

WHITE PAPER



SOA - THE ICORE WAY

iCORE

Turning data into profit

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Summary

Service Oriented Architecture, or SOA, is an approach to software design and software architecture in which various applications provide each other with **self-contained and loosely coupled services**. The idea is to let the IT systems **adapt to the business needs** instead of the other way around.

Implementing SOA is not about introducing new applications in your IT environment, but **learning to use your existing software resources** more efficiently. From a design perspective, SOA can be thought of as a “black-box” architecture where the various components form a well-defined service layer, hiding the underlying complexity. **Adapters with standardized interfaces** let you reuse services regardless of the context. A central component in SOA is the **Enterprise Service Bus (ESB)** which acts as a message routing and integration backbone.

SOA has the potential of greatly improving the **flexibility and competitiveness** of your business, provided it is well thought-out and implemented. It facilitates close co-operation between the IT and business departments and makes it easier to work towards a common goal.

At iCore, we promote a service oriented approach and want to help you build the best SOA integration solution possible. Our developers and consultants are experienced integration experts who will put your business needs first. We recommend that you try out our **proof-of-concept offer**, start implementation in a small scale and let your SOA grow incrementally

What is SOA?

In short, Service Oriented Architecture (or SOA) is an approach to software design and software architecture in which various applications provide each other with self-contained and loosely coupled *services*. Each service performs one or several activities, for example retrieving an online bank statement or sending an invoice.

SOA has the potential of greatly improving the flexibility and competitiveness of your business, provided it well thought-out and implemented. This document serves as an introduction to SOA, and how an integration solution from iCore can become the foundation of a successful SOA implementation.

A flexible IT architecture

It was not long ago that large ERP systems were considered the best way to create a powerful, competitive, and future-proof IT infrastructure. Today however, many people feel that much like the dinosaurs, large “monolithic” ERP systems are simply not flexible enough to cope with rapid changes in the environment. Today’s business climate is characterized by technological paradigm shifts, globalization, mergers & acquisitions, outsourcing and virtual cooperation. These are factors that will put a whole new set of demands on your IT systems.

ERPs are often large, complex systems designed with a rigid IT architecture. Rollout can be extremely time-consuming and expensive, and when the ERP is finally in place process flows are not easily modified. As a consequence, your business process have to adapt to the IT system instead of the other way around.

This is why a large ERP system fits badly in SOA. Think of SOA as the tool that can help you create small, specialized solutions perfectly designed to support your business processes.

The concept of reuse

One of the basic ideas in SOA is that you should not discard what you already have.

Even if your legacy systems are outdated and have limited functionality, they probably still hold a lot of data and may also offer some valuable services. With SOA, you keep the best abilities of your current software assets and repackage them in the most useful way, with increased efficiency and added reusability.

Initially, this new approach to IT architecture may require a concentrated effort. The first steps towards SOA are usually more demanding than the ones that follow. After a while your organization gets used to a new way of thinking, and planning and creating new business services becomes a natural part of the enterprise development process.

Using standards is another important aspect of reusability. By using industry standard interfaces your organization will gain an increased ability to adapt to the constantly changing demands of customers, partners, and other business associates. To enable your systems to follow industry standards without doing any hard-coding, you use something called adapters. They work much like the travel adapters you plug into your electrical socket. Once the Adapter is configured the “translation” is automatic.

Black-box building blocks

With SOA you build applications that implement business processes or services through a set of loosely coupled black-box components organized in a well-defined service layer. Some of these components may be available in your existing IT environment, while others need to be built from scratch.

Existing application components are made available through adapters. By doing so, they too are treated as intelligent black boxes that can be used to build business services.

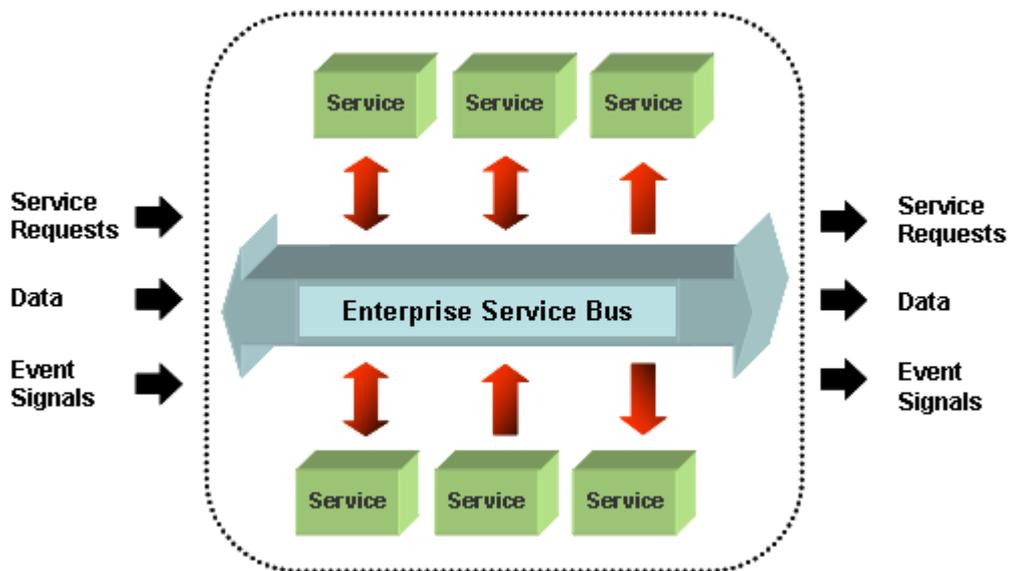
Loosely coupled services

In a SOA, services are developed so that they can be assembled into composite services – or just as easily – disassembled into their functional components regardless of system technologies. The integration interfaces have minimal assumptions between the sending and receiving parties, which means that a change in one application will not affect the other application regardless of how they interact.

The main components of SOA

Enterprise Service Bus

An Enterprise Service Bus, or ESB, is an application that provides access to other applications and services. It acts as the messaging and integration backbone of an enterprise. Many people consider the ESB a key component to realize SOA.



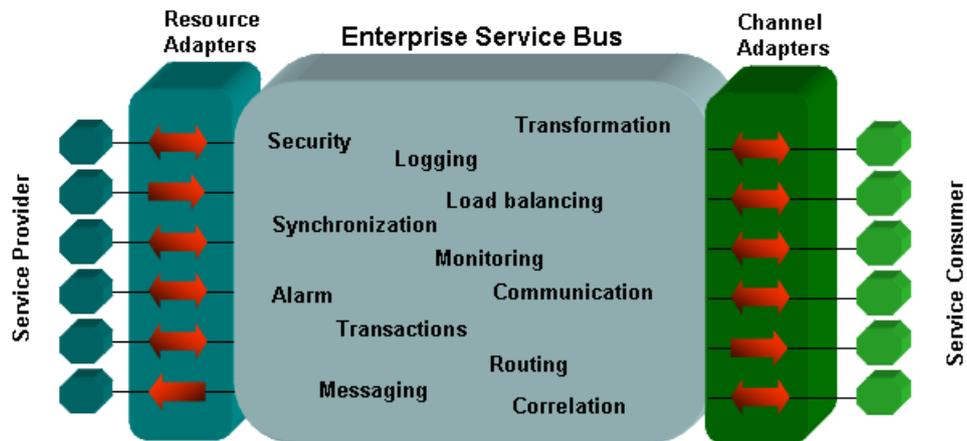
An Enterprise Service Bus acting as integration bus or broker. The services are black-boxes, accessed only through Adapters.

Adapters

In SOA, adapters are the devices that make it possible for components in the different applications to communicate and exchange services and data.

However, the components spend little time speaking directly with one another. The exchange goes through a service broker, which uses the registry of the receiving

application to connect the two components. By using the registry to search and locate the component, the actual interaction between the two is kept to a minimum. This is a prerequisite for creating loosely coupled services.



To keep services loosely coupled, all logic is located in the ESB.

What can SOA do for your enterprise?

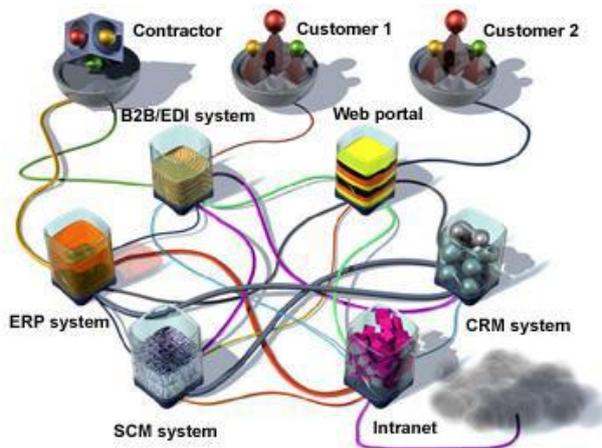
In today's business climate, flexibility and adaptability are key characteristics of a successful enterprise. Using SOA enables you to build and deploy IT systems that directly serve the goals of your business – the idea is to let the IT systems adapt to the business needs instead of the other way around.

With SOA, business and IT processes are integrated into a framework that uses and enhances the capacity of existing systems, while at the same time allowing for easy and quick changes. It lets your company focus on its business instead of having to consider the technical limitations of your ERP system.

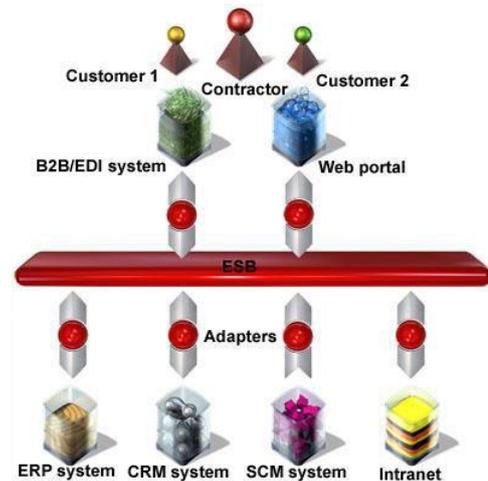
SOA recognizes that different IT tools are good at different things and there is no ideal “Jack of all trades”. The keywords of SOA are:

- Business process
- Services
- Loose coupling
- Distributed
- Reuse

This means that the business processes define the required services that will be realized by the IT systems. Furthermore, a “loose coupling” between components allow services to be distributed and reused. Think of your IT systems as a hidden toolbox providing the exact services required!



Example of traditional architecture



Example of same systems in SOA architecture

It may sound as if you need to buy and install a whole bunch of new IT systems or applications to implement SOA, but here's the clever part: SOA is based on your already existing IT resources. And not only can you reuse old legacy systems, SOA can actually help you use them more efficiently.

SOA can be implemented by adding new composite applications, built with modern development tools, “on top” of your existing applications. This means a simpler development process, in which composite applications are loosely connected to existing applications and infrastructure thereby making it easier to switch and replace old applications when the time comes.

What are the financial returns of SOA?

SOA does not guarantee any direct financial gains. Nor does it mean that all your concerns and worries will go away. However, it does give you more technical freedom and business flexibility, which in turn creates great potential for cutting costs and increasing profits.

SOA is not only about using your applications in a smarter and more cost-effective way, SOA also lets you:

- Combine services into new composite applications.
- Access loosely coupled services through a standard interface.
- Increase the level of reuse within the architecture.

So in conclusion, SOA can make your business more agile and increase the reliability, manageability, and sustainability of your IT systems. Perhaps most important of all: SOA creates a powerful connection between business and IT.

How is SOA implemented?

You do not achieve a SOA by simply replacing your old systems with a brand new one. It is important to point out that SOA is about reuse – about structuring your already existing IT systems in a better way.

SOA is essentially a “journey” which will take time and should be implemented incrementally. The key is to take small steps, not giant strides. Once you are on the path towards SOA, we are convinced you will soon start to see its benefits.

What do you gain by implementing SOA?

An SOA approach to IT management lets IT and business departments work towards a common goal. In contrast to many new “business and IT solutions”, SOA provides a framework which allows you to reuse your current applications in a more effective way, not forcing you to spend money and time implementing a whole new set of applications.

SOA will help you align business and IT. It can be used to integrate existing assets and create new functionality by combining services from different assets. SOA extends the reach of existing applications in streamlined processes and composite applications.

So how does it affect the organisation? Who needs to do what?

- Together, the IT organization and the business managers outline a high-level map of the business that is consistent with the way the business operates.
- The IT organization creates a flexible structure that uses services in existing IT systems. The utilization of these services should be organized so that they are not affected by any organizational or business process changes. To extend functionality and usability, services are also combined into composite applications, which perform specific functions in accordance with the business process demands.
- To guarantee future flexibility and interchangeability, the IT organization uses only approved industry standards to link software assets together.

Why choose iCore?

So why should you choose iCore Solutions to build a Service Oriented Architecture?
What do we offer that others do not?

- At iCore, developers and consultants have extensive technical expertise as well as experience from real-life integration of various ERP systems.
- Furthermore, we have a wide experience of implementing process-oriented technical solutions. We do not claim to be experts in all business areas, but after more than 20 years in the integration field, we have come to know many of them quite well. We will take the time and make the effort to understand the particular requirements and processes in your line of business.
- SOA, integration, and e-business constitute our core business and it is not something we do on the side. Over the years, we have seen many integration trends come and go but we promote and believe strongly in SOA because it is based on sound principles.
- We provide ready-made accelerators with a user-friendly interface that can be easily configured into editable Adapterflows and Workflows to integrate your business applications with an ESB.
- We focus on results and are strong advocates of step-by-step integration. Rome wasn't built in a day, and neither is SOA. We do not believe you should have to start with huge initial investment which is why we offer a proof-of-concept. It allows you to assess the result and evaluate the effects of SOA at a relatively low cost. Short-term projects with high enterprise value yield a high ROI – which is a necessity in today's business climate.