Spatial Databases iv

a new hope

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intro

- Spatial DB Advantages
- Spatial DB Disadvantages
- Spatial DBMS
- Postgres/PostGiS
- Postgres Tools
- Demo

Spatial DB Advantages

- Typical DB advantages
  - Centralized data storage
  - Data consistency
  - Reduced redundancy
  - query-able data through SqL
- Spatial DB advantages
  - Retrieval through spatial queries (Raster/vector)
  - Transformations
  - Potential replacement for GlobalMapper

Spatial DB Disadvantages

- Complex, difficult to design
- initial training for users
- Suitable hardware
- Conversion costs
- Decreased performance for Ground Guidance

Spatial DBMS

- SqL Server
- oracle Spatial
- MySqL
- SpatiaLite
- MongoDB
- Postgres/PostGiS

Postgres/PostGiS

- open Source
- Postgres
  - Relational Database
  - 9.2.3
- PostGiS
  - Spatial Extension for Postgres
  - 2.0.4

Postgres Tools

- pgAdmin3.exe
  - Similar to visual Studio SqL Management
  - Create:
    - New roles
    - New databases
    - New tables

Postgres Tools

- Raster2pgsql.exe
  - used to import raster data into a database
  - Converts underlying raster to string representation of binary

  - http://www.postgis.org/documentation/manual-2.0/using_raster.xml.html#RT_Raster_Loader

Postgres Tools

- osm2pgsql.exe
  - Converts osm to “shapefile” like format and stores in the database
  - used for mapping services, i.e. Mapnik
  - it is highly recommended to use a version released since Sept. 2, 2012, which has support for 64-bit_Identifiers

  - http://wiki.openstreetmap.org/wiki/Osm2pgsql

Postgres Tools

- osmosis
  - imports raw oSM data into database
    - Nodes, Ways, Relations
  - What can it do?
    - Generate planet dumps from a database
    - Load planet dumps into a database
    - Produce change sets using database history tables
    - Apply change sets to a local database
    - Compare two planet dump files and produce a change set
    - Re-sort the data contained in planet dump files
    - Extract data inside a bounding box or polygon
  - http://wiki.openstreetmap.org/wiki/Osmosis

Postgres Tools

- Shp2pgsql.exe / pgsql2shp.exe
  - import shapefiles into database
  - Exports geometry from database to shapefile

  - http://www.bostongis.com/pgsql2shp_shp2pgsql_quickguide_20.bqg

Demo