



White paper

# Secure communication between Symbian based mobile phones

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## Customer

The customer is a state agency.

## Project Overview

The goal of the project is to establish secure communication between mobile phones based on Symbian platform. In future steps current product will be extended to support new platforms such as Windows Mobile and Android and , GPRS will be adopted for new transport protocol.

To achieve secure communication devices are supporting AES and DES cryptographic algorithms based on Symbian cryptographic library. For cryptographic key exchange Diffie-Helman algorithm is chosen, as well as RSA call authentication. Proprietary algorithms are also supported and can be easily integrated in current software stack.

For transportation data, devices are using Circuit Switched Data. CSD uses single radio time slot to deliver 9.6 Kbit/sec to the GSM network.

For compressing and decompressing voice data devices are using Adaptive Multi Rate (AMR) speech codec.

The project consists of four phases:

1. Concept development, feasibility study and creating a product prototype.
2. Development of the product.
3. Testing and verification
4. Continuous feature development and support.

The initial concept has been developed by the RT-RK developer team based on customer demands. The concept was further discussed and developed during prototype presentation and interaction with the customer.

The chosen target OS was Symbian 3rd edition smart phone. In order to create a product prototype in a limited time, the Carbide development environment is chosen as well as Symbian C++ language. Apart from general knowledge of developing applications for mobile

phones on Symbian OS, our team also had a required knowledge in Symbian Phone API, CSD telephony service, Cryptographic API, as well as File and Application Management API, and Symbian UI development.

The prototype was made in a very limited time. The prototype product had requested features for establishing crypt voice connection between phones, and it helped both the customer and RT-RK prepare the final product development. It was then confirmed and decided that the suggested technologies for the development are right. The product should be written in native environment due to higher flexibility of implementation for developers, as it would increase program execution speed and decrease program size. User interface elements within the product supposed to be based on Symbian UI API.

For testing and verification purpose special application has been made for PC and smart phone. It has been used for automated testing of the solution.

## Nokia™ solution

Being the most popular platform for mobile telephony, solution was developed for 3rd edition of the Nokia™ phone platform.



The UI has been customized upon the customer's request which led to creation and implementation of custom controls of all graphic elements in the application. This enabled the team to easily adopt additional customer's requests and ideas that came over the development process. Currently supported devices are: E61, N73, 6120 and the list is growing.

## **Benefits**

The project covered the complete development from the basic idea to the final product. All development steps and production of pilot series were either conducted or organized by RT-RK, in correspondence with the customer. The final solution fulfills the customer's requirements both in terms of price and performances. The complete development process and costs were transparent to the customer via regular meetings and appropriate reports.

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