

Preserving Appalachian History, 100 Terabytes and Counting

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The sound of Appalachian music is alive at Berea College, and the special collections and archives department is working hard to ensure its large and unique sound collection and the rest of its archives are preserved and universally accessible.

The small liberal arts college in Kentucky, which was formed by ardent

abolitionists and radical reformers in 1855, provides educational opportunities primarily for students from Appalachia who have great promise and limited economic resources. (Students do not pay tuition, and all work at least 10 hours a week to earn money for books, room, and board.)

As the South's first interracial and coeducational college, Berea has

a rich legacy, with many historical treasures. Its special collections and archives department houses materials that document the history and culture of Berea College and the Southern Appalachian Mountain region. The collection has particular strength in its sound and video collections, documenting traditional music and mountain culture.

A Unique Archives

The digital archives are non-commercial, one of a kind, and had been stored on a variety of now mostly obsolete formats. The collection is especially strong in the areas of traditional music (e.g., banjo and fiddle), religious expression, spoken lore, radio programs, oral history, college events, and personalities. It includes field recordings from homes and churches by collector, including local and regional folk festivals, student performances, and presentations by notable scholars, preachers, and social activists who have visited Berea.

The collection features a full set of records dedicated to the work of the Appalachian Volunteers on the 1960s' War on Poverty. A powerful recollection of history, the collection also features historic photographic archives of Appalachian families stretching as far back as 1890.

Also in the collection are 48 acetate disc recordings made in the early 1940s that document Magoffin County, Kentucky, fiddler and banjo player John Morgan Salyer. Salyer, born in 1882, was master of an older eastern Kentucky style that is only barely discernible in the playing of present-day fiddlers and banjoists. The recordings were made by his sons using a home disc-cutting machine; many of his tunes were not documented elsewhere.

Audio, Video Fuels Archives' Growth

Berea has had an active preservation program in place since before 2000, maintaining optimum storage conditions as well as providing copies of audio and video cassettes to ensure that the originals were not overused.

Due to the large and growing size of the collection, sustaining digital storage capacity was an issue. In 2005, the college deployed a 500-gigabyte (GB) server, but as more items were digitized and the digital archives grew, that server was soon at capacity.

The team focused on making sure the collection was easily and universally accessible, which meant the college needed not only a digital preservation system, but also a user-friendly graphic interface so users could search the archives via the web.

The archives department then began digitizing audio files and could foresee that it would soon need at least one terabyte (1,000 GB) of capacity for its audio file storage. The department would go on to migrate and upgrade its server capacity three more times before finally moving to 10 terabyte (TB) capacity.

Grant Funds the Initial Solution

In 2005, the college conducted a preservation assessment and secured grant funding to begin an in-house digital preservation program. The program was to first focus on preserving the archives' large collection on audio tape before moving to its radio station lacquer discs.

The project needed people power as well as technology. The grant funding allowed Berea to hire a digital audio technician specializing in library-related preservation. In addition, all Berea archivists immersed themselves in the project, each specializing in various areas of the collection.

The funding enabled Berea to purchase professional playback machines and other related hardware and software. Some funds were also allocated to the construction of a "critical listening space," where monitors could be used at an appropriate volume to facilitate the playback and recording decisions that are made in the digitization process.

In time, some video digitization of the collections was outsourced, but a significant portion was still allocated

to in-house resources, who worked with editing software to process the digitized video for online access.

Archives Moves to the Cloud

In 2015, the college selected a cloud-based, all-in-one digital preservation system backed by specialized consultants to provide technical expertise on the migration.

Berea selected a cloud-hosting model for two reasons. First, storing the collection in the cloud would ensure its universal availability to the wider research community. Second, cloud storage was more economical than increasing server capacity, as the college had done previously. Before the college adopted this digital preservation solution, its 10 TB server was approximately two-thirds full, and the majority of the collection was being stored on external hard drives.

The department knew sizable audio additions still needed to be uploaded to the digital archives, so offsite or cloud storage became the most feasible considerations.

Accessibility Crucial

In addition, the department agreed that the emphasis should be on accessibility, not just storage. The team focused on making sure the collection was easily and universally accessible, which meant the college needed not only a digital preservation system, but also a user-friendly graphic interface so users could search the archives via the web.



Figure 1. Berea College

Integration Mandatory

It was also important for the digital preservation system to integrate with the archives' existing IT ecosystem. The department had recently selected an open source archival collection management system and was in the process of migrating its collection-finding aids, so the new digital preservation system needed to integrate with that application. The integration was relatively straightforward, handled by both systems' vendors, who had worked on integrations at other organizations.

Digitization, Migration Required

Much of the collection had to be scanned and digitized in order to live in the digital archives. The department took on some of this work itself and outsourced what it could not do in-house. Digital content was then stored on portable storage devices and transported to be uploaded directly into the cloud.

"The migration of such a large collection was an important consideration in the project," says Rachel Vagts, head of Special Collections and Archives at Berea. "The management of such a migration must be perfectly planned and scheduled so that nothing is lost."

To enable a safe and rapid move of

its collection to the cloud, Berea used a bulk upload service that worked in conjunction with an import/export tool to accelerate moving large amounts of data into and out of the AWS cloud. Using the bulk upload service helped Berea avoid high network costs, long transfer times, and security concerns. The security of the collection was identified as a paramount concern; the upload to the cloud was fast, efficient, secure, and technically straightforward.

Department Continues Giving Tradition

The collection is now vast, exceeding 100 TB in the most recent upload. The collection's video files are especially large, with some files greater than 500 GB. The large size of the collection is also due to the inclusion of many large sound files. Rather than deleting intervals between recital sound recordings to reduce file size, Berea kept all files in their entirety in an effort to capture an inclusive, end-to-end cultural experience, complete with background chatter from the audience.

For a liberal arts college with an annual enrollment of 1,600 students, this is an unusually robust and significant volume of digital material.

The archived collection is now

available via the Berea College Special Collections and Archives website (<http://libraryguides.berea.edu/archives>), the objective being to share its fascinating history as widely as possible with historical researchers and the public.

"We're very excited about this project," says Vagts. "We have such an extensive collection of unique sound and video, and it's great that our students and the worldwide research community will be able to access it."

As Berea pioneers the way forward for other educational institutions in the United States and beyond, Vagts highlights that the project is helping not only Berea, but also archivists around the world.

"I love the collaborative nature of this," she says. "I love the fact that we've been able to fund a project that will ultimately help my profession. Berea's history is so great, and the giving nature of the college has really filtered down through the collections we have. We are documenting history and making it accessible to everyone, and that's something to be proud of." **END**

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