3118
J2EE Patterns

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Overall Presentation Goal

Review of Core J2EE Patterns.

Best Practices of J2EE Patterns.

Speaker's Qualifications

- Chief Technology Officer at Code Mentor, Inc.
- Sun Certified Java 2 Architect.
- Instructor for Visibroker for Java, OOAD, Rational Rose, and Java Development.
- Frequently speaks on the subject of distributed computing programming, including CORBA and EJB architecture.

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Introduction

- In the Beginning…
  - There was code
  - How do we get beyond copy and paste

Thought for the Session

A good scientist is a person with original ideas.

A good engineer is a person who makes a design that works with as few original ideas as possible.

—Freeman Dyson

Reuse Solutions

- OO
  - Models
- Component Oriented Development
  - Binaries

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Why / Where do they come from

OOAD

- Notation – UML
- Process (Raging)

- Software Development
  - Technical Requirements
    - Patterns
  - Business Requirements
    - Need further standardization

Patterns Definition

- Patterns communicate a solution to a recurring problem in context.
  - John Crupi

Four Pattern Elements

- Name
- Problem (with Context)
- Solution
- Consequences (Pro / Cons)

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Pattern Value

- Design “Reuse”
- Best Practices
- Easy code mappings
- Higher level vocabulary

Early Patterns Solutions

- Gang of Four
  - Singleton
  - MVC
  - Command
- Context is technical and broad

Tend to be technical in nature and span language choices.

Limited understanding

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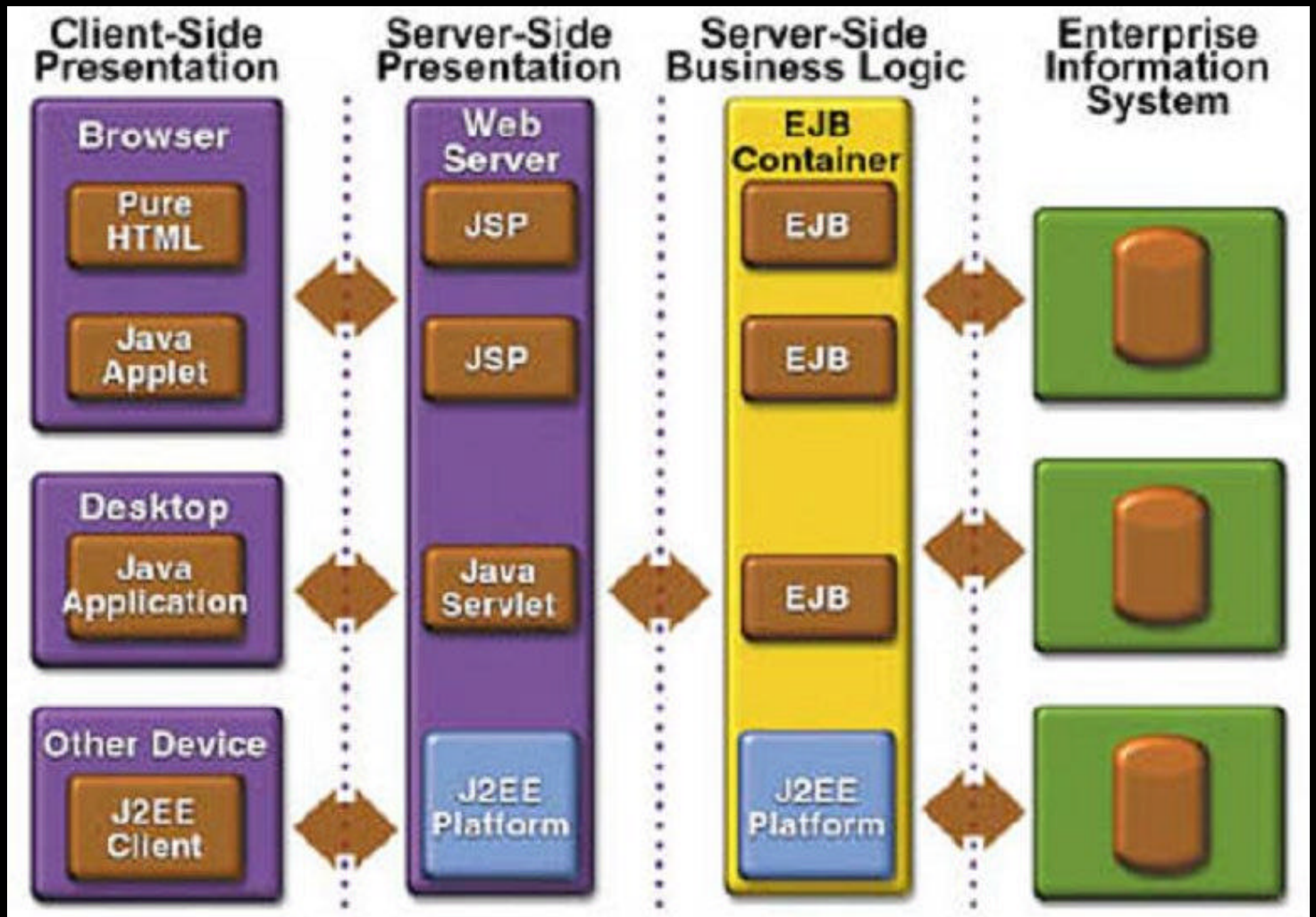
J2EE Core Patterns

- Sun developed best practices
  - John Crupi, Dan Malks, Deepak Alur

J2EE Patterns

- Patterns in the “context” of J2EE



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Presentation Tier

- Intercepting Filter
- Front Controller
- Context Object
- Application Controller
- View Helper
- Composite View
- Service To Worker
- Dispatcher View

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Business Tier

- Business Delegate
- Service Locator
- Session Façade
- Application Service
- Business Object
- Composite Entity
- Transfer Object
- Transfer Object Assembler
- Value List Handler

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Integration Tier

- Data Access Object (DAO)
- Service Activator
- Domain Store
- Web Service Broker

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Non-Core J2EE Patterns ☺

- Fast Lane Reader
- MVC
- Mapper Pattern
- Pluggin Pattern
- Service Stub
- Token Pattern *

Patterns for this Session

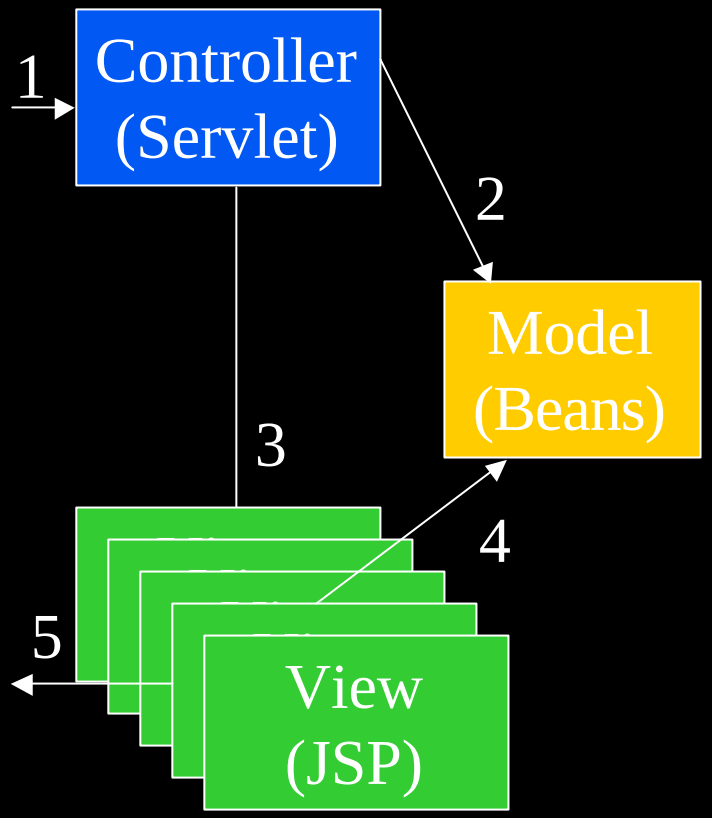
- Front Controller
- MVC
- Business Delegate
- Mapper Pattern
- Service Stub
- Session Façade
- Fast Lane Reader
- Token Pattern
- Value List Handler

Focus on development and JBuilder

What Is a MVC?

- MVC stands for model / view / controller.
  - A software pattern where logic is separated from the model and view in order to provide for better reuse possibilities.
  - A software pattern recognized in the early days of small talk.
  - Documented in the GoF book.

Web Application MVC Pattern



- Model
  - Information is provided in objects or beans
- View
  - The JSP provide the view
- Controller
  - Servlet provides control logic and becomes the controller

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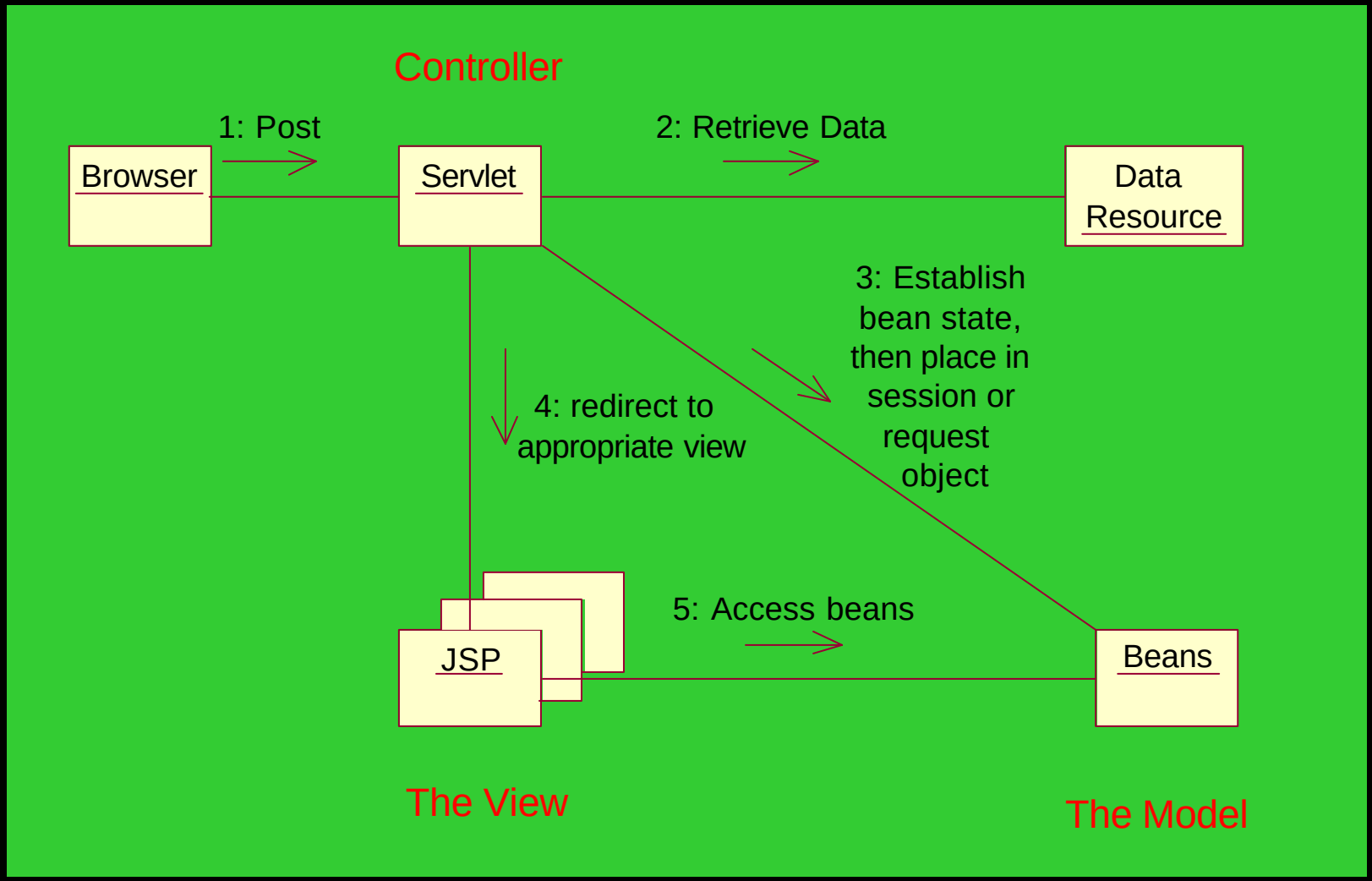
MVC Collaboration Diagram



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Front Controller / MVC Solutions

- J2EE Context
- Struts
  - Concept of a Front Controller
    - ActionServlet
    - RequestProcessor

Demo

Jbuilder / Struts

Business Delegate

- Presentation Tiers
- Reduction of coupling of the client tiers to the business tiers
- Centralizes code for lookups, access details

Business Delegate

- Great place for:
  - Data transformation
    - Tier to tier coupling
    - Exception translation
  - Manage unit tests
  - Service Stubs

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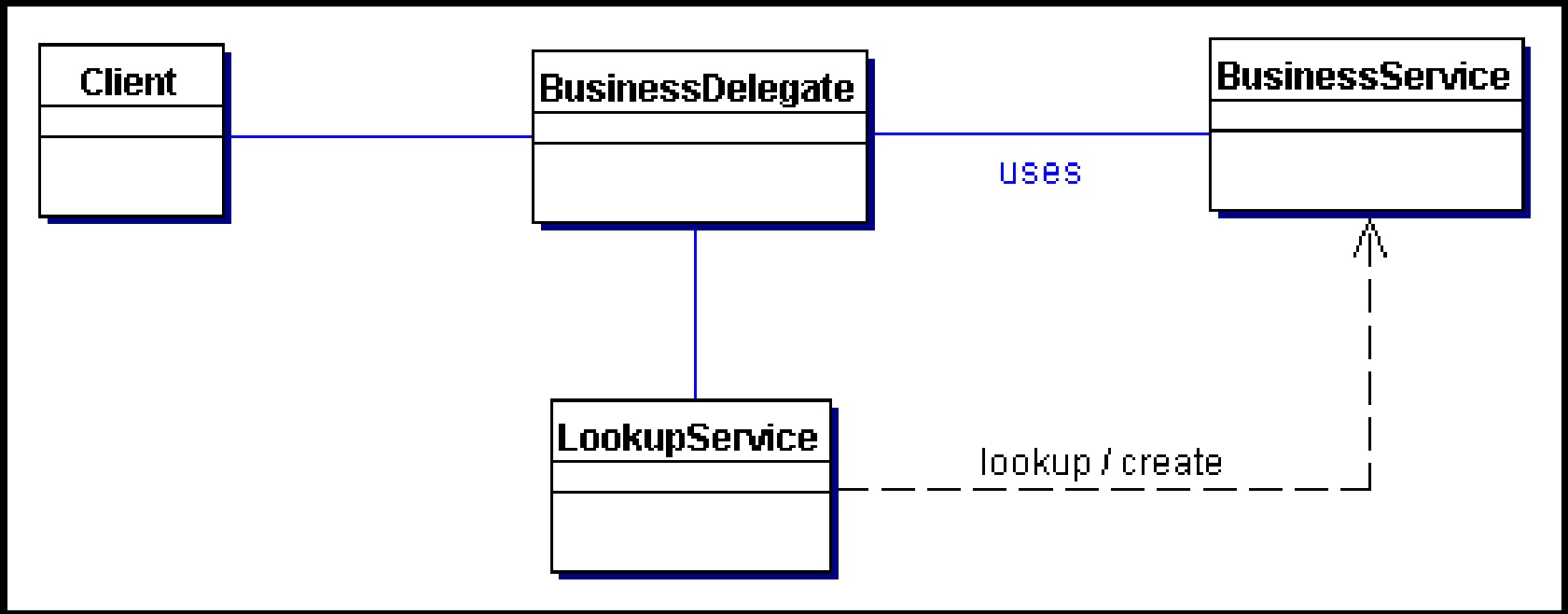
Delegate Diagram



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Mapper Pattern

- *An object that sets up a communication between two independent objects* -Fowler
- Provides a configurable access to service stubs

Pluggin Pattern

- ***Links classes during configuration rather than compilation*** **- Fowler**

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Service Stub

- ***Removes dependence upon problematic services during testing***
  - **Fowler**

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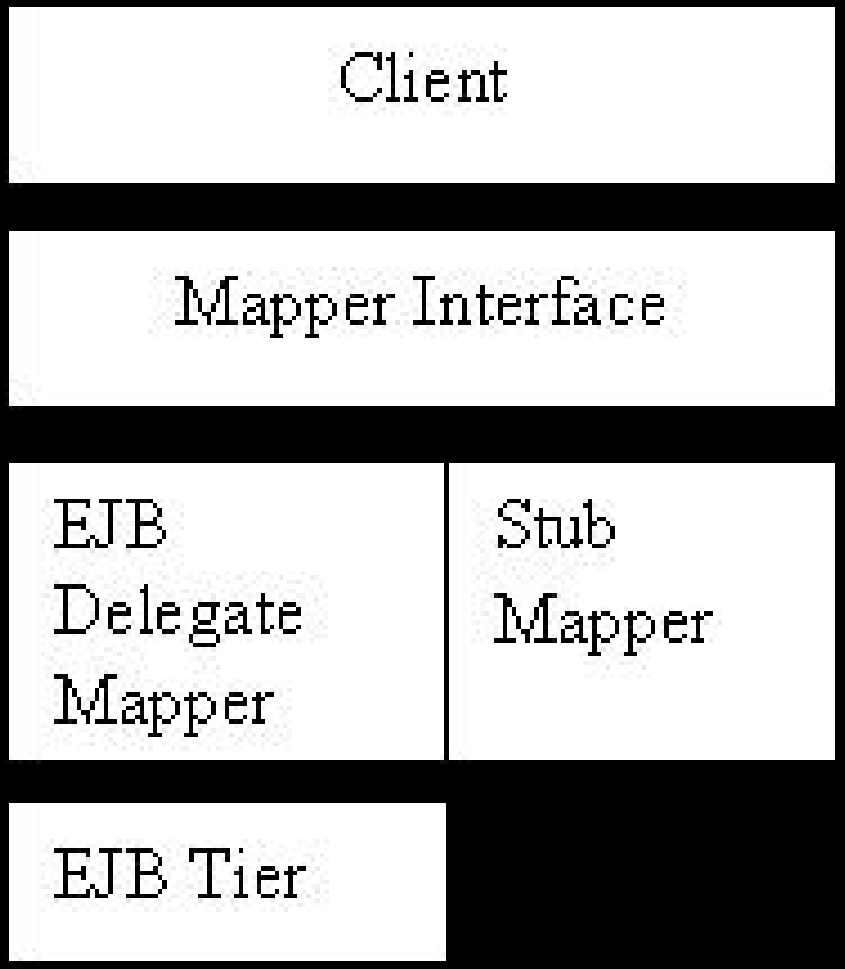
Mapper / Pluggin Solution



Session Façade

- Removes the number of client / server method invocations
- Uniform client access strategy
- Remove direct Entity Bean access
- Provides course grain access to Business

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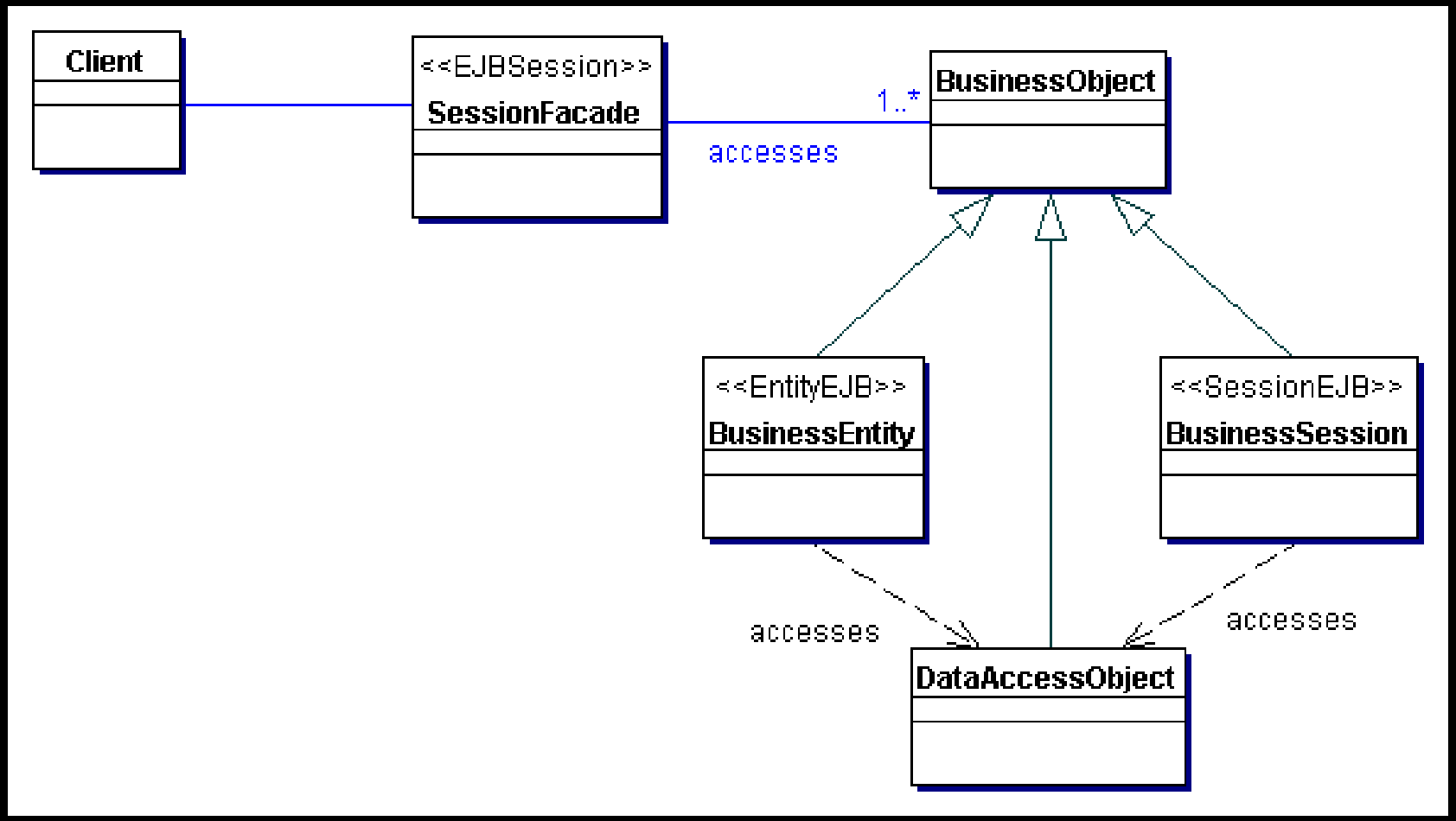
Façade Diagram



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Data Transfer Object (DTO)

- Data Structure for serialization across tiers.

Demo

Jbuilder / Facades / Delegates / DTO

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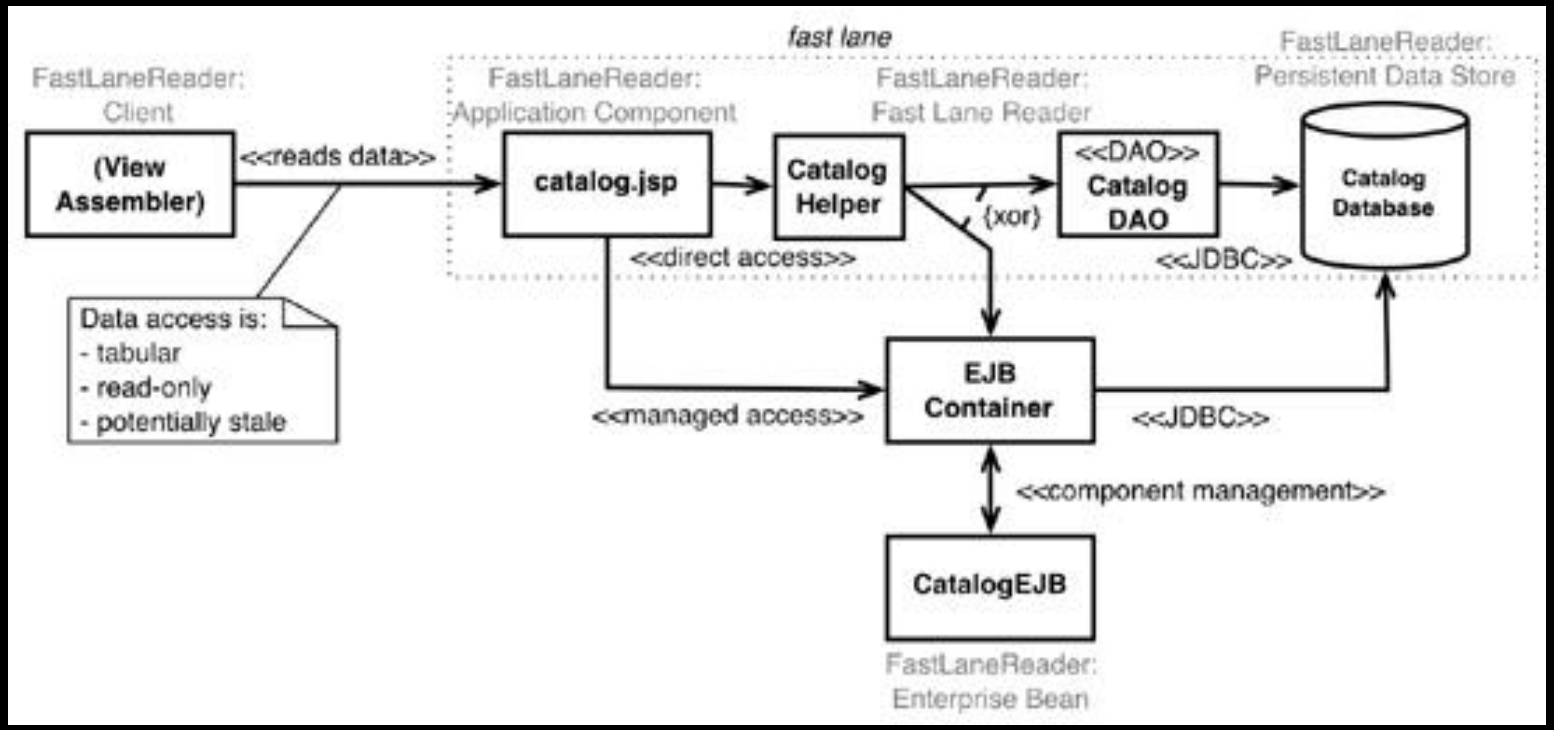
Fast Lane Reader

- Fast access to read-only data
- By pass Entity layer.



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Token Pattern

- Synchronize the Client Presentation Tier
  - Effort to stop multiple requests

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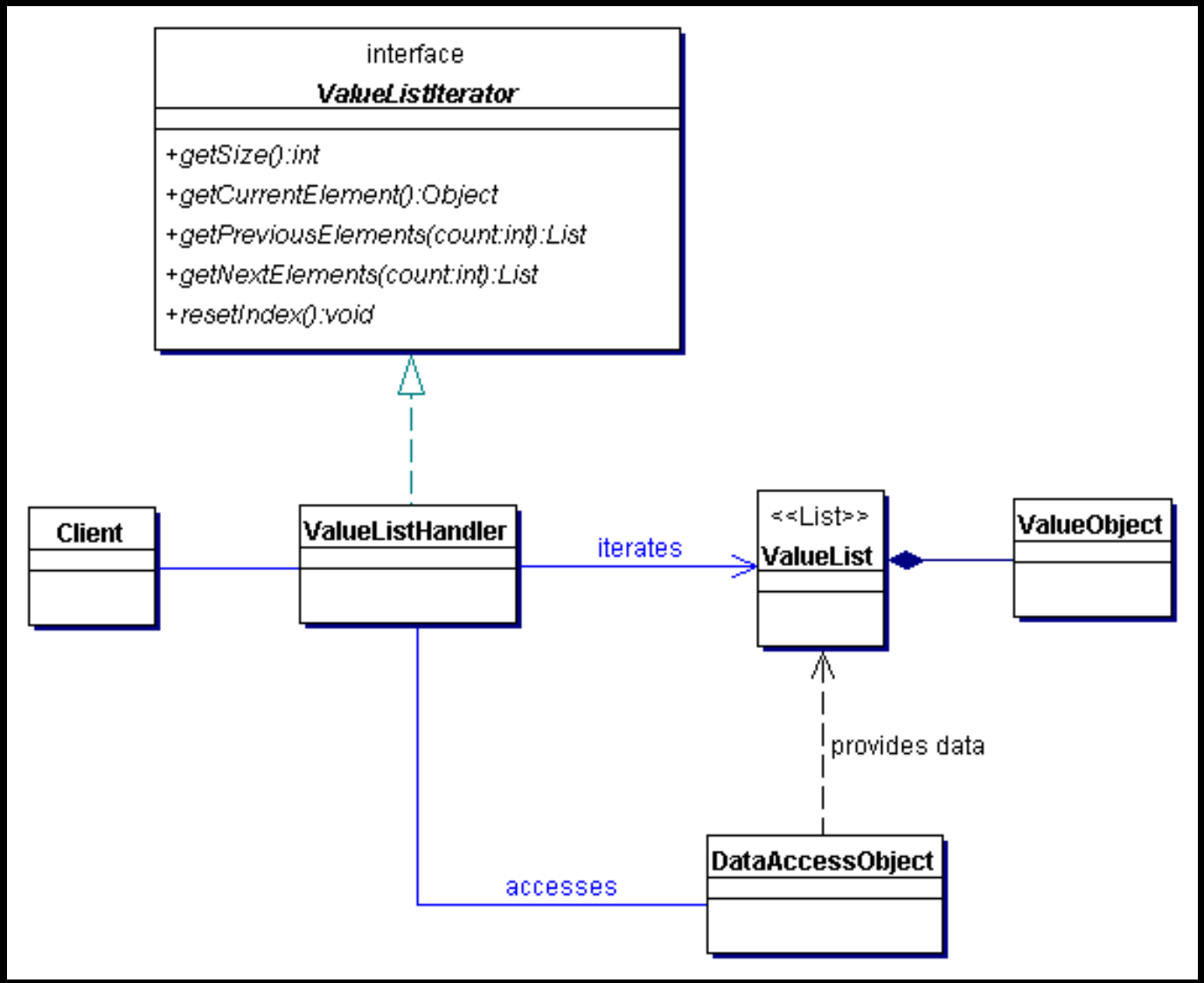
Value List Handler

- **Provides a scalable solution to providing lists of data to the client.**

Value List Diagram



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Concluding Thoughts

- Patterns presented are in heavy use today and add value
- JBuilder continues to aid in providing wizards to accelerate pattern focused development.

Resources

- http://java.sun.com/blueprints/corej2eepatterns/
- http://www.martinfowler.com/eaaCatalog/

Questions?

Thank You

Please fill out the speaker evaluation

You can contact me further at ...
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