Driving GIS productivity through workflow

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Abstract

• With 12m km (7.5m miles) of copper and 2m km (1.2m miles) of fibre network being converted and generated for loading into BT’s GIS there are going to be some inaccuracies. Manually amending this data once loaded has proved necessary and needs to be simple and productive for an end user.

• Working with Telcordia Technologies, BT developed the 'Network Editing Tool' (N.E.T) to aid users in quickly modifying and replacing telco objects without having to understand anything about spatial geometry.

• During initial evaluation of this suite of tools, it became apparent that there could be productivity gains made in planning as well as correction of the existing network elements. Expanding on the functionality of N.E.T a ‘Wizard Framework’ was developed that would allow for any defined process to be developed and rolled out to end users. A wizard guides a user every step of the way through the process they have selected to carry out.
What is ‘Network Editing Tool’

Working with Telcordia Technologies the ‘Network Editing Tool’ was developed giving:

• A flexible wizard driven interface

• A means of guiding a user through Network Engineer functionality
  – Amend
  – Replace
  – Create

• The ability to combine multiple functions (ESRI, Network Engineer or both)
Wizard Framework

Network Editing Tool - Wizard Designer

- Create workflows aligned to typical jobs lining up the functions and guiding the user through using administration rather than IT staff to define these
- Reordering the steps of existing workflows
- Creating new workflows by reusing steps from other workflows or newly coded steps
- Restricting access to workflows by Work Order Type or NE Security Models
- Disabling / deleting wizards
- Customizing the operation of existing or newly coded steps
BT’s requirement:

• Easily make changes to the network without compromising data integrity
  
  Line features
  – Reroute
  – Replace
  – Stitch
  – Reassignment of Blown Fibre

  Point features
  – Move
  – Replace
  – Change connectivity

• Import of partial NE XML and using it to influence and pre-select where possible

• Improve productivity
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Why

Training

Data

Users

openreach
Data

**Fibre Network**
- Mostly schematic rather than GIS based systems
- Generated data from a NON GIS system (including connectivity)

**Copper Network**
- Some data converted from a previous GIS
- Connectivity data from NON GIS system

**Civil Network**
- Converted from previous GIS
Data

• Multiple sources of data from historic systems

• As with all large data sources some inaccuracies can be experienced
  – Locations may not always be valid (some historic systems not geographic)
  – Transmedia (cable) routes may lie on different paths
  – Inventory awaiting recording

• Data capture – By geographical boundaries
  – Network stitched at geographical boundary

• This is probably the optimum time for house keeping of Data
Users

Current Project:
3,000 end users – Planning and Recording
• All experienced in Telco networks
• Not all experienced in GIS application
• Concept change from ‘paper’ visualisation to electronic

Future Project:
22,000 Field engineers
Training

• Each user attends a course
• Discipline specific (e.g. copper provision, fibre provision) but not job specific (splice new tube into existing tubing network)
• Does not cover every tool in system
• Will not make user a GIS specialist

Results in a long learning curve and a lack of confidence and poor immediate productivity
So how does the ‘Network Edit Tool’ work?

‘Wizards’ allow a user to perform specific sequences of activities enabling rapid correction, modification or addition of data.

Provides a constant refresher to supplement training, building confidence, expertise and productivity.
So how does the Network Edit Tool work?

- No matter which wizard is being used, one toolbar guides the user through the wizard task selected.

  [Diagram showing Network Editing Tool with steps for opening, stepping forward, and backward along with information area and reserved space for wizard specific tools.]

  - The right side of the toolbar is reserved for wizard specific tools that are added and/or removed during a workflow.
Worked example – Transmedia route is incorrect

Data base – Transmedia route

Real World – Transmedia route
Reroute Transmedia
Selecting the Transmedia to Reroute
Transmedia selected
Identify Transmedia
Identify New Route
Identify New Route
Reroute Transmedia

Network Editing Tool

Reroute Transmedia

Selected Transmedia:
- 4BFT 5mm MK3-PE-1000
- 4BFT 5mm MK3-PE-1000
- 7BFT 5mm MK3-PE-1000

Choose Selection Method
- Create New Selection

Set Measured Length equal to Calculated Length

Select From Feature: INS JOINT
Select To Feature: BFC 4A

Reroute
Close

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Transmedia Rerouted

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Wizard Complete
Associations Checked

New transmedia route

Original transmedia route
Configuration
Configuration – Help messages

A Blown Fibre Tubing Schematic will allow you to view your Network at Tubing Level based on what you want and what you don’t want to see!
Configuration – adding tool buttons
Wizards – BT development

Create BFT Schematic
Open a Saved Schematic Diagram
Create M-Side Schematic
Create D-Side Schematic
Delete a Saved Schematic Diagram
Create a duct schematic
Create a connections schematic
Create a BFCS Schematic
Create a BFCS Schematic from Existing HL diagram
Create Duct Box to Box Schematic
Imports Bookmarks
Network Filtering
Proximity search
Job Specific Renderer
Import Raster
Delete Raster
Reroute Connections
Wizard Designer – Pandora's Box!

Currently there have not been any limitations found in the ‘Wizard Designer’ functionality (from the developers perspective). Examples of possible work flows include:

- Deletions
- Creations
- Amendments (in excess of the standard N.E.T wizards)
- Selections (Class Category and Type specific)
- Work flow instructions

“This tools power is only limited by the ability of the configuration team and their knowledge.”

Stringent processes for development must be in place when using the wizard designer
Questions
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