RpostGIS, an R-library for using PostGIS spatial structures and functions

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OpenGIS "Simple Features Specification for SQL"

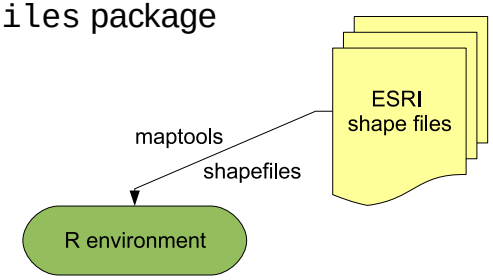
- a backend spatial database for geographic information systems (GIS)
- implemented:
  - DB2
  - ESRI's SDE
  - MySQL
  - Oracle
  - PostGIS
- advantages:
  - inbuilt functions
  - multi user environment

PostGIS

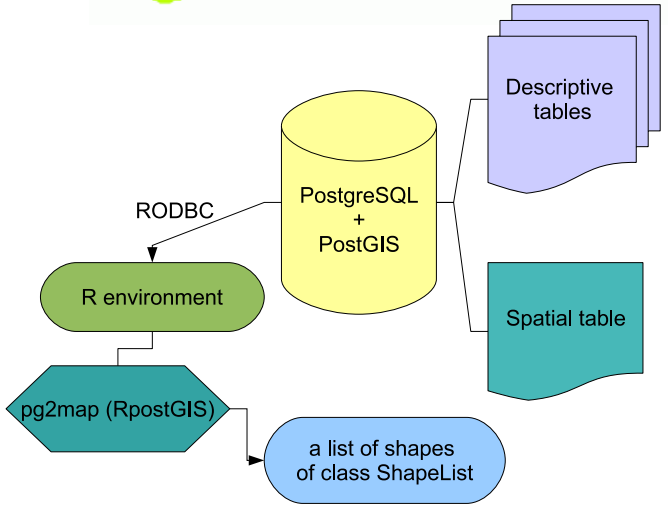
- Refractions Research Inc
- PostgreSQL extension
- some functions:
  - *Geometry Relationship Functions*: Contains, Crosses, Disjoint, Distance, Equals, Intersects, Overlaps, Relate, Touches, Within
  - *Geometry Processing Functions*: Area, Boundary, Buffer, Centroid, ConvexHull, Difference, GeomUnion, Intersection, Length, MemGeomUnion, PointOnSurface, SymDifference

File based approach

- `maptools` package
- `shapefiles` package



PostGIS based approach



pg2map(RpostGIS) example

```
library(RODBC)
db <- odbcConnect('gisdatabase', uid='username', pwd='password')
sql <- 'select GeometryType(the_geom), NumGeometries(the_geom),
asewkt(the_geom) as asewkt, gid from smr150_region'
res <- sqlQuery(db, sql)
geomtype <- as.character(res$geometrytype)
geomnum <- as.character(res$numgeometries)
geom <- as.character(res$asewkt)
geomdesc <- as.character(res$gid)

library(RpostGIS)
map <- pg2map(geomtype,geomnum,geom,geomdesc)

library(maptools)
plot(map)
```