Chapter IV
Open Standards Requirements

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ABSTRACT

An open society, if it utilizes communications systems, requires open standards. The personal computer revolution and the Internet have resulted in a vast new wave of Internet users. These new users have a material interest in the technical standards that proscribe their communications. These new users make new demands on the standardization processes, often with the rallying cry, "open standards." As is often the case, a rallying cry means many different things to different people. This article explores the different requirements suggested by the term open standards*. Perhaps when everyone agrees on what requirements open standards serve, it will be possible to achieve them and maintain the open society that many crave.*

INTRODUCTION

Open systems, open architecture, open standards, and open source, all sound appealing, but what do they mean?

The X/Open Company, Ltd. provided an early public usage of the term *open*. X/Open Company, Ltd. was a consortium founded in 1984 to create a market for open systems. Initially, X/Open focused on creating an open standard operating system based on UNIX to allow the 10 founding computer manufacturers to compete better with the proprietary mainframe operating systems of IBM (Gabel, 1987). Later, its direction evolved (and IBM joined) to combine existing and emerging standards to define a comprehensive yet practical common applications environment (CAE) (Critchley & Batty, 1993). X/Open managed the UNIX trademark from 1993 to 1996, when X/Open merged with the Open Software Foundation (OSF) to form The Open Group[2].

Perhaps the genesis of the confusion between open standards and open source developed with the similarly named Open Software Foundation and the Free Software Foundation, two independent consortia both based in Cambridge,

Massachusetts, USA. While the Open Software Foundation addressed creating an open standard UNIX operating systems, the Free Software Foundation (FSF) supported software that can be used, copied, studied, modified, and redistributed by creating the GNU (GNUs Not Unix) licensing for software[3]. GNU-licensed software is open source software.

The term *open architecture* also evolved from a related consortium. The Open Group is responsible for The Open Group Architecture Framework (TOGAF), a comprehensive foundation architecture and methods for conducting enterprise information architecture planning and implementation. TOGAF is free to organizations for their own internal noncommercial purposes[4]. Considering this history, it not surprising that there is some confusion between open systems, open architecture, open standards, and open source.

Some definitions are needed: standards represent common agreements that enable information transfer, directly in the case of IT standards and indirectly in the case of all other standards. Open source describes an open process of software development. Often, open source systems make use of open standards for operating systems, interfaces, or software development tools, but the purpose of open source is to support continuous software improvement (Raymond, 2002), while the purpose of open standards is to support common agreements that enable an interchange available to all. Open architecture refers to a system whose internal and/or external interfaces are defined by open standards and/or available under an open source license. Open systems embody each of these concepts to support an open systems environment. Originally, the IEEE standard POSIX 1003.0 (now ISO/IEC TR 14252) defined an open system environment as "the comprehensive set of interfaces, services and supporting formats, plus user aspects, for interoperability or for portability of applications, data or people, as specified by information technology standards and profiles" (Critchley & Batty, 1993,).

A few other definitions are needed. The term *standards setting organization* (SSO) refers to any and all organizations that set or attempt to set what are perceived as standards. The term *recognized SSO* refers to any SSO recognized directly or indirectly by a government. *Consortium* is the term used for any SSO that is not recognized directly or indirectly by a government.

There are many requirements for an IT standard. The basic requirements—that it be consistent, logical, clear, and so forth—are more easily agreed upon. In an attempt to provide a definitive view of the more complex aspects of open standards, this article considers open standards from three vantage points on the Open System Environment.

Standardization consists of more than the process of standards creation; standardization includes implementations of the standard (by implementers) and use of the implementations of the standard (by users). As example, it is common for a user organization to say, "We have standardized on Microsoft Word," meaning that they have agreed to use Microsoft Word software implementations throughout their organization. Microsoft often refers to its implementation of Word as an open standard, meaning that it makes its implementations of Word widely available to users (Gates, 1998). Certainly, Microsoft does not plan to make the software of Microsoft Word open in a manner similar to the Open Software Foundation or the Free Software Foundation. But standards must be implemented and utilized in order to exist; these standards must be without implementations or users are not usually considered a standard. So, the perspective of the implementers and users of an open standard is as necessary as the perspective of the creators of an open standard.