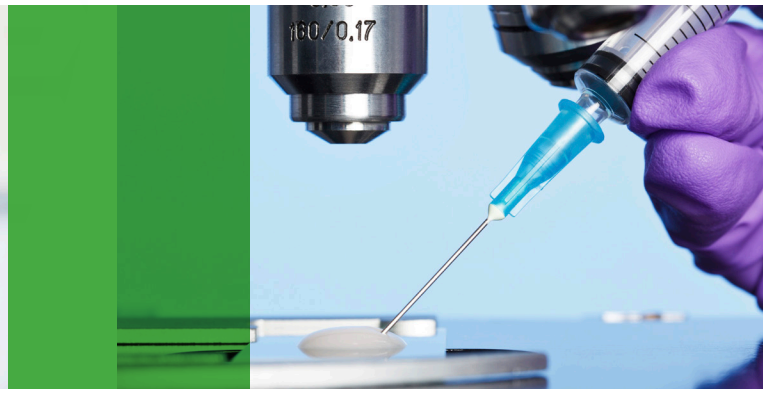
The Carnegie Institution for Science Reduces Costs, Ensures Data Integrity, and Gains $774,000 in Benefits with SGI® StorHouse® Software

Key Facts

Organization:
Carnegie Institution for Science's Department of Embryology

Location:
Baltimore, MD, US

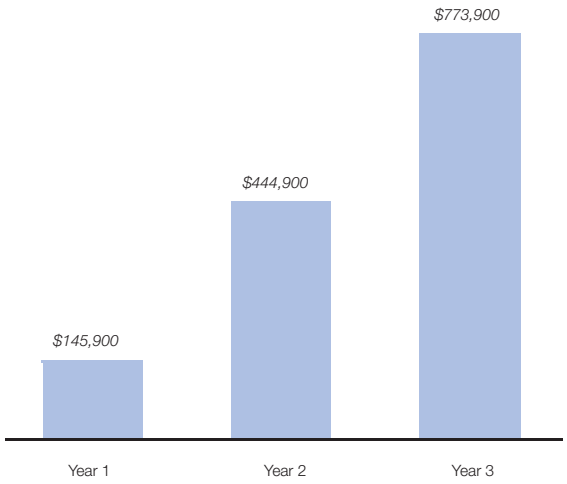
Application:
Science and research



The Carnegie Institution for Science's Department of Embryology was using an Apple Xsan for storage of both business data, such as Microsoft® Word and Excel® files, as well as scientific data. The amount of data generated by life sciences research has been dramatically expanding, and the storage system was proving to be inadequate for the department's needs. The department was looking for a new solution that would handle large amounts of data, improve backup, reduce hardware costs, scale for future growth, and increase productivity, while ensuring the highest level of data integrity.

The department spent several years looking for a storage-and-backup solution, and after considerable research, chose one consisting of an Isilon storage array and StorHouse® software. StorHouse is an intelligent storage virtualization and data management platform that can store, retrieve, back up, and administer massive amounts of file-based and relational information on a single system.

Using StorHouse, the Department of Embryology has reaped significant financial and productivity benefits. It now has a high-performing, highly scalable, cost-effective backup solution that can be easily managed, and that offers high-performance direct reads from tape to accommodate very large files, and random access to archived data stored on tape. As a result of the deployment, the department will gain a cumulative, projected $774,000 in net benefits over three years, due to hardware cost savings and productivity improvements. The project has a return on investment of 781 percent and a payback period of three months.



Cumulative Net Benefit

Benefits

Objective	Benefits Achieved
Reduce costs	StorHouse has allowed the department to reduce the amount of storage needed for its storage array by half, resulting in a projected, cumulative benefit of $862,500 over three years.
Build a scalable system	With StorHouse, the department now has a solution that can scale well into the foreseeable future. StorHouse currently handles 90 terabytes, and can manage far more.
Gain a high level of data assurance	StorHouse automatically validates and repairs data to ensure data integrity and archive reliability.

The Challenge: Deploy a Scalable Storage-and-Backup System and Reduce Costs

The Carnegie Institution for Science was founded in 1902 by Andrew Carnegie to perform cutting-edge scientific research. The institution's Department of Embryology, founded in 1913 in affiliation with the Anatomy Department of Johns Hopkins University, researches developmental mechanisms at the cellular and molecular level.

The department was using an Apple Xsan for storage of both business data, such as Word and Excel files, as well as scientific data. The storage system was proving to be inadequate for its needs. It was looking for a new solution that would accomplish the following:

- **Handle large amounts of data.** The amount of data generated by life sciences research has been dramatically expanding. The department has nine principal laboratories, each with a principal investigator, technicians, postdoctoral students, and graduate students. The department had recently purchased an Illumina HiSeq sequencer that generates enormous amounts of data, adding to an increasing amount of microscope image data. The department was looking for a system that could better handle this increasing amount of data.
- **Improve backup.** The department wanted a fail-safe, high-performance backup system and strategy that would ensure no data was lost, and that data could be easily retrieved.
- **Reduce hardware costs.** The costs of storage and backup for massive amounts of data can be extremely high. The department needed to find a cost-effective solution for its storage and backup needs.
- **Increase productivity.** Managing and backing up large amounts of data can be complex and require significant amounts of staff time. The department wanted a solution that would be easy to deploy and administer, and could improve staff efficiency.
- **Scale for future growth.** The department expected data growth to continue and possibly accelerate. It was looking for a solution that could easily scale to accommodate its storage needs well into the future.
- **Ensure data integrity.** The department wanted to ensure that data would not be lost due to media corruption such as "bit rot" and that it would be there when needed.

The Department of Embryology Chose StorHouse

The department spent several years looking for a storage-and-backup solution, and after considerable research, chose one consisting of an Isilon storage array and SGI's (formerly known as FileTek) StorHouse. StorHouse is an intelligent storage virtualization and data management platform that can store, retrieve, back up, and administer massive amounts of file-based and relational information on a single system.

The department uses StorHouse to back up data from the storage array, saving significantly on storage costs and staff time.

"StorHouse was a perfect fit for us," says Bill Kupiec, information technology manager of the Carnegie Institution for Science's Department of Embryology. "It was far superior to anything else we saw. Its flexibility, automated tools, and scalability were big draws."

StorHouse prevents failures through automatic content validation and repair, and streamlines backups. It is future-proof and has the scalability to accommodate future growth of genomic data, with no technology obsolescence. It offers data assurance and access at the lowest storage cost. The system offers easy migration to newer and more advanced technologies as they become available, with no performance degradation or system downtime, to ensure future accessibility of current data.

> "With FileTek's StorHouse, we have a simple-to-use backup-and- restore system that reduces costs, offers data assurance, and is scalable well into the future. I've found it to be a great asset."
>
> **Bill Kupiec,**
> Information Technology Manager, Carnegie Institution of Science's Department of Embryology

The Bottom Line for the Department of Embryology

Using StorHouse, the Department of Embryology has reaped significant financial and productivity benefits. It now has a high-performing, highly scalable, cost-effective backup solution that can be easily managed, and that offers high-performance direct reads from tape to accommodate very large files, and random access to archived data stored on tape. As a result of the deployment, the department will gain a cumulative, projected $774,000 in net benefits over three years, due to hardware cost savings and productivity improvements. The project has a return on investment of 781 percent and a payback period of three months.

The Department of Embryology has made StorHouse the centerpiece of its backup-and-restore solution. StorHouse manages the backup of data from the storage array to tape, making backups and restores much simpler by storing data in its native file format. Handling backup this way reduces backup time and cost because it does not require a restore process. It also ensures a high level of data integrity and archive reliability. With StorHouse, the department does not have to have an online mirror of its storage array, and so can reduce its storage hardware requirements. It currently has 86 terabytes of data on its storage array and 90 terabytes of data backed up to StorHouse, and expects that to grow in the future.

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The Department of Embryology has also found that restoring data using StorHouse is much simpler than traditional ways of restoring data, and saves a significant amount of time.

"You log into StorHouse, and you see the backup as a virtual drive," Kupiec explains. "All you need to do is find your file and copy it back. With other systems, you have to take far more steps, and the entire process is much more complicated. StorHouse saves time when it comes to restores, the numbers of tapes used, and logistically managing backups and restores. It's very easy to use, and I don't have to hire someone to perform backups, maintain backups, and move tapes. I can do that myself as part of my other duties."

The department will reap significant financial benefits as a result of using StorHouse. The department has cut the amount of storage hardware it requires because it no longer needs an onsite mirror, leading to a projected, cumulative benefit of $862,500 over three years. Because of productivity improvements, it will save an additional $10,500 over three years.

Kupiec lauds the company not only for the quality of StorHouse, but also for the quality of the company's help and support.

"As I got further and further into the deployment, the company worked me through any questions I had. Their help was fantastic."

With the StorHouse solution in place, Kupiec says that the Department of Embryology is well-positioned to handle its storage and backup well into the future.

"StorHouse is scalable, flexible, easy to use, and offers a high level of data assurance," he says. "I feel comfortable knowing that we're well positioned for data growth."

"FileTek has been an excellent partner. They have answered any questions I have had and have helped me understand all the benefits of StorHouse and how I can best deploy and use it"

Bill Kupiec,
Information Technology Manager,
Carnegie Institution of Science's Department of Embryology

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

Project Summary					
ROI	781%				
Payback Period (in months)	3				
Cumulative Net Value	$773,900				
Net Present Value	$626,372				
Project Costs		Year 1	Year 2	Year 3	Total
Total Project Costs		$45,100	$42,000	$12,000	$99,100
Benefits		Year 1	Year 2	Year 3	Total
Cost Savings		$187,500	$337,500	$337,500	$862,500
Productivity		$3,500	$3,500	$3,500	$10,500
Total Benefits		$191,000	$341,000	$341,000	$873,000
Financial Analysis		Year 1	Year 2	Year 3	Total
Net Value	-$6,100	$152,000	$299,000	$329,000	$862,500
Cumulative Net Value	-$6,100	$145,900	$444,900	$773,900	$10,500

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 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 money. 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 the Carnegie Institution for Science Department of Embryology

The Carnegie Institution for Science (also known as the Carnegie Institution of Washington) was founded in 1902 by Andrew Carnegie as an organization for scientific discovery. Carnegie researchers work in six scientific departments on the West and East Coasts. The Department of Embryology, founded in 1913 in affiliation with the Anatomy Department of Johns Hopkins University, is one of those departments. The department's research focuses on understanding fundamental developmental mechanisms at the cellular and molecular level.

About SGI

SGI, the trusted leader in technical computing, is focused on helping customers solve their most demanding business and technology challenges. For more information, please visit www.sgi.com. On October 1, 2013, SGI acquired the assets and some employees of FileTek, Inc., including all the rights to StorHouse software.

About Case Study Forum

Case Study Forum is the leader in the writing and production of ROI-focused Case Studies. In addition to a customer success story, each ROI Case Study provides insight into the business impact—the revenue, productivity and cost savings the customer achieved as a result of the investment made in the solution or service. For more information, please contact Case Study Forum at 508-380-8886, or visit www.CaseStudyForum.com.

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