

# digital energy journal

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Seismic modelling through the cloud

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## Hue

Hue develops unique and tailored software and services to solve the most complex visualization and compute challenges for oil and gas E&P.

Hue has developed HueSpace, the only software development toolkit created exclusively for E&P that combines exceptional data management, advanced compute capabilities, and state-of-the-art visualization into a single, easy-to-use toolkit, unified by a Core Engine.

By working with Hue, oil companies can develop both in-house and commercial solutions that go far beyond what the market and users currently expect.

Michele Isernia, EVP strategy and alliances with Hue, notes that most oil and gas software has a basis which is over 15 years old, and was built to run on a single processor, handling a limited amount of data.

The Hue platform, by contrast, was originally designed to run on massively parallel processing systems, with multiple CPU and GPU processors.

Hue is headquartered in Oslo, Norway, with offices in Houston, TX.

## Calgary Scientific

Calgary Scientific provides the software visu-

alisation and transmission part of the offering.

Calgary Scientific makes the "PureWeb" tool which enables remote access to visually intensive software applications. The company has a heritage in the medical / healthcare sector.

If the software (for working with big data volumes) is written in C++, .Net or Java under Windows or Linux, Calgary Scientific's tool is able to transfer the 'visualisation layer' (ie the display) to a remote computer without rewriting any of the code.

One user can invite a second user, or even a whole team, to see what they can see, by emailing them a web browser link. So both users are sharing the same software login license.

No data is stored on the mobile device and no special software is required. The data arrives at the user's computer in HTML5 or Adobe Flash.

"We integrate lightly with the source code, we don't screenscape, and turn it into web services," says Gary Mendel, VP Global Sales and Business Development with Calgary Scientific.

There is a good demonstration of the software online at <http://youtu.be/wnnodCiUVhU>

## Lenovo + Magma + NVIDIA

The high performance computing part of the offering, running in the computing centre, is

provided by Lenovo and Magma.

Lenovo provides the "ThinkStation D30" workstation, which the company claims is the "highest performing, most reliable and most user-friendly workstation technology available." The workstation is powered by an NVIDIA Quadro K6000 graphics card to generate the real-time visualizations of the seismic data.

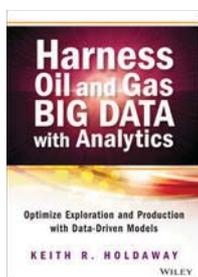
Together, with Magma's ExpressBox 3600, which contains up to eight NVIDIA Tesla K40 GPU accelerators to process the seismic data, the solution provides the high performance hardware core that Hue's software solution takes maximum advantage of. Magma's Expressbox 3600 provides the power, cooling and high performance PCIe 3.0 links to keep the GPUs fed with data as needed for near real time analysis. Additionally, Lenovo enabled its BIOS to be able to initialize all eight NVIDIA Tesla K40 GPU accelerators, making it one of the most expandable platforms on the market.

NVIDIA's GRID K2 GPUs and virtualization technology housed at Amazon Web Services are also used to deliver high-performance, high-resolution seismic visualizations in real-time to laptops, tablets and other mobile devices remotely in the field.

The Hue technology is already optimised to work using the Lenovo / Magma / NVIDIA system.



# New book on oil and gas analytics



Keith Holdaway, principal industry consultant with SAS (and a former senior geophysicist with Shell), has published a substantial book on harnessing oil and gas big data with analytics (Wiley, July 2014).

The book explains how various "big data analytics" techniques can be used to help improve production, including how to do statistical and qualitative analysis, predictive

modelling, to help make better decisions. Particular areas of coverage include data management, quantifying uncertainty and risk assessment.

You can get an in-depth understanding of what "Soft Computing" actually means (use of inexact solutions, in short).

There is in-depth coverage of seismic attribute analytics, reservoir characterisation, drilling and completion optimisation (including a workflow for mitigating non-productive time), reservoir management, production forecasting (including predicting production from an infill well), optimising production, predicting the value of exploration and production projects, data visualisation, working with 'big data', geostatistics.

The book takes the idea of analytics work to a new level. Many people (including your correspondent, until he read this book) believe that there is a binary debate about letting experts (who understand the engineering systems) work with data, or getting automated systems to try to spot patterns in it.

But the real answer is that you need both experts in engineering systems and the data analysis – but with it you could find some answers which could make a big difference to the industry.

This is a substantial book – but worth the effort of trying to get through, if you would like a better understanding of how analytics can be used to improve the way the upstream oil and gas industry works.

