Introduction

N etworks. You build them. You own them. Your Clients rely on them. The World relies on them. But in a blink of an eye you could lose your entire **network's valuable data.**

You want to protect your network. And you also want your network's data information to be a comprehensive, accurate database - one you can access anytime, anywhere.

Challenges with Traditional Methods

Network information has historically been poorly managed, disorganized, or outright obsolete. Other demands of your time and budget take priority. Records consist of static as-built drawings, schematics, and other documents accumulated over years of development. Records are dispersed between the flat file and file cabinet or just rolled up in a box in the corner. Record maintenance and updates are rainy day projects that never happen. Other information resides entirely in the memory of your staff. This has unfortunately become an unintended industry standard.

Typically these records are not duplicated or scanned and stored in multiple locations in the event of fire, hurricane, water intrusion and the like. And how will you retrieve information from employees that have retired, relocated or suffered their own personal tragedy?

Solutions to Traditional Methods

Precision Contracting Services, Inc. (PCS) has the solution: FiberTrak^{TM}.

FiberTrak^{TM} is the network documentation and design division of PCS. The Fibertrak^{TM} team creates an intelligent model of your entire network integrating all your Outside Plant Infrastructure and Inside Plant Network Elements into one cohesive database with accurate and retrievable information.

FiberTrak^{TM} offers custom integration of off-the-shelf CADD, GIS, and Database management systems for Administrators, Network Engineers/System Designers, and Maintenance Technicians using recognized platforms such as Bentley Microstation or AutoDesk AutoCAD, ESRI ArcGIS, Adobe Acrobat and Google Earth.

FiberTrak^{TM} allows clients to achieve a Life Cycle approach to network documentation that maintains consistency in data collection, collaboration in presentation, accuracy & accessibility of information, and relevancy in application. This approach encompasses the design-engineering-installation-integration-maintenance-administration-utilization-enhancement activities of all Professionals involved **in today's** networks from **Systems' Designers, Electrical &** Communication Engineers, Contractors & Integrators, Network Engineers to Administrators - all in support of End Users.

FiberTrak^{TM} allows clients to account for network modifications and expansions quickly and accurately. The robust capabilities of FiberTrak^{TM} permit our customers to review how changes will impact their network even before implementing them.

Benefits

- Automatic CAD graphical rendering of fiber connectivity plans and device schematics from database.
- Viewing full network connectivity between outside plant and inside plant.
- Making business decisions for locating paths, capacity and connections to maximize ROI.
- Managing circuit and bandwidth allocation on an individual fiber or customer basis.
- Assigning optical system names and descriptions to a grouping of fibers with automatic rippling of optical system names as a result of network modifications.
- Spatial Model allows flexibility for query of **trace reports, outage reports, equipment reports...**
- Identify Clients, Circuits, Paths or Priorities from data query attribute.
- Expedite outage repairs by providing Maintenance Technicians precise locations of fiber cuts.
- Running consolidated Bill of Materials reports containing passive and active element information.
- Accessing your data 24/7 through our secure web-browser connection, or on your own PC.
- Viewing or accessing the entire network documentation package in Google Earth or Adobe including schematics and photos of all assets. These formats have proven very helpful to Administrators, Network Engineers and Maintenance Technicians without CADD or GIS experience or software.

Implementation

The FiberTrak^{TM} process consists of several key steps:

- Field Discovery & Documentation
- Field Auditing of Existing Documentation
- Data Conversion & Migration
- Geospatial Network modeling
- Data Maintenance

Field Discovery & Documentation

For systems with little or no existing documentation, FiberTrak^{TM} skilled technicians will conduct on-site assessments of your network, inspecting and documenting all of your Inside Plant and Outside Plant network assets. Our technicians carefully inspect all the assets and field verify geographic locations, equipment details, enclosures, splicing, panels, cable routes and underground conduit utilizing a wide variety of equipment.

An existing networks underground path can be reliably determined with our pipe & cable Locators. The path and associated infrastructure are then located utilizing Global Positioning System (GPS) and/or Ground Penetrating Radar (GPR) devices with sub-foot accuracy. The path, infrastructure and OSP/ISP equipment are photographed with quality high resolution digital cameras. Equipment components and connectivity details are recorded in an electronic database on intelligent forms available on rugged tablets. This information is then downloaded and applied to the overall database.

FiberTrak^{TM} has developed & implemented tools and procedures to make the field documentation of your network more efficient, some of these are:

- Electronic field data collection incorporated into a database with a graphical interface and quality control logic for accurate and complete documentation of fiber connectivity.
- Identification (ID) tags on pull boxes for reference between the physical asset and the electronic documentation model.
- Rapid conversion of legacy data from archived information and intellectual capital

Field Auditing

We work with our customers to get their pre-existing data converted to the FiberTrak^{TM} model as quickly and cost-effectively as possible. In cases where the customer has a high level of confidence in their documentation, FiberTrak^{TM} skilled technicians will import this information as a base for the model and conduct on-site audits to spot check the data and therefore provide better assurance.

Data Conversion & Migration

The process to convert your pre-existing infrastructure information to the FiberTrak^{TM} system may include data migration from GIS, CAD or tabular data. Our skilled FiberTrak^{TM} technicians take all the pieces of **information from your network's pre**-existing infrastructure (digital files, hard copies and diagrams, **photographs...**) and weave them together with the field discovery/auditing data into a seamless integrated unit.

Geo Spatial Network Model

The verified information is used to build the intelligent geospatially and geometrically accurate model of your network. Our team is able to verify splicing and overall connectivity, assign optical system names which are automatically rippled throughout the model when fibers are connected or disconnected. They pay special attention to discrepancies and irregularities for an extra layer of inspection and quality control.

At this point, all your network infrastructure geometry and detailed information is now contained in one **'master file' within the robust Oracle Spatial Database.** By combining all of your data information into one comprehensive database, FiberTrak^{TM} gives you complete access to your data quickly and accurately. FiberTrak^{TM} also filters the input information, analyzing it for inconsistencies and opportunities.

Data Maintenance

Once the database and network model have been created, FiberTrak^{TM} will setup a mechanism to report changes and modifications to the system by your field Technicians in order to keep your network database current and accurate. We can also conduct periodic field audits to verify the integrity of the network data correcting the network database as any discrepancies are discovered.

All deliverables are directly linked to the intelligent model making changes to documentation fast and efficient without the need for extensive re-drawing. We utilize existing technology and implement it to the deliverable package such as the use of the Google Earth interface as an extremely easy to use and very powerful tool for viewing the PDF and picture documentation.

Customers

Florida Department of Transportation; South Carolina Department of Transportation; Palm Beach County, FL; Martin County, FL; Indian River County, FL; Manatee County, FL; City of Marietta, GA; City of Charleston, SC; City of Boca Raton, FL; City of Port St Lucie, FL; Fort Pierce Utility Authority; ITS Telecom; Liberty Medical and several others.

Innovations & Awards

FiberTrak™ provides the ability to interface non-proprietary software products like Oracle and Bentley Communications to convert data into user serviceable information that can be delivered in multiple formats, including Bentley DGN, Autodesk DWG, ESRI SHP, Google Earth KML and Adobe PDF.

Press Release: October 15, 2009

Precision Contracting Services, Inc. (PCS) a 20 year old Jupiter, Fl. based firm, was awarded the Bentley BE Inspired Award for Innovation in Communications for communication engineering using Bentley software solutions from among 290 International Applicants.

PCS received the award for their submission detailing PCS's design build project for City of Port St. Lucie, FL Citywide Fiber Optic Metropolitan Area Network (MAN). This network supports the City's Traffic Operations, Utility Services and Information Technologies Departments which supports all governmental offices within the City. PCS provides similar services for the Florida Department of Transportation, South Carolina Department of Transportation, City of Boca Raton and Palm Beach County, among several Florida Counties.

The award recognizes PCS's development of its FiberTrak™ Asset Management model employing innovations in database management in conjunction with map renderings supporting traditional plan development incorporating Global Positioning Systems (GPS) data and interfacing to newer Geographical Information Systems (GIS) which reduces duplication of administrative and engineering efforts among departments; creates efficiencies in design and construction coordination activities; reduces ongoing maintenance costs and provides for better asset recording and protection…all contributing to reduced operating costs for PCS Clients.

2011 Innovation in Communications Networks

Projects in this category demonstrate best practices in the use of intelligent network models, easy-to-use field and web viewing tools, automated engineering work order creation, sophisticated network engineering tasks, and end-to-end network modeling and management.
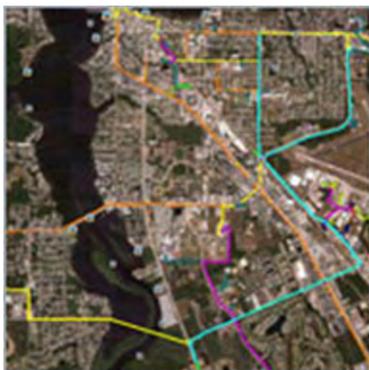
Winner

Precision Contracting Services, Inc.
Martin County Community Broadband Network
Martin County, Florida, USA

Martin County, Fla., leased fiber for a metropolitan area network that supported data needs of 280 public safety, government, healthcare, and educational agencies. When the lease was up for renewal, the provider proposed a five-year deal that escalated from $220,000 the first year to $1.2 million the last three years. The County decided to build its own fiber network within the six months before contract renewal.

Conclusion

One of the main strengths of the intelligent geospatial model is interoperability with the various data formats. The FiberTrak™ team can easily and accurately produce full plan sets, GIS layers, and Google Earth data sets; and more importantly, update these deliverables easily.

The powerful and user-friendly FiberTrak™ deliverables and geospatial model provide network status reports of data accuracy and network integrity. It also allows for network analysis, statistic reports, set network conventions and standards, automating those reports to enable historical performance analysis. It can also create custom data reports such as network capacity, inventory reports, and analysis on network availability, making it very easy for Wide Area Network (WAN) managers to have all the network information they need instantly at their fingertips. And if you ever need help, customer service for FiberTrak™ is *always* available.

FiberTrak™, the response to your fiber optic communication needs.

About us

FiberTrak™ is the design and documentation group of licensed professionals within Precision Contracting Services, Inc. (PCS) offering a full suite of professional services such as a network design and implementation, installation, integration, maintenance, asset management and training services.

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