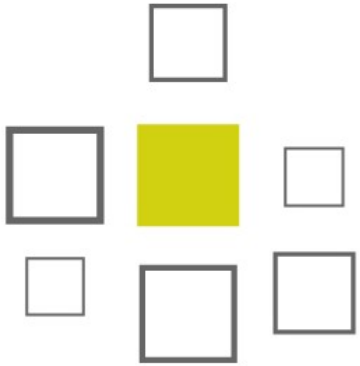


DSPACE

The DSpace Course

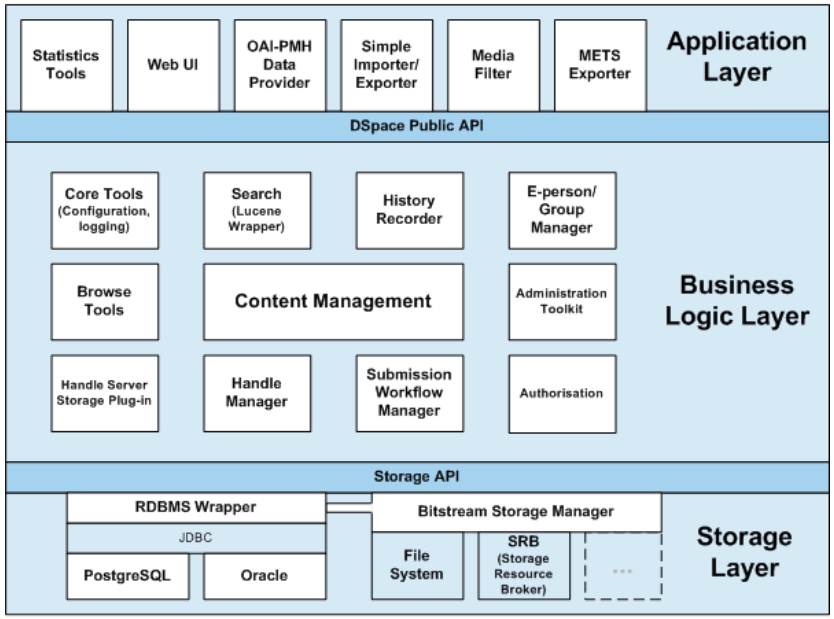
Module - Technical Basics

Module Objectives

- By the end of this module you will:
  - Understand the DSpace application architecture
  - Understand the DSpace server architecture
  - Know what and when to back up within DSpace
  - Understand the role of the repository administrator and the technical staff in configuring, managing and maintaining the repository (this will be discussed later in the course)

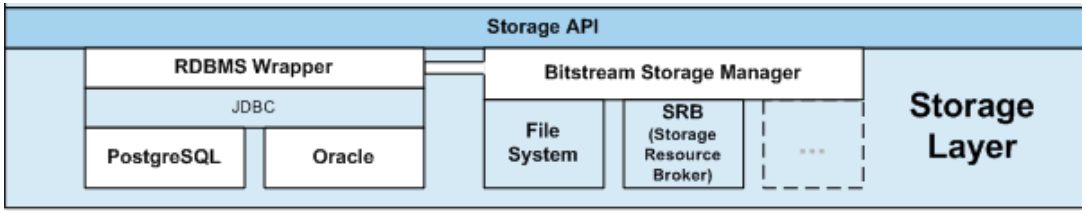
Application Architecture

- The DSpace system is organised into **three tiers** which consist of a number of **components**



- Each layer only invokes the layer below it i.e. the application layer may not used the storage layer directly

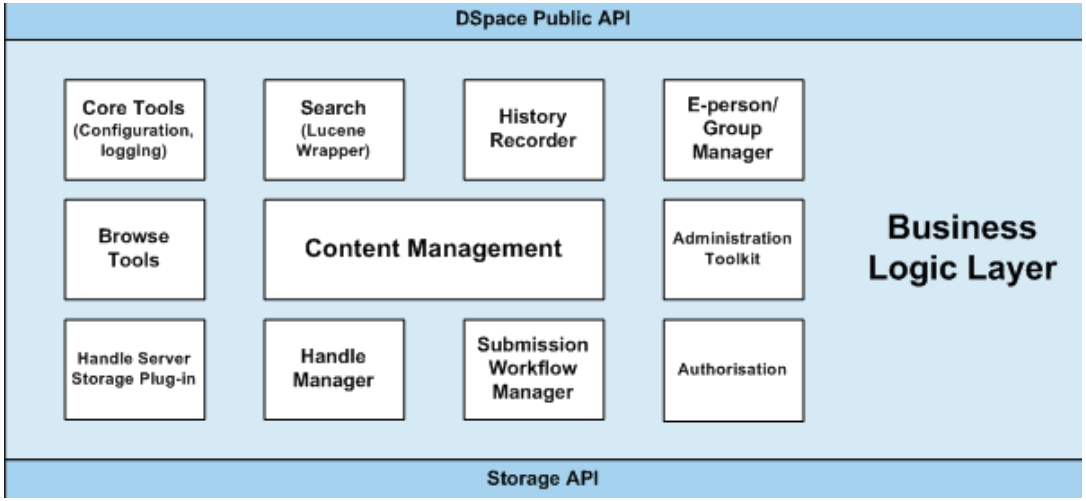
The Storage Layer



- The **storage layer** is responsible for **physical storage** of **metadata** and **content**

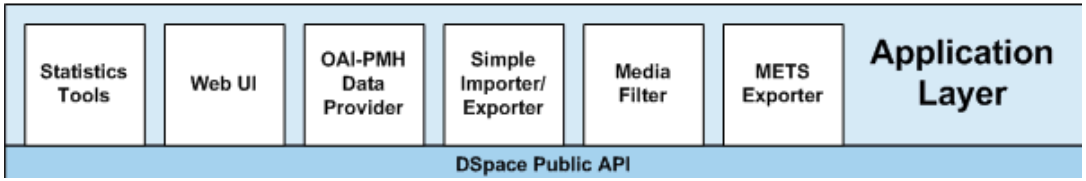
- DSpace uses a **relational database** to store all information about the organization of content, metadata about the content, information about e-people and authorization, and the state of currently-running workflows.

The Business Logic Layer



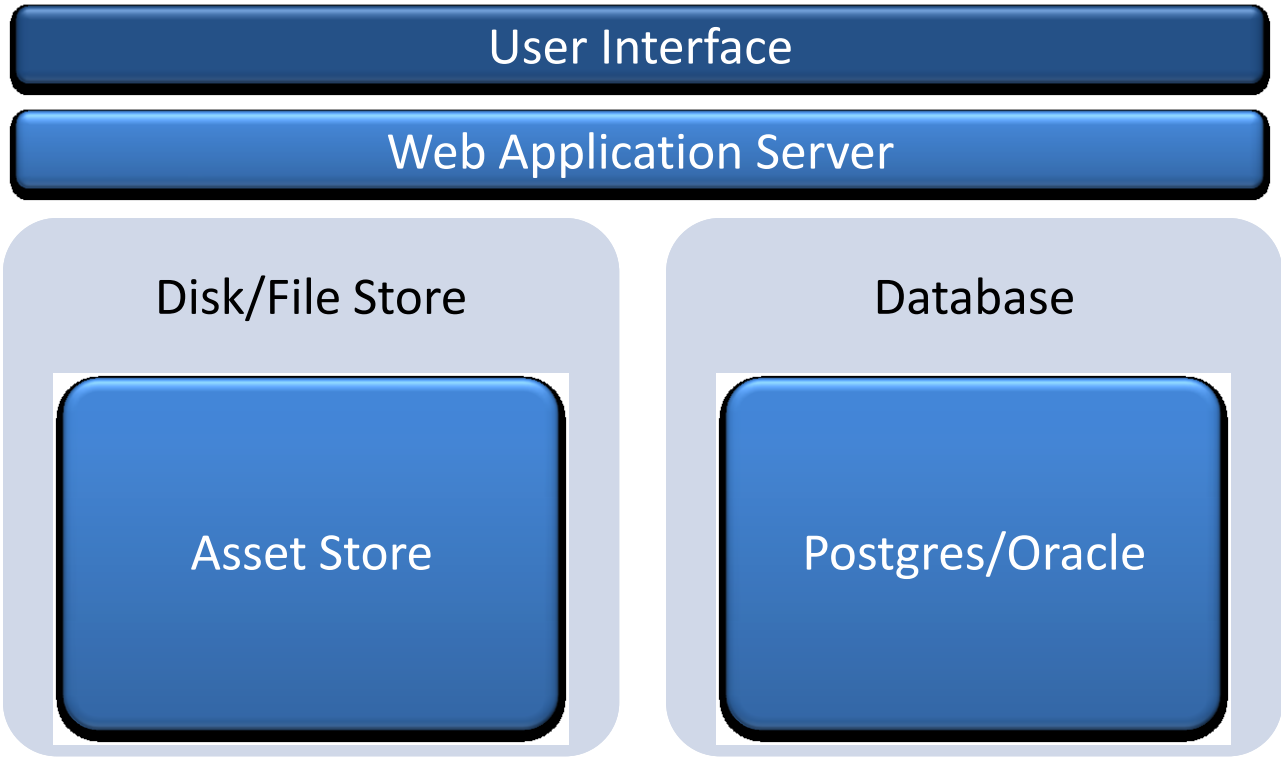
- The **business logic layer** deals with **managing** the **content** of the archive, **users** of the archive (e-people), **authorization**, and **workflow**

The Application Layer



- The **application layer** contains **components** that **communicate** with the world outside of the individual DSpace installation, for example the Web user interface and the Open Archives Initiative protocol for metadata harvesting service
- The **DSpace Web UI** is the **largest** and **most-used** component in the **application layer.** Two versions:
  1. JSPUI: Built on Java Servlet and JavaServer Page technology
  2. XMLUI (Manakin): Built on XML and Cocoon technology

Server Architecture



- These systems may reside on a single server or be hosted separately on dedicated servers

Structural Overview

- DSpace is split into three directory trees:
- Source Directory [dspace-src]
  - Surprisingly, this is where the source code resides
- Install Directory [dspace]
  - Populated during install & during normal operation
  - Contains:
    - Configuration files
    - Command line tools
    - Libraries
    - DSpace archive (depending on configuration)
- Web Deployment Directory [tomcat]/webapps/dspace
  - Contains the JSPs and Java classes and libraries necessary to run DSpace

Source Directory Layout

- [dspace-source]
  - dspace/
    - build.xml
    - bin/
    - config/
      - controlled-vocabularies/
      - crosswalks/
      - emails/
      - language packs/
      - registries/
      - templates/
    - docs/
    - etc/
      - oracle/
    - modules/
      - jspui/
      - lni
      - oai
      - sword
      - xmlui
    - src/
    - target/

Installed Directory Layout

- [dspace]
  - assetstore/
  - bin/
  - config/
  - handle-server/
  - history/
  - lib/
  - log/
  - reports/
  - search/
  - upload/
  - webapps/

Log Files

- `[dspace]/log/dspace.log`
  - Main DSpace log file
  - Provides logging of events and errors that occur within the DSpace Code
  - Verbosity controlled by editing the [dspace]/config/templates/log4j.properties

- `[tomcat]/logs/catalina.out`
  - Tomcat standard output is written here
  - E.g. If Tomcat can't find the DSpace.jar the error would be written to catalina.out

Backup

- What to backup?
  - Asset Store
    - This is where the bitstream files are located
  - Database
    - This is where information about organization of content, metadata about the content, information about e-people and authorization, and the state of currently-running workflows is stored
  - Source Directory
    - This is where the DSpace source code is located
  - Installation Directory
    - This is where the files are located which are used by DSpace as it runs

Repository Manager & Technical Staff

- Repository managers generally will manage the repository via the DSpace user interface

- Technical staff will be required to configure, customise and manage many features of the repository via the back end

- Examples of features that require configuration through the back end will be discussed throughout the course

Practical exercise: Browse DSpace

- Open a terminal window and browse the DSpace structure and log files to familiarise yourself. The location of these can be found in the local instructions sheet.

Credits

- These slides have been produced by:
  - Stuart Lewis & Chris Yates
  - Repository Support Project
    - http://www.rsp.ac.uk/
  - Part of the RepositoryNet
  - Funded by JISC
    - http://www.jisc.ac.uk/