Reemplazada por una versión más reciente

UNIÓN INTERNACIONAL DE TELECOMUNICACIONES

UIT-T X.283

SECTOR DE NORMALIZACIÓN
DE LAS TELECOMUNICACIONES
DE LA UIT

(11/93)

REDES DE DATOS Y COMUNICACIONES ENTRE SISTEMAS ABIERTOS

INTERCONEXIÓN DE SISTEMAS ABIERTOS – OBJETOS GESTIONADOS DE RED

ELEMENTOS DE INFORMACIÓN DE GESTIÓN RELACIONADOS CON LA CAPA DE RED DE INTERCONEXIÓN DE SISTEMAS ABIERTOS

Recomendación UIT-T X.283
Reemplazada por una versión más reciente

(Anteriormente «Recomendación del CCITT»)

Reemplazada por una versión más reciente

PREFACIO

El UIT-T (Sector de Normalización de las Telecomunicaciones) es un órgano permanente de la Unión Internacional de Telecomunicaciones (UIT). Este órgano estudia los aspectos técnicos, de explotación y tarifarios y publica Recomendaciones sobre los mismos, con miras a la normalización de las telecomunicaciones en el plano mundial.

La Conferencia Mundial de Normalización de las Telecomunicaciones (CMNT), que se celebra cada cuatro años, establece los temas que han de estudiar las Comisiones de Estudio del UIT-T, que a su vez producen Recomendaciones sobre dichos temas.

La aprobación de Recomendaciones por los Miembros del UIT-T es el objeto del procedimiento establecido en la Resolución N.° 1 de la CMNT (Helsinki, 1 al 12 de marzo de 1993).

La Recomendación UIT-T X.283 ha sido preparada por la Comisión de Estudio 7 del UIT-T y fue aprobada por el procedimiento de la Resolución N.° 1 el 16 de noviembre de 1993.

NOTA

En esta Recomendación, la expresión «Administración» se utiliza para designar, en forma abreviada, tanto una administración de telecomunicaciones como una empresa de explotación reconocida de telecomunicaciones.

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SUMARIO

En la presente Recomendación se especifica la información de gestión relacionada con las operaciones de la capa de red de OSI, incluidas la definición de clase de objeto gestionado de objetos gestionados de capa de red, la relación de los objetos gestionados y los atributos con el funcionamiento de la capa y con otros objetos y atributos de la capa, y las acciones admisibles en los atributos de objetos gestionados de capa de red.

INTRODUCCIÓN

Esta Recomendación forma parte de un conjunto de Recomendaciones elaboradas para facilitar la interconexión de sistemas abiertos. El conjunto de Recomendaciones abarca los servicios, protocolos e información de gestión requeridos para lograr esa interconexión.

La posición de la presente Recomendación con respecto a otras Recomendaciones conexas es determinada por las capas definidas en el modelo de referencia para la interconnexión de sistemas abiertos (véase la Recomendación X.200). La presente Recomendación trata, en particular, de la definición de información de gestión de la capa de red.

Recomendación X.283

ELEMENTOS DE INFORMACIÓN DE GESTIÓN RELACIONADOS CON LA CAPA DE RED DE INTERCONEXION DE SISTEMAS ABIERTOS[1)]

(Ginebra, 1993)

1 Alcance

En la presente Recomendación se especifica la información de gestión dentro de un sistema abierto relacionado con las operaciones de la capa de red de OSI. La especificación de cómo se realiza la gestión de la capa de red rebasa el alcance de la presente Recomendación. La información de gestión de la capa de red se define especificando:

- la definición de clase de objeto gestionado de objetos gestionados de capa de red siguiendo las directrices expuestas en la *Estructura de la información de gestión* (véanse las Recomendaciones X.720 a X.723);
- la relación de los objetos gestionados y los atributos del funcionamiento de la capa y de otros objetos y atributos de la capa; y
- las operaciones de tipo de acción en los atributos de objetos gestionados de capa de red disponibles para la gestión de sistemas de OSI.

2 Referencias normativas

Las Recomendaciones | Normas Internacionales contienen disposiciones que, mediante su referencia en este texto, constituyen disposiciones de la presente Recomendación. Al efectuar esta publicación estaban vigentes las ediciones indicadas. Todas las Recomendaciones y Normas Internacionales son objeto de revisiones, por lo que se preconiza que los participantes en acuerdos basados en la presente Recomendación investigen la posibilidad de aplicar las ediciones más recientes de las Recomendaciones | Normas Internacionales actualmente vigentes. La TSB mantiene una lista de las Recomendaciones UIT-T actualmente vigentes.

2.1 Recomendaciones del CCITT | Normas Internacionales idénticas

- Recomendación X.213 del CCITT (1992) | Norma ISO/CEI 8348:1993, *Tecnología de la información – Definición del servicio de red para la interconexión de sistemas abiertos*.
- Recomendación X.233 del UIT-T (1993) | Norma ISO/CEI 8473:1993, *Tecnología de la información – Protocolo para proporcionar el servicio de red en modo sin conexión de OSI: Especificación del protocolo*.
- Recomendación X.701 del CCITT (1992) | Norma ISO/CEI 10040:1992, *Tecnología de la información – Interconexión de sistemas abiertos – Visión general de la gestión de sistemas*.
- Recomendación X.720 del CCITT (1992) | Norma ISO/CEI 10165-1:1993, *Tecnología de la información – Interconexión de sistemas abiertos – Servicios de información de gestión – Estructura de la información de gestión: Modelo de información de gestión*.
- Recomendación X.721 del CCITT (1992) | Norma ISO/CEI 10165-2:1992, *Tecnología de la información – Interconexión de sistemas abiertos – Servicios de información de gestión – Estructura de la información de gestión: Definición de la información de gestión*.
- Recomendación X.722 del CCITT (1992) | Norma ISO/CEI 10165-4:1992, *Tecnología de la información – Interconexión de sistemas abiertos – Servicios de información de gestión – Estructura de la información de gestión: Directrices para la definición de objetos gestionados*.
- Recomendación X.723 del UIT-T (1993) | Norma ISO/CEI 10165-5:1994, *Tecnología de la información – Interconexión de sistemas abiertos – Servicios de información de gestión – Estructura de la información de gestión: Información de gestión genérica*.

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1) La Recomendación X.283 y la Norma ISO/CEI 10733, *Information technology – Telecommunications and information exchange between systems – Elements of Management Information Related to OSI Network Layer Standards*, se han elaborado en estrecha colaboración y son técnicamente idénticas.

- Recomendación X.730 del CCITT (1992) | Norma ISO/CEI 10164-1:1993, *Tecnología de la información – Interconexión de sistemas abiertos – Gestión de sistemas: Función de gestión de objetos*.
- Recomendación X.731 del CCITT (1992) | Norma ISO/CEI 10164-2:1993, *Tecnología de la información – Interconexión de sistemas abiertos – Gestión de sistemas: Función de gestión de estados*.
- Recomendación X.732 del CCITT (1992) | Norma ISO/CEI 10164-3:1993, *Tecnología de la información – Interconexión de sistemas abiertos – Gestión de sistemas: Atributos para representar relaciones*.
- Recomendación X.733 del CCITT (1992) | Norma ISO/CEI 10164-4:1992, *Tecnología de la información – Interconexión de sistemas abiertos – Gestión de sistemas: Función de informe de alarmas*.
- Recomendación X.734 del CCITT (1992) | Norma ISO/CEI 10164-5:1993, *Tecnología de la información – Interconexión de sistemas abiertos – Gestión de sistemas: Función de informe de eventos*.

2.2 Recomendaciones | Normas Internacionales de contenido técnico equivalente

- Recomendación X.200 del CCITT (1988), *Modelo de referencia de interconexión de sistemas abiertos para aplicaciones del CCITT*.

  ISO/CEI 7498:1984, *Information processings systems – Open Systems Interconnection – Basic Reference Model*.
- Recomendación X.208 del CCITT (1988), *Especificación de la notación de sintaxis abstracta uno (ASN.1)*.

  Norma ISO/CEI 8824:1990, *Information technology – Open Systems Interconnection – Specification of Abstract Syntax Notation One (ASN.1)*.
- Recomendación X.223 del UIT-T (1993), *Utilización de la Recomendación X.25 para proporcionar el servicio de red con conexión de OSI para aplicaciones del CCITT*.

  Norma ISO/CEI 8878:1992, *Information Processing Systems – Data Communications – Systems – Use of X.25 to Provide the OSI Connection-mode Network Service*.
- Recomendación X.700 del CCITT (1992), *Definición del marco de gestión para la interconexión de sistemas abiertos para aplicaciones del CCITT*.

  Norma ISO/CEI 7498-4:1989, *Information Processing Systems – Open Systems Interconnection – Basic Reference Model – Part 4: Management Framework.*
- Recomendación X.710 del CCITT (1991), *Definición del servicio de información de gestión común para aplicaciones del CCITT*.

  Norma ISO/CEI 9595:1991, *Information Technology – Open Systems Interconnection – Common Management Information Service Definition*.
- Recomendación X.711 del CCITT (1991), *Especificación del protocolo de información de gestión común para aplicaciones del CCITT*.

  Norma ISO/CEI 9596-1:1991, *Information Technology – Open Systems Interconnection – Common Management Information Protocol – Part 1: Specification*.

2.3 Referencias adicionales

- Recomendación D.10 del CCITT (1991), *Principios generales de tarificación aplicables a los servicios públicos internacionales de comunicación de datos*.
- Recomendación D.11 del CCITT (1991), *Principios especiales de tarificación aplicables a los servicios públicos internacionales de comunicación de datos con conmutación de paquetes asegurados por medio de la facilidad de llamada virtual*.
- Recomendación D.12 del CCITT (1988), *Unidad de medida para la tasación del volumen de información transmitido en el servicio internacional de comunicación de datos con conmutación de paquetes*.
- Recomendación E.164 del CCITT (1991), *Plan de numeración de la RDSI*.
- Recomendación X.2 del UIT-T (1993), *Servicios de transmisión de datos y facilidades facultativas de usuario internacionales en redes públicas de datos y en redes digitales de servicios integrados*.

- Recomendación X.25 del UIT-T (1993), *Interfaz entre el equipo terminal de datos y el equipo de terminación del circuito de datos para equipos terminales que funcionan en el modo paquete y están conectados a redes públicas de datos por circuitos especializados*.
- Recomendación X.121 del CCITT (1992), *Plan de numeración internacional para redes públicas de datos*.
- ISO/CEI 8208:1993, *Information technology – Data Communications – X.25 Packet Layer Protocol for Data Terminal Equipment*.
- ISO 8648:1988, *Information processing systems – Open Systems Interconnection – Internal organization of the Network Layer*.
- ISO/CEI 8880-1:1990, *Information technology – Telecommunications and Information Exchange Between Systems – Protocol Combinations to Provide and Support the OSI Network Service – Part 1: General Principles*.
- ISO/CEI 8880-2:1993, *Information technology – Telecommunications and Information Exchange Between Systems – Protocol Combinations to Provide and Support the OSI Network Service – Part 2: Provision and Support of the Connection-mode Network Service*.
- ISO/CEI 8880-3:1990, *Information technology – Telecommunications and Information Exchange Between Systems – Protocol Combinations to Provide and Support the OSI Network Service – Part 3: Provision and Support of the Connectionless-mode Network Service*.
- ISO/CEI 8881:1989, *Information Processing Systems – Data Communications – Use of the X.25 Packet level Protocol in Local Area Networks*.
- ISO 9542:1988, *Information Processing Systems – Telecommunications and Information Exchange Between Systems – End system to Intermediate system Routing exchange protocol for use in conjunction with the protocol for providing the Connectionless-mode network service (ISO 8473)*.
- ISO/TR 9577:1990, *Information technology – Telecommunications and Information Exchange Between Systems – Protocol Identification in the Network Layer*.
- ISO/CEI 10589:1992, *Information technology – Telecommunications and Information Exchange Between Systems – Intermediate system to Intermediate system Intra-Domain routing information exchange protocol for use in Conjunction with the Protocol for providing the Connectionless-mode Network Service (ISO 8473)*.

3 Definiciones

3.1 Modelo de referencia

En la presente Recomendación se utilizan los siguientes términos definidos en el modelo de referencia de OSI (véanse Recomendación X.200 del CCITT | Norma ISO 7498):

a) Sistema abierto

b) Punto de acceso al servicio (N)

c) Capa de red

d) Protocolo de red

e) Gestión de capa

f) Gestión de sistemas

3.2 Modelo de información

En la presente Recomendación se utilizan los siguientes términos definidos en la *Estructura de la información de gestión: Modelo de información de gestión* (véanse Recomendación X.720 del CCITT | Norma ISO/CEI 10165-1):

a) Atributos

b) Tipo de atributo

c) Contenencia

d) Nombre distinguido

e) Herencia

f) Objeto gestionado

g) Operaciones de gestión

h) Notificaciones

i) Clase de objeto

j) Nombre distinguido relativo

k) Subclase

l) Superclase

3.3 Directrices para la definición de objetos gestionados (GDM, guidelines for the definition of managed objects)

En la presente Recomendación se utilizan los siguientes términos definidos en la *Estructura de la información de gestión: Directrices para la definición de objetos gestionados* (véanse Recomendación X.722 del CCITT | Norma ISO/CEI 10165-4):

a) Definición de clase de objeto gestionado

b) Plantilla

c) Parámetro

3.4 Marco de gestión

En la presente Recomendación se utilizan los siguientes términos definidos en el *Marco de gestión para interconexión de sistemas abiertos* (véanse Recomendación X.700 del CCITT | Norma ISO/CEI 7498-4):

– Información de gestión

4 Símbolos y abreviaturas

En las definiciones de objetos gestionados y en las plantillas de las directrices para la definición de objetos gestionados se utilizan las siguientes abreviaturas en el elemento de nombre normalizado de un identificador de documento cuando se hace referencia a otros documentos:

DMI Recomendación X.721 del CCITT | Norma ISO/CEI 10165-2

GMI Recomendación X.723 del UIT-T | Norma ISO/CEI 10165-5

En esta Recomendación se utilizan los siguientes símbolos y abreviaturas:

BCUG Grupo cerrado de usuarios bilateral (*bilateral closed user group*)
CLNP Protocolo de red en modo sin conexión (*connectionless-mode network protocol*)
CLNS Servicio de red en modo sin conexión (*connectionless-mode network service*)
CMIP Protocolo de información de gestión común (*common management information protocol*)
CMIS Definición del servicio de información de gestión común (*common management information service definition*)
CONS Servicio de red en modo con conexión (*connection-mode network service*)
CUG Grupo cerrado de usuarios (*closed user group*)
ES Sistema de extremo (*end system*)
ESH Atención al sistema de extremo (*end system hello*)
IS Sistema intermedio (*intermediate system*)
ISH Atención al sistema intermedio (*intermediate system hello*)
IVMO Objeto gestionado con valores iniciales (*initial values managed object*)
LCN Número de canal lógico (*logical channel number*)

MO Objeto gestionado (*managed object*)
NSAP Punto de acceso al servicio de red (*network service access point*)
NSE Elemento de servicio de red (*network service element*)
NUI Identificación de usuario de red (*network user identification*)
PLE Entidad de capa de paquete (*packet layer entity*)
PVC Circuito virtual permanente (*permanent virtual circuit*)
RD PDU Unidad de datos de protocolo de redireccionamiento (*redirect protocol data unit*)
RDN Nombre distinguido relativo (*relative distinguished name*)
SNDCF Función de convergencia dependiente de subred (*subnetwork dependent convergence function*)
SNPA Punto de asociación a subred (*subnetwork point of attachment*)
VC Llamada virtual (*virtual call*)

5 Elementos de información de gestión de capa de red

5.1 Jerarquía de objetos gestionados

5.1.1 Resumen de objetos gestionados

Se define el siguiente conjunto de clases de objetos gestionados para la capa de red de OSI:

a) Objeto gestionado de subsistema de red (véase 5.3).
b) Objeto gestionado de entidad de red (véase 5.4).
c) Objeto gestionado de NSAP (véase 5.5).
d) Objeto gestionado del servicio de red en modo sin conexión (véase 5.6).
e) Objeto gestionado de enlace (véase 5.7).
f) Objeto gestionado del servicio de red en modo con conexión (véase 5.8).
g) Objeto gestionado de conexión de red (véase 5.9).
h) Objeto gestionado de DTE de PLE X.25 (véase 5.10.3).
i) Objeto gestionado de DCE de PLE X.25 (véase 5.10.4).
j) Objeto gestionado con valores iniciales de DTE de PLE X.25 (véase 5.10.5).
k) Objeto gestionado con valores iniciales de DCE de PLE de la interfaz X.25 (véase 5.10.6).
l) Objeto gestionado de DTE de circuito virtual permanente (véase 5.11.4).
m) Objeto gestionado de DCE de circuito virtual permanente (véase 5.11.5).
n) Objeto gestionado con valores iniciales de llamada virtual (véase 5.11.6).
o) Objeto gestionado de DTE de llamada virtual (véase 5.11.7).
p) Objeto gestionado de DCE de llamada virtual (véase 5.11.8).
q) Objeto gestionado de cómputos de las Recomendaciones de la serie D (véase 5.11.9).

Las clases de objetos gestionados que vienen a continuación no se producen nunca; sólo existen a los efectos de derivación de subclases:

a) Objeto gestionado de PLE X.25 (véase 5.10.1).
b) Objeto gestionado con valores iniciales de PLE X.25 (véase 5.10.2).
c) Objeto gestionado de circuito virtual (véase 5.11.1).
d) Objeto gestionado de DTE de circuito virtual (véase 5.11.2).
e) Objeto gestionado de DCE de circuito virtual (véase 5.11.3).

Estos objetos gestionados representan la perspectiva de gestión de OSI, de los elementos de un sistema abierto que admiten el servicio de red de OSI sujeto a las operaciones de gestión de OSI.

5.1.2 Jerarquía de contenencia

En la Figura 1 se ilustra la jerarquía de contenencia. Los objetos gestionados de los que puede haber varios ejemplos se ilustran mediante (múltiples) casillas sombreadas. En las subcláusulas que siguen de la presente Recomendación se definen estos objetos en detalle.

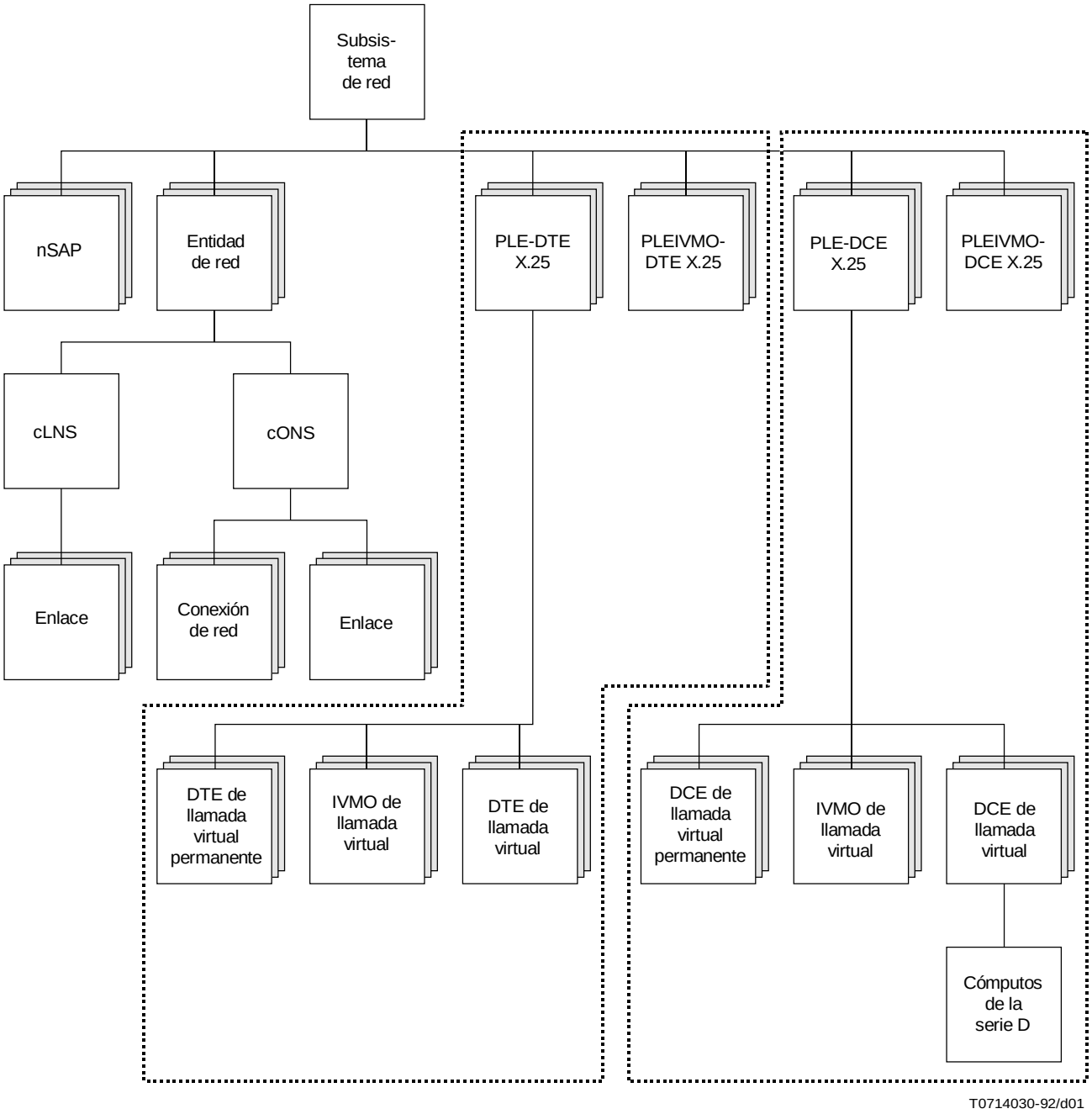

FIGURA 1/X.283

Jerarquía de contenencia de capa de red

El objeto gestionado (MO) networkSubsystem (Subsistema de red) está subordinado al MO del sistema. El MO de PLE X.25 y los IVMO son ejemplos de lo que se ha denominado objetos gestionados (MO) «SNPA». Los MO «SNPA» son específicos de la subred. Se prevé que en el futuro halla un número adicional de MO «SNPA», por ejemplo, para la RDSI.

El MO «SNPA» se relaciona con el protocolo utilizado para acceder a una subred. Por ejemplo, hay un MO «SNPA» correspondiente a cada entidad de capa de paquete X.25. El MO de cLNS se relaciona con las funciones de los protocolos de CLNS (véanse Recomendación X.233 del UIT-T | Normas ISO/CEI 8473-1, ISO 9542 e ISO/CEI 10589), que se aplican al funcionamiento general de todo el protocolo en vez de estar relacionados específicamente con puntos de asociación individuales, mientras que el MO de enlace se aplica a las funciones de convergencia dependientes de subred. El MO de cONS y sus MO de enlace asociados son aplicables, de manera similar, a protocolos asociados al CONS (véanse Recomendación X.223 del UIT-T | Norma ISO/CEI 8878, Recomendación X.612 del CCITT | Normas ISO/CEI 9574, ISO 10030, ISO/CEI 10177, etc.).

Respecto a los requisitos relativos a los MO que se producirán en el árbol de contenencia para una realización de conforme, véanse las cláusulas aplicables del enunciado de conformidad.

5.1.3 Relaciones

5.1.3.1 Generalidades

A continuación se describen las relaciones individuales. La utilización de los atributos de relación se ilustra mediante ejemplos en el Apéndice II.

5.1.3.2 Enlace

Existe una relación entre los MO de enlace (proveedor del servicio de subred (sN-ServiceProvider) y punto de acceso al servicio de subred (sN-SAP) que apuntan al mismo MO) y los MO «SNPA». Por ejemplo, un enlace relacionado con el funcionamiento de la SNDCF de la Rec. X.233 del UIT-T | ISO/CEI 8473-1 para la Recomendación X.25 tiene una relación con un MO PLE-DTE X.25. Un enlace tiene una relación que identifica sólo un «SNPA», por lo que en el caso de una entidad de red que contiene una máquina de protocolo según la Rec. X.233 del UIT-T | ISO/CEI 8473-1 que funciona en varias entidades de capa de red de la Recomendación X.25, habrá un cierto número de MO de enlace, cada uno de ellos relacionado con un MO PLE-DTE X.25 diferente. Sin embargo, aunque un enlace se relaciona con un solo «SNPA», es posible que algunos otros enlaces estén relacionados con el mismo «SNPA»; por ejemplo, puede haber enlaces de cONS y enlaces de cLNS que utilizan el mismo PLE-DTE X.25 y, por consiguiente, el mismo MO «SNPA».

En algunos casos de funcionamiento de la capa de red no existe un protocolo de acceso específico; por ejemplo, la Rec. X.233 del UIT-T | ISO/CEI 8473-1 contiene una SNDCF para utilizarla en el servicio de enlace de datos directamente. En tales casos, el enlace tiene relaciones (sN-ServiceProvider y sN-SAP que apuntan a MO diferentes) no con un «SNPA», sino con los MO apropiados de la capa de enlace de datos.

5.1.3.3 NSAP

Existe una relación nombres de punto de acceso al servicio locales – (localSAPNames) entre un MO de entidad de red (networkEntity) y un MO de nSAP. Cada MO de nSAP está relacionado solamente con una entidad de red, aunque una entidad de red puede estar relacionada con varios MO de nSAP.

5.1.3.4 Clientes de la capa n+1

El MO de SAP tiene un conjunto de relaciones nombre de entidad de usuario (userEntityName) con clientes de capa n+1 (típicamente la entidad de capa de transporte). La entidad de capa de transporte tiene una relación NSAP efectivo (actualSNAP) con el MO de nSAP.

5.1.3.5 Servicios de capa n–1

Tanto los MO de enlace como los PLE X.25 tienen relaciones (sN-ServiceProvider y sN-SAP) con los MO de capa de enlace de datos apropiados.

5.1.3.6 Conexiones

Existe una relación nombres de conexiones subyacentes (underlyingConnectionNames) entre un MO de conexión de transporte (transportConnection) y su MO de conexión de red (networkConnection) subyacente (si existiere) y entre el MO de conexión de red y el MO de DTE de llamada virtual (virtualCall-DTE) subyacente. La relación entre el MO de

llamada virtual y cualquier MO de la capa de enlace de datos subyacente está disponible implícitamente como resultado de las relaciones de los MO PLE-DTE X.25 o PLE-DCE X.25 progenitores con la capa de enlace de datos, como se ha descrito más arriba.

Existe además una relación MO de NSAP local (localNSAPMO) entre el MO de conexión de red (networkConnection) y el MO de SAP correspondiente.

5.1.4 Capacidades mínimas de filtrado de eventos

Las definiciones de gestión de capa de red incorporadas en esta Recomendación implican la frecuente y posiblemente excesiva generación de notificaciones durante el funcionamiento regular de las capas. Estas notificaciones resultan especialmente útiles para una gestión de averías eficaz, para la que facilitan el seguimiento y la identificación de situaciones de error. Con el fin de evitar una excesiva difusión de estos informes de eventos en condiciones de funcionamiento normal, se recomienda que el sistema gestionado tenga, como mínimo, la capacidad de discriminar basándose en:

a) La clase de objeto gestionado de origen.

b) Los valores de identificador de objeto en el campo de causa probable y problemas específicos de las alarmas de comunicación y las informaciones de comunicación del campo de tipo de comunicación.

5.1.5 Utilización de campos facultativos

Cuando en la presente Recomendación se hace referencia a la sintaxis ASN.1 definida en la Recomendación X.723 | Norma ISO/CEI 10165-5 o en la Recomendación X.721 | Norma ISO/CEI 10165-2, sólo se utilizarán los siguientes campos:

a) los que no son OPTIONAL en la sintaxis ASN.1;

b) los que son OPTIONAL, pero cuya utilización se requiere explícitamente en esta Recomendación;

c) los que son OPTIONAL, pero cuyo tipo ASN.1 es SET OF ManagementExtension.

Se prohibe la utilización de cualquier otro campo.

5.2 Plantillas de comportamiento común

commonCreationDeletion-B BEHAVIOUR
DEFINED AS
!Managed object class imports the ISO/IEC 10165-2 objectCreation and objectDeletion notifications. Used as follows:
objectCreation - Generated whenever an instance of the managed object class is created. Implementations may optionally include the sourceIndicator parameter in the notification. If creation occurred as a result of internal operation of the resource, the value 'resourceOperation' is used. If creation occurred in response to a management operation, the value 'managementOperation' is used. A value of 'unknown' may be returned if it is not possible to determine the source of the operation. None of the other optional parameters are used.
objectDeletion - Generated whenever an instance of the managed object class is deleted. Implementations may optionally include the sourceIndicator parameter in the notification. If deletion occurred as a result of internal operation of the resource, the value 'resourceOperation' is used. If deletion occurred in response to a management operation, the value 'managementOperation' is used. A value of 'unknown' may be returned if it is not possible to determine the source of the operation. None of the other optional parameters are used.!;

commonStateChange-B BEHAVIOUR
DEFINED AS
!Managed object class imports the ISO/IEC 10165-2 stateChange notification. Used to report the changes to the operationalState attribute, and where present, the administrativeState attribute. A single parameter set is included in the State change definition field. Only the (mandatory) attributeId and (optional) newAttributeValue parameters are used.!;

octetsSentReceivedCounter-B BEHAVIOUR
DEFINED AS
The octetsSentCounter and octetsReceivedCounter shall count only user data octets in valid data packets. They shall not count user data octets in data packets which are rejected for any reason, nor user data octets in non data packets;

successfulConnectionEstablishment-B BEHAVIOUR
DEFINED AS
This Package imports the communicationsInformation notification from "GMI".
It is used to report the following events.
successfulConnectionEstablishment: Generated when a connection is successfully established. However, the precise synchronization between the notification and the corresponding protocol and service interface interactions is not defined by this Specification.
The value NLM.successfulConnectionEstablishment shall be reported in the informationType field.;

deactivateConnection-B BEHAVIOUR

DEFINED AS

The Deactivate action causes the connection to be terminated. The termination should occur as rapidly as practical, but no particular time constraints are implied. Typically, this action simulates a disconnect request received across the service interface. If a more rapid means for terminating the connection exists, then this should be used. The termination shall occur in conformance to the protocol standard. The Managed Object remains in existence after completion of the Deactivate action. It is subsequently deleted when the connection is terminated, in the same way as if the connection has been terminated by other means. A deactivate action may fail (with the ProcessingError response) if it is temporarily not possible to terminate the connection.;

resettingTimer-B BEHAVIOUR

DEFINED AS

This attribute specifies the interval between certain events in the operation of the protocol state machine. If the value of this attribute is changed to a new value while the protocol state machine is in operation, the implementation shall take the necessary steps to ensure that for any time interval which was in progress when the corresponding attribute was changed, the next expiration of that interval takes place no later than the expiration of the interval in progress or the specified interval whichever is the sooner. The precision with which this time shall be implemented shall be the same as that associated with the basic operation of the timer attribute;

5.3 Objeto gestionado de subsistema de red

```
-- Objeto gestionado para el subsistema de capa de red.
--
-- Dentro de un sistema hay exactamente uno de estos MO. Existe para proporcionar un contenedor
-- de los MO de entidad de red, los MO de nSAP y los MO «SNPA» descritos en la cláusula.
--
-- El objeto gestionado networkSubsystem (Subsistema de red) no puede ser creado ni suprimido
-- explícitamente por la operación de gestión. Su existencia es inherente al sistema, se crea
--  y se suprime como parte del funcionamiento del sistema.
--

networkSubsystem MANAGED OBJECT CLASS
        DERIVED FROM "GMI":subsystem;
        CHARACTERIZED BY networkSubsystem-P PACKAGE
            ATTRIBUTES
                "GMI":subsystemId
                    INITIAL VALUE NLM.networkSubsystemId-Value
                    GET;

REGISTERED AS { NLM.moi networkSubsystem (1) };

-- Vinculaciones de nombre (Name Bindings)

networkSubsystem-system NAME BINDING
        SUBORDINATE OBJECT CLASS networkSubsystem AND SUBCLASSES;
        NAMED BY
            SUPERIOR OBJECT CLASS "DMI":system AND SUBCLASSES;
            WITH ATTRIBUTE "GMI":subsystemId;
REGISTERED AS { NLM.nboi networkSubsystem-system (1) };
```

5.4 Objeto gestionado de entidad de red

-- Dentro de un sistema puede haber múltiples ejemplos de estos MO.
-- De acuerdo con su definición, puede ser suprimido y creado explícitamente
-- por la operación de gestión o ser creado y suprimido automáticamente
-- como parte del funcionamiento del sistema.

```
networkEntity MANAGED OBJECT CLASS
        DERIVED FROM "GMI":communicationsEntity;
        CHARACTERIZED BY networkEntity-P PACKAGE
            BEHAVIOUR commonCreationDeletion-B;
            ATTRIBUTES
                networkEntityTitles
                    GET-REPLACE
                    ADD-REMOVE,
                systemTypes GET;
            NOTIFICATIONS
                "DMI":objectDeletion,
                "DMI":objectCreation;
            ;;
REGISTERED AS { NLM.moi networkEntity (22) };
```

-- *Vinculaciones de nombre* (Name Bindings)

```
networkEntity-networkSubsystem-Automatic NAME BINDING
        SUBORDINATE OBJECT CLASS networkEntity AND SUBCLASSES;
        NAMED BY
            SUPERIOR OBJECT CLASS networkSubsystem AND SUBCLASSES;
            WITH ATTRIBUTE "GMI":communicationsEntityId;
        BEHAVIOUR networkEntity-networkSubsystem-Automatic-B BEHAVIOUR
            DEFINED AS This name binding shall be used when the
                networkEntity MO is created automatically by the operation
                of the system. The details of these operations are outside
                the scope of this Specification.;;
REGISTERED AS { NLM.nboi networkEntity-networkSubsystem-Automatic (27) };

networkEntity-networkSubsystem-Management NAME BINDING
        SUBORDINATE OBJECT CLASS networkEntity AND SUBCLASSES;
        NAMED BY
            SUPERIOR OBJECT CLASS networkSubsystem AND SUBCLASSES;
            WITH ATTRIBUTE "GMI":communicationsEntityId;
        BEHAVIOUR networkEntity-networkSubsystem-Management-B BEHAVIOUR
            DEFINED AS This name binding shall be used when the
                networkEntity MO is created automatically by system management.
                ;;
        CREATE;
        DELETE;
REGISTERED AS { NLM.nboi networkEntity-networkSubsystem-Management (28) };
```

-- *Atributos* (Attributes)

```
networkEntityTitles ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.NAddresses;
        MATCHES FOR EQUALITY;
        BEHAVIOUR networkEntityTitles-B BEHAVIOUR
            DEFINED AS The set of Network Entity Titles
                (having the same abstract syntax as an NSAP address),
                which unambiguously identify the Network Entity in
                an End or Intermediate System. The value may be entered by a system
                management operation or it may be derived by some local means, for example
                by autoconfiguration.;;
REGISTERED AS { NLM.aoi networkEntityTitles (3) };

systemTypes ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.SystemTypes;
        MATCHES FOR EQUALITY;
        BEHAVIOUR systemTypes-B BEHAVIOUR
            DEFINED AS The set of system roles supported by this Network Entity.
                This may be End System, Intermediate System or both. The actual
                role in which a particular instance of the protocol machine
                is operating is determined by the operationalSystemType attribute
                of the cLNS or cONS MO.;;
REGISTERED AS { NLM.aoi systemTypes (108) };
```

5.5 Objeto gestionado de NSAP

```
--
-- Hay un MO de nSAP por cada conjunto de NSAP soportados por el subsistema
-- de red asociado a un solo cliente de capa de transporte.
-- Cada MO de NSAP corresponde a un conjunto de uno o más NSAP soportados por
-- el subsistema de red.
--
-- No hay más de un cliente de capa de transporte asociado a un solo MO de nSAP,
-- pero puede haber màs de un MO de nSAP, y conjuntos de NSAP correspondientes,
-- asociasos a un solo cliente de capa de transporte.
-- De acuerdo con su definición, puede ser creado y suprimido explícitamente por la
-- operación de gestión o ser creado y suprimido automáticamente como parte
-- del funcionamiento del sistema.
--
nSAP MANAGED OBJECT CLASS
        DERIVED FROM "GMI":sap2;
        CHARACTERIZED BY nSAP-P PACKAGE
            BEHAVIOUR commonCreationDeletion-B;
            ATTRIBUTES
                "GMI":sap2Address
                    INITIAL VALUE DERIVATION RULE nAddressesIV-B
                    GET;
            NOTIFICATIONS
                "DMI":objectDeletion,
                "DMI":objectCreation;
        ;;
REGISTERED AS { NLM.moi nSAP (4) };

-- Comportamientos (Behaviours)

nAddressesIV-B BEHAVIOUR
        DEFINED AS If the package is created using the nSAP-networkSubsystem-Automatic
            name binding the initial value of this attribute is not constrained by this
            Specification. However, if the package is created using the
            nSAP-networkSubsystem-Management name binding the initial value shall
            be specified in the CMIP create;
-- Vinculaciones de nombre (Name Bindings)

nSAP-networkSubsystem-Automatic NAME BINDING
        SUBORDINATE OBJECT CLASS nSAP AND SUBCLASSES;
        NAMED BY
            SUPERIOR OBJECT CLASS networkSubsystem AND SUBCLASSES;
            WITH ATTRIBUTE "GMI":sapId;
        BEHAVIOUR nSAP-networkSubsystem-Automatic-B BEHAVIOUR
            DEFINED AS This name binding shall be used when the nSAP MO is created automatically by the
                operation of the network entity. For example, by the use of autoconfiguration or dynamic
                NSAP Address assignment techniques. The details of the operation of these techniques are
                outside the scope of this Specification.;;
REGISTERED AS { NLM.nboi nSAP-networkSubsystem-Automatic (4) };
```

```
nSAP-networkSubsystem-Management NAME BINDING
        SUBORDINATE OBJECT CLASS nSAP AND SUBCLASSES;
        NAMED BY
            SUPERIOR OBJECT CLASS networkSubsystem AND SUBCLASSES;
            WITH ATTRIBUTE "GMI":sapId;
        BEHAVIOUR nSAP-networkSubsystem-Management-B BEHAVIOUR
            DEFINED AS This name binding shall be used when the nSAP MO is created by system
                management.
                The value of the sap2Address attribute shall be specified in the CMIP create;;
        CREATE;
        DELETE;
REGISTERED AS { NLM.nboi nSAP-networkSubsystem-Management (5) };
```

5.6 Objeto gestionado de servicio de red en modo sin conexión

```
--
-- No hay más de uno de estos MO por entidad de red.
-- De acuerdo con su definición, puede ser creado y suprimido explícitamente por la operación
-- de gestión, pero en algunos sistemas su existencia será inherente a los mismos
-- y no será posible su creación o supresión por la operación de gestion. Se han definido
-- vinculaciones de nombre para ambos casos.
--
-- Cuando la máquina de protocolo es operable, el estado operacional (operationalState)
-- tendrá el valor «habilitado», en los demás casos, tendrá el valor «inhabilitado».
-- Las transiciones de estado operacional se comunicarán
-- utilizando la notificación cambio de estado (stateChange). En el estado
-- operacional «habilitado» se puede crear un MO de cLNS.
--
cLNS MANAGED OBJECT CLASS
        DERIVED FROM "GMI":clProtocolMachine;
        CHARACTERIZED BY cLNS-P PACKAGE
            BEHAVIOUR commonStateChange-B,
                commonCreationDeletion-B;
            ATTRIBUTES
                "DMI":administrativeState GET-REPLACE,
                "GMI":clProtocolMachineId
                    INITIAL VALUE NLM.cLNSId-Value
                    GET,
                supportedProtocols GET,
                operationalSystemType
                    INITIAL VALUE DERIVATION RULE operationalSystemTypeIV-B
                    GET;
            ATTRIBUTE GROUPS
                "DMI":state
                    "DMI":administrativeState
                    "DMI":operationalState;
            ACTIONS
                "GMI":activate,
                "GMI":deactivate;
            NOTIFICATIONS
                "DMI":objectCreation,
                "DMI":objectDeletion,
                "DMI":stateChange;
            ;;
        CONDITIONAL PACKAGES
            cLNS8473-P
                PRESENT IF The protocol defined in ITU-T Rec. X.233 |ISO/IEC 8473-1 is used to implement
                    the CLNS,
            cLNSChecksum-P
                PRESENT IF The ITU-T Rec. X.233 |ISO/IEC 8473-1 Generate Checksum option is implemented,
```

```
-- Los siguientes lotes están asociados a la Norma ISO/CEI 10589
                "ISO/IEC 10589":cLNSISISBasic-P
                    PRESENT IF The system is an ISO 10589 IS,
                "ISO/IEC 10589":cLNSISISAuthentication-P
                    PRESENT IF The system is an ISO 10589 IS
                        and the authentication procedures are implemented,
                "ISO/IEC 10589":cLNSISISPartitionRepair-P
                    PRESENT IF The system is an ISO 10589 Level 2 IS
                        and the partition repair procedures are implemented,
                "ISO/IEC 10589":cLNSISISLevel2-P
                    PRESENT IF The system is an ISO 10589 Level 2 IS,
                "ISO/IEC 10589":cLNSISISLevel2Authentication-P
                    PRESENT IF The system is an ISO 10589 Level 2 IS
                        and the authentication procedures are implemented;
REGISTERED AS { NLM.moi cLNS (21) };

-- Lotes (Packages)

cLNS8473-P PACKAGE
        BEHAVIOUR cLNS8473-P-B BEHAVIOUR
            DEFINED AS Present when ITU-T Rec. X.233 |ISO/IEC 8473-1 is used to provide the CLNS;,
            cLNS8473PImportedNotifications-B,
            cLNS8473PImportedCounters-B;
        ATTRIBUTES
            "DMI":octetsSentCounter GET,
            "DMI":octetsReceivedCounter GET,
            segmentsReceived GET,
            segmentsSent GET,
            segmentsDiscarded GET,
            assemblingSegmentsDiscarded GET,
            errorReportsReceived GET,
            pDUDiscards GET,
            congestionDiscards GET,
            maximumLifetime GET-REPLACE;
        ATTRIBUTE GROUPS
            "GMI":counters
                "DMI":octetsSentCounter
                "DMI":octetsReceivedCounter
                segmentsReceived
                segmentsDiscarded
                assemblingSegmentsDiscarded
                errorReportsReceived
                pDUDiscards
                congestionDiscards;
        NOTIFICATIONS
            "DMI":communicationsAlarm
                notificationPDUHeader;
REGISTERED AS { NLM.poi cLNS8473-P (20) };
```

```
cLNSChecksum-P PACKAGE
        BEHAVIOUR cLNSChecksum-P-B BEHAVIOUR
            DEFINED AS When present checksum generation is controlled by
                the enableChecksum attribute;;
        ATTRIBUTES
            enableChecksum REPLACE-WITH-DEFAULT
                DEFAULT VALUE NLM.false
                GET-REPLACE;
REGISTERED AS { NLM.poi cLNSChecksum-P (1) };

-- Comportamientos (Behaviours)

cLNS8473PImportedCounters-B BEHAVIOUR
        DEFINED AS The cLNS8473-P package imports octetsSentCounter and octetsReceivedCounter from
            ISO/IEC 10165-2. They are used to count the number of octets of data transmitted or received by
            the local network entity in ITU-T Rec. X.233 | ISO/IEC 8473-1 Data PDUs. (i.e. those which which
            have a source or
            destination N-Address, respectively, which corresponds to that one of those of the local network
            entity.)

cLNS8473PImportedNotifications-B BEHAVIOUR
        DEFINED AS The cLNS8473-P package imports the communicationsAlarm notification from
            Rec. 721 | ISO/IEC 10165-2.
            It is used to report the following cLNS managed object events.

            pDUDiscard:

                Generated when a data NPDU is discarded due
                to any of the reasons specified in ITU-T Rec. X.233 | ISO/IEC 8473-1 Table 7, with
                the exception of 'PDU Discarded due to Congestion' The header of the PDU in error
                shall be reported as a parameter in the additionalInformation field of the
                communicationsAlarm, using the notificationPDUHeader parameters.
                The significance sub-parameter of each item of additionalInformation
                shall be set to the value 'False' (i.e. not significant) so that a managing
                system receiving the event report will be less likely to reject it.
                The value NLM.pDUDiscard and that corresponding to the Reason For Discard
                shall both be reported in the specificProblems parameter.
                The probableCause shall be set to NLM.communicationsProtocolError.
                The perceivedSeverity shall be set to 'Minor'. A subsequent communicationsAlarm
                with a perceivedSeverity value of 'Cleared' shall not be generated.
                No other fields or parameters shall be used, with the exception of further
                parameters in the AdditionalInformation field.
                A PDU which does not contain one of the protocol identifiers defined
                in ITU-T Rec. X.233 | ISO/IEC 8473-1 shall not cause this event.
                A PDU with a protocol ID 1000 0001 shall not cause this event if it does not also contain
                the Version/Protocol Identifier extension in 7.2.4 of ITU-T Rec. X.233 | ISO/IEC 8473-1.
                If an error report PDU is generated, the PDU header and Discard Reason in the error
                report shall be the same as those in the corresponding notification.
        ;
```

```
operationalSystemTypeIV-B BEHAVIOUR
        DEFINED AS If the MO is created by management operation (using the
            cLNS-networkEntity-Management or
            cONS-networkEntity-Management name binding), the initial value of the
            operationalSystemType attribute shall be specified in the CMIP create. Otherwise,
            the value shall be determined in an implementation specific manner. The value
            shall be one of those present in the systemTypes attribute of the
            superior Network Entity MO.
```

-- *Vinculaciones de nombre* (Name Bindings)

```
cLNS-networkEntity-Management NAME BINDING
        SUBORDINATE OBJECT CLASS cLNS AND SUBCLASSES;
        NAMED BY
            SUPERIOR OBJECT CLASS networkEntity AND SUBCLASSES;
            WITH ATTRIBUTE "GMI":clProtocolMachineId;
        BEHAVIOUR cLNS-networkEntity-Management-B BEHAVIOUR
            DEFINED AS The name binding that applies when the cLNS managed object
                can be created and deleted by management;;
        CREATE;
        DELETE ONLY-IF-NO-CONTAINED-OBJECTS;
REGISTERED AS { NLM.nboi cLNS-networkEntity-Management (3) };

cLNS-networkEntity-Automatic NAME BINDING
        SUBORDINATE OBJECT CLASS cLNS AND SUBCLASSES;
        NAMED BY
            SUPERIOR OBJECT CLASS networkEntity AND SUBCLASSES;
            WITH ATTRIBUTE "GMI":clProtocolMachineId;
        BEHAVIOUR cLNS-networkEntity-Automatic-B BEHAVIOUR
            DEFINED AS The name binding that applies when the cLNS managed object
                cannot be created or deleted by management;;
REGISTERED AS { NLM.nboi cLNS-networkEntity-Automatic (16) };
```

-- *Atributos* (Attributes)

```
assemblingSegmentsDiscarded ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR assemblingSegmentsDiscarded-B BEHAVIOUR
            DEFINED AS Counter of segments discarded due to reassembly time expiry.
                This is the number of data and error report NPDUs discarded
                due to reassembly time expiry;;
REGISTERED AS { NLM.aoi assemblingSegmentsDiscarded (8) };

congestionDiscards ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR congestionDiscards-B BEHAVIOUR
            DEFINED AS Counter of PDUs discarded due to congestion.
                This is the number of data or error report PDUs discarded due to congestion.
                This counter is incremented irrespective of the setting of the Error Report bit in the
                received PDU;;
REGISTERED AS { NLM.aoi congestionDiscards (11) };
```

```
enableChecksum ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR enableChecksum-B BEHAVIOUR
            DEFINED AS When True, the generation of checksums is enabled.;;
REGISTERED AS { NLM.aoi enableChecksum (4) };

errorReportsReceived ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR errorReportsReceived-B BEHAVIOUR
            DEFINED AS Counter of received error reports.
                This is the number of error report NPDUs received which were addressed to the local
                network entity;;
REGISTERED AS { NLM.aoi errorReportsReceived (9) };

maximumLifetime ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Lifetime;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR maximumLifetime-B BEHAVIOUR
            DEFINED AS Maximum PDU lifetime (in half seconds).
                This attribute controls the maximum value (in half seconds) which may be placed
                in the lifetime field of any ITU-T Rec. X.233 | ISO/IEC 8473-1 data or error report PDU generated
                by the local network entity.
                It does not affect the lifetime field of any PDUs not generated by this network entity,
                for example those relayed by this system acting as an Intermediate System. PDUs generated
                by the local network entity are permitted to have a lower value of lifetime field than this
                attribute, but shall not have a larger value. The means by which the value of the lifetime field
                is determined for an individual PDU is outside the scope of this Specification, provided that it
                meets the above constraints.;;
REGISTERED AS { NLM.aoi maximumLifetime (102) };

operationalSystemType ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.SystemType;
        MATCHES FOR EQUALITY;
        BEHAVIOUR operationalSystemType-B BEHAVIOUR
            DEFINED AS The system role in which this instance is operating.
            A value of ES indicates that the system
            shall perform no forwarding operations upon non-local PDUs.
            A value of IS indicates that the system is permitted to perform
            forwarding operations, but the decision to forward individual PDUs,
            or not to forward them, shall be taken on the basis of the available
            routing information.;;
REGISTERED AS { NLM.aoi operationalSystemType (109) };
```

```
pDUDiscards ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR pDUDiscards-B BEHAVIOUR
            DEFINED AS Counter of PDUs discarded (except for congestion).
                This is the number of data or error report PDUs discarded for any of the reasons
                specified in ITU-T Rec. X.233 | ISO/IEC 8473-1 Table 7 with the exception of `PDU discarded
                due to congestion'.
                This counter is incremented irrespective of the setting of the Error Report bit in the
                received PDU;;
                -- NOTE – This counter is therefore a count of the number of
                -- communicationsAlarm notifications with a specificProblem value of
                -- pDUDiscard generated (as opposed to CMIP events,
                -- may be suppressed) as required by GDMO subclause 9.8.5 (SC21 N4852).
REGISTERED AS { NLM.aoi pDUDiscards (10) };

segmentsDiscarded ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR segmentsDiscarded-B BEHAVIOUR
            DEFINED AS Counter of segments discarded.
                This is the number of data and error report NPDUs discarded
                without being delivered to a Network Service user or forwarded. This includes
                segments discarded for any reason except reassembly time expiry;;
REGISTERED AS { NLM.aoi segmentsDiscarded (7) };

segmentsReceived ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR segmentsReceived-B BEHAVIOUR
            DEFINED AS Counter of segments received.
                This is the number of data and error report NPDUs received
                prior to reassembly, including those which may subsequently be discarded;;
REGISTERED AS { NLM.aoi segmentsReceived (6) };

segmentsSent ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR segmentsSent-B BEHAVIOUR
            DEFINED AS Counter of segments Sent.
                This is the number of data and error report NPDUs sent
                after segmentation processing occurs;;
REGISTERED AS { NLM.aoi segmentsSent (118) };

supportedProtocols ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.SupportedProtocols;
        MATCHES FOR EQUALITY, SET-COMPARISON, SET-INTERSECTION;
        BEHAVIOUR supportedProtocols-B BEHAVIOUR
            DEFINED AS The set of Connectionless Network protocols supported
                by this instance of the cLNS protocol machine, expressed except
                where otherwise indicated (for example because there are more
                than one protocol described in a single International Standard)
                as the registered object identifiers of the relevant
                International Standard. The operation of a particular protocol
                over a particular linkage is determined by the linkage
                operationalProtocols attribute. The value of the
                supportedProtocols attribute is determined by the implementation.;;
REGISTERED AS { NLM.aoi supportedProtocols (110) };
```

-- *Parámetros* (Parameters)

```
notificationPDUHeader PARAMETER
        CONTEXT EVENT-INFO;
        WITH SYNTAX NLM.OctetString;
        BEHAVIOUR notificationPDUHeader-B BEHAVIOUR
            DEFINED AS The header of the data NPDU header which caused this event;;
REGISTERED AS { NLM.proi notificationPDUHeader (1) };
```

5.7 Objeto gestionado de enlace

```
-- Objeto gestionado de enlace
--
-- Hay uno de estos MO asociado a cada provisión distinta del servicio
-- subyacente a la máquina de protocolo superior.
-- De acuerdo con su definición, puede ser creado y suprimido explícitamente
-- por la operación de gestión, pero en algunos sistemas, su existencia será inherente
-- a los mismos y no será posible su creación ni su supresión por la operación
-- de gestión. Se han definido vinculaciones de nombre para ambos casos.
--
-- Cuando el enlace es operable, el estado operacional (operationalState)
-- tendrá el valor «habilitado»; en los demás casos, tendrá el valor «inhabilitado».
-- Las transiciones de estado operacional se comunicarán utilizando la notificación
-- de cambio de estado (stateChange). En el estado operacional «habilitado»
-- puede crearse un MO de enlace.
--

linkage MANAGED OBJECT CLASS
        DERIVED FROM "DMI":top;
        CHARACTERIZED BY linkage-P PACKAGE
            BEHAVIOUR commonCreationDeletion-B,
                      commonStateChange-B;
            ATTRIBUTES
                linkageId GET,
                "DMI":operationalState GET,
                "DMI":administrativeState GET-REPLACE,
                sN-ServiceProvider
                    INITIAL VALUE DERIVATION RULE sN-ServiceProviderIV-B
                    GET,
                sN-SAP GET,
                operationalProtocols
                    INITIAL VALUE DERIVATION RULE operationalProtocolIV-B
                    GET;
            ATTRIBUTE GROUPS
                "DMI":state
                    "DMI":administrativeState
                    "DMI":operationalState;
            ACTIONS
                "GMI":activate,
                "GMI":deactivate;
            NOTIFICATIONS
                "DMI":stateChange,
                "DMI":objectCreation,
                "DMI":objectDeletion;
            ;;
        CONDITIONAL PACKAGES
            linkage-ISO9542IS-P
                PRESENT IF support for ISO 9542 operating as an IS,
            linkage-ISO9542ES-P
                PRESENT IF support for ISO 9542 operating as an ES,
            linkage-ISO9542Checksum-P
                PRESENT IF support for ISO 9542 PDU Header Checksum Generation function,
            linkageInitialMinimumTimer-P
```

```
                PRESENT IF support for the initial minimum timer attribute of the ITU-T Rec. X.233 |
                    ISO/IEC 8473-SNDCF when operating ITU-T Rec. X.233 | ISO/IEC 8473-1 over
                    an ISO/IEC 8208 or ITU-T Rec.X.25 or CO Datalink Service,
            linkageReserveTimer-P
                PRESENT IF support for the reserve timer attribute of the ITU-T Rec. X.233 | ISO/IEC 8473-1
                SNDCF when operating ITU-T Rec. X.233 | ISO/IEC 8473-1 over an ISO/IEC 8208 or
                ITU-T Rec. X.25 or CO Datalink Service,
            linkageIdleTimer-P
                PRESENT IF support for the idle timer attribute of the ITU-T Rec. X.233 | ISO/IEC 8473-1 SNDCF
                when operating ITU-T Rec. X.233 | ISO/IEC 8473-1 over an ISO/IEC 8208 or ITU-T Rec. X.25 or
                CO Datalink Service,
            linkage-ITU-T Rec. X.233 | ISO/IEC 8473-1-ISO8208SNDCF-P
                PRESENT IF operating ITU-T Rec. X.233 | ISO/IEC 8473-1 over ISO/IEC 8208 or ITU-T Rec. X.25
                or,
            linkageCODLService-P
                PRESENT IF operating ITU-T Rec. X.233 | ISO/IEC 8473-1 over the CO Datalink Service,


-- Los siguientes lotes están asociados a la Norma ISO/CEI 10589
            "ISO/IEC 10589":linkageISISBasic-P
                PRESENT IF the system is an ISO 10589 IS,
            "ISO/IEC 10589":linkageISISAuthentication-P
                PRESENT IF the authentication procedures are implemented
                    on an ISO 10589 IS,
            "ISO/IEC 10589":linkageISISBroadcast-P
                PRESENT IF the linkage is a broadcast circuit
                    on an ISO 10589 IS,
            "ISO/IEC 10589":linkageISISDACallEstablishmentMetricIncrement-P
                PRESENT IF the linkage is a DA Circuit and support is implemented for
                    call establishment metric increment values greater than zero on an
                    ISO/IEC 10589 IS,
            "ISO/IEC 10589":linkageISISPtToPt-P
                PRESENT IF the linkage is a point to point circuit
                    on an ISO 10589 IS,
            "ISO/IEC 10589":linkageISISStatic-P
                PRESENT IF the linkage is an X.25 static circuit (IN or OUT)
                    on an ISO 10589 IS,
            "ISO/IEC 10589":linkageISISLevel2-P
                PRESENT IF the system is an ISO/IEC 10589 level 2 IS,
            "ISO/IEC 10589":linkageISISlevel2Broadcast-P
                PRESENT IF the linkage is a broadcast circuit on an ISO 10589 level 2 IS;
REGISTERED AS { NLM.moi linkage (23) };

-- Lotes (Packages)

linkageCODLService-P PACKAGE
        BEHAVIOUR linkageCODLService-P-B BEHAVIOUR
            DEFINED AS Controls the operation of CO Datalink as an SNDCF for ITU-T Rec. X.233 | ISO/IEC
                8473-1;;
        ATTRIBUTES
            callsPlaced GET,
            callsFailed GET;
        ATTRIBUTE GROUPS
            "GMI":counters
                callsPlaced
                callsFailed;
REGISTERED AS { NLM.poi linkageCODLService-P (9) };
```

```
linkageIdleTimer-P PACKAGE
        BEHAVIOUR linkageIdleTimer-P-B BEHAVIOUR
            DEFINED AS Controls the ability, when implemented, of an ISO/IEC 8208 or ITU-T Rec. X.25 or CO
                Datalink SNDCF
                for ITU-T Rec. X.233 | ISO/IEC 8473-1 to close an established Virtual Call when it is idle. ;;
        ATTRIBUTES
            idleTimer REPLACE-WITH-DEFAULT
                GET-REPLACE;
REGISTERED AS { NLM.poi linkageIdleTimer-P (5) };

linkageInitialMinimumTimer-P PACKAGE
        BEHAVIOUR linkageInitialMinimumTimer-P-B BEHAVIOUR
            DEFINED AS Controls the ability, when implemented, of an ISO/IEC 8208 or ITU-T Rec. X.25 or CO
                Datalink SNDCF for ITU-T Rec. X.233 | ISO/IEC 8473-1 to close an established Virtual Call when
                it is idle, but only after a minimum time after its establishment;;
        ATTRIBUTES
            initialMinimumTimer REPLACE-WITH-DEFAULT
                GET-REPLACE;
REGISTERED AS { NLM.poi linkageInitialMinimumTimer-P (7) };

linkage-ITU-T Rec. X.233 | ISO/IEC 8473-1-ISO/IEC8208 or ITU-T Rec. X.25SNDCF-P PACKAGE
        BEHAVIOUR linkage-ISO8473-ISO8208SNDCF-P-B BEHAVIOUR
            DEFINED AS Controls the operation of ISO/IEC 8208 or ITU-T Rec. X.25 as an SNDCF for
                ITU-T Rec. X.233 | ISO/IEC 8473-1;;
        ATTRIBUTES
            callsPlaced GET,
            callsFailed GET;
        ATTRIBUTE GROUPS
            "GMI":counters
                callsPlaced
                callsFailed;
REGISTERED AS { NLM.poi linkage-ITU-T Rec. X.233 | ISO/IEC 8473-1-ISO/IEC8208 or ITU-T Rec. X.25SNDCF-P
(4) };

linkage-ISO9542Checksum-P PACKAGE
        BEHAVIOUR linkage-ISO9542Checksum-P-B BEHAVIOUR
            DEFINED AS When present, checksum generation is controlled
                by the enableChecksum attribute;;
        ATTRIBUTES
            enableChecksum REPLACE-WITH-DEFAULT
                DEFAULT VALUE NLM.false
                GET-REPLACE;
REGISTERED AS { NLM.poi linkage-ISO9542Checksum-P(17) };

linkage-ISO9542ES-P PACKAGE
        BEHAVIOUR
            linkage-ISO9542ES-P-B BEHAVIOUR
                DEFINED AS Controls the operation of ISO 9542 on an End System;,
            linkage-ISO9542ImportedAlarmNotifications-B,
            linkage-ISO9542ISReachabilityChange-B,
            linkage-ISO9542ESReachabilityChange-B;
        ATTRIBUTES
            ISO9542OperationalSubsets GET-REPLACE,
            holdingTimerMultiplier
                REPLACE-WITH-DEFAULT
                DEFAULT VALUE NLM.holdingTimerMultiplierDefault
```

```
                PERMITTED VALUES NLM.HoldingTimerMultiplierPermitted
                REQUIRED VALUES NLM.HoldingTimerMultiplierRequired
                GET-REPLACE,
            manualISSNPAAddress REPLACE-WITH-DEFAULT
                GET-REPLACE ADD-REMOVE,
            defaultESConfigTimer REPLACE-WITH-DEFAULT
                GET-REPLACE,
            activeESConfigTimer GET,
            iSReachabilityChanges GET,
            invalid9542PDUs GET;
        ATTRIBUTE GROUPS
            "GMI":counters
                iSReachabilityChanges
                invalid9542PDUs;
        NOTIFICATIONS
            "DMI":communicationsAlarm,
            "GMI":communicationsInformation
                reachabilityChange;
REGISTERED AS { NLM.poi linkage-ISO9542ES-P (21) };

linkage-ISO9542IS-P PACKAGE
        BEHAVIOUR linkage-ISO9542IS-P-B BEHAVIOUR
            DEFINED AS Controls the operation of ISO 9542 on an Intermediate System;,
            linkage-ISO9542ImportedAlarmNotifications-B,
            linkage-ISO9542ISReachabilityChange-B,
            linkage-ISO9542ESReachabilityChange-B;
        ATTRIBUTES
            iSO9542OperationalSubsets GET-REPLACE,
            holdingTimerMultiplier
            REPLACE-WITH-DEFAULT
                DEFAULT VALUE NLM.holdingTimerMultiplierDefault
                PERMITTED VALUES NLM.HoldingTimerMultiplierPermitted

                REQUIRED VALUES NLM.HoldingTimerMultiplierRequired
                GET-REPLACE,
            iSConfigurationTimer REPLACE-WITH-DEFAULT
                DEFAULT VALUE NLM.iSConfigurationTimerDefault
                GET-REPLACE,
            suggestedESConfigurationTimer REPLACE-WITH-DEFAULT
                DEFAULT VALUE NLM.suggestedESConfigurationTimerDefault
                GET-REPLACE,
            redirectHoldingTime
                REPLACE-WITH-DEFAULT
                DEFAULT VALUE NLM.redirectHoldingTime-Default
                PERMITTED VALUES NLM.RedirectHoldingTime-Permitted
                GET-REPLACE,
```

```
            eSReachabilityChanges GET,
            invalid9542PDUs GET;
        ATTRIBUTE GROUPS
            "GMI":counters
                eSReachabilityChanges
                invalid9542PDUs;
        NOTIFICATIONS
            "DMI":communicationsAlarm,
            "GMI":communicationsInformation
                reachabilityChange;
REGISTERED AS { NLM.poi linkage-ISO9542IS-P (22) };

linkageReserveTimer-P PACKAGE
        BEHAVIOUR linkageReserveTimer-P-B BEHAVIOUR
            DEFINED AS Controls the ability, when implemented, of an ISO/IEC 8208 or ITU-T Rec. X.25 or
            CO Datalink SNDCF
                for ITU-T Rec. X.233 | ISO/IEC 8473-1 to close an established Virtual Call when it is idle, but
                retain resources for its
                re-establishment ;;
        ATTRIBUTES
            reserveTimer REPLACE-WITH-DEFAULT
                GET-REPLACE;
REGISTERED AS { NLM.poi linkageReserveTimer-P (6) };

-- Comportamientos (Behaviours)

linkage-ISO9542ISReachabilityChange-B BEHAVIOUR
        DEFINED AS
            This package imports the communicationsInformation notification
            from Rec. X.723 | ISO/IEC 10165-5.
            It is used to report the following events.

            iSReachabilityChange:

                Generated when an ES or IS detects a change
                in the reachability of a neighbouring IS.
                The value NLM.iSReachabilityChange shall be reported in the
                informationType field.
                The new State, NET of the IS concerned, snpaAddress (where
                available) and the reason for the change shall be reported
                in the informationData field using the reachabilityChange
                PARAMETER.

linkage-ISO9542ESReachabilityChange-B BEHAVIOUR
        DEFINED AS
            This package imports the communicationsInformation notification
            from Rec. X.723 | ISO/IEC 10165-5.
            It is used to report the following events.
```

eSReachabilityChange:

Generated when an ES or IS detects a change in the reachability of a neighboring ES. The value NLM.eSReachabilityChange shall be reported in the informationType field. The new State, set of NSAPAddresses of the IS concerned, the snpaAddress (where available) and the reason for the change shall be reported in the informationData field using the reachabilityChange PARAMETER.

;

linkage-ISO9542ImportedAlarmNotifications-B BEHAVIOUR

DEFINED AS This package imports the communicationsAlarm notification from Rec. X.721 (1992) | ISO/IEC 10165-2. It is used to report the following events.

invalid9542PDU:

Generated when an ISO 9542 PDU is received which is discarded as result of the PDU Header Error Detection or Protocol Error Processing Functions specified in ISO 9542. The significance sub-parameter of each item of additionalInformation shall be set to the value 'False' (i.e. not significant) so that a managing system receiving the event report will be less likely to reject it. The value NLM.iSO9542PDUDiscard shall be reported in the specificProblems parameter. The probableCause shall be set to NLM.communicationsProtocolError. The perceivedSeverity shall be set to 'Minor'. A subsequent communicationsAlarm with a perceivedSeverity value of 'Cleared' shall not be generated. No other fields or parameters shall be used, with the exception of further parameters in the AdditionalInformation field.

operationalProtocolIV-B BEHAVIOUR

DEFINED AS If the linkage MO is created by management operation (using the linkage-cLNS-Management name binding), the initial value of the operationalProtocols attribute shall be specified in the CMIP create. Otherwise, the value shall be determined in an implementation specific manner;

sN-ServiceProviderIV-B BEHAVIOUR

DEFINED AS If the linkage MO is created by management operation (using the linkage-cONS-Management or linkage-cONS-Management name bindings), the initial value of the sN-ServiceProvider attribute shall be specified in the CMIP create. Otherwise, the value shall be determined in an implementation specific manner;

-- *Vinculaciones de nombre* (Name Bindings)

```
linkage-cLNS-Management NAME BINDING
        SUBORDINATE OBJECT CLASS linkage AND SUBCLASSES;
        NAMED BY
            SUPERIOR OBJECT CLASS cLNS AND SUBCLASSES;
            WITH ATTRIBUTE linkageId;
        BEHAVIOUR sN-ServiceProviderIV-B, operationalProtocolIV-B,
            linkage-cLNS-Management-B BEHAVIOUR
            DEFINED AS The name binding which applies when the linkage managed object
                can be created and deleted by management as a subordinate object of the cLNS
                managed object class;;
        CREATE WITH-REFERENCE-OBJECT;
        DELETE;
REGISTERED AS { NLM.nboi linkage-cLNS-Management (20) };

linkage-cONS-Management NAME BINDING
        SUBORDINATE OBJECT CLASS linkage AND SUBCLASSES;
        NAMED BY
            SUPERIOR OBJECT CLASS cONS AND SUBCLASSES;
            WITH ATTRIBUTE linkageId;
        BEHAVIOUR sN-ServiceProviderIV-B,
            linkage-cONS-Management-B BEHAVIOUR
            DEFINED AS The name binding which applies when the linkage managed object
                can be created and deleted by management as a subordinate object of the cONS
                managed object class;;
        CREATE WITH-REFERENCE-OBJECT;
        DELETE;
REGISTERED AS { NLM.nboi linkage-cONS-Management (21) };

linkage-cLNS-Automatic NAME BINDING
        SUBORDINATE OBJECT CLASS linkage AND SUBCLASSES;
        NAMED BY
            SUPERIOR OBJECT CLASS cLNS AND SUBCLASSES;
            WITH ATTRIBUTE linkageId;
        BEHAVIOUR sN-ServiceProviderIV-B, operationalProtocolIV-B,
            linkage-cLNS-Automatic-B BEHAVIOUR
            DEFINED AS The name binding which applies when the linkage managed object
                cannot be created and deleted by management as a subordinate object of the cLNS
                managed object class;;
REGISTERED AS { NLM.nboi linkage-cLNS-Automatic (22) };

linkage-cONS-Automatic NAME BINDING
        SUBORDINATE OBJECT CLASS linkage AND SUBCLASSES;
        NAMED BY
            SUPERIOR OBJECT CLASS cONS AND SUBCLASSES;
            WITH ATTRIBUTE linkageId;
        BEHAVIOUR sN-ServiceProviderIV-B,
            linkage-cONS-Automatic-B BEHAVIOUR
            DEFINED AS The name binding which applies when the linkage managed object
                cannot be created and deleted by management as a subordinate object of the cONS
                managed object class;;
REGISTERED AS { NLM.nboi linkage-cONS-Automatic (23) };
```

-- *Atributos* (Attributes)

```
activeESConfigTimer ATTRIBUTE
        DERIVED FROM "GMI":timer;
        BEHAVIOUR activeESConfigTimer-B BEHAVIOUR
            DEFINED AS Currently active value for the ISO 9542 ES configuration timer
                in seconds.;;
REGISTERED AS { NLM.aoi activeESConfigTimer (22) };

callsFailed ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR callsFailed-B BEHAVIOUR
            DEFINED AS Counter of the number of X.25 call failures
                while attempting establishment by the SNDCF;;
REGISTERED AS { NLM.aoi callsFailed (30) };

callsPlaced ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR callsPlaced-B BEHAVIOUR
            DEFINED AS Counter of the number of X.25 VCs successfully established
                by the SNDCF;;
REGISTERED AS { NLM.aoi callsPlaced (29) };

defaultESConfigTimer ATTRIBUTE
        DERIVED FROM "GMI":timer;
        BEHAVIOUR resettingTimer-B, defaultESConfigTimer-B BEHAVIOUR
            DEFINED AS Default value for the ISO 9542 ES configuration timer
                in seconds. This value is used when the ES has not received,
                or has not chosen to accept, a suggested configuration timer
                value from an Intermediate System;;
REGISTERED AS { NLM.aoi defaultESConfigTimer (21) };

eSReachabilityChanges ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR eSReachabilityChanges-B BEHAVIOUR
            DEFINED AS Count of the number of changes in reachability of End Systems
                from this system;;
REGISTERED AS { NLM.aoi eSReachabilityChanges (27) };

holdingTimerMultiplier ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Integer;
        BEHAVIOUR holdingTimerMultiplier-B BEHAVIOUR
            DEFINED AS The factor to derive holding timer from configuration timer.
                This value, when multiplied by a configuration timer yields the value of
                the holding timer parameter issued with configuration information. The semantics of
                this parameter are such that it is permissible to also add a delta value to the result to
                compensate for possible delays and imprecision of timers. The result of the calculation
                is truncated, upon overflow, to the maximum value for the parameter permitted by the
                protocol (65535);;
REGISTERED AS { NLM.aoi holdingTimerMultiplier (20) };
```

```
idleTimer ATTRIBUTE
        DERIVED FROM "GMI":timer;
        BEHAVIOUR idleTimer-B BEHAVIOUR
            DEFINED AS Time in seconds before release of an idle call.
                This timer determines the interval (in seconds) for which a call is
                permitted to remain idle (i.e. no data traffic in either direction) before being
                released by the SNDCF;;
REGISTERED AS { NLM.aoi idleTimer (31) };

initialMinimumTimer ATTRIBUTE
        DERIVED FROM "GMI":timer;
        BEHAVIOUR initialMinimumTimer-B BEHAVIOUR
            DEFINED AS Minimum time in seconds to retain call after establishment.
                This timer determines the interval (in seconds) that a call shall remain
                connected after being established, irrespective of traffic. (NOTE – This should be
                set small enough so that the call is cleared before the start of the next charging interval.);;
REGISTERED AS { NLM.aoi initialMinimumTimer (33) };

invalid9542PDUs ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR invalid9542PDUs-B BEHAVIOUR
            DEFINED AS Counter of invalid 9542 PDUs received.
                This is the number of ISO 9542 PDUs received which are discarded
                as a result of the PDU Header Error Detection or Protocol Error Processing Functions
                specified in ISO 9542;;
                -- NOTE – This counter is therefore a count of the number of
                -- communicationsAlarm notifications with a specificProblem value of
                -- NLM.iSO9542PDUDiscard generated.
REGISTERED AS { NLM.aoi invalid9542PDUs (101) };

iSConfigurationTimer ATTRIBUTE
        DERIVED FROM "GMI":timer;
        BEHAVIOUR resettingTimer-B, iSConfigurationTimer-B BEHAVIOUR
            DEFINED AS Value in seconds for the ISO 9542 IS configuration timer.
                It is used to determine how often an IS reports configuration information to ESs;;
REGISTERED AS { NLM.aoi iSConfigurationTimer (24) };

iSO9542OperationalSubsets ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.ISO9542Subsets;
        MATCHES FOR EQUALITY;
        BEHAVIOUR iSO9542OperationalSubsets-B BEHAVIOUR
            DEFINED AS The set of ISO 9542 subsets operational on this linkage.;;
REGISTERED AS { NLM.aoi iSO9542OperationalSubsets (115) };

iSReachabilityChanges ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR iSReachabilityChanges-B BEHAVIOUR
            DEFINED AS Counter of the number of changes in reachability of Intermediate Systems
                from this system;;
REGISTERED AS { NLM.aoi iSReachabilityChanges (23) };
```

```
linkageId ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.GraphicString;
        MATCHES FOR EQUALITY, SUBSTRINGS;
        BEHAVIOUR linkageId-B BEHAVIOUR
            DEFINED AS The naming attribute of the linkage MO instance;;
REGISTERED AS { NLM.aoi linkageId (17) };

manualISSNPAAddress ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.ManualISSNPAAddress;
        MATCHES FOR SET-COMPARISON, SET-INTERSECTION;
        BEHAVIOUR manualISSNPAAddress-B BEHAVIOUR
            DEFINED AS The set of SNPA Addresses to which calls associated with the SNDCF are to be
                established in the absence of any other information. The maximum set cardinality shall be
                implementation specific. An attempt to set the value of an element
                of this set to a type of SNPAAddress which is not supported by this
                linkage shall result in a failure of the SET operation.;;
REGISTERED AS { NLM.aoi manualISSNPAAddress (28) };

operationalProtocols ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.SupportedProtocols;
        MATCHES FOR EQUALITY, SET-COMPARISON, SET-INTERSECTION;
        BEHAVIOUR operationalProtocols-B BEHAVIOUR
            DEFINED AS The set of network layer protocols supported
                by this instance of the linkage MO, expressed
                as the registered object identifiers of the relevant
                International Standard.;;
REGISTERED AS { NLM.aoi operationalProtocols (111) };

redirectHoldingTime ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.RedirectHoldingTime;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR redirectHoldingTime-B BEHAVIOUR
            DEFINED AS The holding time (in seconds) to be specified in Redirect PDUs
                generated by this system;;
REGISTERED AS { NLM.aoi redirectHoldingTime (26) };

reserveTimer ATTRIBUTE
        DERIVED FROM "GMI":timer;
        BEHAVIOUR reserveTimer-B BEHAVIOUR
            DEFINED AS Time in seconds to reserve resources for call re-establishment.
                This timer determines the interval (in seconds) for which an attempt
                shall be made to retain those resources, as determined by the implementation,
                whose retention will increase the probability of successful re-establishment of an idled VC;;
REGISTERED AS { NLM.aoi reserveTimer (32) };
```

```
sN-SAP ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.LocalDistinguishedName;
        MATCHES FOR EQUALITY;
        BEHAVIOUR sN-SAP-B BEHAVIOUR
            DEFINED AS Distinguished name of the service provider SAP MO
                (if present).
                This is obtained via an internal interface when the linkage is
                enabled. The sN-SAP may be a relationship to an SAP MO in the
                Datalink Layer, or it may be a relationship to another Managed Object
                within the Network Layer which is not an SAP MO.
                For example, when operating ITU-T Rec. X.233 | ISO/IEC 8473-1 over the ISO/IEC 8208 or
                ITU-T Rec. X.25 SNDCF,
                it is a relationship to the same x25PLE-DTE MO which is pointed to by the
                sN-ServiceProvider Attribute. ;;
REGISTERED AS { NLM.aoi sN-SAP (18) };

sN-ServiceProvider ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.LocalDistinguishedName;
        MATCHES FOR EQUALITY;
        BEHAVIOUR sN-ServiceProvider-B BEHAVIOUR
            DEFINED AS Distinguished name of the SN service provider MO.
                This attribute identifies the subnetwork entity to be used to support the linkage,
                when enabled. The subnetwork service provider may be in the Datalink Layer,
                or it may be in the Network Layer
                (for example when operating ITU-T Rec. X.233 | ISO/IEC 8473-1 over the ISO/IEC 8208 or
                ITU-T Rec. X.25 SNDCF).;;
REGISTERED AS { NLM.aoi sN-ServiceProvider (19) };

suggestedESConfigurationTimer ATTRIBUTE
        DERIVED FROM "GMI":timer;
        BEHAVIOUR resettingTimer-B, suggestedESConfigurationTimer-B BEHAVIOUR
            DEFINED AS Value to be used for the ISO 9542 suggested ES configuration timer
                value (in seconds),
                advertised in IS hellos generated by this network entity;;
REGISTERED AS { NLM.aoi suggestedESConfigurationTimer (25) };

-- Parámetros (Parameters)

reachabilityChange PARAMETER
        CONTEXT EVENT-INFO;
        WITH SYNTAX NLM.ReachabilityChangeSyntax;
REGISTERED AS { NLM.proi reachabilityChange (12) };
```

5.8 Objeto gestionado de servicio de red en modo con conexión

```
--
-- No hay más de uno de estos MO por entidad de red.
-- De acuerdo con su definición, puede ser creado y suprimido explícitamente
-- por la operación de gestión, pero en algunos sistemas su existencia será inherente
-- a los mismos y no será posible su creación o supresión por la operación de gestión.
-- Se han definido vinculaciones de nombre para ambos casos.
--
-- Cuando la máquina de protocolo es operable, el estado operacional (operationalState)
-- tendrá el valor «habilitado»; en los demás casos, tendrá el valor «inhabilitado».
-- Las transiciones de estado operacional se comunicarán utilizando la notificación
-- cambio de estado (stateChange). En el estado operacional «habilitado»
-- se puede crear un MO de cONS.
--
cONS MANAGED OBJECT CLASS
        DERIVED FROM "GMI":coProtocolMachine;
        CHARACTERIZED BY cONS-P PACKAGE
            BEHAVIOUR commonStateChange-B,
                commonCreationDeletion-B;
            ATTRIBUTES
                "DMI":administrativeState GET-REPLACE,
                "GMI":coProtocolMachineId
                    INITIAL VALUE NLM.cONSId-Value
                    GET,
                operationalSystemType
                    INITIAL VALUE DERIVATION RULE operationalSystemTypeIV-B
                    GET;
            ATTRIBUTE GROUPS
                "DMI":state
                    "DMI":administrativeState
                    "DMI":operationalState;
            ACTIONS
                "GMI":activate,
                "GMI":deactivate,
                "GMI":deactivateWhenNoUsers;
            NOTIFICATIONS
                "DMI":objectCreation,
                "DMI":objectDeletion,
                "DMI":stateChange;
        ;;
REGISTERED AS { NLM.moi cONS (24) };
```

-- *Vinculaciones de nombres* (Name Bindings)

```
cONS-networkEntity-Management NAME BINDING
        SUBORDINATE OBJECT CLASS cONS AND SUBCLASSES;
        NAMED BY
            SUPERIOR OBJECT CLASS networkEntity AND SUBCLASSES;
            WITH ATTRIBUTE "GMI":coProtocolMachineId;
        BEHAVIOUR cONS-networkEntity-Management-B BEHAVIOUR
            DEFINED AS The name binding that applies when the cONS managed object
                can be created and deleted by management;;
        CREATE;
        DELETE ONLY-IF-NO-CONTAINED-OBJECTS;
REGISTERED AS { NLM.nboi cONS-networkEntity-Management (8) };

cONS-networkEntity-Automatic NAME BINDING
        SUBORDINATE OBJECT CLASS cONS AND SUBCLASSES;
        NAMED BY
            SUPERIOR OBJECT CLASS networkEntity AND SUBCLASSES;
            WITH ATTRIBUTE "GMI":coProtocolMachineId;
        BEHAVIOUR cONS-networkEntity-Automatic-B BEHAVIOUR
            DEFINED AS The name binding that applies when the cONS managed object
                cannot be created or deleted by management;;
REGISTERED AS { NLM.nboi cONS-networkEntity-Automatic (17) };
```

5.9 Objeto gestionado de conexión de red

```
--
-- Hay un ejemplo de este MO correspondiente a cada conexión de red.
-- Es creado y suprimido por la operación de la máquina
-- de protocolo.
--
-- En algunas configuraciones, el atributo de nombres de conexiones subyacentes
-- (underlyingConnectionNames) puede contener más de un nombre distinguido.
-- En este caso, el tipo de MO subyacente (y por tanto el recurso subyacente particular)
-- sólo puede determinarse mediante la inspección del MO al que señala
-- este nombre distinguido.
--
networkConnection MANAGED OBJECT CLASS
        DERIVED FROM "GMI":singlePeerConnection;
        CHARACTERIZED BY networkConnection-P PACKAGE
            BEHAVIOUR
                commonCreationDeletion-B,
                successfulConnectionEstablishment-B,
                deactivateConnection-B,
                networkConnection-P-B BEHAVIOUR
                DEFINED AS The "GMI":underlyingConnectionNames
                    attribute shall contain the distinguished name(s) of the
                    other MO(s) which represent the resources used to support
                    this connection. In the case of the CONS operating
                    directly over X.25, this shall be the single distinguished
                    name of the underlying virtual call or permanent
                    virtual circuit MO;;
            ATTRIBUTES
                localNSAPMO GET,
                remoteNSAPAddress GET;
            ACTIONS
                "GMI":deactivate;
            NOTIFICATIONS
                "DMI":objectCreation,
                "DMI":objectDeletion,
                "GMI":communicationsInformation;
            ;;
REGISTERED AS { NLM.moi networkConnection (13) };

-- Vinculaciones de nombre (Name Bindings)

networkConnection-cONS NAME BINDING
        SUBORDINATE OBJECT CLASS networkConnection AND SUBCLASSES;
        NAMED BY
            SUPERIOR OBJECT CLASS cONS AND SUBCLASSES;
            WITH ATTRIBUTE "GMI":connectionId;
        DELETE;
REGISTERED AS { NLM.nboi networkConnection-cONS (19) };
```

-- *Atributos* (Attributes)

```
localNSAPMO ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.LocalDistinguishedName;
        MATCHES FOR EQUALITY;
        BEHAVIOUR localNSAPMO-B BEHAVIOUR
            DEFINED AS Pointer to local nSAP MO.
                This is a relationship attribute which points to the
                local nSAP MO which is associated with the connection;;
REGISTERED AS { NLM.aoi localNSAPMO (106) };

remoteNSAPAddress ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.NAddress;
        MATCHES FOR EQUALITY;
        BEHAVIOUR remoteNSAPAddress-B BEHAVIOUR
            DEFINED AS The remote NSAP Address
                associated with the connection;;
REGISTERED AS { NLM.aoi remoteNSAPAddress (107) };
```

5.10 PLE X.25 y objetos gestionados conexos

5.10.1 Objeto gestionado de PLE X.25

```
-- Nunca se producen ejemplos de esta clase de MO. Sirve como un MO PLE X.25 genérico del
-- que se derivan las clases de MO DTE PLE X.25 y DCE PLE X.25.
--
-- Se señala que los valores del atributo de denominación x25PLEId han de ser exclusivos en
-- todos los ejemplos de MO derivados de éste que tienen un superior común.

x25PLE MANAGED OBJECT CLASS
        DERIVED FROM "DMI":top;
        CHARACTERIZED BY x25PLE-P PACKAGE
            BEHAVIOUR commonStateChange-B,
                commonCreationDeletion-B,
                logicalChannelAssignmentsX25PLE-P-B BEHAVIOUR
                DEFINED AS The logicalChannelAssignments attribute shall not be replaceable
                    when the value of the operationalState attribute is 'enabled';;
            ATTRIBUTES
                x25PLEId GET,
                "DMI":operationalState GET,
                "DMI":administrativeState GET-REPLACE,
                protocolVersionSupported GET,
                localDTEAddress GET-REPLACE,
                x25PLEMode GET-REPLACE,
                defaultThroughputClasses REPLACE-WITH-DEFAULT
                    DEFAULT VALUE NLM.nullBidirectionalValues
                    GET-REPLACE,
                flowControlParameterNegotiation REPLACE-WITH-DEFAULT
                    GET-REPLACE,
                defaultPacketSizes REPLACE-WITH-DEFAULT
                    DEFAULT VALUE NLM.nullBidirectionalValues
                    GET-REPLACE,
                defaultWindowSizes REPLACE-WITH-DEFAULT
                    DEFAULT VALUE NLM.nullBidirectionalValues
                    GET-REPLACE,
                throughputClassNegotiation REPLACE-WITH-DEFAULT
                    GET-REPLACE,
                sN-ServiceProvider REPLACE-WITH-DEFAULT
                    GET-REPLACE,
                sN-SAP GET,
                logicalChannelAssignments GET-REPLACE;
            ATTRIBUTE GROUPS
                "DMI":state
```

```
                "DMI":administrativeState
                "DMI":operationalState;
        ACTIONS
                "GMI":activate,
                "GMI":deactivate;
        NOTIFICATIONS
                "DMI":stateChange,
                "DMI":objectCreation,
                "DMI":objectDeletion;
        ;;
REGISTERED AS { NLM.moi x25PLE (25) };
```

5.10.2 Objeto gestionado con valores iniciales de PLE X.25

```
-- Nunca se produce esta clase de MO. Sirve como IVMO de PLE X.25 genérico del que
-- se derivan las clases de MO DTE IVMO PLE X.25 y DCE IVMO PLE X.25.
--
-- Se señala que los valores del atributo de denominación x25PLEIVMOId han se ser únicos en
-- todos los ejemplos de MO derivados de éste que tienen un superior común.

x25PLEIVMO MANAGED OBJECT CLASS
        DERIVED FROM "DMI":top;
        CHARACTERIZED BY x25PLEIVMO-P PACKAGE
            BEHAVIOUR commonCreationDeletion-B;
            ATTRIBUTES
                defaultPacketSizes REPLACE-WITH-DEFAULT
                    DEFAULT VALUE NLM.nullBidirectionalValues
                    GET-REPLACE,
                defaultThroughputClasses REPLACE-WITH-DEFAULT
                    DEFAULT VALUE NLM.nullBidirectionalValues
                    GET-REPLACE,
                defaultWindowSizes REPLACE-WITH-DEFAULT
                    DEFAULT VALUE NLM.nullBidirectionalValues
                    GET-REPLACE,
                flowControlParameterNegotiation REPLACE-WITH-DEFAULT
                    GET-REPLACE,
                localDTEAddress GET-REPLACE,
                logicalChannelAssignments GET-REPLACE,
                sN-ServiceProvider GET-REPLACE,
                throughputClassNegotiation REPLACE-WITH-DEFAULT
                    GET-REPLACE,
                x25PLEIVMOId GET,
                x25PLEMode GET-REPLACE;
            NOTIFICATIONS
                "DMI":objectCreation,
                "DMI":objectDeletion;
            ;;
REGISTERED AS { NLM.moi x25PLEIVMO (26) };
```

5.10.3 Objeto gestionado de DTE PLE X.25

```
-- Dentro de un sistema puede haber múltiples ejemplos de estos MO, en correspondencia con
-- múltiples PLE X.25.
--
-- De acuerdo con la definición de este MO, puede ser creado y suprimido explícitamente por la
-- operación de gestión o ser creado y suprimido automáticamente como parte del
-- funcionamiento del sistema. Cuando se cree automáticamente un ejemplo de este MO, se
-- podrá utilizar una instancia del DTE IVMO PLE X.25 como fuente de los valores iniciales para
-- los atributos de este MO.
--
-- Cuando la PLE X.25 es operable, el estado operacional (operationalState) tendrá el valor
-- «habilitado», en los demás casos tendrá el valor «inhabilitado». Las transiciones de estado
-- operacional se comunicarán utilizando la notificación cambio de estado (stateChange).

x25PLE-DTE MANAGED OBJECT CLASS
        DERIVED FROM x25PLE;
        CHARACTERIZED BY x25PLE-DTE-P PACKAGE
            BEHAVIOUR
                x25PLEPImportedNotifications-B;
            ATTRIBUTES
                callDeflectionSubscription REPLACE-WITH-DEFAULT
                    GET-REPLACE,
                callRequestResponseTimer REPLACE-WITH-DEFAULT
                    DEFAULT VALUE NLM.callRequestResponseTimerDefault
                    GET-REPLACE,
                extendedPacketSequenceNumbering REPLACE-WITH-DEFAULT
                    GET-REPLACE,
                maxActiveCircuits REPLACE-WITH-DEFAULT
                    DEFAULT VALUE NLM.nullChoiceInteger
                    GET-REPLACE,
                minimumRecallTimer REPLACE-WITH-DEFAULT
                    GET-REPLACE,
                resetRequestResponseTimer REPLACE-WITH-DEFAULT
                    DEFAULT VALUE NLM.resetRequestResponseTimerDefault
                    GET-REPLACE,
                restartRequestRetransmissionCount REPLACE-WITH-DEFAULT
                    DEFAULT VALUE NLM.restartRequestRetransmissionCountDefault
                    GET-REPLACE,
                restartRequestResponseTimer REPLACE-WITH-DEFAULT
                    DEFAULT VALUE NLM.restartRequestResponseTimerDefault
                    GET-REPLACE,
                clearRequestResponseTimer REPLACE-WITH-DEFAULT
                    DEFAULT VALUE NLM.clearRequestResponseTimerDefault
                    GET-REPLACE,
                interruptResponseTimer REPLACE-WITH-DEFAULT
                    DEFAULT VALUE NLM.interruptResponseTimerDefault
                    GET-REPLACE,
                resetRequestRetransmissionCount REPLACE-WITH-DEFAULT
                    DEFAULT VALUE NLM.resetRequestRetransmissionCountDefault
                    GET-REPLACE,
```

```
                clearRequestRetransmissionCount REPLACE-WITH-DEFAULT
                    DEFAULT VALUE NLM.clearRequestRetransmissionCountDefault
                    GET-REPLACE,
                callAttempts GET,
                protocolErrorsDetectedLocally GET,
                protocolErrorsAccusedOf GET,
                callEstablishmentRetryCountsExceeded GET;
            ATTRIBUTE GROUPS
                "GMI":counters
                    callAttempts
                    protocolErrorsDetectedLocally
                    protocolErrorsAccusedOf
                    callEstablishmentRetryCountsExceeded;
            NOTIFICATIONS
                "DMI":communicationsAlarm
                      notificationData;
            ;;
        CONDITIONAL PACKAGES
            dTEX25PLECounters-P
                PRESENT IF the instance supports the dTEX25PLECounters-P
                    capabilities,
            receivingWindowRotationRecoveryProcedures-P
                PRESENT IF The optional window rotation recovery procedures
                    are implemented at a receiving DTE,
            transmittingWindowRotationRecoveryProcedures-P
                PRESENT IF The optional window rotation recovery procedures
                    are implemented at a transmitting DTE,
            packetRetransmissionProcedures-P
                PRESENT IF The optional packet retransmission procedures
                    are implemented,
            onlineRegistration-P
                PRESENT IF The optional online registration facility
                    is implemented;
REGISTERED AS { NLM.moi x25PLE-DTE (17) };
```

5.10.4 Objeto gestionado de DCE de PLE X.25

```
-- Dentro de un sistema hay múltiples ejemplos de estos MO, en correspondencia con múltiples
-- PLE X.25.
--
-- De acuerdo con la definición de este MO, puede ser creado y suprimido explícitamente por la
-- operación de gestión o ser creado y suprimido automáticamente como parte del
-- funcionamiento del sistema. Cuando se cree automáticamente un ejemplo de este MO, se
-- podrá utilizar una instancia del DCE IVMO PLE X.25 como fuente de los valores iniciales de los
-- atributos de este MO.
--
-- Cuando el PLE X.25 es operable, el estado operacional tendrá el valor «habilitado», en los
-- demás casos tendrá el valor «inhabilitado». Las transiciones de estado operacional se
-- comunicarán utilizando la notificación cambio de estado (stateChange).

x25PLE-DCE MANAGED OBJECT CLASS
        DERIVED FROM x25PLE;
        CHARACTERIZED BY x25PLE-DCE-P PACKAGE
            ATTRIBUTES
                callAttempts GET,
                callsConnected GET,
                cUG REPLACE-WITH-DEFAULT
                    GET-REPLACE,
                fastSelectAcceptance REPLACE-WITH-DEFAULT
                    GET-REPLACE,
                incomingCallsBarred REPLACE-WITH-DEFAULT
                    GET-REPLACE,
                oneWayLogicalChannelOutgoing REPLACE-WITH-DEFAULT
                    GET-REPLACE,
                outgoingCallsBarred REPLACE-WITH-DEFAULT
                    GET-REPLACE;
            ATTRIBUTE GROUPS
                "GMI":counters
                    callAttempts
                    callsConnected;
        ;;
        CONDITIONAL PACKAGES
            dCECommonVirtualCircuitCounters-P
                PRESENT IF the instance supports the dCECommonVirtualCircuitCounters capabilities,
            dCEX25PLEFacilities-P
                PRESENT IF the instance supports the dCEX25PLEFacilities capabilities,
            dCEX25PLETimers-P
                PRESENT IF the instance supports the dCEX25PLETimers capabilities;
REGISTERED AS { NLM.moi x25PLE-DCE (27) };
```

5.10.5 Objeto gestionado con valores iniciales de DTE de PLE X.25

```
-- En un sistema puede haber múltiples ejemplos de DTE IVMO PLE X.25.
-- Puede utilizarse un DTE IVMO PLE X.25 para suministrar valores iniciales de los atributos del
-- MO DTE PLE X.25.
-- Diferentes ejemplos de DTE IVMO PLE X.25 pueden contener diferentes valores iniciales.
--
-- De acuerdo con su definición, puede ser creado y suprimido explícitamente por la operación de
-- gestión.
--
x25PLEIVMO-DTE MANAGED OBJECT CLASS
        DERIVED FROM x25PLEIVMO;
        CHARACTERIZED BY x25PLEIVMO-DTE-P PACKAGE
            ATTRIBUTES
                callDeflectionSubscription REPLACE-WITH-DEFAULT
                    GET-REPLACE,
                callRequestResponseTimer REPLACE-WITH-DEFAULT
                    DEFAULT VALUE NLM.callRequestResponseTimerDefault
                    GET-REPLACE,
                clearRequestResponseTimer REPLACE-WITH-DEFAULT
                    DEFAULT VALUE NLM.clearRequestResponseTimerDefault
                    GET-REPLACE,
                clearRequestRetransmissionCount REPLACE-WITH-DEFAULT
                    DEFAULT VALUE NLM.clearRequestRetransmissionCountDefault
                    GET-REPLACE,
                extendedPacketSequenceNumbering REPLACE-WITH-DEFAULT
                    GET-REPLACE,
                interruptResponseTimer REPLACE-WITH-DEFAULT
                    DEFAULT VALUE NLM.interruptResponseTimerDefault
                    GET-REPLACE,
                maxActiveCircuits REPLACE-WITH-DEFAULT
                    DEFAULT VALUE NLM.nullChoiceInteger
                    GET-REPLACE,
                minimumRecallTimer REPLACE-WITH-DEFAULT
                    GET-REPLACE,
                resetRequestResponseTimer REPLACE-WITH-DEFAULT
                    DEFAULT VALUE NLM.resetRequestResponseTimerDefault
                    GET-REPLACE,
                resetRequestRetransmissionCount REPLACE-WITH-DEFAULT
                    DEFAULT VALUE NLM.resetRequestRetransmissionCountDefault
                    GET-REPLACE,
                restartRequestResponseTimer REPLACE-WITH-DEFAULT
                    DEFAULT VALUE NLM.restartRequestResponseTimerDefault
                    GET-REPLACE,
                restartRequestRetransmissionCount REPLACE-WITH-DEFAULT
                    DEFAULT VALUE NLM.restartRequestRetransmissionCountDefault
                    GET-REPLACE;
            ;;
```

CONDITIONAL PACKAGES
receivingWindowRotationRecoveryProcedures-P
PRESENT IF The optional window rotation recovery procedures are implemented at a receiving DTE,
transmittingWindowRotationRecoveryProcedures-P
PRESENT IF The optional window rotation recovery procedures are implemented at a transmitting DTE,
packetRetransmissionProcedures-P
PRESENT IF The optional packet retransmission procedures are implemented,
onlineRegistration-P
PRESENT IF The optional online registration facility is implemented;

REGISTERED AS { NLM.moi x25PLEIVMO-DTE (20) };

5.10.6 Objeto gestionado con valores iniciales de DCE de PLE X.25

```
-- En un sistema puede haber múltiples ejemplos de DCE IVMO PLE X.25.
-- Puede utilizarse un DCE IVMO PLE X.25 para suministrar valores iniciales para los atributos
-- del MO DCE PLE X.25.
-- Diferentes ejemplos de DCE IVMO PLE X.25 pueden contener diferentes valores iniciales.
--
-- De acuerdo con su definición, puede ser creado y suprimido explícitamente por la operación de
-- gestión.

x25PLEIVMO-DCE MANAGED OBJECT CLASS
   DERIVED FROM x25PLEIVMO;
REGISTERED AS { NLM.moi x25PLEIVMO-DCE (28) };

-- Lotes

dCECommonVirtualCircuitCounters-P PACKAGE
          BEHAVIOUR dCECommonVirtualCircuitCounters-P-B BEHAVIOUR
               DEFINED AS provides the set of common counters used in the normal operation of a
                    DCE environment, as defined in the appropriate clauses;,
               octetsSentReceivedCounter-B;
          ATTRIBUTES
               dataPacketsReceived GET,
               dataPacketsSent GET,
               interruptPacketsReceived GET,
               interruptPacketsSent GET,
               interruptTimerExpiries GET,
               "DMI":octetsReceivedCounter GET,
               "DMI":octetsSentCounter GET,
               providerInitiatedDisconnects GET,
               providerInitiatedResets GET,
               remotelyInitiatedRestarts GET,
               remotelyInitiatedResets GET,
               resetTimeouts GET,
               x25SegmentsReceived GET,
               x25SegmentsSent GET;
          ATTRIBUTE GROUPS
               "GMI":counters
                    dataPacketsReceived
                    dataPacketsSent
                    interruptPacketsReceived
                    interruptPacketsSent
                    interruptTimerExpiries
                    "DMI":octetsReceivedCounter
                    "DMI":octetsSentCounter
                    providerInitiatedDisconnects
                    providerInitiatedResets
                    remotelyInitiatedRestarts
                    remotelyInitiatedResets
                    resetTimeouts
                    x25SegmentsReceived
                    x25SegmentsSent;
REGISTERED AS { NLM.poi dCECommonVirtualCircuitCounters-P (23) };
```

```
dCEX25PLEFacilities-P PACKAGE
        BEHAVIOUR dCEX25PLEFacilities-P-B BEHAVIOUR
            DEFINED AS provides the set of Facilities which are optional, and may be implemented in a
                DCE environment, as defined in the appropriate clauses;;
        ATTRIBUTES
            bilateralCUG REPLACE-WITH-DEFAULT
                GET-REPLACE,
            bilateralCUGWithOutgoingAccess REPLACE-WITH-DEFAULT
                GET-REPLACE,
            callDeflectionSubscription REPLACE-WITH-DEFAULT
                GET-REPLACE,
            callRedirection REPLACE-WITH-DEFAULT
                GET-REPLACE,
            chargingInformation REPLACE-WITH-DEFAULT
                GET-REPLACE,
            cUGWithIncomingAccess REPLACE-WITH-DEFAULT
                GET-REPLACE,
            cUGWithOutgoingAccess REPLACE-WITH-DEFAULT
                GET-REPLACE,
            dBitModification REPLACE-WITH-DEFAULT
                GET-REPLACE,
            defaultThroughputClassesAssignment REPLACE-WITH-DEFAULT
                GET-REPLACE,
            extendedPacketSequenceNumbering REPLACE-WITH-DEFAULT
                GET-REPLACE,
            huntGroup REPLACE-WITH-DEFAULT
                GET-REPLACE,
            incomingCallBarredWithinCUG REPLACE-WITH-DEFAULT
                GET-REPLACE,
            localChargingPrevention REPLACE-WITH-DEFAULT
                GET-REPLACE,
            nonStandardDefaultPacketSizes REPLACE-WITH-DEFAULT
                GET-REPLACE,
            nonStandardDefaultWindowSizes REPLACE-WITH-DEFAULT
                GET-REPLACE,
            nUIOverride REPLACE-WITH-DEFAULT
                GET-REPLACE,
            nUISubscription REPLACE-WITH-DEFAULT
                GET-REPLACE,
            oneWayLogicalChannelIncoming REPLACE-WITH-DEFAULT
                GET-REPLACE,
            onlineFacilityRegistration REPLACE-WITH-DEFAULT
                GET-REPLACE,
            outgoingCallBarredWithinCUG REPLACE-WITH-DEFAULT
                GET-REPLACE,
            packetRetransmission REPLACE-WITH-DEFAULT
                GET-REPLACE,
            reverseChargingAcceptance REPLACE-WITH-DEFAULT
                GET-REPLACE,
            rPOASubscription REPLACE-WITH-DEFAULT
                GET-REPLACE;
REGISTERED AS { NLM.poi dCEX25PLEFacilities-P (26) };
```

```
dCEX25PLETimers-P PACKAGE
        BEHAVIOUR dCEX25PLETimers-P-B BEHAVIOUR
            DEFINED AS provides the set of timers used during the normal operation in a DCE
                environment, as defined in the appropriate clauses ;;
        ATTRIBUTES
            clearIndication GET-REPLACE,
                -- T13 timer.
            incomingCall GET-REPLACE,
                -- T11 timer.
            resetIndication GET-REPLACE,
                -- T12 timer.
            restartIndication GET-REPLACE;
                -- T10 timer.
REGISTERED AS { NLM.poi dCEX25PLETimers-P (25) };

dTEX25PLECounters-P PACKAGE
        BEHAVIOUR dTEX25PLECounters-P-B BEHAVIOUR
            DEFINED AS Provides the set of counters which may be associated
                with the x25PLE-DTE MO.;,
                octetsSentReceivedCounter-B;
        ATTRIBUTES
            "DMI":octetsReceivedCounter GET,
                -- Note that the DMI definition is in terms of user data octets.
            "DMI":octetsSentCounter GET,
                -- Note that the DMI definition is in terms of user data octets.
            callTimeouts GET,
            callsConnected GET,
            clearCountsExceeded GET,
            clearTimeouts GET,
            dataPacketsReceived GET,
            dataPacketsSent GET,
                -- Note that the "DMI":PDUsSentCounter
                -- cannot be used here since it is defined as total number of PDUs sent,
                -- not just data PDUs.
            dataRetransmissionTimerExpiries GET,
            providerInitiatedResets GET,
            providerInitiatedDisconnects GET,
            remotelyInitiatedResets GET,
            remotelyInitiatedRestarts GET,
            resetTimeouts GET,
            restartCountsExceeded GET;
        ATTRIBUTE GROUPS
            "GMI":counters
                "DMI":octetsSentCounter
                "DMI":octetsReceivedCounter
                callTimeouts
                callsConnected
                clearCountsExceeded
```

```
                clearTimeouts
                dataPacketsReceived
                dataPacketsSent
                dataRetransmissionTimerExpiries
                providerInitiatedDisconnects
                providerInitiatedResets
                remotelyInitiatedResets
                remotelyInitiatedRestarts
                resetTimeouts
                restartCountsExceeded;
REGISTERED AS { NLM.poi dTEX25PLECounters-P (18) };

packetRetransmissionProcedures-P PACKAGE
        BEHAVIOUR packetRetransmissionProcedures-P-B BEHAVIOUR
            DEFINED AS Controls the operation of the optional packet retransmission procedures
                as described in 13.4 of ISO/IEC 8208 or ITU-T Rec. X.25 (2nd Edition);;
        ATTRIBUTES
            rejectResponseTimer REPLACE-WITH-DEFAULT
                DEFAULT VALUE NLM.rejectResponseTimerDefault
                GET-REPLACE,
            rejectRetransmissionCount REPLACE-WITH-DEFAULT
                DEFAULT VALUE NLM.rejectRetransmissionCountDefault
                GET-REPLACE;
REGISTERED AS { NLM.poi packetRetransmissionProcedures-P (14) };

receivingWindowRotationRecoveryProcedures-P PACKAGE
        BEHAVIOUR
            receivingWindowRotationRecoveryProcedures-P-B BEHAVIOUR
            DEFINED AS Controls the operation of the optional window rotation recovery procedures
                at a receiving DTE as described in 11.2.2 of ISO/IEC 8208 or ITU-T Rec. X.25 (2nd Edition);;
        ATTRIBUTES
            windowStatusTransmissionTimer REPLACE-WITH-DEFAULT
                DEFAULT VALUE NLM.windowStatusTransmissionTimerDefault
                GET-REPLACE;
REGISTERED AS { NLM.poi receivingWindowRotationRecoveryProcedures-P (12) };

transmittingWindowRotationRecoveryProcedures-P PACKAGE
        BEHAVIOUR
            transmittingWindowRotationRecoveryProcedures-P-B BEHAVIOUR
            DEFINED AS Controls the operation of the optional window rotation recovery procedures
                at a transmitting DTE as described in 11.2.1 of ISO/IEC 8208 or ITU-T Rec. X.25 (2nd Edition);;
        ATTRIBUTES
            windowRotationTimer REPLACE-WITH-DEFAULT
                DEFAULT VALUE
                    NLM.windowRotationTimerDefault
                GET-REPLACE,
            dataPacketRetransmissionCount REPLACE-WITH-DEFAULT
                DEFAULT VALUE NLM.dataPacketRetransmissionCountDefault
                GET-REPLACE;
REGISTERED AS { NLM.poi transmittingWindowRotationRecoveryProcedures-P (13) };
```

```
onlineRegistration-P PACKAGE
        BEHAVIOUR onlineRegistration-P-B BEHAVIOUR
            DEFINED AS Controls the operation of the optional online registration facility as described
                in 13.1 of ISO/IEC 8208 or ITU-T Rec. X.25 (2nd Edition);;
        ATTRIBUTES
            registrationRequestResponseTimer REPLACE-WITH-DEFAULT
                DEFAULT VALUE NLM.registrationRequestResponseTimerDefault
                GET-REPLACE,
            registrationRequestRetransmissionCount REPLACE-WITH-DEFAULT
                DEFAULT VALUE NLM.registrationRequestRetransmissionCountDefault
                GET-REPLACE,
            registrationPermitted REPLACE-WITH-DEFAULT
                DEFAULT VALUE NLM.registrationPermittedDefault
                GET-REPLACE;
REGISTERED AS { NLM.poi onlineRegistration-P (11) };

-- Comportamientos

x25PLEPImportedNotifications-B BEHAVIOUR
        DEFINED AS The x25PLE-P package imports the communicationsAlarm notification from
            Rec. X.721 (1992) | ISO/IEC 10165-2.
            It is used to report the following x25PLE managed object events.

            providerInitiatedDisconnect:

                Issued upon receipt of a clear packet with a cause code other than
                'DTE originated'.
                The information relating to the packet shall be reported as a
                parameter in the additionalInformation field of the communicationsAlarm,
                using the notificationData PARAMETER.
                The significance sub-parameter of each item of additionalInformation
                shall be set to the value 'False' (i.e. not significant) so that a managing
                system receiving the event report will be less likely to reject it.
                The value NLM.providerInitiatedDisconnect shall be reported in the specificProblems
                parameter.
                The probableCause shall be set to NLM.communicationsProtocolError.
                The perceivedSeverity shall be set to 'Minor'. A subsequent communicationsAlarm
                with a perceivedSeverity value of 'Cleared' shall not be generated.
                No other fields or parameters shall be used, with the exception of further
                parameters in the additionalInformation field.
```

remotelyInitiatedReset:

**Issued upon occurrence of a remotely initiated reset.
This event is issued in lieu of a 'providerInitiatedReset'
when operating in a DTE-DXE environment.
The information relating to the packet shall be reported as a
parameter in the additionalInformation field of the communicationsAlarm,
using the notificationData PARAMETER
The significance sub-parameter of each item of additionalInformation
shall be set to the value 'False' (i.e. not significant) so that a managing
system receiving the event report will be less likely to reject it.
The value NLM.remotelyInitiatedDisconnect shall be reported in the specificProblems
parameter.
The probableCause shall be set to NLM.communicationsProtocolError.
The perceivedSeverity shall be set to 'Minor'. A subsequent communicationsAlarm
with a perceivedSeverity value of 'Cleared' shall not be generated.
No other fields or parameters shall be used, with the exception of further
parameters in the additionalInformation field.**

providerInitiatedReset:

**Issued upon occurrence of a provider initiated reset.
This event is issued when operating in a DTE-DCE environment.
The information relating to the packet shall be reported as a
parameter in the additionalInformation field of the communicationsAlarm,
using the notificationData PARAMETER
The significance sub-parameter of each item of additionalInformation
shall be set to the value 'False' (i.e. not significant) so that a managing
system receiving the event report will be less likely to reject it.
The value NLM.providerInitiatedReset shall be reported in the specificProblems parameter.
The probableCause shall be set to NLM.communicationsProtocolError.
The perceivedSeverity shall be set to 'Minor'. A subsequent communicationsAlarm
with a perceivedSeverity value of 'Cleared' shall not be generated.
No other fields or parameters shall be used, with the exception of further
parameters in the additionalInformation field.**

remotelyInitiatedRestart:

**Issued upon receipt of a remotely (including provider) initiated
restart.
The information relating to the packet shall be reported as a
parameter in the additionalInformation field of the communicationsAlarm,
using the notificationData PARAMETER
The significance sub-parameter of each item of additionalInformation
shall be set to the value 'False' (i.e. not significant) so that a managing
system receiving the event report will be less likely to reject it.
The value NLM.remotelyInitiatedRestart shall be reported in the specificProblems parameter.
The probableCause shall be set to NLM.communicationsProtocolError.
The perceivedSeverity shall be set to 'Minor'. A subsequent communicationsAlarm
with a perceivedSeverity value of 'Cleared' shall not be generated.
No other fields or parameters shall be used, with the exception of further
parameters in the additionalInformation field.**

restartCountExceeded:

**Issued on restart failure due to restart count (R20) exceeded.
The information relating to the packet shall be reported as a
parameter in the additionalInformation field of the communicationsAlarm,
using the notificationData PARAMETER
The significance sub-parameter of each item of additionalInformation
shall be set to the value 'False' (i.e. not significant) so that a managing
system receiving the event report will be less likely to reject it.
The value NLM.restartCountExceeded shall be reported in the specificProblems parameter.
The probableCause shall be set to NLM.communicationsProtocolError.
The perceivedSeverity shall be set to 'Minor'. A subsequent communicationsAlarm
with a perceivedSeverity value of 'Cleared' shall not be generated.
No other fields or parameters shall be used, with the exception of further
parameters in the additionalInformation field.**

protocolErrorDetectedLocally:

**Issued upon receipt of a packet which causes the "A=Error" action
in the ISO/IEC 8208 or ITU-T Rec. X.25 state tables to be taken.
The information relating to the packet shall be reported as a
parameter in the additionalInformation field of the communicationsAlarm,
using the notificationData PARAMETER. The values of cause and
diagnostic codes shall be those which would have been placed in a
diagnostic packet had one been generated by the DTE (i.e.
as if it were a DTE). The actual generation of such a packet is
not required.
The significance sub-parameter of each item of additionalInformation
shall be set to the value 'False' (i.e. not significant) so that a managing
system receiving the event report will be less likely to reject it.
The value NLM.communicationsProtocolErrorDetectedLocally
shall be reported in the specificProblems parameter.
The probableCause shall be set to NLM.communicationsProtocolError.
The perceivedSeverity shall be set to 'Minor'. A subsequent communicationsAlarm
with a perceivedSeverity value of 'Cleared' shall not be generated.
No other fields or parameters shall be used, with the exception of further
parameters in the additionalInformation field.**

accusedOfProtocolError:

**Issued upon receipt of a diagnostic packet or a
clear, reset or restart packet with a cause code equal to
one of the following:**

- **Remote Procedure Error,**
- **Incompatible Destination,**
- **Invalid Facility Request,**
- **Local Procedure Error.**

**No other x25PLE communication alarm shall
be generated as a result of this particular instance of
packet.
The information relating to the packet shall be reported as a**

parameter in the additionalInformation field of the communicationsAlarm, using the notificationData PARAMETER
The significance sub-parameter of each item of additionalInformation shall be set to the value 'False' (i.e. not significant) so that a managing system receiving the event report will be less likely to reject it.
The value NLM.accusedOfProtocolError shall be reported in the specificProblems parameter.
The probableCause shall be set to NLM.communicationsProtocolError.
The perceivedSeverity shall be set to 'Minor'. A subsequent communicationsAlarm with a perceivedSeverity value of 'Cleared' shall not be generated.
No other fields or parameters shall be used, with the exception of further parameters in the additionalInformation field.

callEstablishmentRetryCountExceeded:

Issued on retry failure during call establishment due to retry limit exceeded.
The information relating to the call shall be reported as a parameter in the additionalInformation field of the communicationsAlarm, using the notificationData PARAMETER
The significance sub-parameter of each item of additionalInformation shall be set to the value 'False' (i.e. not significant) so that a managing system receiving the event report will be less likely to reject it.
The value NLM.callEstablishmentRetryCountExceeded shall be reported in the specificProblems parameter.
The probableCause shall be set to NLM.communicationsProtocolError.
The perceivedSeverity shall be set to 'Minor'. A subsequent communicationsAlarm with a perceivedSeverity value of 'Cleared' shall not be generated.
No other fields or parameters shall be used, with the exception of further parameters in the additionalInformation field.

clearCountExceeded:

Issued on retry failure due to clear limit (R23) exceeded.
The information relating to the call shall be reported as a parameter in the additionalInformation field of the communicationsAlarm, using the notificationData PARAMETER
The significance sub-parameter of each item of additionalInformation shall be set to the value 'False' (i.e. not significant) so that a managing system receiving the event report will be less likely to reject it.
The value NLM.clearCountExceeded shall be reported in the specificProblems parameter.
The probableCause shall be set to NLM.communicationsProtocolError.
The perceivedSeverity shall be set to 'Minor'. A subsequent communicationsAlarm with a perceivedSeverity value of 'Cleared' shall not be generated.
No other fields or parameters shall be used, with the exception of further parameters in the additionalInformation field.

-- Vinculaciones de nombre

```
x25PLEIVMO-networkSubsystem NAME BINDING
        SUBORDINATE OBJECT CLASS x25PLEIVMO AND SUBCLASSES;
        NAMED BY
            SUPERIOR OBJECT CLASS networkSubsystem AND SUBCLASSES;
            WITH ATTRIBUTE x25PLEIVMOId;
        CREATE WITH-REFERENCE-OBJECT;
        DELETE;
REGISTERED AS { NLM.nboi x25PLEIVMO-networkSubsystem (10) };

x25PLE-networkSubsystem-Management NAME BINDING
        SUBORDINATE OBJECT CLASS x25PLE AND SUBCLASSES;
        NAMED BY
            SUPERIOR OBJECT CLASS networkSubsystem AND SUBCLASSES;
            WITH ATTRIBUTE x25PLEId;
        BEHAVIOUR x25PLE-networkSubsystem-Management-B BEHAVIOUR
            DEFINED AS The name binding that applies when the x25PLE Managed Object
                or its subclasses are created by management operation.;;
        CREATE WITH-REFERENCE-OBJECT;
        DELETE ONLY-IF-NO-CONTAINED-OBJECTS;
REGISTERED AS { NLM.nboi x25PLE-networkSubsystem-Management (9) };

x25PLE-networkSubsystem-Automatic NAME BINDING
        SUBORDINATE OBJECT CLASS x25PLE AND SUBCLASSES;
        NAMED BY
            SUPERIOR OBJECT CLASS networkSubsystem AND SUBCLASSES;
            WITH ATTRIBUTE x25PLEId;
        BEHAVIOUR x25PLE-networkSubsystem-Automatic-B BEHAVIOUR
            DEFINED AS The name binding that applies when the x25PLE Managed Object
                or its subclasses are created by automatic operation of the system.
                The creation of an instance of the x25PLE MO or its subclass
                using this name binding may reference an instance of the x25PLEIVMO
                (or of its subclass). The means by which such an instance (if any)
                of the x25PLEIVMO (or its subclass) is identified a local matter.
                When this occurs,
                some of the initial values of the attributes of the instance
                of the x25PLE MO (or its subclass) may be supplied by the values of the
                attributes in the specified instance of the x25PLEIVMO. However, any
                such value may be overridden by a value supplied by local means (for
                example across an internal interface). Where values are supplied by the
                IVMO, the initial value of an attribute of the x25PLE MO (or its subclass)
                shall be the value of the corresponding attribute in the x25PLEIVMO
                (that is, which has the same attribute template label). The naming
                attribute of the x25PLE MO (or its subclass) is assigned a value
                according to local mechanisms;;
        DELETE;
REGISTERED AS { NLM.nboi x25PLE-networkSubsystem-Automatic (18) };
```

```
-- Atributos

bilateralCUG ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR bilateralCUG-B BEHAVIOUR
            DEFINED AS The subscription of the bilateral closed user group facility
                as described in ITU-T Recommendation X.2. Expressed as a boolean
                where a value of 'True' indicates subscription
                and a value of 'False' indicates non-subscription;;
REGISTERED AS {  NLM.aoi bilateralCUG (125) };

bilateralCUGWithOutgoingAccess ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR bilateralCUGWithOutgoingAccess-B BEHAVIOUR
            DEFINED AS The subscription of the bilateral CUG with outgoing access facility
                as described in ITU-T Recommendation X.2. Expressed as a boolean
                where a value of 'True' indicates subscription
                and a value of 'False' indicates non-subscription;;
REGISTERED AS {  NLM.aoi bilateralCUGWithOutgoingAccess (127) };

callAttempts ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR callAttempts-B BEHAVIOUR
            DEFINED AS Counter of the total number of calls attempted;;
REGISTERED AS { NLM.aoi callAttempts (52) };

callDeflectionSubscription ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR callDeflectionSubscription-B BEHAVIOUR
            DEFINED AS The subscription of the call deflection facility
                as described in ITU-T Recommendation X.2. Expressed as a boolean
                where a value of 'True' indicates subscription and a value
                of "False" indicates non-subscription;;
REGISTERED AS {  NLM.aoi callDeflectionSubscription (114) };

callEstablishmentRetryCountsExceeded ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR callEstablishmentRetryCountsExceeded-B BEHAVIOUR
            DEFINED AS Counter associated with the callEstablishmentRetryCountExceeded event
                which generates a communications alarm notification.;;
REGISTERED AS { NLM.aoi callEstablishmentRetryCountsExceeded (65) };
```

```
callRedirection ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR callRedirection-B BEHAVIOUR
            DEFINED AS The subscription of the call redirection facility
                as described in ITU-T Recommendation X.2 Expressed as a boolean
                where a value of 'True' indicates subscription and a value
                of 'False' indicates non-subscription;;
REGISTERED AS { NLM.aoi callRedirection (129) };

callRequestResponseTimer ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Integer;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR callRequestResponseTimer-B BEHAVIOUR
            DEFINED AS Value for Timer T21 (Call Request Response Timer)
                in seconds;;
REGISTERED AS { NLM.aoi callRequestResponseTimer (77) };

callTimeouts ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR callTimeouts-B BEHAVIOUR
            DEFINED AS Counter of the number of times timer T21 expiry is experienced
                by the PLE;;
REGISTERED AS { NLM.aoi callTimeouts (55) };

callsConnected ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR callsConnected-B BEHAVIOUR
            DEFINED AS Counter of the total number of calls which have reached the open state;;
REGISTERED AS { NLM.aoi callsConnected (53) };

chargingInformation ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR chargingInformation-B BEHAVIOUR
            DEFINED AS The subscription of the charging information facility
                as described in ITU-T Recommendation X.2.
                Expressed as a boolean where a value of 'True' indicates
                subscription and a value of 'False' indicates non-subscription;;
REGISTERED AS { NLM.aoi chargingInformation (132) };

clearCountsExceeded ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR clearCountsExceeded-B BEHAVIOUR
            DEFINED AS Counter associated with the clearCountExceeded event
                which generates a communications alarm notification.;;
REGISTERED AS { NLM.aoi clearCountsExceeded (66) };
```

```
clearIndication ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Integer;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR clearIndication-B BEHAVIOUR
            DEFINED AS Value for the Clear Indication, T13 timer, in seconds.;;
REGISTERED AS { NLM.aoi clearIndication (133) };

clearRequestResponseTimer ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Integer;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR clearRequestResponseTimer-B BEHAVIOUR
            DEFINED AS Value for Timer T23 (Clear Request Response Timer)
                in seconds;;
REGISTERED AS { NLM.aoi clearRequestResponseTimer (79) };

clearRequestRetransmissionCount ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Integer;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR clearRequestRetransmissionCount-B BEHAVIOUR
            DEFINED AS Value for count R23 (Clear Request Retransmission Count);;
REGISTERED AS { NLM.aoi clearRequestRetransmissionCount (81) };

clearTimeouts ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR clearTimeouts-B BEHAVIOUR
            DEFINED AS Counter of the number of times timer T23 expiry is experienced
                by the PLE;;
REGISTERED AS { NLM.aoi clearTimeouts (56) };

cUG ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR cUG-B BEHAVIOUR
            DEFINED AS The subscription of the closed user group facility
                as described in ITU-T Recommendation X.2. Expressed as a boolean
                where a value of 'True' indicates subscription and a value
                of 'False' indicates non-subscription;;
REGISTERED AS { NLM.aoi cUG (134) };

cUGWithIncomingAccess ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR cUGWithIncomingAccess-B BEHAVIOUR
            DEFINED AS The subscription of the closed user group with incoming access facility
                as described in ITU-T Recommendation X.2. Expressed as a boolean
                where a value of 'True' indicates subscription
                and a value of 'False' indicates non-subscription;;
REGISTERED AS { NLM.aoi cUGWithIncomingAccess (136) };
```

```
cUGWithOutgoingAccess ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR cUGWithOutgoingAccess-B BEHAVIOUR
            DEFINED AS The subscription of the CUG with outgoing access facility
                as described in ITU-T Recommendation X.2. Expressed as a boolean
                where a value of 'True' indicates subscription
                and a value of 'False' indicates non-subscription;;
REGISTERED AS { NLM.aoi cUGWithOutgoingAccess (137) };

dBitModification ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR dBitModification-B BEHAVIOUR
            DEFINED AS The subscription of the D bit modification facility
                as described in ITU-T Recommendation X.2. Expressed as a boolean
                where a value of 'True' indicates subscription and a value
                of 'False' indicates non-subscription;;
REGISTERED AS { NLM.aoi dBitModification (139) };

dataPacketRetransmissionCount ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Integer;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR dataPacketRetransmissionCount-B BEHAVIOUR
            DEFINED AS Value for count R25 (Data Packet Retransmission Count);;
REGISTERED AS { NLM.aoi dataPacketRetransmissionCount (85) };

dataPacketsReceived ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR dataPacketsReceived-B BEHAVIOUR
            DEFINED AS Counter of the total number of data packets received;;
REGISTERED AS { NLM.aoi dataPacketsReceived (51) };

dataPacketsSent ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR dataPacketsSent-B BEHAVIOUR
            DEFINED AS Counter of the total number of data packets sent;;
REGISTERED AS { NLM.aoi dataPacketsSent (50) };

dataRetransmissionTimerExpiries ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR dataRetransmissionTimerExpiries-B BEHAVIOUR
            DEFINED AS Counter of the number of expiries of timer T25.
                Returns zero if the option is not implemented;;
REGISTERED AS { NLM.aoi dataRetransmissionTimerExpiries (58) };
```

```
defaultPacketSizes ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.BidirectionalValues;
        MATCHES FOR EQUALITY;
        BEHAVIOUR defaultPacketSizes-B BEHAVIOUR
            DEFINED AS The default value of the packet sizes.
                A value of NULL indicates the ISO/IEC 8208 or ITU-T Rec. X.25 default value of 128. Any other
                value indicates the value agreed by the nonstandard default packet sizes facility.;;
REGISTERED AS { NLM.aoi defaultPacketSizes (103) };

defaultThroughputClasses ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.BidirectionalValues;
        MATCHES FOR EQUALITY;
        BEHAVIOUR defaultThroughputClasses-B BEHAVIOUR
            DEFINED AS The default throughput class values.
                A value of NULL indicates the normal default.
                Any other value indicates the value agreed by the
                defaultThroughputClassesAssignment facility.;;
REGISTERED AS { NLM.aoi defaultThroughputClasses (112) };

defaultThroughputClassesAssignment ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.DefaultTCA;
        MATCHES FOR EQUALITY;
        BEHAVIOUR defaultThroughputClassesAssignment-B BEHAVIOUR
            DEFINED AS The subscription of the default throughput classes assignment facility
                as described in ITU-T Recommendation X.2. Expressed as a boolean
                where a value of 'True' indicates subscription
                and a value of 'False' indicates non-subscription;;
REGISTERED AS { NLM.aoi defaultThroughputClassesAssignment (144) };

defaultWindowSizes ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.BidirectionalValues;
        MATCHES FOR EQUALITY;
        BEHAVIOUR defaultWindowSizes-B BEHAVIOUR
            DEFINED AS The default value of the window sizes.
                A value of NULL indicates the ITU-T Recommendation | International
                Standard default value of 2. Any other value indicates
                the value agreed by the nonstandard default window sizes facility.;;
REGISTERED AS { NLM.aoi defaultWindowSizes (104) };

extendedPacketSequenceNumbering ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.PacketSequencing;
        MATCHES FOR EQUALITY;
        BEHAVIOUR extendedPacketSequenceNumbering-B BEHAVIOUR
            DEFINED AS The modulo of the packet sequence number space.
                Expressed as an integer. The ITU-T Recommendation | International
                Standard only requires support for at least one of
                the two values 8 and 128, but it is possible
                that some future revision may extend the range. A system is only
                required to support the setting of values which are also required
                by the protocol standard. A system shall return an error when an
                attempt is made to set the value to a value which is not supported
                by that system.;;
REGISTERED AS { NLM.aoi extendedPacketSequenceNumbering (49) };
```

```
fastSelectAcceptance ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR fastSelectAcceptance-B BEHAVIOUR
            DEFINED AS The subscription of the fast select acceptance
                as described in ITU-T Recommendation X.2. Expressed as a boolean
                where a value of 'True' indicates subscription and a value
                of 'False' indicates non-subscription;;
REGISTERED AS { NLM.aoi fastSelectAcceptance (145) };

flowControlParameterNegotiation ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR flowControlParameterNegotiation-B BEHAVIOUR
            DEFINED AS The subscription of the flow control parameter negotiation facility
                as described in ITU-T Recommendation X.2.
                When this has the value 'true', the use of flow control
                parameter negotiation (by specifying values for the window
                and packet size in call request and accept packets) is
                permitted. When it has the value 'false', no such values
                shall be specified in call request and accept packets, and
                any values specified in an IVMO or via an internal interface
                shall be ignored.;;
REGISTERED AS { NLM.aoi flowControlParameterNegotiation (119) };

huntGroup ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR huntGroup-B BEHAVIOUR
            DEFINED AS The subscription of the hunt group facility
                as described in ITU-T Recommendation X.2. Expressed as a boolean
                where a value of 'True' indicates subscription and a value
                of 'False' indicates non-subscription;;
REGISTERED AS { NLM.aoi huntGroup (146) };

incomingCall ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Integer;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR incomingCall-B BEHAVIOUR
            DEFINED AS Value for the Incoming Call, T11 timer, in seconds.;;
REGISTERED AS { NLM.aoi incomingCall (147) };

incomingCallBarredWithinCUG ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR incomingCallBarredWithinCUG-B BEHAVIOUR
            DEFINED AS The subscription of the incoming call barred within a CUG facility
                as described in ITU-T Recommendation X.2. Expressed as a boolean
                where a value of 'True' indicates subscription and
                a value of 'False' indicates non-subscription;;
REGISTERED AS { NLM.aoi incomingCallBarredWithinCUG (149) };
```

```
incomingCallsBarred ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR incomingCallsBarred-B BEHAVIOUR
            DEFINED AS The subscription of the incoming calls barred facility
                as described in ITU-T Recommendation X.2. Expressed as a boolean
                where a value of 'True' indicates subscription and a value
                of 'False' indicates non-subscription;;
REGISTERED AS { NLM.aoi incomingCallsBarred (148) };

interruptPacketsReceived ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR interruptPacketsReceived-B BEHAVIOUR
            DEFINED AS Counter of the number of interrupt packets received
                by the PLE or over the PVC/VC;;
REGISTERED AS { NLM.aoi interruptPacketsReceived (68) };

interruptPacketsSent ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR interruptPacketsSent-B BEHAVIOUR
            DEFINED AS Counter of the number of interrupt packets sent
                by the PLE or over the PVC/VC;;
REGISTERED AS { NLM.aoi interruptPacketsSent (67) };

interruptResponseTimer ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Integer;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR interruptResponseTimer-B BEHAVIOUR
            DEFINED AS Value for Timer T26 (Interrupt Response Timer) in seconds;;
REGISTERED AS { NLM.aoi interruptResponseTimer (82) };

interruptTimerExpiries ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR interruptTimerExpiries-B BEHAVIOUR
            DEFINED AS Counter of the number of expiries of timer T26
                experienced by the PLE or over the PVC/VC;;
REGISTERED AS { NLM.aoi interruptTimerExpiries (69) };

localChargingPrevention ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR localChargingPrevention-B BEHAVIOUR
            DEFINED AS The subscription of the local charging prevention facility
                as described in ITU-T Recommendation X.2. Expressed as a boolean
                where a value of 'True' indicates subscription and a value
                of 'False' indicates non-subscription;;
REGISTERED AS { NLM.aoi localChargingPrevention (150) };
```

```
localDTEAddress ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.DTEAddress;
        MATCHES FOR EQUALITY;
        BEHAVIOUR localDTEAddress-B BEHAVIOUR
            DEFINED AS The full DTE address of this PLE
                expressed as an X.121, E.164, etc. address;;
REGISTERED AS { NLM.aoi localDTEAddress (39) };

logicalChannelAssignments ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.LogicalChannelAssignments;
        MATCHES FOR EQUALITY;
        BEHAVIOUR logicalChannelAssignments-B BEHAVIOUR
            DEFINED AS Represents the logical channel assignments of this PLE,
                expressed as a four-tuple where the values represent
                    the set (with maximum permitted cardinality (LIC - 1), minimum required
                      cardinality of zero) of PVC channels (with maximum value (LIC - 1),
                      and minimum value 1) assigned,
                    the incoming channel range,
                    the two-way channel range,
                    the outgoing channel range,
                respectively.
                The presence of each of the ranges shall be optional. Absence of a particular range
                shall signify that there are no channels of that type assigned. Within each range, the
                low value shall be less than or equal to the high value, and there shall be no value in any
                set or range which is greater than or equal to a value in a subsequent range when ordered
                as above.
                This attribute is subject to the rules for logical assignments described in 3.7 of
                ISO/IEC 8208 or ITU-T Rec. X.25.;;
REGISTERED AS { NLM.aoi logicalChannelAssignments (48) };

maxActiveCircuits ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.MaxActiveCircuits;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR maxActiveCircuits-B BEHAVIOUR
            DEFINED AS The maximum number of active circuits permitted on this PLE.
                When the NULL value is specified, the maximum number of active circuits
                shall be limited only by the resources available to the entity;;
REGISTERED AS { NLM.aoi maxActiveCircuits (41) };

minimumRecallTimer ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Integer;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR minimumRecallTimer-B BEHAVIOUR
            DEFINED AS Minimum time in seconds before recall permitted.
                This timer determines the minimum interval (in seconds) which shall elapse
                following an unsuccessful first call attempt before a subsequent call attempt is
                permitted;;
REGISTERED AS { NLM.aoi minimumRecallTimer (43) };
```

```
nonStandardDefaultPacketSizes ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.NonStandardDPS;
        MATCHES FOR EQUALITY;
        BEHAVIOUR nonStandardDefaultPacketSizes-B BEHAVIOUR
            DEFINED AS The subscription of the non standard default packet sizes facility
                as described in ITU-T Recommendation X.2. Expressed as a boolean
                where a value of 'True' indicates subscription
                and a value of 'False' indicates non-subscription;;
REGISTERED AS { NLM.aoi nonStandardDefaultPacketSizes (151) };

nonStandardDefaultWindowSizes ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.NonStandardDWS;
        MATCHES FOR EQUALITY;
        BEHAVIOUR nonStandardDefaultWindowSizes-B BEHAVIOUR
            DEFINED AS The subscription of the non standard default window sizes facility
                as described in ITU-T Recommendation X.2. Expressed as a boolean
                where a value of 'True' indicates subscription
                and a value of 'False' indicates non-subscription;;
REGISTERED AS { NLM.aoi nonStandardDefaultWindowSizes (152) };

nUIOverride ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR nUIOverride-B BEHAVIOUR
            DEFINED AS The subscription of the NUI override facility
                as described in ITU-T Recommendation X.2. Expressed as a boolean
                where a value of 'True' indicates subscription and a value
                of 'False' indicates non-subscription;;
REGISTERED AS { NLM.aoi nUIOverride (154) };

nUISubscription ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR nUISubscription-B BEHAVIOUR
            DEFINED AS The subscription of the NUI subscription facility
                as described in ITU-T Recommendation X.2. Expressed as a boolean
                where a value of 'True' indicates subscription and a value
                of 'False' indicates non-subscription;;
REGISTERED AS { NLM.aoi nUISubscription (153) };

oneWayLogicalChannelIncoming ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR oneWayLogicalChannelIncoming-B BEHAVIOUR
            DEFINED AS The subscription of the one way logical channel incoming facility
                as described in ITU-T Recommendation X.2. Expressed as a boolean
                where a value of 'True' indicates subscription
                and a value of 'False' indicates non-subscription;;
REGISTERED AS { NLM.aoi oneWayLogicalChannelIncoming (156) };
```

```
oneWayLogicalChannelOutgoing ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR oneWayLogicalChannelOutgoing-B BEHAVIOUR
            DEFINED AS The subscription of the one way logical channel outgoing facility
                as described in ITU-T Recommendation X.2. Expressed as a boolean
                where a value of 'True' indicates subscription
                and a value of 'False' indicates non-subscription;;
REGISTERED AS { NLM.aoi oneWayLogicalChannelOutgoing (157) };

onlineFacilityRegistration ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR onlineFacilityRegistration-B BEHAVIOUR
            DEFINED AS The subscription of the on-line facility registration facility
                as described in ITU-T Recommendation X.2. Expressed as a boolean
                where a value of 'True' indicates subscription
                and a value of 'False' indicates non subscription;;
REGISTERED AS { NLM.aoi onlineFacilityRegistration (158) };

outgoingCallBarredWithinCUG ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR outgoingCallBarredWithinCUG-B BEHAVIOUR
            DEFINED AS The subscription of the outgoing call barred within a CUG facility
                as described in ITU-T Recommendation X.2. Expressed as a boolean
                where a value of 'True' indicates subscription
                and a value of 'False' indicates non-subscription;;
REGISTERED AS { NLM.aoi outgoingCallBarredWithinCUG (160) };

outgoingCallsBarred ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR outgoingCallsBarred-B BEHAVIOUR
            DEFINED AS The subscription of the outgoing calls barred facility
                as described in ITU-T Recommendation X.2. Expressed as a boolean
                where a value of 'True' indicates subscription and a value
                of 'False' indicates non-subscription;;
REGISTERED AS { NLM.aoi outgoingCallsBarred (159) };

packetRetransmission ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR packetRetransmission-B BEHAVIOUR
            DEFINED AS The subscription of the packet retransmissions facility
                as described in ITU-T Recommendation X.2. Expressed as a boolean
                where a value of 'True' indicates subscription and a value
                of 'False' indicates non-subscription. If non-subscription,
                then the attributes for rejectTimer and rejectCount
                will have NULL values.;;
REGISTERED AS { NLM.aoi packetRetransmission (161) };
```

```
protocolErrorsAccusedOf ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR protocolErrorsAccusedOf-B BEHAVIOUR
            DEFINED AS Counter associated with the accusedOfProtocolError event
                which generates a communications alarm notification.;;
REGISTERED AS { NLM.aoi protocolErrorsAccusedOf (64) };

protocolErrorsDetectedLocally ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR protocolErrorsDetectedLocally-B BEHAVIOUR
            DEFINED AS Counter associated with the protocolErrorDetectedLocally event
                which generates a communications alarm notification;;
REGISTERED AS { NLM.aoi protocolErrorsDetectedLocally (63) };

protocolVersionSupported ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.ProtocolVersion;
        MATCHES FOR EQUALITY;
        BEHAVIOUR protocolVersionSupported-B BEHAVIOUR
            DEFINED AS The supported ITU-T Recommendation | International Standard protocol version
                available on the PLE interface;;
REGISTERED AS { NLM.aoi protocolVersionSupported (38) };

providerInitiatedDisconnects ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR providerInitiatedDisconnects-B BEHAVIOUR
            DEFINED AS Counter for the providerInitiatedDisconnect events
                which generate communication alarm notifications.;;
REGISTERED AS { NLM.aoi providerInitiatedDisconnects (54) };

providerInitiatedResets ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR providerInitiatedResets-B BEHAVIOUR
            DEFINED AS Counter associated with the providerInitiatedReset event
                which generates a communication alarm notification.;;
REGISTERED AS { NLM.aoi providerInitiatedResets (59) };

rOASubscription ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR rOASubscription-B BEHAVIOUR
            DEFINED AS The subscription of the ROA Subscription facility
                as described in ITU-T Recommendation X.2. Expressed as a boolean
                where a value of 'True' indicates subscription and a value
                of 'False' indicates non-subscription;;
REGISTERED AS { NLM.aoi rOASubscription (167) };

registrationPermitted ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR registrationPermitted-B BEHAVIOUR
            DEFINED AS When true, the use of online facility registration is permitted.;;
REGISTERED AS { NLM.aoi registrationPermitted (105) };
```

```
registrationRequestResponseTimer ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Integer;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR registrationRequestResponseTimer-B BEHAVIOUR
            DEFINED AS Value for Timer T28 (Registration Request Response Timer) in seconds;;
REGISTERED AS { NLM.aoi registrationRequestResponseTimer (44) };

registrationRequestRetransmissionCount ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Integer;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR registrationRequestRetransmissionCount-B BEHAVIOUR
            DEFINED AS Value for count R28 (Registration Request Retransmission Count);;
REGISTERED AS { NLM.aoi registrationRequestRetransmissionCount (46) };

rejectResponseTimer ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Integer;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR rejectResponseTimer-B BEHAVIOUR
            DEFINED AS Value for Timer T27 (Reject Response Timer) in seconds;;
REGISTERED AS { NLM.aoi rejectResponseTimer (86) };

rejectRetransmissionCount ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Integer;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR rejectRetransmissionCount-B BEHAVIOUR
            DEFINED AS Value for count R27 (Reject Retransmission Count);;
REGISTERED AS { NLM.aoi rejectRetransmissionCount (87) };

remotelyInitiatedResets ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR remotelyInitiatedResets-B BEHAVIOUR
            DEFINED AS Counter associated with the remotelyInitiatedReset event
                which generates a communication alarm notification.;;
REGISTERED AS { NLM.aoi remotelyInitiatedResets (57) };

remotelyInitiatedRestarts ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR remotelyInitiatedRestarts-B BEHAVIOUR
            DEFINED AS Counter of the number of remotely initiated restarts.
                This is the total number of remotely initiated (including provider initiated) restarts
                experienced by the PLE, excluding the
                restart associated with bringing up the PLE interface;;
REGISTERED AS { NLM.aoi remotelyInitiatedRestarts (61) };

resetIndication ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Integer;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR resetIndication-B BEHAVIOUR
            DEFINED AS Value for the Reset Indication, T12 timer, in seconds.;;
REGISTERED AS { NLM.aoi resetIndication (163) };
```

```
resetRequestResponseTimer ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Integer;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR resetRequestResponseTimer-B BEHAVIOUR
            DEFINED AS Value for Timer T22 (Reset Request Response Timer) in seconds;;
REGISTERED AS { NLM.aoi resetRequestResponseTimer (78) };

resetRequestRetransmissionCount ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Integer;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR resetRequestRetransmissionCount-B BEHAVIOUR
            DEFINED AS Value for count R22 (Reset Request Retransmission Count);;
REGISTERED AS { NLM.aoi resetRequestRetransmissionCount (80) };

resetTimeouts ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR resetTimeouts-B BEHAVIOUR
            DEFINED AS Counter of the number of timer T22 expiries experienced
                by the PLE;;
REGISTERED AS { NLM.aoi resetTimeouts (60) };

restartCountsExceeded ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        BEHAVIOUR restartCountsExceeded-B BEHAVIOUR
            DEFINED AS Counter associated with the restartCountExceeded event
                which generates a communication alarm notification.;;
REGISTERED AS { NLM.aoi restartCountsExceeded (62) };

restartIndication ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Integer;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR restartIndication-B BEHAVIOUR
            DEFINED AS Value for the Restart Indication, T10 timer, in seconds.;;
REGISTERED AS { NLM.aoi restartIndication (164) };

restartRequestResponseTimer ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Integer;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR restartRequestResponseTimer-B BEHAVIOUR
            DEFINED AS Value for Timer T20 (Restart Request Response Timer) in seconds;;
REGISTERED AS { NLM.aoi restartRequestResponseTimer (42) };

restartRequestRetransmissionCount ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Integer;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR restartRequestRetransmissionCount-B BEHAVIOUR
            DEFINED AS Value for count R20 (Restart Request Retransmission Count);;
REGISTERED AS { NLM.aoi restartRequestRetransmissionCount (45) };
```

```
reverseChargingAcceptance ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR reverseChargingAcceptance-B BEHAVIOUR
            DEFINED AS The subscription of the reverse charging acceptance facility
                as described in ITU-T Recommendation X.2. Expressed as a boolean
                where a value of 'True' indicates subscription
                and a value of 'False' indicates non-subscription;;
REGISTERED AS { NLM.aoi reverseChargingAcceptance (165) };

throughputClassNegotiation ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR throughputClassNegotiation-B BEHAVIOUR
            DEFINED AS The subscription of the throughput class negotiation facility
                as described in ITU-T Recommendation X.2. Expressed as a boolean
                where a value of 'True' indicates subscription
                and a value of 'False' indicates non-subscription;;
REGISTERED AS { NLM.aoi throughputClassNegotiation (168) };

windowRotationTimer ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Integer;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR windowRotationTimer-B BEHAVIOUR
            DEFINED AS Default for Timer T25 (Window Rotation Timer) in seconds;;
REGISTERED AS { NLM.aoi windowRotationTimer (84) };

windowStatusTransmissionTimer ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Integer;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR windowStatusTransmissionTimer-B BEHAVIOUR
            DEFINED AS Value for Timer T24 (Window Status Transmission Timer) in seconds;;
REGISTERED AS { NLM.aoi windowStatusTransmissionTimer (83) };

x25PLEId ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.GraphicString;
        MATCHES FOR EQUALITY, SUBSTRINGS;
        BEHAVIOUR x25PLEId-B BEHAVIOUR
            DEFINED AS The name of this instance of x25PLE MO;;
REGISTERED AS { NLM.aoi x25PLEId (36) };

x25PLEMode ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.X25PLEMode;
        MATCHES FOR EQUALITY;
        BEHAVIOUR x25PLEMode-B BEHAVIOUR
            DEFINED AS The DCE/DTE mode in which the X.25 PLE is currently operating.
                One of the following modes of operation may be indicated.
                (0) DTE mode applying to both ITU-T  Rec. X.25 and ISO/IEC 8208 operation,
                (1) DCE mode applying to ITU-T  Rec. X.25 operation only, and
                (2) DTE acting as a DCE applying to ISO/IEC 8208 operation only.;;
REGISTERED AS { NLM.aoi x25PLEMode (120) };
```

```
x25PLEIVMOId ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.GraphicString;
        MATCHES FOR EQUALITY, SUBSTRINGS;
        BEHAVIOUR x25PLEIVMOId-B BEHAVIOUR
            DEFINED AS The name of this instance of x25PLE IVMO;;
REGISTERED AS { NLM.aoi x25PLEIVMOId (37) };

x25SegmentsReceived ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR x25SegmentsReceived-B BEHAVIOUR
            DEFINED AS Value for count of X.25 Segments Received.;;
REGISTERED AS { NLM.aoi x25SegmentsReceived (171) };

x25SegmentsSent ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR x25SegmentsSent-B BEHAVIOUR
            DEFINED AS Value for count of X.25 Segments Sent.;;
REGISTERED AS { NLM.aoi x25SegmentsSent (170) };

-- Parámetros

notificationData PARAMETER
        CONTEXT EVENT-INFO;
        WITH SYNTAX NLM.NotificationDataSyntax;
        BEHAVIOUR notificationData-B BEHAVIOUR
            DEFINED AS Information relating to the call
                which resulted in the notification;;
REGISTERED AS { NLM.proi notificationData (7) };
```

5.11 Circuito virtual y objetos gestionados conexos

5.11.1 Objeto gestionado de circuito virtual

```
-- Nunca se producen ejemplos de esta clase de MO. Sirve como MO de circuito virtual genérico
-- del que se derivan los MO de DTE de circuito virtual y de DCE de circuito virtual.
-- Se señala que los valores del atributo de denominación virtualCircuitId (identificación de
-- circuito virtual) han de ser únicos en todos los ejemplos de MO derivados de éste que tienen
-- un superior común.

virtualCircuit MANAGED OBJECT CLASS
        DERIVED FROM "DMI":top;
        CHARACTERIZED BY virtualCircuit-P PACKAGE
            BEHAVIOUR
                commonCreationDeletion-B,
                virtualCircuitNaming-B;
            ATTRIBUTES
                virtualCircuitId GET,
                logicalChannel GET,
                packetSizes GET,
                throughputClasses GET,
                windowSizes GET;
            NOTIFICATIONS
                "DMI":objectCreation,
                "DMI":objectDeletion;
            ;;
REGISTERED AS { NLM.moi virtualCircuit (14) };
```

5.11.2 Objeto gestionado de DTE de circuito virtual

```
-- Nunca se producen ejemplos de esta clase de MO. Sirve como MO de DTE de circuito virtual
-- genérico del que se derivan los MO de DTE de llamada virtual y de DTE de circuito virtual.
-- Se señala que los valores del atributo de denominación virtualCircuitId (identificación de
-- circuito virtual) han de ser únicos en todos los ejemplos de los MO derivados de éste que
-- tienen un superior común.
--

virtualCircuit-DTE MANAGED OBJECT CLASS
        DERIVED FROM virtualCircuit;
        CONDITIONAL PACKAGES
        dTEVirtualCircuitCounters-P
        PRESENT IF the instance supports the dTEVirtualCircuitCounters
            capabilities;
REGISTERED AS { NLM.moi virtualCircuit-DTE (18) };
```

5.11.3 Objeto gestionado de DCE de circuito virtual

```
-- Nunca se producen ejemplos de esta clase de MO. Sirve como MO de DCE de circuito virtual
-- genérico del que se derivan los MO de DCE de llamada virtual y de DCE de circuito virtual
-- permanente.
-- Se señala que los valores del atributo de denominación virtualCircuitId (identificación de
-- circuito virtual) han de ser únicos en todos los ejemplos de los MO derivados de éste que
-- tienen un superior común.
--

virtualCircuit-DCE MANAGED OBJECT CLASS
        DERIVED FROM virtualCircuit;
            CONDITIONAL PACKAGES
                dCECommonVirtualCircuitCounters-P
                    PRESENT IF the instance supports the dCECommonVirtualCircuitCounters capabilities
        ;
REGISTERED AS { NLM.moi virtualCircuit-DCE (29) };
```

5.11.4 Objeto gestionado de DTE de circuito virtual permanente

```
--
--
-- Para cada circuito virtual permanente existe uno de estos MO.
-- Puede ser creado y suprimido por la gestión.
--

permanentVirtualCircuit-DTE MANAGED OBJECT CLASS
        DERIVED FROM virtualCircuit-DTE;
        CHARACTERIZED BY permanentVirtualCircuit-DTE-P PACKAGE
            BEHAVIOUR permanentVirtualCircuit-DTE-P-B BEHAVIOUR
                DEFINED AS When the MO is created, the protocol machine
                    shall be reinitialized and a reset PDU with a cause
                    code of DTE originated (encoded as 00000000) and a
                    diagnostic code of DTE operational (161) shall be
                    transmitted. When the MO is deleted, the protocol machine
                    shall be reinitialized and a reset PDU with a cause
                    code of DTE originated (encoded as 00000000) and a
                    diagnostic code of DTE not operational (162) shall be
                    transmitted.;;
            ATTRIBUTES
                logicalChannel INITIAL VALUE DERIVATION RULE logicalChannelIV-B,
                packetSizes INITIAL VALUE DERIVATION RULE optionalCMIPIV-B,
                throughputClasses INITIAL VALUE DERIVATION RULE optionalCMIPIV-B,
                windowSizes INITIAL VALUE DERIVATION RULE optionalCMIPIV-B;
        ;;
REGISTERED AS { NLM.moi permanentVirtualCircuit-DTE (19) };
```

5.11.5 Objeto gestionado de DCE de circuito virtual permanente

```
-- Existe uno de estos MO por cada circuito virtual permanente. Puede ser creado y suprimido
-- por la gestión.
--

permanentVirtualCircuit-DCE MANAGED OBJECT CLASS
        DERIVED FROM virtualCircuit-DCE;
        CHARACTERIZED BY permanentVirtualCircuit-DCE-P PACKAGE
            BEHAVIOUR permanentVirtualCircuit-DCE-P-B BEHAVIOUR
                    DEFINED AS When the MO is created, the protocol machine shall be re-initialized
                      and a reset PDU shall be transmitted. A cause code of remote DTE Operational
                      (encoded as X000 1001) or Network Operational (encoded as X000 1111) may,
                      for example, be included. When the MO is deleted the protocol machine shall
                      be reinitialized and a reset PDU shall be transmitted. A cause code of
                      Out of Order (encoded as X000 0001) or Network Out of Order
                      (encoded as X001 1101) may, for example, be included.;;
                commonStateChange-B;

            ATTRIBUTES
                chargingDirection GET,
                logicalChannel INITIAL VALUE DERIVATION RULE logicalChannelIV-B,
                packetSizes INITIAL VALUE DERIVATION RULE optionalCMIPIV-B,
                throughputClasses INITIAL VALUE DERIVATION RULE optionalCMIPIV-B,
                windowSizes INITIAL VALUE DERIVATION RULE optionalCMIPIV-B,
                "DMI":operationalState GET,
                remoteDTEAddress GET,
                remoteLogicalChannel GET;
            ATTRIBUTE GROUPS
                "DMI":state
                    "DMI":operationalState;
            NOTIFICATIONS
                "DMI":stateChange;
        ;;
REGISTERED AS { NLM.moi permanentVirtualCircuit-DCE (30) };
```

5.11.6 Objeto gestionado con valores iniciales de llamada virtual

```
-- En un sistema puede haber múltiples objeto gestionado con valores iniciales de llamada virtual
-- (virtualCallIVMO).
-- Se puede utilizar un virtualCallIVMO para suministrar valores iniciales de los atributos del MO
-- DTE de llamada virtual o del MO DCE de llamada virtual.
-- IVMO de llamada virtual puede contener diferentes valores iniciales.
--
-- De acuerdo con su definición, puede ser creado y suprimido explícitamente por la operación de
-- gestión.

virtualCallIVMO MANAGED OBJECT CLASS
        DERIVED FROM "DMI":top;
        CHARACTERIZED BY virtualCallIVMO-P PACKAGE
            BEHAVIOUR commonCreationDeletion-B;
            ATTRIBUTES
                virtualCallIVMOId GET,
                fastSelect REPLACE-WITH-DEFAULT
                    GET-REPLACE,
                packetSizes REPLACE-WITH-DEFAULT
                    GET-REPLACE,
                reverseCharging REPLACE-WITH-DEFAULT
                    GET-REPLACE,
                throughputClasses REPLACE-WITH-DEFAULT
                    GET-REPLACE,
                windowSizes REPLACE-WITH-DEFAULT
                    GET-REPLACE;
            NOTIFICATIONS
                "DMI":objectCreation,
                "DMI":objectDeletion;
            ;;
REGISTERED AS { NLM.moi virtualCallIVMO (15) };
```

5.11.7 Objeto gestionado de DTE con llamada virtual

```
-- Existe un ejemplo de este MO para cada llamada virtual. No es creado por la gestión, sino por
-- la operación de la máquina de estados de protocolo.
-- No obstante, un ejemplo existente puede ser desactivado por la acción de gestión, que
-- provocará la liberación del VC asociado.
--
-- Un ejemplo de este MO se crea y existe mientras los recursos reales son consumidos por la
-- existencia de la llamada virtual. Depende de la realización la determinación del punto, durante
-- el establecimiento de la comunicación, en que se consumen recursos reales, e inversamente
-- durante la liberación de la llamada, cuando se liberan.

virtualCall-DTE MANAGED OBJECT CLASS
        DERIVED FROM virtualCircuit-DTE;
        CHARACTERIZED BY virtualCall-DTE-P PACKAGE
            BEHAVIOUR
                deactivateConnection-B,
                successfulConnectionEstablishment-B;
            ATTRIBUTES
                callingAddressExtension GET,
                calledAddressExtension GET,
                direction GET,
                fastSelect GET,
                originallyCalledAddress GET,
                redirectReason GET,
                remoteDTEAddress GET,
                reverseCharging GET;
            ACTIONS
                "GMI":deactivate;
            NOTIFICATIONS
                "GMI":communicationsInformation;
        ;;
REGISTERED AS { NLM.moi virtualCall-DTE (16) };
```

5.11.8 Objeto gestionado de DCE con llamada virtual

```
-- Un ejemplo de este MO se crea y existe mientras se consumen recursos reales por la
-- existencia de la llamada virtual. Depende de la realización la determinación del punto, durante
-- el establecimiento de comunicación, en que se consumen recursos reales, e inversamente
-- durante una liberación de la llamada, cuando se liberan.

virtualCall-DCE MANAGED OBJECT CLASS
        DERIVED FROM virtualCircuit-DCE;
        CHARACTERIZED BY virtualCall-DCE-P PACKAGE
            BEHAVIOUR
                deactivateConnection-B,
                successfulConnectionEstablishment-B;
            ATTRIBUTES
                chargingDirection GET,
                cUGSelection GET,
                direction GET,
                fastSelect GET,
                remoteDTEAddress GET,
                transitDelaySelectionAndIndication GET;
            ACTIONS
                "GMI":deactivate;
            NOTIFICATIONS
                "GMI":communicationsInformation;
            ;;
        CONDITIONAL PACKAGES
            dCEVirtualCallFacilities-P
                PRESENT IF the instance supports the dCEVirtualCallFacilities capabilities;
REGISTERED AS { NLM.moi virtualCall-DCE (31) };
```

5.11.9 Objetos gestionados de cómputos de las Recomendaciones de la serie D

```
-- Existe un ejemplo de este MO, creado por la acción de la gestión o automáticamente, para
-- cada llamada virtual cuando son aplicables los principios de tarificación correspondientes a los
-- servicios de comunicación de datos por redes públicas de datos especializadas. Las
-- disposiciones relativas a los principios de tarificación se definen en las
-- Recomendaciones D.10, D.11 y D.12.

dSeriesCounts MANAGED OBJECT CLASS
        DERIVED FROM "DMI":top;
        CHARACTERIZED BY dSeriesCounts-P PACKAGE
            BEHAVIOUR dSeriesCounts-P-B BEHAVIOUR
                DEFINED AS provides the set of packet and segment counts required to collect
                    the charges levied according to the tariff principles contained in
                    Recommendations D.10, D.11 and D.12 for international packet switched
                    public data communications services. The values collected are reported
                    at object deletion.;;
            ATTRIBUTES
                dSeriesId GET,
                dSeriesResetRequestIndicationPackets GET,
                dSeriesSegmentsSent GET,
                dSeriesSegmentsReceived GET;
            ATTRIBUTE GROUPS
                "GMI":counters
                    dSeriesResetRequestIndicationPackets
                    dSeriesSegmentsSent
                    dSeriesSegmentsReceived;
            NOTIFICATIONS
                "DMI":objectCreation,
                "DMI":objectDeletion;
;;
REGISTERED AS { NLM.moi dSeriesCounts (32) };

-- Lotes

dTEVirtualCircuitCounters-P PACKAGE
        BEHAVIOUR
            octetsSentReceivedCounter-B;
        ATTRIBUTES
            "DMI":octetsSentCounter GET,
                -- Note that the DMI definition is in terms of user data octets.
            "DMI":octetsReceivedCounter GET,
                -- Note that the DMI definition is in terms of user data octets.
            dataPacketsReceived GET,
            dataPacketsSent GET,
                -- Note the "DMI":PDUsSentCounter
                -- cannot be used here since it is defined as total number of PDUs sent,
                -- not just data PDUs.
            dataRetransmissionTimerExpiries GET,
            interruptPacketsReceived GET,
            interruptPacketsSent GET,
            interruptTimerExpiries GET,
            providerInitiatedResets GET,
            remotelyInitiatedResets GET,
```

```
            resetTimeouts GET;
        ATTRIBUTE GROUPS
            "GMI":counters
                "DMI":octetsReceivedCounter
                "DMI":octetsSentCounter
                dataPacketsReceived
                dataPacketsSent
                dataRetransmissionTimerExpiries
                interruptPacketsReceived
                interruptPacketsSent
                interruptTimerExpiries
                providerInitiatedResets
                remotelyInitiatedResets
                resetTimeouts;
REGISTERED AS { NLM.poi dTEVirtualCircuitCounters-P (19) };

dCEVirtualCallFacilities-P PACKAGE
        BEHAVIOUR dCEVirtualCallFacilities-P-B BEHAVIOUR
            DEFINED AS provides the set of optional facilities used during the normal operation of a
                DCE, as defined in the appropriate clauses ;;
        ATTRIBUTES
            bilateralCUGSelection GET,
            callRedirectionDeflectionNotification GET,
            calledLineAddressModifiedNotification GET,
            cUGWithOutgoingAccessSelection GET,
            nUISelection GET,
            reverseCharging GET,
            rPOASelection GET;
REGISTERED AS { NLM.poi dCEVirtualCallFacilities-P (24) };

-- Comportamientos

logicalChannelIV-B BEHAVIOUR
        DEFINED AS The initial value of the logical channel attribute
            shall be specified in the CMIP create;

optionalCMIPIV-B BEHAVIOUR
        DEFINED AS The initial value of this attribute may be supplied
            in the CMIP create. When not so supplied, the default
            value shall be used;

virtualCircuitNaming-B BEHAVIOUR
        DEFINED AS A system shall ensure that all instances of MOs derived
            from the virtualCircuit MO which have a common x25PLE or subclass
            as their superior MO, shall have unique values for the
            virtualCircuitId attribute. This applies to both automatically
            generated names and those supplied by means of a CMIP create.;
```

```
-- Vinculaciones de nombres

permanentVirtualCircuit-DTE-x25PLE-DTE NAME BINDING
        SUBORDINATE OBJECT CLASS permanentVirtualCircuit-DTE AND SUBCLASSES;
        NAMED BY
            SUPERIOR OBJECT CLASS x25PLE-DTE AND SUBCLASSES;
            WITH ATTRIBUTE virtualCircuitId;
        BEHAVIOUR logicalChannelIV-B;
        CREATE WITH-AUTOMATIC-INSTANCE-NAMING;
        DELETE;
REGISTERED AS { NLM.nboi permanentVirtualCircuit-DTE-x25PLE-DTE (26) };

permanentVirtualCircuit-DCE-x25PLE-DCE NAME BINDING
        SUBORDINATE OBJECT CLASS permanentVirtualCircuit-DCE AND SUBCLASSES;
        NAMED BY
            SUPERIOR OBJECT CLASS x25PLE-DCE AND SUBCLASSES;
            WITH ATTRIBUTE virtualCircuitId;
        BEHAVIOUR logicalChannelIV-B;
        CREATE WITH-AUTOMATIC-INSTANCE-NAMING;
        DELETE;
REGISTERED AS { NLM.nboi permanentVirtualCircuit-DCE-x25PLE-DCE (29) };

virtualCall-DTE-x25PLE-DTE NAME BINDING
        SUBORDINATE OBJECT CLASS virtualCall-DTE AND SUBCLASSES;
        NAMED BY
            SUPERIOR OBJECT CLASS x25PLE-DTE AND SUBCLASSES;
            WITH ATTRIBUTE virtualCircuitId;
        BEHAVIOUR virtualCall-DTE-x25PLE-DTE-B BEHAVIOUR
            DEFINED AS Created only by the operation of the protocol or local
                interface. The instance name is derived automatically
                (as for CREATE WITH-AUTOMATIC-INSTANCE-NAMING).
                The creation of an instance of the virtualCall-DTE MO
                using this name binding may reference an instance of the
                virtualCallIVMO. The means by which such an instance (if any)
                of the virtualCallIVMO is identified is a local matter.
                When this occurs,
                some of the initial values of the attributes of the instance
                of the virtualCall-DTE MO may be supplied by the values of the
                attributes in the specified instance of the virtualCallIVMO. However, any
                such value may be overridden by a value supplied by local means (for
                example, across an internal interface). Where values are supplied by the
                IVMO, the initial value of an attribute of the virtualCall-DTE MO
                shall be the value of the corresponding attribute in the virtualCallIVMO
                (that is, which has the same attribute template label). The naming
                attribute of the virtualCall-DTE is assigned a value
                according to local mechanisms.;;
REGISTERED AS { NLM.nboi virtualCall-DTE-x25PLE-DTE (24) };
```

```
virtualCall-DCE-x25PLE-DCE-Automatic NAME BINDING
        SUBORDINATE OBJECT CLASS virtualCall-DCE AND SUBCLASSES;
        NAMED BY
            SUPERIOR OBJECT CLASS x25PLE-DCE AND SUBCLASSES;
            WITH ATTRIBUTE virtualCircuitId;
        BEHAVIOUR virtualCall-DCE-x25PLE-DCE-Automatic-B BEHAVIOUR
            DEFINED AS The name binding that applies when the virtualCall-DCE
                Managed Object is created automatically by the operation of the
                system. The instance name is derived automatically
                (as for CREATE WITH-AUTOMATIC-INSTANCE-NAMING).
                The creation of an instance of the virtualCall-DCE MO
                using this name binding may reference an instance of the
                virtualCallIVMO. The means by which such an instance (if any)
                of the virtualCallIVMO is identified is a local matter.
                When this occurs,
                some of the initial values of the attributes of the instance
                of the virtualCall-DCE MO may be supplied by the values of the
                attributes in the specified instance of the virtualCallIVMO. However, any
                such value may be overridden by a value supplied by local means (for
                example, across an internal interface). Where values are supplied by the
                IVMO, the initial value of an attribute of the virtualCall-DCE MO
                shall be the value of the corresponding attribute in the virtualCallIVMO
                (that is, which has the same attribute template label). The naming
                attribute of the virtualCall-DCE is assigned a value
                according to local mechanisms.;;
        DELETE;
REGISTERED AS { NLM.nboi virtualCall-DCE-x25PLE-DCE-Automatic (30) };

virtualCall-DCE-x25PLE-DCE-Management NAME BINDING
        SUBORDINATE OBJECT CLASS virtualCall-DCE AND SUBCLASSES;
        NAMED BY
            SUPERIOR OBJECT CLASS x25PLE-DCE AND SUBCLASSES;
            WITH ATTRIBUTE virtualCircuitId;
        BEHAVIOUR virtualCall-DCE-x25PLE-DCE-Management-B BEHAVIOUR
            DEFINED AS The name binding that applies when the virtualCall-DCE Managed Object
                is created by management operation.;;
        CREATE WITH-AUTOMATIC-INSTANCE-NAMING;
        DELETE;
REGISTERED AS { NLM.nboi virtualCall-DCE-x25PLE-DCE-Management (31) };

virtualCallIVMO-x25PLE NAME BINDING
        SUBORDINATE OBJECT CLASS virtualCallIVMO AND SUBCLASSES;
        NAMED BY
            SUPERIOR OBJECT CLASS x25PLE AND SUBCLASSES;
            WITH ATTRIBUTE virtualCallIVMOId;
        CREATE;
        DELETE;
REGISTERED AS { NLM.nboi virtualCallIVMO-x25PLE (25) };
```

```
dSeriesCounts-virtualCall-DCE-Automatic NAME BINDING
        SUBORDINATE OBJECT CLASS dSeriesCounts AND SUBCLASSES;
        NAMED BY
            SUPERIOR OBJECT CLASS virtualCall-DCE AND SUBCLASSES;
            WITH ATTRIBUTE dSeriesId;
        BEHAVIOUR dSeriesCounts-virtualCall-DCE-Automatic-B BEHAVIOUR
            DEFINED AS Created only by the operation of the protocol or local interface. The instance
                name is derived automatically (as for CREATE WITH-AUTOMATIC-INSTANCE-NAMING);;
            DELETE;
REGISTERED AS { NLM.nboi dSeriesCounts-virtualCall-DCE-Automatic (32) };

dSeriesCounts-virtualCall-DCE-Management NAME BINDING
        SUBORDINATE OBJECT CLASS dSeriesCounts AND SUBCLASSES;
        NAMED BY
            SUPERIOR OBJECT CLASS virtualCall-DCE AND SUBCLASSES;
            WITH ATTRIBUTE dSeriesId;
        BEHAVIOUR dSeriesCounts-virtualCall-DCE-Management-B BEHAVIOUR
            DEFINED AS The name binding that applies when the dSeriesCounts Managed Object
                is created by management operation.;;
        DELETE;
REGISTERED AS { NLM.nboi dSeriesCounts-virtualCall-DCE-Management (33) };

-- Atributos

bilateralCUGSelection ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR bilateralCUGSelection-B BEHAVIOUR
            DEFINED AS Indicates the use of the bilateral closed user group selection facility
                for that call.;;
REGISTERED AS { NLM.aoi bilateralCUGSelection (126) };

calledAddressExtension ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.NAddress;
            -- In the OSI context this will always be an NSAP address but in other uses
            -- it may not. In any case it may be null, for example, when used by
            -- ITU-T Rec. X.233 | ISO/IEC 8473-1.
        MATCHES FOR EQUALITY, SUBSTRINGS;
        BEHAVIOUR calledAddressExtension-B BEHAVIOUR
            DEFINED AS The contents of the called address extension field.;;
REGISTERED AS { NLM.aoi calledAddressExtension (100) };

calledLineAddressModifiedNotification ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR calledLineAddressModifiedNotification-B BEHAVIOUR
            DEFINED AS Indicates the use of the called line address modified notification facility
                for that call.;;
REGISTERED AS { NLM.aoi calledLineAddressModifiedNotification (128) };
```

```
callingAddressExtension ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.NAddress;
            -- In the OSI context this will always be an NSAP address but in other uses
            -- it may not. In any case it may be null, for example, when used by
            -- ITU-T Rec. X.233 | ISO/IEC 8473-1.
        MATCHES FOR EQUALITY, SUBSTRINGS;
        BEHAVIOUR callingAddressExtension-B BEHAVIOUR
            DEFINED AS The contents of the calling address extension field.;;
REGISTERED AS { NLM.aoi callingAddressExtension (99) };

callRedirectionDeflectionNotification ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR callRedirectionDeflectionNotification-B BEHAVIOUR
            DEFINED AS Indicates the use of the call redirection deflection notification facility
                for that call.;;
REGISTERED AS { NLM.aoi callRedirectionDeflectionNotification (130) };

chargingDirection ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR chargingDirection-B BEHAVIOUR
            DEFINED AS Indicates the use of the charging direction facility
                for that call.;;
REGISTERED AS { NLM.aoi chargingDirection (131) };

cUGSelection ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR cUGSelection-B BEHAVIOUR
            DEFINED AS Indicates the use of the closed user group selection facility
                for that call.;;
REGISTERED AS { NLM.aoi cUGSelection (135) };

cUGWithOutgoingAccessSelection ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR cUGWithOutgoingAccessSelection-B BEHAVIOUR
            DEFINED AS Indicates the use of the Closed User Group With Outgoing Access Selection facility
                for that call. It may only take the value 'True' if the DTE
                does not have a preferential closed user group, as described
                in ITU-T Recommendation X.25 and ISO/IEC 8208.;;
REGISTERED AS { NLM.aoi cUGWithOutgoingAccessSelection (138) };

dSeriesId ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.GraphicString;
        MATCHES FOR EQUALITY, SUBSTRINGS;
        BEHAVIOUR dSeriesId-B BEHAVIOUR
            DEFINED AS The name of this instance of the dSeriesCounts MO.;;
REGISTERED AS { NLM.aoi dSeriesId (140) };
```

```
dSeriesResetRequestIndicationPackets ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR dSeriesResetRequestIndicationPackets-B BEHAVIOUR
            DEFINED AS Value for count of Reset Request or Indication Packets
                with restrictions defined in Recommendation D.11 ;;
REGISTERED AS { NLM.aoi dSeriesResetRequestIndicationPackets (141) };

dSeriesSegmentsReceived ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR dSeriesSegmentsReceived-B BEHAVIOUR
            DEFINED AS Value for count of Segments Received, in 64 octets,
                as per Recommendation D.12;;
REGISTERED AS { NLM.aoi dSeriesSegmentsReceived (143) };

dSeriesSegmentsSent ATTRIBUTE
        DERIVED FROM "GMI":nonWrapping64BitCounter;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR dSeriesSegmentsSent-B BEHAVIOUR
            DEFINED AS Value for count of Segments Sent, in 64 octets,
                as per Recommendation D.12;;
REGISTERED AS { NLM.aoi dSeriesSegmentsSent (142) };

direction ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Direction;
            -- Enumerated( Incoming, Outgoing)
        MATCHES FOR EQUALITY;
            BEHAVIOUR direction-B BEHAVIOUR
                DEFINED AS The direction (incoming or outgoing) of the call;;
REGISTERED AS { NLM.aoi direction (92) };

fastSelect ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.FastSelect;
            -- Enumerated( Not Specified, Fast Select, Fast Select With Restricted Response, No Fast Select)
        MATCHES FOR EQUALITY;
        BEHAVIOUR fastSelect-B BEHAVIOUR
            DEFINED AS Type of fast select used or to be used for call.
                In the case of an IVMO, this specifies that one of 'fast select',
                'fast select with restricted response', or no fast select
                facility is to be used for the call. It includes a value
                'not specified' which indicates that no preference is expressed
                in the IVMO. In the case of a non-IVMO MO, this specifies that one
                of 'fast select' or 'no fast select' was used for the call.;;
REGISTERED AS { NLM.aoi fastSelect (76) };

logicalChannel ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.LogicalChannelId;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR logicalChannel-B BEHAVIOUR
            DEFINED AS The actual Logical Channel ID used for the call;;
REGISTERED AS { NLM.aoi logicalChannel (89) };
```

```
nUISelection ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR nUISelection-B BEHAVIOUR
            DEFINED AS Indicates the use of the network user identification selection facility
                for that call.;;
REGISTERED AS { NLM.aoi nUISelection (155) };

originallyCalledAddress ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.DTEAddress;
        MATCHES FOR EQUALITY, SUBSTRINGS;
        BEHAVIOUR originallyCalledAddress-B BEHAVIOUR
            DEFINED AS The originally called address;;
REGISTERED AS { NLM.aoi originallyCalledAddress (98) };

packetSizes ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.BidirectionalValues;
        MATCHES FOR EQUALITY;
        BEHAVIOUR packetSizes-B BEHAVIOUR
            DEFINED AS The packet sizes for this VC.
                In the case of an IVMO MO it is the proposed value of the
                packet sizes (incoming and outgoing) to be used when establishing
                the virtual call, expressed in octets. The value of NULL
                indicates that the default packet size for that direction
                (as indicated by the defaultPacketSizes attribute of the
                containing X.25 PLE MO), is to be used.
                In the case of a non-IVMO MO it is the actual packet sizes
                in use for this VC;;
REGISTERED AS { NLM.aoi packetSizes (121) };

redirectReason ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.RedirectReason;
        MATCHES FOR EQUALITY;
        BEHAVIOUR redirectReason-B BEHAVIOUR
            DEFINED AS The reason why the call has been redirected.
                This is the reason why the call has been offered or has been
                connected to an address different from the originally
                called address.
                That is, the value of the first octet of the Facility
                Parameter Field of the CRCDN or CLAMN facility, indicating
                the reason for call redirection or call deflection.
                The zero value indicates that the call was not redirected;;
REGISTERED AS { NLM.aoi redirectReason (97) };
```

```
remoteDTEAddress ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.DTEAddress;
        MATCHES FOR EQUALITY, SUBSTRINGS;
        BEHAVIOUR remoteDTEAddress-B BEHAVIOUR
            DEFINED AS The DTE Address of the remote DTE.
                In the case of an outgoing call, this is the remote DTE address
                from the called address of the transmitted call request packet.
                In the case of an incoming call, it is the calling address from
                the received call request packet.;;
REGISTERED AS { NLM.aoi remoteDTEAddress (93) };

remoteLogicalChannel ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.LogicalChannelId;
            -- 12 bit Channel ID
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR remoteLogicalChannel-B BEHAVIOUR
            DEFINED AS The Remote Logical Channel ID for the Permanent Virtual Circuit.;;
REGISTERED AS { NLM.aoi remoteLogicalChannel (162) };

reverseCharging ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR reverseCharging-B BEHAVIOUR
            DEFINED AS Use of reverse charging.
                When 'True' for an outgoing call, it shall be (for an IVMO), or was
                (for a non-IVMO), initiated requesting reverse charging. When
                'True' for an incoming call associated with a virtualCall MO,
                it indicates that reverse charging was accepted.;;
REGISTERED AS { NLM.aoi reverseCharging (75) };

rOASelection ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR rOASelection-B BEHAVIOUR
            DEFINED AS Indicates the use of the registered operating agency selection
                facility for that call.;;
REGISTERED AS { NLM.aoi rOASelection (166) };

throughputClasses ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.BidirectionalValues;
        MATCHES FOR EQUALITY, ORDERING;
        BEHAVIOUR throughputClasses-B BEHAVIOUR
            DEFINED AS The throughput classes in use or to be used.
                For an IVMO, this is the throughput classes to be proposed.
                For a non-IVMO it is the actual throughput classes in use.
                For Virtual Calls this is the result of negotiation.;;
REGISTERED AS { NLM.aoi throughputClasses (96) };
```

```
transitDelaySelectionAndIndication ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.Boolean;
        MATCHES FOR EQUALITY;
        BEHAVIOUR transitDelaySelectionAndIndication-B BEHAVIOUR
            DEFINED AS Indicates the use of the transit delay selection and
                indication facility for that call.;;
REGISTERED AS { NLM.aoi transitDelaySelectionAndIndication (169) };

virtualCallIVMOId ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.GraphicString;
        MATCHES FOR EQUALITY, SUBSTRINGS;
        BEHAVIOUR virtualCallIVMOId-B BEHAVIOUR
            DEFINED AS The name of this instance of virtualCallIVMO;;
REGISTERED AS { NLM.aoi virtualCallIVMOId (117) };

virtualCircuitId ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.GraphicString;
        MATCHES FOR EQUALITY, SUBSTRINGS;
        BEHAVIOUR virtualCircuitId-B BEHAVIOUR
            DEFINED AS The name of this instance of virtualCircuit MO or subclass;;
REGISTERED AS { NLM.aoi virtualCircuitId (116) };

windowSizes ATTRIBUTE
        WITH ATTRIBUTE SYNTAX NLM.BidirectionalValues;
        MATCHES FOR EQUALITY;
        BEHAVIOUR windowSizes-B BEHAVIOUR
            DEFINED AS The actual window sizes in use for this VC;;
REGISTERED AS { NLM.aoi windowSizes (124) };
```

6 Módulos ASN.1

```
NLM { joint-iso-ccitt network-layer (13) management (0) nLM(2) asn1Module (2) 0 }
DEFINITIONS IMPLICIT TAGS::= BEGIN
EXPORTS everything
IMPORTS communicationsProtocolError
FROM Attribute-ASN1Module  { joint-iso-ccitt ms(9) smi(3) part2(2) asn1Module(2) 1 };
```

6.1 Definiciones de identificadores de objetos

6.1.1 Abreviaturas

```
network-layer OBJECT IDENTIFIER ::=  { joint-iso-ccitt network-layer (13) }
nl OBJECT IDENTIFIER ::=  { network-layer management (0) }
nloi OBJECT IDENTIFIER ::= { nl nLM(2) }
sseoi OBJECT IDENTIFIER ::= { nloi standardSpecificExtensions (0) }
moi OBJECT IDENTIFIER ::= { nloi managedObjectClass (3) }
poi OBJECT IDENTIFIER ::= { nloi package (4) }
proi OBJECT IDENTIFIER ::= { nloi parameter (5) }
nboi OBJECT IDENTIFIER ::= { nloi nameBinding (6) }
aoi OBJECT IDENTIFIER ::= { nloi attribute (7) }
agoi OBJECT IDENTIFIER ::= { nloi attributeGroup (8) }
acoi OBJECT IDENTIFIER ::= { nloi action (9) }
noi OBJECT IDENTIFIER ::= { nloi notification (10) }
```

6.1.2 Otros

```
-- asignaciones de valores para problemas específicos (specificProblems)

pDUDiscard OBJECT IDENTIFIER ::= { sseoi specificProblems(3) pDUDiscard(1) }
pDUDiscardReasonNotSpecified OBJECT IDENTIFIER ::= { pDUDiscard
        reasonNotSpecified(0) }
pDUDiscardProtocolProcedureError OBJECT IDENTIFIER ::= { pDUDiscard
        protocolProcedureError(1) }
pDUDiscardIncorrectChecksum OBJECT IDENTIFIER ::= { pDUDiscard
        incorrectChecksum(2) }
pDUDiscardHeaderSyntaxError OBJECT IDENTIFIER ::= { pDUDiscard
        headerSyntaxError(4) }
pDUDiscardSegmentationNeededButNotPermitted OBJECT IDENTIFIER ::= { pDUDiscard
        segmentationNeededButNotPermitted(5) }
pDUDiscardIncompletePDUReceived OBJECT IDENTIFIER ::= { pDUDiscard
        incompletePDUReceived(6) }
pDUDiscardDuplicateOption OBJECT IDENTIFIER ::= { pDUDiscard
        duplicateOption(7) }
pDUDiscardDestinationAddressUnreachable OBJECT IDENTIFIER ::= { pDUDiscard
        destinationAddressUnreachable(128) }
pDUDiscardDestinationAddressUnknown OBJECT IDENTIFIER ::= { pDUDiscard
        destinationAddressUnknown(129) }
pDUDiscardUnspecifiedSourceRouteingError OBJECT IDENTIFIER ::= { pDUDiscard
        unspecifiedSourceRouteingError(144) }
pDUDiscardSyntaxErrorInSourceRouteingField OBJECT IDENTIFIER ::= { pDUDiscard
        syntaxErrorInSourceRouteingField(145) }
```

```
pDUDiscardUnknownAddressInSourceRouteingField OBJECT IDENTIFIER ::= { pDUDiscard
        unknownAddressInSourceRouteingField(146) }
pDUDiscardPathNotAcceptable OBJECT IDENTIFIER ::= { pDUDiscard
        pathNotAcceptable(147) }
pDUDiscardLifetimeExpiredWhileDataUnitInTransit OBJECT IDENTIFIER ::= { pDUDiscard
        lifetimeExpiredWhileDataUnitInTransit(160) }
pDUDiscardLifetimeExpiredDuringReassembly OBJECT IDENTIFIER ::= { pDUDiscard
        lifetimeExpiredDuringReassembly(161) }
pDUDiscardUnsupportedOptionNotSpecified OBJECT IDENTIFIER ::= { pDUDiscard
        unsupportedOptionNotSpecified(176) }
pDUDiscardUnsupportedProtocolVersion OBJECT IDENTIFIER ::= { pDUDiscard
        unsupportedProtocolVersion(177) }
pDUDiscardUnsupportedSecurityOption OBJECT IDENTIFIER ::= { pDUDiscard
        unsupportedSecurityOption(178) }
pDUDiscardUnsupportedSourceRouteingOption OBJECT IDENTIFIER ::= { pDUDiscard
        unsupportedSourceRouteingOption(179) }
pDUDiscardUnsupportedRecordingOfRouteOption OBJECT IDENTIFIER ::= { pDUDiscard
        unsupportedRecordingOfRouteOption(180) }
pDUDiscardReassemblyInterference OBJECT IDENTIFIER ::= { pDUDiscard
        reassemblyInterference(181) }
iSO9542PDUDiscard OBJECT IDENTIFIER ::= { sseoi specificProblems(3) iSO9542PDUDiscard(2) }

-- para notificación de información de comunicación

iSReachabilityChange OBJECT IDENTIFIER ::= {
        sseoi informationtype(4) iSReachabilityChange(1) }
eSReachabilityChange OBJECT IDENTIFIER ::= {
        sseoi informationtype(4) eSReachabilityChange(2) }
successfulConnectionEstablishment OBJECT IDENTIFIER ::= {
        sseoi informationtype(4) successfulConnectionEstablishment (3) }

-- para tipo de dirección de SNPA (SNPAAddress type)

sNPADTEAddress OBJECT IDENTIFIER ::= {
        sseoi sNPAAddressType(5) dTEAddress(1) }
sNPAMACAddress OBJECT IDENTIFIER ::= {
        sseoi sNPAAddressType(5) mACAddress(2) }
```

6.2 Otras definiciones

```
BidirectionalValues ::= SEQUENCE {
        incoming      [0] ChoiceInteger,
        outgoing [1] ChoiceInteger }
Boolean ::= BOOLEAN
callRequestResponseTimerDefault INTEGER ::= 200
ChoiceInteger ::= CHOICE {
            [0] IMPLICIT NULL,  --  The 'I don't care' value
            [1] IMPLICIT INTEGER }
clearRequestRetransmissionCountDefault INTEGER ::= 1
clearRequestResponseTimerDefault INTEGER ::= 180
cLNSId-Value GRAPHIC STRING ::= "CLNS"
cONSId-Value GRAPHIC STRING ::= "CONS"
```

```
DefaultTCA ::= SEQUENCE {
        subscription                    [0] BOOLEAN,
        supportedThroughClasses         [1] SET OF INTEGER OPTIONAL,
        selectedThroughputClasses       [2] BidirectionalValues OPTIONAL }
dataPacketRetransmissionCountDefault INTEGER ::= 0
windowRotationTimerDefault INTEGER ::= 200
DTEAddress ::= SEQUENCE {
        numberingPlanId     [0] ENUMERATED { unknown (0), x121(1), e164(2) },
        addressDigits       [1] OCTET STRING }
NUMERICSTRING(FROM("0"|"1"|"2"|"3"|"4"|"5"|"6"|"7"|"8"|"9"))(SIZE(0..15))
        -- Up to 15 Digits 0..9
Direction ::= ENUMERATED {
            incoming(0),
            outgoing(1) }
DiscardReason ::= INTEGER(0..255)
EndToEndDelay ::= INTEGER(0..65535)
        --  Note that according to ISO/IEC 8208 or ITU-T Rec. X.25 a value of 65535 indicates that the delay is unknown
        -- or exceeds 65534 milliseconds.
false BOOLEAN ::= FALSE
False ::= BOOLEAN (FALSE)
FastSelect ::= ENUMERATED {
            notSpecified(0),
            fastSelect(1),
            fastSelectWithRestrictedResponse(2),
            noFastSelect(3) }
GraphicString ::= GRAPHICSTRING
holdingTimerMultiplierDefault INTEGER ::= 3
HoldingTimerMultiplierPermitted ::= INTEGER(2..63)
HoldingTimerMultiplierRequired ::= INTEGER(3)
Integer ::= INTEGER
interruptResponseTimerDefault INTEGER ::= 180
iSConfigurationTimerDefault INTEGER ::= 10
ISO9542Subsets ::= BITSTRING { configuration(0), redirection(1) }
Lifetime ::= INTEGER(1..255)
LocalDistinguishedName ::= DMI.ObjectInstance
LocalDistinguishedNames ::= DMI.GroupObjects
LogicalChannelAssignments ::= SEQUENCE {
        pVC                 [0] SET OF LogicalChannelId,
        incoming            [1] LogicalChannelRange OPTIONAL,
        twoWay              [2] LogicalChannelRange OPTIONAL,
        outgoing            [3] LogicalChannelRange OPTIONAL }
LogicalChannelId ::= INTEGER (1..4095)
LogicalChannelRange ::= SEQUENCE {
        low                 [1] LogicalChannelId,
        high                [2] LogicalChannelId }
ManualISSNPAAddress ::= SET OF SNPAAddress
MaxActiveCircuits ::= ChoiceInteger
NotificationDataSyntax ::= SEQUENCE {
        channel             [1] LogicalChannelId OPTIONAL,
        packetHeader        [2] OCTET STRING,
        diagnosticCode      [3] OCTET
        causeCode           [4] OCTET }
NAddress ::= OCTETSTRING(SIZE(0..20))
        --  up to 20 octets
NAddresses ::= SET OF NAddress
networkSubsystemId-Value GRAPHIC STRING ::= "NetworkSubsystem"
```

```
NonStandardDPS ::= SEQUENCE {
        subscription                [0] BOOLEAN,
        supportedPacketSizes        [1] SET OF INTEGER OPTIONAL,
        selectedPacketSizes         [2] BidirectionalValues OPTIONAL }
NonStandardDWS ::= SEQUENCE {
        subscription                [0] BOOLEAN,
        supportedWindowSizes        [1] SET OF INTEGER OPTIONAL,
        selectedWindowSizes         [2] BidirectionalValues OPTIONAL }
NUI ::= OctetString(SIZE(0..255))
nullBidirectionalValues BidirectionalValues ::= { NULL, NULL }
nullChoiceInteger ChoiceInteger ::= NULL
OctetString ::= OCTETSTRING
PacketSequencing ::= INTEGER
PDUFormatErrorSyntax ::= PDUHeader
PDUHeader ::= OCTETSTRING(SIZE(1..255))
PDUOtherErrorSyntax ::= SEQUENCE {
        errorCode                   [1] INTEGER(0..255),
        header                      [2] PDUHeader }
ProtocolVersion ::= ENUMERATED {
        iSO8208V1 (0),
        iSO8208V2 (1),
        x2584 (2),
        x2588 (3) }
ReachabilityChangeSyntax ::= SEQUENCE {
        newState                    [1] ENUMERATED { down(0), up(1) },
        nAddresses                  [2] SET OF NAddress,
        sNPAAddress                 [3] SNPAAddress OPTIONAL,
        reason                      [4] ENUMERATED
                                        { holdingTimerExpired(0),
                                        circuitDisabled(1) } OPTIONAL } -- Down only
RedirectHoldingTime ::= INTEGER(1..65535)
redirectHoldingTime-Default INTEGER ::= 600
RedirectHoldingTime-Permitted ::= INTEGER(1..65535)
RedirectReason ::= INTEGER(0..127)
registrationRequestRetransmissionCountDefault INTEGER ::= 1
registrationRequestResponseTimerDefault INTEGER ::= 300
registrationPermittedDefault BOOLEAN ::= FALSE
rejectRetransmissionCountDefault INTEGER ::= 0
rejectResponseTimerDefault INTEGER ::= 60
resetRequestRetransmissionCountDefault INTEGER ::= 1
resetRequestResponseTimerDefault INTEGER ::= 180
restartRequestRetransmissionCountDefault INTEGER ::= 1
restartRequestResponseTimerDefault INTEGER ::= 180
ROASequence ::= SEQUENCE OF NUMERICSTRING(SIZE(0..4))
        -- each numeric string limited to 4 decimal digits
        -- an empty sequence is permitted
SDUSize ::= INTEGER (0..65535)
SNPAAddress ::= SEQUENCE {
        type                        [1] OBJECT IDENTIFIER,
        address                     [2] OCTET STRING }
suggestedESConfigurationTimerDefault INTEGER ::= 600
SupportedProtocol ::= SEQUENCE {
        protocol        [1] OBJECT IDENTIFIER,
```

```
        versions                        [2] SET OF ProtocolVersion;
        defectsRepaired                 [3] SET OF OBJECT IDENFIFIER OPTIONAL }
SupportedProtocols ::= SET OF SupportedProtocol
SystemType ::= ENUMERATED { eS(1), iS(2) }
SystemTypes ::= SET OF SystemType
windowStatusTransmissionTimerDefault INTEGER ::= 60
X25PLEMode ::= ENUMERATED {
                dTE(0),
                dCE(1),
                dTEasDCE(2) }
END
```

7 Conformidad

7.1 Requisitos de conformidad con la Norma ISO 10733

Una realización que alega conformidad con esta Norma Internacional deberá:

a) admitir el MO de subsistema de red (networkSubsystem);

b) para cada MO soportado, admitir por lo menos una vinculación de nombre definida en esta Norma Internacional de la que el MO es el subordinado.

7.2 Requisitos de conformidad específicos del protocolo

7.2.1 Una realización que alega conformidad con la operación de gestión del CLNS como una realización gestionada deberá:

a) ser conforme a la Norma ISO/CEI 10733 como se indica en 7.1;

b) admitir el MO de entidad de red (networkEntity), el MO de CLNS, el MO de NSAP y el MO de enlace.

7.2.2 Una realización que alega conformidad con la operación de gestión del CONS como una realización gestionada deberá:

a) ser conforme a la Norma ISO/CEI 10733 como se indica en 7.1;

b) admitir el MO de entidad de red (networkEntity), el MO de CONS, el MO de NSAP, el MO de conexión y el MO de enlace.

7.2.3 Una realización que alega conformidad con la operación de gestión del DTE X.25 como una realización gestionada deberá:

a) ser conforme a la Norma ISO/CEI 10733 como se indica en 7.1;

b) admitir el MO DTE PLE X.25 y por lo menos una clase derivada del DTE de circuito virtual (virtualCircuit-DTE).

7.2.4 Una realización que alega conformidad con la operación de gestión del DCE X.25 como una realización gestionada deberá:

a) ser conforme a la Norma ISO/CEI 10733 como se indica en 7.1;

b) admitir el MO DCE PLE X.25 y por lo menos una clase derivada del DCE de circuito virtual (virtualCircuit-DCE).

NOTA – Es posible que las cláusulas relativas al comportamiento, definidas en esta Norma, no siempre sean verificables. Cuando se definan series de pruebas de comportamiento habrá que actuar con cautela para no imponer constricciones adicionales a las definidas en la presente Norma para realizaciones.

Reemplazada por una versión más reciente

Anexo A

Asignación de identificadores de objetos

(Este anexo es parte integrante de la presente Recomendación)

En la presente Recomendación se han asignado los siguientes identificadores de objetos. No se han reasignado los identificadores de objetos que fueron asignados cuando la Norma Internacional equivalente a esta Recomendación estaba en la etapa de proyecto en ISO/CEI. Si se ha efectuado alguna modificación, distinta de un cambio de la cláusula de comportamiento, en cualquier plantilla a la que se había asignado un identificador de objeto, se ha asignado a la nueva plantilla un nuevo identificador de objeto y no se ha reutilizado el identificador de objeto antiguo [identificado como *obsolete* (obsoleto) (1)].

joint-iso-ccitt
ms (9)
smi (3)
part2 (2)
asn1Module (2)
(1)

network-layer (13)
management (0)
nLM (2)
standardSpecificExtensions (0)
specificProblems (3)
pDUDiscard (1)
reasonNotSpecified (0)
protocolProcedureError (1)
incorrectChecksum (2)
headerSyntaxError (4)
segmentationNeededButNotPermitted (5)
incompletePDUReceived (6)
duplicateOption (7)
destinationAddressUnreachable (128)
destinationAddressUnknown (129)
unspecifiedSourceRouteingError (144)
syntaxErrorInSourceRouteingField (145)
unknownAddressInSourceRouteingField (146)
pathNotAcceptable (147)
lifetimeExpiredWhileDataUnitInTransit (160)
lifetimeExpiredDuringReassembly (161)
unsupportedOptionNotSpecified (176)
unsupportedProtocolVersion (177)
unsupportedSecurityOption (178)
unsupportedSourceRouteingOption (179)
unsupportedRecordingOfRouteOption (180)
reassemblyInterference (181)

iSO9542PDUDiscard (2)
informationtype (4)
iSReachabilityChange (1)
eSReachabilityChange (2)
successfulConnectionEstablishment (3)
sNPAAddressType (5)
dTEAddress (1)
mACAddress (2)
asn1Module (2)
(0)
managedObjectClass (3)
networkSubsystem (1)
obsolete (2)
obsolete (3)
nSAP (4)
obsolete (5)
obsolete (6)
obsolete (7)
obsolete (8)
obsolete (9)
obsolete (10)
obsolete (11)
obsolete (12)
networkConnection (13)
virtualCircuit (14)
virtualCallIVMO (15)
virtualCall-DTE (16)
x25PLE-DTE (17)
virtualCircuit-DTE (18)
permanentVirtualCircuit-DTE (19)
x25PLEIVMO-DTE (20)
cLNS (21)
networkEntity (22)
linkage (23)
cONS (24)
x25PLE (25)
x25PLEIVMO (26)
x25PLE-DCE (27)
x25PLEIVMO-DCE (28)
virtualCircuit-DCE (29)
permanentVirtualCircuit-DCE (30)
virtualCall-DCE (31)
dSeriesCounts (32)
package (4)
cLNSChecksum-P (1)
obsolete (2)
obsolete (3)
linkage-ISO8473-ISO8208SNDCF-P (4)
linkageIdleTimer-P (5)
linkageReserveTimer-P (6)
linkageInitialMinimumTimer-P (7)
obsolete (8)
linkageCODLService-P (9)
obsolete (10)
onlineRegistration-P (11)
receivingWindowRotationRecoveryProcedures-P (12)

transmittingWindowRotationRecoveryProcedures-P (13)
packetRetransmissionProcedures-P (14)
obsolete (15)
obsolete (16)
linkage-ISO9542Checksum-P (17)
dTEX25PLECounters-P (18)
dTEVirtualCircuitCounters-P (19)
cLNS8473-P (20)
linkage-ISO9542ES-P (21)
linkage-ISO9542IS-P (22)
dCECommonVirtualCircuitCounters-P (23)
dCEVirtualCallFacilities-P (24)
dCEX25PLETimers-P (25)
dCEX25PLEFacilities-P (26)

parameter (5)
notificationPDUHeader (1)
obsolete (2)
obsolete (3)
obsolete (4)
obsolete (5)
obsolete (6)
notificationData (7)
obsolete (8)
obsolete (9)
obsolete (10)
obsolete (11)
reachabilityChange (12)

nameBinding (6)
networkSubsystem-system (1)
obsolete (2)
cLNS-networkEntity-Management (3)
nSAP-networkSubsystem-Automatic (4)
nSAP-networkSubsystem-Management (5)
obsolete (6)
obsolete (7)
cONS-networkEntity-Management (8)
x25PLE-networkSubsystem-Management (9)
x25PLEIVMO-networkSubsystem (10)
obsolete (11)
obsolete (12)
obsolete (13)
obsolete (14)
obsolete (15)
cLNS-networkEntity-Automatic (16)
cONS-networkEntity-Automatic (17)
x25PLE-networkSubsystem-Automatic (18)
networkConnection-cONS (19)
linkage-cLNS-Management (20)
linkage-cONS-Management (21)
linkage-cLNS-Automatic (22)
linkage-cONS-Automatic (23)
virtualCall-DTE-x25PLE-DTE (24)
virtualCallIVMO-x25PLE (25)
permanentVirtualCircuit-DTE-x25PLE-DTE (26)
networkEntity-networkSubsystem-Automatic (27)
networkEntity-networkSubsystem-Management (28)

permanentVirtualCircuit-DCE-x25PLE-DCE (29)
virtualCall-DCE-x25PLE-DCE-Automatic (30)
virtualCall-DCE-x25PLE-DCE-Management (31)
dSeriesCounts-virtualCall-DCE-Automatic (32)
dSeriesCounts-virtualCall-DCE-Management (33)
attribute (7)
obsolete (1)
obsolete (2)
networkEntityTitles (3)
enableChecksum (4)
obsolete (5)
segmentsReceived (6)
segmentsDiscarded (7)
assemblingSegmentsDiscarded (8)
errorReportsReceived (9)
pDUDiscards (10)
congestionDiscards (11)
obsolete (12)
obsolete (13)
obsolete (14)
obsolete (15)
obsolete (16)
linkageId (17)
sN-SAP (18)
sN-ServiceProvider (19)
holdingTimerMultiplier (20)
defaultESConfigTimer (21)
activeESConfigTimer (22)
iSReachabilityChanges (23)
iSConfigurationTimer (24)
suggestedESConfigurationTimer (25)
redirectHoldingTime (26)
eSReachabilityChanges (27)
manualISSNPAAddress (28)
callsPlaced (29)
callsFailed (30)
idleTimer (31)
reserveTimer (32)
initialMinimumTimer (33)
obsolete (34)
obsolete (35)
x25PLEId (36)
x25PLEIVMOId (37)
protocolVersionSupported (38)
localDTEAddress (39)
obsolete (40)
maxActiveCircuits (41)
restartRequestResponseTimer (42)
minimumRecallTimer (43)
registrationRequestResponseTimer (44)
restartRequestRetransmissionCount (45)
registrationRequestRetransmissionCount (46)
obsolete (47)
logicalChannelAssignments (48)
extendedPacketSequenceNumbering (49)
dataPacketsSent (50)

Reemplazada por una versión más reciente

dataPacketsReceived (51)
callAttempts (52)
callsConnected (53)
providerInitiatedDisconnects (54)
callTimeouts (55)
clearTimeouts (56)
remotelyInitiatedResets (57)
dataRetransmissionTimerExpiries (58)
providerInitiatedResets (59)
resetTimeouts (60)
remotelyInitiatedRestarts (61)
restartCountsExceeded (62)
protocolErrorsDetectedLocally (63)
protocolErrorsAccusedOf (64)
callEstablishmentRetryCountsExceeded (65)
clearCountsExceeded (66)
interruptPacketsSent (67)
interruptPacketsReceived (68)
interruptTimerExpiries (69)
obsolete (70)
obsolete (71)
obsolete (72)
obsolete (73)
obsolete (74)
reverseCharging (75)
fastSelect (76)
callRequestResponseTimer (77)
resetRequestResponseTimer (78)
clearRequestResponseTimer (79)
resetRequestRetransmissionCount (80)
clearRequestRetransmissionCount (81)
interruptResponseTimer (82)
windowStatusTransmissionTimer (83)
windowRotationTimer (84)
dataPacketRetransmissionCount (85)
rejectResponseTimer (86)
rejectRetransmissionCount (87)
obsolete (88)
logicalChannel (89)
obsolete (90)
obsolete (91)
direction (92)
remoteDTEAddress (93)
obsolete (94)
obsolete (95)
throughputClasses (96)
redirectReason (97)
originallyCalledAddress (98)
callingAddressExtension (99)
calledAddressExtension (100)
invalid9542PDUs (101)
maximumLifetime (102)
defaultPacketSizes (103)
defaultWindowSizes (104)
registrationPermitted (105)
localINSAPMO (106)

remoteNSAPAddress (107)
systemTypes (108)
operationalSystemType (109)
supportedProtocols (110)
operationalProtocols (111)
defaultThroughputClasses (112)
obsolete (113)
callDeflectionSubscription (114)
iSO9542OperationalSubsets (115)
virtualCircuitId (116)
virtualCallIVMOId (117)
segmentsSent (118)
flowControlParameterNegotiation (119)
x25PLEMode (120)
packetSizes (121)
obsolete (122)
obsolete (123)
windowSizes (124)
bilateralCUG (125)
bilateralCUGSelection (126)
bilateralCUGWithOutgoingAccess (127)
calledLineAddressModifiedNotification (128)
callRedirection (129)
callRedirectionDeflectionNotification (130)
chargingDirection (131)
chargingInformation (132)
clearIndication (133)
cUG (134)
cUGSelection (135)
cUGWithIncomingAccess (136)
cUGWithOutgoingAccess (137)
cUGWithOutgoingAccessSelection (138)
dBitModification (139)
dSeriesId (140)
dSeriesResetRequestIndicationPackets (141)
dSeriesSegmentsSent (142)
dSeriesSegmentsReceived (143)
defaultThroughputClassesAssignment (144)
fastSelectAcceptance (145)
huntGroup (146)
incomingCall (147)
incomingCallsBarred (148)
incomingCallBarredWithinCUG (149)
localChargingPrevention (150)
nonStandardDefaultPacketSizes (151)
nonStandardDefaultWindowSizes (152)
nUISubscription (153)
nUIOverride (154)
nUISelection (155)
oneWayLogicalChannelIncoming (156)
oneWayLogicalChannelOutgoing (157)
onlineFacilityRegistration (158)
outgoingCallsBarred (159)
outgoingCallBarredWithinCUG (160)
packetRetransmission (161)
remoteLogicalChannel (162)

resetIndication (163)
restartIndication (164)
reverseChargingAcceptance (165)
rPOASelection (166)
rPOASubscription (167)
throughputClassNegotiation (168)
transitDelaySelectionAndIndication (169)
x25SegmentsSent (170)
x25SegmentsReceived (171)
attributeGroup (8)
action (9)
notification (10)

END

Reemplazada por una versión más reciente

Apéndice I

Descripción abreviada de objetos gestionados

(Este apéndice no es parte integrante de la presente Recomendación)

La información que figura en este apéndice sólo tiene por objeto esbozar ampliamente la especificación de gestión de la capa de red. Aunque esta información se ha obtenido del texto normativo de las directrices para la definición de objetos gestionados en la parte principal de la presente Recomendación, debe tratarse con cautela, pues puede haber errores.

Se utilizan las siguientes abreviaturas para describir las listas de propiedades de atributos:

G	Get (Obtener)
R	Replace (Reemplazar)
RWD	Replace With Default (Reemplazar con valor por defecto)
A	Add (Añadir)
RM	Remove (Eliminar)

Se utilizan las siguientes abreviaturas para las referencias de etiquetas externas:

DMI:	«Recomendación X.721 del CCITT | Norma ISO/CEI 10165-2»
GMI:	«Recomendación X.723 del CCITT | Norma ISO/CEI 10165-5»

Los tipos de plantilla con un sufijo «*» (por ejemplo, ATTRIBUTE*) hacen referencia a tipos de plantilla definidos en lotes condicionales. Todas las plantillas heredadas, salvo las heredadas de «top» (tope), se incluyen en cada una de las clases de objeto gestionado.

En la Figura I.1 se ilustra la jerarquía de herencia.

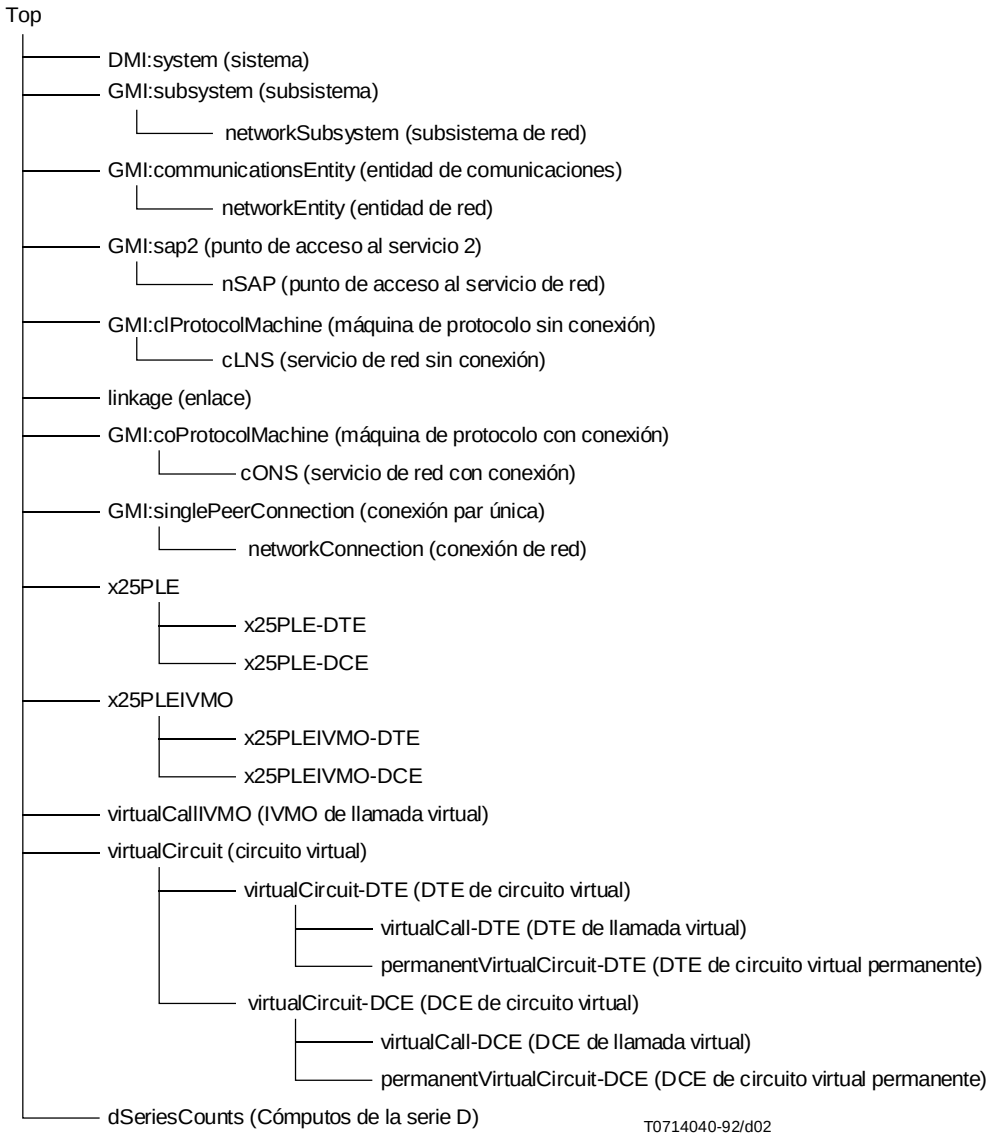

FIGURA I.1/X.283

Jerarquía de herencia de la capa de red

MANAGED OBJECT CLASS networkSubsystem DERIVED FROM (GMI:subsystem) CONTAINED IN (DMI:system)
GMI:subsystemId ATTRIBUTE (G)
END MANAGED OBJECT CLASS networkSubsystem

MANAGED OBJECT CLASS networkEntity DERIVED FROM (GMI:communicationsEntity) CONTAINED IN (networkSubsystem)

DMI:objectCreation NOTIFICATION
DMI:objectDeletion NOTIFICATION
networkEntityTitles ATTRIBUTE (G, R, A, RM)
The set of Network Entity Titles
systemTypes ATTRIBUTE (G)
The set of system roles supported by this Network Entity.

END MANAGED OBJECT CLASS networkEntity

MANAGED OBJECT CLASS nSAP DERIVED FROM (GMI:sap2) CONTAINED IN (networkSubsystem)

DMI:objectCreation NOTIFICATION
DMI:objectDeletion NOTIFICATION
GMI:sap2Address ATTRIBUTE (G)

END MANAGED OBJECT CLASS nSAP

MANAGED OBJECT CLASS cLNS DERIVED FROM (GMI:clProtocolMachine) CONTAINED IN (networkEntity)

DMI:administrativeState ATTRIBUTE (G, R)
DMI:communicationsAlarm NOTIFICATION*
DMI:objectCreation NOTIFICATION
DMI:objectDeletion NOTIFICATION
DMI:octetsReceivedCounter ATTRIBUTE* (G)
DMI:octetsSentCounter ATTRIBUTE* (G)
DMI:stateChange NOTIFICATION
GMI:activate ACTION
GMI:clProtocolMachineId ATTRIBUTE (G)
GMI:deactivate ACTION
assemblingSegmentsDiscarded ATTRIBUTE* (G)
Counter of segments discarded due to reassembly time expiry.
congestionDiscards ATTRIBUTE* (G)
Counter of PDUs discarded due to congestion.
enableChecksum ATTRIBUTE* (G, R, RWD)
When True, the generation of checksums is enabled.
errorReportsReceived ATTRIBUTE* (G)
Counter of received error reports.
maximumLifetime ATTRIBUTE* (G, R)
Maximum PDU lifetime (in half seconds).
operationalSystemType ATTRIBUTE (G)
The system role in which this instance is operating.
pDUDiscards ATTRIBUTE* (G)
Counter of PDUs discarded (except for congestion).
segmentsDiscarded ATTRIBUTE* (G)
Counter of segments discarded.
segmentsReceived ATTRIBUTE* (G)
Counter of segments received.
segmentsSent ATTRIBUTE* (G)
Counter of segments Sent.
supportedProtocols ATTRIBUTE (G)
The set of Connectionless Network protocols supported

END MANAGED OBJECT CLASS cLNS

MANAGED OBJECT CLASS linkage DERIVED FROM (DMI:top) CONTAINED IN (cONS, cLNS)

DMI:administrativeState ATTRIBUTE (G, R)
DMI:communicationsAlarm NOTIFICATION*
DMI:objectCreation NOTIFICATION
DMI:objectDeletion NOTIFICATION
DMI:operationalState ATTRIBUTE (G)
DMI:stateChange NOTIFICATION
GMI:activate ACTION
GMI:communicationsInformation NOTIFICATION*
GMI:deactivate ACTION
activeESConfigTimer ATTRIBUTE* (G)
Currently active value for the ISO 9542 ES configuration timer
callsFailed ATTRIBUTE* (G)
Counter of the number of X.25 call failures
callsPlaced ATTRIBUTE* (G)
Counter of the number of X.25 VCs successfully established
defaultESConfigTimer ATTRIBUTE* (G, R, RWD)
Default value for the ISO 9542 ES configuration timer
eSReachabilityChanges ATTRIBUTE* (G)
Count of the number of changes in reachability of End Sytems
enableChecksum ATTRIBUTE* (G, R, RWD)
When True, the generation of checksums is enabled.
holdingTimerMultiplier ATTRIBUTE* (G, R, RWD)
The factor to derive holding timer from configuration timer.
iSConfigurationTimer ATTRIBUTE* (G, R, RWD)
Value in seconds for the ISO 9542 IS configuration timer.
iSO9542OperationalSubsets ATTRIBUTE* (G, R)
The set of ISO 9542 subsets operational on this linkage.
iSReachabilityChanges ATTRIBUTE* (G)
Counter of the number of changes in reachability of Intermediate Systems
idleTimer ATTRIBUTE* (G, R, RWD)
Time in seconds before release of an idle call.
initialMinimumTimer ATTRIBUTE* (G, R, RWD)
Minimum time in seconds to retain call after establishment.
invalid9542PDUs ATTRIBUTE* (G)
Counter of invalid 9542 PDUs received.
linkageId ATTRIBUTE (G)
The naming attribute of the linkage MO instance
manualISSNPAAddress ATTRIBUTE* (G, R, RWD, A, RM)
The set of SNPA Addresses to which calls associated with the SNDCF are to established
operationalProtocols ATTRIBUTE (G)
The set of network layer protocols supported
redirectHoldingTime ATTRIBUTE* (G, R, RWD)
The holding time (in seconds) to be specified in Redirect PDUs
reserveTimer ATTRIBUTE* (G, R, RWD)
Time in seconds to reserve resources for call re-establishment.
sN-SAP ATTRIBUTE (G)
Distinguished name of the service provider SAP MO
sN-ServiceProvider ATTRIBUTE (G)
Distinguished name of the SN service provider MO.
suggestedESConfigurationTimer ATTRIBUTE* (G, R, RWD)
Value to be used for the ISO 9542 suggested ES configuration timer

END MANAGED OBJECT CLASS linkage

MANAGED OBJECT CLASS cONS DERIVED FROM (GMI:coProtocolMachine) CONTAINED IN (networkEntity)

DMI:administrativeState ATTRIBUTE (G, R)
DMI:objectCreation NOTIFICATION
DMI:objectDeletion NOTIFICATION
DMI:stateChange NOTIFICATION
GMI:activate ACTION
GMI:coProtocolMachineId ATTRIBUTE (G)
GMI:deactivate ACTION
GMI:deactivateWhenNoUsers ACTION
operationalSystemType ATTRIBUTE (G)
The system role in which this instance is operating.

END MANAGED OBJECT CLASS cONS

MANAGED OBJECT CLASS networkConnection DERIVED FROM (GMI:singlePeerConnection) CONTAINED IN (cONS)

DMI:objectCreation NOTIFICATION
DMI:objectDeletion NOTIFICATION
GMI:communicationsInformation NOTIFICATION
GMI:deactivate ACTION
localNSAPMO ATTRIBUTE (G)
Pointer to local nSAP MO.
remoteNSAPAddress ATTRIBUTE (G)
The remote NSAP Address

END MANAGED OBJECT CLASS networkConnection

MANAGED OBJECT CLASS x25PLE DERIVED FROM (DMI:top) CONTAINED IN (networkSubsystem)

DMI:administrativeState ATTRIBUTE (G, R)
DMI:objectCreation NOTIFICATION
DMI:objectDeletion NOTIFICATION
DMI:operationalState ATTRIBUTE (G)
DMI:stateChange NOTIFICATION
GMI:activate ACTION
GMI:deactivate ACTION
defaultPacketSizes ATTRIBUTE (G, R, RWD)
The default value of the packet sizes.
defaultThroughputClasses ATTRIBUTE (G, R, RWD)
The default throughput class values.
defaultWindowSizes ATTRIBUTE (G, R, RWD)
The default value of the window sizes.
flowControlParameterNegotiation ATTRIBUTE (G, R, RWD)
The subscription of the flow control parameter negotiation facility
localDTEAddress ATTRIBUTE (G, R)
The full DTE address of this PLE
logicalChannelAssignments ATTRIBUTE (G, R)
Represents the logical channel assignments of this PLE,
protocolVersionSupported ATTRIBUTE (G)
The supported Recommendation | International Standard protocol version
sN-SAP ATTRIBUTE (G)
Distinguished name of the service provider SAP MO
sN-ServiceProvider ATTRIBUTE (G, R, RWD)
Distinguished name of the SN service provider MO.
throughputClassNegotiation ATTRIBUTE (G, R, RWD)
The subscription of the throughput class negotiation facility
x25PLEId ATTRIBUTE (G)
The name of this instance of x25PLE MO
x25PLEMode ATTRIBUTE (G, R)
The DCE/DTE mode in which the X.25 PLE is currently operating.

END MANAGED OBJECT CLASS x25PLE

MANAGED OBJECT CLASS x25PLEIVMO DERIVED FROM (DMI:top) CONTAINED IN (networkSubsystem)

DMI:objectCreation NOTIFICATION

DMI:objectDeletion NOTIFICATION

defaultPacketSizes ATTRIBUTE (G, R, RWD)

The default value of the packet sizes.

defaultThroughputClasses ATTRIBUTE (G, R, RWD)

The default throughput class values.

defaultWindowSizes ATTRIBUTE (G, R, RWD)

The default value of the window sizes.

flowControlParameterNegotiation ATTRIBUTE (G, R, RWD)

The subscription of the flow control parameter negotiation facility

localDTEAddress ATTRIBUTE (G, R)

The full DTE address of this PLE

logicalChannelAssignments ATTRIBUTE (G, R)

Represents the logical channel assignments of this PLE,

sN-ServiceProvider ATTRIBUTE (G, R)

Distinguished name of the SN service provider MO.

throughputClassNegotiation ATTRIBUTE (G, R, RWD)

The subscription of the throughput class negotiation facility

x25PLEIVMOId ATTRIBUTE (G)

The name of this instance of x25PLE IVMO

x25PLEMode ATTRIBUTE (G, R)

The DCE/DTE mode in which the X.25 PLE is currently operating.

END MANAGED OBJECT CLASS x25PLEIVMO

MANAGED OBJECT CLASS x25PLE-DTE DERIVED FROM (x25PLE)

DMI:administrativeState ATTRIBUTE (G, R)
DMI:communicationsAlarm NOTIFICATION
DMI:objectCreation NOTIFICATION
DMI:objectDeletion NOTIFICATION
DMI:octetsReceivedCounter ATTRIBUTE* (G)
DMI:octetsSentCounter ATTRIBUTE* (G)
DMI:operationalState ATTRIBUTE (G)
DMI:stateChange NOTIFICATION
GMI:activate ACTION
GMI:deactivate ACTION
callAttempts ATTRIBUTE (G)
Counter of the total number of calls attempted
callDeflectionSubscription ATTRIBUTE (G, R, RWD)
The subscription of the call deflection facility
callEstablishmentRetryCountsExceeded ATTRIBUTE (G)
Counter associated with the callEstablishmentRetryCountExceeded event
callRequestResponseTimer ATTRIBUTE (G, R, RWD)
Value for Timer T21 (Call Request Response Timer)
callTimeouts ATTRIBUTE* (G)
Counter of the number of times timer T21 expiry is experienced
callsConnected ATTRIBUTE* (G)
Counter of the total number of calls which have reached the open state
clearCountsExceeded ATTRIBUTE* (G)
Counter associated with the clearCountExceeded event
clearRequestResponseTimer ATTRIBUTE (G, R, RWD)
Value for Timer T23 (Clear Request Response Timer)
clearRequestRetransmissionCount ATTRIBUTE (G, R, RWD)
Value for count R23 (Clear Request Retransmission Count)
clearTimeouts ATTRIBUTE* (G)
Counter of the number of times timer T23 expiry is experienced
dataPacketRetransmissionCount ATTRIBUTE* (G, R, RWD)
Value for count R25 (Data Packet Retransmission Count)
dataPacketsReceived ATTRIBUTE* (G)
Counter of the total number of data packets received
dataPacketsSent ATTRIBUTE* (G)
Counter of the total number of data packets sent
dataRetransmissionTimerExpiries ATTRIBUTE* (G)
Counter of the number of expiries of timer T25.
defaultPacketSizes ATTRIBUTE (G, R, RWD)
The default value of the packet sizes.
defaultThroughputClasses ATTRIBUTE (G, R, RWD)
The default throughput class values.
defaultWindowSizes ATTRIBUTE (G, R, RWD)
The default value of the window sizes.
extendedPacketSequenceNumbering ATTRIBUTE (G, R, RWD)
The modulo of the packet sequence number space.
flowControlParameterNegotiation ATTRIBUTE (G, R, RWD)
The subscription of the flow control parameter negotiation facility
interruptResponseTimer ATTRIBUTE (G, R, RWD)
Value for Timer T26 (Interrupt Response Timer) in seconds
localDTEAddress ATTRIBUTE (G, R)
The full DTE address of this PLE
logicalChannelAssignments ATTRIBUTE (G, R)
Represents the logical channel assignments of this PLE,
maxActiveCircuits ATTRIBUTE (G, R, RWD)

The maximum number of active circuits permitted on this PLE.
minimumRecallTimer ATTRIBUTE (G, R, RWD)
Minimum time in seconds before recall permitted.
protocolErrorsAccusedOf ATTRIBUTE (G)
Counter associated with the accusedOfProtocolError event
protocolErrorsDetectedLocally ATTRIBUTE (G)
Counter associated with the protocolErrorDetectedLocally event
protocolVersionSupported ATTRIBUTE (G)
The supported Recommendation | International Standard protocol version
providerInitiatedDisconnects ATTRIBUTE* (G)
Counter for the providerInitiatedDisconnect events
providerInitiatedResets ATTRIBUTE* (G)
Counter associated with the providerInitiatedReset event
registrationPermitted ATTRIBUTE* (G, R, RWD)
When true, the use of online facility registration is permitted.
registrationRequestResponseTimer ATTRIBUTE* (G, R, RWD)
Value for Timer T28 (Registration Request Response Timer) in seconds
registrationRequestRetransmissionCount ATTRIBUTE* (G, R, RWD)
Value for count R28 (Registration Request Retransmission Count)
rejectResponseTimer ATTRIBUTE* (G, R, RWD)
Value for Timer T27 (Reject Response Timer) in seconds
rejectRetransmissionCount ATTRIBUTE* (G, R, RWD)
Value for count R27 (Reject Retransmission Count)
remotelyInitiatedResets ATTRIBUTE* (G)
Counter associated with the remotelyInitiatedReset event
remotelyInitiatedRestarts ATTRIBUTE* (G)
Counter of the number of remotely initiated restarts.
resetRequestResponseTimer ATTRIBUTE (G, R, RWD)
Value for Timer T22 (Reset Request Response Timer) in seconds
resetRequestRetransmissionCount ATTRIBUTE (G, R, RWD)
Value for count R22 (Reset Request Retransmission Count)
resetTimeouts ATTRIBUTE* (G)
Counter of the number of timer T22 expiries experienced
restartCountsExceeded ATTRIBUTE* (G)
Counter associated with the restartCountExceeded event
restartRequestResponseTimer ATTRIBUTE (G, R, RWD)
Value for Timer T20 (Restart Request Response Timer) in seconds
restartRequestRetransmissionCount ATTRIBUTE (G, R, RWD)
Value for count R20 (Restart Request Retransmission Count)
sN-SAP ATTRIBUTE (G)
Distinguished name of the service provider SAP MO
sN-ServiceProvider ATTRIBUTE (G, R, RWD)
Distinguished name of the N service provider MO.
throughputClassNegotiation ATTRIBUTE (G, R, RWD)
The subscription of the throughput class negotiation facility
windowRotationTimer ATTRIBUTE* (G, R, RWD)
Default for Timer T25 (Window Rotation Timer) in seconds
windowStatusTransmissionTimer ATTRIBUTE* (G, R, RWD)
Value for Timer T24 (Window Status Transmission Timer) in seconds
x25PLEId ATTRIBUTE (G)
The name of this instance of x25PLE MO
x25PLEMode ATTRIBUTE (G, R)
The DCE/DTE mode in which the X.25 PLE is currently operating.
END MANAGED OBJECT CLASS x25PLE-DTE

MANAGED OBJECT CLASS x25PLE-DCE DERIVED FROM (x25PLE)

DMI:administrativeState ATTRIBUTE (G, R)
DMI:objectCreation NOTIFICATION
DMI:objectDeletion NOTIFICATION
DMI:octetsReceivedCounter ATTRIBUTE* (G)
DMI:octetsSentCounter ATTRIBUTE* (G)
DMI:operationalState ATTRIBUTE (G)
DMI:stateChange NOTIFICATION
GMI:activate ACTION
GMI:deactivate ACTION
bilateralCUG ATTRIBUTE* (G, R, RWD)
The subscription of the bilateral closed user group facility
bilateralCUGWithOutgoingAccess ATTRIBUTE* (G, R, RWD)
The subscription of the bilateral CUG with outgoing access facility
cUG ATTRIBUTE (G, R, RWD)
The subscription of the closed user group facility
cUGWithIncomingAccess ATTRIBUTE* (G, R, RWD)
The subscription of the closed user group with incoming access facility
cUGWithOutgoingAccess ATTRIBUTE* (G, R, RWD)
The subscription of the CUG with outgoing access facility
callAttempts ATTRIBUTE (G)
Counter of the total number of calls attempted
callDeflectionSubscription ATTRIBUTE* (G, R, RWD)
The subscription of the call deflection facility
callRedirection ATTRIBUTE* (G, R, RWD)
The subscription of the call redirection facility
callsConnected ATTRIBUTE (G)
Counter of the total number of calls which have reached the open state
chargingInformation ATTRIBUTE* (G, R, RWD)
The subscription of the charging information facility
clearIndication ATTRIBUTE* (G, R)
Value for the Clear Indication, T13 timer, in seconds.
dBitModification ATTRIBUTE* (G, R, RWD)
The subscription of the D bit modification facility
dataPacketsReceived ATTRIBUTE* (G)
Counter of the total number of data packets received
dataPacketsSent ATTRIBUTE* (G)
Counter of the total number of data packets sent
defaultPacketSizes ATTRIBUTE (G, R, RWD)
The default value of the packet sizes.
defaultThroughputClasses ATTRIBUTE (G, R, RWD)
The default throughput class values.
defaultThroughputClassesAssignment ATTRIBUTE* (G, R, RWD)
The subscription of the default throughput classes assignment facility
defaultWindowSizes ATTRIBUTE (G, R, RWD)
The default value of the window sizes.
extendedPacketSequenceNumbering ATTRIBUTE* (G, R, RWD)
The modulo of the packet sequence number space.
fastSelectAcceptance ATTRIBUTE (G, R, RWD)
The subscription of the fast select acceptance
flowControlParameterNegotiation ATTRIBUTE (G, R, RWD)
The subscription of the flow control parameter negotiation facility
huntGroup ATTRIBUTE* (G, R, RWD)
The subscription of the hunt group facility
incomingCall ATTRIBUTE* (G, R)
Value for the Incoming Call, T11 timer, in seconds.

incomingCallBarredWithinCUG ATTRIBUTE* (G, R, RWD)
The subscription of the incoming call barred within a CUG facility
incomingCallsBarred ATTRIBUTE (G, R, RWD)
The subscription of the incoming calls barred facility
interruptPacketsReceived ATTRIBUTE* (G)
Counter of the number of interrupt packets received
interruptPacketsSent ATTRIBUTE* (G)
Counter of the number of interrupt packets sent
interruptTimerExpiries ATTRIBUTE* (G)
Counter of the number of expiries of timer T26
localChargingPrevention ATTRIBUTE* (G, R, RWD)
The subscription of the local charging prevention facility
localDTEAddress ATTRIBUTE (G, R)
The full DTE address of this PLE
logicalChannelAssignments ATTRIBUTE (G, R)
Represents the logical channel assignments of this PLE,
nUIOverride ATTRIBUTE* (G, R, RWD)
The subscription of the NUI override facility
nUISubscription ATTRIBUTE* (G, R, RWD)
The subscription of the NUI subscription facility
nonStandardDefaultPacketSizes ATTRIBUTE* (G, R, RWD)
The subscription of the non standard default packet sizes facility
nonStandardDefaultWindowSizes ATTRIBUTE* (G, R, RWD)
The subscription of the non standard default window sizes facility
oneWayLogicalChannelIncoming ATTRIBUTE* (G, R, RWD)
The subscription of the one way logical channel incoming facility
oneWayLogicalChannelOutgoing ATTRIBUTE (G, R, RWD)
The subscription of the one way logical channel outgoing facility
onlineFacilityRegistration ATTRIBUTE* (G, R, RWD)
The subscription of the on-line facility registration facility
outgoingCallBarredWithinCUG ATTRIBUTE* (G, R, RWD)
The subscription of the outgoing call barred with a CUG facility
outgoingCallsBarred ATTRIBUTE (G, R, RWD)
The subscription of the outgoing calls barred facility
packetRetransmission ATTRIBUTE* (G, R, RWD)
The subscription of the packet retransmissions facility
protocolVersionSupported ATTRIBUTE (G)
The supported Recommendation | International Standard protocol version
providerInitiatedDisconnects ATTRIBUTE* (G)
Counter for the providerInitiatedDisconnect events
providerInitiatedResets ATTRIBUTE* (G)
Counter associated with the providerInitiatedReset event
rPOASubscription ATTRIBUTE* (G, R, RWD)
The subscription of the RPOA Subscription facility
remotelyInitiatedResets ATTRIBUTE* (G)
Counter associated with the remotelyInitiatedReset event
remotelyInitiatedRestarts ATTRIBUTE* (G)
Counter of the number of remotely initiated restarts.
resetIndication ATTRIBUTE* (G, R)
Value for the Reset Indication, T12 timer, in seconds.
resetTimeouts ATTRIBUTE* (G)
Counter of the number of timer T22 expiries experienced
restartIndication ATTRIBUTE* (G, R)
Value for the Restart Indication, T10 timer, in seconds.
reverseChargingAcceptance ATTRIBUTE* (G, R, RWD)
The subscription of the reverse charging acceptance facility

sN-SAP ATTRIBUTE (G)
Distinguished name of the service provider SAP MO
sN-ServiceProvider ATTRIBUTE (G, R, RWD)
Distinguished name of the SN service provider MO.
throughputClassNegotiation ATTRIBUTE (G, R, RWD)
The subscription of the throughput class negotiation facility
x25PLEId ATTRIBUTE (G)
The name of this instance of x25PLE MO
x25PLEMode ATTRIBUTE (G, R)
The DCE/DTE mode in which the X.25 PLE is currently operating.
x25SegmentsReceived ATTRIBUTE* (G)
Value for count of X.25 Segments Received.
x25SegmentsSent ATTRIBUTE* (G)
Value for count of X.25 Segments Sent.
END MANAGED OBJECT CLASS x25PLE-DCE

MANAGED OBJECT CLASS x25PLEIVMO-DTE DERIVED FROM (x25PLEIVMO)

DMI:objectCreation NOTIFICATION

DMI:objectDeletion NOTIFICATION

callDeflectionSubscription ATTRIBUTE (G, R, RWD)

The subscription of the call deflection facility

callRequestResponseTimer ATTRIBUTE (G, R, RWD)

Value for Timer T21 (Call Request Response Timer)

clearRequestResponseTimer ATTRIBUTE (G, R, RWD)

Value for Timer T23 (Clear Request Response Timer)

clearRequestRetransmissionCount ATTRIBUTE (G, R, RWD)

Value for count R23 (Clear Request Retransmission Count)

dataPacketRetransmissionCount ATTRIBUTE* (G, R, RWD)

Value for count R25 (Data Packet Retransmission Count)

defaultPacketSizes ATTRIBUTE (G, R, RWD)

The default value of the packet sizes.

defaultThroughputClasses ATTRIBUTE (G, R, RWD)

The default throughput class values.

defaultWindowSizes ATTRIBUTE (G, R, RWD)

The default value of the window sizes.

extendedPacketSequenceNumbering ATTRIBUTE (G, R, RWD)

The modulo of the packet sequence number space.

flowControlParameterNegotiation ATTRIBUTE (G, R, RWD)

The subscription of the flow control parameter negotiation facility

interruptResponseTimer ATTRIBUTE (G, R, RWD)

Value for Timer T26 (Interrupt Response Timer) in seconds

localDTEAddress ATTRIBUTE (G, R)

The full DTE address of this PLE

logicalChannelAssignments ATTRIBUTE (G, R)

Represents the logical channel assignments of this PLE,

maxActiveCircuits ATTRIBUTE (G, R, RWD)

The maximum number of active circuits permitted on this PLE.

minimumRecallTimer ATTRIBUTE (G, R, RWD)

Minimum time in seconds before recall permitted.

registrationPermitted ATTRIBUTE* (G, R, RWD)

When true, the use of online facility registration is permitted.

registrationRequestResponseTimer ATTRIBUTE* (G, R, RWD)

Value for Timer T28 (Registration Request Response Timer) in seconds

registrationRequestRetransmissionCount ATTRIBUTE* (G, R, RWD)

Value for count R28 (Registration Request Retransmission Count)

rejectResponseTimer ATTRIBUTE* (G, R, RWD)

Value for Timer T27 (Reject Response Timer) in seconds

rejectRetransmissionCount ATTRIBUTE* (G, R, RWD)

Value for count R27 (Reject Retransmission Count)

resetRequestResponseTimer ATTRIBUTE (G, R, RWD)

Value for Timer T22 (Reset Request Response Timer) in seconds

resetRequestRetransmissionCount ATTRIBUTE (G, R, RWD)

Value for count R22 (Reset Request Retransmission Count)

restartRequestResponseTimer ATTRIBUTE (G, R, RWD)

Value for Timer T20 (Restart Request Response Timer) in seconds

restartRequestRetransmissionCount ATTRIBUTE (G, R, RWD)

Value for count R20 (Restart Request Retransmission Count)

sN-ServiceProvider ATTRIBUTE (G, R)

Distinguished name of the SN service provider MO.

throughputClassNegotiation ATTRIBUTE (G, R, RWD)
The subscription of the throughput class negotiation facility
windowRotationTimer ATTRIBUTE* (G, R, RWD)
Default for Timer T25 (Window Rotation Timer) in seconds
windowStatusTransmissionTimer ATTRIBUTE* (G, R, RWD)
Value for Timer T24 (Window Status Transmission Timer) in seconds
x25PLEIVMOId ATTRIBUTE (G)
The name of this instance of x25PLE IVMO
x25PLEMode ATTRIBUTE (G, R)
The DCE/DTE mode in which the X.25 PLE is currently operating.

END MANAGED OBJECT CLASS x25PLEIVMO-DTE

MANAGED OBJECT CLASS x25PLEIVMO-DCE DERIVED FROM (x25PLEIVMO)
DMI:objectCreation NOTIFICATION
DMI:objectDeletion NOTIFICATION
defaultPacketSizes ATTRIBUTE (G, R, RWD)
The default value of the packet sizes.
defaultThroughputClasses ATTRIBUTE (G, R, RWD)
The default throughput class values.
defaultWindowSizes ATTRIBUTE (G, R, RWD)
The default value of the window sizes.
flowControlParameterNegotiation ATTRIBUTE (G, R, RWD)
The subscription of the flow control parameter negotiation facility
localDTEAddress ATTRIBUTE (G, R)
The full DTE address of this PLE
logicalChannelAssignments ATTRIBUTE (G, R)
Represents the logical channel assignments of this PLE,
sN-ServiceProvider ATTRIBUTE (G, R)
Distinguished name of the SN service provider MO.
throughputClassNegotiation ATTRIBUTE (G, R, RWD)
The subscription of the throughput class negotiation facility
x25PLEIVMOId ATTRIBUTE (G)
The name of this instance of x25PLE IVMO
x25PLEMode ATTRIBUTE (G, R)
The DCE/DTE mode in which the X.25 PLE is currently operating.

END MANAGED OBJECT CLASS x25PLEIVMO-DCE

MANAGED OBJECT CLASS virtualCircuit DERIVED FROM (DMI:top)

DMI:objectCreation NOTIFICATION
DMI:objectDeletion NOTIFICATION
logicalChannel ATTRIBUTE (G)
The actual Logical Channel ID used for the call
packetSizes ATTRIBUTE (G)
The packet sizes for this VC.
throughputClasses ATTRIBUTE (G)
The throughput classes in use or to be used.
virtualCircuitId ATTRIBUTE (G)
The name of this instance of virtualCircuit MO or subclass
windowSizes ATTRIBUTE (G)
The actual window sizes in use for this VC

END MANAGED OBJECT CLASS virtualCircuit

MANAGED OBJECT CLASS virtualCircuit-DTE DERIVED FROM (virtualCircuit)

DMI:objectCreation NOTIFICATION
DMI:objectDeletion NOTIFICATION
DMI:octetsReceivedCounter ATTRIBUTE* (G)
DMI:octetsSentCounter ATTRIBUTE* (G)
dataPacketsReceived ATTRIBUTE* (G)
Counter of the total number of data packets received
dataPacketsSent ATTRIBUTE* (G)
Counter of the total number of data packets sent
dataRetransmissionTimerExpiries ATTRIBUTE* (G)
Counter of the number of expiries of timer T25.
interruptPacketsReceived ATTRIBUTE* (G)
Counter of the number of interrupt packets received
interruptPacketsSent ATTRIBUTE* (G)
Counter of the number of interrupt packets sent
interruptTimerExpiries ATTRIBUTE* (G)
Counter of the number of expiries of timer T26
logicalChannel ATTRIBUTE (G)
The actual Logical Channel ID used for the call
packetSizes ATTRIBUTE (G)
The packet sizes for this VC.
providerInitiatedResets ATTRIBUTE* (G)
Counter associated with the providerInitiatedReset event
remotelyInitiatedResets ATTRIBUTE* (G)
Counter associated with the remotelyInitiatedReset event
resetTimeouts ATTRIBUTE* (G)
Counter of the number of timer T22 expiries experienced
throughputClasses ATTRIBUTE (G)
The throughput classes in use or to be used.
virtualCircuitId ATTRIBUTE (G)
The name of this instance of virtualCircuit MO or subclass
windowSizes ATTRIBUTE (G)
The actual window sizes in use for this VC

END MANAGED OBJECT CLASS virtualCircuit-DTE

MANAGED OBJECT CLASS virtualCircuit-DCE DERIVED FROM (virtualCircuit)

DMI:objectCreation NOTIFICATION
DMI:objectDeletion NOTIFICATION
DMI:octetsReceivedCounter ATTRIBUTE* (G)
DMI:octetsSentCounter ATTRIBUTE* (G)
dataPacketsReceived ATTRIBUTE* (G)
Counter of the total number of data packets received
dataPacketsSent ATTRIBUTE* (G)
Counter of the total number of data packets sent
interruptPacketsReceived ATTRIBUTE* (G)
Counter of the number of interrupt packets received
interruptPacketsSent ATTRIBUTE* (G)
Counter of the number of interrupt packets sent
interruptTimerExpiries ATTRIBUTE* (G)
Counter of the number of expiries of timer T26
logicalChannel ATTRIBUTE (G)
The actual Logical Channel ID used for the call
packetSizes ATTRIBUTE (G)
The packet sizes for this VC.
providerInitiatedDisconnects ATTRIBUTE* (G)
Counter for the providerInitiatedDisconnect events
providerInitiatedResets ATTRIBUTE* (G)
Counter associated with the providerInitiatedReset event
remotelyInitiatedResets ATTRIBUTE* (G)
Counter associated with the remotelyInitiatedReset event
remotelyInitiatedRestarts ATTRIBUTE* (G)
Counter of the number of remotely initiated restarts.
resetTimeouts ATTRIBUTE* (G)
Counter of the number of timer T22 expiries experienced
throughputClasses ATTRIBUTE (G)
The throughput classes in use or to be used.
virtualCircuitId ATTRIBUTE (G)
The name of this instance of virtualCircuit MO or subclass
windowSizes ATTRIBUTE (G)
The actual window sizes in use for this VC
x25SegmentsReceived ATTRIBUTE* (G)
Value for count of X.25 Segments Received.
x25SegmentsSent ATTRIBUTE* (G)
Value for count of X.25 Segments Sent.

END MANAGED OBJECT CLASS virtualCircuit-DCE

MANAGED OBJECT CLASS permanentVirtualCircuit-DTE DERIVED FROM (virtualCircuit-DTE) CONTAINED IN (x25PLE-DTE)

DMI:objectCreation NOTIFICATION
DMI:objectDeletion NOTIFICATION
DMI:octetsReceivedCounter ATTRIBUTE* (G)
DMI:octetsSentCounter ATTRIBUTE* (G)
dataPacketsReceived ATTRIBUTE* (G)
Counter of the total number of data packets received
dataPacketsSent ATTRIBUTE* (G)
Counter of the total number of data packets sent
dataRetransmissionTimerExpiries ATTRIBUTE* (G)
Counter of the number of expiries of timer T25.
interruptPacketsReceived ATTRIBUTE* (G)
Counter of the number of interrupt packets received
interruptPacketsSent ATTRIBUTE* (G)
Counter of the number of interrupt packets sent
interruptTimerExpiries ATTRIBUTE (G)
Counter of the number of expiries of timer T26
logicalChannel ATTRIBUTE (G)
The actual Logical Channel ID used for the call
packetSizes ATTRIBUTE (G)
The packet sizes for this VC.
providerInitiatedResets ATTRIBUTE* (G)
Counter associated with the providerInitiatedReset event
remotelyInitiatedResets ATTRIBUTE* (G)
Counter associated with the remotelyInitiatedReset event
resetTimeouts ATTRIBUTE (G)
Counter of the number of timer T22 expiries experienced
throughputClasses ATTRIBUTE (G)
The throughput classes in use or to be used.
virtualCircuitId ATTRIBUTE (G)
The name of this instance of virtualCircuit MO or subclass
windowSizes ATTRIBUTE (G)
The actual window sizes in use for this VC

END MANAGED OBJECT CLASS permanentVirtualCircuit-DTE

MANAGED OBJECT CLASS permanentVirtualCircuit-DCE DERIVED FROM (virtualCircuit-DCE) CONTAINED IN (x25PLE-DCE)

DMI:objectCreation NOTIFICATION
DMI:objectDeletion NOTIFICATION
DMI:octetsReceivedCounter ATTRIBUTE* (G)
DMI:octetsSentCounter ATTRIBUTE* (G)
DMI:operationalState ATTRIBUTE (G)
DMI:stateChange NOTIFICATION
chargingDirection ATTRIBUTE (G)
Indicates the use of the charging direction facility
dataPacketsReceived ATTRIBUTE* (G)
Counter of the total number of data packets received
dataPacketsSent ATTRIBUTE* (G)
Counter of the total number of data packets sent
interruptPacketsReceived ATTRIBUTE* (G)
Counter of the number of interrupt packets received
interruptPacketsSent ATTRIBUTE* (G)
Counter of the number of interrupt packets sent
interruptTimerExpiries ATTRIBUTE (G)
Counter of the number of expiries of timer T26
logicalChannel ATTRIBUTE (G)
The actual Logical Channel ID used for the call
packetSizes ATTRIBUTE (G)
The packet sizes for this VC.
providerInitiatedDisconnects ATTRIBUTE* (G)
Counter for the providerInitiatedDisconnect events
providerInitiatedResets ATTRIBUTE* (G)
Counter associated with the providerInitiatedReset event
remoteDTEAddress ATTRIBUTE (G)
The DTE Address of the remote DTE.
remoteLogicalChannel ATTRIBUTE (G)
The Remote Logical Channel ID for the Permanent Virtual Circuit.
remotelyInitiatedResets ATTRIBUTE* (G)
Counter associated with the remotelyInitiatedReset event
remotelyInitiatedRestarts ATTRIBUTE* (G)
Counter of the number of remotely initiated restarts.
resetTimeouts ATTRIBUTE (G)
Counter of the number of timer T22 expiries experienced
throughputClasses ATTRIBUTE (G)
The throughput classes in use or to be used.
virtualCircuitId ATTRIBUTE (G)
The name of this instance of virtualCircuit MO or subclass
windowSizes ATTRIBUTE (G)
The actual window sizes in use for this VC
x25SegmentsReceived ATTRIBUTE* (G)
Value for count of X.25 Segments Received.
x25SegmentsSent ATTRIBUTE* (G)
Value for count of X.25 Segments Sent.

END MANAGED OBJECT CLASS permanentVirtualCircuit-DCE

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MANAGED OBJECT CLASS virtualCallIVMO DERIVED FROM (DMI:top) CONTAINED IN (x25PLE)
        DMI:objectCreation NOTIFICATION
        DMI:objectDeletion NOTIFICATION
        fastSelect ATTRIBUTE  (G, R, RWD)
            Type of fast select used or to be used for call.
        packetSizes ATTRIBUTE  (G, R, RWD)
            The packet sizes for this VC.
        reverseCharging ATTRIBUTE  (G, R, RWD)
            Use of reverse charging.
        throughputClasses ATTRIBUTE  (G, R, RWD)
            The throughput classes in use or to be used.
        virtualCallIVMOId ATTRIBUTE  (G)
            The name of this instance of virtualCallIVMO
        windowSizes ATTRIBUTE  (G, R, RWD)
            The actual window sizes in use for this VC
END MANAGED OBJECT CLASS virtualCallIVMO
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MANAGED OBJECT CLASS virtualCall-DTE DERIVED FROM (virtualCircuit-DTE) CONTAINED IN (x25PLE-DTE)

DMI:objectCreation NOTIFICATION
DMI:objectDeletion NOTIFICATION
DMI:octetsReceivedCounter ATTRIBUTE* (G)
DMI:octetsSentCounter ATTRIBUTE* (G)
GMI:communicationsInformation NOTIFICATION
GMI:deactivate ACTION
calledAddressExtension ATTRIBUTE (G)
The contents of the called address extension field.
callingAddressExtension ATTRIBUTE (G)
The contents of the calling address extension field.
dataPacketsReceived ATTRIBUTE* (G)
Counter of the total number of data packets received
dataPacketsSent ATTRIBUTE* (G)
Counter of the total number of data packets sent
dataRetransmissionTimerExpiries ATTRIBUTE* (G)
Counter of the number of expiries of timer T25.
direction ATTRIBUTE (G)
The direction (incoming or outgoing) of the call
fastSelect ATTRIBUTE (G)
Type of fast select used or to be used for call.
interruptPacketsReceived ATTRIBUTE* (G)
Counter of the number of interrupt packets received
interruptPacketsSent ATTRIBUTE* (G)
Counter of the number of interrupt packets sent
interruptTimerExpiries ATTRIBUTE* (G)
Counter of the number of expiries of timer T26
logicalChannel ATTRIBUTE (G)
The actual Logical Channel ID used for the call
originallyCalledAddress ATTRIBUTE (G)
The originally called address
packetSizes ATTRIBUTE (G)
The packet sizes for this VC.
providerInitiatedResets ATTRIBUTE* (G)
Counter associated with the providerInitiatedReset event
redirectReason ATTRIBUTE (G)
The reason why the call has been redirected.
remoteDTEAddress ATTRIBUTE (G)
The DTE Address of the remote DTE.
remotelyInitiatedResets ATTRIBUTE* (G)
Counter associated with the remotelyInitiatedReset event
resetTimeouts ATTRIBUTE* (G)
Counter of the number of timer T22 expiries experienced
reverseCharging ATTRIBUTE (G)
Use of reverse charging.
throughputClasses ATTRIBUTE (G)
The throughput classes in use or to be used.
virtualCircuitId ATTRIBUTE (G)
The name of this instance of virtualCircuit MO or subclass
windowSizes ATTRIBUTE (G)
The actual window sizes in use for this VC

END MANAGED OBJECT CLASS virtualCall-DTE

MANAGED OBJECT CLASS virtualCall-DCE DERIVED FROM (virtualCircuit-DCE) CONTAINED IN (x25PLE-DCE)

DMI:objectCreation NOTIFICATION
DMI:objectDeletion NOTIFICATION
DMI:octetsReceivedCounter ATTRIBUTE* (G)
DMI:octetsSentCounter ATTRIBUTE* (G)
GMI:communicationsInformation NOTIFICATION
GMI:deactivate ACTION
bilateralCUGSelection ATTRIBUTE* (G)
Indicates the use of the bilateral closed user group selection facility
cUGSelection ATTRIBUTE (G)
Indicates the use of the closed user group selection facility
cUGWithOutgoingAccessSelection ATTRIBUTE* (G)
Indicates the use of the Closed User Group With Outgoing Access Selection facility
callRedirectionDeflectionNotification ATTRIBUTE* (G)
Indicates the use of the call redirection deflection notification facility
calledLineAddressModifiedNotification ATTRIBUTE* (G)
Indicates the use of the called line address modified notification facility
chargingDirection ATTRIBUTE (G)
Indicates the use of the charging direction facility
dataPacketsReceived ATTRIBUTE* (G)
Counter of the total number of data packets received
dataPacketsSent ATTRIBUTE* (G)
Counter of the total number of data packets sent
direction ATTRIBUTE (G)
The direction (incoming or outgoing) of the call
fastSelect ATTRIBUTE (G)
Type of fast select used or to be used for call.
interruptPacketsReceived ATTRIBUTE* (G)
Counter of the number of interrupt packets received
interruptPacketsSent ATTRIBUTE* (G)
Counter of the number of interrupt packets sent
interruptTimerExpiries ATTRIBUTE* (G)
Counter of the number of expiries of timer T26
logicalChannel ATTRIBUTE (G)
The actual Logical Channel ID used for the call
nUISelection ATTRIBUTE* (G)
Indicates the use of the network user identification selection facility
packetSizes ATTRIBUTE (G)
The packet sizes for this VC.
providerInitiatedDisconnects ATTRIBUTE* (G)
Counter for the providerInitiatedDisconnect events
providerInitiatedResets ATTRIBUTE* (G)
Counter associated with the providerInitiatedReset event
rOASelection ATTRIBUTE* (G)
Indicates the use of the registered operating agency selection
remoteDTEAddress ATTRIBUTE (G)
The DTE Address of the remote DTE.
remotelyInitiatedResets ATTRIBUTE* (G)
Counter associated with the remotelyInitiatedReset event
remotelyInitiatedRestarts ATTRIBUTE* (G)
Counter of the number of remotely initiated restarts.
resetTimeouts ATTRIBUTE* (G)
Counter of the number of timer T22 expiries experienced
reverseCharging ATTRIBUTE* (G)
Use of reverse charging.
throughputClasses ATTRIBUTE (G)

The throughput classes in use or to be used.
transitDelaySelectionAndIndication ATTRIBUTE (G)
Indicates the use of the transit delay selection and
virtualCircuitId ATTRIBUTE (G)
The name of this instance of virtualCircuit MO or subclass
windowSizes ATTRIBUTE (G)
The actual window sizes in use for this VC
x25SegmentsReceived ATTRIBUTE* (G)
Value for count of X.25 Segments Received.
x25SegmentsSent ATTRIBUTE* (G)
Value for count of X.25 Segments Sent.
END MANAGED OBJECT CLASS virtualCall-DCE

MANAGED OBJECT CLASS dSeriesCounts DERIVED FROM (DMI:top) CONTAINED IN (virtualCall-DCE)
DMI:objectCreation NOTIFICATION
DMI:objectDeletion NOTIFICATION
dSeriesId ATTRIBUTE (G)
The name of this instance of the dSeriesCounts MO.
dSeriesResetRequestIndicationPackets ATTRIBUTE (G)
Value for count of Reset Request or Indication Packets
dSeriesSegmentsReceived ATTRIBUTE (G)
Value for count of Segments Received, in 64 octets,
dSeriesSegmentsSent ATTRIBUTE (G)
Value for count of Segments Sent, in 64 octets,
END MANAGED OBJECT CLASS dSeriesCounts

Apéndice II

Ejemplos de utilización de atributos de relación

(Este apéndice no es parte integrante de la presente Recomendación)

En el presente apéndice se dan ejemplos de la utilización de atributos de relación, dentro de la capa de red y también entre la capa de red y sus capas adyacentes. Los ejemplos no pretenden ser exhaustivos. Se puede construir relaciones de manera similar para otras combinaciones de protocolos y una realización particular puede ser capaz de admitir múltiples protocolos simultáneamente. Por ejemplo, conexiones de transporte por el servicio de red con conexión al mismo tiempo que conexiones de transporte por el servicio de red sin conexión. Tales posibilidades se han omitido únicamente por motivos de claridad.

Para ilustrar la utilización de relaciones de capas transversales ha sido necesario incluir diagramas que representen los objetos gestionados de capa de transporte y de capa de enlace de datos en las Figuras II.1 a II.3. No obstante, su finalidad es puramente ilustrativa, por lo que deberán consultarse las Recomendaciones relativas a la gestión de la capa pertinente para obtener detalles precisos respecto a estos objetos gestionados.

Se señala que algunas de las relaciones están implicadas por contenencia y, por consiguiente, no se requieren atributos de relación explícitos. Por ejemplo, no hay relación entre un MO de llamada virtual y un MO de conexión de procedimiento monoenlace subyacente. Esta relación puede deducirse del atributo de proveedor de servicio de subred (sN-ServiceProvider) del MO de PLE X.25 progenitor. Otro ejemplo es la relación entre el MO de punto de acceso al servicio de transporte y su MO de entidad de transporte progenitor.

Los ejemplos son los siguientes:

- Figura II.1 – COTP en el CONS por la interfaz X.25.
- Figura II.2 – COTP en el CLNS por la interfaz X.25. Se señala que cuando se funciona en el CLNS, el atributo de nombres de conexiones subyacentes (underlyingConnectionNames) de la conexión de transporte tiene un valor del conjunto vacío. Se señala además que cuando un enlace está funcionando en un MO «SNPA» dentro de la capa de red, en vez de funcionar directamente por la capa de enlace de datos, los atributos de relación de proveedor del servicio de subred (sN-ServiceProvider) y de enlace de punto de acceso al servicio de subred (sN-SAP), apuntan al mismo MO dentro de la capa de red.
- Figura II.3 – COTP en el CLNS de CSMA/CD.

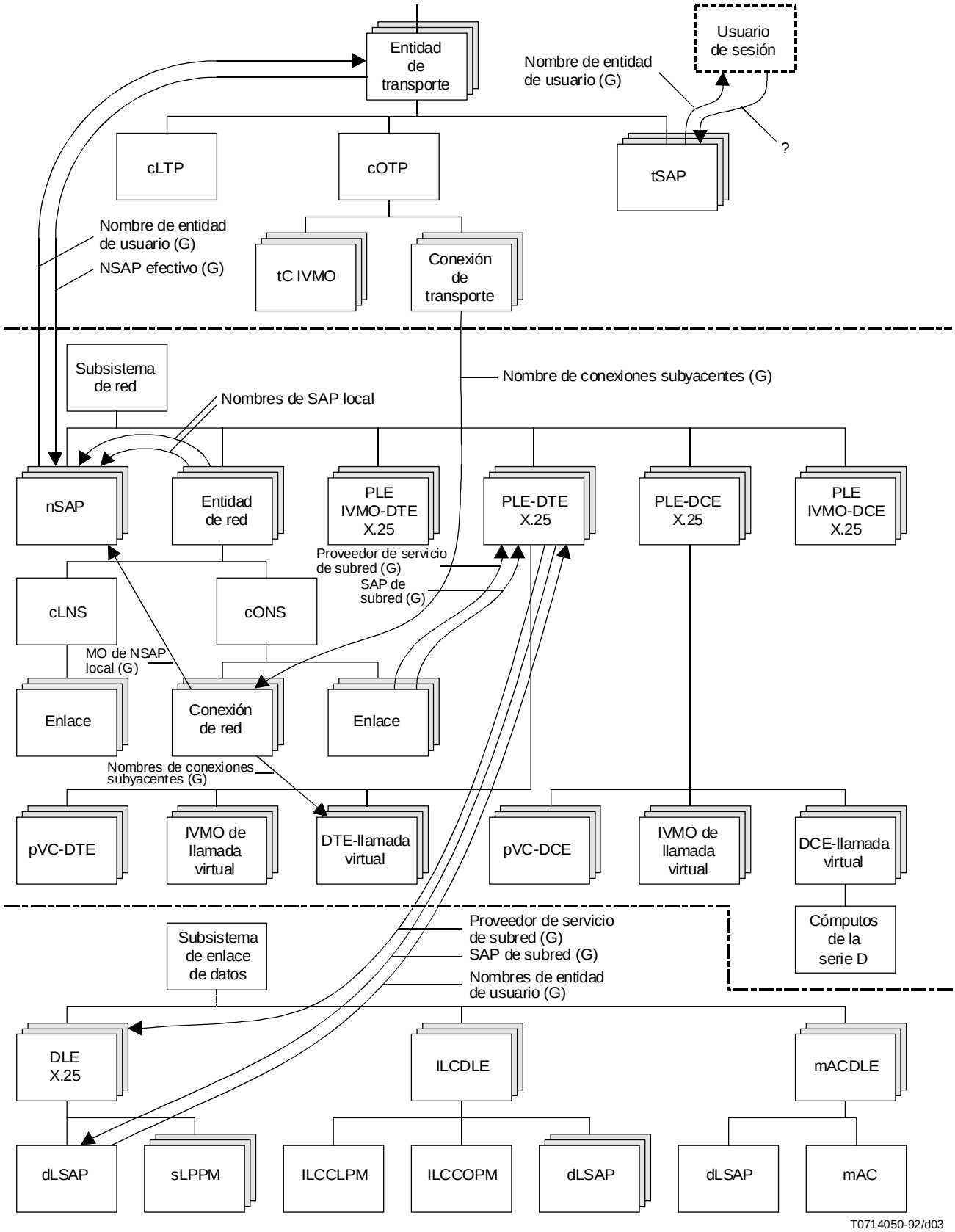

FIGURA II.1/X.283

COTP en el CONS por la interfaz X.25

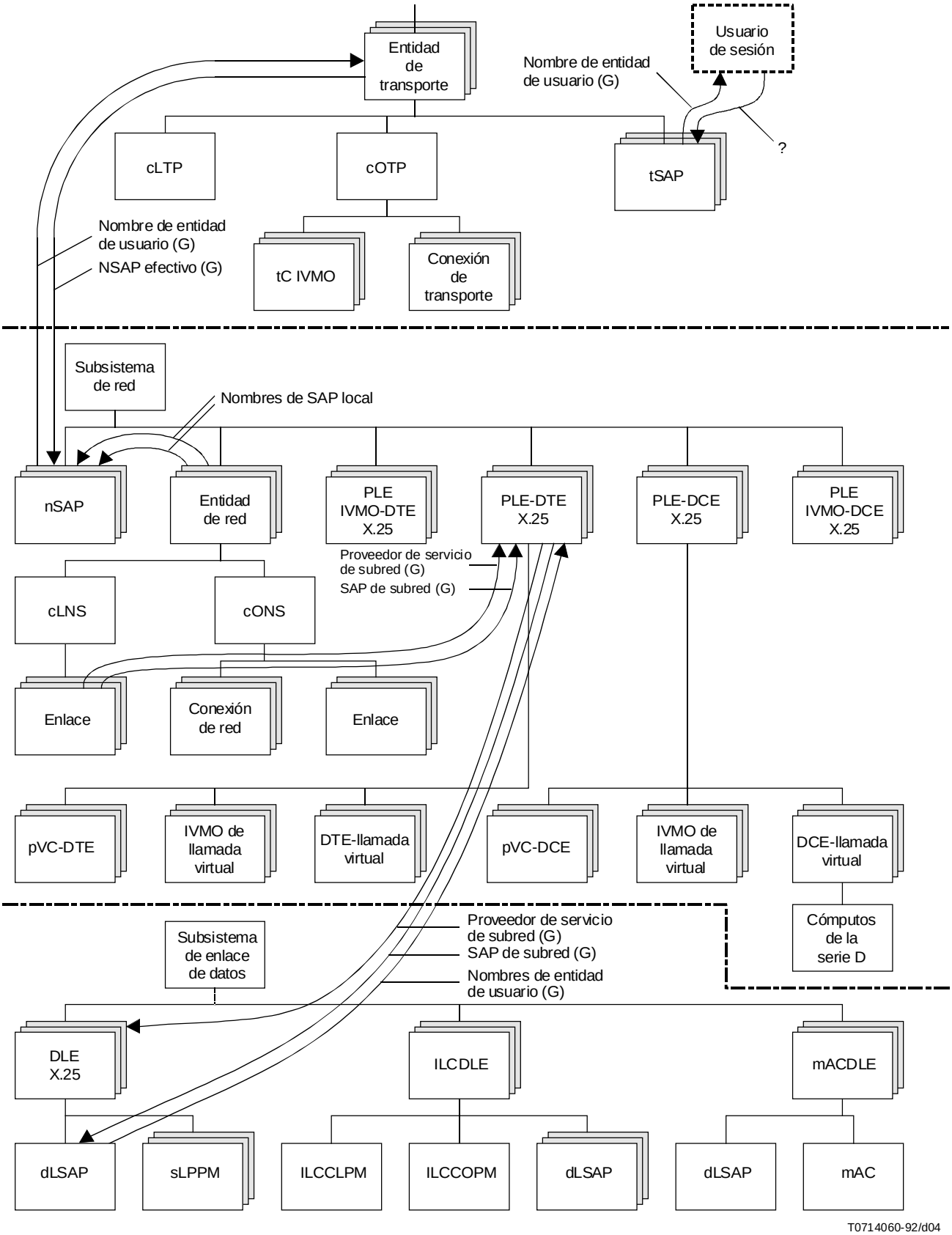

FIGURA II.2/X.283

COTP en el CLNS por la interfaz X.25

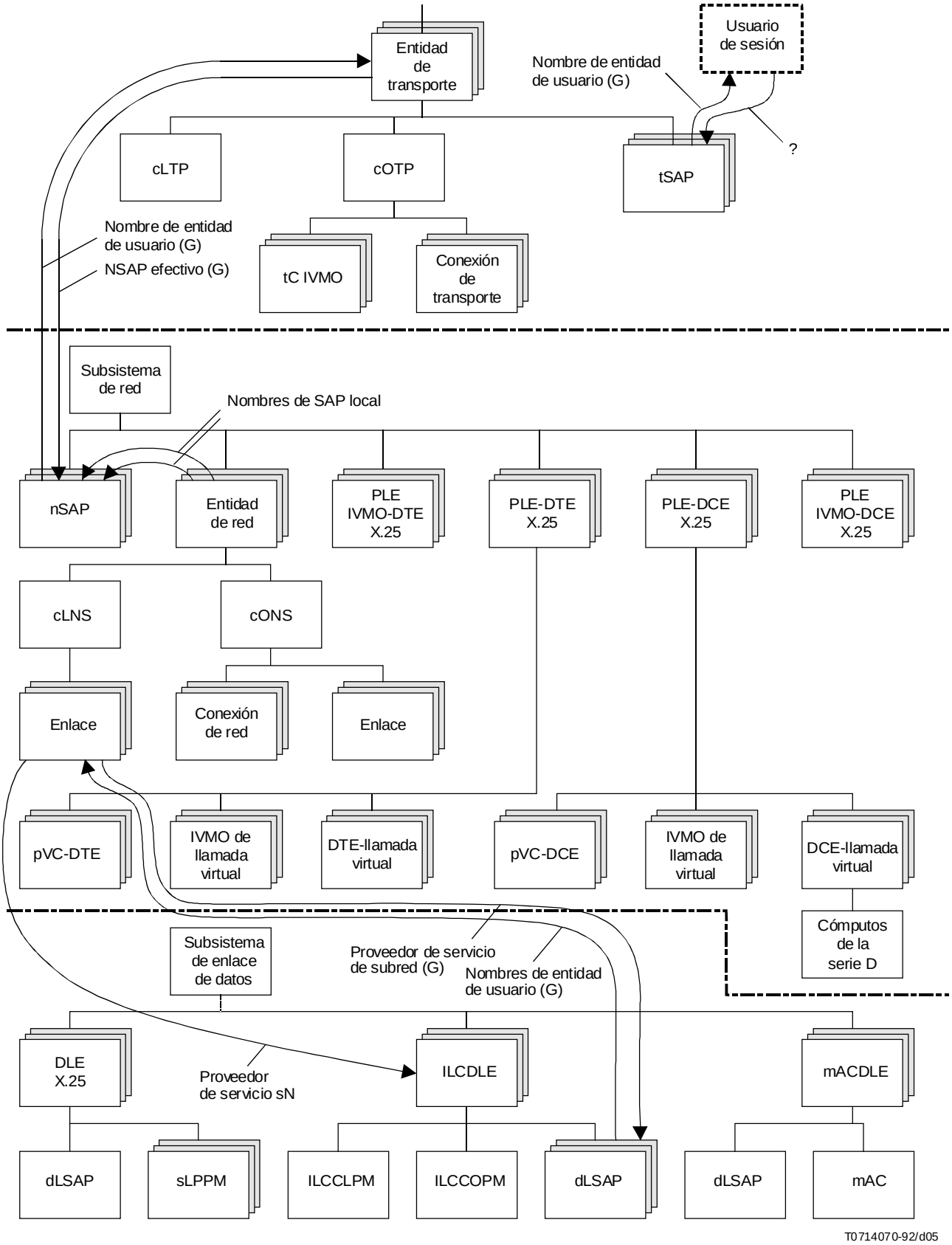

FIGURA II.3/X.283

COTP en el CLNS de CSMA/CD

Índice