



Cost-effective agile SOA adoption through phased delivery of Web Services

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Abstract

Some CIOs and IT managers are reluctant to adopt Service Oriented Architecture (SOA) systems for their organization due to concerns about expensive implementation and/or interruptions that stall SOA programs and business operations. iLink solutions can help enterprises avoid such costly disruptions and maximize return on investment (ROI) on their SOA systems by strategically integrating existing applications into their SOA platform, one at a time. This incremental approach to SOA implementation maximizes the amount of legacy software that can be preserved, reduces business risk by spreading the IT investment over multiple phases, and minimizes system disruptions by preventing unforeseen developments in one phase from stalling the entire system. Benefits to enterprises are realized as each component is brought into the SOA domain rather than after full investment and complete implementation.

Introduction: Enterprise IT Challenges

With the arrival of distributed computing and the Internet, Enterprise IT departments are increasingly recognized as a source of business advantage. More and more self-contained IT products and services are aligned or paired with specific business units, functions, and offerings. This has often resulted in IT architectures that are highly fragmented, comprised of several independent and incompatible stand alone systems. These systems restrict information exchange across business units, and limit the reusability and compatibility of IT assets. Such IT architectures produce redundancies throughout the enterprise and are costly to maintain.

CIOs and IT managers who prioritize open, interoperable IT business solutions as necessary to maintain an enterprise's competitive advantage have sought new cost-efficient methods to meet these challenges to IT frameworks. Some of their specific aims include integrating enterprise applications, reducing system redundancies, and increasing reuse of assets.

The Solution: Service Oriented Architecture

Service Oriented Architecture (SOA) is a potential solution. SOA became feasible with the advent of object oriented computing, which made possible discrete program components with standard inputs and outputs that can be used as discrete building blocks to assemble applications, with object libraries shared between compatible applications. In SOA, application building blocks can be made available as a service to any application running on the same network. Services are structured to allow them to be invoked in a standard way, and are "loosely-coupled." That is, they can be invoked without the caller needing to understand anything about the platform or physical location of the application providing the service.

Service Optimization with SOA

SOA allows services to communicate with each other over a network through published and discoverable interfaces. This allows enterprises to achieve the following benefits

- Increased interoperability and business and technology domain alignment by maximizing the operation of services as reusable, modular components. This can reduce function redundancies throughout the enterprise system and allow IT architects to develop new applications by combining existing components. The cost of developing, maintaining, and upgrading application portfolios is lowered, giving business operations the flexibility and scalability to respond more quickly to evolving user needs and market conditions.
- Reduced significant system and business operation disruptions during implementation and modification of components. This allows an enterprise to cost-efficiently ensure and maintain its competitive responsiveness.
- Fast, continuous, and accurate communication between different systems, including legacy assets.

Risks and Challenges of SOAs

Enterprise CIOs and IT managers may be reluctant to implement SOA across their business units, even while recognizing its potential benefits. Some are concerned that SOA may prove to be a burdensome infrastructure requiring extensive and costly changes across the entire spectrum of existing IT systems. An enterprise that recognizes the long-term benefits of a clean, component-based architecture may not have the IT resources to immediately implement SOA. Others are apprehensive about their organization's ability to absorb the short-term pains that may result from switching to SOA. And still others consider SOA as delivering only internal IT savings rather than functional benefits across all business units. Many of these concerns are legitimate and should be suitably addressed in SOA implementation.

Potential Problems with SOA implementations

Some enterprises that have implemented and benefited from SOA have experienced initial difficulties. For instance, certain investments in SOA software to coordinate business processes with those of a vendor have not met initial ROI expectations, either due to inadequate implementation or changed vendor relations. There have also been cases where a mismatch be-

SOA and Web Services

Though SOA and Web Services are sometimes discussed interchangeably, it is important to understand that they are not the same. Web Services are the key to the success of SOA and is a collection of technologies, including XML, Simple Object Access Protocol (SOAP), Web Services Description Language (WSDL) and Universal Description, Discover and Integration (UDDI). Together, these enable programming solutions to be built for specific messaging and application integration problems.

SOAs implemented using Web Services offer a new way to build applications within a more powerful, flexible programming model with lower development and ownership costs and reduced implementation risk.

tween a vendor-centric SOA strategy and an organization's existing IT systems and business to IT processes roadmap that lead to delays in adoption of new SOA systems. Without a complete and accurate SOA adoption roadmap that takes into consideration all business services, the ROI from SOA may not meet expectations. Such problems are not due to inadequacies of SOA, but instead to the absence of a comprehensive transformation roadmap that makes implementation of SOA practical and smooth throughout all enterprise business units.

iLink Solutions for SOA Implementations

iLink recognizes that it can take considerable time and investment for wholesale migration of all existing applications to SOA, and thus iLink SOA solutions use an agile and phased SOA implementation strategy that can quickly generate ROI benefits.

iLink's phased implementation approach takes full advantage of an organization's pre-existing processes and IT assets and is based on a "loosely-coupled" characteristic of SOA. Loosely-coupled components can be invoked without the caller having any knowledge of how they are implemented. The only requirement is that they must be invoked through a standard interface.

iLink provides a Web Services wrapper around legacy applications that responds to the standard invocation interface. By mapping the invocation interface to the application's native call interface, iLink makes the legacy component an active SOA building block. This active SOA block can then provide services to new SOA applications through the published interface, and the services can be invoked over a network.

Many business planning models already favor a phased SOA implementation that is in sync with prioritized business needs.

iLink's phased approach allows for the justification of each phase to be assessed independently so that implementation of low priority increments can be delayed - if necessary - without impacting the ROI for high priority increments.

Advantages of Phased Implementation

Business processes and IT assets can change as markets change and enterprise evolves. Priorities change as internal IT consumers and providers refine their focus. A phased implementation of a global SOA system can contribute to the speed of enterprise evolution and reduce operating and development costs, even as operating and customer needs change. Some specific advantages of using iLink's phased SOA implementation

Need for SOA Infrastructure

Deploying an external SOA infrastructure as part of the overall SOA implementation strategy is vital for enterprises seeking to achieve a scalable, reliable, environment that delivers the full benefit of SOA.

SOA infrastructure exists independently of the services themselves to deliver capabilities such as security, versioning, load balancing, orchestration, and transformation.

There are a number of commercially available products that satisfy the SOA infrastructure requirement, and these offerings typically can be deployed in stages so that not all the costs of implementation have to be paid up front.

solution include the following:

- **Risk reduction.** iLink allows enterprises to invest in one phase at a time instead of all phases up front, limiting business and IT risks when shifting to SOA. With iLink's solution, a full investment isn't necessary in order to achieve results.
- **Immediate ROI.** The phased approach reduces time to ROI on SOA investment by allowing benefits to be realized as each component is brought into the SOA domain. This allows enterprises that can't afford a full investment in or wait for long-term benefits of using SOA to achieve immediate results.
- **Uninterrupted ROI.** Since each implementation leaves the existing architecture a bit more open, ROIs can be realized even while building for future and unanticipated needs.
- **Value maximization.** iLink introduces new standards and services that preserve and integrate into the SOA system as much existing software as possible, so that the value of legacy applications can be maximized instead of wasted. Business units can continue to use legacy application even during SOA implementation.

SOA Governance

SOA has been long touted as an approach that enables alignment of technology with business to enable business optimization, transformation, and innovation. But in the last few years, the "business value" of IT has come under increasing scrutiny. Active **SOA Governance** is necessary in order to justify—and when necessary correct the course of—an organization's SOA program.

SOA Governance refers to an ongoing internal framework covering people, technology, and processes that is used within an organization in order to continuously:

- Review and assess existing practices around enterprise architecture, IT portfolio and project management, software design and development methodologies
- Identify the gaps between plans and execution
- Capture the metrics necessary to measure and communicate the benefits of IT.

As every organization is different, it is necessary for each organization to develop a unique framework for SOA governance. iLink's experienced partner New Bridge Strategy LLC provides a comprehensive service offering, including review and assessment, gap analysis, and metrics, to enable organizations to develop and sustain effective SOA Governance frameworks.

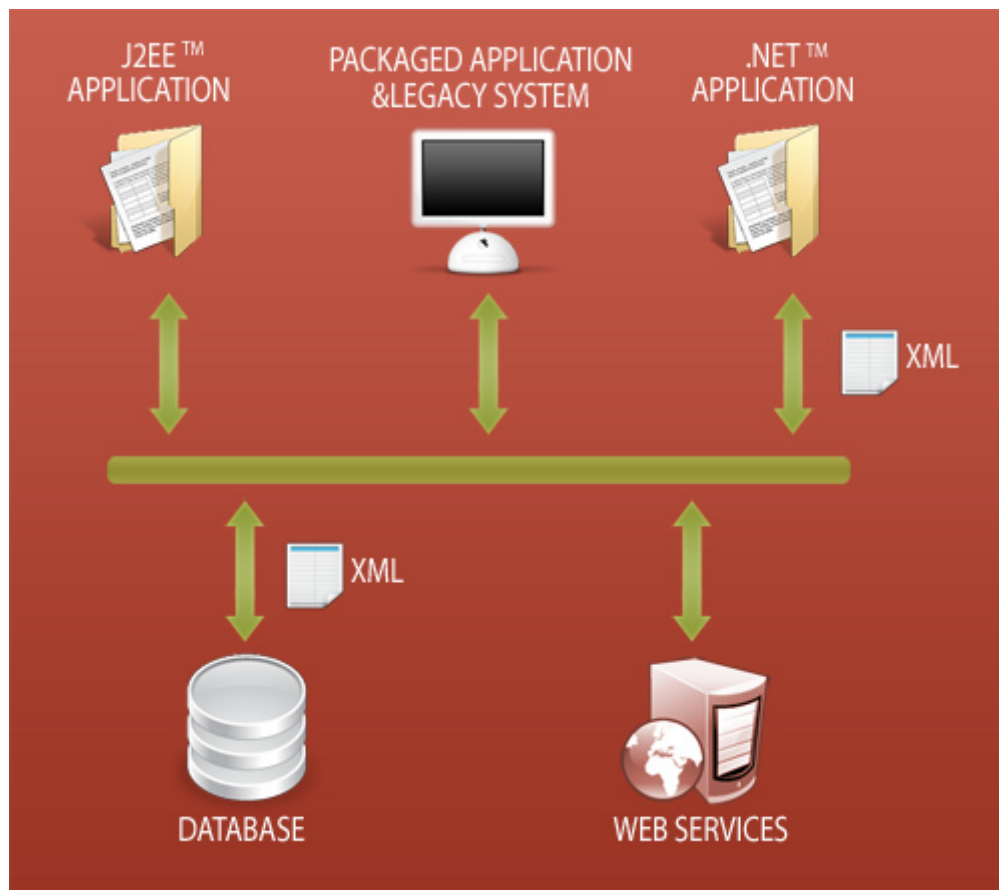
Case Study: Fortune 50 Telecom Client

Business Situation:

In an effort to meet new business demands, a Fortune 50 Telecom Client invested in several enterprise systems. Due to the complex distribution of data across multiple applications and communication infrastructures, the client faced significant challenges in integrating several systems with disparate technologies, and promoting reuse. The client planned to add more applications but then realized that the portfolio would become more entangled and complex unless moved to SOA. But the cost of rewriting the entire system portfolio onto a clean, component based architecture was prohibitive once they calculated the licensing, consulting, and operating costs.

iLink Solution:

iLink worked with the client to create a strategic roadmap and service catalog that integrated as much of the existing client systems as possible into the SOA. High priority applications were incorporated first, and soon there was a well defined and functional service interface using Web Services built around the legacy applications. These services were either developed using a Web Services wrapper that made the existing application an active SOA block or by re-factoring existing application code to take advantage of Web Services capabilities. Each implementation left the existing architecture more open than previously.



Client Benefits

After implementing a series of projects, most of the systems had functional Web Service interfaces that provided end users easy access across heterogeneous platforms and connected business units across the enterprise. Incremental implementation negated the need for upfront and full Client investment in a component based architecture system. iLink's unique incremental approach reduced time to ROI for the Client's SOA investment by allowing benefits to be realized as each legacy application was brought into the SOA domain, while limiting operation disruptions. A solid SOA infrastructure was soon put in place at minimal risk. iLink's approach to SOA implementation was successful because it was based on a holistic strategic roadmap that clearly defined and prioritized the Client's business needs and services.

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