



Case Study: Arkansas Geographic Information Office



Key Facts:

Industry: Government

Problem: Web-based delivery of raster and vector data to diverse user communities

Solution: FME SpatialDirect

Results: Significant cost savings and reduced duplication of effort

Location: Arkansas, USA

The Organization

The Arkansas Geographic Information Office (AGIO) is a state agency responsible for coordinating spatial data development with all levels of government and the private sector. Additionally, the office is responsible for providing geospatial resources to public, private, and state agencies throughout Arkansas.

The Application

The Arkansas Geographic Information Office maintains GeoStor – a state-wide geospatial data warehouse storing over four terabytes of raster and vector spatial data covering the 75 counties of Arkansas. Built over ESRI ArcSDE running atop an Oracle 10g database, GeoStor offers web-based data search and delivery capability using any standard web browser.

GeoStor's user interface allows a region of interest to be defined by entering bounding box coordinates or selecting a pre-existing polygon such as a county boundary, city boundary, or Township/Range/Section. This information can also be specified graphically by drawing a bounding box on an interactive map provided by ESRI GIS Portal Toolkit. Once the region of interest has been defined, the end user enters data requests on a web page form. The form offers a variety of themes (or layers) – such as roads, county boundaries, flood zones, city limits, Landsat imagery, and orthophotography – and a number of different coordinate systems. When the request has been processed GeoStor sends a link, via e-mail, to a site where search results are available for download.

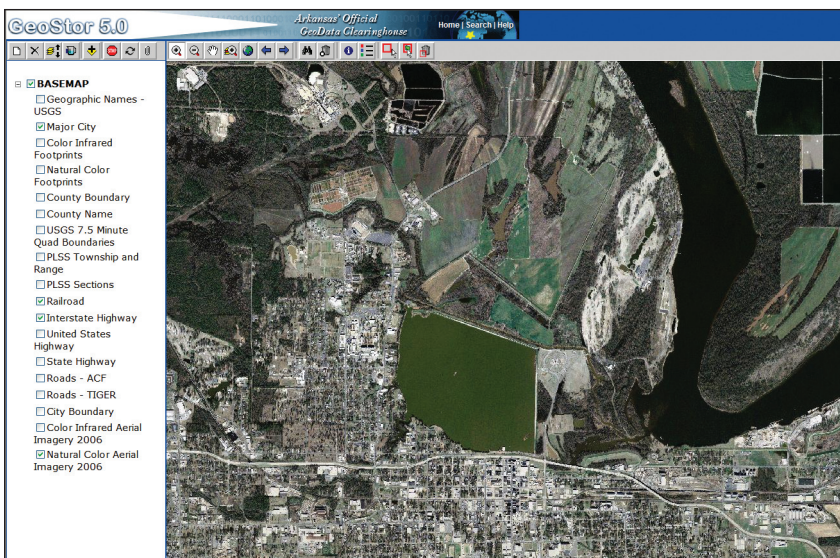
The Challenge

GeoStor was the first statewide, enterprise-class geospatial information system in the United States and first opened to the public in January 2001.

In 2005, the AGIO began designing a new architecture for GeoStor. The AGIO needed a solution that would work with GeoStor's Portal Toolkit and ArcIMS map viewer application to:

- deliver raster as well as vector data via the web, and
- provide both data types in multiple formats and coordinate systems, as specified by the end user

GeoStor's interface makes it easy for users to define their region of interest.





"FME SpatialDirect has served as an instrumental GeoStor component, allowing all vector and raster datasets to be stored in a seamless manner, reducing duplicative efforts and saving costs."

The Solution

The AGIO chose Safe Software's FME SpatialDirect® product for web-based delivery of spatial data as a key component of system upgrades to GeoStor 5.0. FME SpatialDirect, powered by FME 2007, provided the advanced data transformation technology required to manage raster datasets. FME SpatialDirect transforms data to the required raster formats, effectively manages large raster datasets, and provides a powerful re-projection engine that efficiently converts raster data to the coordinate system and format specified by the user. Extended by FME SpatialDirect, GeoStor 5.0 now offers data in up to eight raster formats and sixteen vector formats, and has the flexibility to deliver this data in multiple coordinate systems.

FME SpatialDirect also provides GeoStor with key user interface functionality that eliminates post-download processing of the data. FME SpatialDirect "clips" the area specified by the user from a larger map of the state, compresses the file, and then delivers it to the user via the Internet. The user is provided with exactly the data they need, and is not required to "stitch together" multiple files or extract data from a larger file. The customizable order form interface and translation results page is also provided by FME SpatialDirect.

As an additional feature, FME SpatialDirect provides the AGIO with the option to configure GeoStor to act as a Web Feature Server (WFS), providing vector data in streamed GML for direct read into WFS client applications.

The Benefits

Despite the complexity of processing raster datasets, FME SpatialDirect 2007 has enabled GeoStor to quickly handle a huge volume of requests, making critical information immediately available to the public.

In 2006, over 734,435 different map views were accessed within GeoStor 5, and over 17,500 map files were distributed to users. Based on the cost-benefit figures for the original GeoStor installation, this represents a minimum savings of \$5 million for a single year of operation, compared with the cost of state staff manually providing this information.

FME SpatialDirect's ability to handle both raster and vector translations considerably reduced the reconfiguration effort for the AGIO by alleviating the need to work with multiple software products; FME SpatialDirect's ability to seamlessly translate both raster and vector spatial data into the format and coordinate system specified by the user also removed numerous data integration barriers.

Another advantage was the ease with which FME SpatialDirect could be configured in terms of scalability and customization. The AGIO has a distributed configuration powered by twelve FME servers, eight of which are dedicated to raster translations. FME SpatialDirect's load distribution mechanism ensures that requests are sent to the appropriate FME server, and sends the translation request into a queue if all FME servers are busy. Customization of FME SpatialDirect enabled GeoStor 5 to deliver a metadata file (in XML format) along with the search results. The metadata is updated on the fly, and reflects the extents, coordinate system, and process steps of the data request.

What They're Saying

"Historically, users had to contact numerous agencies to obtain spatial data. These agencies stored spatial data in different data formats, leading to time consuming delays and costly additional data processing. GeoStor 5.0 provides users access to geospatial data the way they need it - in their format and their coordinate system. Having a single, accessible source for all important data layers reduces duplication and data production costs, and allows users to access information with comparatively minimal demands on AGIO staff. FME SpatialDirect has served as an instrumental GeoStor component, allowing all vector and raster datasets to be stored in a seamless manner, reducing duplicative efforts and saving costs."

Learn More

To find out how FME can help address your data interoperability challenge, or to download a free evaluation copy of FME, visit www.safe.com.



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