OGC's column for December, 2001 issue of GIS World

**How Can Our Industry Help Protect Critical Infrastructure?**

by Louis Hecht, Vice President, Business Development
Open GIS Consortium, Inc. (OGC)

Traditionally, geoprocessing has been a tool that helps people plan, design, and manage *physical infrastructure* such as roads, water and sewer systems, electric production and power transmission, oil production and pipelines, etc. More recently, "Information Infrastructure" has become a part of our language, so interoperability interface specifications and metadata standards that enable interoperable geoprocessing can easily be thought of as infrastructure.

This is one example of infrastructure supporting other layers of infrastructure. Responsible governments focus most of their attention on building, maintaining and protecting infrastructure. According to Webster, infrastructure is "the underlying foundation or basic framework of a system or organization." Infrastructure typically exists for the public good, consisting of common resources that support commerce, communication, travel, education, public health, justice and order, and other needs of society.

The phrase "Critical Infrastructure Protection" is assuming a higher profile following the September 11 terrorist attacks. In January 2001 the Clinton administration published a "Report of the President of the United States on the Status of Federal Critical Infrastructure Protection Activities." The report speaks of the urgent need for further progress, but no report could call people to action as urgently as the tragic events of September 11. Under the current administration, a new cabinet post has been created for Homeland Security, a responsibility that includes critical infrastructure protection. Legislators are working out the mandates of that post with respect to existing federal agencies.

[header] What can our industry do to help?

We as an industry can put in place key elements of information infrastructure that will support local, state, federal, and international authorities in their Critical Infrastructure Protection tasks. The January 2001 President's Report lists Critical Infrastructure Sectors and their lead agencies: Information and Communications are the domain of the Department of Commerce. Water Supply is the domain of the EPA. Aviation, Highways, Mass Transit, Pipelines, Rail, and Waterborne Commerce are the domain of the Department of Transportation. Emergency Law Enforcement Services are the domain of the Department of Justice and the FBI. Emergency Fire service and continuity of government service are the domain of FEMA. Public Health Services are the domain of the Department of Health and Human Services. Electric and Power, and Oil and Gas Production and Storage are the domain of the Department of Energy.

Protecting each of these sectors depends on rapid discovery and rapid access to disparate spatial information sources and rapid access to distributed geoprocessing capabilities that can help the lead agencies and their state, local, private and international partners make good and timely decisions.

What are the key elements of information infrastructure that we need to put in place? We need to put in place standards and specifications that enable interoperability in ways that provide practical benefits to both the producers and users of geoprocessing systems. These standards and specifications fall into two categories: 1) open interfaces and protocols that enable diverse systems to communicate across technology platforms, application domains, classes of products, and national regions, and 2) standard metadata schemas that enable automated search and discovery of data referenced in online catalogs and registries.

This cooperative work on geospatial standards and specifications has been gaining momentum over the last ten years. OGC is addressing the first requirement, and FGDC and a host of data coordination groups are addressing the second. OGC and FGDC have developed a working relationship with ISO and a working relationship with each other. OGC membership is international and FGDC proactively seeks international cooperation.

Federal agencies in the U.S., Europe, and Asia-Pacific have learned how to insert their requirements into OGC's interoperability specification process through OGC "Interoperability Initiatives." The OGC Interoperability Program is a process and a framework for conducting Interoperability Initiatives tailored for the sponsoring organizations' specific geospatial interoperability requirements. Those requirements can drive the development of OpenGIS Interface Specifications that precipitate the development of competing but interoperating commercial products that meet the Sponsors' needs.

OGC invites agencies charged with Critical Infrastructure Protection responsibilities to discuss their spatial information requirements with the industry experts who gather in OGC to build the geospatial standards elements of the Information Infrastructure.

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