



White Paper

# Invoice Verification through Structured Test Data



## Introduction

With the introduction of a large number of tariffs and packages, it has become necessary for telecom operators to monitor their invoicing processes. However, due to the complexity of the processes involved, it is necessary to identify an effective and efficient strategy for invoice verification without the cost and complexity of running a full shadow billing process. Subex, with its experience in revenue assurance across different markets, recommends invoice verification through structured test data for efficient verification process.

## Key Objectives

The following are the key objectives of implementing a solution for invoice verification:



All customers are invoiced



Invoice components are accurately reflected



Invoice calculations are accurate

## Key Concepts of Structured Test Data Verification method

The key concepts behind this proactive approach are as follows:

01

### Proactive approach to billing and invoice verification

The tests are performed before every invoice cycle to ensure that all tariff elements are applied correctly. This provides confidence to the billing team and management in assuring that issues are detected and corrected proactively, prior to generating invoices thereby minimizing any impact on the subscriber base.

02

### Monitor the rate plans and invoice types that are used by most customer segments

This ensures that the cost of monitoring and identifying these problems remains in line with the benefits to be achieved using this process.

03

### Use known test data that allows efficient analysis

This also ensures that all scenarios are captured correctly. This is more advantageous than the traditional approach as scenarios that are not covered by the subscriber calling patterns are also addressed.

## Structured Test Data Verification Process

The process is carried out in the following steps:



### Identification of tariffs and packages for testing

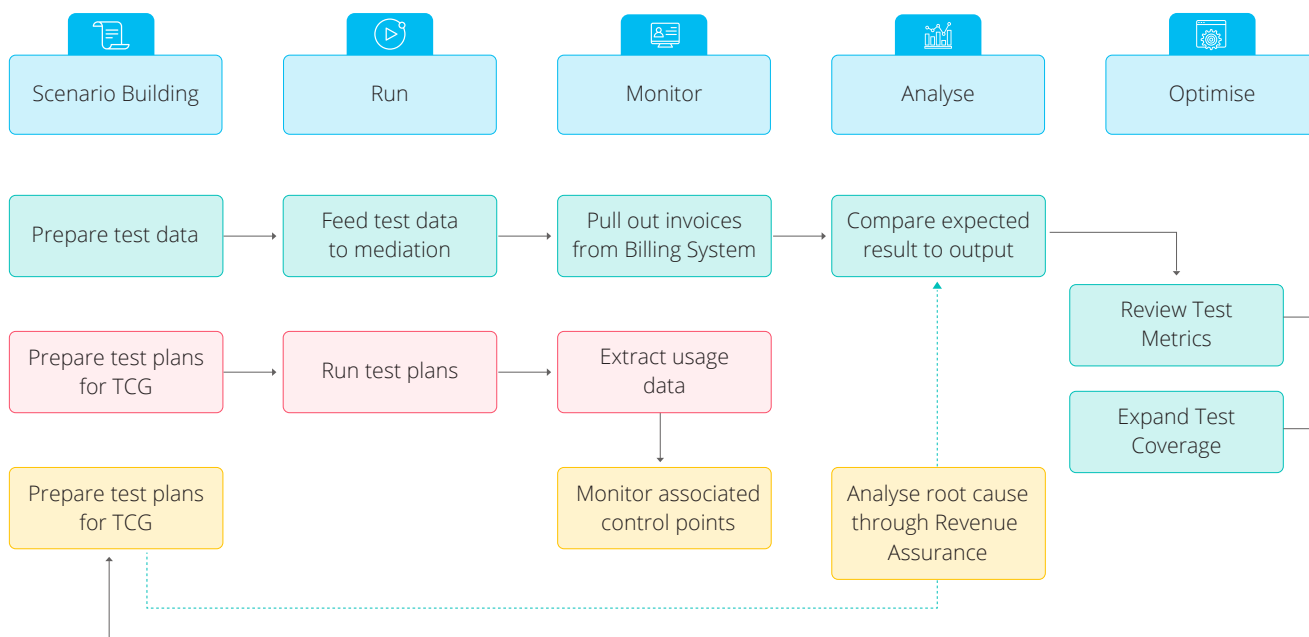
The identification should be based on the usage and contribution to the revenue stream. This ensures that the major revenue impacting issues are detected early.



### Preparation of test scenarios

The test scenarios can be generated based on the following parameters

- The rate plans that need to be supported
- Traffic scenarios that need to be supported. This can be derived from the traffic point table.
- Billing scenarios according to the business rules that correspond to each type of rates applied.



### Preparation of structured test data

The test data can be prepared in multiple ways

- **Using test call generators:** In this method, a test call generator can be configured to generate specific set of know calls to emulate different calling scenarios. This approach can also detect inaccuracies in metering and logging of events by the network.
- **Using test files:** Test files containing call details corresponding to the subscriber being tested. In this method, a file containing calls corresponding to the tested scenario is prepared. Revenue Assurance analysts can reuse this call file by modifying the parameters of the call to adapt to a new scenario. This file is fed into the mediation system for downstream elements, i.e. Rating, pricing and invoicing

to process. This file can represent specific scenarios such as calls affecting tax calculations, conditions that result in creation of different billing flags that are used for tax calculations, different rate plans, specific discounts, special EDR fields that affect tax per event (indicating special services or specific conditions such as region of call)

The base test data can be modified to address new scenarios thereby increasing the coverage.



### Verification of the calls and invoicing process

- The calls are collected by Subex Revenue Assurance from various systems such as mediation, billing system and filtered using queries and automatically verified. This ensures that all usage components of the invoice are accurately accounted.
- Comparison of the test number invoices with the expected result

In addition, Subex recommends configuration monitoring of the following control points to augment this process through regular functions of Subex Revenue Assurance

Verification of the number of invoices generated with the total number of subscribers who had activity in the network. This ensures that all customers are invoiced.

Verification of the provisioning of customers between billing and network to ensure that all customers who have activity in the network are being billed for the services, especially the recurring charges.

Verification of new subscribers to the one-time charges applied to ensure that all one time charges are applied.

## Components in Subex Revenue Assurance to support the approach



Data adapters that can take data from various systems including output of test call generator.



Import of test results using reference table update.



Query Filters to filter the data corresponding to the test calls based on one or more parameters in the CDR



Measures that allow automatic comparison of call details between multiple control points.



KPIs that provide automatic alert to the analysts if problems are detected

**Subex's revenue assurance system has the ability to utilize the structured test data methodology for invoice verification.**

## Advantages with Structured Test Data Verification Method

The Structured Test Data Verification method provides the following advantages:



**Easy analysis and faster resolution:** This method provides controlled data for analysis. Here the variables are known and controlled.



Proactive approach allowing operators to identify and correct problems before they affect the revenue chain. The tests can be performed at any time rather than waiting for the bill cycle to commence.



Wider coverage for the most important and revenue impacting invoicing and billing component by virtue of choosing the data rather than depending on the calls generated (purely driven by the calling pattern during that time).



Low cost of maintenance as the system does not require high and continuous involvement of the billing team to maintain and run the shadow billing system.



More structured and effective analysis as the design of the test data aids root cause analysis.



**Control for the Revenue Assurance team:** As all the functions are being performed by the Revenue Assurance team, they have better control over the entire testing process than wait for process completion from different teams.

## Disadvantages with traditional approach of Invoice verification

Although the traditional approach was effective during the early days of revenue assurance, due to the increasing complexity and load conditions in the billing system, this approach is proving more and more ineffective. The following are some of the disadvantages of this approach:



Billing systems typically handle high amount of complexity to accommodate modern rate plans and packages.



Having a shadow billing and invoicing system requires a second full billing infrastructure to monitor the existing system together with a configuration team almost as large as a billing system configuration team.

- Importing rating information automatically into the system allows all errors in the billing system into the verification system, thereby rendering it ineffective.
- Continuous maintenance of fully fledged shadow rating and invoicing system requires analysis.

## About Subex

Subex is a telecom AI solutions company enabling Communications Service Providers (CSP) across the globe to create connected experiences for their customers. Founded in 1994, Subex has spent over 25 years helping CSPs maximize their revenues and profitability. With a legacy of having served the market through its world-class solutions for business optimization and analytics, Subex is now leading the way by leveraging AI to create connected experiences in the business ecosystems of its customers.

Through their HyperSense line of offerings, Subex empowers communications service providers and enterprise customers to make faster, better decisions by leveraging AI across the data value chain. Subex leverages its award-winning product portfolio in areas such as Business Assurance and Fraud Management to help CSPs reduce risk, combat fraud, and thereby ensure profitability.

Subex also offers scalable Managed Services and Business Consulting services. Subex has more than 300 installations across 90+ countries. For more information, visit [www.subex.com](http://www.subex.com).

### Subex Limited

Pritech Park SEZ, Block-09,  
4th floor, B wing,  
Survey No.51 to 64/4  
Outer Ring road, Varthur Hobli,  
Bengaluru 560103 India

Tel: +91 80 6659 8700  
Fax: +91 80 6696 3333

### Subex, Inc

1499 W 120th Ave,  
Suite 210 Westminster,  
CO 80234, USA

Tel : +1 303 301 6200  
Fax : +1 303 301 6201

### Subex (UK) Ltd

1st Floor, Rama  
17 St Ann's Road,  
Harrow, Middlesex,  
HA1 1JU

Tel: +44 0207 8265300  
Fax: +44 0207 8265352

### Subex (Asia Pacific) Pte. Limited

175A, Bencoolen Street,  
#08-03 Burlington Square,  
Singapore 189650

Tel: +65 6338 1218  
Fax: +65 6338 1216

Regional offices: Dubai | Ipswich

[www.subex.com](http://www.subex.com)

For more information write to  
[info@subex.com](mailto:info@subex.com)