Chapter V

Access Control Model for Webservices E-Government Infrastructure

Kam Fai Wong, The Chinese University of Hong Kong, China
Matthew Ka Wing Tam, The Chinese University of Hong Kong, China

Abstract

E-government is an exciting area for applying information and communication technologies (ICT). ICT can improve the efficiency and effectiveness in the provision and delivery of citizen services. A critical issue for the e-government implementation is the interoperation problem among heterogeneous legacy government systems. In this aspect, the universal system interoperability supported by the XML-based Web service technologies can be a useful component in a holistic e-government infrastructure. A key requirement of the e-government systems is the establishment and the implementation of the right access policy to the government resources. This in turn requires an appropriate mechanism to specify the access rules. Due to the nature of Web service and the specific requirements in the e-government context, we propose that a more powerful and flexible mechanism is required to express the access policy more effectively in a Web services e-government infrastructure.
Introduction

The recent rapid development of e-commerce has demonstrated how the advancement in data communication technology (in particular the explosion of Internet connections) can enable business transactions to be conducted electronically and in a more efficient way than the traditional business process. Given the successful e-commerce implementation in the private sector, we naturally develop the same expectations for applying data communication technology in government systems. E-government projects may be viewed as the answers to meet these expectations.

As pointed out in Arcieri’s article (Arcieri, Cappadizzi, Nardelli & Talamo 2001), a critical issue for the e-government projects is the interoperability problem among heterogeneous legacy government systems. A general solution to the problem requires effective tools and methodologies to provide easy and seamless connections between systems that were developed by different people, running in different environments and under different software/hardware platforms. Although there have been a whole family of distributed computing solutions developed by different software vendors and standard bodies, none has received sufficient acceptance to ensure that e-government systems building upon which can achieve universal interoperability.

In this aspect, the Web service technology is probably a breakthrough in the area of system integration. Building upon XML, which is a truly platform-neutral technology, the Web services interoperability standards are quickly accepted by the major software industry vendors. For the first time in the software history, we now have the core technologies that promise to achieve universal software interoperability on the Internet. As a tool to solve the interoperability problem, it is not difficult to see that the Web services technologies can serve as a useful component in e-government.

Due to the dependency of citizens on government services, e-government must be highly trustworthy. According to an e-government survey conducted by Taylor Nelson Sofres (Taylor Nelson Sofres, 2001), security is a major concern of most potential users of the e-government services. We believe that the enforcement of the appropriate access policy is an essential prerequisite of any e-government solution, including the Web service based one. We have examined the detailed requirements on access control for a Web service based e-government. Based on our analysis, we conclude that the traditional access control mechanisms are inadequate for the Web service based e-government environment. To address this predicament, we propose a flexible framework that is composed of two key components: the Web service specific access control and the subject based control.

Webservice as an Interoperability Solution

Most organisations are faced with the problem of integrating a large number of legacy systems, and solutions for enterprise application integration (EAI) have always been in
Current Approaches to Federal E-Government
www.igi-global.com/chapter/current-approaches-federal-government/9713?camid=4v1a