

Getting up to speed

SA's supercomputing initiative finally takes off, and gets a multimillion-rand injection from government

BY LAURA FRANZ

MORE THAN a decade in the making, South Africa's initiative to tackle the shortage of large-scale computing is finally coming together.

Late last month saw the Centre for High-Performance Computing (CHPC) inaugurated when the Department of Science & Technology (DST), the Meraka Institute and the University of Cape Town (UCT) formalised their roles in making the centre a reality. The DST is the driver for the strategic implementation of the CHPC on national level. It will fund the venture through the Meraka Institute to the tune of more than two million rands in the current financial year, with discussions on future funding scenarios still taking place at government level.

The Meraka Institute at the CSIR will implement the CHPC, while UCT is to host the centre.

All research organisations and initiatives with an interest in HPC will be represented on the scientific advisory board of the centre. The infrastructure and services will also be available to all South African institutions.

"It is critical to ensure that the centre is used as a national asset, and not perceived to be the preserve of a few institutions. The positioning of the CHPC within the Meraka

"The need for high-performance computing in many areas of research, ranging from high-energy physics to health informatics, is growing rapidly as we are addressing more and more complex issues," says Johan Eksteen, technology research manager of the Meraka Institute. These range from a better understanding of the make-up of the universe to solving on-the-ground issues of prevention of communicable diseases such as malaria. Researchers from a range of institutions, such as University of Cape Town (UCT), University of the Western Cape (UWC) and University of Limpopo, are engaged in world-class research and international collaborations in areas such as material science, physics, chemistry and bioinformatics, which also require significant computing resources.

The challenges of accessing these types of resources brought a number of research groups together to find a solution. Building on the passion and leadership from institutions such as UCT and UWC, the initiative gained an international flavour with the inclusion of the CSIR and the Department of Science and Technology, explains Eksteen. The DST stresses that the growth in HPC initiatives is key to improving both the quality of life of SA citizens and the economic competitiveness of SA's industry.

Institute structures was a key consideration in this regard," explains Johan Eksteen, technology research manager of the Meraka Institute.

The CHPC really came into being in May, when the DST accepted a business plan for the initiative, and interim structures were put in place to manage the centre.

This business plan was the result of a national workshop organised in Cape Town in October last year, together with an executive meeting between DST, CSIR and representatives at deputy vice-chancellor level from all SA universities.

A consultative process resulted in the CHPC business plan being submitted to the DST in May for the long-term implementation of the centre.

The initial node of the CHPC will be located at the CSIR campus in Cape Town, where office space was provided in September. It is foreseen that the first computing infrastructure installation will begin in the first quarter of 2006.

In its first year of operation, key staff will be appointed, management and governance structures will be established and formalised, while a physical presence at the CSIR campus in Cape Town will be established and initial computing infrastructure procured.

Moreover, the multi-year strategic research agenda for HPC research and

development on the national level will be refined. Initial research, development and HR initiatives based on the strategic research agenda will be funded by the centre.

The longer-term computing infrastructure architecture will have to be refined on a national level.

Eksteen stresses that national strategies and processes will have to be developed to ensure that HPC procurement processes are optimised on a national level.

In this regard, the centre will have to establish long-term partnerships with HPC vendors to develop HPC in SA, moving beyond mere provision of hardware and software. Finally, the CHPC will aim to establish research partnerships with HPC institutions abroad, with a focus on forging South-South partnerships.

In fact, the development of the CHPC strategy took into consideration a number of international HPC initiatives, explains Eksteen. "We looked at activities both in advanced regions, such as the US and Europe, and also emerging countries such as India, Poland and Brazil." Extensive consultation with international experts in HPC, especially individuals from HPC in the UK, Canada, the US's National Center for Supercomputing Applications and National Science Foundation, and several initiatives in India and Poland, among others, provided valuable input to the process, he indicates.



Johan Eksteen

