

SUCCESS STORY



Profile

The ability to share and access multimedia content across a distributed network infrastructure can yield tremendous value and utility for organizations of all sizes, yet social and technical barriers often prevent these types of initiatives from taking flight. These challenges can be especially daunting for organizations in higher education, where concerns over student and faculty privacy, copyrights and intellectual property, students' rights, and even patients' rights can have a paralyzing affect on multimedia infrastructure build-outs. These issues are exacerbated in legacy IT environments where individual departments are managed as "silos" with little to no cohesive management and/or interoperability.

Determined to overcome these challenges in pursuit of an advanced framework for media-intensive academic work, the University of Michigan embarked on a sophisticated digital asset management (DAM) implementation beginning in 2003. The University's BlueStream DAM system would function as a centralized utility that could facilitate media-driven research, teaching, learning and community service across the University's student and faculty population, streamlining the construction and collection of rich media assets to yield significant productivity and academic gains for users.

The BlueStream infrastructure would be built upon IBM Enterprise Content Manager (ECM) and ViewCast Media Server, the precursor to ViewCast's VMP™ (ViewCast Media Platform) Production module. University of Michigan specified these products on the heels of an extensive RFP process, having identified the combined IBM/ViewCast platform as the strongest solution for enabling users to ingest, manage, store and publish digital media with the least amount of technical friction. This digital media infrastructure would serve as "scaffolding" around which the University's developers and academic teams can build discipline-specific applications without re-architecting the underlying technology stack.

Industry

Education

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University of Michigan's BlueStream Digital Asset Management Platform

The Challenge

The BlueStream Framework

Many DAM systems treat digital assets as a single digital file, with little ability to recognize and correlate associated versions, derivatives and metadata. University of Michigan's BlueStream system, however, was designed to take a more holistic approach to digital asset management. It provides the ability to create and organize original digital files, subsequent file versions and alternative file formats, data generated through media analysis, file level metadata, and time-coded metadata. Accessible through a common management interface, BlueStream serves as a centralized repository that streamlines workflows and also simplifies the creation of specialized services for analyzing and transcoding digital media. This method of course lifts the computing burden of processing, storing and organizing rich media files off of the individual users and moves it to the BlueStream server infrastructure.

Here is an overview of the key technical components and processes that underpin the BlueStream DAM system:

Media acquisition and storage. Large media files – particularly video files – can be extremely cumbersome to move and store, so ease of uploading is an important consideration. BlueStream enables users to simply drag-and-drop files from the desktop and/or web to upload files as needed. The files and (derivative files) are then stored in a managed storage environment with policy-driven access parameters.

Metadata tracking and management. Metadata enables the core media organization framework for any effective DAM system, providing the descriptive data necessary for search, retrieval and use. With BlueStream, EXIF and XMP metadata is encoded within the header of certain file types and is recognized automatically by the system. A metadata look-up function can be employed to match metadata automatically from XML files, spreadsheets and/or external databases with the associated media assets. BlueStream also enables users to tag metadata manually through the web interface as needed.

Search and organization. BlueStream search capabilities are enabled via full text indexing of metadata (file level and time coded) and text-based documents. A search can be executed using simple terms or Boolean strings, and results are returned in an intuitive "ranking by relevance" layout. Users can assemble their own virtual collections of files based on defined file and/or metadata associations. These collections use a file pointer construct to ensure the individual files are not duplicated in the system.

Access control. Every aspect of an asset in the BlueStream system is secured using access control lists (ACLs). These ACLs define access rights and user privileges. Asset-level access control enables seamless collaboration among workgroups, with tight controls over who is enabled to view, modify and delete assets.

Media processing and transcoding. BlueStream automatically converts uploaded images and transcodes audio and video to ensure these assets are available in a variety of defined, commonly used formats. BlueStream can accommodate other formats as needed, pending user requirements. The system then automatically groups these different file versions with the original asset.

Media analysis and metadata tagging. Search and find capabilities are only as strong as the details of the underlying metadata. Automated media analysis can relieve users of the burden of manually tagging metadata. BlueStream supports voice-to-text analysis with time-coded keyword tracking, facial recognition with privacy protection controls, optical character recognition, and even scene change recognition that enables the generation of time-coded, navigable thumbnails to indicate when a video's composition changes dramatically.

ViewCast's *VMP* DAM platform is a critical component within BlueStream, providing the unified framework to help BlueStream administrators and users manage the full life cycle of their digital media content, including IP video. *VMP* supports online video publishing, live video streaming, and Video on Demand, with advanced content acquisition, transformation, indexing, workflow and distribution capabilities for streamlined, end-to-end digital asset management.

Today, BlueStream supports some of the most media-intensive projects under way at the University. It interoperates with other enterprise-level academic tools and environments to provide users with automated media management services and capabilities.

The Solution

BlueStream in Action

Professor Jesse Hoffnung-Garskoff's American Culture Latin Tinge class makes a wide use of several types of media, ranging from audio files of Gregorian chants to modern-day videos of samba and tango dancing. To free himself from juggling physical media in the classroom (sometimes switching between playing a CD, to a VHS tape, then to a DVD all in one class setting), he digitized more than 500 original assets and now delivers them securely online via BlueStream.

Students view the materials before attending class, allowing greater time for discussion in class sections. BlueStream materials are integrated into a course website, which provides a blogging tool where students can write responses after viewing and also share and read their peers' thoughts. An additional component was added to the class due to the flexibility of BlueStream, a "digital upload" assignment. Students must find a relevant media sample (audio or video file, or still image) and upload it to BlueStream, along with a response paper discussing it, and tag appropriately with accompanying metadata. With this approach, students are afforded access to the extensive repository of Latin Tinge media, as well as gaining experience using media themselves.

The University of Michigan School of Education also employs an interesting strategy to prepare its students to be effective educators. As part of the school's Secondary Master of Arts with Certification (MAC) program, "records of practice" including video recorded lessons and student/teacher interviews as well as traditional materials like grade, attendance and assignment documentation are studied and synthesized to provide students with a comprehensive understanding of classroom teaching dynamics.

Secondary MAC students are required to collect, study and share records of practice centric to mentor teachers, as well as their own teaching exercises. With BlueStream, all of the necessary media formats are supported, the media collection process is dramatically streamlined, and collaboration among students is made easy. Digital media collections can serve as areas of focus for classroom and/or workgroup discussions, and can be cited as evidence students can use in their writing assignments.



The Benefit

Learning From BlueStream

It would be difficult to identify a more innovative and practical example of how digital asset management can be used to support learning initiatives on campus. The popularity and usefulness of University of Michigan's BlueStream DAM platform continues to increase. BlueStream is currently available to all 19 academic units on campus, and more users are coming onboard every day. With BlueStream, University of Michigan can easily respond to the growing demand for media management project space, underpinned with advanced IBM and ViewCast enabled digital asset management capabilities.