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IEEE P1003.0 Draft 14 – November 1991

Section 5: POSIX OSE Cross-Category Services

Responsibility: Fritz Schulz

The POSIX reference model defines a set of conceptual system building blocks that collectively describes the Open System Environment. Each building block provides a specific set of interfaces for access to their associated facilities and services. There is another class of services and requirements, however, that may influence and/or impact the basic architectural building blocks; these are referred to as OSE Cross-Category Services.

An OSE Cross-Category Service is a set of tools and/or features that, when applied, may have a direct affect on the operation of one or more of the Open System Components, but it is not in and of itself a standalone OSE component. Examples of OSE Cross-Category Services include internationalization, security and privacy, administration, etc. Internationalization has a number of attributes that influence multiple OSE components; supporting multiple coded character sets, for example, will affect end-user interfaces, operational message input and output, screen display, data collating sequences in programming languages and database systems, etc.

This section will deal with the general characteristics of OSE Cross-Category Services as applied to the OSE architectural components and to the profiles and domains that characterize application environments. The specific impact/influence of an OSE Cross-Category Service will be described in the appropriate subclause of Section 4 that deals with individual OSE Components.

Initially, this section will address Internationalization, Security and Privacy, and System Administration; however, it is anticipated that other OSE Cross-Category Services will be identified as the concept is applied to the model.

This section describes issues that should be considered in writing profiles, and is organized so that subclauses for each OSE Cross-Category Service points to, and addresses issues adjacent to each of the service categories identified in Section 4.

These issues defined areas that need to be traded off to arrive at balanced solutions for a specific profile. It is expected that the specific trades would be made by the profiler, but that this clause could give guidance for trading and could also be used to accumulate lessons learned.

5.1 Internationalization

Responsibility: Ralph Barker

Editor's Note: Almost all instances of ''must'' in this clause have been changed to ''should'' without further diff marks.

5.1.1 Overview and Rationale

Historically, information systems intended for use within a particular national or cultural market have been designed specifically for the requirements of that market. If the vendor or developer was based in a country other than that of the target market, this was typically accomplished through substantial re-engineering the features of an existing system designed for some other country, and doing so at considerable cost. As the developer desired to market the system in additional countries, the process of re-engineering was repeated for each new national or cultural market. Application software developers were faced with the same problem. The very nature of this style of development produced little concern for portability across national or cultural boundaries, or interoperability between them. Users or organizations that needed to operate in multiple national or cultural markets typically did so with multiple, generally incompatible, information processing systems.

The interfaces provided by the POSIX Open System Environment (POSIX OSE) can be generalized, however, through the use of internationalization, to extend across national and cultural boundaries. Such a model provides the foundation for international portability of application software, increased user portability, and enhanced interoperability and data exchange capabilities. The task of internationalization is to ensure that the services provided by the POSIX OSE, and the interfaces between such services, are specified in such a way that they can be easily used all over the world. Additionally, as the user is likely to require services from any or all of the service categories of the POSIX OSE, internationalization impacts all areas of the POSIX OSE, and should be viewed as an OSE Cross-Category Service. Since the internationalization aspects of general OSE services and application program interface (API) services are similar for all of the POSIX OSE service categories, they are discussed here rather than repeating them in each of the services sections within this guide.

The ability of the service categories of the POSIX OSE to support multiple natural languages, and the underlying cultural conventions, is a two step process. These two steps are generally referred to as ''internationalization'' and ''localization.'' First, the interfaces between the service categories are generalized, so that they are not oriented to the requirements of any particular natural language or set of cultural conventions (internationalization). Then, facilities are provided by the POSIX OSE that allow the user to select the desired natural language and cultural conventions (localization). Tools are provided to facilitate this process.

Within this context, cultural conventions, while discussed more fully later in this clause, may be viewed as various aspects of how information is presented to the user. Different cultures, for example, use different formats for dates and numeric