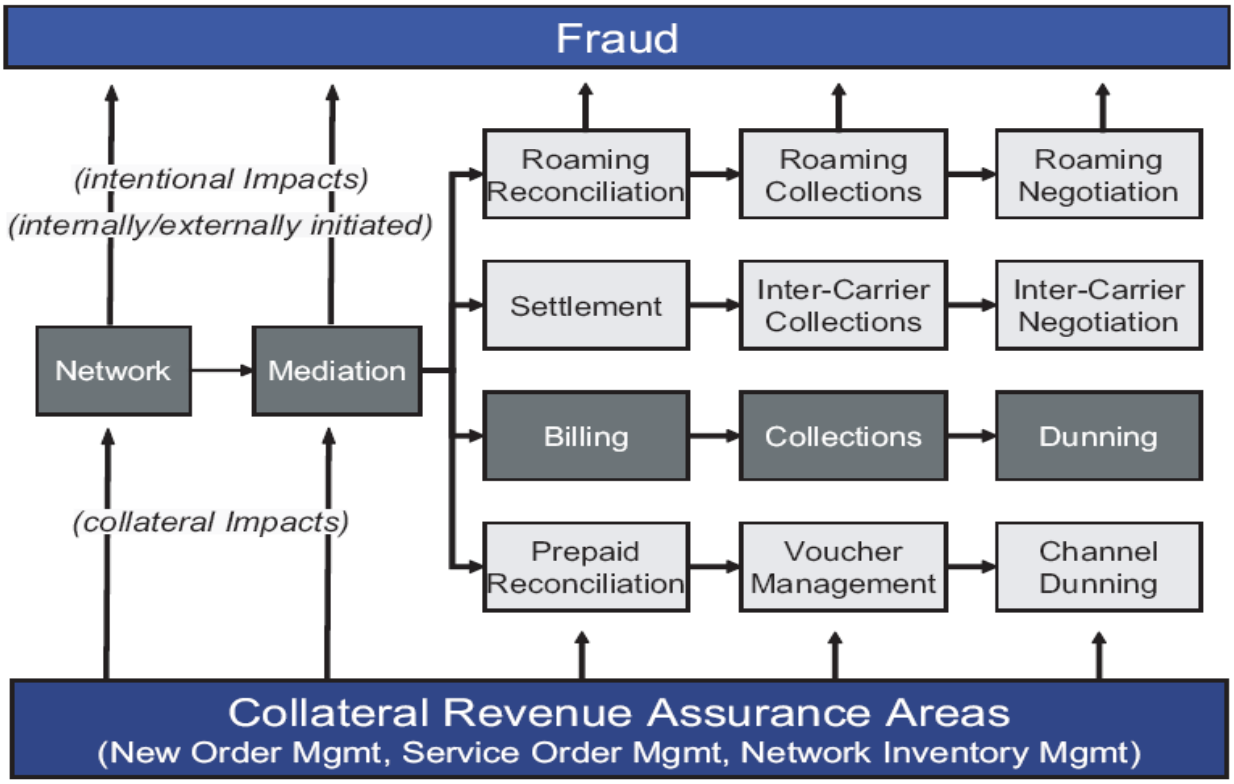
Traditionally, most CSPs identified fraud management as a priority in the early days of operations. The early focus and implementation of systems contributed to the development and maturity of fraud management practices and systems. Although there is a clear relationship between fraud management and revenue assurance. Fraud management has evolved as a separate function, often under different department and sponsorship within the organization. Industry-wide, there is consistency in the approach and system functionalities for fraud management.

Revenue Leakage in any CSP's operations can be grouped into 3 categories:

1. FRAUD: Deliberate intention to avoid payment

2. REVENUE ASSURANCE: mainly due to operational inefficiency in the system

3. BAD DEBTS: Combination on intentional and unintentional revenue loss



Objectives for Revenue Assurance Activities

Leakage Management

- Investigate a suspected leakage situation and determine the extent, risk and root cause associated with it.
- Determine appropriate treatment of a known leakage solution.

➢ *Techniques to handle : Investigation & Correction*

Risk Management

- To assure management that there is no leakage in particular area.
- To determine probability that leakage is occurring in an area.
- To identify potential leakage situation at the earliest and effectively escalate it for leakage management.

➢ *Techniques to handle : Monitoring, Auditing, Base lining*

Leakage Prevention

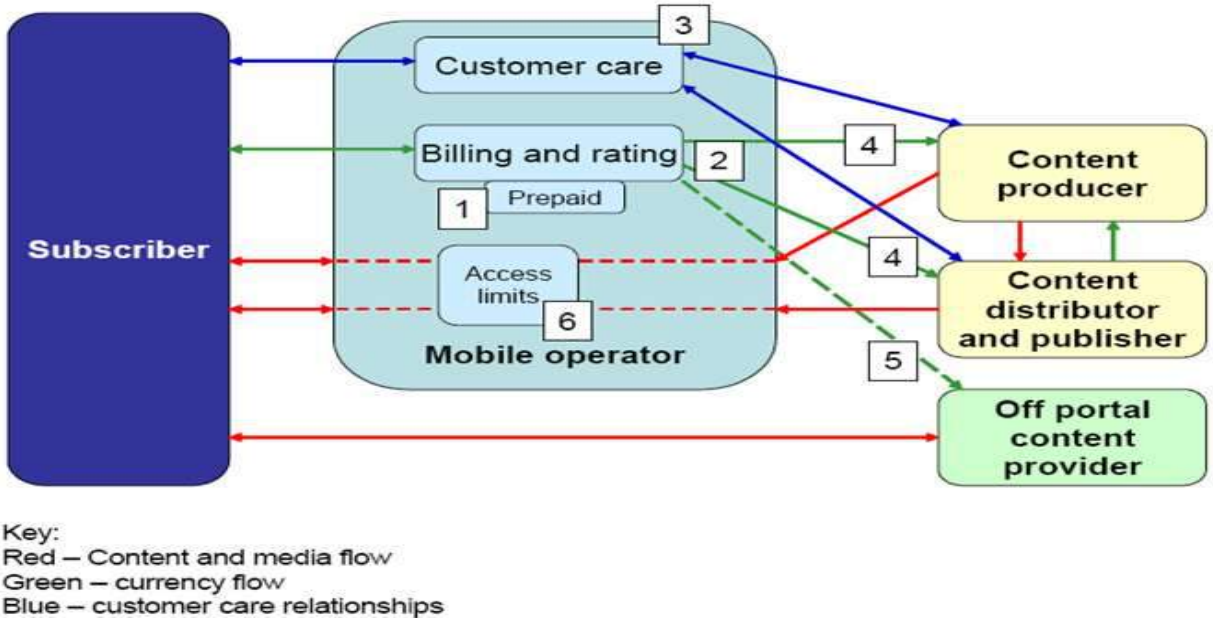
- Identify areas where leakage might occur in the future and take preventive action for the same.

➢ *Techniques to handle : Auditing & Synchronization*

Revenue Leakage Points in 3G Network

Location	Main Leakage Types
Switches, Voice Roaming	Data Loss
SMS Handling, E-Mail Usage Billing	Data Loss
CDR Mediation	Data Corruption
Voice Call Billing	Rating Errors
Voice Call Settlement, Push Advertising Invoicing	Statement Errors
Pre-paid Calling & Roaming	Fraud
File Transfer Billing	Quality of Service Errors
Micro Payment Billing & Micro Payments while roaming	Fraud
Micro Payment & M-Commerce Settlement	Statement Errors
Credit Card Settlements	Transaction Repudiation
Clearing House Charges	Statement Errors
VAT Collection & Settlement	Overpayment

Revenue Leakage Points in Mobile Content & Media Value Chain



3G Billing Challenges

1. Business model challenges

When you move into 3G services, however, you are generally forced to integrate third parties into the mix.

Most telcos do not have the ability to deliver the content services (weather, news, sport, gaming, etc.) that are the backbone of most 3G offerings. Because of this, the telco must develop business models and partnerships with vendors that clearly define:

• the roles of the content providers and carrier

• how the services will be delivered to end users over the network

• how the volume and nature of the delivered services will be tracked and reported

• how the services will be billed (by whom and at what rate)

• who will be responsible for collections and credit risk

• and a myriad of other issues

2. Unit of Billing challenges

In the traditional voice world, billing computation is multiplying the billing rate by the duration of the call. The entire billing system infrastructure is based on capturing and computing for this simple equation and is based on the processing of call detail records (CDRs).

As you move into the 3G product range, you depart from this simple formula. 3G billing involves a wide range of complicated calculations that are all specific to the type of delivered product.

Some different billable amounts are based on:

• Number of messages sent or received (by time of day or day of week)

• Number of email messages sent or received (by the type of message)

• Internet access times (by flat rate or by hour range)

• Content delivery (weather, news, sports) (by event)

Music or video (per file or by MB)

• Personal video transmission (per MB)

• Location based services (per file, per customer response, by city)

• Pay by mobile (per transaction or by percent of transaction amount)

The job of revenue assurance (RA) for 3G billing is made many, many times more complicated by including all of these different calculations in the billing process.

3. Transaction tracking challenges

- To support the variety of intricate calculations involved in 3G activities, the telco billing system must identify the sources of information for each variable and then be sure that it is captured, forwarded and processed correctly.
- Keeping track of voice transactions is simple because the switching systems in place all work to create accurate CDRs. But keeping track of non-CDR based events can be significantly more difficult.
- The underlying telco infrastructure is incapable of tracking the majority of the 3G products. The telco network knows that a customer is hooked up to the system, but it doesn't know what that customer is doing.
- To secure the information about 3G billable activities, telcos must build entirely new revenue management chains. For each service being delivered, the telco must know:

- Where the information about the event will be captured
- How it will be stored and forwarded to the billing system
- How it will be processed
- How the integrity of this chain of events will be assured
- For some 3G services, the billing system manager can find the information required within the Intelligent Network (IN) system. For most others, the carrier must depend on the third party service provider.
- In all cases, an entirely new system will have to be built to feed the needed information into the billing system.
- **4. Billing Calculation challenges**
- After all the information about 3G transactions is collected, the billing system will usually need to be modified to perform all of the calculations required.
- The logic associated with many of these calculations will be complicated and full of exceptions and special cases that make accurate computation difficult.
- **5. Billing Calculation challenges**
- After management figures out exactly how all of this billing should be done, it then must check and double-check to make sure that these complex new activities are working correctly.

Fraud Issues in 3G

Subscription Fraud: e.g. Fake ID

Credit card fraud on M-Commerce: e.g. Purchase of goods and service and avoid payment

Micro-payment Fraud: e.g. Purchase goods using micro payments and default on the payment.

Premium rate services (PRS) Fraud: e.g. Pornographic sites and phone lines

Copyright Infringement and Content Resale Fraud: e.g. Privacy issues

IP Security Issues and Law Enforcement Issues in 3G

Hacking

DoS (Denial of Service) Attack

Virus, Worms, Trojans

Data Interception

Database Attacks

Spam

Social Engineering

Multimedia Messaging and Terrorism

3G Prepaid Services and Money Laundering

Multimedia Messaging and Paedophilia

. Conclusion

Telecoms are facing squeeze in profit margin for the services offered through competition and expansion of newer technologies. An effective strategy to secure and increase revenues is required through revenue assurance tools. Telecoms have to look in to advanced revenue assurance technologies to track down and prevent revenue leaks across value chain. Revenue assurance implementation needs to be aggressive and as an opportunity.

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