Louis Hecht's column for the July/August, 2002 issue of Geoinformatics

Title: **How to Build an INSPIRE Node**

In my column in the March issue of this magazine, I explained how OGC's approach to interoperability supports the six principles of INSPIRE. INSPIRE, an initiative from within the European Commission, aims at making available relevant, harmonized and quality geographic information (initially environmentally related) for use in formulating, implementing, monitoring and evaluating policy at all levels of government across Europe. INSPIRE's goals can only be met by building a network of interoperating geoprocessing nodes. The subject of this month's column is GETIS, an EC-funded project, which aims at providing practical guidelines for building what are essentially INSPIRE nodes.

GETIS ("Geo-processing Networks in a European Territorial Interoperability Study"), a two year project, passed its 12 month review on May 28, 2002. The GETIS consortium partners are ITC (Netherlands), PCI-UK (UK), SICAD Geomatics (Germany), OGC-Europe (UK), and Geobase (UK). The method employed in GETIS involves: selecting an application domain in which users must often find and integrate diverse kinds of geodata; evaluating users' spatial IT requirements in this application domain; outlining the data and geoprocessing services used; identifing gaps; reviewing current interoperability standards against the application's requirements and gaps; developing a limited "proof of concept" for a proposed solution; and proposing an over-arching conceptual architecture and best practices for developing customer-specific nodes (such as the type INSPIRE demands) in any domain. Finally, GETIS will promote its conceptual architecture and best practices to the European user community, explaining how existing systems can be incrementally enhanced using current standards-based commercial products.

The final GETIS report has not yet been written, but there is no doubt about which standards it will recommend. OGC's OpenGIS Implementation Specifications for "OGC Web Services" (OWS) will soon build on the IT industry's "Web Services" standards for Web based distributed processing. ISO TC/211 develops abstract specifications, not dependent on the Web platform, which parallel the OpenGIS Implementation Specifications and make it "safe" to proceed on the Web platform. TC/211 also provides standards for spatial metadata which enable automated data discovery, access, and sharing. The GETIS report will also mention ISO's (ISO/IEC 10746) RM-ODP (Reference Model for Open Distributed Processing).

The GETIS conceptual architecture will look essentially the same as the OWS architecture, which provides a framework for unifying spatial information flow involving any number of Web-connected participants. In this architecture, both geodata and remotely executable geoprocessing modules (services) reside on servers and publish their content and capabilities, just as text based Web sites publish their contents. Users' information requests launch automated processes that find and automatically select appropriate data and services (using registries and catalogs that keep track of the servers' published contents and capabilities) and access these to process and present information. This may involve extracting "views" of multiple thematic data layers from multiple sites in which the data resides in different spatial reference systems at different resolutions. Some layers may be vector, others may be raster. Operations to retrieve, manipulate, and present the data

may involve "chaining" of services which have been developed by multiple vendors and which reside on multiple organizations' servers.

This is complicated. But, like all information technology, one development builds on another, and the ultimate user need not know about most of the internal details. Making multiple isolated GIS, remote sensing, digital cartography, facilities management, and navigation systems work together as one system, integrated with non-spatial information across the Web, is a mammoth undertaking. But, after almost eight years, the members of OGC have implemented interoperability interfaces in many of their products that provide some of the capabilities described above. (See http://www.opengis.org/cgi-bin/implement.pl.) Continued specification development followed by more commercial implementations will result in more capabilities becoming Web-accessible. GETIS will show how existing systems can be brought into the network, a little bit at a time, enabling the owners of these systems to migrate the systems efficiently and economically toward fuller interoperability with other systems.

Geoprocessing product integrators, solutions providers and their customers should watch http://www.getis.eu.com for more information about GETIS and upcoming events at which GETIS will be presented.

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