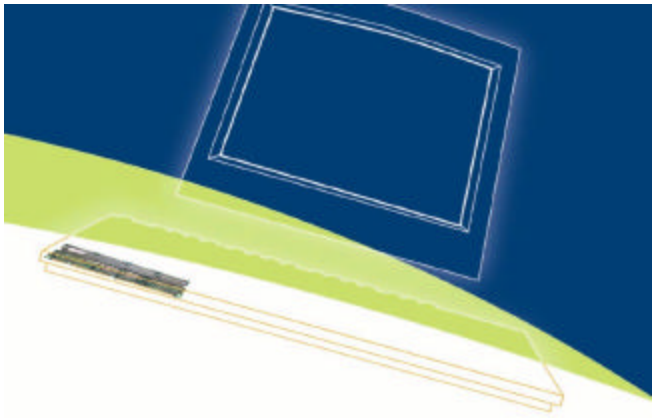

Solution Overview

Transmission Equipment Manufacturer
The solution described in this data sheet is beneficial to transmission equipment manufacturers planning to develop a CORBA interface between the Element Management System (EMS) and the Network Management System (NMS).

Challenge
To build a team with the necessary knowledge and skills to develop a CORBA interface between the EMS and NMS. Resources must have comprehensive knowledge of the CORBA standards, CORBA services, transmission standards such as SDH/SONET, and ATM.

Solution
Utilize experts from Vertel's Professional Services Unit (PSU) to develop the interface in a timely (13-20 weeks) and cost-effective manner.

Vertel participated in the TMF standards committee to propose the TMF 509 standard, and have already implemented several EMS - NMS interfaces including CORBA-based interfaces for ADSL and ATM technologies. They also developed a CORBA interface framework that has been used in several projects. This framework provides an integrated development environment to produce CORBA interfaces using existing components.

The CORBA development framework has a layered architecture and the lower layer can be used to interface to any NE protocol. Vertel has already used this framework for SNMP, CLI, CMIP, ASCII and CMIP like NE protocols.

Benefits
A key benefit to this solution is the reduced time to market: Vertel already has components for the ATM topological, ATM connectivity, QOS and subscriber administration fragments, which can be reused in TMF 509 and TMF 518 solutions. The reuse of these components also means that they can offer a competitive price, allowing the equipment vendor to pass the cost savings on to their customer.

Connecting systems, software and carriers

TMF 509 and TMF 814 outsourcing to Vertel

The Vertel CORBA interface framework has a layered architecture. This framework has been used to offer variety of mediation solutions.

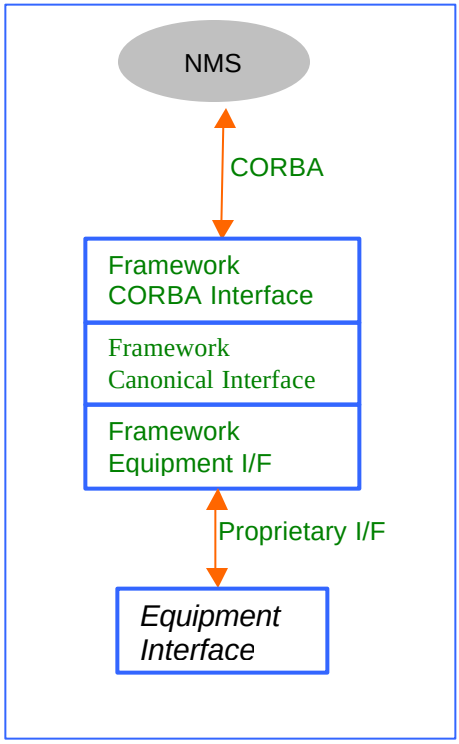

Figure 1: CORBA interface development framework

The framework also offers flexible mapping to the equipment command set ensuring that small changes to the equipment command structure will not impact the TMF 509 solution. An example of the flexible mapping structure is shown in Figure 2.

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```
ATM_VPLVCL*Vc]
Attribute=NamingAttribute
# Naming attributes.
Attribute=ATM_PID_NODE_NUMBER
Attribute=ATM_PID_CONN_EP1_ADP_NUMBER
Attribute=ATM_PID_CONN_EP1_VPI
Attribute=ATM_PID_CONN_EP1_VCI
# End of Naming attributes.
Attribute=ATM_PID_VPLVCL_STATUS
Attribute=ATM_PID_VPLVCL_TRAFFIC_DESC_UP_PROF_NO
Attribute=ATM_PID_VPLVCL_TRAFFIC_DESC_DOWN_PROF_N
O
Attribute=ATM_PID_VPLVCL_LOOPB_MODE
Attribute=ATM_PID_VPLVCL_LOOPBACK_DIR
Attribute=filter

Notification=ObjectCreation
Notification=ObjectDeletion
Notification=AttributeChange
Notification=StateChange

Match=filter:NO
ObjectType=Variable
SuperiorObjectName=QS_NODE
UseScope=True
DeletePolicy=Deletable
HoldCache=false
```

Figure 2: Example of Flexible Mapping

The framework has been used successfully in many projects. Lucent Technologies published a paper in Bell Core Technical Journal that describes the challenges of developing complex Q3 interfaces and how this framework helped the project. You can view the paper at

www.lucent.com/minds/techjournal/apr-jun2000/pdf/paper14.pdf

Vertel has also used this framework to implement the T1M1 CORBA framework as shown in the following figure.

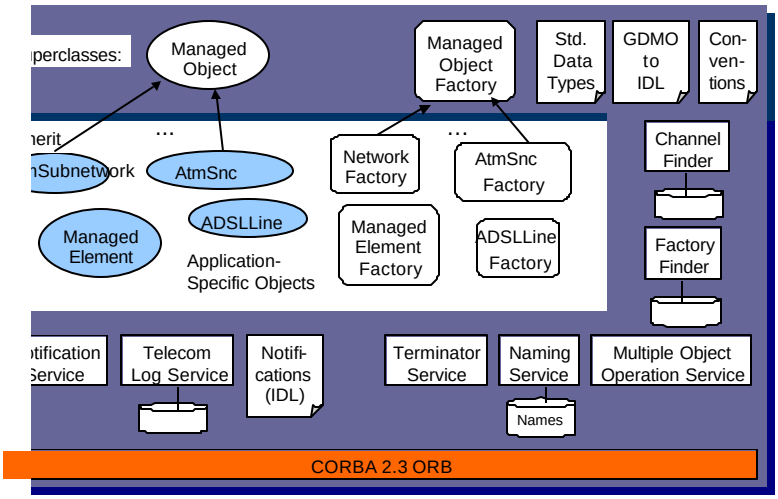

Fig. 3: CORBA T1M1 implementation using Framework

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