Google

Case Study | Google Earth Enterprise

The Swiss railway SBB uses Google Earth Enterprise to monitor its mobile radio infrastructure in 3D

SBB CFF FFS

At a Glance

What they wanted to do

- A geographical information system for documenting and monitoring the SBB-internal GSM-R platform that visualizes the infrastructure data in 3D

What they did

- SBB employed Google Earth Enterprise as part of its solution for documenting and monitoring the mobile network

What they accomplished

- 3D visualization of the mobile network infrastructure and improved quality assurance of the technical documentation, interdepartmental cooperation and reporting

"The rapid, fluid way in which Google Earth Enterprise generates and visualizes even complex objects and maps is absolutely thrilling."
—Kurt Metzger, Project Manager within the Operating Infrastructure Team at SBB Telecom

Business

The Swiss railway SBB is the largest travel and transportation enterprise in Switzerland. Every year, 357 million travelers and commuters use SBB, catching their trains every hour or half-hour at more than 800 train stations and stops. SBB Cargo transports 195,000 tons of customer goods along its tracks daily. Upwards of 28,000 railway men and women ensure that the trains run smoothly around the clock. This also makes SBB one of the largest employers in Switzerland.

There are 9,000 employees in the SBB Infrastructure division to make sure that travelers and goods reach their destinations safely, punctually and comfortably. This also lays the foundation for more and more rail kilometers being sold to the railway transportation companies like SBB Passenger Traffic, SBB Cargo, BLS and others. The number reached more than 163 million in 2010 and is still rising.

Challenge

The digital Global System of Mobile Communication-Rail platform, or GSM-R for short, is a major part of SBB's innovation strategy. This new technology will cover all mobile voice and data services for rail communication in the future. GSM-R denotes a digital mobile telephony system developed especially for railways. Building on standard and well-established GSM, it adds specific possibilities for railway communication. The frequencies used for GSM-R have been harmonized internationally and reserved exclusively for railways.

A mobile telephony network includes an enormous volume of infrastructure data, from the site to radio masts and individual antenna systems, and their configuration data along with other information. Countless technical configuration information is needed to control the functionality of a mobile communication system and the interplay between elements. Such infrastructure data and its technical interaction and dependencies can best be visualized using a geographic information system (GIS).

"The solutions we have been using so far have one critical disadvantage: they do not meet the needs of 3D components," explains Kurt Metzger, Project Manager within the Operating Infrastructure Team at SBB Telecom. "Any attempt to visualize the data quality for review is unsatisfactory and, in particular, only two-dimensional. For example, antenna geometries such as height, elevation and mast lengths cannot be represented." A solution was therefore sought that would allow 3D visualization to make the matter clear and easy to understand for everyone. It should also ensure that the data quality could be better reviewed and optimized in terms of infrastructure and configuration.

Solution

Google Earth Enterprise met these requirements for SBB Telecom. The company is therefore using the Google product as part of its solution for documenting and monitoring SBB's own GSM-R network. Google Earth Enterprise draws the relevant parameters from other technical applications

About TYDAC AG

TYDAC is a Google Enterprise Partner for its range of geographical products; it executed the SBB project. TYDAC has more than 20 years of experience in GIS and web mapping. The company is specialized in integrating GIS functions into business processes.

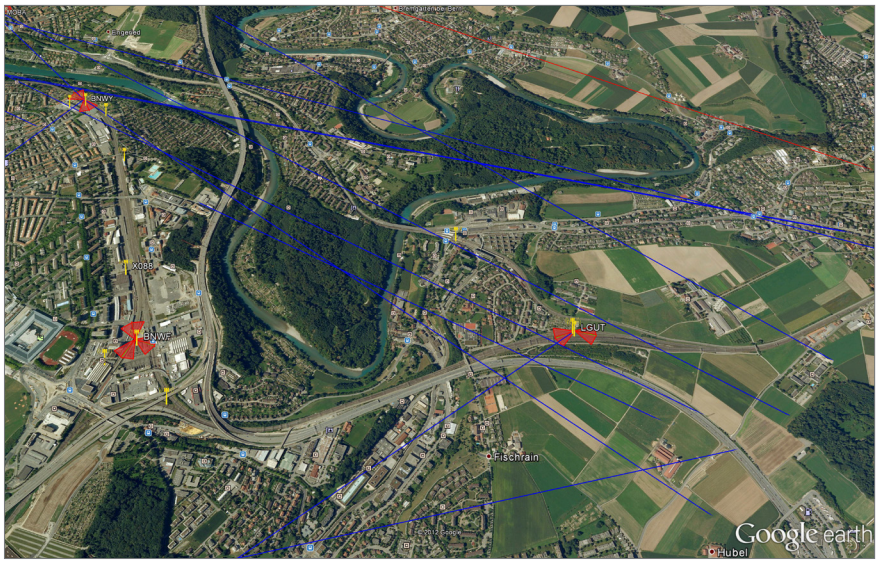
For more information visit
www.www.tydac.ch

About Google Earth Enterprise

Google Earth Enterprise helps companies incorporate high-performance Google Earth tools for processing images, terrains and vector data within their organizations. The information can be visualized, researched and extrapolated upon an interactive 3D globe or browser-based 2D maps. Google Earth Enterprise can significantly improve the ability of company employees to cooperate and make decisions and allows them to act on the basis of geographical information more efficiently and competently.

For more information visit
www.google.com/enterprise/earthmaps/earth_enterprise

"Over the long term, we are seeing a considerable savings in time in interactive usage and we are also able to significantly improve the quality of our data and thus our decisions, too."
—Kurt Metzger, Project Manager within the Operating Infrastructure Team at SBB Telecom



such as the existing database and generates geographical 3D objects dynamically for visualization on the Google Earth Globe . Google Earth Enterprise communicates bidirectionally with other technical applications; in other words, it moves in both directions, point for point.

"Google Earth Enterprise has met every expectation," emphasizes Kurt Metzger. "It helps us in visualizing the infrastructure of our GSM-R network in 3D and in assuring the quality of our technical documentation. It also simplifies our interdepartmental cooperation and our reporting to supervisory authorities." In the areas of network operation and optimization, rollouts and general network upgrades, Google Earth Enterprise also provides valuable support. Kurt Metzger rates the training needs as low, because Google is intuitive to use. All we had to do was communicate a few specific properties related to the mobile network and its technical circumstances.

Results

The team at SBB Infrastructure Telecom is more than satisfied with its choice. "The rapid, fluid way in which Google Earth Enterprise generates and visualizes even complex objects and maps is absolutely thrilling," continues Kurt Metzger, adding that, "Over the long term, we are seeing a considerable savings in time in interactive usage and we are also able to significantly improve the quality of our data and thus our decisions, too. There are practically no entry barriers. Even new users are able to operate the system straight away. The data and maps can be called up from our intranet anywhere within the company." Google Earth Enterprise has helped the Infrastructure Telecom Team increase its productivity. Numerous entry errors in the existing database were identified and corrected during the prototype stage alone. This means the data quality is approaching the 100 percent mark. "My personal favorite feature is the option to fly over the GSM-R infrastructure as if I were in a plane and have the ability to observe each GSM-R location, with masts and antenna systems from every perspective. And this is done without having to set up a security measure in advance – like closing the tracks, as is usual in the railway business."

Google™

SS1089-1206