



Variations: Implementing an Open Source Digital Music Library System

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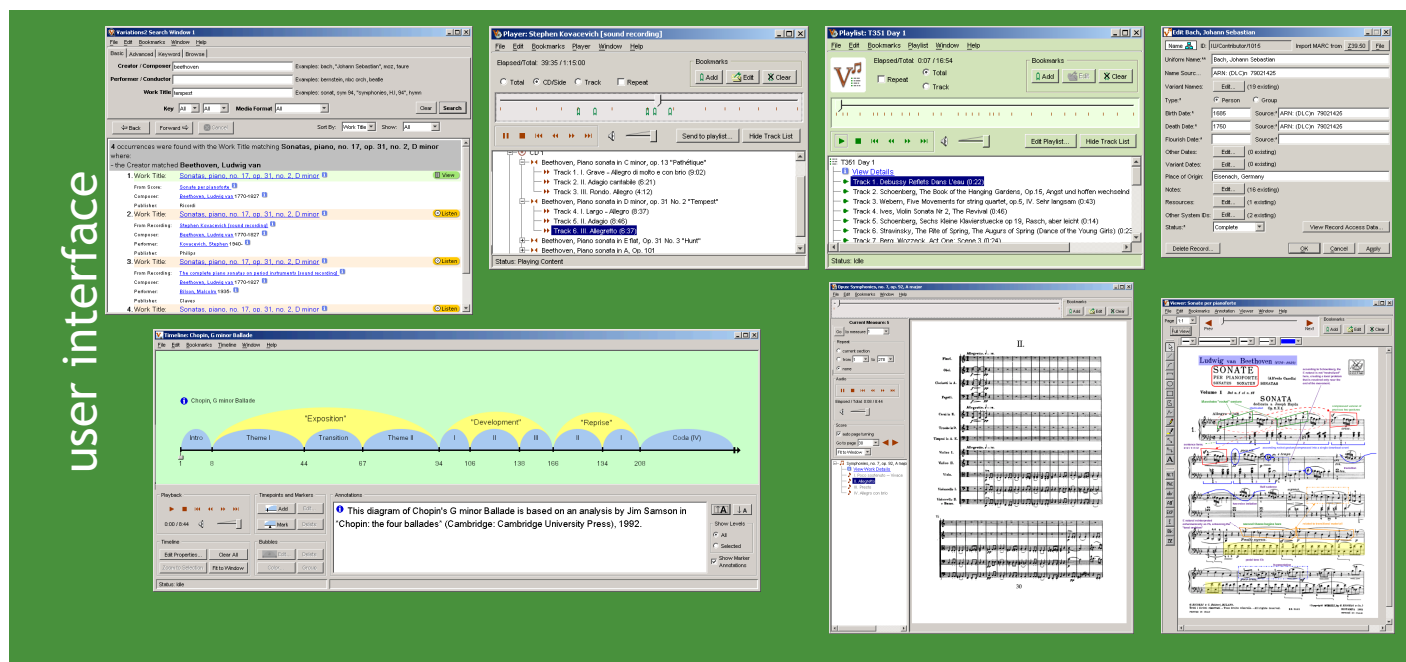
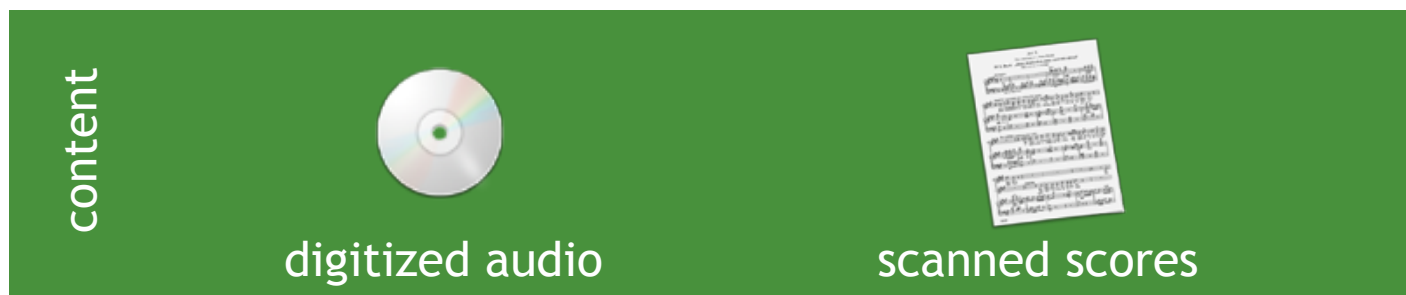


Outline

- What is the Variations system? – overview & demo
- How is it used currently, at IU and other institutions?
- What is the open source release and how can it be deployed?
 - technical and library staffing
 - hardware and software requirements
 - what's included in the release
- Sustainability plans & possibilities
- How can I try out Variations?
- Q & A



Variations Overview



Collection
Metadata

Access
Control,
Bookmarks

users

faculty

students

librarians



What is the Variations System?

- Online access to streaming audio and scanned score images
- Analysis and annotation tools useful in music teaching, learning, and research
- Flexible access control framework respects intellectual property rights
- Sources of content:
 - Your own collections – Variations provides ingest tools and access management
 - Licensed third party content – current finishing up DRAM integration for release this summer



What is the Variations System?

- Album-based, not track based: users see tracks in their album context
- Access limited to authenticated login based on IP address and/or authorized group membership, such as a class roster
- Content delivered via streaming; does not use embedded Digital Rights Management (DRM)
- Search function requires additional manual cataloging and so it is not being used apart from metadata research projects such as Jenn Riley's current IMLS-funded Variations/FRBR project

[illegible]



Variations at Indiana

- Digital library of sound recordings and scores in IU Cook Music Library and born-digital IU performances
- Online since April 1996
- Current technology online since 2005
- 16,000+ complete recordings; 300+ scores
- Access to course reserves, general collection, and special collections
- Full collection available at Music Library computers
- Outside Music Library, users must be enrolled in a class requiring Variations use and have installed Variations client



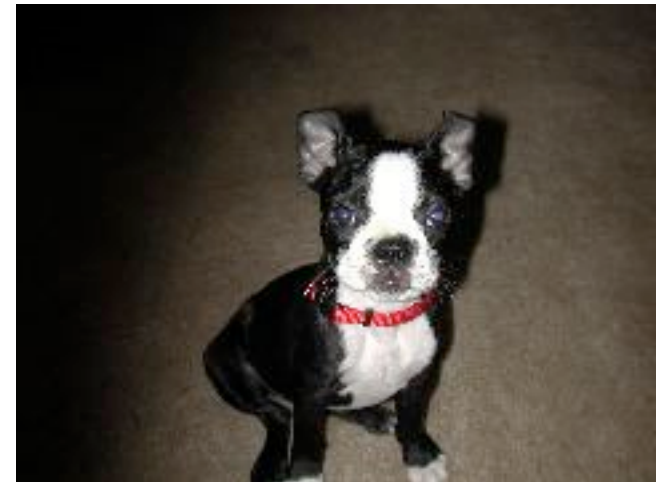
Variations3

- Funded by Institute of Museum and Library Services (IMLS) National Leadership Grant
- October 2005 - September 2008 (extended through September 2009)
- Extends Variations beyond IU & explores sustainability models
- Test sites have each deployed full Variations system:
 - New England Conservatory
 - The Ohio State University
 - Tri-College Consortium: Haverford, Swarthmore, Bryn Mawr
 - University of Maryland
- Also exploring application- (not content-) hosting with University of Miami and others.



What is the Open Source Release?

- Variations system release includes
 - Server software
 - Client software
 - Source code
 - Sample content for testing—two recordings and two scores
 - Web services for browser-based player and access manager (Summer 2009)
- Documentation available on the web
- Everything you need to set up and operate your own Variations system! Except....



Free Puppy!



What's not free?

- Server hardware
- Necessary IT expertise to install, configure, and support
Variations server software and streaming server
- Digitizing/scanning hardware/software
- Digitizing/scanning staffing & expertise
- Computer workstations in library and/or client software
distribution mechanism
- Staffing & expertise for user support
- Intellectual property / copyright policy



Server Requirements

- Linux operating system
 - Tested on RedHat Enterprise Linux 4 and 5
- RAM and disk space dependent on load and amount of audio and score content
- Third-party software
 - Java Runtime Environment 1.4.2
 - Apache HTTP Server
 - Apple Darwin Streaming Server
 - Perl
 - MySQL
- Cost: \$0-25,000, depending on IT resources and ambitions (amount of content, user load)



IT Expertise

- Critical success factor!
- Initial server config, installation, software config, network troubleshooting, etc., is demanding
- Requires good partnership between library and IT
- Initial configuration is only a day or so of work, but that day can easily take weeks of communication between different parties, with extra time for troubleshooting

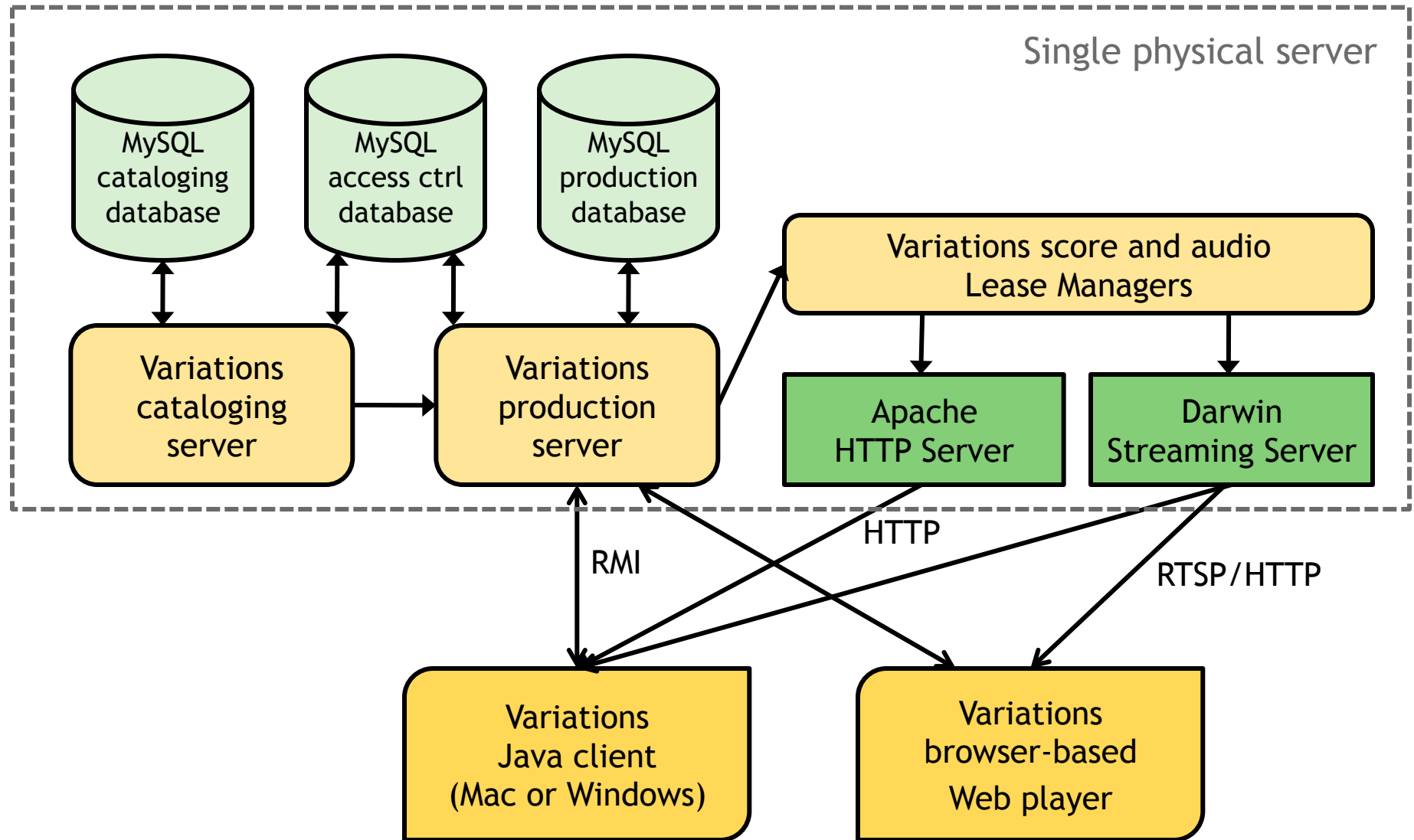


IT Staff Requirements

- Linux system administrator
- Database administrator
- Windows/Mac desktop support
 - Library desktops
 - Student computing lab desktops
 - Faculty desktops
 - Faculty/student home use
- Student information system staff
 - If basing access on course enrollment
- Network engineering staff
 - Troubleshooting firewall/bandwidth issues

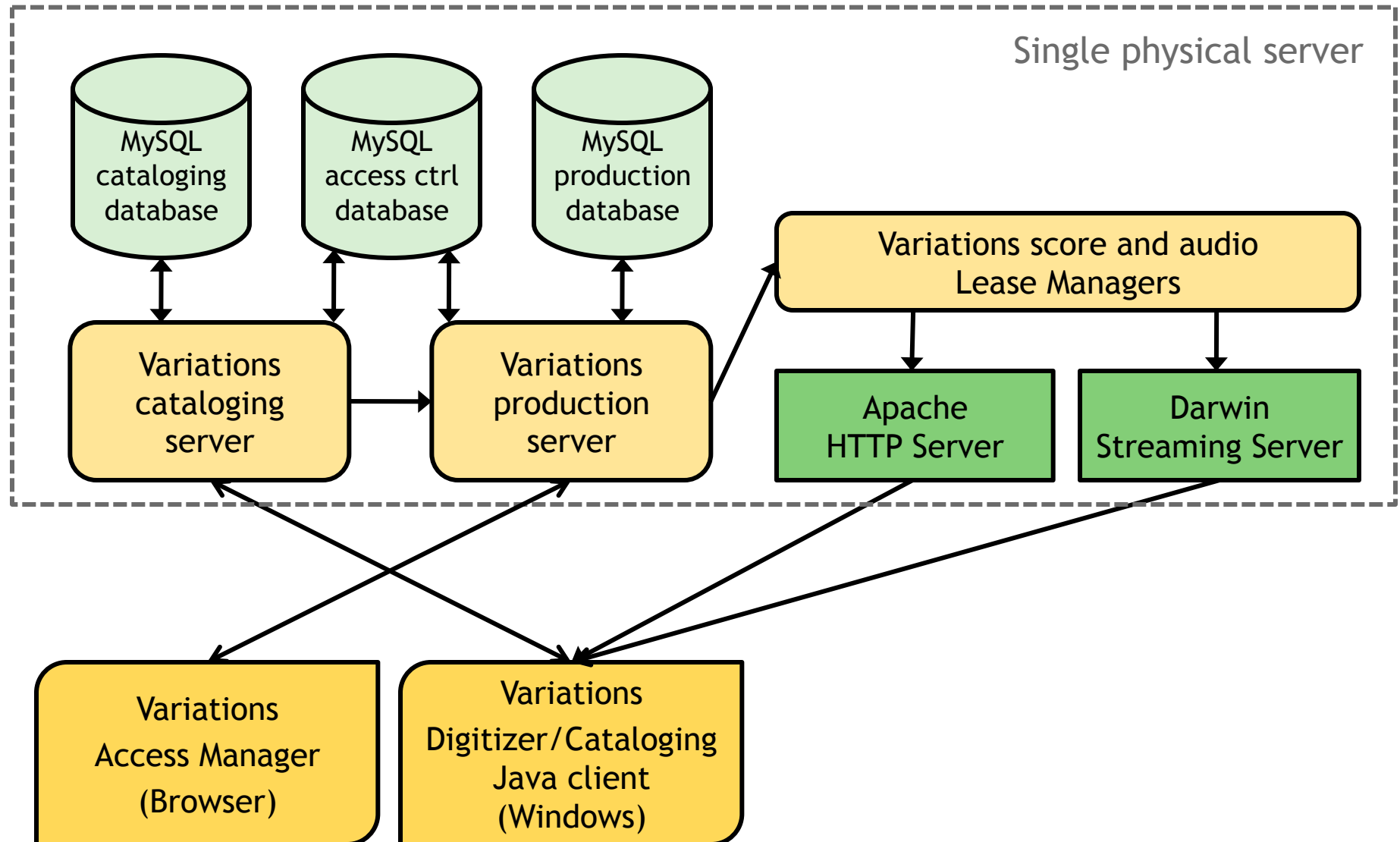


Variations Architecture





Variations Architecture





Digitizer Staffing & Expertise

- Work can be done by student hourly employees
- Workflow needs to be defined and documented
- Need basic skill with moving files around
- Audio skill level depends on whether you are ingesting only CDs or analog media
- Scanning skill level can be low if workflow well documented
- Ingesting a CD can take 10-20 minutes, beginning to end (compression takes the most time)



Access Policy Options

- All authenticated users can access all content
- Users can only access content on reserve for classes in which they are enrolled
- Users who are enrolled in a class with reserve items can access all library content; “Personal reserves” can only be accessed by class members
- Others...



Planned Additions for Summer Open Source Release

- Web browser-based player
 - Flash and AJAX versions
- Web-based access management tool
 - Currently done via command line
- DRAM support
 - *Database of Recorded American Music*



Interest in Variations

- Webinar on March 4 - over 90 participants
- Post-webinar survey
 - Two-thirds of respondents plan to evaluate within the next year
- Chicken and egg problem
 - Institutions want to be confident of future and governance before they adopt



Support Options

- Self-support via open source
 - IU will continue to update open source distribution
 - IU will participate actively in the variations-discuss mailing list on SourceForge
- If enough institutions adopt Variations, 3rd party support or even hosting options could emerge; chicken & egg problem again
- We are exploring options for paid support—you can help us figure out that equation!



More Information

- Variations Open Source Site:
<http://variations.sourceforge.net/>
- Try out Variations:
<http://www.dlib.indiana.edu/projects/variations3/tryout.html>
- Variations Documentation Site:
<http://wiki.dlib.indiana.edu/confluence/display/V3/>
- Variations 3 project info:
<http://www.dlib.indiana.edu/projects/variations3/>

Questions?