

# White Paper Report

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## 1. Project Defined

In 2006, The University of Arizona's College of Humanities Instructional Computing Team began work on a multimedia archival storage and retrieval system that would 1) preserve the digitized file collection of recorded readings that began to develop in the University of Arizona Poetry Center, and 2) allow on-site Poetry Center patrons to access this growing digital archive via desktop computers. This system, called the Poetry Center Audio/Video Library (Poetry Center AVL or AVL) v1.0, was released at the end of its first major development cycle in the fall of 2007. Since that date, all readings at the Poetry Center have been recorded directly in digital format, enhanced through a routine post-production process, and immediately integrated into the Poetry Center AVL (see Appendix 1 for an application diagram).

In 2010, the UA Poetry Center and members of the College of Humanities information technology staff applied for and received a National Endowment for the Humanities Level II Start-up grant to make the AVL available to Internet users and enhance the information contained with the readings in the collection. The development of the enhanced AVL application was implemented in three phases: 1) implement a secure, Internet-accessible architecture (v2.0); 2) integrate an enhanced collection of metadata to increase the breadth and depth of information contained with the application (v2.1); and 3) develop a Knowledge and Feedback module (v2.2) that allows registered users of the application to leave information and comments associated with the artifacts in the collection.

## 2. Significance of Project

Throughout the 1960s and 1970s, The University of Arizona Poetry Center was one of the few venues in the nation created specifically for poets to read their work. Today, the Poetry Center is considered one of the most prestigious venues in the U.S. to which a writer can be invited to present her or his work. The Poetry Center's collection is comprised of recordings from nearly all of the most prominent poets and prose writers producing work in the second half of the twentieth century, including Gary Snyder, W. S. Merwin, Robert Creeley, Louise Bogan, Robert Duncan, Denise Levertov, and Adrienne Rich.

The Poetry Center's recordings are exclusive to The University of Arizona Poetry Center and provide an extensive and ongoing record of the American poetry scene, serving as an historical record of one of the nation's earliest and longest-running poetry reading series. Moreover, many of these storied writers have read at the Poetry Center multiple times, which means the AVL contains a rich record of these artists' maturation processes. Since the early 2000's the Poetry Center has worked with an audio engineer and videographer to digitize the entire library of recordings. Digitization of the entire collection is scheduled for completion within the next few years.

In its present Version 2.2 (<http://avl.arizona.edu>), just launched in August 2011 and funded by a Digital Humanities Digital Start-Up Grant from the National Endowment for the Humanities, the AVL is perhaps the only digital library of its kind that combines all of the following characteristics:

- Non-commercial public online access to full recordings of authors reading their work. No fees of any kind, access is entirely free.
- Custom-built interface is visually appealing and easy to use.
- Collection spans almost 50 years of U.S. literary history and includes readings by three Nobel Laureates, 23 U.S. Poet Laureates, 40 Pulitzer Prize winners, and 31 National Book Award winners, all recorded in Tucson at the Poetry Center.
- Readings are broken down into separate tracks, making it easy to navigate and listen to individual items of interest.
- Readings are accompanied by photographs depicting the authors as they appeared at the time of the reading.
- For many authors, multiple readings allow for a historical overview of a poet's work.
- Advanced search/browse capabilities and rich descriptions add context and provide bibliographic information.
- Just-launched user tagging and comments features allow users to contribute to the scholarly value of the resource.
- Received a "We the People" designation from the National Endowment for the Humanities, reserved for projects that strengthen the teaching and understanding of American history and culture.

### 3. Observations Regarding other Technology Projects

In putting together and further developing our vision for the Poetry Center AVL, the key contributors to the grant engaged in numerous discussions regarding online availability of the collection. Current technology projects related to poetry and prose were reviewed for inspiration and evaluation. Some of the websites visited initially (and over time) include Naropa University (<http://www.archive.org/details/naropa>), The San Francisco State Poetry Archive (<http://www.sfsu.edu/~poetry/archives.html>), PennSound Center for Programs in Contemporary Writing at the University of Pennsylvania (<http://writing.upenn.edu/pennsound/>), as well as non-university affiliated web archives at the Poetry Foundation (<http://www.poetryfoundation.org/>) and the Academy of American Poets (<http://www.poets.org/>).

In the spring of 2009 the Poetry Center had the fortuitous experience of presenting the project to the Bamboo Consortium (<http://www.projectbamboo.org/>), which conducted its third Working Group meeting in Tucson. In our discussions with the wide range of humanities scholars, including linguists, communications scholars, historians, and others in attendance, we received a plethora of design and development suggestions that contributed to our vision of what an expanded application could become.

Thinking about Web 2.0 technologies led to the most interesting and inspired discussions, as new possibilities for the archive were considered while weighing the pros and cons of each. After spending time researching and visiting various digital archives such as Polar Bear Expedition Next Generation Digital Finding Aid (<http://polarbears.si.umich.edu/>)—which has been written about extensively due to its innovative integration of Web 2.0 technologies into the archival finding aid, several key characteristics emerged that directed us into taking a more measured

approach to the developing the archive. With finite resources at its disposal, the Poetry Center's top priority became ensuring that the AVL could build a sustainable digital archive that would not overwhelm the existing library staff with new, uncontrolled workload requirements. One doesn't have to search the Internet very deeply to stumble upon ambitious, but long abandoned, efforts as a result of inadequate sustainability resources, changing technologies, and/or migrating users (some common examples include MOOs (<http://en.wikipedia.org/wiki/MOO>), homegrown course management systems/virtual learning environments, and reusable learning object repositories that appeared in the late 1990s and early 2000s). Another priority was safeguarding the integrity of the digital library from inappropriate contributions due to spam.

#### 4. Overview of Phases

##### Phase 1: Implement a Secure, Internet-Accessible Application

Building an Internet-accessible reference database is one thing. Building an Internet distribution hub for media files capable of serving hundreds of requests simultaneously (not unrealistic if the collection eventually gets widespread use by K-12 and higher education environments) that allows users to submit feedback while also functioning as a digital archive repository represents a much greater challenge. The first phase of this project was approached with a dual focus of safeguarding the digital archive and providing a reliable user experience even in high traffic conditions.

In addition to providing playback access to the recordings of the poetry readings, the Poetry Center AVL application was also developed to serve as a data archive repository for the digitized audio and video recordings of the readings. To provide unadulterated storage of the raw audio and video files, it was decided that these files would be stored in a highly prescribed file structure outside of the database application, which then functions the gatekeeper to the file collection. With this structure in place it was then possible to save multiple versions of files for each recording—the raw files to the entire recording, as well as compressed versions of the recordings divided into individual tracks by the audio engineer and videographer. The compressed track files are then what the database provides to the client application for viewing over the Internet.

When the Poetry Center AVL was initially conceived, the idea of making the collection Internet-accessible was always considered a long-term goal. The decision was made then to implement an Internet-standards compliant architecture utilizing commonly used web application development tools (Apache, PHP, MySQL). Instead of relying upon media streaming server technologies employed by YouTube or major news organizations (e.g. <http://www.cnn.com/video/>), which would be cost-prohibitive to the Poetry Center, a different approach was taken to deliver and play the media files for users. The user-facing database application that loads when the users access the site, provides the user with the controls and tools they need to navigate the archive and select the reading or individual track they wish to play. Once a reading or track is selected, the application loads an mp3/h.264-compatible media player application into the web browser, and the appropriate media file that corresponds to the track is uploaded to the user's computer (See Appendix 2). Pseudo-streaming functionality has been incorporated into the application, which

allows the recording to begin playing before the user's computer has downloaded the file in its entirety and which also enables users to manipulate the playback forward and backward on the timeline. To provide a smooth user experience, as the first track ends, the next track in the reading sequence is automatically cued to play next, allowing the entire reading to be watched without any additional intervention required on the part of the user.

The first step we undertook in Phase 1 was to work with the UA's central IT services (UITs) to performance load test the existing application to get a clear understanding of the current system architecture performance characteristics. Running on the Poetry Center's dedicated Apple Xserve Server, we learned that the system could handle 788 simultaneous user requests before performance began to degrade, and could handle well over 1000 simultaneous users before the server stopped responding (see Appendix 3). With this data now in hand, we decided that the current application architecture was sufficiently robust to continue forward with development of the next stages of the application.

Since the contents of the digital file repository represent a tremendous investment by the Poetry Center and its benefactors, and are in some cases irreplaceable (where the original media is no longer readable), securing the file archive from accidental deletion or unauthorized access was addressed from a system architecture perspective. To facilitate network performance and isolate the archive from the Internet, a virtual server housed in the primary data center of the University of Arizona was procured to serve as the Internet-accessible interface of the AVL application.

Some of the key advantages to using this strategy include:

- System performance load-balancing and failover protection
- 24 x 7 monitoring in a physically and environmentally secure facility
- Direct network connections to the campus Internet backbone
- Maximum firewall and network-level security protections
- Guaranteed acceptable levels of performance by the central IT services

By configuring secure replication of the database application and compressed media files from the repository server to the virtual server using secure /encrypted SSH transmissions, the sharing of data is highly secure. The dedicated server that houses the AVL application is also protected by strict IP and network protocol filters, which keep the data archive completely isolated from unauthorized UA network access and the public Internet (see Appendix 4).

Once the public-virtual server environment was implemented, UITs was once again asked to perform load test on the application running in this new environment to check overall system integrity and performance. While we were able to verify that the transaction times experienced when the system was being accessed by 240 users simultaneously was very acceptable (approx. 0.2 seconds per transaction – see Appendix 5), we were unable to repeat the maximum user load tests due to new and unforeseen problems with the performance testing server operated by UITs. We next decided to performance load the virtual server utilizing the services of <http://www.loadimpact.com/>. Our results with this system established that the virtual server handled approximately 700 simultaneous clients, with the upper-limit appearing to be a result of limited bandwidth. With this result in hand, we considered the application sufficiently robust for production using the current software architecture and hardware configurations.

## Phase 2: Integrate an Enhanced Collection of Metadata

Soon after the initial Poetry Center AVL application (v1.0) was released in 2007, it became quickly apparent to the Poetry Center staff that the application could be significantly enhanced if additional data elements were added to provide further descriptive information to the individual readings, about each reader, and the individual items contained therein. Given the close working relationship the Poetry Center enjoys with the Creative Writing Program at the University of Arizona and with other internal educational and outreach endeavors, increasing the archive's usefulness and meaning for teaching, research and scholarship has also been high on the priority list for future development. The initial metadata used to catalog the collection was based on the Simple Dublin Core Metadata Element Set (for the metadata framework) common to library searches. While adequate for providing search functionality to access individual poems and poets in the collection, it did not provide the collection with meaningful contextual information that would help inform the user of its contents. Contained within the archive are unpublished poems; early drafts and long-term revisions; poems written specifically about the Southwest; and other interesting and relevant characteristics.

A preliminary list of new metadata fields was developed from the initial feedback by the Poetry Center staff and users, and formed the basis for many of the items suggested in the NEH grant proposal. While development commenced on Phase 1 of the application, the Poetry Center staff began assembling new metadata content for the existing readings that were contained within the collection, representing the "low hanging fruit" that the Poetry Center identified as top priority for expansion and inclusion. This additional data was merged into the original database and went live at the same time Phase 1 moved into the production in November 2010, in time for the Poetry Center's 50<sup>th</sup> Anniversary celebration.

With the work of Phase 1 complete, the development team now shifted focus on defining the next set of enhanced metadata to be added to the collection and began thinking about how these additions would also integrate with the Phase 3 Web 2.0 enhancements. While building a mini wiki of knowledge for each reader in the archive might sound like a good idea on the surface, in reality such an undertaking could quickly undermine the entire archive (e.g., if the information it contained became stale) and dilute its comparative value. Having a better understanding of the time requirements required for researching and entering the expanded content for the existing records (the preliminary metadata expansion took approximately 200 hours of work for the initial set of records), the project team began to develop a more realistic understanding of the effects of adding new content fields grounded with real data into the archive. This led to the team to ask many compelling questions that further guided Phase 2's development:

- What happens to the integrity of the collection if some records are complete and others are left empty? What degree of fragmentation is deemed acceptable?
- To what extent should new metadata fields expand the contextual understanding of that specific individual reading in the collection versus the greater body of that particular reader's work (beyond the selected reading), or in the greater context of poetry overall?
- Should new recordings of readings be made public in the archive only when the majority of metadata fields are entered and completed by the Poetry Center staff?
- How much staff time can the Poetry Center staff afford in expanding and maintaining the Poetry Center AVL application?

Recognizing that the answers to many of these questions 1) were destined to remain largely hypothetical at this stage of development; 2) would require greater input than the Poetry Center AVL development team alone could provide; and 3) take a longer time than the grant period was designated for, the decision was made to design the application with the controls needed to enable the Poetry Center staff to add new metadata fields at a later date without the need for additional programming. This new functionality allows the Poetry Center staff to carefully add new fields to the application after weighing the value benefits to the comparative costs of adding new fields to the archive over time and without the pressure of being hard-coded into the application during the grant period.

As the types of new data fields that can be added were defined (standard text field, long text field, date/time field, numeric/integer field, and a predefined list table), other decisions were reached to help keep the application clean and protect the integrity of its contents. First, it was decided that after the standard Dublin Core fields that facilitate searching for the application and are required, all other data fields would only display their corresponding label if a value was present for that particular metadata field. For instance, on a given reader page, if the date of birth of the reader is entered, then that information will be displayed with the date of birth label. If the reader's date of birth is not known or has not yet been entered, then that field will not be displayed on that reader's page. This way the application will not highlight missing information, and the relative page lengths will correspond to the information actually contained in the archive. Second, when testing out the application during the build phase it became apparent that some of the metadata fields were overly ambiguous due to the desire to be concise, leading to confusion over what information should be stored where. One such example of this can be found when entering metadata to describe photographs that might be added to accompany a reading. Fields available for data entry include Caption, Photographer, Subjects, Notes—without additional clarification given to the Poetry Center staff, in some instances the reader's name was being entered into the Caption field and in other cases the Subjects field. Clear instructions embedded directly into the application (and included in the advanced search function fields) have now been added to clarify what data is expected in each field and to protect the integrity of the data contained in the archive.

### Phase 3: Develop a Knowledge and Feedback Module

While the development team was considering the effects of building new metadata into the application, it also began to evaluate how the new functionality possible with the addition of Web 2.0 technologies could further enhance and expand the data embedded into the archive. While inviting the public to contribute information and feedback offers great potential in terms of the possible quality and quantity of information stored in the archive (imagine if each reader were to contribute his or her own insights after every reading), it also runs the risk of adding noise to the archive with limited value in return. In our initial discussion some of the features we discussed for inclusion were adding keywords, building tag clouds, "liking" artifacts found in the AVL internally or through linking with other social networking applications, rating items in the archive (using a scale of stars or thumbs-up), adding comments to artifacts in the collection (with or without categorizations) and evaluating comments left by other people (thumbs up/down). As

the pros and cons of these features were weighed, several criteria were developed and used when evaluating the possibilities:

1. Does the functionality introduce risks to the archive integrity through dilution of value, misrepresentation, or other concerns?
2. Would the functionality introduce negativity to the archive in ways that were not intended?
3. Could the Poetry Center staff feasibly maintain the expanded functionality?

With these factors in mind we decided that the following features would be included in version 2.2 of the application:

- Tag clouds on each individual reading page, each reader page, and on the home page. All registered users will be able to contribute new tags to the AVL.
- User comments can be added to the individual reading pages, but not the individual reader pages and home page at this time. All registered users may contribute comments and classify their comments.
- While user comments may be classified according to type, the Poetry Center staff controls the categories available for users to select.
- Any user (registered or not) may click a "flag abuse" button that appears beside all comments (except those submitted by a member of the Poetry Center staff).
- Registered users are invited to contribute ideas for comment categories, additional comment locations, and possible future metadata fields.

Since readings can sometimes span more than 20 tracks, it was decided that adding tags and comments would not be possible at the individual reading track-level, but only at the individual reading level instead. Having such functionality at the track level would likely result in never-ending scrolling on the part of the user, and the tags and comments submitted might become heavily biased towards the earliest tracks of each reading over time. Functions such as "liking" artifacts, rating artifacts, and rating user comments were all decided against for inclusion in the AVL due to the possibility that the users or the readers themselves might take offense by the ratings. To discourage insincere use of the AVL by less serious users, links to other social network sites were omitted from the application at this time, but may be reconsidered at a later date. Keywords using controlled vocabularies might also be added in the future, but for now it was decided that the Poetry Center staff needed to research and investigate the benefits and potential drawbacks such functionality might have on the collection before committing in earnest to this feature.

When writing the comment and tagging moderation specifications, we assumed that the typical user choosing to register is likely representative of the existing Poetry Center patrons and has honorable intentions for contributing to the site. While all user-submitted tags and comments will appear in the archive immediately upon submission, all new user-submitted content will also simultaneously be sent to an administration dashboard and remain there until an administrator internally accepts to the submission to the application. The administrator also has the option of removing the comment (it will still remain associated with that particular registered user even though it will no longer appear publicly in the archive). Any submission that a user flags using the "report abuse" command will appear at the top of the list in the moderation panel and will appear in red font. The Poetry Center staff also has the ability to prevent a registered user from

continuing to post on the site. If in the future it is decided that all comments to the site must be approved for display first before appearing due to frequent abuse, this change in configuration will be easily accommodated by the application.

Other design decisions that emerged once we reached the testing phase of the initial implementation included adding the ability for Poetry Center staff to respond directly to the comments left by registered users; requiring the inclusion of a captcha (standard "test" to determine that a user is a human person and not an automation used for nefarious purposes) entry when unregistered users submit feedback and when users are first registering for an account; and users registering will be required to respond to a verification email message sent to the email address the user provided. It was also decided that a limit was needed to the number of tags that are submitted when a page containing a tag is first loaded. For instance, the tag cloud on the home page of the AVL pulls from the tag contributions left anywhere in the archive. Trying to display 500+ tags on the front page not only distorted the site design, but also made for a relatively unreadable and marginally useful tag cloud.

#### 5. Some of the Project Management Lessons We Learned:

Working on a multiphase technology-driven project in which all team members are assigned to the project part-time and some team members perform almost all work remotely places great demands on the communication protocols and tools used to keep the project on-track and moving forward. Based on our experiences in working on this project, these are our recommendations:

- All team members should use the same email communication system. Features such as shared calendars, online document collaboration, and video-conferencing should be available, and all team members should be fluent in the use of the technologies.
- An online project management software suite that all members of the team have access to and know how to use should be utilized to capture all system requirements and changes, discussion of meeting outcomes, tracking of project milestones, and expected feature-set delivery dates.
- A shared vocabulary list and project specification documentation, which describes all the metadata elements, project features/functions, and project milestones should be located online and kept up-to-date at all times.

Employing remotely located staff can also contribute to unexpected delays and unforeseen challenges beyond the regular day-to-day occurrences. Building flexibility into the development schedule and incorporating generous time buffers between milestones are helpful to keep the development process on-track.

#### 6. Evaluation

During the course of the grant period, the AVL development team met on several occasions with the Poetry Center Audio Video Library Advisory Board Members to demonstrate application development progress, discuss technology standards and archival best practices, review interface design principles, and gather general feedback. Advisory Board member input was particularly

helpful in providing expertise related to Web 2.0 technology standards and best practices as applied to digital collections, and providing interface design expertise. When the design team last met with the advisory board prior to the version 2.2 release for a feature review and discussion, the feedback from the board members was overall extremely positive.

Additionally, the AVL development team met formally and informally with other members of the Poetry Center staff, patrons, and instructors using the application on a regular basis to better understand how well the application was meeting their needs, and gauge overall user satisfaction.

## 7. Previous Promotional Efforts and Future Marketing Strategies

Since the release of version 1.0, the AVL has been a featured component in the Poetry Center's field trip and docent tours programs, which have attracted thousands of people from around the country and beyond since the new building opened in August 2007 (<http://poetry.arizona.edu/where-poetry-lives>). Listening to recordings contained in the AVL has been a required component of multiple courses offered through the UA Creative Writing undergraduate and MFA program and the Poetry Center's Community Classes and Workshops program. The Poetry Center's Word Play blog (<http://blog.ltc.arizona.edu/wordplay/>), which is written for teachers, parents, community artists and others features specific poems, poets, and highlights a variety of readings on weekly basis.

The spring 2010 announcement of the Poetry Center's National Endowment for the Humanities Level II Start-up grant award received widespread attention in Arizona: <http://humanities.arizona.edu/news/poetry-center-receives-neh-grant>; <http://uanews.org/printview/31683>; [http://www.tucson sentinel.com/arts/report/042810\\_poetrycenter/poetry-center-gets-49k-audio-video-archive/](http://www.tucson sentinel.com/arts/report/042810_poetrycenter/poetry-center-gets-49k-audio-video-archive/)

The AVL version 2.0 release went live to coincide with the Poetry Center's 50th Anniversary celebration in November 2010 and was given prominence in anniversary publications and press releases. It was featured in a video clip that highlighted the past, present, and future of the Poetry Center (<http://youtu.be/OldH27BtflE>), which was shown at a community wide event of 1,200 people and on the Center's website.

In the spring of 2011, the Poetry Center began distributing a series of bookmarks with the tag line, "I'm still listening." Each bookmark featured reading by a well-known poet along with a shortened URL taking the reader directly to the AVL. Bookmarks were distributed at the Poetry Center, at the Tucson Festival of Books (over 50,000 visitors), and the Association of Writers and Writing Programs Conference in Washington, D.C. (8,500 attendees).

During the summer of 2011, to bring attention to some of the riches of the online archive, the Poetry Center's home page featured readings linked together by specific content. As one example, two poets reading from different decades were connected by the topic of dance. Cornelius Eady, in November 1991, delivered a rousing reading everyone could dance to, including poems such as "Miss Johnson Dances for the First Time," and Ellen Bryant Voigt

ended her 1985 reading with “Dancing with Poets.” In her introduction she asks, “Do the poets in Arizona dance?” and is assured that they most certainly do.

The most ambitious marketing efforts for the AVL will commence at the beginning of 2012, using a multifaceted approach. According to our most recent Google Analytics report, over the past year we’ve seen a consistent increase in the number of visits to the AVL. The average time spent on the site is almost six minutes. Nearly 60% of visitors have returned to the site and visit an average of six pages each visit.

In January 2012 we will brand the AVL using a new name—*VOCA*—and will roll out an extensive publicity and targeted marketing campaign to draw widespread attention to the database application and its enhanced functionality. We will launch a national publicity effort in general consumer, arts and trade publications, including the *New York Times*, *Poets and Writers*, *Writers’ Chronicle*, Poetry Foundation.org, etc.

Throughout the winter and early spring we will target specific groups to participate in tagging and commenting. This effort will serve the dual purpose of attracting national attention to *VOCA* and building its content. Here are examples of messages we will generate for the different groups:

1. General message for the Poetry Center’s 3,000 plus email list and 5,000 Facebook friends:

*Let’s play tag! The Poetry Center is excited to announce VOCA, our digital library of recorded readings. VOCA has been enhanced with a user registration process that allows visitors to tag and comment on readings. It’s easy to get started—simply register for free at <http://voca.arizona.edu>. This is your chance to share your knowledge, reminiscences, and literary acumen with others, contributing to the rich historical, cultural, and scholarly value of this resource.*

2. Message for professionals who can help us publicize the *VOCA* to humanities and library science scholars. List includes scholars, national literary centers, research librarians, major literary blogs and websites.

*The University of Arizona Poetry Center is excited to announce the public release of VOCA, Version 2.2 of its digital library of recorded readings. VOCA offers free online access to hundreds of poetry readings and images of poets, with advanced search functionalities and user tagging/comments features. VOCA houses a world-class collection and is on the cutting edge of digital libraries. We hope that you will help us share the news about VOCA with scholars in your field. Also, please contribute your scholarly insights through comments and tagging by registering at <http://avl.arizona.edu>.*

3. Message for poets who have given readings at the Poetry Center in the past five years and whose readings are marked open to the public.

*VOCA, the University of Arizona Poetry Center's online digital library, which offers free online access to hundreds of poetry readings—including your performance of your important work—has recently been enhanced. The new Version 2.2, offers advanced search functionalities and user tagging/comments features. Now you can contribute to the scholarly and cultural value of this priceless resource by adding to our tag cloud and commenting on readings, including your own. Please help us to spread the exciting news by linking to the reading from your web page, blog, and/or social media pages; by signing up as a user to tag and comment on readings; and by encouraging others to sign up.*

In addition to these marketing strategies, we will present VOCA at the 2012 Association of Writers and Writing Programs Conference in Chicago and other conferences and festivals throughout the year.

VOCA will continue to be a central feature of the Poetry Center's homepage. In addition to drawing attention to the poets and topics reflected in the archive, we will utilize its resources to highlight national news stories about poetry and literature.

## 8. Future Development and Directions

With the AVL application now ready for the inclusion of user input and the application architecture fully ready to support new growth, the next immediate priority for the AVL will be to shift attention towards digitizing the remaining recordings of readings and fully integrating them into the archive. Several grant proposals for further digitization were submitted in 2011 and we are awaiting confirmation of awards. Also contained in the Poetry Center's physical archives are thousands of photographs and memorabilia waiting to be scanned and uploaded to the AVL.

Since education and outreach activities for students of all ages have been a top priority of the Poetry Center since its inception, the AVL offers great new possibilities for reaching students far beyond the Poetry Center Library's walls. Currently on the Poetry Center website, information can be found on K-12 programs, teacher resources and lesson plans, teacher residency programs, and curricular materials which focus on poetry and prose. With the increased accessibility and advanced feature set available through this latest release of the AVL, new lesson plans which reference multiple readings, cover entire schools of poetry, and allow for much more in-depth explorations of individual readers will be developed.

While working through the specifications and priorities in versions 2.1 and 2.2 of the AVL, the development team engaged in numerous discussions on the potential for development of a online exhibits and learning module that could simultaneously provide new creative tools for serious research scholars, k-12 and graduate students alike. With the advent of online multimedia collections and interactive technologies, the reliance of scholarly works on traditional media forms will surely continue to expand. We can imagine an extension of the AVL that allows individuals to join audio and video recordings (in their entirety or edited form), text passages and images scanned in from printed materials or gathered from online resources, and assembled in a multimedia online exhibit. These curated exhibits would provide the ability for users to discuss, comment on, refute and provide corollary evidence (text, audio, or video, with direct links to

authentic sources). Considering that the UA Poetry Center contains one of the most comprehensive and fully accessible contemporary poetry collections in the nation (nearly 70,000 items, including books, journals, recordings, broadsides, and an archive of approximately 3,000 photographic portraits of poets), and has now made its recorded readings available to everyone over the Internet, the potential growth of the AVL in the future looks bright indeed.

As the Internet has led to new communication technologies that have brought audiences together in heretofore unimagined ways, new opportunities for collaboration and participation have consistently emerged from cyberspace initiatives. While the Poetry Center has employed crowd-sourcing in the form of public contributions to tagging and adding comments in the AVL, the Poetry Center is also thinking closely about how this work production might be expanded in the future development of the AVL. Short-term, it is hoped that the users of the AVL will help the Poetry Center decide upon its future development. As new metadata fields are entered it might be possible to task the most active contributors with assisting in the adding of new content. It is also not uncommon for subject matter experts across the Internet to become moderators of forums devoted to countless subject matter communities, since they are best equipped to sort out valuable content from noise. An online board of directors/moderators of the AVL could become an invaluable resource for protecting the integrity of the collection.

## 9. Product Comparison

The following appendices demonstrate the interface differences between the AVL version 1.0 and 2.2 applications:

Appendix 6: AVL v1.0 Home page

Appendix 7: AVL v2.2 Home page

Appendix 8: AVL v1.0 Reading Detail page

Appendix 9: AVL v2.2 Reading Detail page

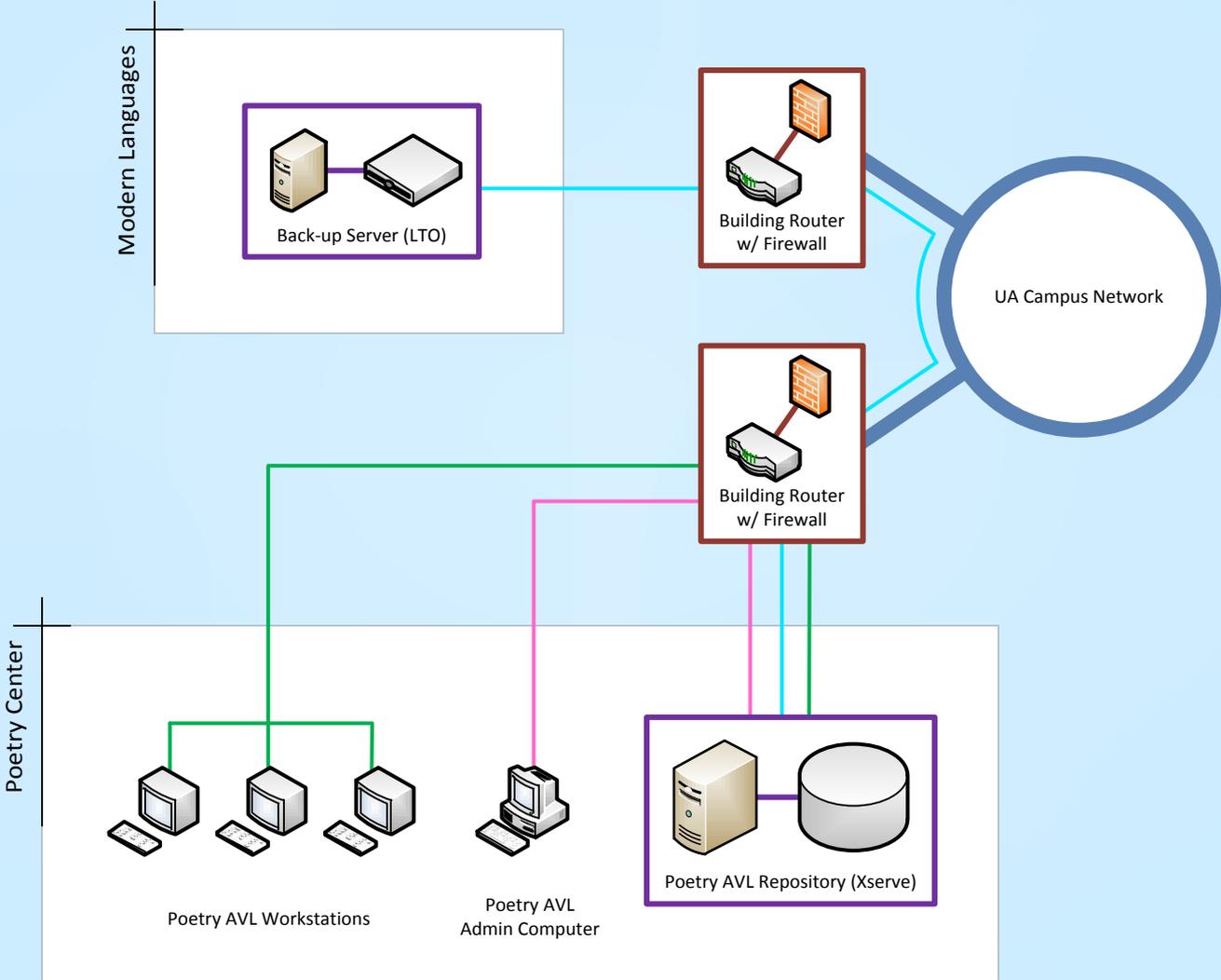
Appendix 10: AVL v1.0 Application Dashboard

Appendix 11: AVL v2.2 Application Dashboard

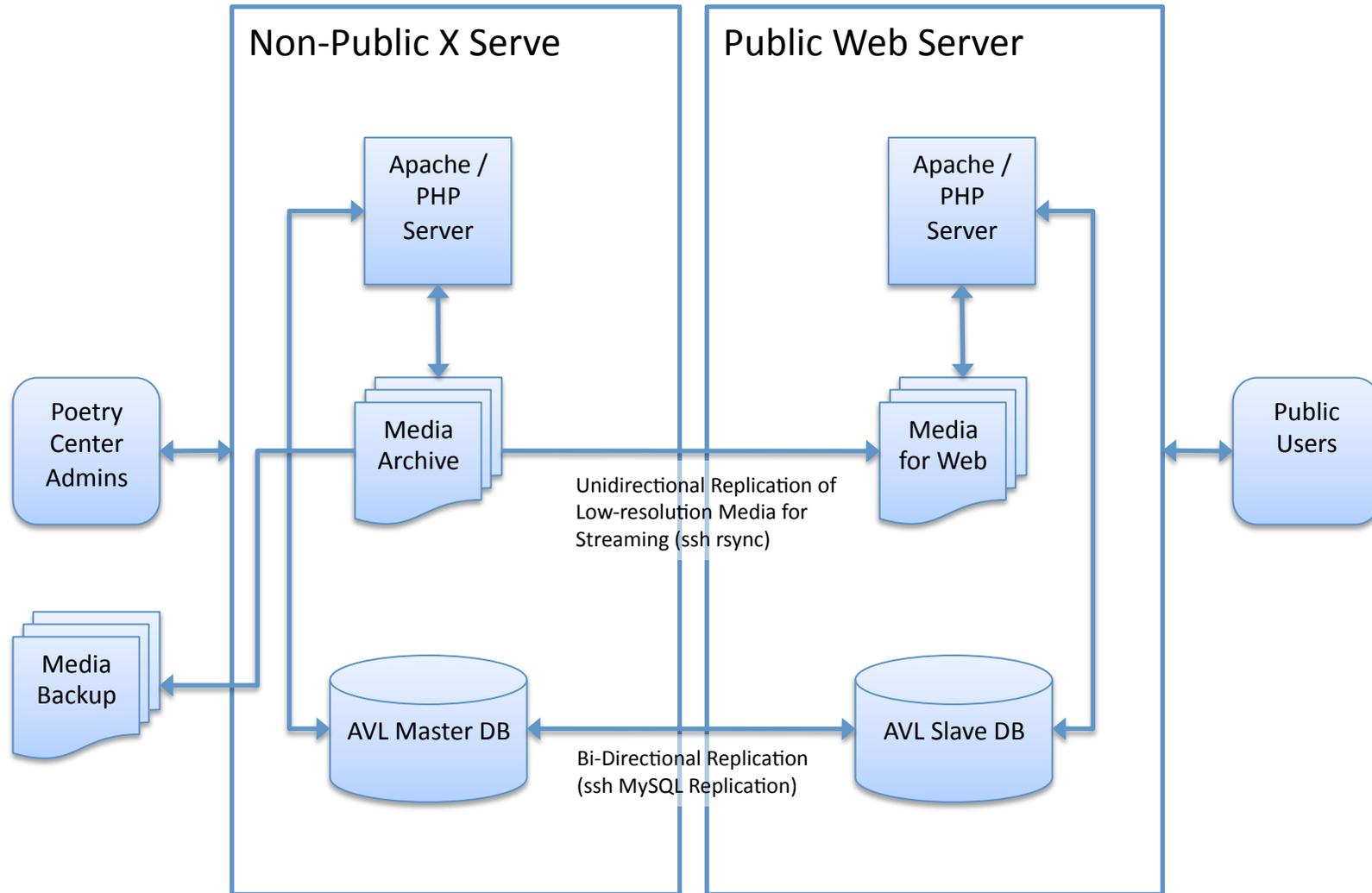
10. The Poetry AVL website is located at <http://avl.arizona.edu>

# Appendix 1 - Poetry AVL v1.0 Application Diagram

- UA Network Traffic (All)
- Poetry AVL (Complete)
- Poetry AVL Media Loading
- Poetry AVL Archive LTO Backup



## Appendix 2 – AVL Application System Diagram



Hale G Thomas-Hilburn <[hthomas@email.arizona.edu](mailto:hthomas@email.arizona.edu)>

## Poetry Center: 2nd round of load testing result after mySQL max connection changed

9 messages

**Tommy Chang** <[tcchang@arizona.edu](mailto:tcchang@arizona.edu)>

Tue, Apr 20, 2010 at 4:37 PM

Reply-To: [tcchang@arizona.edu](mailto:tcchang@arizona.edu)To: Hale G Thomas-Hilburn <[hthomas@email.arizona.edu](mailto:hthomas@email.arizona.edu)>Cc: [mbryant@email.arizona.edu](mailto:mbryant@email.arizona.edu), [jesserob@comcast.net](mailto:jesserob@comcast.net)

Hi all,

It looks like bumping mysql's max connectio has helped.  
When overall concurrent user number arrived at around 788, performance downgraded.

Please refer to the attached files for your information.

Please let me know if you need to meet to discuss them over.

Thanks.

-Tommy

On Tue, Apr 20, 2010 at 12:49 PM, Hale G Thomas-Hilburn <[hthomas@email.arizona.edu](mailto:hthomas@email.arizona.edu)> wrote:

Hi Tommy,

After reading your email message, Jesse realized that he never restarted the MySQL server since last night, so the new configuration changes he made likely never took effect. Mark has since rebooted the entire server, so if you wouldn't mind trying again, hopefully we'll get a better result this time.

Thank you again!

Hale

On Tue, Apr 20, 2010 at 11:16 AM, Tommy Chang <[tcchang@arizona.edu](mailto:tcchang@arizona.edu)> wrote:

Hi Hale and Jesse,

I just stopped the test. I started with 1000 users but getting "too many connections" at around 150 number of users. After all 1000 users deployed, there are 923 users with errors(Too many connections),

I decided to stop the test since it's no longer good for your testing purpose. Hope that's ok.

Please let me know your thought on this. Thanks!

--

Best Regards,

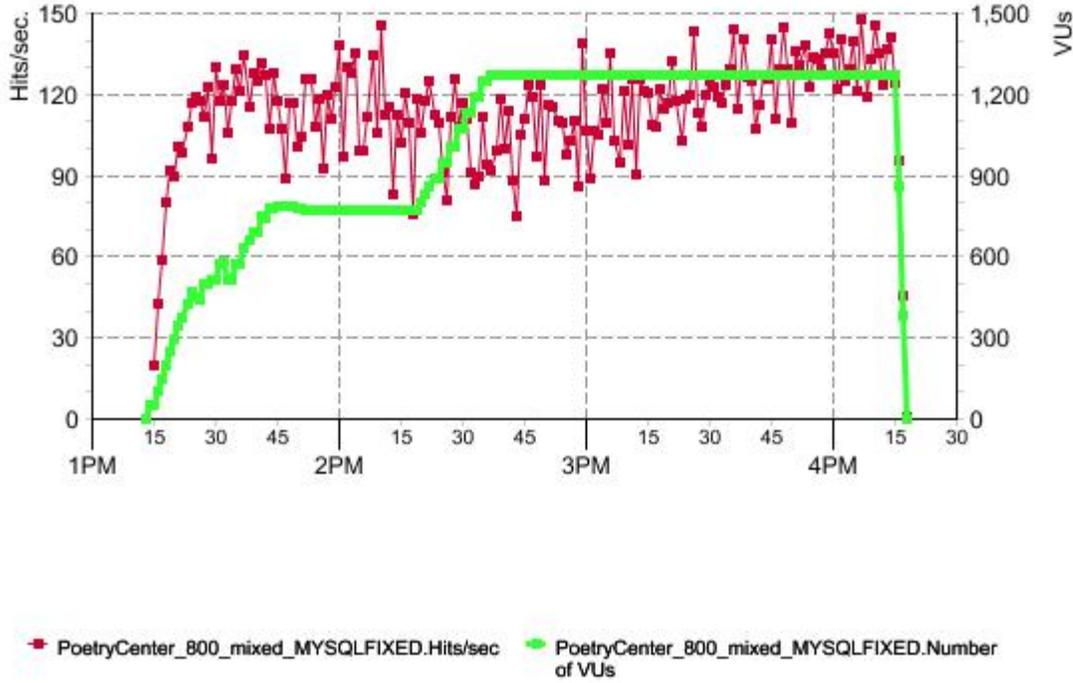
-Tommy Chang

--

Hale Thomas-Hilburn

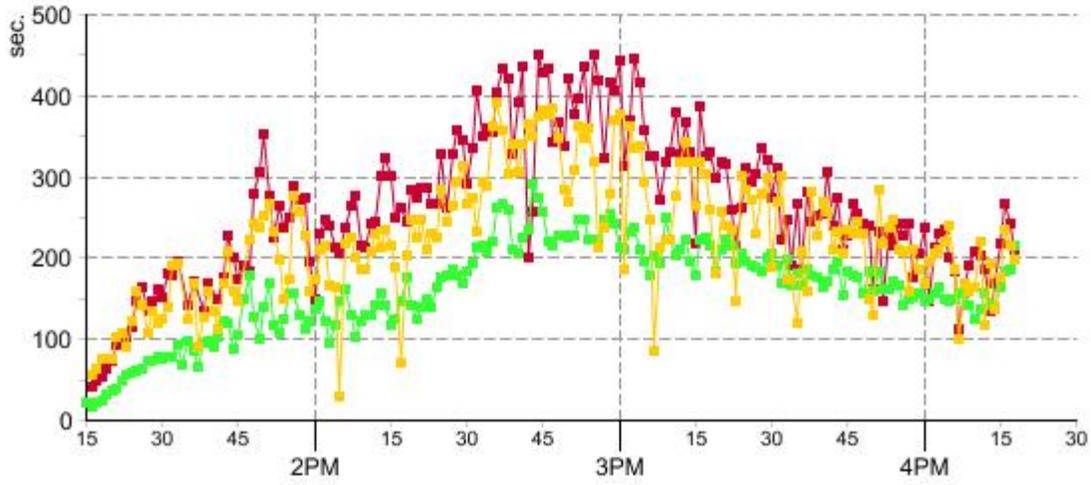
PoetryCenter\_mysqlFixed.jpg

Graph 1



PoetryCenter\_mysqlFixed\_video\_audio\_basic\_comparison.jpg

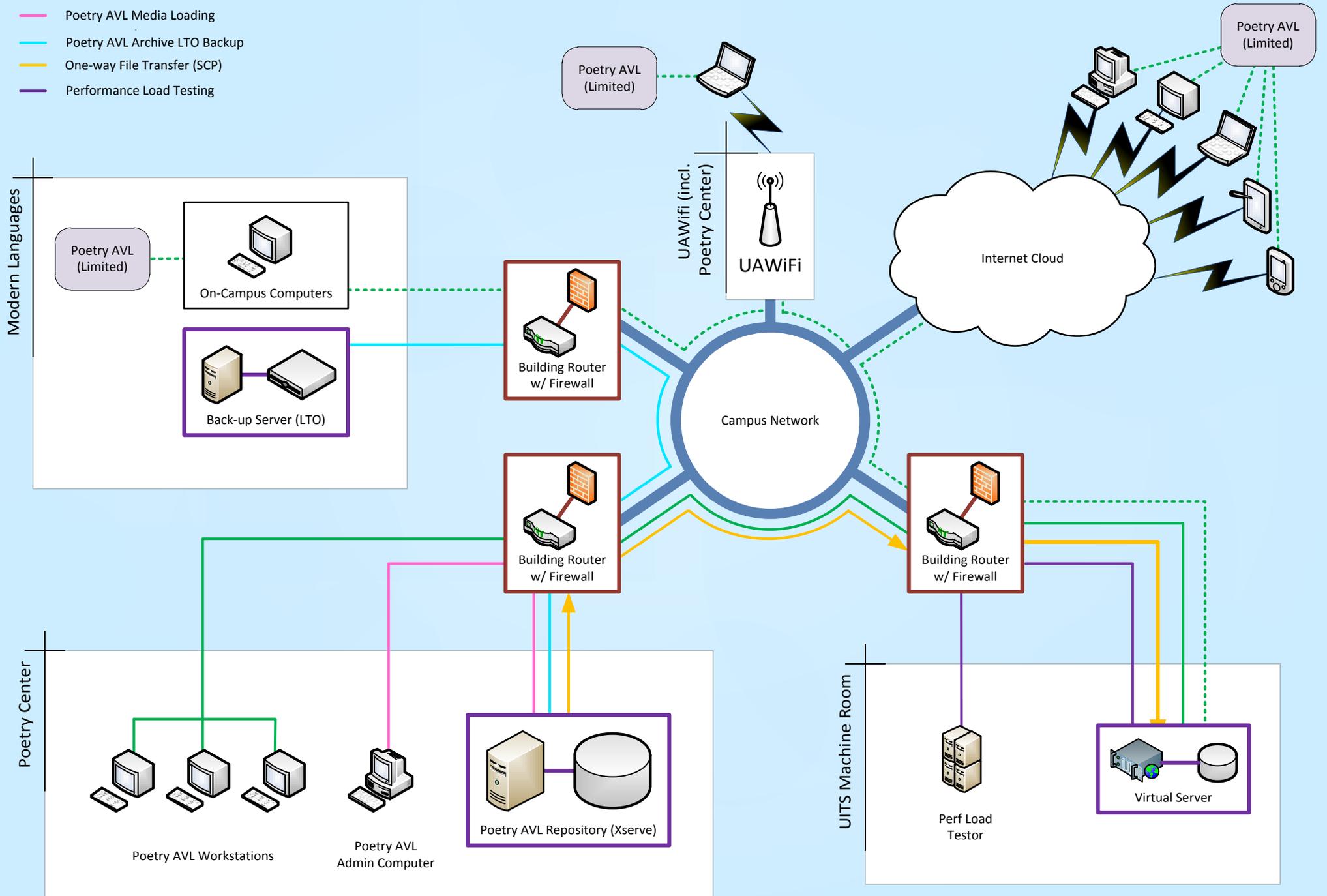
Graph 1



- PoetryCenter\_800\_mixed\_MYSQLFIXED.audio page.Avg Performance sec
- PoetryCenter\_800\_mixed\_MYSQLFIXED.basic page.Avg Performance sec
- PoetryCenter\_800\_mixed\_MYSQLFIXED.video page.Avg Performance sec

# Appendix 4 - Poetry AVL v2.2 Application Diagram

- UA Network Traffic (All)
- Poetry AVL (Complete)
- - - Poetry AVL (Limited)
- Poetry AVL Media Loading
- Poetry AVL Archive LTO Backup
- One-way File Transfer (SCP)
- Performance Load Testing

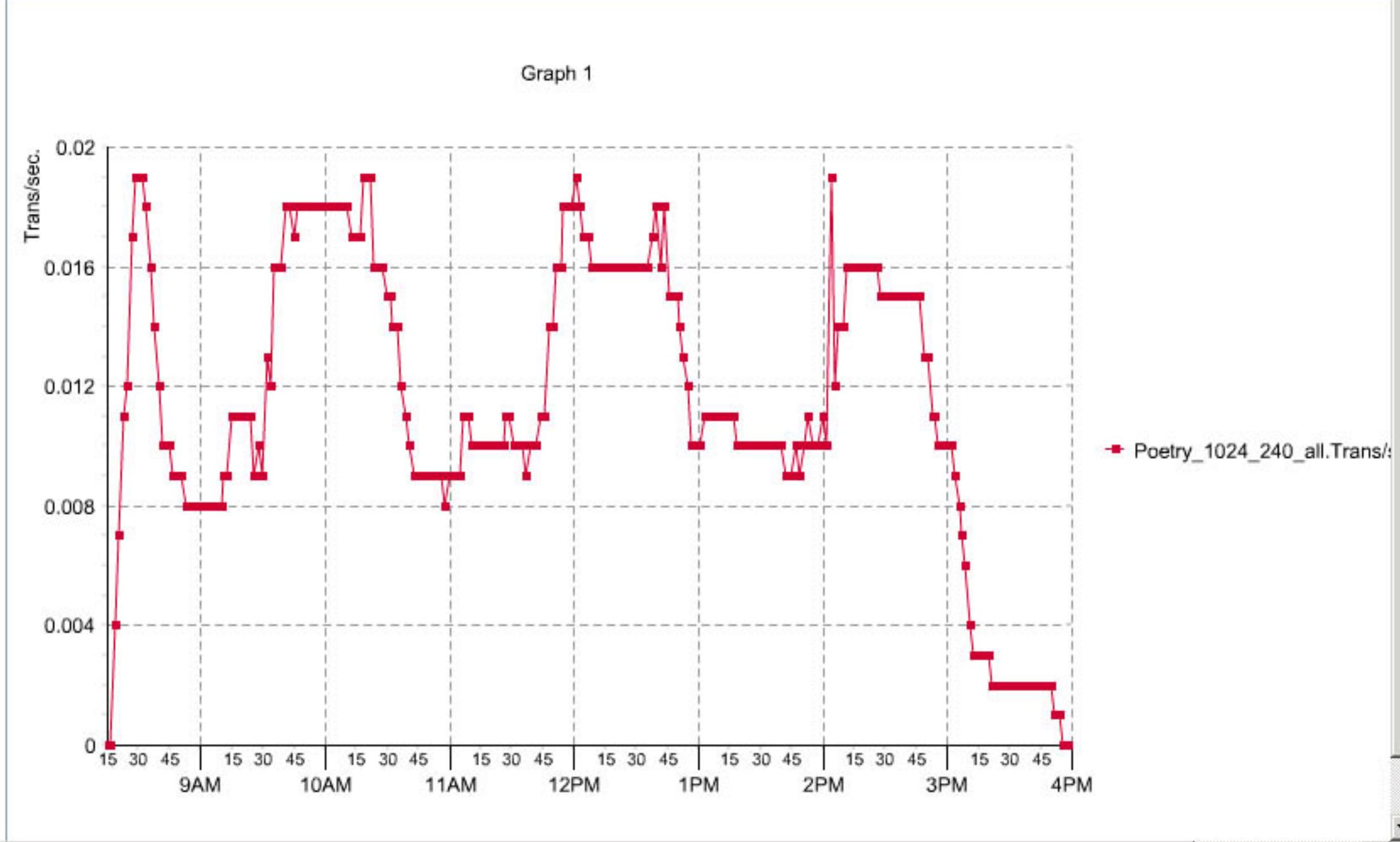


Session: Poetry\_1024\_240\_all

Available Data Series:  Show All

- Hits/sec
- KB Rcvd/sec
- Number of VUs
- Pages Rcvd/sec
- Trans Failed/sec
- Trans/sec**
- VUs with Errors
- + browse\_a\_readings
- + browse\_all
- + search\_black
- + search\_flower

Open Edit Save Clear X-Scale: Absolute Time





**THE UNIVERSITY  
OF ARIZONA  
POETRY  
CENTER**

Audio/Video Collection

[home](#)   [search readings](#)   [browse readings](#)   [add a reading](#)   [browse readers](#)   [sign out](#)

## Search Results

Reading ID	Reader(s)	Reading Title	Reading Subtitle	Reading Date	Options
157	Ackerman, Diane	Diane Ackerman		FALL-1985	 
164	Ackerman, Diane	Diane Ackerman		FALL-1999	 
136	Ai	Ai		FALL-1972	 
86	Ai	Ai		SPRING-1985	 
149	Alexander, Charles Olsson, Jesper Perloff, Marjorie Place, Vanessa Reed, Brian Reinfeld, Linda Smart, Marie	Roundtable Discussion		SPRING-2008	 
72	Anderson, Jon	Jon Anderson		SPRING-1970	 
89	Anderson, Jon	Jon Anderson		SPRING-1984	 
130	Anderson, Jon	Jon Anderson Tribute Video		SPRING-2008	 
131	Anderson, Jon	Jon Anderson Panel Discussion Video		SPRING-2008	 
108	Armantrout, Rae	Rae Armantrout		FALL-2007	 
121	Armantrout, Rae	Rae Armantrout Video		FALL-2007	 
97	Ashbery, John	John Ashbery		FALL-1980	 
118	Barks, Coleman	Coleman Barks and Galway Kinnell		FALL-1977	 
60	Bell, Marvin	Marvin Bell		SPRING-1972	 
147	Bergvall, Caroline Bok, Christian Swensen, Cole	Cole Swensen, Christian Bok, and Caroline Bergvall Video		SPRING-2008	 
151	Bergvall, Caroline Bernstein, Charles Bok, Christian Dworkin, Craig Goldsmith, Kenneth Morris, Tracie Nathanson, Tenney Swensen, Cole	Panel Discussion		SPRING-2008	 

Appendix 7 – AVL v2.2 Home page



The University of Arizona Poetry Center's Audio Video Library

Search the Library   [ADVANCED SEARCH](#)  
 or browse by reader  
 [A](#) | [B](#) | [C](#) | [D](#) | [E](#) | [F](#) | [G](#) | [H](#) | [I](#) | [J](#) | [K](#) | [L](#) | [M](#) | [N](#) | [O](#) | [P](#) | [Q](#) | [R](#) | [S](#) | [T](#) | [U](#) | [V](#) | [W](#) | [X](#) | [Y](#) | [Z](#) | [ALL](#)

[Information](#)      [Player](#)

Welcome

The Poetry Center's Audio Video Library features recordings from the Center's long-running Reading Series and other readings presented under the auspices of the Center. The earliest of these recordings is a Robert Creeley reading from 1963. The AVL includes multiple recordings of poets who have read for the Poetry Center numerous times over the years. Photographs are from our archive.

As we continue to digitize our recordings, these materials as well as new readings will be added to the AVL. All recordings are made available with the permission of the reader.

Our Funders

Digitization and online accessibility is made possible through funding provided by the National Endowment for the Humanities, the Southwestern Foundation, the Gladys Kriebel Delmas Foundation, the University of Arizona College of Humanities, and the Ruth Stephan and Myrtle Walgreen Library Endowment at the Poetry Center.



Currently this video / recording is randomly selected. Please use the search to find authors.

[Pictures](#)



Currently these images are randomly selected. Please use the search to find authors and additional materials.

door imagery death pen name humor  
 japan visual aid question and answer  
 dream dance island sports water  
 acoma children flowers african  
 american baseball fish south present  
 moment ireland swimming

CATEGORIES - SEARCH



Appendix 8 – AVL v1.0 Reading page



# Audio/Video Collection

**Selections from the Poetry Center's Reading Series**

Although the Poetry Center began recording readings by visiting poets and writers in the mid-sixties, the collection is strongest in the sixties and seventies. This database contains a selection of these recordings.

[start over](#)

**READING DETAIL**

<b>Reader(s):</b>	Merwin, WS	<b>Sponsor(s):</b>	U of A Department of English
<b>Title:</b>	WS Merwin	<b>Location(s):</b>	Modern Languages Auditorium
<b>Sub-Title:</b>		<b>Reading Date:</b>	Mar 22, 1977
<b>Description:</b>		<b>Author Statement:</b>	
<b>Series:</b>	Spring Reading Series		SPRING semester

No.	Title	READING SEGMENTS		Description	Media
		Subtitle			
1	Introduction				<a href="#">listen</a>
2	"Going up is only..."			by Robert Juarroz	<a href="#">listen</a>
3	"Sometimes my hands wake me up..."			by Robert Juarroz	<a href="#">listen</a>
4	"A man spills out his loneliness..."			by Robert Juarroz	<a href="#">listen</a>
5	"There will come a day..."			by Robert Juarroz	<a href="#">listen</a>
6	"Life draws a tree..."			by Robert Juarroz	<a href="#">listen</a>
7	"If we knew the point..."			by Robert Juarroz	<a href="#">listen</a>
8	"I am awake..."			by Robert Juarroz	<a href="#">listen</a>
9	Dream of an Indian in Southern Mexico			from Book of Dreams, edited by Robert Locklin	<a href="#">listen</a>
10	"Story of the Ants and the Grasshoppers"			from South Mexico Indians	<a href="#">listen</a>
11	"The Story of the Beautiful Man"			from South Mexico Indians	<a href="#">listen</a>
12	"Make this Simple Test"				<a href="#">listen</a>
13	"Song"				<a href="#">listen</a>
14	"The Iceberg"				<a href="#">listen</a>
15	"Dog Dreaming"				<a href="#">listen</a>
16	"The Drunk in the Furnace"				<a href="#">listen</a>
17	"Air"				<a href="#">listen</a>
18	"April"				<a href="#">listen</a>
19	"Avoiding News by the River"				<a href="#">listen</a>



CATEGORIES - SEARCH

### Billy Collins

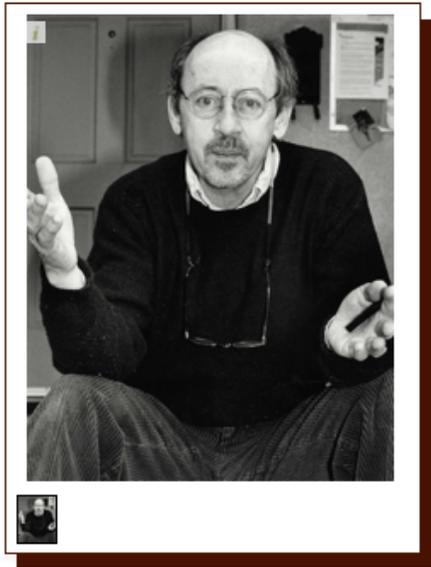
- Information
- Results
- Pictures
- Comments

#### Information

Reader(s): Collins, Billy  
Reading Date: Mar 7, 2001  
Series: Spring Reading Series  
Sponsor(s): UA Poetry Center  
Location(s): UA Poetry Center

Billy Collins reads widely from his body of work.

#### Pictures



#### Player



01:22 02:18

"The Country"

Annotation: Collins, Billy. *Litany*. New York: Random House, 2002.

"Velocity"

Annotation: Collins, Billy. *Litany*. New York: Random House, 2002.

"Litany"

Annotation: Collins, Billy. *Litany*. New York: Random House, 2002.

Feedback or Suggestions?

japan jazz sonnet humor  
art blakey

Enter comma-separated tags here

#### Comments

Submit a New

Appendix 10 – AVL v1.0 Administration Dashboard

 **Audio/Video Collection**

[home](#) [search readings](#) [browse readings](#) [add a reading](#) [browse readers](#) [sign out](#)

### Administration



#### Readings

[search](#) [browse](#) [create](#)



#### Readers

[browse](#) [create](#)



#### Series

[browse](#) [create](#)



#### Locations

[browse](#) [create](#)



#### Media Types

[browse](#) [create](#)



#### Sponsors

[browse](#) [create](#)



#### Reader Types

[browse](#) [create](#)



#### Publishers

[browse](#) [create](#)



#### Users

[browse](#) [create](#)

Appendix 11 – AVL v2.2 Administration Dashboard

poetrycenteravl.arizona.edu/poetrycentertest/admin/

THE UNIVERSITY OF ARIZONA **College of Humanities**

AVL HOME ADMIN HOME SEARCH READINGS ADD A READING BROWSE READERS STATISTICS REPORTS SIGN OUT  
MY PROFILE



**THE UNIVERSITY OF ARIZONA  
POETRY CENTER**  
Audio Video Library

**Readings**  
[search](#) [create](#)

**Readers**  
[browse](#) [create](#)

**Moderation**

**Series**

**Locations**

**Media Types**

**Sponsors**

**Reader Types**

**Publishers**

**Attributes**

**Attribute Categories**

**Users**

**Statistics**

### Administration Dashboard

**Readings In Work**

Reading ID	Reading Title	Reading Date	Options
460	Charles Alexander	2011	 
461	Julie Paegle	2011	 
462	Jason Bredle	2011	 
471	Laura Tohe	2011	 
473	A first sound	2011	 

**Readings To Double-Check**

Reading ID	Reading Title	Reading Date	Options
465	TC Tolbert	2011	 
467	Panel: Publishing in the Twenty-First Century	2011	 
469	Panel: The Joys and Challenges of Small Press Publishing	2011	 

**Incomplete Readings**

Reading ID	Reading Title	Reading Date	Options
No readings were found.			

**Readings Missing Media**

Reading ID	Reading Title	Reading Date	Options
28	W.S. Merwin	1984	 
216	Bei Dao	1999	 
288	Ofelia Zepeda	2009	 
301	Boyer Rickel	2009	 
344	Andrew Zawacki	2010	 
347	Andrew Joron	2010	 
349	Ed Foster	2010	 
395	Rex Lee Jim	2001	 
441	Ray Gonzalez	2004	 
473	A first sound	2011	 

**Google Analytics**

Total Pageviews 2299  
Total Visits 478  
Results Updated Nov. 30, 2011 03:00  
Visit Google Analytics for full reports

**Reading Comment Abuse Reports**

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