Grid computing, the new commodity

August 24 2009

(PhysOrg.com) -- European researchers have created a platform for trading computing resources that allows the selling and buying of standardised computing resources. In the process, they could make computing a utility like electricity.

Grids are not new. They have been around for quite a while, made famous by the SETI@HOME network, a charitable effort where ordinary computer users 'volunteered' their unused computer processing power to analyse signals from space. SETI hoped to find patterns in the signals revealing extraterrestrial intelligence.

That aim may not been achieved, but the effort brought the power of grid computing to the attention of the general public. Still this is not news.

What is new, is that the EU-funded GridEcon project has created a commodity market platform that enables users to bid on available computing capacity, or put out a tender for a specific computing time slot.

This spot and future market mechanism is enabled by a computing platform developed by the GridEcon project.

A big idea

This is a big idea. It is true that organisations can already rent ‘cloud’ computing capacity from companies like Amazon, HP and others, but

they generally only offer their spare capacity.

The beauty of GridEcon's platform is that it is open - users can buy and sell computing capacity on their own terms. And buyers can also be sellers. If a company has a large computer park it can offer its spare capacity, but if it has a temporary need for much greater capacity it can bid for it on the marketplace.

GridEcon built a virtual trading floor for computing resources, a platform for validating new market-based services, published extensive studies on the economics and mechanics of computing resource marketplaces, and generated a buzz around the concept.

The project has just completed its work, and already it is receiving queries from companies interested in launching the world's first open marketplace for computing capacity as a commercial venture.

The platform

The platform is GridEcon's second key result. It consists of a marketplace, the interface and a fundamental market mechanism, which focuses on spots (or bids for immediate capacity) and future markets, where capacity is required at some later date. It comprises a set of prototype implementations of market-based services.

Underlying this is the workflow engine, middleware that routes inputs from the marketplace to the components that execute the task. "One of our key goals with the platform was to make it easy to use and set up," explains Prof. Dr Jörn Altmann, technical director of the GridEcon project.

"So this workflow engine hides the underlying complexity of the system, because we did not want the user to have to deal with that."

Various services complete the system; some integral to its operation, like the execution engine and the monitoring and history services; and some as stand-alone services that significantly increase the value of the platform, like capacity planning and an insurance broker.

GridEcon designed and tested one market mechanism, but if a company wants to develop some other market mechanism, then they can easily plug new functionality into the platform. It means GridEcon is enormously flexible and could be used for a wide variety of potential market types. The platform is available under open source license terms and the entire code is available at the GridEcon website.

The project is really on top of the real needs faced by users. "We started developing a fixed price quotation broker, which can give users an indication of price at a future date as a backbone for their bidding on the futures market," explains Sonja Klingert, project coordinator at the International University in Germany.

A couple of months into that work, she tells ICT Results, Amazon brought out some 'futures' functionality on their Elastic Computer Cloud platform, EC2. "It was encouraging, because it showed we were going in the right direction," she concludes.

Commercial future?

"Our role was to build the platform and test it - and the results of our testing phase were indeed positive with respect to functionality and response times. But it is there for somebody else to turn it into a commercial venture," notes Klingert.

"We are making the website more attractive to business people, so they can see its potential and go live with it."

Some consortium partners have been approached by people interested in creating a business around this paradigm, and the number of visitors looking at the website rose dramatically at the beginning of the year, and that trend is increasing.

The platform is the most visible of the project's results, but the consortium also produced an astonishing amount of research on the mechanisms, market types, pricing issues and economics of cloud computing.

Gold dust

It is perhaps a little less tangible, but the team's original research represents a thorough and profound review of the market potential of grid- and cloud computing, and as such it represents commercial gold dust.

One paper, the ‘Taxonomy of Grid Business Models’, systematically outlines all the various roles and services in grid computing, revealing 17 commercial niches that companies could occupy.

And it is just one of two-dozen papers produced by the consortium. The team gathered all the key texts in a 150-page book, which is freely available to download from their website.

Finally, the project organised a series of workshops around the topic of grid computing marketplaces and the economics of cloud computing.

In all, the work of the GridEcon project represents an all-points effort to establish successful and open grid computing markets, and it has the potential to revolutionise the use of computing resources in small- and medium-sized enterprises.

The GridEcon project received funding from the ICT strand of the EU's Sixth Framework Programme for research.

More information: www.gridecon.eu/Home.html

Provided by ICT Results