Case Study

LA JOLLA INSTITUTE FOR ALLERGY AND IMMUNOLOGY FINDS CURES FASTER WITH REDUXIO STORAGE

Industry: Biotechnology | **Location:** North America | **Use Cases:** Virtualization, Databases

KEY HIGHLIGHTS

Challenges

- Constant storage growth as research data is retained forever.
- Limited budget to meet high performance storage requirements.
- Legacy data protection methods are not frequent enough to prevent data loss.

Solution

- Reduxio HX550 addresses performance and capacity requirements while providing room for growth.
- NoDup™ in-line in-memory dedupe and compression provides cost-effective capacity for research data.
- BackDating™ provides the recovery of databases to any second to minimize data loss.

Benefits

2X More Space

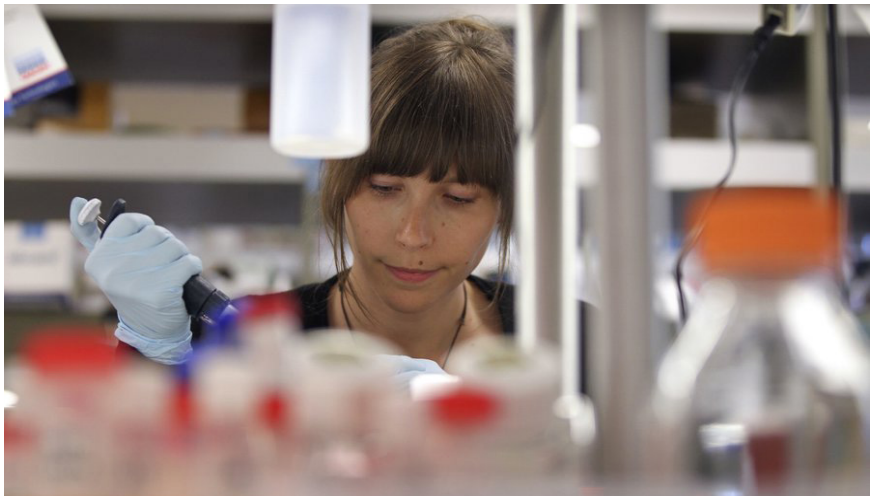
Expanded system capacity with Reduxio NoDup™ in-line, in-memory dedupe and compression.

<1ms Average Latency

Minimal overall latency with Reduxio's flash-first architecture increased performance of IEDB immunology database.

Smallest RPO (1 second)

Database recovery in one second granularity with Reduxio BackDating.



KEY HIGHLIGHTS

	400 Researchers
	25 Laboratories
	145,000 square feet Lab Space
	Over 150 million files
	Over a petabyte of research data

THE LJI ENVIRONMENT

La Jolla Institute for Allergy and Immunology (LJI) located in the heart of the University of California San Diego Science Research Park, minutes from the scenic Pacific Ocean, is an independent, biomedical research institute founded in 1988 with a stated goal: Life Without Disease®.

From its world-class open laboratory, the LJI in-house staff researchers collaborate with hundreds of researchers worldwide. Together, using the latest technologies, they conduct advanced research at the genetic, protein and cellular levels - all of which are critical to advancing the understanding of immune system disease.

FINDING CURES FASTER, MORE EFFICIENTLY

To catalyze breakthroughs in biomedical research LJI depends heavily on its next-generation sequencing technology and bioinformatics, and continually evaluates new technologies that could accelerate their IT environment and operations. Ever-expanding capacity requirements for bioinformatics research data motivated the LJI team to explore ways to optimize the environment.

CHALLENGES WITH EXISTING SOLUTIONS

LJI's next-generation sequencing and bioinformatic services involve the processing of hundreds of gigabytes of data, requiring a high performance, low latency storage layer to reduce processing run times. In addition, the bioinformatics research data set keeps growing since old data is retained for future use.

Finding a high performance, high capacity storage solution that was also cost effective had always been a challenge. Historically, the institute has always looked for mid-range systems that provided the best balance of feature capabilities, capacity, and performance. High-end systems were always out of its reach. In the beginning, La Jolla used a SAN array with post-process tiering. When their capacity and performance requirements outgrew the capabilities of this system, it was too expensive to upgrade, forcing a switch to high-end JBODs with ZFS-based storage software. However this became complex to manage over the long run.

"The institute looks for top-of-the-line storage, seeking the best system available that meets its budget. We're pretty mercenary in what we grab, our budget is lean, so typically, high-end storage is out of our price range."

Michael Scarpelli, IT Director La Jolla Institute for Allergy and Immunology

Mr. Scarpelli, IT Director of the La Jolla institute introduced a caching hybrid system to provide him the balance of performance and capacity. But a review of his requirements showed that the system could not scale to meet his latest performance and capacity requirements without considerable investment. In addition, with tens of critical databases of different kinds, recoverability was also an issue. Failures in any of these directly impacted multiple researchers and projects, putting expensive projects at risk. With the system he had in place, recovery from snapshots still meant losing hours of work. At that point Mr. Scarpelli decided to evaluate and then acquire the Reduxio HX550.

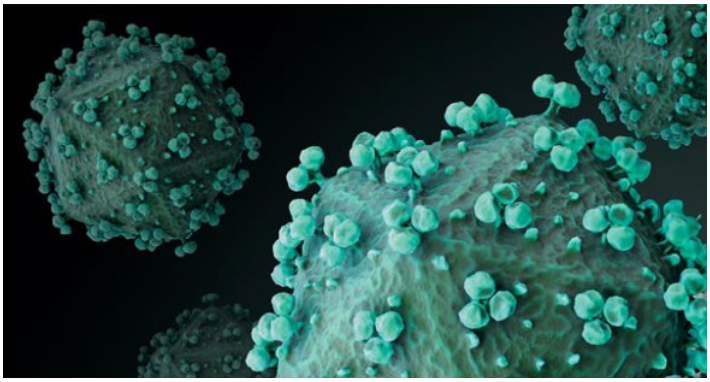
REDUXIO - FAST, SIMPLE, RECOVERABLE

Right from the start, as the initial data sets were migrated to the Reduxio system, performance improved all around. SAN boot times for the informatics cluster improved 3 fold, and there was significant improvement in the response times of application VMs and the email archive.

"We are very impressed with the product. The interface is very well designed and intuitive. The data reduction is amazing, and it is running nice and fast. The icing on the cake is definitely is the up-to-the-second restoration using BackDating™."

Michael Scarpelli, IT Director La Jolla Institute for Allergy and Immunology

The system was implemented and embraced by the small IT team very quickly, primarily because its simple user interface required no training. Various applications based on Microsoft SQL Server, Oracle Database, PostgresSQL and MariaDB were migrated to the system in no time. The system, now in full production, is also used to serve the Immune Epitope Database and Analysis Resource (IEDB), a customer-facing website that serves as a warehouse for thousands of research reports that is used by researchers worldwide. The IEDB stores its data in an Oracle Database and runs on tens of VMs which have to be up at all times. BackDating is used to perform online recoveries when needed.



SOLUTION COMPONENTS

Reduxio Products

- Reduxio HX550 storage system
- Reduxio Storage Manager for VMware vSphere

Environment

- VMware® vSphere
- Oracle® Database
- Microsoft® SQL Server databases, PostgreSQL, MariaDB
- HPC cluster running Linux ROCKS (SAN boot)
- Zimbra® email archive