

A Survey of Video Streaming Practice and Aspirations in Academic Libraries

Mark Notess
Jon Dunn

Digital Library Brown Bag Series

October 27, 2010



LIBRARIES

INDIANA UNIVERSITY

Bloomington



INDIANA UNIVERSITY

Survey Context: Variations on Video



INDIANA UNIVERSITY



Variations

Digital Music Library

- Open source digital music library system
- Used at a dozen institutions, mainly for streaming audio course reserves
- @IU, current version online since 2005, now with ~20,000 digitized albums; in heavy daily use



What's in the box

Includes

- Server software
- Client construction kits for Windows and Mac
- Sample content: 2 recordings and scores
- Various utilities for authentication, authorization & encoding
- Web applications for audio playback & authorization mgmt

Just add

- A Linux/Unix server
- MySQL, Apple Darwin SS, Java, Quicktime, Perl, Tomcat, Apache
- **Your content**



Nutrition Facts

Open source BSD license

Album- not track-based

Online access to streaming audio and scanned score images

Flexible access control

Teaching & learning tools for annotation & analysis

See variations.sourceforge.net for more information.



Variations: Pedagogical Tools

Timeline: Schubert, Rondo from D. 959

Timeline: Schubert, Rondo from D. 959

0:36.0

Playback

0:36 / 12:18

Timepoints and Markers

Add Edit...
Mark Delete

Bubbles

Edit... Delete
Color... Group

Annotations

"Exposition": In a sonata-rondo interpretation, the first A and B sections are the PT and ST areas in tonic and dominant. There is also a transition between the PT and ST areas.

A: Rondo theme / primary theme area
P: Rondo theme / primary theme in A major

Show Levels
 All
 Selected

Show Marker Annotations

Status: Idle



Variations on Video

Add online video access capabilities to Variations, providing equivalent access, annotation, and analysis tools to support teaching and learning.

- Initial planning grant, Aug 2010 – Jan 2011 from the Institute of Museum and Library Services
- IU & Northwestern are lead institutions
- Funding multi-institutional collaboration on functional and technical requirements
- Goal: Submit full implementation grant proposal to IMLS in Feb 2011



INDIANA UNIVERSITY



NORTHWESTERN
UNIVERSITY



INSTITUTE of
Museum and Library
SERVICES







Motivators for Variations on Video

- Demand from Variations implementers
- Increased video digitization locally at IU
- IU Media Preservation Initiative
- IU IT strategic plan: *Empowering People*
- History of involvement in open and community source software
- Desire to create a sustainable foundation for Variations development and maintenance



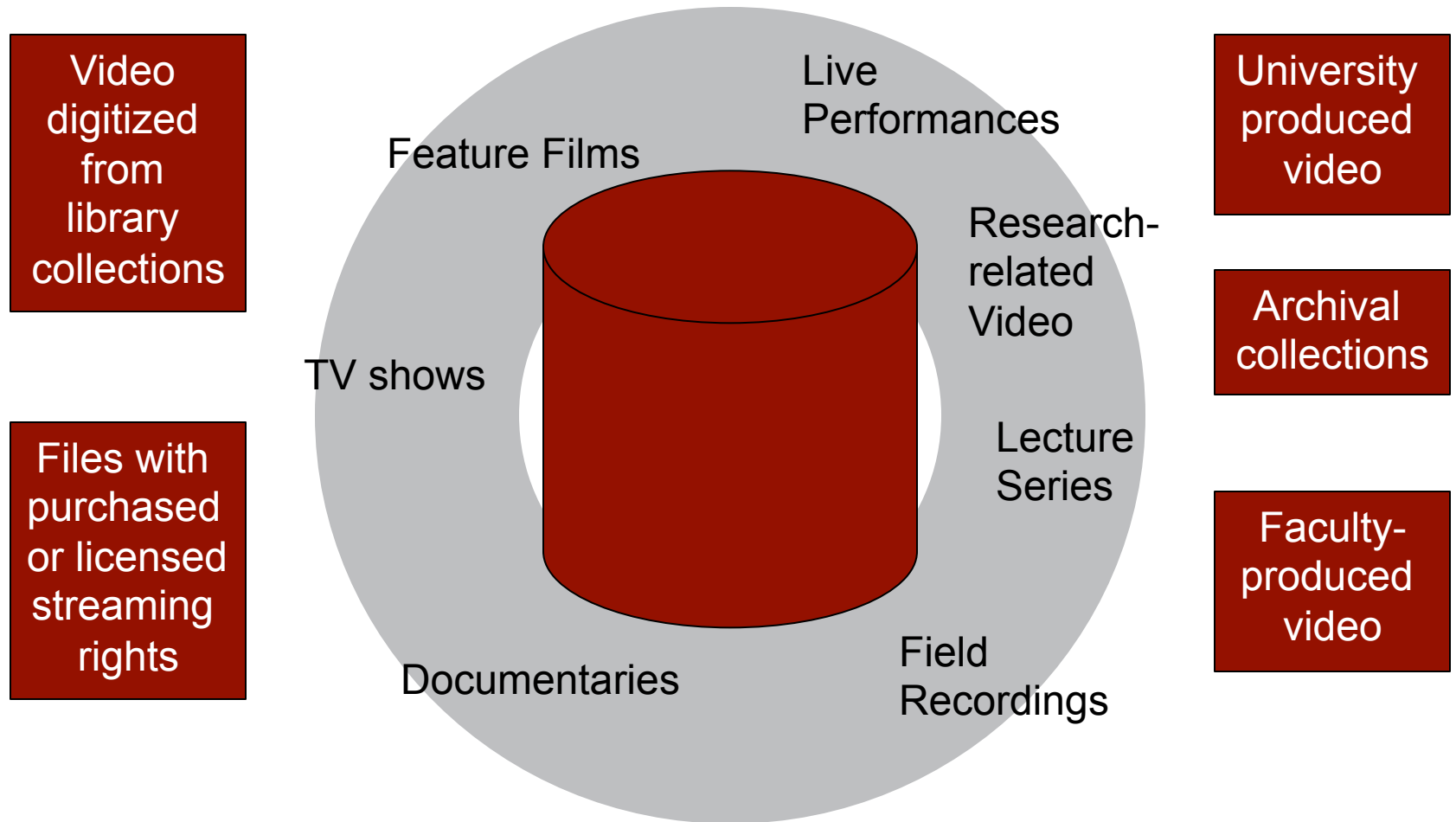


Variations on Video: Scope

- Access to managed collections
 - Video, audio
 - Focus on libraries, archives
 - Research, teaching, and learning use
 - Variety of access control requirements
 - Integration with preservation repository services
- Ad-hoc faculty/student uploads 
- Classroom capture 
- Live streaming 
- Working digital assets – media production 



Variations on Video: Content





Variations on Video Grant Objectives

- Identify functional and technical requirements and define scope based on input from:
 - Librarians and technologists
 - Faculty and students
 - Technical investigation and gap analysis
- Develop high-level technical architecture and development plan
- Form partnership for development and ongoing maintenance
- Submit IMLS National Leadership Grant proposal (February 2011)



INDIANA UNIVERSITY

Spring 2010

SURVEY RESULTS

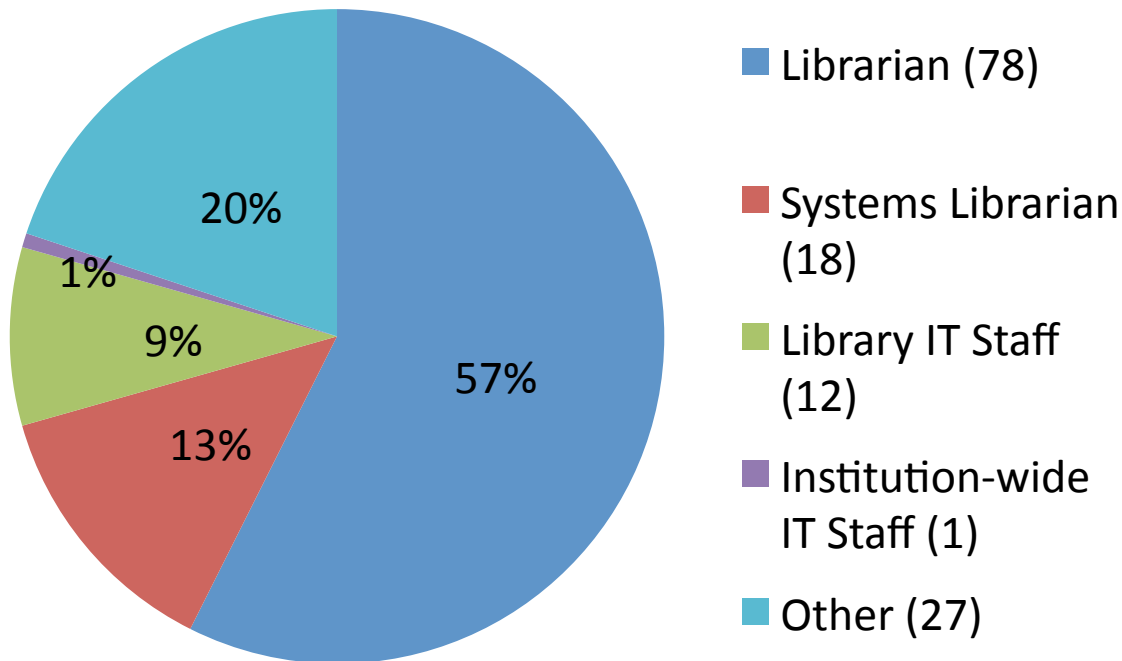
Overview

- Survey conducted online April 29 - June 5, 2010
- Invitations sent to
 - MLA-L
 - Code4lib
 - Some Variations lists
 - DLF-L
 - SYSLIB-L
 - VIDEOLIB
 - AMIA-L
- Approximately 150 respondents completed the survey, though most questions were optional so response numbers vary
- Of these, ~90 reported currently streaming video

Primary Institutional Role

Who were the survey respondents? (N = 136)

Roles



Other:

- Media Specialists (3)
- Archivists (2)
- Digital Services Librarian (2)
- Programmer, Metadata Librarian, Faculty, Developer....

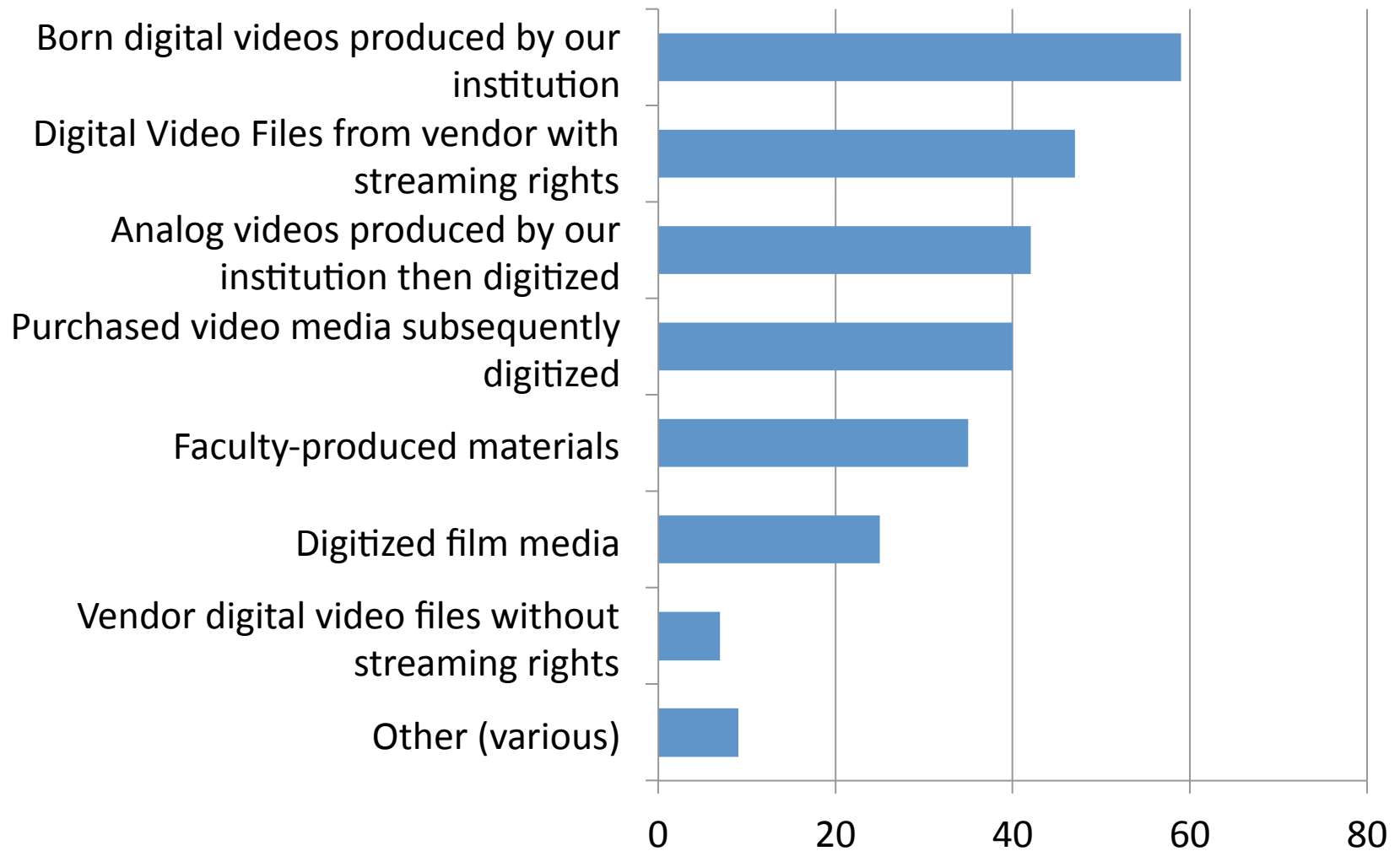


INDIANA UNIVERSITY

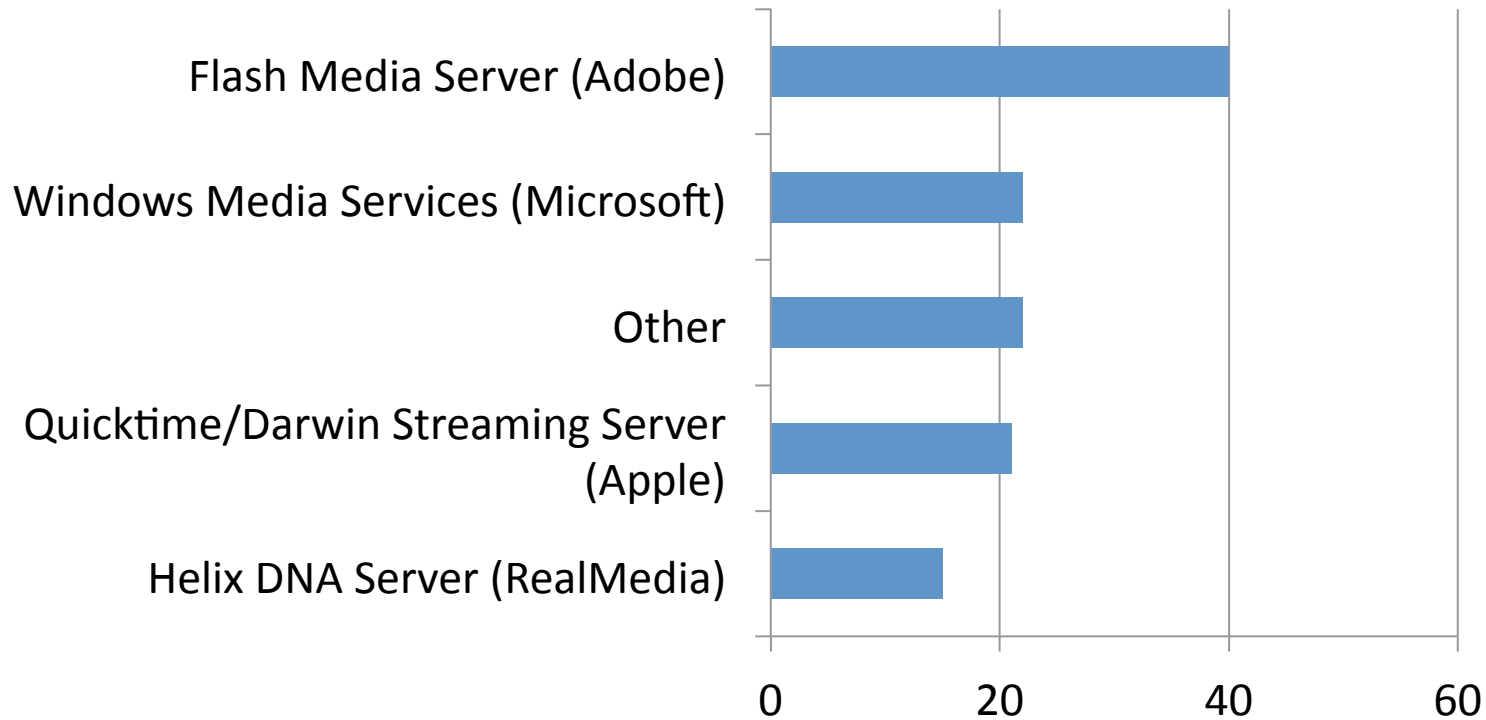
~90 respondents

**THOSE CURRENTLY
STREAMING VIDEO**

What are the main kinds of video content you stream? Check all that apply (N=94)

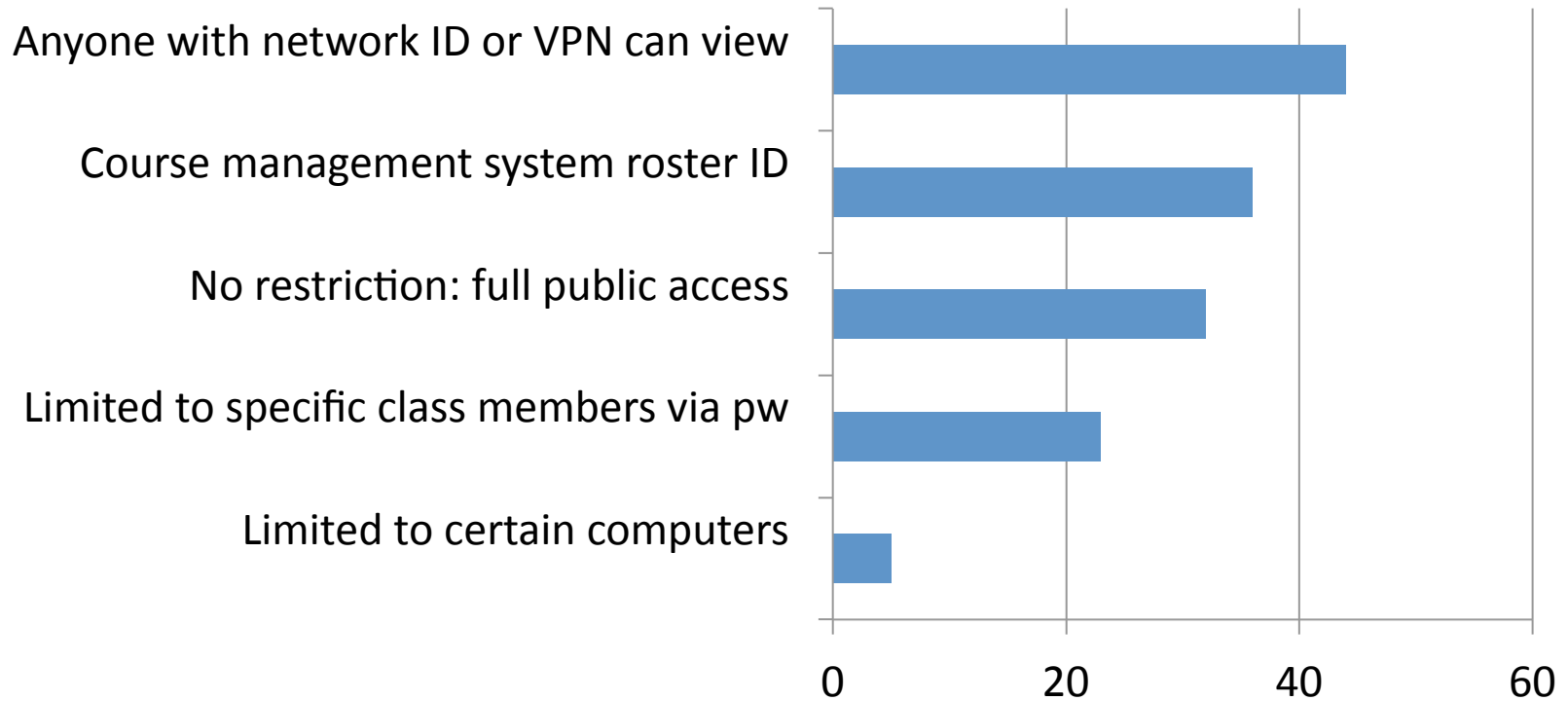


What streaming server do you use? Check all that apply (N=88)



Other: includes Wowza, YouTube, iTunes, VideoFurnace, Apple H.264

What method do you use to restrict access to your streaming video? Check all that apply (N=91)



Other: Some materials are open, some are not; on-campus only; it depends....

Which organization has primary responsibility for managing your video streaming server technology? (N=92)

- **Library** (47%)
- **Campus IT Department** (27%)
- **Consortium** of which we are a member (7%)
- A commercial **third-party** to whom we outsource (4%)
- Other (15%) – Most of these responses were multiple servers run by **multiple organizations**

What do you like about your current video streaming solution? (N=66)

(open responses categorized by topic, ranked highest to lowest by count)

- Reliability
- Broader/easier access
- Tools: Clips can be created by faculty for courses, videos can be embedded, access can be controlled at several levels by admin.
- Easy to use and set up
- High praise from faculty and students
- Video stream is high-quality
- Security and password protection
- Conversion of obsolete formats
- Support for a variety of formats

What needs are not well met by your current solution? (N=57)

(open responses categorized by topic, ranked highest to lowest by count)

- Rights management
- Ability to control authentication or restrict access
- Lacking clip creation, Blackboard embed, clip portability, collaboration, bookmarking
- Workflow is time-consuming, labor-intensive
- Off-campus access, mobile access
- Metadata production
- Limited file support
- Platform limitations (only vendor products can be used)
- Statistical data gathering

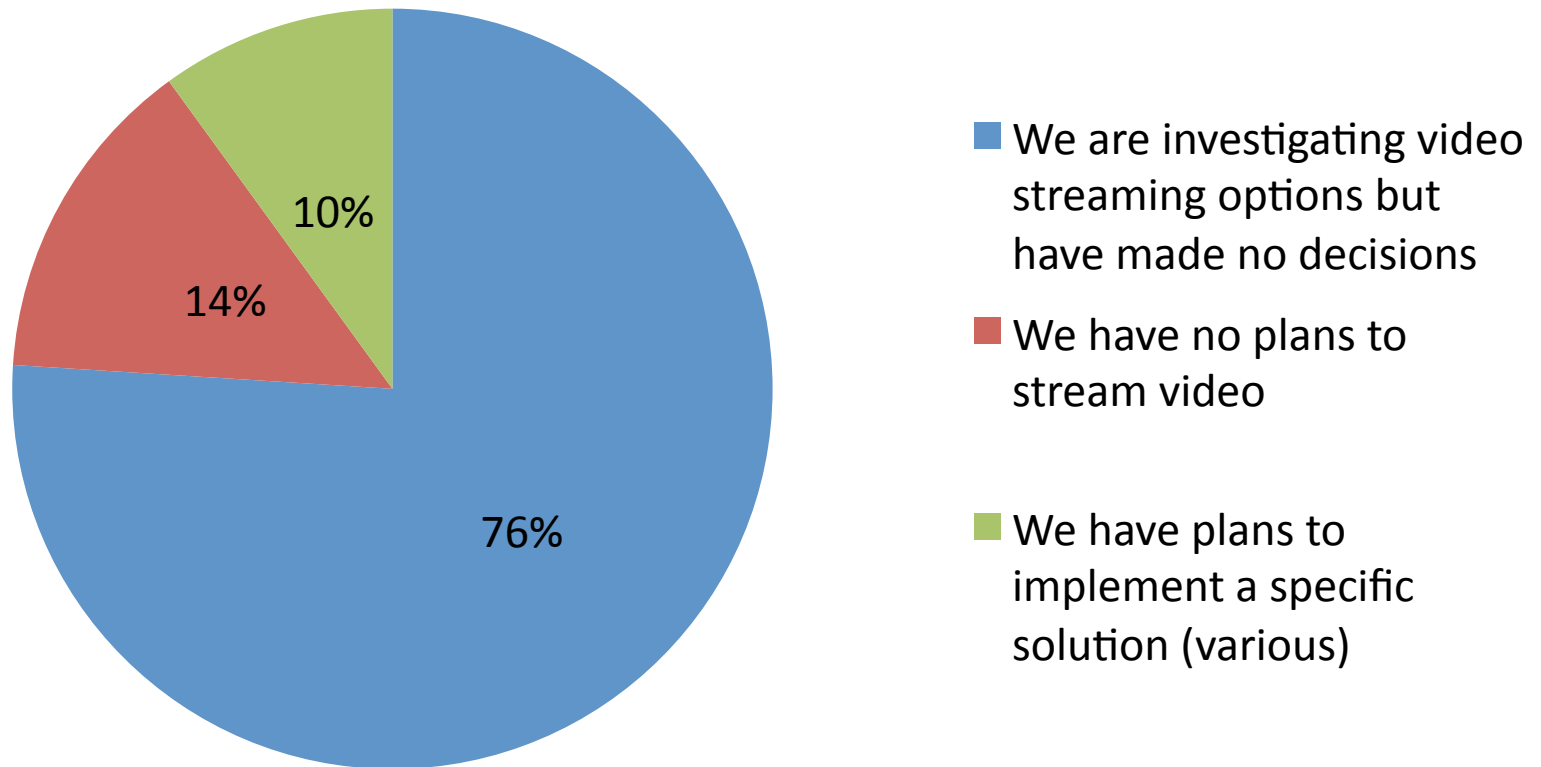


INDIANA UNIVERSITY

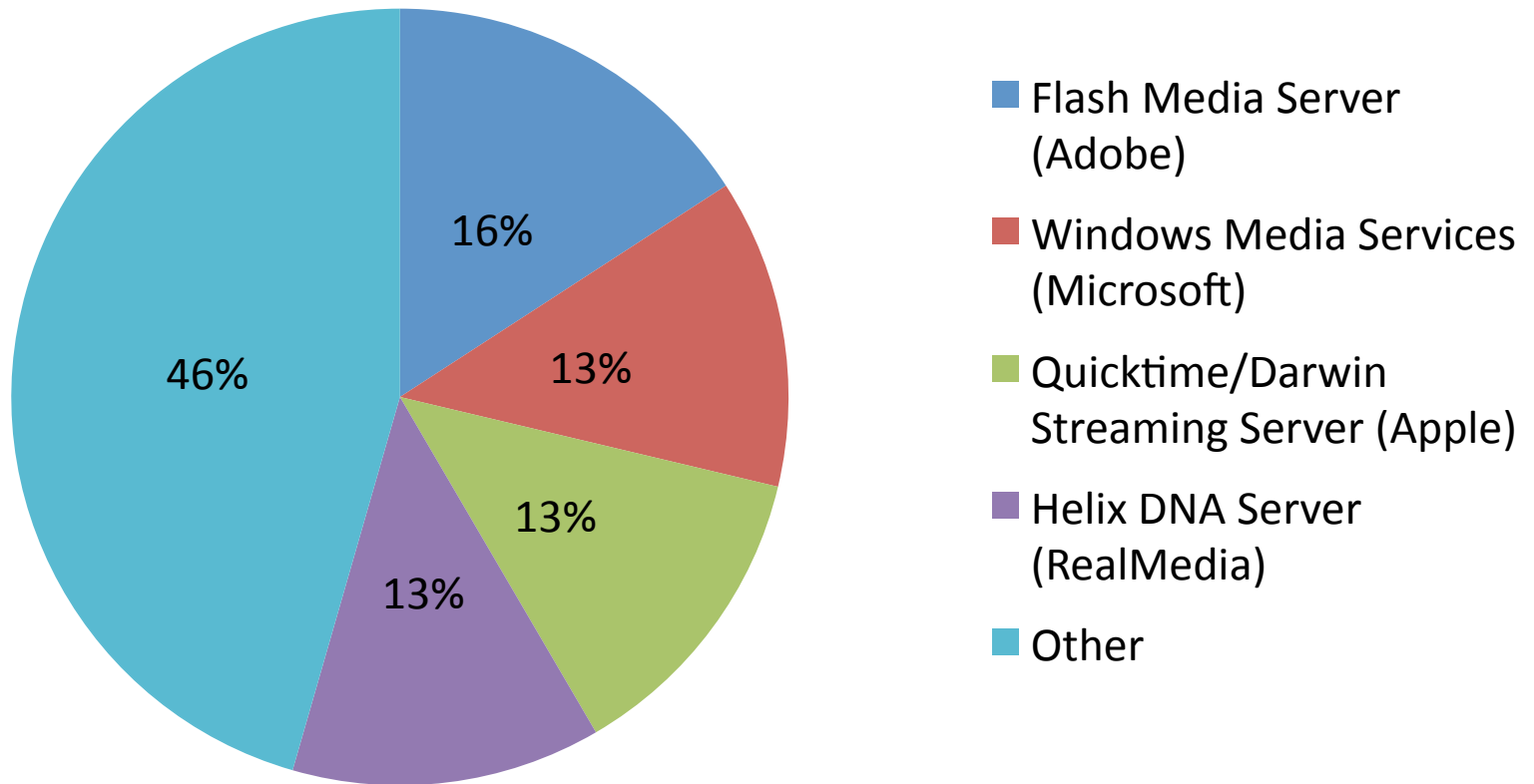
~60 respondents

**THOSE *NOT* CURRENTLY
STREAMING VIDEO**

What statement best describes your library's plans for streaming video? (N=66)

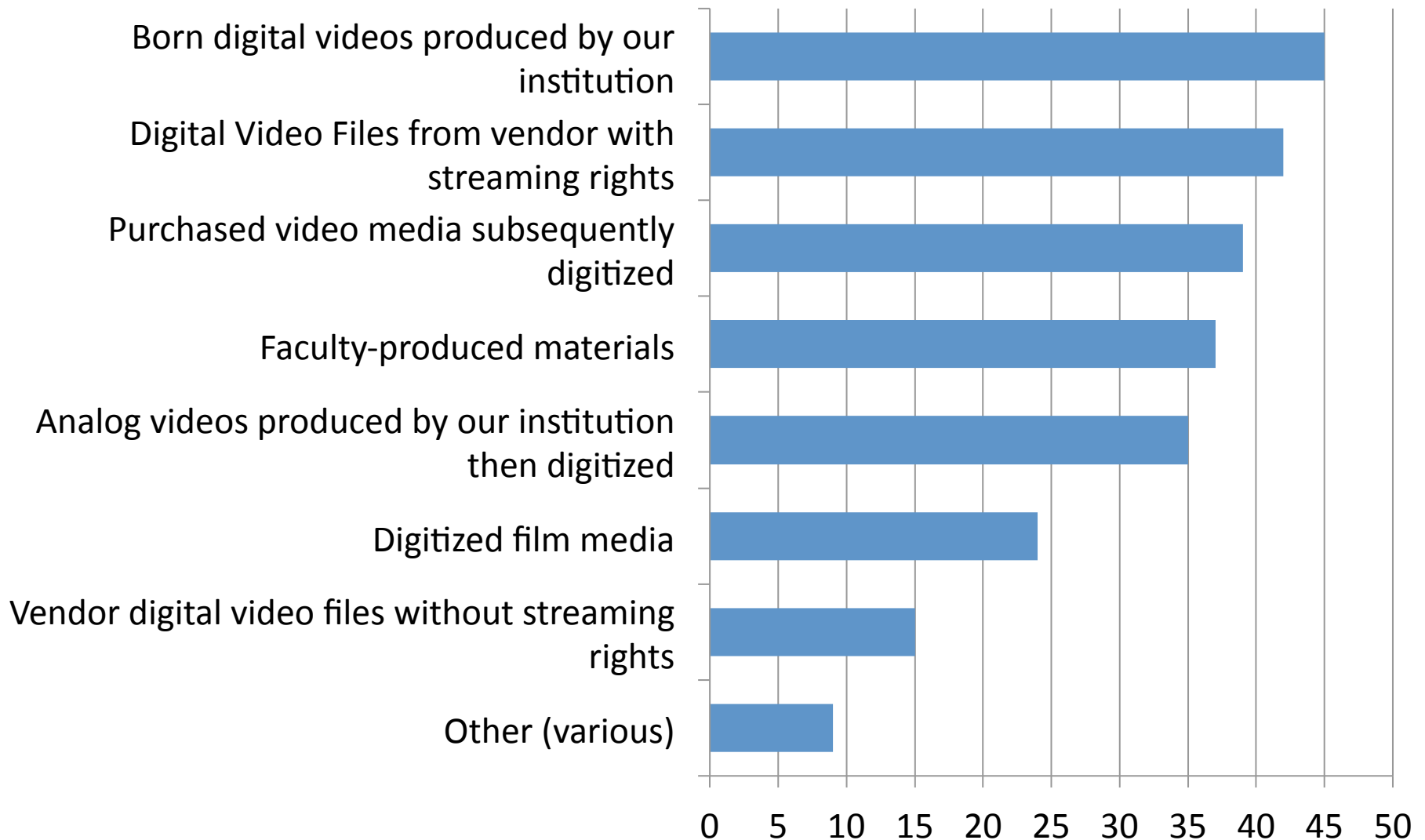


If you have already decided which video streaming server to use (or have a leading candidate), indicate which one you have chosen (N=24)



Other: Wowza (2), Flash (2), RealMedia, CONTENTdm, Video Furnace, Kaltura, SAFARI Montage

What main types of video content would you like to stream? Check all that apply (N=64)





INDIANA UNIVERSITY

~150 respondents

**BOTH GROUPS OF
RESPONDENTS**

What is important in a video streaming solution?

(The following selected answers show highest 'must have' responses)

	Must Have	Would Like	Not Sure	Don't Need
Users can adjust playback location precisely (within a second of the desired location)	48	55	22	5
Users can mark a particular location in a video for future immediate access (bookmarking)	33	73	17	9
Users can create a playlist of segments from different videos for future reference	27	77	15	12
Videos can be accompanied by transcripts	28	70	22	10
Video content can be delivered to mobile devices	21	70	30	11

What is important in a video streaming solution?

(The following selected answers show highest 'don't need' responses)

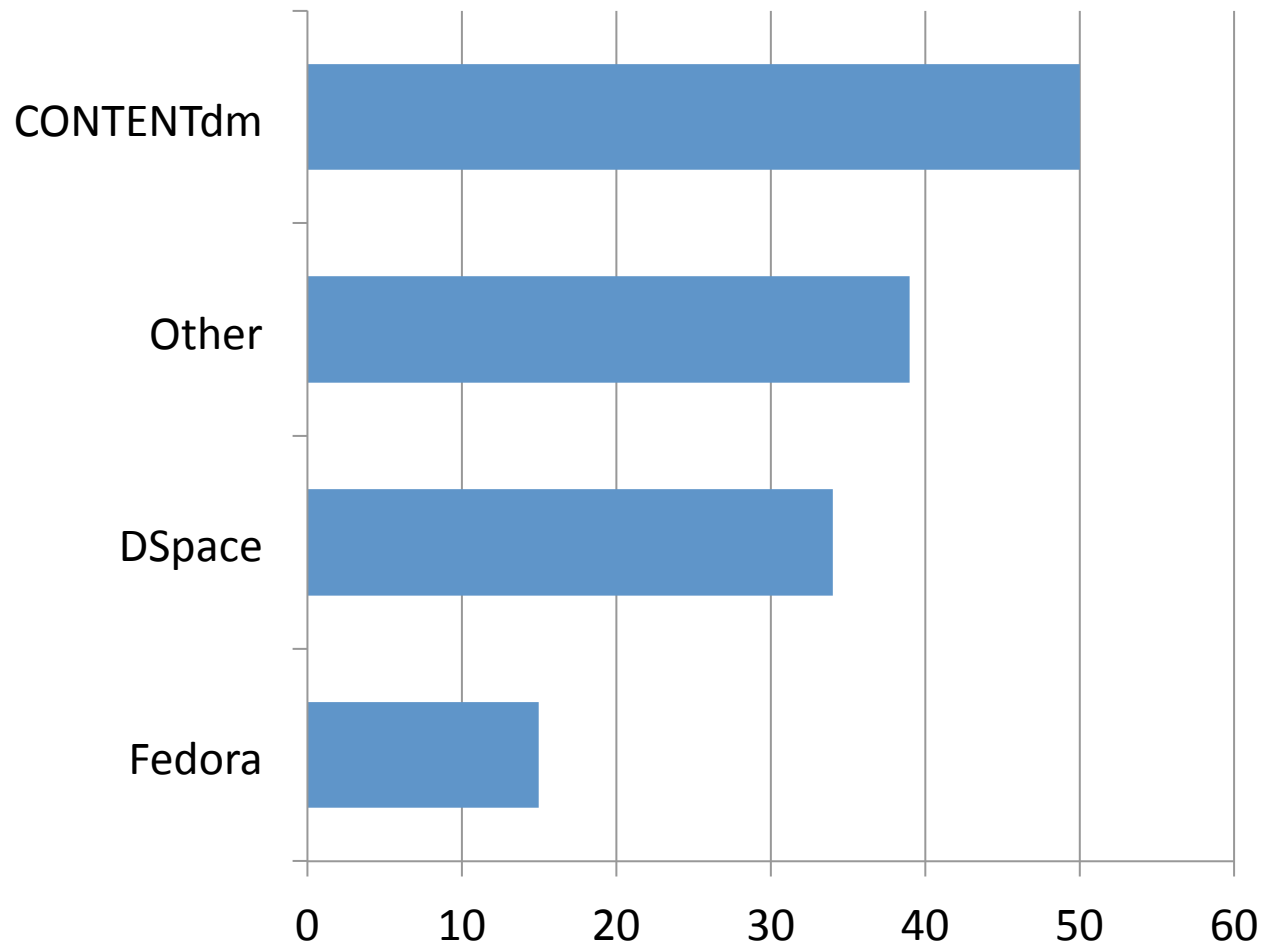
	Must Have	Would Like	Not Sure	Don't Need
Video content can be integrated into a discussion forum or chat tool for group discussion	5	80	32	15
Users can share textual annotations with other users	4	76	30	20
Video content can be integrated into an online quiz/test tool	6	68	35	21
Video marking, annotation, playlists, and segmenting can be accomplished on mobile devices	3	64	43	21

Interactive, end-user features wanted in a video streaming solution

(open responses categorized by topic, ranked highest to lowest by count)

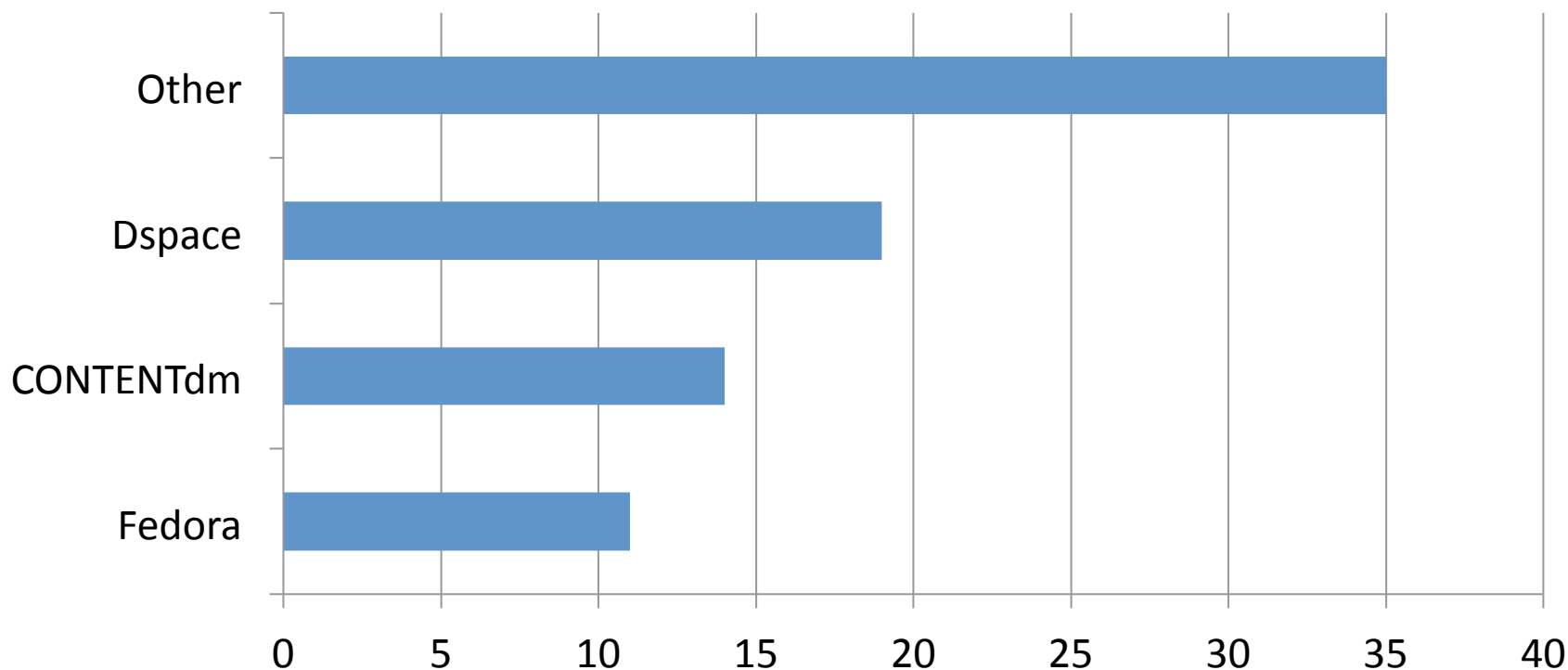
- Clips can be downloaded for use in other applications
- Closed and Soft Captioning
- Search by indexed transcript
- Tools for creating learning objects for integration into online classes
- Re-purposing of content for student use (annotation, bookmarking, remixing)
- Remote Access
- Statistics on use (overall, by school, by staff member)

Which of the following repositories or digital asset management systems are you currently running? Check all that apply (N=107)



Other includes Digital Commons, bepress, DigiTool, Symposia, custom in-house systems....

If you are running a repository or digital asset management system, check any that you use to store video assets (N=68)



Other: In-house or custom (6), bepress (2), Digital Commons (2), various....

Additional Comments

(open responses categorized by topic, ranked highest to lowest by count)

Issues

- Copyright barriers
- Cost of licensing
- No coherent policy on fair use in this 'Wild West DRM frontier'
- Conflicts between needs of Library and IT
- Storage costs

Likes & Opportunities

- Faculty and students love their streaming video solution
- Increased collaboration



Variations on Video Project Participant Meeting

- Held October 5-6, 2010, at IU
- Institutions contributed usage scenarios to surface user requirements
- Analyzed scenarios and developed functional & technical requirements



INDIANA UNIVERSITY

Variations on Video: Other Planning Phase Participants



NEW YORK UNIVERSITY



STANFORD
UNIVERSITY



THE UNIVERSITY
of York



Preliminary directions

- More likely to focus on ingest, management and delivery than on sophisticated analysis and annotation, at least initially
- Tending towards a modular approach
- Investigating opportunities to leverage work of other projects where possible, such as Opencast Matterhorn and Kaltura



Initial Module List (tentative)

- Ingest/transcoding
- Media delivery server
- Basic player interface
- Simple metadata storage and management search
- Access control (with or without rights), with authentication piece
- Ability to import metadata from other systems




Basic Player

- Navigational metadata (i.e., chapters/tracks)
- Precise, responsive time positioning
- Embeddable
- Browser and mobile support
- Transcripts and captioning
- Bookmarking
- Clip and playlist creation




Player Concept

Variations: <http://variations-host-dev.dlib.indiana.edu:8080/demo-ui/Player.do?containerID=145587>

 *Roméo et Juliette / Charles Gounod*
Elapsed/Total: 0:00:05 / 150:20:03
[View IUCAT Record](#)

Logged in as mnotess :: [Logout](#)
[My Bookmarks](#)

▼ ▶ Charles Gounod, Roméo et Juliette
▶▶ Track 1. Overture (2:16)
▶▶ Track 2. Prologue: "Verone vit jadis deux familles rivales"
▼ ▶▶ Act I
▶▶ Track 3. "L'heure s'envole..." (3:23)
▶▶ Track 4. "Eh bien! Cher Pâris" (3:20)
▶▶ Track 5. "Ecoutez!... c'est le son des instruments j"
▶▶ Track 6. "Enfin la place est libre, mes amis!" (1:11)
▶▶ Track 7. "Mab, la reine des mensonges" (2:58)
▶▶ Track 8. "Eh bien!... que l'avertissement" (2:53)
▶▶ Track 9. "Voyons, nourrice... Je veux vivre" (4:53)
▶▶ Track 10. "Le nom de cette belle enfant?" (0:54)
▶▶ Track 11. "Ange adorable" (4:20)
▶▶ Track 12. "Quelq'un!" (5:56)
▼ ▶▶ Act II
▶▶ Track 13. "O nuit, sous tes ailes obscures" (4:23)
▶▶ Track 14. "Ah! lève-toi soleil!" (3:11)
▶▶ Track 15. "Hélas!... moi, le haïre" (5:39)





Context at IU

- Several *Empowering People* actions relating to digital video/media/content management
 - 32, 34, 36, 37, 55, others
- Classroom capture efforts
- Discussion of a faculty/student YouTube-like service
- PAGR Digital Asset Management System
- IUPUI IMDS
- How/when to integrate?



Questions?

- Visit our project page:
<http://www.dlib.indiana.edu/projects/vov>
- Survey writeup will be posted on VoV site
- Follow us on Facebook or Twitter
facebook.com/VarVideo
twitter.com/VarVideo