Trends in Supporting IT Infrastructure

Engineering simulation can consume large computational resources as it hones in on an optimal product design. In some cases, such as analyzing flow within a nuclear reactor or a human blood vessel, virtual testing is the only effective method. Getting the best return on investment requires a proper computational environment and the right kinds of software.

Discussions with leading companies suggest five major trends.

High-Performance Computing
Corporations are moving away from isolated personal computers to large multiprocessor computers. This is especially important for running large, detailed simulations or quickly performing comprehensive design-of-experiment studies. High-performance computing can be a strategic enabler in expanding the use of simulation to achieve business success. Using HPC for engineering simulation provides a competitive edge by improving your product development process and making simulation users more productive.

Centralized Resources
To save costs and optimize resources, many companies are returning to centralized computing centers that grant controlled access to analysts and engineers around the world.

Distributed Simulation
Multi-core, multiprocessor and cloud computing are growing in preference over large powerful processors. As engineering simulation software becomes more scalable, and as the demand for design of experiment and optimization increases, organizations need to run a large number of simulations simultaneously. Each might run in parallel on a number of processors or cores to accelerate the design process and speed time to market. This trend requires the computational flexibility to run very large simulations on thousands of cores, conduct many simulations in parallel on a few processors, and/or systematically perform numerous quick simulations.

Interface to PLM and EKM
Increases in computational power and storage capabilities encourage an even wider adoption of engineering simulation. The value of this, however, can be limited if the wealth of engineering data is not properly handled. A relevant data management system that is well integrated with engineering software and operates within a hardware environment that allows remote and controlled access provides significant ROI on both hardware and simulation costs. Data management tools include engineering knowledge management (EKM), process data management (PDM) or product lifecycle management (PLM).

Support of Extreme Scale-Out

Growing computational power encourages deployment of even-more useful technology to the design process: advanced models, automatic meshing and multiphysics. Such tools can reduce project setup time, provide more accurate results for ultimate virtual prototypes, and reduce reliance on physical prototypes. But the cost is increased computational infrastructure. As these extreme simulations become more common, the supporting IT infrastructure must allow for the pre-processing, solving and post-processing on a huge scale.

ANSYS, Inc.
Southpointe
275 Technology Drive
Canonsburg, PA 15317
U.S.A.
724.746.3304
ansysinfo@ansys.com

Toll Free U.S.A./Canada
1.866.267.9724

Toll Free Mexico
001.866.267.9724

Europe
44.870.010.4456
eu.sales@ansys.com

ANSYS, Inc. is one of the world's leading engineering simulation software providers. Its technology has enabled customers to predict with accuracy that their product designs will thrive in the real world. The company offers a common platform of fully integrated multiphysics software tools designed to optimize product development processes for a wide range of industries. ANSYS can significantly speed design and development times, reduce costs, and provide insight and understanding into product and process performance.

Visit www.ansys.com for more information.