



HIGHLIGHTS

Goal: For the Roswell Park Cancer Institute to build a disaster recovery system, archive medical images, increase storage scalability, improve application performance, and archive email for easy retrieval and to comply with government regulations.

Solution: Comprehensive HP system, including two HP StorageWorks EVA8000 (EVA8000) disk arrays with Continuous Access EVA software; a 10-terabyte HP StorageWorks Medical Archive Solution (MAS); an HP StorageWorks Reference Information Storage System (RISS); an HP Enterprise File Services (EFS) Cluster Gateway; an HP StorageWorks Cluster Extension (CLX), and clustered HP ProLiant servers.

Results: Roswell Park Cancer Institute now has a comprehensive solution that provides improved, scalable archiving of medical images and business data, better application performance, and forms the backbone of a disaster recovery plan. Emails can now be more easily retrieved, and HIPAA and other government regulations are being met. Patient care has been improved, and the institute will be able to attract better researchers due to a new, leading-edge IT infrastructure. The HP infrastructure allows RPCI to be proactive rather than reactive when it comes to change. The HP solution has a projected, cumulative, five-year net benefit of \$7,530,619, driven by increased IT and staff productivity, efficiency gains, and decreased downtime. The ROI for the project will be 107%, with a 22-month payback period.

CUSTOMER PROFILE

Roswell Park Cancer Institute

www.roswellpark.org/

Roswell Park Cancer Institute, America's first cancer center, is the only upstate New York facility to hold the National Cancer Center designation of "comprehensive cancer center" and to serve as a member of the prestigious National Comprehensive Cancer

Headquarters: Buffalo, NY

Industry: Health care

Employees: More than 2,700, including 227 physicians and scientists, and more than 450 nurses

Roswell Park Cancer Institute Improves Storage Capacity and Performance, Builds Proactive Infrastructure, and Gains More than \$7.5 Million in Benefits with HP Solution

Roswell Park Cancer Institute (RPCI), America's first cancer center, provides high-quality care for cancer patients. RPCI is also a major cancer research center. In order to provide high-quality care, and to remain on the forefront of research, RPCI needs to have a world-class computing infrastructure.

Toward that end, the institute decided to significantly upgrade its storage and archival infrastructure. It was looking for a solution that would improve storage capacity and performance, archive medical images and business information, be highly scalable, meet HIPPA and other government regulations, and offer disaster recovery and business continuity.

RPCI chose two HP StorageWorks EVA 8000s (EVA8000s) running Continuous Access EVA; a 10-terabyte HP StorageWorks Medical Archive Solution (MAS); an HP StorageWorks Reference Information Storage System (RISS); an HP Enterprise File Services (EFS) Cluster Gateway; an HP StorageWorks Cluster Extension (CLX), and clustered HP ProLiant servers

Roswell Park Cancer Institute now has a comprehensive solution that provides improved, scalable archiving of medical images and business data, better application performance, and forms the backbone of a disaster recovery plan. Emails can now be more easily retrieved, and HIPAA and other government regulations are being met. Patient care has been improved, and the institute will be able to attract better researchers due to a new, leading-edge IT infrastructure. The HP infrastructure allows RPCI to be proactive rather than reactive when it comes to change. The HP solution has a projected, cumulative, five-year net benefit of \$7,530,619, driven by increased IT and staff productivity, efficiency gains, and decreased downtime. The ROI for the project will be 107%, with a 22-month payback period.

Benefits

Table with 2 columns: OBJECTIVE and BENEFITS ACHIEVED. It lists three objectives: providing scalable storage for PACS and business data, easily retrieving data and email for HIPPA, and improving performance and productivity, with corresponding benefits achieved.

The Challenge: Build a High-Performance, Scalable Storage Infrastructure

Roswell Park Cancer Institute (RPCI), America's first cancer center, is the only upstate New York facility to hold the National Cancer Center designation of "comprehensive cancer center" and to serve as a member of the prestigious National Comprehensive Cancer Network.

In addition to providing high-quality care for cancer patients, RPCI is also a major cancer research center. In order to provide high-quality care, and to remain on the forefront of research, RPCI needs to have a world-class computing infrastructure.

Toward that end, the institute decided to significantly upgrade its storage and archival infrastructure. It was looking for a solution that would accomplish the following:

- **Improve storage capacity and performance.** RPCI's storage system was at the end of its life cycle and had to be replaced. RPCI was looking for a storage system that would have a greater capacity than the previous one, that would be easily scalable, and that offered high-speed performance.
- **Archive medical images and business information.** RPCI uses a picture archiving and communications system (PACS) for digital medical images. It needed a storage system that could store and retrieve images at high speeds. In addition, it was looking to archive older and less-used business information, including databases, Microsoft Exchange email, and other data created by business applications to achieve better overall IT performance. The solution needed to be highly scalable, because RPCI adds an estimated 20 terabytes a year of new images and data.
- **Meet HIPPA and other government regulations.** The regulatory environment for health care has become increasingly complex, with health care institutions required to meet a variety of regulations, including the Health Insurance Portability and Accountability Act (HIPPA). RPCI was looking for a system that would allow it to easily adhere to all current and future government regulations, as well as internal governance regulations and processes.
- **Offer disaster recovery and business continuity.** RPCI wanted to build an infrastructure that would ensure it could easily recover data, and continue working, in case of a disaster.

RPCI Chooses an End-to-End Hewlett Packard Solution

RPCI considered solutions from multiple vendors, and chose a comprehensive HP solution. It chose HP because the solution's individual components offered superior feature sets compared to the competition, and the solution was also priced more favorably. In addition, choosing a comprehensive, end-to-end solution from HP ensured system compatibility and easy integration.

RPCI also chose HP because of the high level of technical support provided by Affinity Enterprises, LLC, an HP enterprise channel partner. Affinity worked closely with RPCI from the project inception through the design and implemen-

“The HP solution allows us to more easily scale our storage, and to handle increasing amounts of storage without having to add to staff. With it, we're far more productive and efficient.”

Tom Vaughan
Director of IT Infrastructure
RPCI

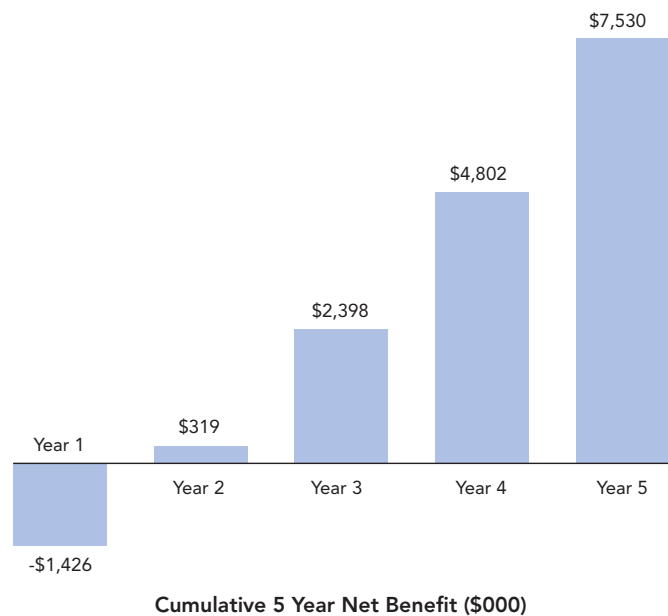
- RPCI's bottom line for the project: a projected, cumulative, five-year net benefit of \$7,530,619, driven by increased IT and staff productivity, efficiency gains, and decreased downtime. The project will have an ROI of 107%, and payback period of 22 months.

tation process. Affinity's long-time working relationship with RPCI and expertise with the HP enterprise portfolio gave RPCI the confidence that the HP solution was the best fit for the business.

RPCI deployed two HP StorageWorks EVA 8000 (EVA8000) disk arrays running Continuous Access EVA; a 10-terabyte HP StorageWorks Medical Archive Solution (MAS); an HP StorageWorks Reference Information Storage System (RISS); an HP Enterprise File Services (EFS) Cluster Gateway; an HP StorageWorks Cluster Extension (CLX), and clustered HP ProLiant servers.

The Bottom Line for RPCI: Improved Scalability and Performance, Better Patient Care

With the HP infrastructure, Roswell Park Cancer Institute has a comprehensive solution that provides scalable archiving of medical images and business data, better application performance, and forms the backbone of a disaster recovery plan. Emails can now be more easily retrieved, and HIPAA and other government regulations are being met. Patient care has been improved, and the institute will be able to attract better doctors and researchers due to a leading-edge IT infrastructure. The HP infrastructure now allows RPCI to be proactive rather than reactive when it comes to change.



The EVA8000s provide high-speed, reliable, easily scalable and easily manageable storage for online PACS images, as well as business data. Because of their high-speed access to data that is hosted on a storage device, rather than on the server, they have improved application performance. In addition, Continuous Access EVA allows RPCI to mirror the data on the EVAs, enabling it to pull together pieces of its disaster recovery and business continuity plan.

“We pride ourselves on being one step ahead of the technology curve, which helps us offer the best patient care and attract top researchers. We make sure that we are proactive rather than reactive, and our partnership with HP ensures that we’ll always be able to accomplish that.”

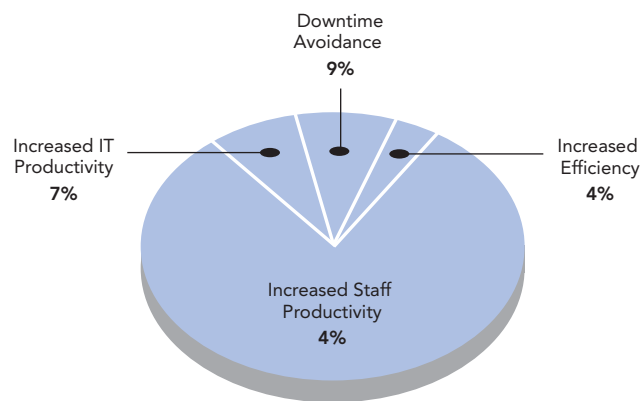
JoAnne Ruh
CIO
RPCI

The HP StorageWorks Cluster Extension (CLX) and clustered HP ProLiant servers helps ensure business continuity by offering protection against system downtime from fault, component failure and disasters. It enables flawless integration of the remote mirroring capabilities of HP Continuous Access EVA with the high-availability capabilities provided by the Microsoft Windows Server Cluster used by RPCI, which provides the layers of security against errors and disasters.

The HP Enterprise File Services (EFS) Cluster Gateway improves cluster performance. It allows applications to scale in a near linear fashion for improved performance and failover capabilities within the cluster.

The 10-terabyte HP StorageWorks Medical Archive Solution (MAS) archives and retrieves PACS images, helps the PACS application run more smoothly, and increases the speed at which images can be stored and retrieved. This helps medical staff serve patients more effectively, because there are no delays when retrieving images. The MAS is highly scalable, allowing RPCI to keep up with data growth. Because of researcher demands, data grows by an estimated 20 terabytes a year.

RPCI uses the HP StorageWorks Reference Information Storage System (RISS) for email archiving for Microsoft Exchange, and to help meet regulatory requirements around email retention. RISS can search billions of emails and many of the attachments within seconds and scales to hundreds of terabytes of storage. It allows RPCI staff to quickly find email for legal discovery and for internal needs, such as human resources or finance. Previously, it could have taken days to weeks to find a particular piece of email; with RISS that same task can take less than hour.



Cumulative 5 Year Net Benefit = \$7,530,619

Overall, patient care has been improved. With the HP solution, current and past records and medical images can be called up immediately, and the medical staff faces no delay in retrieving this vital medical information.

Because of infrastructure improvements, RPCI can also more easily attract and retain doctors and researchers. “On the research side, if we provide top-quality services, we attract better researchers,” explains Tom Vaughan, RPCI Director of IT Infrastructure.

The HP solution will also pay significant financial dividends, and has a projected, cumulative, five-year net benefit of \$7,530,619, driven by increased IT and staff productivity, efficiency gains, and decreased downtime. The ROI for the project will be 107%, with a 22-month payback period.

The following chart provides a detailed, five-year analysis.

5 YEAR ANALYSIS							
Project Summary							
ROI	107%						
Payback Period (in months)	22						
Cumulative Net Value	\$7,530,619						
Project Costs	Start Up	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
(2) EVA8000 with mirror image and second site	\$1,520,000	\$390,000	\$390,000	\$390,000	\$390,000	\$390,000	\$3,470,000
(2) 10TB Medical Archive Solution (MAS)	\$330,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$830,000
EFS Cluster Gateway	\$90,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$190,000
(7) CLX split clustered ProLiant servers	\$75,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$100,000
HP Reference Information Storage System (RISS)	\$310,000	\$115,000	\$115,000	\$115,000	\$115,000	\$115,000	\$885,000
HP Maintenance with HP Services	\$0	\$310,000	\$310,000	\$310,000	\$310,000	\$310,000	\$1,550,000
TOTAL PROJECT COSTS	\$2,325,000	\$940,000	\$940,000	\$940,000	\$940,000	\$940,000	\$7,025,000
Benefits	Start Up	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Increased Efficiency		\$100,980	\$101,990	\$103,010	\$104,040	\$105,080	\$515,099
Increased Staff Productivity		\$1,236,922	\$2,116,432	\$2,439,625	\$2,762,871	\$3,086,170	\$11,642,019
Increased IT Productivity		\$224,000	\$210,000	\$210,000	\$210,000	\$210,000	\$1,064,000
Downtime Avoidance		\$266,900	\$266,900	\$266,900	\$266,900	\$266,900	\$1,334,500
TOTAL BENEFITS		\$1,828,802	\$2,695,322	\$3,019,535	\$3,343,810	\$3,668,150	\$14,555,619
Financial Analysis		Year 1	Year 2	Year 3	Year 4	Year 5	
Net Value		-\$2,325,000	\$888,802	\$1,755,322	\$2,079,535	\$2,403,810	\$2,728,150
Cumulative Net Value		-\$2,325,000	-\$1,436,198	\$319,124	\$2,398,658	\$4,802,469	\$7,530,619
Net Present Value	\$7,530,619						
Payback Period (in months)	22						
ROI	107%						

“We have had long-term experience with HP technology and have found their field service support to be excellent.”

Peg Hylant
 President
 Affinity Enterprises, LLC

Return on Investment (ROI) is the percentage return expected over a specified period of time. ROI is the total benefit divided by the total costs. This ROI metric is good for assessing the multiplier provided by the benefits relative to the total investment and costs.

Net Present Value (NPV) represents the cumulative present value of the expected return of a project over a specified period of time minus the initial costs of the project. This dollar figure provides visibility on the actual value of a project, taking into consideration the time value of money—the ongoing benefit of a project in today’s dollars. NPV tells you the magnitude of the project and if the project generates a profit.

Payback Period (or breakeven) is the timeframe it takes for the project to yield a positive cumulative cash flow. Payback period is a key measurement of risk but does not take into account cash flows after the payback period.

ROI, NPV and Payback should be used in conjunction to understand the rate, size and timing of the return.

Net Value (or Net Benefit) is the benefit delivered to the organization for the investment made in the project. Net Value is calculated by taking the total benefit minus the project costs.

About Roswell Park Cancer Institute

Roswell Park Cancer Institute (RPCI), is America's first cancer center, and was founded in 1898 by Dr. Roswell Park. RPCI is the only upstate New York facility to hold the National Cancer Center designation of "comprehensive cancer center" and to serve as a member of the prestigious National Comprehensive Cancer Network. Over its long history, Roswell Park Cancer Institute has made fundamental contributions to reducing the cancer burden and has successfully maintained an exemplary leadership role in setting the national standards for cancer care, research and education.

The campus spans 25 acres in downtown Buffalo and consists of 15 buildings with about one million square feet of space. A new hospital building, completed in 1998, houses a comprehensive diagnostic and treatment center. In addition, the Institute built a new medical research complex and renovated existing education and research space to support its future growth and expansion.

About Affinity Enterprises, LLC

Affinity Enterprises, LLC provides solutions focused on the healthcare, higher education, K-12 and state and local government markets. Affinity provides a wide variety of information technology products and services, including a best-in-class emergency mass notification solution and video over IP media distribution and creation solution. The principals at Affinity each has over 25 years experience in helping customers solve their information technology problems. Affinity Enterprises, LLC is a certified woman-owned company.

About Hewlett-Packard Company, StorageWorks Division

HP is a technology solutions provider to consumers, businesses and institutions globally. The company's offerings span IT infrastructure, global services, business and home computing, and imaging and printing. HP StorageWorks solutions help enterprises optimize current resources, manage multivendor environments and evolve to open architectures. For more information on how working with HP can benefit you, contact your local HP representative, or visit HP at www.hp.com.

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