Globus Toolkit™ 2.0 becomes the "de facto" standard for Grid Computing

Fiscal Year 2002-03 has seen dramatic gains for the Globus Project™, which is based at the Distributed Systems Laboratory in ANL's Mathematics and Computer Science Division and the Information Sciences Institute at the University of Southern California. The influential Globus Toolkit 2.0™ -- which includes software services and libraries for resource monitoring, discovery, and management, plus security and file management -- is central to science and engineering projects that total nearly a half-billion dollars internationally, and it is the substrate on which significant e-business Grid products are now emerging.

The year began with 12 top computer vendors announcing commitments to port the toolkit for use on virtually every major operating platform. IBM in particular is investing heavily, as Grid computing becomes central to its e-business strategy. And Platform Computing released the first commercial version of the toolkit, which is the foundation for hundreds of computational science and engineering projects worldwide.

Significantly, all the industrial participants are contributing modifications to the Globus Toolkit open-source code base. The project's vision of seamlessly sharing distributed resources is now within reach for most businesses, thanks to the increasing affordability and speed of desktop computers and of commodity networks that can be aggregated to deliver supercomputer-level performance.

These developments culminated late in the fiscal year with a prestigious R&D 100 award, recognition of the Globus Toolkit as one of the year's top 100 new technologies.

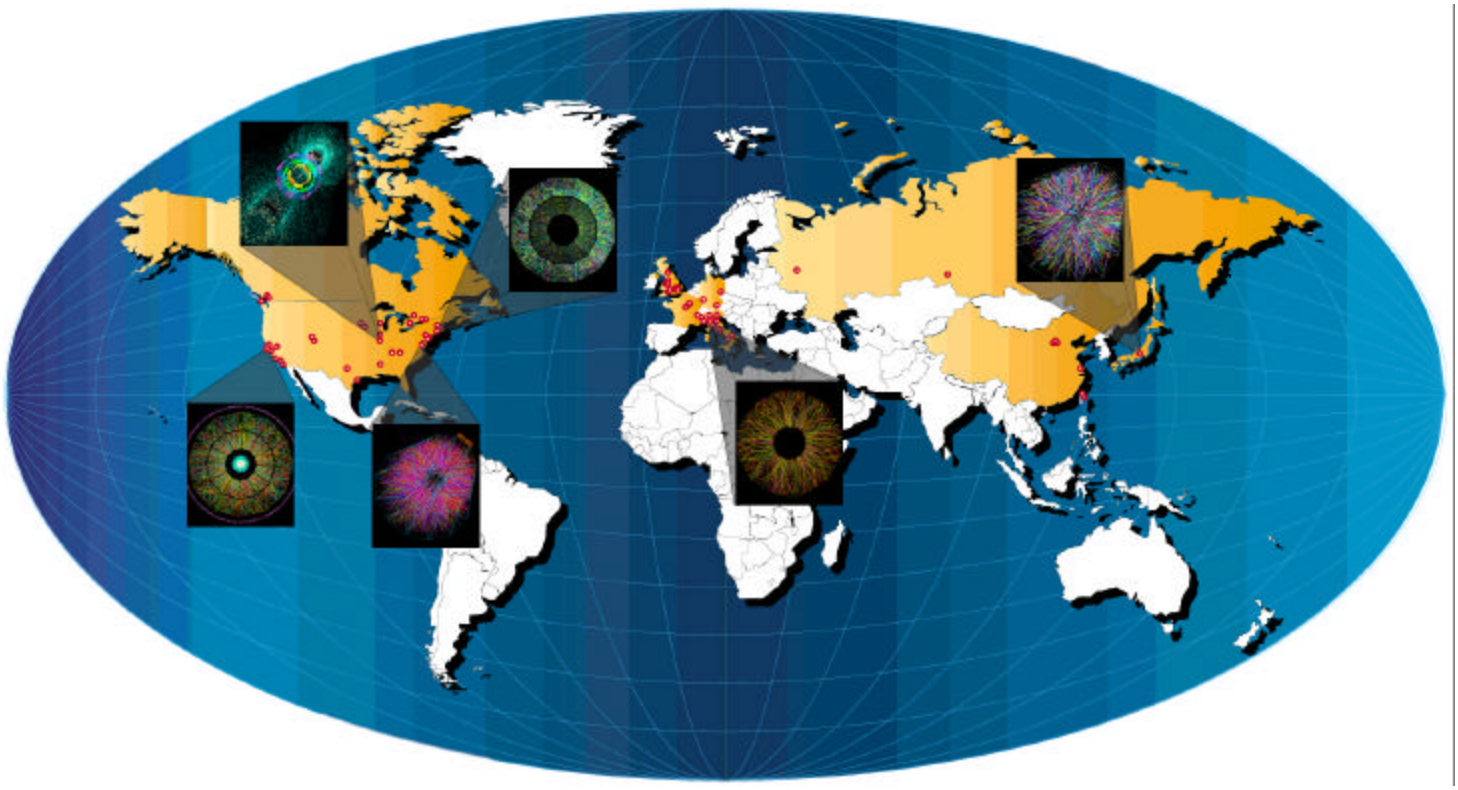

Figure 1. Map showing worldwide distribution of physics Grid projects based on the Globus Toolkit. Instantiations number in the hundreds.

Now each day seems to bring a magazine or newspaper story about the commercial impact of Grids, and specifically about the Globus Project software that *The New York Times* recently called the "de facto standard" for Grid computing.

Since its 1996 inception, the project has been dedicated to the open-source philosophy of sharing resources to maximize progress and community benefits. Among the disciplinary research projects based on the Globus Toolkit are GriPhyN, the Grid Physics Network; the Network for Earthquake Engineering Simulation (NEES); the International Virtual Data Grid Laboratory (iVDGL); the Particle Physics Data Grid (PPDG); the European Union Data Grid; and the NSF TeraGrid.

To coincide with the November 2001 release of Globus Toolkit 2.0, eight firms -- Compaq, Cray, SGI, Sun, Veridian, Fujitsu, Hitachi, and NEC -- announced they will develop an optimized form of the toolkit for their operating platforms as a path toward secure, distributed, multi-vendor Grid computing. Three other companies -- Entropia, IBM, and Microsoft -- simultaneously announced expansions of previous commitments to the Globus Project. Platform Computing has since released a commercially supported version of the toolkit.

The DSL is leading development of the next-generation Globus Toolkit 3.0, to be based on Open Grid Services Architecture (OGSA) specifications being drafted by Globus Project leaders and IBM colleagues. In July 2002, the EU Data Grid announced it will adopt OGSA as a common framework for on-line collaboration and contribute OGSA interfaces to database services for the Globus Toolkit. Also in July, IBM became the first major IT vendor to provide commercial support and distribution of the toolkit.

Grid computing is about to be big business, according to industry observers such as Merrill Lynch's Steve Milunovich, who in early 2002 issued a technology analysis calling the Globus Toolkit: "the Next Internet." But the toolkit's creators are researchers motivated not by personal profit, but by a desire to maximize the impact of this DOE-supported technology.

Figure 2. The R&D 100 Award signifies achievement by the Globus Project, whose open-source Globus Toolkit 2.0 software was recognized as one of the year's top 100 technical innovations.

The Globus Project leaders at ANL are Ian Foster, associate director of the Mathematics and Computer Science Division (MCS) and Steve Tuecke, lead architect in the MCS Distributed Systems Laboratory (DSL). They shared the R&D 100 with their colleague Carl Kesselman the Center for Grid Technologies at the University of Southern California's Information Sciences Institute.