

NMSDMON Project Summary

Project Title: Network Management System Development and Monitoring

Acronym: NMSDMON

Contract Number: 319E / 31.08.2012

Financing: State Budget - MECTS - Autoritatea Națională pentru Cercetare Științifică (ANCS)

Program: INOVARE

Project category: MODULUL 5 European Cooperation, CDI

EUREKA Project: E!7223 / 1132

The project value: 1.160.884,00 RON

The contract value: 576.924,00 RON

The value from other sources (cofinancing): 583.960,00 RON

Duration of contract: 38 months

Contracting Authority: Executive Agency for Higher Education, Research, Development and Innovation Funding (UEFISCDI)

Contractor: S.C. BEIA CONSULT INTERNATIONAL SRL

Introduction and project Objectives

The NMSDMON project within Eureka program was implemented by a consortium consisting of two European SMEs: KC TEK ARGE Bilis VE SAN.ve Tic.Ltd Enerji (Turkey) and BEIA (Romania).

The goal of the NMSDMON project is to develop a Network Management and Monitoring product that performs data acquisition from various equipment and sensors, management of network resources, workforce management, configuration and management of network elements.

The Network Management and Monitoring System (Romanian abbreviation SiGeMoRe) is a modular hardware and software platform that allows deployment of several functionalities such as: detecting, data storage and processing, control of devices, monitoring network entities through a web applications and of a specialized interface.

Network monitoring for an organization is a critical and very important function that can save significant financial resources, increase network performance, employee productivity and infrastructure maintenance costs. There is a real need for professional management and monitoring systems.

Implementing a management system and network monitoring such as SiGeMoRe offers the possibility for operators to have better monitoring of their network. Also this system will reduce substantially operational costs by rapid isolation of network subpart that is inoperable, the system being composed of some innovative sensors with a low cost and a web server solution for network management.

The objective of the project was achieved by developing a platform for network management and monitoring, which is based on an Open Source operating system, plugins that optimizes search speed and information processing and with graphical interfaces that customize the monitoring agent. A web interface provides integration with other specialized monitoring function modules for various external devices. The system is based on the Operating and monitoring system - OS Kernel. The main component of the OS Kernel SiGeMoRe is based on open-source Nagios application.

Innovative elements and achievements of NMSDMON project

SiGeMoRe system is innovative by the fact that it develops: a centralized system for management and monitoring of fixed telecommunication networks through various technologies; data and processing methodologies; reliable information in real-time; data visualization interfaces collected to facilitate management decisions.

The SiGeMoRe system is designed for telecom operators who develop an accessible web-server (WS) platform via Internet, an application type `InfoCenter` (OS-Kernel) for network management and an innovative sensor terminal equipment (sensor-TE), using a database (DB). DB database will store all data necessary for operation platform, data is accessible through the web server platform. Interface type sensor-TE is integrated with OS Kernel application and that will send, receives and analyzes data acquired, participating in the allocation and management of resources. The results provided by the sensor- TE interface will lead to the identification of possible network failures, will record the line parameters (baud rate, attenuation, power, noise) and will store data in the database DB.

There have been implemented the following execution stages for the project:

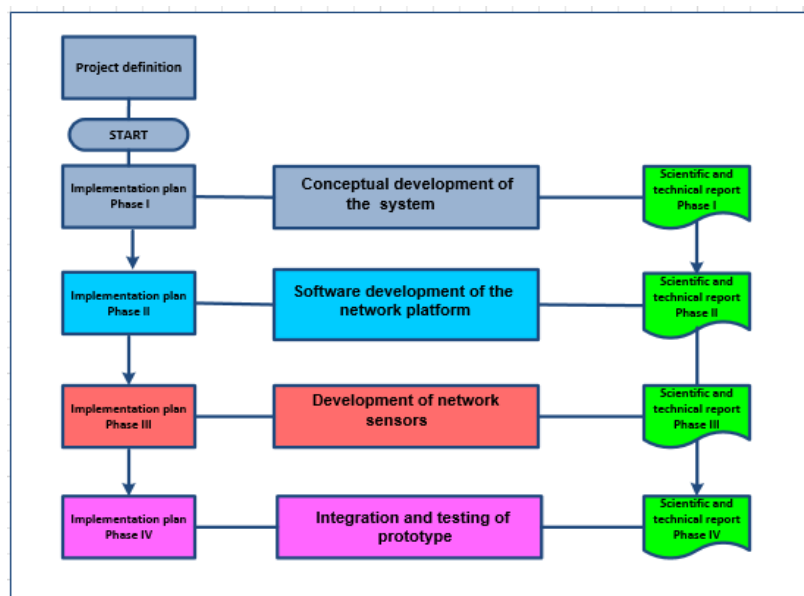
Phase I. Conceptual development of the system

Phase II. Software development of the network platform

Phase III. Development of network sensors

Phase IV. Integration and testing of prototype

The implementation process of specific milestones in NMSDMON project is represented in the figure below:



The economic advantages of implementing the SiGeMoRe solution

The implementation costs of a classical system for management and monitoring network have a large proportion of the total cost. SiGeMoRe system provides the integrated functionality into a single platform that can be accessed and managed via Internet, which lowers the cost of integration, network maintenance and increase the quality of customer service.

The result of the NMSDMON project is a technical and commercial product, the project itself is the result of market research and development trends in the TMN domain (Telecommunication Management Networks). According to the research studies, the importance of monitoring and maintenance of operating services is increasing, the adoption of such system is beneficial to telecom operators which offers this type of services.

The SiGeMoRe platform developed in the NMSDMON project has the potential to identify quickly and easily all kinds of defects that may occurs in telecommunications networks, provides remote and decentralized management and monitoring facilities.

Innovative solutions implemented in SiGeMoRe platform have the advantage of allowing the operator to use different applications to manage and monitor the network. Implementation of SiGeMoRe platform is a modern solution for detection and solving of faults located at the interface between public and private line access network of a telecom operator.

Project implementation generates economic growth elements and increased competitiveness as follows:

- for the industry partners level, through innovative technological contribution, through diversification of products range and services and through exploiting the results of the implementation of the patent;
- for the potential beneficiaries level (operators of telecommunications networks) by fact that exploiting SiGeMoRe platform reduces costs for managing and monitoring networks that contribute to the telecommunications legislation;
- for the national economy level, the project offers the possibility of developing systems and applications purchased at affordable prices, which are otherwise imported and purchased at very high prices.

Conclusions and perspectives

The NMSDMON project relates to a system for management and monitoring network and objectives designed for telecommunications operators that offers more services for them: data acquisition from various equipment and sensors, management of network resources, workforce management, configuration and management of network elements.

The designed product from the stages of the project is an integrated platform that implements various functionalities for: data acquisition (through measurement parameters of telecommunications lines), control and alert system configuration, data visualization and processing, management and monitoring of network elements.

The proposed SiGeMoRe system which is accessible through a web platform, was tested in different scenarios: measuring and transmission of network parameters, storing and processing data required for equipments status and monitoring equipment and lines.

In the process of developing solutions to achieve innovative concepts for SiGeMoRe system were highlighted originality of research activities and innovation by making an invention request and technical documentation that contains specific sections of a patent. The patent includes: description of the invention, claims, drawings and summary of the invention patent request.