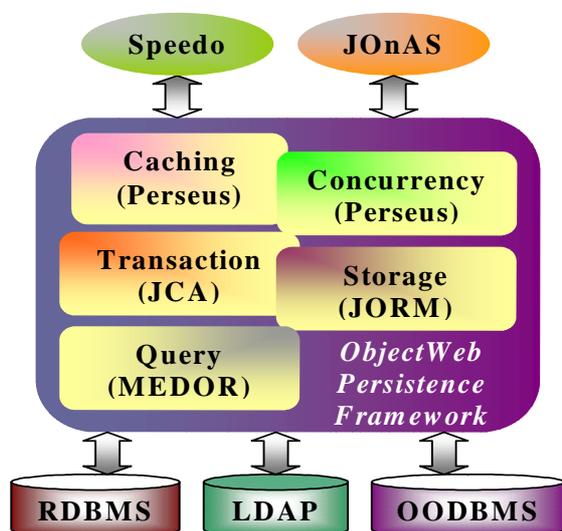




Speedo is an open source implementation of Sun's JDO™ (Java Data Objects) specification. It is a JDO™ personality of the ObjectWeb Open Source Persistence Framework (see figure). It allows persistent application objects to be mapped to any type of data stores (relational, files, etc).



Speedo Main Benefits

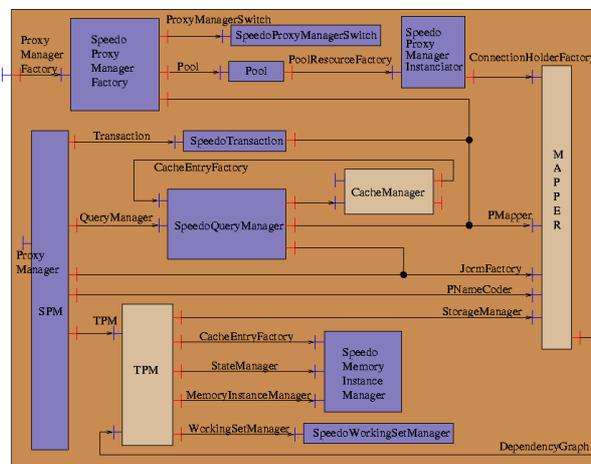
- Possible choice of optimistic or pessimistic transaction mode
- Cache of persistent objects, with a choice of several replacement policies (LRU | MRU | FIFO | ...)
- Prefetching of data at query evaluation time: later accesses to objects will not require any I/O to the data store
- SQL schema generation
- Support of various identifiers
- Support of many types and databases
- Through JORM and MEDOR, access to legacy relational databases

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

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.

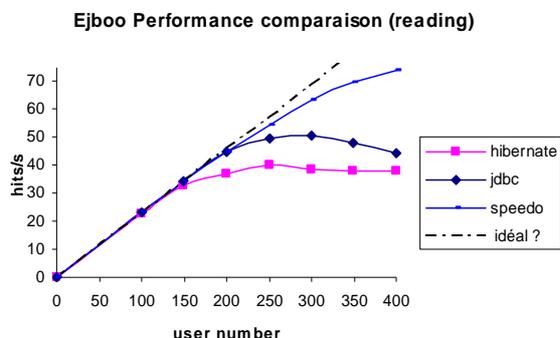
Speedo uses several pools in order to avoid the creation and the linking of components.

Speedo is compatible with EclipseJDO plug-in permitting the edition of the O/R mapping. Speedo provides several other Eclipse plug-ins for the tuning of Speedo, driving a JDO model made persistent with Speedo (Ponei), or the Speedo documentation itself.

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™.

Performance evaluation

A recent evaluation ("Ejboo" benchmark), with low caching effect, shows that Speedo is a real efficient solution when directly compared to JDBC or Hibernate 2.1.



On-Going Work

The current work focuses on the support of several inheritance mapping strategies and the full support of JDO 2. However many JDO features are already implemented, such as the query feature and the detach/attach mechanism.

Partners

First leading Research & Development centre in Europe in the telecom sector, France Telecom Research & Development is one of France Telecom's assets for its worldwide strategy of expansion and consolidation in all major markets of the telecom sector. Research topics related to ObjectWeb include 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 is available at <http://www.rd.francetelecom.com>.

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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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