Agile Fedora: AJAX, Low-cost Clustering, and Dynamic Metadata Forms for a Multicultural Website Project

Presentation Proposal
Open Repositories 2009 Fedora User Group

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The proposed presentation describes and demonstrates new Fedora management applications and a Fedora-powered Website developed by the Canadian Centre for Ethnomusicology at the University of Alberta.

Dr Regula Qureshi, Professor Emeritus of Music (Ethnomusicology) received funding for the project from Canadian Culture Online, a federal government program. *South Asian Music in Canada: Heritage, Adaptation, and Transformation* traces the creation of musical communities in Canada's South Asian diaspora. The project required digitization of field recordings from the archives of the Canadian Centre for Ethnomusicology, as well as large partner collections belonging to a diverse set of multicultural and arts organizations. In total, over a thousand hours of high resolution video and audio and thousands of images were incorporated into a Fedora-powered media repository of approximately four terabytes.

Organizing, digitizing, cataloguing, and documenting permissions for this diverse collection took place in a custom Web interface that was developed as a prototype for Community-University collaborative repository management.

The repository management prototype is programmed entirely in PHP, and uses Fedora API-M and generic search service REST APIs. The user interface functions using 100% AJAX (Asynchronous Javascript And XML) in a tabbed interface with no page refreshes. The AJAX interface interacts with the Fedora repository in real time. Media playback is powered by inline Flash players, with optional 'pop-out' capability for resizable and full-screen high bandwidth video with random seeking and bandwidth-limited progressive download. The metadata entry form uses a flowchart workflow, with fields appearing dynamically based on user choices.

A media management backend was created to automate the processing of thumbnails, Web formats, intranet high-resolution streams, and time subranges from archival files. A batch processing service creates, removes, and updates derivatives when the master is affected. The processing engine uses 100% open source software, and is able to dramatically reduce processing time for large jobs by using a networked cluster of commodity PCs managed by an OpenPBS queue.

The repository manager and media processing backend will be demonstrated for the presentation audience, along with the Fedora-powered public multicultural Website.

Plans for future work on the Fedora platform will also be briefly outlined. The next stage of development will move all metadata services to RDF/XML datastreams and triplestore, and use an inferencing RDF/SPARQL engine with Lucene full text search for repository browse, search, dynamic form building, and Web 2.0 style interoperability.

David Descheneau is technology manager and developer for folkwaysAlive!: University of Alberta in Partnership with Smithsonian Folkways Recordings. He served as technical project manager for the South Asian Music in Canada project.