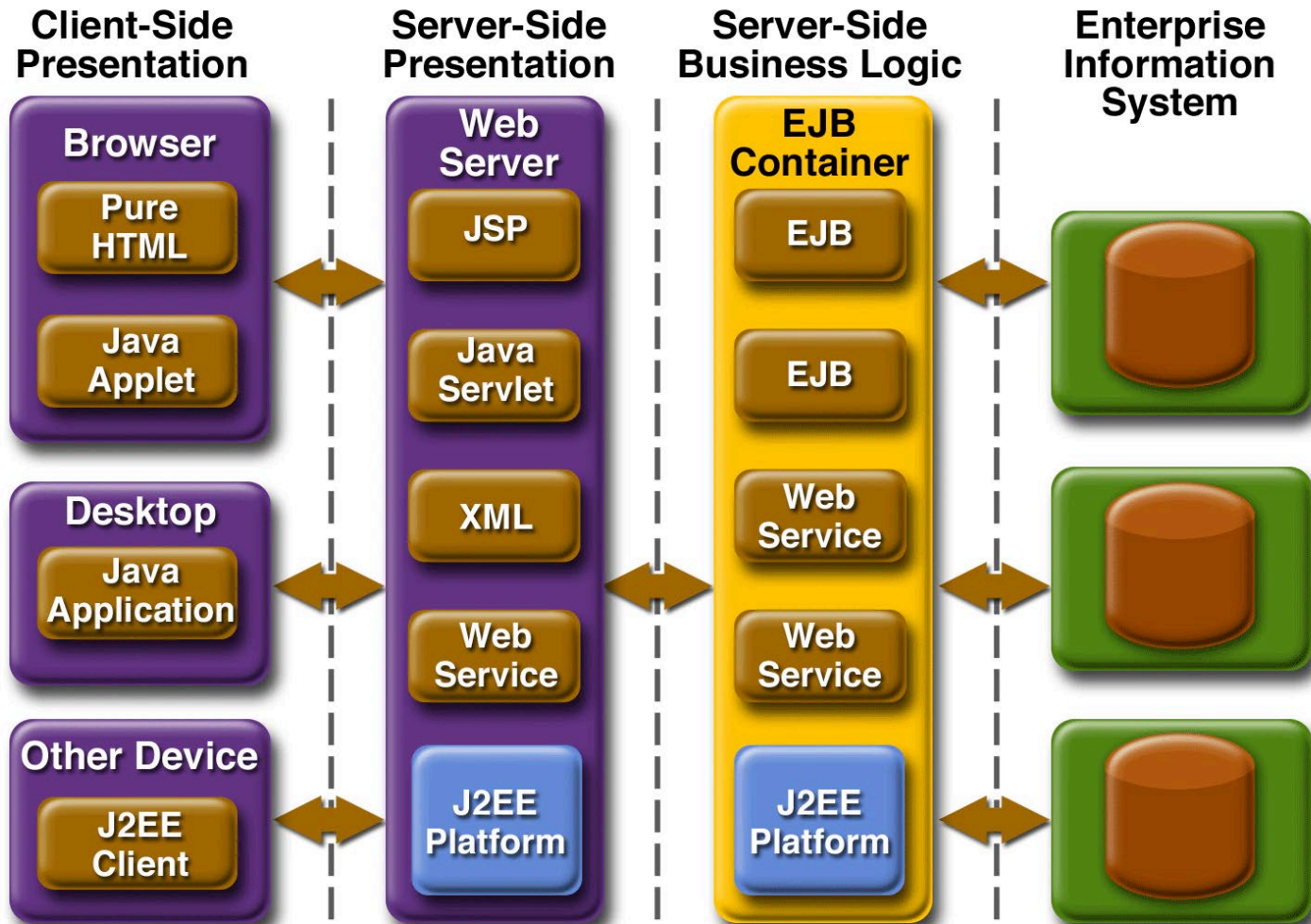# Introduction to Spring

# Application Architecture

► So far, we have been being building very simplistic Java applications

► As applications get more complex it becomes increasingly difficult to:

✓ Manage the creation and organization of objects.

✓ Ensure that all the object dependencies are satisfied

✓ Deploy and run complex applications

✓ Satisfy the non-functional requirements.

● Load, stress, fail-over, throughput, etc.

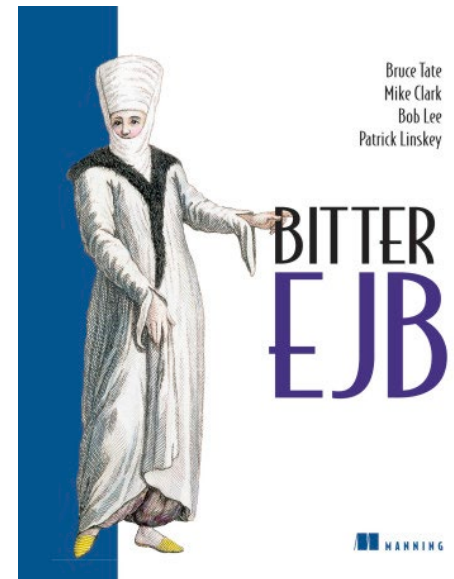► This is no Java solution because this is a software architecture problem, not a programming problem.

# J2EE

► SUN tried to solve the problem by introducing an "enterprise architecture" called J2EE

   ✓ It was based on application servers like Tomcat into which runtime containers were deployed

   ✓ The containers contained a deployable form of a Java application called an Enterprise Java Bean (EJB)

      • These were wrappers around one of more POJOs to make them deployable onto an application server

   ✓ Very popular due to the Web components like Java Server Pages and Servlets

► EJBs were a failure

   ✓ The required a lot of configuration and boilerplate code

   ✓ And they performed horribly

# J2EE
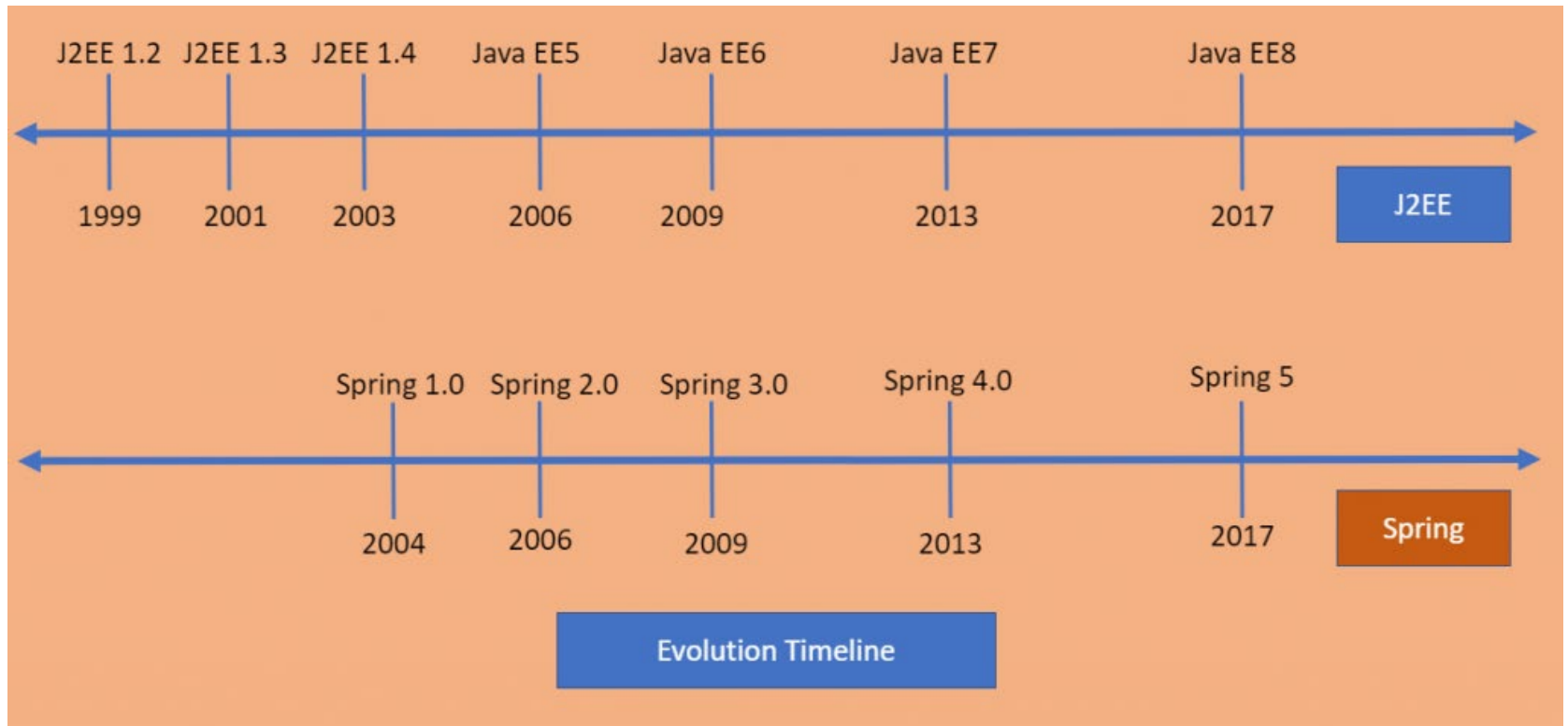
# The Spring Insurgency

▶ J2EE was so problematic to use that Rod Johnson created the first version of Spring as an alternative

✓ The first version was in 2004 when frustration with J2EE was at its peak

✓ Some of the developers of EJBs wrote a book describing how to work around the design problems of EJBs
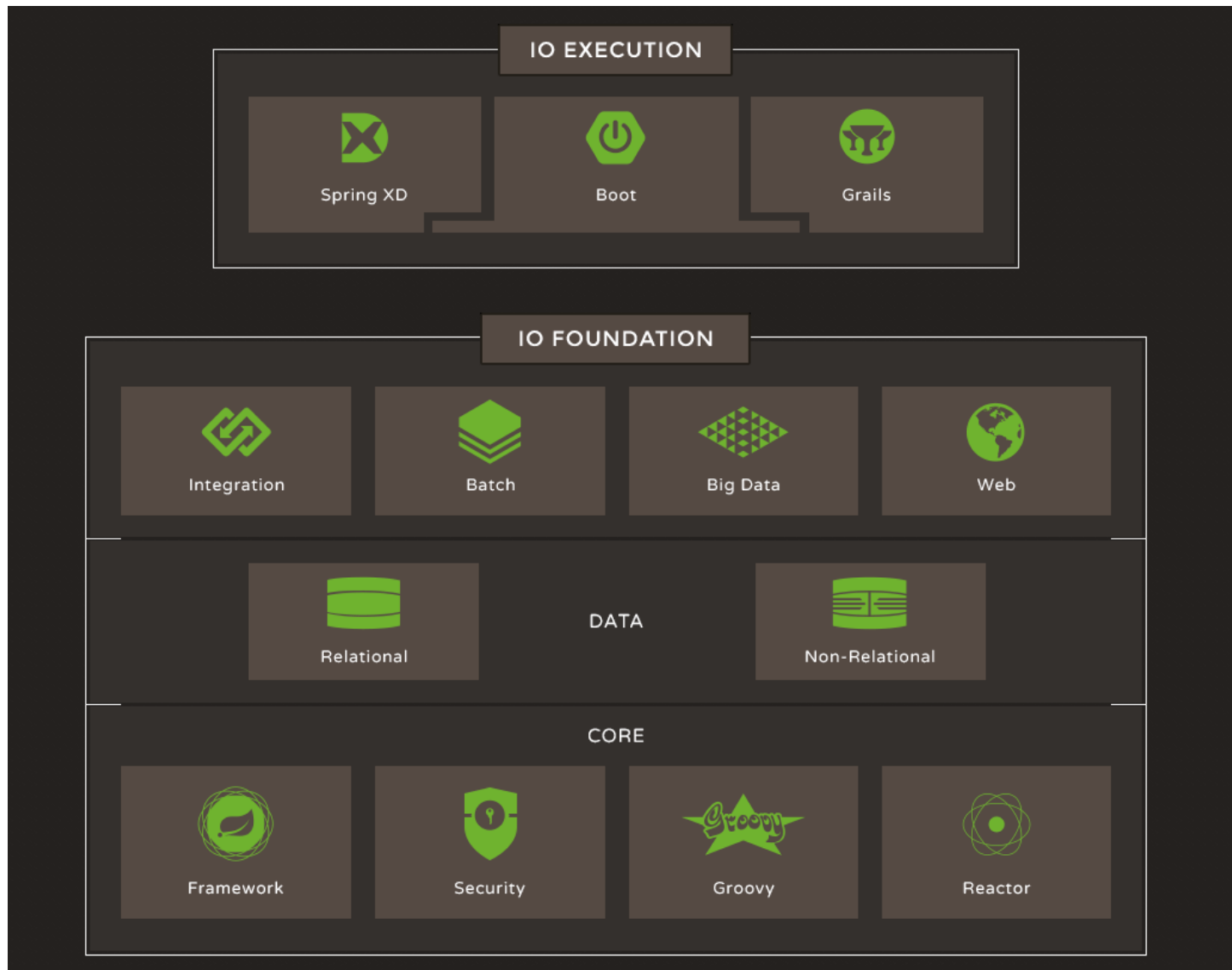
▶ Spring became the go-to alternative to J2EE

Bruce Tate
Mike Clark
Bob Lee
Patrick Linskey

BITTER
EJB

MANNING

# The Spring Timeline

# The Spring Impact

▶ After J2EE was rebranded as Java EE

   ✓ Many of the features of Spring were adopted by Java EE

   ✓ Especially the techniques of Inversion of Control (IoC) and Dependency Injection (DI)

▶ Spring has evolved into an ecosystem

   ✓ Supports a number of projects that cover a wide range of development needs

   ✓ Similar to the Apache project ecosystem

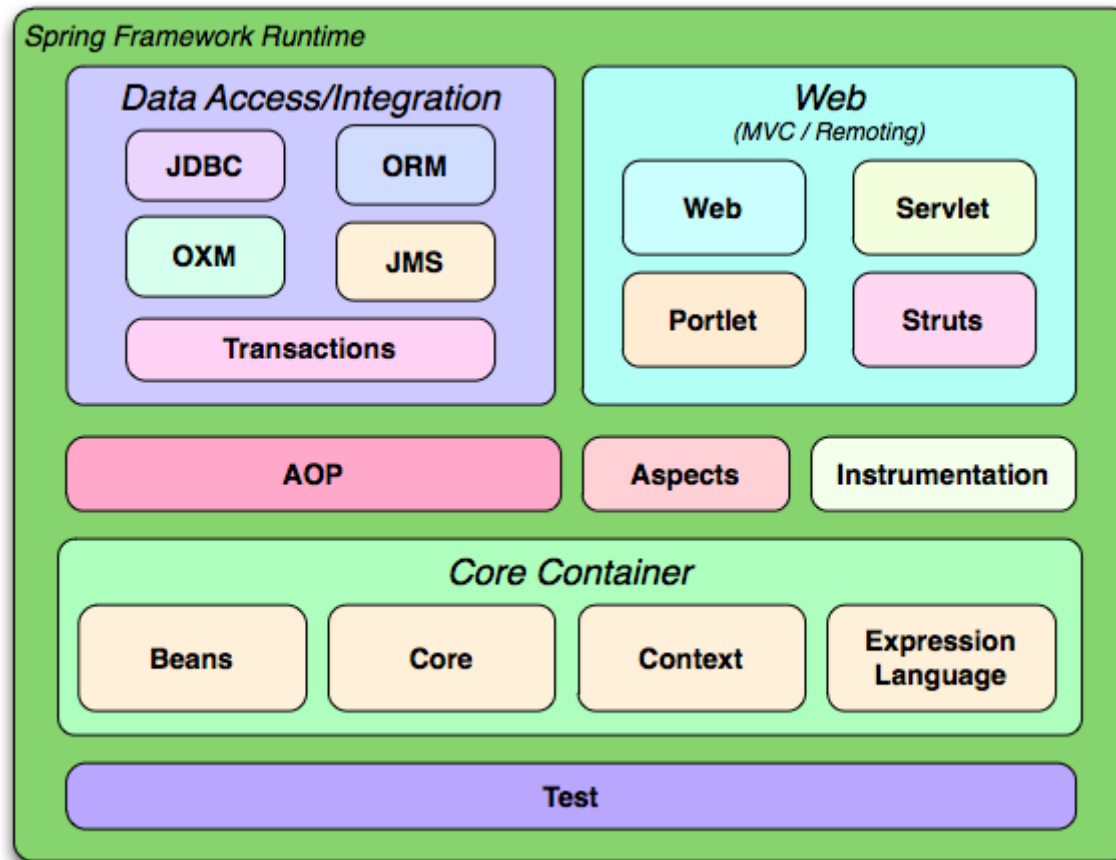▶ This collection of projects is referred to as the Spring Platform

   ✓ More info at http://spring.io

# The Spring Platform

# Spring Framework

► The Spring Framework is organized into modules

# Spring Framework

► In the modules that follow

    ✓ We will explore some basics functionality of the Core container

    ✓ We will use the Spring Boot application to simplify the development and deployment of a Java application