The West Australian
thewest.com.au

SE Business

HD **Life inside our biggest 'brain'**

WC 803 words
PD 2 December 2014
SN The West Australian
SC TWAU
ED Second
PG 4
LA English

LP

It is like being in a scene from 2001: A Space Odyssey.

Within the $100 **million** Pawsey Supercomputing Centre — a futuristic cluster of buildings on the outskirts of Curtin University — big machines hum away in rooms so white they rival John Lennon's Imagine video.

TD

The machines themselves, aptly known as supercomputers, are not much to look at, but inside work with the potential to redefine WA industry is taking place.

Neil Stringfellow is standing beside the $15 **million** Magnus — the world's 41st most powerful supercomputer and the most powerful machine in the southern hemisphere.

To put it in perspective, Magnus and its supercomputer brother, Galaxy — which is in the room opposite — have the power of 25,000 standard laptops working at the same time.

Their storage capacity is equal to 100,000 laptops, or 312,000 years of music played continuously.

For most mortals, the very thought of what a supercomputer does is reason enough not to ever think about it.

But Magnus, which has a very WA-centric focus, is simply designed to help improve things we use, consume and work with every day.

"It's about using technology to make common consumer products, such as **bread**, better," Dr Stringfellow said.

"For example, at the moment we're working on the wheat genome, trying to understand how to grow more and better strands of wheat in a smaller area.

"This will help make better **bread** which leads into improvements in food security.

"While one-third of the machine is focused on geo- science, for us it's solid earth geoscience . . . what's down below."

A mere mortal might well ask how a supercomputer in an air-conditioned room in Kensington could possibly make toast tastier, or help WA discover more iron ore.

Dr Stringfellow describes the supercomputer as a "big brain", processing data at an incredible rate, pulling together complex jigsaw puzzles.

"Researchers come with their problems and their ideas and the supercomputer, the big brain, helps solve them," he said.

“We’re an enabling **group**, essentially. So in the geoscience area it’s about pulling data that is in the public domain to get better resolutions for mapping so explorers can find out what’s down there a little easier.

“We’ve also been working with wave energy groups. But essentially we run codes on (the computer) so people can do things on a really, really big scale.”

Pawsey — one of only two major supercomputer centres in the country, the other is in Canberra — is a joint CSIRO initiative between Curtin, Murdoch, WA and Edith Cowan universities.

It was created by the Rudd government in its bid to stimulate the economy follow- ing the global financial crisis.

Perth was chosen as the home for the country’s second major supercomputer mostly because of the Square Kilometre Array project, the world’s biggest radio telescope, which is set to be built in the Murchison region early next decade.

However, Dr Stringfellow admitted “a whole other building” may have to be built to house the technology needed to service the SKA, which some predict will be the biggest science project in the world.

Magnus, which unlike its high-tech cousin in Canberra is not focused on radio astronomy, finished its upgrade two months ago and was last week ranked number 41 in the world at a conference in New Orleans.

For Dr Stringfellow, a British native brought over from Switzerland especially to run the supercomputer project, said though it was not something you could necessarily calculate, spending **millions** on this sort of technology paid for itself.

“In Switzerland, they spend two or three times what Australia does on its machines,” he said.

“Its economy is thriving, without having to export materials, through selling their technology.

“They build dams and sell their dam technology, which they developed through supercomputers, to **China**.

“Selling resources has ups and downs. Selling expertise is a lot more stable.

“And it’s important that we not only know how to dig stuff up, but that we also have the expertise to tell other countries how to dig their stuff up.

“You get a knowledge economy, not just a research economy.

“One way or the other, someone is going to do it. If someone in another country does it, and you allow your technology to lapse, you’ll have to **buy** it off them.”

Dr Stringfellow said while the success of the machine depended on the researchers involved, and a continued financial commitment from government, he guaranteed the Pawsey Centre and its 50-odd staff were in it for the long haul.

“This is just the start of the journey,” he said.

Researchers come with their problems and their ideas and the supercomputer, the big brain, helps solve them. ” Dr Neil Stringfellow

IN i5020011 : Dam Construction | i3302012 : Supercomputers | i3302 : Computers/Consumer Electronics | i502 : Heavy Construction | icomp : Computing | iconst : Construction | icph : Computer Hardware | icre : Real Estate/Construction | itech : Technology

RE austr : Australia | apacz : Asia Pacific | ausnz : Australia/Oceania

PUB West Australian Newspapers Limited

AN Document TWAU000020141201eac200008

