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# Kiwi software firm wants slice of €1.5b telescope

## Alex Walls

Open Parallel is aiming to provide some of the computing power behind the €1.5 billion Square Kilometre Array (SKA) project.

The software company was founded in early 2010 by owner Nicolás Erdödy. Managed from Oamaru, it specialises in multicore and parallel computing and is a recent member of the Square Kilometre Array (SKA) Industry consortium.

The Australia-New Zealand bid to host SKA, the world's largest radiotelescope, is expected to cost New Zealand about 1-2% of the total €1.5 billion (a South Africa-led consortium is also in the running).

But economic benefits are expected to return at minimum \$180 million in jobs, infrastructure and communications equipment, by industry experts as well as scientific and technological benefits, particularly given the telescope's at least 50 year life span.

Open Parallel wants in on that, with intentions to offer software solutions for the project, Mr Erdödy said.

New Zealand's bid to host the telescope was mainly about having the country having the right natural conditions for the telescope but was 25% about technical capabilities and Open Parallel believed it had a good say in that 25%, he said.

"It's our expectation to lead the New Zealand parallel computing community toward offering solutions in software on SKA."

## Taking advantage of new chips

Parallel programming involves software that runs on multicore chips, Mr Erdödy said.

These chips were introduced in the

early 2000s to handle greater computing demand without overheating.

That occurred by building multiple central processing units (CPUs) into one chip. They are more power-efficient and have greater potential processing power.

Software was traditionally written for one core, Mr Erdödy said, while parallel programming was software written for multicore chips, taking advantage of the new hardware's capabilities.

## Milking it

Open Parallel created new software for the new hardware and adjusted legacy software, he said. This translated into faster and more efficient processing, with future possibilities including faster financial modelling, where complicated simulations could be run in seconds rather than weeks, he said.

"Imagine the optimisation of tests on milk, for example. Imagine that Fonterra is able to improve 1-5% of processing

just by using new software techniques."

## 15 million iPods of data a day

This faster and more efficient processing could be used in SKA, which will generate enough raw data to fill 15 million 64GB iPods every day.

SKA Industry Consortium chairman Dougal Watt said that while it was early days for the project, companies working in the parallel space would "absolutely" be able to contribute, since the SKA super computer could have one billion CPUs.

He said Open Parallel was a recent member and that it was good that it had joined the consortium.

"A company like that that has expertise and products and services to offer in related areas absolutely should be part of the consortium."

A decision about the host site for SKA is planned to be made next year.

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## Making everything run faster

Mr Erdödy said Open Parallel's first product was a web optimisation solution for websites using PHP software.

PHP is a common language used by the Facebook and Yahoo sites, which he said makes the sites run 70% faster while consuming 50% less resources including time and power.

Facebook created PHP software, called HipHop, which it claimed caused its server farm to run at 50% less power consumption than previously, Mr Erdödy said.

Open Parallel took this software and developed it to run at a lesser consumption than that percentage, he said, which interested Facebook, although the social media giant was not using the solution.

This project was funded by giant US chip-maker Intel, Mr Erdödy said, and involved integrating Intel's Threading Building Blocks, a library of C++ coding concerning multicore programming, into HipHop and then extended this to PHP and Perl, two of the main scripting languages that support most of the web enabled software worldwide, meaning these efficiencies could be applied to most websites globally.

It was a six-figure project, which concluded in August, he said, and was managed by Intel software director James Reinders. Mr Reinders was a guest speaker at the SKA Industry Consortium and will be a keynote speaker at Multicore Worlds, a conference organised by Open Parallel to be held in March next year.

Mr Erdödy said the conference served to connect technical leaders of multicore and parallel computing with interested business leaders.

Open Parallel had been in discussions this year with researchers at the IBM TJ Watson Research Lab, authors of an experimental computer language being developed exclusively for parallel programming, Mr Erdödy said.



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