MANAGEMENT IN OSI

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INTRODUCTION

The OSI standards are now sufficiently complete that it is realistic to consider development of communications systems based on OSI standards. With the approval of the transport and session layer standards in 1984, program to program communication was supported by the standards up through layer five. We are now starting to see announcements for products implementing these functions. Over the next few years, we can expect to see many more.

The development of standards for OSI has made tremendous advances in the last few years. There are now approved standards up through the session layer. Approval of standards for the presentation and application layers can be anticipated within the next two years.

Products implementing standards up through the session layer are being to appear in the marketplace. We can expect their numbers to increase over the next few years. We can also expect these implementations to incorporate support of the standards up through the application layer over the next few years.

While it is not possible yet to estimate the impact that OSI will have in the marketplace, clearly it will be accepted in the marketplace. We can expect that we will see members of the data processing community adopting OSI as their means of effecting communication between systems.

The users of OSI will be able to achieve sophisticated communication based on the capabilities defined in the approved standards and those nearing approval. What is currently lacking in OSI is the ability to manage collections of systems in a coordinated fashion. This, of course, is a key element in achieving effective communication between systems.

The fact that the management function is an apparent laggard in the standards process is not from a lack of recognition of its importance, however. Within the standards bodies, it is recognized as one of the key elements needed to assure the success of OSI. A measure of the importance placed on the management function can inferred from the fact that only two groups have been given responsibilities that span all seven layers.

The first of these is the group with responsibility for defining the architecture for OSI. This group developed the seven layer model. They allocated the various functions necessary to communicate to specific layers, allowing the development of standards for each of the layers to proceed in parallel. By allowing the parallel development of standards, the architecture group enabled the more rapid development of the standards.

The second of these groups is the management group. While the architecture group was responsible for establishing the overall direction of OSI, the management group is responsible for coordinating the activities that span layers and for defining the management communication between systems. Each of these requires that the management function consider the standards produced for each of the layers. Thus, the management activity is, by its na-
ture, one that must lag behind the work of the other groups. Its function is, in part, to tidy up the jagged edges that must result from the parallel development of the standards.

OVERVIEW OF MANAGEMENT

Within the ISO committee structure, the responsibility for the definition of OSI management standards has been placed in Technical Committee 97 Subcommittee 21 Working Group 4 (TC 97 SC 21 WG 4). TC 97 SC 21 has been assigned the responsibility for layers 5 through 7 and topics spanning the seven layers (architecture and management). Responsibility for the lower four layers has been assigned to Subcommittee 6 of TC 97. Also, responsibility for message handling standards has been assigned to Subcommittee 18 of TC 97. Each of these groups has at least some requirement for support and interaction with the group responsible for management.

As the scope of the management function is potentially very wide, WG 4 has explicitly limited its scope to a subset of the overall management function. This scope is defined to be two fold:

* management of the OSI resources of each participating system
* participation in the overall management of the global OSI network

This is to limit the scope of the management activity to the communications environment. The key to understanding exactly what the scope of management is is to have a clear definition of what the OSI resources are. This has proven an elusive definition to obtain so far.

There are two areas that the management group will address with its standards.

The first of these is the definition of service and protocol standards for the exchange of management information between systems. This includes the specification of both the semantics and syntax of the information to be transferred. This is the activity that will result in the standards that effectively define the management activities that can occur between participating systems.

The second of these is the definition of a service standard only that can be used to define information that must be shared between layers, but that may not be used between systems. The need for this activity is a result of the structure of the standards activity. As noted above, there are many groups involved in the creation of OSI standards. These groups are spread over three subcommittees in ISO, each subcommittee having several working groups. Each working group is further subdivided into rapporteurs groups concentrating on a single topic. The standards process has divided the work into discrete layers, with each layer being assigned a carefully defined segment of the overall work. The standards for each layer are restricted to the scope of the layer and are constrained to interacting with the adjacent layers via defined service standards. Unfortunately, not all information that must be shared between layers is available in the defined service standards.

However, in addition to interacting with adjacent layers, each layer is permitted to provide information to and request information from the man-