Spring Basics

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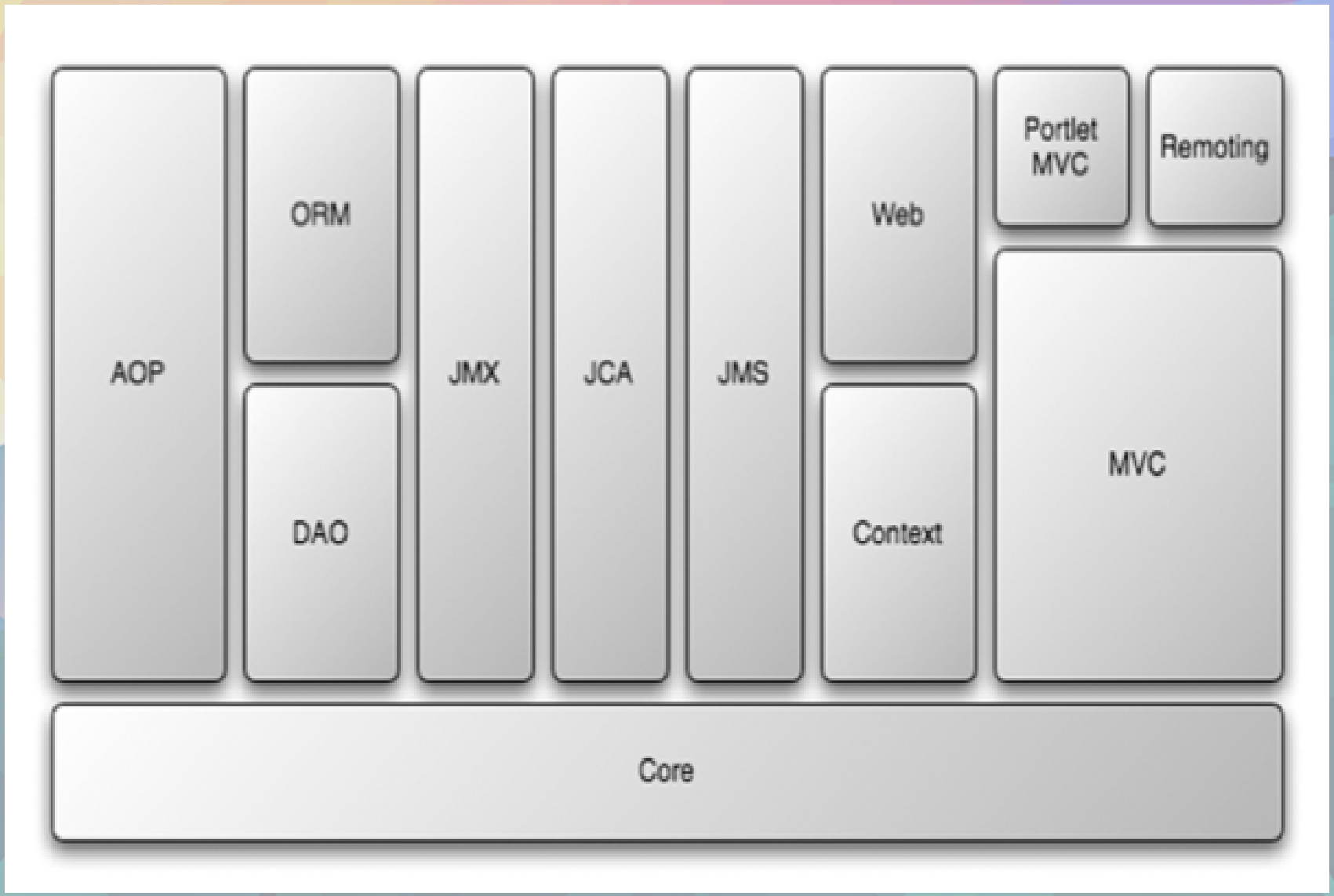
Spring

- Open source framework
- Created to address the complexity of enterprise application development
- Any Java application can benefit from Spring in terms of simplicity and testability


AOP
ORM
DAO
JMX
JCA
JMS
Web
Context
Portlet MVC
Remoting
MVC
Core

- The Spring Framework is made up of several modules
- Do I need to use all of the modules? No, it is possible to use a fragment of Spring Framework
- Spring offers integration points with several other frameworks and libraries

Important Features

- Is Lightweight, in terms of both size (more or less 2.5 MB) and overhead (negligible)
- Brings the principle of Inversion of Control (IoC): custom-written portions of a computer program receive the flow of control from a generic framework (as opposed to traditional programming with reusable libraries)
- Supports of Dependency Injection (DI), objects are passively given their dependencies instead of creating or looking for dependent objects for themselves
- Is a Container, in the sense that it contains and manages the lifecycle and configuration of application objects
- Is a Framework, since it allows to configure and compose complex applications from simpler components

Dependency Injection

- All real-world applications are made up of two or more classes that collaborate with each other
- In general, each object is responsible for obtaining its own references to the objects it collaborates with
- Using Dependency Injection objects are given their dependencies at creation time by some external entity that coordinates each object in the system
- Objects are not responsible for finding or creating the other objects that they need
- Instead, they are given references to the objects that they collaborate with by the container
- The act of creating these associations between application objects is referred to as wiring

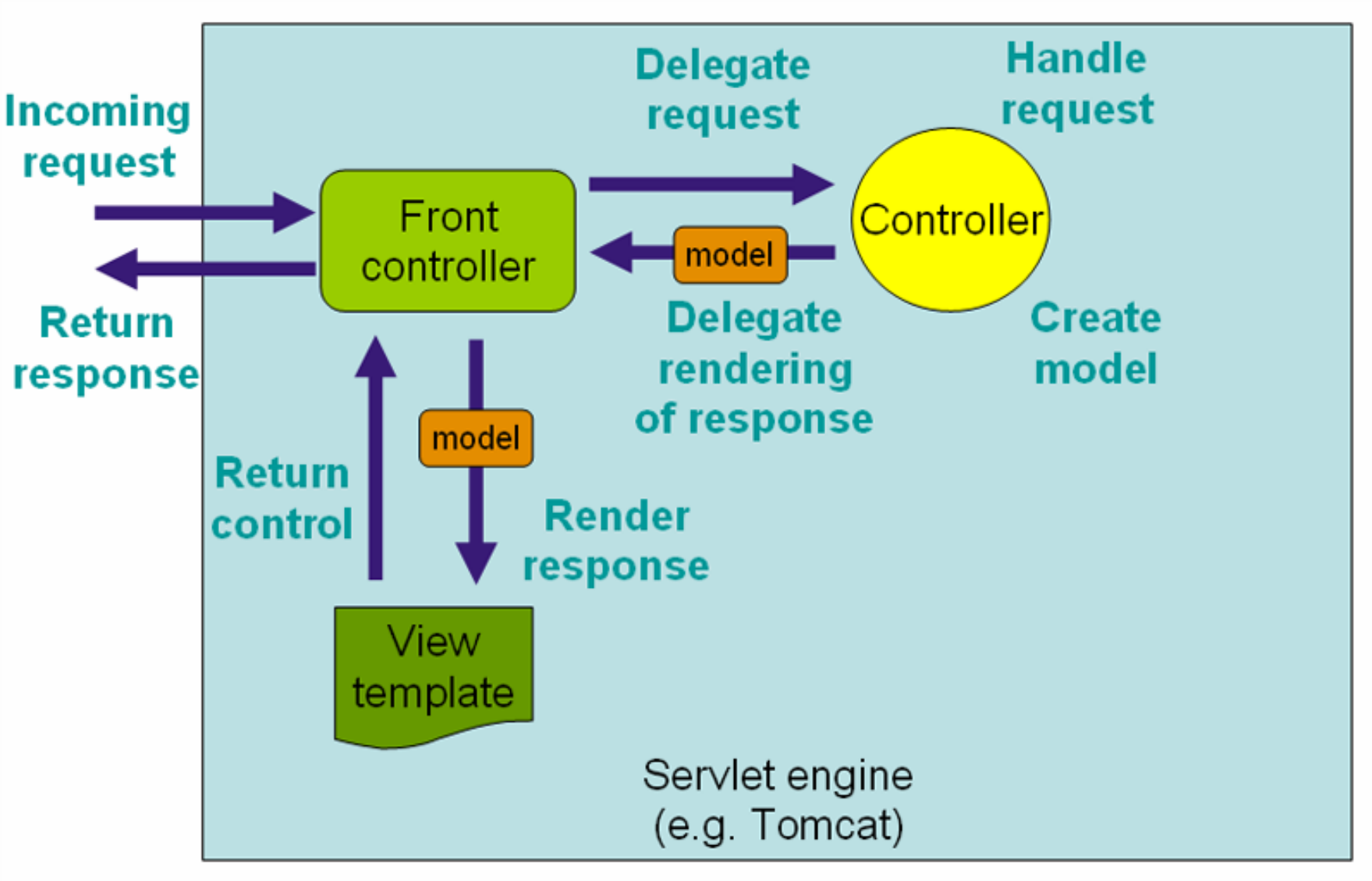
Application Context

- An ApplicationContext is responsible
  - to load bean definitions
  - to wire beans together
  - to dispense beans upon request
  - . . . and much more
- Many implementations of ApplicationContext
  - ClassPathXmlApplicationContext: loads a context definition from an XML file located in the classpath
  - FileSystemXmlApplicationContext: loads a context definition from an XML file in the file system
  - XmlWebApplicationContext: loads context definitions from an XML file contained within a web application

WHAT'S SPRING MVC

- software component in the Spring framework
- MVC framework for web applications
- lightweight and opensource

THE MVC DESIGN PATTERN

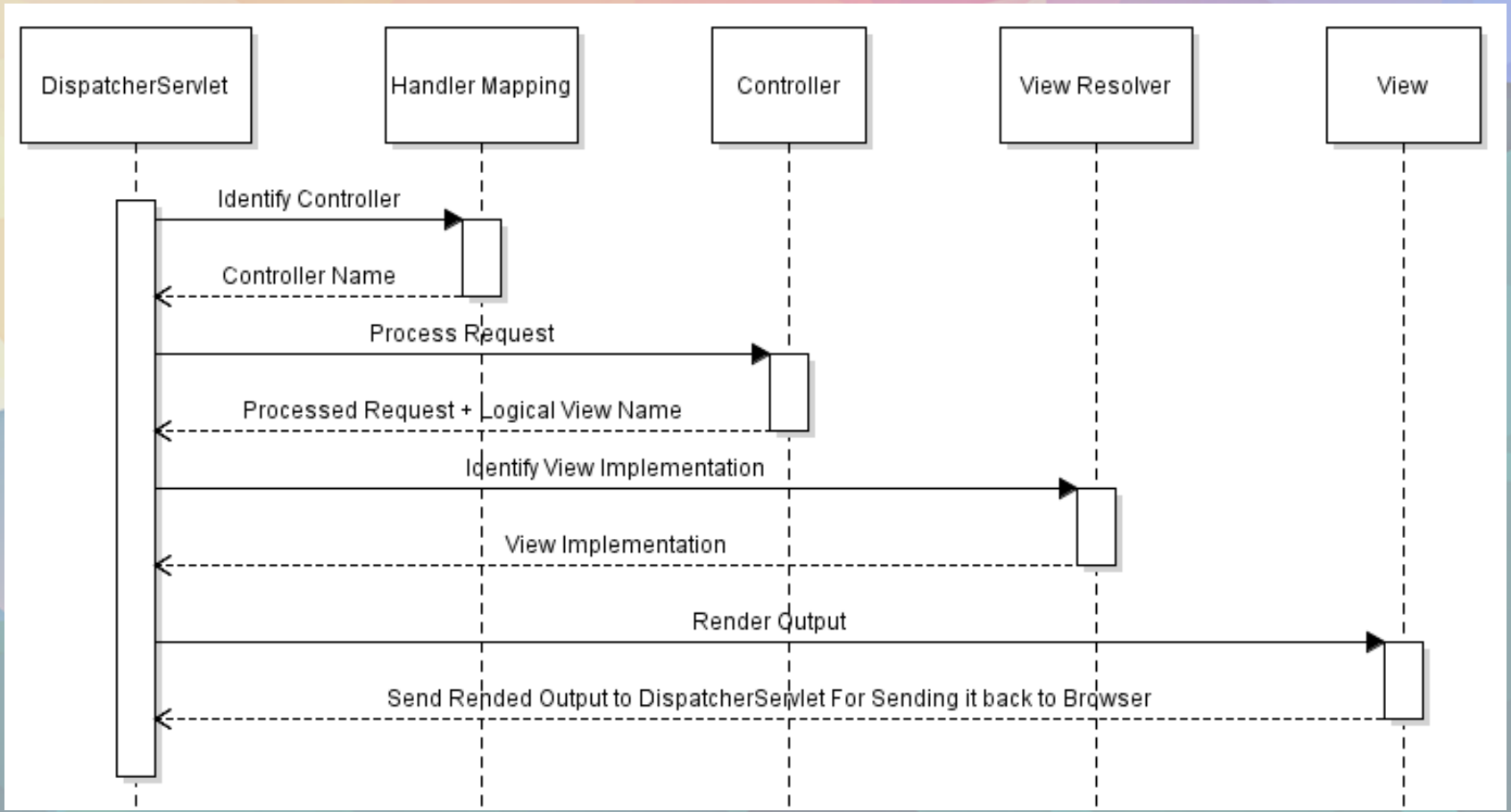


JAVA MVC WITHOUT SPRING

- model: Java POJO
- views: JSP pages
- controllers: java servlets

- model: Java Map
- views: pluggable view technologies
- controllers: controller classes

REQUEST HANDLING



The dispatcher servlet

- Handles all incoming requests and routes them to Spring controllers
- Uses customizable logic to determine which controllers should handle which requests

An example of controller class

Code on eclipse IDE

THE MODEL

- Used to pass objects from the controller tier up into the view
- It is just a java.util.Map
- Attributes in the Model will be passed as request attributes and available in the application PageContext
- In Spring we can use a simple Map or Spring specific classes: ModelMap or Model