

Integration of CORBA with Directory Services and Web Services

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Abstract

Distributed applications and legacy systems often provide complex and extensive interfaces. Even if these interfaces consist of standardized CORBA (Common Object Request Broker Architecture) interface definitions, they still require too much in-depth knowledge for easy third party integration, which could in principle be achieved with just a small subset of the interface's functionality. Therefore, we propose to use XML (Extensible Markup Language) to tag the middleware's IDL (Interface Definition Language) for easy third party access with simple protocols, like LDAP (Lightweight Directory Access Protocol) for interconnecting with Directory services, or SOAP (Simple Object Access Protocol) for interconnecting with Web services. The respective requests are then dynamically mapped to suitable CORBA operation invocations and the XML tags within the IDL provide the necessary mapping information. The XML tagging has proven to be a powerful means of abstraction, which allows for robust and easy but still flexible access to complex and even continuously changing distributed middleware. Therefore, XML will play a major role for interface descriptions in the future, where it is evident that middleware technologies (like CORBA or J2EE) and simple access services (like LDAP or SOAP) will coexist in the future.

1 Introduction

The integration of distributed middleware-based legacy systems with emerging technologies like Web services will lead to faster development cycles and improved software reuse. The main requirements are to get a powerful means of abstraction and robust and easy but still flexible access to complex and even continuously changing distributed middleware applications. No changes on existing and well tested applications are necessary if new software components or third party applications are integrated. In order to concentrate on the essentials of the provided services namely the data and functionality, without having to face with middleware and proprietary interfaces, a simple, robust, common and standardized frontend interface is desirable.

2 Implementation

As a real-life example we provide the software architecture for a CORBA-LDAP gateway [Jandl] [Radinger], which has been developed for the telecommunication domain. Currently we work on a CORBA-SOAP gateway prototype implementation. Whereas in the case of LDAP the CORBA application serves mainly as a datastore and the gateway provides a means for the user frontend to access this datastore, in case of SOAP the gateway serves as an application-level mapping between two middleware platforms.

3 Related Work

Gokhale et al [Gokhale] argue that often technologies like CORBA and Web services need to coexist, and that Web services can be seen as middleware layer on top of CORBA. Like Gokhale, Grant [Grant] figures out, that Web services are complementary to technologies such as J2EE or CORBA. They do not replace them. Web services give a web-friendly least common denominator for systems integration.

References

- [Jandl] M. Jandl, W. Radinger, A. Szep, K.M. Goeschka, "Enterprise Application Integration by means of a generic CORBA LDAP Gateway", *Proceedings of the IEEE ICSE'02 International Conference on Software Engineering*, Orlando, 2002.
- [Radinger] W. Radinger, M. Jandl, A. Szep, K.M. Goeschka, "A generic LDAP CORBA connector", *Proceedings of the IEEE AFRICON'02*, George/South Africa, 2002.
- [Gokhale] A. Gokhale, B. Kumar, A. Sahuguet, "CORBA Web services", *Proceedings of the 11th International World Wide Web Conference (WWW 2002)*, Honolulu, Hawaii, 2002.
- [Grant] H. Grant, "Practical Experiences with Web Services and J2EE/CORBA", *O'Reilly Emerging Technology Conference (ET 2002)*, Westin Santa Clara, CA, 2002.