

Progetto WEGE

Geographic
Information
System for
Road
Infrastructures



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WEGE: E-Government project

E-Government refers to the use by government agencies of **information technologies** that have the ability to **transform relations** with **citizens, businesses,** and other **arms of government.**

- better delivery of government services to citizens
- improved interactions with business and industry
- citizen empowerment through access to information
- more efficient government management

<http://www1.worldbank.org/publicsector/egov/definition.htm>



WEGE: project goals

- For Citizens and Businesses:
 - Improving Transportation System;
 - More efficiency in services (e.g. civil protection);
 - INTERNET interactive information services (G2C) including:
 - Best route calculation
 - “Real time” information on construction sites / accidents / dangers
 - Special transports
 - Online Procedures
 - Data Download
 -



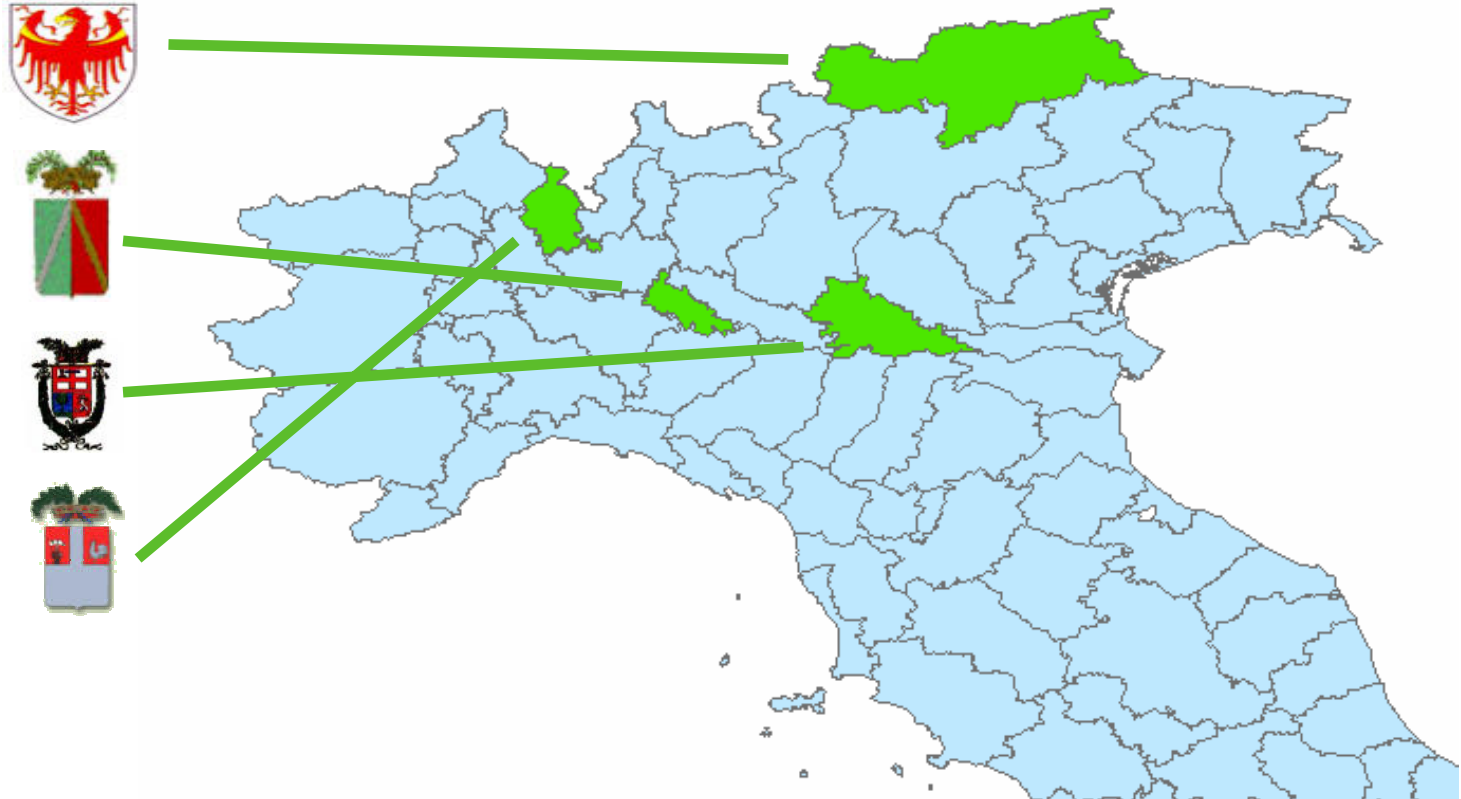
WEGE: project goals

- For the Government:
 - Establish a GIS to manage the “Provincial Road Cadastre” and all related information;
 - Optimize management and planning of road infrastructures;
 - Rationalize data management;
 - Facilitate data transfer between government bodies (G2G)



WEGE: project participants

- FINANCING PARTNERS



WEGE: project participants

- CONTRIBUTING ENTITIES:



Association of Municipalities of the province of Bolzano



Association of Municipalities of the province of Lodi



WEGE: project participants

- TECHNOLOGICAL PARTNERS:



Chamber of Commerce of Lodi



SINERGIS SRL



WEGE: e-government plans

- Spring 2002: project submitted to the Italian Ministry of Innovation for e-government plans;
- 400 projects presented;
- 138 projects accepted;
- WEGE ranked 15th in overall technical quality;
- Approved without amendments or reductions;
- A formal partnership has been established between participant entities.



WEGE: overall project budget

Total budget: € 1.117.000,00

Innovation Ministry co-financing: € 370.000,00

Participant's financing quotas:

Province of Bolzano 68%

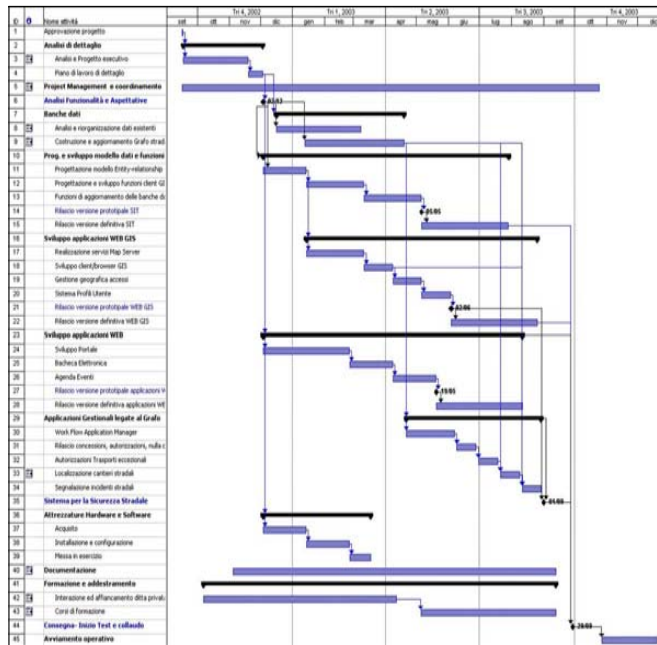
Province of Lodi 18%

Province of Mantova 7%

Province of Varese 7%



WEGE: project timeline



start: January 2003

I Fase: May 2003

II Fase: December 2003

III Fase: August 2004

end: October 2004

Total Development Time: 22 months



WEGE: project outcome

- a Solution
 - Modular;
 - Open and Extensible;
 - Distributed Management;
 - Control of Access Rights;
- Re-usable solutions and software modules:
 - New approach for Public Administrations;
 - Savings through economies of scale;
 - Exchange of technical and organizational experience.



WEGE: project cooperation



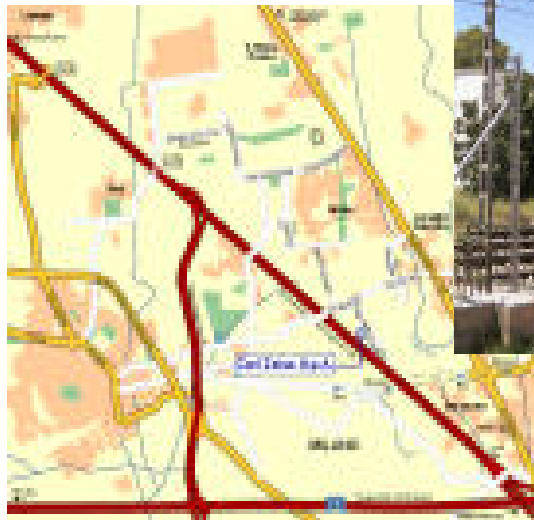
- Technical Departments in Financing Provinces
- Association of Municipalities
- Municipalities
- Private Partners

Information System
=
Computerized System
+
Organization
&
Permanent
Update Process



Progetto WEGE

General Architecture



Geographic
Information
System for
Road Infrastructures

Database

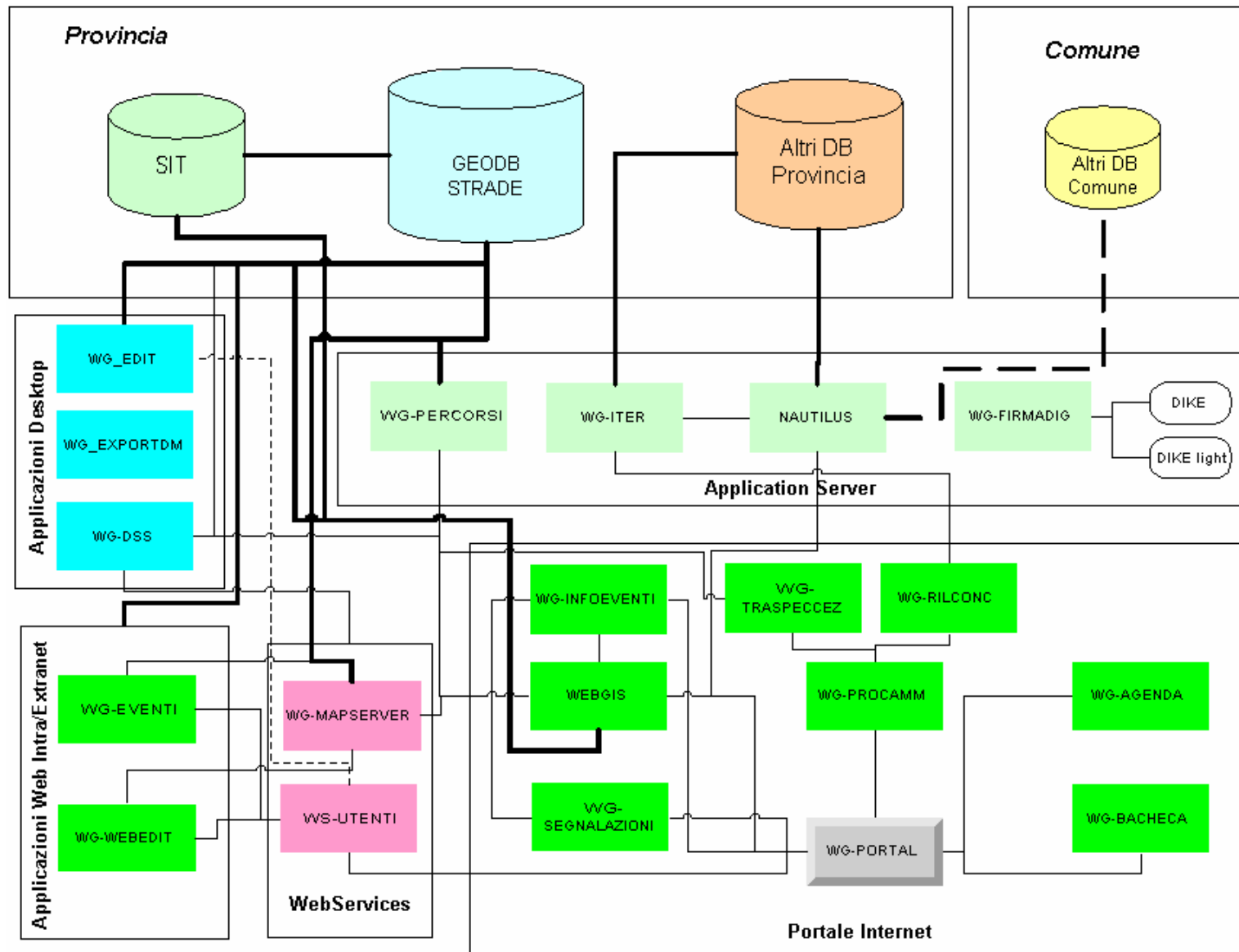
Application Server

Web Services

Desktop Applications

Web Intranet/ Extranet Applications

Web Internet Applications



Database

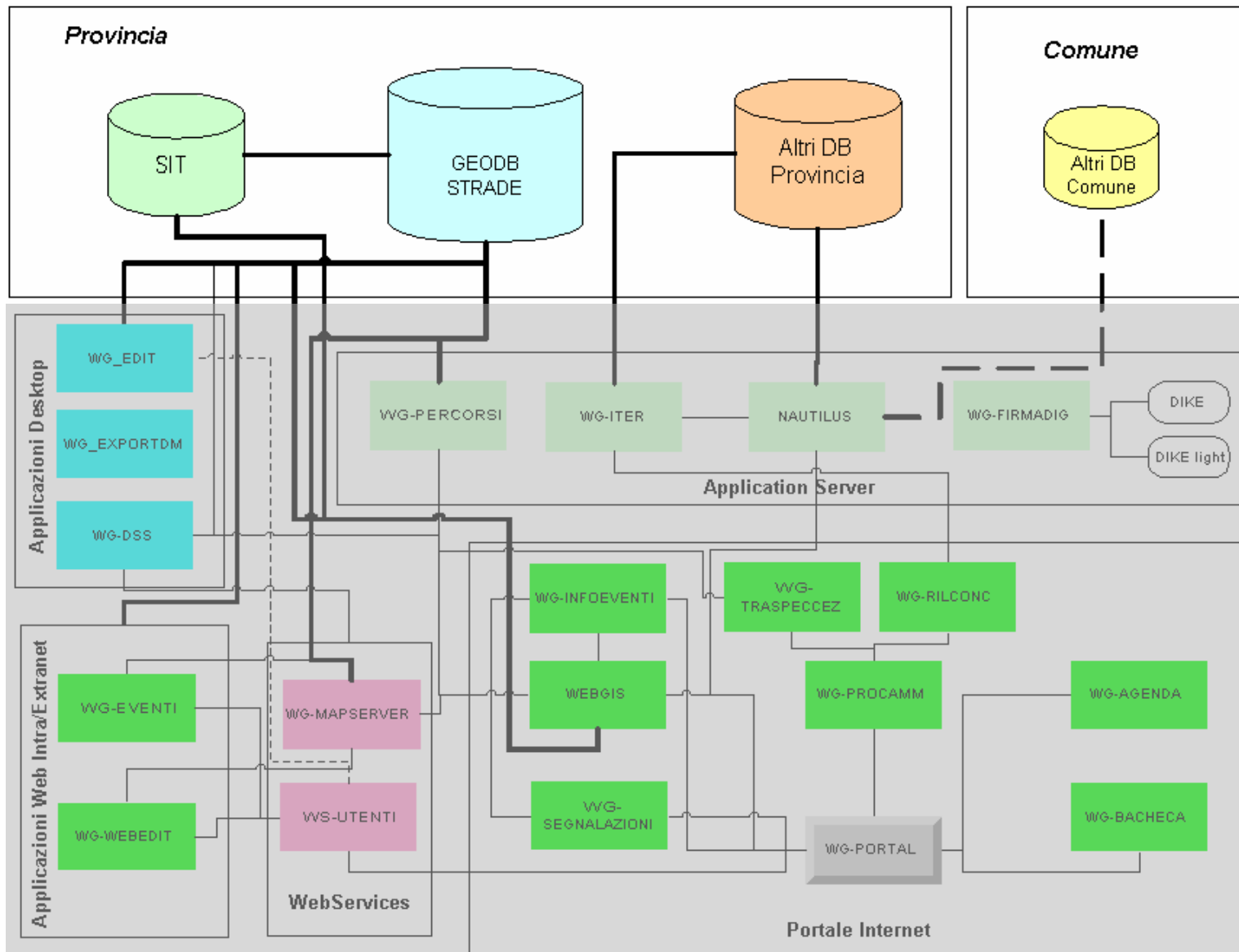
Application Server

Web Services

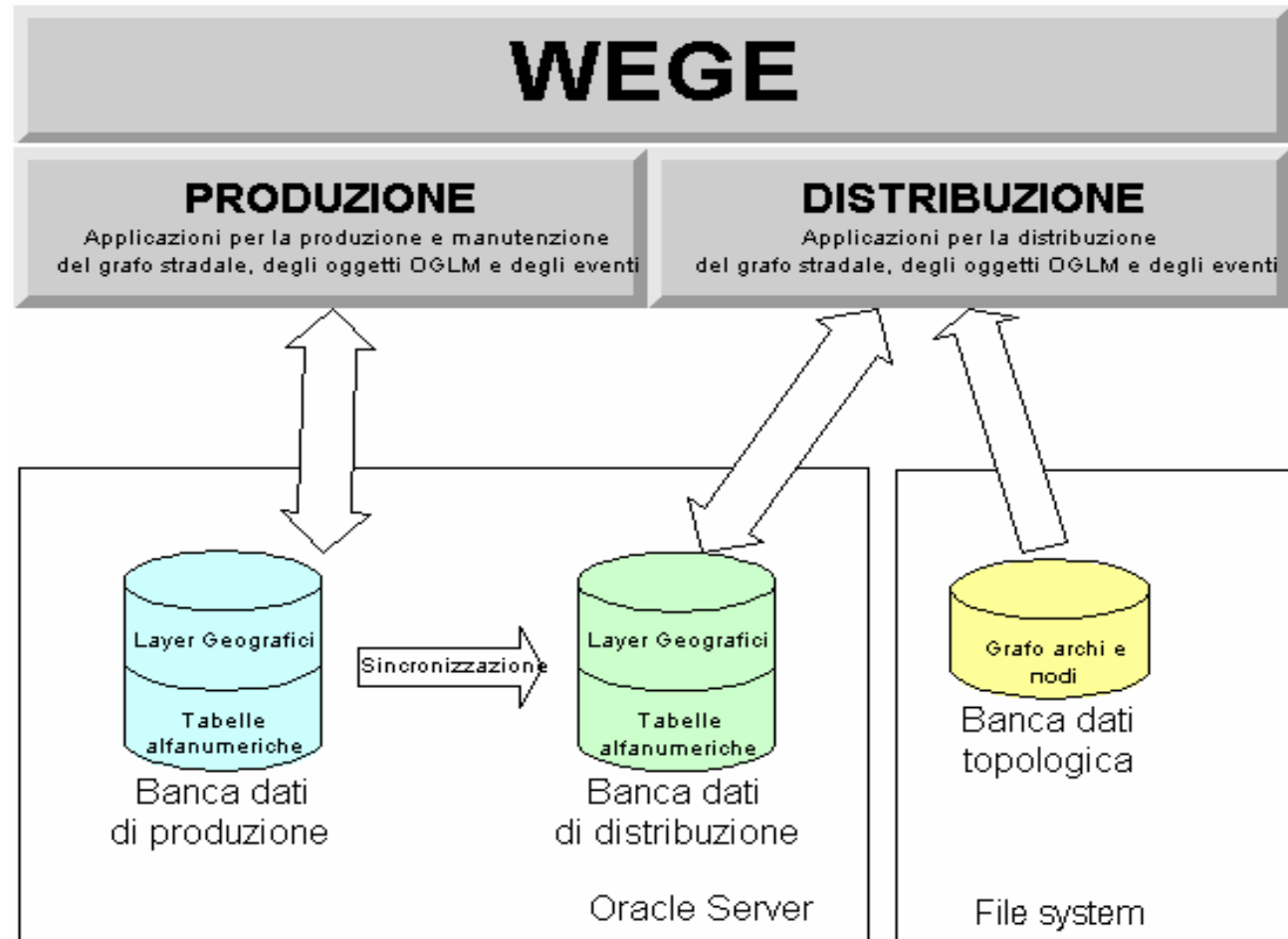
Desktop Applications

Web Intranet/ Extranet Applications

Web Internet Applications



2 Database



Database

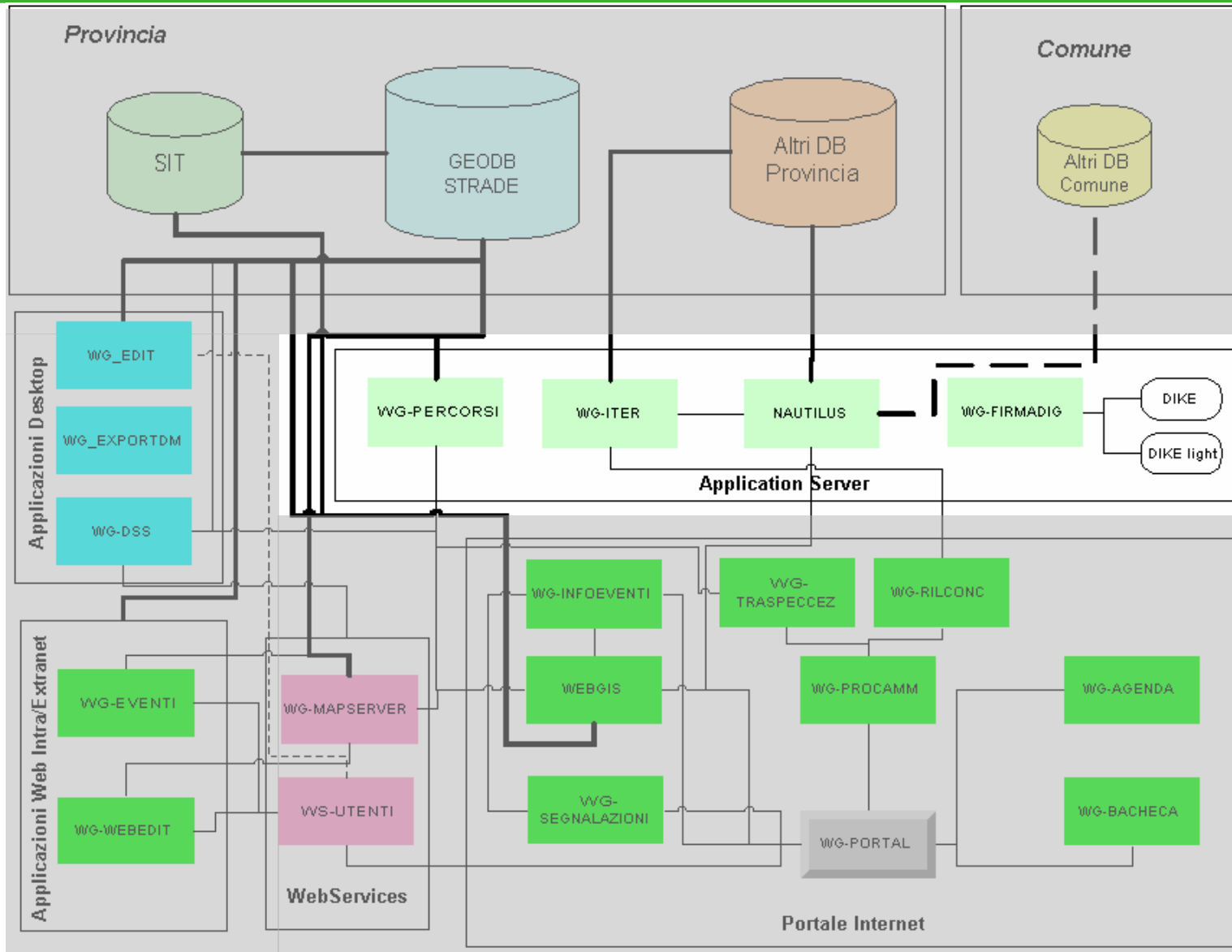
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Web Services

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Web Internet Applications



4 Application Servers

- **WG-PERCORSI** :
best path calculation
- **NAUTILUS** :
link third party management systems
- **WG-ITER** :
interface to WorkFlow system
- **WG-FIRMADIG** :
digital signature



1/4 WG-Percorsi

this application server will provide best path calculation functionalities such as:

- Identify start and end points for the best route and eventually intermediate stops;
- Set barriers on edges and junctions of the network;
- Calculate shortest or quickest path according to driving restrictions.



2/4 Nautilus

- This Application Server, developed by SINERGIS, enables GIS software to link, geo reference, and integrate databases managed by third party Systems
- Clients available both in GIS and WEB GIS environments
- Based on standard XML
- Connect third party Management Systems connected to the Internet/Intranet network
- Initiate both geographic and alphanumeric searches and cross reference results



3/4 WG-Iter & 4/4 WG-Firmadig

- This web module enables Citizens and Businesses to file official request for authorizations and concessions
- Triggers and interfaces with the Workflow systems already in use at the Public Administration
- Enables Online Tracking of procedures
- Using DIKE, the standard system for digital signature, enables full integrity checks and authentications



Database

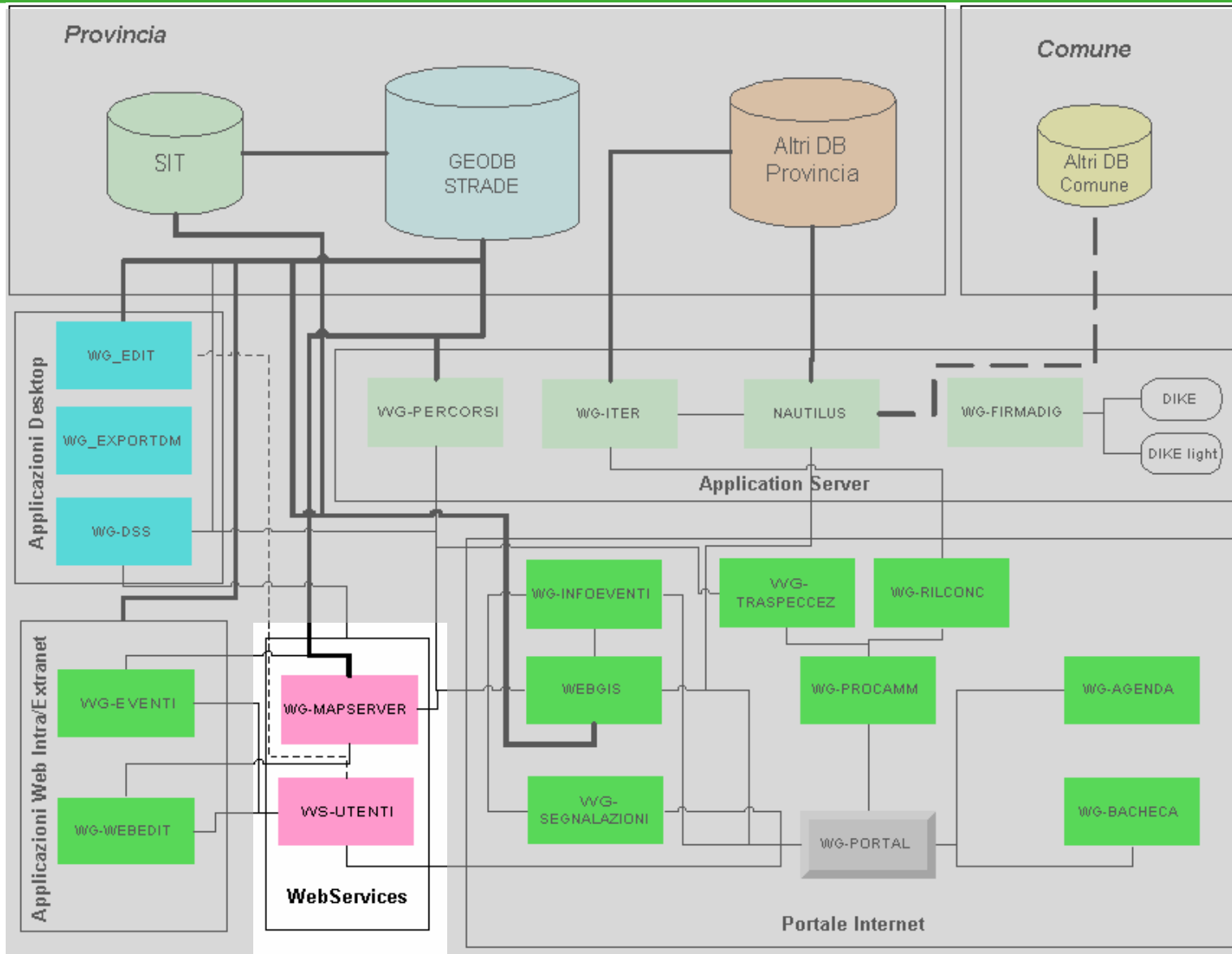
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Web Internet Applications



2 Web Services

- **WG-MAPSERVER** :

- Manage Web publishing and Web editing of vector GeoData

- **WS-UTENTI** :

- authentication and access manager



1/2 WG-Mapserver

using standard protocols (SOAP and XML)
this WebService provides all other WEGE
applications various services including:

- Extraction and transmission of geographic data in proprietary vector format
- Client – server caching of vector data
- Generation of geographic image maps (JPEG, PNG)
- Web based editing of geographic vector data
- Server side management of visibility rules for layers and group layers
- Ability to link to the geographic data alphanumeric data stored in other BDMS sources



2/2 WS-Utenti

This WebService, invoked with standard protocols (SOAP, XML), provides other WEGE applications with a centralized web based user authentication and access manager

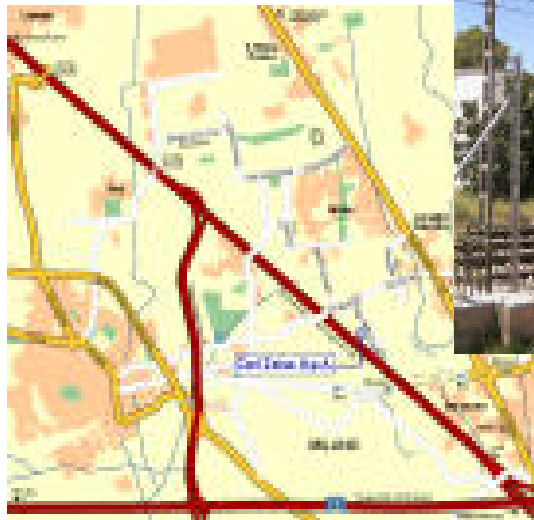
Features include:

- Parsing of XML messages
- Provide server with needed control variables
- Manage common Login & failed authorization interface
- Optionally cache authorization requests



Progetto WEGE

Software Modules



Geographic
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Database

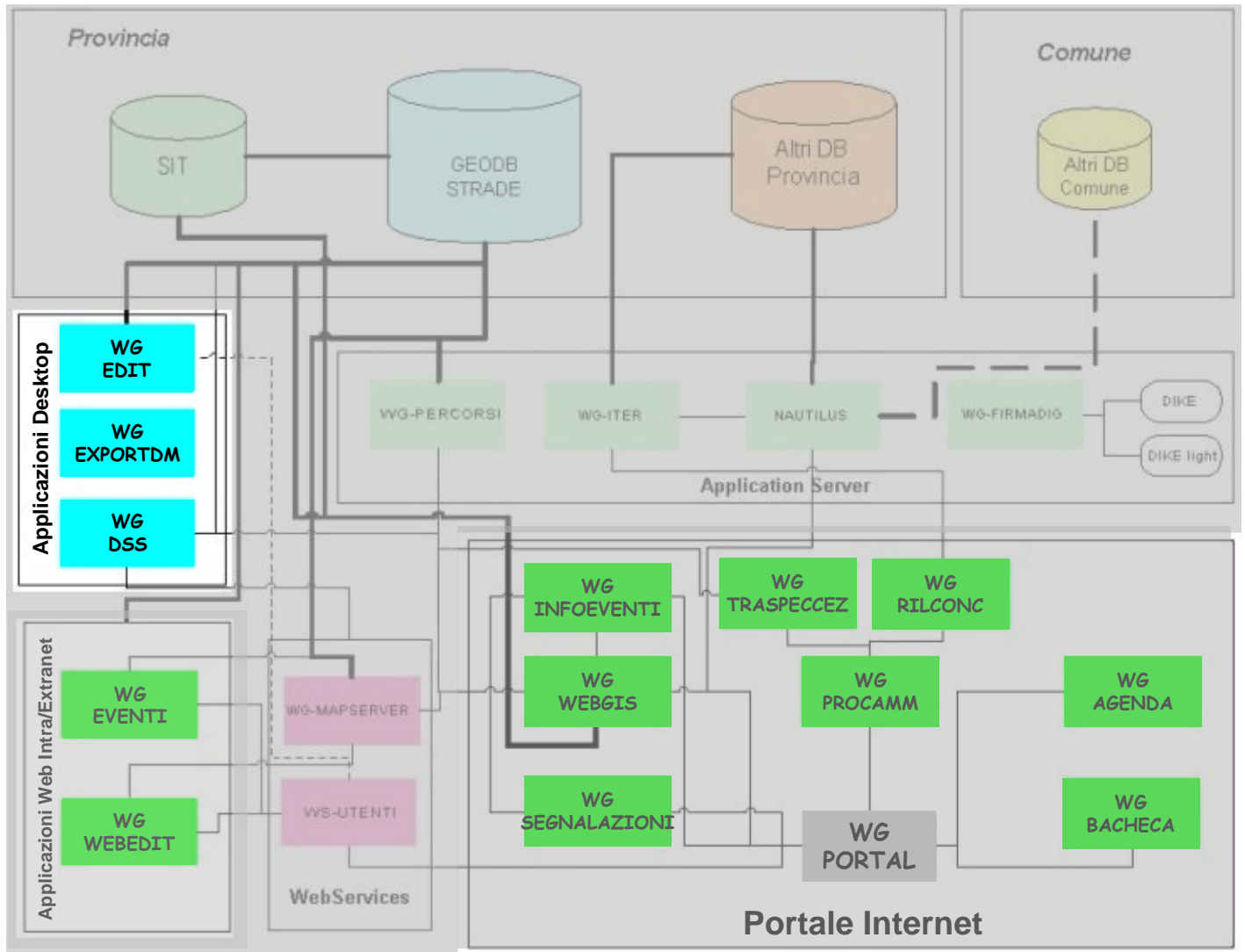
Application Server

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Desktop Applications

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Web Internet Applications



Desktop Applications

WG-EDIT : *Road Infrastructures editing*

- one unitary network for all the Province
- developed on existing ESRI ArcView GIS
- historic versioning of data
- logical aggregate networks: streets, bike trails, bus routes
- multiple language support (Italian \ German toponyms)

WG-EXPORTDM : *Data Export*

- Export Network Data according to format (D.M. 01/06/2001) defined by Transportation Ministry

Desktop Applications

WG-DSS : *Road Network Decision Support System*

- extensive search criteria on attribute and linked data available on road infrastructures
- Support Management Staff decision making
- Produce reports for standard indicators including:
 - road usage and traffic,
 - accident reports on road sections,
 - maintenance and service quality



Database

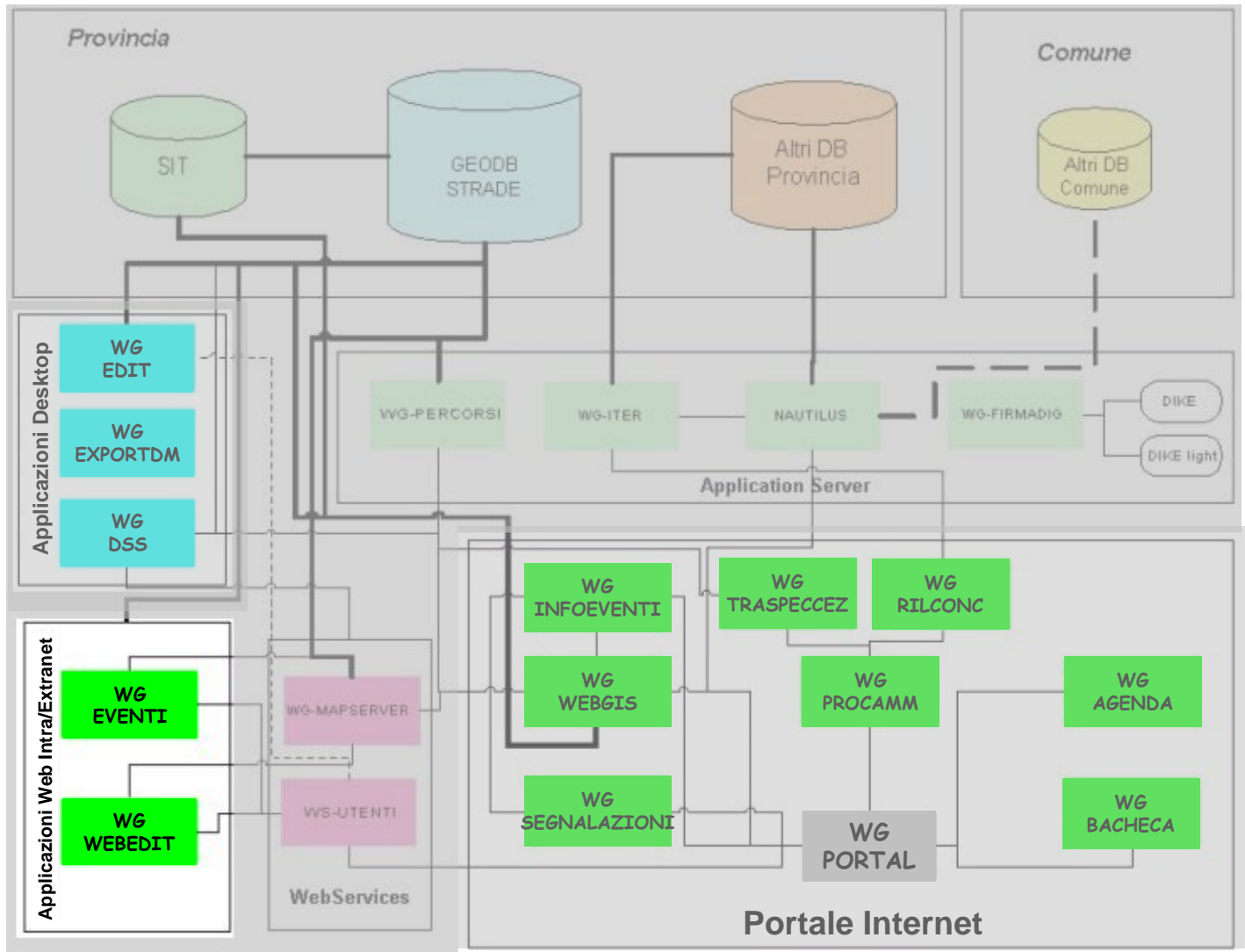
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Web Intranet/Extranet Applications

WG-WEBEDIT : *Web Editing of Vector Data*

- Web based editing of Measured Linear Geographic Objects (OGLM) and logical aggregate networks
 - streets, bike trails, bus routes

WG-EVENTI : *Web Editing of Events*

- Web based management of events on logical networks

enable staff in connected offices to
manage a common and integrated

Road Infrastructures GIS

**multi language support for
interface & data**

Database

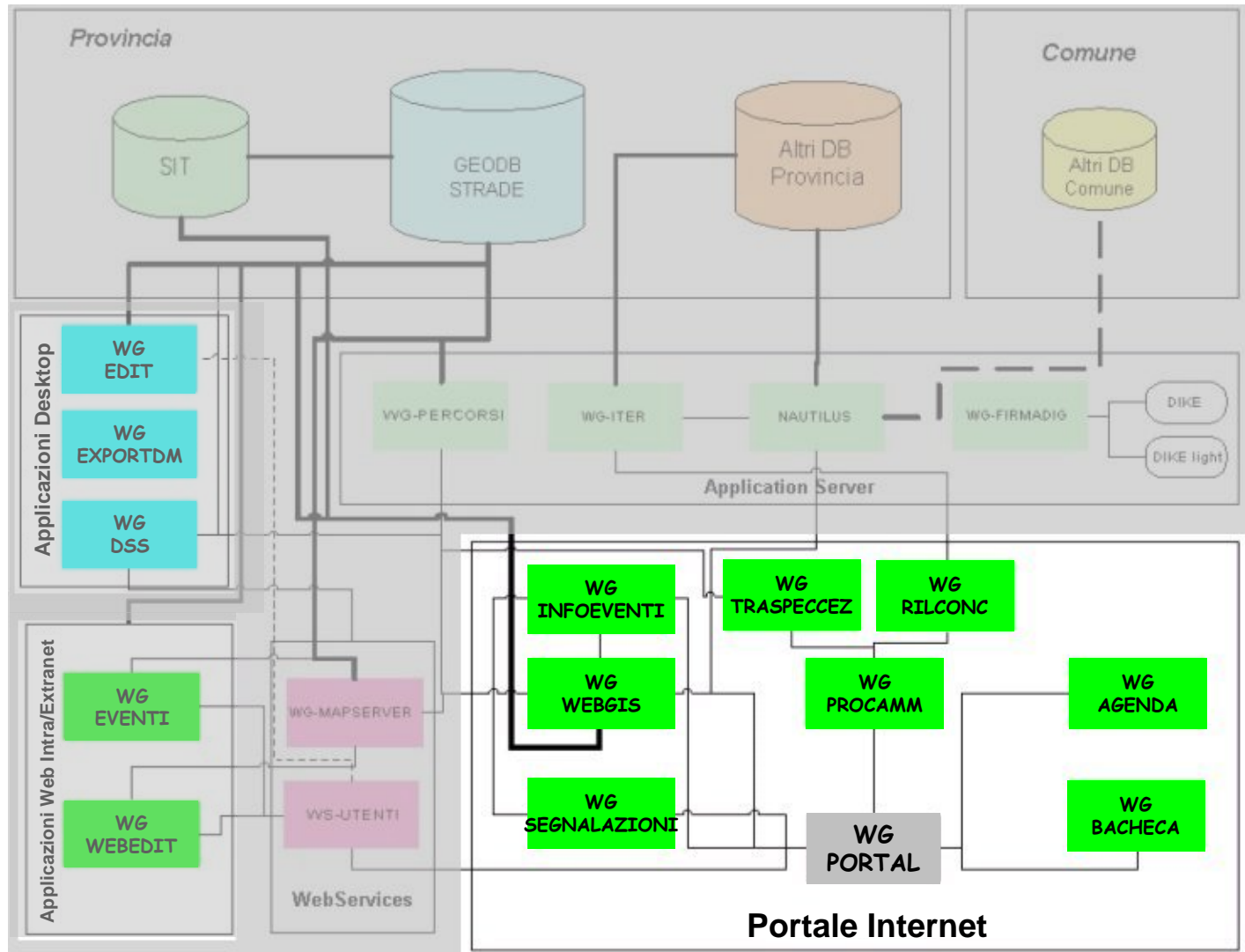
Application Server

Web Services

Applicazioni Desktop

Applicazioni Web Intranet/ Extranet

Applicazioni Web Internet




WG-PORTAL : Citizens & Businesses Portal

- **basic services without registration:**
general information about the route network managed by the Provincial Administration
 - Bulleting Board
 - Agenda
 - Locate Road Work Sites
 - Locate Accidents and Dangers
- **basic services with registration and login:**
 - Update Bulleting Board
 - Update Agenda
 - Upload warnings, complaints, or hazards
 - Publish Maps
 - Activate Administrative Procedures
 - Request & Approve - Concessions & Authorizations
 - Special Transports Planning

WEBGIS : *Interface to Internet Map Server*

based on ESRI ArcIMS

Tematic views  **user's roles:**

- Control visibility of geographic layer
- Map navigation
- Identify and locate Road Infrastructures and Events
- View linked alphanumeric data from multiple sources

Internet Application

WG-INFOEVENTI : *public information manager*

- central information service integrated with the geographic representation of the roads

WG-AGENDA : *agenda*

- manage events and deadlines for Citizens and Businesses and for PA staff
 - organized in categories,
 - by event or publishing date

WG-BACHECA : *bulleting board*

- Citizen & Business bulleting board and forum to support the growth of the user community

WG-SEGNALAZIONI : *feed back*

- Citizen & Business section for:
 - complaints
 - suggestions
 - potential hazards

Internet Application

WG-PROCAMM : *administrative procedures*

- initiate protocol for administrative procedures

WG-RILCONC : *authorizations & concessions*

- request & obtain electronic authorizations and concession in a password protected environment

WG-TRASPECCEZ : *special transports*

- plan and calculate special transport path and verify requirements against road network technical specifications (including width, height, weight)
 - special transport companies
 - public administration staff

PORTALE WEBGIS PER LA GESTIONE DEL CATASTO STRADE

ITALIANO ENGLISH DEUTSCH

Ministero per l'Innovazione e le Tecnologie
Parco Nazionale di e-Government

Il Portale WEGE

delle provincie di
Bolzano, Lodi, Mantova e Varese

Provincia di Bolzano Provincia di Lodi Provincia di Mantova Provincia di Varese

BENVENUTO

Benvenuti sul Portale WEGE

WEGE è un sistema informativo territoriale dedicato alla gestione della problematica del **CATASTO STRADE** nel suo senso più ampio, non limitato alle sole problematiche di manutenzione. Molti servizi connessi alla viabilità hanno, oltre che un forte impatto con il pubblico, una notevole interazione con altri servizi interni all'Amministrazione Pubblica, quali ad esempio il rilascio di permessi e autorizzazioni, l'occupazione di spazi, la riscossione di tributi.

Il sistema che si propone di realizzare è un servizio base di comunicazione via Internet/Intranet, che agevoli la collaborazione e lo scambio di informazioni sia tra i Servizi e gli Enti che interagiscono con il tema strade (G2G) che tra Ente Pubblico e Cittadino.

Per accedere ai servizi del Portale WEGE registrati qui »

BACHECA

» 14.04.2004
Leggi »

» 30.03.2004
Piano dei trasporti Leggi »

» 16.03.2004
Lista dei divieti sulle strade provinciali riguardanti le dimensioni dei veicoli e gli orari di transito Leggi »

» 15.03.2004
Limiti di portata sui ponti lungo le strade provinciali Leggi »

VISUALIZZA
TUTTI I DOCUMENTI »

CATASTO

Utilizza il webgis per individuare gli eventi di interesse lungo la rete stradale della provincia

Partenza

Inirizzo

Città, Località

Cap, Regione

Arrivo

Inirizzo

Città, Località

Cap, Regione

INVIA

NEWS

» 28.04.2004
proviamo Leggi »

» 28.04.2004
pippo Leggi »

» 28.04.2004
Leggi »

» 28.04.2004
Leggi »

» 28.04.2004
tisonews3000 Leggi »

» 28.04.2004
Leggi »

VISUALIZZA
TUTTI I DOCUMENTI »

PRIMO PIANO

Primo Piano

Nelle sezione WebGIS è disponibile il nuovo calcolatore di percorsi. È il modulo per il calcolo dei percorsi che opera direttamente sulla banca dati delle strade, considerando differenti criteri di ottimizzazione e vincoli di percorribilità.

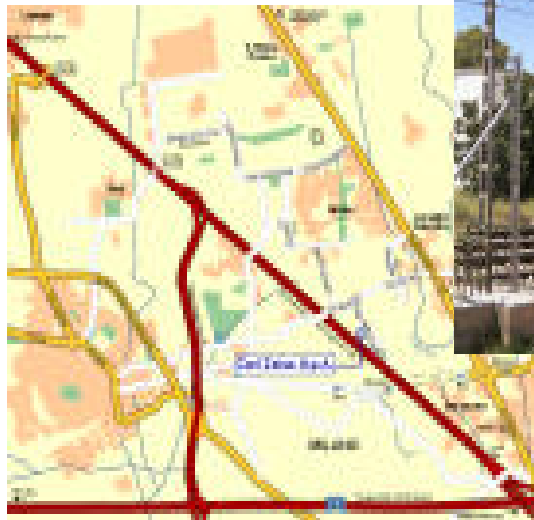
In particolare il modulo è dotato delle seguenti funzionalità:

- aggiornamento su richiesta del grafo logico utilizzato per il routing
- impostazione di tappa iniziale, finale e di eventuali tappe intermedie
- definizione di barriere su archi o nodi del grafo
- calcolo percorso ottimale rispetto a lunghezza e tempo di percorrenza con eventuale utilizzo di informazioni sui sensi di percorrenza ammessi

SINERGIS

Progetto WEGE

Questions ?



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