

Chapter 3.23

Privacy Management Architectures for E-Services¹

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ABSTRACT

There have been a number of recent developments in architectures for privacy management. These architectures may be applied to the development of e-services. This chapter describes some driving forces and approaches for the development and deployment of a privacy architecture for e-services and reviews several architectures that have been proposed or developed for managing privacy. The chapter offers the reader a quick tour of ideas and building blocks for creating privacy-protection enabled e-services and describes several privacy information flow scenarios that can be applied in assessing any e-service privacy architecture. The chapter concludes with a summary of the work covered and a discussion of some outstanding issues in the application of privacy architectures to e-services.

INTRODUCTION

Before describing several different architectures for managing privacy, it is worthwhile to describe briefly the privacy and e-services landscape. This section outlines the context and general approach for privacy architecture development.

Background and Context

Over the past six years, major companies have used Web services (i.e., Internet-enabled services) and e-services (network enabled services) interchangeably. For the purposes of this chapter we will use the term e-service to apply to either a Web service (non-standards-based Internet-enabled service) or a Web Service (XML-standards-based Internet-enabled service). E-services mean different things to technical people and business people. From the business context, e-services

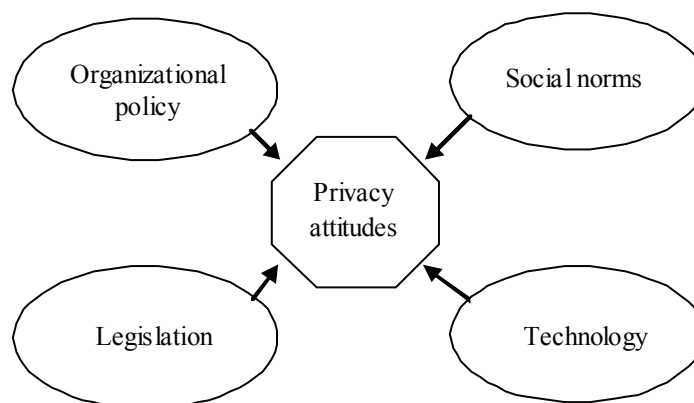
are described as an emerging paradigm that offers increased efficiency, enhanced services, and stronger customer relationships through Internet-enabled applications that are reusable and customizable to user needs. E-services may be applied to business-to-consumer or business-to-business situations. Moreover, the approach with e-services is to provide more value to customers. Adding value involves discerning what clients want. A service supplier may attempt to discern wants and needs through questionnaires or surveys, inferences from other data sources, or through direct requests from the consumer.

From the technical point of view, standards based e-services refer to a set of programming standards that makes the interplay between different types of software over the Internet happen without human intervention. These standards include eXtensible Markup Language (XML), Standard Object Access Protocol (SOAP), Web Services Description Language (WSDL), and a variety of other Web services definition languages. Middleware is built around these standards to support delivering technology to a customer over the Internet. For the purposes of this chapter, we can simply define an e-service as a service or resource made available on the Internet.

The value service providers offer to customers in recent times stem from increasingly personalized services. Personalized services are selected on the basis of the needs and desires of clients. These are often directly associated with the name and other personally identifiable information associated with the customer. In fact, in order to determine possible follow-on services in which a client may be interested, a service provider may resort to data mining from many different sources, collecting or inferring information about a client that may be quite personal. Considering the acceleration in technology development in support of deploying new services, the growing variety of services being developed, and the underlying approach of compiling, storing, and analyzing information about users in an attempt to increase service value, it is clear that there are significant pressures on privacy. The pressures to build service applications rapidly to meet the new revenue opportunities also lead to questions regarding the implementation of security technology in support of privacy functions.

It is important to understand that the concept of privacy from the legal perspective is in disarray (Soslave, 2002). Without a consistent definition of privacy, adjudication and law making do not fare well against the concrete and competing

Figure 1. Citizens' attitudes towards privacy attitudes stem from four driving forces: Corporate policy, legislation, social norms, and technology



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