

# World Community Grid—the power of sharing



Members of the Scripps Research Institute team, collaborating on the FightAIDS@Home project, display a three dimensional molecular model.

### The Power of Sharing

What if each of the world's estimated 1 billion PCs, as well as Macs and servers, could be linked to focus on humanity's most pressing issues?

World Community Grid — launched in November 2004, and dedicated to becoming the world's largest public computing grid working on humanitarian research — is making this dream a reality.

This initiative allows hundreds of thousands of volunteers to donate unused computing power to researchers around the world. Progress on critical health issues, such as HIV/AIDS has already been achieved.

### **Grid Computing**

Grid computing joins together many individual computers, creating a large system with massive computational power that far surpasses the power of several supercomputers.

Because the work is split into small pieces that can be processed simultaneously, research time is reduced from years to months, or even days. The technology is also very cost-effective, enabling better use of critical funds.

Smaller examples of grid technology for humanitarian projects have been utilized in the past. However, most of them required the scientific community to solicit volunteers and establish

"World Community Grid has enabled my lab at Scripps to engage in critical computational research to design new anti-HIV drugs based on molecular structure. This is work that we would not have attempted in the absence of this powerful public computing grid. World Community Grid has allowed us to complete very complex research studies in six months that would have taken five years."

Professor Arthur Olson Department of Molecular Biology The Scripps Research Institute



World Community Grid is helping "FightAIDS@Home" by completing computational calculations related to molecular structures of potential anti-HIV drugs. World Community Grid is easy, safe and free to use.

a new grid infrastructure before running each project.

World Community Grid, in contrast, establishes a permanent, flexible infrastructure that gives researchers a much larger — and continuous pool of available resources.

"What this means is that the power of grid technology enabled us to analyze hundreds of arrays of cancer tissue statistical data that allow multiple experiments to be conducted simultaneously and more rapidly," said Dr. David J. Foran, professor and lead researcher at The Cancer Institute of New Jersey, UMDNJ-Robert Wood Johnson Medical School.

"World Community Grid made it possible for us to analyze in one day the number of specimens that would take approximately 130 years to complete using a traditional computer."

#### Join Today

Besides individuals who contribute the unused cycle time of their computers, other leaders in the corporate, not-forprofit and academic communities are teaming with World Community Grid and encouraging their employees, members, students and faculty to participate.

#### World Community Grid projects include:

- AfricanClimate@Home: Research focused on developing more accurate climate models of specific regions in Africa. (Currently inactive as scientists analyze Phase 1 results in preparation for Phase 2)
- Discovering Dengue Drugs Together: Research to identify promising drug leads to combat the related dengue, hepatitis C, West Nile and Yellow Fever viruses.
- FightAIDS@Home: Research to identify effective and inexpensive anti-HIV drugs.
- Help Conquer Cancer: Research to improve the results of protein X-ray crystallography, and related understanding of cancer initiation, progression and treatment.
- Help Cure Muscular Dystrophy: Research on protein-protein interactions for 40,000 proteins whose structures are known and related to neuromuscular diseases.
  (Currently inactive as scientists analyze Phase 1 results in preparation for Phase 2)
- Human Proteome Folding Phase 2: Research to obtain higher resolution structures for specific human proteins and pathogen proteins.
- Nutritious Rice for the World: Research to help breed improved hybrids of rice strains with higher yield, greater disease and pest resistance as well as a full range of bioavailable nutrients.

## **Completed Research:**

- Fiocruz Genome Comparison: Research to improve the quality and interpretation of biological data and our understanding of biological systems, host pathogen and environmental interactions.
- Help Defeat Cancer: Research to improve the treatment of cancer with earlier and more targeted diagnostic tools.
- Human Proteome Folding Project: Research to increase knowledge about protein structure for a whole genome.



© Copyright IBM Corporation 2008

Produced in the United States of America 05-08 All Rights Reserved

IBM, the IBM logo, DB2, Tivoli and WebSphere are trademarks of International Business Machines Corporation in the United States, other countries or both.

Other company, product and service names may be trademarks or service marks of others.

References in this publication to IBM products or services do not imply that IBM intends to make them available in all countries in which IBM operates.

This publication contains non-IBM Internet addresses. IBM is not responsible for information found at these Web sites.

To join World Community Grid, go to www.worldcommunitygrid.org and follow the simple instructions to download and install the free and secure software program.