

Glossary

This glossary contains definitions of some of the telecommunication terminology and acronyms used in many of the telecommunications articles in this issue.

ACSE (Association Control Service Element). In the OSI model this is an application-layer protocol that is used to establish and terminate an association between applications on the same system or on different systems.

Agent/Manager Model. This model defines the basic architecture for network management of distributed systems. (This model is also called the managed system/managing system model.) The agent/manager system manages devices called *managed objects*, which represent a conceptual view of network resources that need to be monitored or controlled. The manager's role is to maintain a global view of the network and to control, coordinate, and monitor network activity. The manager also issues requests for operations to be performed by the agent and then receives notifications emitted by the managed objects and sent by the agent. The agent's role is to maintain its portion of the MIB, receive and execute requests sent from the manager, and send notifications to the manager when necessary (see Fig. 1).

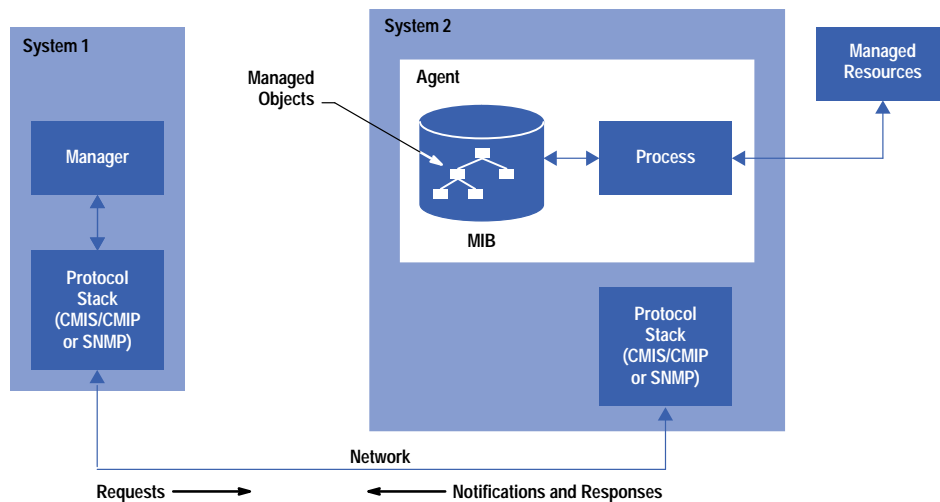


Fig. 1. The agent/manager model.

ASN.1 (Abstract Syntax Notation One, or ITU standard X.208). This is a description language used to define the data types exchanged between systems.

BER (Basic Encoding Rules). A method for encoding data in the OSI environment.

CMIP (Common Management Interface Protocol). This is half of the OSI's systems management protocol (the other half is CMIS). CMIP uses the agent/manager paradigm to communicate management information between systems. This protocol differs from SNMP in that it is more rigorous, is designed for open systems, and is an association-oriented protocol, requiring the two communicating CMIP processes to establish an association before sending any management messages. This association is governed by ROSE and ACSE. See [Article 6](#) for more about CMIP.

CMIS (Common Management Information Service). This is the part of the OSI systems management protocol that enables management applications to communicate in the OSI environment. CMIS offers a set of services that provide for management operation, retrieval of information, and notification of network events (see also CMIP). See [Article 6](#) for more about CMIS.

Containment. In an object-oriented hierarchy, containment defines the relationship between a parent object and a child object.

Contracts. In the context of the Distributed Processing Environment (DPE), contracts are the way in which objects in one building block (a software package containing several objects) describe their interfaces to objects in other building blocks. See [Article 2](#) for more about contracts and DPE.

CORBA (Common Object Request Broker Architecture). This is an implementation of the Object Management Group's specification of an object request broker. An object request broker provides the services that enable objects to make and receive requests and responses in an object-oriented distributed environment.

Distributed Processing Environment. This is a platform for managing and controlling distributed computing in a TMN network.

GDMO (Guidelines for the Definition of Managed Objects). These guidelines define how network objects and their behavior are specified. For example, GDMO can be used to specify how a certain system command (software object) should behave when executed. See [Article 5](#) for more about GDMO.

Managed Object. This is a conceptual view of a logical or physical resource that needs to be monitored and controlled to avoid network failure and performance degradation. A managed object is defined in terms of its attributes, operations that can be performed on it, notifications it may emit, and its relationship with other objects.

MIB (Management Information Base). This is a structured collection of managed object instances and their attributes. See [Article 7](#) for more about the MIB.

Mediation Device. This element of the TMN architecture is responsible for protocol conversion, information conversion and storage, data buffering, and filtering. This is probably the most vaguely defined element in TMN and its functions are sometimes implemented in a Q adapter.

Network Elements (NE). These elements represent the devices that make up a telecommunications network. It is assumed that an NE is "intelligent" enough to have the possibility of generating and transmitting some kind of information useful for network management (alarms, status, etc.). All NEs produce for external use some sort of internal alarms, both urgent and nonurgent. These alarms are representative of internal faults. Urgent alarms indicate a need for immediate maintenance. Network elements play the role of managed objects in the agent/manager model. The [Article 1](#) contains more about network elements.

OAM&P (Operation, Administration, Maintenance, and Provisioning). These are the functions required to solve the complex problem of providing telecommunications network management.

OMG (Object Management Group). This is a nonprofit international corporation made up of a team of dedicated computer industry professionals from different corporations working on the development of industry guidelines and object management specifications to provide a common framework for distributed application development.

Operations Systems (OS). These are the applications where network management takes place. They can be thought of as supervisory or control systems that receive a large amount of data from the network and provide for its elaboration and for the generation of data useful for management purposes. [Article 1](#) contains more about operations systems.

Q Adapter. This is a TMN element that is used to connect a TMN system to a non-TMN system. [Article 1](#) contains more about Q adapters.

Q3 Interfaces. These are a set of interfaces used within and between layers in the TMN architecture to exchange management information. Q3 interfaces are responsible for connecting an operations system to a network element, an operations system to a Q-adapter, an operations system to a mediation device, or two operations systems in the same TMN. [Article 1](#) contains more about Q3 interfaces.

ROSE (Remote Operation Service Element). This is a generic OSI service that allows applications to invoke request and reply interactions with applications on remote systems. [Article 1](#) contains more about ROSE.

SNMP (Simple Network Management Protocol). This is TCP/IP protocol that defines how to manage a network. SNMP uses the agent/manager model to monitor and administer the network. SNMP is based on a connectionless protocol, which requires no established connection between manager and agent before transmission.

Trader Service. This is a matchmaking service for clients and servers in a Distributed Processing Environment. A server registers its capabilities in the form of a contract with an entity called a trader, and when a client needs a capability in a certain contract type, it uses the trader service to find the server that has the particular capability. See [Article 2](#) for more.

Telecommunications Management Network (TMN). TMN, which is defined in ITU-T Recommendation M.3010, is a management communications concept that defines the relationships between basic network building blocks (network elements, different network protocols, and operations systems) in terms of standard interfaces. See [Article 1](#) for more about TMN.

XMP (X/Open Management Protocol). This protocol provides the TMN application developer with a C-language interface to the underlying CMIS/CMIP and SNMP protocol services. XMP APIs use XOM objects as parameters. See [Article 6](#) for more.

XOM (X/Open OSI Abstract Data Manipulation). A C-language interface designed for use with application-specific APIs that provide OSI services, such as X.400 and CMIS. XOM APIs provide functions for accessing managed objects and shield programmers from the complexities of the ASN.1 data types in the MIB. See [Article 6](#) for more.

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