Learning to use Manakin
For DSpace 1.5

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JA-SIG

DSPACE

Outline

1. Manakin
2. Architecture Overview
3. Style Tier
4. Introduction to XSL
5. Theme Tier

Manakin

1

What is Manakin?

- Interface framework
  - *Modular*
  - *Extendable*
  - *Tiered*
- A new interface to DSpace

What can Manakin do?

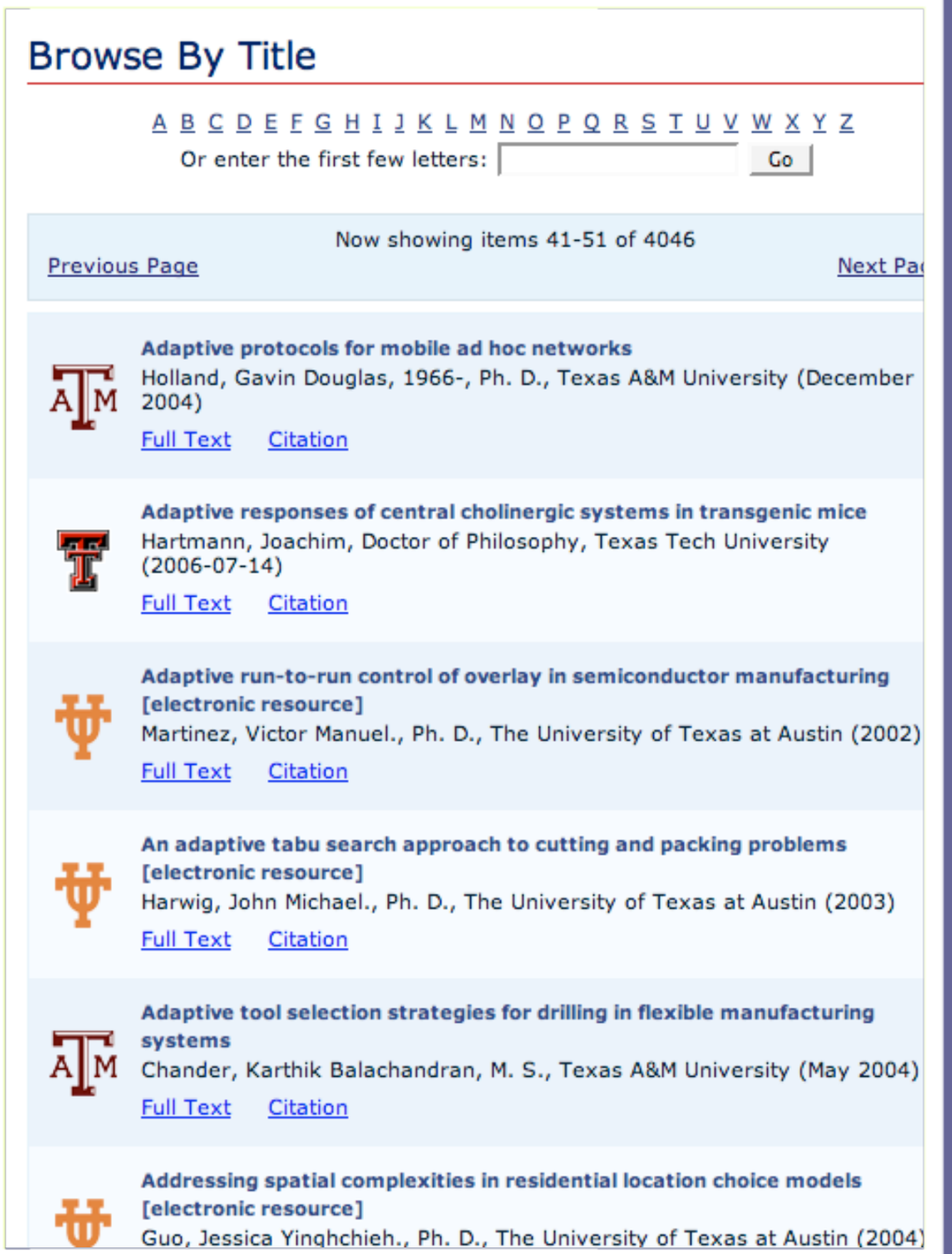
- Modify **Look-and-Feel**
- Brand Content
- **Visualize** Metadata
- Share Extensions

Look & Feel

- Style
- Integration

Branding

- Repository
- Communities
- Collections
- Items

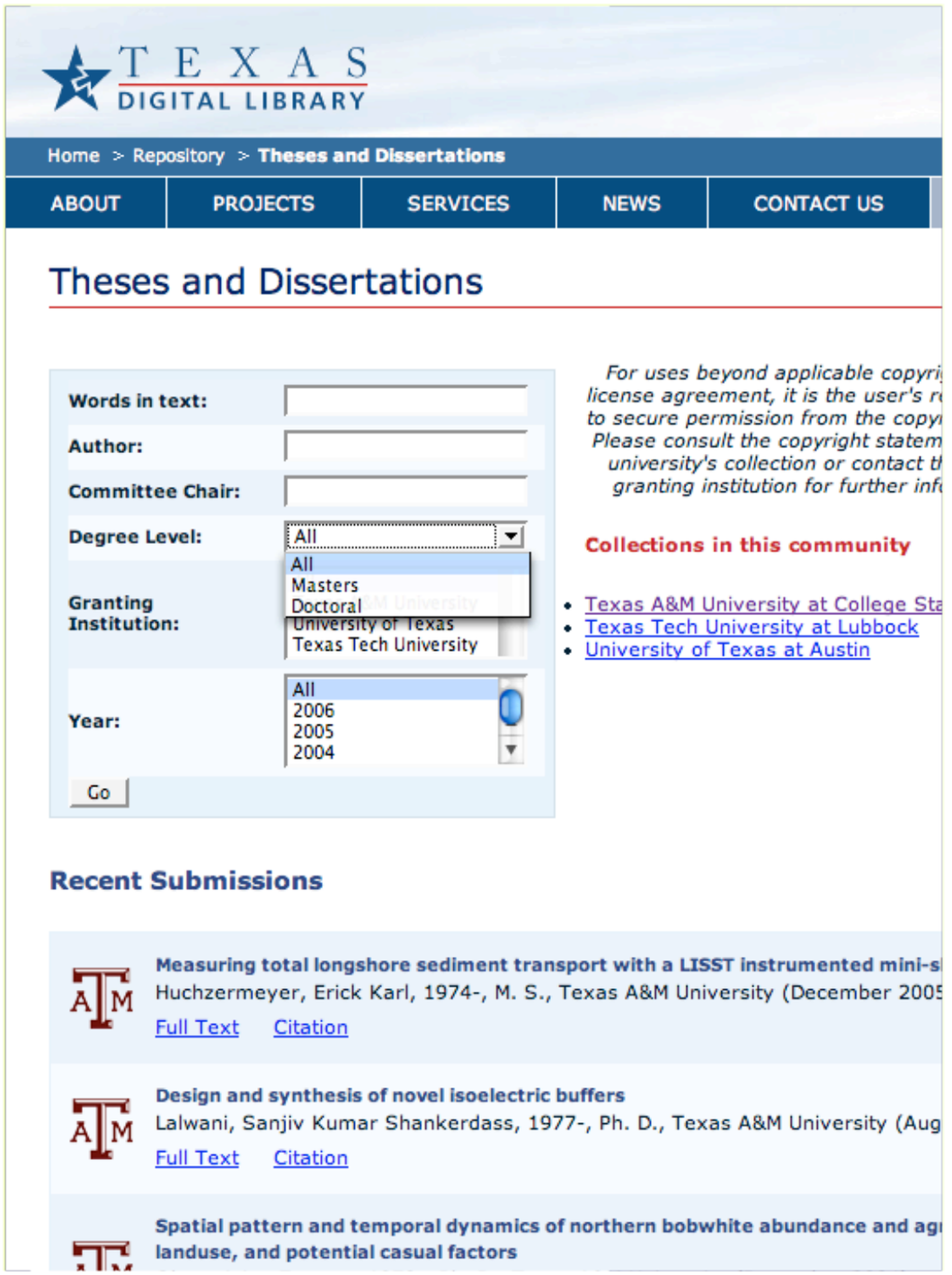


Visualization

- Interpret metadata
- Link metadata
- Explain metadata

Share

- Extend
- Adapt
- Customize



Manakin around the globe

- Texas Digital Library
  - http://repositories.tdl.org/
- GeoFolios @ A&M
  - http://labs.di.tamu.edu:8080/geofolios/handle/123456789/2
- Dome @ MIT
  - http://dome.mit.edu/
- Instituto Antio Jobim
  - http://www.jobim.org/manakin/
- University of Helsinki
  - http://tds.terkko.helsinki.fi/

Manakin vs JSP UI

- JSP UI
  - *Difficult & expensive to extend*
  - *One monolithic interface for all collections regardless of content*
- Manakin
  - *Modular design makes extensions easier*
  - *Multiple interfaces that can adapt to the needs of a collection*
  - *Metadata in native formats*

Tiers

1. Style Tier
   - Create simple themes
   - XHTML + CSS

2. Theme Tier
   - Create complex themes
   - XSL + XHTML + CSS

3. Aspect Tier
   - Add new features
   - Cocoon + Java

What resources are available?

- Documentation
  - DSpace Manual
  - Theme Writing Tutorial
  - DSpace Wiki
- Mailing lists
  - dspace-dev
  - dspace-tech

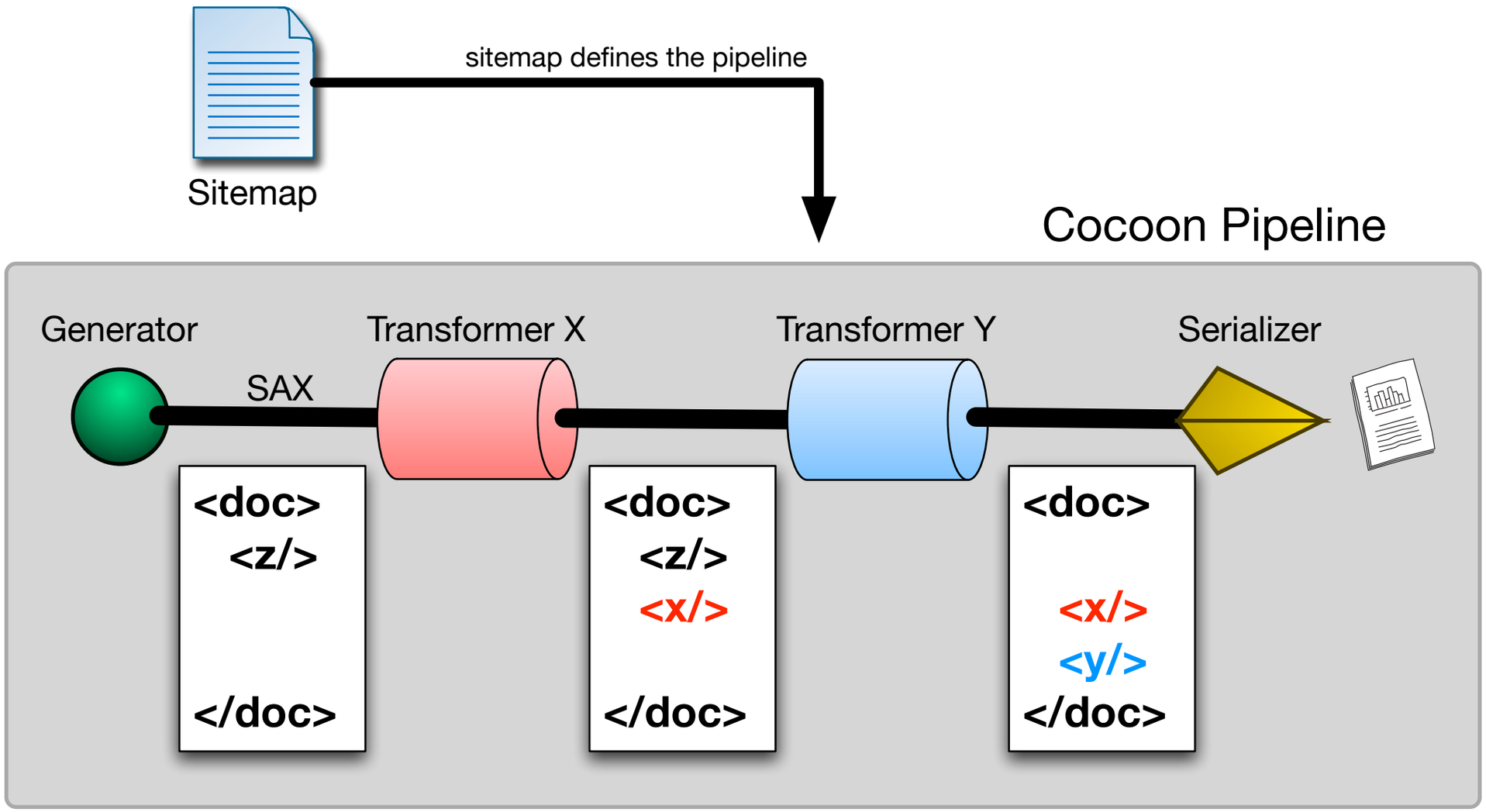
Architecture

Overview

2

Apache Cocoon

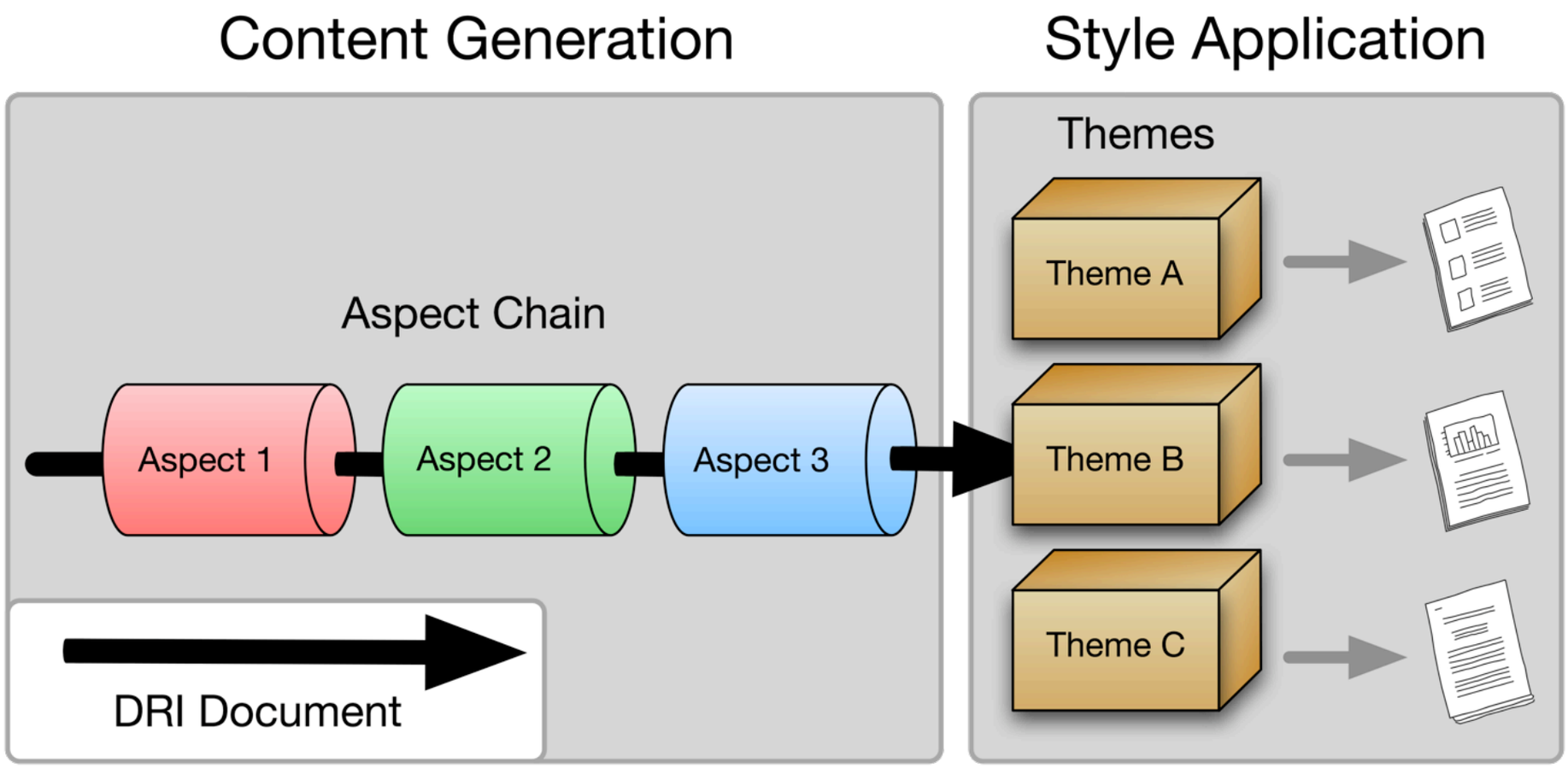
- Web development framework
- Pipeline-based architecture
- SAX-based XML
- Modular components
  - Generators
  - Transformers
  - Serializers



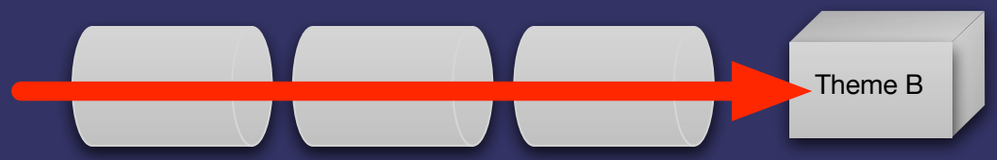
Cocoon's Pipeline Model

Three components

- Aspects
- Themes
- DRI Schema



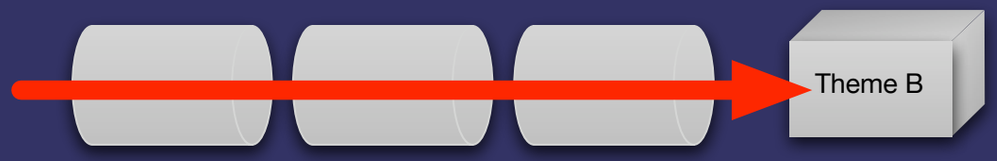
Structural overview



DRI Schema

Abstract representation of a repository page

- **D**igital **R**epository **I**nterface
- Metadata elements
  - References to METS
  - DIM, DC, QDC, extendable to others
- Structural elements
  - TEI (light)
- Changes 1.1 -> 1.5



DRI Schema

Abstract representation of a repository page

DRI Document

<document>

<options>
structural elements
<options/>

Based upon TEI

<body>
structural elements
<body/>

Based upon TEI

<meta>
web-oriented metadata
<meta/>

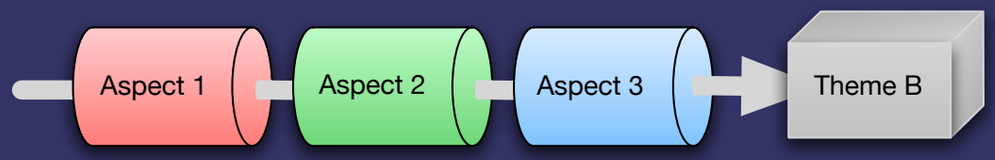
title, language, style sheets...

<document/>

Artifact Metadata

METS

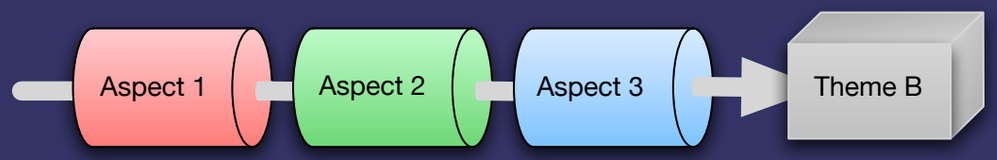
METS



Aspects

Implement a set of related features

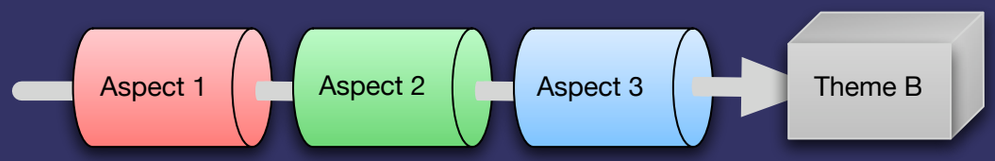
- Applied to **all** pages
- Interact with the repository
- “Aspect Chain”
  - Input DRI
  - Output DRI



Aspects

Implement a set of related features

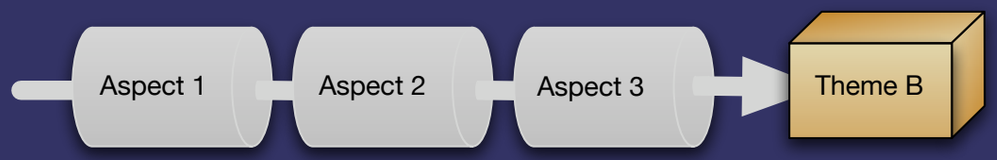
- Core Aspects:
  - Artifact Browser
  - E-Person
  - Submission
  - Administrative
- Possibilities:
  - Shopping cart
  - Specialized searching
  - Customized workflow



Aspects

Implement a set of related features

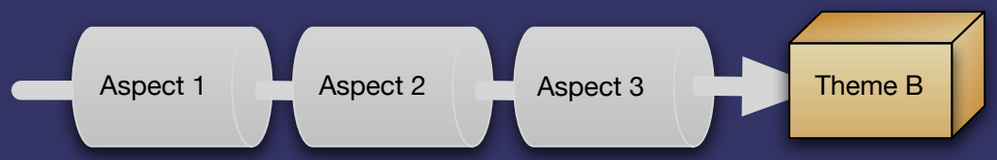
- Self contained packages
  - Java source code
  - Javascript flow scripts
  - XML Configuration



Themes

Stylize content into a particular look-and-feel

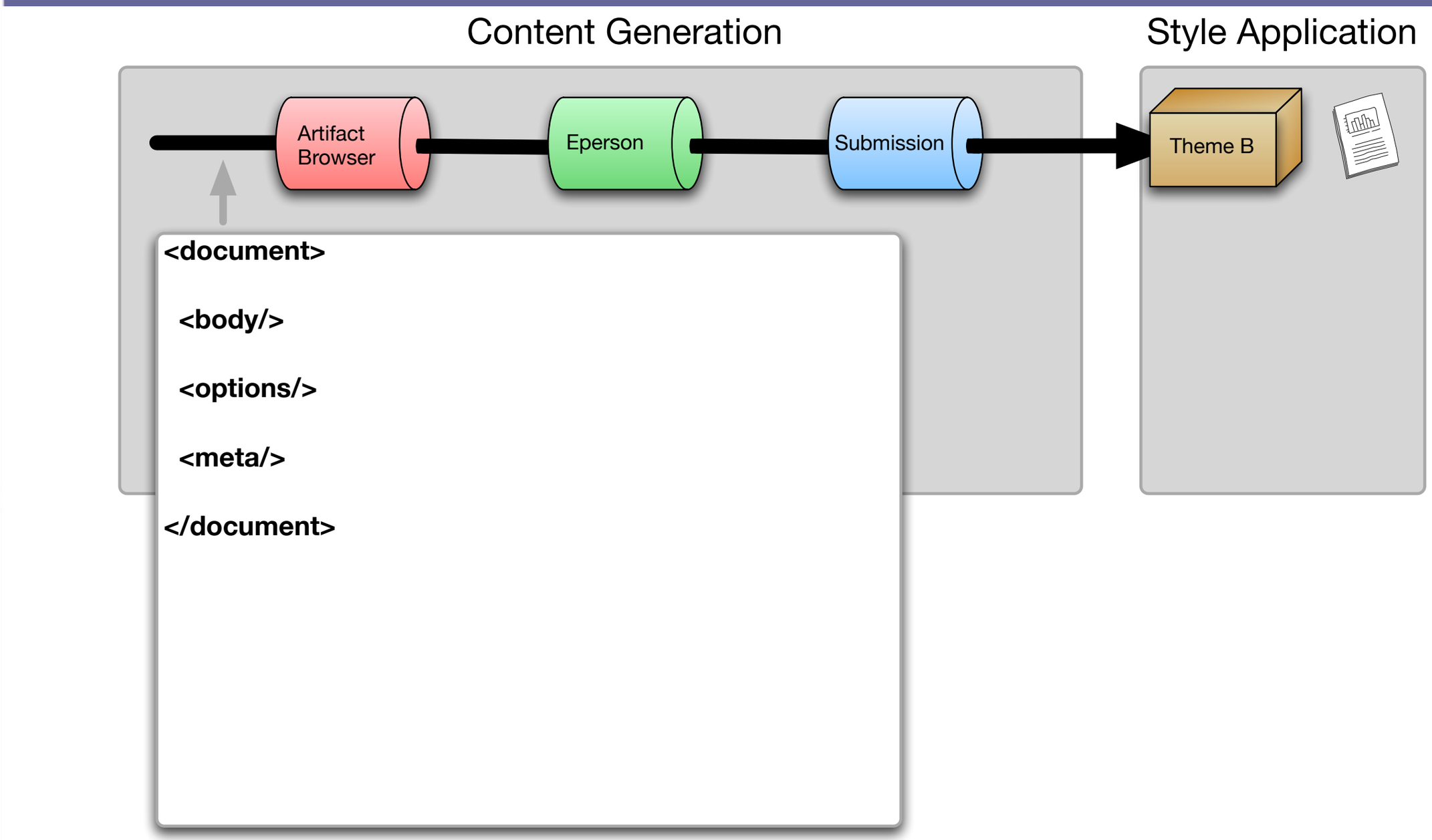
- Defines how the repository looks
- May apply to:
  - A Single page
  - All pages in a collection
  - All pages in a community
  - The whole repository



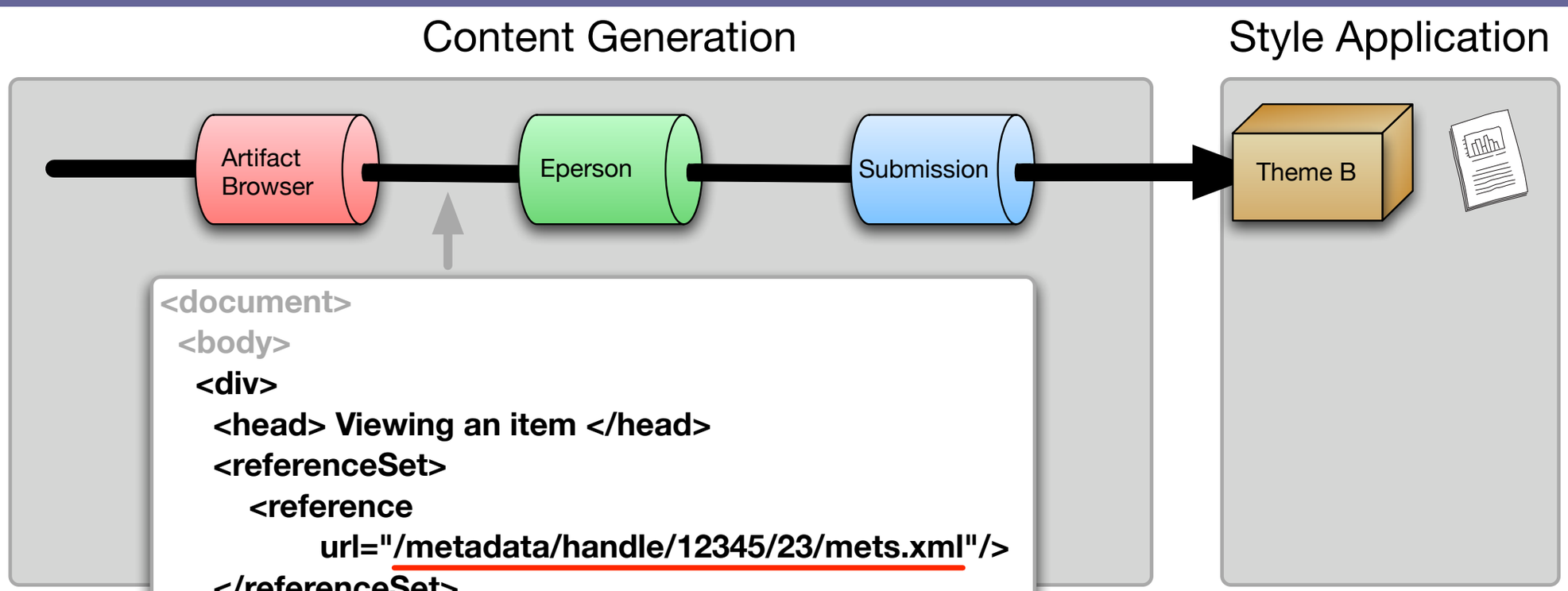
Themes

Stylize content into a particular look-and-feel

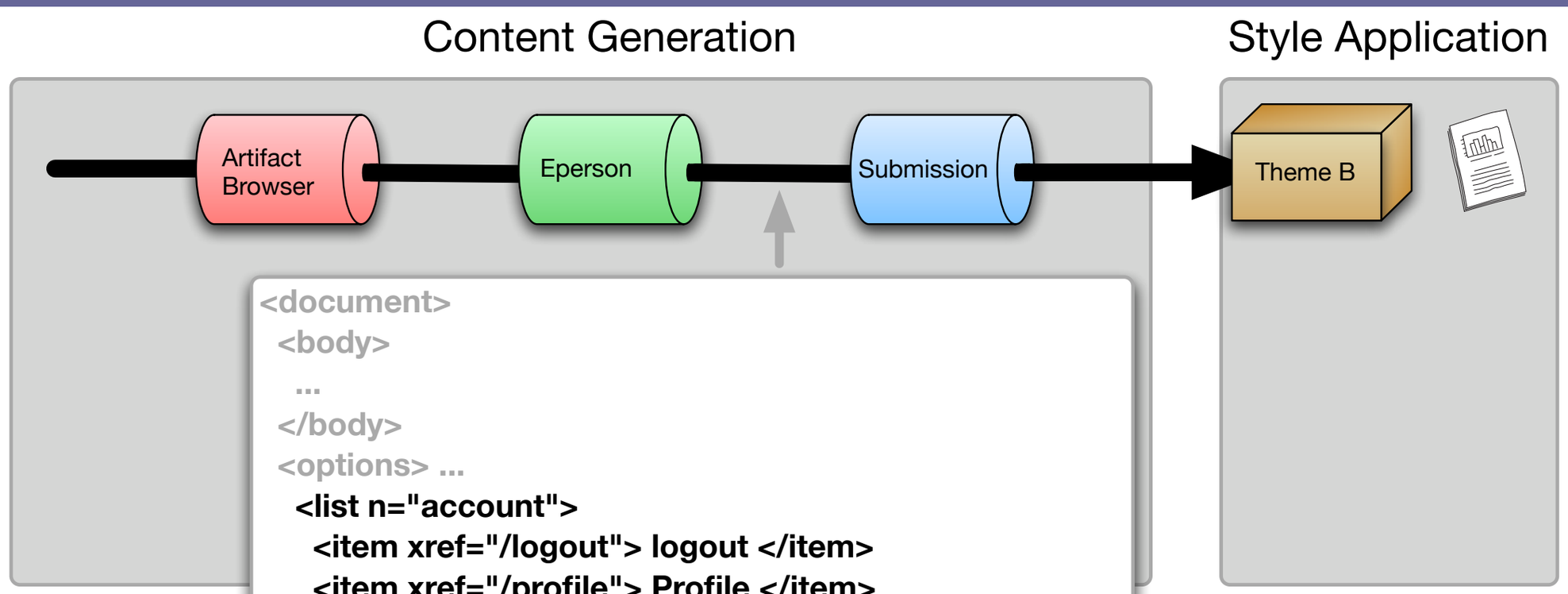
- Self contained packages
  - XSL stylesheets
  - CSS stylesheets
  - Images
  - Static resources



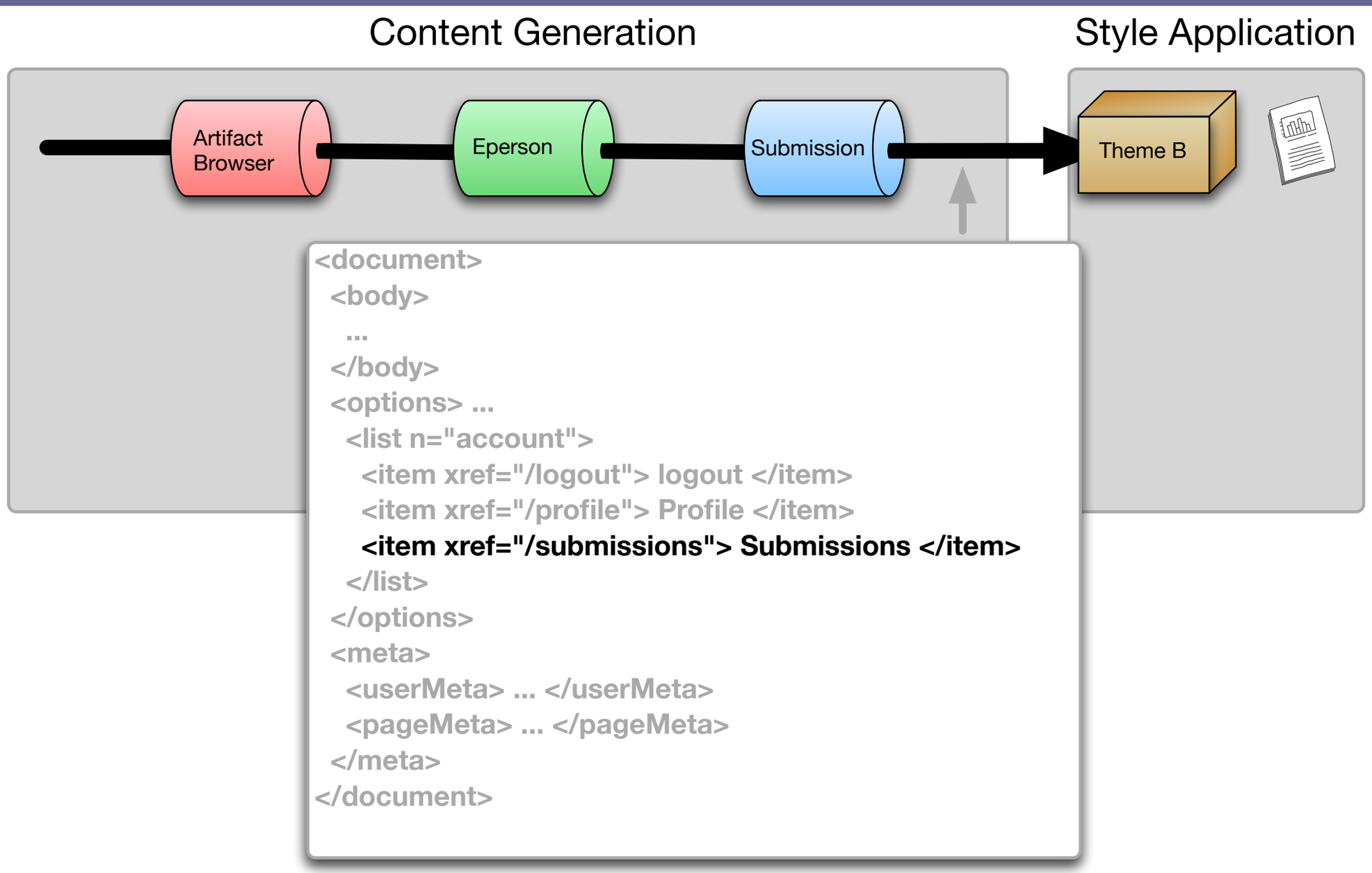
Putting it all together



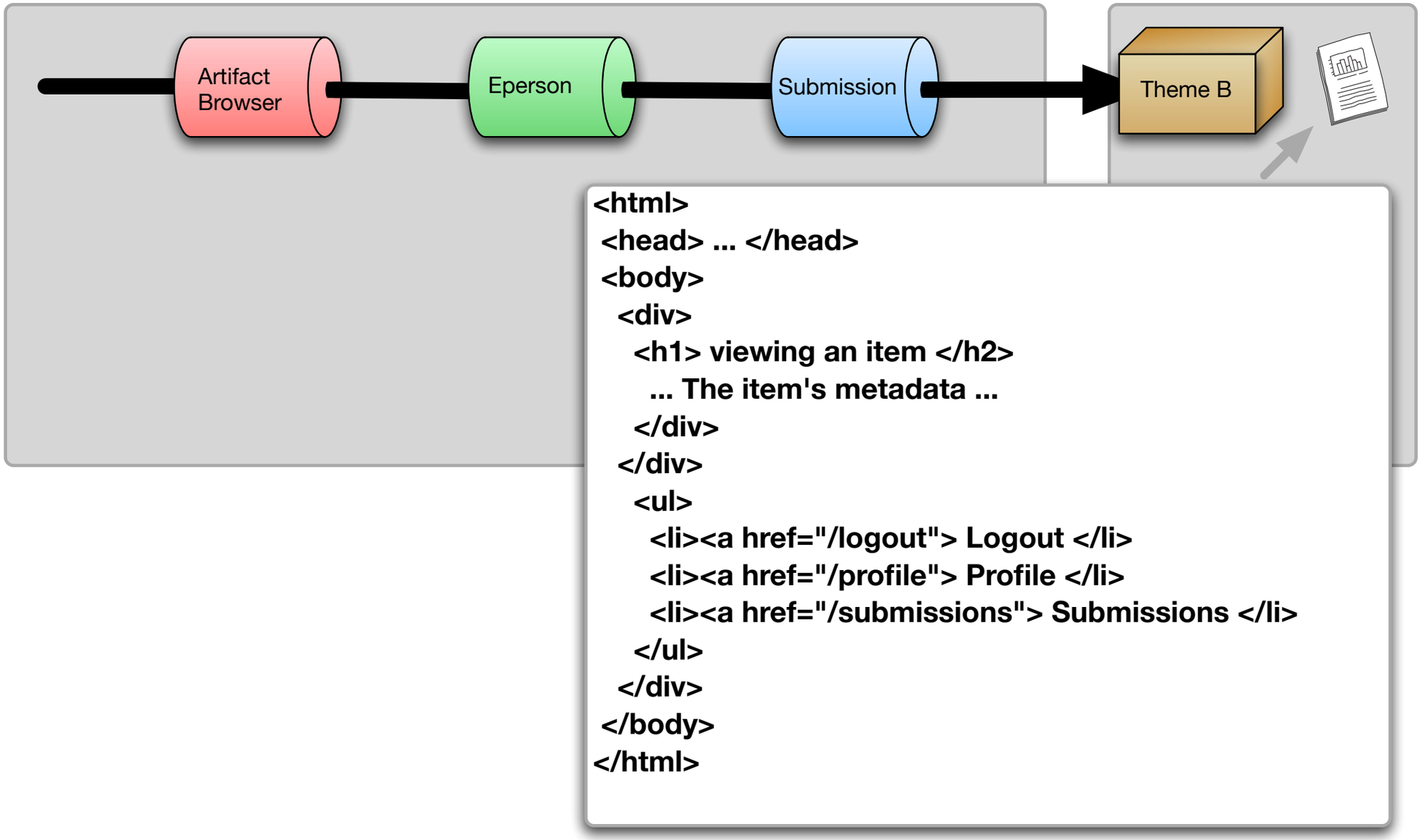
Putting it all together



Putting it all together



Putting it all together



Putting it all together

Style Tier

3

Tiers

1. **Style Tier**
   - **XHTML + CSS**
   - **Create simple themes**

2. Theme Tier
   - XSL + XHTML + CSS
   - Create complex themes

3. Aspect Tier
   - Cocoon + Java
   - Add new features

Create a theme

1. Create theme skeleton
   - `cd [dspace-source]/dspace/modules/dspace-xmlui/src/main/webapp/themes/`
   - `cp -R [dspace-source]/dspace/dspace-xmlui/dspace-xmlui-webapp/src/main/webapp/themes/template/ [theme-dir]`

2. Modify theme variables
   - `[theme-dir]/sitemap.xmap`

```
<global-variables>
   <theme-path>[theme-dir]</theme-path>
   <theme-name>[your-name]</theme-name>
</global-variables>
```

Create a theme

3. Add your CSS stylesheet
   - `[theme-dir]/style.css`
   - `[theme-dir]/style-ie.css`

4. Rebuild your project
   - `cd [dspace-source]/dspace/; mvn package`
   - `Deploy web application`

Install a theme

1. Open XMLUI configuration
   - `[dspace]/config/xmlui.xconf`
2. Add a new theme rule

```
<theme name="[theme-name]"
       path="[theme-dir]"
       handle="123/1"       />
```

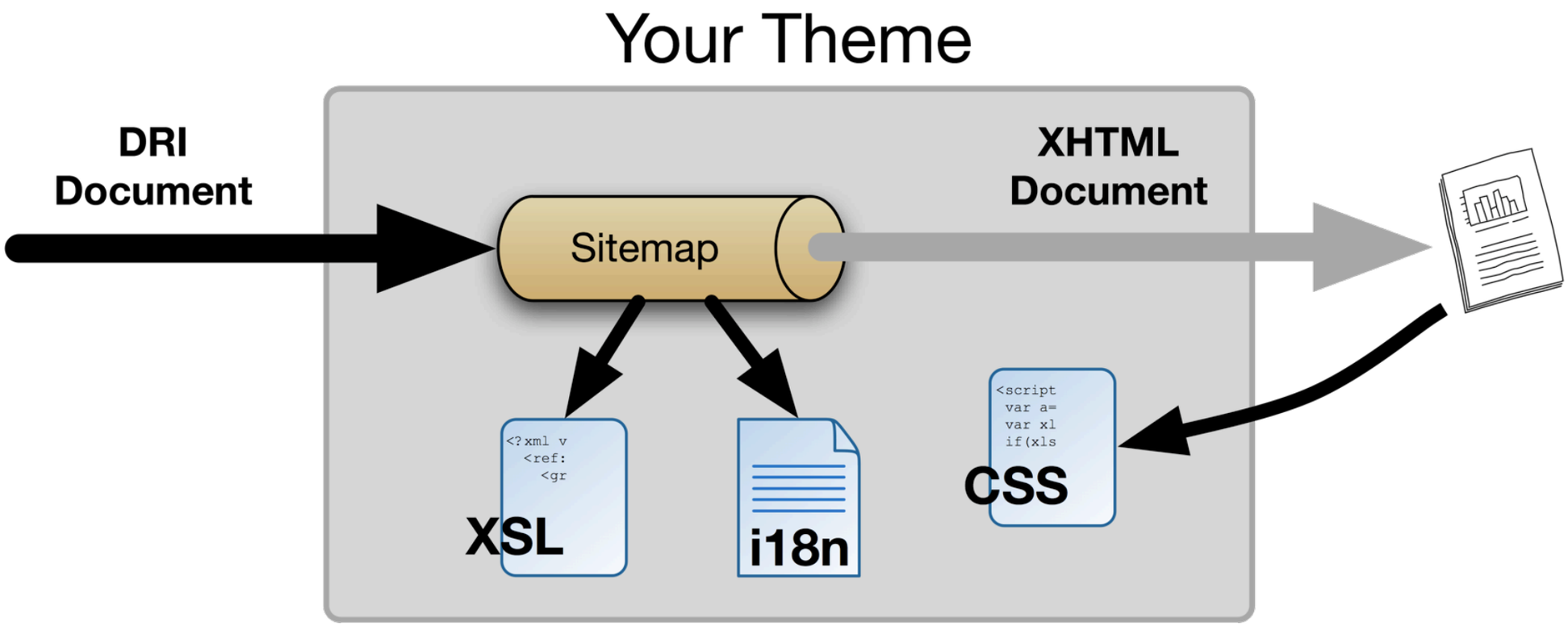
or

```
<theme name="[theme-name]"
       path="[theme-dir]"
       regex=".*"           />
```

3. Restart Tomcat

Theme components

- Sitemap
  - The heart of a theme
  - A configuration file
  - References components
- XSL
  - Converts DRI to HTML
- CSS
  - Styles the resulting HTML



Theme components

```
<sitemap>
   <pipelines>

      <!-- Theme variables -->
      <component-configurations>
         ....
      </component-configurations>

      <pipeline>

         <!-- Static content -->
         <match pattern="themes/*/**">
            <read src="{2}"/>
         </match>

         <!-- Aspect content -->
         <match pattern="**">

            ....

         </match>
      </pipeline>
   </pipelines>
</sitemap>
```

Sitemap details

```
<sitemap>
   <pipelines>

      <!-- Theme variables -->
      <component-configurations>
         ....
      </component-configurations>

      <pipeline>

         <!-- Static content -->
         <match pattern="themes/*/**">
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```

Sitemap details

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<sitemap>
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      <!-- Theme variables -
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         <match pattern="themes/*/**">
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         </match>

         <!-- Aspect content -->
         <match pattern="**">

            ....

         </match>
      </pipeline>
   </pipelines>
</sitemap>
```

```
<component-configurations>
   <global-variables>
      <theme-path>template</theme-path>
      <theme-name>The template theme</theme-name>
   </global-variables>
</component-configurations>
```

Sitemap details

```
<sitemap>
   <pipelines>

      <!-- Theme variables -->
      <component-configurations>
         ....
      </component-configurations>

      <pipeline>

         <!-- Static content -->
         <match pattern="themes/*/**">
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         </match>

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         <match pattern="**">

            ....

         </match>
      </pipeline>
   </pipelines>
</sitemap>
```

Sitemap details

```
<sitemap>
   <pipelines>

      <!-- Theme variables -->
      <component-configurations>
         ....
      </component-configurations>

      <pipeline>

         <!-- Static content -->
         <match pattern="themes/*/**">
            <read src="{2}"/>
         </match>

         <!-- Aspect content -->
         <match pattern="**">

            ....

         </match>
      </pipeline>
   </pipelines>
</sitemap>
```

Sitemap details

```
<sitemap>
    <pipelines>

        <!-- Theme variables -
        <component-configurati
            ....
        </component-configurat

        <pipeline>

            <!-- Static content
            <match pattern="the
                <read src="{2}"

            <!-- Aspect content
            <match pattern="**"

                ....

            </match>
        </pipeline>
    </pipelines>
</sitemap>
```

```
<!-- Step 1: Generate the DRI page -->
<generate type="file" src="cocoon://DRI/{1}"/>

<!-- Step 2: Add page metadata -->
<select type="browser">
    <when test="explorer">
    <transform type="IncludePageMeta">
        <parameter name="stylesheet.screen#1" value="style.css"/>
        <parameter name="stylesheet.screen#2" value="style-ie.css"/>

        <parameter name="theme.path" value="{global:theme-path}"/>
        <parameter name="theme.name" value="{global:theme-name}"/>
    </transform>
    </when>
    <otherwise>
        <transform type="IncludePageMeta">
            <parameter name="stylesheet.screen" value="style.css"/>

            <parameter name="theme.path" value="{global:theme-path}"/>
            <parameter name="theme.name" value="{global:theme-name}"/>
        </transform>
    </otherwise>
</select>
```

Sitemap details

```
<sitemap>
   <pipelines>

      <!-- Theme variables -
      <component-configurati
         ....
      </component-configurat

      <pipeline>

         <!-- Static content
         <match pattern="the
            <read src="{2}"
         </match>

         <!-- Aspect content
         <match pattern="**"

            ....

         </match>
      </pipeline>
   </pipelines>
</sitemap>
```

```
<!-- Debugging output -->
<match type="request" pattern="XML">
   <serialize type="xml"/>
</match>

<!-- Step 3: Transform to XHTML -->
<transform src="template.xsl"/>

<!-- Step 4: Localize the page -->
<act type="locale">
   <transform type="i18n">
      <parameter name="locale" value="{locale}"/>
   </transform>
</act>

<!-- Step 5: Serialize to the browser -->
<serialize type="xhtml"/>
```

Sitemap details

```
<sitemap>
   <pipelines>

      <!-- Theme variables -->
      <component-configurations>
         ....
      </component-configurations>

      <pipeline>

         <!-- Static content -->
         <match pattern="themes/*/**">
            <read src="{2}"/>
         </match>

         <!-- Aspect content -->
         <match pattern="**">

            ....

         </match>
      </pipeline>
   </pipelines>
</sitemap>
```

Sitemap details

A Closer Look

Let us pause at this point and take a closer look at ...

- The theme's sitemap.xmap
- xmlui.xconf configuration

1

Introduction to XSL

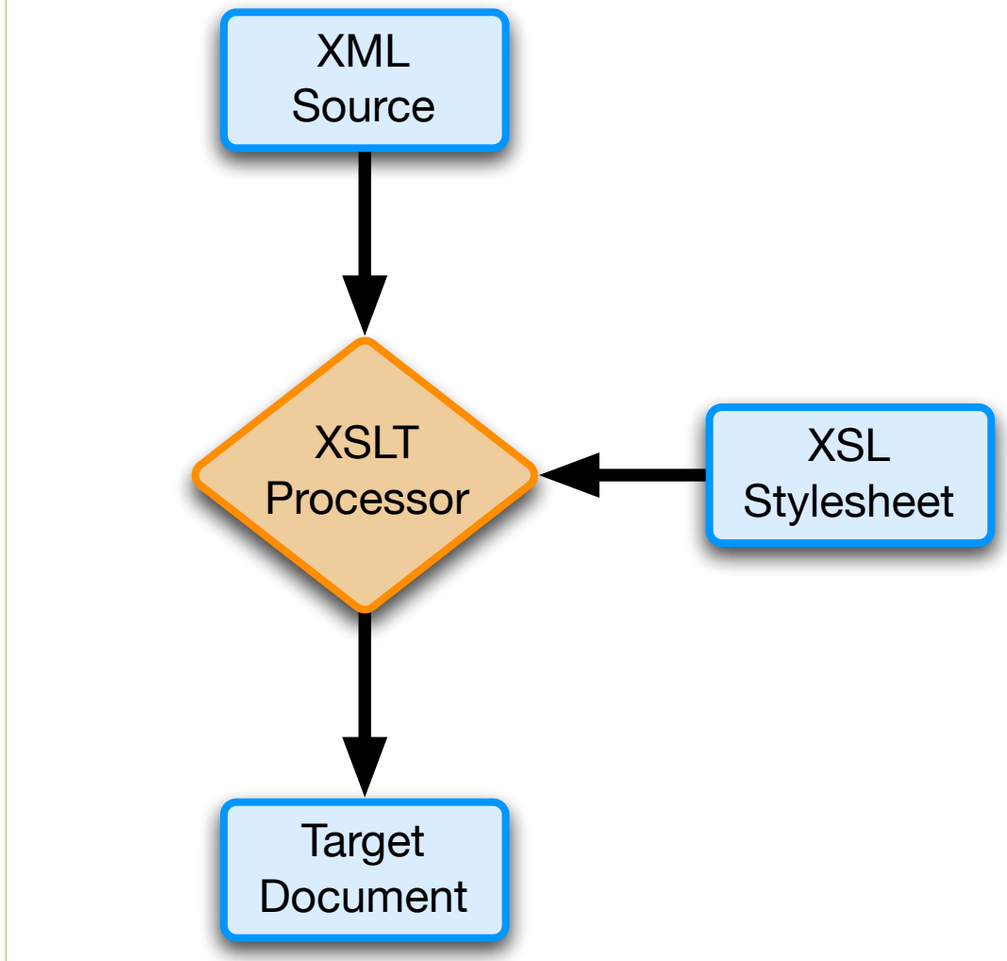
4

What is XSL?

- e**X**tensible **S**tylesheet **L**anguage
- Transform XML documents into new XML documents
- XSL is encoded in XML
- XSL officially adopted by W3C

XSL architecture

- Blue = XML Document
- Orange = Software
- Changing the stylesheet will produce a different target document

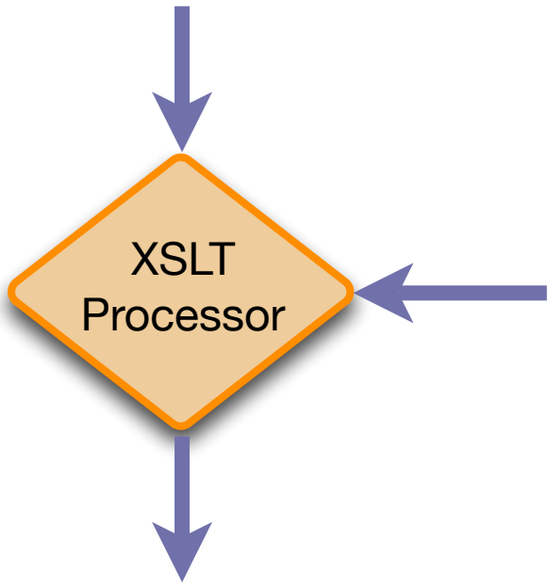


Templates

- Match patterns
  - Until all source elements are processed
- Produce XML fragments
- All templates together produce the target XML document

Source Document (DRI)

```
<figure source=”/images/logo.png”>
   My university logo
</figure>
```



XSL Stylesheet (XSL)

```
<xsl:template match=”figure”>
   <img src=”{@source}” alt=”{text()}”/>
</xsl:template>
```

Target Document (HTML)

```
<img src=”/images/logo.png” alt=”My university logo”/>
```

Example 1 (architecture)

Source Document (DRI)

```
<figure source=”/images/logo.png” target=”http://my.university.edu/">
  My university logo
</figure>
```

Target Document (HTML)

```
<a href=”http://my.university.edu/">
    <img src=”/images/logo.png” alt=”My university logo”/>
</a>
```

Example 2 (templates)

XSL Stylesheet (XSL)

```
<xsl:template match="figure">

    <xsl:if test="@target">
      <a href="{@target}">
        <img src="{@source}" alt="{text()}"/>
      </a>
    </xsl:if>

    <xsl:if test="not(@target)">
      <img src="{@source}" alt="{text()}"/>
    </xsl:if>

</xsl:template>
```

Target case, image with a hyperlink

Normal case, just an image

Example 2 (templates)

Template selection

- Each template handles a specific element
- Match rules used to determine which template is applied
- `<apply-templates/>` finds the next template to match

XSL Stylesheet (XSL)

```
<xsl:template match="hi">
    <span class=”{@rend}”>
       <xsl:apply-templates />
    </span>
</xsl:template>
```

Template for highlights: bold, italics, underline, etc...

```
<xsl:template match="xref">
   <a href=”{@target}”>
       <xsl:apply-templates />
   </a>
</xsl:template>
```

Template for hyperlinks

Example 2 (selection)

Source Document (DRI)

```
<hi rend=”bold”>
  <xref target=”http://my.university.edu/">
    Click me to go to my university home page
  </xref>
</hi>
```

Target Document (HTML)

```
<span class=”bold”>
   <a href=”http://my.university.edu/">
      Click me to go to my university home page
   </a>
</span>
```

Example 2 (selection)

XPath

- Syntax for addressing parts of an XML document
  - paths
  - constraints
- Relative to the root or current node

- UNIX like paths
  - /document/body/div/head
  - div/head

body/div/head

```
<body>
   <div>
      <head>Welcome</head>
      <p>Welcome to my digital repository.</p>
      <p>Here you can browse the repository for interesting items.</p>
   </div>
   <div>
      <head>Browse by:</head>
      <list>
         <item>Titles</item>
         <item>Authors</item>
         <item>Subjects</item>
         <item>Dates</item>
      </list>
   </div>
</body>
```

XPath examples

body/div/*

```
<body>
   <div>
      <head>Welcome</head>
      <p>Welcome to my digital repository.</p>
      <p>Here you can browse the repository for interesting items.</p>
   </div>
   <div>
      <head>Browse by:</head>
      <list>
         <item>Titles</item>
         <item>Authors</item>
         <item>Subjects</item>
         <item>Dates</item>
      </list>
   </div>
</body>
```

XPath examples

body/div[2]/list/item[1]

```
<body>
   <div>
      <head>Welcome</head>
      <p>Welcome to my digital repository.</p>
      <p>Here you can browse the repository for interesting items.</p>
   </div>
   <div>
      <head>Browse by:</head>
      <list>
         <item>Titles</item>
         <item>Authors</item>
         <item>Subjects</item>
         <item>Dates</item>
      </list>
   </div>
</body>
```

XPath examples

body/div[2]/list/item[position() = last()]

```
<body>
  <div>
    <head>Welcome</head>
    <p>Welcome to my digital repository.</p>
    <p>Here you can browse the repository for interesting items.</p>
  </div>
  <div>
    <head>Browse by:</head>
    <list>
      <item>Titles</item>
      <item>Authors</item>
      <item>Subjects</item>
      <item>Dates</item>
    </list>
  </div>
</body>
```

XPath examples

body/div[list]

```
<body>
  <div>
    <head>Welcome</head>
    <p>Welcome to my digital repository.</p>
    <p>Here you can browse the repository for interesting items.</p>
  </div>
  <div>
    <head>Browse by:</head>
    <list>
      <item>Titles</item>
      <item>Authors</item>
      <item>Subjects</item>
      <item>Dates</item>
    </list>
  </div>
</body>
```

XPath examples

body/div[list]/head/text()

```
<body>
   <div>
      <head>Welcome</head>
      <p>Welcome to my digital repository.</p>
      <p>Here you can browse the repository for interesting items.</p>
   </div>
   <div>
      <head>Browse by:</head>
      <list>
         <item>Titles</item>
         <item>Authors</item>
         <item>Subjects</item>
         <item>Dates</item>
      </list>
   </div>
</body>
```

XPath examples

body//item

```
<body>
  <div>
    <head>Welcome</head>
    <p>Welcome to my digital repository.</p>
    <p>Here you can browse the repository for interesting items.</p>
  </div>
  <div>
    <head>Browse by:</head>
    <list>
      <item>Titles</item>
      <item>Authors</item>
      <item>Subjects</item>
      <item>Dates</item>
    </list>
  </div>
</body>
```

XPath examples

XPath examples

//list[item/text() = “Titles”]

```
<body>
  <div>
    <head>Welcome</head>
    <p>Welcome to my digital repository.</p>
    <p>Here you can browse the repository for interesting items.</p>
  </div>
  <div>
    <head>Browse by:</head>
    <list>
      <item>Titles</item>
      <item>Authors</item>
      <item>Subjects</item>
      <item>Dates</item>
    </list>
  </div>
</body>
```

More Information

- http://www.w3schools.com/ (On-line tutorials)

- http://www.mulberrytech.com/xsl/xsl-list/ (Mailing List)

- Michael Kay. “XSLT 2nd Edition: Programmer’s Reference”. Wrox; 2 edition (May 3, 2001)

Theme Tier

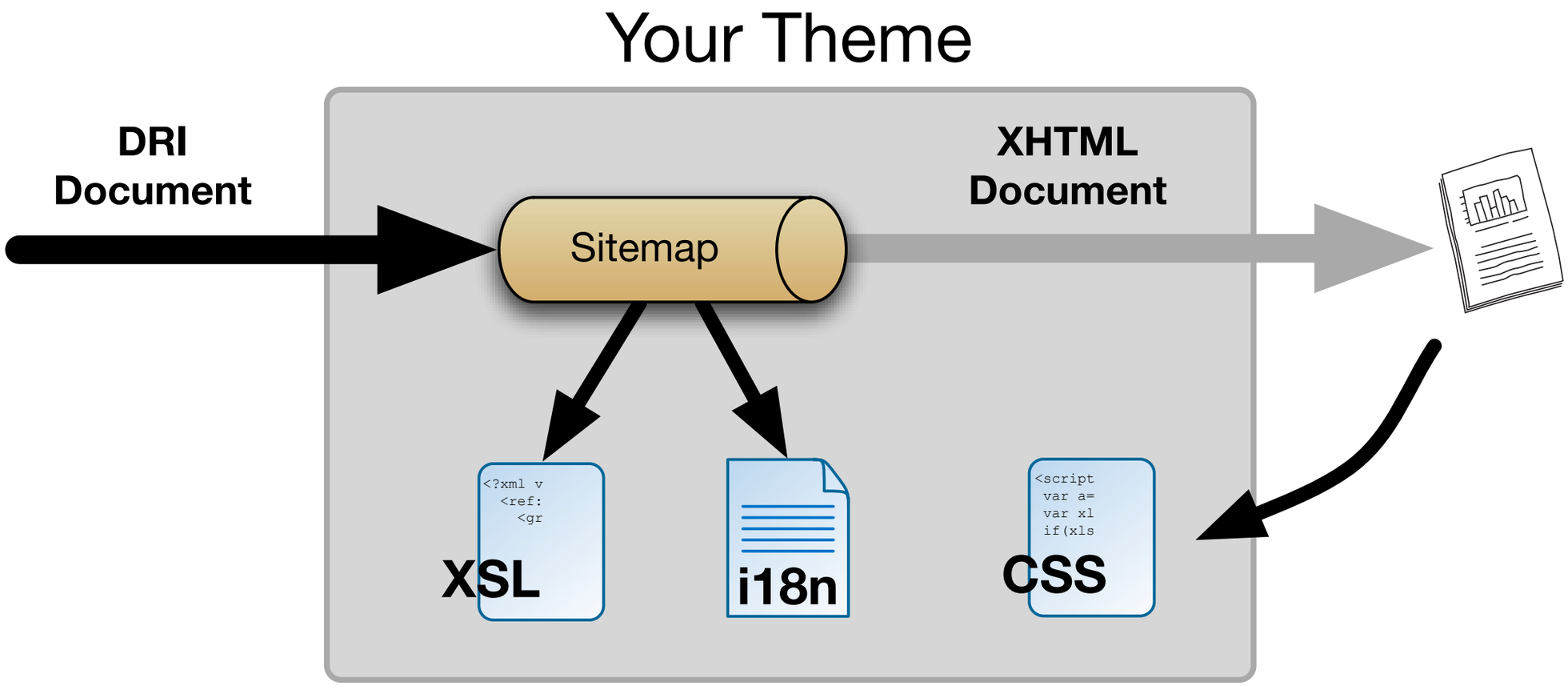
5

Tiers

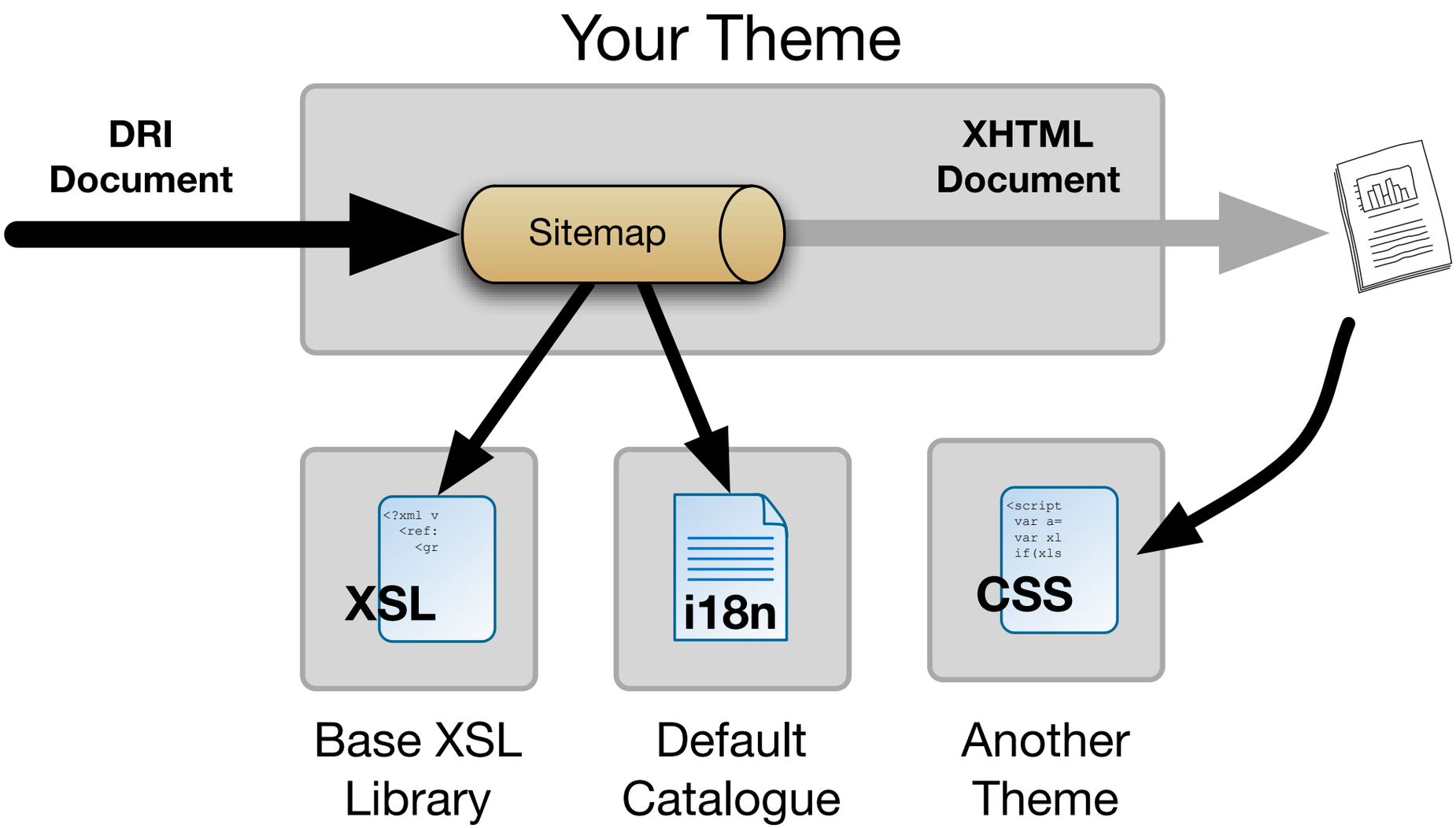
1. Style Tier
   - XHTML + CSS
   - Create simple themes

2. **Theme Tier**
   - **XSL + XHTML + CSS**
   - **Create complex themes**

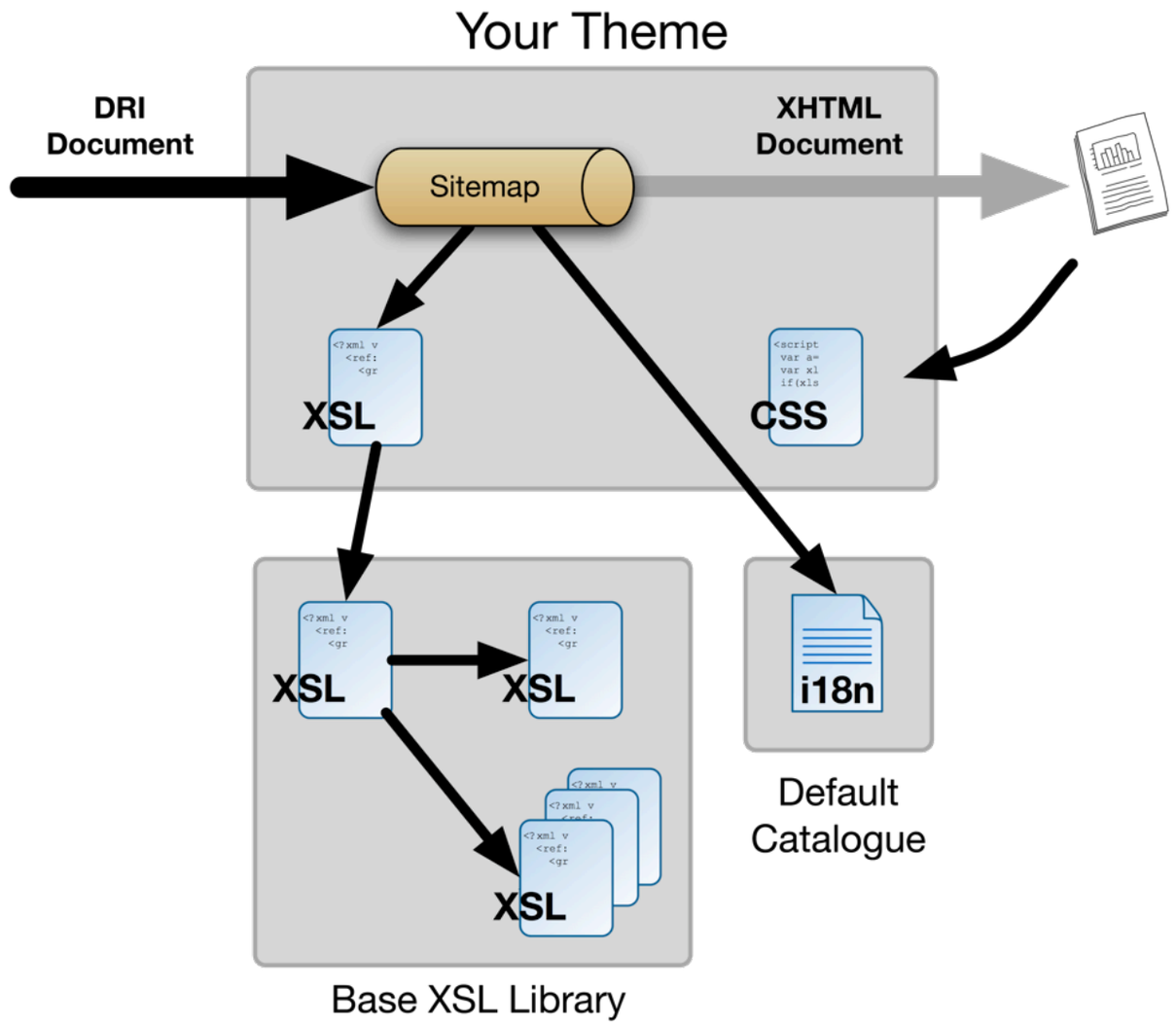
3. Aspect Tier
   - Cocoon + Java
   - Add new features



Theme components



Reusing theme components



Complete picture

Base XSL library

`/themes/dri2xhtml.xsl`	Package
`/themes/dri2xhtml/structural.xsl`	Structural display

`/themes/dri2xhtml/DIM-Handler.xsl`
`/themes/dri2xhtml/MODS-Handler.xsl`
`/themes/dri2xhtml/QDC-Handler.xsl`
`/themes/dri2xhtml/General-Handler.xsl`
	Metadata handlers

Metadata handlers

- Display items, collections, and communities
- Different versions for DIM, MODS, and QDC
- Four display types
  1. SummaryList
  2. SummaryView
  3. DetailedList
  4. DetailedView

Common modifications

- Header or footer
- Item thumbnail / logo
- Citation display

Header and footer

- Override the default XSL

  `/themes/dri2xhtml/structural.xsl`

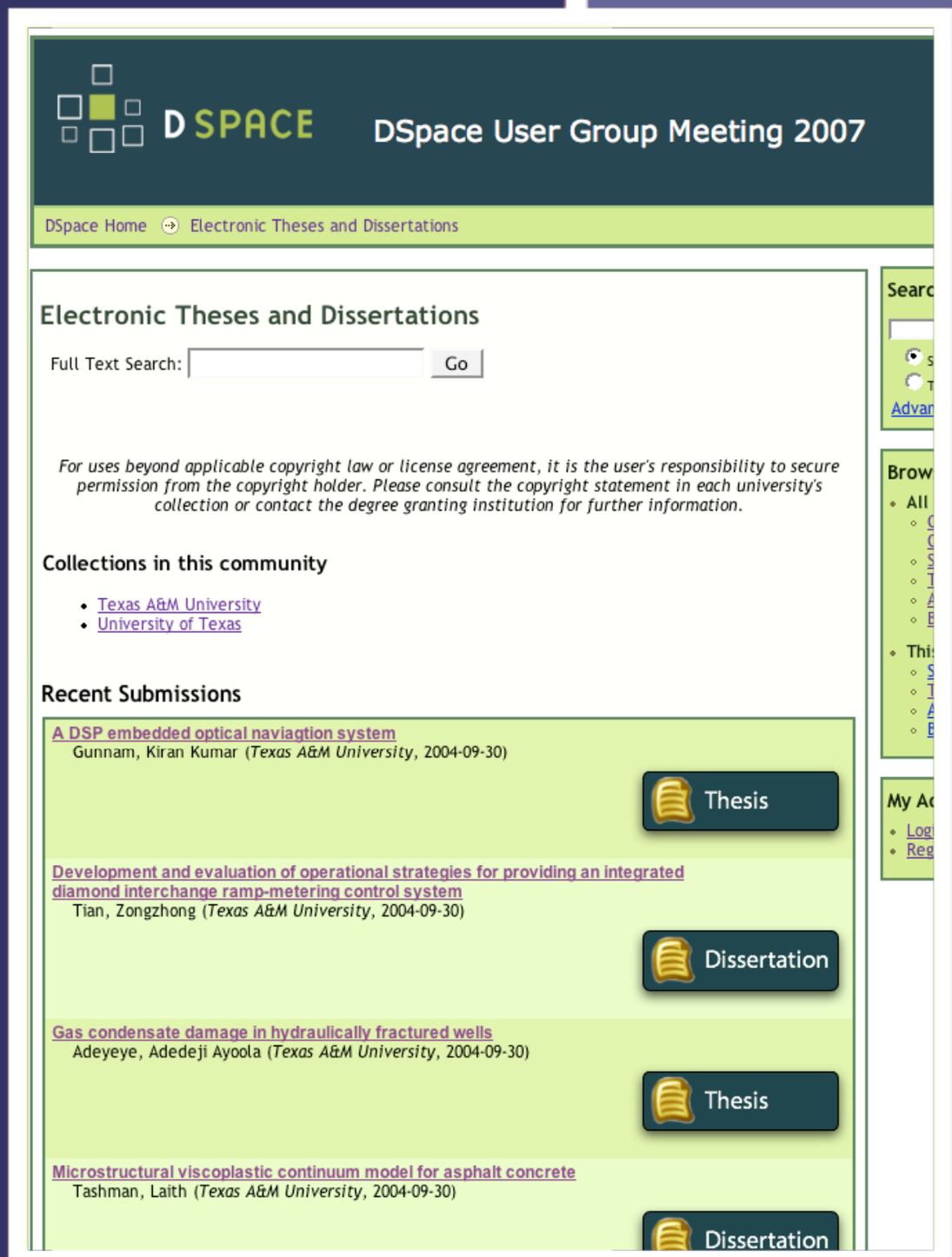
- In your theme's local XSL document add the following template definitions:

```
<xsl:template name="buildHeader">
    ....
</xsl:template>

                or

<xsl:template name="buildFooter">
    ....
</xsl:template>
```

Item Icon


DSPACE
DSpace User Group Meeting 2007
DSpace Home
Electronic Theses and Dissertations
Electronic Theses and Dissertations
Full Text Search:
Go
For uses beyond applicable copyright law or license agreement, it is the user's responsibility to secure permission from the copyright holder. Please consult the copyright statement in each university's collection or contact the degree granting institution for further information.
Collections in this community
Texas A&M University
University of Texas
Recent Submissions
A DSP embedded optical naviagtion system
Gunnam, Kiran Kumar (Texas A&M University, 2004-09-30)
Thesis
Development and evaluation of operational strategies for providing an integrated diamond interchange ramp-metering control system
Tian, Zongzhong (Texas A&M University, 2004-09-30)
Dissertation
Gas condensate damage in hydraulically fractured wells
Adeyeye, Adedeji Ayoola (Texas A&M University, 2004-09-30)
Thesis
Microstructural viscoplastic continuum model for asphalt concrete
Tashman, Laith (Texas A&M University, 2004-09-30)
Dissertation

Item logos

- Override the default thumbnail display:

```
/themes/dri2xhtml/General-Handler.xsl
```

- Override the following templates:

```
<xsl:template
   match="mets:fileSec"
   mode="artifact-preview">
```

```
<!-- Generate the thumbnail, if present, from the file section -->
<xsl:template match="mets:fileSec" mode="artifact-preview">

   <xsl:if test="mets:fileGrp[@USE='THUMBNAIL']">
      <div class="artifact-preview">
         <a href="{ancestor::mets:METS/@OBJID}">

            <img alt="Thumbnail">
               <xsl:attribute name="src">
                  <xsl:value-of select="mets:fileGrp[@USE='THUMBNAIL']/mets:file/
                                        mets:FLocat[@LOCTYPE='URL']/@xlink:href" />
               </xsl:attribute>
            </img>

         </a>
      </div>
   </xsl:if>

</xsl:template>
```

Default artifact preview

```
<!-- Generate the thumbnail or icon preview -->
<xsl:template match="mets:fileSec" mode="artifact-preview">
   <xsl:choose>
      <xsl:when test="mets:fileGrp[@USE='THUMBNAIL']">
         ... Show thumbnail image ...
      </xsl:when>

      <xsl:when test="ancestor::mets:METS//dim:field[@element='type']
                      [text()='Electronic Thesis']">
         ... Show thesis icon ...
      </xsl:when>

      <xsl:when test="ancestor::mets:METS//dim:field[@element='type']
                      [text()='Electronic Dissertation']">
         ... Show dissertation icon ...
      </xsl:when>
   </xsl:choose>
</xsl:template>
```

New artifact preview

Metadata display

Show full item record

Title:	Hull/Mooring/Riser coupled motion simulations of thruste
Author:	Ryu, Sangsoo, 1970-
Abstract:	To reduce large motion responses of moored platforms in deep waters, a thruster-assisted position mooring system the system, global dynamic responses can be improved in line/riser top tensions, operational radii, and the top and production risers. Kalman filtering as an optimum observe stochastic disturbances is implemented in the developed out wave frequency responses. Investigation of the perfor moored offshore platforms was conducted in terms of six- and mooring line/riser top tensions by means of a fully co dynamic analysis program in the time domain and a spect motion analyses of a platform with thrusters and without compared. The numerical examples illustrate that for de platforms a thruster-assisted moored platform can be an to a conventionally moored platform.
Description:	
URI:	http://handle.tamu.edu/1969.1/1621
Date:	2005-02-17

Citation

Ryu, Sangsoo, 1970-. "Hull/Mooring/Riser coupled motion simulations of thru platforms". Texas A&M University. December 2003. Available electronically f http://handle.tamu.edu/1969.1/1621 .

This item appears in the following Collection(s)

- Texas A&M University
  Thesis and dissertations from Texas A&M University

Show full item record

Citation display

- Override the default item display:

```
/themes/dri2xhtml/DIM-Handler.xsl
```

- Override the following templates:

```
<xsl:template
   name="itemSummaryView-DIM">
```

```
<!-- This is the default view of a DSpace item in Manakin. -->
<xsl:template name="itemSummaryView-DIM">

   <!-- Generate the info about the item from the metadata section -->
   <xsl:apply-templates select="./mets:dmdSec/mets:mdWrap[@OTHERMDTYPE='DIM']
                                /mets:xmlData/dim:dim" mode="itemSummaryView-DIM"/>

   <!-- Generate the bitstream information from the file section -->
   <xsl:apply-templates select="./mets:fileSec/mets:fileGrp[@USE='CONTENT']">
      <xsl:with-param name="context" select="."/>
      <xsl:with-param name="primaryBitream" select="./mets:structMap
                  [@TYPE='LOGICAL']/mets:div[@TYPE='DSpace Item']/mets:fptr/@FILEID"/>
   </xsl:apply-templates>

   <!-- Generate the license information from the file section -->
   <xsl:apply-templates select="./mets:fileSec/mets:fileGrp[@USE='CC-LICENSE' or
                                                            @USE='LICENSE']"/>

</xsl:template>
```

Item summary view

```
<!-- This is the default view of a DSpace item in Manakin. -->
<xsl:template name="itemSummaryView-DIM">

   <!-- Generate the info about the item from the metadata section -->
   <xsl:apply-templates select="./mets:dmdSec/mets:mdWrap[@OTHERMDTYPE='DIM']
                                /mets:xmlData/dim:dim" mode="itemSummaryView-DIM"/>

   <!-- Gene te the bitstream information from the file section -->
   <xsl:apply-tem ates select="./mets:fileSec/mets:fileGrp[@USE='CONTENT']">
      <xsl:with-param n
      <xsl:with-param n
                  [@TYPE=
   </xsl:apply-templat

   <!-- Generate the li
   <xsl:apply-templates

</xsl:template>
```

```
<!-- Add the citation view -->

<xsl:apply-templates
   select="./mets:dmdSec/mets:mdWrap[@OTHERMDTYPE='DIM']/
           mets:xmlData/dim:dim"
    mode="itemSummaryView-Citation"/>
```

Item summary view

A Closer Look

Let us pause at this point and take a closer look at ...

- Customized theme's footer
- Dissertation / Thesis Logos
- Citation view

3

Learning to use Manakin

For DSpace 1.5

UT Austin

April 9th, 2008

Scott Phillips