Synchronization and replication of geodata in Esri platform

Markéta Solanská
supervisor: Doc. RNDr. Vilém Pechanec, Ph.D.

DEPARTMENT OF GEOINFORMATICS
Palacký University in Olomouc

Main goals

- store spatial data in a database system using ArcSDE technology and PostgreSQL
- replicate data between several datastores

Main goals: Theoretical part

- definition of terms: replication, synchronization, versioning
- description of replication possibilities, types and properties
- description of ArcSDE technology
- comparison of PostgreSQL and MS SQL Server Express replication possibilities and capabilities

Main goals: Practical part

- set up replication of different data types
- solutions for various kinds of tasks
- test: performance, completeness, accuracy
- RDBMSs: PostgreSQL 9.x + PostGIS, MS SQL Server Express 2008
- ESRI products: ArcSDE + ArcGIS for Desktop or ArcGIS for Server

Replication

- continuous copying of data from one server to another (one or more)
- full initial copy, then synchonization of changes
- main reasons for replication:
  - high availability
  - load balancing
  - data movement
  - backing up without overloading master server

ArcSDE Technology

- middleware for communication between ArcGIS and SQL server (e.g. PostgreSQL)
- provides:
  - alternative method of ArcGIS spatial data storage (to RDBMS instead of filesystem)
  - its own spatial data types
  - its own replication solution
- enables multi-user editation

Already done

- set up replication between two servers: both WIN XP/Linux Ubuntu + PostgreSQL(PostGIS) + Slony-I
- visualize in QuantumGIS
- test using simple vector data

To be done

- test it for big amount of data
- visualization in ArcGIS
- use ArcSDE for connection to database
- set up replication using ArcSDE
- test the process of replication
- find solutions to different kinds of tasks

Results

- description of replication processes and related requirements of Esri products
- replication configuration instructions
- evaluation of reliability and performance of replication

Thank you for your attention.