



Image: London Fire Brigade

Supporting a safer city

The importance of spatial data quality is nowhere better highlighted than in time-critical and life-saving situations. Thanks to an optimised routing and drive time application, the London Fire Brigade is better equipped than ever to respond to emergencies, as David Eagle reports

Location information is used daily by fire, police and ambulance services in responding to incidents. But the speed and accuracy of response depends on knowing where assets (vehicles, people and equipment) are located at any point in time and that the data is correct. Increasingly, a rules-based approach to capturing, validating and managing spatial data means they can process and analyse information in a way that traditional technologies do not allow.

The London Fire Brigade (LFB) is one of the largest firefighting and rescue organisations in the world, and the busiest in the UK. With 6,000 staff (of whom 85% are operational staff) and 102 fire stations, LFB serves an area of nearly 1,600 square kilometres. Its role is, simply, “to make London a safer city”.

As a public service, the way the LFB deploys its resources to

achieve this end are very important. Every year the Brigade sets targets for a range of objectives and monitors its performance against them to improve services. Some of those targets are about reducing fires and other emergency incidents, but others relate to how well the organisation is run.

Smarter choices

While the principal role of the LFB is to respond to incidents, its work now places a stronger emphasis on prevention and community services, including aspects such as responding to Freedom of Information requests. Part of this change involves using technology to make smarter choices.

Unsurprisingly, the LFB’s Extract, Transform and Load (ETL)

team was looking at how technology could best help to restructure, reformat and integrate data, so that it was ready to use and share across the organisation.

John Cook is the LFB's Corporate Gazetteer and ETL Process Manager, responsible for maintaining spatial and non-spatial data to ensure that the brigade is as effective as possible. According to him, mapping has always been central to the Brigade's task, although originally it relied on wall maps or map books in each appliance. Today, it uses Geographical Information Systems (GIS) and mobile data terminals to locate and respond to incidents. Spatial data is also important in incident recording, understanding the location of facilities such as fire hydrants, and in emergency planning. So geospatial data is central to many of the issues that LFB has to address.

GIS gives a visual representation of a highly complex set of data. It's not just road layouts, but road speeds, the location of hazards, and the height of buildings that must be known in despatching the right type of appliance to any given situation.

Getting it right

Routing is critical for fire crews in getting the right appliance to the right location as quickly as possible. To achieve this, each station must be correctly staffed which can mean temporarily moving staff between stations. For this purpose, LFB used AA Route Planner information to determine likely travel times between each of its 102 London-wide stations.

However, establishing travel times between any two locations required approximately 12,000 individual searches. Originally intended as a one-off exercise, the searches were carried out manually by LFB staff entering details of each pair on a Route Planner website and recording the results. The exercise required 40 working hours of overtime to complete. It also, inevitably, carried a high risk of error and required detailed checking. Although important, this clearly wasn't sustainable as a regular exercise. John and his team needed to create a repeatable process that could be easily updated to reflect changing traffic and road conditions.

Eliminating manual queries

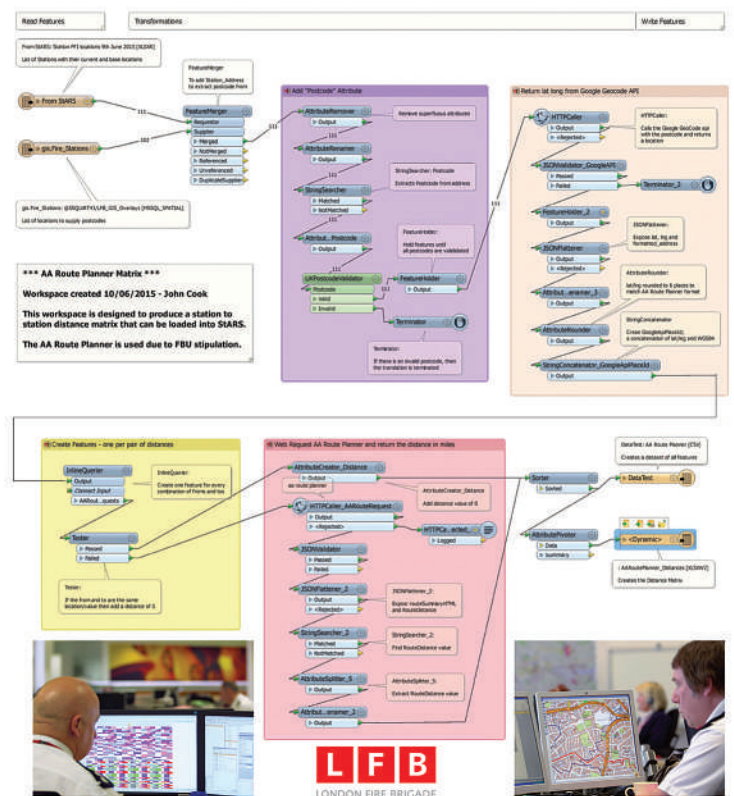
Over the past 14 years, LFB has deployed a number of GIS Systems, many using different datasets and varying file formats. To streamline its data management function, the Brigade wanted a single, authoritative set of geospatial data that delivered the same comprehensive and up-to-date view across the organisation. In time, this would support the move to a single, web-based GIS system for every station, appliance and staff member.

To achieve its initial goal, the team utilised Safe Software's FME Desktop software plus training and support provided by 1Spatial, a Safe Software Value Added Reseller and Platinum Partner. During a bespoke training course, 1Spatial suggested using FME to automate the process of updating inter-station travel times. This would eliminate the potential for manual errors, as well as save time and money. The team, guided by some example processes demonstrated during the training, took the suggestion and built on it.

The result is that, for the ETL team, it is now a relatively simple matter to write an automated query in FME that can be run on demand. Having written it, information can be update as required without incurring extra time and cost. Whereas it used to take 40 working hours every time an update was performed manually, the same task using FME has been reduced to just a couple of hours of machine time.

Realising the power

FME gives users the flexibility to restructure, reformat and conflate data so that it is ready to use and share as and when needed. In this case, FME is used to leverage an API; a bespoke postcode validation process (1Spatial's UKPostcodeValidator Transformer), and a web service - all running inside the same process and which can be called



FME workspace for loading inter-station distance data into StARS, a fire and rescue services system from Moore Stephens Consulting that manages staff data and appliance availability, rostering and more

on demand

As a result of automation, travel times can be updated monthly to reflect the impact of roadworks, changed road layouts and other adjustments to the physical network. This ensures that staff transfers can be managed as efficiently as possible.

For John Cook, the process has meant gradually realising the power of FME. As he says "We're beginning to use it for everything data-related, not just for spatial data but for Excel data, Microsoft SQL Server queries, and everything in between."

Leveraging data

Managing data is an increasingly important aspect for emergency services. 1Spatial's work in this area makes it simple and easy for organisations to manage the complex process of connecting disparate systems, transforming challenging data, and automating tasks by utilising a single application with a common look-and-feel. It allows organisations to focus their resources to optimum effect for the job in hand. 1Spatial's continued involvement on the training side of FME means that the LFB is increasing its use of the software to automate repetitive tasks and simplify data management. By lowering the level of technical skill required for some tasks, data experts have more time to devote to other projects that support LFB's ultimate goal of making the city safer.

To find out more about FME and other customer stories, 1Spatial is hosting free FME World Tour events in the UK and Australia throughout April. Intended to help users explore, discover and innovate with FME, each event will include technical presentations, networking opportunities, case studies and interactive sessions. Please contact fme@1spatial.com to find out more or register at www.1spatial.com/fmewt.

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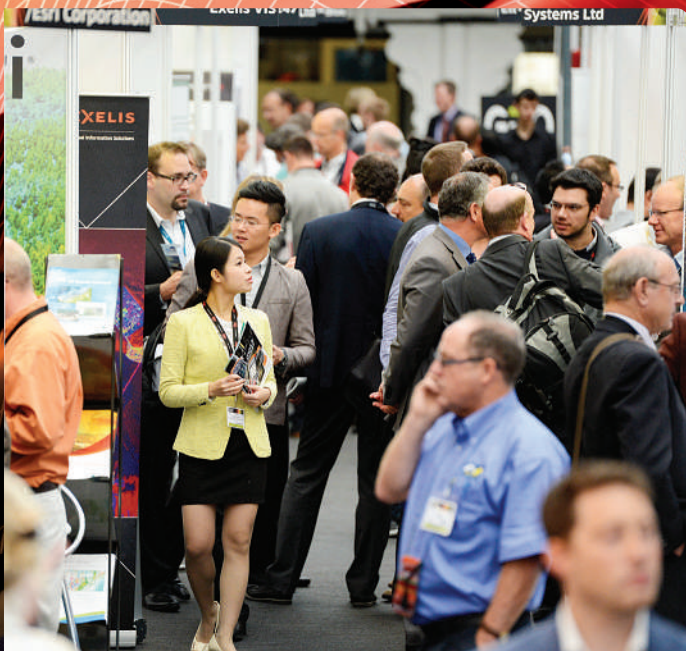
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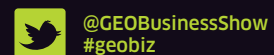
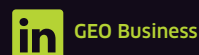
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