

zapthink white paper

SIMPLIFYING SOA

LOW RISK, HIGH VALUE, "RIGHT WEIGHT" SOA





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December 2007

Analyst: Jason Bloomberg

Abstract

Enterprises around the world are increasingly pursuing the core business benefits of Service-Oriented Architecture (SOA)—business agility, reduction in integration expense, greater asset reuse, and improved business visibility. And yet, many large organizations are running into roadblocks with their heavyweight, enterprise-wide SOA initiatives. As an alternative, many organizations are finding a “right weight,” step-by-step approach to SOA is more effective and lowers risk as well. Such right weight approaches focus on departmental projects that leverage solutions like those from Active Endpoints that pull together Service creation, management, testing, and composition in a straightforward, “all you need and nothing more” environment that focuses on quick value without heavy skills or infrastructure requirements.

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I. Sidestepping the Challenges of Heavyweight SOA

Service-Oriented Architecture (SOA) may be on the lips of many an enterprise architect in large organizations around the world, but more often than not, talk of SOA leads to discussions of technical and organizational challenges rather than a focus on business value. Couple these doubts with many vendors' heavyweight "SOA middleware" or "SOA platform" offerings, and you might be led to believe that SOA is little more than an excuse to buy more software, or worse yet, entirely dead in the water.

Fortunately, this doom-and-gloom perspective is truly off the mark, as hundreds if not thousands, of organizations are already showing real success with their SOA initiatives today. True, there are pitfalls along the way, but none of them are insurmountable. Nevertheless, for an organization to show progress with their SOA initiative, they must be able to navigate the various challenges along the way.

Navigating around the heavyweight, vendor-driven approach to SOA that requires substantial investment in new software is one important step, but many organizations veer too far in the other direction, and take a lightweight approach to SOA that consists primarily of building Web Services. Without the proper focus on architecture, however, such lightweight approaches yield "JBOWS"—"just a bunch of Web Services," which may be redundant, incompatible, or worst of all, unmanaged and insecure. The bottom line with the lightweight JBOWS approach is that it is not truly SOA at all, because the approach lacks a sufficient focus on architecture.

To avoid both these extremes, what organizations require is a *right weight* approach to SOA—one that doesn't require large investments in software, large bets on single vendors, or extensive retraining, but at the same time, enables organizations to build Services that are truly loosely coupled and composable, enabling them to build and support agile business processes. The good news is that with the right approach and solution, organizations are able to build successful, right weight SOA implementations that reduce risk and show business value, while avoiding many pitfalls along the way.

Building the Business Case for SOA

While we lambaste enterprises who buy into heavyweight SOA, it's important to note that such large, expensive approaches to SOA can pay off in the long run. But to make the heavyweight approach successful, an organization must establish a strategic, enterprise-wide SOA initiative with a corresponding enterprise-wide business case. But for most organizations, an enterprise-wide approach to SOA is at best premature, while for other firms, SOA success means implementing SOA to solve particular problems for specific areas or lines of business. Basically, you don't have to do SOA everywhere to get value out of SOA.

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Quick hit projects that leverage right weight SOA can achieve any of the benefits of SOA, depending upon the problem at hand.

The trick to achieving this level of success is to focus on a particular business problem, and create “quick hit” projects that solve such individual pain points, in the context of an overall architectural plan. Don’t spend too much time on the plan—that can lead to “analysis paralysis” and may not be in the budget in any case. Instead, use quick hit departmental projects to fund low-risk, right weight SOA initiatives, and include architectural design in those projects whenever possible. In this way, an organization can achieve the business benefits of SOA without the need for a heavyweight approach.

Broadly speaking, such business benefits fall into four, overlapping categories: reduction in integration expense, increased asset reuse, improved business visibility, and increased business agility. Quick hit projects that leverage right weight SOA can achieve any of these benefits, depending upon the problem at hand. The primary difference between business cases for heavyweight and right weight SOA initiatives is more the scope of the problem set the organization seeks to address, more so than the type of problem. For example, a heavyweight SOA initiative may seek to achieve better Sarbanes-Oxley compliance in the face of broad heterogeneity across the enterprise—a complex and multifaceted problem. In contrast, a right weight SOA initiative may also focus on business visibility for a particular line of business, for example, better visibility into eCommerce processes.

Building for Reuse

Many people like to tout reuse as the primary benefit of SOA, but in fact, reuse is quite difficult to achieve in practice. After all, reuse really means sharing of resources—and while we all supposedly learned how to share in kindergarten, we didn’t like it then, and we don’t like it now. As such, effective reuse requires governance, and even so, presents challenges to organizations seeking to obtain business benefits from increased reuse.

It’s important, therefore, for the architect to understand that reuse builds over time. After all, the word “reuse” itself indicates that “use” must happen first. Only after an organization builds a comfort level with the use of the Services at its disposal will it begin reusing those Services. The right weight context for reuse, therefore, in part means delaying the expectation of reuse to later iterations. Seek to achieve different short-term business benefits from a SOA initiative, and let reuse grow at its own pace.

Furthermore, at the project/line of business level it’s possible to achieve a useful, albeit limited level of reuse. For example, if the line of business is a telco product development department, they may create a small set of reusable Services that they can incorporate into a handful of different telco products that the department is responsible for. Sharing such Services with other lines of business may be a side benefit, but need not be a primary concern with right weight SOA initiatives.

Achieving Right Weight Service Composition

Building consumable Services that organizations can orchestrate to support flexible business processes is a long-term goal of heavyweight SOA—but can easily be a short term goal for right weight SOA initiatives as well. Such Service-Oriented Business Applications (SOBAs), which are applications composed of Services that implement business processes, often appear to be far too much trouble for all but the most heavyweight of SOA initiatives. However, it’s important for the architect to identify those business processes in the organization that require the special flexibility, agility, and user empowerment

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benefits that orchestrating Services provide, regardless of the overall scope of the SOA initiative.

Chances are, only a small, but critical portion of all the business processes the organization executes every day can justify the extra expense and overhead that orchestrating Services into SOBAs requires. When the architect is conducting a right weight SOA initiative, this selection process becomes even more important. The line of business may only be interested in Service-enabling a handful of processes. The architect must therefore identify the specific processes the business wishes to improve, and evaluate whether those processes require the level of agility that SOBAs provide.

II. Addressing the SOA Skills Challenge

One of the primary challenges organizations face when planning SOA initiatives is that they lack architects with proper SOA skills. In fact, the discipline of software architecture is still broadly misunderstood across enterprises. Compounding this lack of understanding is the fact that there are many different types of architectural specialties, and most architects are only proficient with one or two. To be a Service-oriented architect, an individual needs a solid grasp of enterprise architecture, as well as a strong familiarity with technical architecture, information architecture, business process architecture, and data architecture. People with all of these skills are simply as rare as hens' teeth.

Right weight SOA initiatives also require skilled architects, but they need not have the same depth of experience with enterprise architecture that architects who plan heavyweight SOA initiatives should offer. In fact, working through several right weight SOA initiatives can help season the architects you have, improving their SOA skills for the day when a heavyweight, enterprise-wide SOA initiative might be in the cards.

Developers and the Challenge of Architecture

SOA presents skills challenges within the IT organization beyond the architect team as well. In particular, SOA—like any architecture—introduces difficulties among the application development (app dev) team. After all, developers are creative types; they are an independent breed who don't appreciate too much structure. Yet as architecture, SOA places often unwelcome restrictions on developers.

While heavyweight SOA initiatives may involve large teams with a broad separation of responsibilities, right weight SOA projects typically involve smaller, more agile groupings, where an architect may work directly with developers, testers, and other personnel on a day-to-day basis. Furthermore, if the organization is able to leverage tooling that supports such a range of specialties, the team-based capabilities of such a tool can ease many of the conflicts between architects and developers.

Such conflicts, in fact, often boil down to governance issues—what are the policies that apply to developers as they create, publish, discover, and reuse Services, and who is responsible for creating and enforcing such policies. Right weight SOA tools should therefore also include support for such governance capabilities, so that the app dev team and the architects can work together on policy creation and enforcement issues, instead of having the architects dictate such policies from their ivory tower, which typically leads to resistance from developers.

Process Specialists and the Challenge of Technical Implementation

SOA presents challenges beyond the app dev team as well. In fact, business analysts and other business process specialists must also rise to the SOA challenge. To be flexible, after all, business processes must retain their business context. Yet all too often, the technical details get in the way. If the business analysts who represent the line of business are not able to effectively interact with the architects as well as the app dev team, then this critical business context for the Services, as well as the SOBAs, may be lost.

Once again, a right weight SOA approach can be critically important for simplifying the automation of business processes in spite of the complexity of the underlying technology. In a properly architected SOA, business Services present a simplified interface to the business. If the business process modeling environment is able to take advantage of business Services, then business analysts and other business process specialists have an environment for creating or configuring SOBAs that enables them to provide value on the SOA team.

III. SOA on a Budget

Heavyweight efforts are predictably quite expensive, while cost constraints are often a key motivator of the right weight approach.

Of course, one of the most important differences between heavyweight and right weight SOA initiatives is the cost. Heavyweight efforts are predictably quite expensive, while cost constraints are often a key motivator of the right weight approach. The challenge for such projects, then, focuses on achieving significant business value with a correspondingly low cost—what you might call “big bang for the buck” type projects.

Sidestepping the SOA Middleware Morass

Many large software vendors would have you believe that you need to purchase a lot of middleware to do SOA—but that’s simply not true. “SOA middleware” or “SOA platforms” or other heavyweight, integration-centric offerings may actually not help you with your enterprise SOA initiative sufficiently to justify their cost. Even so, there are many maturing products on the market that may truly contribute to the success of your SOA, while keeping to a lean budget. It’s important to remember, however, you can buy the best SOA products on the market today, and you still won’t have SOA, regardless of how much or how little you spend. Buying the best tools won’t make you a carpenter, after all. Remember, SOA consists of a set of best practices—a discipline to follow, if you will.

As a result, the right weight approach to SOA product selection differs substantially from the heavyweight, middleware-centric approach. In right weight SOA projects, the architecture and the business processes drive SOA infrastructure and tooling choices, which should be best of breed, as opposed to being driven by a single large vendor. It’s true that SOA infrastructure generally relies on middleware, to be sure—but most enterprises already have enough middleware. The right weight approach to middleware is to leverage those assets already in place, and fill in the blanks with best-of-breed governance, quality, management, and Service creation and composition tooling.

Leveraging Right Weight Tooling

One of the greatest challenges of both heavyweight and lightweight tooling is the lack of emphasis on SOA best practices. Most heavyweight tools depend upon older integration technologies, and SOA best practices are often bolted on.

Lightweight solutions, on the other hand, focus on the Services alone and rarely provide assistance with architecture. However, right weight solutions concentrate on putting many of the key disciplines for SOA in a single box with integrated tooling. As a result, architects are likely to be able to take advantage of such tools, and they are also configurable to participate in enterprise SOA and governance initiatives. A comparison of the positives and negatives of the three types of tools is in the table below.

Comparison among Heavyweight, Lightweight, and Right Weight Solutions

Approach	Positives	Negatives
Heavyweight Solutions	<ul style="list-style-type: none"> ➤ Technical support ➤ Professional services ➤ User community ➤ Robust solution 	<ul style="list-style-type: none"> ➤ Expensive ➤ May need to integrate multiple products ➤ Complex dependencies among products ➤ Steep learning curve ➤ Often requires professional services ➤ Vendor lock-in ➤ Paying for features you may never use ➤ Not suitable for proofs of concept
Lightweight Solutions	<ul style="list-style-type: none"> ➤ Suitable for proofs of concept ➤ Cheap or Free ➤ Single product 	<ul style="list-style-type: none"> ➤ Limited support, services ➤ Limited scalability ➤ Spotty standards compliance ➤ Limited tooling often requires coding ➤ Little help for true SOA project
Right Weight Solutions	<ul style="list-style-type: none"> ➤ Combines SOA and BPM capabilities ➤ Rapid time to value ➤ Optional technical support and professional services ➤ Suitable for proofs of concept ➤ Suitable for some enterprise-wide applications. 	<ul style="list-style-type: none"> ➤ New to market

Source: ZapThink and Active Endpoints

Scenario testing is also an important value proposition for a right weight tool. SOA testing requires testing of a set of interdependent Services and their underlying components—more than a lightweight tool would provide, but far less risky and expensive than full-blown enterprise testing. In fact, both off-line (simulation) and online (load, live) testing is more straightforward in the context of a project than in a heavyweight, enterprise-wide context.

Because the right weight approach allows for the testing a composite group of Services, such tools support a key principle of Agile development: test first design. With this approach, development teams build the tests first and let them drive the overall implementation of the code. If done properly, the team ends up with a codebase that only contains the necessary code to pass the tests, avoiding the production of code that the team thought they required but ended up not needing.

IV. Active Endpoints: Right Weight, Low-Risk SOA

Active Endpoints brings several right weight capabilities to the table, including:

- Scenario testing
- Service manager
- BPEL4People/standards-based human workflow
- An end-to-end solution based on quick start templates.

Clearly, achieving right weight SOA depends in many ways on such an appropriate solution. Instead of trying to combine various complex, expensive products that may not be entirely suited to SOA, the ideal right weight approach takes advantage of a single solution that combines Service creation and composition with governance, quality and management capabilities across the full design, test, deploy, manage/monitor Service lifecycle in such a way that is suitable for departmental, project-based SOA efforts in the enterprise environment.

Through its *visual orchestration systems* (VOS), Active Endpoints offers such a right weight solution. Active Endpoints' ActiveVOS products provide an easier, standards-based way for companies to become more efficient and agile by combining processes, people, customers, partners and other application assets into a unified deployment and management application fabric. Active Endpoints, already known for its contributions to the Web Services Business Process Execution Language (WS-BPEL, or simply BPEL) and BPEL4People open standards, is able to leverage its experience with these and other standards into a system for corporate line-of-business developers.

ActiveVOS offers the ability to create Services easily if they do not exist, as well as assistance in refactoring non-conforming WSDL, thus insulating the app dev team from many of the technical details of Web Services. Active Endpoints also provides the ability to perform a health check on a Service that is part of a BPEL process, answering questions like whether the Service is currently operational or whether the version of the Service has changed. Furthermore, the ActiveVOS end-to-end solution includes BPEL4People extensions that support human workflow-based processes, testing scenarios for simulation of Service interactions and SOBA process flows, as well as BPEL templates that streamline and simplify the creation of SOBAs. ActiveVOS revolutionizes the creation and deployment of services-oriented applications.

In summary, Active Endpoints' ActiveVOS products combine SOA and BPM capabilities into a single solution that offers rapid time to value for customers. Their right weight solution is suitable for proofs of concept as well as a number of enterprise-wide applications. Active Endpoints also provides technical support and professional services. In the final analysis, Active Endpoints enables organizations to achieve success with their SOA initiatives in a low-risk, cost-effective manner.

V. The ZapThink Take

While enterprise-wide, heavyweight SOA has its advantages, few organizations today are able to successfully execute on such high-risk initiatives, and if they initiate such projects, it can take a very long time to realize any demonstrable business benefits. Instead, it is crucial for most organizations to take a right weight approach to SOA that enables architects to focus much of their time on pragmatic efforts that build rapid, visible value for their organizations.

When architects are implementing SOA, this need to focus on pragmatic, right weight efforts is particularly important, because of the political and technical challenges of SOA on the one hand, and the need to build and maintain business support for SOA initiatives on the other. Regardless of the problems that the SOA initiative is meant to solve, taking a right weight approach to SOA that leverages visual orchestration systems lowers risk and increases your chance of success, both in the short term with individual projects, as well as with long-term architectural change in the enterprise.

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ZapThink helps its customers in three ways: by helping companies understand IT products and services in the context of Service-Oriented Architecture (SOA) and the vision of Service Orientation, by providing guidance into emerging best practices for Web Services and SOA adoption, and by bringing together all our audiences into a network that provides business value and expertise to each member of the network.

ZapThink provides market intelligence to IT vendors and professional services firms that offer XML and Web Services-based products and services in order to help them understand their competitive landscape, plan their product roadmaps, and communicate their value proposition to their customers within the context of Service Orientation.

ZapThink provides guidance and expertise to professional services firms to help them grow and innovate their services as well as promote their capabilities to end-users and vendors looking to grow their businesses.

ZapThink also provides implementation intelligence to IT users who are seeking guidance and clarity into the best practices for planning and implementing SOA, including how to assemble the available products and services into a coherent plan.

ZapThink's senior analysts are widely regarded as the "go to analysts" for XML, Web Services, and SOA by vendors, end-users, and the press. Respected for their candid, insightful opinions, they are in great demand as speakers, and have presented at conferences and industry events around the world. They are among the most quoted industry analysts in the IT industry. ZapThink was founded in November 2000 and is headquartered in Baltimore, Maryland.

ZAPTHINK CONTACT:

ZapThink, LLC
108 Woodlawn Road
Baltimore, MD 21210
Phone: +1 (781) 207 0203
Fax: +1 (815) 301 3171
info@zapthink.com

