

CMS Standards: a hard look at JCR, iECM, and CMIS

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1. What about WebDAV?
2. What isn't JCR?
3. What is JCR?
4. JCR in Detail
5. JCR 2.0 Impact
6. iECM
7. CMIS
8. Questions?

Why wasn't
WebDAV included?

WebDAV

- Currently managed by AIIIM
- 1996 – First Working Group Meeting
- WebDAV is a standard for a **protocol**
- WebDAV is an extension of HTTP
- Adoption of this standard is widespread
- WebDAV is a protocol, **not an API**. It is **NOT** competing CMS standard.

What isn't JCR?

JCR is NOT

- A Java Content Repository.
- A competitor of Documentum or Filenet
- A competitor of **ANY** other Content Management System or Repository in existence.
- A Content Management Client
- An Enterprise Content Management API
- An API which defines repository administration

What is JCR?

JSR 170: Java Content Repository

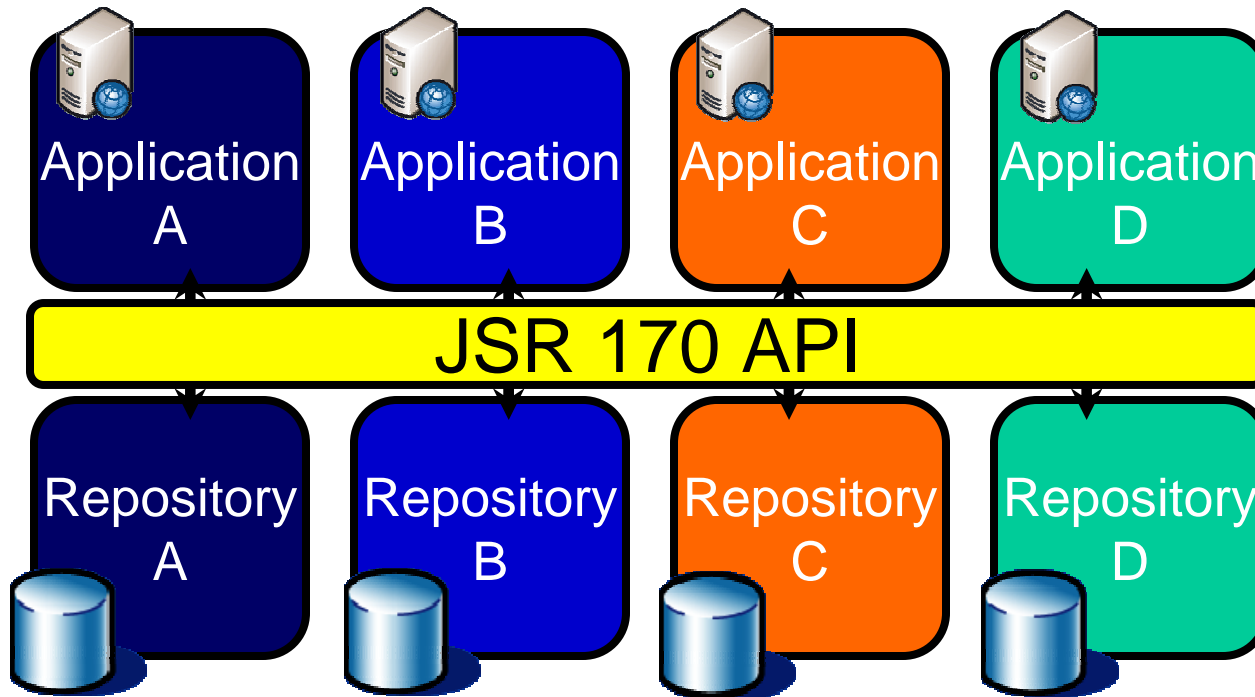
- Java Community Process
<http://www.jcp.org/en/jsr/detail?id=170>
- Led by Day Software
- Officially released June 17, 2005
- “Content Repository API for Java”
- Two levels of compatibility with optional features



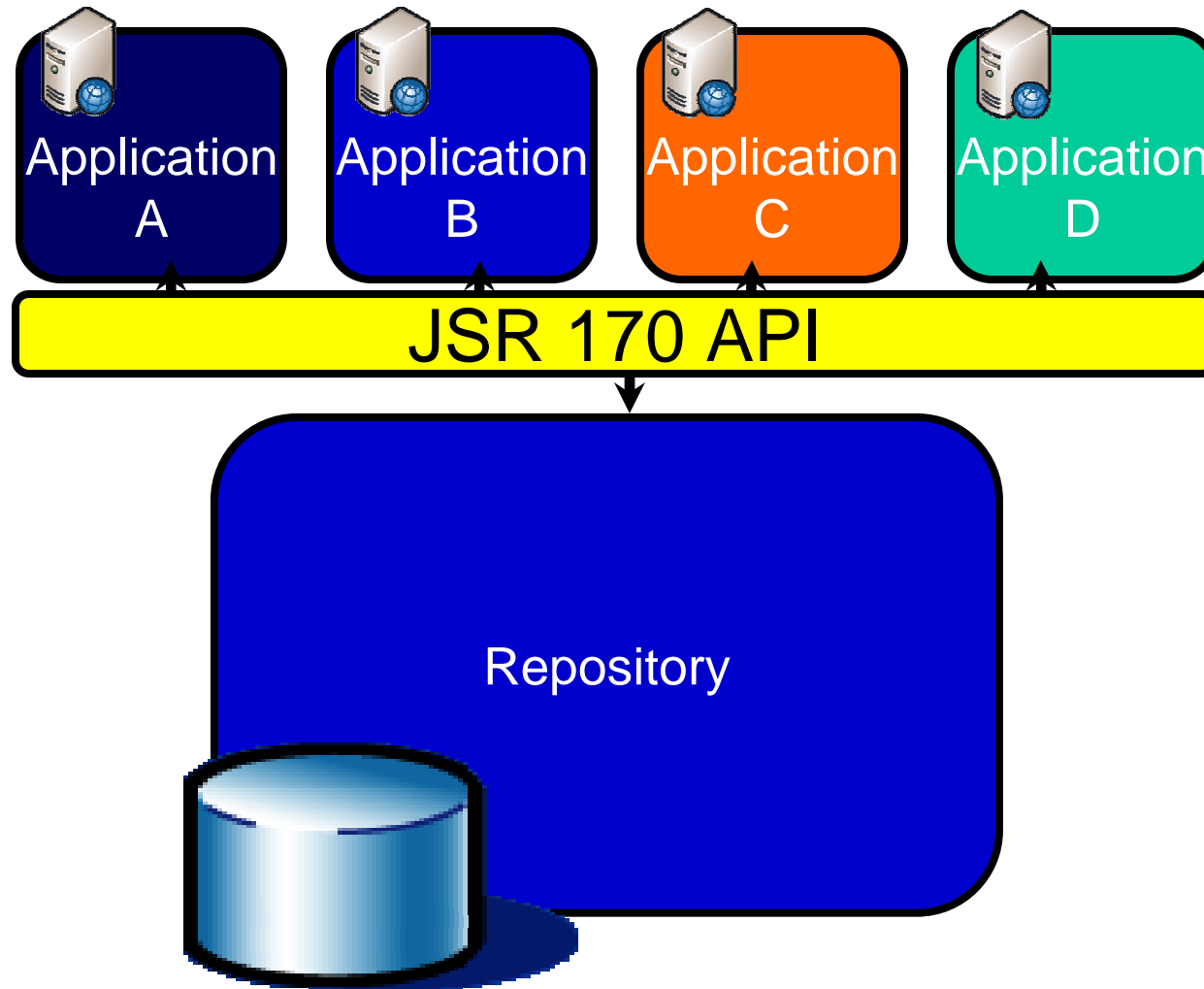
“ The API should be a standard, implementation independent, way to access content bi-directionally on a granular level within a content repository. “

JSR 170 Specification

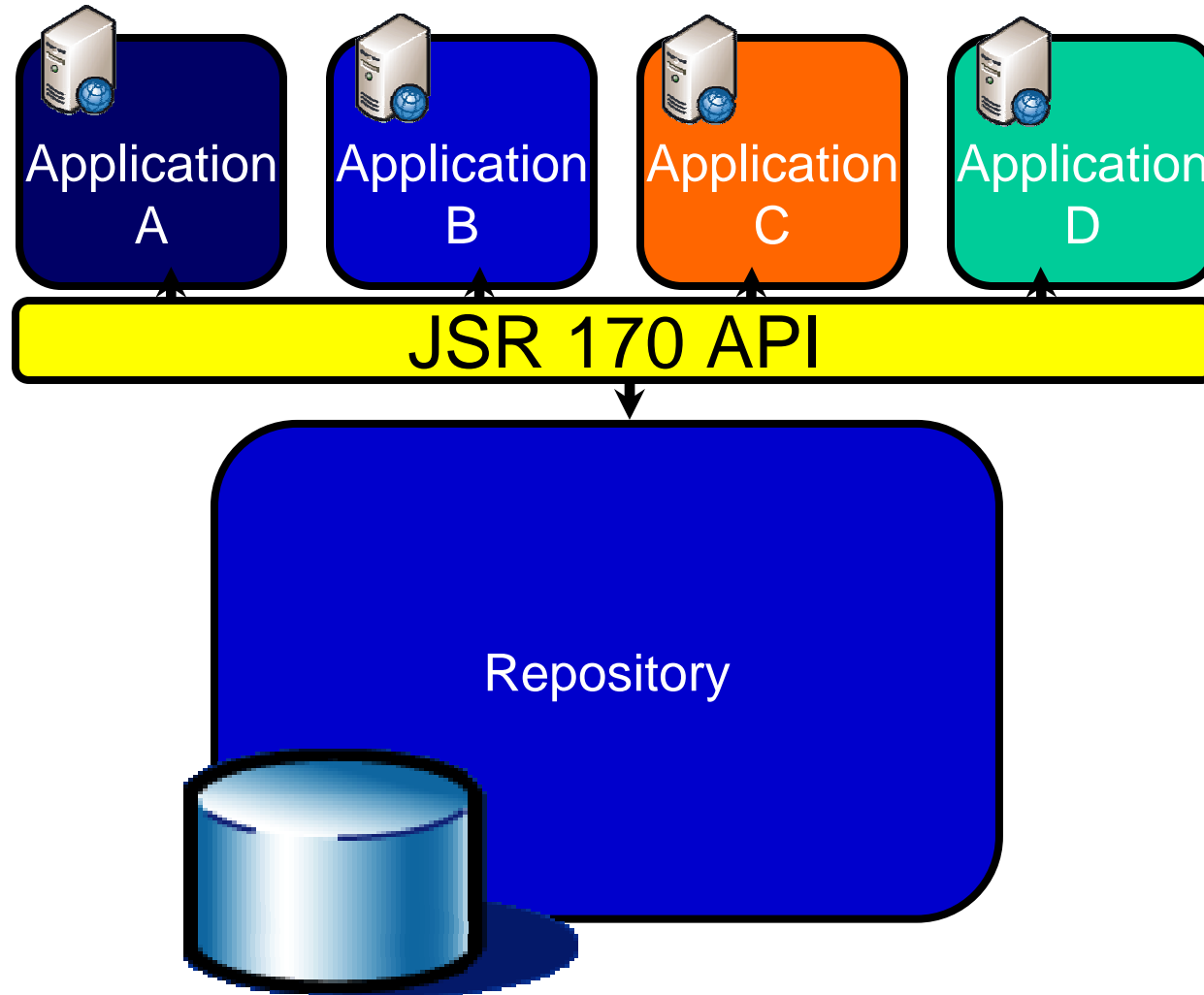
Using JSR 170



Using JSR 170: Infrastructure



Using JSR 170: Infrastructure



Compliant Repositories

● Day



IBM Content
Manager 8.4

ORACLE



EMC | documentum

Microsoft

OPEN TEXT
CORPORATION



3rd Party Connectors

* Many more registered with TCK

JSR 170 Apps and Support for Apps

magnolia®

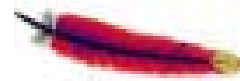
Free Software Portal
LUTECE

Sling

Sakai



PEARSON
Education



LIFERAY
Enterprise. Open Source. For Life.

Spring  tapestry 

TYP03 

 Alfresco™

nuxeo
Open Source ECM

powered by
eCoson

@ Sourcemix alpha

 FILENET®

exo)platform®

QuickWCM 

 Day

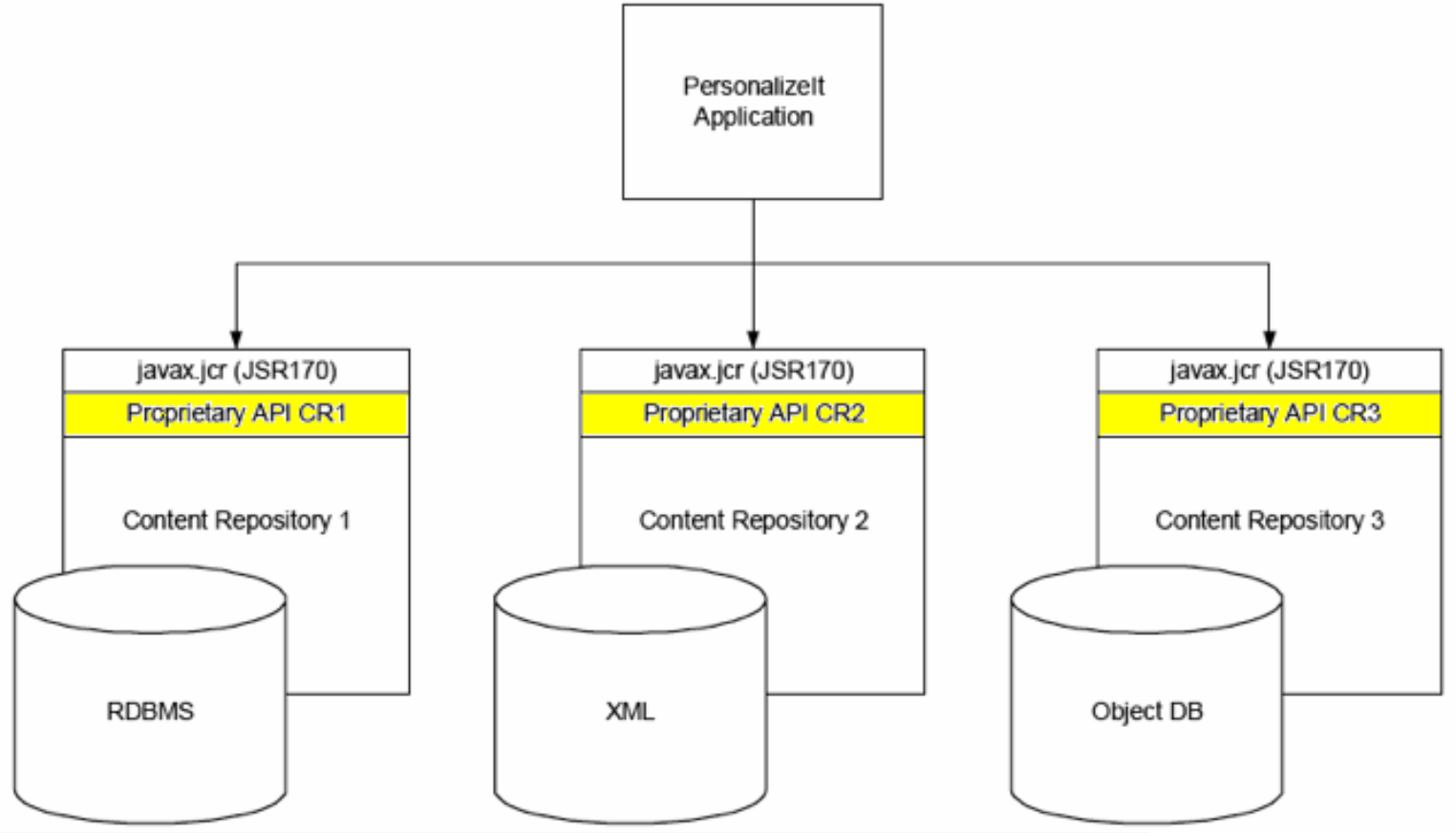
 OpenPortal

InfoQ licue
Enterprise Software Development Community

 james

Many, many, many more.....

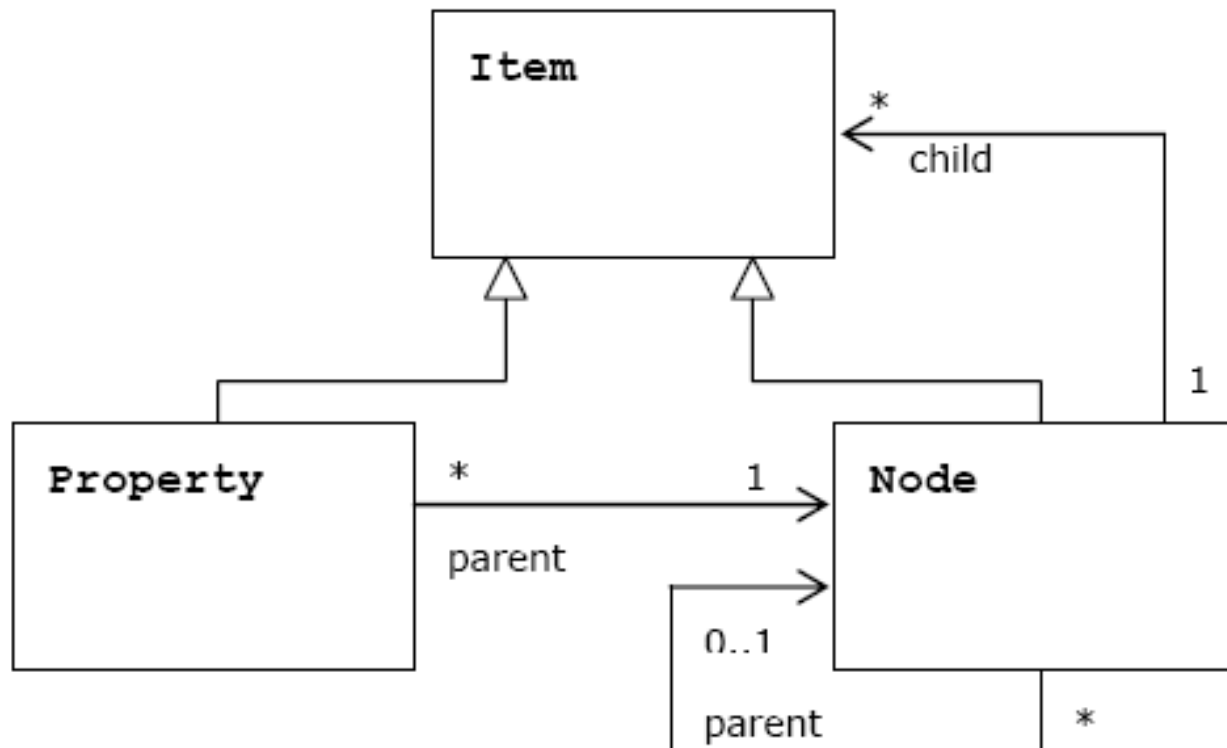
JSR 170 In Detail



Basic Repository Model

- A **repository** consists of one or more **workspaces**
- A **workspace** contains a tree of **items**
- An item is either a **node** or a **property**
- A **property** can only be a leaf
- **nodes** encapsulate the content structure
- The values of the **properties** is where the data is stored

JSR 170: Data Model



JSR 170: Level 1

Defines a read only repository

- Accessing Repository
- Reading Repository Content
- Transient namespace remapping
- Export Repository Content
- Search Repository Content (XPath)
- Discovery of NodeTypes

JSR 170: Level 2

Includes level 1 and adds ability to mutate

- Adding and removing nodes & properties
- Writing the values of properties
- Import from XML
- Assigning node types to nodes
- Persistent namespace changes

JSR 170: Optional Features

***‘Optional’* features?**

- Transactions
- Versioning
- Observation
- Locking
- SQL Search

Simple Authentication

```
Session jcrSession = null;
try {
    // varies from CR to CR... this is simple login
    jcrSession = jcrRepository.login(new SimpleCredentials("admin",
        "admin".toCharArray()));
    ...
} catch (RepositoryException ex) {
    throw convertJcrAccessException(ex);
} finally {
    jcrSession.logout();
}
```

Create Node

```
Session jcrSession = null;
try {
    ...
    // Get repository root node
    Node rootNode = jcrSession.getRootNode();
    // Add new nodes node.
    // NOTE: until persisted new node's UUID may be bogus!
    Node ferret = rootNode.addNode("ferret","zoo:animal");
    ferret.setProperty("zoo:animalName","sparky");
    Node exhibit = rootNode.addNode("ferretExhibit","zoo:exhibit");
    // persist
    jcrSession.save();
} catch (RepositoryException ex) {
    throw convertJcrAccessException(ex);
} finally {
    jcrSession.logout();
}
```

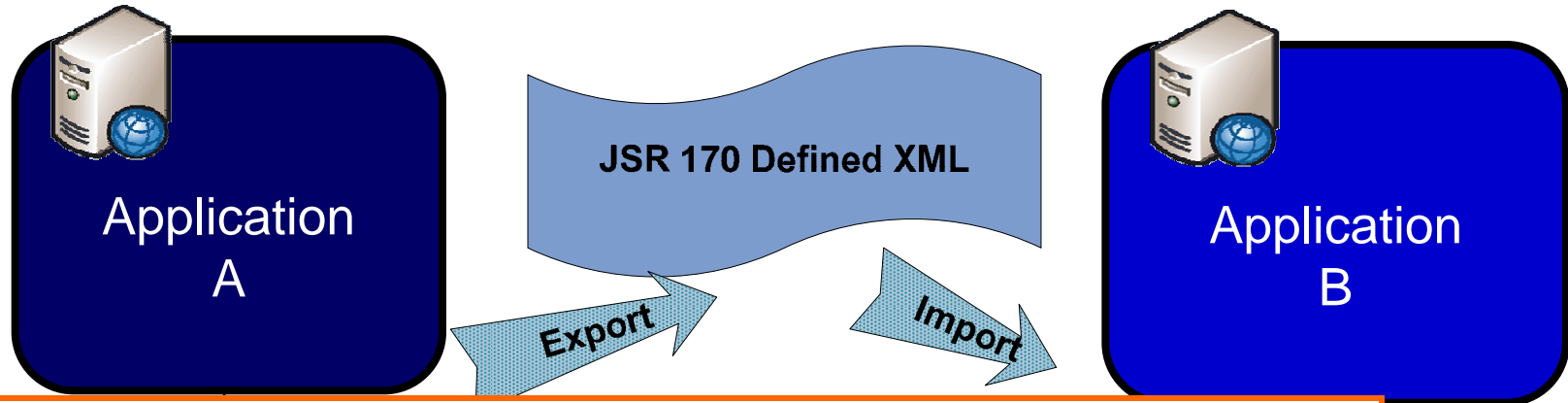

Move Node

```
try {
    ...
    // ferrets are running wild!!!!
    Node rootNode = jcrSession.getRootNode();
    // get ferret.
    Node ferret = rootNode.getNode("ferret");
    Node exhibit = rootNode.getNode("ferretExhibit");
    // put furry one in exhibit
    jcrSession.move(ferret.getPath(), exhibit.getPath()+ "/" +
ferret.getName());
    // persist
    jcrSession.save();
} catch (RepositoryException ex) {
    throw convertJcrAccessException(ex);
} finally {
    jcrSession.logout();
}
```

Search and Remove

```
try {
    ...
    Workspace ws = jcrSession.getWorkspace();
    QueryManager qm = ws.getQueryManager();
    // find sparky!
    String queryString = "//ferretExhibit[@zoo:animalName='sparky']";
    Query q = qm.createQuery(queryString, Query.XPATHquery);
    Query Result qr = q.execute();
    NodeIterator ni = qr.getNodes();
    // NOTE: there could be more than one ferret named sparky!
    // remove all ferrets named sparky from the zoo.
    while (ni.hasNext()) {
        Node sparky = (Node) ni.next();
        sparky.remove();
    }
    jcrSession.save();
} catch (RepositoryException ex) {
    throw convertJcrAccessException(ex);
} finally {
    jcrSession.logout();
}
```

JSR 170: Migration



Export

```
File outputFile = new File("systemview.xml");  
FileOutputStream out = new FileOutputStream(outputFile);  
session.exportSystemView("/zoo:ferretExhibit", out, false, false);
```

Import

```
File inputFile = new File("systemview.xml");  
FileInputStream in = new FileInputStream(inputFile);  
session.importXML ("/", in, ImportUUIDBehavior.IMPORT_UUID_CREATE_NEW);  
session.save();
```

JCR 2.0 (JSR 283)

JSR 283: Java Content Repository 2.0

- Java Community Process
<http://jcp.org/en/jsr/detail?id=283>
- Led by Day Software
- Public draft completed Sept 10, 2007
- TCK and RI slated for 2009 release.
- “Content Repository API for Java Version 2.0”



What is in JSR 283?

- **Both JCR 1.0 XPath AND Sql Deprecated.**
- JCR-SQL2 and JCR-JQOM query notations
 - Inner join required
- New Property Types i.e.
 - WeakReference
 - URI
 - Decimal

JSR 283: Optionals

- **Versioning now has two optional varieties Simple and Full.**
- **Node Type Registration**
- **Activities**
- **Baselines**
- **Journalized Observations**
- **Right, Left and Full JCR-SQL2 joins supported**
- **Path supported in where clause**
- **Access control**
 - **Discovery**
 - **Policies**
 - **Entries**
- **Lifecycle Management**
- **Shareable nodes**

Additional Noteworthy changes to JCR API

New:

- `javax.jcr.Binary`
- `Rangelterator.getNumberRemaining()`
- `Query.setLimit(int)`
- `Query.setOffset(int)`
- ...

Deprecated:

- `Node.getUUID()`
 - use `getIdentifier()` instead
- `NodeType.canRemoveItem(String)`
 - Use `NodeType.canRemoveNode(String)` or `NodeType.canRemoveProperty(String)`
 - ...

JCR Concerns

- Without TCK or Reference Implementation, still too early to adopt JCR 2.0
- BOTH query languages deprecated.
- While many have adopted JCR, usage is not pervasive.
- Current remote access performance not optimal. (*Effort to remedy this in process*)
- Java only

iECM

iECM

- AIIM managed
<http://www.aiim.org>
- Formed by largest vendors
- SOA for ECM
- No release date scheduled.
- “interoperable Enterprise Content Management”



*“iECM is not happening, but something
will happen to fill its place ”*

John Newton March 23, 2007

(member of both iECM and JCP)

CMIS

CMIS

- Sep 10, 2008 CMIS Published
 - Formed by largest vendors
 - Alfresco offers draft implementation (same day)



- REST and Webservices



- Oct 6, 2008 Oasis CMIS TC formed



- “Content Management Interoperability Services”



“Define a domain model and set of bindings, such as Web Service and RESTful AtomPub that can be used by applications to work with one or more Content Management repositories/systems”

CMIS Objective

CMIS Benefits

- Designed to work against existing repositories.
- Decouples Web services and content from Content Management Repository
- **Provides common Web services and Web 2.0 interfaces**
- **Platform and language agnostic**
- Encourages composite application development.

CMIS

Content Application

REST or Web Services

CMIS Impl

Documentum

CMIS Impl

IBM Content
Manager

CMIS Impl

FileNet
Content
Manager

CMIS Impl

SharePoint

CMIS Impl

JCR
Compliant
Repository

CMIS Repositories in Development



CMIS Clients in Development



Alfrescian CMIS Browser

SharePoint Integration Client

CMIS Browser

CMIS Spaces

JavaFX CMIS

CMIS

- **Impressive progress!**
- **VERY** new, and still evolving.
- Several participants, but not heavily adopted yet.
- Likely too green for an serious production grade development.

Summary

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Resources

- <http://www.day.com/>
- <http://www.cmswatch.com/Feature/123>
- <http://docs.exoplatform.org/exo-documents/exo-jcr.site/index.html>
- <http://dev.alfresco.com>
- <http://freshmeat.net/projects/jeceira>
- <http://jackrabbit.apache.org/>
- <http://newton.typepad.com/>
- http://en.wikipedia.org/wiki/Content_Management_Interoperability_Services

Questions?



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