1

Cisco Voice CORBA Gateway Orientation

Network management layer applications can communicate with the EM through the CORBA/IDL interface provided by the Cisco Voice CORBA Gateway (Cisco Voice CORBA Gateway). Using Cisco Voice CORBA Gateway, developers can write network management layer applications that work with the EM to manage a network of Cisco gateway devices.

This chapter contains the following sections:

Cisco Voice CORBA Gateway Features

With Cisco Voice CORBA Gateway, the EM can interact with higher-level network management systems. Together, Cisco Voice CORBA Gateway and the EM conform to the Telecommunications Management Network (TMN) model, operating as an Element Management System (EMS) at the element management layer. As such, the EM manages a subnetwork of homogenous network elements, and supports upper layer managers.

Cisco Voice CORBA Gateway provides the following network management interfaces:

- Event Notification

    An event notification service filters and reports alarms and events to client applications. Clients register for the desired alarms.

- Configuration management

    An object access process traverses the object hierarchy to discover and upload objects in bulk. Client applications can configure individual attributes on a single chassis, or perform bulk configurations across multiple chassis.

# About the Cisco Voice CORBA Gateway Architecture

Cisco Voice CORBA Gateway 2.0 provides a standard interface that a Network Management System (NMS) can use to communicate with the EM and the underlying network elements. Cisco Voice CORBA Gateway uses two primary processes:

- Object access
- Notification service

Object Access Process

Cisco Voice CORBA Gateway is one part of a management solution that includes network managers, element managers, and network elements, as defined by TNM (see the following figure).

*Figure 1-1   Object Access Architecture*
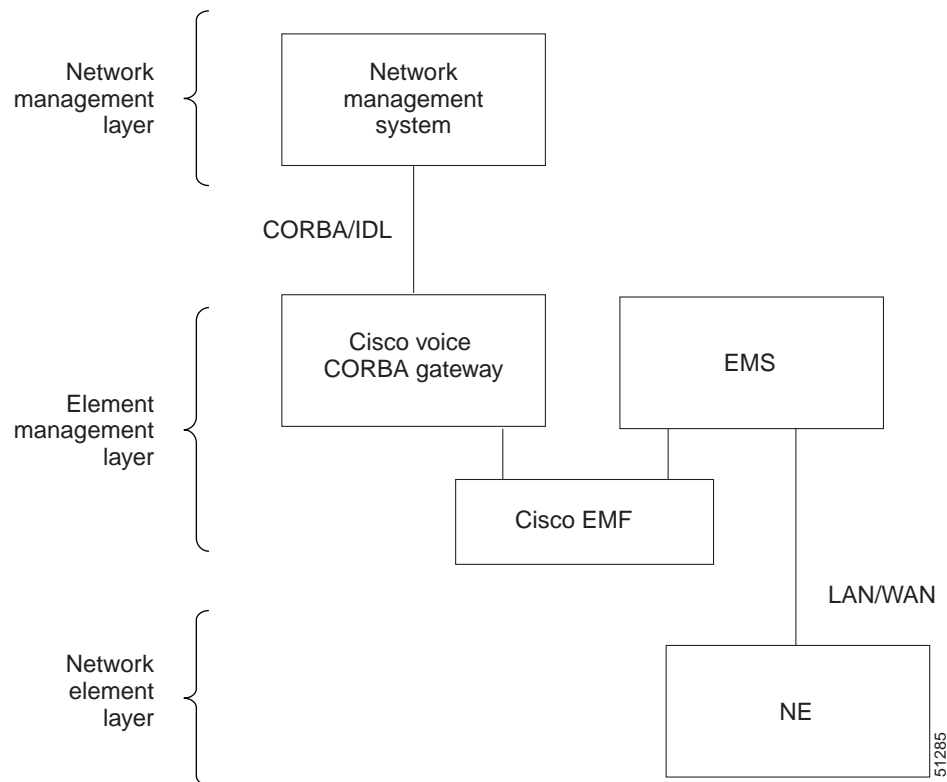
Cisco Voice CORBA Gateway translates CORBA IDL XML requests from higher-layer applications into XML strings, and then converts these XML strings into Cisco EMF data formats. In turn, the EM controls the underlying Cisco gateway devices. The implementation of Cisco Voice CORBA Gateway is based on Cisco EMF and Iona ORBIX.

Notification Process

Cisco Voice CORBA Gateway uses the Orbix Notification Service to transmit events to client applications. These clients use the CORBA interface of the Orbix Notification Service interface to receive and filter incoming events. This process uses the concept of consumers and suppliers of events, as defined by the Object Management Group (OMG) (see the following figure).

Figure 1-2   Notification Architecture
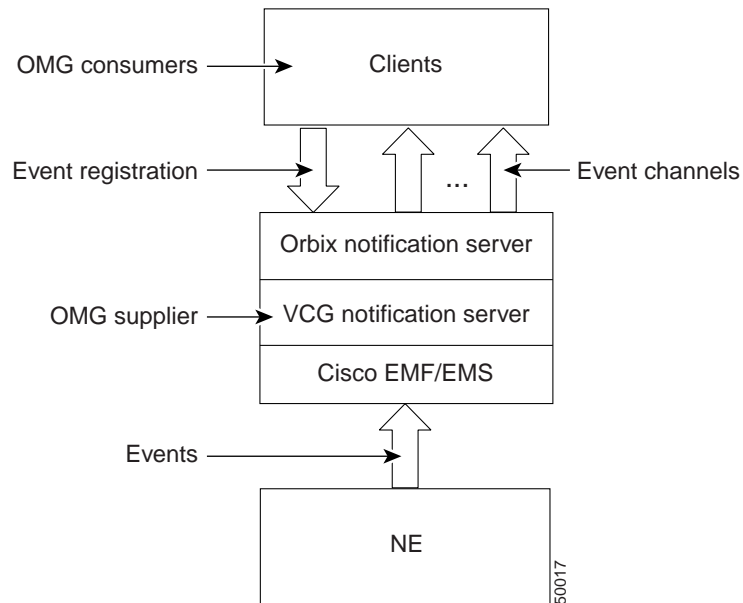
Consumers register with the Orbix notification server to receive notifications of event types, such as card or line alarms. When these event types occur at the Cisco gateway devices, they propagate to the VCG supplier, which sends notifications to the Orbix notification service, which in turn sends them to consumers through event channels.

For Cisco Voice CORBA Gateway, the supplier is the VCG notification service and the consumer is the client application. The Orbix notification layer provides a standard interface for exchanging information. The Orbix notification server is installed as part of Cisco EMF.

About the Cisco Voice CORBA Gateway Interface

Cisco Voice CORBA Gateway implements an CORBA/IDL interface for object access and utilizes Orbix Notification Services for publishing events.

Object Access Interface

Cisco Voice CORBA Gateway provides a synchronous Application Programming Interface (API) with a single method, **invoke**. This method includes several arguments, one of which specifies the basic type of operation:

- GET—Retrieves the attribute through the EMS objects
- SET—Changes the values through the EMS objects
- ACTION—Performs one of the supported actions
- QUERY—Learns the path identifiers for EMS objects
- UPLOAD—Retrieves the objects in the containment hierarchy
- BULKGET—Retrieves bulk information, such as lines with alarms present
- BULKSET—Sets bulk configurations, such as initializing sequential DS1 lines
- BULKACTION—Performs bulk actions

Specify the details for these actions using XML encoded strings, which also pass as argument for *invoke*. This string specifies the target object identifier and attribute information.

Notification Interface

Cisco Voice CORBA Gateway uses the Iona ORBIX notification features. The Iona ORBIX interface provides an API that supports the event registration and notification features. For more information about features and usage guidelines, refer to the Iona ORBIX documentation.

About the Cisco Voice CORBA Gateway Interface