

# Smallworld™ Network Inventory



## Intelligent Inventory

Network inventory management is the foundation of a service provider's operation. Every revenue generating opportunity centers on having accurate up-to-date network information. Smallworld Network Inventory offers telecoms operators an inventory system to control the deployment of the critical network infrastructure on which all end-customer services depend.

The Smallworld Network Inventory product provides a consolidated cross-technology end-to-end view of your next generation network. This comprehensive and integrated view of the entire network combines the fully connected inside and outside plant of the physical network with the services of the logical network.

Exploiting our leading-edge capability to capture and visualize complex spatial data, this powerful solution enables you to plan, build, operate and maintain your network for all technologies, including long-distance fiber, FTTx, copper and DSL, RF coaxial and wireless. As a result, you are able to utilize your network resources more cost effectively, providing and maintaining services to your customers more quickly and efficiently.

The Smallworld Network Inventory system is an integral part of the Operations Support Systems (OSS) environment supporting critical business processes. A single consolidated network inventory forms the heart of an OSS solution. Through integration with other key systems, Smallworld Network Inventory fulfills a vital role in the planning and engineering, service fulfillment and service assurance processes.

Smallworld Network Inventory is a strategically powerful business resource, providing access to comprehensive, up-to-date network information. Designers, planners, field engineers, marketing, network operations and customer care staff can access inventory data in whatever form is most appropriate, from geographic maps to spreadsheets or database reports via desktop, laptop, field systems, intranet and Internet.

## Strength in Depth

The Smallworld Network Inventory solution has provided key business benefits (see panel) at more than 140 high-profile customers across 37 countries worldwide. Our solution succeeds in meeting the demands of challenging operators where competitive products fail. True scalability means that the Smallworld Network Inventory system can meet the needs of the smallest operator all the way to the largest operators with vast databases and hundreds of users.

Our customers include large and established national telecommunications operators, cable multi-service operators, competitive service providers, long haul carriers and wireless operators. Increasingly with the emergence of the smart grid, utilities are looking to Smallworld solutions to improve the management of their telecommunications networks.

## Customer Benefits

- Up to 20% reduction in new build costs due to better utilization of network resources.
- Up to 30% reduction in planning time through accurate integrated physical and logical inventory.
- Up to 40% productivity improvements in network design through process automation.
- Up to 15% workforce productivity improvements through streamlined as-built update processes.
- Up to 50% savings in provisioning time through automating previously manual processes for physical path assignment.
- Up to 25% reduction in network downtime through rapid response to network alarms to locate faulty equipment accurately.
- Smallworld 5: Architected for the future with continued adoption of the latest technology standards that simplify system integration through open technologies; faster, smarter decisions through modern web and mobile technologies; and increased productivity through focus on a modern user experience.



## Addressing Business Challenges

The major challenge facing telecom operators today is the drive for higher broadband speeds for consumers. This growth in demand represents a major challenge on the network supply side, with a need to provide ultra-fast bandwidth over a fiber-rich infrastructure. In order to roll out these new fiber networks and deliver new broadband services, operators must focus on all aspects of their operations. These processes are underpinned by an accurate network inventory that ensures a service ready network is in place to support customer demand and new services can be provisioned in a cost-effective manner. Due to the inherently spatial nature of networks, a geospatial network inventory system provides the best way to support these processes.

### Strategic Planning

Strategic planners need to be able to combine data (both spatial and non-spatial) from a variety of sources and visualize this in one environment. Smallworld GeoSpatial Analysis provides users with visualization, query, analysis, and reporting capabilities that allow strategic planners to make informed decisions about where new capacity is required or where the most cost-effective area is to roll out a new technology offering to customers.

### Network Planning

Choosing the right technology to deliver service in a particular area has a huge impact on the overall cost of the rollout. Optimization engines can quickly compare the costs per home passed for a given technology choice and maximize the number of homes passed for the least cost. Physical Network Inventory supplies the network data and location-based information which is fundamental to these calculations. The result of such analysis is a proposed plan, with costs, for cable and equipment layouts. Through optimization of the strategy to roll out to higher value areas first, it is possible to increase revenues by more than 10% for the same initial deployment cost.

### Network Design

Physical Network Inventory provides all the necessary capabilities to design in detail the required network changes whether for a copper, fiber or coaxial-based CATV network. Specifically for FTTH networks, an extension to Physical Network Inventory delivers an automated solution for FTTH design. This module takes the key outputs from the planning phase and guides the

user through a series of steps to arrive at a complete network design for a specific group of customer locations. Operators deploying the Smallworld FTTH Module have seen an increase in productivity of around 40% for their network designers. This improvement in performance allows designs to be completed faster, reducing time to revenue generation as the overall time for service availability is reduced.

### Network Build

At the conclusion of the network build process, it is vital to ensure that the final as-built situation in the field is correctly reflected back in the inventory. GE's MapFrame™ FieldSmart solution provides construction crews with the ability to electronically update the designed network with the final as-built and to share those changes with back office users. Automation of this as-built update process has resulted in productivity savings of up to 15% for operators.

Efficient management of the field crews is another vital aspect to running an efficient network. GE's Field Force Automation™ capability enables mobile workforce management, advanced scheduling, and route optimization, which can deliver savings of more than 50% on existing work force management costs.

### Service Fulfillment

It is vital to be able to respond to requests for service from end customers as quickly and efficiently as possible. For all wired networks there must be a physical path available to connect the customer to the existing network. This can be automated with Smallworld Physical Resource Assignment (PRA). When a service request is received, PRA identifies the customer's serving terminal and determines the physical path upstream from that point back to a main serving location. PRA determines all necessary network connections to construct the physical path, including the path details and work required to connect the path.

In many network operators, the service fulfillment processes rely on manually reviewing data spread across many systems. Through a single consolidated inventory, the service qualification process can be reduced from days to minutes with no operator intervention required. This reduces the time from inquiry to order, thus speeding up revenue generation. In some cases, a truck roll is a standard part of the process. With improved data quality these truck rolls can be reduced and operators have seen savings of \$2M per year.

### Service Assurance

Smallworld Network Inventory provides vital data and functionality to enable efficient service assurance processes that are vital to maintaining customer satisfaction. For instance, integration with fault management systems can determine the geographic location of a fiber break using OTDR trace results. Additionally, the ability to enhance network alarms with information from Logical Network Inventory provides a clear understanding of the impact of failures upon end customers.

The FieldSmart solution also provides field engineers with off-line access to Smallworld Network Inventory data remotely in the field, while Network Inventory Gateway provides web-based access to the same data for Network Operation Center (NOC) operators to support the fault location and repair process. Operators using Smallworld Network Inventory have been able to reduce network downtime by around 25% by allowing the NOC technicians to accurately identify the location of a cable fault much faster than was previously possible.

## Full Life-Cycle Support



## The Smallworld Solution

GE offers a portfolio of products that provides end-to-end solutions for multi-vendor, multi-technology networks. Facilities are provided for integration into the OSS environment and for making the data available across the enterprise through Internet access. The products are built upon the Smallworld Core Spatial Technology, one of the most extensive and scalable GIS technologies available.

### Smallworld Physical Network Inventory

Smallworld Physical Network Inventory models the entire physical network for wired and wireless networks, both inside and outside plant, supporting multiple communications technologies and equipment from multiple vendors.

### Smallworld Logical Network Inventory

Smallworld Logical Network Inventory designs and documents the network elements, circuits and services that make up the logical network that runs across the physical network to provide service to end customers.

### Smallworld Network Inventory Gateway

Smallworld Network Inventory Gateway provides Internet and Intranet access to the data in the Smallworld Network Inventory database.

### Smallworld Bearer Management

Smallworld Bearer Management provides the capability to allow Physical Network Inventory to be integrated with 3rd party logical inventory systems.

### Smallworld Physical Resource Assignment

Smallworld Physical Resource Assignment enables fully automated physical path assignment to support service qualification and service fulfillment.

## Market Leading Capability

In addition to the operational benefits highlighted, Smallworld Network Inventory offers unique and unparalleled value to telecom network operators deploying the solution:

### Low risk

GE's Smallworld Network Inventory is an off-the-shelf (COTS) product that is proven in large scale Tier One production deployments reducing the risk of customer deployment.

### Single network view

GE's fully integrated Smallworld Network Inventory solution provides a consolidated view of the whole network, avoiding having to maintain data in multiple systems.

### Reduced integration costs

GE uses the latest telecom standards to support OSS interoperability. Use of standards and a Service Orientated Architecture reduces integration costs and insulates the system from change.

### Total Cost of Ownership

The rich functionality provided by Smallworld Network Inventory means support for customer requirements is often through simple configuration rather than expensive customization.

### Architected for the future

The Smallworld solution is based upon modern industry standard technology such as HTML5 and Java, which reduces total cost of ownership, simplifies integration with other solutions and maximizes reuse.

## Complete Product Portfolio Delivering a Fully Integrated Solution



