Customer Solution Case Study

ASTER – one of the biggest providers of Triple Play broadband services in Poland – has created a Network Inventory system for optical and copper networks using Microsoft® SQL Server platform.

Overview
Country: Poland
Industry: Telecommunications

Customer profile
ASTER has been present on the market since 1994. It provides its services to 368.000 subscribers to analogue cable television, 47.000 subscribers to digital television, 112.000 subscribers to Internet, and 37.000 subscribers to digital telecommunications in the cities of Warszawa, Kraków and Zielona Góra. ASTER offer is addressed mainly to individual clients, but also to small and medium-sized businesses. Advanced technologies and state-of-the-art solutions help us equip our clients with services on par with the world's best.
Currently, we dedicate our efforts to develop our Triple Play offer by enriching it with new services and to strengthen our bond with clients. At the end of 2006 ASTER clientele totaled 400.000 and the income reached 271,421,000 PLN ($98,308,957).

Business situation
In 2004, anticipating a fast rise in a number of clients and an introduction of new services, ASTER initiated a search for a Network Inventory system to suit a coaxial and optical network. The aim was to facilitate administration and development of the existing network. As there was no ready-made system to be implemented available on the market, ASTER opted for a series of pilot installations to determine the contractor for the system..

Solution
Having analyzed various concepts of the system and the quality of pilot operations, ASTER chose to contract with Suntech Ltd to introduce a system based on SQL Server database and other Microsoft® technologies

Benefits
- Organizing and merging of information on topology and logical structure of coaxial and optical networks
- Convenience of checking services availability in given network points.
- Successful network management thanks to comprehensive information about configuration of the network.
- Access to analytical tools which allow to enumerate the parameters of a designated point of the network.
- Swift analysis of failure results, locating potential areas of encountering them, and triggering precise remedial actions along with a coordinated client-information activity
- Analysis of devices reliability and verification of purchase policy
- Convenient and operations-based development of coaxial and optical networks.

"The productivity and scalability requirements for a platform serving as a base for our Network Inventory system were sky-high. We knew that we will collect a lot of data and that it will be used by great numbers of people at the same time"

Bogdan Klata, Network Inventory Manager at ASTER Ltd.

Network Inventory systems do not increase the turnover or income of operators in a direct way, yet it is thanks to them that operators acquire the operational efficiency expected by their clients and shareholders. Instantaneous access to information about the network, its components, the parameters of hardware installed along with its usability statistics and configuration details is in today's telecommunications worth its weight in gold.

Owing to mapping of the network in the system, an operator can automatically run processes, which otherwise would take many days or weeks to finish. Registering new clients, granting them access to particular services and their features, swift introduction of new services, planning network development, efficient debt collection, analyzing failures' effects — all these are Network Inventory-propelled.

The scale of benefits of Network Inventory system is dependent on the extent to which the system reflects the physical network, and on the business processes that make use of the collected data. Due to technological aspects of provided services, the Network Inventory system of Triple Play network based on HFC (Hybrid Fiber-Coaxial) technology is far more complicated than it is the case of traditional copper and optical networks. For this very reason ASTER has decided to build a new Network Inventory from scratch. After several trial projects we opted for Suntech to execute the proposed Microsoft® SQL Server-based Network Inventory system. According to Bogdan Klata, "Suntech has displayed the necessary proficiency in the field, makes use of proven technologies and employs specialists capable of realizing a project of this scale."

Microsoft Windows Server System

Situation

ASTER has been present on the market since 1994. It provides services to 368.000 subscribers to analog cable television, 47.000 subscribers to digital television, 112.000 subscribers to Internet, and 37.000 subscribers to digital telecommunications in the cities of Warszawa, Kraków and Zielona Góra. ASTER offer is addressed mainly to individual clients, but also to small and medium-sized businesses. Advanced technologies and state-of-the-art solutions help us equip our clients with services on par with the world's best.

Currently, we dedicate our efforts to develop our Triple Play offer by enriching it with new services and to strengthen our customer relations. At the end of 2006 ASTER clientele totaled 400.000 and the income reached 271,421,000 PLN ($98,308,957).

After a 10-year period of fast-track development on the dynamic Warsaw market, ASTER began to think of entering new markets. The company also introduced a trial implementation of Triple Play services in view of extending this offer to all clients in future. Both initiatives were hampered by a considerable obstacle – the lack of an unified network Network Inventory system.

"We were affected by the lack of a cohesive Network Inventory system for some time, but none of the systems on offer would cater to our needs. After a while it became obvious that such a system would have to be created from scratch in line with our recommendations," explains Bogdan Klata, Network Inventory Manager at ASTER ltd.

The decision to order the system from an outside company was based on the following factors. Firstly, there was no commercial-off-the-shelf Network Inventory system available which would be suitable for cable networks. Adapting a system devised solely for telecommunications was not legitimate as this would necessitate too many changes.

"Cable networks based on HFC technology at some sections use the very same wire to carry various services and to provide individual components of the network with electricity essential to their functioning. This places specific requirements on the way the network is being designed and analyzed, and on the system which serves to aid these processes. This has a consequence in a different hierarchy of objects in the network, their higher number, and a higher number of parameters ascribed to them as compared to a traditional telecommunications network. As a result, the information system describing such a network has to be of a completely different constitution to that of a typical Network Inventory system," says Bogdan Klata.

The business factors were of equal importance. ASTER aims to guarantee a high standard of service what, in the absence of a cohesive system of information on the network, would be difficult to fulfill. We knew very well that future would bring an increased activity of competitors on the market and that it was necessary to lay the foundations for an effective rivalry in the long run.

"Without a Network Inventory system one cannot think of automating the processes – a key to a long-standing profitability of any operator. We were fully aware that with the time passing the market would become more competitive and that this would force us to control the operational costs even better. Network Inventory system is the cornerstone of successful management on the operational level which involves initiating services for customers, changing the parameters and planning future development of the network," Bogdan Klata explains

When searching for a provider, we set our requirements very high in every respect. We were looking for a company that not only would be capable of designing the system on their own, but also of testing it and furnishing it with existing data. A vital difficulty was that — for historical reasons — ASTER existing data

was stored in several different formats on various computing environments.

"The import of data from previous systems and unifying it was an equally difficult challenge as that of designing the new solution itself. The task was to analyze and uniform the information stored in CAD and Microstation files, Microsoft Access databases, Microsoft Excel spreadsheets, and text exports from various applications. This, and other things, made us decide. During the pilot stage Suntech proved to have a necessary professional insight, reliable technology, and a body of professionals capable of handling a project of this scale," says Bogdan Klata.

The scope of the project posed an additional challenge. ASTER required the system to contain information on both networks – the copper and the hybrid fiber-coaxial. What is more, the company demanded the system to be available for use not only by passport department employees, but also simultaneously by both network design departments (developing the copper and optical networks separately), service departments, the network supervision centre, and also – with the use of interfaces devised in the project — by employees from the customer service department. Another requirement was to fully integrate the system with SAP and a network supervision system.

Solution

The heart of solution build by Suntech for ASTER is an efficient and scalable database server — Microsoft® SQL Server. During the pilot period it was firmly established that the system has to be scalable both in the amount of data and in the number of users. It was not only the database but also the design of the system that were the subject of a penetrating analysis in terms of scalability and multi-access.

"The performance and scalability requirements for a platform serving as a base for our Network Inventory system were sky-high. We knew that we will collect a lot of data and that it will be used by great numbers of people at the same time," explains Bogdan Klata.

The Network Inventory system at ASTER forms a repository of information on the entire network – the copper and the optical. Each of around a million network components has been mapped and described by means of the place of installation (digital maps based on ESRI GIS technology based on vector and raster underlay), the list of available parameters, and current configuration. The system contains also the information on minimal operating parameters, such as noise level in individual network segments, power level and the like. This data can be utilized to manage the network (in problem detection for example). ASTER also uses its Network Inventory system to store technical documentation that, among other data, contains information on the ways to access devices, principles of servicing and extending, and their warranty dates.

"Drawing on the information stored in the Network Inventory system one can quickly determine whether a customer located under a certain address can be granted access to a given service at once, or the network has to be first changed in structure or in configuration. As for network development departments, by substituting the guesswork with actual analysis of the use of network capacity, they can design new nodes more fittingly. This, in practice, gives us considerable savings as we invest in what is highly probable to return the input," Bogdan Klata explains.

The development of ASTER network is reinforced by dedicated modules for network development departments. Owing to these, it is possible to determine which areas of the network need to be expanded. This facilitates the subsequent process of adding new objects and monitoring the network's parameters in new configuration. The system

has also been equipped with collaboration mechanisms — you cannot design a telecommunications network single-handedly — and mechanisms for simultaneous development of various projects covering the same area.

"To design a network one needs visualizations: objects from a library which is synchronized with ERP (SAP) system are placed on the map and building diagrams. In this way it is clear which devices are available, which can be linked together and how, and what the parameters of the installed objects are. A given project may generate multiple versions of changes. Having chosen the final version, it is possible to start modeling consecutive stages of its realization and mark the completed ones in a combined plan of the network. This is very useful, as it grants control over the process of introducing changes in a dispersed infrastructure. In addition, this helps coordinate the development of the copper and optical networks. The design of the optical and the coaxial networks is carried out in separate modules as their characteristics and design processes differ. Nevertheless, the whole process takes place under one system – this gives us a cohesive picture of the network as a whole," — says Bogdan Klata

Economically speaking, detailed information on structure of the network is crucial for a telecommunications company in many ways. The system simplifies the processes of verification and attributing the network resources to particular capital assets. Owing to the system, ASTER can verify the possibility of connecting a client to the network more quickly. The quicker you launch services, the sooner you will be able to issue invoices, and the sooner the investment in the network will be returned. With a high number of new clients signing with ASTER every month this is an invaluable benefit.

Availability of information about the pace of network expansion allows to lay a detailed plan for purchasing devices. As the network is ever growing, the information gathered in the system can be drawn upon when negotiating purchase contracts.

"The more information we gather in the Network Inventory system, the more benefits we can get in the long run. If we notice that devices produced by this or that company are faultier or that we encounter failures more frequently having been serviced by a certain subcontractor, we can prevent future problems and avoid resulting expenditures. The integration with our financial system gives us a crystal-clear picture of past repair costs. It is vital to have a chance to learn from mistakes – this is what optimization is about," says Bogdan Klata.

The Network Inventory system makes it possible to optimize dealing with emergency situations both in technical (determining the actual extent of failure, giving repair orders to suitable services or subcontractors) and in customer-service terms.

"Dealing with emergency situations is a key factor in maintaining good customer relations. When they cannot use their phone or the Internet, the clients want to know what the cause of the breakdown is and when it will be fixed. Providing them with information – true information – and not maneuvering your way out of being informative is highly valued by the customers. This creates a bond of partnership", says Bogdan Klata.

Benefits

ASTER has taken its time to develop the Network Inventory system so as to avoid losing time and resources for a solution with a limited applicability. By commissioning an outside provider to build the system from scratch, the company has decided to venture on a harder and more ambitious path. Before the choice of the contractor was made, its business and technical capabilities had been thoroughly checked, and the pertinence of the system's concept confirmed during a six-month pilot period.

"We treated passportization as a project of strategic significance from the beginning to the end. It paid off as we now boast a solution other operators can only dream of – and we keep on developing it," Bogdan Klata sums up.

ASTER really has reasons to be satisfied. By opting to build a tailored system, the company has gained multiple benefits. These include:

- Organizing and merging of information on topology and logical structure of coaxial and optical networks
- Possibility of easy expansion or modernization of the network
- Convenience of checking services availability in given network points.
- Successful network management thanks to comprehensive information about configuration of the network.
- Access to analytical tools which allow to enumerate the parameters of a designated point of the network.
- Swift analysis of failure results, locating potential areas of encountering them, and triggering precise remedial actions along with a coordinated client-information activity
- Analysis of devices reliability and verification of purchase policy
- Easy and operations-based development of coaxial and optical networks.

For more information
For more information abort SQL Server 2005, visit the Web site At **www.microsoft.com/sql**

For more information about Microsoft products and services, call the Microsoft Sales Information Center at (800) 426-9400

Microsoft Windows Server System

Microsoft Windows Server System™ integrated server infrastructure software is designed to support end-to-end solutions built on Windows Server™ 2003. It creates an infrastructure based on integrated innovation, Microsoft's holistic approach to building products and solutions that are intrinsically designed to work together and interact seamlessly with other data and applications across your IT environment. This allows you to reduce the costs of ongoing operations; deliver a more secure and reliable IT infrastructure; and drive valuable new capabilities for the future growth of your business.

Software and Services	Partners
• Windows Server 2003; • SQL Server 2005;	• Suntech Sp. z o.o.