

Spring Cloud

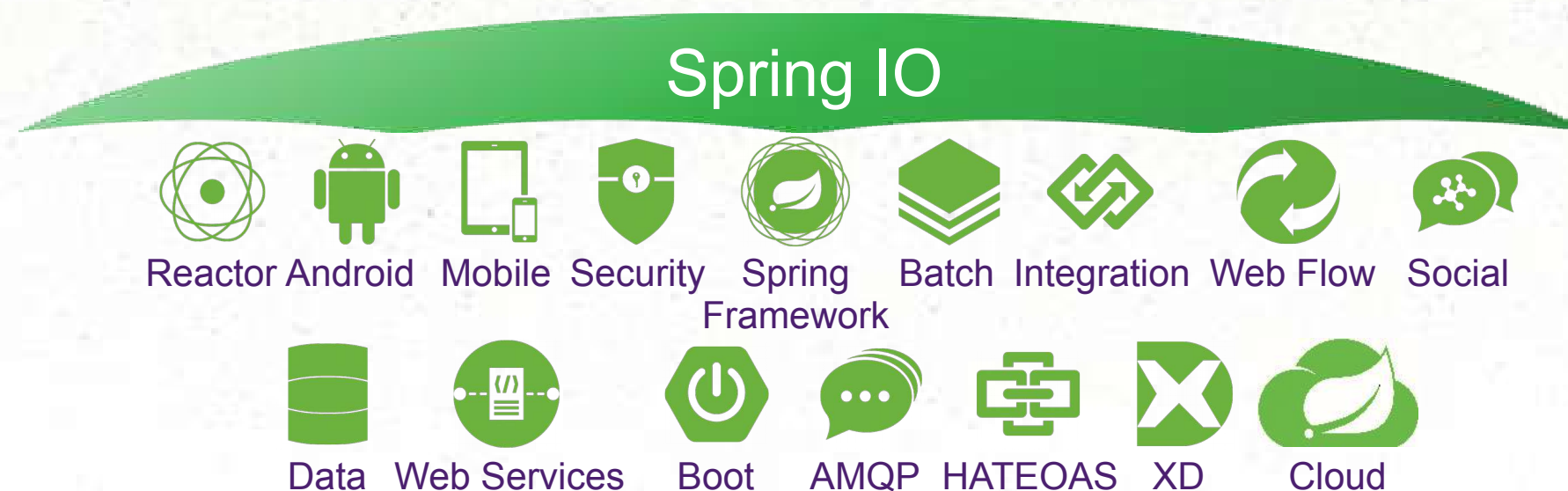
Addressing the issues found
in cloud-native applications

Module Outline

- **Spring / Spring IO / Spring Cloud**
- Spring Cloud Netflix
- Common Concepts

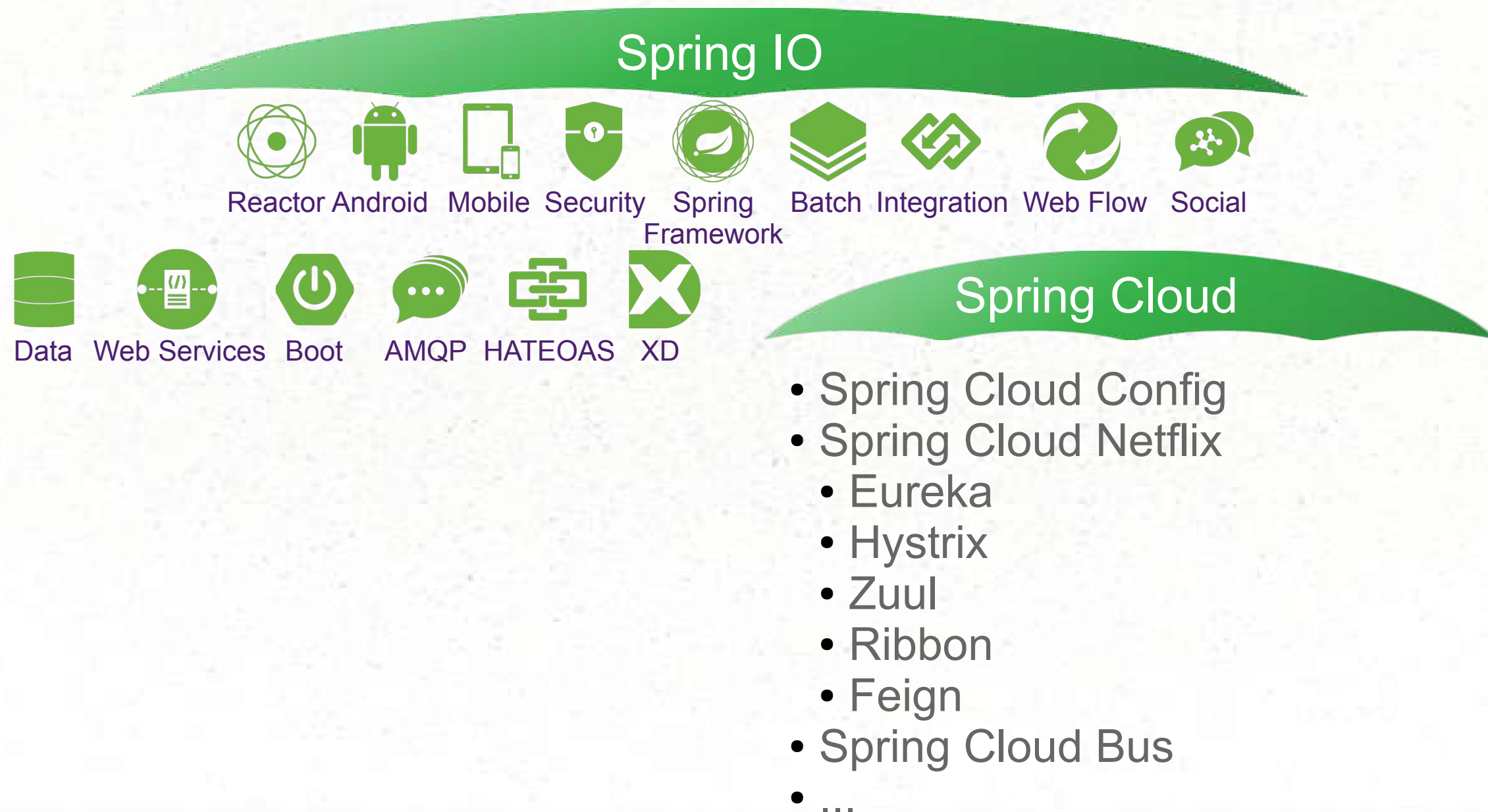
Spring Cloud Origins

- First, there was the Spring Framework (2004)
 - Alternative to low-level JEE approaches
- Next, Spring sub-projects emerged (2006 - present)
 - Spring Security, Web Flow, Integration, Batch, Web Services, XD, Social, Data, Boot, Session, etc.
 - Organized under Spring IO umbrella:



Spring Cloud Subproject

- “Sub-Umbrella” Project within Spring IO Platform



Goal of Spring Cloud

- Provide libraries to apply common patterns needed in distributed applications
 - Distributed / Versioned / Centralized Configuration Management
 - Service Registration and Discovery
 - Load Balancing
 - Service-to-service Calls
 - Circuit Breakers
 - Routing
 - ...

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Where Does **NETFLIX** Fit Into All of This?

- Netflix reinvented itself since early 2007
 - Moved from DVD mailing to video-on-demand
 - Once USPS largest first-class customer
 - Now biggest source of North American Internet traffic in evenings.
- Became Trailblazers in Cloud Computing
 - All Running on Amazon Web Services
- Chose to publish many general-use technologies as Open-Source projects
 - Proprietary video-streaming technologies are still secret.

Spring and NETFLIX

- The Spring Team has always been forward looking
 - Trying to Focus on Applications of Tomorrow
- Netflix OSS Mature and Battle-Tested; Why Reinvent?
- Netflix OSS Not Necessarily Easy and Convenient
 - Spring Cloud provides easy interaction
 - Dependencies
 - Annotations

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Spring Cloud Setup

- Spring Cloud Projects are all based on Spring Boot
 - Difficult to employ using only core Spring Framework
 - Dependency management based on Boot
 - ApplicationContext startup process modified

Server vs. Client

- “Client” and “Server” are relative terms
 - Based on the role in a relationship
 - A Microservice is often a client and a server
- Don't get lost on the terminology!

Required Dependencies

- Replace Spring Boot Parent
 - Spring Cloud projects are based on Spring Boot

```
<parent>
  <groupId>org.springframework.cloud</groupId>
  <artifactId>spring-cloud-starter-parent</artifactId>
  <version>Angel.SR4</version>
</parent>
```

Watch for later versions...

```
<dependency>
  <groupId>org.springframework.cloud</groupId>
  <artifactId>spring-cloud-starter-...</artifactId>
</dependency>
```

-eureka
-eureka-server
-xxx
-etc

Required Dependencies

- ...OR Use Dependency Management Section

```
<dependencyManagement>
  <dependencies>
    <dependency>
      <groupId>org.springframework.cloud</groupId>
      <artifactId>spring-cloud-starter-parent</artifactId>
      <version>Angel.SR4</version>
      <type>pom</type>
      <scope>import</scope>
    </dependency>
  </dependencies>
</dependencyManagement>

<dependency>
  <groupId>org.springframework.cloud</groupId>
  <artifactId>spring-cloud-starter-...</artifactId>
</dependency>
```


Summary

- Spring Cloud is a sub-project within Spring IO Umbrella
 - And is itself an umbrella project.
- Spring Cloud addresses common patterns in distributed computing
- Spring Cloud enables easy use of Netflix libraries
- Spring Cloud is based on Spring Boot