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It's Vital to have Repository Services!

Guivernau, Silvia

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It's VITAL to have Repository Services!



International Conference on African Digital Libraries and Archives
Addis Ababa 1-3 July 2009

Sílvia Guivernau

Librarian

VTLS Europe

Jack Bazuzi

Managing Director

VTLS Europe

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













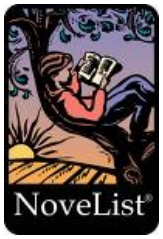
















Prestigious Virtua Customers

- Many libraries in Poland and Slovakia
- University of Geneva
- Polish Union Catalog [NUKat]
- Library of Alexandria
- Belgian University Collective
- Swiss Library Collective [RERO]
- All Tunisian University Libraries
- Lund, Göteborg & Uppsala Universities
- Tamkang University
- Makerere University
- Queens Public Library*

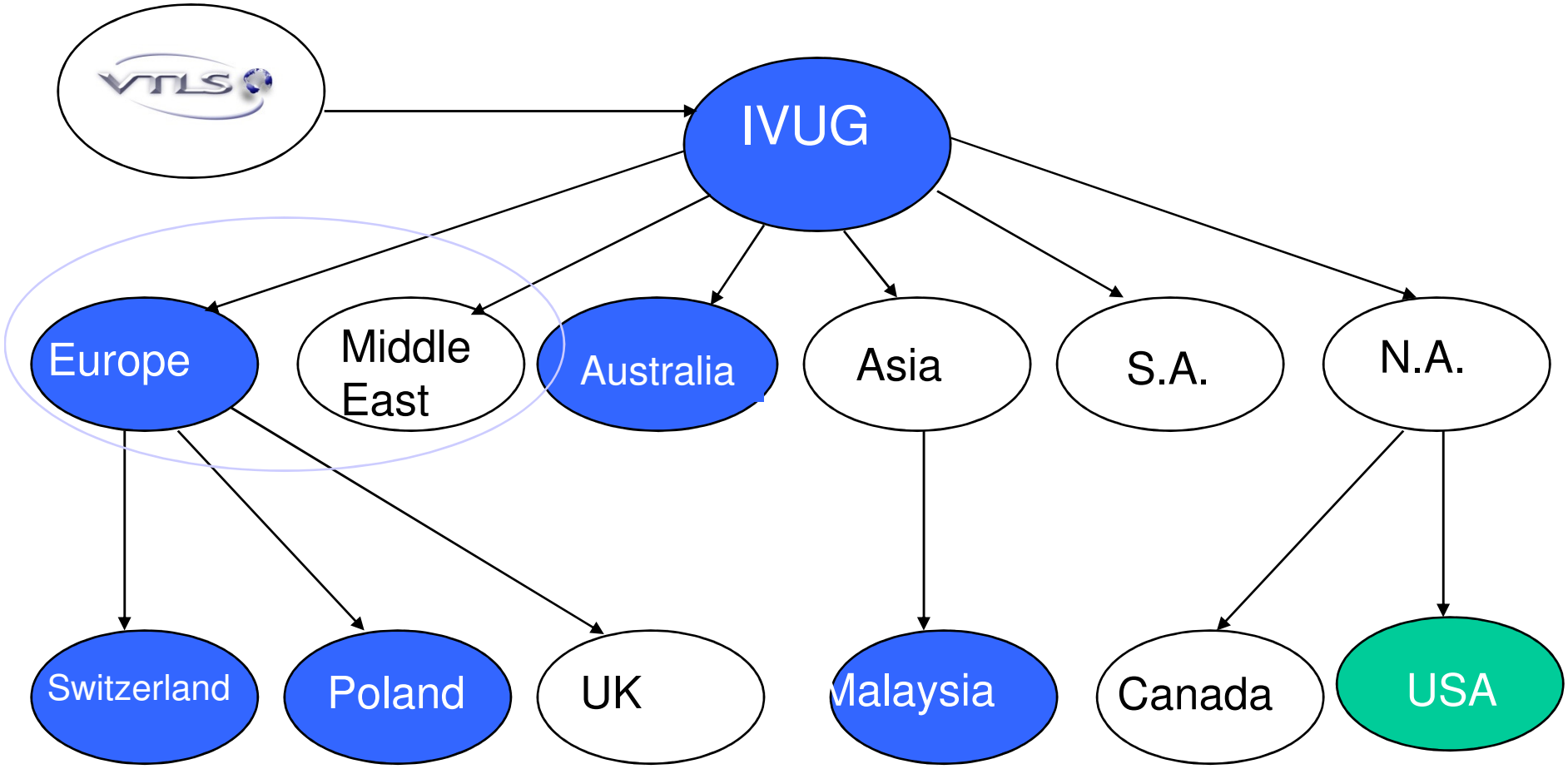
National Libraries

- Swiss National Library
- National Library of Wales
- National Library of Pakistan
- National Library of Slovakia
- National Library of Azerbaijan
- National Library of Malaysia
- National Library of Singapore
- National Library of India
- National Library of Ireland
- National Library of Morocco
- National Library of Belgium*

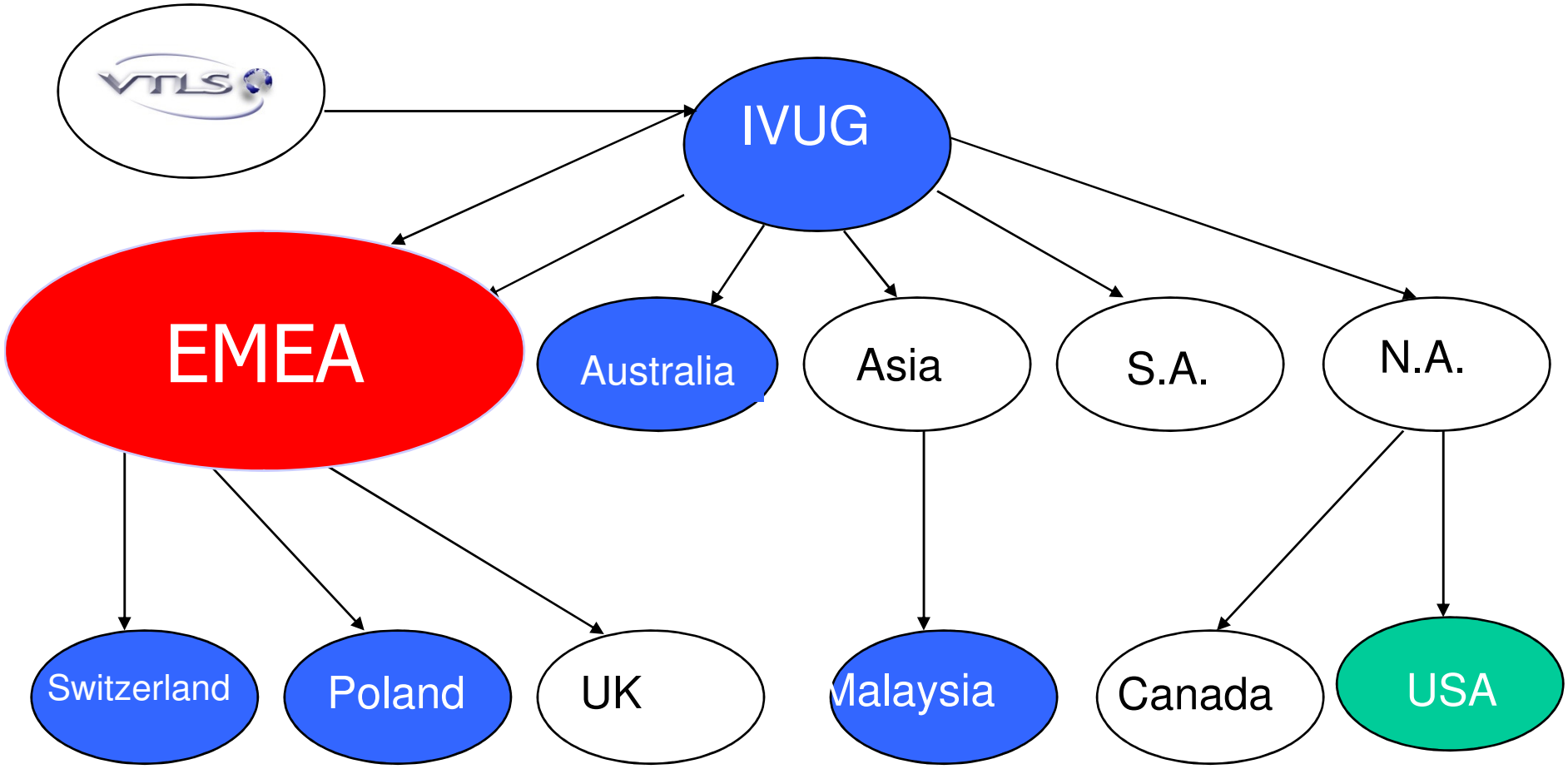
New Customers

- Princeton University
- Duke University
- Virginia Tech
- Malaysian Rubber Board

VTLS Users' Group Organizations



VTLS Users' Group Organizations



Comprehensive Suite of Products















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



VTLS Information Technology for Advanced Learning

VITAL - Introduction

- 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

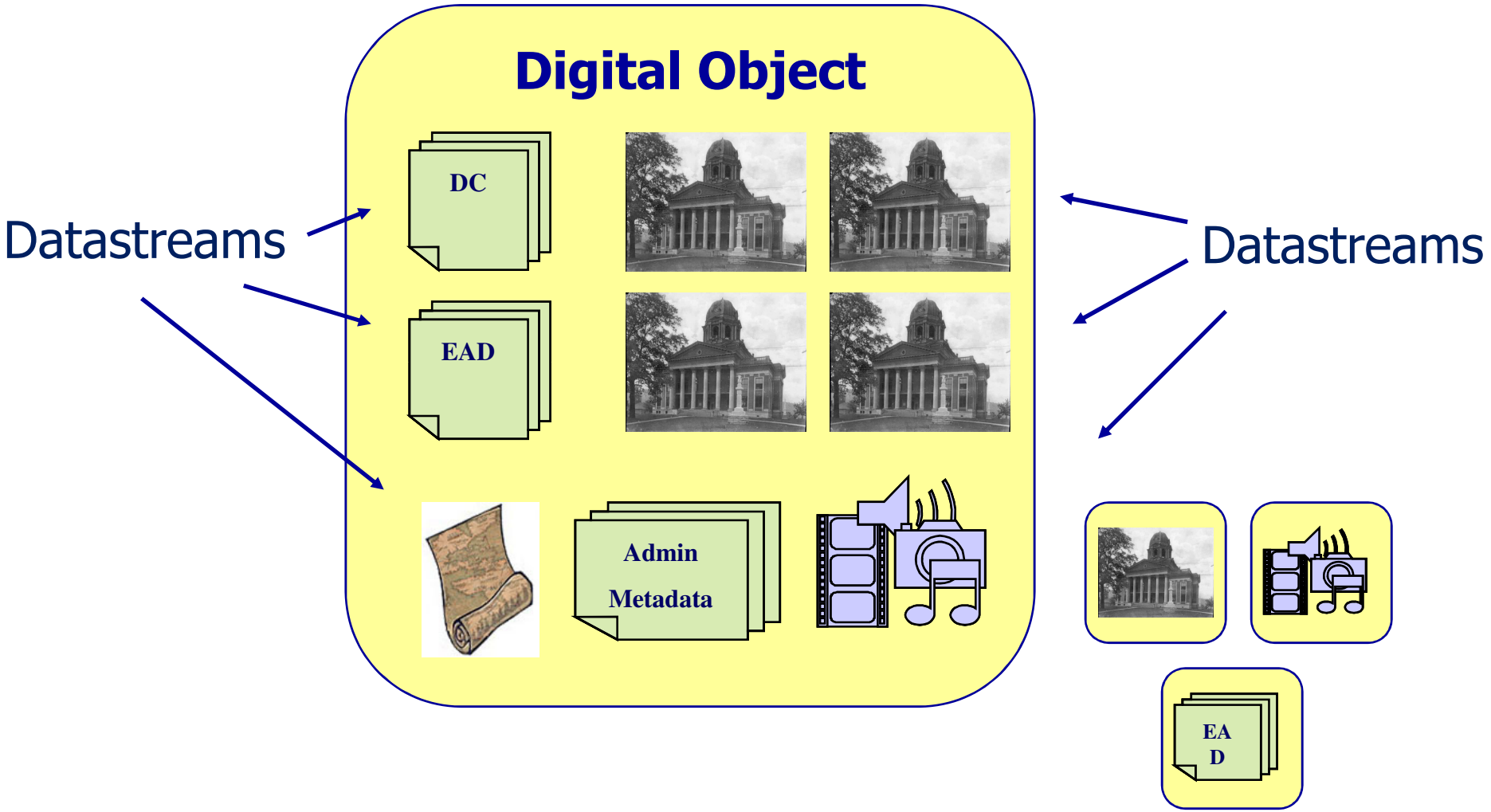
Reasons to base VITAL on Fedora™

- 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

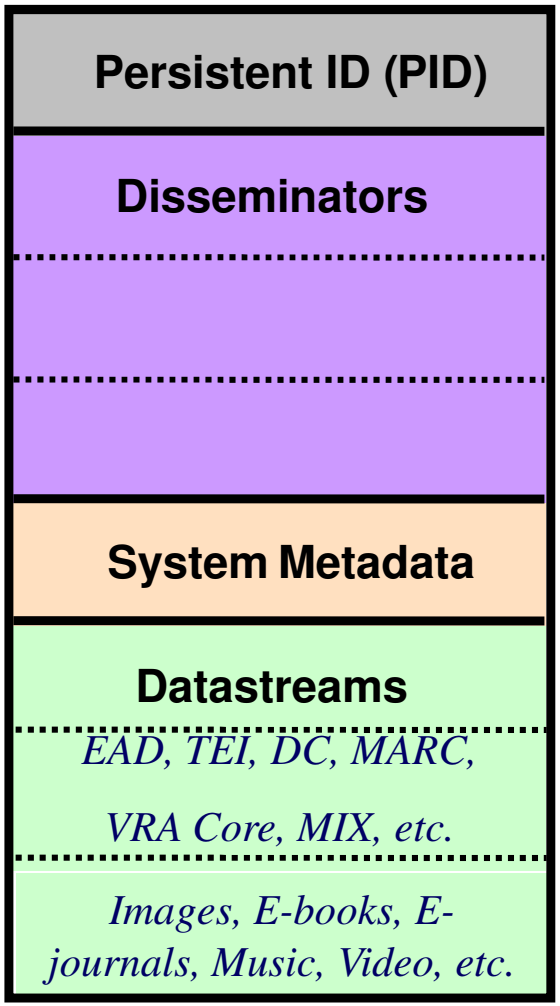
Reasons to base VITAL on Fedora™

- 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



Fedora™ Digital Object Architecture



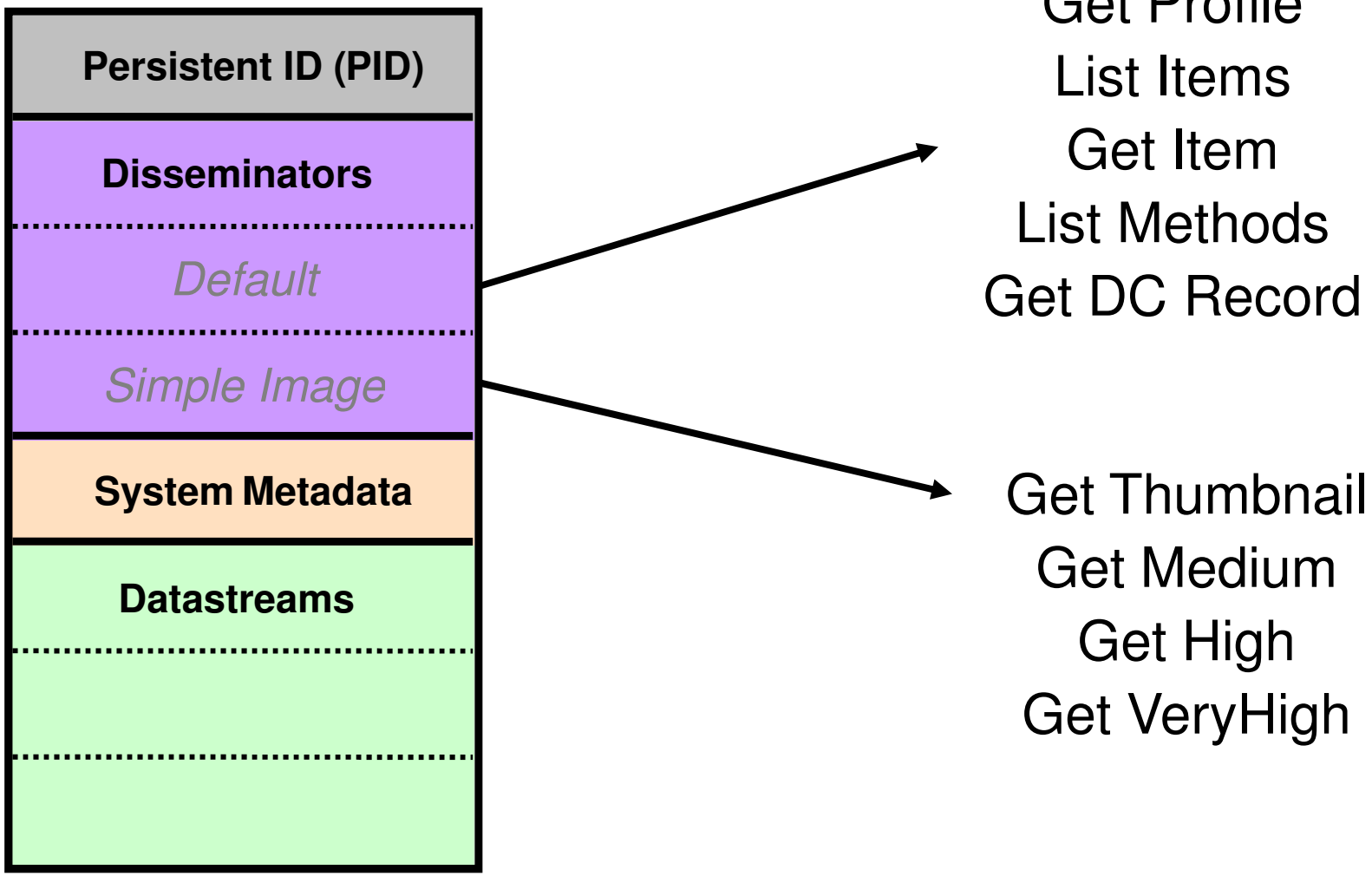
Globally unique persistent id

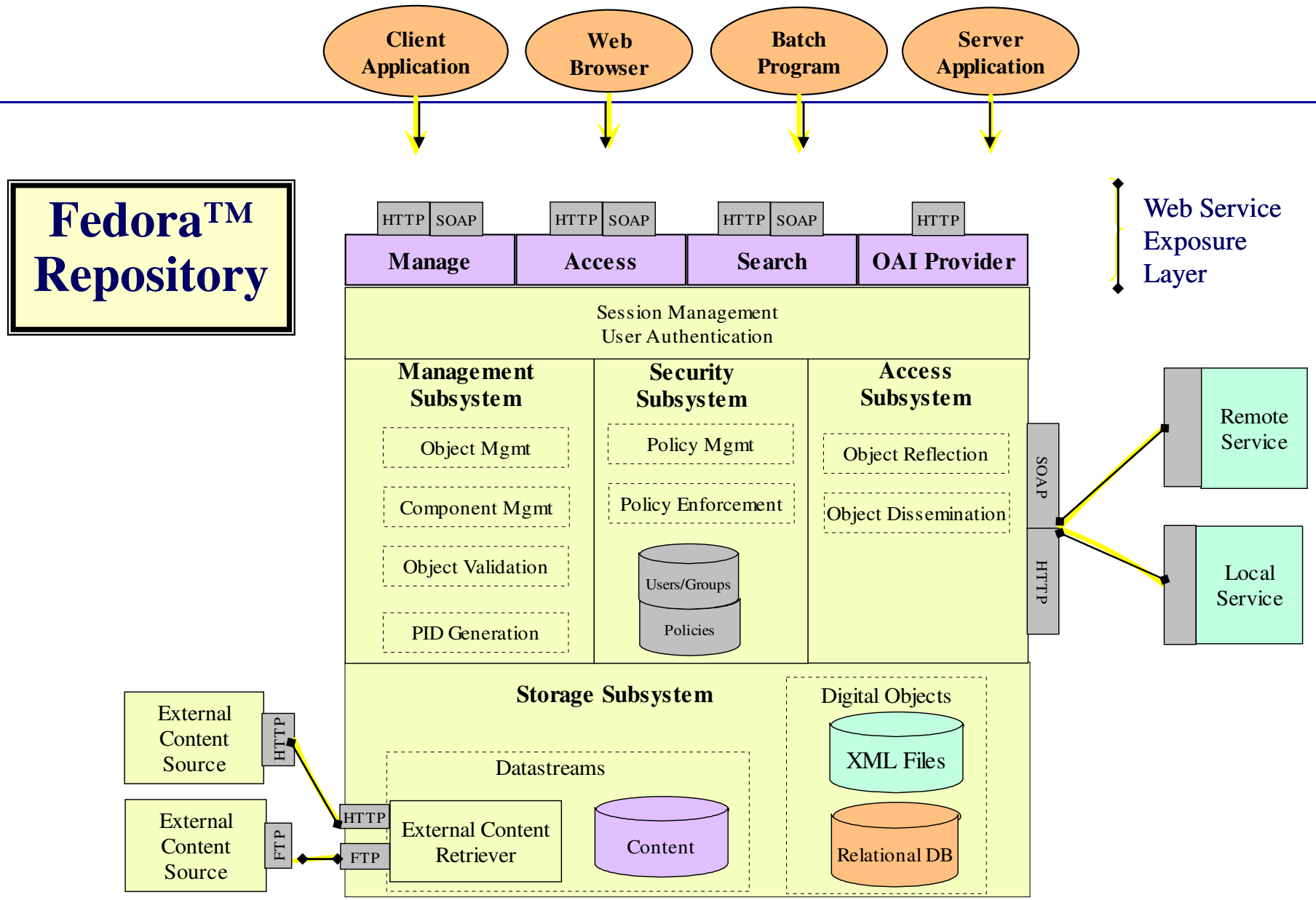
***Public view*: access methods for obtaining "disseminations" of digital object content**

***Internal view*: metadata necessary to manage the object**

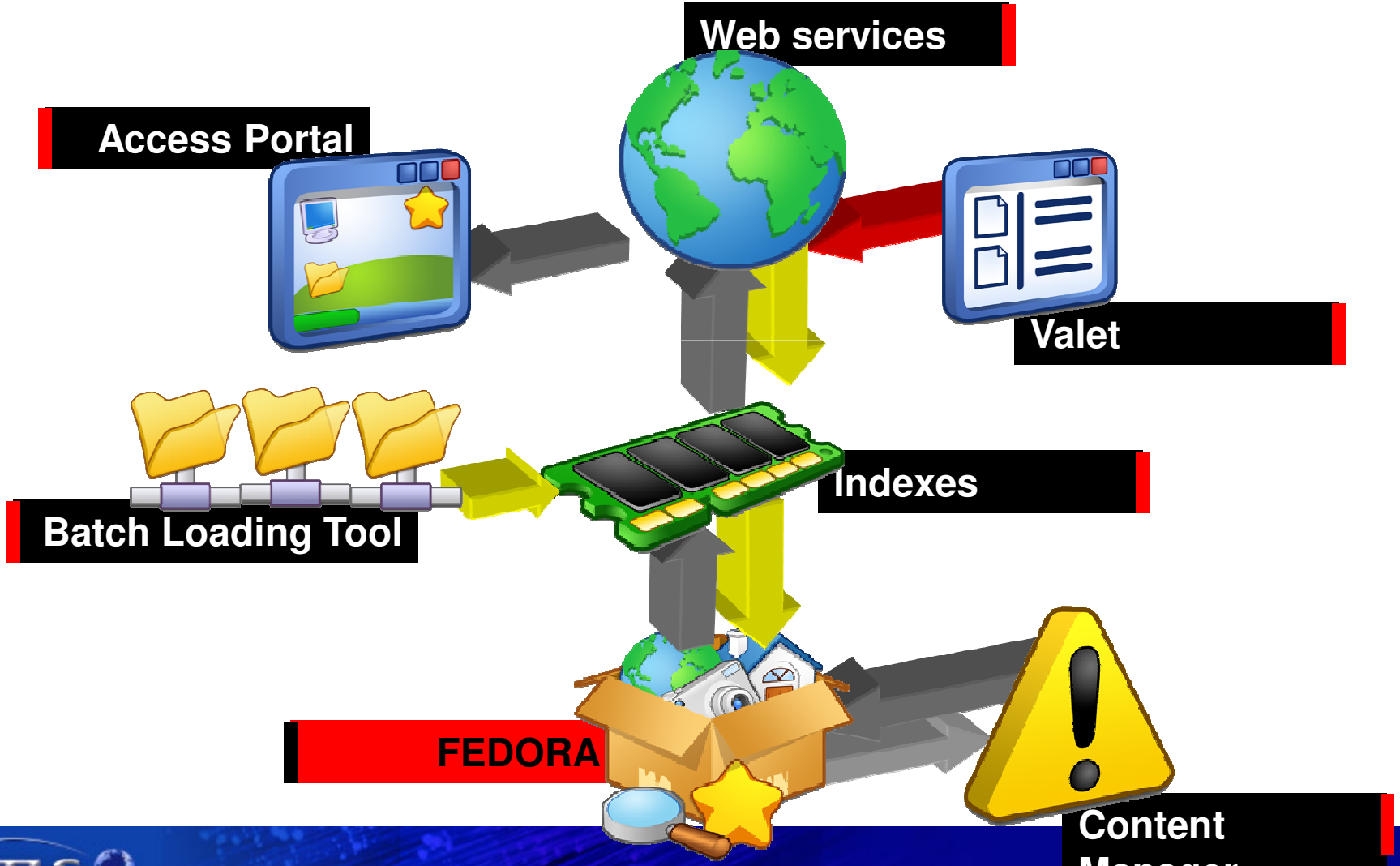
***Protected view*: content that makes up the "basis" of the object**

Example Disseminators

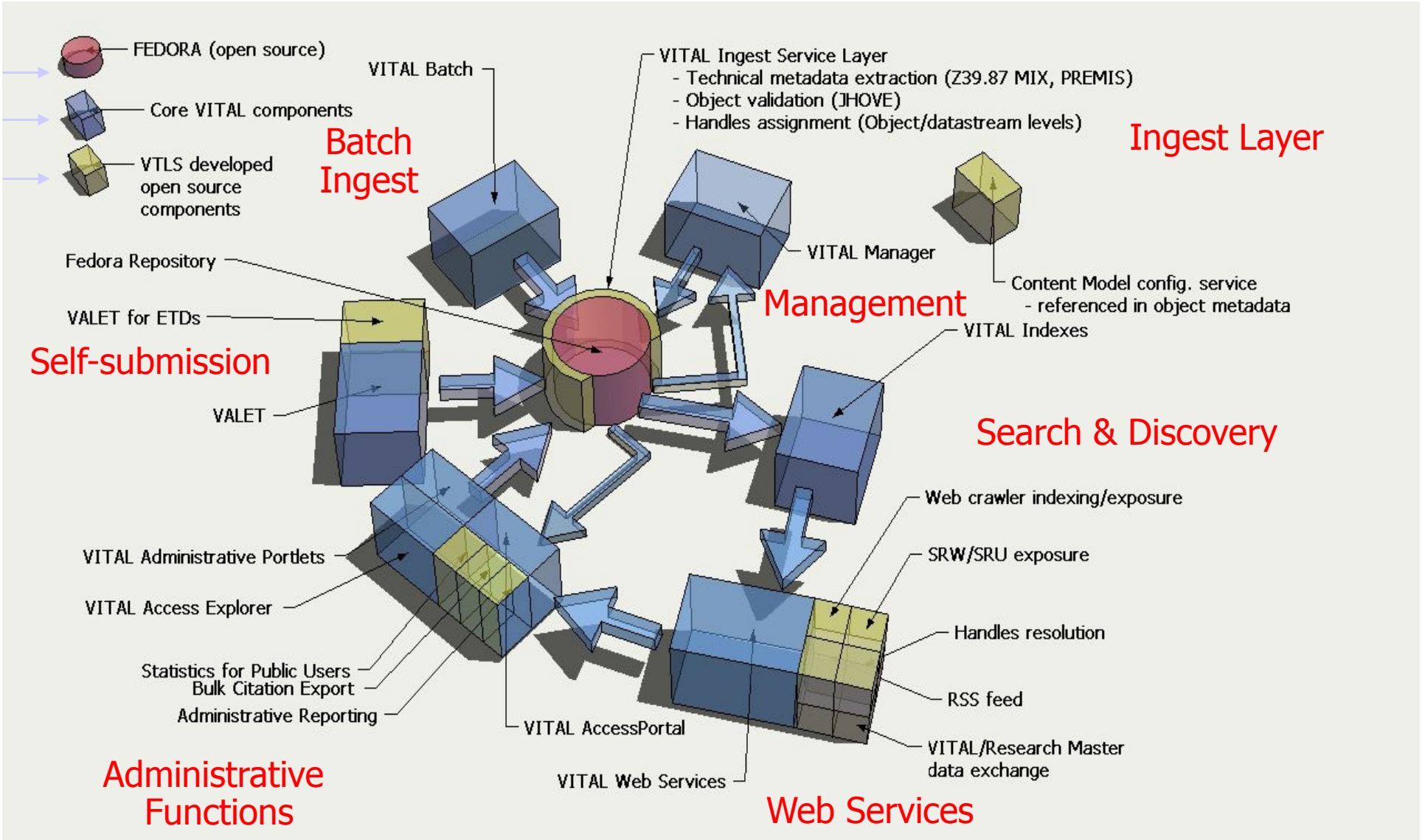



Client Application
Web Browser
Batch Program
Server Application
Fedora™ Repository
HTTP SOAP
HTTP SOAP
HTTP SOAP
HTTP
Manage
Access
Search
OAI Provider
Web Service Exposure Layer
Session Management
User Authentication
Management Subsystem
Security Subsystem
Access Subsystem
Object Mgmt
Component Mgmt
Object Validation
PID Generation
Policy Mgmt
Policy Enforcement
Users/Groups
Policies
Object Reflection
Object Dissemination
SOAP
HTTP
Remote Service
Local Service
Storage Subsystem
Digital Objects
XML Files
Relational DB
Datastreams
Content
External Content Retriever
HTTP
FTP
External Content Source
External Content Source
HTTP
FTP

VITAL Fedora™ Relationship



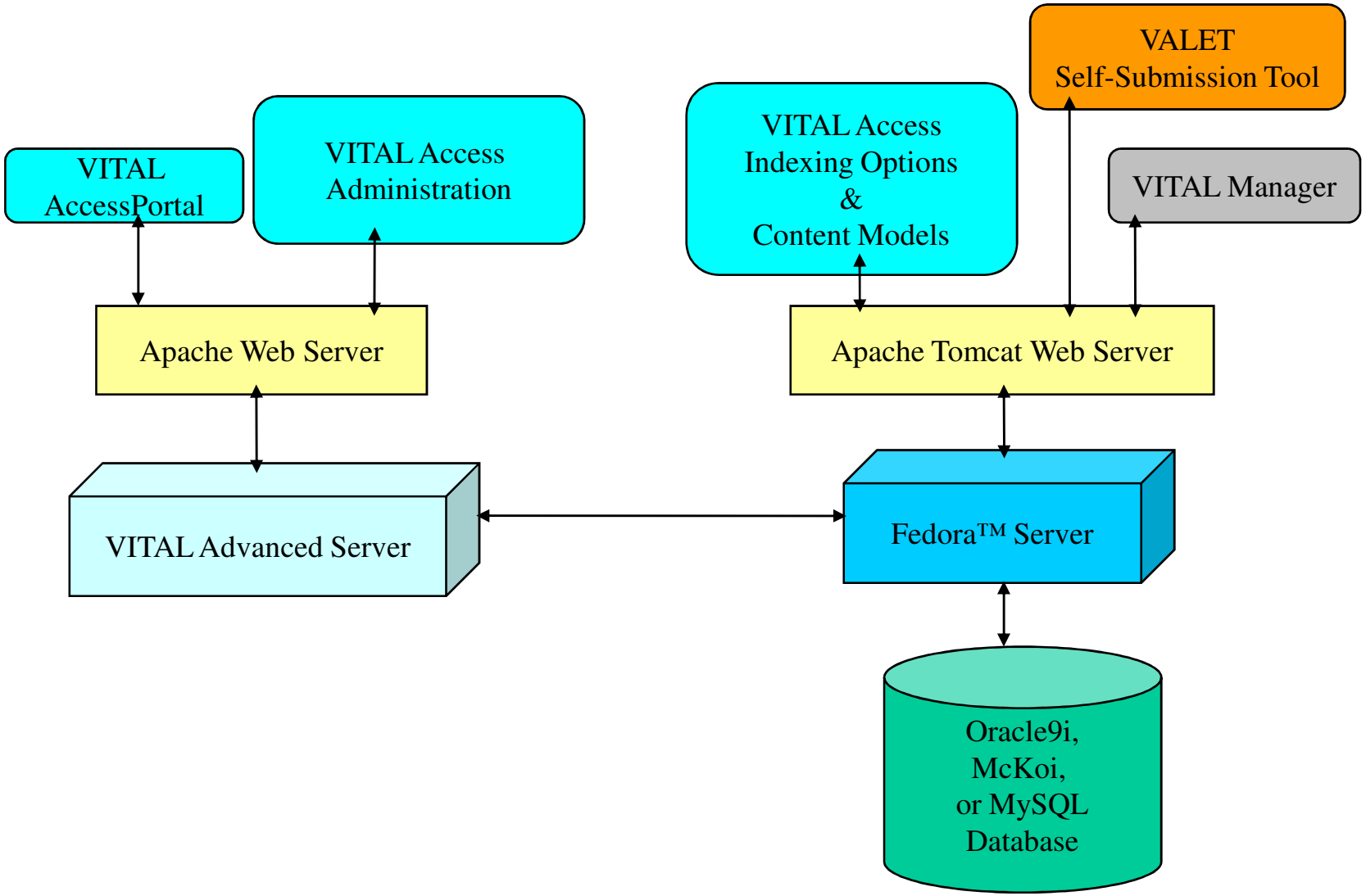
The VTLS VITAL Architecture



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 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

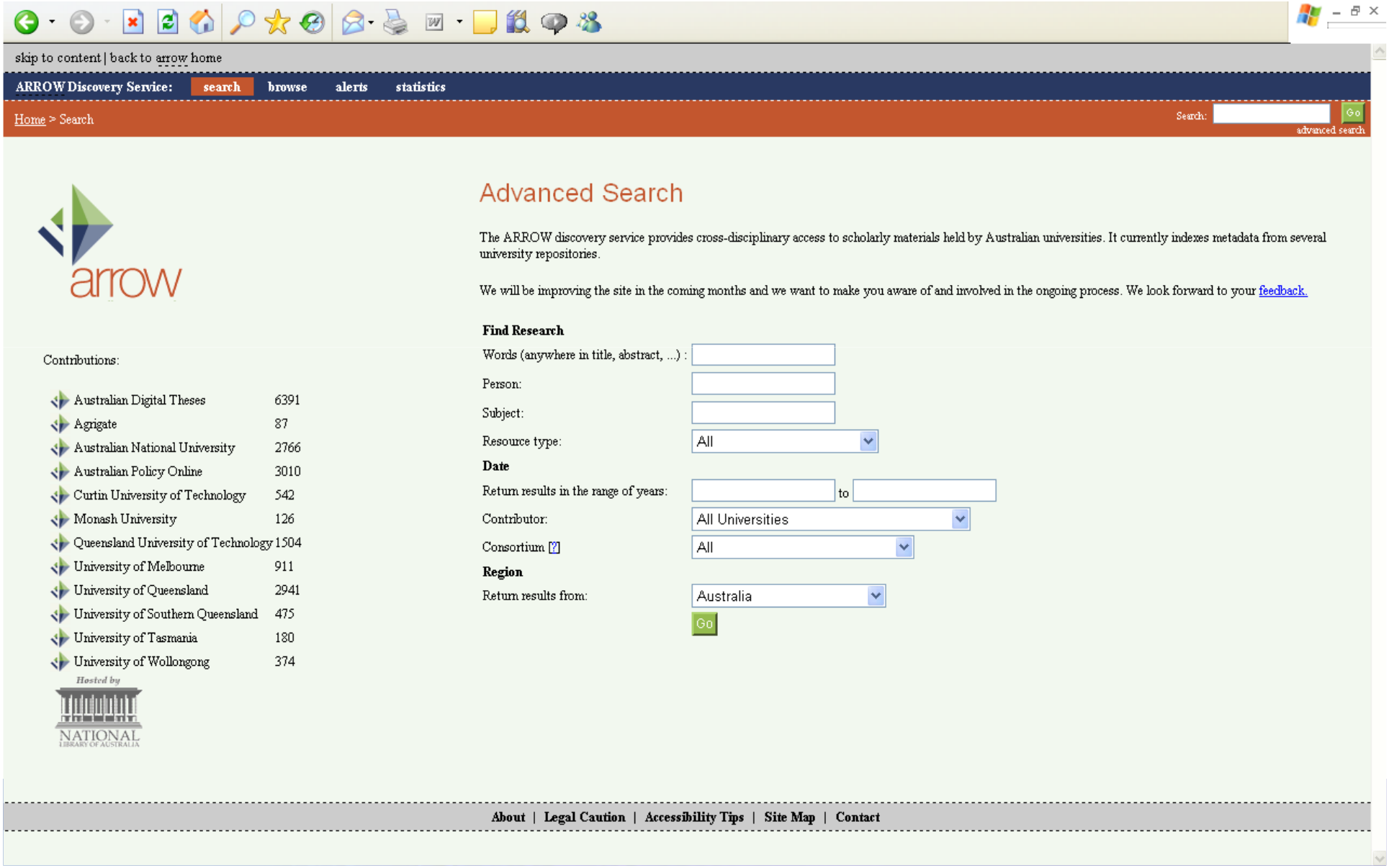
VITAL's Added Value - Interfaces

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

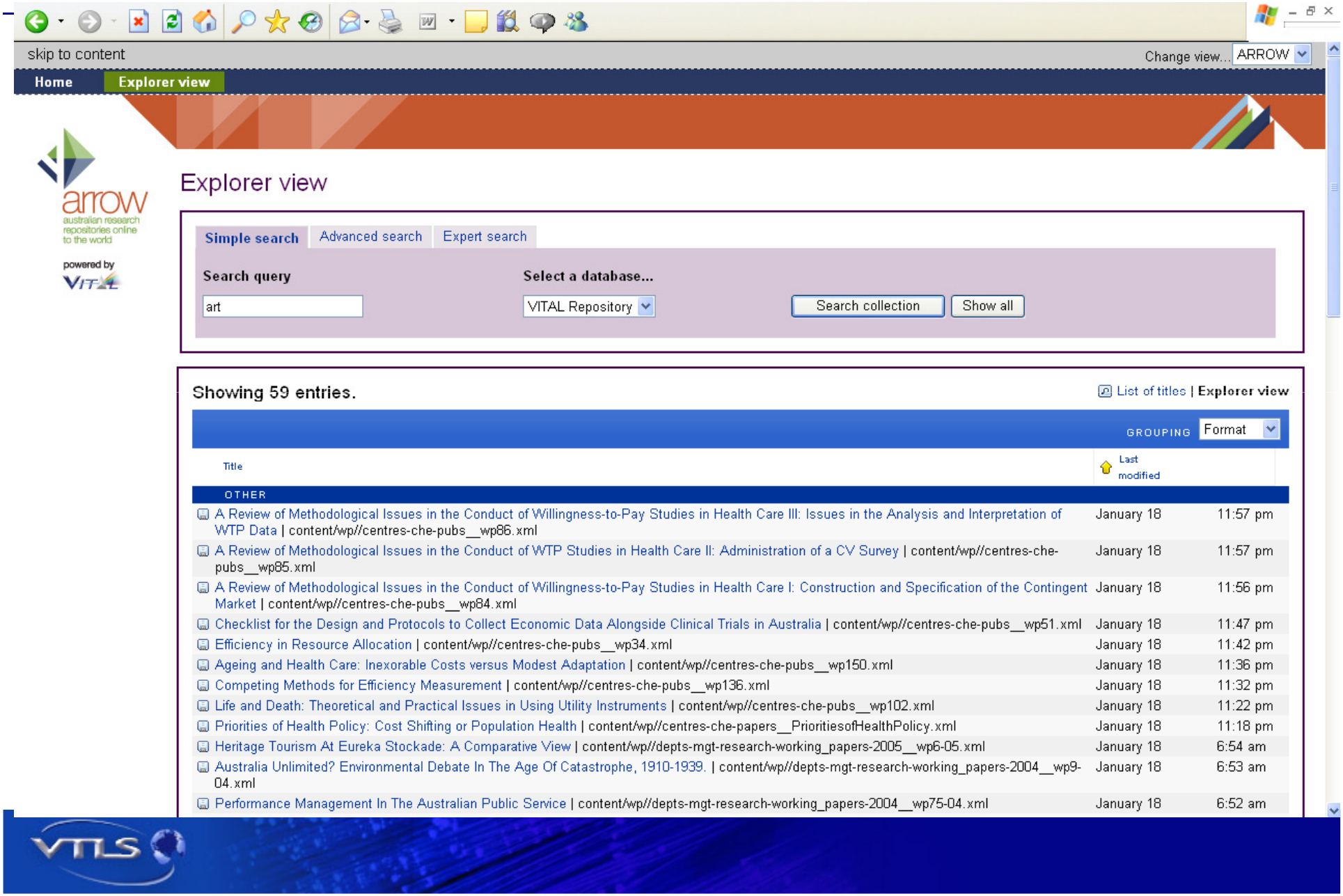
Public Access Portal

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

VITAL Access Portal



VITAL Access Portal



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

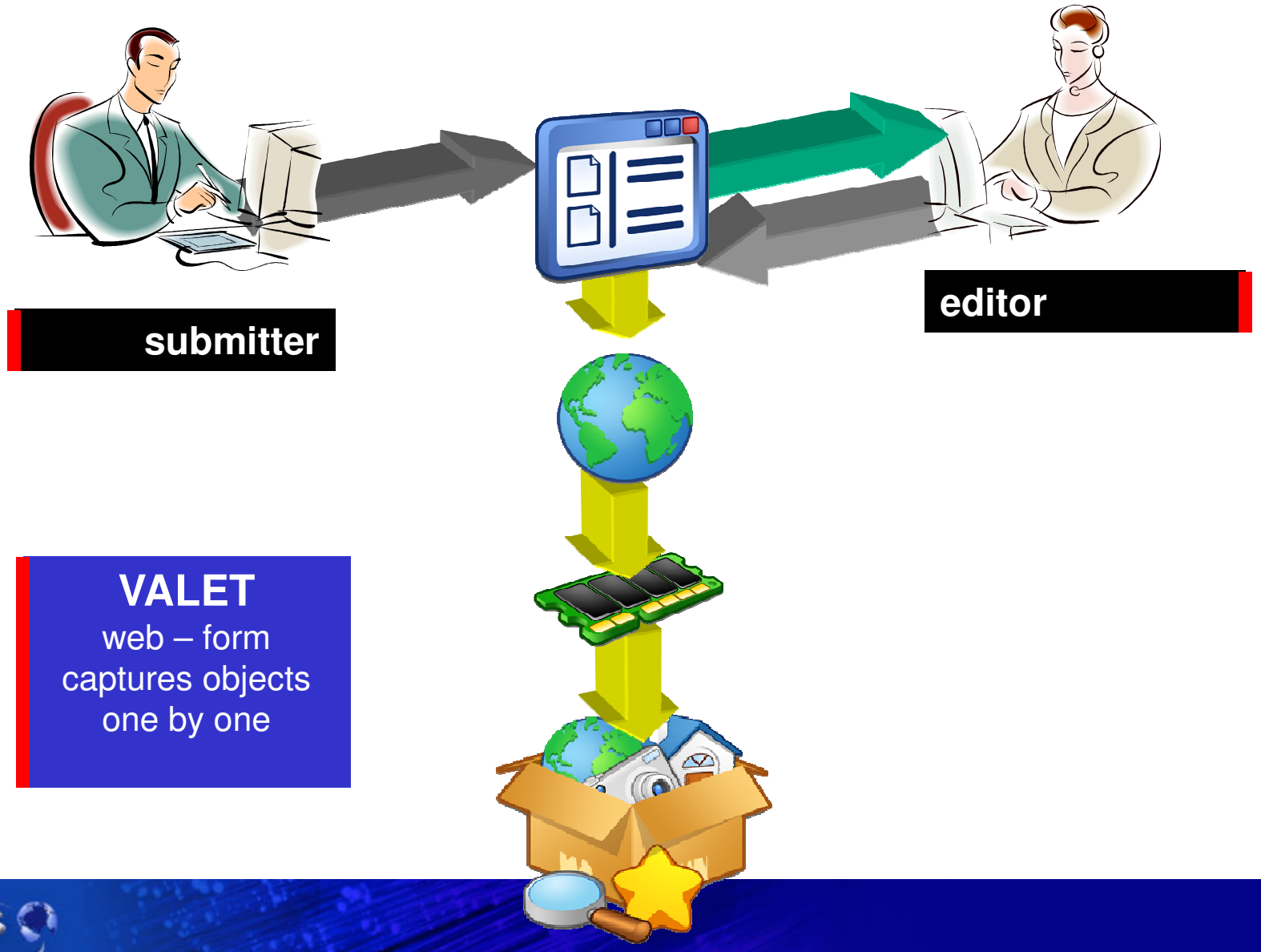
- Staffing that VTLS has in place:
  - Project Manager = 1
  - Product Manager = 1
  - QC Tester = 1
  - Training/CS = 2
  - Programming = 4
  - Total = 9

  - Why duplicate costs when you can share them?

Ingesting using VALET



Ingesting using VALET



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
- Automatic metadata extraction and validation (facilitates preservation)
- Web-crawler indexing and exposure (Google, etc.)
- Language support and UNICODE compliance
- Support for custom index creation for resource discovery
- 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
- 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

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
- Macquaire 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

VITAL - What are you getting?

- 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

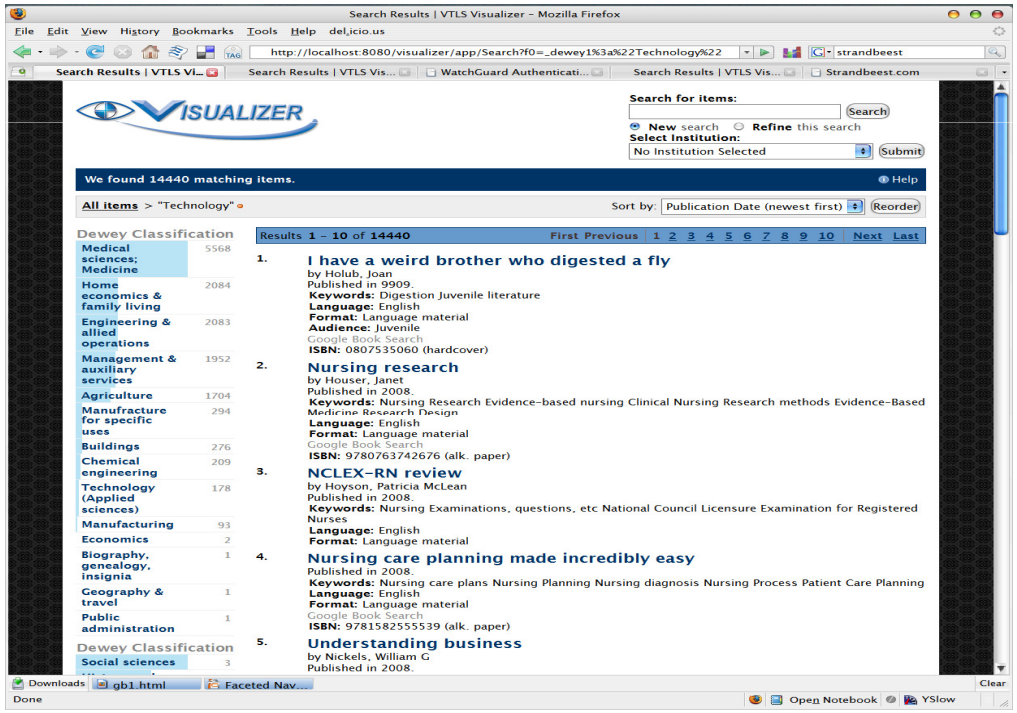
Most importantly:

- Service
- Support
- Sustainability!


VISUALIZER

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