XML & Objects Working Group − PrismTech Paper

PrismTech's Background

PrismTech is a software products company. We develop, market and support software products which enable the deployment of the internet applications required for e−Business. PrismTech commenced trading in April 1992. PrismTech has grown rapidly since it commenced trading. The company was recently included in a Dunn & Bradstreet and Arthur Andersen survey as the 52nd fastest growing company in the UK out of two million actively trading businesses with average annual growth of 62%.

OpenFusion Background

OpenFusion is a suite of CORBA Services developed by PrismTech. The services are implemented entirely in Java.

The OpenFusion CORBA Services include the following service implementations:

Event − a simple messaging mechanism for decoupling objects

Naming − an object directory that allows objects to be located by a name

Trading − another object directory that uses object properties in searches

Notification − a more sophisticated messaging system, that supports guaranteed delivery and event filtering

LifeCycle − provides support for the object lifecycle

Property − allows values (properties) to be associated with an object at runtime

Collection − supports the manipulation and management of collections of objects

Concurrency − a mechanism for managing the concurrent access to system resources

Relationship − allows networks of objects to be created and navigated.

Time − a service for providing consistent time across a distributed system.

OpenFusion and XML

Recent development effort has included the addition of XML import, export and configuration facilities to the OpenFusion suite. The approach to XML has included a number of techniques above and beyond the obvious Java based XML parsing.

We have found one of the most successful mechanism has been code generation of simple object models and corresponding visitor patterns, an approach which allows the XML parsing and generation to be hidden from a developer. This approach, which is not unique to PrismTech, involves using the DTD to generate Java classes which represent each element that can be present in XML document. These classes include type correct get and set methods corresponding to the elements that be contained.

The code generation is directly analogous to the code generation that has been used with great success in the traditional language parsing technologies (for example JavaCC and JTB). The use of the visitor pattern also transfers well.

Code generation enables compile time type checking to detect programming errors that, compared the traditional direct access to DOM, would only be detectable at run time. This has obvious benefits on the reliability of the resulting system.

The use of the visitor pattern reduces the reliance on the exact element hierarchy and removes the need for tedious and error prone iterator code to be written by a developer. The resulting code is usually cleaner and quicker to write.

A number of issues are still being worked on. The static nature of XML DTDs causes some problems with a system that is continuing to evolve as new services and features are added. Code generation of DTDs based on (yet more!) XML descriptions is currently under consideration.

OpenFusion development is not the only part of PrismTech interested in XML. Another section of the company is involved in meta−data driven translation including XML to XML conversion for systems with compatibly but differing DTDs.

OT2000 Attendees

Steve Osselton is chief architect and product development manager for PrismTech's Distributed Object Technology.

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