![NVIDIA logo]

CALGARY SCIENTIFIC AND NVIDIA QUADRO MOBILIZE MEDICAL IMAGING

Calgary Scientific, Inc. develops revolutionary problem-solving technology for the healthcare industry—a sector with the most rigorous demands for rich visual data, access, privacy, security and scalability. Its two main products, ResolutionMD® and PureWeb, make high-quality medical imagery and informatics more widely available to medical professionals worldwide, affording physicians and healthcare service providers greater flexibility, access, and collaboration. ResolutionMD is an Enterprise Image Viewer that provides easy access to medical images and informatics via web and mobile devices. PureWeb is an underlying technology for OEM partners that allows desktop applications to move onto the web, mobile devices, and the cloud. Calgary Scientific has long relied on NVIDIA Quadro GPUs to drive both solutions, allowing complex, graphics-intensive tasks to be processed server-side so that rich 3D renders of patient imagery may be streamed through web browsers and mobile devices, and delivered with the highest fidelity.

CHALLENGE

In today's sprawling healthcare landscape, access is a constant problem for physicians and specialists. Disparate venues such as hospitals, radiology labs, outpatient clinics and more get acquired and consolidated under one umbrella organization, often leaving physicians to contend with multiple different viewing applications for x-rays, medical imaging, and image analysis. Furthermore, physicians are often limited to reviewing images in a specific location within a hospital or lab, curbing their flexibility and ability to collaborate with other specialists on analysis and diagnosis. Getting an entire healthcare system onto one uniform hardware and software platform is often cost-prohibitive, and cloud solutions must be carefully balanced with patient privacy concerns.

Images courtesy of Calgary Scientific

The collaborative capabilities in ResolutionMD allow multiple physicians to join the same imaging session. The host can share his images with others, and pass interactive control to anyone in the group to support a variety of teaching, consulting, and diagnosing workflows.

SOLUTION

ResolutionMD and PureWeb address all of the above concerns by seamlessly and efficiently providing a powerful, secure, uniform Enterprise Image Viewer for physicians. Calgary Scientific adopted NVIDIA Quadro GPUs nine years ago when they first started working on their solutions, knowing that GPUs were critical for quick 3D rendering—and knowing that integrating GPUs to power the back end would allow its solution to be successful even on devices without a built-in high-level GPU.

Pierre Lemire, President and CTO of Calgary Scientific, explains: "We knew from day one that we would need GPUs in order to render the 2D and 3D images efficiently. NVIDIA has definitely been the right choice—they are consistently innovating and delivering more and more capable cards. Over the years our engineers have closely collaborated so that we can leverage driver software to continually get the best performance and scalability out of the cards."

Calgary Scientific typically recommends a configuration of a Tier 1 server chassis such as Dell PowerEdge R720, with at least 48 GB of RAM and dual Quadro K5000 GPUs, which

allow for simultaneous renderings of multiple large data sets. ResolutionMD is installed on-premise, with the powerful Quadro K5000 GPUs working in the server room to produce high-end 2D and 3D renders on demand, which are then hosted through the viewer to a physician on the device of his or her choice. Physicians can instantly access images of any modality anywhere and anytime—and since the actual images are stored on the back end, IT administrators know they're secure.

Images courtesy of Calgary Scientific

Radiologists and referring physicians can use their own mobile devices to access a Quadro-powered ResolutionMD server to view medical images, and interactively render 3D models of CT scans in real time.
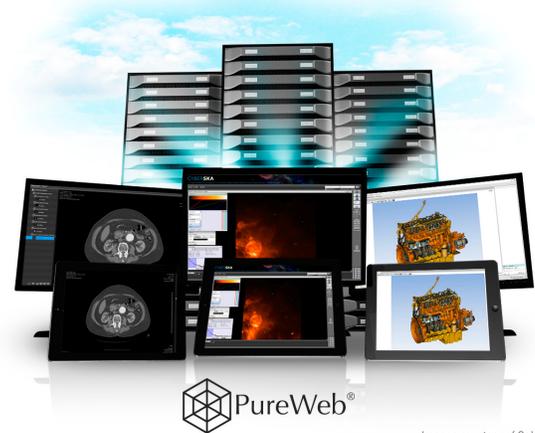
IMPACT

Calgary Scientific's NVIDIA-powered solutions give physicians greater ease and flexibility in critical diagnostic situations each and every day. Physicians can now access any image they need at any time, in any part of the hospital or even when they're off-site. This fast and easy access enables greater productivity and collaboration among physicians, and increased IT simplicity and cost savings for administrators.

"By giving multiple users access to the same NVIDIA GPU in one computer, our customers can scale and support a changing number of users without worrying about hardware," said Lemire. "Moreover, the current Kepler generation of GPUs is very focused on power efficiency, which has allowed us to increase the number of users we can support. Every time that NVIDIA releases a new card that has more capability, it supports more users and brings more value to our customers."

Furthermore, NVIDIA is collaborating with cloud service providers such as Amazon Web Services to put GPUs in the cloud via NVIDIA GRID technology—which means exciting new possibilities for Calgary Scientific. NVIDIA GRID provides GPU acceleration in virtualized environments, maximizing user density and enabling even greater flexibility.

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"With the rise in software as a service, we are starting to explore what we can do with ResolutionMD in the cloud," said Lemire. "Knowing that we can still have that critical NVIDIA GPU power even through a major cloud service provider like Amazon means that our customers could have more options for how to deliver our solutions—through the cloud instead of having to buy and maintain servers. We're glad to know that NVIDIA is so forward-thinking and we're excited to collaborate on new solutions."

PureWeb®

Images courtesy of Calgary Scientific

From medical imaging to astronomy to industrial simulation and training, PureWeb utilizes the power of NVIDIA Quadro technology to provide access to visualization-intensive applications over the web to any device.

To learn more about NVIDIA Quadro, go to **www.nvidia.com/quadro**