

CASE STUDY



INFO-TV-OPERATOR is a broadcasting operator serving major Polish TV/Radio Broadcasters and satellite platform operators.

Its new DVB-T network delivers mobile TV signal to millions of users in 30 major allotments.

Verax NMS is a highly scalable, integrated IT service assurance solution for cross-silos management & monitoring of networks, data centers, applications and clouds.

Verax Trouble Ticketing is a comprehensive helpdesk and SLA (Service Level Agreements) management solution that **automates and streamlines the incident resolution process ensuring SLA compliance.**

DVB-T (Digital Video Broadcasting Terrestrial) is an international standard for the broadcast transmission of digital terrestrial television. DVB-T transmits compressed digital audio, digital video and other data in an MPEG transport stream using frequency-division COFDM or OFDM multiplexing.



Verax Service Assurance Solution enabled a broadcasting operator to proactively monitor nationwide DVB-T digital television network and increase customer satisfaction by providing robust SLA compliance reporting.

Integrated monitoring and management of a nationwide DVB-T digital television network with Verax NMS, Helpdesk and SLA Management

BACKGROUND

INFO-TV-OPERATOR (INFO) DVB-T network is a fundamental element of broadcasting service delivery to Poland's new retail digital terrestrial television platform serving mobile subscribers. The service is required to comply with very strict general Quality of Service (QoS) and SLA policies, as well as meet specific performance parameters.

The network is distributed in over 30 major metropolitan areas across the country with over 80 sites using multi-vendor hardware including transmitters, redundant DVB-T signal monitoring probes and other active and passive elements of sites. It is managed from a central INFO Network Operation Center (NOC).

OBJECTIVES

The primary objective of the project was to provide an integrated service assurance solution for quick identification and resolution of all DVB-T service performance and availability issues. The business objective was to reduce service degradation times and increase SLA compliance, resulting in higher customer and digital TV subscriber satisfaction and preventing SLA breach penalties.

REQUIREMENTS

One of the key business requirements was the ability to provide fine-grained insight into live transmission parameters, as well as daily automated generation of summary reports demonstrating SLA compliance.

The Verax Service Assurance solution was selected by INFO for the following reasons:

- Short time to market enabling meeting contractual deadlines.
- Easy addition or modification of managed sites and parameters with automated discovery, flexible sensor and counter definitions, monitoring templates and sophisticated bulk editing features.
- Fine-grained data security and notification policies allowing configurable system exposure to 3rd party service providers and retail operator personnel.
- End-to-end issue lifecycle management due to out-of-the-box integration between Verax NMS and Trouble Ticketing.
- Openness, extensibility and ability to address future needs through device plug-ins, scripted business rules and custom reports.

CASE STUDY

SOLUTION IMPLEMENTATION

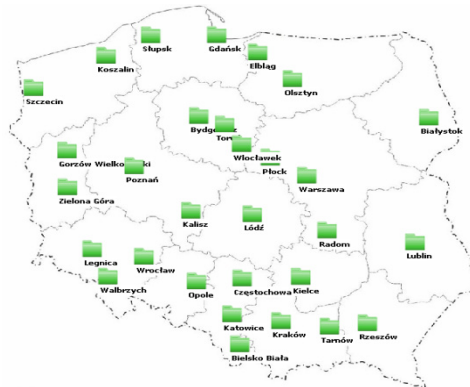
Verax NMS was installed on INFO's dedicated server. As the sites were mostly in their build & test phase, the initial stage focused on creating a business aspects hierarchy and maps depicting the network distribution and regional operations responsibilities. Once the first reference sites had been completed and enabled for monitoring, a set of vendor-specific SNMP MIB-based service availability sensors and performance counters was configured, including fine-tuning of thresholds, alarming and notifications. Out of the nearly 400 managed devices with over **2,000 performance and availability monitors**, the most important parameters included:

- **APN links** to the sites:
 - Availability & response times
- **Transmitters (TX):**
 - TX/exciter statuses
 - Forward/Reflected Power
 - In/Out Signal levels and faults
 - Power Supply
 - TCU parameters
- **Monitoring probes:**
 - Modulation Error Ratio (MER)
 - Bit Error Rate (BER)
 - Packet Error Rate (PER)
 - RF Levels
- **Satellite receivers/decoders (IRD):**
 - Carrier to Noise ratio (C/N)
 - Signal Level/Input Loss

Once the configuration for the initial reference sites had been completed, the addition of new sites for monitoring was very straightforward utilizing automated network discovery, use of monitor templates and the multi-edit feature for bulk configuration activities.

CHALLENGES

One of the key challenges in the project was the monitoring of dual-exciter transmitters. These transmitters are logically monitored as two separate devices, however, only one of them is active at a time. Inactive transmitters return SNMP metrics which during normal a operation triggers alarms. The **conditional monitors** feature of Verax NMS was used to handle inactive transmitters. Conditional monitors allow suppressing sensors and counter data collection (and in effect generation of events and alarms) for a managed element depending on a user-defined condition. In this case, the condition was "if transmitter A is active suppress probing of transmitter B" and vice versa.



SERVICE METRICS EXPOSURE

Direct and live access to selected DVB-T service metrics for the retail operator's staff was INFO's contractual commitment with its customers. This has been achieved with the built-in security mechanism and flexible business aspects configuration, allowing fine-tuning of **network view optimization** based on monitored elements and user groups. The same feature has been used for INFO's regional 3rd party network operations support and maintenance partners.

END-TO-END INCIDENT MANAGEMENT

A key part of INFO's service management process, apart from performance and availability monitoring is the ability to **manage and track the lifecycle** of all incidents or maintenance operations in an end-to-end fashion including their dispatching, service activities, notifications, resolution times and SLA calculation, as well as building a knowledge base to support these operations further. All these features are provided with out-of-the box Verax Trouble Ticketing (helpdesk and SLA management). Both systems (NMS and Trouble Ticketing) seamlessly work together, and do not require any custom integration.

SUMMARY

The implementation of a complete DVB-T service assurance solution alongside ongoing infrastructure development and expansion activities took approx. 3 months, with the initial system set-up completed in just 3 days. Such a quick turnaround allowed INFO-TV-OPERATOR to meet the contractual requirements against the Tier-1 retail operator right from the service go-live.

The Verax Service Assurance package proved not only to be a carrier grade solution, but also an ecosystem that is flexible with customizations applied in the accelerated roadmap model, as well as open and scalable for future growth and mutually planned extensions, some of which potentially include a monitoring probe plugin for the management of peripherals lacking dedicated network interfaces or management of DVB-T mobile television infrastructure.



Verax Systems Corp. is a provider of software enabling end-to-end IT & Telco service delivery, assurance and compliance. We offer a comprehensive set of integrated applications covering the entire lifecycle from service definition through provisioning and monitoring to billing.

Worldwide locations

- Plano, TX (U.S.A.)
- Newton Abbot (England)
- Dublin (Ireland)
- Poznań (Poland)
- Munich (Germany)

www.veraxsystems.com