

```
<SPEECH>
<SPEAKER>HAMLET</SPEAKER>
<LINE>Rest, rest, perturbed spirit!</LINE>
<STAGEDIR>They hear</STAGEDIR>
<LINE>So, gentlemen</LINE>
<LINE>All my life I do observe you have been</LINE>
<LINE>And it so that a man of his kind is</LINE>
<LINE>to his love and to direct to you,</LINE>
<LINE>God will, shall not be together;</LINE>
<LINE>All our friends are gone, I pray</LINE>
<LINE>The time is out of joint: O cursed spite,</LINE>
<LINE>That ever I was born to set it right!</LINE>
<LINE>Nay, come, let's go together.</LINE>
</SPEECH>
```



Adam Retter

eXist Developer / Devon Portal Principal Developer / Software Consultant

adam.retter@googlemail.com
+44(0)7714 330069

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<SPEECH>  
<SPEAKER>HAMLET</SPEAKER>  
<LINE>Rest, rest, perturbed spirit!</LINE>  
<STAGEDIR>They murmur</STAGEDIR>  
<LINE>So, gentlemen</LINE>  
<LINE>I'll do you no wrong</LINE>  
<LINE>and so you shall not know</LINE>  
<LINE>to his love and to his duty</LINE>  
<LINE>I shall not seek to put you</LINE>  
<LINE>all in a quarrel with me</LINE>  
<LINE>The time is out of joint: O cursed spite,</LINE>  
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How did I become involved with eXist?

Through my day job

We needed a very flexible and extensible document storage system

From word of mouth we initially looked at Apache Xindice and then bad experiences led us to eXist; Commercial offerings were also considered!

We needed some additional functionality from eXist, through contact and guidance from the eXist developers we were able to develop this very easily

Any additional functionality we developed we contributed back to eXist in true Open Source style. This led to me becoming an eXist developer with commit access to the source repository.

Through my love for cutting edge technology

I also contribute to eXist outside of my day job

As an eXist developer I was invited to XML Prague 2006

**I also offer consultancy when I have time;
University of West of England, Nature Publishing Group, Oxford University**

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<LINE>and it so that a man is dead</LINE>
<LINE>to his love and to his friend,
<LINE>God shall not take me in together;</LINE>
<LINE>All our fathers I pray for</LINE>
<LINE>The time is out of joint: O cursed spite,
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eXist

The Plan -

Overview of eXist

Demo of a real application

Practical Session

Local Problems

What is it?

A Native XML Database

Designed specifically for storing XML, with appropriate query (XQuery/XPath) and update languages (XUpdate/XQuery update extensions)

An XML document is the fundamental unit of storage, as opposed to a tuple in an RDBMS

Oracle and SQL Server offer XML features for their database products, actual storage is in a BLOB field and you still have to use SQL to retrieve and update the data!

An application platform?

Allows storage of Binary resources

Support for XForms integration

Extensible through modules and triggers

XSLT and STX

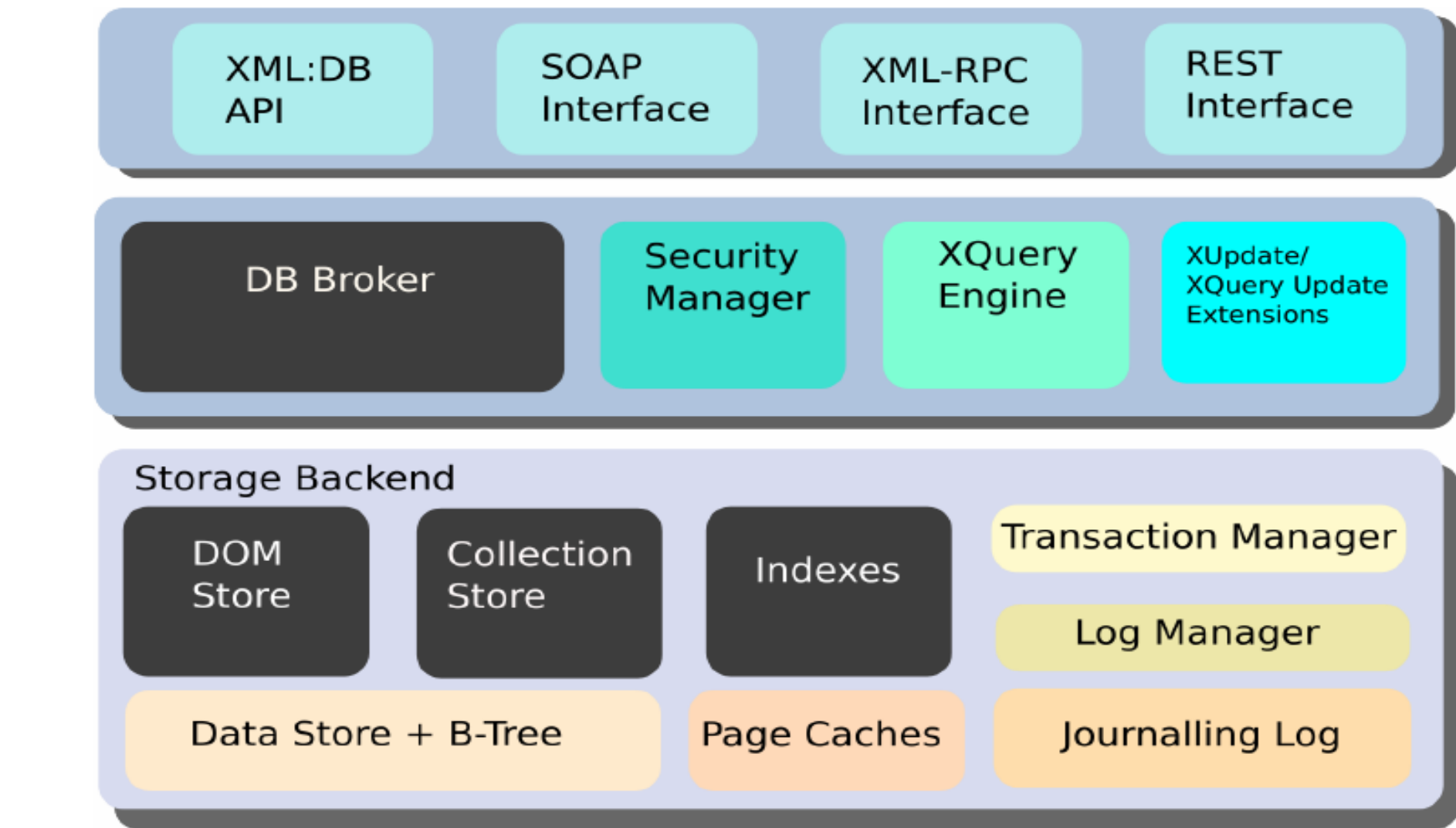
SOAP Server – allows Web Services to be built in XQuery

Interfaces – Web Services / XML-RPC / XMLDB / REST / WebDAV / Cocoon /

Servlet / ATOM

What is it? - Architecture

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What is it? – The Core

Efficient Storage and Retrieval of XML Data

Index backed Storage based on node numbering

Started with Level Order Numbering

Recently switched to Dynamic Level Numbering

Indexes are map's of QName's -> (documentId, nodeId)

Tries to avoid traversal of the persistent DOM

Indexes help calculate node relationships and thus avoid traversals

DOM traversals are expensive – Memory and I/O

http://wiki.exist-db.org/space/XMLPrague2006/wolfgangs_talk.pdf

What is it? – Key Features

Written in Java. Any >1.4 compliant JVM

Native XML Indexing Storage

Transaction and crash recovery support through journal logging

XPath 1.0 / XQuery 1.0 (XQTS 94.1% passed, under aggressive development)

XSLT 1.0 and 2.0

XUpdate 1.0 and XQuery Update Extensions

XACML 1.1 and 1.0

XInclude and XPointer (partial support)

XForms 1.1

eXist

Integration

Standalone Server (makes use of Jetty Internally)

Servlet - ship's with a minimal Jetty / Any Servlet 2.4 compliant container

Embedded – can be embedded in any Java application.

The eXist Admin client can also be run with an embedded eXist for direct single user access.

Cocoon – eXist can be built as a Cocoon block

API's and Protocols

XML:DB (SAX and DOM through XML:DB)

XML-RPC

HTTP/REST and ATOM

SOAP – eXist Web Services

XQuery/Web Services – User's XQuery can be exposed as Web Services

WebDAV

Language Specific Recommendations

Java

XML:DB – allows you to run the database either remote or embedded without changing your code.

XQJ – is still in development. JSR-225 is evolving very slowly!

.net

SOAP – .net makes it very easy to add a “web reference” to your project. eXist then appears as a local object.

SOAP Server – Your XQuery's could be stored in eXist and exposed as SOAP Web Services.

PHP

SOAP – various 3rd party libraries exist, but most seem to use SOAP. A popular library is http://www.bmuskalla.de/DB_eXist/

Perl

XML-RPC – Use cpan to install RPC::XML

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> Overview

What can you do with it?

Database

Document Management System (HistoryTrigger)

Content Management System (ShapeCMS)

Web Application Platform

What would you like to create?

<http://demo.exist-db.org/apps/applications.xml>