FAST@HOME

Automated and Optimized Fiber Network Planning with GIS

Fast@Home is a tool for automated and cost-optimized planning of fiber connection networks (FTTB networks).

Fast@Home enables stakeholders participating in broadband network expansion to automatically plan development areas quickly and easily and to determine the costs associated with various planning scenarios. Using state-of-the-art mathematical models developed by Esri Deutschland's business partner atesio GmbH, the Fast@Home algorithms optimize the routes and keep the necessary construction costs to a minimum. Fast@Home serves as the basis for feasibility studies and subsequent decisions regarding investment and allocation of resources.
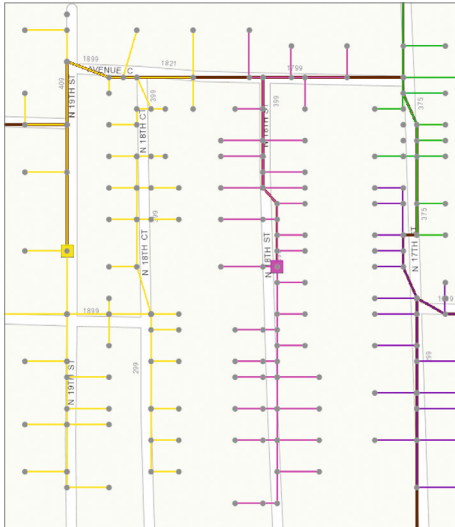
Automated network planning and cost reduction through optimized mathematical algorithms

Fast@Home users receive a cost-optimized network plan including routes, pipe, and cable locations. Network designers can access the planning data through Fast@Home's built-in export functionality.

- Automated planning of large fiber networks comprising of up to 5,000 addresses in one calculation
- Convergent network planning - consideration of fixed and wireless demand points
- P2P and GPON architectures
- Computation of the potential route network based on street data
- Micro ducts as tree structures
- Differentiation of customer types per address point
- Quantifying the fibers required per address and customer type
- Parameterization per end customer: pipes, cables, costs, network concept
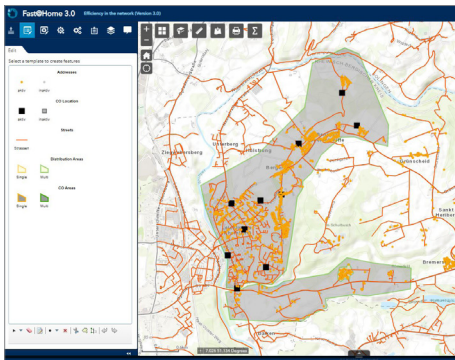
## Consideration of planning requirements

- Integration of existing infrastructure
- Support for single and multi-clustering of distribution and access areas
- Definition of distribution areas and sites
- Multi-POP support
- Support of gateway locations and cable parameters specifications for backbone planning
- Dual homing
- Comprehensive parameterization allows the adjustment of all used components and network concepts
- Configurable bundle and fiber reserves
- Adjustable maximum blowing length
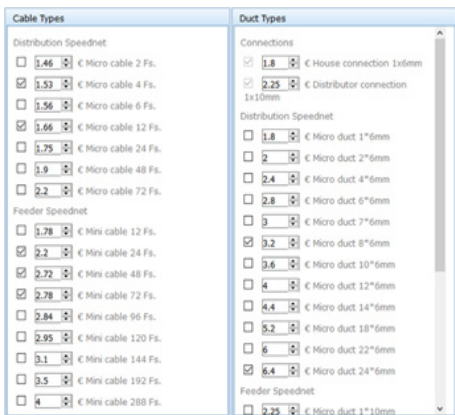
Parameterization

Several parameters can be tailored to specific planning goals:

- Comprehensive client and project-based parameterization allows the adjustment of all used components and network concepts
  - Dimensioning & Usage
  - Naming & Costs
  - Configurable pipe and fiber reserves
- Maximum blowing distance
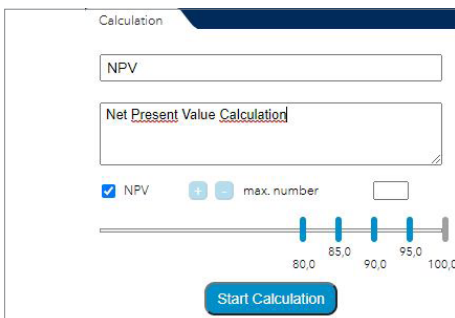
NPV (Net Present Value) Calculation

Fast@Home NPV allows planners to optimize the ratio of expected return on expected investment when planning networks.

- Quickly compare expected investment: expected yield with customizable thresholds for targeted investment allocation
- Optimized access networks for individual revenue targets
- Customizable value thresholds
- Set NPV per demand point to tailor calculations
- Resulting address selection sets can be used as input for strategic network planning with Fast@Home

Planning and infrastructure areas

Fast@Home offers a flexible planning environment, including functionality for defining areas of user-defined size or type, such as urban districts or industrial areas.

## Single and multi-clustering of distribution and access layers

Specifying clusters allows consideration of one (single) or several (multi) existing or potential POP or distribution locations. Single and multi-clusters can also be used to consider detailed planning specifications for the development area layout.

Editing

Fast@Home includes an intuitive and comprehensive editing environment

- All planning data related to a project can be enabled for editing
- Batch attribute editing for address and street data
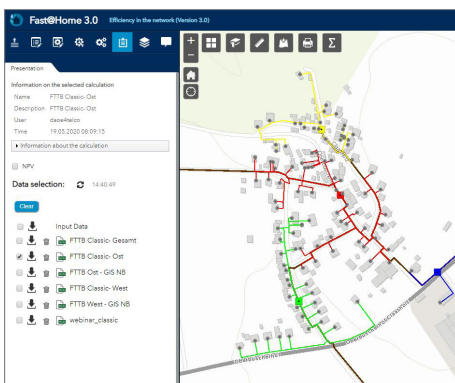
Calculation of alternative planning scenarios

Fast@Home provides a foundation for project evaluation and strategic investment decisions, enabling direct comparison of various roll-out scenarios, such as different area coverages: parish, district, industrial area

Customizable specifications:
- POP locations and distribution points
- POP and distribution boundaries
- Backbone and POP-Demand Points
- Single and multi-clustering of distribution and access levels

FTTH: Amount & Costs Report			Fort Pierce FTTB
atesio	Count	Meter	Costs
Wohneinheiten			
Affiliated Customers	2,113		
Unaffiliated Customers	0		
Addresses			
Affiliated Demand Points	2,113		
Unaffiliated Demand Points	0		
Fixed Costs			
Conection Costs	2,113		211,300
PoP 1000 Fs.	3		105,000
POP-Locations	1		50000
Total			366300
Cabinets and Service Distribution Points			
Network Distributor 48	37		81,400
Network Distributor 72	8		24,000
Network Distributor 96	2		8,200
Total	47		113,600
Cables			
Micro Cable 4 Fs.		356,468	545,396
Mini Cable 24 Fs.		15,720	34,585
Mini Cable 48 Fs.		62,816	170,859
Mini Cablel 72 Fs.		17,967	49,949
Gesamt		452,971	800,789
Pipes			
Household Connection 1x6mm		55,466	99,838
Emptyo Pipe 1 Speedpipe Bundle		11,599	0
Micro Pipe 24x6mm		14,374	91,995
Micro Pipe 3x10mm		6,291	17,300
Micro Pipe 8x10mm		17,280	69,121
Micro Pipe 8x6mm		32,887	105,238
Total		137,897	383,493
Access Routes			
Tracks not requiring escavation due to use of existing infrastructure		1,657	0
Excavation required in area surrounding home connection		55,466	1,878,566
Street excavation required		41,982	2,564,705
Total		99,105	4,443,271
Use of Existing Infrastructure			
Pipe Meters		11,599	0
Total Costs			6,107,452
Cost per Customer			2,890
Cost per House Connection			2,890

Automated bill-of-material creation

Fast@Home serves as the basis for feasibility studies and subsequent investment decisions. All important details regarding the scope and type of the required materials, the number of potential customers, the total investment, and the cost per connection and customer are listed in the Bill of Material (Excel).

- Overview of customer potential
- Reporting of the quantity structure
- Length and cost report
- Overall report and individual report per POP bounding area

Fast@Home has even more to offer

- Modern, intuitive and user-friendly web app
- Complete integration with the ArcGIS Platform
- User and permission management via ArcGIS Online
- Addition of data from various sources:
    - ArcGIS Platform, web services, local data
- Scalable pricing model
- Full export of planning data for integration with network documentation systems

Managed Service provided by Esri Deutschland

- Fast@Home is developed with the ArcGIS Platform and is offered as Software as a Service (SaaS) by Esri Deutschland. No additional hardware infrastructure is necessary on the customer side
- On-premise deployment is possible. Operation of Fast@Home in your existing hardware and software infrastructure

Contact

It would be our pleasure to arrange a product demonstration to show you how Fast@Home can meet your network planning needs. Get in touch with us.

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