Indiana University integrates online video into teaching, learning, research, and administration on an enterprise scale using the Adobe® Flash® Platform

Media, and video in particular, are in a period of profound growth. There are several causes, but three stand out: technologies that have rendered media creation, distribution, and consumption faster and less costly; high expectations for the availability of video; and the need to create engaging experiences in a world where rich media is the norm. The demand for video is more apparent than ever in higher education, where students experience video on the Internet and social media sites in their personal lives, and expect to consume video as part of their daily learning and exploration as well.

When Indiana University (IU)—a leader in integrating technology into teaching, learning, research, and administration—asked how to keep a technically savvy, global student body engaged and motivated to learn it knew that video, not more textbooks, was the answer. Today, whether IU is hosting a live streaming event with a renowned business leader, offering a lecture on demand to global students located from India to South America, or enabling researchers to peruse digital video archives, the university relies on the Adobe Flash Platform, including Adobe Flash Media Interactive Server software.
"We did a careful evaluation of the competing platforms for delivering online video to a global user base of many thousands," says Matt Gunkel, multimedia specialist for Indiana University. "We chose the Adobe Flash Platform due to its high-quality video and Dynamic Streaming capability. Local students with fast connections can watch in HD and students in remote areas with lower bandwidth can watch at lower bitrates, yet everyone can have a seamless viewing experience. Plus, the Adobe Flash Platform allows everyone—students, faculty, researchers, and administrative staff—to seamlessly play back content using standard video player software."

Challenge
• Integrate video into teaching, learning, administration, and research
• Deliver high-quality video on an enterprise scale across eight campuses and around the world
• Enable students to interact with experts
• Create a digital archive of valuable research content
• Make video content searchable

Solution
• Use the Adobe Flash Media Interactive Server for development and delivery of video and interactive content
• Create innovative new players using Adobe Flex® Builder, Flash Professional, Flash Catalyst®, and Open Source Media Framework

Benefits
• Incorporated video as a standard tool for students, faculty, administrators, and researchers
• Made the learning experience more engaging and meaningful
• Reached students around the globe with high-quality viewing experience
• Delivered interactive forums for students to engage with industry experts
• Supported enterprise-scale video delivery and seamless playback
• Delivered searchable digital archive of traditional music, accessible to researchers worldwide
• Made video searchable through metadata

Online video: the new learning paradigm
Wired magazine founder Kevin Kelly and Creative Commons founder and Stanford law professor Lawrence Lessig describe the rich-media shift occurring today as one from book literacy to screen fluency where video is the new vernacular—a "world beyond words," where video content has tables of contents, indexes, and abstracts, rendering them searchable through metadata. IU understands that videos are essential to the new learning paradigm and has made major strides to systematically integrate video assets into teaching and learning.

The university delivers online video on a large scale—and uses Adobe Flash technology in many varied ways. For instance, Adobe Flash Media Interactive Server software powers iStream, a system used to record and stream classes, lectures, meetings, and other events across IU's eight campuses and to distance learning students.

"We stream about 30 events a day in HD, from class lectures and travel-free administrative meetings to expert forums and athletic press conferences with hundreds of viewers," says James McGookey, senior digital media analyst. "We use video on an enterprise scale, and Adobe Flash Media Interactive Server excels as our core delivery platform."

The Adobe Flash Platform is integrated with the school's videoconferencing systems, available in 300 rooms throughout IU. Professors and others who want to stream content do not need specialized knowledge of video streaming; instead, they can simply sit down in front of a camera and hit a button—on the back end Adobe Flash Media Interactive Server delivers the live streams.

Video: the new textbook
McGookey and his team support other initiatives as well. At Kelley Direct, IU's online MBA program, the Adobe Flash Platform is used to deliver video for the Global Leaders Network (GLN), an initiative that features business executives presenting live to audiences. For a recent event, 2,000 students watched locally in a campus auditorium, while hundreds of others tuned in from remote locations around the world. The presentations are also recorded for on-demand viewing.

Gunkel and his team also use components of Adobe Creative Suite® Master Collection to create a branded online video channel that is as polished as any top television news broadcast. Using a completely tapeless, efficient workflow, the team wields Adobe Flash Professional, Photoshop®, and Illustrator® to create motion graphics and animations and Adobe Premiere® Pro and After Effects® to create sequences and animated compositions. Team members can work on various portions of the broadcast and Gunkel integrates everything together using Dynamic Link.

Once each broadcast is ready, the team uses Adobe Media Encoder to create the final HD output and Adobe Dreamweaver® software to create XML files; metadata is then added using a custom software tool created at Indiana University, Annotator’s Workbench, making the video files segmented and searchable.

During the broadcasts, Adobe Flash Media Interactive Server encrypts the content using RTMPE for high-performance, secure transmission. Gunkel notes that professors can also take videos with them on disk when they travel to deliver videos to students in areas without Internet access—something that would not be possible using platforms that require the use of fragmented MP4 files.

Students and faculty consume the GLN content using a custom video player created using Adobe Flex Builder and Flash Catalyst and based on the Open Source Media Framework (OSMF). According to Gunkel, Flex Builder, Flash Catalyst, and OSMF accelerated development and enabled IU to create a player that supports interactivity to keep students highly involved in the learning process. Soon, the Kelley School of Business also plans to create an alternate player based on Adobe AIR® that students can use to view broadcasts offline, with content protected using Adobe Flash Access™ 2.0.

“We recently featured 125 people from Booz Allen Hamilton, all chatting and interacting with students during a live HD video feed. The experiences that we can deliver today to a network of global students raise the bar in terms of learning effectiveness and engagement,” says Gunkel. “One professor now wants to conduct his own newscast with live simulations for finance. This is just one example of how Flash technology has everyone here thinking in new ways to enhance the learning process.”

**Keeping traditional music alive**

Among the most compelling uses of the Adobe Flash Platform at IU is the Ethnographic Video for Instruction & Analysis (EVIA) Digital Archive Project, a collaborative endeavor to create a digital archive of ethnographic field video for scholars and instructors. Beyond the primary mission of digitally preserving ethnographic field video, the EVIA Project has invested significantly in creating software and systems to annotate, discover, play back, review, and publish video and accompanying descriptions.

The custom player for the archive, created using Adobe Flex Builder and Flash Professional software, allows researchers and others to search through a timeline of video segments and peruse related textual information—all on the same screen.
The Adobe Flash Platform supports an initiative to preserve ethnographic videos. Using Adobe technologies, scholars can annotate, discover, play back, review, and publish videos of rare traditional music.

“With unique video recordings of traditional musical and dance performances quickly disintegrating, we evaluated different technology options to create a digital archive that would live on,” says Alan Burdette, director of the Archives of Traditional Music at IU. “High-quality video was essential and Adobe Flash technology delivered the outputs we desired in a form that is widely accepted as a standard around the world for online video.”

Forging a new model for communications

For IU, the Adobe Flash Platform is the cornerstone of a new paradigm for learning, research, and more efficient administration that serves as a model for other large universities—as well as for organizations of all kinds that want to communicate more effectively. Says Gunkel, “Adobe Flash technology not only provides ubiquitous, high-quality video playback, but also allows us to essentially transform video into online content libraries that students can search through, just as they would textbooks, but in a format that is far more engaging and meaningful.”

“We use video on an enterprise scale, and Adobe Flash Media Interactive Server excels as our core delivery platform.”

James McGookey
Senior digital media analyst, Indiana University

Adobe Flash Platform. Components used include:
- Adobe AIR
- Adobe Flash Catalyst
- Adobe Flash Media Interactive Server
Adobe Creative Suite Master Collection. Components used include:
- Adobe After Effects
- Adobe Dreamweaver
- Adobe Flash Professional
- Adobe Illustrator
- Adobe Media Encoder
- Adobe Photoshop Extended
- Adobe Premiere Pro
Custom video players based on Adobe Flash technology

Open Source Media Framework

For more information
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