How GO Publisher is helping the Met Office to develop timely, accurate and reliable route-based forecasts to support better road gritting decisions.

The Met Office

The Met Office is one of the world's leading providers of environmental and weather-related services. It supplies solutions and services to many communities of interest from the general public, government and schools, through broadcasters and online media, to civil aviation and almost every other industry sector in the UK. The Met Office is continually developing new products and enhancing existing ones. One such, OpenRoad®, has been delivering key forecast information to road transport and infrastructure decision makers for more than 15 years. Now, thanks to the Met Office's web orientated architecture and GO Publisher from Snowflake Software, OpenRoad is trialling the delivery of new route-based forecasts (RBF) to support highways authorities with their road gritting decision-making.

To grit or not to grit - that is the question!

OpenRoad forecasts are based on Met Office science combined with data received from a network of specialised road sensors installed on major roads. The forecasts are by single area or climatic domain, identifying relevant factors and include 24 hour, two-to-five-day forecasts, site-specific ice-prediction graphs, rainfall and snow warnings. Richard Bevan is Portfolio Technical Lead, Commercial, with overall responsibility for meeting the technical product development requirements. He says, "We supply Government Agency Trunk Road contractors and local authorities with detailed road weather forecasts including road surface temperature and road state. They then use these in their own criteria-based decision making process – to grit or not to grit." Richard adds, "However, the cost of gritting is high and authorities are striving to be more efficient by only gritting when and where needed. Until recently, our forecasts have been generally area based but by adding route-based forecasting trials, providing forecasts of conditions along segments of specific roads, our customers can benefit from more detailed information and ultimately make more cost effective gritting decisions. "

The way forward: OGC standards.

Matt Adams, Portfolio Technical Lead, takes up the story, "We were already looking at the future of our IT architecture, deciding on a web client serviced by a service oriented architecture underneath using the Open Geospatial Consortium (OGC) standards: web feature service (WFS) providing our data in terms of numbers and web map service (WMS). OpenRoad provided a static map and all the different products had to be built individually. With this new architecture, we can overlay satellite images, radar maps etc all on the same background map without having to do any recoding."

The challenge of meeting customer expectation.

Originally launched as a fax-based textual service, OpenRoad had developed to become a standard web application based on a Java back end, delivering a number of separate basic maps with flashing symbols. This web-based version was popular as a mechanism allowing access to radar information and satellite images as well as graphs of road surface temperature, air temperature and dew point. However, with the existing architecture, it would have been considerably more time consuming to enhance the product, combine the maps and to add the route based forecasting.

Three stage solution.

The Met Office took a three-stage approach: an OGC proof of concept and if successful, a trial RBS system followed by a production system. Matt again, "We needed companies that aligned with that strategy and who could prove very quickly that this was the right concept and that it would work. We looked at a number of different vendor options some of which, like GO Publisher from Snowflake Software, worked, some of which didn't." He adds, "GO Publisher sits between our databases and the web and ensures the easy translation and publication of XML and GML from any data model to any given schema."

Supporting interoperability.

Snowflake supplied both GO Publisher software and technical consultancy for the OGC proof of concept in summer 2007and for the trial RBF system that has been running for last 2 years. Experts in the field of GML/XML, Snowflake have been actively participating in the initiatives of organisations such as the OGC, helping to define open standards and encouraging the adoption of generic technology to support interoperability across national and international borders.

Vital to project success.

Through all three stages, Snowflake consultants provided ongoing support, help and formal consultancy. Matt recalls, "At that time, we had no direct experience of GML and no real background in OGC standards implementation. The consultancy that Snowflake provided was vital to the success of the project and to be honest, we would not be where we are today without it." More specifically, according to Matt, "We needed to devise a GML schema to store wind, temperature and rain data. Eddie Curtiss, Chief Technology Officer and joint founder of Snowflake, worked on site and helped us define and develop the data modelling, the GML schemas and worked with us on the implementation of GO Publisher."

Making better decisions.

How did this approach benefit the Met Office's customers? Matt Adams again, "Their reaction to the whole concept has been very positive." He explains, "We have increased the range and depth of what we have delivered. OpenRoad is now visually more appealing, easier to interpret and a better decision making tool" He adds, "We offer a number of other services over the web using GO Publisher. Both OpenRunway and our de-icing service were HTML web services with static maps but are now dynamic products built using Flash. Being able to improve those products gives us extra return on our original investment that we didn't anticipate."

Reduction in development costs.

Phil Ellis, the Met Office's Head of Channels, reports, "The proof of concept was paid for out of our Technical Research Programme that funds investigation into new technologies that support the realisation of our strategy. It wasn't difficult to justify as we had already decided on OGC standards." He continues, "This approach certainly has helped us ensure our investment is focussed on customer functionality rather than data sourcing . Our previous way of developing systems was heavily focussed on data sourcing and parsing. If we hadn't used GO Publisher, we'd have had to write a bespoke Java-based interface between the data layers and the client, which means I'd have to have had more resource with the right skills. I'd say the effort of doing that would have been greater than configuring GO Publisher to expose the data we wanted." Phil is clear, "Moving to a web-orientated architecture has saved time, time that we have been able to devote to developing new high-quality products and services the customer needs."

GO Publisher: it's proven and it works.

Development and delivery is complete, the system has gone live and the Met Office main board and senior management alike are impressed with both the approach and the results. Dave Underwood, Head of Technology, concludes,

"The technology is in place and all the services we deliver on the web will now go down this route. Now our customers know what is possible, they continue to demand more from us. We are looking at enhancements and can now deliver because GO Publisher does exactly what we need it to do, it's proven and it works.

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www.metoffice.gov.uk

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