

## CASE STUDY



### PIONIER

PIONIER is a new generation optical network. The network topology includes nearly 6,000 km of its own optical fiber (DWDM 10 GE transmission) and connects 21 academic MANs.

### About Verax NMS

Verax NMS is a highly scalable **IT service assurance** solution for management and monitoring of networks, data centers and applications featuring full FCAPS (fault, configuration, accounting, performance, security) functionality and network visualization using map services. Verax NMS **reduces costs of IT service delivery, shortens downtimes and increases customer satisfaction** through streamlining processes of business service management, problem detection and incident resolution.

For more information about Verax NMS, please visit our website:  
[veraxsystems.com/en/products/nms](http://veraxsystems.com/en/products/nms)



***Verax NMS reduced the human-effort needed to perform advanced network management operations by automating procedures that used to require manual action.***

## One of the largest research & education networks in Europe managed with the Verax network management solution

### PROJECT

The system was delivered to Poznan Supercomputing and Networking Center, the operator of PIONIER, one of Europe's largest fiber optical networks used by education, research and development institutions. The network currently links twenty one metropolitan area networks (MANs) and five high performance computing centers.. Verax Systems was responsible for delivering its in-house carrier grade network management solution as an end-to-end, turnkey project.

### RATIONALE

The PIONIER Network Operations Center has used various kinds of network monitoring and management applications, including HP OpenView Network Node Manager. However, none of the systems deployed offered the required functionality within a single system, especially in the area of root cause analysis. This made the process a manual and workforce-consuming task. The system in place also did not offer the ability to monitor all types of equipment used in the network, which forced the Network Operation Center (NOC) to use many unintegrated tools and man-driven procedures in order to manage the entire network.

Altogether, this made the PIONIER NOC look for solutions that would support their work in all of the aspects. Of all the available options, Verax Systems was chosen due to a number of reasons, including the following:

- Prior experience with NMS integration in various networks and broad OSS experience.
- Thorough understanding of network management aspects.
- Ability to provide a commercial off-the-shelf NMS software product and customization services.
- Extensibility due to the plugin-based architecture.
- Built-in modules supporting the equipment used in the PIONIER network, such as Adva, Brocade and Juniper.
- High user experience (user friendly GUI, simple customization)
- Cost effective alternative to established network management systems.

### PROJECT SCOPE

Verax Systems provided the PIONIER NOC with its in-house product, Verax NMS, tailored to the customer needs identified during an analysis phase. Aside of business logic customization in the areas of alarms and diagnostic procedures, Verax Systems also provided system configuration consulting services.

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As a result, the following FCAPS (Fault, Configuration, Accounting, Performance, Security) functionalities were delivered:

- Event collection from various sources: SNMP Traps (v2c, v3) and Syslog.
- Advanced alarm management and notifications.
- Built-in and custom-configurable classifications and visualizations of network topology on many levels, e.g. geographical location (maps), inventory, network layers, etc.
- Advanced business logic mechanisms to build complex diagnostics procedures and events correlation algorithms.
- Detailed user roles and rights management, including contract-related network elements visibility restrictions.
- Advanced network discovery algorithms.
- Script-driven interaction with 3rd party console applications

In particular, Verax Systems delivered a complete tool for monitoring of power supply systems in PIONIER network nodes.

### TECHNOLOGY

The product offers an advanced web-based, state-of-the-art Rich Internet Applications user interface implemented using Adobe® Flex technology stack.

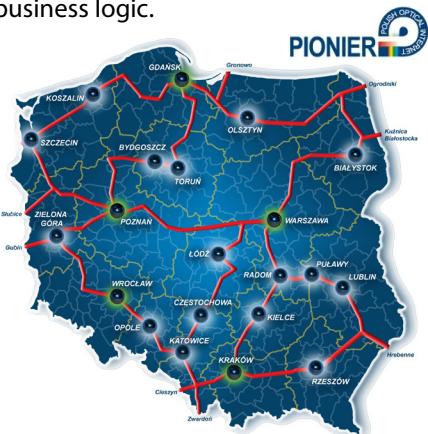
The server side is J2EE based and runs in PIONIER on Solaris based servers.

Oracle was used as the database management system.

### CHALLENGES

The key challenges in the project included:

- Network size and complexity.
- Management of multiple layers of the largest scientific network in Europe (DWDM, MPLS and IP).
- Necessity of using console based command line interface (CLI) for management of some of the network elements.
- Complex event correlations between the network elements across the layers.
- Active, script-based network diagnostics business logic.



### PROJECT MANAGEMENT

The project was run using a waterfall model, although many agile elements were used for day-to-day management. The delivery consisted of the following phases:

- Technical requirements analysis.
- New device modules development.
- Business logic implementation.
- Business reports design.
- Solution deployment.

The Verax Systems team consisted of up to four software engineers lead by two technical leaders (one for the delivery project and one for core application enhancements) and managed by a project leader.

Change management and issue tracking procedures were in place for the entire duration of the project.

Periodical reports were generated internally, as well as provided to the customer.

### QUALITY

The quality was assured by a separate Quality Assurance team.

Verax NMS design based on decoupling device modules, business logic and reports from the core, allowed for implementation with limited changes to the core product.

### SUMMARY

Verax Systems successfully delivered its Network Management product and services to a demanding customer operating one of Europe's largest fiber optical networks. All of the customer's bespoke and technical integration requirements were fully met and delivered as a complete solution, embracing not only the necessary business logic adjustments, but also an enhancement to the existing product, which adds to the common success of the project.

**verax**  
systems

Verax Systems is a software house and a consultancy & solution provider specializing in advanced and innovative IT solutions for the telecommunications, banking and enterprise markets. Since its incorporation, Verax Systems has successfully provided services and delivered numerous projects on five continents.

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