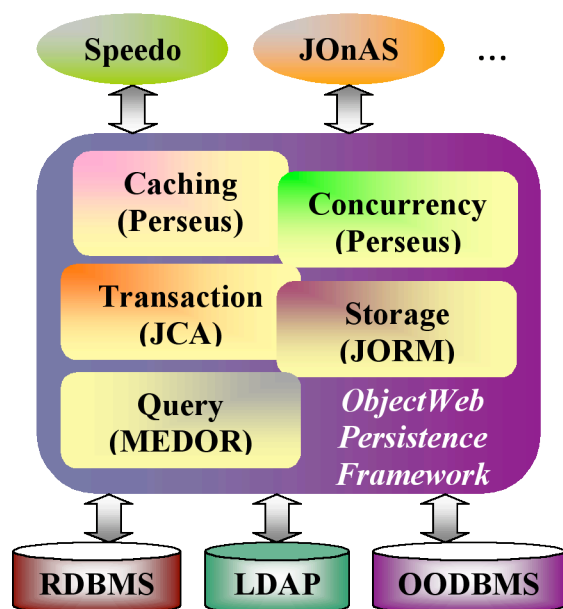**france telecom**
R&D

Speedo is an open source implementation of Sun's JDO™ (Java Data Objects) specification. It is a JDO™ personality of the ObjectWeb Open Source Persistence Framework (see figure). It allows persistent application objects to be mapped to any type of data stores (relational or object databases, files, LDAP directories, etc).
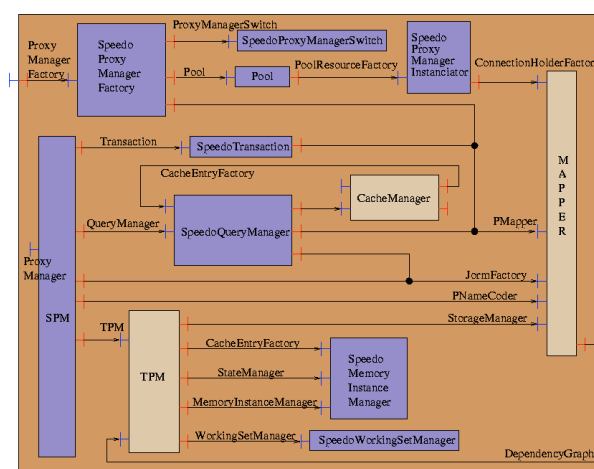

Speedo Main Benefits

- Possible choice of optimistic or pessimistic transaction mode
- Cache of persistent objects, with a choice of several replacement policies (LRU | MRU | FIFO | …)
- Prefetching data at query evaluation time: later accesses to objects will not require any I/O to the data store
- Through JORM and MEDOR, access to legacy relational databases, as well as any other data store

Speedo Architecture

Speedo is built on top of several ObjectWeb frameworks:

- JORM, a framework for the mapping of objects onto a persistent support, such as a relational database
- MEDOR, a query framework permitting the federation and the distribution
- Perseus, a persistence framework managing several aspects such as caching, pooling, concurrency control
- Fractal, the ObjectWeb component model
- Julia, an implementation of the Fractal model
- ASM, a byte code manipulation framework
- Monolog, a logging API, allowing programs to be independent of the logging system (log4j, jdk1.4)

The use of Fractal eases the configuration of Speedo. Future benefits will include automatic management, for example through JMX. Fractal has the additional benefit of making software architecture explicit, as illustrated by the figure below.

Speedo: overall architecture

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Speedo Technical Features

Speedo implements the javax.jdo API (user interface).

For performance reasons, Speedo relies on the JORM API and does not implement javax.jdo.spi

Following the JDO™ specification recommendation, Speedo performs byte code enhancement, using ASM.

Speedo uses several pools in order to avoid the creation and the linking of components.

Speedo provides an Eclipse plug-in allowing the development of JDO™ applications. The Speedo Eclise plug-in reuses the .jdo file editor of the EclipseJDO plug-in, and provides additional functionality for tuning the JDO™ driver. This plug-in can be extended and specialized for other JDO™ drivers.

The Speedo distribution also contains a set of JCA™ resource adapters, enabling the integration of Speedo in J2EE™ servers such as JOnAS, JBoss™ or Weblogic™.

On-Going Work

Other on-going work and developments include a compliance kit, performance evaluation (Rubis for JDO), an increased code test base, and an improved Speedo ant task

Partners

France Telecom R&D is Europe's leading telecommunications R&D centre and contributes to ObjectWeb through its Software Techniques and Engineering division, specifically the Distributed Systems Architecture department. Research projects cover topics such as the design and development of flexible distributed object-oriented platforms (ORBs and the like) and component-based systems, persistence and transactions, real-time quality of service, formal aspects of distributed systems (process calculi and similar), and applications of distributed systems, in particular, the design of enterprise information systems. More information about France Telecom R&D is available at http://www.rd.francetelecom.com.

About ObjectWeb

ObjectWeb is a consortium of leading companies and research organizations from around the world who have joined forces to produce the next generation of Open Source Middleware. Based on Open Standards, ObjectWeb's middleware includes application servers, components, frameworks and tools. Founded in 2002 by Bull, France Telecom and INRIA, ObjectWeb is hosted by INRIA, and is sponsored by Together Teamlösungen GmbH. To find out more about ObjectWeb, visit our web site at http://www.objectweb.org.

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