Open Source in Real Life

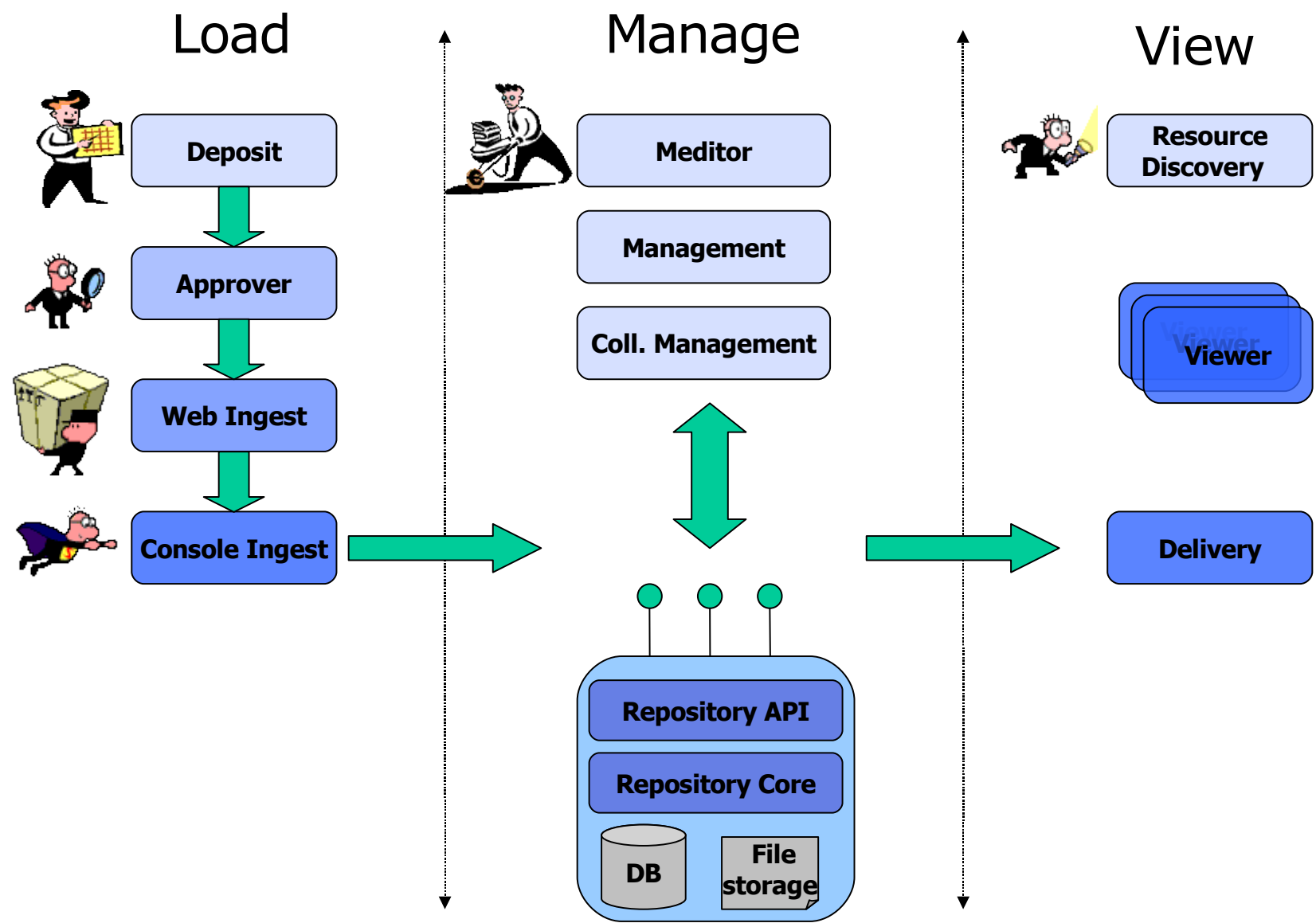## By : Guy Ben-Porat, Digitool Team Leader "Ex Libris"

One Slide about Ex Libris

▶ The development of the Ex Libris ALEPH® system commenced in 1980

▶ Leader in Industry Standards

▶ Ex Libris Worldwide

» Ex Libris is represented in 27 countries across six continents

» Customers span over 50 countries

» More then 1000 installations

▶ Ex Libris Products

» Aleph, Digitool

» MetaLib & SFX

» Verde

And one slide about DigiTool

Load

Deposit

Approver

Web Ingest

Console Ingest

Manage

Meditor

Management

Coll. Management

Repository API

Repository Core

DB

File storage

View

Resource Discovery

Viewer

Delivery

Two years ago . . .

▶ Ex Libris decided to move to new technologies

▶ Making decisions

 » .Net or Java ? -> that was easy - J A V A!

 » IBM, SUN, BEA, Open Source ?
 After two months of pilots and POC's -> Open Source

▶ OK, Open Source! Now what ?

 » Struts, JSF, SPRING ?

 » JBOSS, RASIN, TOMCAT ?

 » Hibernate, Entity Bean, TopLink ?

 » JAXB, XmlBeans ?

▶ Who is going to select the right frameworks, and integrate them into a working development/runtime platform ?

Two years ago . . .

- ▶ We wanted to go with open source components, but didn't want to spend time preparing the development/build environment.

- ▶ We wanted to start with our own (Ex Libris) business logic from day zero.

- ▶ We've used already integrated open source based environment that includes.

  - » The common open source frameworks (struts, hibernate etc…)

  - » A build system

- ▶ The entire environment – Eclipse, JBoss & project source is placed in CVS – This makes the process of preparing a developer computer very easy.

  - » Checkout the CVS module

  - » Run a script

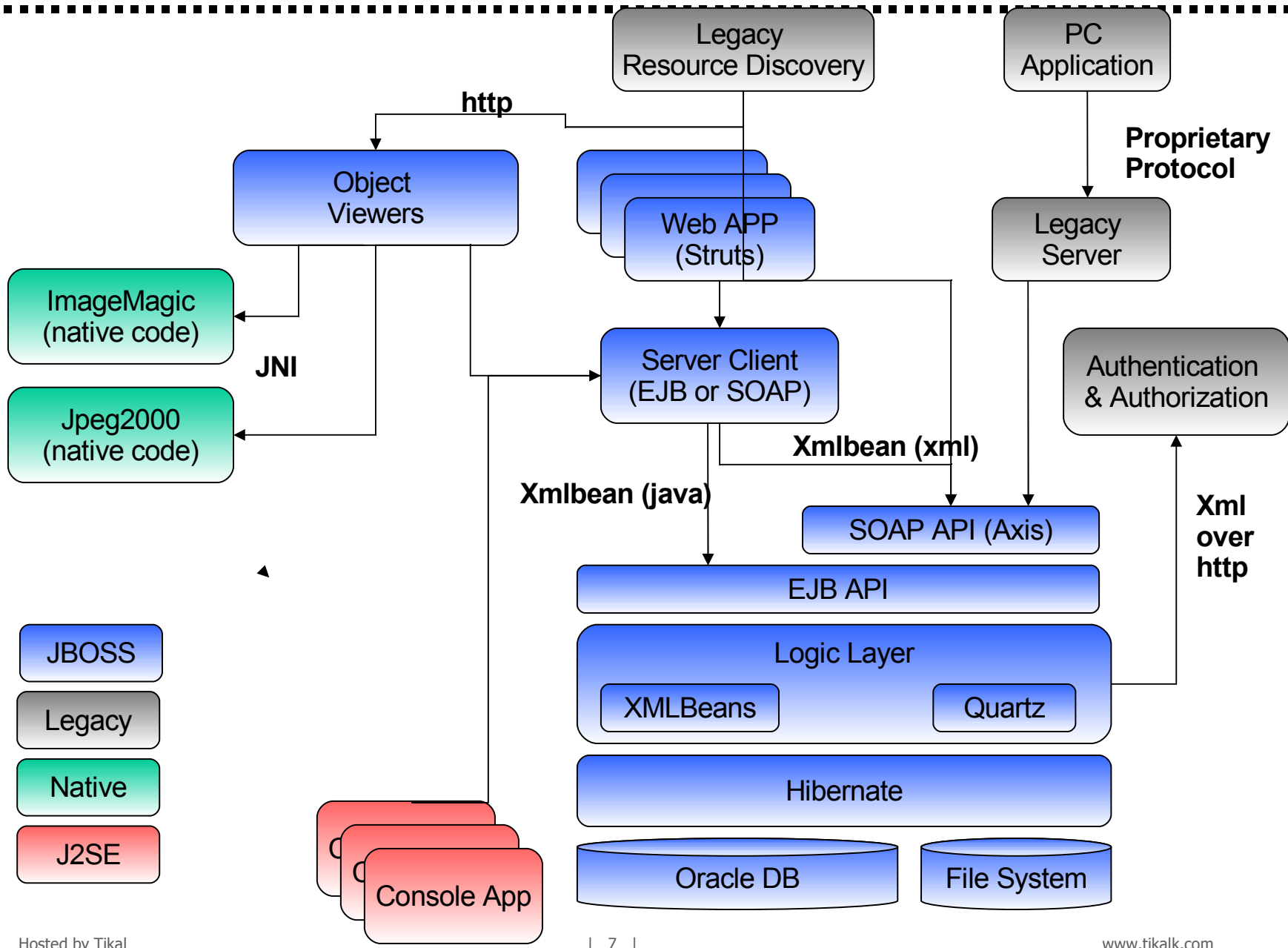 - » voila! You have a ready to work project environment

During the first year …

▶ About ten developers worked in Digitool project

▶ The project was developed on Windows, build and tested on Linux & Sun

▶ We use

- » oracle as database, JBoss as AS

- » Hibernate as persistence layer, xmlbeans as xml parser

- » Axis as web services frameworks

- » Quartz as jobs scheduler

- » Using Struts we develop six multilingual web interfaces.

▶ Integration

- » Bi directional communication with the legacy part of the project

- » Third-party j2EE modules

- » Native code modules

Architecture

Legacy
Resource Discovery

PC
Application

http

**Proprietary
Protocol**

Object
Viewers

Web APP
(Struts)

Legacy
Server

ImageMagic
(native code)

JNI

Server Client
(EJB or SOAP)

Authentication
& Authorization

Jpeg2000
(native code)

Xmlbean (xml)

Xmlbean (java)

SOAP API (Axis)

**Xml
over
http**

JBOSS

EJB API

Legacy

Logic Layer

Native

XMLBeans

Quartz

J2SE

Hibernate

Console App

Oracle DB

File System

Problems …

▶ We faced & solved some application logic problems (not ones that should interest the JBUG forum…).

▶ We faced some common problems, that I would like to share with you.

Hibernate schema

▶ The problem

» The database schema that Hibernate generates was too simple, with no granularity.

» We need create/drop script for each table

» We need create/drop script for each index

» We need to control some Oracle specific attribute (e.g. table space size)

▶ The solution

» we create a new hibernate SchemaExportTask

» The new task is fully integrated with Hibernate and the build process.

» The new task outputs several SQL scripts for each table, the scripts have some place holders for Oracle specific attributes.

Basic Configuration

▶ The problem

» We almost have a product, how we package it?

» How our customer set some basic parameters

- Server Port

- Database connection parameters

- Working with SSL or not

- etc.

» Our customer can't deal with jboss configuration file.

▶ The solution

» We develop a script that merge attributes from single configuration file – global.properties, with jboss template configuration files.

» Our customer need to edit the file and run the set_global script.

» We found it very useful and use this mechanize for basic application setting.

One year ago …

▶ The product was released and installed on 30 sites

▶ Now we faced new problems

  » Dealing with two product versions.

  » A service pack should be distributed once a month.

▶ Dealing with two versions wasn't a real problem we used CVS branch and tags features

▶ We developed a PatchTool

  » In our site we run the PatchTool in "create" mode.
    The PatchTool outputs a delta of changes for a given base line and head line.

  » On the customer site we run the PatchTool in "patch" mode.
    The PatchTool distributes the delta on the customer site.

  » Dry Run & rollback features are also supported.

Israel JBUG

Today

- ▶ DigiTool, Verde & Primo products are open source based product.

- ▶ In addition to the common open source frameworks we are using

  - » JBPM (JBoss business process management)

  - » Lucene (search engine core)

- ▶ Starting a new product environment became a very easy process.

- ▶ We are updating the open source suite from time to time.

- ▶ We have plans to upgrade to jdk1.5 JBoss 4, Hibernate 3, JSF (instead of Struts)

Selecting open-source was the right solution

▶ Going back to our decision point – selecting open source was the right one.

  » Paying for development environment when you can get the same (and maybe better) environment for free? Why?

  » The same goes with running environment paying 3%-5% to Bea or IBM for each customer installation, why ?

  » Open source community is increasing every day, knowledge exists all over the Internet

  » More and more open source goodies are available for us to use, integration is usually simple.

  » Hiring a developer that has experience with open source (Eclipse, JBoss) is easier then finding one with experience on other platforms.

  » We found that our customers have no problem with us basing our products on open sources.

  » We feel more flexible for changes because we are using open source (e.g. moving from one Java IDE to another)

? Questions ?

! Thank You !