

## Success Story

# Medtronic's Cardiac Rhythm Management Group

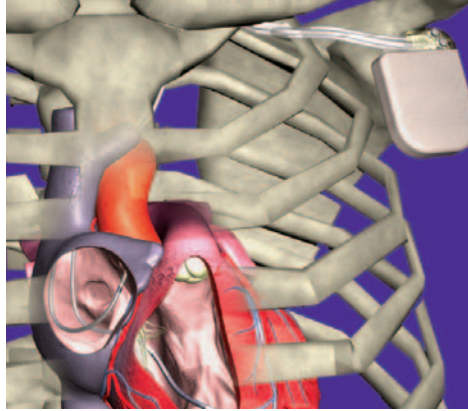


Image courtesy of Medtronic

## SGI Managed Services at Medtronic: When Rapid Deployment Is Critical

### The Challenge

Improve research capabilities and time to market by implementing advanced compute technology and a new networking and backup strategy—with little or no disruption to existing projects and workflow

### The Solution

Use SGI Managed Services expertise to migrate from SGI® Origin® 2000 to SGI® Origin® 3000 technology; replace mirror-drive protection with a new Fibre Channel network and the SGI® CXFS™ filesystem

### The Result

Fast, smooth implementation of advanced compute, storage, and networking technology with minimal disruption—at very low systems administration costs

### Life-Extending Medical Research Moves Smoothly to Next-Level Technology

The engineers and scientists at Medtronic's Cardiac Rhythm Management (CRM) Group use SGI® technology to develop implantable medical devices that improve and extend life. To meet the demands of growing markets, Medtronic relies on SGI Managed Services to keep its HPC and visualization systems at the cutting edge—with barely a ripple of disruption from upgrades and changeovers.

### Testing Transplant Concepts in an SGI Environment

Every year, some 2.5 million patients with cardiac, neurological, and vascular diseases benefit in some way from technologies developed at Medtronic, a \$6 billion Minnesota-based company with upwards of 28,000 employees. Medtronic technology is widely used in operating rooms and clinics, and it walks the streets in the form of pacemakers and other life-extending or life-enhancing implants. Demand for Medtronic products, therapies, and services is on a strong upward curve.

Medtronic's CRM therapy delivery group develops implantable devices for the management of pain relief, cardiac rhythm, and other medical issues. CRM uses a 36-processor SGI® Origin® 3800 system to develop technology that will function reliably for long periods of time in living tissue.

"Once the product model is created, we run finite element analysis on our Origin 3800 system for fatigue testing and product life predictions," says CRM Graphics Resource Manager Tim Abraham. "We also use it to animate models for education purposes when innovative concepts are not well understood throughout the company. We bring models to life, inserting them into video of real anatomy, or even into marketing or regulatory environments. If a picture's worth a thousand words, a movie's worth a million. We save many man-years this way.

"Nothing we're doing today was even around five years ago. And none of it would have happened without the help of SGI Managed Services."



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## Cost-Effective Upgrades: Fast Deployment with Minimal Disruption

When CRM decided to migrate from Origin 2000 to Origin 3000 technology, SGI Managed Services was called in to make the upgrade.

"SGI can make changeovers look seamless," says Abraham. "Moving to Origin 3000 technology from Origin 2000 technology was as simple as taking a system disk out of one system and sticking it in the next. The next time the users logged in, they were on Origin 3800 technology. If you think of all the skill sets required to do that safely and securely, we're probably talking four or five man-years of training if we had to do it ourselves."

With a 36-processor single system image (SSI) Origin 3800 system at their disposal, CRM researchers began to build larger and more detailed models. Moving these big files strained the existing network and storage infrastructure, and CRM began planning a networking and backup strategy that included the CXFS filesystem and fiber links between the server, the desktop, and SGI® TP9100 and SGI® TP9400 storage systems already installed at CRM.

The question was, how could CRM go from mirror-drive data protection to a fully automated robotic tape system and CXFS technology at realistic costs without disrupting the timelines and schedules of its 12 users? SGI Managed Services supplied the answer.

"SGI has been able to hit the ground running in every situation I've seen them in," says Abraham. "They really worked with us to meet our objectives. We implemented everything in about three months, with only three shutdowns, and the longest shutdown was only four hours. The benefits of that kind of service quality were easy to see."

## How to Hold Down System Administration Costs

The 12-year alliance between SGI and Medtronic has gone well beyond an ordinary vendor/client relationship. "We consider SGI a strategic partner, not a vendor," says Abraham. "SGI Managed Services has always taken a proactive approach, making sure that we're happy, that we have enough support, that our questions are getting answered. That always makes us think favorably of SGI when it's time to upgrade or expand compute capacity."

One primary benefit for Medtronic from this relationship is minimized administration costs. SGI provides CRM with a combination of on-site and off-site Managed Services in the person of System Support Engineer Ron Short. "We have no on-site administrator for this system in the usual sense," says Abraham. "There's only me and Ron Short, and I only do minor tasks."

SGI Embedded Support Partner (ESP), which is part of the IRIX® OS running on the Origin® server, monitors system performance and e-mails selected alerts to both Short and Abraham. Short deals with any issues that arise.

"Ron monitors the system on-site or from wherever he happens to be," says Abraham, "and we stay in touch by cell phone and e-mail. He also conducts a one-hour weekly meeting, in person or by phone, with our end-user community. He's such an integral part of our group that it's been said many times we really should just keep him here all the time. But he's very cost-effective this way."

"Last year we managed the entire million-dollar system, including all the new-technology integration and upgrades,



with fewer than 150 hours of SGI Managed Services time. Everything was maintained to a very high customer satisfaction level."

"Labor costs are going up. We can lower our cost of computing by using SGI Managed Services and putting head-count money into compute resources instead. When we run into issues, SGI has always been able to get resources to us quickly and help us with budgetary capacity planning."

## The Other Benefits: Productivity and Peace of Mind

Responsiveness, seamless integration and implementation, and low administration costs are not the only benefits Medtronic realizes from working with SGI Managed Services. Abraham also believes that Medtronic's strong, ongoing support relationship with SGI helps keep key scientists productive and happy. It also contributes to Abraham's peace of mind.

"We see Ron Short as a conductor, and the whole SGI organization as the orchestra," says Abraham. "I know if the cell phone rings, and it's Ron, it's just to let me know everything's being taken care of. I can actually go on vacation."



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