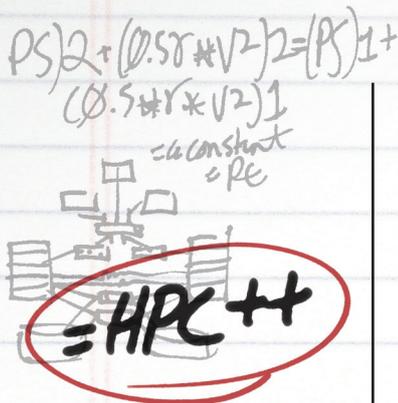


LY PRODUCTIVE HIGH PERFORMANCE COMPUTING



PARTNER PROFILE

ANSYS, Inc., founded in 1970, develops and globally markets engineering simulation software and technologies widely used by engineers and designers across a broad spectrum of industries. ANSYS FLUENT® Computational Fluid Dynamics (CFD) software is an integral part of the computer-aided engineering (CAE) environment.

OVERVIEW

Understanding the behavior of liquids and gases is crucial to engineers who need to predict and improve the performance of new designs or processes. Engineering organizations around the world rely on FLUENT CFD software to gain this understanding through computer simulation. CFD simulation is focused on predicting and improving the performance of new designs or processes, reducing time to market, and reducing overall engineering costs.

IMPROVING THE SPEED AND ACCURACY OF CFD SIMULATION WITH WINDOWS HPC

"As engineering simulations become more complex, customers using workstations are looking to move up to HPC to improve performance and meet tight project schedules, and get better products to market faster."

Kyryl Faenov, general manager of HPC at Microsoft.

SITUATION

To yield reliable results and impact engineering decisions, a CFD simulation must be sufficiently detailed. CFD simulations have extremely high computer memory requirements, ranging from a few gigabytes (GB) to hundreds of GB of RAM. Memory requirements for CFD continue to increase, as FLUENT customers increase the amount of detail in their simulation models to more accurately predict the behavior of their product design or engineering process.

Increasing detail can have a corresponding increase on the turnaround time for computation, but customers need detailed flow modeling capabilities without increasing their time to market, or exceeding budget expectations.

Cluster computing provides a great way to help reduce turnaround time, and enables bigger, more detailed and accurate simulations.

"If you try to process a large simulation on a single CPU, you may have to wait hours, days, or even weeks for your results. Parallel processing dramatically reduces that turnaround time by running the simulation on multiple CPUs, so cluster computing is a key technology for our customers."

Barbara Hutchings, Director of Strategic Partnerships at ANSYS, Inc.

Typical HPC solutions can be costly and complex. Customers need an HPC solution that meets performance objectives for engineering simulations, while still being easy to deploy, use and manage.

SOLUTION

Windows® HPC Server 2008 combines the power of a 64-bit Windows Server® platform with rich, out-of-the-box functionality to help improve the productivity, and reduce the complexity, of an HPC environment.

"The combination of FLUENT software and Windows HPC Server 2008 enhances cluster computing as an option for our customers who need more HPC capacity in order to expand the role of simulation in their engineering process — allowing engineers to work with larger data sets and perform complex analysis with shorter turnaround time."

Chris Reid, vice president, marketing at ANSYS, Inc.

FLUENT

FLUENT is the CFD solver of choice for complex flows ranging from incompressible (low subsonic) to mildly compressible (transonic) to highly compressible (supersonic and hypersonic) flows. Providing multiple choices of solver options, FLUENT delivers optimum solution efficiency and accuracy for a wide range of engineering problem solving.

The wealth of physical models in FLUENT allows you to accurately predict laminar and turbulent flows, various modes of heat transfer, chemical reactions, multiphase flows, and other phenomena.

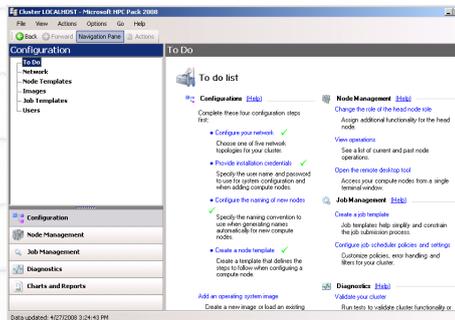


FLUENT running on the Windows HPC Server 2008 operating system yields excellent parallel scaling, combined with outstanding support for highly scalable parallel processing on clusters.

WINDOWS HPC SERVER 2008

Windows HPC Server 2008 enables adoption of HPC and helps increase productivity by providing numerous end-user, administrator and developer features, and tools including:

- A rich and integrated end-user experience scaling from the desktop application to the clusters.
- Microsoft management tools that you can utilize to centrally manage the Windows Server infrastructure, including full support for command-line interfaces for administrators.



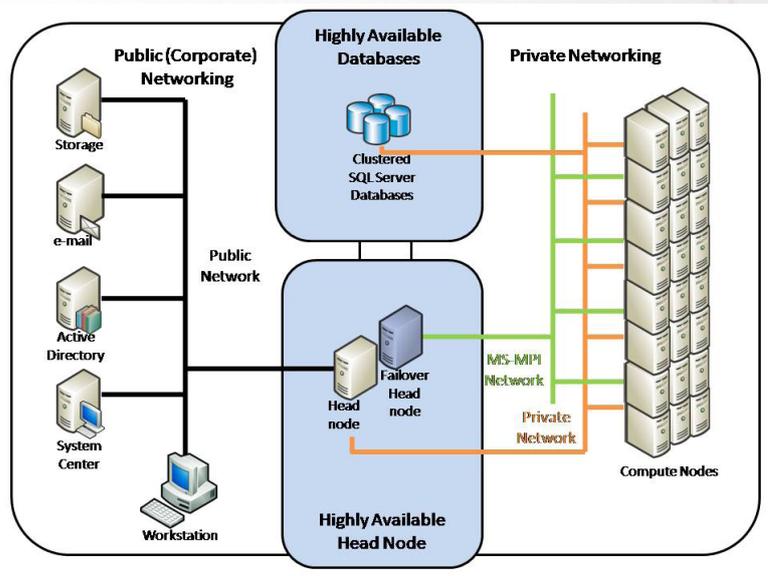
The To Do List simplifies cluster configuration tasks.

- Familiar development tools such as the native parallel debugger in Microsoft Visual Studio® can be used to develop and troubleshoot parallel programs, including support for standard interfaces such as OpenMPI, Message Passing Interface (MPI), and Web Services.

FURTHER INFORMATION

For more information about Windows HPC Server 2008 and HPC, please visit <http://www.microsoft.com/hpc>

For more information about ANSYS Inc., and FLUENT please visit <http://www.ansys.com>



ARCHITECTURE

A typical Windows HPC Server 2008 architecture is shown above. The Windows HPC Server 2008 head node controls and mediates all access to the cluster resources, acts as the single point of management, deployment, and job scheduling for the cluster, and can failover to a backup head node in the case of failure.

Windows HPC Server 2008 uses the existing corporate infrastructure and Microsoft Active Directory® for security, account management, and Operations management using tools such as Systems Center Operations Manager 2007.

BENEFITS

By porting FLUENT software to the Windows HPC Server 2008 operating system, ANSYS, Inc. is providing its customers with increased computing power on industry-standard processors.

More detailed and accurate simulations.

The increase in computing power allows FLUENT customers to quickly solve more complex and detailed CFD simulations.

Improved productivity and product quality.

Faster than before time-to-insight means that engineers spend much less time waiting for computation results, improving productivity and ultimately improving product quality.

Utilize existing Windows expertise and IT investments.

Windows-based HPC helps ensure that you can fully utilize your existing Windows-based expertise and IT investments.

Affordable, accessible, full-featured HPC.

Windows HPC Server 2008 brings simple deployment, operation and IT integration to HPC at a price point that allows companies to successfully deploy HPC applications.

Scalable, highly secure HPC.

Windows HPC Server 2008 provides the scalability of Windows Server 2008, and includes support for Windows Server 2008 security features.