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LIGHTWEIGHT SOA IN A DOWN ECONOMY

DISPELLING THE MYTHS OF HIGH-COST, HIGH-RISK SOA



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Abstract

The current economic downturn has shifted the focus of most organizations from business growth to a simple survival mode. Chief Information Officers are spending more time on difficult cost-cutting decisions than on being more competitive and responding to business change. At the same time, these same businesses predict that Service-Oriented Architecture (SOA) is a critically important tool for helping companies deal with the crisis, since it helps avoid redundant capabilities, reduce IT costs, improve time to market, and position the organization for success once the economy improves.

The question then is what should companies focus on to survive these times while at the same time make the right IT investments to become more competitive when the good times are back. These practices include transparency, a ruthless focus on return on investment, and increased emphasis on governance. Choosing the right tools for SOA Governance that enable organizations to manage assets, promote systematic reuse, and maintain quality in a cost-effective manner is an essential part of not just surviving the downturn, but positioning the organization for long-term success.

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It's finally time to dispel the myth that SOA success requires a large initial investment and a long-term effort to achieve significant business results.

There has been a lot of talk recently about whether Service-Oriented Architecture (SOA) is dead. Well, of course it's not dead—there are thousands of organizations around the world who are now achieving dramatic business benefits from their SOA initiatives. What is dead, however, is the practice of spending too much on ineffective approaches masquerading as SOA.

It's finally time to dispel the myth that SOA success requires a large initial investment and a long-term effort to achieve significant business results. Instead, organizations require a redoubled focus on the basics of SOA. Among these basics are lightweight SOA governance approaches that will help companies improve their overall ability to thrive through today's economic challenges.

After all, the current downturn won't last forever. It's now time for most organizations to prepare for the opportunities that lie ahead. Companies must begin aligning themselves today for dramatic positive change when the markets improve. Now is the time for a lightweight approach to SOA that achieves business benefits quickly and cost-effectively.

I. IT Decision Making During a Down Economy

Banks, investment houses, and insurance firms are succumbing to a combination of tight credit markets and their own poor decision making. Consumers are feeling the pinch at gas pumps and grocery stores, and they're facing home foreclosures and a general credit squeeze. Businesses are feeling the effects of the downturn as well, laying off employees and failing to get the credit they need to fund operations. The world is in a global recession. So, you're probably thinking, now's the time to pull up the stakes and cancel your ongoing investment in SOA and related IT efforts. After all, why bother investing in something as future-looking as SOA when you can't even afford to keep the lights on?

Wrong! Businesses often go through a dysfunctional, schizophrenic phase of decision making that seems to continually put them at a disadvantage. When times are going great, companies are focused on rapid growth. There's so much money to throw around that there's little reason to be focused on efficiency and other longer-term benefits of SOA. From this perspective, businesses reason that they don't have time to get things right, but rather have time to do things over. Then, the inevitable happens, and the economy cools, customer demand slackens, and belts tighten. Now, there's no money left to invest in growth and agility. Rather, money must be spent on the inefficient operations because there's no additional funds to invest to make things better. Damned if you do; damned if you don't. It seems that enterprise architecture approaches like SOA will perpetually get short shrift.

So, when's the right time to invest in SOA? Think about it: when can you least

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afford inflexible, inefficient, redundant, non-interoperable systems that have high cost of maintenance and little ability to provide for future, unknown requirements? When you don't have the money. When must you invest in architecture? When you can feel the pain so acutely that you can focus on short-term wins to make SOA efforts effective. So the time is now!

Focus on Iterative, Process-Driven SOA Efforts

The business is only partially to blame for the continuous cycle of inadequate investment in enterprise architecture. The blame lies equally with the IT organization. IT departments have incorrectly positioned SOA efforts as Web Services integration projects and bought infrastructure before they figured out which Services to build, and before they figured out which problems to solve. Even worse, many IT departments approach SOA as a solution in search of a problem, without crafting a business justification or proving to the business that SOA can work to solve a small problem before throwing in millions of dollars of investment to address a large one. Many vendors are equally to blame, pushing their "SOA" products down the throats of customers without ensuring that their customers will be successful with SOA initiatives, and often misrepresenting the capabilities of their products in the process.

In times of stress and uncertainty, the best way to move forward is to take small steps and measure the results of each step to make sure you are heading in the right direction. From that perspective, SOA is not particularly risky. Remember that the fundamental objective of a SOA effort is to enable continual business change in heterogeneous environments by abstracting capabilities through Services. There's nothing inherent about SOA that requires that you Service-enable every system or every API, nor does SOA mandate that you address every business process in the organization. You can get immediate benefits from SOA by simply building one Service that the organization broadly consumes, and, more importantly, addresses a key business process problem.

In fact, if the business problem you address with your initial SOA effort improves the efficiency of a business process, you won't need to convince senior management to part with precious funds. Rather, you can recover the costs by improving the business process and using those recovered funds to reinvest in SOA, starting the cycle again. The key to this cost recovery is to start with the smallest business process you can find that is the most inefficient, where the inefficiency is caused by a lack of agility and the business is nevertheless forced to continue to invest in that inefficient business process. With the improvements coming from modest investments in SOA and business process improvement to reduce inefficiencies, an iterative approach to SOA can lead to cost recovery via an incremental cycle of most investment that leads to cost recovery.

II. SOA on a Budget

There is a secret to architectural efforts that focus on process efficiency: you don't really need to spend a lot of money to achieve it. So many perspectives on SOA are "heavyweight," high-cost, high risk projects that it's easy to lose sight of the fact that it's possible to implement "lightweight," efficient, low-cost SOA efforts for a fraction of the cost of the heavyweight alternative. Heavyweight efforts are predictably quite expensive, while cost constraints are often a key motivator of the lightweight 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.

SOA is not particularly risky.

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 initiative, 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 lightweight approach to SOA product selection differs substantially from the heavyweight, middleware-centric approach.

Best practices, in fact, are essential to the lightweight approach to SOA. Lightweight SOA best practices would typically include the following steps:

- Select one of the most inefficient processes within the broader scope of the SOA initiative
- Focus on the redesign of that process
- Implement Services to support the newly redesigned process
- Catalog process and Service metadata via the Service repository
- Enable business units to consume and compose Services
- Collect and analyze Service and process metrics to ensure that the new capabilities meet requirements.

In lightweight SOA projects, architecture, business processes, and governance drive SOA infrastructure and tooling choices.

In lightweight SOA projects, architecture, business processes, and governance 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 lightweight approach to middleware is to leverage those assets already in place, and fill in the blanks with best-of-breed governance tooling.

Lightweight SOA Governance

Governance is a critical aspect of lightweight SOA, and the most important part of lightweight SOA infrastructure for enabling SOA governance is the registry/repository. Today’s registry/repositories are fully featured SOA metadata management solutions that coordinate policy activities and enable lifecycle governance. As organizations roll out their SOA initiatives, it is important to consider SOA governance as one of the initial steps, and a registry/repository is often the most important, first piece of SOA infrastructure to put in place.

SOA is especially useful in dynamic, heterogeneous environments, and can increase business agility in such environments. However with this increased dynamism comes additional risks, for example, the risk that someone will change a business process in a way that is detrimental to the business. Because Services abstract the underlying complexity of the technology, changes to business processes or Services can place unexpected or excessive demand on the capacity of the underlying information systems, either crashing the system or having an adverse affect on the other processes that the system also supports. SOA also exacerbates the risk that someone will introduce rogue software, or that someone will change the configuration of the system in way that disrupts

The SOA governance challenge boils down to how to maintain adequate control while at the same time providing the flexibility the organization requires from their SOA initiative.

the business. For these reasons as well as others, it's important to enable governance processes that ensure the enforcement of compliance and accountability, so that change occurs in a controlled fashion and with appropriate authority.

The SOA governance challenge, therefore, boils down to how to maintain adequate control while at the same time providing the flexibility the organization requires from their SOA initiative. To this end, SOA governance requires that organizations take business policies, typically in written form, and transform them into metadata-based rules that can help automate the process of validating and enforcing compliance with those policies.

Case Study: Lightweight, Governance-Driven SOA

A large global insurance and financial services company required a comprehensive development framework for better support of its business divisions. By implementing lightweight SOA governance, they were able to reduce costs supporting their application asset portfolio by adopting lightweight SOA strategies that lowered their operational costs and improved efficiency of their IT services.

The company faced the following common problems within its business application portfolio:

- Uncontrolled spending on software asset development
- Lack of standardization
- Duplicated development assets between business units
- Lack of adequate quality improvement processes
- Inadequate controls over the operational costs and efficiency of the capabilities IT delivered to the business.

The first step was to establish a SOA adoption plan. They chose Sensedia to architect and execute this plan, leveraging already existing IBM's integration infrastructure as its integration architecture and the Sensedia Repository as the enabler of their SOA governance model to govern their asset lifecycle.

Using Sensedia's architecture guidelines and standards definitions, the company was able to customize and implement the basic principles and start the SOA initiative in an iterative, agile way. They named this approach "lightweight SOA." They split their lightweight SOA project into four phases, each with several activities and tangible results, as shown in the figure below

Governance-Driven Iterative SOA Approach



Source: Sensedia

The activities in the four phases were as follows:

- **Phase 1: Basic governance structure and existing assets harvesting** — With Sensedia's help, the company created a SOA Center of Excellence responsible for defining basic governance principles such as asset lifecycle and classification structure. They also catalogued existing Services and technology assets in the repository. Their primary goal in this phase was to raise the visibility of existing reusable assets and keep track of investments and initial savings. They were able to populate the repository with more than one hundred existing reusable Services and other assets.
- **Phase 2: Key processes and metrics** — The second step was to deploy SOA technical best practices by customizing Sensedia's SOA Toolbox for the company's specific needs. Some examples of these guiding principles include how to identify new Services, how to classify and publish Services, how to secure and deploy Services, and which design time and run time policies are important. They also selected the key metrics recommended by the Toolbox that they would then use to evaluate the level of reuse and the savings that the company would get from the initiative. They looked to keep track of Service and component usage and dependencies, and to avoid the unnecessary expense from duplicated development.
- **Phase 3: SOA standards and projects mentoring** — The company then split its efforts in two main directions: definition of development standards for creation of new applications leveraging SOA principles; and the selection of new development projects. Some of the development standards focused on advanced issues such as integrated security, testability, policy management and performance. In this phase they were able to obtain lines of business buy-in while improving governance processes, guidelines and standards.
- **Phase 4: Projects support and concept promotion** — The challenge then became to spread the SOA concepts throughout the software development silos. Presentations, workshops, hands-on support and the optimization of governance processes were key activities in this phase. Driven by the SOA Center of Excellence, the company was able to broaden the adoption of SOA across their organization with more lines of business applying SOA concepts on their projects.

In each phase there were measurable results which led to approval for new investments in future iterations of their SOA initiative. At the end of the overall initiative, after all the cumulative investment in the infrastructure, architecture, training, maintenance and support of their SOA development framework and governance processes, the company achieved savings of \$17 million, which represents a Return on Investment (ROI) of 560%.

III. Sensedia: Enabling Lightweight SOA

As the case study above illustrates, Sensedia offers design time SOA governance products that enable enterprises to manage and reuse their SOA and other software development assets. Sensedia's products reduce redundant development, accelerating ROI and improving SOA governance through the identification, creation, management and quality analysis of SOA project assets.

The Sensedia Repository is compliant with a broad range of implementation environments and development tools. It enables flexible SOA governance lifecycle definition with several out-of-the-box workflows.

Sensedia's products enable organizations to take a lightweight, incremental approach to SOA that focuses on the desired business result from the beginning of the project. They offer Service identification and architectural quality analysis in addition to their repository, enabling SOA governance with strong ROI metrics. Such ROI metrics include reuse cost avoidance per project, the return on SOA per business unit, the effective reuse rate of Services, and a Services and components reusability index.

The **Sensedia Repository** promotes the reuse through asset portfolio management. It centralizes the information and documentation of reusable software components, enhances the visibility of existing ones and captures new components and their features. The Sensedia Repository is compliant with a broad range of implementation environments and development tools. It integrates with most source code management tools, and it enables flexible SOA governance lifecycle definition with several out-of-the-box workflows. It delivers ROI data, based on the relationships between assets in the Repository, and it allows developers to use the repository from within popular IDEs, including Eclipse, Visual Studio, and others. Sensedia's toolset also includes **Sensedia Discoverer**, which automatically identifies and categorizes the asset portfolio; and **Sensedia Dashboard**, which analyzes architectural quality indicators in SOA projects and software components.

Sensedia's products improve ROI for managed software development projects by capturing and calculating key metadata metrics surrounding Service and component creation and reuse methods through customizable reports. Another key value proposition of Sensedia's products is that they improve Service quality through the integrated analysis of quality indicators for components, Services and composite applications and accelerate time-to-value through rapid identification of assets and population of the repository.

Sensedia offers products that enable enterprises to manage and reuse their SOA and other software development assets. Sensedia's products reduce redundant development and improve SOA governance. Sensedia's products also cost much less than competing products from large vendors, enabling Sensedia to provide lightweight SOA tooling for organizations who have neither the time nor the money for heavyweight SOA.

IV. The ZapThink Take

For any SOA implementation to provide the benefits of business agility in the face of heterogeneity and change, organizations require an expanded scope of governance that reconciles multiple points of view, such as business versus IT and development versus operations, and across different lines of business with different priorities. Coming up with consistent Service and process models to meet these reconciled objectives is also essential. A repository like Sensedia's is an essential tool for achieving these objectives.

In fact, architecture itself is simply an aspect of planning. It would be foolish to say that when times are tough, companies should throw planning out the window and resolve to do things the same old broken way they always have in the past. Indeed, when times are tough, it is imperative that businesses rethink the way they are doing business—i.e., their business processes—and improve them to wring out every dollar of inefficiency they can. It is the role of the architect to help identify and improve inefficient business processes, and it is the opportunity for lightweight SOA to provide value to recover the cost of that inefficiency.

When times are tough, it is imperative that businesses rethink the way they are doing business.

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About ZapThink, LLC

ZapThink is an Enterprise Architecture (EA) strategy advisory firm. As a recognized authority and master of Service-Oriented Architecture (SOA) and EA, ZapThink provides its audience of IT practitioners, consultants, and technology vendors with practical advice, guidance, education, and mentorship solutions that assist companies in leveraging SOA to meet their business needs and presenting viable SOA solutions to the market. We provide this audience a clear roadmap for standards-based, loosely coupled distributed computing – a vision of IT meeting the needs of the agile business.

ZapThink provides IT practitioners strategic insight and practical guidance for addressing critical agility and change management issues leveraging the latest EA and SOA best practices. ZapThink helps these customers put EA and SOA into practice in a rational, well-paced, and best practices-driven manner and helps to validate or recover architecture initiatives that may be heading down an unknown or incorrect path. ZapThink assists with solution vendor, technology, and consultant selection based on in-depth, objective evaluation of the capabilities, strengths, and applicability of the solutions to meet customer needs as they relate to EA initiatives and as they map against emerging best practices. ZapThink enhances its customer's skills by providing education, credentialing, and training to EAs to develop their skills as architects.

ZapThink helps to augment consulting firms' EA offerings and intellectual property by providing guidance on emerging best practices and access to information that supports those practices. ZapThink provides frameworks for product-based consulting based on ZapThink insight and research, such as SOA Implementation Roadmap guidance, Governance Framework development, and SOA Assessments, and provides a means to endorse and validate consulting firm offerings. ZapThink also accelerates consulting firms' efforts to attract, retain, and enhance the skills of EA and SOA talent by providing education and skills development

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ZapThink's Managing Partners are widely regarded as the "go to advisors" and leading experts on SOA, EA, and Enterprise 2.0 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 experts in the IT industry.

ZapThink was founded in 2000 and is headquartered in Baltimore, Maryland. Its customers include Global 1000 firms and government organizations, as well as many emerging businesses. Its Managing Partners have worked at such firms as IDC, marchFIRST, and ChannelWave, and have sat on the working group committees for standards bodies such as RosettaNet, UDDI, and ebXML.

Call, email, or visit the ZapThink Web site to learn more about how ZapThink can help you to better understand how SOA will impact your business or organization.

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