GIS Cadastre Applications without GIS Software

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TS 2 – Application of IT in Land Administration and SDI

Konstantinos Daniilidis, Ph.D.c.
National Technical University of Athens, Greece

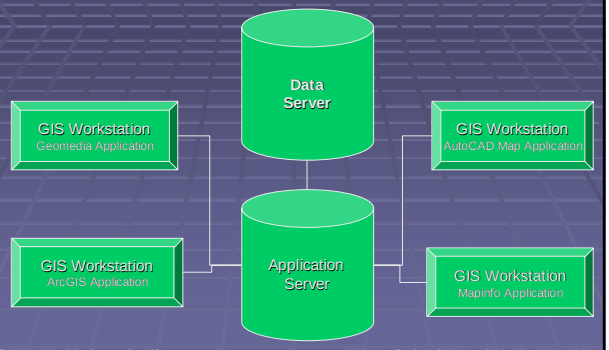
Information

- Most valuable good in society
- Requires specialized developed tools
- G.I.S. information need these tools

G.I.S. information model

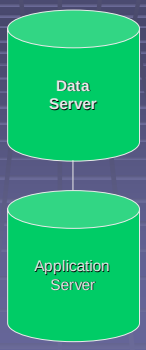
- application
- application server
- data server

GIS Application Schema

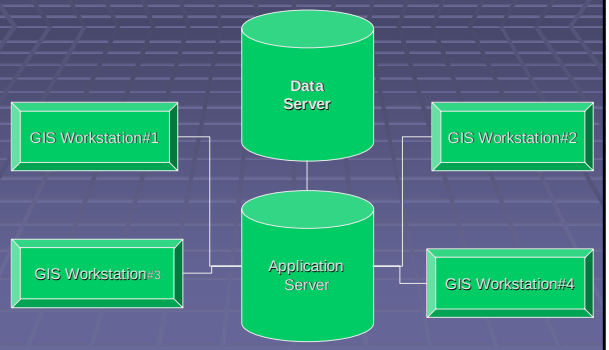


GIS Database Schema

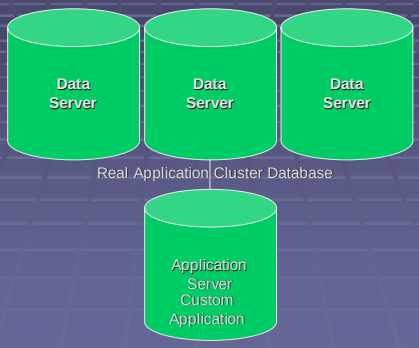
spatial data and topology support



GIS Database Schema



GIS Database Schema



DESIGN OF A SCALABLE AND AFFORDABLE DATABASE

- Very large databases
- Cost reduction
- Real Application Clustering

Real Application Clustering

- Scale
- Availability
- Suppleness

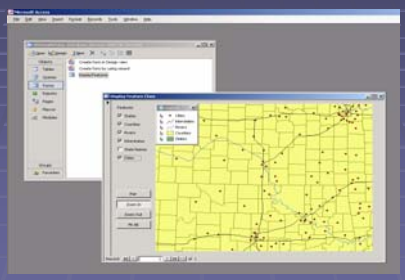
GIS Applications

- Built on a specific software company technology
- “Open” data
- Not “open” applications

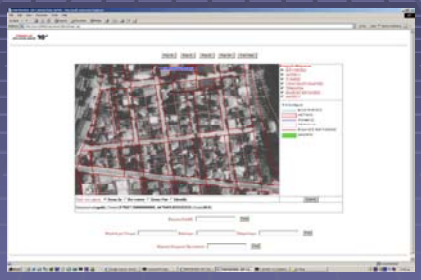
“Open” GIS Applications

- Independence from the G.I.S. software platform
- Distribution not only of the data but also of the applications through a network, without the existence of G.I.S. software

Maps served through MS Access



Maps served through Oracle Spatial



Greek Cadastral Organization (Ktimatologio S.A.)

- Deals with very large datasets
- Design on National level
- "Open" Application
- Independence at the client workstations by a certain G.I.S. software

Cadastral Database

- RAC Architecture
- Independent from expensive G.I.S. software licenses
- Scalable system satisfies growing needs

Cadastral Quality Control

- Coordination between three main departments (Quality Control, GIS, Legal Issues)
- Security and transaction management

Transaction Management in GIS

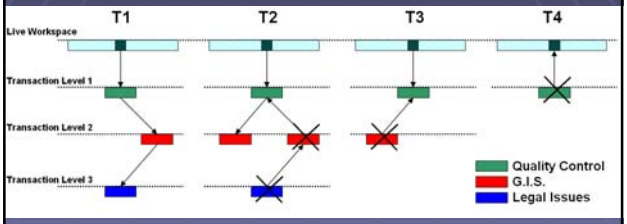
- Optimistic locking
- Pessimistic locking

Transaction Management in Greek Cadastre LIS

- Current design: optimistic locking
- New transaction management locking: Altruistic locking
- Multiple Levels of transaction management and in specific hierarchy

Example

Procedure Schema



Altruistic Locking

- Newly introduced capability of transaction management for spatial databases
- Introduces the command “donate”

Implicit Savepoints

- A point to which record changes can be rolled back
- “History” option
- Savepoints that are created automatically

Conclusions

- Scalable inexpensive cost of the System
- Very Large Database efficient operation
- Efficient management of Information
- Fast and reliable operation (native)
- Benefits in security and integrity (No mid-clients)
- Development of the L.I.S. inside specific financial limits
- Real Application Clustering (Scalability, Availability and Suppleness)
- “Open” Application
- Operation without expensive G.I.S. software licences and complex user interface on a national level
- Security issues regarding the transactions and the procedures
- Multi-level Transaction Management
- “Altruistic” locking in Transaction Management
- Implicit Savepoints for the Business Model operation
- Successful coordination in the procedures of Cadastre’s Inner Departments

Thank you!