

Bentley's HFC Network Engineering Solution

Design HFC Networks Up to Three Times Faster



Advantages

- Fast, comprehensive HFC network design and analysis
- An HFC solution that includes the precision of CAD and all the benefits of an open enterprise GIS
- Deep, industry experience – embodying over 30 years of collaborative development with leading cable operators

The Speed and Intelligence to Grow Revenue

Bentley's hybrid fiber-coaxial (HFC) network engineering solution is used worldwide by cable operators and engineering firms to efficiently design and manage network infrastructure. A unique seamless CAD and open GIS environment, optimized for productivity, enables designs to be completed up to three times faster than competing solutions to accelerate network extensions, network upgrades, service activations, and fault restorations for maximum subscriber growth and retention.

During the design process, the solution creates an intelligent end-to-end physical network model that combines network maps, equipment specifications, device configurations, computed signal levels, and more. The intelligent network model can be leveraged across the enterprise in operations support systems (OSS) workflows and secure web applications to enable increased productivity for field operations, billing, accounting, customer service, marketing, and sales.



An Open Architecture Optimized for Productivity

The Bentley HFC network engineering solution employs open data standards and an open API to facilitate enterprise interoperability and avoid software vendor lock-in. All network properties and geometries are persisted and managed in Oracle Spatial through an optimized process that minimizes time-consuming database transactions to enable rapid layout, verification, and posting of network designs.

The solution leverages the industry-proven MicroStation platform to supply the drafting productivity tools and engineering precision for fast layouts and the capability to produce high-quality construction prints directly from the design environment. The Bentley Map platform provides a rich GIS environment, designed for infrastructure professionals, to facilitate design, network tracing, and other geospatial analysis to drive operations, marketing, sales, and customer service decisions.

Comprehensive Engineering for Increasingly Complex Networks

Bentley's HFC network engineering solution models all equipment, connections, and signal performance from the physical fiber port at the headend to the coax port at the subscriber. Inside plant is designed using rules-based templates to correctly populate racks and position racks on a floor plan. Equipment connections are automatically maintained if equipment is moved or common rack configurations are copied and reused.

Near real-time engineering calculations, including optical link loss budget analysis, RF signal quality, and powering optimization enable immediate design verification and fast network layout. The solution supports wave division multiplexing, circuit management, outage location, and network tracing through splices and cross connects. Comprehensive reporting includes bills of material, equipment reports, wire runs, splice diagrams, and address lists by node or fiber area.

Capabilities to Efficiently Design, Construct, and Operate Networks

The Bentley HFC solution addresses all aspects of physical network engineering. A configurable work-order management capability, with optional integration to popular enterprise work management systems (WMS), promotes streamlined project workflows from inception to completion. Project collaboration and content management capabilities enable increased workflow efficiency on outsourced projects and effective management of documents such as photos, permits, and construction prints.

Field applications and mobile apps put network maps, inside plant diagrams, butterfly diagrams, splice enclosure details, equipment records, and data collection tools at the fingertips of field personnel to



accelerate work-order execution and reduce errors. These capabilities and the use of the intelligent physical network model in OSS workflows enable engineering to promote enterprise productivity and revenue growth.

Configurable Communications Equipment Specifications

Configurable engineering and display specifications for equipment ensures consistency across projects. Your administrators can modify simple user interfaces and extend pre-configured equipment libraries. Support includes all requisite equipment types for coaxial, fiber, and HFC networks.

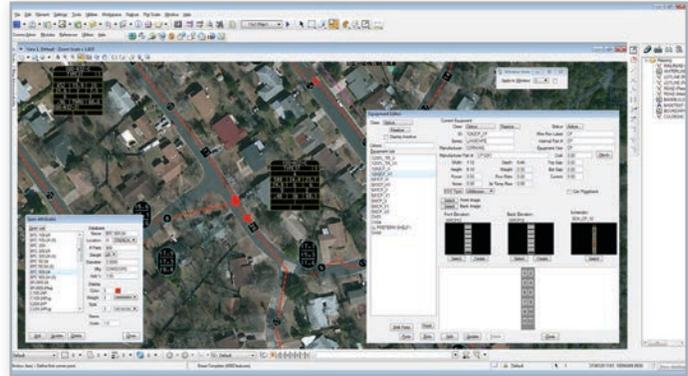
HFC Network Engineering Solution Implementation and Learning

Bentley can provide services to optimize business outcomes and accelerate your time to value with the HFC network engineering solution. These services may include project management, application installation, configuration coaching, deployment support, and training.

Bentley can also help you integrate with OSS and other enterprise systems to expedite and improve accuracy in provisioning, customer service, and other operational workflows by sharing the intelligent end-to-end network model. Integration is achieved through open industry standard databases and supporting APIs. With Bentley Expert Designer Communications, integration with work management systems can be configured via a two-way interface to easily implement and maintain the unification.

Typical training for the HFC network engineering solution includes:

Class Title	Class Length (days)
MicroStation for Communications	1/2
Bentley Communications Introduction	1
Bentley Strand and Duct	1
Bentley Fiber	2
Bentley Inside Plant	1
Bentley Coax	1
Bentley Communications Administrator	1



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