

# NVIDIA and Right Hemisphere: Unlocking 3D CAD Data for the Enterprise

"NVIDIA is the strongest brand in the high-end CAD workstation market. We recommend NVIDIA as the platform of choice for our customers when repurposing their CAD data as 2D and 3D product graphics in technical publications, interactive training, marketing communications, engineering collaboration documents, and more. We demonstrate our Product Graphics Management solutions using NVIDIA Quadro graphics because we know our software will appear at its best with the image quality and performance that Quadro provides."

**Anton Commissaris**  
*vice president of business development at Right Hemisphere*

## Why Reinvent the Wheel?

The innovators at Right Hemisphere asked themselves that question about 3D content. If a company has already invested in expensive CAD software and has created detailed 3D models of their products, why not figure out how to re-use that data in marketing literature, training modules, online sales demonstrations, technical documentation, and other product related communications that would be enhanced by power interactive graphics?

The Product Graphics Management software from Right Hemisphere, developed using the latest NVIDIA professional graphics solutions, enables businesses to integrate CAD/PDM and publishing applications, automate 2D and 3D graphics publishing processes, and manage product graphics in over 120 formats.

Instead of flat, 2D photos or expensive and time-consuming custom-generated artwork, companies can extract a lightweight, photo-realistic 3D model directly from a CAD file and publish it in a web page or an interactive training module. Viewers can walk around the product, sit in the driver's seat, or open up the product and look at the internal components. Animation and interactivity can be added to show how the moving parts operate.

Right Hemisphere customers, with NVIDIA-powered PC workstations, have the performance they need for viewing 3D interactive data, and gain the ability to:

- ▶ Capitalize on CAD data outside of engineering through reuse in training, documentation, marketing, parts management, and support materials
- ▶ Accelerate time to market through the concurrent creation of products, product communications, and product support offerings
- ▶ End the disruption of engineering workers by reducing their visualization workload for other departments
- ▶ Establish product communication consistency through "create once publish anywhere" technology-interactive 2D and 3D content can be published in HTML, Microsoft Office applications, PDF, or EXE for CD distribution
- ▶ Improve personnel performance through "just-in-time" rich media training
- ▶ Increase sales with high impact visual marketing



*FTI Engineering Network, GmbH, created an interactive 3D walk-through of the Airbus A380 High Lift System Test Rig (HLSTR). These required fly-through training materials were created just a few weeks prior to the launch of the rig.*

*To build this fly-through, FTI chose to work with Right Hemisphere (Deep Server, Deep Creator) and use its technology to leverage actual aircraft CAD models from the A380 HLSTR and quickly transform and author many of the required pieces of this demonstration.*

## Content Automation

The heart of the Right Hemisphere product line, Deep Server™, is a powerful Product Graphics Management server that integrates, automates, and manages product graphics across the extended enterprise. Developing Deep Server required a graphics platform that could optimize both visual quality and real-time performance.

As Mark Thomas, chief technology officer at Right Hemisphere, explains, "Our software loads and manipulates large 3D models for use as product graphics. To develop our software, our engineers require the best graphics hardware and driver functionality available. We chose NVIDIA Quadro professional graphics solutions for the quality, speed, and real-time rendering power. We take advantage of Quadro so we can provide the most optimized product graphics for our customers."

Right Hemisphere engineers develop on a variety of hardware and software platforms, all equipped with NVIDIA graphics technology. The Right Hemisphere software has been optimized to take full advantage of NVIDIA features and capabilities, including the following key NVIDIA strengths:

### The NVIDIA Cg Shader Language

The NVIDIA Cg Shader Language streamlines the extraction of photo-realistic effects from repurposed CAD models. The high-level language constructs and NVIDIA tools also enable the Right Hemisphere team to incorporate user-friendly features into their solutions and transform CAD investments into visual and interactive resources.

### The antialiasing performance of the NVIDIA Quadro

The antialiasing performance of the NVIDIA Quadro professional graphics solutions enable the implementation of powerful visual extraction and editing tools that can deliver optimal image quality to end users.

### Support for large amounts of graphics memory

Support for large amounts of graphics memory maximizes performance when translating very large CAD models, or when extracting visuals that involve very complex scenes. With up to 256MB of memory, the NVIDIA Quadro FX solutions can also deliver interactive performance when displaying complex textures.

### Leading performance

Leading performance - up to 133 million triangles per second, and 4.5 billion texels per second-means that the Quadro professional solutions empower any desktop to display the most compelling visuals. The NVIDIA graphics power enables real-time manipulation of 3D models and ensures the highest visual quality.

## Empowering the Content Developers and the Viewers

Today, five of the top six automotive OEMs, nine of the top ten aerospace and defense contractors, and hundreds more use Right Hemisphere software. Originally, the first of the company's products, were professional authoring tools and utilities, such as Deep Paint, that were popular in the film and game graphics markets. The experience in optimized high-quality graphics gained in these markets is now a key differentiator for Right Hemisphere in the product graphics management market.

While customers can deploy Right Hemisphere solutions on PC workstations equipped with any graphics processor unit (GPU) of their choosing, Right Hemisphere sales teams use NVIDIA graphics to show the power, speed and quality of their software.

## Executive Summary

### Background

Right Hemisphere's Product Graphics Management software integrates CAD/PDM and Publishing applications, automates 2D and 3D graphics publishing processes, and manages product graphics in over 120 formats. Right Hemisphere streamlines publishing of technical publications, interactive training, marketing communications, engineering collaboration documents, and more, so manufacturers can accelerate time to market, increase revenue and competitive advantage, and reduce product lifecycle costs.

### Challenge

Right Hemisphere must provide solutions that satisfy a broad range of developers and end users. Visual quality of the leveraged content must be uncompromised, and users require real-time interactivity when manipulating the content and publishing it into web pages, training courseware, technical documents, sales and marketing, parts catalogs, or any other online or printed collateral.

### Solution

Right Hemisphere engineering teams take advantage of NVIDIA Quadro professional graphics solutions to develop their product graphics management software. Specifically, they rely on the high performance of the NVIDIA solutions to speed their work, high image quality to achieve the best visual results, and powerful shader functionality to integrate maximum functionality and photo-realistic effects into their software.

### Benefits

The end users of Right Hemisphere software also choose NVIDIA Quadro solutions to optimize the visual impact of product graphics and to get the best real-time performance when manipulating large, complex, 3D visualizations.

Anton Commissaris, vice president of business development at Right Hemisphere, says, "NVIDIA is the strongest brand in the high-end CAD workstation market. We recommend NVIDIA as the platform of choice for our customers when repurposing their CAD data as 2D and 3D product graphics in technical publications, interactive training, marketing communications, engineering collaboration documents, and more. We demonstrate our Product Graphics Management solutions using NVIDIA Quadro graphics because we know our software will appear at its best with the image quality and performance that Quadro provides."

For product graphics management, the graphics platform decision takes into account several factors throughout the product lifecycle where performance, visual quality and advanced shaders and materials are critical

Customers are choosing NVIDIA Quadro to develop training courseware content and interactive electronic training manuals. And once developed, NVIDIA is also proving a superior training delivery platform because the NVIDIA Quadro professional graphics give students the best run-time visual quality and performance for the price. Right Hemisphere customers also use the power of NVIDIA to provide product graphics in technical documentation, web-posted information, multimedia presentations for customers and partners, and a variety of other marketing and product support functions.

The combination of Right Hemisphere software and NVIDIA graphics technology is revolutionizing training for complex systems. Courseware developers can now quickly and inexpensively generate more compelling, informative content for training, and, more importantly, to keep the training content synchronized with ever changing engineering data.

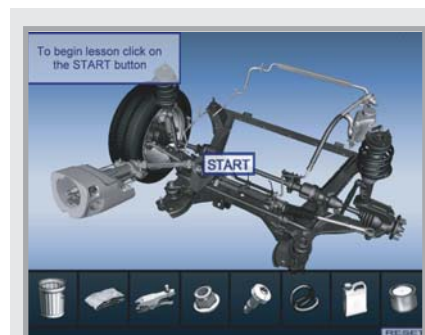
"For aircraft flight and maintenance training, customers are replacing multi-million dollar applications and large simulators with desktop and laptop training solutions that only cost \$5K to \$10K per seat," explains Commissaris. "Not only do they gain huge up-front savings, but the ongoing training costs are also significantly decreased since training can be delivered without requiring travel to the simulator site. Moreover, by conveying extremely technical information in a rich, interactive 3D format, fast understanding is promoted, so costly mistakes can be avoided."

Lockheed Martin will deploy a leading-edge just-in-time training solution for pilots of its F-35 Joint Strike Fighter (JSF) stealthy, supersonic plane. The courseware developer-Northrup Grumman Corporation-uses Right Hemisphere Deep Server software and NVIDIA Quadro professional graphics to generate rich, interactive 3D training materials that leverage existing engineering information used in the construction of the aircraft. From a PC, users can directly interact with different parts of the aircraft to quickly understand and apply knowledge about the plane. For the F-16 fighter jet, Lockheed Martin also chose to power Right Hemisphere software with NVIDIA graphics for an immersive, laptop training system.

"The software brings stunning reality to training by taking advantage of NVIDIA's graphics engine."

**Chuck Hoag, F-16 pilot training team lead, Lockheed Martin Corporation.**

These new training solutions use the power of NVIDIA graphics to include real-time interactive animations of moving parts to illustrate their precise movement. With the combination of Right Hemisphere software and NVIDIA graphics, the animation process for a particular assembly was developed in mere minutes-a process that would have required about a week of time if created manually.



High-performance, high-quality NVIDIA Quadro graphics bring realism and real-time interactivity to today's computer-based training solutions.

## Taking 3D Engineering Data Beyond Engineering

Right Hemisphere and NVIDIA share a common vision—that of taking 3D CAD data beyond the engineering department and making it useful in multiple ways across the extended enterprise.

By adding photo-realistic effects and real-time interactivity for compelling product communications, all facets of a manufacturing business can be enhanced, especially when dealing with complex products and systems. Consolidating engineering data and making it available in a variety of formats ensures a maximum return on investments from that data and offers a variety of business benefits including shortened time to market, increased revenue and competitive advantage, and lower product lifecycle costs.

The combination of high-performance NVIDIA graphics, affordable desktop and laptop platforms, and powerful Right Hemisphere Product Graphics Management software is making this vision a reality today.

"The timing is perfect for the proliferation of 3D data. There is already plenty of 3D content in the world, and now we offer the capability to make it available to every desktop. With NVIDIA graphics, any user can retrieve, edit, and view complex product graphics with the image quality that used to require high-end supercomputers and proprietary graphics hardware."

*Mark Thomas, chief technology officer, Right Hemisphere*

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## About

### About Right Hemisphere

Right Hemisphere® is the leading provider of Product Graphics Management software. Product Graphics Management is a new category of enterprise software that integrates, automates, and manages 2D and 3D product graphics across the extended enterprise. Five of the top six automotive OEMs, nine of the top ten aerospace and defense contractors, and hundreds more customers use Right Hemisphere software to streamline publishing of technical publications, interactive training, marketing communications, engineering collaboration documents, and more. Right Hemisphere accelerates time to market for new products and product support offerings, increases revenue and competitive advantage, and reduces product lifecycle costs. Founded in 1997, Right Hemisphere is a privately-held, venture-funded corporation based in Silicon Valley and Auckland, New Zealand. For more information please visit <http://www.righthemisphere.com> or call toll free at (877) 309-3204.

### About NVIDIA

NVIDIA Corporation is a worldwide leader in graphics and digital media processors. The Company's products enhance the end-user experience on consumer and professional computing devices. NVIDIA graphics processing units (GPUs), media and communications processors (MCPs), and wireless media processors (WMPs) have broad market reach and are incorporated into a variety of platforms, including consumer and enterprise PCs, notebooks, workstations, PDAs, mobile phones, and video game consoles. NVIDIA is headquartered in Santa Clara, California and employs more than 2,100 people worldwide. For more information, visit the Company's Web site at [www.nvidia.com](http://www.nvidia.com).

### Contact Information

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For more information about Right Hemisphere, please visit: <http://www.righthemisphere.com>