

Canal & River Trust – Open Source mentoring case study



Canal & River Trust

The Cloud and Open Source present intriguing cost effective options to many organisations who have been using traditional vendor based software and a local server based infrastructure. An increasing number are now considering dipping their toes into the Open Source water to see if it is all that it is cracked up to be, and that is where Astun can help.

Astun offer a mentoring and skills transfer service, which is very much in line with the ethos of the Open Source community.

Following a Cloud Computing talk by Matt Walker at an AGI event, Astun Technology was approached by the Canal & River Trust to come in and have a chat.

The Canal & River Trust is the guardian of 2,000 miles of historic waterways across England and Wales, caring for the nation's third largest collection of listed structures, as well as museums, archives, and hundreds of important wildlife sites. The Trust believes that living waterways transform places and enrich lives. Its role is to make sure there is always a place where people can escape the pressures of everyday life, stretch their legs and simply feel closer to nature. The Trust has around 1600 employees, split between office based and those that are more mobile, such as operatives, fitters, lock keepers, construction teams and engineers. There is a diverse range of people who need different information at different times.

GIS is embedded at all levels, with established workflows, spatial analysis, and considerable amounts of data that can be presented on a map. The Trust uses Ordnance Survey MasterMap, VectorMap Local and various OpenData products. It has a well-established IT infrastructure with a Private Cloud in its data centre using SQL Server and a suite of proprietary software.



Investigating Open Source

Since becoming a charity, there has been an increasing requirement to provide location based data and functionality outside of the organisation. Essentially this is to colleagues and volunteers through smart phones and tablets, which operate outside the corporate firewall. One option for doing that is to build an infrastructure outside of the Trust's existing firewall, which would enable people to access its data on their own devices. This also gave the Trust the opportunity to investigate Open Source solutions, such as PostGIS, which was now felt to be mature enough to provide an alternative solution.

This thinking coincided with a decision taken at the end of 2012 to replace the Trust's mobile 'Blackberry' estate with Samsung Android OS smartphones. The Trust has also rolled out over 100 iPads running bespoke applications it commissioned. The Trust is also currently embarked on a project that will see all 722 operatives issued with a rugged Android OS smartphone. Step one was to build a cloud based infrastructure that could host and serve the data so that it would be available for people and devices to access when not connected to the core corporate infrastructure.

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Jonathan Marshall, the Trust's Head of GIS, takes up the story. "These are all really capable devices so it made sense to make our high value data and maps available to users of these devices too and that is only really possible outside our firewall. When we were looking at the requirements cost was obviously a concern and we looked to develop in house rather than get something developed externally. I have got a team that is more than capable of working out how to get started with Open Source but it helped to have all the pitfalls signposted before we began, to ensure the project could happen more quickly, which is where Astun came in."

"We first became aware of Astun via the Association for Geographic Information (AGI) and specifically at an AGI run event focused on Cloud computing where Astun presented. The maturity of Open Source persuaded us to look at dipping our toes in the water rather than just watching from the sidelines."

How it worked

Matt Walker undertook an initial technical review of the Trust's existing infrastructure so that it would inform an architectural proposal that investigates both Open Source and a cloud based solution.

Matt worked with the project team, helping to set up servers in the Amazon Cloud, showing the team how to install PostgreSQL, PostGIS and GeoServer onto those servers. This work also included help with data uploads.

"We are also getting a WMS feed of Ordnance Survey OpenData from Astun Data Services. In this regard it was especially useful to discuss with Matt the deployment options, for example whether we should use MapServer or GeoServer based on what we wanted to do. For example we wanted a solution for both laptops and mobile devices. It really helps speed things up if you can make these decisions on the advice you receive from someone as experienced as Matt," said Jonathan Marshall.

Security is an important concern for the Trust, which is heightened by having an external Cloud infrastructure. Having experience of this type of solution meant Matt was able to advise on this at an early stage.

A few months down the line, the Trust has a pilot cloud infrastructure in place based upon PostGIS and GeoServer deployed on an Amazon instance in the Cloud with GDAL/OGR handling data migration. This is a hybrid solution with the Trust's own secure SQL server geodatabase environment pushing data up to the new Cloud infrastructure on a regular basis to keep everything in sync. GeoServer serves the data as WMS/WFS to any client that can consume these services.

Going mobile

The Trust instigated a second round of consultancy services with Astun. This like the first project is a mentoring role. This work focused on an OpenLayers solution for the smartphones and mobile devices the Trust was rolling out. As a mixed estate of Android and iOS devices it is important to have a solution that works simply across both operating systems.

600 members of staff who had a Blackberry at the end of 2012 were issued with a Samsung Galaxy S3. The field operatives however had a requirement for a slightly more rugged device. The Motorola TC55 (IP 67 rating), Android OS device, is the one being rolled out.



"There has been a very positive approach from Astun over the two projects and it has worked very well for us. Having an understanding of what we were trying to achieve and our in house capabilities meant that we got a tailored package of consultancy which matched our needs precisely," said Jonathan Marshall.

Footnote:

Astun Data Services offers a simple low cost alternative for PSMA members or those with an alternative Ordnance Survey licence to access national cover (or a licensed subset) of MasterMap and other data sets as a WMS or WMTS and a vector download service with two attractive cartographic styles. Astun also hosts OS OpenData.