

Chapter 13

Case Study on SOA Implementation Framework and Applications

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ABSTRACT

As industry shows increasingly meager profits, increasing value-added products is imperative to enhance profits. Across all industries, executives are demanding more and more value and specific characteristics from their strategic business processes. The CEOs of enterprises engage in integrating their IT organizations to measurably improve the flow of data and information driving key business decisions. The Enterprise Service Bus (ESB) provides a set of infrastructure capabilities, implemented by middle-ware technology, that enable the integration of services in the Service Oriented Architecture (SOA). The ESB concept already has a number of uses that solve some very common and challenging integration problems. Innovative Digitech-Enabled Applications & Services Institute (IDEAS) of Institute for Information Industry (III) executed many projects, which support technology transfer to and assist some industries, subsidized by Economic department of Taiwan. Three relatively industrial applications with EBS are discussed.

DOI: 10.4018/978-1-61350-159-7.ch013

INTRODUCTION

Integration of applications within a business and between different businesses is becoming more and more important in this rapid changing world. The needs for real time and update information that is accessible to every business require developers find solutions for integrating diverse, heterogeneous applications, developed in different architectures and programming languages and on different platforms. Business have to do this quickly and cost effectively, but still preserve the architecture and deliver robust solutions that are maintainable over time. But integration is a difficult task. With different dimension data from distinct resources, integration technology applied SOA concept address backend service control process. When the service system is triggered by the front end business request, back end service components should find applicable data from different resources to meet the service need. The back end data service is often a service bus or a repository that data can converge to a united conceptual data stream. There is still a lot of heavy lifting to do integration and a need for a well defined approach (methodology) and a set of best practices.

Enterprise service bus thus would enable low cost integration and would be used by companies with limited IT resources. Enterprise service bus is from service-oriented architecture evolved, in describing one kinds of IT infrastructure application integration model, through one kinds of clearly defined class of structure, coupled with each other and form. ESB is a pre-assembled units which were completed in SOA practice of mechanisms, including the practice of SOA inside layered target functional elements needed basis. With the concept of ESB for the construction of the information development platform, operating through decentralized management mechanism, event-driven, data-driven processing mode, etc., and then have the ability to support plant content-based routing and filtering capabilities,

in addition, its also provides a very rich standard interface, but also with complex data transmission capacity. ESB is divided into four modules, Event-Service, Message-Service, Data-Service and Process-Service. We integrate them to implement the concept of ESB to complete enterprise applications.

This chapter focuses on the newly developed solutions to integrate existing applications, using modern technologies, particularly enterprise service bus architecture including four service modules: Event-Service, Message-Service, Data-Service and Process-Service. In the following sections, the objective of the chapter define critical concept for integration, what integration patterns to use, which technologies to use, and how to best integrate existing applications with modern e-business solutions by exemplifying three industrial applications. In view of theses real cases including E-learning, Smart Store, and Medical System, SOA implementation framework with more flexible ESB development guidelines completely yields systems that are more amenable to change. From higher quality to more reuse to better scalability and availability, the benefits of implementing service architecture far outweigh the cost and extra effort involved.

BACKGROUND AND LITERATURE REVIEW

The importance of web application and advanced technology has attracted increasing attention as among the concerns of various industries. Today with an emerging service experience economy, developers increasingly desire efficient/effective principals from design to development, publish, and management. Systems thus evolve into flexible service system consisted of 4I service technologies (i.e., interface technology, intelligence technology, integration technology and infrastructure technology) to realize elasticity of this changing demand world. Integration technology particularly

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