Chapter 6
Coming of Age or Just off the Boat? A Review of Contemporary Identity Management Systems

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ABSTRACT
Identity management (IdM) systems are information systems that help to manage an individual’s credentials. This occurs through the establishment, description, maintenance, and eventual destruction of an identity. There are numerous IdM systems in place today that follow a general framework, yet provide users of the system with different solutions. This chapter will present architecture and applications that will help in establishing and analyzing the framework that IdM system follow. It will define the role of IdM systems in today’s electronic age, while examining challenges that arise during implementation, management, and integration of the systems. The latter part of the chapter examines eighteen commercial off-the-shelf IdM software solutions. We provide brief discussion on each of the solutions to highlight differences and advantages. The discussions and presentations in the chapter can aid system managers and security professionals in understanding current landscape of Identity Management Solutions and Technologies and analyses we provide can significantly facilitate their decision making and risk management.

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INTRODUCTION

The term Identity management (IdM) refers to the process of being able to recognize and represent entities as digital entities in a computer network (Jøsang, et al., 2005). IdM systems are information systems which help to manage an individual’s credentials. Much of the IdM software available today follows a general framework, yet provides users of the system with different solutions. With access requirements of users constantly changing, as well as laws being implemented that require stricter access permissions, it is evident that IdM implementation is still in a fairly young stage of development, but one that will mature quickly as it experiences growth in a wide range of applications. Enterprise digital identity management is a process of employing technologies and procedures to manage information about the identity of users and control access to enterprise resources. Identity management has shown to enhance employee efficiency and also bolster security posture while containing costs (Penn, 2002). Enterprises, including commercial corporations and government agencies, are increasingly relying on identities of customers and citizens to provide services and consummate transactions over Internet (Mont et al., 2000). While recent laws and legislations (S.761, 2006)(1999/93/EC, 1999) aim at speeding up the process of adoption of digital identities by recognizing the legal validity of digital signatures both on electronic documents and electronic transactions, Internet identity thefts, and related frauds (Arnold, 2000; Coates et al., 2000) are fast growing crimes that take advantage of poor security and privacy practices and the underestimation of the involved risks. The maintenance of security of IdM systems has become challenging due to the diversity of today’s specifications concerning, for example, privacy, system integrity and distribution on the Web (Gaedke, Meinecke, & Nussbaumer, 2005). The contributions of this chapter are manifold. First it provides an overview of different architectures and applications of IdM systems. This will serve as an excellent primer for IT and security professionals in understanding what options available to them which can immensely help them in decision making. Second, it presents a rich discussion on challenges that corporations face today in management and operations of IdM systems. This provides an insightful discourse on issues that managers can avoid by effective planning and risk mitigation approached. Lastly, the chapter presents eighteen of most relevant commercial IdM systems that are available for purchase to meet the organizational security and compliance. This section is highly pertinent to most organizations who don’t build a complex and comprehensive IdM system but buy it from software vendors. This is the most cost effective and widely used approach. The discussions of different IdM software products can cue them on features and advantages of specific implementations. The organization of the chapter is as follows: Section 2 and 3 present different IdM architectures and applications (where these IdM systems are deployed), respectively. Section 4 discusses some of the most common challenges and Section 5 details the eighteen commercial IdM products. Section 6 concludes the chapter with conclusions.

ARCHITECTURE

There is a general design that is used when integrating an IdM system. The system must first have a source of information which tells it which users should and should not exist, as well as what their access permissions should be. This is usually done through the use of an enterprise resource planner (ERP) such as SAP.

After these things have been established, the basic functions of the IdM server are to assign resources, remove resources, and disable resources. The IdM server creates user accounts and allocates resources based upon the information provided by the ERP system. This includes access to any of
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