Chapter XVI

Semi-Automatic Derivation and Application of Personal Privacy Policies

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Abstract

The recent fast growth of the Internet has been accompanied by a similarly fast growth in the availability of Internet e-business services (e.g., electronic book seller service, electronic stock transaction service). This proliferation of e-business services has in turn fueled the need to protect the personal privacy of e-business users or consumers. We propose a privacy policy approach to protecting personal privacy. However, it is evident that the derivation of a personal privacy policy must be as easy as possible for the consumer. In this chapter, we define the content of personal privacy policies using privacy principles that have been enacted into legislation. We then present two semi-automated approaches for the derivation of personal privacy policies. The first approach makes use of accepted privacy rules obtained through community consensus (from research and/or surveys). The second approach makes use of privacy policies already existing in a peer-to-peer community. We conclude the chapter by explaining how personal privacy policies can be applied in e-business to protect consumer privacy.

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Introduction

The rapid growth of the Internet has been accompanied by a similarly rapid growth in e-business services targeting consumers. E-business services (or “e-services;” we use these terms interchangeably) are available for banking, shopping, stock investing, and healthcare, to name a few. However, each of these services requires a consumer’s personal information in one form or another. This leads to concerns over privacy.

In order for e-business services to be successful, privacy must be protected. In a recent U.S. study by MasterCard International, 60% of respondents were concerned with the privacy of transmitted data (Greer & Murtaza, 2004). An effective and flexible way of protecting privacy is to manage it using privacy policies. In this approach, each provider of an e-service has a privacy policy specifying the private information required for that e-service. Similarly, each consumer of an e-service has a privacy policy specifying the private information he or she is willing to share for the e-service. Prior to the activation of an e-service, the consumer and provider of the e-service exchange privacy policies. The service is only activated if the policies are compatible (we will define what “compatible” means below). Where the privacy policy of an e-service consumer conflicts with the privacy policy of an e-service provider, we have advocated a negotiations approach to resolve the conflict (Yee & Korba, 2003a, 2003b). However, where do these privacy policies come from? Providers in general have sufficient resources to come up with their privacy policies. Consumers, on the other hand, need help in formulating privacy policies. In addition, the creation of such policies needs to be as easy as possible or consumers would simply avoid using them. Existing privacy specification languages such as platform for privacy preferences (P3P) and A P3P Preferences Exchange Language (APPEL) (W3C APPEL, 2002; W3C Platform, 2002) that are extensible markup language (XML)-based are far too complicated for the average Internet user to understand. Understanding or changing a privacy policy expressed in these languages effectively requires knowing how to program. What is needed is an easy, semi-automated way of deriving a personal privacy policy. In this chapter, we present two semi-automated approaches for obtaining personal privacy policies for consumers and explain how the policies are used to protect consumer privacy. This chapter is an updated and extended version of Yee and Korba (2005).

The specification of privacy policy content section examines the specification of privacy policies by identifying some attributes of private information collection. The semi-automated derivation of personal privacy policies section shows how personal privacy policies can be semi-automatically generated. The privacy management model section presents our privacy management model, which explains how personal privacy policies can be used to protect consumer privacy. The discussion and related work section discusses our approaches and presents related work. The chapter ends with conclusions and future research.
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