

Daniel Gaska¹, Jaroslaw Zubrzycki²

PLATFORM ONE4ALL NEW COMPUTER SOLUTIONS IN SERVICE-ORIENTED ARCHITECTURE (SOA)

The paper presents the foundations for building the systems of service-oriented architecture, SOA, the concept and the influence on functioning of the whole enterprise. The newly presented platform one4all uses several computer products implementing as services for realization of the basic/fundamental business processes, communication and workflow management, project management, or the analysis of business activities.

Keywords: service-oriented architecture (SOA), platform one4all.

Даниель Гошка, Ярослав Зубжицьки

НОВІ КОМП'ЮТЕРНІ РІШЕННЯ НА ОСНОВІ ПЛАТФОРМИ "ONE4ALL" У СЕРВІС-ОРІЄНТОВАНІЙ АРХІТЕКТУРІ

У статті представлено загальні підходи до впровадження систем типу "service-oriented architecture", їх концепцію та вплив на функціонування підприємства. По-новому презентовано платформу "one4all", що використовує кілька комп'ютерних програм, впроваджених з метою вдосконалення основних бізнес-процесів, обміну інформацією, управління проектами чи при проведенні аналізу господарської діяльності (бізнесу).

Ключові слова: сервіс-орієнтована архітектура (SOA), платформа "one4all".

Даниэль Гошка, Ярослав Зубжицки

НОВЫЕ КОМПЬЮТЕРНЫЕ РЕШЕНИЯ НА ОСНОВЕ ПЛАТФОРМЫ "ONE4ALL" В СЕРВИС-ОРИЕНТИРОВАННОЙ АРХИТЕКТУРЕ

В статье представлены общие подходы к внедрению системы типа SOA (сервис-ориентированной), их концепция и влияние на функционирование предприятия. Представленная платформа "one4all", которая использует несколько компьютерных программ, внедренных с целью усовершенствования основных бизнес-процессов, обмена информацией, управления проектами или при проведении анализа хозяйственной деятельности.

Ключевые слова: сервис-ориентированная архитектура (SOA), платформа "one4all".

1. Platform one4all. Platform one4all uses Microsoft software to integrate computer solutions at an enterprise. Thanks to using XML language to exchange data between applications it is possible to implement the solution of other manufacturers, such as SAP.

Decision on choosing the strategy of informatization requires from organizations (both public and private) defining the concrete and measurable goals that will assure them a possibility of their future progress and development, obtaining competitive advantage at a market and also increase their effectiveness and rapidness of actions.

one4all is a comprehensive solution that can be easily adopted to the needs of both public and private sectors. The solution is built based on the proved technology

¹ Institute of Technological Systems of Information, Lublin University of Technology, Poland.

² PhD, Institute of Technological Systems of Information, Lublin University of Technology, Poland.

and environment of the Microsoft systems and know-how and experience of the specialists working on its creation and further development. Operational activity of an organization becomes more effective and forecasting of the desired development directions is possible due to the application of the one4all solution.

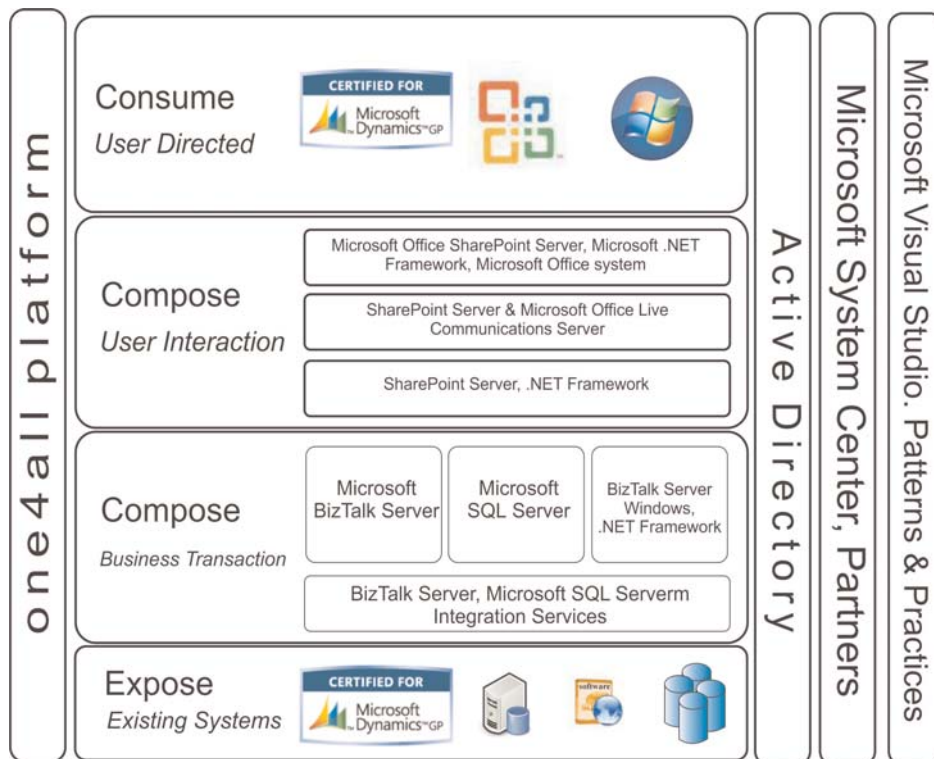


Figure 1. One4all platform and Microsoft Dynamics business management software in SOA architecture [5]

one4all in the particularly helps to:

- eliminate the "bottle-necks" and integrate business processes and actions;
- manage available funds in the most effective way;
- simplify complex processes of human resource and payroll management;
- improve project management;
- ensure safe and efficient communication and exchange of information among members of an organization;
- organize the work in the most effective way;
- assure security and data protection.

one4all integrates such areas of organization activity (Fig. 2):

- realization of basic/fundamental business processes;
- communication and workflow management;
- project management;
- analysis of business activity.

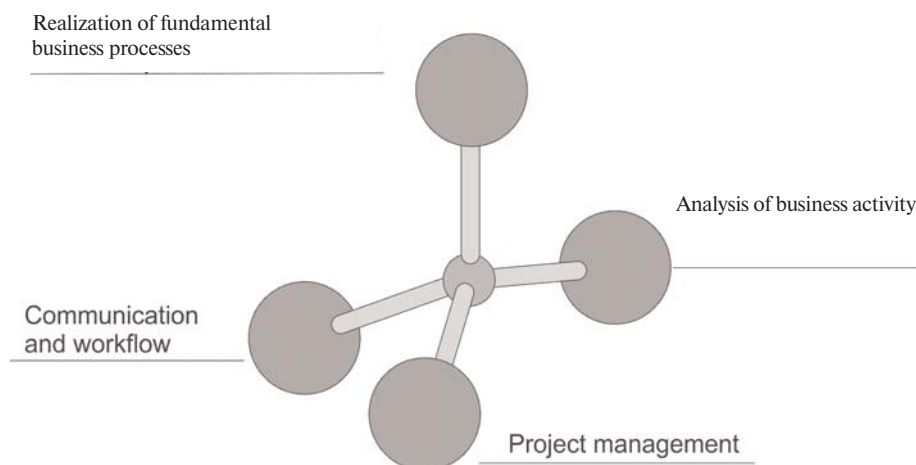


Figure 2. **one4all integrates such areas of organization activity [10]**

Realization of basic business processes. Area of the realization of basic business processes is covered by the ERP class solution to manage organization. This solution makes it possible for employees and the whole organization to make optimal business decisions. It contains comprehensive functionalities that automate and improve management of financial processes, petitioner relations, services for community, human resources and other. It allows therefore integration of processes, technology and employees that can be in any place in the world. Use of this part of one4all influences the efficiency and overall better functioning of the whole organization [3].

Communication Management. Accessibility, exchange and passing through information is the key aspect of every institution's activity. one4all allows managing knowledge database and sharing documents through the built-in Document Center which improves the flow of information in organizations. All data is accessible through the Internet and Intranet portals created to ensure quick, easy and intuitive access to the required information. Information about events is sent to entitled and interested persons automatically. one4all also gives an opportunity for many engaged persons in a certain task to work on one document at the same time. Another plus is the ability to manage the following versions of the same document with a full insight into changes tracking with an option of reviewing and accepting them. Also, in order to: ensure better communication and understanding of the sent information, create better relations between employees and eliminate barriers of distance one4all uses a communication platform that allows voice and vision transmission for the unique chance to have tele- and video conferences [5].

Employees of the departments located in a considerable distance from each other use Internet cameras to communicate. This way they can effectively exchange ideas and information. During work they create working versions of the documents about which other member of a team is notified by e-mail and have access to them. The director receives one and the final version of the document already accepted by managers, but in each second can see how the works were performed.

one4all:

- assures secure access to information with the use of Internet and Intranet;
- simplifies procedures concerning information and documents exchange;
- makes team working in various locations more effective;
- eliminates or limits the quantity of paper work
- gives a full insight into the history of the versions of documents.

Project Management. In order to more effectively achieve goals and in optimal way use given resources more and more organizations uses a projectile approach to their activity. Answering such needs one4all makes it possible to manage and run projects. By just one click managers are able to check use of resources, their accessibility in a certain moment, work progress and deadlines of each task in the schedule. Resources are booked as a result of full automation in the moment of creating projects and participating employees informed about assigned tasks and deadlines of particular stages of a project. one4all tracks the whole cycle of life of a project in a quick and easy way, plans expenditures and controls costs [7].

one4all:

- supports planning and using of accessible human, material and other resources;
- allows controlling the course of realization of particular stages of a project;
- allows automatically tracking of the cause-effects linkages between individual tasks;
- automatically informs participating human resources about allotments and changes in a project and assures obtainment of feedback information about the progress of works (also through Internet).

Reporting and Analyses. It is possible to create measurable and effective reports and analyses due to the fact that one4all uses the information from the areas of the realization of business processes, communication and workflow management and project management. Such personalized and answering to specific needs reports are used by managers and specialists and support them in decision-making processes and forecasting future actions. Managers are able to react quickly and wisely to changing situations due to the fact that analytical data is accessible real time. The solution is very functional and user friendly considering the fact that data is presented in both graphic and tabular forms.

Additionally, the report which in this moment is merely a fulfillment of formal requirements can serve to yet better plan next projects in the future, thanks to it one4all:

- allows making advanced reports and analyses;
- assures access to information in real time;
- allows making simulations of various actions, their analysis and predicting results, therefore, better planning and managing processes in a institution.

Using the technologies of Web services, the platform one4all makes it possible for logged-in users to use implemented services in the intranet. Fig. 3 represents the cooperation of the platform with the technology of Web services.

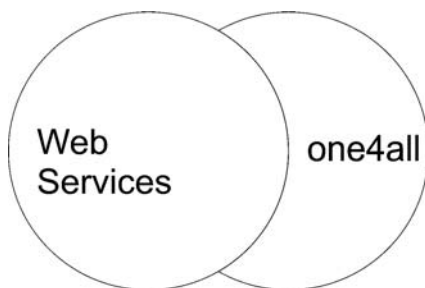


Figure 3. Web services and one4all field of action [9]

The using of services contained in one4all system is possible thanks to using http protocol and an internet browser (Fig. 4).

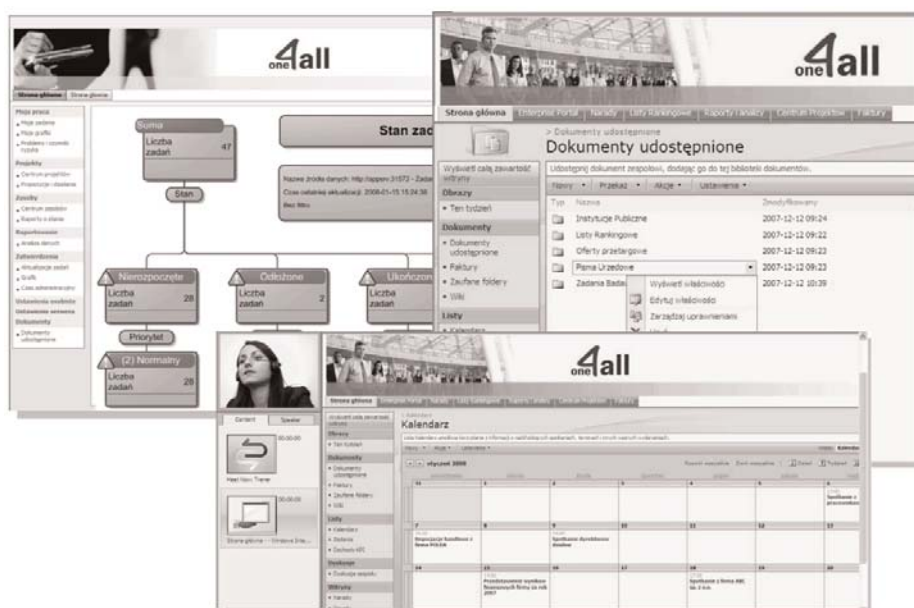


Figure 4. Platform one4all in an internet browser [9]

The area of the realization of basic business processes is done with the help of the services realized by the solutions of ERP (enterprise resource planning) class which support management of organizations. This solution enables employees and the whole organization to make optimal business decisions. The complex functionalities which the solution contains automate and improve financial processes, customer relationships management, business services, human resources management and logistic processes (SCM - supply chain management), which includes the efficiency of transportation (TMS - transportation management system), optimization of usage of areas (WMS - warehouse management system), selling-buying production processes, and other processes within an organization (Fig. 5).

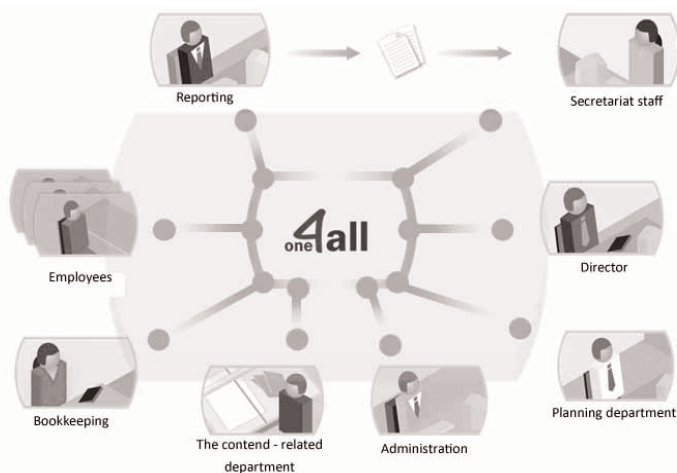


Figure 5. Description of content-related schedule for the platform one4all [9]

Conclusions. The platform one4all is the new concept of the platform which can offer potential customers a range of services which can be implemented and developed, depending on specific needs of an organization. The nature of the platform one4all makes it possible to implement several services, thanks to which:

- It helps to promote the development of information society since the platform one4all allows working at distance and creates new global possibilities for employment; increase the availability of experts services; decrease the costs related to creating new work places and commuting. The platform one4all makes communication services accessible, enabling the broadcast of sound and picture, employees can contact through tele- and video-conferences which assure more effective communication and better understanding of information, building perfect relationships and overcoming distance barriers.

- The platform one4all for higher education institutions - the Modern University, makes it possible to realize advanced functions of e-learning/distance learning which results in raising the quality of teaching and lowering the costs of education; the access to attractive teaching materials; better possibilities for self-education.

- The platform one4all allows access to services of advanced Internet applications which allow implementing electronic trade and give access to global markets; allowing consumers the choice of the best offers; lowering the costs of distribution and promotion.

- The utilization of the platform one4all is effective in improving organizational economic activity through: improvement, of information exchange between enterprises and inside enterprises in distant geographical locations; lowering the costs of economic activity; facilitation and acceleration of accounts; the possibility of remote management of financial centers at banks.

- The platform one4all for public institutions allows remote access to legal acts, information about realized undertakings, auctions organized, legislative plans and electronic exchange of correspondence.

References

- Bae B. B., Ashcroft P.* (2004). Implementation of ERP Systems. Accounting and Auditing Implications, ISACA Journal Volume 5.
- Brenner M., Unmehopa M.* (2007). Service-Oriented Architecture and Web Services Penetration in Next-Generation Networks, Bell Labs Technical Journal 12(2), 147-160.
- Gaska D., Swic A.* (2010). Possibilities of using platform one4all in implementing computer solutions in service oriented architecture, Applied Computer Science - Production engineering IT-driven concepts, Vol. 6, No 2, Koszalin.
- Maguire S.* (1993). Writing solid code: Microsoft's techniques for developing bug-free C programs, Published by Microsoft Press Washington.
- Nayak, N., Linehan, M., Nigam, A.* (2007). Core business architecture for a service-oriented enterprise, IBM SYSTEMS JOURNAL, Vol 46, # 4.
- Varadan, R., Channabasavaiah, K., Simpson, S.* (2008). Increasing business flexibility and SOA adoption through effective SOA governance, IBM SYSTEMS JOURNAL, Vol 47, # 3.
- Wolski, M.* (2008). Budowanie biznesu w oparciu o systemy zorientowane na usługi (SOA). BAR, nr 04.
- Microsoft Dynamics Enabling a Real-World Approach to Service-Oriented Architecture* (2008), White Paper, January.
- Rotem-Gal-Oz Arnon* (2007). Bridging the Impedance Mismatch Between Business Intelligence and Service-Oriented Architecture, <http://msdn.microsoft.com/en us/library/ bb419307.aspx>.
- Varadan, R., Channabasavaiah, K., Simpson, S.* (2008). Increasing business flexibility and SOA adoption through effective SOA governance, IBM SYSTEMS JOURNAL, Vol 47, # 3.
- Walker, L.* (2007). IBM business transformation enabled by service-oriented architecture, IBM SYSTEMS JOURNAL, Vol 46, # 4.

Стаття надійшла до редакції 09.08.2012.