Burning through data like nothing else

Suzanne Tindal, ZDNet.com.au on December 7th, 2011 (1 day ago)

The journey to find gas or oil starts on a boat. The boat has 10 air compressor guns firing blasts into the ocean floor, from which arise reflections that are picked up by the hydrophones on the 10 12km cables the boat is dragging. The data that is created as the guns shoot again and again needs to be crunched.

The data from a typical project of this sort, usually around 35TB, would be loaded onto tapes — normally about 300 of them. This data now needs to be processed, weeding out the noise and manipulating the remainder into something that can be used to see if there's oil or gas to be found.

That's a job for companies like DownUnder GeoSolutions, according to its CTO, Stuart Midgley, who said that his company churns through compute power like nothing else.

"We burn through data like you wouldn't believe," he said.

The company, which started in a small house in Subiaco, Western Australia, with a kitchen operating as a server room, now operates around 15,000 cores in Perth — and that's a fraction of what the industry as a whole is using, according to Midgley, who said that he thought there would be 100,000 cores operating on similar jobs in Perth alone.

Every few months, the company buys a new rack, comprising of 2500 cores. These 35kW racks can't be cooled with air, so the company uses water cooling. If this stops working for some reason, the temperature in the room with the kit rises from 18 degrees Celsius to 60 degrees in three minutes.

At that point, Midgley said, it's a case of getting out screwdrivers and using them to turn the servers off at the power button, because if you pressed it with your finger you'd burn yourself.

When the company gets a project for which it doesn't have enough compute power, it calls up vendors and asks for a quote. If they're happy, they'll provide the vendor with a purchase order requesting the gear to be delivered within weeks.

Yesterday, Midgley expected delivery of a rack of SGI servers containing AMD's new Opteron 6200 Series Processor.

These chips, just launched, have up to four sockets with up to 16 cores and four memory channels with up to 1600MHz memory. Power use is 85W to 140W. AMD has also released the Opteron Series 4200 chips, which have up to two sockets with up to eight cores and two memory channels with up to 1600MHz memory.

The company decided to go with AMD's chips because they have a 10 per cent reduced power usage and 25 per cent less total cost of ownership for 30 per cent more performance that DownUnder GeoSolutions couldn't get otherwise, according to Midgley. The number of cores and amount of memory available was also a drawcard.

"All of our software is heavily threaded; we use as many flops as we can. We use a massive amount of memory," he said.

The company recently returned to AMD again after using other processors. Midgley said that this was due to the vendors that were providing hardware, including AMD processors, that didn't have the drivers needed for a Linux shop. That had since been remedied, according to Midgley.

"We used to be an AMD house. We started moving away. Now we're coming back in a big way," he said. "I anticipate that they're going to work insanely well for us."

URL:*http://www.zdnet.com.au/burning-through-data-like-nothing-else-339327420.htm*