Success Story

MSX International Makes a Strategic Investment in the Future with SGI® Visual Area Networking

"With OpenGL Vizserver, a team of engineers can share the advanced compute and visualization resources of a central visualization system."

—Iain Gibb,
Manager,
MSX International

MSX International (MSXI) believes in using the latest technology to maximize efficiency and return on investment. Headquartered in Auburn Hills, Michigan, MSX International has more than 10,000 employees in 26 countries, serving a broad range of customers in a variety of industries. Among its many business operations, MSXI is a leading supplier of engineering and technical services for automotive and other engineering-intensive companies.

From initial concept development to production launch support, MSXI has the skilled personnel and technical expertise to help customers successfully bring their products to the international marketplace. Various engineering groups at MSXI perform a variety of advanced computer-aided engineering (CAE) simulations including crash analysis, durability/fatigue analysis, sound quality, and computational fluid dynamics.

CAE is an area of excellence for the company. They use high-performance computing and advanced visualization as a competitive advantage. With over 90 employees performing CAE analysis in the U.K. alone, MSXI found that it was increasingly difficult to cost-effectively provide each engineer with the compute capability to execute advanced CAE simulations and the visualization capability to interactively visualize the results.

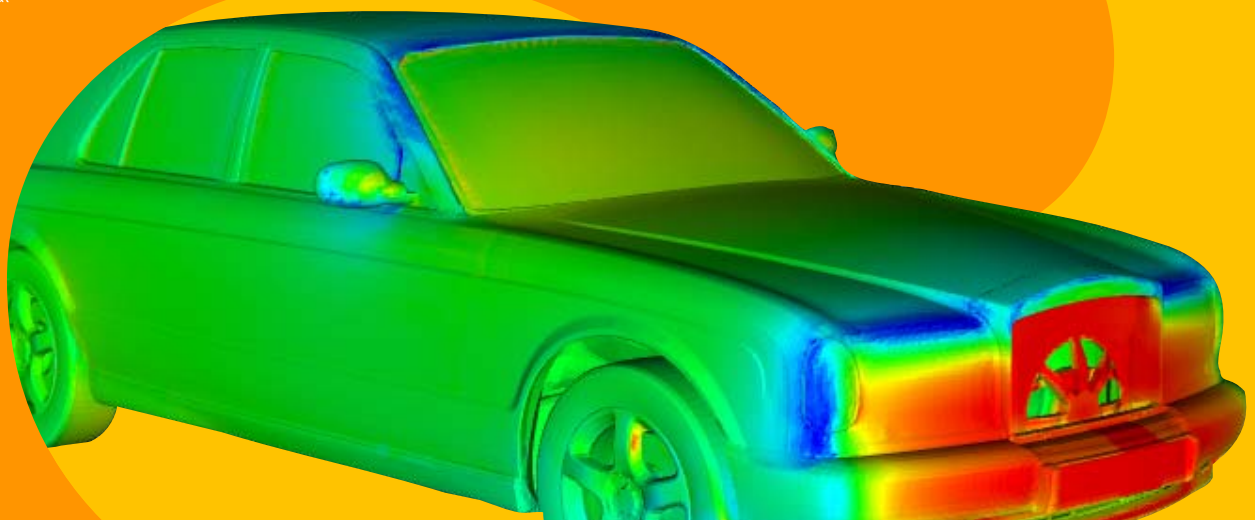
The solution came from OpenGL Vizserver™, an innovative Visual Area Networking (VAN) product from SGI. VAN brings the power of an SGI® Onyx® family visualization system—capable of handling the most intensive compute and visualization tasks—to each engineer's desktop, for unparalleled insight into difficult problems and creative solutions. At the same time, OpenGL Vizserver helps control costs by reducing the need for numerous expensive desktop graphics systems and the administrative overhead that goes with them.

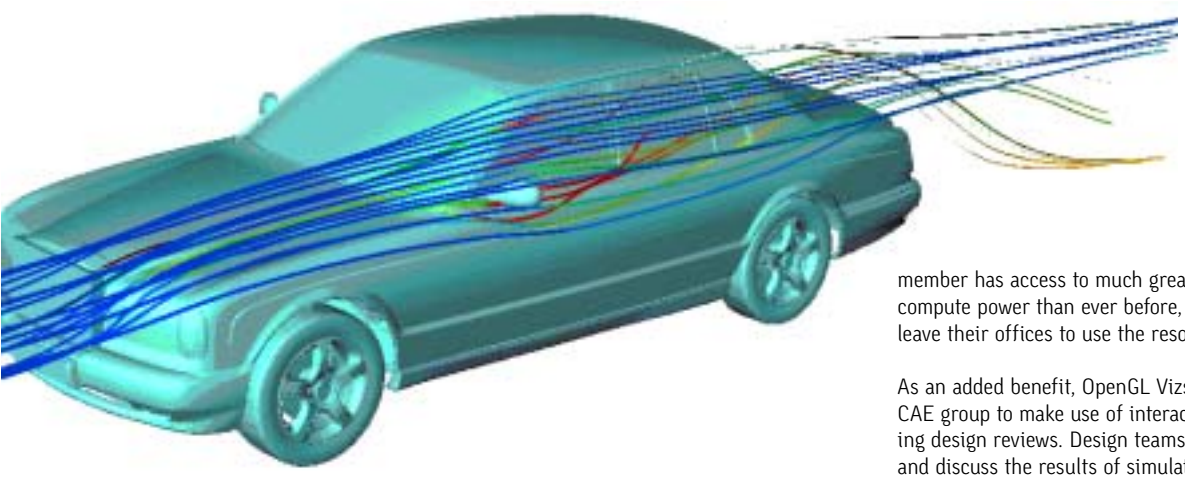
According to Iain Gibb, CAE manager at the MSXI site in Pipps Hill, Basildon, U.K., "With OpenGL Vizserver, a team of engineers can share the advanced compute and visualization resources of a central visualization system. Our engineers no longer require the most powerful desktop systems—and frequent upgrades to those systems—in order to get their work done. Instead, we invested in an SGI Onyx visualization system that is much more powerful than any desktop workstation. As an added benefit, we now use the Onyx system with OpenGL Vizserver to enable advanced visualization during design reviews and to enhance collaboration, and we are even investigating ways to market excess compute and visualization capacity to other companies as another way to capitalize on our investment."

OpenGL Vizserver: Extending the Reach of Advanced Visualization

Interactive visualization provides tremendous benefits for engineering and many other disciplines. In many companies, however, advanced visualization systems are a limited resource and not readily available in all locations. In global organizations—and even in local ones—it is sometimes difficult to put the best people together with the best tools to do the job. The ability to access advanced visualization systems across network connections (as for other advanced computing resources) would be a huge benefit to the engineers who use them, increasing efficiency and encouraging collaboration.

This is the impetus behind SGI's Visual Area Networking initiative; a plan to create advanced technologies to bring visualization to network users. OpenGL Vizserver is the flagship SGI VAN product, allowing network users to receive graphics rendered by an SGI Onyx family system acting as a visualization server. OpenGL® API applications work with OpenGL Vizserver automatically, without modifications.





"Our engineers no longer require the most powerful desktop systems-and frequent upgrades to those systems-in order to get their work done. Instead, we invested in an SGI Onyx visualization system that is much more powerful than any desktop workstation."

—Iain Gibb,
Manager,
MSX International

Because the server does the rendering, the client requires no special graphics capabilities to receive and display high-resolution, fully interactive, visualization sessions. OpenGL Vizserver provides client support for the Windows®, IRIX®, Solaris™, and Linux® operating systems, so almost any desktop or laptop system can act as an OpenGL Vizserver client.

For situations where network bandwidth is limiting, OpenGL Vizserver supports a variety of built-in compression algorithms (up to 32:1 compression) plus an API allowing the incorporation of custom compression schemes. With compression, OpenGL Vizserver works effectively over wide area network connections.

OpenGL Vizserver supports collaboration between a local user and remote client, both of which receive and simultaneously interact with the single application and data set running on the SGI Onyx family system. This feature is ideal for consulting remote experts, working with remote suppliers, or any collaboration where it is difficult to get everyone together in one place—and when isn't it?

A Workgroup Visual Server for CAE

MSX International has been using OpenGL Vizserver at its U.K. facility for more than a year to support its CAE workgroup. MSXI makes regular use of 23 different CAE applications, allowing the group the flexibility to respond to a large variety of requirements on client-driven projects. The 8-CPU SGI® Onyx® 3000 series visualization system with InfiniteReality3™ graphics at MSXI gives the company the power to run advanced CAE simulations and the visualization capability to interactively visualize the results.

Although some power users still require the latest desktop workstations to support other tasks, most members of the team now use lower-cost desktop workstations and utilize the capabilities of the Onyx 3000 series system and OpenGL Vizserver to execute CAE simulations and visualize the results. A built-in OpenGL Vizserver reservation interface allows engineers to reserve time on the system as necessary.

Without leaving their offices, CAE engineers can initiate visualization sessions and view the pre-rendered output on their desktop systems, leveraging the full power of the Onyx 3000 series system. "Each team member has access to much greater visualization and compute power than ever before, and they never have to leave their offices to use the resource," said Gibb.

As an added benefit, OpenGL Vizserver is allowing the CAE group to make use of interactive visualization during design reviews. Design teams now regularly view and discuss the results of simulations. According to Gibb, "Even the image quality on my laptop display is sufficient for day-to-day work, so we can use visualization in meeting rooms and other locations where it was impossible before."

Gibb also sees OpenGL Vizserver as a tool to support new locations. "We can now help kickstart new locations by supporting them remotely with OpenGL Vizserver, assuming that there is sufficient comms bandwidth. Instead of having to make an initial investment in expensive visualization systems, a new office can share the resources at other locations until it gets established enough to justify local resources."

The use of OpenGL Vizserver by the CAE group has also sparked the interest of the computer-aided design (CAD) group and other organizations within MSXI, so OpenGL Vizserver may see even wider use in coming months. With offices worldwide, the potential benefits of remote visualization and collaboration are already obvious to MSXI. The company is now beginning to use OpenGL Vizserver for collaboration between its three U.K. locations, with plans to extend that collaboration globally.

Extending Return on Investment

Visual Area Networking is already proving its worth to MSXI by bringing advanced capabilities to engineers' desktops while helping to control capital expenditures and administration costs. The Onyx 3000 series system and OpenGL Vizserver have also created new business opportunities in entirely new areas. MSXI has recently become aware of the similarities in CAE visualization and the visualization performed in other industries, such as oil and gas exploration and even animation. The company is now investigating the marketing of visualization services on its existing systems to users in other industries, extending the return on investment for that equipment and opening up new markets.

An animation house in London is already purchasing time on the Onyx 3000 series system—time when the resource would otherwise be sitting idle—to do rendering. The animators connect to MSX via a secure virtual private network over the Internet to take advantage of the HPC capabilities of the Onyx family system. It won't be long until they are using OpenGL Vizserver to do direct visualization in the same fashion, and MSXI becomes perhaps the first network visualization service provider.

sgi®

Corporate Office
1600 Amphitheatre Pkwy.
Mountain View, CA 94043
(650) 960-1980
www.sgi.com

North America 1(800) 800-7441
Latin America (52) 5267-1387
Europe (44) 118.925.75.00
Japan (81) 3.5488.1811
Asia Pacific (65) 771.0290

3320 (08/01/2002)

J14041