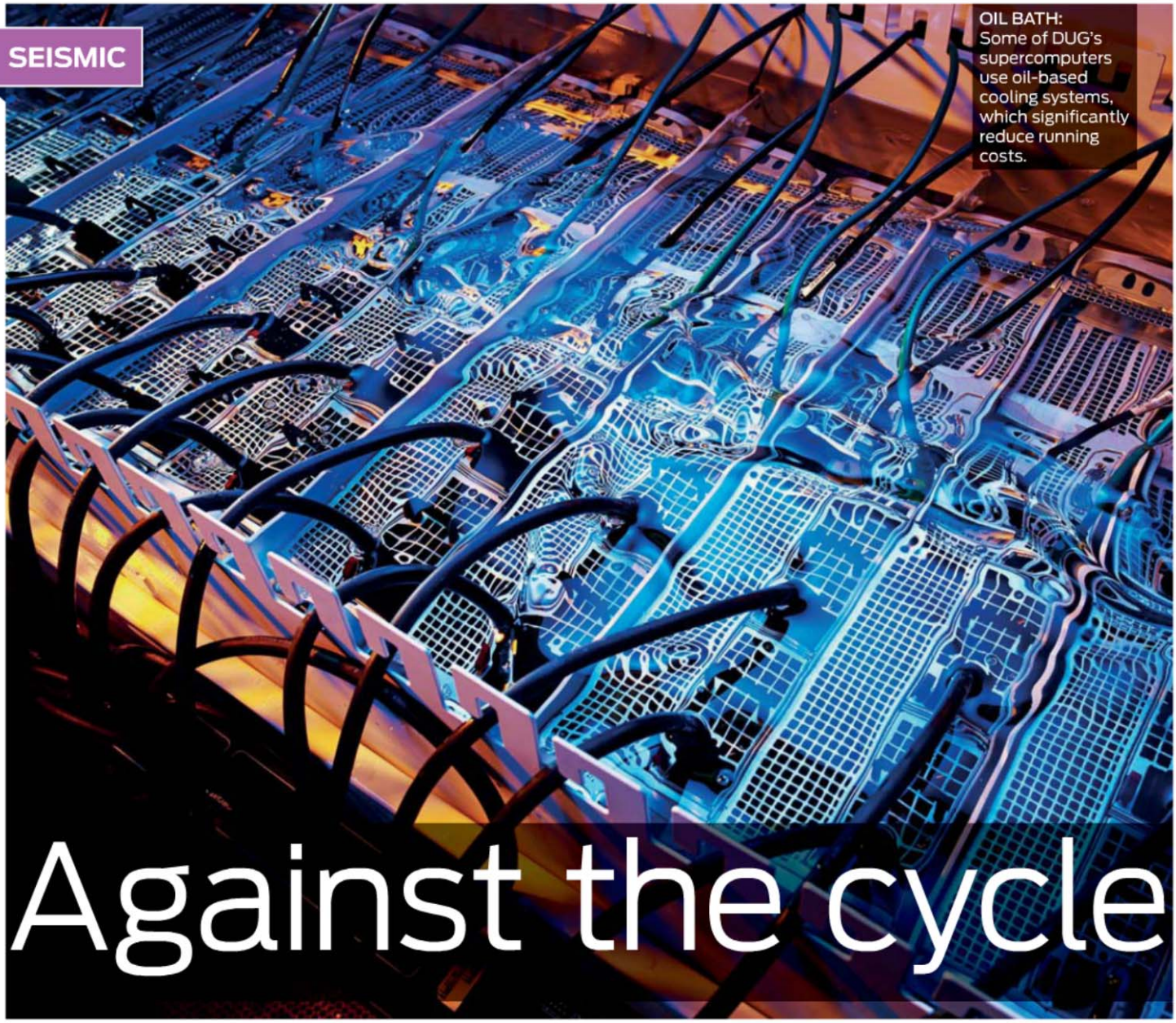

OIL BATH: Some of DUG's supercomputers use oil-based cooling systems, which significantly reduce running costs.

Images: DUG

Against the cycle

Australian entrepreneur Matt Lamont has developed a major seismic data processing company from improbable beginnings, reports Andrew McBarnet.

On the evidence of its flamboyant marketing campaigns capitalising on its Australian identity, you would never guess that DownUnder GeoSolutions (DUG) is rapidly emerging as a serious international player in the arcane world of seismic data processing.

Matt Lamont, co-founder and chief executive of the company, based in Perth, Western Australia, says that making its presence visible in the industry has been very helpful.

"At first we thought focusing on our results was the way to go, but now everyone in the seismic business knows who we are and hopefully what we do," he says.

Remarkably, the company is making most headway breaking into the market for the conventional seismic data processing and imaging service contracts that have tended to be the province of the big geophysical contractors and a few other well-established companies.

Indication of the company's growing status was the winning of a recent tender to provide data processing and imaging services for marine seismic contractor Polarcus. The first major project of the deal is the multi-client 3D Capreolus broadband seismic survey, in which DUG is an investor. The survey is one of the largest in the world, covering a total area of 22,130 square kilometres across the Roebuck basin off Western Australia.

The onboard processing is being carried out by Polarcus, using state-of-the-art hardware custom developed by SGI for DUG and powered by Intel Xeon processors and Intel Xeon Phi co-processors. DUG's proprietary software, DUG Insight, enables the onboard team to provide intuitive quality control of the data as it is acquired.

Onshore final processing and imaging by DUG will make use of the company's newly acquired supercomputer in Perth, known as "Bruce". Fast-track volumes are available throughout the acquisition, with final data delivery of a depth-migrated product due in early 2016.

The attention associated with DUG's publicity disguises an

SCREEN SHOT: Matt Lamont and crew reviewing seismic data. Last year, the company saw a 120% growth in seismic processing and imaging services.

unlikely tale of "boy did good". As an early school leaver who did not attend university until he was in his late 20s, Lamont could hardly have anticipated that one day a geoscience-based company he created would have software installed on all the E&P geoscience workstations worldwide of a major company such as Apache.

Last year, the Society of Exploration Geophysicists recognised the extent of Lamont's achievement by awarding him and DUG co-founder Troy Thompson the Cecil Green Enterprise Award. The citation referred to the "talent, determination and plain hard work that has taken DownUnder GeoSolutions from humble beginnings to the significant global company it is today".

Even this does not quite do justice to Lamont's personal journey. He admits having been "quite a handful" as a teenager. He outraged his parents by quitting high school at 16 and heading for the Western Australian bush to work on a cattle station. A few years on, Lamont was employed as a qualified forest ranger, earning a few dollars on the side playing for a local Australian Rules football team. "It was fun for a while," he says. "But when you're young you want a bit more excitement."

His forest ranger career terminated abruptly during a two-week holiday to Europe, during which excitement came in the form of meeting his wife-to-be in Ireland. On returning home a couple of months later, his thoughts turned to university entrance with the intention of becoming a teacher. Once enrolled at Curtin University, Perth, he found that he liked the geology part of his general science studies. That soon morphed into geophysics in the Department of Exploration Geophysics. There he excelled, earning a first class Bachelor of Science degree, followed by a PhD awarded post-university in 1998. Along the way he won numerous academic awards.

A period in the oil industry gaining experience as a geophysicist followed, working for, among others, Phillips Petroleum, Woodside Offshore Petroleum, and BHP Billiton in Perth and Houston. But Lamont always had the idea of forming his own company. "At heart, I guess I am an entrepreneur," he says. "In the past, I had tried my hand running a number of businesses, including window cleaning, when still a teenager, and later a solid-timber building company. I have to admit none of them was particularly successful."

In 2003, he decided to go out on his own. During a sojourn with BHP in Houston, he saw a very different business landscape from his hometown of Perth. "There were some exciting new start-ups at that time," he recalls. "It convinced me that there was an opening for small companies with good science. It wasn't necessary to have a 200-strong R&D support team."

Back home, he persuaded a star research student from Curtin University, Troy Thompson, to join him. The two had collaborated on projects and publications at university, and

DYNAMIC DUO: Matt Lamont, right, with DUG co-founder Troy Thompson.

WESTERN FRONT: DUG's head office in Perth, Western Australia.

Lamont was one of Thompson's PhD supervisors. Lamont counts himself fortunate to have founded DUG with such a high-flier, winner of the Dean's Prize for top student in the Faculty of Science and a string of other university honours and scholarships. An important part of Thompson's subsequent role would be to develop the rock physics elements of the company's offerings, notably quantitative interpretation (QI) in which there was growing industry interest. Through the use of amplitude analysis, QI aims to predict lithology and fluid content away from the well bore. The process makes use of all available information — seismic, geological, well and other data — to build confidence in predictions about the reservoir.

As Lamont tells it, the first few years were a little sketchy, with minimal funding garnered from a few supportive friends. No salary for a while, and a lot of relying on well-wishers' hospitality to attend international conferences and meetings, would be the rule. He built a "shed" the size of a two-story garage behind his house in Perth to serve as an office. Upstairs was serious business, with all the computer equipment. Downstairs, there was a pool table, dining area and a bar, an early indication that the DUG work ethic should include fun.

He never did quite get around to obtaining formal permission for office use. After a couple of years there was a request from the local authority to inspect the shed. Lamont was happy to comply. "Someone must have squealed on us, but our timing was impeccable," he says. "The previous week, we had just moved out to our first proper office."

Today, DUG has over 200 employees in Perth, Brisbane, Kuala Lumpur, Jakarta, Singapore, London, Houston and Belgrade. The choice of the London office, established in 2013, provides insight into how Lamont has challenged the orthodoxy. Most of the service companies are situated out of London, many convenient to Heathrow or Gatwick airports. Lamont believed it would be best to be close to the clients.

"Basically, I asked my secretary to look up all the London-based oil companies and plot them on Google Maps. Turns out that 95% are located in a core area around the West End stretching down to Victoria Station. That's why we have ended up on Piccadilly in the heart of Mayfair. It's just a short trip for them, and we are right by some of the best pubs, eateries and coffee shops in town."

Because it is an older building, Lamont says the London rent is quite a bit cheaper than Perth. The office has grown to accommodate 35 people, with clusters of computers expanding to match. Work on offshore and onshore projects has come from all over, including the North Sea, Europe and Africa.

The Belgrade office is another apparent anomaly, but actually very practical. An especially efficient employee in charge of the company's tendering decided to return to her native Serbia for three months on family business. Lamont saw no reason not to keep her busy while she was in Belgrade — two years later, the system still works, now with a small office of five.

Lamont currently is focused on business potential in the US. The company is moving from modest premises to a "monster" office equipped with impressive computer power. "The space is four times the size of the London location," he says, "So we have some growing to do from our current staff of 15 or so."

The question is how DUG performs the apparent Houdini act of growing during one of the worst downturns in oil industry history. Last year, for example, saw 120% growth in seismic processing and imaging services and 65% growth in the smaller proprietary interpretation software sales segment of the company.

Lamont is prepared to share the secret. "First and foremost, it is the talent of the staff we have been able to hire. We never take people on who are just looking for a job. We've always held out for that special spark, that glimmer that shows us that this

FIRST DIGS: The infamous "shed" that served as an office during DUG's lean early years.

is a person that really loves what they do. That also means that we consider applicants from a range of disciplines. If someone has got a deep-thinking brain and is motivated, then we can tailor a role for them."

Lamont also believes that DUG brings something special to the marketplace.

"The number of tenders is down right now. However, we are working very hard to be counter-cyclical, based on what has always driven the company from the get-go," he says. "We believe our software and machine costs are probably 10% of our competitors'. We have a very slim management structure, with just three executives, chief operating officer Paul Crute, chief financial officer Louie Bower and myself. We also put a great deal of effort into project management and the relationship with clients. Reliability has not been a strong point of the data processing side of the E&P seismic business. So our priority has been transparency, predictability and delivering on time, and that has been paying off for us."

DUG has also been able to take full advantage of developments in scalable computer co-processor technology, working with SGI and Intel. This is not just a question of compute power but more cost-effective oil-based cooling systems that reduce running costs by as much as 45% compared with fan-cooled CPUs employed by all but one of the competitors.

In DUG's early days, Lamont concentrated on what he felt was a gap in the market for a small-scale processing and imaging tool kit. Acceleration of its development and introduction to the international market was facilitated by financial support from some key government funding agencies.

"We would have got there in the end, but this really helped the R&D effort and getting our overseas offices set up," he says.

Today the company has increased the range of its services to include seismic data processing, illumination studies, depth imaging, petrophysical processing and interpretation, geostatistical depth conversion and QI. The sales business of the company is focused on the DUG Insight 2D/3D pre-stack interpretation and visualisation package, now with thousands of customers worldwide.

"We are working very hard to be counter-cyclical."

Matt Lamont, DUG

DUG is on top of current industry pre-occupations, finding customers for its broadband data processing solution, which addresses the de-ghosting issue during marine seismic acquisition. The company is also working on new fracture detection and orientation processing software for US shale operators.

DUG first made its mark with its innovative QI workflow, adopted by some local Australian companies. A discovery made in 2006 led to further exploration successes assisted by the QI application, and more business came in. While there is less appetite for this advanced rock physics technology in the present climate, Lamont says he is not overly concerned. The rest of DUG's operations seem to be flourishing in unusually severe economic circumstances.