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Building a Bridge to the Future – Using SOA to Enable Business Transformation

An Executive Brief
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USING SOA TO ENABLE BUSINESS TRANSFORMATION

INTRODUCTION

The challenges of defining and delivering new revenue-generating products and services, combined with the ever-present desire to control costs, create an environment where businesses are not just evolving, but transforming. And, in the end, the conversation comes back to IT. Users need applications; operations need automation; marketing needs product development flexibility; sales channels need simplicity; and everybody needs data.

The challenge is to implement an IT service architecture, data model, and enabling solutions that take full advantage of existing systems and data, while filling functional gaps required to deliver operational process efficiencies.

IT infrastructure and software applications have crossed the line from productivity enhancement to critical infrastructure. Demands for IT, networks, and applications infrastructure, by every aspect of the business, mean that IT must lead with service oriented architectures (SOA), common data models and corporate standards for infrastructure, storage, operations, procurement, and governance. IT must also meet requirements from the business for responsive, agile, rapidly integrated, and cost-effective solutions. Finally, the systems have to get out of the way of the users. The challenge for business is how to profitably deliver unique and reliable products and services to their customers; not figure out how to manipulate and integrate complex software.

Short of replacing all of the existing IT and applications infrastructure, enterprises are evaluating ways to simplify and integrate operational processes, coordinate or consolidate existing functionality, and improve productivity, while reducing costs. The challenge is to implement an IT solutions architecture, data model, and enabling solutions that take full advantage of existing systems and data, while filling functional gaps required to deliver operational process efficiencies.

SOA is an enabling architecture that allows businesses of all types to centralize the development, procurement, integration, and operation of IT solutions across the organization by defining repeatable business processes, reusing software components, aligning existing applications and data, and procuring interoperable solutions. IT leadership is essential to delivering business transformation and applying innovation to the challenges and opportunities faced by enterprises on a daily basis.

HP delivers Converged Cloud Services built on its centralized SOA platform. HP built its AirSOA platform to consolidate, deliver, and manage consistent IT services for its airline customers. The HP AirSOA platform helps airlines transition applications that support flight operations and passenger services to an open SOA platform, without impacting

24x7 flight services. This paper will describe the growing need for SOA enablement to deliver complex business processes. IT can no longer be separated from the operation of the business; and, in this essential role, IT needs to help users harness and exploit the growing number of applications, ubiquitous connectivity, and endless data, rather than trying to isolate users and limit innovation.

IT IS MORE THAN A COST CENTER

Businesses implement dozens of unique processes; and, more often than not, those processes are executed with the help of systems. But, over time, multiple versions and variations have been put into place because of convenience, cost, regulation, or isolation from the rest of the business. Each process is often implemented using its own silo of applications with unique data models and multiple versions of common data. Given the added complexity of cloud solutions, distributed operations, hosted services and data storage, it is incumbent on IT to take control of all these discrete parts and deliver a unified service to business users.

As shown in the figure, IT has evolved from discrete development of software for single-use functionality to a service offering that integrates all necessary and desired functionality into a single user interface or product, which can be uniquely configured for a variety of processes, without software development or complex modification.

Evolution to SOA
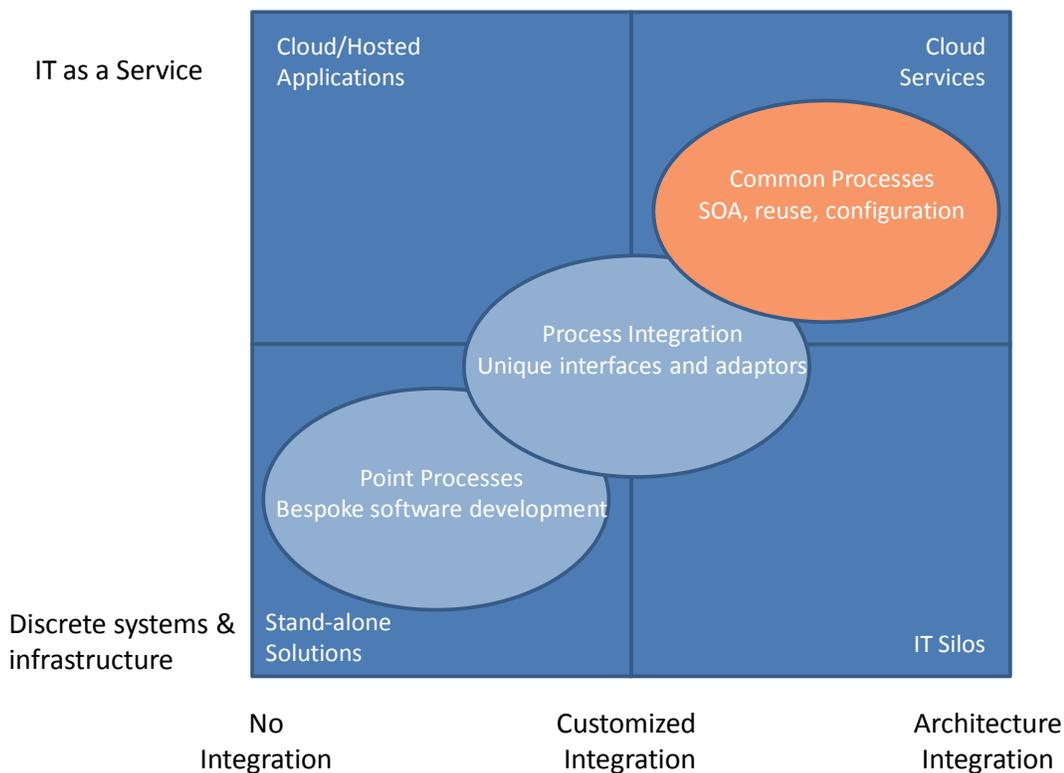
Source: Stratecast

Demands for IT infrastructure and applications, in every aspect of the business, mean that IT must lead with an enabling architecture and corporate standards for infrastructure, storage, operations, procurement, and governance. Delivering shared services across multiple business processes, business units, user groups and cost centers is at the heart of SOA transformation. While the transition to SOA requires new thinking and an IT services mindset, rather than an IT product mindset, the benefits far exceed the challenge. Implementing SOA enables agility that stand-alone and silo systems solutions cannot replicate. The interoperability achieved by applying a SOA across systems, infrastructure, and processes enables rapid response to change while ensuring quality and consistency.

Reuse of the services created eliminates redundancy and the errors that result from duplicate systems and data. Classified as a service center, IT can then evolve to develop innovative capabilities, create value, and deliver innovation that leads to differentiation in the market. IT as a service, not just a support organization, makes better use of scarce skills and helps create differentiation. Likewise, developing a platform that is easily accessed by partners and customers for payments, multi-screen operation, and fixed-mobile convergence makes businesses more accessible and trusted.

Finally, the systems have to get out of the way of the users. The challenge for IT should be delivering unique and reliable products and services to its users; not figuring out how to manipulate and integrate complex software. Establishing a SOA strategy and centralizing the definition, delivery, and integration of IT infrastructure and solutions allows IT to take a business, rather than technology or product view. A unified approach based on SOA relieves valuable IT personnel of repetitive maintenance and integration activities, and frees them to develop important and innovative solutions to business challenges and customer needs.

There is nothing easy about this. The difficulties presented by the volume and complexity of applications, combined with increasing user demands for availability, connectivity, quality, security, and tracking, are tremendous. Creating a consistent, cost effective, and efficient SOA environment takes leadership, patience, and the ability to embrace and communicate change.

GETTING STARTED WITH SOA

IT has to become mainstream, approachable, and easy. Many recent efforts to align, consolidate, and integrate IT systems and functionality have been incomplete. What's missing is the architecture and orchestration required to align existing systems, eliminate duplication, and rapidly implement new functionality from IT, partners, or the cloud. Despite numerous efforts to evolve existing systems to fill operational and functional gaps, businesses are discovering that existing systems are incapable of being extended to fill the orchestration gaps that are preventing end-to-end execution of product management, customer support, marketing, sales, supply chain, and delivery processes.

That being said, existing systems are extremely capable and represent large capital investments. Aligning both existing and next generation systems to a common SOA, integration, and interoperability strategy is the key to cost-effectively aligning IT and business processes. But this type of interoperability cannot rely on continuous software development and testing.

Enterprises of all sizes have been endlessly discussing business drivers, strategies and solutions, with respect to IT transformation. At some point, SOA strategy must become tactical and be translated into programs, schedules, requirements, solutions, and success criteria. While the strategy is the driving force behind any action, the roadmap is the way to achieve it. Key factors for successfully implementing SOA transformation include:

- *Centralization* – Implementing and delivering SOA has to be somebody's job. Although most transformation efforts imply commitment from the highest levels of the organization, that commitment must be continuously reinforced by policies, budgeting, standards, and communication from the executive level. A SOA center of excellence, program management office or other strategic business group should be given responsibility, at the project level, for well-defined deliverables and incremental progress that is visible and delivers immediate value to the business, to ensure that commitment doesn't diminish over time.

- *Communication* – Transformation to SOA-based IT must be over-communicated to all those affected. Individuals from every level of the organization must be engaged to define problems, optimize processes, redirect behavior, and implement solutions. SOA transformation is not isolated within IT or any individual business unit. If the goal is change, then everyone must be in it together.

- *Leadership* – Even with executive commitment, leadership in the SOA center of excellence, project management, and vendor management is critical to the success of SOA transformation efforts over time. The SOA center of excellence ensures that the strategy and roadmap are being consistently executed, while project management ensures that schedules, budgets, and resources are being effectively used to deliver solutions. Vendor management is about more than managing cost. It includes ensuring that requirements and standards for systems, pre-integration, integration, testing, and maintenance are well understood prior to implementation.

- *Standardization* – Corporate standards for SOA functionality, implementation, and management ensure that deployments remain consistent. Data model definitions, interface definitions, platform, database, change management, and test procedures are just a few of the areas that require standardization. Corporate standards for IT, procurement, and operations must be augmented with standards specific to operations transformation.

- **Review** – Transformation is a long process, and it is important to examine progress, problems, and plans on an on-going basis to ensure work efforts continue to meet strategic goals. Reviews also keep leadership across the business engaged in the transformation and aware of progress and obstacles. Beyond reports, demonstrations, dashboards, and face-to-face meetings are essential to keep everyone engaged and communicating.

Insist on Consistency

Existing processes and systems, along with the reasons they were implemented, may no longer be valid, which presents an opportunity to optimize. There could be problems with data formats or interfaces; but, whatever the cause, it is important to find ways to address the roadblocks and define common process components that can be optimized using SOA—across the business. Converting discreet process components into integrated services is what SOA is all about. Letting individual business units continue to implement point solutions undermines SOA transformation and increases cost.

Process optimization can occur within existing IT silos, making the transition to SOA easier for the organization; however, the goal should be to have the same process components implemented across the business, such that the silo is no longer necessary. The difficulties presented by the volume and complexity of IT services, combined with delivering and managing infrastructure, ensuring service quality and customer experience, are tremendous.

HP AIRLINE SERVICE ORIENTED ARCHITECTURE (AIRSOA) CONVERGED SERVICES

As a provider of IT solutions to airlines for more than two decades, HP is in a unique position to help airlines transform complex legacy processes and systems to a more streamlined and efficient SOA architecture and services model. HP's convergence strategy is focused on four main areas:

- **Cloud** – Applications are deployed as part of an HP Leveraged Private Cloud implementation, reducing the need for localized hosting and maintenance.

- **Security** – Identity management and PCI security services are integrated into the platform to support any type of application.

- **Information Management** – Data warehousing, operational data storage and intelligent search options are included with basic data services.

- **Analytics** – Analytics applications using both structured (warehouse) and unstructured (email, social media) data are specifically tailored to support the marketing and management of consumer travel.

AirSOA seamlessly integrates all of these to provide airline operators with a managed service that is inclusive of legacy systems and processes, while enabling a smooth

transition to a next generation SOA-based solution. AirSOA allows for the rapid development of innovative applications that can be used today to support both flight and passenger operations.

Flight Operations

From fuel to food to flight crew scheduling, flight operations is responsible for planning flights and getting planes off the ground. However, the systems that support all those functions currently exist in silos. Critical data about scheduling and location is not automatically correlated with passenger or airport data—causing delays and confusion. In a fiercely competitive environment, airlines need to streamline operations, automate processes, and make information available to the right users quickly and correctly. Relying on flight operations personnel to manually correlate data from multiple sources, or enter the same data into multiple systems, increases errors and cost. Using a converged services model, airlines can eliminate duplication, improve productivity, and reduce costs.

Passenger Operations

Passenger-facing services, including reservations, ticketing, boarding, mileage tracking, and in-flight support, continue to evolve. More self-service and fewer gate agents require improved systems that are seamlessly integrated. To date, passenger support systems have been point solutions that provide a single capability, such as check-in, without the benefit of integration with all the other systems that a passenger might come in contact with. Automation is critical to reduce costs and improve the customer experience; however, it is important to maintain a thorough understanding of a customer as they use multiple sales channels and interact with the airline, as they travel. Collecting and managing customer data improves service and adds value, which translates to customer loyalty and repeat business.

The HP AirSOA platform was first deployed in 2005, with production use beginning in 2006. For more than 20 years, HP has been serving the airline industry. HP AirSOA is already a proven platform on which to construct applications for passenger services and flight operations that directly address the rapidly changing needs of the airline industry. HP currently processes over seven billion transactions per year using HP AirSOA. The platform is integral to the boarding of more than 500 million passengers per year, which amounts to nearly 20% of the world's traveling population.

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