Chapter 32
SOA Designed Health Care System for Taiwan Government

Jun-Bin Shi
Industrial Technology Research Institute, Taiwan

Shu-Fen Yang
Industrial Technology Research Institute, Taiwan

Tsung-Jen Huang
Industrial Technology Research Institute, Taiwan

ABSTRACT

SOA (Service-Oriented Architecture) is gaining popularity in becoming the mainstream in corporate integrated applications in recent years. However, at the early stage of proposal for SOA, due to the lack of a completion in relevant standards and infrastructure, corporations still need to evaluate the effect and risks involved in investment for SOA. For this reason, the introduction for SOA among corporations becomes relatively conservative. In contrast to the conservation projected by corporations at the initial stage, the government agents took position in promoting SOA and developing e-Government, who were the forerunners first committed in the integration of SOA applications.

BACKGROUND

Among these agencies, The Research, Development and Evaluation Commission (RDEC) of the Executive Yuan, has long schemed a service platform for e-Government (2011), using Web Services and XML as standards development and key technologies. Meanwhile, the RDEC also visited multiple countries and assimilated the experiences on implementing digitization from other advanced nations. The RDEC also built a governmental service platform with an overall planning in consideration of progressive steps for different stages. In the preliminary stage, the RDEC built a government portal, followed by promoting authorization, authentication, and electronic payment in the second stage to public services. In the third stage, the RDEC conducted counseling on existing systems of specific agencies by transforming these systems into application systems of medium environment with access to Web Services, thereby integrating

DOI: 10.4018/978-1-4666-1740-7.ch032

specific services. Finally in the fourth stage, the RDEC implemented interdepartmental innovative services. The objective of the third stage aims to complete framework design for e-Government service platform based mainly in view of IT technical architecture, taking into consideration of functional and non-functional in the design principles to accomplish an infrastructure that support e-Government Portal and cross authority service integration, in addition to complete construction of service platform using SOA service design integrated with various modules.

INTRODUCTION

The Information and Communications Research Laboratories (ICL) also committed in service-oriented architecture related promotion and research at the initial stage of SOA development, which mainly takes responsibility in service platform related to the Department of Health from the e-Government service platform, with emphasis on the establishment of SOA service system regarding medical information and health care. Additionally, due to the security issue for SOA is regarded as the critical module in whether if the service platform is able to be successfully introduced, it is therefore used as evaluation reference for corporations in the introduction of SOA. Consequently, the institution also emphasize on studies related to SOA security issues. The paper is divided into three major sections, introducing the promotion and research on SOA related applications from the ICL.

Service System for Medical Information

Electronic Personal Health Record (PHR) refers to electronically storing personal health related medical information records that generally provide purposes similar to Electronic Medical Record (EMR). Recently due to rise in health care, the significance of personal health record gradually expands to the self-physiological measurement records of the public, hospital and laboratory records, health examination records, and insurance documents. The advantages of electronization not only reduces the inconvenience of management in physical papers but also the largest benefit lies creating the possibility in sharing health records, which can be used to integrate a person's current and past heath records into more comprehensive information through connection of computer or internet. Electronic personal health records can also offer other advanced applications such as demographic information and needs for other medical research purposes.

The development of common standards becomes one important step to improve the use efficiency of data under medical environment and to strengthen integration of analysis and application. The information exchange of Health Level 7 (HL7) refers to the specific proposal of electronic data format and operational process (Health Level 7 International, 2011) with emphasis on the medical records, clinical, examination, insurance, patient referral, care, and hospital transfer between medical information systems. Although the use of uniform data standards may technical barriers issues of integrated personal health records, the privacy of medical information and how to properly save and use information, are issues which require prudential judgment in implementation; moreover, the actual integration or convergence of scattered data is likely to result in issues on how to maintain and update follow-up data. Therefore, the program proposes an interface design similar to "passport" for data linking and integration. Simply put, the index data of basic information and access to medical institutions published in the passport are used as reference to units participating in health care system, to transfer, exchange and integration data through such intermediary information design.

The program probes into two aspects: (1) Information exchange standards for applications, develop unified exchange interface, and obtain