

Cisco Transport Manager GateWay/CORBA Northbound Interface



Introduction

Cisco Transport Manager is the industry's most advanced optical transport domain manager. Open interfaces to Operations Support Systems (OSSs) using industry-standard protocols make Cisco Transport Manager a flexible building block in legacy as well as next-generation OSS infrastructures. The Cisco Transport Manager GateWay/CORBA product is a Common Object Request Broker Architecture (CORBA) northbound interface that complies with the TeleManagement Forum (TMF) CORBA specification for Network Management Layer/Element Management Layer (NML/EML) interfaces. Cisco Transport Manager GateWay/CORBA allows a service provider to implement a programmatic interface between the Cisco Transport Manager 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.

Cisco Transport Manager GateWay/CORBA

Cisco Transport Manager GateWay/CORBA is an optional component product in the growing suite of Cisco Transport Manager products. 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. 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 TeleManagement Forum has been working to create a specification for an NML/EML interface. Release 2.0 of this specification is described by the TMF documents listed below.

- TMF.513, Business Agreement (BA),
- TMF.608, Information Agreement (IA),
- TMF.814, Interface Definition Language (IDL) Solution Set, and
- TMF.814A, Implementation Agreement.

The TMF.608 document is a protocol-independent (that is, generic) information model for the network resources being managed. The TMF.814 document is the CORBA 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 to TMF.814 to further describe their specific implementations to those who would use them.

Cisco Transport Manager GateWay/CORBA is a northbound interface component that has been developed and documented in accordance with the TeleManagement Forum EML/NML Release 2.0 documentation set.

CORBA Services

Cisco Transport Manager GateWay/CORBA uses two CORBA Services—naming Service and notification Service. Both services are required for Cisco Transport Manager GateWay/CORBA to function. The CORBA services may be located anywhere as long as they are accessible from the Cisco Transport Manager server on which Cisco Transport Manager GateWay/CORBA is installed. The OSS application(s) must also use the same instances of the naming service and the notification service.

Naming Service

Cisco Transport Manager GateWay/CORBA and the other server processes of Cisco Transport Manager must use a naming service in order to operate. Cisco Transport Manager GateWay/CORBA includes the Borland VisiBroker naming service product, and Cisco Transport Manager GateWay/CORBA and the Cisco Transport Manager server are configured by default to use it. However, it is possible to configure Cisco Transport Manager GateWay/CORBA and the Cisco Transport Manager server to use a different centralized naming service. The appropriate instructions for this configuration are provided in the Cisco Transport Manager R3.0 documentation.

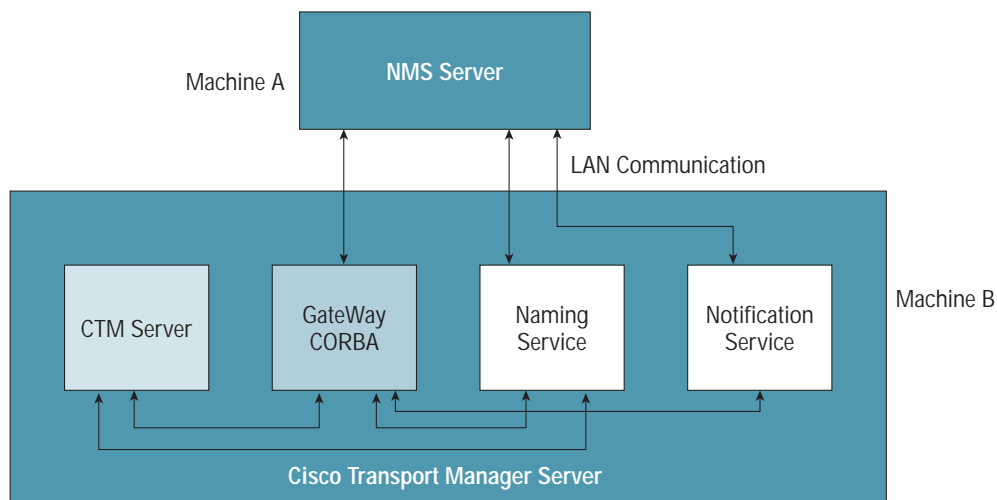
Notification Service

Cisco Transport Manager GateWay/CORBA must use a CORBA notification service to report faults and events. However, a notification service is not required for the Cisco Transport Manager server to run. Cisco Transport Manager GateWay/CORBA includes the PrismTech OpenFusion notification service product, and is configured by default to use it. As with the naming service, it is possible to configure Cisco Transport Manager GateWay/CORBA to use a different notification service. The appropriate instructions for this configuration are provided in the Cisco Transport Manager R3.0 documentation.

Possible Scenarios

Scenario 1: The naming service and the notification service are located on the Cisco Transport Manager server machine. (Figure 1)

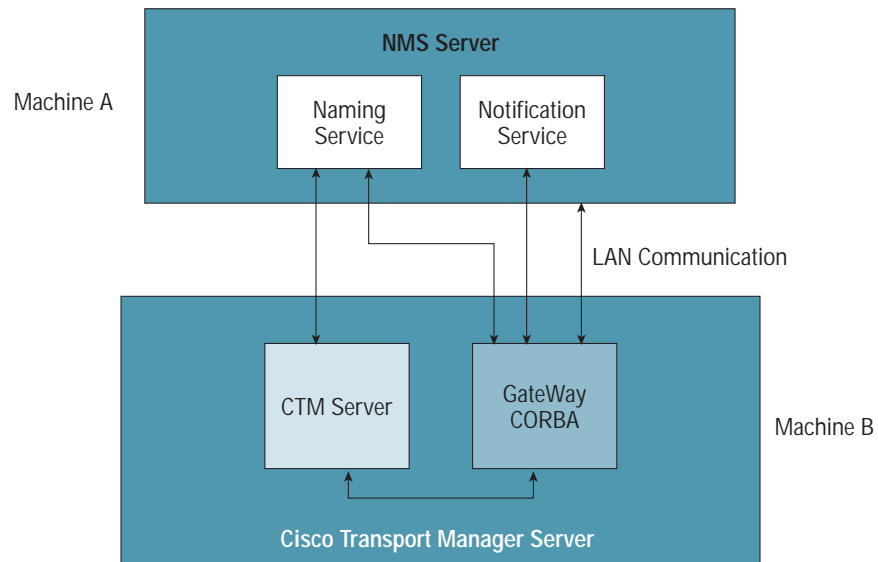
Figure 1



The notification service must be installed on the Cisco Transport Manager server machine with the Cisco Transport Manager server processes. Cisco Transport Manager GateWay/CORBA will be configured to use this notification service. The network management system (NMS) processes must be configured to use the notification and naming services on the Cisco Transport Manager server machine.

Scenario 2: The naming and notification services are located on the NMS machine (Figure 2).

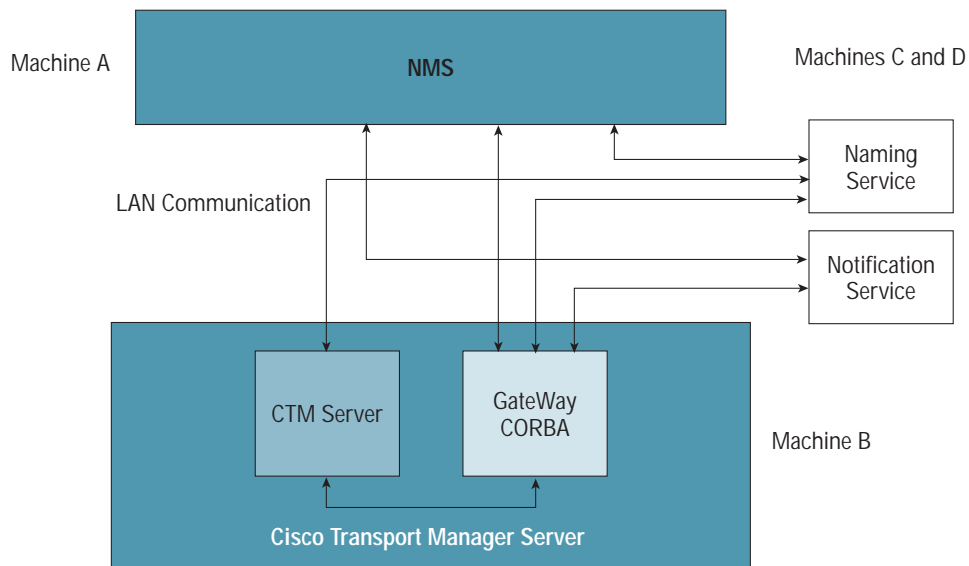
Figure 2



The Cisco Transport Manager server processes and Cisco Transport Manager GateWay/CORBA must be configured to use the naming and notification services on the NMS machine.

Scenario 3: The naming and notification services are installed on independent servers (Figure 3).

Figure 3



The Cisco Transport Manager server processes, the Cisco Transport Manager GateWay/CORBA, and the NMS processes must be configured to use the naming and notification services on the independent machines. Consult the Cisco Transport Manager R3.0 documentation for instructions on how to configure Cisco Transport Manager and Cisco Transport Manager GateWay/CORBA with different naming and notification services running on different machines.

Information Model

The information model used by the Cisco Transport Manager GateWay/CORBA northbound interface is based on the TeleManagement Forum NML/EML CORBA interface—TMF.814 Version 2.0. This standard is available to TMF members from the TMF Web site. The information model allows the element management system (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 network element implementations. So a user implementing a TMF-compliant CORBA interface between a specific NMS and Cisco Transport Manager must use the Cisco Transport Manager 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. This information is available in the Cisco Transport Manager GateWay/CORBA Programmers' Guide that is delivered with the Cisco Transport Manager GateWay/CORBA product.

Summary

As a state-of-the-art element management system, Cisco Transport Manager can provide a CORBA-based interface between itself and a network management system. This functionality is provided by a separately purchasable option—Cisco Transport Manager GateWay/CORBA. Cisco Transport Manager 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. Cisco Transport Manager GateWay/CORBA includes an API guide as well as naming and notification services. Customers may use the bundled naming and notification services, or may use their own, in various configurations. Cisco Transport Manager GateWay/CORBA brings the service provider one step closer to full OSS automation.



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