



# Overview of CTM GateWay/CORBA

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This chapter provides an overview of CTM GateWay/CORBA. It includes the following information:

- [1.1 Features of CTM GateWay/CORBA, page 1-3](#)
- [1.2 CTM GateWay/CORBA Fault Management, page 1-3](#)
- [1.3 Overview of CORBA Services, page 1-4](#)
- [1.4 Information Model, page 1-6](#)
- [1.5 Summary, page 1-6](#)

CTM is a highly advanced optical transport domain manager. Open interfaces to Operations Support Systems (OSSs) using industry-standard protocols make CTM a flexible building block in legacy as well as next-generation OSS infrastructures. The CTM GateWay/CORBA product is a CORBA northbound interface that complies with the TMF CORBA specification for network management layer-element management layer (NML-EML) interfaces.

A programming technology for distributed computing, CORBA enables components of various application programs to communicate with one another regardless of their implementation characteristics—programming language, operating system, machine, location, and so on. CTM GateWay/CORBA allows service providers to implement a programmatic interface between CTM and various OSS tools in the back office. Such interfaces enable next-generation flow-through equipment and circuit management, including inventory, provisioning, and assurance functions.

For each NE that CTM manages, the CTM GateWay/CORBA option provides higher layer management systems with fault, inventory, and performance information, plus configuration and circuit provisioning capabilities. CTM GateWay/CORBA supports up to eight simultaneous sessions with higher layer management systems.

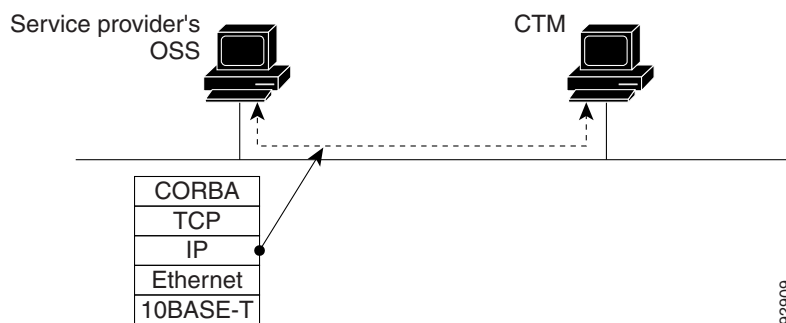
CTM GateWay/CORBA supports the following NEs in CTM R7.2:

- CRS-1
- MGX 8880/8850/8830
- ONS 15200
- ONS 15216
- ONS 15302
- ONS 15305
- ONS 15310 CL
- ONS 15310 MA
- ONS 15327

- ONS 15454 SONET
- ONS 15454 SDH
- ONS 15501
- ONS 15530
- ONS 15540
- ONS 15600 SONET
- ONS 15600 SDH
- ONS 15800
- ONS 15801
- ONS 15808
- XR 12000

Figure 1-1 illustrates the CTM GateWay/CORBA communications architecture within a service provider's OSS environment.

**Figure 1-1 CTM GateWay/CORBA Communications Architecture**



The telemanagement community has adopted CORBA as the preferred distribution technology with which to integrate the various components of an OSS. The Multi Technology Network Management Working Group of the TMF has been working to create a specification for an NML-EML interface. CTM GateWay/CORBA is based on the following TMF standards:

- TMF513 v2.0 (August 2001): Multi Technology Network Management Business Agreement
- TMF608 v2.0 (August 2001): Multi Technology Network Management Information Agreement
- TMF814 v2.0 (August 2001): Multi Technology Network Management Solution Set

The TMF.608 document is a protocol-independent information model for the network resources being managed. The TMF.814 document is the CORBA Interface Data Language (IDL) component of the specification; it consists of a set of definitions for specific objects and methods that are available for use at the NML-EML interface for passing information or accomplishing specific actions. However, TMF.814 is a specific interface implementation based on a TMF high-level business agreement described by the TMF.513 document. To complete the document set, TMF.814A recognizes that different parties may provide varying degrees of compliance in their implementations. The TMF.814A document is called the Implementation Agreement, and is simply a form to be filled out by those parties implementing TMF.814 to further describe their specific implementations to those who would use them.

# 1.1 Features of CTM GateWay/CORBA

CTM GateWay/CORBA supports the following TMF 814 modules:

- Inventory
  - Element management system (EMS)
  - Multilayer subnetwork
  - Managed element
  - PTP
  - CTP
  - FTP
  - Subnetwork connection
  - Protection group
  - Equipment
  - Equipment Holder
  - Topological link
- Alarm notification
- Retrieval of active alarms on objects where inventory is available
- SNC provisioning
- Equipment provisioning
- Protection operations
- Performance operations
- Maintenance operations

The gateway authenticates the northbound OSS. Once authenticated, the OSS can perform operations and receive alarm notifications.

CTM GateWay/CORBA uses JacORB 2.x. The corresponding standard is Object Management Group (OMG) CORBA 2.3.

## 1.2 CTM GateWay/CORBA Fault Management

CTM GateWay/CORBA forwards all the fault notifications received from managed NEs and all CTM alarms to the NMS through notification service. Information about notification service is available on the OMG website at [www.omg.org](http://www.omg.org).

**Note**

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The NMS retrieves all active alarms on the EMS and on managed element objects. The NMS filters alarms based on probable cause, perceived severity, and managed element name.

## 1.3 Overview of CORBA Services

CTM GateWay/CORBA uses two CORBA services—naming service and notification service. Naming service is required for CTM GateWay/CORBA to function. If notification service is not available, alarm and event notifications are not forwarded to the OSS. By default, the naming and notification services are installed on the CTM server during the GateWay/CORBA installation. However, the CORBA services can be located anywhere as long as they are accessible from the CTM server on which CTM GateWay/CORBA is installed. The OSS application(s) must also use the same instances of the naming service and the notification service.

### 1.3.1 Naming Service

CTM GateWay/CORBA and the other CTM server processes must use a naming service in order to operate. CTM GateWay/CORBA includes the OpenFusion naming service product. By default, CTM GateWay/CORBA is configured to use OpenFusion. However, you can configure CTM GateWay/CORBA and the CTM server to use a different centralized naming service. For more information, see [B.6 Using Multiple Naming Servers](#), page B-4.

### 1.3.2 Notification Service

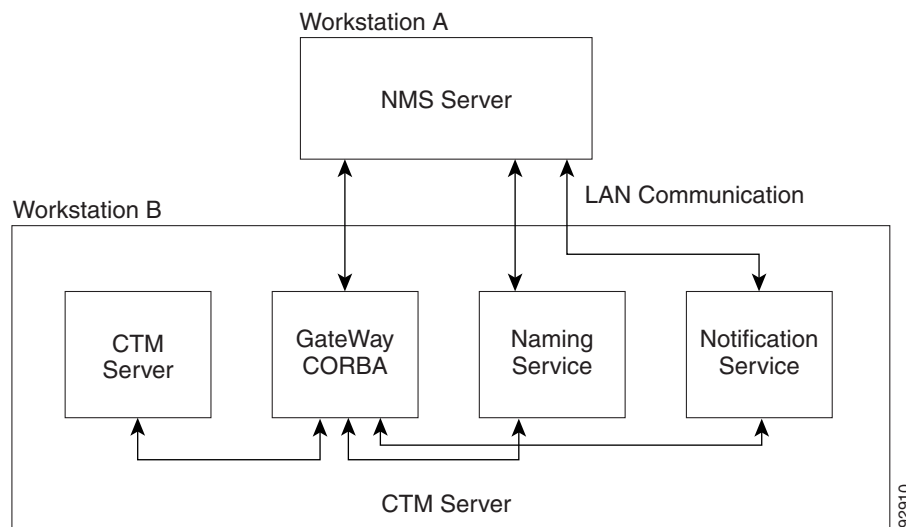
CTM GateWay/CORBA must use a CORBA notification service to report faults and events. CTM GateWay/CORBA includes the PrismTech OpenFusion notification service product, and is configured by default to use it. As with the naming service, you can configure CTM GateWay/CORBA to use a different notification service. For more information, see [A.1 Overview of Notifications](#), page A-1.

The following scenarios describe possible configurations of the naming and notification services.

#### Scenario 1: Naming and Notification Services Installed on CTM Server

The naming and notification services are located on the CTM server workstation. (See [Figure 1-2](#).)

**Figure 1-2** Naming and Notification Services on the CTM Server Workstation

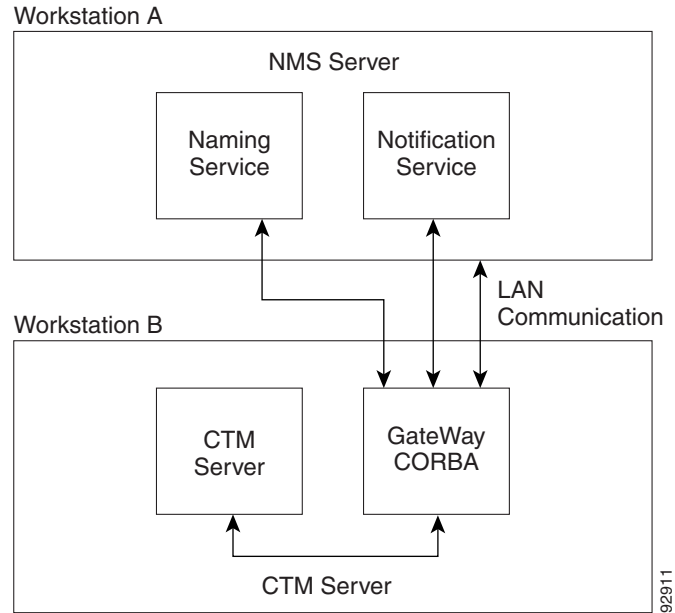


The notification service must be installed on the CTM server workstation with the CTM server processes. CTM GateWay/CORBA will be configured to use this notification service. The NMS processes must be configured to use the notification and naming services on the CTM server workstation.

### Scenario 2: Naming and Notification Services Installed on NMS Workstation

The naming and notification services are located on the NMS workstation. (See [Figure 1-3](#).)

**Figure 1-3** Naming and Notification Services on the NMS Workstation

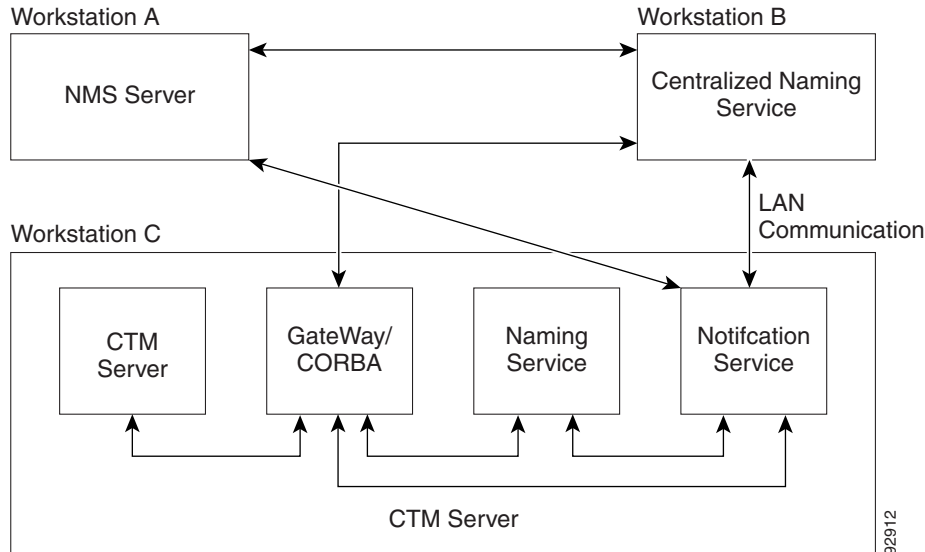


The CTM server processes and CTM GateWay/CORBA must be configured to use the naming and notification services on the NMS workstation.

### Scenario 3: Naming and Notification Services Installed on Independent Servers

The naming and notification services are installed on independent servers. (See [Figure 1-4](#).)

**Figure 1-4 Naming and Notification Services on Independent Servers**



The CTM server processes, CTM GateWay/CORBA, and the NMS processes must be configured to use the naming and notification services on independent workstations.

## 1.4 Information Model

The information model used by the CTM GateWay/CORBA northbound interface is based on the TMF NML-EML CORBA interface—TMF.814 Version 2.0. This standard is available to TMF members from the TMF website. The information model allows the EMS to provide an abstraction layer between the EMS and the NMS. This standard is generic and is, therefore, applicable to many different EMS and NE implementations. Customers implementing a TMF-compliant CORBA interface between a specific NMS and CTM must use the CTM GateWay/CORBA product, and will require specific information on what application programming interface (API) features are implemented and how these features are to be used.

## 1.5 Summary

As a state-of-the-art EMS, CTM can provide a CORBA-based interface between itself and an NMS. This functionality is provided by a separately purchasable option—CTM GateWay/CORBA. CTM GateWay/CORBA provides a TMF-compliant CORBA interface in accordance with the TMF NML-EML specification composed of TMF.513, TMF.608, and TMF.814. CTM GateWay/CORBA includes naming and notification services. Customers can use the bundled naming and notification services or their own services in various configurations. CTM GateWay/CORBA brings the service provider one step closer to full OSS automation.