Library Lab Proposal: Media Capsule — Making Multimedia Content Viewable and Interactive on Harvard Platforms — Phase One

Project Leads
Daniel Jones, Digital Media Producer, Berkman Center for Internet & Society
Cliff Song, Junior Web Developer, Berkman Center for Internet & Society

Brief Description
Multimedia content is an increasing part of our online lives, not least at Harvard's Libraries. Unfortunately, institutions like the Harvard Libraries face persistent dilemmas in making video and audio holdings accessible to users on the web.

Media Capsule addresses the challenge faced at Harvard Libraries of how to present multimedia holdings by researching the feasibility of developing an open source multimedia player plug-in that can be installed on Harvard web properties.

The Problem
The growth in multimedia content managed at Harvard has not kept apace with Harvard's technology for serving that content to users. The web presents opportunities for consumers to experience a wealth of multimedia content more efficiently, and with features that enhance the experience of the content.

But, legal and technical limitations prevent Harvard from giving these materials an adequate presentation online.
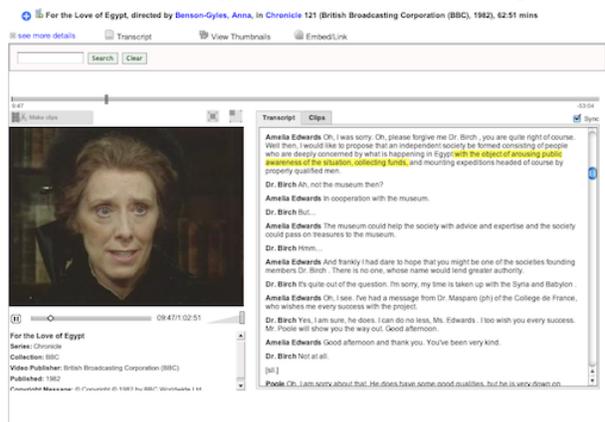
For instance:

- Searching in HOLLIS turns up nearly 100,000 results for videos, and more than 150,000 sound recordings—but only six percent of these resources are available for experiencing immediately online, and are often licensed through outside content providers like Alexander Street Anthropology. Depending on licensing, Harvard could be serving up this multimedia content (or portions thereof) to library patrons directly from HOLLIS.
- The Harvard Film Archive alone hosts over 35 different collections of video and audio, none of which have corresponding versions available for simple and convenient viewing through a web browser.
- An increasing number of academic audio and video resources are "born digital," and thus intended to be distributed online. Born digital content created or acquired by Harvard should be accessible via web, and not require the patron to visit the physical library.
- Several library multimedia resources are only available in outdated, restrictive formats such as RealPlayer and WMV that require additional plugins, applications, or are otherwise inaccessible within the browser.
- Existing multimedia tools and platforms like YouTube and Internet Archive come with their own legal and accessibility issues, and take control away from the content rights holder.
- Open source multimedia player codebases exist, but require significant developer overhead to tweak and implement.

The Solution
The Berkman Center for Internet & Society at Harvard University—through its experience producing and distributing a great deal of academic multimedia content—has identified a set of useful functions for a next generation media player for academic use on the web, and will conduct a feasibility study into the discovery, development, and implementation of an open source player that can be installed freely and used to display multimedia holdings at Harvard Libraries and beyond.

Some features and options we would like to explore in a multimedia player:

- **Open Source**: Code for the media player must be free and open source, and easily installable within Content Management Systems used at Harvard
- **Social**: Options for commenting, sharing, embedding, downloading, and clipping/remixing
- **Flexible**: Dynamically/automatically adjust media streams for different bandwidths, and adjust to scale preferences and aspect ratios
- **Live**: Able to support encapsulation of livestreaming formats
- **Web Native and Accessible**: Built to work in HTML5 environments to avoid unnecessary browser plugins; able to allow downloading or viewing in open source formats when desired
- **Branding and Presentation**: Modifiable to support different skins, watermarks, and thumbnails/thumbnail navigation
- **Secure**: Allows content to be "streaming only" where desired, in order to prevent pirating or downloading of protected content
- **User Friendly**: Backend dashboard designed for simple user tweaks
- **Metrics**: Backend allowing users to track useful metrics such as view counts, locations and dates of viewing, hotspots, etc.
- **Interactive navigation**: Transcripts and captions can be uploaded, and "hot linked" to media to allow text-based navigation; media can be "chaptered" for better navigation
- **Executable**: Functionality for server-side file conversion, allowing content to be converted to and from different useful formats

(A media player created by Alexander Street Anthropology demonstrates flexibility and advanced capability)

How it would work
A multimedia player is a plug-in that can be installed within a Content Management System (CMS). Drupal and Wordpress are the two dominant CMS's in use at Harvard and amongst Harvard Libraries, and have large existing coding communities. A multimedia player plug-in would function to allow a content curator to 'point' to relevant content files on a server (movie, audio, transcript files, etc.), and package the content within a player container made viewable on a frontend such as OASIS or HOLLIS that is accessed by a patron.

Benefits
In addition to providing a simple, functioning media player for Harvard Library content, work on the development of Media Capsule would have multiple external

benefits not obvious on the surface. Media Capsule will:

- Be useful on any Harvard web property that uses Drupal or Wordpress as its CMS.
- Be available to Drupal and Wordpress users worldwide through an Open Source license.
- Through links to the DPLA platform, make multimedia holdings at Harvard viewable beyond the Harvard network.
- Provide an impetus for digitizing and making available more multimedia holdings within the Harvard Library.
- Provide an impetus for exploring options for better licensing with content rights holders to serve Library holdings to patrons over the web.

Time and Requested Funding
In this phase, project leads at the Berkman Center will:

Developers assigned by the Berkman Center will:
    a) consult with Harvard librarians, developers, and other stakeholders to assess needs and desires with regards to multimedia players;
    b) study the landscape of existing technical solutions for multimedia display, with a focus on modifiable and open source technologies;
    c) consult with institutions outside of Harvard to discover successes and pitfalls in multimedia display;
    d) compile a set of recommendations and resources for consideration by the Harvard Library community; and
    e) plan for funding and implementation of a multimedia player in the second phase of this project.

This phase will require the time of developers and project leads (three staff members) at the Berkman Center who will be contributing about 150 hours collectively over the course of four months. Total funding for development time in this phase will be $55,000.