It’s VITAL to have Repository Services!

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About VTLS

Our job is to create visionary solutions for libraries and information centers.
VTLS Has Three Core Businesses

1. Integrated Library Systems
2. Institutional Digital Repositories
3. RFID for libraries
About VTLS

- More than 900 systems worldwide
- Serving more than 3000 libraries worldwide
- Financially sound, privately held, fast growing
About VTLS

- ISO 9000 Registered Company
- Over 30 years experience in library automation
- Active in NISO, ALA and IFLA...
Corporate Headquarters

- Virginia Tech research park
- Following VT incubation period
- Independent, international, successful...
Corporate Offices

- Blacksburg, Virginia, USA
- Barcelona, Spain (EMEA)
- New Delhi, India
- Rio de Janeiro, Brazil
- Kuala Lumpur, Malaysia
- Melbourne, Australia
Regional Representation

- Kuwait
- Greece
- Tunisia
- Taiwan
- Nigeria
- Saudi Arabia
- Thailand
- UAE
- Australia
- Morocco
- Pakistan
- Qatar
VTLS International Advantage

- Office of International Operations
- Local and regional representation
- Globalized (not localized) software design
  - Multi-lingual UI
  - Multi-script input, display, storage - UNICODE
- Close relationship with local operations
  - Local support
  - Local training
  - Frequent visits
  - Long term partnerships
VTLS Partner Products
More Partner Products
More Partners Products
<table>
<thead>
<tr>
<th>Prestigious Virtua Customers</th>
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<tbody>
<tr>
<td>Many libraries in Poland and Slovakia</td>
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<tr>
<td>University of Geneva</td>
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<tr>
<td>Polish Union Catalog [NUKat]</td>
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<tr>
<td>Library of Alexandria</td>
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<tr>
<td>Belgian University Collective</td>
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<tr>
<td>Swiss Library Collective [RERO]</td>
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<tr>
<td>All Tunisian University Libraries</td>
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<tr>
<td>Lund, Göteborg &amp; Uppsala Universities</td>
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<tr>
<td>Tamkang University</td>
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<td>Makerere University</td>
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<td>Queens Public Library*</td>
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# National Libraries

<table>
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<tr>
<th>Library</th>
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<td>Swiss National Library</td>
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<td>National Library of Ireland</td>
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<td>National Library of Morocco</td>
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<td>National Library of Belgium*</td>
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New Customers

- Princeton University
- Duke University
- Virginia Tech
- Malaysian Rubber Board
VTLS Users’ Group Organizations
VTLS Users’ Group Organizations

EMEA

Australia
Asia
S.A.
N.A.

Switzerland
Poland
UK
Malaysia
Canada
USA
Comprehensive Suite of Products

VIRTUA
VECTORS
VORTEX
VCOMMERCE
VITAL
FASTRAC
VISUALIZER
VTLS
Products in focus...

- Virtua
- VITAL
- VISUALIZER
- Archives Management
- Automated Stack Request
- Consortium Catalog Model
What is a Digital Object Repository?
What is a Digital Object Repository?

- Stores and maintains digital objects (digital assets)
- Provides external interface for Digital Objects
  - Creation
  - Modification
  - Access
- Enforces access policies
- Facilitates self-submission
- Offers preservation facilities
Goals of Institutional Repositories

- **Self-archiving of institutional research**
  - Thesis and Dissertations (VTLS NDLTD Project)
  - Article reprints and post prints
  - Internal documents and maps

- **Management of digital collections**

- **Preservation of materials**

- **Housing of teaching materials**

- **Electronic Publishing of journals, books, posters, maps, audio, video and other multimedia objects**

*Steven Harnod, University of Southampton*
Services of Institutional Repositories

To allow digital collections to be:

- Accessible to as narrow or as wide a group as you desire. (i.e. institutional or global)
- Exposed to Web search engines like Google
- Plugged in to e-learning systems like Blackboard
- Used to create sub-collections to support topics, types of objects, or other designations.
- Makes content easily reusable in supporting research and education.
Services of Institutional Repositories

Repository Services offer:

- Management
- Creation
- Storage
- Indexing
- Cataloging
- Searching & Retrieval
Services of Institutional Repositories

- Storage and management of any content format, including rich-media, due to VITAL's repository object architecture
- Integration with existing systems through open, standards-based protocols
- Search full-text content of PDF, DOC, RTF and other document formats
- Display high resolution imagery, multi-page documents and specialized data formats (MARC, EAD, TEI, etc.)
- Automatically capture preservation metadata and create long-term, citable DOIs
- Storage of content in native XML provides support/validation against any metadata schema
- Support for aggregation of like-content in collections
- Automatic metadata extraction and validation (facilitates preservation)
Services of Institutional Repositories

- Web-crawler indexing and exposure (Google, etc.)
- Language support and UNICODE compliance
- Support for custom index creation for resource discovery
- SRW/SRU Interface for exposure of repository content
- Tracking content changes through versioning
- Robust facilities for batch ingest of content
- Support for link resolving against an institution’s OpenURL server
- Support for dynamic creation/export of content citations (EndNote, text)
- Facilities for web-based self-submission of diverse content types (VALET)
- Integration with Fedora™ repository architecture allows for extensibility
Impact of Institutional Repositories

- Give a new purpose to libraries and librarians
- Extend the role of the library in an academic institution or a community
- One can visualize the development of community repositories like community water systems in cities and towns
- Librarians can become active partners in preservation and access of local digital content
Institutional Repository (based on Fedora)

Software for creating, storing, managing, cataloging, indexing, searching & retrieving your digital collections

Backed by VTLS software and services
Shortcomings of existing products

- Narrow focus on specific media formats (e.g. image databases, document management)
- Fail to effectively address interrelationships among digital entities
- Fail to address interoperability
- Fail to provide facilities for managing programs and tools that deliver digital content
- Not extensible; do not enable easy integration of new tools and services

*Tim Sigmon (Director, Advanced Technology Group UVA)*
What is Fedora™?

Flexible Extensible Digital Object Repository Architecture
What is Fedora™?

- Developed by University of Virginia and Cornell University
- Supported by Mellon Foundation Grant
- Fedora™ Commons
- Open Source Software
- Supports all types of multimedia
- Details to follow!
Reasons to base VITAL on Fedora™

- Open source
  - Free
  - VTLS is a contributor
- Flexible
  - Development can be in any programming language because the API is based on Web services
- Extensible
  - We can write workflow tools that facilitate different types of functions
  - Digital object model (architecture) allowing for complex objects
Reasons to base VITAL on Fedora™

- XML Submission and Storage
  - Digital objects are stored as XML-encoded files
  - Confirm to an extension of the METS schema
- Permits handling of complex objects
- Native OAI-PMH support
- Scalable
Reasons to base VITAL on Fedora™

- Persistent storage for content & metadata
- Content can be local and/or remote
- Content versioning
- There is a community of developers that continue to enrich Fedora™
- Low cost procurement for customers
Create Complex Digital Objects

Digital Object

Datastreams

DC

EAD

Admin Metadata

Datastreams

EAD
Fedora™ Digital Object Architecture

- **Persistent ID (PID)**
- **Disseminators**
  - Public view: access methods for obtaining “disseminations” of digital object content
- **System Metadata**
  - Internal view: metadata necessary to manage the object
- **Datastreams**
  - EAD, TEI, DC, MARC, VRA Core, MIX, etc.
  - Protected view: content that makes up the “basis” of the object

Images, E-books, E-journals, Music, Video, etc.
Example Disseminators

- Persistent ID (PID)
- Disseminators
  - Default
  - Simple Image
- System Metadata
- Datastreams

- Get Profile
- List Items
- Get Item
- List Methods
- Get DC Record
- Get Thumbnail
- Get Medium
- Get High
- Get VeryHigh
Fedora™ Repository

Session Management
User Authentication

Management Subsystem
- Object Mgmt
- Component Mgmt
- Object Validation
- PID Generation

Security Subsystem
- Policy Mgmt
- Policy Enforcement
- Users/Groups
- Policies

Access Subsystem
- Object Reflection
- Object Dissemination

Storage Subsystem
- Datastreams
- External Content Retriever
- Content
- XML Files
- Relational DB

Digital Objects

Client Application
Web Browser
Batch Program
Server Application

Web Service Exposure Layer

Remote Service
Local Service

External Content Source

HTTP
SOAP
HTTP
HTTP
SOAP
HTTP
HTTP
HTTP
HTTP
SOAP
HTTP
VITAL Fedora™ Relationship
The VTLS VITAL Architecture

- Self-submission
- Batch Ingest
- Ingest Layer
- Management
- Search & Discovery
- Web Services
- Administrative Functions
How VITAL works with Fedora™?

- Workflow tools that simplify the creation, modification, submission and dissemination of digital objects
- Web Service Interfaces (API’s)
- Management Service (API-M)
  - Ingest – XML-encoded object submission
  - Create – interactive object creation via API request
  - Maintain – interactive object modification via API requests
  - Validate – application of integrity rules to objects
  - Identify – generate unique object identifiers
  - Security – authentication and access control
  - Preserve – automatic content versioning and audit trail
  - Export – XML-encoded object formats
VITAL Components

- VITAL AccessPortal
- VITAL Access Administration
- Apache Web Server
- VITAL Advanced Server
- VITAL Access Indexing Options & Content Models
- Apache Tomcat Web Server
- Fedora™ Server
- VALET Self-Submission Tool
- VITAL Manager
- Oracle9i, McKoi, or MySQL Database
VITAL Component - Details

- VITAL Manager
- VITAL AccessPortal web portal delivering content online, including
  - Hi-Resolution Image Navigator for JPEG2000 and MrSID
  - Document Navigator supporting document and image collections
- VITAL Administration
- VALET - Web Self-Submission Tool
- VTLS Batch Loader Tool
- Handles Server (CNRI)
- SRU / SRW Support
VITAL’s Added Value

- Indexing Capabilities
- UIs
- Special viewers
- Default cataloging templates
- Default style sheets (EAD, MARCXML...)
VITAL’s Added Value...

- Multilingual UI
- UNICODE compliance
- Support for dynamic creation/export of content citations (EndNote, text...)
- Training
- Documentation
- Support
VITAL’s Added Value...

- SRU enabled
- Exposure to search engines (Google, Yahoo...)
- Handles Server (automatic)
- Easy handling of collections
VITAL’s Added Value - Viewers

**Image Navigator**
- High resolution viewer
- JPEG2000
- MrSID

**Document Navigator**
- Multi-page objects
VITAL’s Added Value - Interfaces

- Content Manager
- Public Access Portal
- Admin Access Portal
- VALET
- VTLS Batch Loader Tool
Public Access Portal

- Web-based
- Sophisticated search techniques
- Exposure using ‘facets’
- Hierarchical retrieving
- Sorting
- Viewing
- Thumbnails, magnified viewing areas...
Advanced Search

The ARROW discovery service provides cross-disciplinary access to scholarly materials held by Australian universities. It currently indexes metadata from several university repositories.

We will be improving the site in the coming months and we want to make you aware of and involved in the ongoing process. We look forward to your feedback.

Find Research

Words (anywhere in title, abstract, ...) :

Person:

Subject:

Resource type: All

Date:

Return results in the range of years: to

Contributor: All Universities

Consortium:

Region:

Return results from: Australia

[Submit Search]
Admin Access Portal

- To manage objects
- To import objects into repository
- Search
- Preview
- Modify
- Admin tools for content management
- Interactive / modify indexes
- Define content models for objects
VITAL vs. Pure Open Source

Why not go pure open source?

- Open source is not “free”.
  - Institutions carry the cost of personnel to do what the commercial vendor is offering:
    - implementation
    - support
    - documentation
    - quality assurance testing
    - training &
    - development
  - These highly trained staff quickly become valuable in the marketplace!
- The reason to use a commercial vendor is because they offer these services at a lower cost to the institution!
- Support -- around the clock, seven days a week.
- Long range development plans, not just institution specific but also profession specific.
- Sustainability of the total solution -- backed by VTLS.
VITAL vs. Pure Open Source

Staffing that VTLS has in place:
- Project Manager = 1
- Product Manager = 1
- QC Tester = 1
- Training/CS = 2
- Programming = 4
- Total = 9

Why duplicate costs when you can share them?
Ingesting using VALET
Ingesting using VALET

submitter

editor

VALET web – form captures objects one by one
Customizable, web-based UI

For users to submit content into repository

Handle submission of any file format

Allows contributors to enter metadata into configurable, form-based templates

Allow for a staged submission process

Review, edit, delete, approve submitted content prior to ingest
Pre-configured templates:
- Electronic Theses and Dissertations
- Journal Articles
- Working Papers
- Book Chapters
- Conference Papers
- Images

Others per user needs...
Offers pre-configured metadata mappings into MARCXML and Dublin Core formats

Is fully interoperable with VITAL for:
- Managing submitted content
- Automatic indexing of submitted content
- Formatted display of EAD, TEI, MODS, MARCXML
- Assigning Handles
- Server-side full-text extraction of PDFs and other text files submitted, providing anywhere keyword searches
VALET for ETDs

Example of another Open Source Software from VTLS
VALET for ETDs

- A subset of VALET - supplied with VITAL
- A complete standalone application
- Bundled with Fedora™
- Is a free, open-source solution for web self-submission of ETD
VITAL – Fedora Plans Coordinate

VTLS staff/customers are active in Fedora community:
- Advisory Group
- Development Group

Coordinating development of content models

VITAL builds on XACML features of Fedora™

Work to minimize overlap and maximize coordination

VTLS contributes back open source components

Charlottesville is down the road from Blacksburg
VITAL/FEDORA Platform

**Server**
- LINUX or SOLARIS
- Databases
  - MySQL (recommended)
  - McKoi
  - Oracle or Oracle XE

**Client PC**
- Windows

**Browser**
- IE
- Firefox
Key Features/Benefits to VITAL (1)

- Storage and management of any content format, including rich-media
- Integration with existing systems through open, standards-based protocols
- Search full-text content (PDF, DOC, RTF etc.)
- Display high resolution imagery, multi-page documents and specialized data formats (MARC, EAD, TEI, etc.)
- Automatically capture preservation metadata and create long-term, citable DOIs
Key Features/Benefits to VITAL (2)

- Storage of content in native XML provides support/validation against any metadata schema
- Support for aggregation of like-content in collections
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- Web-crawler indexing and exposure (Google, etc.)
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- SRU Interface for exposure of repository content
Key Features/Benefits to VITAL (3)

- Tracking content changes through versioning
- Robust facilities for batch ingest of content
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- Support for dynamic creation/export of content citations (EndNote, text)
- Facilities for web-based self-submission of diverse content types (VALET)
- Integration with Fedora™ repository architecture allows for extensibility
Who is using VITAL?

- Over 30 Institutions worldwide; more coming
- In Australia: Australian Research Repositories Online to the World (ARROW)
  - 16 Institutions in Australia including Monash University
  - Both ARROW and RUBRIC projects are using VITAL
- In USA
  - Duke Medical Library; VCOM; Mary Washington; Columbia University (CIESEN), Virginia Tech
- In Europe
  - UK: National Library of Wales
  - Greece: National Theatre; Athens Archaeological Society
  - Belgium: UCL
  - Slovakia: National Library
- In ME and Asia
  - National Library of Singapore; KISR
  - Pakistan Medical Research Council
## VITAL Customers

- Monash University
- Swinburne University
- University of New South Wales
- Macquarie University
- Newcastle University
- Central Queensland University
- University of Western Sydney
- University of South Australia
- University of the Sunshine Coast
- Virginia Tech
- Duke University
- Columbia University
- Arrow Consortium
A solution that:

- Benefits from the pluses of Open Source, but not the negatives.
- Openly and visibly demonstrates support for the Open Source movement.
- Supported by a commercial vendor who:
  - contributes back to the FEDORA open source solution (as a result of our customer partnerships).
  - Works exclusively with libraries, is run by a librarian and is helping to define the future of libraries.
VITAL - What are you getting?

- A product that builds on top of the open source foundation, a product that provides:
  - VITAL Manager
  - VITAL Portal
  - VALET - Web Self-Submission Tool
  - VTLS Batch Loader Tool
  - Handles Server (CNRI)
  - Google Indexing and Exposure
  - SRU / SRW Support

Most importantly:
- Flexibility
- Service
- Support
- Sustainability!
VITAL - What are you getting?

• Making your repository successful - working on an agreement that will:
  – Provide a method to link your VITAL repository to bio pages for staff & faculty of your institution.
  – Allow you to “prime” your repository by loading metadata for works published by your staff and faculty.
  – In some instances, depending upon licenses, allow loading of published papers & works.
  – Provide a connection to a citation formatting tool that supporting 100’s of formats.

• Value provided by working with a commercial library vendor!
VITAL - What are you getting?

You support a concept, product and vendor that:

- Believes that Open Source options offer lower cost solutions for libraries
- Actively supports the Open Source movement
- Contributes back to the FEDORA open source solution
- Provides support, training, documentation & hosting services
VITAL - What are you getting?

VITAL Services

- New versions containing:
  - Enhancements
  - Bug fixes
- Documentation
- Training
- 24x7 emergency support
- Email and telephone support
- A community of users and experts
VITAL - What are you getting?

Shifts in IT
- When hardware was “king” – 1960s to early 80s
- When software was the “ruler” – 80s and 90s
- Now service is the “key” – 2000s

Most importantly:
- Service
- Support
- Sustainability!
VTLS VISUALIZER

What is it?

Why choose Visualizer?

Potential uses
What is Visualizer?

- Next generation OPAC
- Offers users a unified interface for searching or discovering content
- Allows faceted browsing as well as traditional keyword search
- Makes direct links to source content - (iPortal or Chamo for Virtua, VITAL repository, etc)
- Collocate information while providing branding [consortia, university departments, etc.]
Discovery Tools -- What is Discovery

Discovery is **finding** something you need **without** knowing exactly what you are looking for!

Requires the following capabilities

- Systems “exposes” its content
- System is iterative – good navigation
- System has no “dead-ends”
- System aggregates information – drill down
- System shows contents in “graphical format”
- System is fast (because of iterative use)
- System requires no training – discovery!!
Questions?

www.vtls.com