SYRACUSE UNIVERSITY Library

Developing a Customized, Extensible Application for Digital Collections

Suzanne E. Thorin, Sean M. Quimby, Jeremy D. Morgan

Overview

- Introduction
- Proof of Concept:
  - Marcel Breuer Digital Archive
    - Reasons to Migrate to an XML-based platform
  - Extending the XML-based platform
    - The Plastics Collection
- Intellectual Property
- Mass Migration
- Technology:
  - System Overview
  - Database
  - Server
  - eXtensible Text Framework (XTF)
  - Content Migration
- Concluding Thoughts

The Marcel Breuer Digital Archive

- 2009 - National Endowment for the Humanities Preservation and Access Grant ($350,000).
- Digitally united more than 30,000 objects from 7 partner institutions relating to the Bauhaus-trained, Modernist architect Marcel Breuer (1902-1981).
  - Syracuse University, The Archives of American Art, Harvard University, Bauhaus Archiv (Germany), Vitra Design Museum (Germany), GTA Archive - Eidgenössische Technische Hochschule (Switzerland), and University of East Anglia (United Kingdom).
- The project team included a PhD architectural historian (lead), advisory board of prominent architectural historians, programmer, archivists, and advisory board.
- We wanted to deploy an XML-driven solution that could, if successful, be leveraged in support of other digital content.
- Outsourced web design (front end) to a NYC-based firm, Flat, Inc.

Reasons to migrate to an XML-based platform

- XML helps ensure platform (and perhaps more critically vendor) independence;
- XML's extensibility and modularity allow libraries to customize its application within their own operating environments;
- XML helps minimize software development costs by allowing libraries to leverage existing, open source development tools;
- XML, through virtue of being an open standard which enables descriptive markup may assist in the long-term preservation of electronic materials; and perhaps most importantly

Source: Jerome McDonough, “Structural Metadata and the Social Limitation of Interoperability: A Sociotechnical View of XML and Digital Library “Standards Development,” Balisage: the Markup Conference, August 2008.

Marcel Breuer
DIGITAL ARCHIVE

EXPLORE THE ARCHIVE

Browse | Search | Advanced Search

Project List
Name List

About
Resources

Navigating the Archive

The Marcel Breuer Digital Archive represents a collaborative effort headed by Syracuse University Library to digitize over 30,000 drawings, photographs, letters and other materials related to the career of Marcel Breuer, one of the most influential architects and furniture designers of the twentieth century. The first phase of this NEH-funded project culminates in the headquarters complex designed for UNESCO in the mid-1950s. UNESCO represents a transitional moment between the early Bauhaus-inspired designs and the monumental, sculptural concrete buildings of his later career.

EXPLORE THE ARCHIVE allows you to browse the entire collection or search by keyword and further filter the results. You can find detailed information about specific projects or people by searching the PROJECT LIST or NAME LIST. Click on any logo at the bottom of the page to learn more about Syracuse's partners and their contributions to the digital archive.

PROJECTS

There are 239 projects. You are looking at projects 1 through 6.






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

B

	B. B. Chemical Company	Commercial Furniture Interior Design 1937 - 1938	Boston, MA USA	Henry Shepley, a partner in the prominent Boston architecture firm Coolidge Shepley Bulfinch and Abbot, asked Breuer to...
	Baltimore Garden Apartments	Residential 1954	Baltimore, MD USA	In April 1954, Breuer created preliminary presentation drawings for a private apartment complex in Baltimore, MD. Six...
	BAMBOS Houses, Types 1, 2 and 3	Residential 1927	Dessau Germany	In 1927, Breuer designed three variations of a prefabricated metal row house for the young masters of the...
	Bandler House	Residential 1946	Cambridge, MA USA	In February of 1946, Dr. and Mrs. Bernard Bandler hired Breuer to remodel and furnish their house in...
	Bantam Elementary School	Educational 1954 - 1956	Bantam, CT USA	Between 1954 and 1956, Breuer designed the Bantam Elementary School in Litchfield, CT. in association with the architectural...

Binuclear House

photograph 1

In October of 1945, Breuer designed a binuclear house for Miami, FL. A long, rectangular wing contained the living and dining rooms at one end and the kitchen, studies and utility room at the other. Breuer took advantage of the climate to provide extensive outdoor spaces. The western façade of the living wing possessed a covered, poolside porch, whose roof was supported by pilotis, and exterior stairs led to a roof deck. The bedrooms were situated above the garage in a smaller, square volume connected to the living wing by a stone and glass entrance shaded by a pergola. Breuer would use this design as the basis for the Lawnhurst House (1947), which also remained unrealized.

See All Related Objects »

Date
1945

Project Type
Residential

Location
Miami, FL USA

Language
English

People/Firms
Architectural Record
Haskell
Marcel Breuer, Architect, Cambridge

Drawings 5 browse all »

Marcel Breuer

DIGITAL ARCHIVE

Browse | Search | Advanced Search | Project List | Name List | About | Resources

Home > Search Results

Results for "catalog"

Results: 74 View: 1 of

Date

19xx to 19xx Filter »

Object Type

- Drawing (s) 24
- Published Material 21
- Correspondence 19
- Project Record 9
- Slide 1

DrawingType

- Working/Construction Drawing 1

ViewType

- Detail 2
- Elevation 1
- Interior Perspective 1
- Plan 1
- Section 1

Project

	Object Title	People	Date	Object Type	Project
	Exhibition Catalog (clippings)		1939	Published Material	Furniture Golden Gate International Exposition
	Tubular Steel Furniture Catalog Pages		1939 1940	Published Material	Frank House
	Wohnbedarf (catalog)	Bayer, Herbert (Designer)	1934	Published Material	Furniture
	Heal's Exhibition Catalog (clippings)		1936	Published Material	Heal's Exhibiti Furniture

Wohnbedarf (catalog)

This object has 36 pages. You are looking at 1 of 36.

Date
1934

Project Name
Furniture

Location

Project Type
Furniture

People
Bayer, Herbert (Designer)

Firms
Wohnbedarf (Manufacturer)

Language
German

Dimensions
n/a

Enclosures
n/a

Repository
Syracuse University

Extending the XML-Driven Platform

The Plastics Collection

- 2007 - National Plastics Center and Museum transferred artifact, print, and archival collections to SU Library.
- Donor-driven ($105,000 to hire a curator for the collection, separate gifts to support photography of artifacts.)
- Donor(s) wanted a web portal that provided access to the collection and to interpretive content, including personal and corporate biographies and descriptions of materials and processes.
- Donor(s) had very specific metadata requirements, for example, they wanted to capture “material trade name” and “material name.” There is no standard vocabulary, so we are, in effect, creating one with input from our donor group [material name : Nylon (Polyamide) (PA)]
- Migrated to the XML platform in the 2011.

bakelite

Browsing Objects

Sort: Relevance

1 of 116

Select (click on) one or more facets at left to narrow your search; click on a selected facet to de-select it and broaden your search.

Currently showing 20 results of 2310

DATE

19xx to 19xx

SUBJECT

Aeronautic and Aerospace	26
Appliances	32
Architecture, Building and Construction	45
Automotive	82
Book Covers and Printed Matter	1

MATERIAL

Acrylonitrile Butadiene Styrene (ABS)	81
Aluminum	4
Badger Hair	1
Boar's Hair	2
Bronze	1
Cellulose	1













bakelite

Results for "bakelite"

Select (click on) one or more facets at left to narrow your search; click on a selected facet to de-select it and broaden your search.

Sort: Relevance

1 of 4

DATE

19xx to 19xx

SUBJECT

Appliances	2
Bowls	3
Boxes	1
Clocks	1
Clothing, Jewelry and Accessories	3
Combs	2

MATERIAL

Aluminum	3
Cellulose Acetate	1
Cellulose Nitrate (CN) (celluloid)	1
Phenol Formaldehyde (PF) (phenolic)	64
Polystyrene	2

MATERIAL TRADE NAME

Bakelite	54

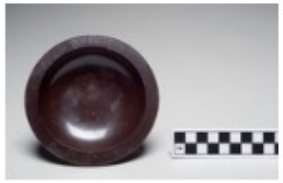
Currently showing 20 results of 76
















BANGLE BRACELETS

DESCRIPTION

Earth tone bangle bracelets. Two have a metal hinge to clasp bangle around wrist. In 1934 Modern Plastics magazine estimated that 50% to 70% of all costume jewelry produced in the U.S. was made of cast phenolic (popularly known as cast Bakelite), now widely sought after by collectors of both jewelry and plastics. Most bracelets were made by slicing cast phenolic tubes into rings of chosen widths. These could be smoothed and finished by hand or in tumbling machines. Carving was done with both hand and power tools. Bangle bracelets of different colors or patterns, as in the example with black and white zigzag patterns, could be made by bonding cuts from different tubes.

Manufactured by
Unidentified

Manufactured for
Unidentified

Date Manufactured
1930 - 1940
(estimated)

Material
Phenol Formaldehyde (PF) (phenolic)

Manufacturing Process
Cast
Fabrication
Polishing

Dimensions
Unidentified

Accession Number
2009_079.054

Donor
Broutman, Lawrence

DESCRIPTION

Earth tone bangle bracelets. Two have a metal hinge to clasp bangle around wrist. In 1934 Modern Plastics magazine estimated that 50% to 70% of all costume jewelry produced in the U.S. was made of cast phenolic (popularly known as cast Bakelite), now widely sought after by collectors of both jewelry and plastics. Most bracelets were made by slicing cast phenolic tubes into rings of chosen widths. These could be smoothed and finished by hand or in tumbling machines. Carving was done with both hand and power tools. Bangle bracelets of different colors or patterns, as in the example with black and white zigzag patterns, could be made by bonding cuts from different tubes.

Do you have more information about this object?

Send us an E-Mail to:
plastics@syr.edu

Please be sure to include the Accession Number and Title if available.

Learn more about:
Phenol Formaldehyde (PF) (phenolic)
Cast
Fabrication
Polishing

Manufactured by
Unidentified

Manufactured for
Unidentified

Date Manufactured
1930 - 1940
(estimated)

Material
Phenol Formaldehyde (PF) (phenolic)

Material Trade Name
Unidentified

Manufacturing Process
Cast
Fabrication
Polishing

Dimensions
Unidentified

Accession Number
2009_079.054

Donor
Broutman, Lawrence

Subjects
Clothing, Jewelry and Accessories

PROCESSES

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

Currently showing 12 processes.

Calendering

The process of forming thermoplastic sheeting or film by passing the material through a series of heated rollers. The gap between the last pair of heated rollers determines the thickness of the sheet. Subsequent cold rollers cool the sheet. The plastic compound is usually premixed and plasticated on separate equipment, then fed continuously into the nip of the first pair of calendar rolls.

Source: Whittington, Lloyd R. *Whittington's Dictionary of Plastics* (Stamford, CT: Technomic, 1968).

Cast

To form a plastic material into a certain shape by pouring it into a mold and letting it harden without applying external pressure.

Centrifugal Casting

The process of forming pipes or other hollow cylindrical objects by introducing a measured amount of fluid resin or resin dispersion into a rotable container or mold, rotating the mold about one axis at a speed high enough to force the fluid against all parts of the mold by centrifugal force, maintain such rotation while solidifying the plastic by applicable means such as heating, then cooling if necessary and removing the formed part. This should not be confused with Rotational casting, which involved rotation at slow speeds about one or more axes and distribution under the force of gravity.

Source: Whittington, Lloyd R. *Whittington's Dictionary of Plastics* (Stamford, CT: Technomic, 1968).

Intellectual Property

POLICY

- Referencing (obliquely) "Fair Use": "for use in education, scholarship, research, teaching, and private study."
- Acknowledging rights holders: "The written permission of the copyright owners or other rights holders (such as publicity or privacy rights) may be required for distribution, reproduction, or other use of protected items beyond that allowed by fair use or other statutory exemptions. Syracuse University does not hold the copyright for many of the materials made available here."
- Delineating user responsibilities: "The user is solely responsible for determining the copyright status of any material he or she may wish to use, investigating the owner of the copyright and obtaining permission for any intended use, or determining the applicability of any statutory exemptions."
- Take-down policy. "Syracuse University is eager to hear from any copyright owners who believe the website has not properly attributed their work or has used it without authorization. Please contact us at the following email address cipa@syr.edu."

Marcel Breuer Digital Archive policy statement: http://breuer.syr.edu/page-about-copyright.php SU Library Copyright Office: http://copyright.syr.edu/

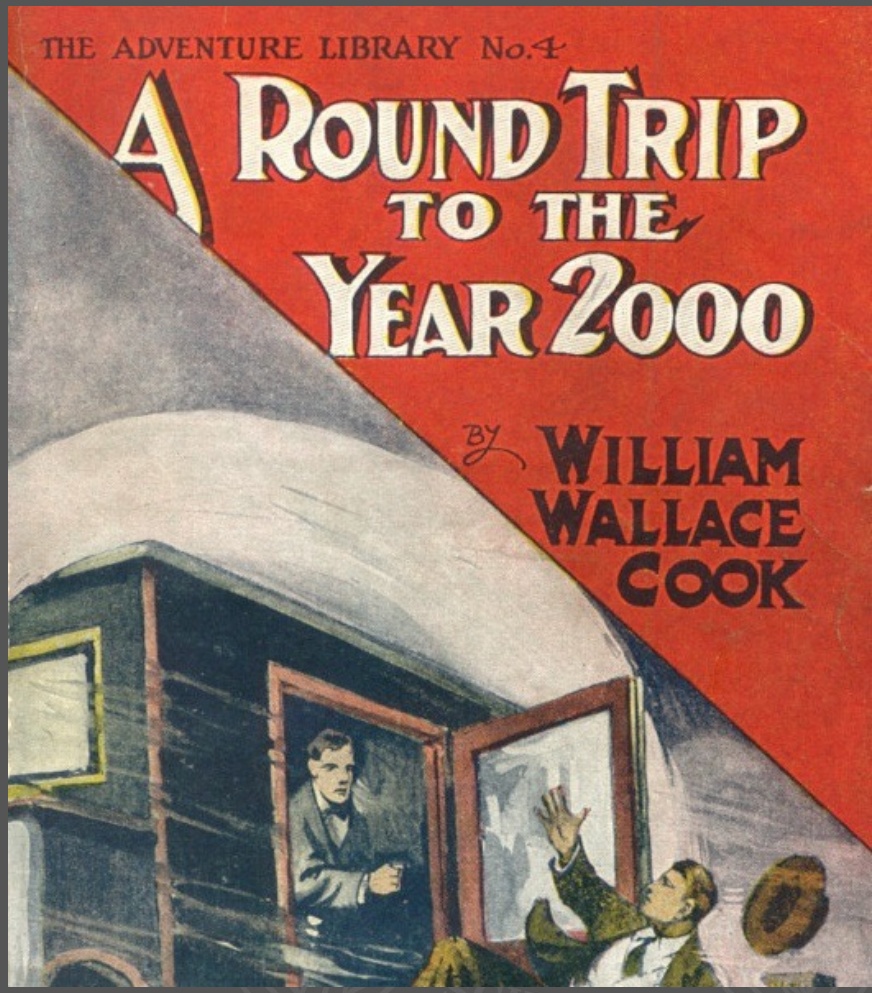
Mass Migration

Internal database

- 4,200 “hidden” digital objects.
- Metadata maintained in FileMaker Pro database.
- *Not* yet publicly accessible.

CONTENTdm

- 29,405 digital objects across 15 digital collections that are currently accessible.
- Mostly images, but includes both sound (wax cylinders), moving image (character study theater interviews), and text files (Gerrit Smith broadsides).



Prior to Departure

- We had to *identify* those digital objects in the FileMaker database that cannot be made publicly available (agreement-restricted).

- We had to *normalize* the existing metadata (within and across collections)

- *We had to map* the metadata types:
  - Structural to METS (Metadata Encoding Transmission Standard)
  - Descriptive (object/image) to MODS (Metadata Object Description Standard)
  - Personal/corporate names to EAC (Encoded Archival Context)

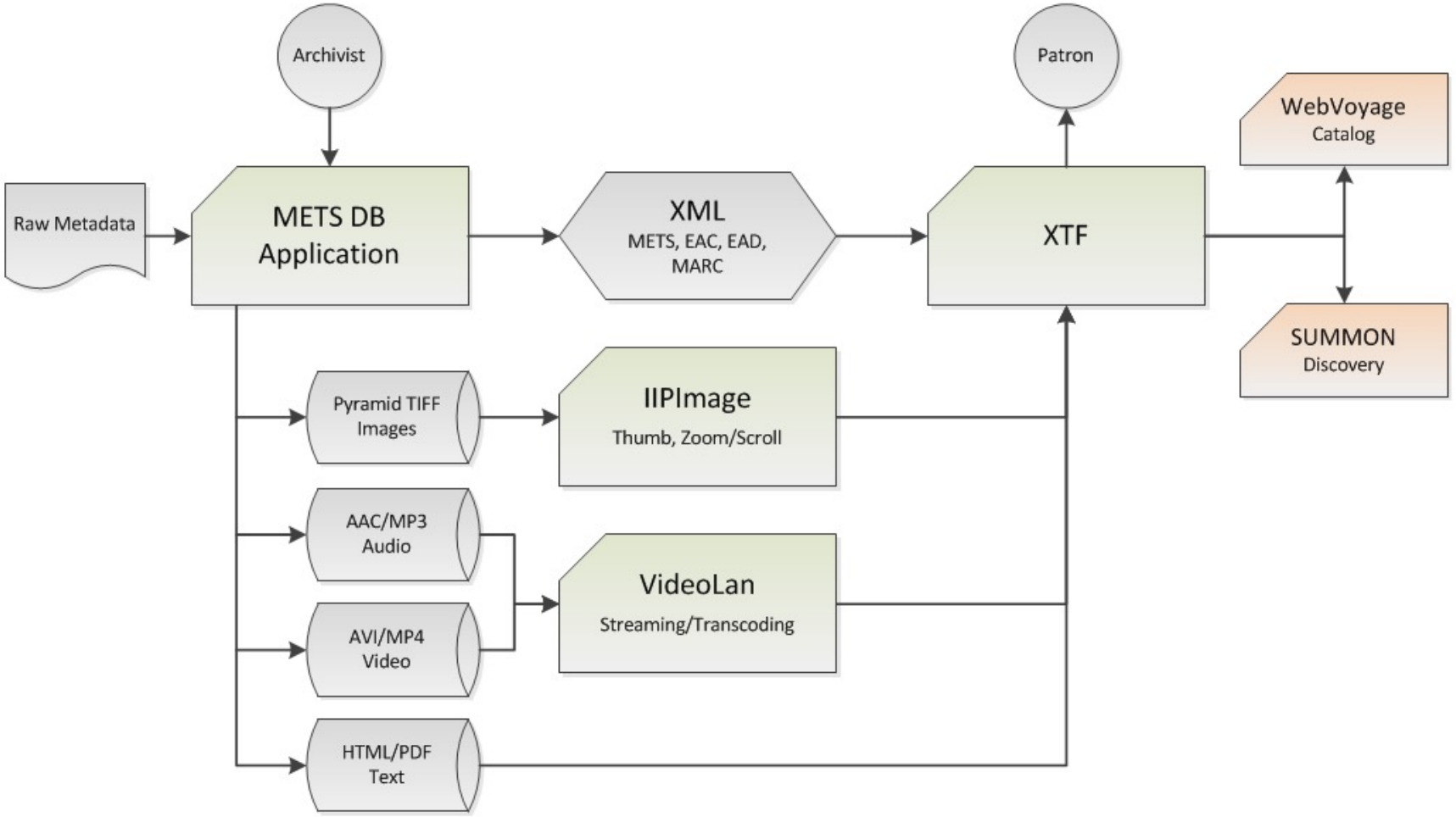
- We had to *map* the metadata fields.

A persistent question: How do you resolve the tension between flexibility (an intrinsic perk of XML) and the standardization required for cross-collection search and discovery?

Technology

- System Overview
- Server
- METS Database Application
- eXtensible Text Framework (XTF)
- Content Migration

System Overview



Server

- **VMware Virtual Machine "Hardware"**
  - Located at the Syracuse University Green Data Center
  - Processor: Intel Xeon X7560 @ 2.27GHz (Single Core)
  - Memory: 3GB
- **64-bit Linux Operating System (CentOS)**

Syracuse University Green Data Center

Server

- **Apache HTTP Web Server (Apache)**
  - PHP
  - METS DB Application
  - Static Pages
- **Apache Tomcat Web Server (Tomcat)**
  - Java
  - eXtensible Text Framework (XTF)
  - Djatoka (current image server)
- **FastCGI**
  - IIP Image Server (future image server)

METS Database Application

- PHP/MySQL Web Application
- Supports LDAP and Local Authentication
- Built with an emphasis on controlled authority and vocabulary
- Dynamic Configuration Sets and Metadata Fields*
- Bulk input via XML and Tab Delimited Spreadsheets*
- Exports METS and EAC XML
- Schedules XTF Indexes*

* New in version 2.0

What is a Configuration Set?

- **Grouping of metadata fields**
- **Examples:**
  - Objects
    - Links together Media, People, Firms, and Projects Configuration Sets (METS)
  - Media
    - Images, Audio, Video, Text, etc
  - People
    - Authority Control (EAC)
  - Firms
    - Authority Control (EAC)
  - Projects
    - Specific to the Marcel Breuer collection, links objects to specific projects

SYRACUSE UNIVERSITY LIBRARY

METS Manager

Jeremy Morgan Logout

Collections | Metadata | Reports | Index | Administration

Aerial Photographs, Syracuse, NY, 1926

Objects | Media | Firms | About

Objects

Browse | Search | New | Configuration

- Text
- Long Text
- Wysiwyg
- Drop Down
  - Object Type
  - Subjects
  - Language
  - SUMMON Content Type
- Date
- Date Range
- Boolean
- Multiple Select
- Media Browser
- File Browser
- Linked Objects
- Collections

Label	Field	Configure
Title	Text	
Object Type	--None--	
Subjects	--None--	
Object Date	YYYY-MM-D → YYYY-MM-D Estimated Estimated	
Media	Media Browser	
Language	--None--	
Description	Wysiwyg	
Rights	Long Text	
Notes	Long Text	
Collections	Collection Browser	
Draft		
Index		

Why change to Configuration Sets?

- Original METS database designed specifically for architecture metadata
- Interface and database needed to be modified to work with Plastics collection.
- More hardcoded customizations would need to be made to accommodate “SCRC Online” and CONTENTdm collections.
- CONTENTdm users are accustomed to customizing metadata fields and labels

Image Server Change

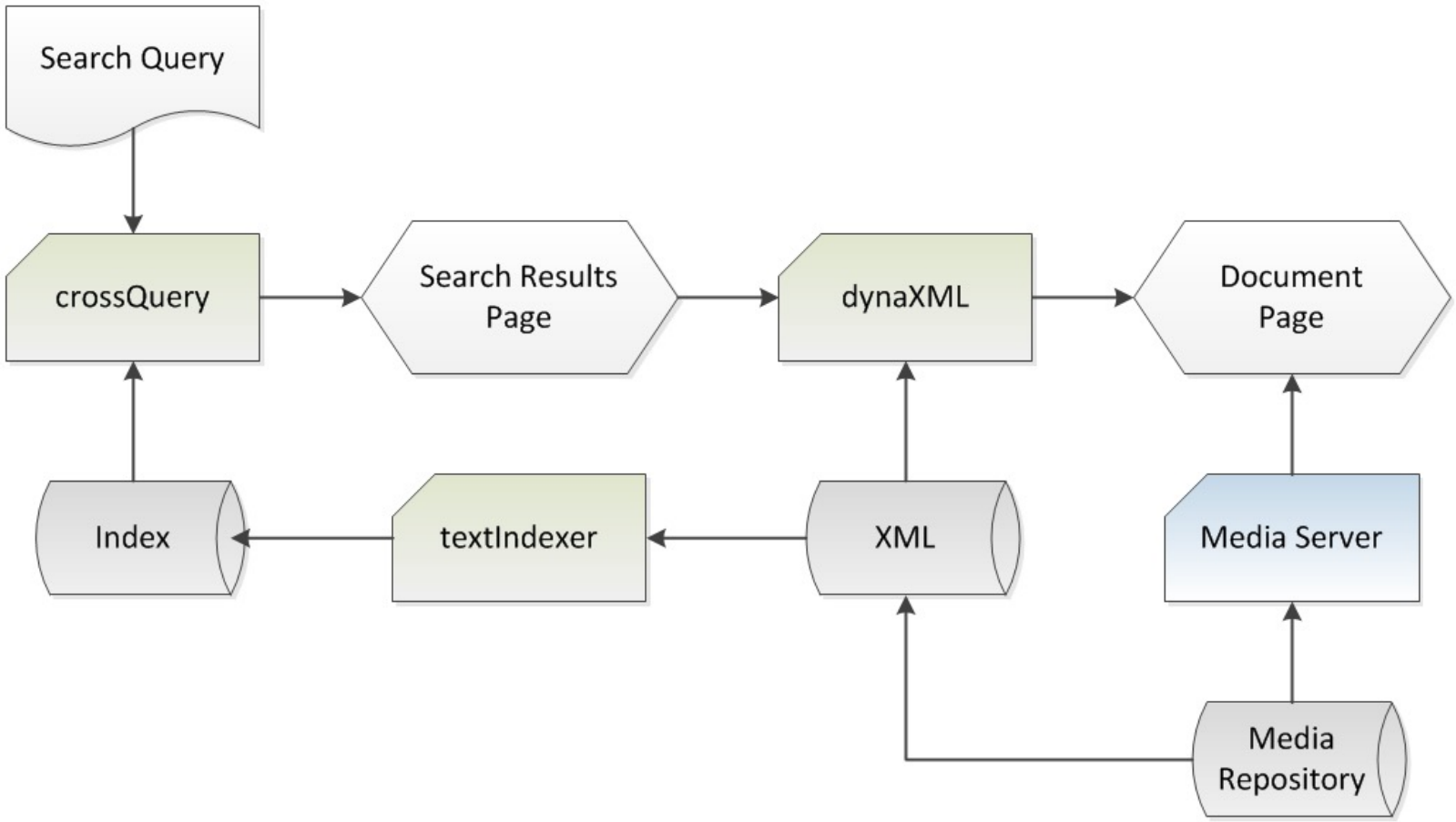
Why change from Djatoka to IIPImage server?

- **Tomcat stability issues**
  - Trouble running Djatoka in Tomcat 7
  - IIPImage uses FastCGI binaries
- **Active development**
  - Djatoka last stable release: June 2009
  - IIPImage last stable release: June 2012
- **Better watermark support**

eXtensible Text Framework (XTF)

- **Tomcat Servlet (Java)**
- **Free, open source, Apache/BSD/MPL Licensed**
  - University of California, California Digital Library
- **Indexes numerous document types:**
  - XML, HTML, Word, PDF, TXT…
- **Customizable Index (XSLT)**
- **Customizable User Interface (XSLT, CSS, HTML)**

XTF: System Overview



What is Indexed in XTF?

Marcel Breuer*	Plastics	Internal Database	CONTENTdm
Objects (METS)	Artifacts (METS) People & Companies (EAC) Manuscripts (EAD) Books & Journals (MARC XML)	Images (METS) People & Companies (EAC)	Objects (METS) People & Companies (EAC)

* Marcel Breuer: People and Firms (EAC) index scheduled for 2013.

Content Migration

Projects	Metadata Source	Metadata Export	Media Sources	Media Converted
Marcel Breuer	File Maker Pro Excel	Tab-Delimited TXT	TIFF, JPEG2000	N/A*
Plastics	CONTENTdm	Tab-Delimited TXT	JPEG2000	PNG*
Internal Database	File Maker Pro	Tab-Delimited TXT	TIFF	Pyramid TIFF
CONTENTdm	CONTENTdm	XML	JPEG2000, WAV, MP3, AVI, MP4, PDF	Pyramid TIFF

* All images will eventually be converted to Pyramid TIFFs

Concluding Thoughts

Currently, we are developing the front-end, user-interface.

Expected release date is January 2013.

We hope that our project will serve as a model for medium-sized academic libraries that are looking at a customizable, open-source, XML-based application for building digital collections.

Contact :

Suzanne E. Thorin, Dean of Libraries and University Librarian, sethorin@syr.edu
Sean M. Quimby, Senior Director of Special Collections, smquimby@syr.edu
Jeremy D. Morgan, Information Technology Analyst, jdmorgan@syr.edu