

Migration of Urban Traffic Control communications from analogue to broadband (IP)

Overview

In the late 1970's approximately 100 sets of traffic signals were controlled by the Urban Traffic Control (UTC) system in Belfast connected by analogue telephone circuits rented from British Telecom (BT). By 2015 there were 330 junctions and other equipment controlled (including sites in Newry, Armagh and Banbridge). Each controller effectively had its own private telephone line, operational 24/7 and 365 days of the year. A project was completed by DFI Roads' Traffic Information Control Centre (TICC), BT and Siemens to migrate the analogue communications network to an IP network and was completed in 2016.

Objectives

General background

The Urban Traffic Control system for Northern Ireland was installed in Belfast in the late 1970's. This provided the ability to directly control traffic signals from a remote location. It also provided real time fault reporting. Communication between the UTC system and the on-street equipment was by point-to-point analogue telephone lines rented from BT. BT announced that these would no longer be supported or installed from 2018. DFI Roads therefore contracted Siemens PLC to migrate the 330 analogue lines in Belfast, Lisburn, Bangor, Banbridge, Armagh and Newry to a solution of Broadband (DSL IP), 3G GSM (mobile phone technology and MESH (radio network).

The objectives of the project were:

- move away from obsolete analogue technology
- provide a more resilient system solution that will not be vulnerable to any single point of failure
- Reduce the ongoing resource costs

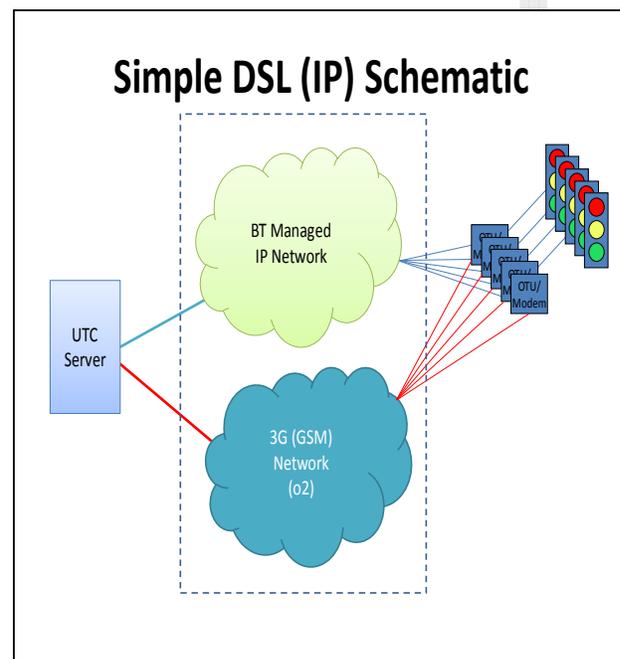
Other types of ITS equipment, such as VMS and Air Quality monitoring units, are also connected to the UTC system.

Project description

The project was undertaken as part of existing contracts with both Siemens and BT and commenced in February 2015. A detailed survey of the existing networks was carried out as was an evaluation of the available technologies (fibre optic/copper/wireless). A detailed design was completed by TICC, BT and Siemens.

On street work to convert to IP circuits started in February 2015. Work was carried out in several tranches to allow adequate testing and the making redundant of analogue circuits making resource savings throughout the project.

The project was successfully completed in March 2016 with all 330 analogue circuits decommissioned and successfully migrated to IP.



Member States involved:

DFI Roads is responsible for the construction and maintenance of all roads in Northern Ireland

Implementation schedule

Start date: February 2015
End date: March 2016

Budget

Action promoter:

Total project cost covered by this Decision: The capital cost of the project was €2,260k over 2 years.

EU contribution: €452k

Percentage of EU support: 20%

Results expected

The solution consisted of multiple different routes between the instation equipment and on-street equipment. This introduced a significant amount of resilience into the network.

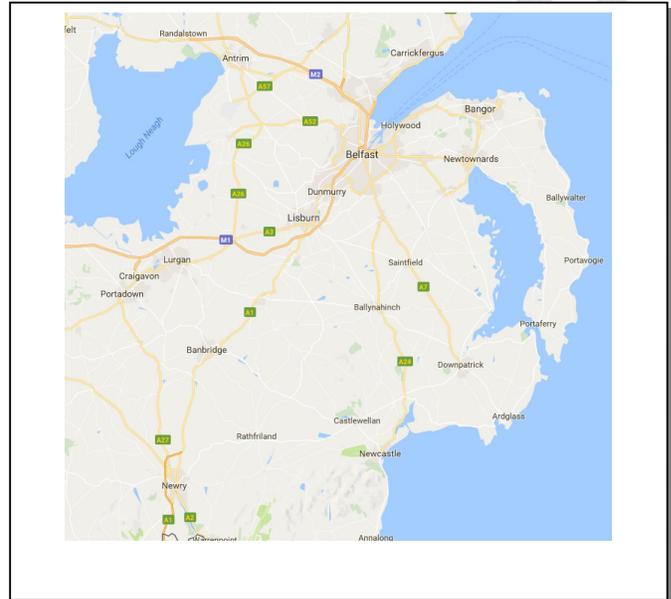
The solution also makes use of 3G mobile phone technology in each controller as a contingency communication medium that offered resilience should the IP network itself fail.

The resource costs have been reduced by approximately 50%.

The new system provides:

- Increased resilience
- Improved reliability
- The cost of additional circuits will not be distance dependant
- Managed service by BT resulting in quicker fault detection/repairs
- To date there have been no operational issues.

Geographical Location



Contact People

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