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Australian Standard®
2994—1987

INFORMATION PROCESSING SYSTEMS—
DATA COMMUNICATIONS—
NETWORK SERVICE DEFINITION
(ISO 8348 AND ISO 8348/ADD.1)

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The following interests are represented on Committee IS/1:

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AUSTRALIAN STANDARD

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PREFACE

This Standard was prepared by the Association's Committee on Information Processing Systems. It is identical with and has been reproduced from International Standard ISO 8348:1987 and ISO 8348:1987/ Addendum 1. Both documents were drawn up by ISO TC 97, Information Processing Systems.

This Standard defines the OSI Network Service in terms of

—the primitive actions and events of the service;

—the parameters associated with each primitive action and event, and the form which they take; and

—the interrelationship between, and the valid sequences of, these actions and events.

The principal objectives of this Standard are as follows:

(a) To specify the characteristics of a conceptual Network Service and thus supplement the Reference Modal in guiding the development of Network Layer protocols.

(b) To encourage convergence of the capabilities offered by providers of subnetworks.

(c) To provide a basis for the individual enhancement of existing heterogeneous subnetworks (to a common subnetwork-independent Network Service) to enable them to be concatenated for the purpose of provided global communication. (Such concatenation may involve optional additional functions which are not defined in this Standard.) A definition of the quality of service is an important element of this Standard.

(d) To provide a basis for the development and implementation of subnetwork-independent Transport Layer protocols decoupled from the variability of underlying public and private subnetworks and their specific interface requirements.

The Addendum provides a description of a connectionless-mode service and of functions related to it, which may be provided by the Network Layer of the OSI Reference Model. It adds to the concepts and principles defined in this Standard; it does not modify them.

This Standard does not specify individual implementations or products nor does it constrain the implementation of entities and interfaces within a system.

There is no conformance of equipment to this Standard. Instead, conformance is achieved through implementation of conforming OSI Network protocols which fulfill the Network service defined in this Standard.

This Standard is one of a series of Open Systems Interconnection (OSI) Standards which are currently under development or in the course of publication. Since OSI Standards are developmental, there may be some minor difficulties encountered in their implementation. For this reason, SAA will be providing a limited interpretation service to coordinate and disseminate information concerning difficulties which are identified in using this Standard.

For the purpose of this Australian Standard, the text of the ISO Standard given herein should be modified as follows:

(a) *Terminology.* The words 'Australian Standard' should replace the word 'International Standard' wherever they appear.

(b) *Cross-references.* The references to International Standards should be replaced by references to Australian Standards as shown below. Where there is no Australian equivalent for an International Standard the words 'No Australian equivalent' are used but it should be noted that this statement applies only at the time of publication of this Standard.

Reference to International Standard	*Appropriate Australian Standard*
ISO 7498, Information processing systems—Open Systems Interconnection—Basic reference model	AS 2777, Information processing systems—Open systems interconnection—Basic reference model
ISO 7498/Add.1, Information processing systems—Open Systems Interconnection—Basic Reference Model—Addendum 1: Covering connectionless-mode transmission	No Australian equivalent

ISO 8073, Information processing systems—Open Systems Interconnection—Connection oriented transport protocol specification.	AS 2912, Information processing systems—Open Systems Interconnection—Connection oriented transport protocol specification (ISO 8073).
ISO 8348/Add.2, Information processing systems—Data communications—Network service definition—Addendum 2: Network layer addressing	No Australian equivalent
ISO 8473, Information processing systems—Data communications—Protocol for providing the connectionless-mode network service.	No Australian equivalent
ISO/TR 8509, Information processing systems—Open Systems Interconnection—Service conventions.	No Australian equivalent
ISO 8602, Information processing systems—Open Systems Interconnection Protocol for providing the connectionless-mode transport service.	No Australian equivalent
ISO 8648, Information processing systems—Data communications—Internal organization of the Network Layer.	No Australian equivalent

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Information processing systems — Data communications — Network service definition

0 Introduction

This International Standard is one of a set of International Standards produced to facilitate the interconnection of computer systems. It is related to other International Standards in the set as defined by the Open Systems Interconnection (OSI) Basic Reference Model. The OSI Reference Model subdivides the area of standardization for interconnection into a series of layers of specification, each of a manageable size.

This International Standard defines the Service provided by the Network Layer to the Transport Layer at the boundary between the Network and Transport Layers of the Reference Model. It provides for the designers of Transport Protocols a definition of the Network Service existing to support the Transport Protocol and for the designers of Network Protocols a definition of the services to be made available through the action of the Network Protocol over the underlying service. This relationship is illustrated in figure 1.

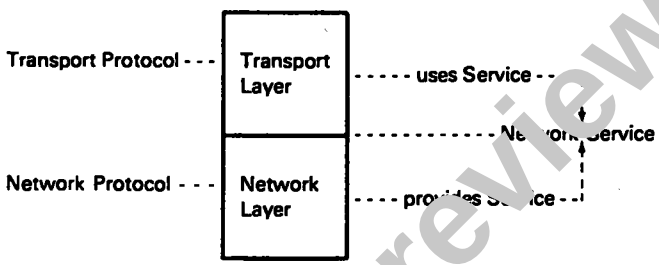

Figure 1 — Relationship of the Network Service in this International Standard to the Protocols specified in other OSI Standards

The use of the word "network" to name the "Network" Layer of the OSI Reference Model should be distinguished from the use of the word "network" to denote a communications network as commonly understood. To facilitate this distinction, the term "subnetwork" is used for a collection of physical equipment, commonly called a "network" (see ISO 7498). Subnetworks may be either public networks or privately supplied networks. In the case of public networks, their properties may be determined by separate CCITT Recommendations such as CCITT Recommendation X.21 for a circuit-switched network or CCITT Recommendation X.25 for a packet-switched network.

Throughout the set of OSI Standards the term "Service" refers to the abstract capability provided by one layer of the OSI Reference Model to the layer above it. Thus, the Network Service defined in this International Standard is a conceptual architectural Service, independent of administrative divisions.

NOTE — It is important to distinguish the specialized use of the term "Service" within the set of OSI Standards from its use elsewhere to describe the provision of a service by an organization (such as the provision of a service, as defined by other CCITT Recommendations, by an Administration).

Any particular subnetwork may or may not support the OSI Network Service. The OSI Network Service may be provided by a combination of one or more subnetworks and optional additional functions between or outside these subnetworks.

1 Scope and field of application

This International Standard defines the OSI Network Service in terms of

a) the primitive actions and events of the Service;

b) the parameters associated with each primitive action and event, and the form which they take;

c) the interrelationship between, and the valid sequences of, these actions and events.

The principal objectives of this International Standard are

a) to specify the characteristics of a conceptual Network Service and thus supplement the Reference Model in guiding the development of Network Layer protocols;

b) to encourage convergence of the capabilities offered by providers of subnetworks;

c) to provide a basis for the individual enhancement of existing heterogeneous subnetworks to a common subnetwork-independent Network Service to enable them to be concatenated for the purpose of providing global communication. (Such concatenation may involve optional additional functions which are not defined in this International Standard.) A definition of the quality of service is an important element of this International Standard;