Butler Group
a **Datamonitor** Company

Planning and Implementing SOA

Ensuring the Successful Deployment of
a Services-based Approach

December 2006

Analysis without compromise

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Contents – December 2006

Contents – Continued

Contents – Continued

SECTION 1:
Management Summary

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▶ 1.1 MANAGEMENT SUMMARY

CATALYST

Service Oriented Architecture (SOA) is exciting the imagination more than any other previous architectural strategy. However, this emerging model contains many aspects that need to be fully understood.

KEY POINTS

- Over the next five years, SOA will transform the way IT and the organisation interact, enabling improved IT agility and the rebuilding of trust with the enterprise.

- Whilst still mainly in the proof-of-concept or pilot phase at many organisations, the adoption of SOA is continuing to gain momentum, despite challenges such as security, performance, and a lack of available skills.

- When deploying SOA it pays to start small, but think big, and to choose a business problem that SOA can help resolve as a starting point.

- There is a great deal of synergy between Business Process Management (BPM) and SOA, with BPM providing a common point of reference for both the organisation and IT.

- The use of standards is crucial to enable interoperability, and to prevent vendor lock-in.

- A policy-driven approach is required to control and secure the services-based environment.

- Service quality is a key consideration if the goal of reuse is to be attained, encompassing a registry, governance, control, and management capabilities.

- It is important to address the implications that a move to a layered architecture can bring, and the wider operational aspects of supporting SOA.

Introduction

SOA is destined to be one of the defining IT paradigms of the next decade. It promises the delivery of IT services in a loosely-coupled way that is more flexible and better aligned with business needs than previous architectures. SOA is an architectural style, not a technology, which allows the creation and maintenance of an IT architecture that supports business services and business processes, and also rapidly adapts to the changes within them.

The adoption of SOA has significant potential to improve the value organisations derive from their IT investments, in terms of increased flexibility, improved use of assets, alignment with business objectives, and reduced integration costs. However, there is still a considerable degree of hype and misunderstanding around the topic, with consequent confusion as to the exact definition of a SOA, and more importantly, how to begin to realise these benefits.

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Business Issues

The business drivers for SOA are consistent across all sectors, both public and private – process efficiency, visibility, flexibility, and agility, as well as cost reduction throughout the organisation. Organisations are also looking for a single view of the customer, providing visibility of data, orders, and invoices across multiple systems, and the ability to support multi-channel customer services.

The benefits of a successful deployment of SOA can have a dramatic impact on the contribution IT makes to the business. The approach opens up the opportunity for IT to become a service provider rather than purely a cost centre. Whilst these benefits are being achieved by early adopters, there are a number of organisational challenges which will need to be overcome in order to get the most from SOA. It is clear that SOA will require a substantial cultural change before real progress is made in bridging the divide between the organisation and IT.

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SOA represents a transformation in the way the organisation operates, and executive sponsorship is therefore vital, as seen from many successful SOA implementations. Internal politics is often a major contributor to difficulties with SOA, especially as services and resources are now shared. There is a need for trust to be rebuilt by the IT department with the rest of the organisation, especially as in the past IT has been perceived as an inhibitor of progress, and there will be scepticism about this latest initiative. Starting with a small project that addresses a particular business problem can help to get the decision makers on board, although it is important to keep in mind the ultimate goal and have a plan as to how to evolve to SOA over the next five years.

Becoming a process-centric organisation is crucial to the whole concept of SOA. It is clear that business processes matter, and that organisations want to be capable of quickly modifying a process when necessary, so the existence of a business process layer that drives changes in services as the organisation adapts is vital. This means that services must be able to address specific business problems by drawing together the business logic and data sources from multiple underlying systems.

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Modelling the enterprise offers a useful framework for documenting the organisation, providing the essential blueprints for the communication, interpretation, and implementation of value drivers throughout the organisation, whilst enabling the evolution to a service-centric IT environment. The use of industry and reference models can provide a useful starting point for a top-down approach.

Technical Issues

A SOA does not need to use Web services, nor do Web services explicitly require a SOA infrastructure, although it is almost impossible to discuss the one without some reference to the other. Web services is a collection of technologies and standards, including XML, Simple Object Access Protocol (SOAP), Web Services Description Language (WSDL), and Universal Description, Discovery, and Integration (UDDI), which allow programming solutions for specific messaging and application integration problems to be built, providing a starting point and a proof-of-concept that SOA is a feasible strategy.

The maturing of Web services standards and technology has provided a mechanism for SOA to be successfully deployed, although standards advocated by one or a small group of vendors should be avoided where possible. From a business perspective it is no longer a technology issue. It is a matter of developing an architecture and framework within which business problems can be defined, and solutions can be implemented in a coherent and repeatable way, exploiting reusable services.

> **...if the goal of reuse is to be attained then service quality must be a paramount consideration.**

Standardisation is just as important as the use of standards. Organisations must look to deploy administration and governance processes which cater for the services-centric environment, and if the goal of reuse is to be attained then service quality must be a paramount consideration. The adoption of SOA is more than just a technology deployment, and there are a number of management and control elements which must also be considered, including a registry of services, methodologies for process discovery, and governance structures and procedures.

Introducing SOA moves the organisation from a vertically constrained architecture to a horizontally layered approach, which embraces business architecture right down to the hardware resources. This could be initiated from the top down or the bottom up, and in reality both are used. Ideally, the definition process should start from the top using business pain points and objectives as the driver, but in practice many SOA initiatives start in the IT department, using the new technology with no regard to business requirements, something that should be discouraged if a collection of services are not to be accumulated that are never used by the business.

Clearly, with a step change in approach there will be technical issues, with the lack of in-house expertise often being cited as one of the major barriers to the adoption of SOA. Early adopters have also encountered problems around security, service performance, reliability, and data management. Security is a particular concern, especially as the IT function has spent the past several years tackling security issues, and worries that SOA might open up new gaps. Simply restricting access to authorised personnel via standard access control mechanisms becomes impracticable in a service-oriented environment, and new standards are starting to evolve.

Whilst there has been a significant focus on the mechanisms and technologies directly associated with SOA, there has been less discussion on the impact that the approach will have on the wider IT environment.

When assembling services into a composite application, it is necessary to protect the whole extended environment via a policy-managed solution, without altering the existing services. Policy and security need to be separately managed outside individual technical services, from a business-centric perspective. There is no getting away from it: Web services, for all its benefits, brings with it at least one major headache – the introduction of new security services.

Whilst there has been a significant focus on the mechanisms and technologies directly associated with SOA, there has been less discussion on the impact that the approach will have on the wider IT environment. The IT manager must start to prepare the IT infrastructure for these changes, and in particular for the performance demands of SOA. The move to a layered, services-based environment means that flexibility becomes much more important, as does the ability to meet variable performance requirements. It is important that, in tandem with SOA adoption, the IT infrastructure is enhanced to cater for these new requirements, along with the provision of common infrastructure services.

SOA significantly improves the flexibility of business logic. However, it is also important to address the challenge of ensuring the business data this logic uses has the expected meaning. For SOA to achieve widespread adoption, enterprises should start to embrace an enhanced data architecture and new data interoperability capabilities to carry out data mapping throughout an enterprise's SOA.

Market Issues

Despite all the hype surrounding SOA, it is not yet the predominant operating model for more than a few organisations, but a growing number are beginning to trial the approach, especially larger organisations and enterprises in the Technology and Financial Services sectors.

A Butler Group survey of IT decision-makers identified that 8% had deployed SOA in a live environment, with a further 17% engaged in trials, and 36% in the process of evaluating the approach. The evidence is that organisations are most likely to first transfer internal business processes to SOA, rather than involve external stakeholders. A recent survey of 90 end users in the US and Western Europe, conducted by Datamonitor, identified that 30% of the respondents were deploying or trialling SOA, with adoption rates for larger organisations significantly higher than for smaller ones, and Technology and Financial Services being the dominant verticals.

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SOA has been embraced as a concept by all the major IT vendors. IBM continues to invest heavily in products and offerings to support SOA, as does HP, which is opening three new SOA competence centres in California, Singapore, and Bangalore, in addition to facilities already found in Japan and France. Sun Microsystems and Accenture are jointly developing identity-enabled SOA and composite applications, as well as expanding the relationship with the creation of the Accenture Innovation Centre for Sun Solutions. BEA, Microsoft, Oracle, and SAP also continue to develop their SOA infrastructure capabilities, building out their respective platforms through both acquisition and internal development.

"The transition to SOA is a multi-faceted programme that can take up to five years to mature..."

As organisations review their software application platform strategy, there is no doubt that SOA will dominate their thinking over the next few years. They should not, however, allow this to obscure either the fundamentals of running business-critical applications at lowest effective cost, or the value that those applications will bring to the business, through the effective processing of information. The transition to SOA is a multi-faceted programme that can take up to five years to mature, but we believe there is benefit for organisations in beginning to plan their SOA initiatives today, and acquiring the business and technical skills that are required for success.
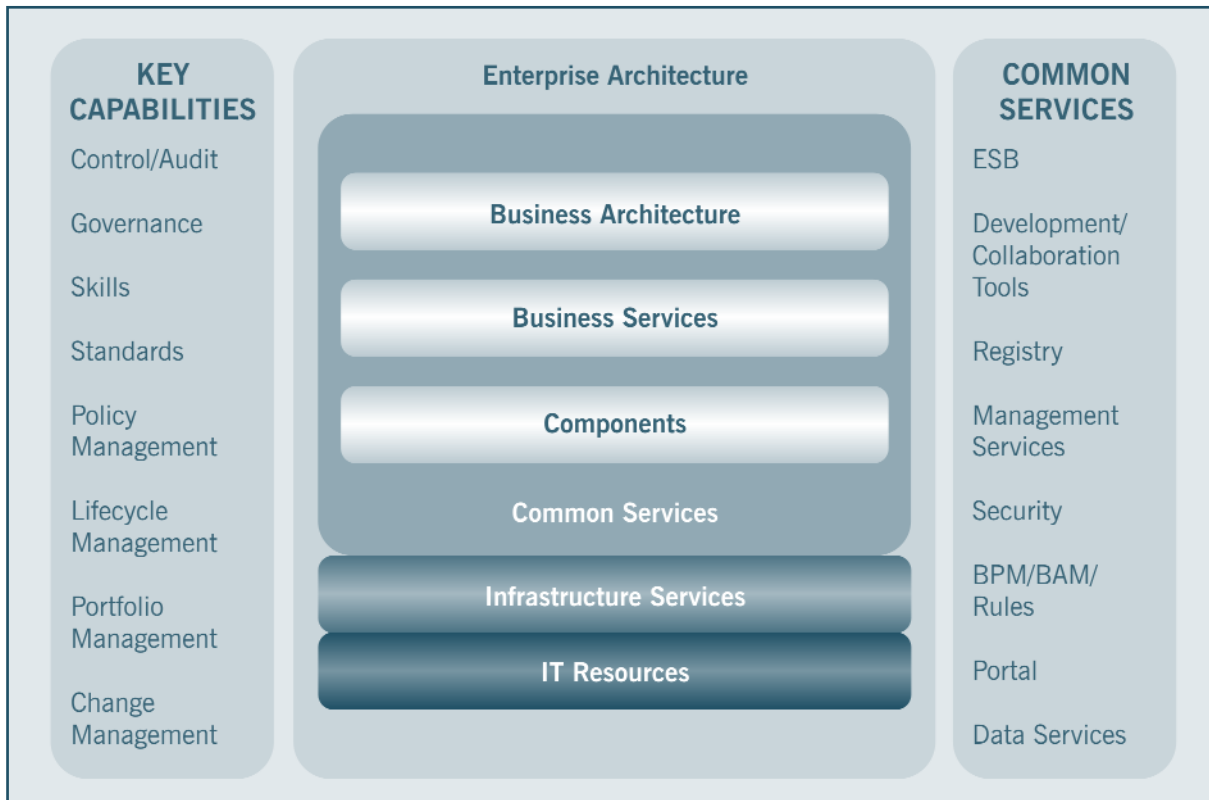
Butler Group Conceptual SOA Model

Figure 1.1.1: Conceptual SOA Model

This Report reveals:

- The essential considerations when planning and implementing SOA.

- How to use SOA to transform the way the organisation operates.

- The pitfalls to avoid when deploying SOA.

- Why becoming a process-centric enterprise complements SOA.

- How to separate the hype from the reality of SOA.

- A roadmap for the deployment of SOA.

- The importance of taking into account the impact of SOA on the wider IT environment.

- The challenges of developing data architecture to support SOA.

- How early adopters are gaining advantage from SOA.

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