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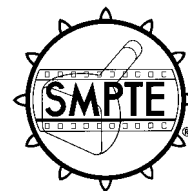
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Note:

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Stable documents may not adhere to the latest style and format of SMPTE documents, or to current usage of normative language. Suitable care should be taken in interpretation.

Implementation of ESlan Standards



1 Scope

This guideline defines the architecture, the component layers, and the relationships governing the ESlan-1 and ESlan-2 suite of control and data networks to be used for audio and television program production, post-production, and distribution equipment. It should be read in conjunction with SMPTE EG 29, which describes the basic control system; with SMPTE 275M, which defines the services and protocols contained within the lower layers of the network model for moderate-scale systems; and with other documents as listed in annex A.

2 Introduction

The function of a remote control system is to establish connection between operational controlling and controlled devices. The ESlan specification is based on the concept of distributed intelligence. The use of distributed intelligence within the control system offers a number of advantages:

- the ability to modify elements of the configuration without affecting other users;
- high resilience - the majority of failures can be contained within a single node network;
- the number of time-critical messages for transfer between nodes is minimized;
- the control system is independent of the type of device connected to the node.

3 OSI Model

3.1 OSI and its relationship with the ESlan control system

In keeping with common networking practice, the interface for the ESlan remote-control system has been defined so as to comply with the layered structure of the open systems interconnection (OSI) model of the ISO (see ISO 7498).

3.2 Principle of layering

Layering divides the whole service offered by a communications system into logical layers (see figure 1). Each layer adds value to the service provided by the preceding layer. The additional value is established by an entity residing in that layer. Two entities operating in the same layer, but in different parts of the network, are called peer entities. The objective is to permit communication between peer entities. This communication is governed by a protocol.

The communication path between peers passes through lower layers, is connected over a physical medium, and is passed up again through the layers to the peer entity. Such communication is effected transparently to the entity.

The separation between any two layers is called an interface. The point where a communication path crosses an interface is called a service access point (SAP). The SAP that provides a physical connection is called a connection end point (CEP).

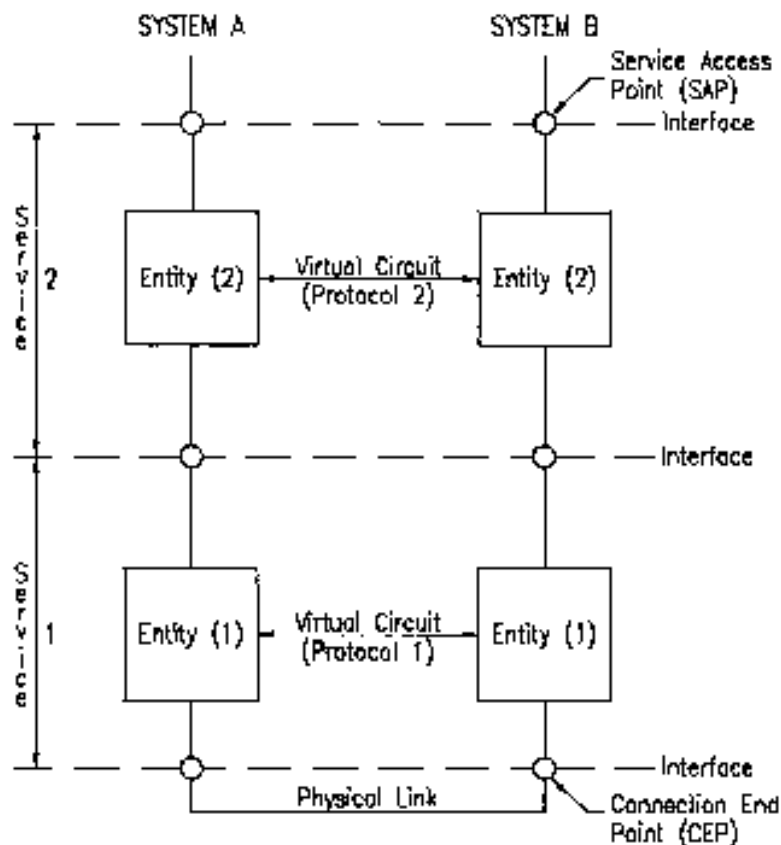


Figure 1 – System architecture terminology

3.3 OSI model

3.3.1 The OSI model defines a seven-layer model providing the following functions:

3.3.1.1 Application layer 7 defines the user's application tasks in abstract terms. Each applications entity serves a physical device, and is device specific, varying according to the characteristics of the device.

3.3.1.2 Presentation layer 6 gives a presentation of these abstract terms in coded and strictly formatted forms.

3.3.1.3 Session layer 5 is concerned only with a session involving more than one participant. It associates the coded and formatted data with a

particular participant of those available in the session. It connects two presentation entities, providing housekeeping services (remapping, error recovery etc.).

3.3.1.4 Transport layer 4 provides for safe transport of data from end to end of a system.

3.3.1.5 Network layer 3 dismembers and re-assembles transported data into packages for sequential transfer via a network system.

3.3.1.6 Data link layer 2 establishes a data link providing reliable error-free transmission in the presence of line disturbances. Where applicable, the association achieved in layer 5 is converted to an absolute system address. Layer 2 establishes a communication between physical units.