Find and Stop Revenue Losses from Fraud and System Misalignment

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Global impact of revenue leakage is 1-5%
Magnitude of Impact

Every year, $80 million USD lost due to cable fixed line network fraud in Central and South America.

Average of 1.5% of annual revenue is lost due to fraud. Mid-size operators are 2 times more vulnerable than Tier-1 operators.
Revenue and fraud leakage assessment

% of respondents in the region

- Less than 0.5% of revenue: 40% Revenue leakage, 44% Fraud leakage
- 0.5-1% of revenue: 25% Revenue leakage, 21% Fraud leakage
- 1-2% of revenue: 21% Revenue leakage, 4% Fraud leakage
- 2-5% of revenue: 4% Revenue leakage, 5% Fraud leakage
- More than 5% of revenue: 5% Revenue leakage, 8% Fraud leakage
- Can't assess: 21% Fraud leakage

Confidential and Proprietary Information
What is Revenue Leakage?

Costs incurred from mistakes in the delivery of service to collection of cash.
Causes of Revenue Leakage

- IT Systems Governance
- Organization Maturity
- Network Weakness

Leaks & Fraud
IT System Governance

Every integration point can be considered a point of revenue leak and processes need to be put in place to monitor for and eliminate leaks.
Revenue Assurance Focus Area

Concept-to-Market
- Product Design
- Channel & Partner Management
- Customer Acceptance & Risk Management

Order-to-Cash
- Order Management & Provisioning
- Network Usage & Rating
- Billing

Investor Reports
- Collections
- Customer Management & Disputes
- Accounting

BSS
- OSS
- Network

ERP + BI
- Network Accounting
Role of IT Systems in Revenue Assurance

Order to cash cycle

IT Systems

Subscriber Acquisition  Product Configuration  Service Provisioning  CPE Provisioning  Usage Policy  Revenue Reporting

CRM  Order Management  Activation  Provisioning  Usage and Mediation  Billing

Enterprise Product / Service Catalog

Point of Revenue Leakage
IT Systems Misalignment by Domain

- **Product & Offer Management**: Nearly all covered (36%), Mostly covered (24%), Somewhat covered (35%), Not covered at all (6%)
- **Order Management & Provisioning**: Mostly covered (46%), Somewhat covered (28%), Not covered at all (11%)
- **Network & Usage Management**: Somewhat covered (22%), Not covered at all (7%)
- **Rating & Billing**: Mostly covered (29%), Somewhat covered (17%), Not covered at all (1%)

Legend:
- Green: Nearly all covered
- Yellow: Mostly covered
- Orange: Somewhat covered
- Red: Not covered at all
Types of Revenue Leaks

- **Fraud**: 84%
- **Complexities in the product/service definition**: 84%
- **Mismatch between billing & service Activation and deactivation**: 78%
- **Staff errors**: 78%
- **Problems due to switch/Router/Other network equipment**: 74%
- **Misalignment between different system**: 72%
- **Lack if real-time view Leads to delays in detecting**: 68%
- **Rating errors**: 62%
- **Multiple product catalogs**: 47%
- **Staff fraud**: 44%

Business issues/problems vs. Not a problem
CSP Organizational Maturity

TMF 2015 Survey \ Assessment

MATURITY ASSESSMENT FRAMEWORK (EY)

Revenue Assurance Maturity (based on a 5 step model):

1. Initial
2. Repeatable
3. Defined
4. Managed
5. Optimized

Average maturity score: 3.24
Average Revenue Assurance Maturity Score: 3.24 / 5
CSP Organizational Maturity

<table>
<thead>
<tr>
<th>Maturity Level 1: Initial</th>
<th>Maturity Level 2: Repeatable</th>
<th>Maturity Level 3: Defined</th>
<th>Maturity Level 4: Managed</th>
<th>Maturity Level 5: Optimized</th>
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</thead>
<tbody>
<tr>
<td><strong>Strategy</strong></td>
<td>Increasing formalization of revenue assurance strategies, investments, partners and ROI. RA ultimately deemed as profit center.</td>
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<tr>
<td><strong>Organization</strong></td>
<td>Increasing revenue assurance structure, dedicated team size, skills, and influence.</td>
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<tr>
<td><strong>Processes and Technology</strong></td>
<td>Increasing coverage of and optimized revenue assurance processes. Covering cash, revenue, and margin leakages.</td>
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TM Forum 2015 Assessment
Average maturity score: 3.24
What is network weakness?

A network’s inability to prevent external threats.

(Not unlike your immune system.)
Role of IT Systems in Revenue Assurance

Order to cash cycle

IT Systems

Subscriber Acquisition · Product Configuration · Service Provisioning · CPE Provisioning · Usage Policy · Revenue Reporting

Order Management · Activation · Provisioning · Usage and Mediation · Billing

Enterprise Product / Service Catalog

Point of Revenue Leakage
Role of IT Systems in Revenue Assurance

Order to cash cycle

- Subscriber Acquisition
- Product Configuration
- Service Provisioning
- CPE Provisioning
- Usage Policy
- Revenue Reporting

IT Systems

- Dealer Fraud
- CRM
- CSR Fraud
- Order Management
- Activation
- Provisioning
- CPE Fraud
- Usage and Mediation
- Service Theft
- Billing

Point of Revenue Leakage

Enterprise Product / Service Catalog
High Impact Revenue Leakage Causes

Revenue Leaks

- Abuse of CPE Device
- Abuse of Service Terms
- Human Error or CSR Fraud
- IT System or Provisioning Error or Misalignment

External Threats

Internal Threats
Case 1: Cloned Cable Modem

Top 10 US Operator

Challenge
- Concerns about revenue leakage due to fraudulent access and effect on legitimate subscribers

Results
- Saw decrease of 88% in instances of hacked firmware after deploying advanced device provisioning security
Cloned Cable Modems and Criminal Activity

1. Pro-active detection of clones
2. Detecting clone location and activity
3. Pro-active collaboration with police & cyber crime intelligence agency
Case #2: Service Theft or CSR Fraud

1. Identify misaligned usage and revenue
2. Immediate policy enforcement
3. Trigger investigation (number of connected devices)

Indirect network CAPEX losses
CSR Fraud

Usage per Subscriber ➔ Bandwidth Management ➔ Service Plan/Revenue ➔ Potential CSR Fraud Or IT Misalignment ➔ Service Configuration at Device Level ➔ Provisioning ➔ Provisioning & Activation ➔ Order Management

Product Catalog ➔ CRM / CSR Portal

Service Configuration at Check for any Devices

Home Gateway, MTA, Cable Modem, IP STB
Identifying CSR Fraud and Illegal Service Re-sell

1. Identify misaligned usage and revenue
2. Immediate policy enforcement
3. Trigger investigation (number of connected devices)
0.5% of subscribers are not getting the plan that they are paying for.
Case 3: Misalignment Leaks

Eliminating order fulfillment and misalignment leaks

Configuration alignment from product to service to device

Orchestration & Product Catalog
- Customer or Location
- Plan
- Product
- CPEs

Activation & Service Catalog
- Service
- CPE / Device
- Feature
- CPE Vendor

Device Provisioning

Dynamically Generated Configuration File

Cable Modem
Case 3: Misalignment Leaks

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Device Provisioning

Dynamically Generated Configuration File

Bandwidth Management

Aligning Usage with billing
Identify and Prevent External Fraud

1. Block obvious fraudulent access with device provisioning security

2. Automatically identify other potential fraud

3. Review historical data to confirm unauthorized access

4. Block further unauthorized access from confirmed fraudulent devices
Solution

Points of Leakage Detection

1. Usage
   - Misaligned Usage and Revenue

2. IT Systems
   - Misaligned Usage vs. Product / Service Configuration

3. Cable Modem
   - Misaligned CPE Configuration

Revenue Leaks

- Service Resell
- IT Misalignment
- Human Mistake/CSR Fraud
- Cloned CPE
- CPE Fraud
Future Considerations: ByoCPE

Revenue leaks prevention checklist:

- CPE certification and sanity check procedures
- Wall garden portals for CPE on-boarding and quarantine policies
- Centralized CPE firmware tracking & management
- Cloning & Roaming CPE prevention
- Network systems:
  - Unique CPE configuration & provisioning
  - Unified CPE troubleshooting and management
  - Unknown CPE detection
- OSS & Service Fulfillment
- Enforce catalog driven standards from CRM ➔ CPE configuration
Thank You