

Virtual organisations become a reality

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(PhysOrg.com) -- European researchers have developed a suite of tools that make it simple, safe and secure to deploy grid computer systems across corporations and throughout the supply chain. The work means that virtual organisations can become a reality.

Virtual organisations are entering the real world thanks to the work of the SIMDAT project, which leveraged the power of grids to seamlessly and securely deliver services and data across organisational boundaries.

It has meant, in just one small example of the team's work, that setting up partnerships in the pharmaceutical industry now takes weeks or even days instead of months. It is helping to create enormous savings and enabling far higher levels of co-operation among companies.

Business in the 21st century is one of the most involved and complex

enterprises on the planet, and nowhere is business more complicated than in R&D and product development. Product development involves partnerships across individual corporations and beyond, embracing most of the supply chain.

It immediately throws up three issues. It is a technical challenge in itself. It is an organisational problem among disparate partners. And it is a security and management problem, linking players together in an act of innovation and creation – domains dominated by commercial and intellectual property issues.

Fraught business

Information technology promised to solve the bulk of these problems by creating virtual organisations (VOs), individuals and companies that could seamlessly come together to achieve business objectives, and then separate easily and securely once the task ends. But VOs have proven difficult to establish and fraught with technical and organisational issues.

That is set to change. The EU-funded SIMDAT project uses grids to enable VOs. In the process, they extended and matured grid technology.

“SIMDAT is the first project that really brought grid technology to industry,” notes Professor Dr Ulrich Trottenberg, director of Fraunhofer SCAI, coordinating partner of SIMDAT. “When we started the project, in 2004, there was the idea of grid tech in industry in principle but all the activities were more or less academic.”

SIMDAT, Swiss Army Knife for grids

Grids are famous for leveraging computer processing resources from scattered computers to tackle big, complex problems like weather

simulation or signal analysis.

The most famous early example was the Search for Extraterrestrial Intelligence (SETI) which borrowed CPU cycles from volunteer computers owned by the general public to analyse signals from space. But that was just the beginning.

The technology moved on, and used resources like hard disk space to create vast, distributed databases.

SIMDAT goes even further and, with their work, grids have become a mature system. The SIMDAT portfolio of tools can not only link processing power, databases and different operating systems and platforms, it can also call upon applications and services from across the grid.

Crucially, it can do this while applying the service level agreements, management and especially security that are vital to achieve goals in business environments dominated by Intellectual Property Rights (IPR).

And it can manage the entire process so that the underlying complexity and technology remains completely transparent to the user. In the SIMDAT model, the system gives the user whatever resources are required, from whatever the source, to do the job. It enables connections with any partner in a simple, safe and secure way.

And once the job is done, it separates the individual players or companies. It is an incredibly complex process but, as far as users know, they are just working with their own computer.

Open standards

SIMDAT created the system by adapting and improving the open

standard software platform GRIA from IT Innovation, a middleware that can link all the different systems, services, applications and data together.

Next, they adapted well-known, industry standard ‘problem solving environments’ (PSEs) like MSC SimManager™. PSEs are tools required to perform a certain design task within certain industries.

The SIMDAT team interlinks these PSEs from different host systems in order to provide secure access to all tools and all data directly using workflow tools. This is a key aspect of the system because it establishes the links in the chain from different partners and resources. It establishes the steps, or workflow, that need to be taken and when they need to be taken.

The team had impacts on dozens of levels, helping to define new standards, develop on old ones, and to create new links between companies. In just one example, a workflow tool, KDE from InforSense, was taken from the pharmaceutical sector and adapted to automotive applications.

Big, difficult task

It was a big, difficult task and SIMDAT showed no lack of ambition by choosing four big, difficult industries to test the system: aerospace, meteorology, pharmaceutical and automotive. The project has been a phenomenal success, with many results already in commercial applications.

In the pharma sector alone, it has made enormous contributions. GlaxoSmithKline is reported to spend \$300,000 every hour to find new cures. The SIMDAT work means that setting up collaboration with outside partners now takes weeks or even days. In the past, it took

months.

In the meteorology application, it is well on the way to creating, for the first time, a gold standard information exchange system for weather data, with the possibility of linking all of the world's national weather agencies into one system!

And these sectors are just the beginning. Even before the project ended, some of the partners looked at other potential applications.

“We are also interested in applying this generic technology to other application areas like the media industry or the shipbuilding industry,” reveals Clemens-August Thole, Fraunhofer SCAI, SIMDAT project coordinator.

SIMDAT will bear a large part of the responsibility for creating the era of virtual organisations, but there is nothing virtual about their results.

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Provided by [ICT Results](#)

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