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geneSIG.

a customized gvSIG client for the newGIS Infrastructure

**Helmut Leitner
Alessio Modena**

1 to 3 December 2010. Centro de eventos. Feria Valencia (Spain)

A U T O N O M E P - S R Ü O D V T I N I

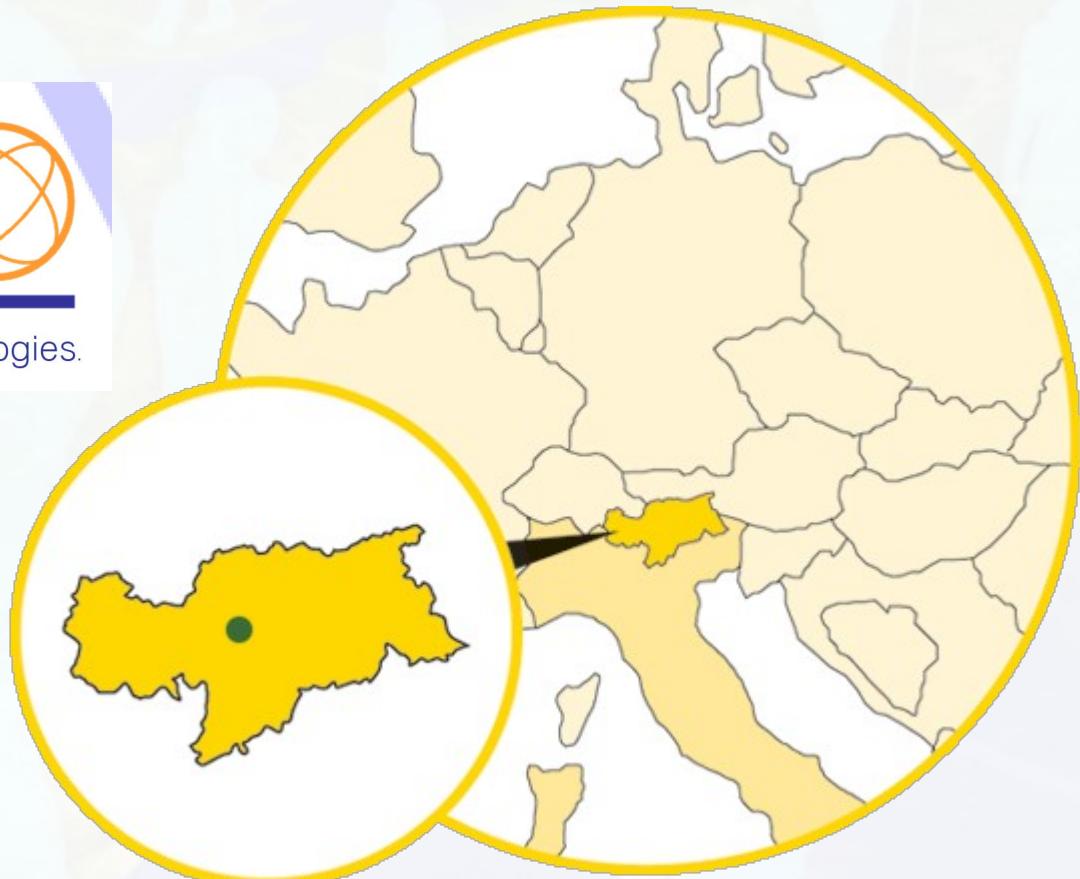


P Z R E O N V I N C I A A U T O - A N L O T M O A A

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Geographic Innovation Technologies.



Helmut Leitner
Alessio Modena

History

newGIS System Architecture

geneSIG/gvSIG as newGIS Client Application

Implementation of newGIS Services in geneSIG/gvSIG

Examples

Conclusions



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History

- ESRI Coverages (Topology)
- ESRI Shapefiles (no Topology)
- Desktop GIS Tools
- Diffusion of geodata through the Web
- Requests for geodata-management-solutions



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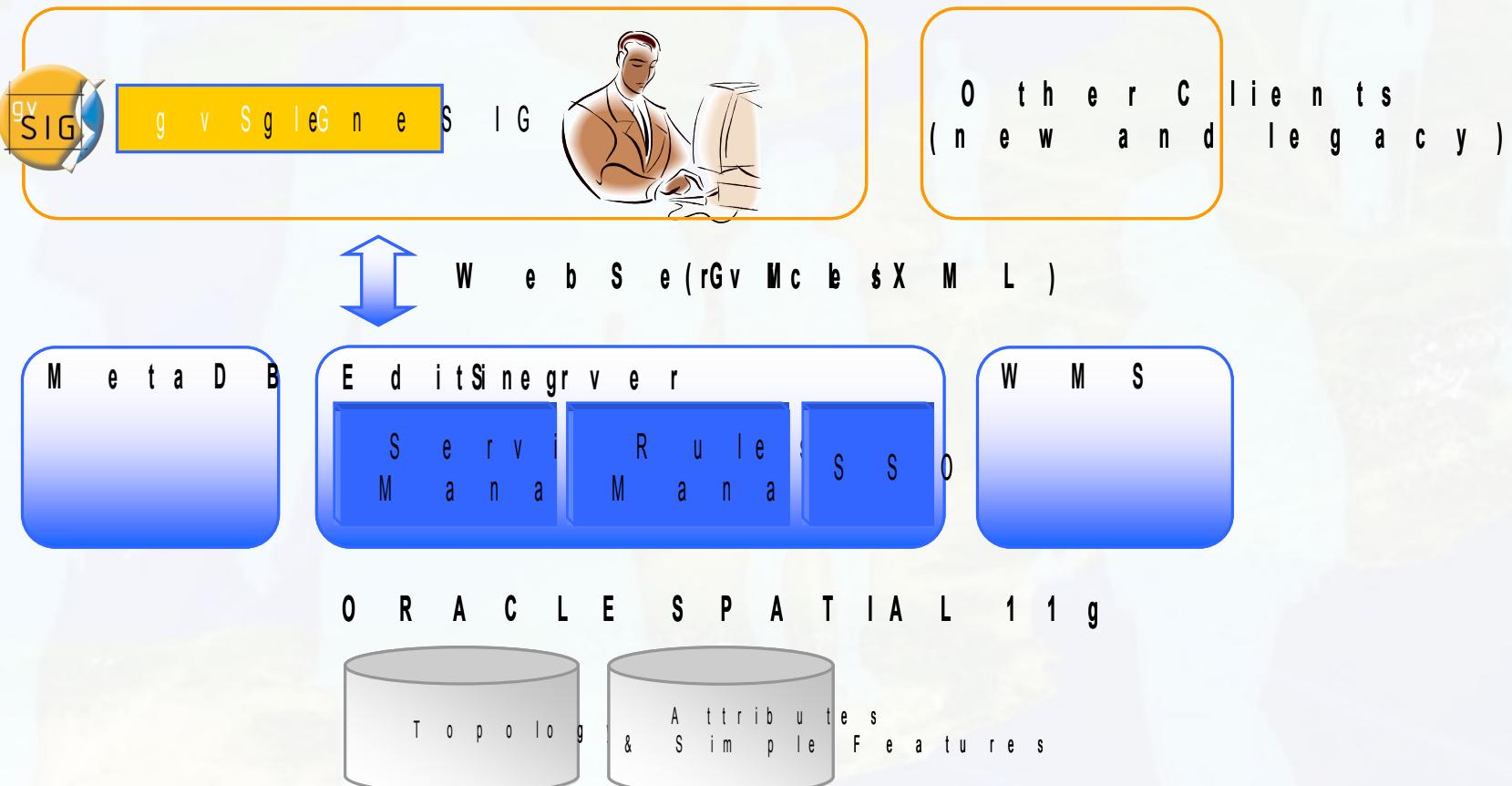


newGIS System Architecture

- Database responsible for data integrity/data security
- 3-tier architecture
 - database, application server, interchangeable clients
- Standardisation of the communication interfaces
- Unified management of geodata & alphanumeric data:
geometry as an attribute
- Manageable complexity



newGIS System Architecture



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geneSIG/gvSIG as newGIS Client Application

- Complete GIS tool with editing functionalities
- User-friendly GUI
- Extension-model for customization
- Free of license costs



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Implementation of newGIS Services in geneSIG/gvSIG

- Architecture module

Through the use of Spring IoC and custom class loaders the configuration of geneSIG is allowed dynamically, without the complexity of OSGi on the client side; different versions of libraries can be used, hot reload of libraries is possible (live update).

- Spatial data module

A custom driver has been introduced to map GML spatial data generated by GeoTools to gvSIG VectorialDriver; manage user permissions.



Implementation of newGIS Services in geneSIG/gvSIG

- **GUI module**

Extends the concept of IWindow to allow customization of tools depending on the type of view; change the behavior of gvSIG table to add validation on look-up attributes; various other customizations.

- **Persistence module**

Extends the concept of gvSIG document model to persist the newGIS data-structure locally.



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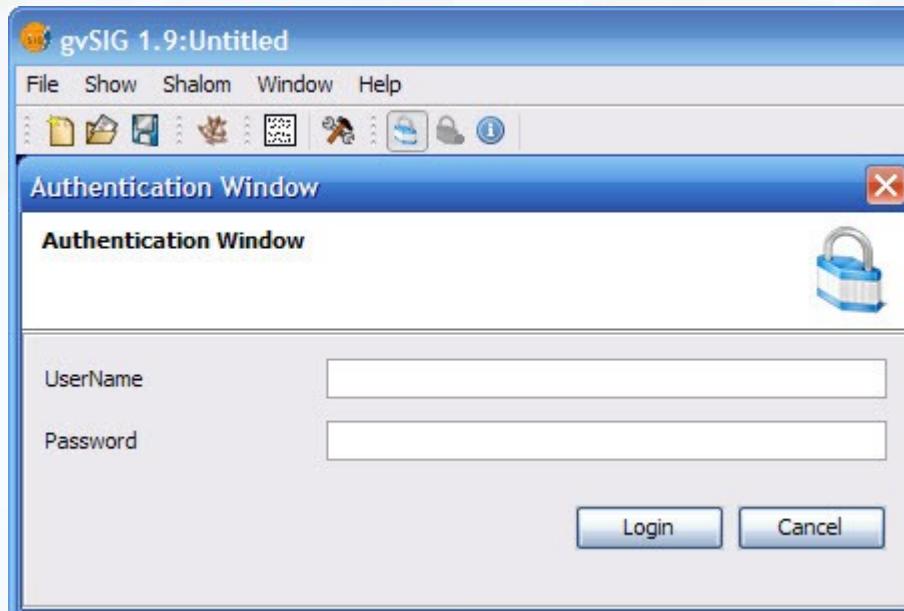


Examples

- Authentication
- Projects & Workspaces
- Project & Lock Area
- Customized Toolbars
- Editing Rules & Verification
- Topology Rules & Verification
- NewGIS Services



Examples



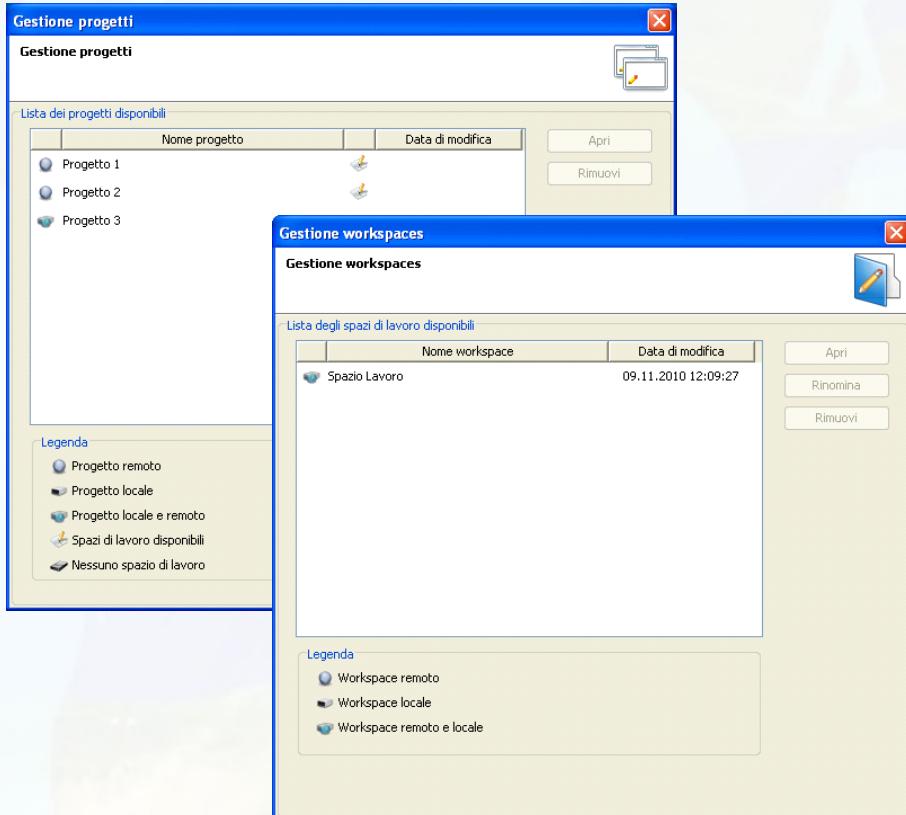
■ Authentication Back-End

- JBoss WS extensions
- Active Directory Integration

■ Authentication Front-End

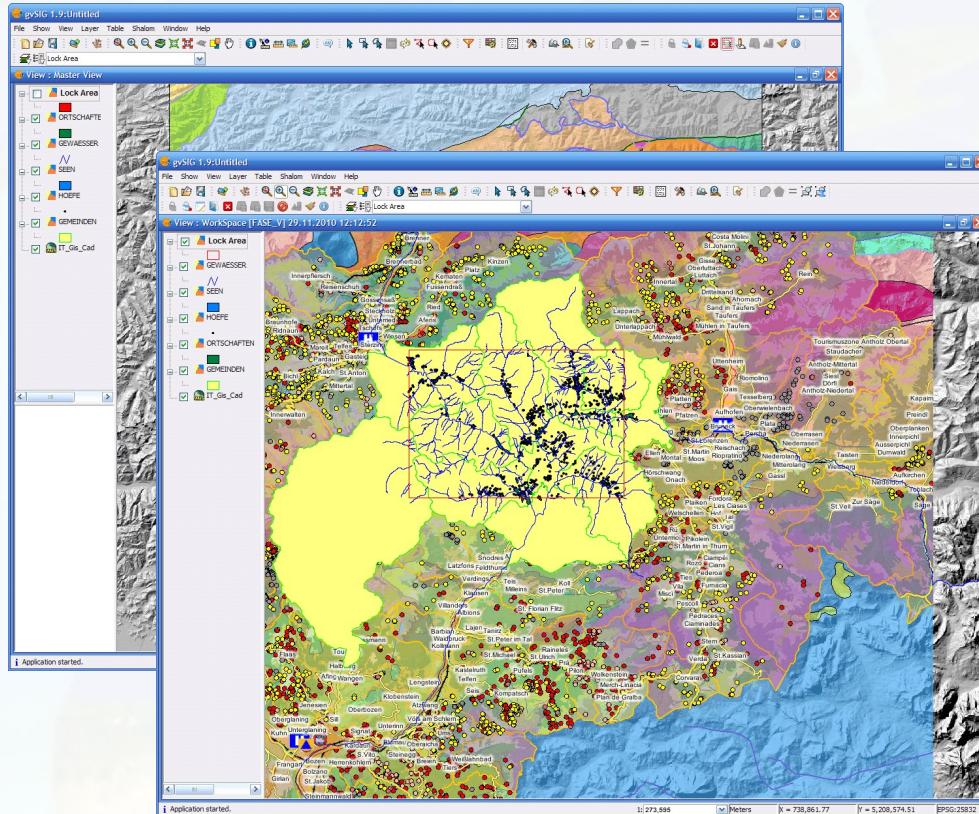
- GUI customization
- Spatial data filtering and lock, through custom driver

Examples



- List of configured projects
- List of work spaces of an user
- Managing work spaces
 - Delete (means “drop long transaction”)
 - Rename
- Load locally configured project or work spaces

Examples



- Custom view based on user permission
- Toolbars/functionalities enabled depending on type of view
- ToC build based on newGIS configurations
- Spatial data retrieved by client depending on user permission

Examples

Regole Topologiche

Regole Topologiche

Regole Topologiche Definite

Layer Sorgente	Layer Destinazione	Tipologia Di Regola
PAB Elem. Puntuali	Area Base	PointInPolygon
Elem. Puntuali	Elem. Lineari	PointCoversLine
Elem. Lineari	Area Base	LineCoversPolygonTotally

Elenco segnalazioni

Elenco segnalazioni

Errori Segnalazioni Info

Elenco segnalazioni

Tipologia	Descrizione
Regole topologiche	[Sovrapposizione di poligoni] Errore bloccante
Regole topologiche	[Sovrapposizione di poligoni] Errore bloccante
Regole topologiche	[Sovrapposizione di poligoni] Errore non bloccante

Elenco segnalazioni

Elenco segnalazioni

Dettaglio della segnalazione

Regole della topologia: PolygonDisjoint

Layer: Livello 1 Visualizza descrizione della regola topologica.

New GIS ID:

- ID::aree_base434
- ID::aree_base441
- ID::aree_base475
- ID::aree_base480
- ID::aree_base492
- ID::aree_base493



Examples



Tabella: Tabella degli attributi: PAB Aree Bas

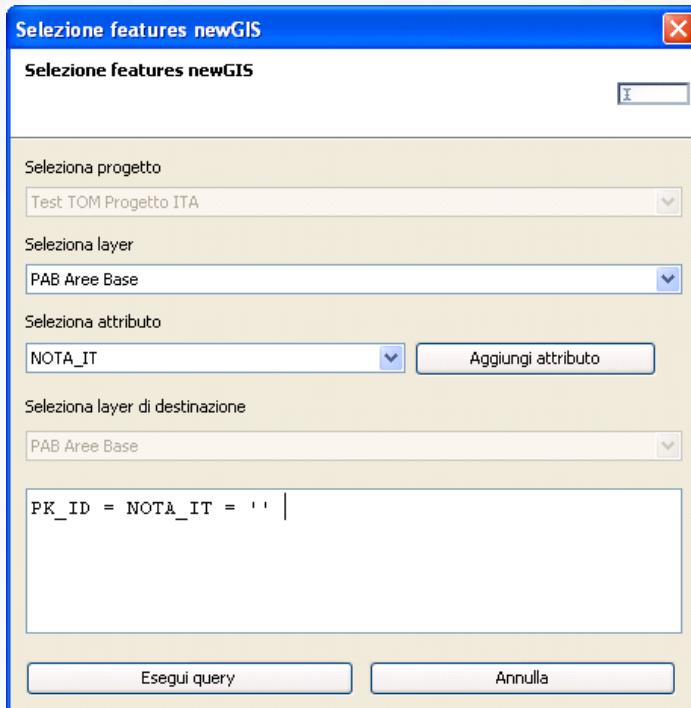
PK_ID	CODE	UNA_DATA	NOTA_IT
3174	1	2010-02-01 ...	ita ita
-127781476...			

utti: PAB Area Base

ATA	NOTA_IT	ISTAT_CODE
01 ...	ita ita_MOD	ITALIANO 1

- Based on user permission attributes of native gvSIG table is managed.
 - Cell editing disabled
 - Cell rendering disabled
 - Custom input validation rules
 - Custom editing dialog for look-up attributes

Examples



- Very simple query builder based on services of newGIS (WebServices)
- Integration module for newGIS SDK



Problems developing with gvSIG & used tools

- **GeoTools**

Fix GML generation from Oracle SDO_Geometry

- **Modularity**

Hot reload and dependencies problems

- **gvSIG Interfaces**

Cast to real implementation class

Missing interfaces in some areas

- **gvSIG GUI extension**

Use of Java listeners and low level API



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Conclusions

- Useful newGIS Infrastructure Client
- Template for future applications



Future Project

- gvSIG "Standard-GIS-Client"
- gvSIG as substitution of proprietary clients
- OpenSource & gvSIG communities
- reduce current licence costs/code contribution
- future development/compatibility



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Questions?

Poster
for detailed information

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