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The Five Phases to Support the Data-Centric SOA

Achieving Organizational Agility and Information Quality through an effective SOA Transition.

Background

We've all heard that the successes of enterprise initiatives are only as good as their data foundation – and the transition to a Service Oriented Architecture (SOA) is no exception. As organizations look for strategies to manage data as enterprise assets, they can move one step closer to this goal using an evolutionary, data-centric SOA transition.

Delivering on the promise of true enterprise-wide SOA – an environment in which discoverable, accessible, interoperable, and trusted services are business applications that are aligned with business goals – is a huge undertaking that takes years. But with a proven, evolutionary SOA transition plan that focuses first on data, organizations can achieve sustainable results with “quick wins,” while proceeding down the path of an architected approach that will deliver fully on SOA's promise.

At the heart of your SOA transition must be practical strategies that begin with data as the foundation for a core of minimal architecture requirements. A data-centric SOA transition, depicted in **Figure 1**, allows organizations to better leverage new and existing IT investments to support business requirements; incrementally transition legacy systems; and deliver reusable, interoperable, secure, and trusted business services.

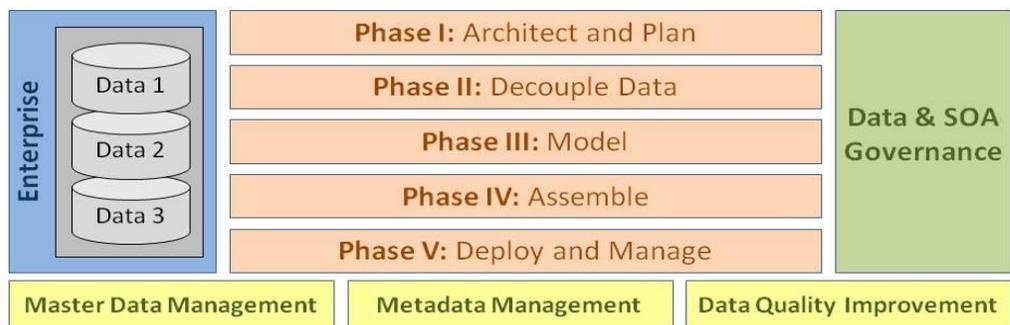


Figure 1: Data-Centric SOA Transition

This whitepaper outlines the five iterative phases that support an evolutionary transition to an SOA environment that is held together by a robust governance process. This phased approach mitigates the risks of implementing an SOA and provides a roadmap to design, acquire, orchestrate, and govern services that fit the needs of your business modernization and integration efforts. These phases include: Architect and Plan, Decouple Data, Model, Assemble, and Deploy and Manage.

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SOA Formula: Focusing on Data

A data-centric SOA transition looks at SOA from more than just a technology perspective and builds an SOA strategy around authoritative data sources. By focusing on the data that is at the core of legacy infrastructure, a data-centric strategy preserves your IT investment and provides better access to legacy systems by integrating existing systems and tapping into authoritative data sources. Extending the existing application by adding new functionality allows for an agile implementation that is responsive to your business objectives. And migrating your business functions/processes to the new platform preserves business functionality and reduces support costs by moving to an enterprise technology solution. Designed to mitigate challenges enterprises face when implementing SOA, a data-centric methodology combines legacy modernization efforts, master data management, metadata management, and data-quality best practices to help organizations infuse an authoritative data sources approach into their programs.

Phase I: Architect and Plan

Services, new or acquired, need to be aligned to an organization's target business architecture so that enterprises can facilitate information sharing by breaking down the barriers between business and technical organizations. Establishing an architecture that provides the framework for business and information requirements, and integrates processes and data from literally hundreds of systems, needs to be done to effectively implement SOA.

The Architect and Plan phase focuses on architectural alignment, gap analysis, and transition planning. Architectural alignment identifies how the scope of the SOA efforts fit into the target architecture, and categorizes current systems and data stores into that framework to identify opportunities for reuse and consolidation. The architectural alignment is also used for gap analysis, identifying high-level requirements to build or acquire services, and planning the transition from the current to the target SOA environment.

Phase II: Decouple Data

The next phase focuses on decoupling data from systems to provide the basis for an information warehouse and support an incremental transition. This step depends on the requirements of your transition and your enterprise environment. In environments where multiple disparate systems are not interdependent, it makes sense to skip the decouple phase and move to Phase IV.

However, decoupling data is important in cases where many enterprise systems rely on the same set of data. Decoupling the data breaks this point-to-point contact and makes

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your enterprise systems more data dependent. Data becomes a shared enterprise resource that is stored at a centralized place and not dependent on any system. This provides the basis for creating authoritative data sources and gradually evolving to SOA. Additionally, by focusing first on the data definitions and relationships, you can ensure that subsequently designed services originate from authoritative sources and that data exchanged are present in a centralized/integrated “data store,” which makes subsequent data modeling easier.

Phase III: Model

The Model phase focuses on adding more depth to the target architecture and creating the core requirements for the service. This entails evaluating current legacy assets in terms of how they are supporting business utility, then categorizing investments, defining duplication, formulating criteria for selecting best-of-breed and ultimately laying the foundation for a true enterprise-wide framework. Modeling also involves harmonizing existing systems and data sources into the context of the architecture to establish standard business rules, data structures and semantics for the enterprise.

Working from the core requirements, this approach ensures that consolidation makes sense and that unique business unit processes and requirements are maintained. It provides the basis for evolving requirements to meet overall enterprise objectives.

Phase IV: Assemble

The Assemble phase focuses on using the detailed requirements for the services and their interfaces documented during the Model phase to assess the “fit” of current IT assets to identify solutions that should be reused, harvested from existing systems, created, or acquired for the target SOA solution. Thinking through the detailed requirements helps to define the assembly and orchestration of services to support target business processes, and the assembly of services to build applications.

Phase V: Deploy and Manage

The organization leverages proven best practices and industry standards to determine migration patterns to keep systems as is, but with a newer front-end and new functionality as evolutionary changes or extensions.

Planning deployment includes registering metadata for service consumers, establishing policies and measures for service contracts with consumers, and supporting the maintenance and release management processes. The actual deployment and monitoring of services in a SOA environment is typically handled by a centralized operations group.

ABOUT CITIZANT

Citizant designs and delivers smarter, leaner business and IT transformation solutions to the U.S. government, employing leading experts in enterprise architecture; application development; business process re-engineering; and program management support.

Citizant has been independently appraised at the Software Engineering Institute's CMMI-DEV Maturity Level 3 and CMMI-SVC Maturity Level 2.

Robust Governance Process and Quick Wins

These iterative transition phases are held together by a robust governance process. New tools, standards, management processes, and life cycles need to be established and governed to ensure the sustained and effective use of SOA across the agency. With a data-centric approach, governing an SOA implementation is conducted at each phase by establishing milestones for compliance reviews. Effective governance requires participation from subject matter experts to define components such as standards for services, processes for monitoring and managing service performance, methods to assure information quality and security, and policies for change and release management. Governance also requires executive sponsorship, investment control, business stakeholders, and inter-constituency working groups to institutionalize and ensure the effectiveness of SOA.

Additionally, “quick wins” are important to sustain the momentum and support for SOA. Examples of potential “quick win” opportunities include sharing and re-use of common service components, consolidation of redundant applications and initiatives and refresh or replacement of non-standard technologies. Using an evolutionary transition to SOA allows organizations to achieve “quick wins” that deliver sustainable and measurable results to the agency, while at the same time proceeding down the path of an architected approach that will deliver fully on the promise of SOA.

Conclusion

SOA offers enormous potential for organizational agility and information quality. Getting there requires organizations to develop practical data-centric principles and processes that will enable them to connect the dots between business mission and IT solutions. These principles and processes provide the framework for integrating existing systems, re-using existing functionality as services, and leveraging authoritative data sources to improve efficiency and quality, and manage costs.
