Grid Computing in the Enterprise with the UD MetaProcessor

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Abstract

The computing needs of enterprises are typically met by purchasing or using existing dedicated high-performance compute resources. An alternative, proposed in this presentation, is to meet these computing needs by harnessing under-utilized resources across the enterprise. This represents a form of grid computing in the enterprise that is extremely cost-effective and substantially improves the return on investment in existing compute resources. The primary source of under-utilized resources are PCs and, in the aggregate, represent a dominant source of compute power. The UD MetaProcessor software represents these resources as a single large grid service for administrators, application developers and users. In this talk, I will present some of the challenges with this grid service together with some of the solutions to these challenges. A number of case studies will show the immediate benefits of adopting this technology to satisfy computational needs today. The sheer amount of compute power available also enables feasible solutions to problems that were previously discarded as being impractical or impossible to solve.

Bio

Dr. Jikku Venkat, CTO of United Devices, brings over 10 years of experience in the computer industry in a unique mix of roles as a researcher, advanced technologist, product developer, and engineering executive. Most recently, Dr. Venkat was the Vice-President of Engineering at United Devices, responsible for building the engineering team from the ground up. He led the team that shipped the first commercial, general-purpose grid software, the MetaProcessor platform. Under Dr. Venkat's tenure, The MetaProcessor platform runs the largest commercial grid in the world, has evolved through three generations, and is currently deployed at major pharmaceutical companies.

Prior to United Devices, Dr. Venkat was the principal design engineer and technologist on an advanced, legacy-free, Web-centric PC from Dell. He was involved in all aspects of product development from concept to production. Prior to WebPC, Dr. Venkat was a senior technologist involved in the evaluation of new technologies and setting technology strategy for the CTO.

Prior to his tenure at Dell, Dr. Venkat worked at IBM for 8 years where he was a systems architect and technologist for network computers. He also led the development of several advanced chipsets for desktop and multiprocessor systems. He was also an architect/consultant on PowerPC platform development and strategy. He was involved in the system architecture/performance analysis, and led development on the prototype of a high-end multi-processor server with a high-speed communication fabric. Early in his IBM career, Dr. Venkat developed scheduling and monitoring tools for parallel program execution using a distributed network of idle workstations. He developed a suite of parallel programs and completed extensive performance analysis to demonstrate the feasibility of using this network of workstations as a massively parallel computing system.

Dr. Venkat holds a Ph.D. and M.S. in Computer Engineering from the University of Texas at Austin. His graduate research experience centered on processor architecture, performance analysis, compiler technology, and the development of parallel programs. He has over 7 patents issued or filed and several under development.