Smallworld™ GeoSpatial Analysis
Business Intelligence for the Telecoms Industry

Smallworld GeoSpatial Analysis is an easy to use business intelligence product from GE’s Digital Energy business. An integral part of the Smallworld product suite, Smallworld GeoSpatial Analysis offers easy and efficient access to data from distinct, distributed spatial and non-spatial systems. This data can be shared across the enterprise, empowering a wide range of users with visualization, query, analysis and reporting capabilities.

Deploying Smallworld GeoSpatial Analysis can enhance an existing Smallworld Physical Network Inventory deployment with a new dimension in data management, visualization, analysis, and reporting through the organization. Working in conjunction with the telecommunications network data held in Smallworld Physical Network Inventory, Smallworld GeoSpatial Analysis helps users to understand the network and highlight previously unknown relationships between the network and the end users of the network services.

Smallworld GeoSpatial Analysis introduces the concept of business objects which link together spatial and non-spatial information, maps, photographs, documents, and websites in a unique and flexible way. These business objects match end-user needs and form the basis for detailed analysis and further visualizations.

Business Scenarios

Smallworld GeoSpatial Analysis can be used to support a number of scenarios when deployed in conjunction with Smallworld Physical Network Inventory.

One of the most powerful uses is to determine the highest value areas to target the rollout of new network to maximize return on investment. For example, when deploying Fiber-To-The Home, it is vital to ensure the areas selected for initial rollout will get the highest numbers of customers on service as quickly as possible. This is only possible through careful analysis of both existing network data (including location and capacity) and the demographics of the target areas to ensure residential areas with the correct purchasing behavior are targeted.

Customer Benefits

- Leverage the use of enterprise data in-situ
- Use the powerful configuration environment, rather than programming, to combine data and build complex analyses
- Uncover hidden trends within the source data and explore what-if scenarios to determine the impact of a decision
- Data remains in its native format and location, removing the need for complex and costly data migrations
- Low administration effort to maintain the entire deployment
- Minimal end user training required to start using the system and gaining benefits
Smallworld GeoSpatial Analysis Scenarios

Other scenarios are also well suited to the use of Smallworld GeoSpatial Analysis, including:

- For Business-to-Business providers, Smallworld GeoSpatial Analysis can identify potential customers who are close to an existing network. Using a combination of address information, marketing details and company details overlaid on the geographic network location, it is possible to quickly generate a list of potential sales targets.
- Relating spare network capacity to prospective customers is a very powerful technique to quickly realize additional revenue without further network expansion. Multi-Service Operators can use Smallworld GeoSpatial Analysis to combine network location, network capacity and existing customer details to identify new customers who only require connection to the existing network.
- By combining historical network fault data with the geographic location of the failing elements, it is possible to improve network reliability by identifying previously unknown relationships, such as low lying areas prone to flooding.

Smallworld GeoSpatial Analysis also contains a very powerful ad hoc reporting engine that can generate a wide range of reports relating to the inventory data held in Smallworld Physical Network Inventory. This engine can greatly speed up the production of regulatory reports.

Key Features

Smallworld GeoSpatial Analysis empowers end-users throughout the enterprise, allowing flexibility to fulfill organizations’ business processes. Typically the following steps are taken:

Find – Locating
- Navigate: Use standard gestures.
- Query: Choose from predefined queries or create on the fly, using an intuitive query builder or a powerful expression language.
- Locate: Use an application-specific locator or a standard locator service for quick location of assets.

Examine and Visualize
- Select, Measure, and Inspect: Use the easy select options to inspect, measure and highlight objects of interest. Follow smart tags to other maps or documents.
- Filter and Aggregate: Use intuitive data filtering to drill down relations or aggregate objects following relations.
- Analyze: Use ad-hoc "what-if" analyses to quickly narrow down a set of candidates or use specific, pre-configured analysis to produce a thematically colored map with bar or pie charts.

Create – Share the Information
- Plot: Output high quality graphical and tabular data. Use templates containing elements such as company logo, legend, and north arrow.
- Report: Produce comprehensive reports that combine alphanumeric and geospatial information.
- Data Export: Create ad-hoc or wizard-driven exports in a range of formats, including MS® Excel®, Shape, KML, csv, or TomTom®.

Model: Open, Remodel and Configure
- Add Feature Sources: Access a wide range of feature sources directly and maintain data integrity.
- Build User-Friendly Business Objects: After adding feature sources, data can be integrated and aggregated, remodeled and interrelated, as if it were one single source.
- Business Collections: Created from base tables with lookups and aggregates. New information can be derived from existing data and visualized on the map.
- Analyses: Slice, group, flatten, join, cut spatially, buffer, and nearest neighbor functions generate instant tangible results.
Case Study

Recently the United Kingdom government made substantial funding available to kick-start broadband deployment into rural communities previously seen as not economically viable. To help build the business case for funding bids, GE created a project within Smallworld GeoSpatial Analysis that determined the mix of technologies needed to provide broadband coverage.

Taking a range of data available from the public domain and provided by the government to prospective bidders, GE quickly built a series of analyses which showed the population density of an area (an important criteria) and overlaid it with an analysis of how service would be provided based upon distance from street cabinets and local telephone exchanges. For postal codes close to the exchange, the intent was to use a direct fiber connection. For postal codes close to street cabinets, the most cost effective deployment option was VDSL with fiber to the street cabinet. Finally, for postal codes outside the range of both of these technologies, a wireless solution was proposed.

To select the best areas for which to bid, it was vital for bidders to quickly, and as accurately as possible, determine the mix of technologies required and the number of properties reached. This information was a key bid requirement and impacted the cost-effectiveness of the solution if bidder earned funding.

Smallworld GeoSpatial Analysis combined the data very quickly and easily and produced a report that clearly detailed these factors for each selected area.

Technical Specifications/Certifications

Smallworld GeoSpatial Analysis supports the following feature sources:

- **DATABASES:** Smallworld VMDS 4.1 and higher, Oracle® Spatial 9 and higher, Microsoft® Access® and SQL Server® 2008, ESRI® ArcPersonal GeoDatabase and ArcSDE®
- **CAD FORMATS:** Microstation® DGN and AutoCAD® DWG
- **RASTERS:** ECWTM, MrSID®, tiff, jpeg, gif, bmp
- **OGC:** WMS webservices 1.1.3, KML and KMZ
- **FILE FORMATS:** ESRI® Shape, Microsoft® Excel®

Product Ordering Configurations

Smallworld GeoSpatial Analysis is available in two configurations. The differences are highlighted in the table below:

<table>
<thead>
<tr>
<th>FEATURE</th>
<th>STANDARD</th>
<th>PROFESSIONAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Find</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Examine</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Create</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Model</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

GeoSpatial Broadband Analysis