



STRATUM

INTELLIGENT CONTROL SOLUTIONS



CORPORATE PROFILE

STRATUM is founded by a team of highly-skilled professionals who've gathered their outstanding experience in the Telecommunications sector around the world, with the vision to advise, assist and empower Governments, Ministries, Regulators and Telecom Authorities for regulating and improving the Telecom sector as well as enhancing the State revenues.

Recognizing a worldwide need for groundbreaking expertise in the Revenue Assurance field - in particular to Governments and Regulatory Agencies, **STRATUM** has begun focusing its extensive Telecom experience and resources on providing innovative and practical solutions to cater to their evolving needs.

In this context, **STRATUM** is an independent neutral technology and solution provider, featuring active team members with a variety of backgrounds, accreditations and certificates (Advanced Cisco Certificates, Amazon Web Services (AWS) Certification, Microsoft SQL DBA certification, VMWare, Big Data, etc.).

This combination of business and technical acumen, along with in-depth industry knowledge, was the key driver behind offering our customers rigid and innovative tools that will equip them well in dealing with today's challenges and complications of the business world, and keeping them up with the technological advancements.

In parallel, as **STRATUM**'s aim is to organize collaborative R&D activities and leverage the members' resources in an effort to address innovative solutions and opportunities, the company maintains a team of Consultants and Researchers who are widely respected as experts in their particular fields of expertise, and who are being continuously involved in research and analysis of a wide variety of industry trends and key issues.



SERVICES



Driven by the digital transformation and the swift evolution of the Telecommunications industry, STRATUM's strategy is the development of a portfolio of Services that is effectively aligned with the different demands of the major key stakeholders and players:

- Governments.
- Ministries.
- Regulatory Agencies.
- Operators.
- Service Providers.

STRATUM is accompanying this revolutionary trend in the industry through its strong involvement in research and investment in innovation ecosystems, in an effort to anticipate changes and emerging trends in the digital world, and to offer an array of services and solutions that keep up with the challenges of the continuously evolving pace of this field – be it:

- Business and Strategic Consulting Services.
- Operational and Financial Advisory Services.
- Revenue Assurance.
- Due Diligence.
- Product Development.
- Regulatory Assistance.





SOLUTIONS



Our team members have gathered their real life experience in several international telecommunications markets to build up turnkey solutions designed specifically to address the emerging challenges and opportunities of this digital era.

STRATUM's Solutions are built on the below foundations:

- Expert engagement in the Telecommunications industry.
- Solutions tailored to all stakeholders: Government Sector, Operators, Service Providers, etc.
- Best practices aligned with market and regulatory frameworks.



REVENUE ASSURANCE...

A Challenge or an Opportunity?

CONTEXT

With the exponential growth of products, technologies and business models, a greater need for Revenue Assurance is emerging and it's being perceived as a necessity for Governments and Regulators rather than a necessity in an environment where so much is changing so rapidly.

BACKGROUND

Revenue Assurance has recently been the center of attention not only due to the chaos of the liberalization of the Telecom sector and its implications, but also:

- The new wave of regulatory reform and interest in how local operators are reporting on their activities revenues – as historically, Operators used to declare their revenues on a quarterly (or periodic) basis.
- Increasing pressure by Governments to exploit all areas of revenue realization as well as revenue leakages in the Telecom sector;
- The struggle of existing revenue management systems to keep up with the continuing breakneck pace of technological innovation and digital transformation.

CHALLENGES

With such quarterly/periodic declarations from the Operators, the Regulator was bound by the following challenges/constraints:

- Data Integrity: no validation of the activities and revenue declarations by Operators;
- Assurance over the Revenues to be collected by the Government/Ministry/Regulatory Authority.
- Reporting Latency: due to quarterly or periodic reporting;
- Detection of Leakages at the system integration points.



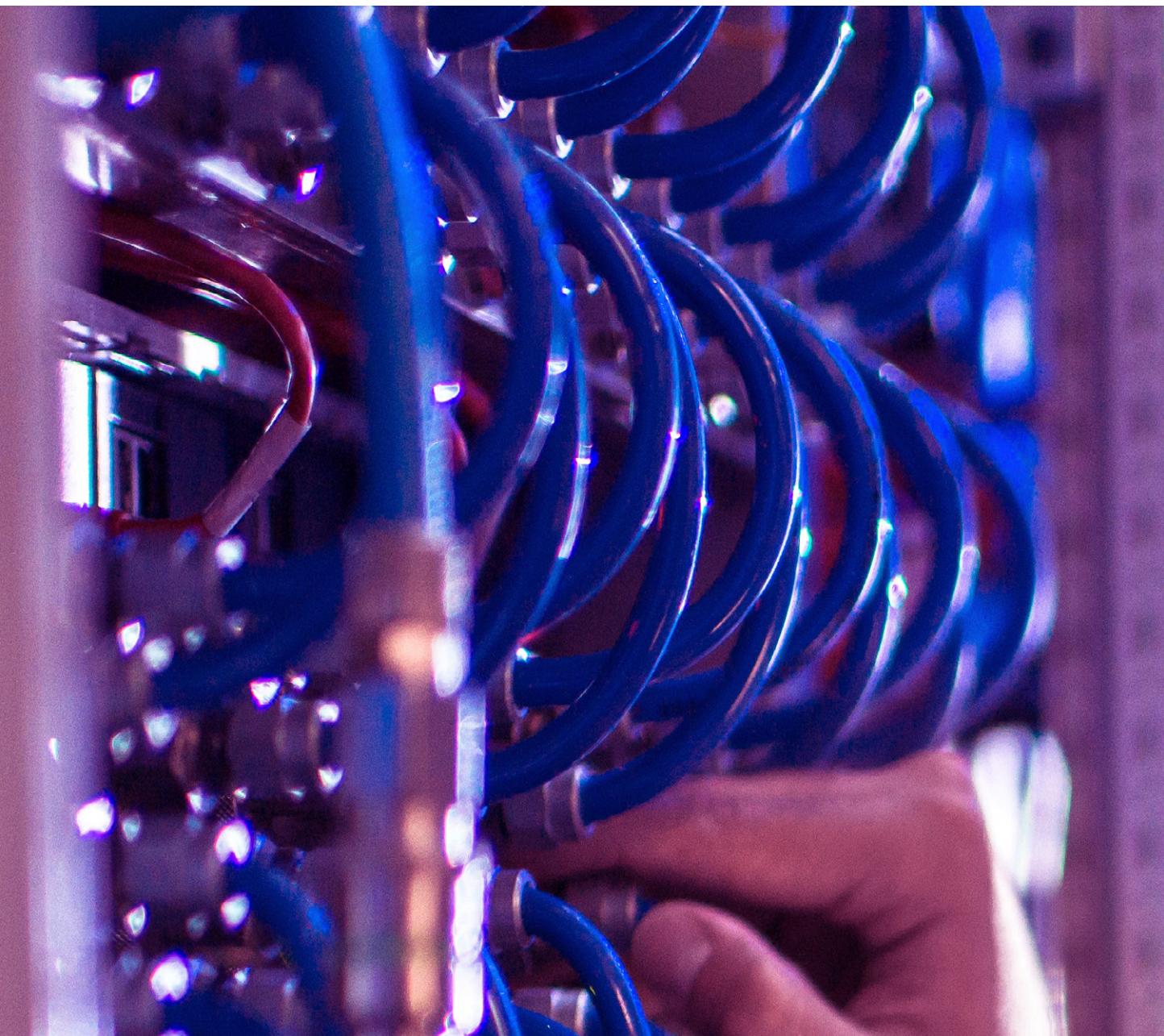
METHODOLOGY

STRATUM has addressed all these concerns faced by the Telecom Regulators in auditing and validating the Operators' reports, through developing a control and revenue assurance solution that uses a holistic approach from pulling data from the source (IN and MSC of each operator) to validating it, on a near real-time continuous basis.

Through integrating the most advanced and most secured technologies, **STRATUM** has designed and constructed a truly integrated and high-definition Control & Revenue Assurance Center (CRAC) to primarily collect and record data from the source at the Operators (IN and MSC) and then analyze their submitted reports on all communication services offered.

Our solution is functionally complete and readily scalable, encompasses revenue assurance practices that overlap with regulatory demands, and is built around 3 Disciplines:

1. Controls Management: Audit & Monitoring
2. Compliance Management: Regulatory Benchmarks/KPIs.
3. Containment Management: Revenue Leakage Detection.





CONTROL & REVENUE ASSURANCE CENTER (CRAC)

OVERVIEW

CRAC is an independent, non-intrusive platform capable of capturing and collecting records (xCDRs) from Operators' networks in real-time (direct observation) while assuming the function of parallel billing; providing full visibility of the Telecom sector performance and Operators' activities and services; and processing and storing records in databases and visualizing and generating reports.

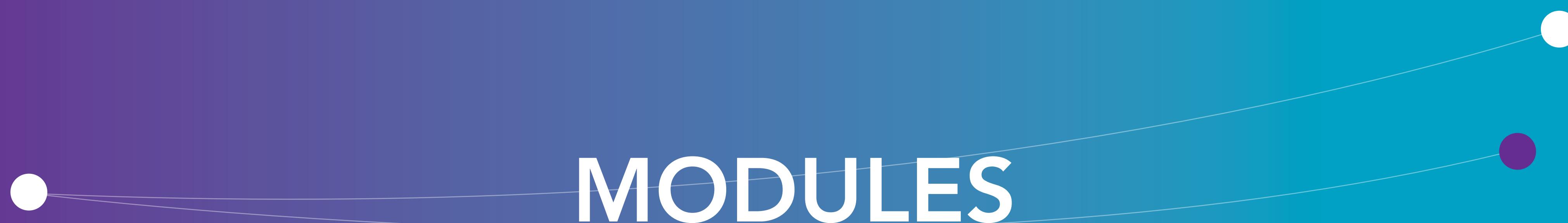
ELEMENTS

- Product lines:
 - Voice, Data, SMS, MMS, Mobile Money Payment, etc.
- Specific Products / Rate Plans.
- Systems, OSS/BSS Components:
 - Network Elements (Switches, Gateways, IN, Servers, MSC, etc.)
- Mediation Systems.
- Postpaid Billing Systems.
- Interconnect Billing Systems.



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MODULES



AUDIT, CONTROL & REPORTING



The Audit and Controls module of **CRAC** revolves around a very proficient and rigorous extraction and validation tool, where strict audit and controls procedures are being enforced, given the need to monitor the services spanning across different technologies and systems of the local Operators.

CRAC is capable of providing an integrated management view of the Operators' network and services through:

- **Live and accurate monitoring of all the communication services provided by the local operators (direct observation), including but not limited to:**
 - National On-Net Voice Calls
 - National Off-Net Voice Calls
 - International Incoming Voice Calls
 - International Outgoing Voice Calls
 - SMS
 - Data Packages
 - Mobile Money Payment
- **CDR collection in real-time.**
- **Accurate billing of fees and charges associated with the different communication services as provided by the local operators.**
- **Recovery and storage of CDRs for billing and analysis purposes.**
- **Real-time monitoring of all networks/systems.**

QUALITY OF SERVICE (QOS) & QUALITY OF EXPERIENCE (QOE)



CRAC performs reconciliation on KPIs generated from compilation of detailed records (CDRs) and helps Regulators, Ministries and Governments in decision-making.

CRAC is specially designed to provide:

- Visibility and insights over the sector performance;
- Assessment against regulatory standards and KPIs;
- Highlights of areas for development and improvement.

In the context of QoS, **CRAC** is able to:

- Assess and analyze each level of service against set KPIs.
- Emphasize additional revenue opportunities from every service.
- Verify that the bundles, packages and different offers of the mobile operators are exactly and accurately being delivered to subscribers.

In parallel, as QoE plays an important role in the whole communications ecosystem, **CRAC** allows an efficient monitoring and assessment of user experiences and offers tools to optimize them.

SHIELD



STRATUM has developed **SHIELD**, a Fraud Management Solution that holistically detects, identifies and prevents fraud across the different networks and systems.

SHIELD incorporates the latest detection technologies that are capable of evolving and quickly capturing the changing landscape of fraud management environment.

Compliant with the [i3 Forum](#) regulations and guidelines for anti-fraud, **CRAC** utilizes robust tools capable of:

- Enabling fraud prevention.
- Detecting fraud in real-time.
- Providing complete fraud alerting through a comprehensive set of rules.
- Employing preventive and proactive measures to avoid fraud losses.
- Providing enhanced analytic capabilities.
- Adapting and continuously incorporating new fraud scenarios.

REVENUE INTELLIGENCE

The substantial leakage of Government revenues and improper payments by local Operators is a persistent challenge for Governments within the Telecom sector and has been a universal phenomenon.

CRAC and **SHIELD** were converged by **STRATUM** to open new pathways to recapture revenue leakages and boost the Government's revenues, by auditing, monitoring, crosschecking, and validating the Operators' declarations of activities and figures.

As our solution relies on the revenue leakage detection discipline, **CRAC** performs a thorough evaluation of the Operators' every domain to ensure there are no leakages at a process and/or technical level, and then finds, diagnoses and corrects the leakages in an efficient and rationalized manner.

BIG DATA REPORTS

Since data flows on telecommunication backbone, Telecommunication industry becomes the significant contributor of "**Big Data**".

Big Data reports, generated by **STRATUM**, divulge a very different and unconventional approach to business and sector development, and offer telecom operators as well as Regulators and Governmental agencies a real opportunity to gain a much more complete picture of their operations and their customers, and to further their innovation efforts, mainly through:

- Optimizing routing and quality of service by analyzing network traffic in real time;
- Analyzing call data records in real time to identify fraudulent behavior immediately;
- Allowing call center reps to flexibly and profitably modify subscriber-calling plans immediately;
- Tailoring marketing campaigns to individual customers using location-based and social networking technologies;
- Using insights into customer behavior and usage to develop new products and services.