How to make software more interactive between the geoscientist in the data centre and the engineer in the field

Paradigm executive vice-president technology, Duane Dopkin, tells First Break of the company’s plans to broaden the appeal of its software to the mainstream user.

The battle of the E&P software market is hotting up as the amount of seismic data that can be acquired grows and the data itself becomes more sophisticated and of higher resolution. Paradigm is fighting for a bigger slice of this market with the backing of the private equity fund Apex, which last year bought the company.

‘In the past five years the industry has done an extremely good job at improving the quality of seismic acquisition,’ says Duane Dopkin. ‘A lot more data can now be acquired. Changes in seismic and wellbore techniques are also driving changes in computer science. The core technology from Intel, which is the main Central Processing Unit (CPU) provider, and Nvidia, the main Graphics Processing Unit (GPU) provider, continues to advance and things will become faster.’

The main task of Paradigm during this period, he says, will be to broaden its appeal by making its high-performance computing solutions more accessible for wider use. ‘The problem is that our customers view Paradigm as a solver of advanced and difficult computer science relating to high-performance software. We are aiming to make our software more accessible and we want to create a democracy for users from the geoscience and engineering communities.’

One of the biggest challenges for software providers is to provide platforms for users that are more interactive between the geoscientists processing the data, the engineers in the field and the oil companies.

To that end, the company has launched Paradigm Epic, ‘an open and integrated platform’ on a single integrated console to provide workflows for full azimuth imaging, tomography, formation evaluation, facies analysis and modelling. Paradigm applications are already integrated at the database level through its Epos infrastructure. Epic will add a common user interface to this integration, enabling information to be shared in real time. General users will now be able to work with advanced workflow that previously required specialized expertise. Developers will be able to integrate their applications into Epic royalty-free, using either an application-level plug-in or through the underlying Epos database. Developers connecting into the platform will be free to build similar plug-ins for any other vendor. ‘This is the first time that users will be able to select specific applications from Paradigm to connect into their existing primary platform,’ says Dopkin.

This is where the industry is going in its software development and the main challenge is to facilitate greater interactivity, and make further innovations such as utilizing cloud computing for storage of big data, while at the same time maintaining security of the information for the oil company that is ultimately paying for it.
Brazil – one of the top five discoveries in the world in 2012, with an estimated recoverable volume of at least 1.2 billion barrels of oil and gas.

Meanwhile, Paradigm will still focus on its core strength of developing high-performance computing solutions, such as the newly launched Earth Study 360. The tool can model 360 degrees in the sub-surface, says Dopkin. It converts surface-recorded data into a very detailed sub-surface image showing the properties of the sub-surface varying with azimuth. ‘We use anisotropy to decompose the seismic in a way that we can understand the sub-surface. I would compare it with opening the pages of a book – you can open page 60 to find the geolayer, as opposed to drilling through the pages with a well bore.’

With Apex’s backing, mergers and acquisitions by Paradigm are likely, and, going on Apex’s usual model, there is likely to be an IPO within five years. ‘We could probably go public today if we wanted to,’ says Dopkin. ‘We are 700 people and operate in 100 countries and I would not be surprised to see the company double in size.’