

CASE STUDY

GNS Science

Web Drive solves GNS Science's High Availability challenge.

In the event of any seismic movement, the first thing to shoot through the mind of any New Zealander is 'was that a big one?'. The people who answer this question as rapidly and accurately as possible work at GNS Science, headquartered in Wellington – and how they do that is thanks in part to an advanced software solution which lives in Web Drive's data centre.



GNS Science is New Zealand's leading provider of Earth, geoscience and isotope research and consultancy services. It has a duty to government and the people to track, trace and analyse every tremor to hit the Shaky Isles. It does this by operating the GeoNet project, funded by the Earthquake Commission, to monitor all geological hazards in New Zealand. For earthquakes, this is handled cost-effectively and with the highest reliability by outsourcing the specialised technology requirements for its SeisComP3 system to Web Drive, New Zealand's proven provider of high-availability (HA) hosting services.

Kevin Fenaughty, GeoNet Data Centre Manager at GNS Science, explains that while the organisation has its own data centre, the SeisComP3 system must be extraordinarily reliable. "Earthquakes don't keep office hours. They can and do strike at any time of the day and night. That means our seismic measuring systems have to be available without fail, around the clock," he says.

Fenaughty says GNS Science's data centre is focused on providing operational support. "Furthermore, the type of configuration required for HA would also necessitate substantial capital investment. A hosted service provider like Web Drive was able to provide the server capacity, performance and most importantly, the required reliability, practically immediately."

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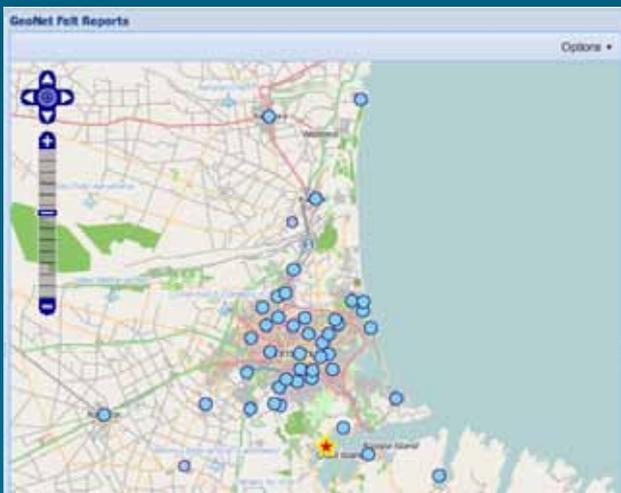
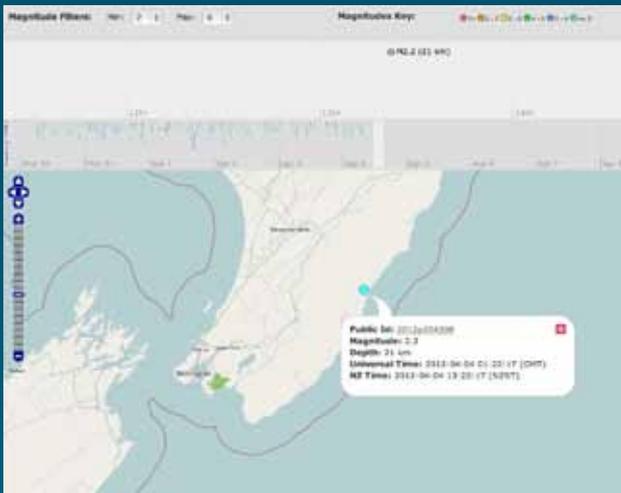
With SeisComP3 presently in public beta, he explains how it works. "We have a network of some 180 seismometers countrywide. These take measurements 100 times every second; that data is fed into our data collection centres at Avalon and Taupo; from there it is sent to the SeisComP3 system, hosted in Web Drive's data centre."

This mass of data – some 5GB every day – is constantly monitored and analysed, providing insight and greater understanding into the forces which are shaping the country and which very often shape the nation's zeitgeist, too. That information is shared rapidly using a full range of communication services, including social media platforms such as Twitter and Facebook.

The Value of Data

Fenaughty explains why this information is important. "We can't predict earthquakes, we can only record their magnitude and where they happened. From that, we can assess what the probable impacts are on people, infrastructure and society without even leaving our offices."

"Not only did it offer the capacity and capability with very little lead time, it also had a number of HA reference customers. This satisfied us that Web Drive is an expert in delivering this sort of service".



Time Map - An interactive map of the last two hundred and fifty earthquakes



This, he continues, is essential to allow for rapid and appropriate response. "The effects of magnitude, depth and the style of fault rupture on structures and the environment are well-modelled, so we have a good idea of what has happened when there has been any significant event detected by our instruments."

The SeisComP3 system offers advantages over previous systems in that it locates earthquakes more quickly (less than two minutes for nearby quakes), and it uses a three dimensional model of the crust under New Zealand instead of the previous single dimensional one. This increases the speed and accuracy that GeoNet can pinpoint the epicentre of an earthquake and assess its impact.

Fenaughty says GNS Science has trialled the SeisComP3 system for some 18 months. "From the start, we accepted that we didn't have the in-house capability to run a high-performance, high-availability Storage Area Network. Additionally, given the timeframes and cost implications associated with sourcing that expertise and the appropriate equipment, it made sense to opt for a hosted solution."

Proven performance and support

Web Drive, Fenaughty says, came to prominence following a detailed study of potential service providers. "Not only did it offer the capacity and capability with very little lead time, it also had a number of HA reference customers. This satisfied us that Web Drive is an expert in delivering this sort of service."

In practice, Fenaughty confirms that GNS Science is receiving the performance and support it was promised. "That's one of the great advantages of outsourcing to a specialist. We're left to focus on our core strengths, while Web Drive focuses on what it does best."

Neil Webster, sales manager at Web Drive, says remote hosting of various systems is increasing in popularity. "Our data centres offer a guaranteed uptime of 99.9%. That applies to any system we host for any customer. In cases like GNS Science and for other clients such as banks, that uptime is further improved in line with appropriate service level agreements to suit specific requirements."

He says the remote hosting model is proven to save on capital expenditure, time-to-value and operational costs. "There's no need to buy expensive equipment, no need to hire costly professionals and no need to wait for implementation. We make that our business and simply deliver the capacity you need."



Kevin Fenaughty- Data Centre Manager