



APACHE SLING & FRIENDS TECH MEETUP
BERLIN, 26-28 SEPTEMBER 2012

A JCR view of the world
Alexander Klimetschek, Adobe

CONTENT REPOSITORY

FEATURES OF AN

RDBMS

Transactions, Query, Structure, Integrity

FEATURES OF A

FILESYSTEM

Binaries, Hierarchy, Locking, Access Control

+

ALL THE OTHER

GOOD STUFF

YOU ALWAYS WANTED

Data First, Versioning, Full-text,
Multi-Value, Sort-Order, Observation

David`s Model

1. Data first, Structure Later
2. Drive the Content Hierarchy
3. Reduce # of Workspaces
4. Beware of Same Name Siblings
5. References Considered Harmful
6. Files are Files are Files
7. ID`s are evil

<http://wiki.apache.org/jackrabbit/DavidsModel>

David`s Model

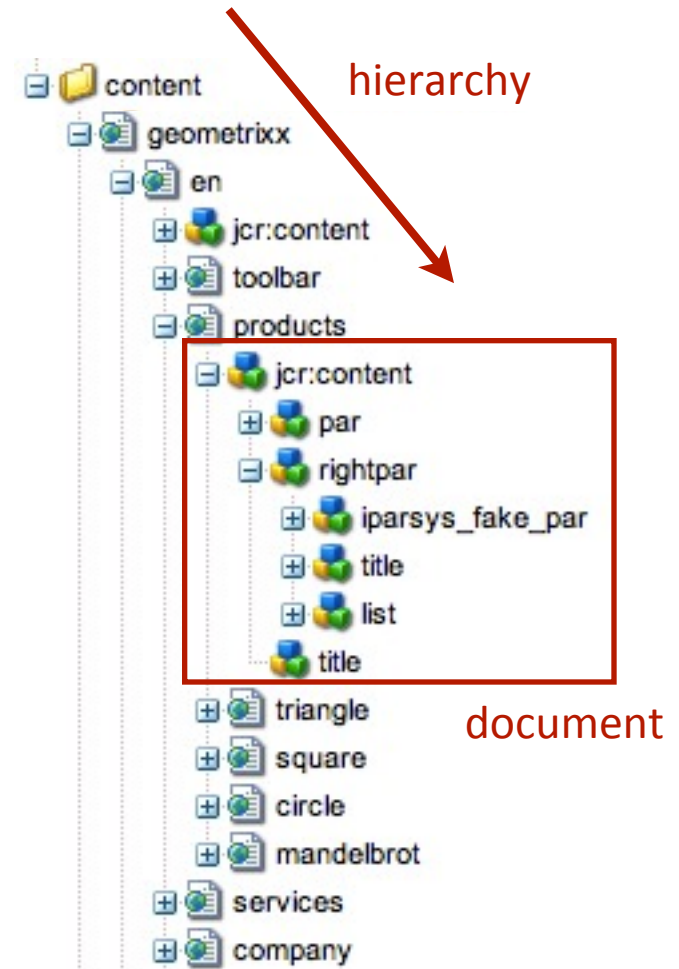
1. Data first, Structure Later
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#1 Data first, Structure later

- **Strict schemas harm evolution**
 - Structure is expensive
 - Constraints only where 100% future proof
- **Easier to extract patterns from real data**
 - allow end users to structure their content
- **Use `nt:unstructured` instead of `my:Type`**
 - CQ: use `cq:Page`
 - Sling: use `sling:Folder`

- Outer hierarchy
 - files & folders
- Inner document structure
 - micro tree
 - separated by `jcr:content`
- `nt:hierarchyNode`
 - used for replication in CQ
- Pages: generic UIs & authoring
 - /etc/replication



Shadow paths

- Need to store separate information?
- But not within original content?

- Use shadow paths:
`/some/path => /alternate/some/path`

- Samples:
 - `/content/usergenerated`
 - `/var/clientlibs`
 - `/var/audi/com.day.cq.wcm.core.page`

#2 Drive the Content Hierarchy

- Content hierarchy is valuable
- Look at ownership & permissions
- Good design:
 - intuitive, understandable & easily explorable
 - uses less ACLs
 - like a well-ordered and well-named filesystem
 - always try to use hierarchy conventions instead of node types
 - don't simply „copy“ relational models

- Inspiration:
Unix filesystem
 - for CMS
- /content
- /apps over /libs
- mess: /etc



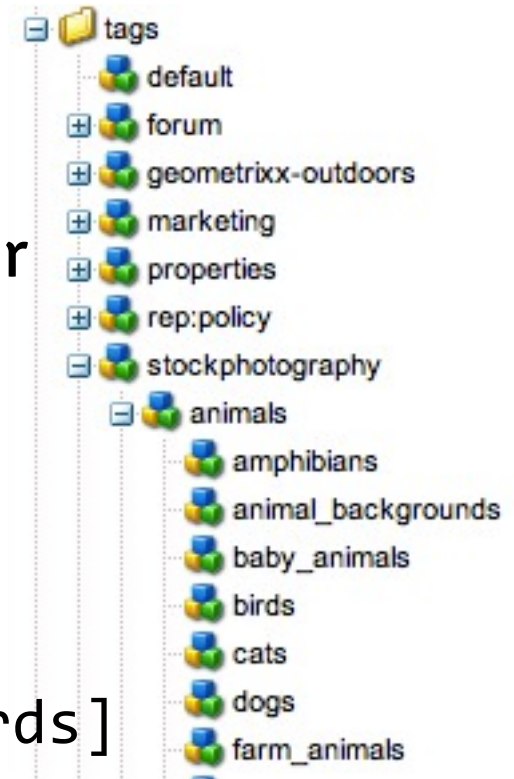
Access Control

- Structures driven by permissions
 - /public
 - /private
- By organizational structure
 - /customers/lufthansa/systems/...

#5 References considered harmful

- REFERENCES imply referential integrity
- Two documents linked via a reference...
 - cannot be imported/exported separately
 - create larger transactional boundary
 - UUID reference is not human readable
- WEAKREFERENCE still relies on UUIDs
- Better use soft references
 - STRING with node path
 - code: handle missing target without failure

- Lazy references
 - Scalability
 - Privileges: tag librarian vs. content author
- Tags under /etc/tags
 - taxonomy, titles, metadata etc.
- Tagged resources: cq:tags property
 - array: [stockphotography:animals/birds]
 - not automatically updated when tags change



Flexible hierarchies

- Fixed structures below a base
- Referenced by path
- /home (~)
- /content/campaigns
- /libs/*/* (components)
- /etc/packages/day/product/550/...

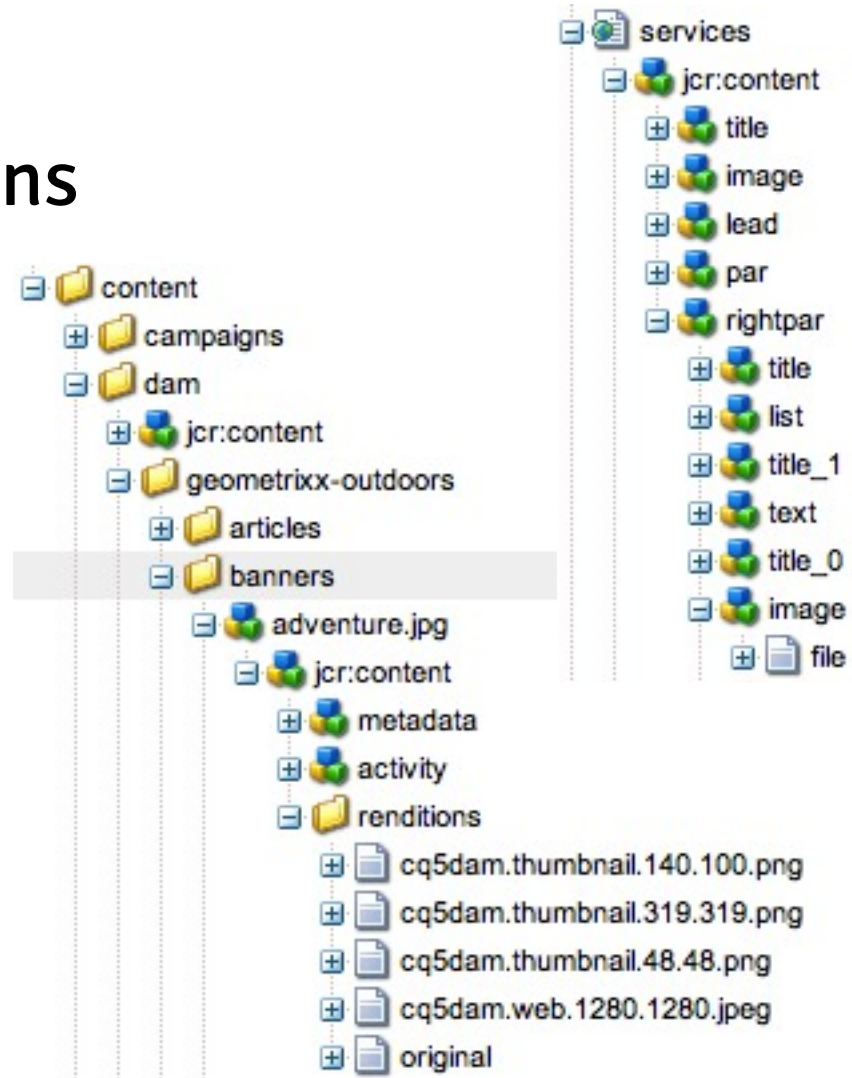
Relative paths

- **Overlays: /apps over /libs**
- **projects over product, custom over default**
- **Samples**
 - **resource types: foundation/components/text**
 - **tags: geometrixx:activity/biking**
 - **or: /etc/tags/geometrixx-outdoors/activity/biking**

#6 Files are Files are Files

- Files and folder-**like** elements should use `nt:file` and `nt:folder`
- Built-in node types maximize re-use
 - HTTP range download, WebDAV
- Allows mime-type and meta data
- If content needs binary data (eg. an image)
 - add a sub-node of type `nt:file`
 - for a list, add a sub-node of `nt:folder`

- Embed in pages
- Assets have renditions
- Using `nt:file`



#7 ID's are evil

- IDs necessary in RDBMS for relations
 - Not required in JCR at all, see #5
- Use a proper content hierarchy instead
 - find node names for your content
 - greatly enhances explorability
 - `/mails/38956` VS. `/mails/2008/08/14/happy_birthday`
- Naming
 - title of the object
 - hierarchy: categories, dates, letter-groups

Date based structures

- If nothing works, dates work
 - .../2012/09/26/...

- Samples

- Calendar
- Blog
- /var/statistics/queries
- ~/activities/foo/2012/09/12/...





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Thank You!

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