HPC Experiment

Participant Interviews
July 21th, 2012

Ron Hawkins, San Diego Supercomputer Center, Director of Business Development & Program Management for High Performance Computing

Question: What is your main interest in participating in this HPC Experiment and working with industry?

Ron: We have an ongoing industrial program and view industrial partnerships as a strategic component of SDSC's overall mission. Working with industrial partners provides multiple benefits, including the development of research collaborations that benefit both the scientific and business communities; workforce development; technology transfer opportunities; positive impact to the local and state economies; and others. The HPC Experiment is yet another opportunity to reach out to the commercial sector and refine the tools and processes we have for working with industrial partners.

Question: Have you had a similar collaboration project with industry before where you have helped an industry partner solving their problem? If yes, what problem did you solve? If not, why not?

Ron: SDSC has had many collaborations in which SDSC researchers and staff have assisted industrial partners in solving computing problems. Some recent and ongoing projects include: establishing an HPC environment for conducting FEA structural analyses for a civil engineering company; providing customized HPC, storage services, and data analysis for translational genomics research; providing performance analysis and optimization of a transportation modeling system; and providing cluster computing and storage for a cargo inspection system.

Question: Could you imagine that collaborating with industry this way would become a part of your center's services in the near future?

Ron: As stated, collaborating with industry is an established and strategic aspect of SDSC's mission. We look forward to participating in the HPC Experiment as a way to expand our industrial "footprint" and streamline/improve our methods for working with industry!

Manish Parashar, Moustafa AbdelBaky, Ivan Rodero, The National Science Foundation Cloud and Autonomic Computing Center @ Rutgers University

Question: Can you introduce your organization in a few sentences?

Rutgers team: The Rutgers Discovery Informatics Institute (RDI2), is a world-class advanced computation institute that provides academic and industry researchers with the resources, skills, and expert support necessary to leverage advanced computation technology. The Cloud and Autonomic Computing Center (CAC) is a NSF funded center and a part of RDI2, the scope of the CAC center broadly encompasses cloud computing systems, scientific applications and the use of autonomic computing.

Question: What is your main interest in participating in this HPC Experiment and working with industry?

Rutgers team: Our main interest is to understand the goals and requirements of the experiment, and to provide expertise and solutions of relevance and impact using real-world problems in scientific applications. In addition, our goal is to complement industry efforts in providing cloud computing for HPC applications and workflows.

Question: Have you had a similar collaboration project with industry before where you have helped an industry partner solving their problem? If yes, what problem did you solve? If not, why not?

Rutgers team: Yes we have worked with industry before, our recent work with both IBM & Xerox provided business analytics solutions, document management, and exploration of cloud computing on IBM's supercomputers for HPC applications.

Question: Could you imagine that collaborating with industry this way would become a part of your center’s services in the near future?

Rutgers team: Absolutely, we have existing industry collaborators and are always interested in new collaboration with industry. Industry partners can become a member of our center, and we can also do joint research collaboration and single partnerships.

Rick James, SimuTech Group, VP of Consulting Services

Question: Can you introduce your organization in a few sentences?

Rick: SimuTech Group offers a wide range of finite element analysis (FEA) and computational fluid dynamics (CFD) engineering simulation software, support, training, consulting and testing services to engineering and manufacturing companies in the US and Canada.

As the largest full service provider of ANSYS FEA and CFD engineering simulation software in North America, SimuTech Group is well positioned to provide clients with scalable, cost effective and timely solutions.

With 10 regional offices and 25+ years of FEA, CFD and testing experience, no project is too small, too large or too complex for us to handle. We are trusted advisors to our 1,700+ clients that range from one-man consulting shops to large multi-national manufacturers.

Question: When end-users in your target market need more computing power then they have in-house for the FEA and CFD applications how do they gain access to it?

There are different levels of need and based on that they either: Low level of need: They wait. Medium level of need: Buy a faster computer. High level of need: Buy more licenses that can work on HPC.

Companies are starting to become aware of cloud resources but they aren't universally available due to various challenges, for example information security and other policies.

Question: What are your observations about how the availability of inexpensive CPU resources through infrastructure-as-a-service is currently changing the FEA and CFD space? Do you see significant interest from the market for these services? Why/Why not?

Rick: I don't see a large uptake in Cloud services in CFD. A number of our customers are very technology driven, they avoided policies that prevent Cloud service adoption, and they have crossed the psychological boundaries as well. We see such clients actively using Cloud, but not many others.

Question: What are your goals and expectations when participating in the CFD Experiment?

Rick: I am interested in contributing by offering our knowledge and expertise to solve the technology problems, and the bottlenecks that come up in high performance computing as a service. The opportunity for our company is as these problems are solved our customers will use more licenses along with the on-demand computing power.

Users would benefit from running more complex models in reasonable time, and also from the cloud agility. The availability of on-demand computing power would change the way the industry uses CFD techniques.

We don't believe that in-house computing capacity will be replaced by Cloud computing capacity. There are advantages and disadvantages to both and we believe both are necessary going forward.

Frank Ding, Engineering Analysis & Computing Manager, Simpson Strong-Tie, Inc

Question: Can you introduce your organization in a few sentences?

Frank: Simpson Strong-Tie Company, Inc. engages in the design, engineering, and manufacture of structural connectors, anchors, and other products for new construction, retrofitting, and do-it-yourself (DIY) markets. For more than 50 years, Simpson Strong-Tie has focused on creating structural products that help people build safer and stronger homes and buildings. Considered a leader in structural systems research, testing and innovation, Simpson Strong-Tie is one of the largest suppliers of structural building products in the world.

Question: What is your main interest in participating in this HPC Experiment and using remote computing resources, and Software as a Service, and external HPC expertise?

Frank: I hope we can depend on HPC in the Cloud in the future in case we have a surge of demand on either HPC computing resources or application software licenses beyond what is available in-house.

Question: Have you already experience with using external remote resources, either from a computing center or from a cloud provider? If yes, what is your main experience?

Frank: I have used a cloud-based Product Lifecycle Management (PLM) service. It has a tremendous advantage over current in-house systems. You don't have to deal with infrastructure and software upgrades. It is on 24x7, and accessible everywhere.

Question: Could you imagine that using (at least partly) remote computing resources could become part of your business in the near future? What could be the benefits?

Frank: Absolutely. The benefit would be flexibility to meet the surge of demand on HPC computing resources and application software licenses.