Native Object-Oriented Databases

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What is this I don’t even

- Information represented as objects (as used in OO programming), no mapping to relational rows/columns
- Integrated with the programming language (same model of data representation)
- Store/retrieve objects as is, same types
- Offer some query language

- Term first introduced in ~1985

Characteristics

- Object identity – uniqueness (by id?)
- Computational completeness – computable functions (DML)
- Complex objects – primitives/collections
- Encapsulation – visible operations/hidden data
- Inheritance – hierarchical relationships
- Polymorphism – overriding/overloading
- Types and classes – iface/impl and tmpl/instnt
- Extensibility – built-in/custom types logically same
- Persistence, transactions, recovery

Comparison with RDBMS

- ☺ No assembly/disassembly (coding time and runtime)
- ☺ Data model is based on the real world
- ☺ Easier dealing with complex data

- ☹ Lower efficiency when data is simple
- ☹ Lack of formal mathematical foundation
- ☹ Standards and support for RDBMS are more stable

db4o

- Java / .NET

- Query By Example
- Native Queries
- SODA (Simple Object Database Access) / LINQ

- Separate products for replication and JPA

- DEMO TIME

ObjectDB

- Java
  - JPA (Java Persistence API)
  - JDO (Java Data Objects)
- DEMO TIME

Links

- http://en.wikipedia.org/wiki/Object_database
- http://en.wikipedia.org/wiki/Comparison_of_object_database_management_systems

- http://www.db4o.com/

- http://www.objectdb.com