



Digital Libraries at Virginia Tech

*Developing a plan for the library of
the future*

CAUSE/CNI Southeast Regional Preconference

Recognizing a need

- *Departments and units around campus amassing electronic data collections that cannot “talk” to one another*
- *Vendors and developers continue to build standalone and networked resources that don't interoperate*

Bringing people together

- *These problems lead people to the library because*
 - *libraries classify things*
 - *libraries have tools for recording these classifications*
 - *users know how to interact with these tools to find things*

Bringing everyone up to speed

- *A digital libraries group was established to consider these issues. It consists of experts and novices in the field of digital libraries*
 - *Researchers from the Computer Science department*
 - *Pragmatic production-oriented library staff*

Issues and Concepts

■ *interoperability*

- *Standards such as Z39.50, MARC, SGML*

■ *scalability*

- *Storage, distributed processing issues*

■ *usability*

- *Interface design, search engines, ADA*

■ *sustainability*

- *long-term storage, object persistence*

Taking stock of what we have

- *The library staff started building a list of searchable archives developed or maintained in-house (e.g.. SCP journals, newspapers, VTLS)*
- *Computer Science did the same (e.g.. Computer Science Technical Reports, Marian)*

Netscape - [Search Matrix for VT Resources]

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Location: <http://scholar.lib.vt.edu/digilib/search-matrix.html>

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Search Matrix

VT Resources

Select asterisk next to item title for description

Bibliographic Catalogs

[Marian](#) [VTLS](#)

Image Collections

Some items restricted to Virginia Tech

[University Libraries Digital Image Collections](#) [CTHA Catalogue](#)

News Archives

Some items restricted to Virginia Tech

Newspapers	Other News Sources
Roanoke Times	WDBJ-7 TV News Scripts
Virginian-Pilot	Virginia Tech Spectrum

Journals

Alan Review	Journal of Industrial Teacher Education
Journal of Technology Education	Society for Philosophy & Technology
Journal of Veterinary Medical Education	Journal of Vocational and Technical Education

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Scholarly Communications

Working with IBM

- *Evaluating the Visual Info digital library software*
 - *This OS/2 based software for organizing and processing images is evolving into a general purpose digital library application*

Visual Info

- *OS/2 client only*
 - *Fails interoperability test*
- *Single library server that stores collection information*
 - *Fails scalability test*
- *Distributed object servers that house digital object collections*
 - *Passes scalability here*

Other piece of the puzzle

■ *Universal Resource Names*

- *URLs come and go, but URNs are forever*

■ *Metadata*

- *How could we describe digital objects like images, articles, books and even databases*

URNs

- *Persistent names intended to represent an object on the Net without reference to location -- forever.*
- *Name points to one or more locations, one or more formats*
- *Promised for years, URNs may soon be a reality as PURLs or Handles*

PURLs and Handles

- *OCLC developed PURLS*
 - *Look like URLs and work with existing browsers*
 - *One PURL points to a real URL*
- *CNRI developed Handles*
 - *Require a proxy or updated browser*
 - *One handle can point to multiple URLs*

Library has a PURL resolver

- *The library installed a PURL resolver this summer*
- *Have since created over 1000 PURLs for a digital image collection*


Netscape - [Persistent URL Home Page]

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Location: <http://urn.lib.vt.edu/>

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A PURL is a **Persistent Uniform Resource Locator**. Functionally, a PURL is a URL. However, instead of pointing directly to the location of an Internet resource, a PURL points to an intermediate resolution service. The PURL resolution service associates the PURL with the actual URL and returns that URL to the client. The client can then complete the URL transaction in the normal fashion. In Web parlance, this is a standard HTTP *redirect*.

The OCLC PURL Service has been strongly influenced by the active participation of [OCLC's Office of Research](#) in the IETF Uniform Resource Identifier working groups. There is nothing incompatible between PURLs and the ongoing URN work. PURLs satisfy many of the requirements of URNs using currently deployed technologies and can be transitioned smoothly into a URN architecture once it is deployed.

<p>Further Information and Resources</p> <ul style="list-style-type: none"> • A brief introduction to PURLs • A longer introduction to PURLs • Frequently Asked Questions • Download the PURL software NEW • PURL-L mailing list • More info 	<p>Interacting with This Resolver</p> <ul style="list-style-type: none"> • Create your first PURL • Register as a user • Create PURLs, domains, groups • Modify PURLs, domains, groups, users • Search this resolver • Power user's page (all features)
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Metadata

- *Describing objects of different types will probably require multiple types of metadata but...*
- *OCLC's Dublin Core is an effort to create one metadata standard for all document and document-like digital objects*

Dublin Core

- *As few fields as possible*
- *No field required:*
 - *subject, title, author, publisher, other agent, date, object type, form, identifier, relation, source, language, coverage*

Prototype Digital Image Project

- *With PURLs and the Dublin Core, we built a prototype digital image collection called the Virginia Tech ImageBase*
 - *Oracle-based*
 - *Web accessible*
- *Scaleable (Oracle), usable (Web), interoperable (SQL) and sustainable (PURLs)*

Netscape - [VT ImageBase]


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Location: <http://scholar.lib.vt.edu/imagebase.html>

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Image Database
 Virginia Polytechnic Institute and State University
 Blacksburg, Virginia



[VT/LIB/ARCH/SLIDES/222monet9.jpg](#)

Image Description

Title: Gare St. Lazarre	Subject:
Period:	Medium:
Source:	Object Type:
View:	Size: 32-3/4
Image Type: jpg	Location: Paris
Date: 1876-77	
Artist: Claude Monet	Birthplace:

 **Search by** [Title](#) | [Creator](#) | [Subject](#)

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How the prototype is working out

- *Has been valuable a tool for trying out some digital library technologies:*
 - *Dublin Core causes some confusion*
 - *There is still much confusion about how to use some fields*
 - *PURL system is fast, reliable and easy to use and maintain*
 - *Redirect from PURL to URL is currently unnoticeable*

What about our OPAC?

- *We're not sure yet!*
 - *It may be a metadata repository representing a subset of our collection*
 - *It may be the main entry point into a digital library and include metadata for digital, print and searchable resources*
 - *It may look and act more like Marian - a full text relevance feedback search engine*

Beyond prototypes

- *The current digital libraries group is proposing that the university establish a digital libraries steering committee to*
 - *advise administrators*
 - *evaluate technologies*
 - *provide guidance and support to maintainers and developers of electronic information archives*

Other plans

- *Work will continue on the digital image prototype*
 - *We may migrate it to some future release of Visual Info*
- *Projects such as the ETD initiative will force us to deal with many digital library issues as well*

No one answer...

- *We don't have a digital library*
 - *Resources are scattered, require proprietary search clients, are poorly described and sometimes inaccessible*
- *We do have a digital library*
 - *Gigabytes of digitized, web accessible resources*

Finding support

- *We need more participation from the university community...*
- *and the support of management*
 - *This means time, money for training, and personnel dedicated exclusively to the project*

Achievable

- *By developing prototypes, digitizing collections, forging ahead with production efforts, pressuring vendors and learning all we can, we hope to steer the university towards a unified system*


Netscape - [VTDL]

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Digital Libraries Project
Virginia Polytechnic Institute and State University
Blacksburg, Virginia

- [Electronic Document Collections at Virginia Tech](#)
- [Meeting Schedule](#)
- [Pointers to information about Digital Libraries](#)
- [Project Reports](#)
- [References: Research Department Virginia Tech Computing Center](#)

References

- **General**
 - [Digital Libraries Research and Development Forum \(D-Lib\)](#)
 - [Florida Center for Library Automation's Digital Library Project](#)
 - [IBM Digital Library](#)
- **Specific Topics**
 - **Agents**
 - [UMBC Intelligent Software Agent Resources](#)
 - [Survey of Intelligent Software Agents](#)
 - [More agent links](#)
 - **Metadata**
 - [Metadata: the Foundations of Resource Description](#)
 - [OCLC/NCSA Metadata Workshop Report](#)
 - [RFC-1807](#)
 - [TEI](#)
 - **Naming**

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