

# GEOinformatics

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5

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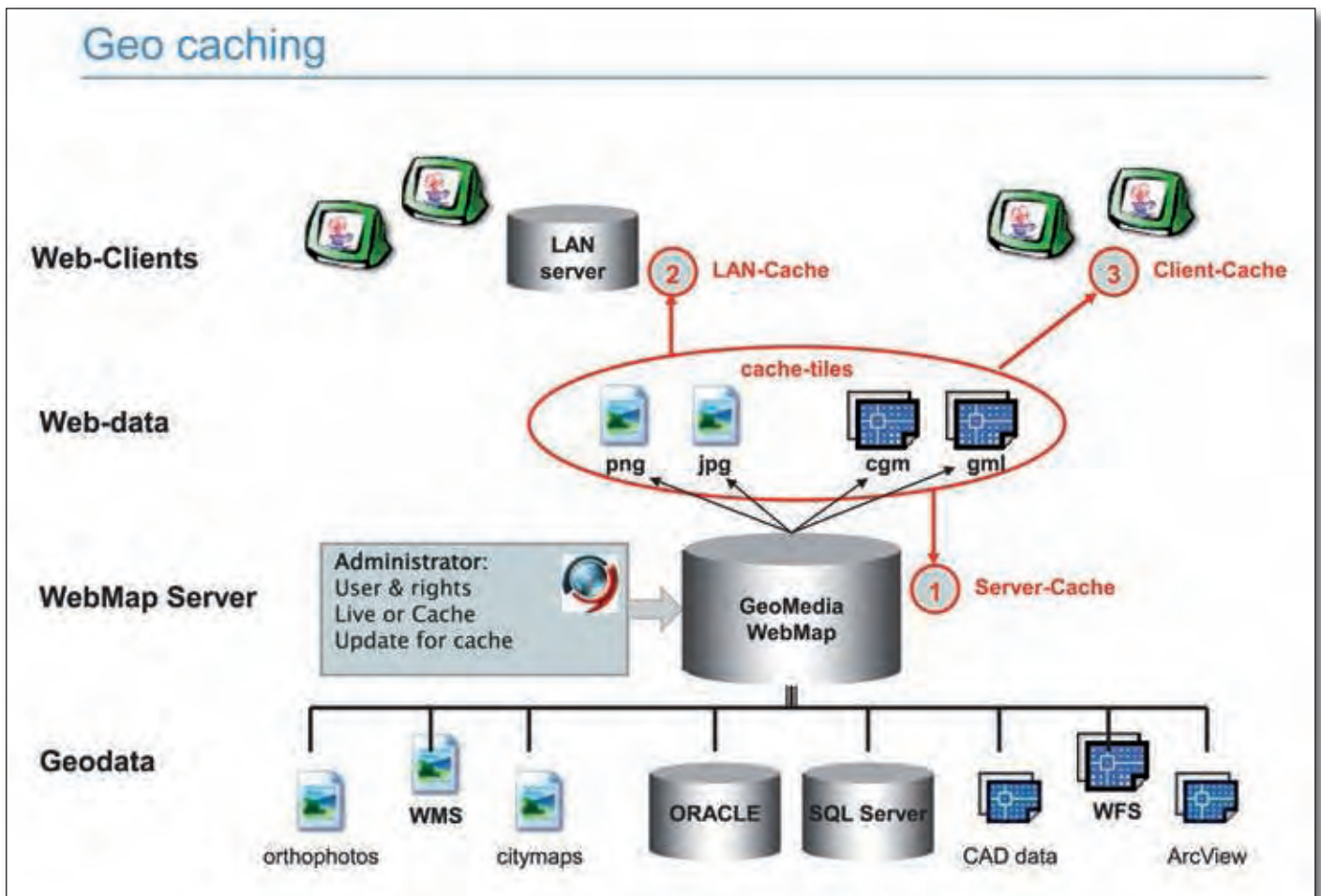


- Intergraph Acquired by Hexagon
- Managing the Port of Rotterdam
- RADARSAT-2 data
- WeoGeo

# Easily share vast amounts of data

*Governments at the local, regional, and national levels require current, accurate geographic information to make better decisions in multiple areas. Geospatial technology can help government organizations better share vast amounts of data internally and externally.*

By Robert Widz



Intergraph, a leading, global provider of geospatially powered solutions to the defense and intelligence, public safety and security, government, transportation, photogrammetry, utilities, and communications industries, offers governments an effective solution for data sharing called the Intergraph GeoMedia ResPublica Intranet. It is a geospatial solution based on Intergraph's GeoMedia WebMap application.

GeoMedia WebMap maximizes the value of organizations' geographic information by publishing it on the Web – providing employees, customers, and the public fast and easy access to geospatial data and functionality. The

GeoMedia ResPublica Intranet makes high-quality GIS data available within an organization to a large number of users, via an Intranet and/or the Internet, with an unlimited number of workstations. It offers a comprehensive range of usage from a simple address search to integrating and using cadastral and survey data, developing and using land plans, aerial photographs, main network plans and carrying out complex spatial analyses.

### Innovative Processes for Better Efficiency

Using an intelligent caching process for geospatial data offers the opportunity to cache selected graphical data including

aerial photos and land use plans, either on the server, on the LAN or on the client. These data are then no longer produced by the map server and can be used directly from the cache, resulting in higher performance in terms of real-time access to data and the reduction of the volume of data to be transferred from the server. The process of updating the cached data on the client takes place completely automatically via a timestamp, and offers the option to run the web client in offline mode without any contact with the server. For example, this makes it possible for mobile staff to operate the application and also assure security in case of system failures or other network problems.

# ta internally and externally

Depending on the requirement or format of the primary data, vector data can be transferred in Computer Graphics Metafile - (CGM) or Geography Markup Language - (GML) formats, or raster data in Joint Photographics Experts Group - (JPEG) or Portable Network Graphics - (PNG) formats to the client, or published as a server cache.

The general dataset is split according to object class into appropriate "squares". This tiling process offers additional benefits for geo caching:

- Only the data that can be properly viewed on the current scale will be transferred via the network and displayed on the client.
- Rapid image refresh rate and low RAM requirement.
- Can be configured according to the available environment (client equipment, server performance, bandwidth, etc).
- Only modified tiles need to be updated in the cache.
- Tile size is appropriately defined by the administrator according to the visible scale range and the data density.

Of course, GeoMedia ResPublica Intranet can also be used without tiling and with permanent live access.

## Smart Client

GeoMedia ResPublica Intranet can run without a browser as a standalone Java application. In addition, GIS data can be offered to workstations that do not have a web browser installed. To start the solution, a hyperlink from the browser or standard Java WebStart can be used. Furthermore, the communication between the client and application servers is completely based on state-of-the-art web services via Simple Object Access Protocol (SOAP).

## Modules for More Security and Optimized Processes

The ResPublica Administrator administration tool is fully web based and can be used in a uniform GUI to manage all the rights needed to operate the system securely. User identification is based on a login and password, and organized via groups. There is also the opportunity to use already available user directories like Active Directory or LDAP to integrate access control for the GIS into the available IT rights concept. Some restrictions can be made by assigning corresponding rights to

the various users and user groups (according to spatial criteria, functional criteria, topical criteria, or to the pre-defined analyze option). Also, any chosen number of functionalities can be integrated into the user interface by defining function groups in the administration tool of ResPublica Intranet. The administrator can define the groups according to his own precepts, except for standard function groups like Querying and Measurement. Correspondingly, the administrator uses this to define and shape the user-specific desktop for users. Attribute queries of any chosen complexity can be created, tested and made accessible to all or just one user using standard SQL over the administrator user interface. When it comes to monitoring purposes, the administrator can access on-the-fly the login statistics and other stats on queries/analyses performed over the administration tool of ResPublica Intranet. Quick and easy access to this information empowers the administrator to assist users at all times.

ResPublica Workflow Manager helps to predefine and control complex operations. Users can also document and log the procedures performed. ResPublica Workflow Manager is XML-based and guides users through an operation sequence automatically. To date, the sequence of procedures required a planning application by the person responsible by calling up the correct functions, enabling/disabling the requisite feature classes, calling up the queries, etc. With Workflow Manager, these steps are predefined and users are simply offered the function required for the current working step. Also, the map is controlled automatically in the background. Users can define additional tests and conditions with each step (node in the workflow tree). Taking the processing of planning permissions as an example, users need to complete or perform pre-defined steps correctly like automatically verifying the land parcel number for the building plot, before being able to move on to the next step. After making each entry, users are only presented with those continuing steps in the operation that are feasible and logical. This eliminates the possibility of making incorrect entries almost completely.

With the Form Generator, users can define which user-specific attributes they can compile and edit, and in which form. The control element, which comes into use (e.g. text, check, combo, and list boxes) and mandatory

boxes are also defined for each edit control. While making each entry, the map at the source is configured automatically with each working step. This guarantees receiving a logical view in each case (scale, extract, visible layer, etc). Additional functions, such as forwarding map extracts during the course of a working step by email, or displaying hierarchical levels in a form, can be implemented depending on the requirement.

ResPublica Automate provides numerous options (text files, DDE, Java applet or XML) for interfacing external desktop and/or web applications. It lets users control the ResPublica client in a variety of ways and it forms the basis for all interfaces and specialist applications. Detail about the XML Automate interface is that the communication is based on the exchange of XML files and on the use of so-called "File-Watchers" that define files in the administrator user interface and inform ResPublica Intranet about newly created files. The export is then realized with the command to inform the ResPublica Intranet user via a button, which is specially defined for the external application. Therefore the export XML will be transferred to the software of the third party manufacturer by storing in the export folder.

*Robert Widz is Country Manager Poland and Managing Director EMEA Government at Intergraph. He may be reached at [robert.widz@intergraph.com](mailto:robert.widz@intergraph.com)*