Case Study

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HYDRAstor

# New York Botanical Garden (NYBG)

NYBG
NEW YORK BOTANICAL GARDEN

### Customer

- The New York Botanical Garden (NYBG)

### Industry

- Non-profit Research and Education

### Challenges

- Massive and fast expanding data storage needs
- Obsolete legacy system, slow with high maintenance
- No deduplication/ compression capability, or disaster recovery
- Mounting high costs of data backup

### Solution

- HYDRAstor HS8-5000 high performance data backup, with VEEAM
- M-series storage and general purpose server
- NEC single point of contact IT Support

### Results

- High performance with ease of administration
- Reduced backup window with deduplication and compression
- Scalability for future storage demands
- Reduced cost of ownership
- Option for built-in disaster recovery replication

Located on 250 acres in the heart of the Bronx, the New York Botanical Garden (The Garden) is an iconic living museum, a major educational institution, and renowned plant research and conservation organization. Founded in 1891 and now a National Historic Landmark, it is considered one of the greatest botanical gardens in the world, and the largest in any city in the United States.

NYBG is known not only for the beauty of its diverse landscapes, outdoor strolling gardens, and unique habitats and exhibits found inside the elegant and expansive Haupt Conservatory, but also for the scope of its multidisciplinary exhibitions and programs. NYBG's ongoing commitment is to plant research and conservation, connecting gardening to the Arts & Humanities, preserving extensive rare plant collections, while also creating a green oasis that teaches Science to urban youth.

NYBG is a uniquely data-rich educational and research environment. Christian Keck, VP of Information Technology, explained, "There are major on-site educational programs here at the New York Botanical Garden: a prestigious Museum, a K-12 program, and Adult Education courses in landscaping and gardening—and the School for Professionals currently has twenty (advanced degree) horticulture students. The Plant Science Center is specifically for the important research of plant history, locations, their struggles and life cycles, and is referenced internationally."

> "Scalability was one of the primary reasons for choosing this solution."

To grasp the scope and depth of the data storage needs of NYBG operations, it is important to understand the workings of the C. V. Starr Virtual Herbarium, the on-site entity which is the electronic gateway to the massive number of physical specimen collections carefully stored in NYBG's William and Lynda Steere Herbarium. The goal of the Herbarium's

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digitization team is to systematically digitize nearly 8 million plant and fungi specimens, gathered from all over planet Earth, some of which are centuries old.

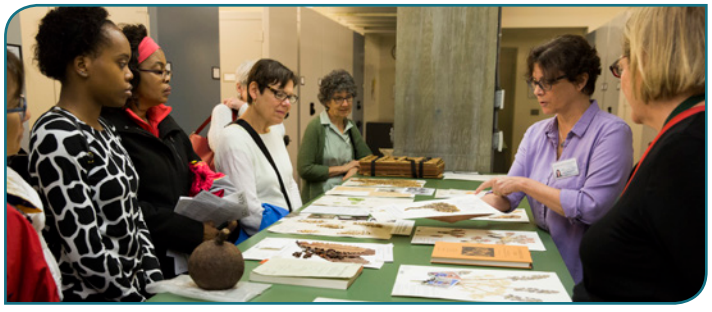
Kimberly Watson, Digital Asset Manager, explained, "The purpose of the Virtual Herbarium is to make specimen data available electronically for global use. The Herbarium offers an invaluable record and wealth of information about our planet's biodiversity in space and time; researchers can study it for economic importance, for agricultural importance, for ecology and biodiversity research projects, for medicinal importance and impact on humans; really, the sky's the limit. Our creation of digital images reduces the need for shipping extremely delicate and often ancient specimens."

The digitizing process also unifies all physical elements collected in the specimen records (photos, drawings, manuscripts, gene sequences, microscopic preparations, and published works). The ongoing operation of the Virtual Herbarium is to photo-capture delicate plant specimens and all corresponding information into high-resolution images, and then electronically store these large files where they can be accessed online by researchers, instantly, from almost anywhere.

The Herbarium's enormous and ever-expanding "digital library" of plant research has become the primary User of the New York Botanical Garden's data storage system.

## Challenges

According to Paul Connolly, Systems and Support Manager, the NYBG was having real issues with its big data; high demand, frequent outages, and costly, time consuming data backups. Connolly said, ""Our data was growing very fast, reaching 100 TB in a short period of time with 60 TB for the herbarium images alone. And because a full backup took so long, it could only be done every six months."



The Garden's existing CommVault tape and disc legacy system was older technology and out of date. Prior to a recent move to disc storage, the past system of the NYBG--with its 120 tape slots, made data management a daunting task and a major time requirement.

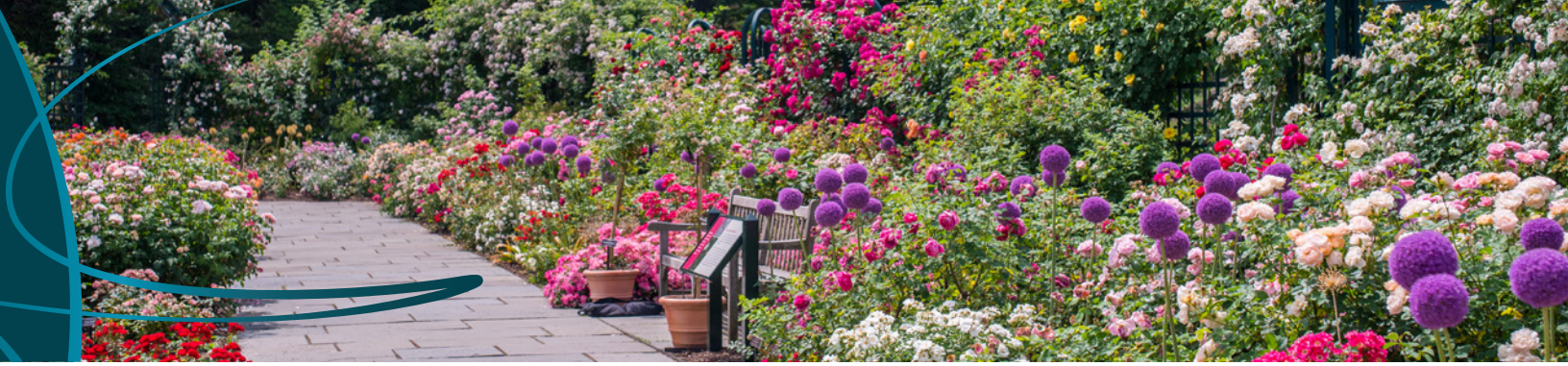
Connolly recalled, "We were regularly going through 40-50 tapes, which were then packed up and stored in Iron Mountain. Between the high cost of all the tapes--and questions we had about the data quality on those tapes, it was a very costly storage set-up, and took too much time for data verification. Performance was very slow. Backups were taking longer to complete, causing us to miss our backup windows."

Upon careful consideration of their ongoing challenges, the Garden had recently made the move to disc storage, but the issues remained; the existing system was simply not adequate or expandable, did not solve their many ongoing data issues, and provided no built-in disaster recovery option for immediate file recovery.

## Solution

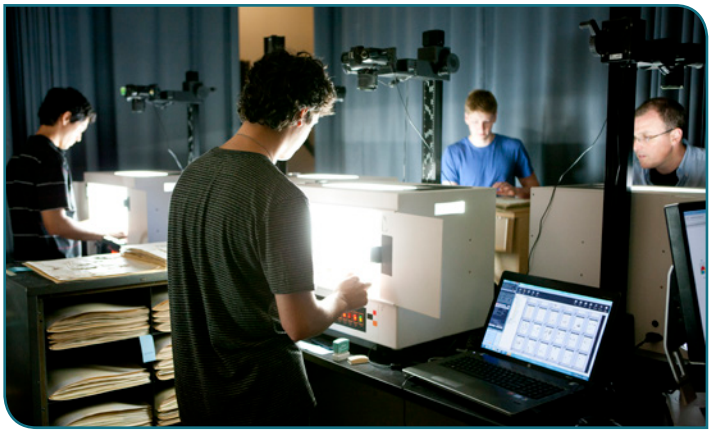
The Garden's recent move to disc storage lead to their smooth transition to NEC's HYDRAstor data backup solution. Mr. Keck stated, "We certainly did our due diligence, and looked intensively at many other options. Ultimately, the choice came down to the great relationship we have with NEC, our high level of trust, and the expandability of the NEC storage solution."

Connolly confirmed, "Scalability was one of the primary reasons for choosing this solution—for the longevity of the system, the level of NEC support, and the fact that it is easily scalable for a data store that is constantly growing."



The NYBG data set-up is now a hybrid, with their mix of virtualized servers (using Hyper-V) and physical servers. However, all storage is now on premise, and supports the physical and virtual servers. Connolly stated, “NEC’s M-Series storage, HYDRAstor backup and restore with VEEAM means real stress-free administration for us.”

Rob Piscioneri, NYBG’s Network Administrator/ Information Security Manager, added, “We needed large storage. NEC’s on premise M-series is a general purpose primary storage array —not intended just for Herbarium images or huge files, but gives all our internal users more space. We now have 200 TB--and 155 is currently used. Now, departments receive shares of the total, and added folders, with storage increases supplied as they are requested.”



Currently protecting the New York Botanical Garden’s critical data, HYDRAstor HS8-5000 delivers massive linear scalability from 1 to 165 nodes (18 TB - 11.88 PB). It also supports: Veritas OpenStorage API-s, VEEAM, CommVault and mixed back-up/ archive environments, which enables storage expansion with no application or data migration downtime—critically important to uninterrupted operations, maintaining the Garden’s daily workloads and its continual digitizing productivity. Since in-line deduplication of all data is across all nodes, this reduces storage capacity requirements by 95 percent or more. This means HYDRAstor provides much greater data protection for NYBG, with faster data rebuild, and much lower overhead.

Rob Piscioneri shared, “NEC was actually here on-site during the installation; it was great. We just moved everything over, and it was basically a very smooth storage transition.”

> “With this NEC transition, the New York Botanical Garden is now positioned for both short term efficiency as well as long term solutions for the future.”

## Results

Since the Plant Science Center’s huge database is referenced internationally, it must be instantly available (24/7) to researchers. Currently 150+ TB of data is on the NEC storage solution, and this group also utilizes much of the HYDRAstor backup system for data protection.

Said Piscioneri, NYBG’s Network Administrator, “What’s the difference in backups now? Instead of 14 days, we now have 70 TB totally backed up within 12 hours, so we have more backups, better speed, better performance, and much quicker restores. Actually, live backups and full system backups are ongoing.”

Paul Connolly confirmed, “Before, it would take weeks to back up all the data, but with the virtualization--with HYDRAstor, Nblock and VEEAM working together, that same backup is literally done over the weekend. And the feedback from our users has been very positive. We haven’t had any downtime at all with the system. I’m always looking for ways to make our system run smoother and last longer, and this NEC solution definitely does that.

"We now have absolutely no concerns about the security of the data," continued Connolly, "and no worries about system operations. This is worry-free, easy to manage data storage, and since ours is a scalable combination of virtual and physical servers, we have the right solution for us, for now and for the long term."

The NYBG is enjoying best-in-class performance, reduced backup time with HYDRAstor deduplication and compression, lower cost of ownership, and the reassuring fact that HYDRAstor offers disaster-ready built-in replication. With a deduplication and compression data reduction ratio of 5.3:1 (consuming only 137.8 TB of storage for saving 736.4 TB of data), HYDRAstor has dramatically reduced the Garden's backup window, reduced the cost of backups, and ensured reliable data preservation.

Kimberly Watson summed up the value for her department. "Because of the storage situation now", said Ms. Watson, "we are able to produce so much more than before, with an increased rate at which we're able to capture images and transfer them to the central storage location--with confidence, knowing that they are retrievable when needed and are safely backed up to the archive."

The impact on the IT group has been just as positive. Mr. Piscioneri said, "This storage transition has really resulted in a more efficient use of personnel and frees up the team to do other work. Our boss would much rather we spend those hours being productive and working with our customers than to spend it retrieving and verifying tapes."

Christian Keck, VP of NYBG, confirmed, "With this NEC transition, the New York Botanical Garden is now positioned for both short term efficiency as well as long term solutions for the future."

## NEC's Relationship with Our Customer

Paul Connolly said, "I definitely do discuss this system with other organizations; exactly what we have operating here, how well it runs, that it's working great for us. If we had an issue in the past, we would wait weeks for an answer from Tech Support. Now, we reach out to NEC and they get back to us right away. They have been really supportive throughout this entire transition."

Mr. Keck concluded, "I can only say good things about NEC, and that we absolutely have the right IT partner. We know NEC, we know what they're capable of, and what they can provide to us. They've been with us throughout this entire process. I have no doubt that they'll be partnered with us further on other opportunities here at the Garden."

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