Enterprise Application Integration by means of a generic CORBA LDAP Gateway

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ABSTRACT

Telecommunication applications are inherently distributed and the interface provided to third party applications is often complex and also distributed. Usually, these third party components need only a subset of the provided data, therefore a simple and standardized access method would be preferred. Such an interface is provided by the Lightweight Directory Access Protocol (LDAP) and we designed an LDAP to CORBA (Common Object Request Broker Architecture) gateway acting as a bridge between the involved technologies.

1. INTRODUCTION

Based on the experience of several prototype implementations [4] the intrusive change of the existing legacy CORBA application has turned out to be a drawback. Therefore we enhance the existing Interface Definition Language (IDL) description of the application with information regarding our gateway configuration. We use XML in the IDL comment lines, hence the IDL remains valid from the IDL-compiler point of view. The gateway now consists of two parts: a directory service framework part and an interface related part. The directory service framework handles the access to the gateway by means of LDAP and has a well defined Application Programming Interface to the backend. We consider the implementation of two different approaches for the interface related part, a static and a dynamic one.

2. IMPLEMENTATION

We differentiate between a static and a dynamic approach. The static approach deals with generating the source code for the interface dependent part similar to the CORBA class creation, based on IDL definition and additional IDL++ constructs in the IDL comment lines.

They dynamic approach on the other hand contains an IDL interface representation achieved by using the CORBA Interface Repository (IR) and the Dynamic Invocation Interface (DII). Additionally, a Document Object Model (DOM) tree of the embedded XML information is needed to map the CORBA methods to LDAP requests. For this, a mapping of LDAP datatypes to CORBA datatypes as well as a mapping from LDAP requests to CORBA method invocations is necessary.

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3. RELATED WORK

Quoin [1] describes an approach to use CORBA as a directory service datastore. The fundamental idea of this approach is translation and storage of LDAP objects into one or more CORBA objects. Our outlined architecture on the other hand supports changing and requesting existing CORBA objects. In this vein CORBA objects become accessible by means of LDAP. Moreover, we are going to implement the object mapping in a generic way. In [2] a CORBA directory approach is described, which bridges the gap between LDAP and CORBA. The basis of the approach is an IDL which allows the CORBA application to act like an LDAP directory service. A major difference to our approach is that we designed the gateway in a generic manner, supporting different existing IDL interfaces. [3] considers a bridge which can be used for the communication between CORBA and a Distributed Computing Environment (DCE). Their approach describes a method for translating DCE interfaces to CORBA interfaces, and a tool for generating the source code for the bridge. They provide only a static method.

4. REFERENCES

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