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Thinking big

By Adam Turner

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Melbourne university lecturer Rajkumar Buyya.

Rajkumar Buyya sounds fanciful talking about interplanetary grid computing - until he reminds you that harnessing the combined processing power of computers was a crazy idea a decade ago.

At the time, Buyya was part of a team networking DOS-based desktop computers to build distributed supercomputers - a virtual computer possessing the combined processing power of each PC.

Working at India's Centre for Development of Advanced Computing in Pune, Buyya's ideas of such clusters outperforming dedicated supercomputers had also been dismissed as fanciful. Yet, while the supercomputing elite were sniggering at his small-scale network, Buyya was dreaming of a cluster spread across a global network such as the internet.

The experience taught him to believe in his own ideas no matter what the establishment said.

"At the time I think people thought it was a crazy idea because networks were so slow, so how could you gain out of it?" Buyya says.

"People who were doing high-end stuff that requires tight coupling of components felt that this wouldn't take off. Now networks have become faster and cheaper and it is becoming reality. Today I see those same people building these systems."

Buyya moved from India to Australia in 1998 to undertake a PhD at Queensland University of Technology, examining the challenges faced in building a globally distributed computing cluster.

By this time and before it was bought by Microsoft, the free web mail service Hotmail was hosted on a Linux-based cluster, making it one of the world's most prominent examples of grid computing. "Today there are clusters everywhere; right now, Google is a poster boy for this as an application that everybody uses and everybody knows," Buyya says.

With his trademark "think big" approach to technological challenges, Buyya hopes interplanetary exploration

will lead to computer networks reaching across the solar system within 20 years.

Such optimism got him his start in the software industry, travelling from rural India to the IT hub of Bangalore to sleep on a friend's couch and cold-call software developers until he landed a job.

Today he is senior lecturer and StorageTek (USA) Fellow of Grid Computing at the University of Melbourne and works with the university's Grid Computing and Distributed Systems (GRIDS) Laboratory.

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