

Geo Databases

This product survey is the third in a series entitled "Spatial Data Management in Geo databases" ("RDBMS").

A trend can be observed in integration of spatial data with other attributes in Relational DataBase Systems. The Open Geospatial Consortium succeeded in the development and provision of a comprehensive set of OpenGIS standards related to spatial data management adopted by the GIS and database industries, including the Geography Markup Language. Watching today's Geo database market one learns that the functionality of some Geo database products have evolved.

Oracle for example supports planar topology with Oracle 10g. This enables topology to be validated and maintained in a persistent state in the database server in conjunction with the geometry it describes. A set of raster-oriented operators is available in this product now and supports the 3D storage of lines/points/polygons. R-Tree supports 3D indexing. Linear Referencing can support 4D in Oracle. Spatio-Temporal models can be implemented with this product.

IBMs Spatial Management software includes the DB2 and Informix product family. Fascinating is the Geodetic Extender supporting treatment of the Earth like a globe rather than a flat map. Thus, making it easier to develop applications for business intelligence and e-government that require geographical location analyses. The IDS v9 Geodetic DataBlade supports space and time in its datatypes and methods.

Two examples of OpenSource GISs are presented in this overview. The PostgreSQL Global Development Group is a community of companies and people co-operating in driving the development of PostgreSQL, an advanced Open Source database software with sophisticated spatial functionality, including 3D, history tracking and spatial clustering.

The PostgreSQL software itself had its beginnings in 1986 at the University of California at Berkeley as a research prototype, and in the 16 years since has moved to its now globally distributed development model, with central servers based in Canada. CA OpenIngres has been influenced by this development. This product was introduced last summer to the open source community, and started a new life as an open source database. The Spatial Object Library is not (yet?) supported in this environment and for this reason the product is not included anymore in this overview. Another open source product included here is MySQL. The MySQL database server is a popular open source database. Over five million installations use MySQL to power high-volume Websites and other critical business systems. Microsoft's SQL Server database is being used to support many geospatial information products. In a version of SQL Server, code named 'Yukon', Microsoft will provide new features such as User Defined Datatypes (UDTs) that will add additional support for customers, developers and spatial application vendors to build spatial solutions. I hope this product can be included in the next Product Survey on Geo databases.

Participating Companies

In the survey the following companies participated:

- **IBM:** IBM DB@ Universal Database for Linux, UNIX and Windows (DB2 UDb v8.2) IBM Informix Dynamic Server (IDS v9.0)
- **MySQL:** MySQL 4.1
- **Oracle:** Oracle Database 10g release 1 Enterprise Edition (with Oracle Spatial option)
- **PostGIS:** PostgreSQL