

SNB Editor

– Geo-enabled web service applications based on GeoXtension –

Deutsche Bahn AG (German Rail)

In connection with the implementation of an EU directive, rail network operators have to publish network statements on the internet, including relevant information on the access to the infrastructure. Before being posted, these data are verified and updated (if necessary) by the responsible technical divisions.

FICHTNER CONSULTING & IT (FCIT) has developed a browser-based solution for DB Netz AG that allows thematic display of data to be published, and allows editing by authorized users.

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

The EU has issued a directive intended to ensure indiscriminate access to the European rail network. According to this directive railway infrastructure managers have to publish the properties of their routes on the internet in the form of network statements. In order to meet this directive, DB Systems GmbH assigned FCIT to implement a map representation of their route network on the web site of the DB AG.

For web publishing, the basic data are aggregated to a generalized view of the rail network. Therefore, prior to publication, the data have to be verified and completed, if necessary.

Objective

In order to guarantee consistency of these critical data and secured access of this work process, a browser-based solution with the following characteristics was favored:

- Login mechanism allocating the end user to a technical division
- Possibility to edit all attribute data assigned to a technical division
- Saving modifications with information on changing user and date
- Easy-to-operate, intuitive application requiring no extra end user training
- Clear map representation with a self-explanatory display control and legend
- Thematic selection and feature-specific coloring of the data (e.g. speed, route classification, etc.)
- 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 SNB Editor application implemented by FCIT and DB Netz enables technical divisions to verify and modify their data independently, without any GIS know how. The display is identical to the map view subsequently published on the web.

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 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 kind 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:

- Online geocoding and display of SAP messages and orders
- Infrastructure information
- Planning of upgrade projects
- Capture and maintenance of specific geodata and attributes
- Correction and publishing of geodata
- 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.