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Implementation of an Enterprise-level Groupware System Based on J2EE Platform and WebDAV Protocol

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Road Map

- Enterprise-level Groupware System (EGS)

- WebDAV

- J2EE

- Prototype: Cooperative workBench(C-Bench)

Road Map

- ***Enterprise-level Groupware System (EGS)***

- WebDAV

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EGS: General Definition

- Web-based groupware
- Focus specifically on addressing cooperation needs put forward by B2B and B2C electronic commerce

EGS: Challenges

Higher availability:

the capability of providing 24-hour, non-downtime services

Higher scalability:

the capability of supporting large number of concurrent cooperators

Stronger security:

 the capability of protecting sensible enterprise information

EGS: Features

- **Large-scale cooperator community**

  internal employees; external business partners, suppliers, distributors, and customers.

- **Enterprise-information-centric**

  distributed document authoring, document exchange, etc.

EGS: Design Idea

- WebDAV:

Purpose: fully unleash the Web's potential in supporting cooperation activities.

- J2EE:

Purpose: ensure some enterprise-level features of EGS, e.g., availability, scalability, and security.

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- ***WebDAV***
- J2EE
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WebDAV: Overview

- IETF specification:

  Web-based Distributed Authoring and Versioning

- Extension to HTTP/1.1

- Stable functionalities

  Properties, Collections, Locking, Namespace Manipulation

- Future functionalities

  Advanced Collections, Version Control, DAV Searching and Locating (DASL), Access Control

WebDAV: What for EGS?

- Support for broad range of enterprise information handling

- Support for deployment

- Support for distributed collaborative authoring

- Support for security management

- Support for document-centric information exchange

- Stronger interoperability

WebDAV: Current Status

▌ Server-side WebDAV-enabled products

DataChannel Enterprise Information Portals

Novell Net Publisher

Microsoft Exchange 2000 Server

Intraspect Knowledge Server

MyDocs Online!

▌ Client-side WebDAV-enabled products

Microsoft Office 2000, Microsoft Internet Explorer 5.0

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- **_J2EE_**

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J2EE: Overview

- <u>J</u>ava <u>2</u> Platform <u>E</u>nterprise <u>E</u>dition

- Server-centric, component-based, e-business-oriented, multi-tier application architecture

- Automatically manage some system-level services

- Simplify developing process

J2EE: Primary Technologies

- Enterprise JavaBeans (EJB)

- JavaServer Pages (JSP)

- Java Servlet

- Java Naming and Directory Interface (JNDI)

- Java IDL

- JDBC

- Java Messaging Service (JMS)

- Java Transaction API (JTA)

- Java Transaction Service (JTS)

- JavaMail

- RMI-IIOP

J2EE: What for EGS?

- Support for extremely robust computing

- Open architecture

- Simplify developing process

- Realize some currently "unavailable" functionalities of WebDAV

J2EE: Current Status

▌ Specification:

Version 1.2 (Dec. 1999)

▌ 100% Compatible implementations:

J2EE SDK 1.2.1 (Sun)

iPlanet Appl. Server 6.0 (Sun-Netscape Alliance)

Hitachi Cosminexus Server Base (Hitachi)

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- Enterprise-level Groupware System (EGS)

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- J2EE

- ***Prototype: Cooperative workBench(C-Bench)***

C-Bench: Overview

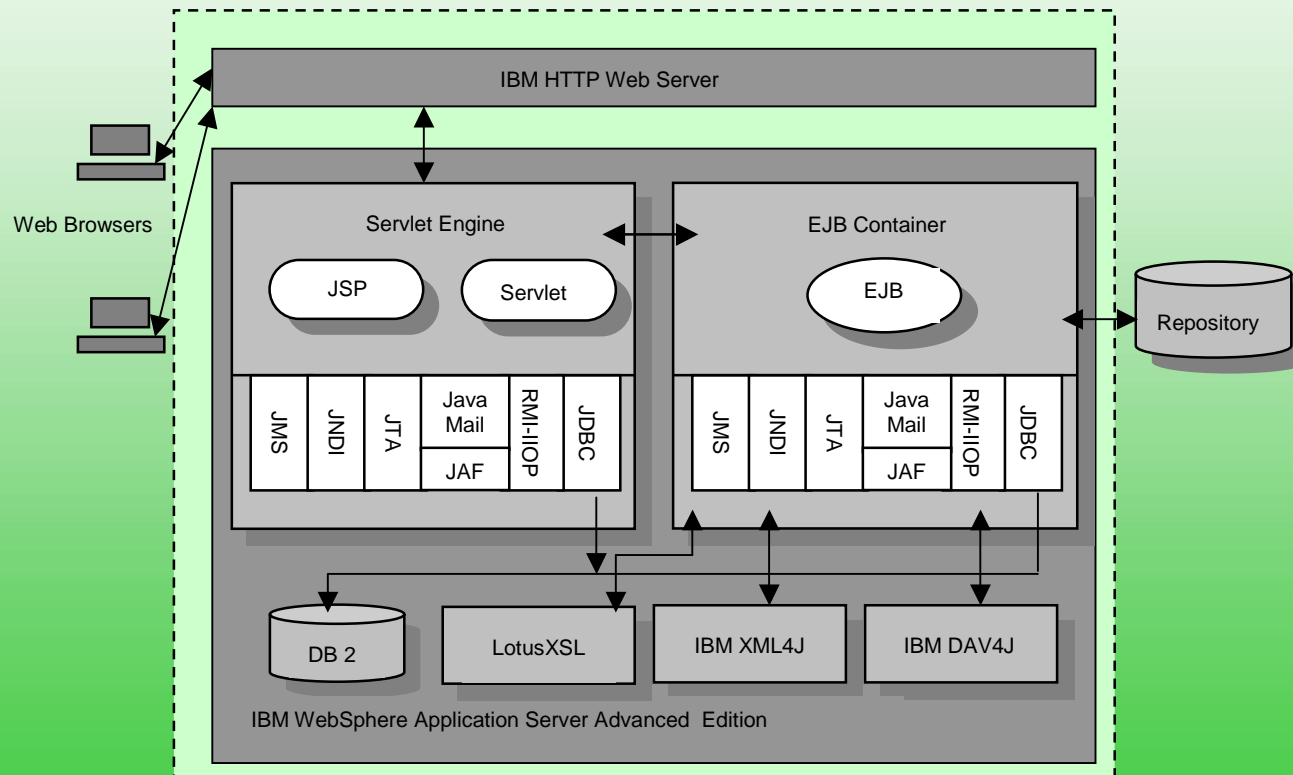- Prototype EGS implementation
  Cooperative workBench

- Support for Web-based, asynchronous, document-centric cooperation activities

C-Bench: System Architecture
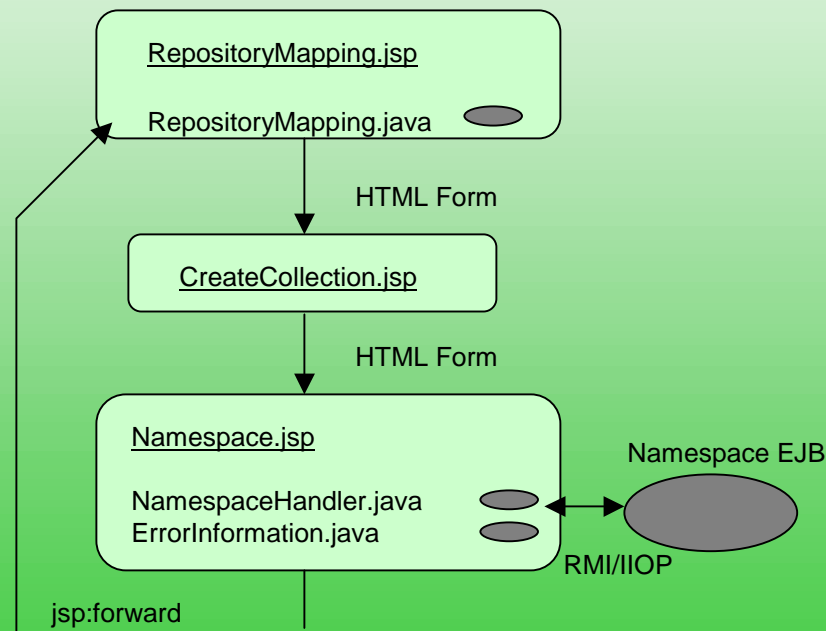
C-Bench: WebDAV Implementation

■ IBM DAV4J vs. Apache mod_dav

	IBM DAV4J	Apache mod_dav
Platform	100% pure java portability	Win32, Unix
Implementation	IBM WebSphere App. Server	Apache web server+Expat XML parser
WebDAV support	Class 2	Class 2
Multiple back end repository support	Yes	Yes
C/S communication	HTTP,RMI,IIOP	HTTP
HTTP-protocol-level developing support	Yes	Yes
WebDAV-protocol-level developing support	Yes	No
OO-API-level developing support	Yes	No
Source code	Java, promise of open source in the near future	C, open source

C-Bench: Computing Model

- JSP, JavaBeans, and EJB

RepositoryMapping.jsp

RepositoryMapping.java

HTML Form

CreateCollection.jsp

HTML Form

Namespace.jsp

NamespaceHandler.java
ErrorInformation.java

Namespace EJB

RMI/IIOP

jsp:forward

Conclusions

▮ Make full use of existing technologies (WebDAV & J2EE)

▮ 100% pure Java portability

▮ Open-industry standards support

Thank You For Your Attention

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