

# Network Security Solution

## Client Background

Incorporated in 1976 as a custom data communications solutions provider for the newspaper and financial services industries, the Client designs and manufactures a line of secure out of band management devices, securing management access to console ports on routers, firewalls, network and security appliances on private, public, and government networks worldwide.

## Business Challenge

The Client approached us with the need to modernize a network management solution for controlling and monitoring vast, geographically dispersed sets of authentication and encryption hardware.

Our primary goal was to deliver a well-designed, maintainable application that facilitates secure network management.

## Project Description

The application is an evolved version of an antiquated C++ based solution. Since the software had a long usage history, was poorly documented and lacked consistency in design and implementation, its maintenance became a massive burden, while an aged user interface took its toll on network operator productivity. These challenges clearly required proactive measures, and the Client turned to iTechArt for assistance in redesigning and re-implementing the system.

Having immersed ourselves in the business specifics, we devised a blueprint for redesigning the system and porting it to the .NET platform.

### 1. System architecture

Over time, due to escalating system complexity, the system's design had turned into a black box. Tight coupling between the presentation logic and the business logic affected application performance and reliability, while each additional modification made the system even more opaque.

We initiated a staged redesign process, constructing the new application based on the classical three-tier model and the MVC design pattern. A clean separation of concerns enabled us to ensure maximum transparency and code comprehensibility.

### 2. Business data handling

The selected global design approach to a significant extent hinges on the necessity to optimize and codify routine data management. The database structure was scrutinized and redesigned. New mechanisms for data updating, loading, filtering and caching were introduced.

### 3. User interface

The user-facing part of the system underwent considerable improvements, which reach far beyond visual attractiveness. The new user interface was designed around the Ribbon-based user experience paradigm. This new paradigm allowed us to reorganize the previously jumbled sets of menu items and make it easier for administrators and operators to use the system most efficiently.

## Overview

### Client

Founded: 1976

### Industry:

Telecommunications/Network Security

### Country:

USA

### Business Value:

Advanced system security

### Technical Value:

Secure network management solution

### Development Model:

Agile

### Services:

Development, QA

### Tools and Technologies:

- WinForms
- WCF
- .NET Framework 3.5
- DevComponents
- DevExpress
- IPWorks
- MS SQL Server 2005/2008

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The refactoring process involved the use of a powerful technological toolset – from WCF for ensuring advanced network security to third-party user interface components for boosting development productivity.

## Value Delivered

The application unifies security device management tasks and facilitates configuring and maintaining networks of varying complexity. The application provides adequate protection for security related data and is essential for ensuring that critical infrastructure components cannot be tampered with and are accessible for authorized operators and administrators only.

An integrated approach to network management is secured by a central database, which stores data on all the registered users and devices and allows automatically updating local device databases. The global application structure is based on device groups, distinguished by geographical proximity or any other association parameters valid for the context at hand. This approach supports a meaningful hierarchical organization of user permissions within a particular sub-network. Each device is thus handled centrally and by an authorized team.

The application has a clean modular user interface, which seamlessly adapts to a variety of usage contexts. Users can adjust the application workspace to their needs by reorganizing dockable panels and tabbed views and saving the preferred workspace configuration.

Advanced system security is guaranteed by support for seat, RSA and device licenses, as well as encryption for server connections and sensitive data stored in the database.

We managed to extract and conserve years' worth of industry specific experience, translating it into solid, durable software.

iTechArt provides in-depth, high-quality and cost effective software development and consulting solutions to corporations across Europe and North America using both onsite and offsite service delivery models. iTechArt was founded in 2003 and has developed substantial strengths Application Development, Project Management and Outsourcing areas. iTechArt possesses deep domain knowledge through its proven research and implementation strategies across many industries including, Financial Services, Marketing & Digital Media, Security, Healthcare & Life Sciences, Retail and many more. We deliver the most effective and competitive solutions to our clients to achieve mutual business growth and success.

### Quick Facts

Founded: 2003  
Headquarters:  
Iselin, New Jersey, USA  
Development Centers:  
Minsk, Belarus; Kiev, Ukraine  
Team: 400+ employees

### Industries

Financial Services  
Marketing & Digital Media  
Security  
Healthcare & Life Sciences  
Retail  
and others

### Services

Application Modernization  
Enterprise Mobile Development  
Custom Software Development  
IT Staff Augmentation  
Software Testing & QA  
Software Maintenance

### Practice Areas

Enterprise-Level Software  
RIA  
Mobile  
Web & Intranet Portals  
Middleware  
Business Intelligence