

CASE STUDY

A NATIONAL GOVERNMENT AUTHORITY IN THE MIDDLE EAST STRENGTHENS LAWFUL INTERCEPTION CAPABILITIES WITH PERTSOL LIMS



INTRODUCTION

A national government authority in the Middle East required the implementation of an advanced lawful interception framework to strengthen its national security and regulatory monitoring capabilities across its telecommunications ecosystem.

The country's telecom environment is driven by multiple service providers operating across 2G, 3G, and 4G networks, with a rapidly growing subscriber base and increasing communication traffic across voice, SMS, and data services. As part of its regulatory mandate, the authority needed to enable lawful interception capabilities that allow Law Enforcement Agencies (LEAs) to monitor, analyze, and act on communication data in near real time

Operating within a multi-operator telecom infrastructure presented challenges in ensuring seamless interception across heterogeneous network elements while maintaining compliance with international lawful interception standards and avoiding disruption to live network operations.

To address these challenges, the authority selected PertSol to deploy its Target-Based Lawful Interception and Monitoring System (LIMS). The deployment enabled the establishment of a centralized, scalable, and standards-compliant interception environment capable of integrating with telecom operators and delivering actionable intelligence to authorized agencies.

CHALLENGES

As the government authority prepared to implement a nationwide lawful interception framework, it needed to deploy a solution capable of operating across a complex telecom ecosystem while meeting strict regulatory and operational requirements. Key challenges included:

- ✓ **Multi-operator and multi-technology integration:**
The telecom ecosystem consisted of multiple service providers operating across 2G, 3G, & 4G networks, requiring seamless interception across heterogeneous infrastructures without operational silos.
- ✓ **Requirement for interception of both IRI and CC:**
The solution needed to capture and deliver both Intercept Related Information (IRI) such as signaling & metadata, and Communication Content (CC) including voice, SMS, and data sessions.
- ✓ **Lack of uniform interception infrastructure across operators:**
Not all operators had dedicated Lawful Interception Gateways (LIGs), requiring the system to support both direct integration with network elements and alternative interception mechanisms.
- ✓ **Compliance with lawful interception standards:**
The solution needed to align with ETSI standards and support lawful interception interfaces such as HI1, HI2, and HI3 for secure and standardized data exchange.
- ✓ **High-volume communication traffic processing:**
The telecom environment generates large volumes of voice, data, & messaging traffic, requiring the system to process and deliver interception data in near real time without performance degradation.
- ✓ **Advanced analytics and intelligence requirements:**
The authority required enhanced capabilities including multilingual voice transcription, translation, sentiment analysis, and link analytics to derive actionable insights from intercepted data.
- ✓ **Complex target provisioning and identification:**
The system needed to support target provisioning using multiple identifiers such as IMSI, MSISDN, & IMEI, along with handling scenarios such as SIM replacement & operator identification through number series or portability databases.
- ✓ **Non-intrusive deployment requirements:**
Interception capabilities had to be implemented without impacting live telecom services or introducing latency or disruption to network operations.
- ✓ **Scalability and high availability requirements:**
The system needed to support future growth in traffic volumes & targets while ensuring high availability through redundancy and failover mechanisms.

WHY THEY CHOSE PERTSOL

The government authority selected PertSol to implement a lawful interception framework aligned with its national security and regulatory objectives.

PertSol's LIMS platform provides a unified approach to interception, combining both the Lawful Interception Management System (LIMS) and Lawful Interception Gateway (LIG) capabilities within a single architecture.

This allowed the authority to streamline interception workflows while maintaining flexibility across operator environments.

Operationally, PertSol delivered a solution designed for telecom-grade deployments, enabling interception without intrusive modifications to existing network infrastructure. Its ability to support both active and passive interception models, combined with advanced AI-driven analytics and strong compliance alignment, provided the authority with confidence in building a long-term interception framework.

PertSol's deployment experience and scalable architecture further ensured that the solution could evolve alongside the country's growing communication landscape.

SOLUTION

PertSol implemented a centralized lawful interception architecture using its Target-Based Monitoring System (TBMS), designed to operate seamlessly within the country's telecom infrastructure and aligned with ETSI standards.

The deployment supported both active and passive interception approaches, enabling flexibility across different operator capabilities and network configurations.

KEY ELEMENTS OF THE IMPLEMENTATION INCLUDED:

- ✔ Enabled real-time monitoring of communication traffic across multiple telecom operators, supporting interception of voice, SMS, and data services.
- ✔ Integrated the platform with operator networks using standardized H1, H2, and H3 interfaces, along with X1/X2/X3 interfaces for direct integration with network elements.
- ✔ Supported both active interception (X1/X2/X3 interfaces) and passive probe-based interception (iNteliProbe) to ensure coverage across diverse network environments.
- ✔ Deployed a centralized backend architecture comprising Management Server (target provisioning and system control), Mediator Server (data routing and compliance handling), DEX Server (secure data exchange), and Analytics Server (AI-driven intelligence processing).
- ✔ Enabled real-time target provisioning and lifecycle management, including activation, deactivation, and monitoring based on lawful authorizations.
- ✔ Supported multiple provisioning approaches including number series-based provisioning, Mobile Number Portability (MNP) database integration, and operator-agnostic provisioning across telecom networks.
- ✔ Implemented advanced AI-driven analytics, including multilingual transcription, translation, sentiment analysis, speaker identification, voiceprint matching, and link analysis.
- ✔ Enabled rule-based monitoring and alerting through a configurable engine supporting real-time notifications based on predefined conditions.
- ✔ Supported interception across a wide range of communication types including voice, SMS, MMS, VoIP, internet browsing, email, and file transfer protocols.
- ✔ Enabled packet reconstruction and deep packet inspection (DPI)-based classification for detailed analysis of communication sessions and protocols.
- ✔ Enabled secure handling and transfer of interception data, ensuring compliance with regulatory frameworks and maintaining strict access controls.
- ✔ Designed the system to process high volumes of communication data with minimal latency, ensuring near real-time delivery to authorized agencies.
- ✔ Incorporated redundancy and high-availability architecture (N+1), including server, storage, and network-level failover mechanisms.
- ✔ Provided comprehensive dashboards, reporting tools, and case management capabilities for operational visibility and investigative efficiency.

RESULTS

The deployment enabled the government authority to establish a centralized & scalable lawful interception framework supporting its national security and regulatory objectives.

KEY OUTCOMES INCLUDED:

- ✔ Established a standards-compliant lawful interception capability across multiple telecom operators
- ✔ Enabled secure and real-time delivery of IRI and CC data to authorized Law Enforcement Agencies (LEAs)
- ✔ Improved target identification and tracking across multiple identifiers and network environments
- ✔ Enhanced intelligence and investigative capabilities through AI-driven analytics and automated insights
- ✔ Achieved seamless integration with telecom infrastructure without impacting live network operations
- ✔ Enabled real-time monitoring and operational visibility through centralized dashboards and reporting tools
- ✔ Improved operational efficiency of law enforcement agencies through centralized case management, automated workflows, and faster access to actionable intelligence
- ✔ Strengthened compliance with ETSI lawful interception standards and regulatory requirements
- ✔ Delivered a scalable and future-ready architecture capable of supporting increasing traffic volumes & evolving network technologies

KEY HIGHLIGHTS

Problem	Solution	Impact
Multi-operator telecom environment	Unified LIMS integration with HI/X interfaces	Centralized interception across networks
Requirement for IRI & CC interception	End-to-end interception workflow implementation	Real-time intelligence delivery
Lack of LIG in some networks	End-to-end interception workflow implementation	Real-time intelligence delivery
Complex target identification	Multi-identifier provisioning (IMSI/MSISDN/IMEI)	Improved tracking accuracy
High communication traffic volumes	Scalable architecture and processing systems	Reliable performance at scale
Limited analytics capabilities	AI-driven voice and data analytics	Enhanced investigative insights
Compliance requirements	ETSI-aligned lawful interception framework	Secure and compliant operations
Need for high availability	Redundancy and failover mechanisms	Continuous and reliable operations

“National security depends on timely, accurate intelligence. A modern lawful interception framework helps authorized agencies monitor communications securely while maintaining compliance across evolving telecom networks.”