Research-and-production firm "I.V.A." is working in the area of Information Technologies and Services from 1991. The firm developed the proper platform for the rapid development of the different applications( RAD), including the possibility of the integration of the second-part information systems into the single distributed program complex.

The resulting applications can work immediately under several operating systems. Currently, there is the complete support for Windows and Linux, partial for RTOS-32 and QNX. The Windows Mobile support is in development.

We have among our clients the big state-owned companies as well as the small firms. Our staff always provides the high level quality development of the applications and the support during the test-run and the exploitation phases.

The company personal is experienced in the creating of the applications in different areas, from the automation of small business processes to the distributed software for the cooperative work of large number of the people inside not so small Russian Federation territory.

We hope that your company needs in the information systems can be easily satisfied by the available products of our firm. Or the necessary application could be quickly developed basing on the experience of our staff , combined with the established norms and rules of the software development, its documentation, testing and exploitation support.

The main firm product is the RAD platform «Miracle plus».

This platform provides the set of non-language means for the construction of the application. It is based on the method of the solution logics formation by the mechanism of the organization of the relations between the system components using the "event-reaction" scheme. Among the advantages of this platform there are the possibility to realize the complex solution logics without the programming language knowledge, the possibility of creation of the new system components using the basic technological scheme, CAD-methods, providing the simple and rapid way for that. It is very important feature in case of complex enough projects.

The development of this concept was started in 1993. The first product created in this line was «Miracle» for the OS Windows95, released in 1995. It was used for the realization of a number of the applications of different level of the complexity, from the simple ones to the Internet based distributed systems.

In 2007 the work on the new product in this line was started. At the end of 2008 the completely renewed realization of this concept was released. While it is named «Miracle plus», and the OS Windows for the application construction is still used, it is a completely new product.

First of all, the applications created using «Miracle plus» are immediately executable under a number of the different operating systems. The execution of the application is supported by the Miracle-machine for each OS. At the moment the Miracle-machine is available for Windows and Linux. The QNX and Windows Mobile support is in the nearest perspective.

The platform «Miracle plus» permits to construct the complex application using the high level abstraction, operating only with predisposed components. The concept of "Finite State machines" (FSM) is placed in its base. This technology is very appropriate for the organization of the complex applications controlled by a massive flow of an asynchronous events.

The FSM concept implementation in «Miracle plus» gives the user the possibility quickly project the the application in scheme "event-reaction" in a way taking into account all necessary previous history of the events flow.

Below we collect the basic properties of the component (automate) in the FSM:

• Event - the reaction of the component in the response to the received command.
• State - the set of data defining the component between the events.
• Transition – the process of the change of the component state.
• Command - an action executed during the transition.
• Properties - the parameters to be tuned to make the specific configuration of each component exemplar.

The set of the components (automates) with predisposed connections between them permits to create the solution matrix. The actually executed logic depends on the starting point of the automates in the system. The behavior of such systems is controlled by a number of the events of the different types. And the reaction on the any certain event depends on all the history, takes into account the complete sequence of all relevant previous events.

The events controlling the finite state automates can be external for the application, coming from the keyboard, mouse, timer, or from any network or local device, or internal, generated by the other components or programs.

We should point out that the programming using FSM concept is quite different from the usual routine programming. Having a certain experience one can obtain the working and tested application in a significantly shorter time than using the usual programming way. The testing period can be much shorter  and the support during the exploitation phase is facilitated too.

All this without restrictions could be applied to the applications created using «Miracle plus» platform. When necessary the modification of already exploited  project is very simple. The new version of «Miracle» has completely restructured mechanism of the application project organization. The additional new means for projecting of the new system components are introduced. Two complementary ways of a rapid logic prototype creation are provided. There is as a complete debug service providing the necessary development control in an event flow regime as well as the possibility to investigate it as a net graph of the events.

The application themselves are represented inside the «Miracle plus» platform as the XML-documents..

The library of the system components is divided into two classes.  First one contains the visual (GUI) components. The second one – the special components, dedicated to the solution of some logical or computational tasks.

Among the visual components there are currently the button, radio button, the table, the list, the text - editable and not editable, the group, the image.

The second our product  we would like to present is the Integrating System (InS). Its purpose is to facilitate significantly the creation and exploitation of the complex heterogenous distributed systems.   Its main component, Integration Server provides the integration of different network distributed information systems and hardware into the integrated information complex.  Any set of complex rules of its exploitation and possible forced or planned dis-integration into the temporary  independent parts and subsequent planned or forced by external conditions  re-integration can be prescribed. The description of the integration rules, the scheme of the interaction between the system components is based on the commutation of the general data (events, commands, generic data of any type) flows   between   integrated   components.   The   typical component can be the complex information system as well as a single device.

The Integration Server is provided for OS  Windows, Linux, RTOS-32. In a perspective for Windows Mobile and QNX too. The integration rules are   presented as an XML document.

Summarizing all said  above:

The «Miracle plus» platform contains the Project Creation Environment, the Miracle-machine and, optionally, the Integration Server.

The application itself is formed as the XML document, containing the component set description and the structure of the interconnections between the components.

The final execution of the application is provided by the  Miracle-machines.

The Project Creation Environment is provided only for OS Windows. The   Miracle-machine and, the Integration Server are available for OS  Windows, Linux, RTOS-32; in a perspective for Windows Mobile and QNX too.