In company Arctel I developed (mostly by myself) full-scale billing solution, combined with CRM features.

When I started working at this company, the number of customers was relatively small — around 40-50 — and all invoices were manually calculated in Excel. However, as the customers base grew rapidly and reached several hundreds, manual calculations became impossible. This led to the need for an automated solution, which I mostly developed myself.

Overview

This project involved creating an automated billing and reporting system that integrated data from various sources, streamlined customer service processes, and enhanced sales department capabilities. The implementation led to significant improvements in accuracy, efficiency, and productivity.

Problems and Solutions

1. Data Integration and Process Automation Initially, the company's existing platform, served customers calls, was unable to handle tariff and billing data. To address this, I created a dedicated SQL Server database for the project and developed a SQL Server Integration Services (SSIS) package that ran nightly, importing data from Oracle and calculating daily reports.

2. Call Cost Calculation and Report Generation The original platform lacked information on tariffs and call directions. I added tables for direction masks and tariffs, specifying the cost per second. A second SSIS package was created for monthly calculations of customer invoices. Reports were generated using Crystal Reports, which included detailed billing and call history. These reports were printed and sent to customers.

3. Normalizing Customer Addresses Customer addresses were stored in a text format, which made it difficult to process them for mailing purposes. I developed a process to transform the addresses into a normalized structure, optimizing the mailing process.

4. Data Export and Automation of Email Distribution To simplify data handling, I implemented data exports to Excel and developed a bot for automatic email distribution of files to clients.

5. Integration with Accounting The integration with the accounting system was done by a third-party developer, as I am not specialized in accounting. I developed an export process to transfer billing data to the accounting system, which ran on SQL Server. An additional application was used to generate financial documents for printing.

6. Managing Monthly Tariffs For clients who joined mid-month, payment had to be prorated by the number of days. I added new tables to the database to handle these calculations.

7. CRM System Development I created a WinForms-based graphical interface for the customer service department, including a database, interaction history, and reporting. I used the DevExpress XtraGrid library to create filterable and sortable grids similar to Excel. This interface served as the foundation for the CRM system.

8. Sales Metrics Sales needed metrics to evaluate staff performance. I added data imports from an office-only phone station in CSV format. This allowed the system to calculate daily call volumes for each sales representative and track potential customers interactions, showing stages in the sales process for managers.

9. Activation Statistics for Individual Customers For individual customers, I developed an additional metric to track the time of their first calls, marking the “activation” of the customer. I created a bot that sent daily reports of these metrics to the sales specialists responsible for this segment.

10. Authentication and Security The system used password-based authentication, storing only password hashes in the database. Role-based access control ensured, for example, that each sales representative did not have access to other representative’s customer base.

11. Multi-Currency Support The system supported multiple currencies and included an automatic import of exchange rates from the official Central Bank server to ensure up-to-date calculations.

12. Application Deployment I used ClickOnce technology for deployment, allowing the application to be installed with a single click. The system also had the ability to mark certain versions as mandatory for installation.

13. Backup and Logging I configured regular backups of the main database and established logging for data recovery and system reliability.

14. Database optimization Intensive work with database required writing complicated stored procedures and advanced T-SQL queries with optimized performance (for instance, building indexes).

Outcome

The implementation of this project significantly simplified and automated billing and reporting processes, reduced time spent on data processing, and minimized errors. Customers began receiving accurate and timely invoices, and overall workflow efficiency was enhanced across different departments. The improvements increased company productivity and made the work of employees more manageable.