

Reference Points

– Geo-enabled web service applications based on GeoXtension –

Deutsche Bahn AG (German Rail)

DB Netz AG, the infrastructure manager of German Rail, administer main survey points, including detail information and panorama photographs, covering the entire German Rail route network.

FICHTNER CONSULTING & IT (FCIT) has developed a solution for DB Netz AG to manage and publish these information documents in their spatial context through German Rail's intranet.

At the solution's core is GeoXtension – a product designed by FCIT to integrate geodata in business workflows via standard browser interface, requiring no additional software installation. The underlying state-of-the-art 3-tier application server architecture is based on an open standardized ORACLE spatial database.

Customer

DB Netz AG is the infrastructure manager of German Rail, responsible for the operation and maintenance of the railway network. Their prime objective is to ensure safe and reliable operation on the more than 35,000 kilometers of routes in Germany.

Situation

DB Netz AG administer main survey points, dimensional sketches and panorama photographs covering the entire railway network. So far, these data are kept in several thousand individual documents and directories.

The documents are accessed by various divisions for information purposes. They are maintained and updated on a regular basis.

Objective

To support the above processes more efficiently, the information documents pertaining to the main survey points shall be accessed and administered via the company intranet of German Rail. Search and administration of the documents shall be realized as a cartographic representation on the basis of the German topographic map to a scale of 1:25.000 (DTK 25).

The specifications included:

- Easy-to-operate and intuitive application requiring no extra end user training
- Clear map representation with a self-explanatory display control
- Direct visualization of linked documents, for display or download for local storage
- Direct navigation via point number, kilometer station, community, division and other relevant criteria
- Direct master data access to gather information pertaining to routes and relevant technical equipment
- Measurement functions
- Print functions

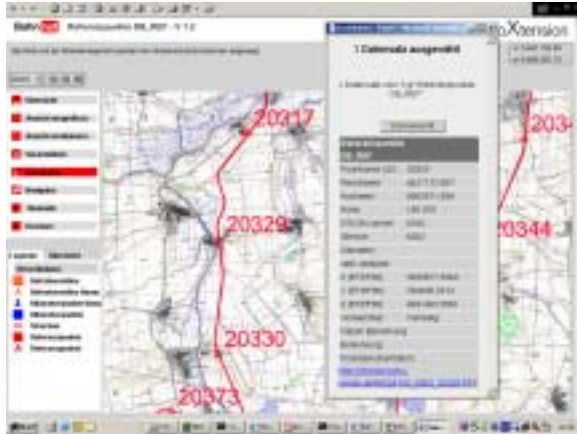
In addition, the application was to run without additional installations on the standard work stations of German Rail in order to minimize administration costs.



Implementation

The solution is based on FCIT's GeoXtension web service components. These components are already enhancing a number of business process workflows at German Rail.

FCIT has designed the overall architecture and supported DB Netz in integrating the data, including creation and configuration of the GeoXtension web component.



GeoXtension

GeoXtension is deployed on ORACLE's Application Server based on data from an OpenGIS® warehouse. This technology allows GIS data to be integrated with other German Rail or third-party data, thus creating valuable decision support and allowing navigation and queries based on the intuitive map display.

GeoXtension has been developed in the leading web architecture J2EE, allowing cost-effective and manageable integration of valuable geodata with other enterprise systems such as ERP, CRM, Billing, Dispatching and others.

GeoXtension takes advantage of leading standards to protect investment and allow a wide range of standard tools to be utilized. The geodata are displayed in the W3C®-XML definition SVG (scalable vector graphics). The base data are kept in OpenGIS® *Simple Feature Specification* format. The application server architecture ensures maximum scalability in terms of end user numbers, data volumes and system distribution.

This helps boost the efficiency of geo-related business processes via web service enterprise applications – from small installations with only a limited number of users up to full-scale professional internet services.

Benefit

The application implemented by FCIT and DB Netz enables different user groups to visualize the on-site situation in a geographic context. The configurable display allows full-scale and detail views, supporting many work processes without requiring additional assistance from specialists.

The map display allows fast querying, location and retrieval of information, considerably enhancing access and management.

One of the major advantages is the application's ease-of-use. The browser-based front-end provides just those functions and options required for the individual business process. The actual source of the data is hidden from the user to ensure a clear and intuitive appearance of the application.

GeoXtension is a zero client and does not load plug-ins or applets. This type of architecture saves costs in administration and ensures that the service is available even for users behind restrictive firewalls.

Outlook

Today, many user groups within German Rail benefit from a number of task-oriented web solutions based on GeoXtension in order to support and speed up their business processes. Some examples are:

- Web-publishing of network statements
- Upgrade planning of signaling equipment
- Data capture and editing of department-specific infrastructure information
- Review, correction and publishing of data
- Linking of specialist documents
- Connection to other systems

Due to GeoXtension's open, configurable and scalable architecture, upgrades and applications can be deployed with minimum cost and time.