

# Gli Indirizzi. Architetture di sistema e soluzioni applicative.

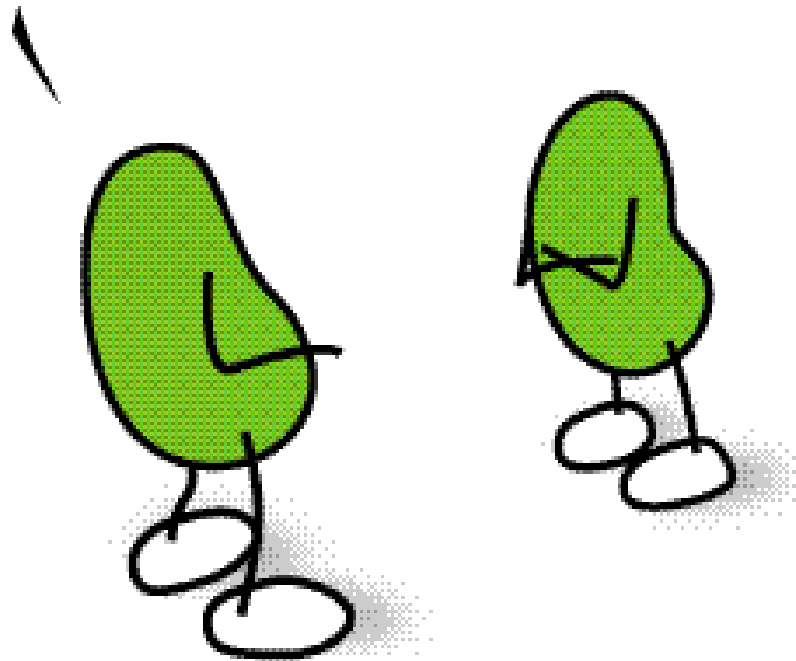
## Addresses. System Architectures and Solutions

*Andrea Fiduccia*  
*Intergraph Italia LLC*  
*Security, Government and Infrastructure*



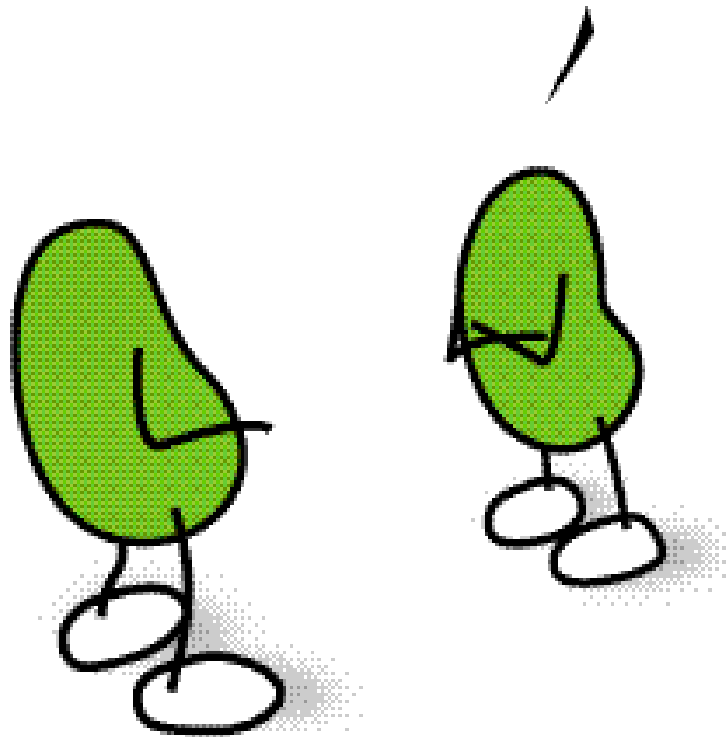
# The Problem

Sorry Sir: where is 103,  
Monti di Creta Street?



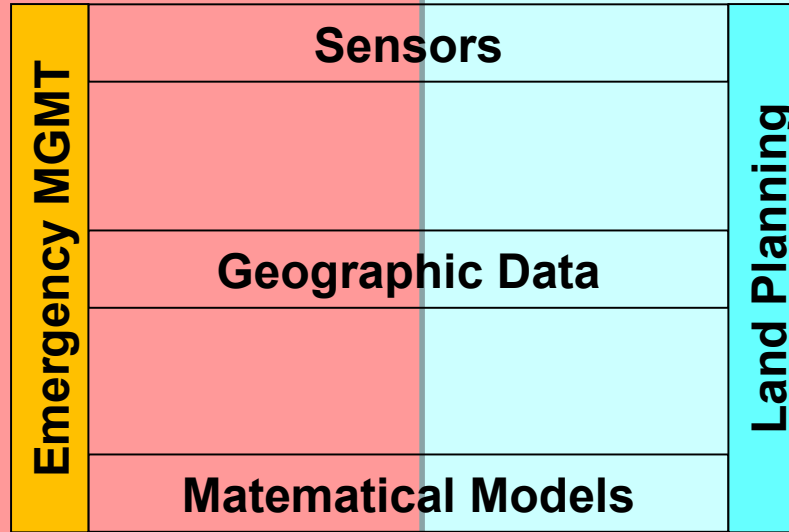
# The Problem

I don't Know. But I know where is  
**Via dei Monti di Creta n. 103.**



# Geospatial Technology: not only GIS...

- **5-9** Reliability  
99.999%
- **5-R** Right information, delivered at the right time, at the right place in the right format, to the right person



- Topographic Precision
- Cartographic Rendering
- Data Upgrading
- Interoperability

CAD Computer Aided Dispatching

CROP Common Relevant Operational Picture

GIS/RS Geographical Information System/  
Remote Sensing SW

SDI Spatial Data Infrastructure

OGC WxS

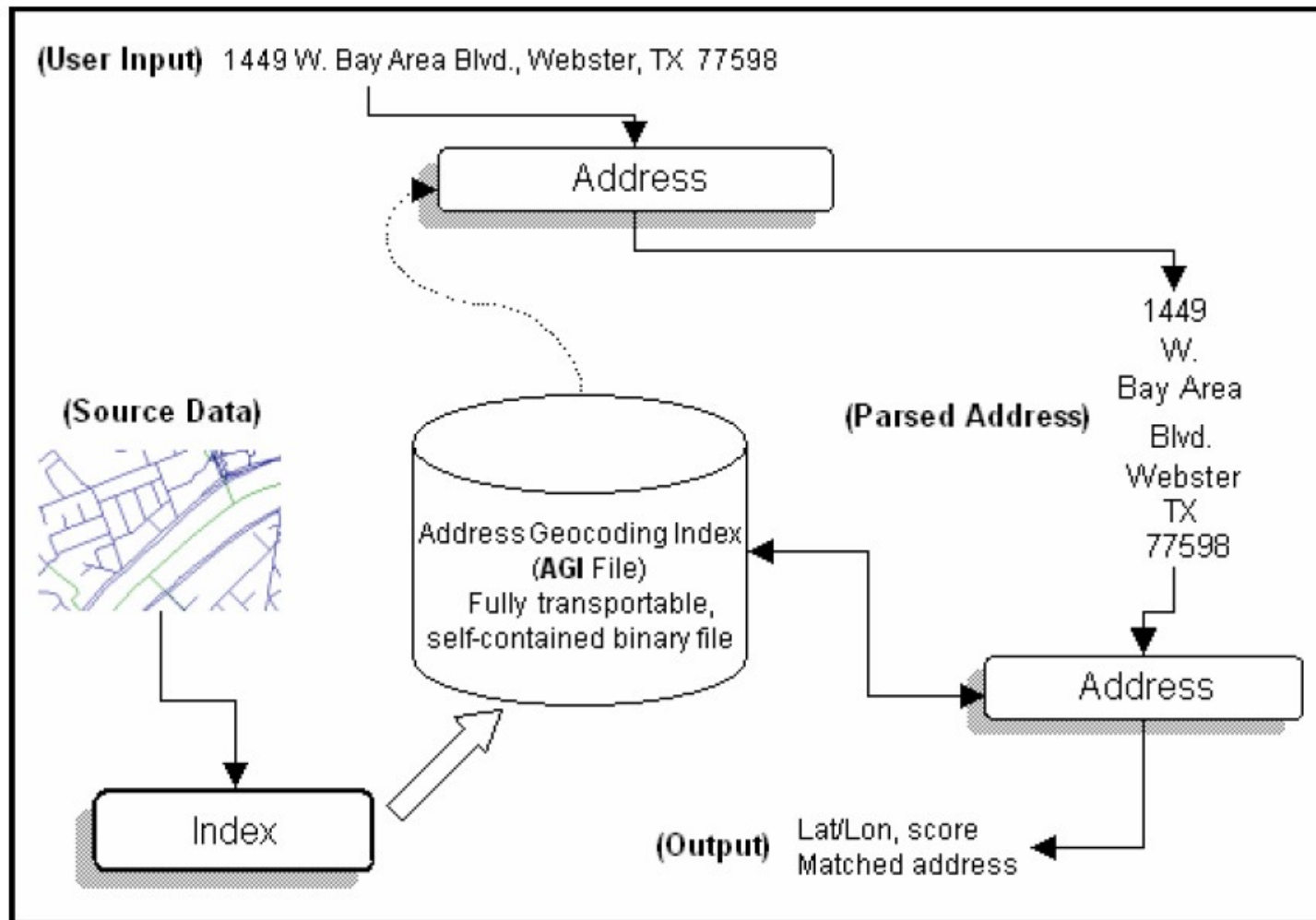


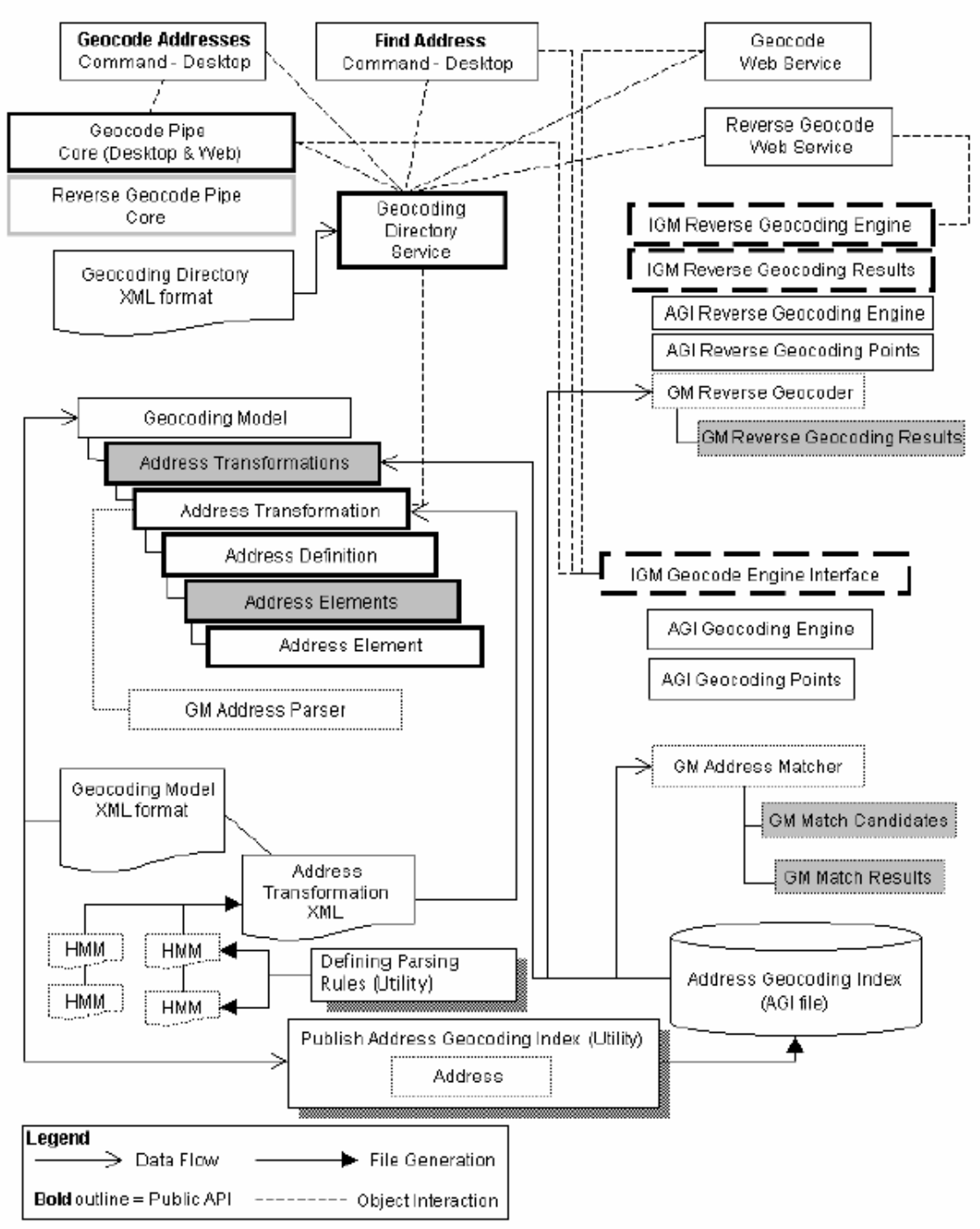
# GIS/Spatial Data Infrastructure



# Address Geocoding Model in GeoMedia Technology

- A generic purpose approach for GIS





- The overall design of the GeoMedia geocoding system, as represented by the components in the diagram, can be broken down into several distinct families:
- **Address Geocoding Index components**—Generate **datasets** for geocoding and reverse geocoding.
- **Geocoding Model components**—Generate **rules** for performing geocoding according to dataset address configuration, input data configuration, and locale-specific addressing rules.
- **Address Transformation components**—Describe the **schema** of incoming or outgoing addresses, both the elements of the addresses and their storage normalization.
- **Geocoding components**—Perform **geocoding** using input address elements already parsed and transformed into the format required for the dataset.
- **Reverse Geocoding components**—Perform **reverse geocoding** using an input coordinates and address transformation rules.
- Within these families are found several different types of components:
  - Data components
  - Configuration components
  - Software components (services, pipes, commands, utilities, and web services)

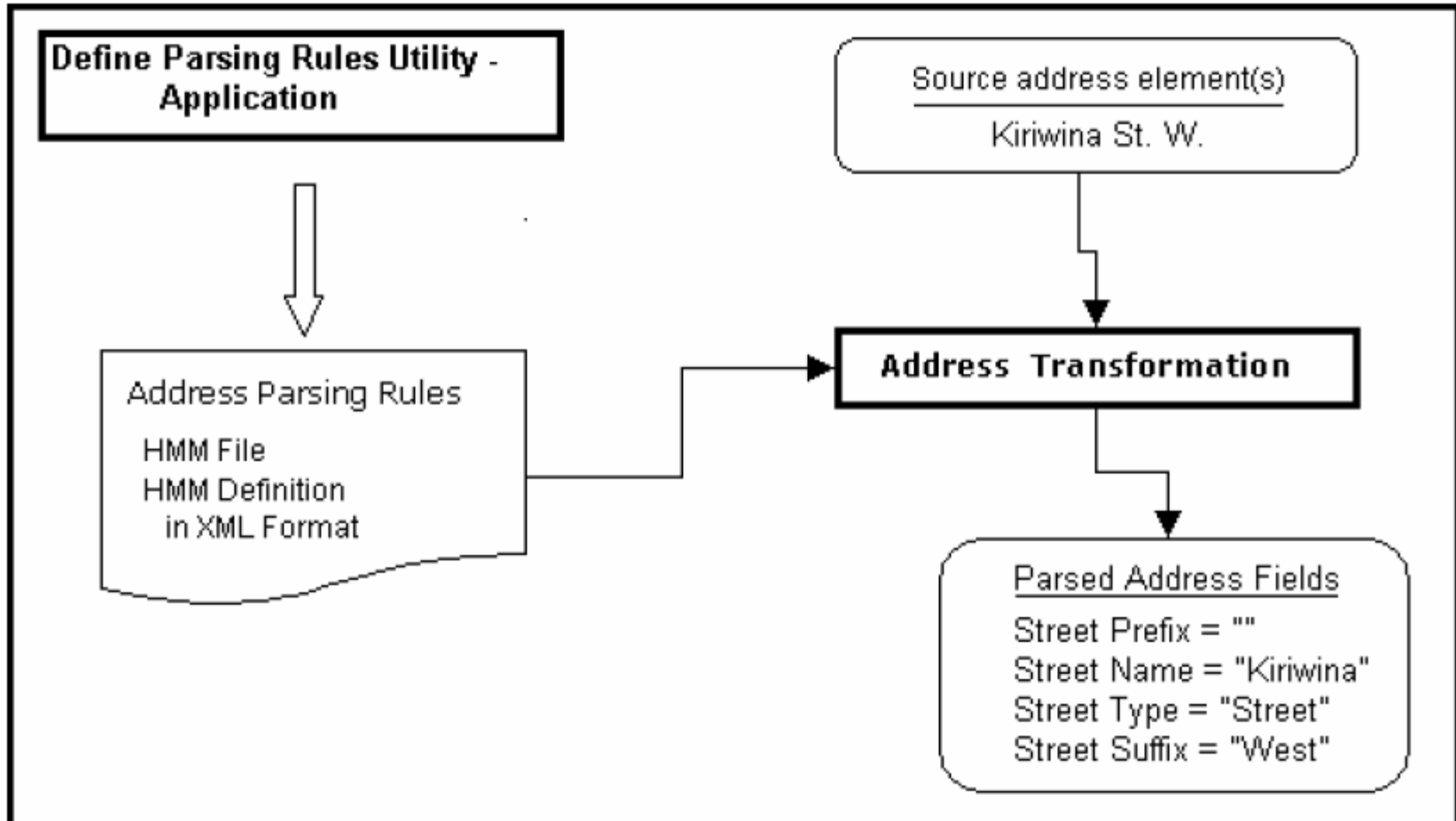
# Address Geocoding Model in GeoMedia Technology



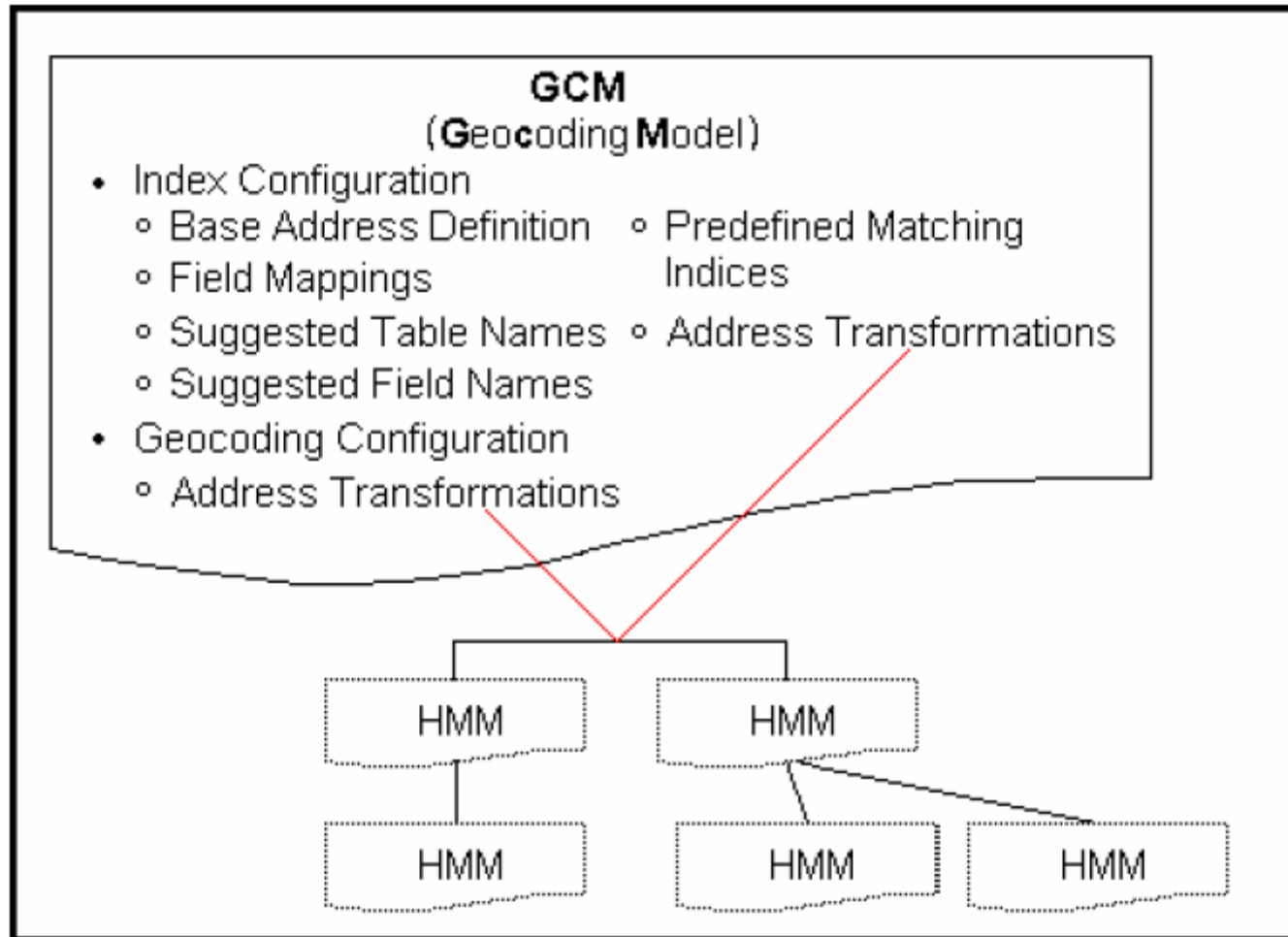
- The first thing that must be determined is what constitutes an address for a given geocoding action. An address is made up of a number of elements, and the geocoding system includes components that can recognize a textual input structure and determine the elements of the address. The parsing technique uses a state recognition algorithm based on the *Hidden Markov Modelling (HMM)*.
- ***The Define Parsing Rules utility*** builds and tests the XML-formatted file that describes an address parsing rules in terms of an HMM. For higher-order address constructs, address parsing rules can reference other parsing rules.



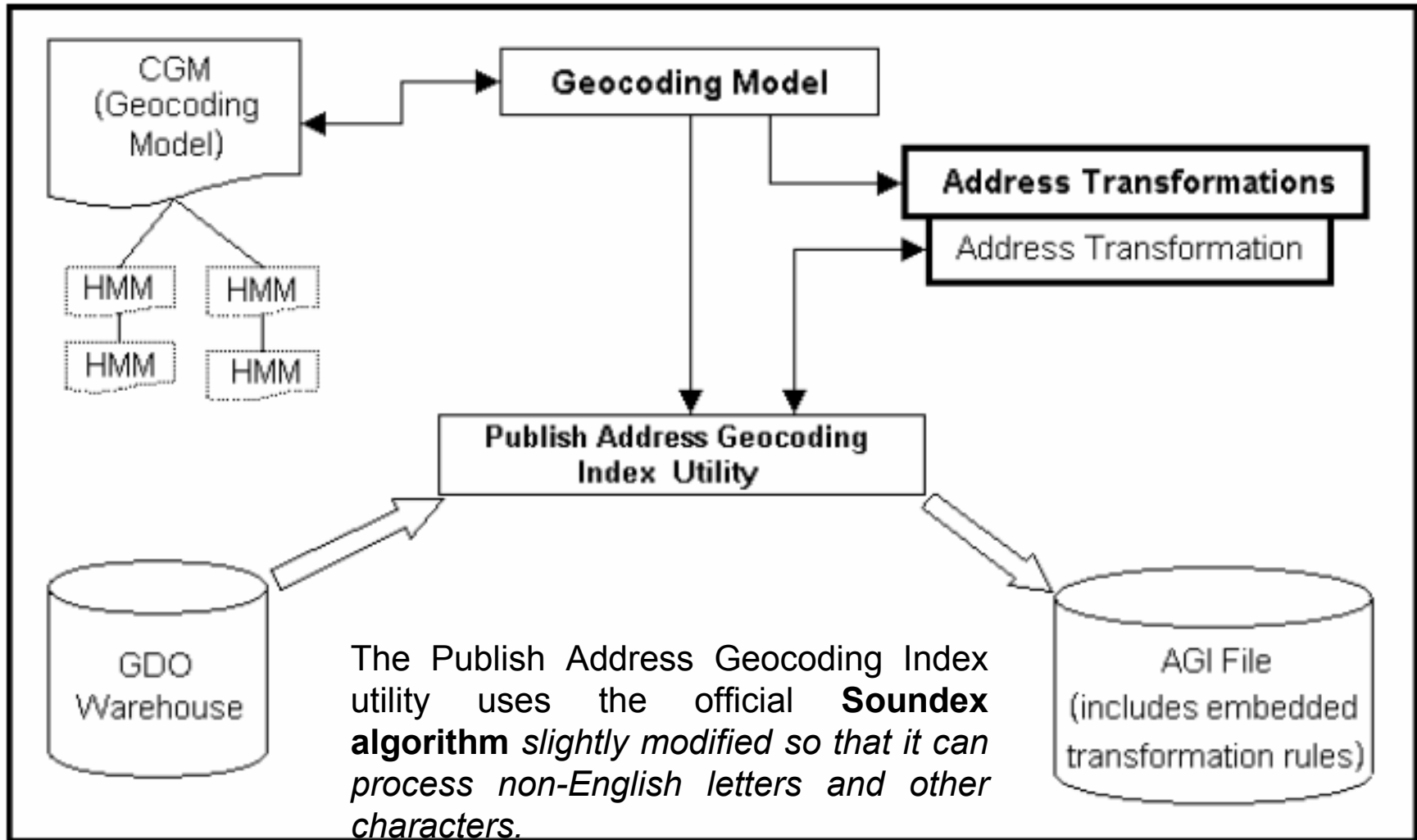
# Address Transformations



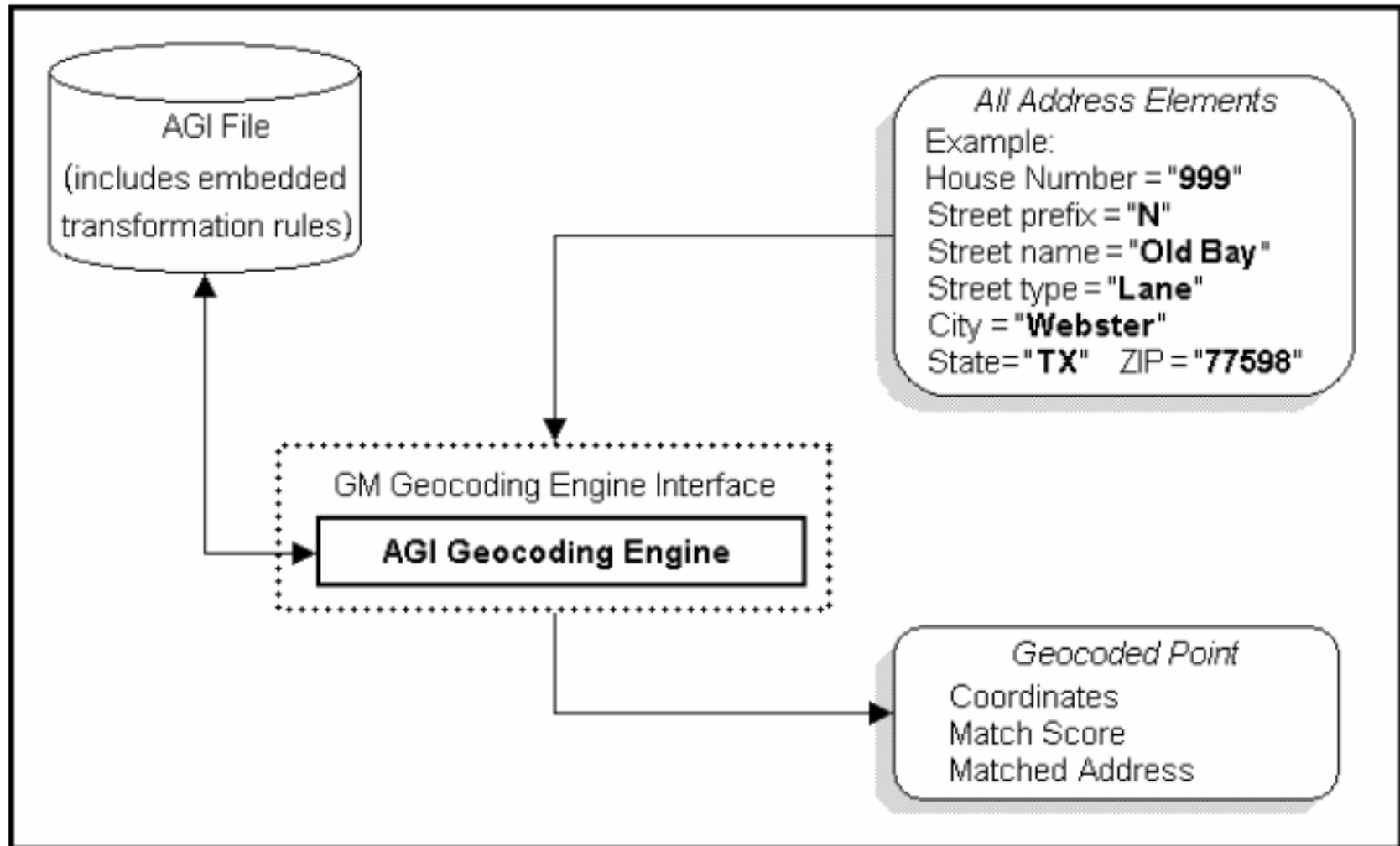
# Geocoding Model (GCM)

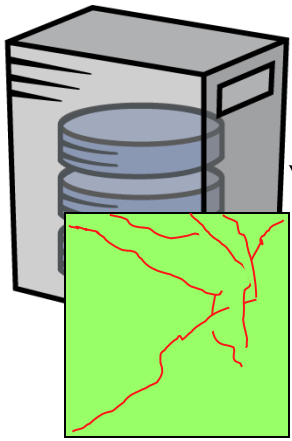


# Index Building



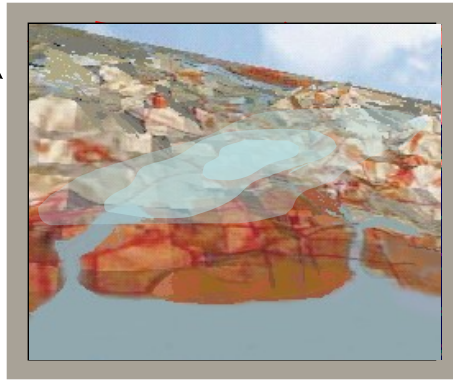
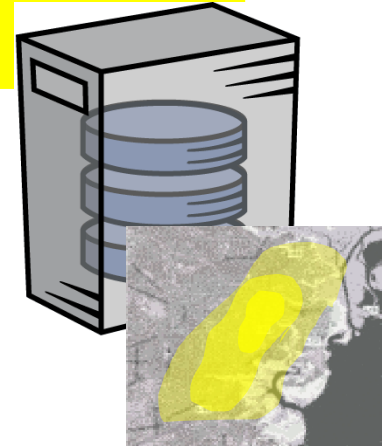
# Address Matching



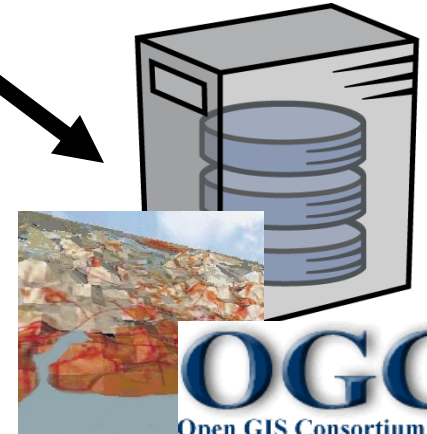
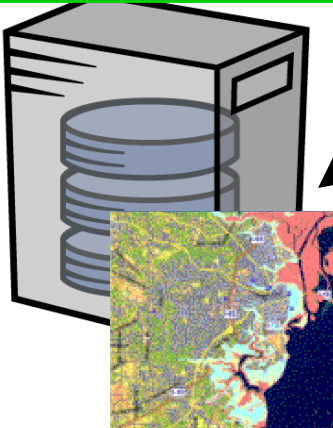


**Web Feature Server**

**Web Coverage Server**



**Web Map Server**

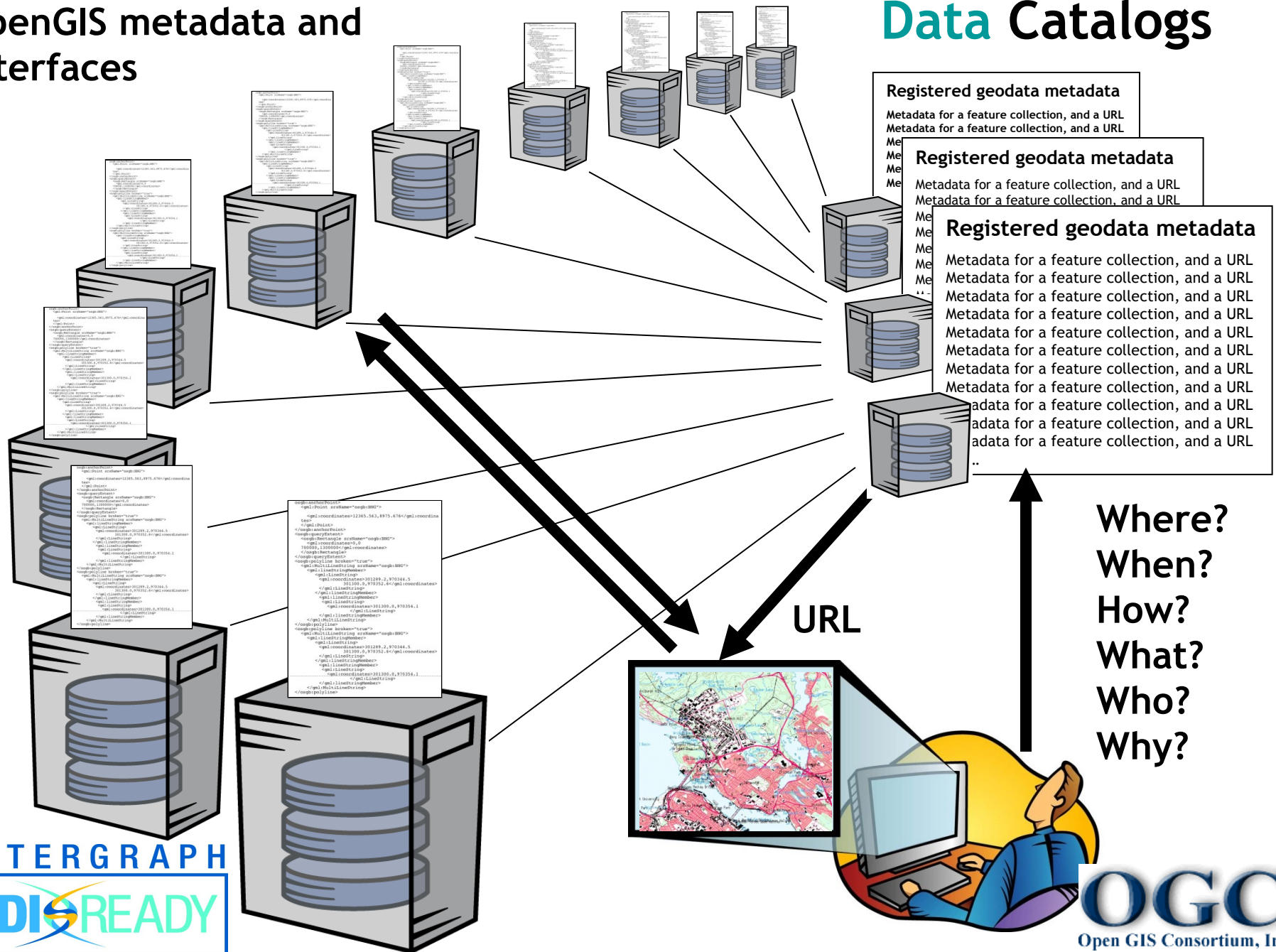


**Web Terrain Server**



# Spatial data servers with OpenGIS metadata and interfaces

# Data Catalogs



**Registered geodata metadata**

Metadata for a feature collection, and a URL  
Metadata for a feature collection, and a URL

**Registered geodata metadata**

Metadata for a feature collection, and a URL  
Metadata for a feature collection, and a URL

**Registered geodata metadata**

Metadata for a feature collection, and a URL  
Metadata for a feature collection, and a URL

Metadata for a feature collection, and a URL  
Metadata for a feature collection, and a URL

Metadata for a feature collection, and a URL  
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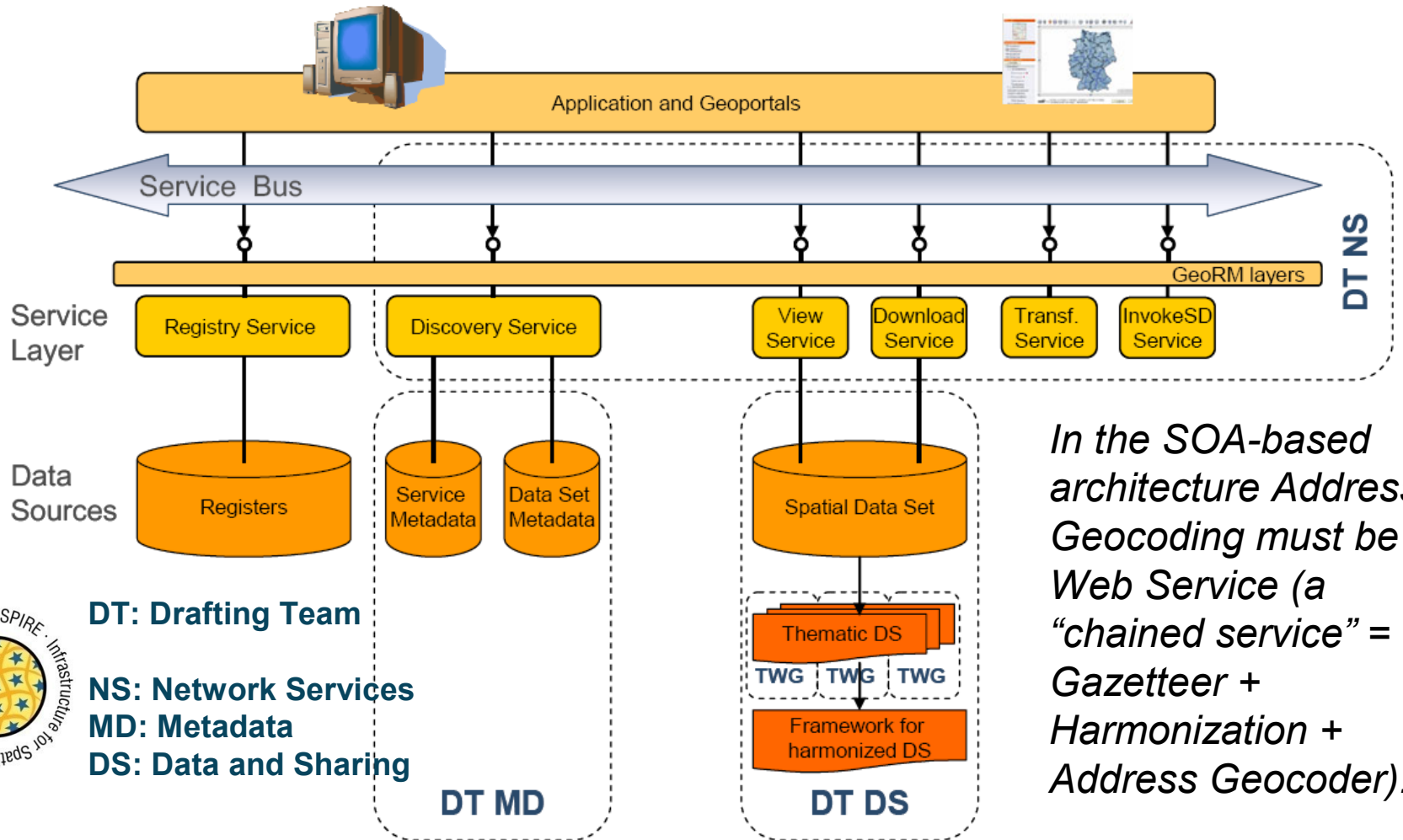
Metadata for a feature collection, and a URL  
Metadata for a feature collection, and a URL

Metadata for a feature collection, and a URL  
Metadata for a feature collection, and a URL

Metadata for a feature collection, and a URL  
Metadata for a feature collection, and a URL



# INSPIRE technical architecture overview



*In the SOA-based architecture Address Geocoding must be a Web Service (a “chained service” = Gazetteer + Harmonization + Address Geocoder)...*

**DT: Drafting Team**

**NS: Network Services**

**MD: Metadata**

**DS: Data and Sharing**



**DT MD**

**DT DS**

# SDI are vulnerable to Cyber Attacks?

- Critical infrastructure systems like electricity, water, and transportation and SDIs, are vital to our daily lives
- Attacks have caused significant equipment and environmental impacts, including deaths
- Critical infrastructure legacy systems were not designed with cyber security in mind
- Newer systems like SDIs will be more distributed and interconnected

***Cyber attacks are often not easily recognized***



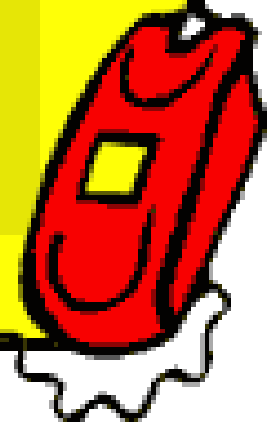


# Emergency Management

Computer Aided Dispatching Systems and 9-1-1 Paradigm



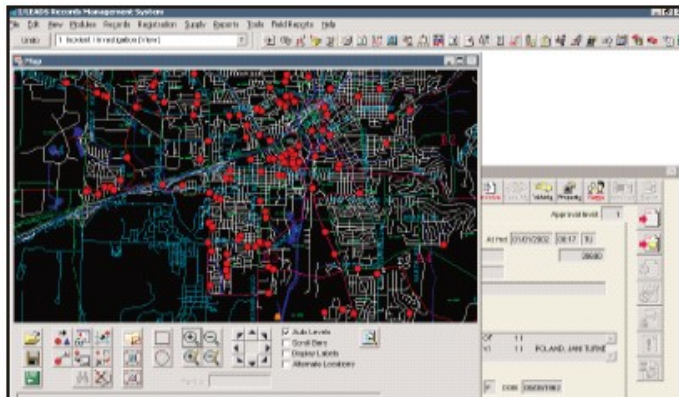
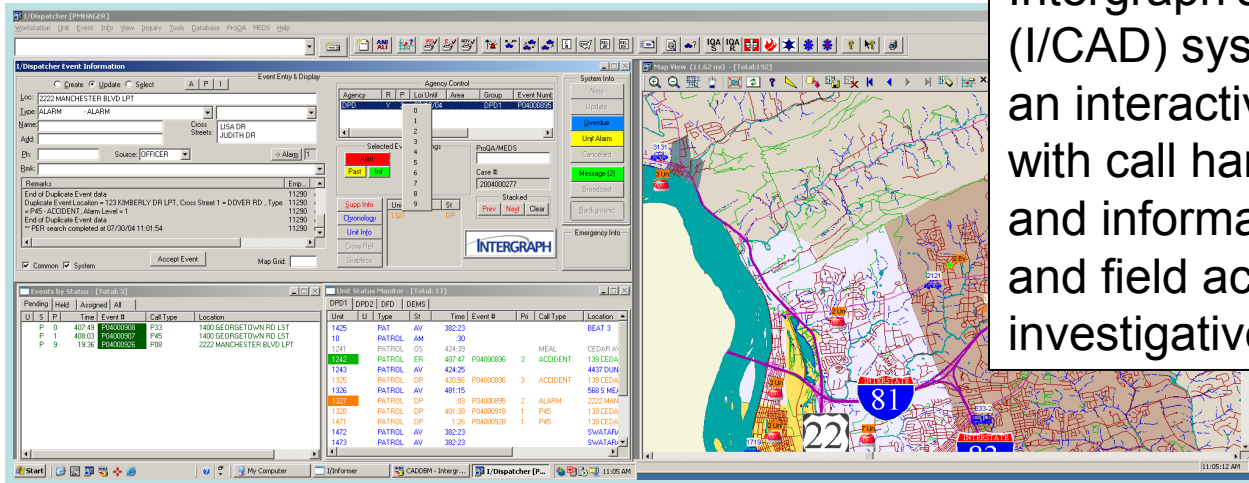
In 1968, the United States government wanted one number that people could call for emergencies. They worked with the phone company to create a "**Universal Emergency Number.**" They decided that **911** was easy to remember. They also knew people could dial it quickly. The very first **911** call was made on **February 16, 1968**, in Haleyville, Alabama. Today, 911 is used for emergencies in most parts of the United States and many parts of Canada.



# Computer Aided Dispatching



Intergraph's Computer-Aided Dispatch (I/CAD) system seamlessly integrates an interactive, real-time map display with call handling, dispatching, records and information management, remote and field access, data analysis, and investigative tools.

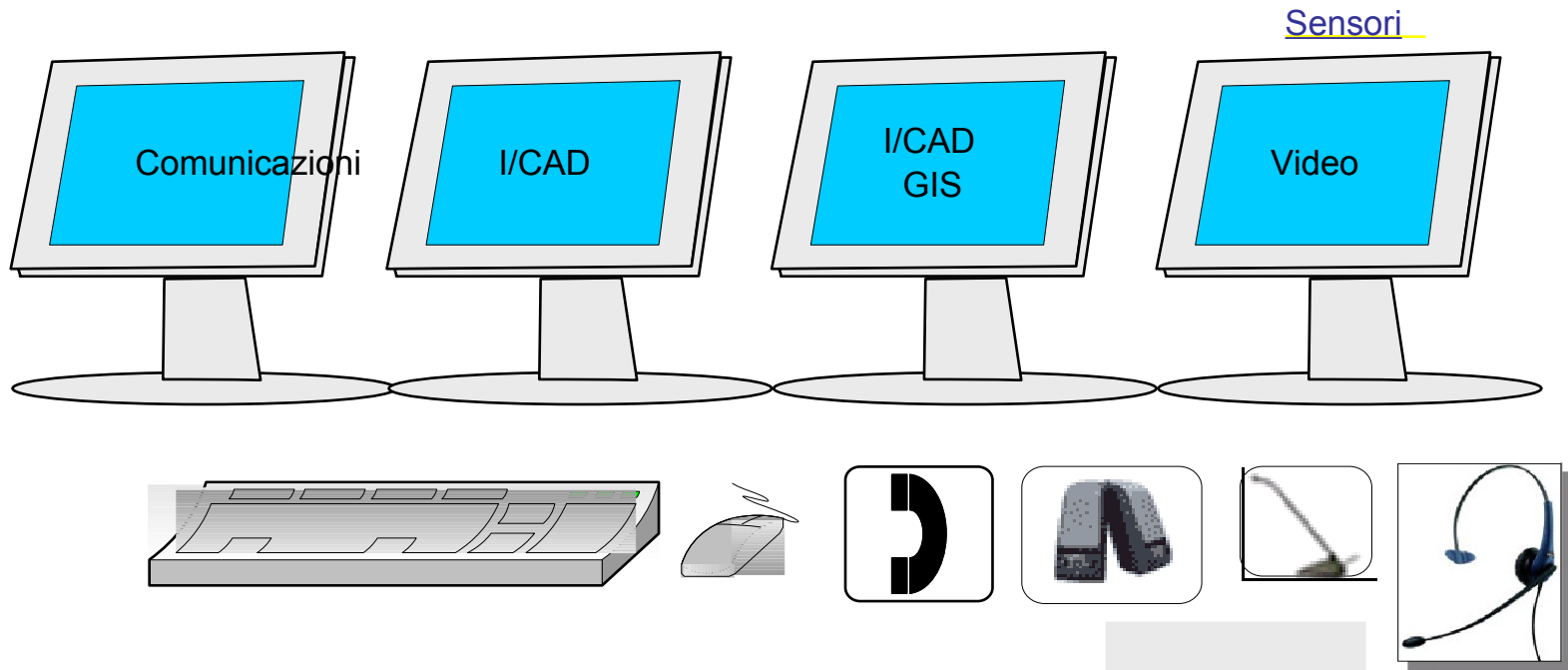


Call takers, dispatchers, and other authorized users have access to a real-time map, depicting response vehicle locations as well as the events to which they are responding. The real-time display allows dispatchers to locate, filter, and route calls for service



Field personnel can update details of an incident, access local and national databases, and send and receive text messages via in-vehicle terminals, handheld devices, or radio handsets.

# Dispatcher



**Dispatch workspace**

# Intergraph I/CAD



Incident Information Form

Real-Time Allocation Monitor

Map View

The screenshot displays the Intergraph I/CAD software interface. It features several windows and panels:

- Incident Information Form:** A window titled "Dispatcher [D1000]" showing details for an incident, including location, type, and status.
- Real-Time Allocation Monitor:** A window titled "Recommended Units" showing a list of units and their allocation status. It includes a table with columns for Event, Type, Subtype, Priority, Unit, Distance, Type, and Status.
- Map View:** A large map window showing a geographic area with various locations and roads. The map is overlaid with a grid and various colored markers.
- Resources and Resource/Event Allocation:** A window titled "Unit/Event Status - [Total: 34]" showing a list of units and their status.
- Events:** A window titled "Events - [Total: 3]" showing a list of events and their details.

Resources and Resource/Event allocation

Events

I/CAD: Intergraph was the first company to offer computer-aided dispatch (CAD) based on a fully integrated map and geographic database.

# Mobile Data Terminal



MobilePublicSafety

Menu Organizer Map Enroute Arrive Clear NCIC FldEvt SignOff Emergency Help

Information  
109 CLOVER RIDGE DR  
MAD to 107 BETTY GARRET DR  
MAD  
6.1 mi in 31 mins

Commands  
1) Travel 0.0 miles on "CLOVER RIDGE DR" to the next intersection Of: "TWELVE OAKS DR" "CLOVER RIDGE DR". Turn left onto "TWELVE OAKS DR" heading NNE.

Directions  
2) Travel 0.2 miles on "TWELVE OAKS DR" THRU 2 intersections To: "TWELVE OAKS DR" "GILLESPIE RD". Turn left onto "GILLESPIE RD" heading WNW.  
3) Travel 0.5 miles on "GILLESPIE RD" THRU 2 intersections To: "GILLESPIE RD" "BALCH RD". Turn left onto "BALCH RD" heading SSW.  
4) Travel 1.0 miles on "BALCH RD" THRU 2 intersections To: "BALCH RD" "CLOVER RIDGE DR". Turn right onto "CLOVER RIDGE DR" heading SSE.

Map CAD Map Google Map Virtual Earth  
Map Satellite Hybrid Reload Map

Click to Center Map on Location

History 2 Dispatch Emerg 0 Hot 0 Routine 0 Update 0 Inbox Critical 0 Normal 0 NOIC Hit 0 Response 0

INTERGRAPH Dispatches 001 Inbox 001 Outbox 000 | Rx Tx Er GPS | CHIP ARRIVE ONLINE 16:15



SQL Mirroring

I/CAD Replication

### Server Farm 1

### Server Farm Backup



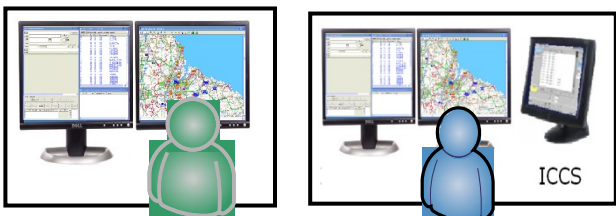
Primary DB   Interface A   Interface B   Archive DB   Training DB   Web Server

Secondary DB   Interface A   Interface B   Archive DB   Training DB   Web Server

User Updates

LAS LAN/WAN

### Main Control Room

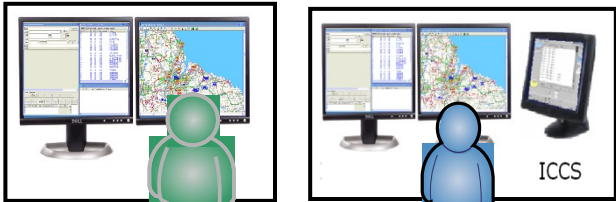


Calltaker

Dispatcher

ICCS

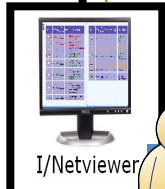
### "Backup" Control Room



Calltaker

Dispatcher

ICCS



I/Netviewer



Remote User

### EOC



ICCS TETRA Gateway

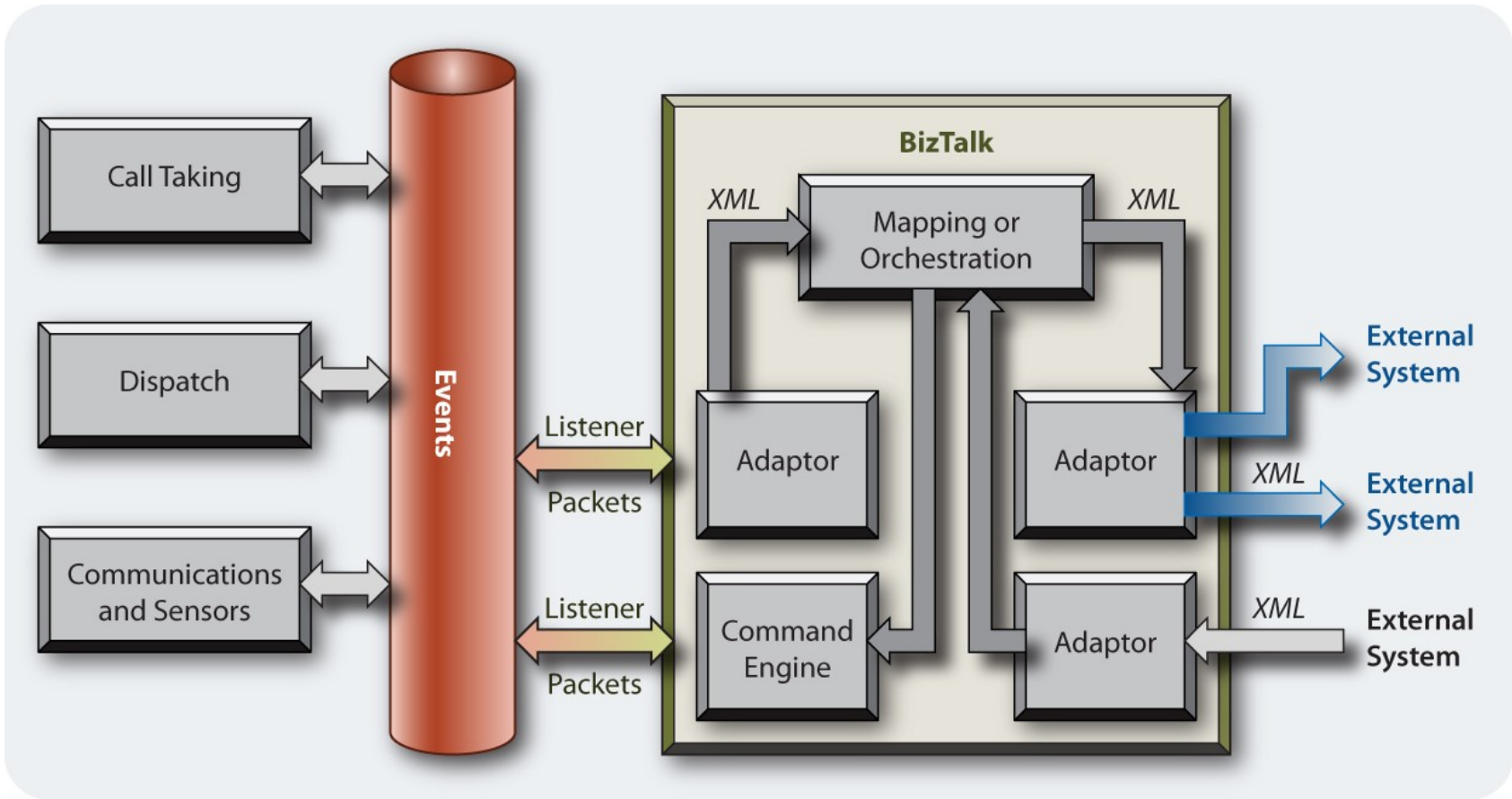
### FBC



ICCS TETRA Gateway



# ... web services!





# Address Geocoding in I/CAD: data set up in GeoMedia + I/Map Editor



The screenshot displays the Microsoft SQL Server Management Studio interface. The main window shows the 'Package Execution Progress' task list, which includes:

- Information: The final commit for the data insertion has started.
- Information: The final commit for the data insertion has ended.
- Information: The final commit for the data insertion has started.
- Information: The final commit for the data insertion has ended.
- Information: Post Execute phase is beginning.
- Progress: Post Execute - 0 percent complete
- Progress: Post Execute - 25 percent complete
- Progress: Post Execute - 50 percent complete
- Progress: Post Execute - 75 percent complete
- Progress: Post Execute - 100 percent complete
- Information: Cleanup phase is beginning.
- Progress: Cleanup - 0 percent complete
- Progress: Cleanup - 25 percent complete
- Progress: Cleanup - 50 percent complete
- Progress: Cleanup - 75 percent complete
- Progress: Cleanup - 100 percent complete
- Information: "component "Destination - co\_pl" (43)" wrote 4640 rows.
- Information: "component "Destination 1 - sp\_ad" (184)" wrote 51269
- Finished, 9:40:13 AM, Elapsed time: 00:00:00.000

The task list also shows a 'Preparation SQL Task' with several validation and start/finish steps, and a 'TRUNCATE TABLE [IME\_Abilene].[dbo]' query being executed.

Overlaid on the right is a dialog box titled 'SSIS Package Store' with the following fields and options:

- Report: dropdown menu
- Package name: `MSDB\CAD2 SPAD_COPL to IME_Abilene`
- Package store: `SSIS Package Store` (dropdown)
- Package name: `CAD-TEST` (dropdown)
- Authentication: `Windows Authentication` (radio button selected)
- SQL Server Authentication: `SQL Server Authentication` (radio button)
- Username: text input field
- Password: text input field
- Package name: `CAD2 SPAD_COPL to IME_Abilene` (text input field)
- Buttons: `Execute` and `Close`

The Windows taskbar at the bottom shows the Start button, several application icons, and the taskbar title 'Microsoft SQL Server Ma...' and 'Execute Package Util...'. The system clock shows 9:41 AM.

# Check Topology

GeoMedia Professional - Topology.gws

File Edit View Insert Tools Analysis Warehouse Legend Geocoding I/Map Editor Spatial Tools Window Help

Lon,Lat(d:m:s) -100:08:40.801, 32:31:19.547

### Topology

- tagic\_roads\_Geometry\_Collections (0 / 0)
- tagic\_roads\_Short\_Segments (0 / 0)
- tagic\_roads\_Duplicate\_Geometry (0 / 0)
- tagic\_roads\_NonCoincident\_Intersecting\_Geometry (0 / 0)
- tagic\_roads\_Unbrkn\_Intersecting\_Geometry (279 / 279)
- tagic\_roads\_Node\_Mismatches (2 / 2)
- tagic\_roads\_Overshoots (0 / 0)
- tagic\_roads\_Undershoots (0 / 0)
- tagic\_roads\_Anomalies (0 / 0)
- tagic\_roads (16445 / 16445)
- bridge\_merge (248 / 248)
- Ortho\_2005

Press F1 for Help. 1:428,919

Start Microsoft SQL Server Ma... G:\Warehouses\Abilene\_... GeoMedia Profession... 9:43 AM

# STREETS Created

GeoMedia Professional - Topology.gws

File Edit View Insert Tools Analysis Warehouse Legend Geocoding I/Map Editor Spatial Tools Window Help

Lon,Lat(d.m:s) -100:07:44.811, 32:23:54.426

**Topology**

- STREETS (16445 / 16445)
- tagic\_roads\_Geometry\_Collections (0 / 0)
- tagic\_roads\_Short\_Segments (0 / 0)
- tagic\_roads\_Duplicate\_Geometry (0 / 0)
- tagic\_roads\_NonCoincident\_Intersecting\_Geometry (0 / 0)
- tagic\_roads\_Unbrkn\_Intersecting\_Geometry (279 / 279)
- tagic\_roads\_Node\_Mismatches (2 / 2)
- tagic\_roads\_Overshoots (0 / 0)
- tagic\_roads\_Undershoots (0 / 0)
- tagic\_roads\_Anomalies (0 / 0)
- tagic\_roads (16445 / 16445)
- bridge\_merge (248 / 248)
- Ortho\_2005

Press F1 for Help. 1:428,919

Start Microsoft SQL Server Ma... G:\Warehouses\Abilene\_... GeoMedia Profession... 9:48 AM

# Pre-Process STREETS



The screenshot displays the Microsoft SQL Server Management Studio interface. The Object Explorer on the left shows the server structure for 'CAD-TEST (SQL Server 9.0.1406 - sa)'. The main window shows a SQL query titled 'CAD-TEST.IME\_A...or Abilene.sql' with the following content:

```
/* The following sqls are part of Abilene's I/Map Editor workflow */

--From GeoMedia, Output the TAGIC_ROADS_IPS to Feature Class called STREETS
BEGIN
ALTER TABLE streets ADD MUNL VARCHAR(4);
ALTER TABLE streets ADD MUNR VARCHAR(4);
ALTER TABLE streets ADD BLOCKAGE_MASK INT;
END

-----

/* Form up data */
BEGIN
UPDATE streets SET
    fedirp = REPLACE(fedirp, ' ', ' '),
    fename = REPLACE(fename, ' ', ' '),
    post_suf = REPLACE(post_suf, ' ', ' '),
    sufdir = REPLACE(sufdir, ' ', ' '),
    aldirp = REPLACE(aldirp, ' ', ' '),
    alname = REPLACE(alname, ' ', ' '),
    altype = REPLACE(altype, ' ', ' '),
    alsufdir = REPLACE(alsufdir, ' ', ' '),
    bnd_dir = REPLACE(bnd_dir, ' ', ' ');

UPDATE streets SET
    fedirp = LTRIM(RTRIM(UPPER(fedirp))),
    fename = LTRIM(RTRIM(UPPER(fename))),
    post_suf = LTRIM(RTRIM(UPPER(post_suf))),
    sufdir = LTRIM(RTRIM(UPPER(sufdir))),
    aldirp = LTRIM(RTRIM(UPPER(aldirp))),
    alname = LTRIM(RTRIM(UPPER(alname))),
    altype = LTRIM(RTRIM(UPPER(altype))),
    alsufdir = LTRIM(RTRIM(UPPER(alsufdir))),
    bnd_dir = LTRIM(RTRIM(UPPER(bnd_dir)));

END
```

The status bar at the bottom indicates the connection is successful and shows the current query execution details: 'Connected.', 'CAD-TEST (9.0 RTM)', 'sa (68)', 'IME\_Abilene', '00:00:00', and '0 rows'.

# Build Centerline Network



The screenshot displays the GeoMedia Professional interface with the 'Build CAD Centerline Network' dialog box open. The dialog box contains the following options and settings:

- Process centerline features  
~ STREETS [Field Mappings...]
- Process alias features  
? STREETS\_ALIAS [Field Mappings...]
- Process soundex attributes
- Process cross street attributes
- Create log file  
g:\warehouses\centerline.log [Browse...]
- Map Staging Schema  
Connection: SQL Server Read\Write  
Oracle schema name: [ ]
- Create centerline/alias error queues  
Queue name: Street centerline errors  
Queue name: Street alias errors

Buttons at the bottom of the dialog include 'View Feature Counts...', 'Delete CAD Network...', 'OK', and 'Cancel'.

A 'View Feature Counts' window is also open, showing the following data:

These are the feature counts of the Map Staging Schema network:

- 16445 Input centerline features
- 1980 Input alias features
- 2476 Street name code records (ST\_CD)
- 0 Street segment records (SEGME)
- 0 Associated edge records (CD\_EDGE)
- 0 Street endpoint records (INTER)
- 0 Associated node records (CD\_NODE)
- 0 Endpoint street name records (INTER\_STR)
- 0 Street alias records (SEG\_ALIAS)

The main map area shows a network of streets with three colored regions: 'CCLR' (orange), 'RLABELS' (pink), and 'CCLRASH' (blue). The status bar at the bottom indicates 'Counting Street: name code records' and '1:1,296,385'.

# Running the Build

GeoMedia Professional - CAD\_Map.gws

File Edit View Insert Tools Analysis Warehouse Legend Geocoding I/Map Editor Spatial Tools Window Help

Lon,Lat(d:m:s) -100:54:07.352, 32:57:35.525

CAD\_Map

- Labels Counties (8)
- Labels Cities (9)
- Labels Addresses
- Labels Abilene Streets XL
- Labels Abilene Streets L
- Labels Abilene Streets M
- Labels Abilene Streets S
- Labels Callahan Roads S
- Labels Callahan Roads M
- Labels Callahan Roads L
- Labels Coke Roads S
- Labels Coke Roads M
- Labels Coke Roads L
- Labels Coleman Roads S
- Labels Coleman Roads M
- Labels Coleman Roads L
- Labels Fisher Roads S
- Labels Fisher Roads M
- Labels Fisher Roads L
- Labels Jones Roads S
- Labels Jones Roads M
- Labels Jones Roads L
- Labels Nolan Roads S
- Labels Nolan Roads M
- Labels Nolan Roads L

**Build CAD Centerline Network**

Process centerline features  
STREETS Field Mappings...

Process alias features  
STREETS\_ALIAS Field Mappings...

Process soundex attributes

Process cross street attributes

Create log file  
g:\warehouses\centerline.log Browse...

Map Staging Schema  
Connection: SQL Server Read/Write  
Oracle schema name:

Create centerline/alias error queues  
Queue name: Street centerline errors  
Queue name: Street alias errors

View Feature Counts... Delete CAD Network... OK Cancel

Writing network features ESC Centerlines processed: 2859

Start Microsoft SQL Server Ma... G:\Warehouses\Abilene... GeoMedia Profession... 9:55 AM

# Build Complete

The screenshot displays the GeoMedia Professional interface with the 'CAD\_Map' window. A dialog box titled 'I/Map Editor' is open, providing the following information:

- IME Build Network started at 4/16/2008 9:54:31 AM
- BuildCADNetwork components initialized in 9 secs
- Network build completed in 117 secs
- Populate Xstreets completed in 1188 secs
- IME Build Network ended at 4/16/2008 10:16:25 AM

The dialog box includes an 'OK' button. The background map shows several colored regions labeled with names: ROSS (blue), JONES (green), SHACELAND (purple), COLEMAN (yellow), FISHER (orange), RUSSELL (pink), and COLEMAN (light blue). The left sidebar lists various data layers, including 'Labels Counties (8)', 'Labels Cities (9)', and numerous 'Labels' for streets and roads in Abilene, Texas. The status bar at the bottom indicates the scale as 1:1,296,385 and the time as 10:16 AM.

# Post-processing



The screenshot displays the Microsoft SQL Server Management Studio interface. The Object Explorer on the left shows the server hierarchy for 'CAD-TEST (SQL Server 9.0.1406 - sa)'. The main window shows a SQL script titled 'CAD-TEST.IME\_A... post\_net4.sql'. The script contains several DECLARE statements for variables, followed by a NOTE section and another DECLARE statement.

```
-- Purpose: This script relinks the fea_mslink column in sp_ad to the new segme mslink
-- 9/2/02 hrk Ported from Oracle to SQL Server
-- Changes are auto-committed

DECLARE @sp_ad_text_id int
DECLARE @sp_ad_mslink int
DECLARE @sp_ad_st_num varchar(11)
DECLARE @sp_ad_st_num_padded varchar(11)
DECLARE @sp_ad_mun varchar(4)
DECLARE @sp_ad_st_num_is_even int
DECLARE @sp_ad_loc_fld2 varchar(5)
DECLARE @sp_ad_loc_fld3 varchar(5)
DECLARE @sp_ad_lv_area varchar(4)

DECLARE @segme_mslink int
DECLARE @segme_fradd1 varchar(11)
DECLARE @segme_fraddr varchar(11)
DECLARE @segme_toadd1 varchar(11)
DECLARE @segme_toaddr varchar(11)
DECLARE @segme_mun1 varchar(4)
DECLARE @segme_munr varchar(4)
DECLARE @segme_addtyp int
DECLARE @segme_st_num_left_is_even int

-- NOTE: Set @print_no_match to 1 if you want to see rows that don't match
DECLARE @print_no_match int
set @print_no_match = 1
DECLARE @match_found int
DECLARE @no_match_header_printed int
set @no_match_header_printed = 1

-- NOTE: set @print_debug to 1 if you want to see debug output
DECLARE @print_debug int
```

The status bar at the bottom indicates the connection is 'Connected.' to 'CAD-TEST (9.0 RTM)' as user 'sa (71)' on the 'IME\_Abilene' server. The execution time is '00:00:00' and '0 rows' have been processed. The current cursor position is at line 13, column 13, character 13.

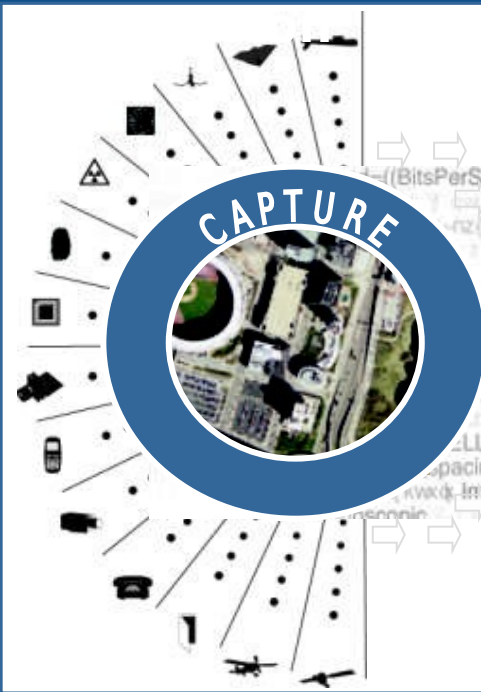


# Emergency Operation Management

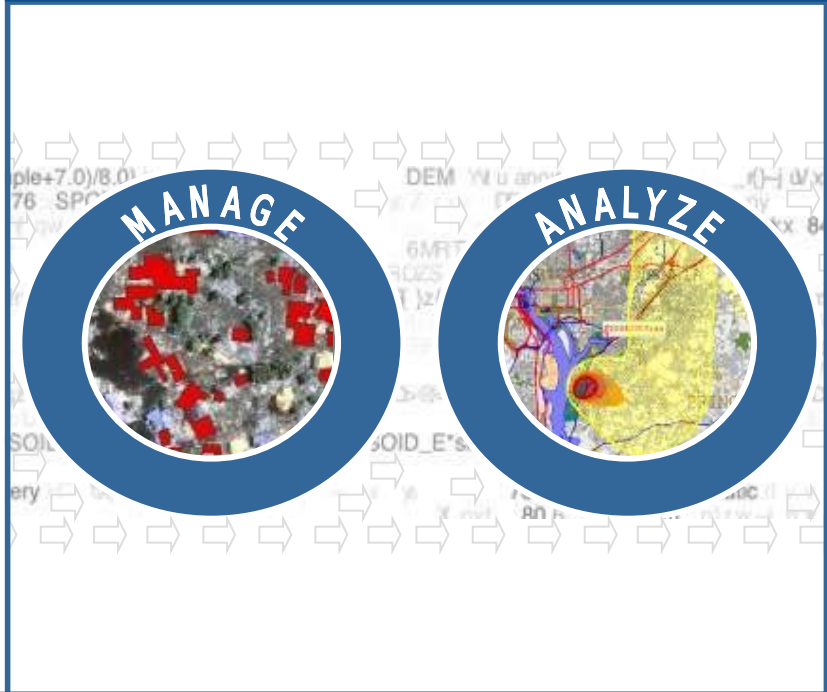
## Emergency Operation Center



## Data Capture & Sensor



## Combination of Geospatial & Emergency Response

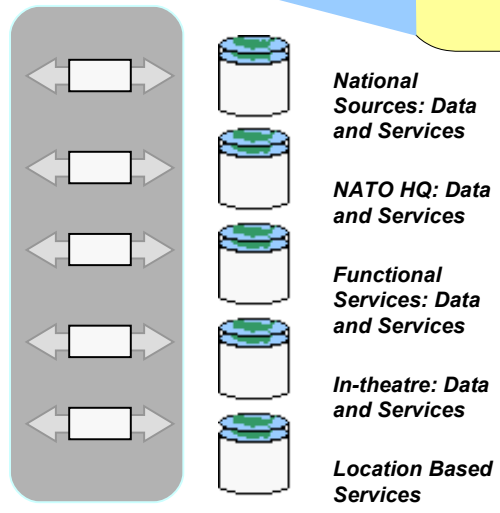
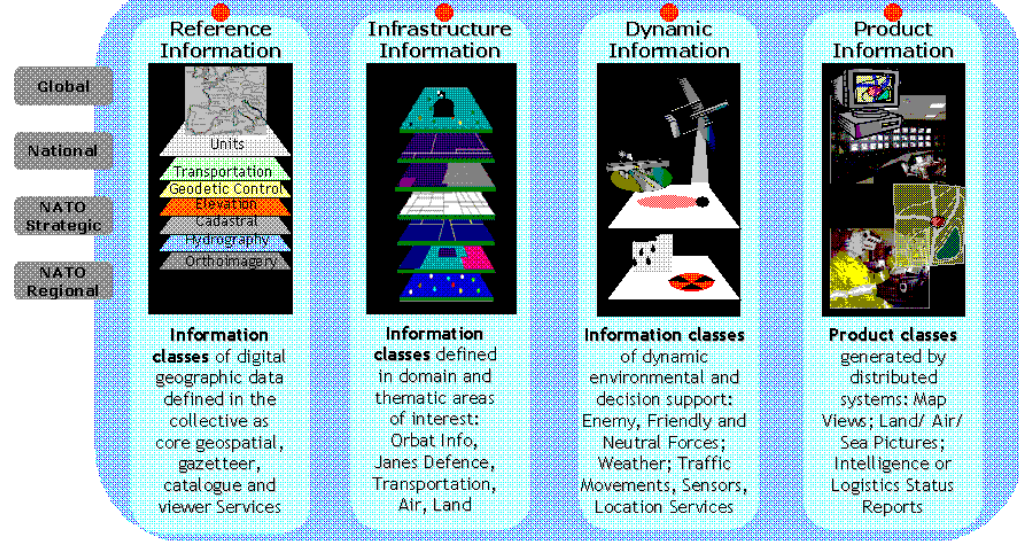
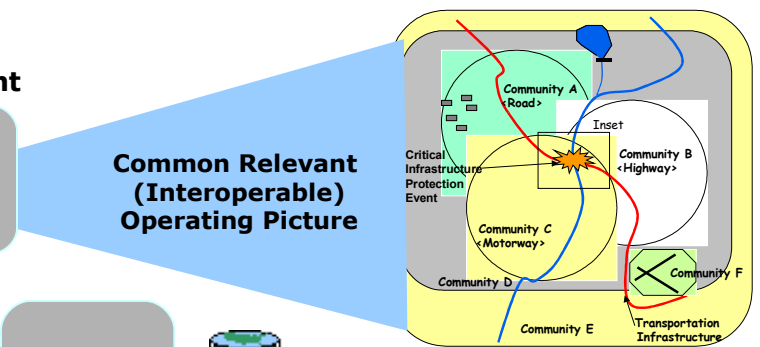
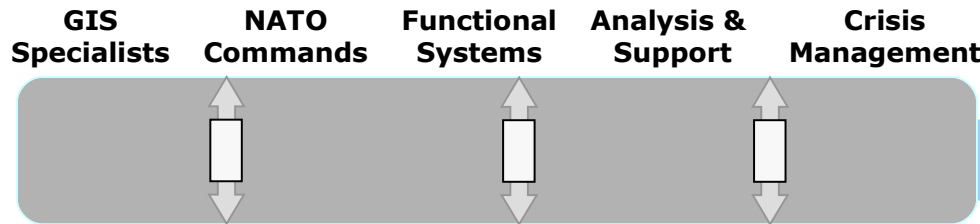


## Interagency Data Integration



From Need to Know to- Need to Share to- Responsibility to Provide

# Common Relevant Operational Picture



 **Information Architecture: Models, Transforms, Application Schemas and Dictionaries**

 **Service Architecture: Standards, Certified Services for Accessing, Processing, Presenting Information**

*Enabling a Geospatial Interoperability Framework*

A set of navigation icons including a downward-pointing triangle, a double right-pointing arrow, and a horizontal bar with a right-pointing arrow.

# Geospatial Intelligence Standards

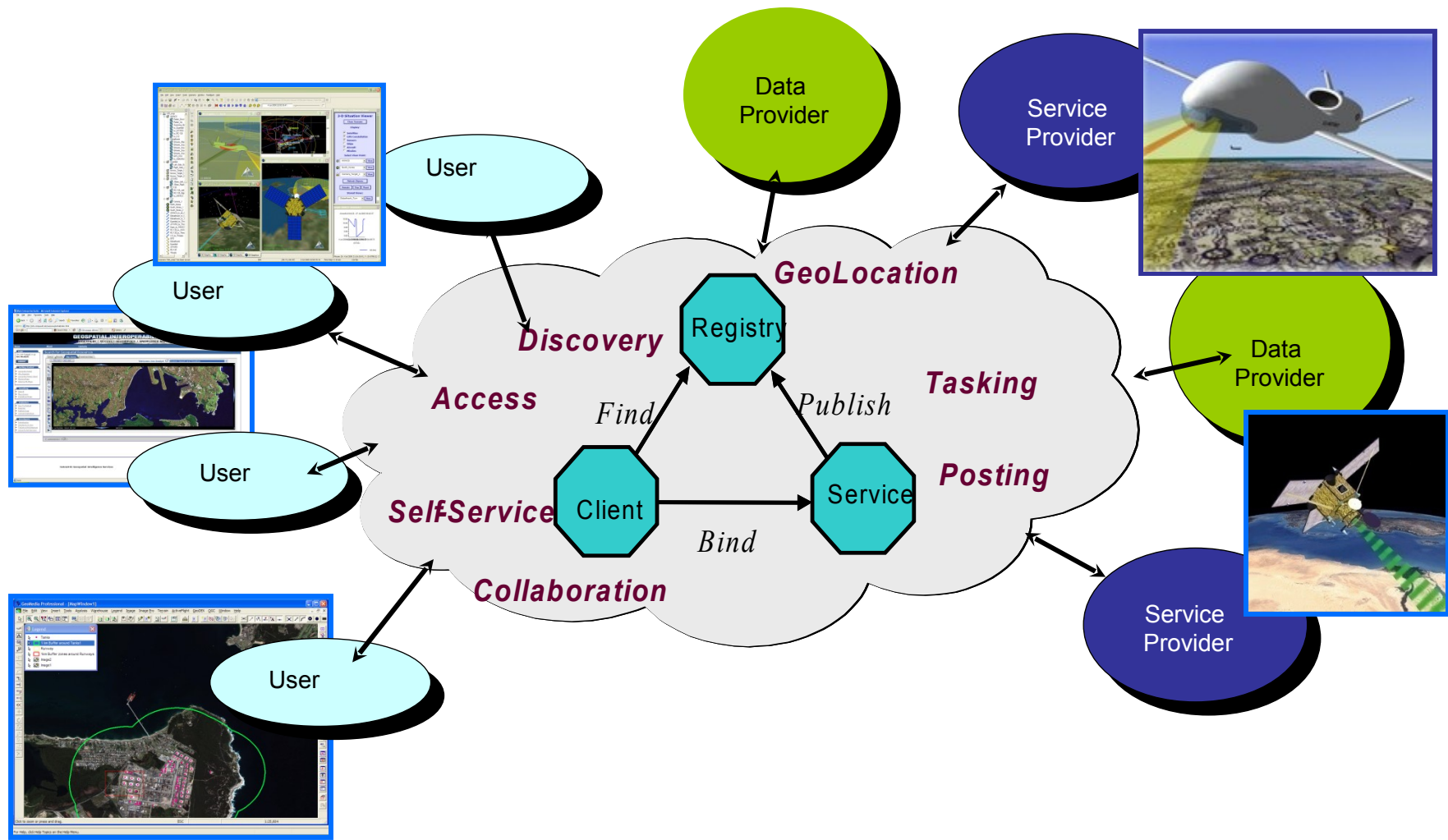
## Enabling a Common Vision

November 2006

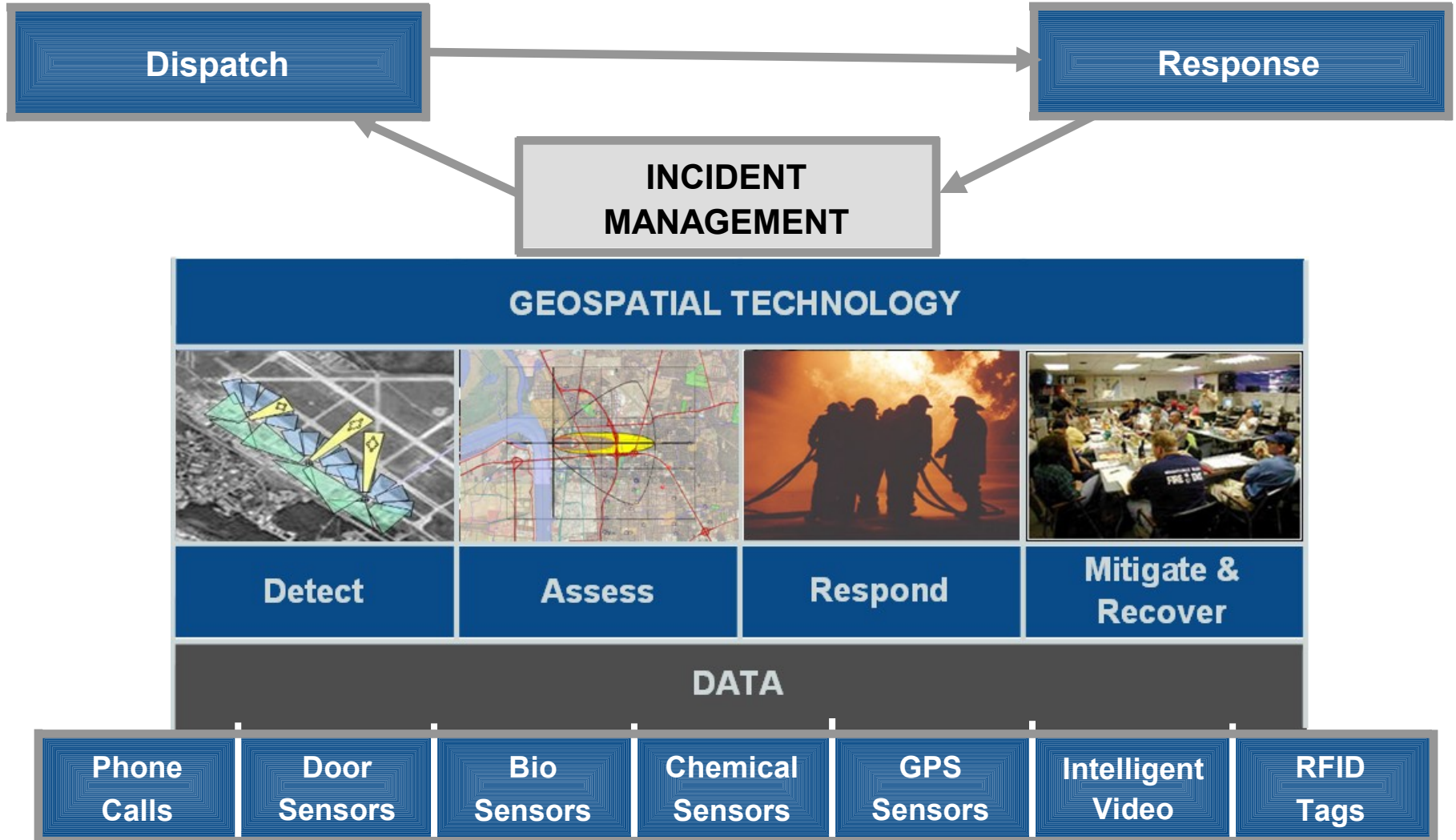
NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY



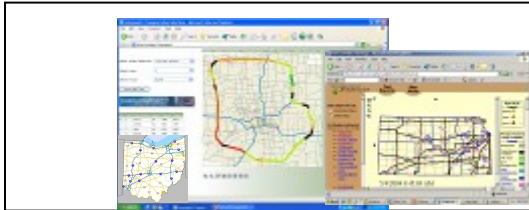
# CROP SOA-based



# Emergency Operation Management



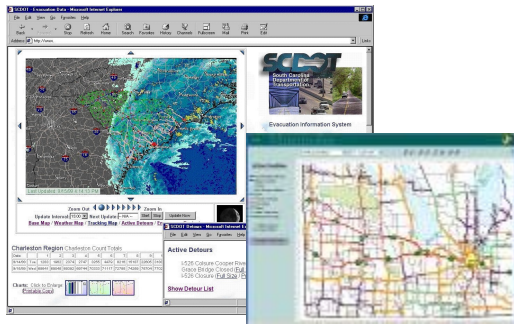
# Emergency Operation Center



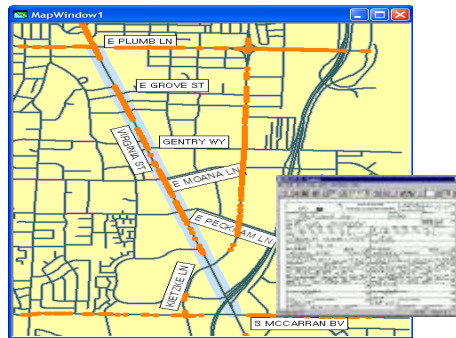
## Events Management



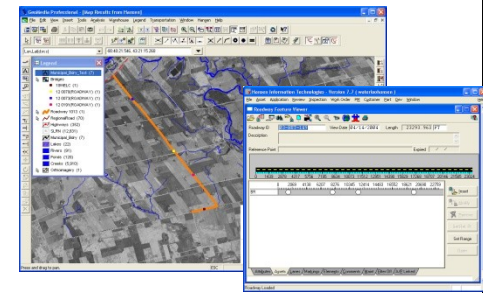
## COP - Web Data Sharing



## DSS



## Mobile Resource Mgt



## Intergration of Data and Models

SDI Data Sources

Sensors, RFID, AVLs Data Sources

**FOR IMMEDIATE RELEASE**

**FOR FURTHER INFORMATION:**

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+1.404.751.2554  
Renee.Wagner@Intergraph.com

## **Intergraph® Security Incident Management Solutions Successfully Protect Delegates, Guests and Infrastructure at 35<sup>th</sup> G8 Summit**

**Team led by SELEX Sistemi Integrati, a Finmeccanica company, delivered integrated security system to provide common operating picture to ensure situational awareness**

**HUNTSVILLE, Ala., Sept. 21, 2009** – Intergraph®, as part of a team led by SELEX Sistemi Integrati (SSI), the systems integrator for the Finmeccanica Group, played a vital role in successfully ensuring the safety and security of world leaders, guests and infrastructure at the G8 Summit, held in L'Aquila, Abruzzo, Italy, from July 8–10, 2009.

Intergraph's integrated security solutions provided a common operating picture that aided Civil Protection Department personnel in their efforts to secure vulnerable areas, detect and assess threats and quickly respond to incidents. The [integrated security system](#) also enabled the exchange of intelligence between the Central Management Station and several remote command and control centers.



During the Emergency Phase of L'Aquila earthquake, the Presidency of Italian Government assigned to the Italian National Civil Protection Department (INCPD) the organization and management of the 2009 G8 Summit (July 8-10).

There was a huge problem to solve: inside the organizational flows structured to manage the earthquake emergency using Augustus method, the INCPD had to operate in the G8 context using the Great Event method, assuring high level of security and minimizing the impacts of the Event on the earthquake emergency organization.

Some numbers:

42 National delegations;

21 Chiefs of State;

3.500 staff people;

15.000 Police people;

.....



The INCPD asked the Italian industry to provide the most advanced technologies and competences to guarantee the management of the event. In this framework Finmeccanica Group will play a key role with its companies operating in the Public Safety and Security sectors, by offering state-of-the-art products.

SELEX Sistemi Integrati, a Finmeccanica Group company, was prime contractor in the design and implementation of a new integrated system that will enable the INCPD to safeguard the meeting.

Through various structures, directed from a Central Coordination and Management Office, it has been possible to collect, analyze and coordinate all the data sent from the locations of the various resources deployed (Interior Ministry, Carabinieri, Army, etc.) and from sensors installed for security purposes.

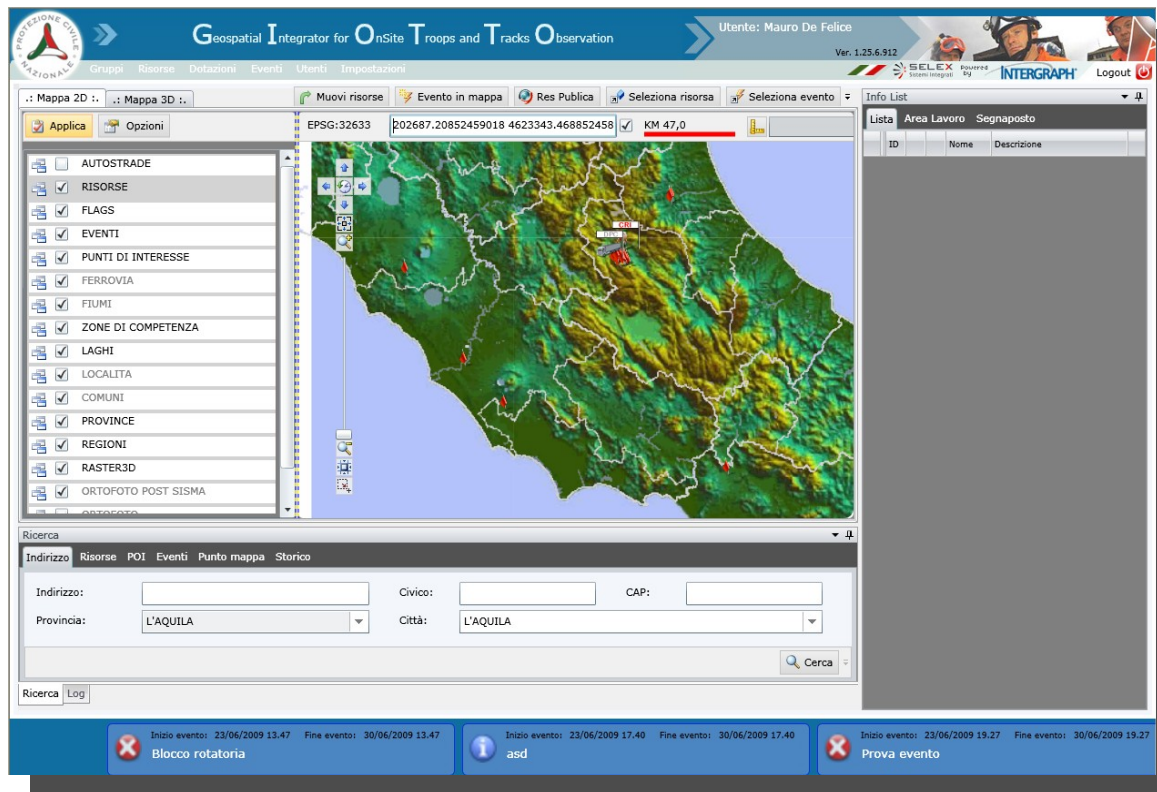
The G8 Decision-Making Room, equipped with sophisticated software capable of integrating all data coming from troops, vehicles, security sensors and so on, had its “heart” in the Common Operational Picture has been developed by Selex Sistemi Integrati with Intergraph Italy technologies and support, and called **“Geospatial Integrator for Onsite Troops and Tracks Observation”**.

Linked with the Earthquake Emergency Situational Control Room (DICOMAC), this system has enabled the Chief of G8 Operations to have real time control of the whole complex scenario.

# Geospatial Integrator for Onsite Troops & Tracks Observation



The application **Geospatial Integrator for Onsite Troops and Tracks Observation** is integrated with the planning, monitoring & control system realized by Selex Sistemi Integrati and Intergraph Italy in order to give to the Decision Makers a full Common Related Operating Picture during Great Events and Emergencies. The CROP shows to the operators of all the corps involved: 2D & 3D interfaces; advanced queries, annotations and data/news sharing functionalities.



The main components of the application are:

- The Cartography:
  - basic (2D/3D)
  - detailed (POI – Point of Interest)
- A Resource Management functionality that can manage even groups;
- An Events Management functionality, to monitor all the “news” coming from field to better understand, in real time, the whole scenario.

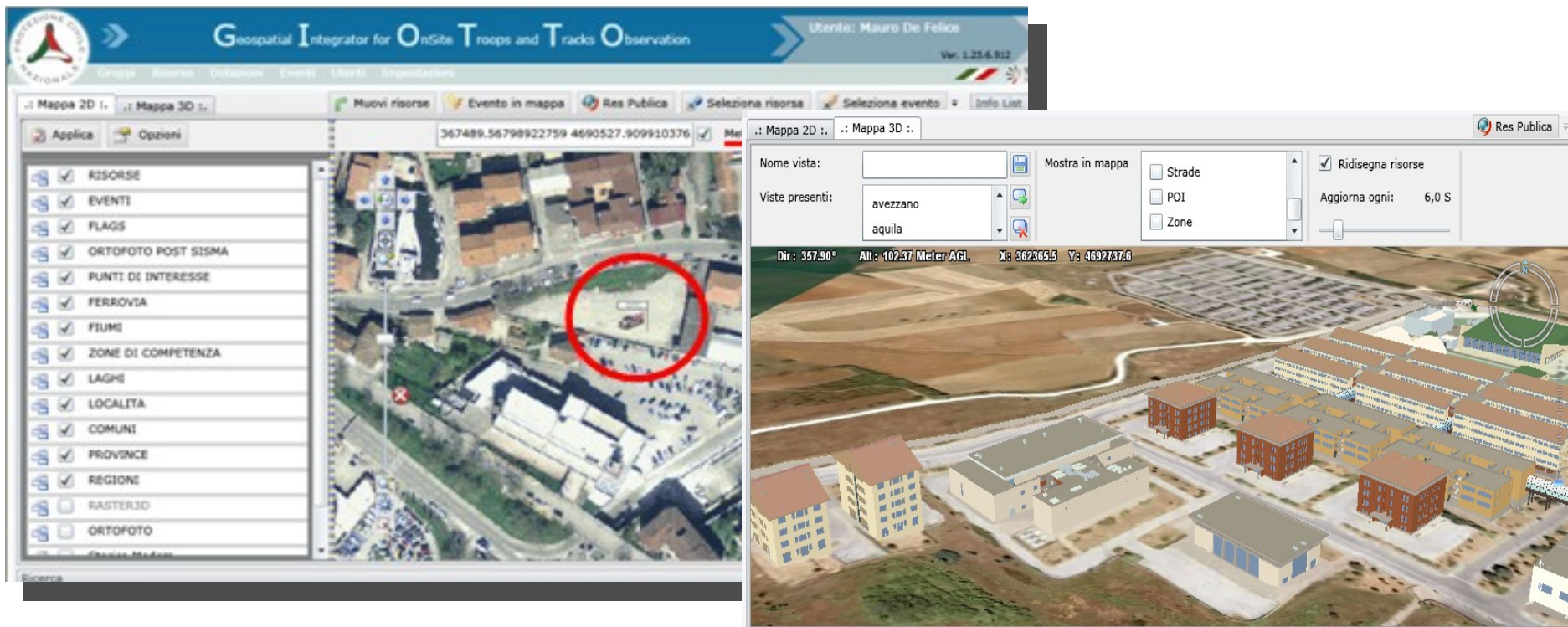
# Geospatial Integrator for Onsite Troops & Tracks Observation



It's the "commercial" cartography (or the cartography available in the databases of all the Public Administrations).

It's possible to manage it both in vectorial layers (e.g. Navteq and/or TeleAtlas data) and in raster layers (e.g. the ortophoto).

The basic cartography is composed by Digital Terrain Model (DTM) layers too, essential to navigate the territory and the other elements displayed in the 3D maps and views.



# The Addresses are in Main Features!



- Maps navigation: zoom in, zoom out, pan, window, .....
- Research and localization:
  - **Addresses**: the application has an advanced normalization & geocoding engine to help operators to easily find the areas of interest (town, town + address, postage code (CAP/ZIP), and so on....
  - **Resources**: it is possible to search and to show any resource involved in the organization (using the links with other systems (e.g.: “access control systems” , etc.)
  - **Groups**: it’s possible to search all groups that were input in the database and to visualize all the resources of the group

Ricerca

Indirizzo Risorse POI Eventi Punto mappa Storico

Indirizzo:  Civico:  CAP:

Provincia: L'AQUILA Città: L'AQUILA

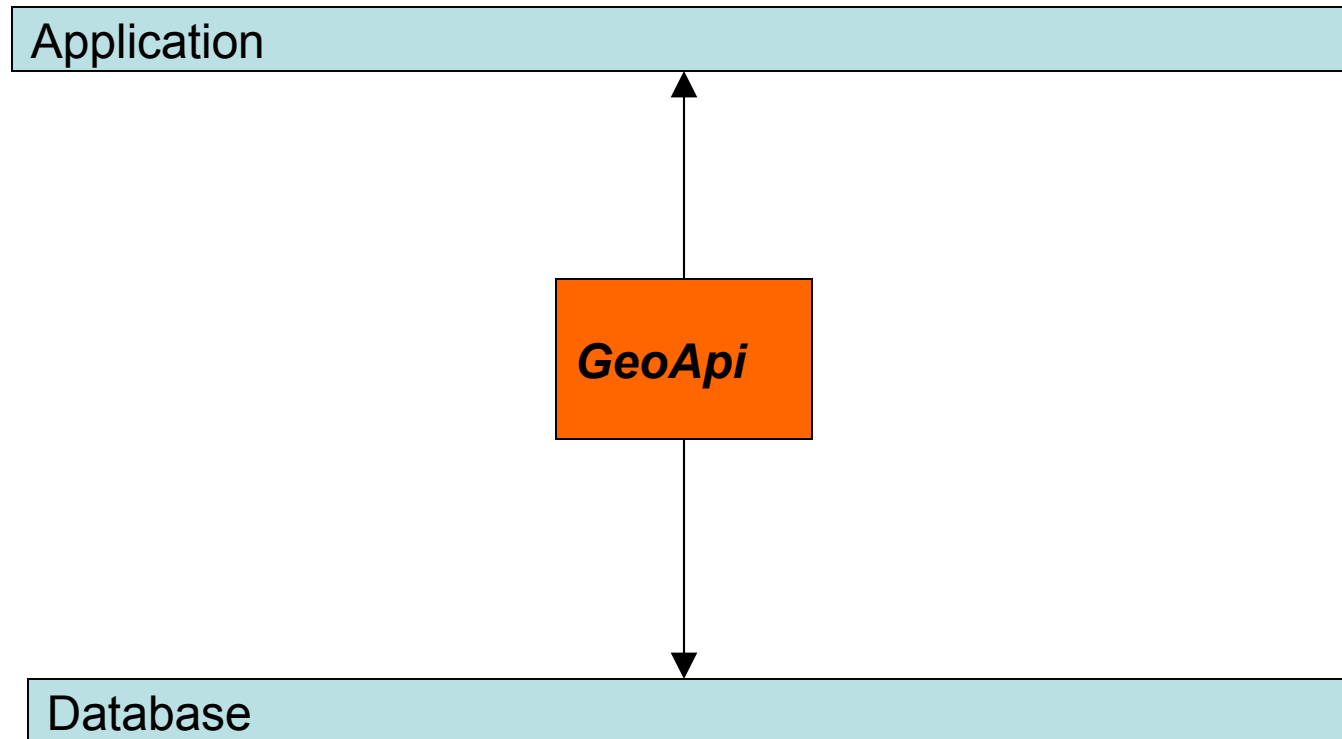
Ricerca

Indirizzo Risorse POI Eventi Punto mappa Storico

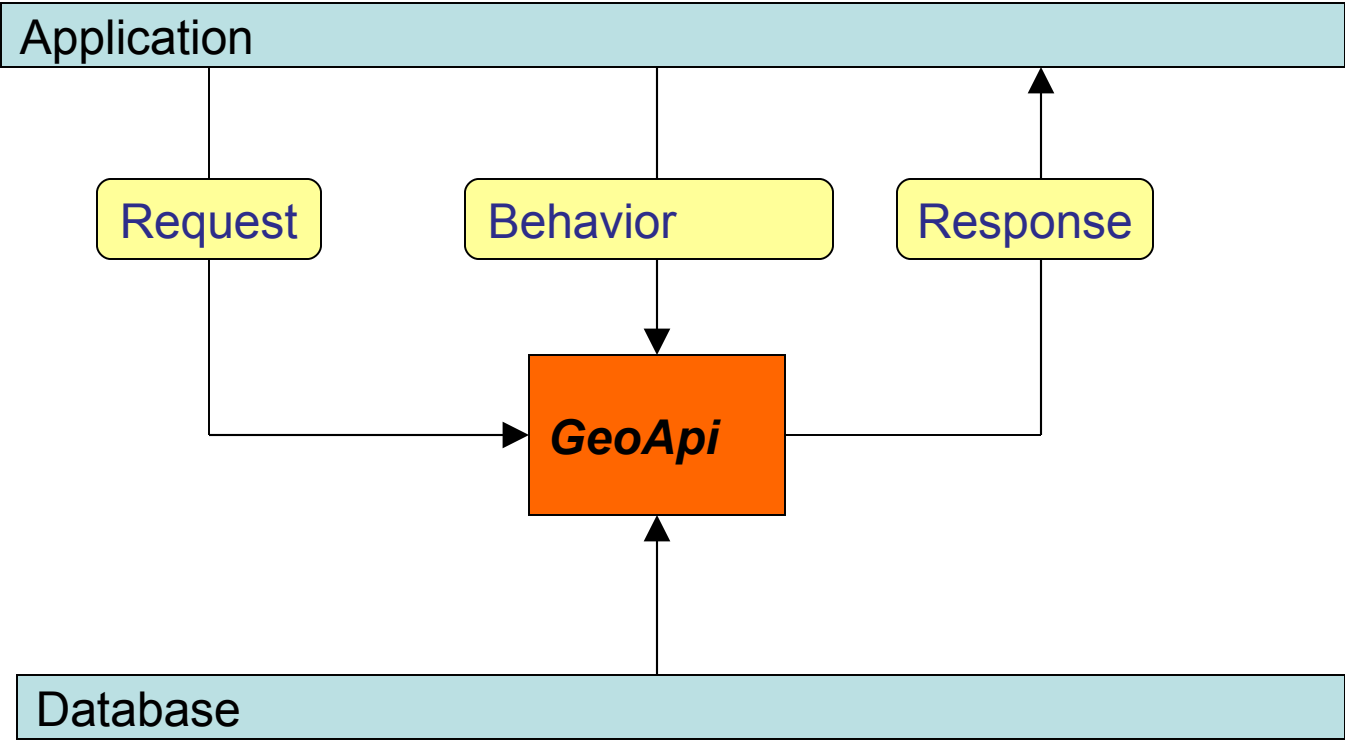
Gruppo: \*\* NESSUNO \*\* \*\* NESSUN GRUPPO SELEZIONATO \*\* Classe: Ambulanza Unità operativa mobile

Nome:

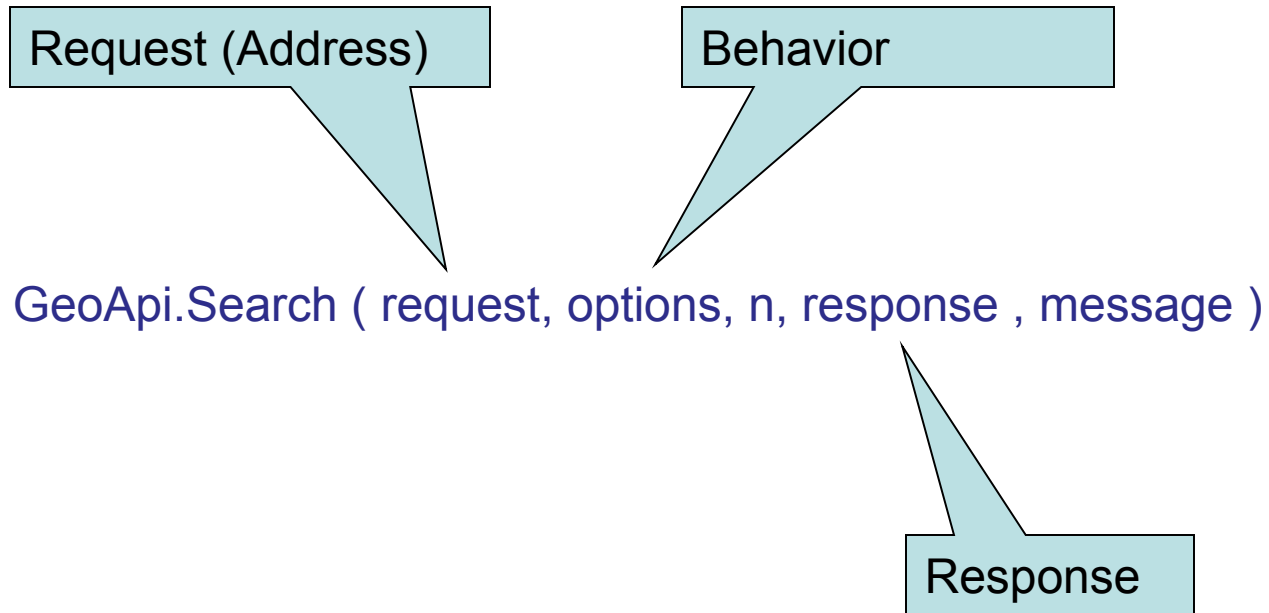
Cerca



## Communication

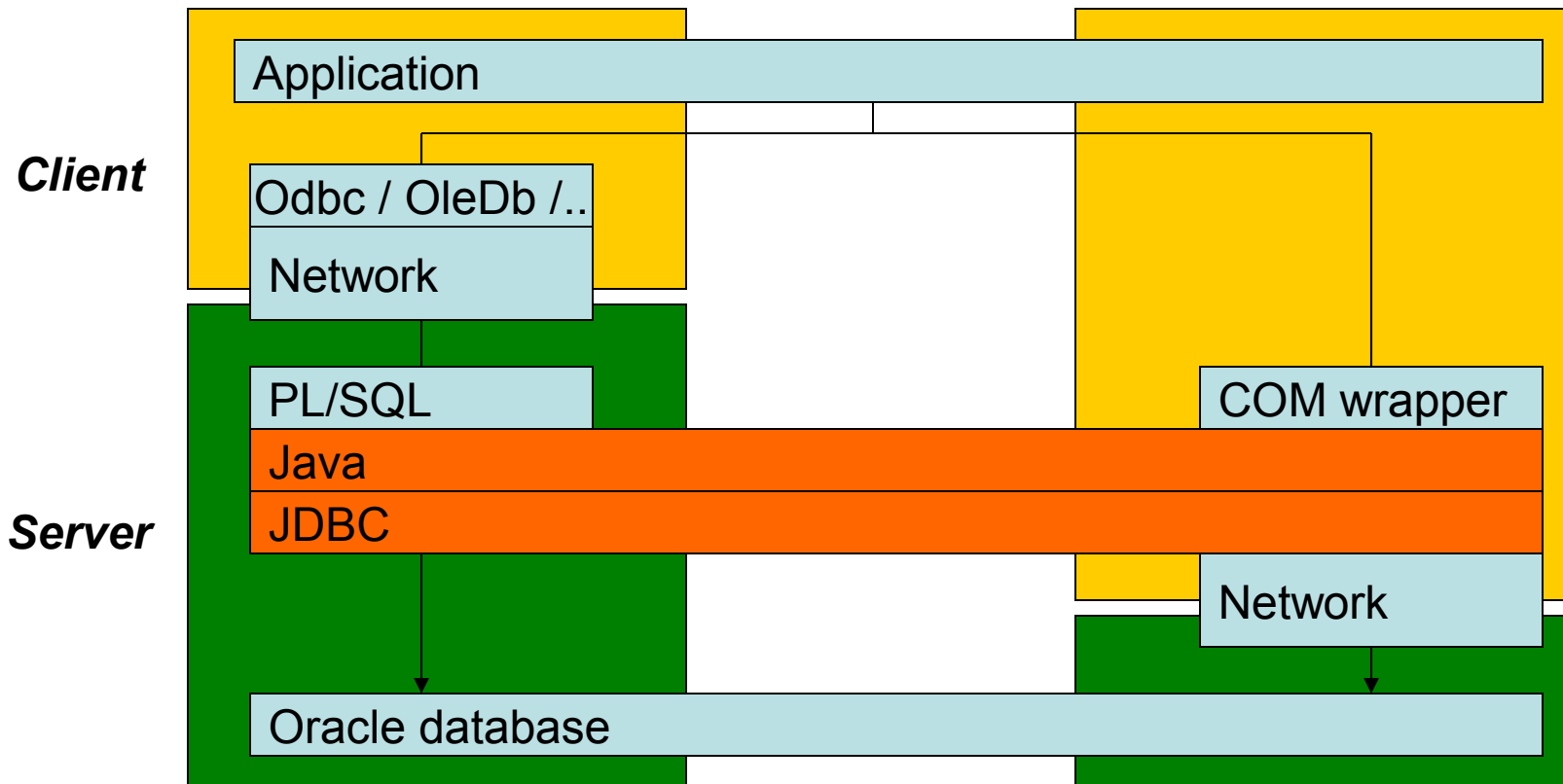


Communication: search for an address



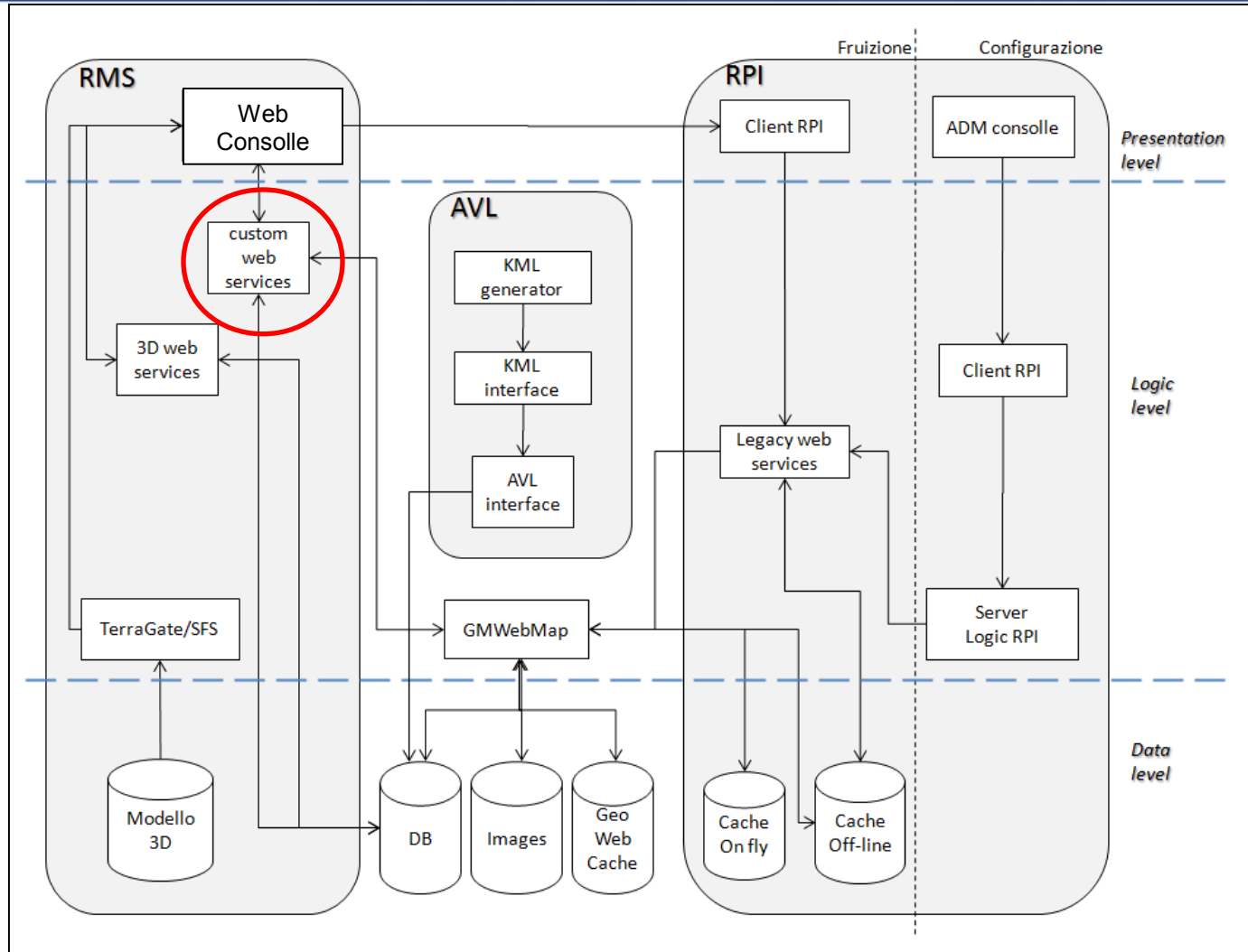


# GeoApi (Rel. 1.0)



Rel. 2.0 is a web service!

# GeoApi Rel. 2.0 is a web service!



**Geospatial Integrator for Onsite Troops & Tracks Observation**

Thanks for the interest!

Grazie per l'attenzione!



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Business Development Unit  
Security, Government & Infrastructure

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