Spring

Java Application Framework
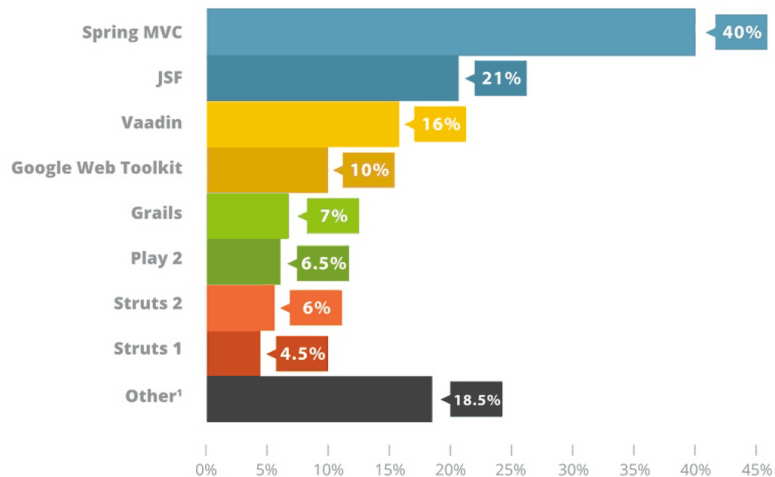
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IAM Brown Bag Session – July 2016

Why Spring?

#1 Java framework

Web frameworks in use *

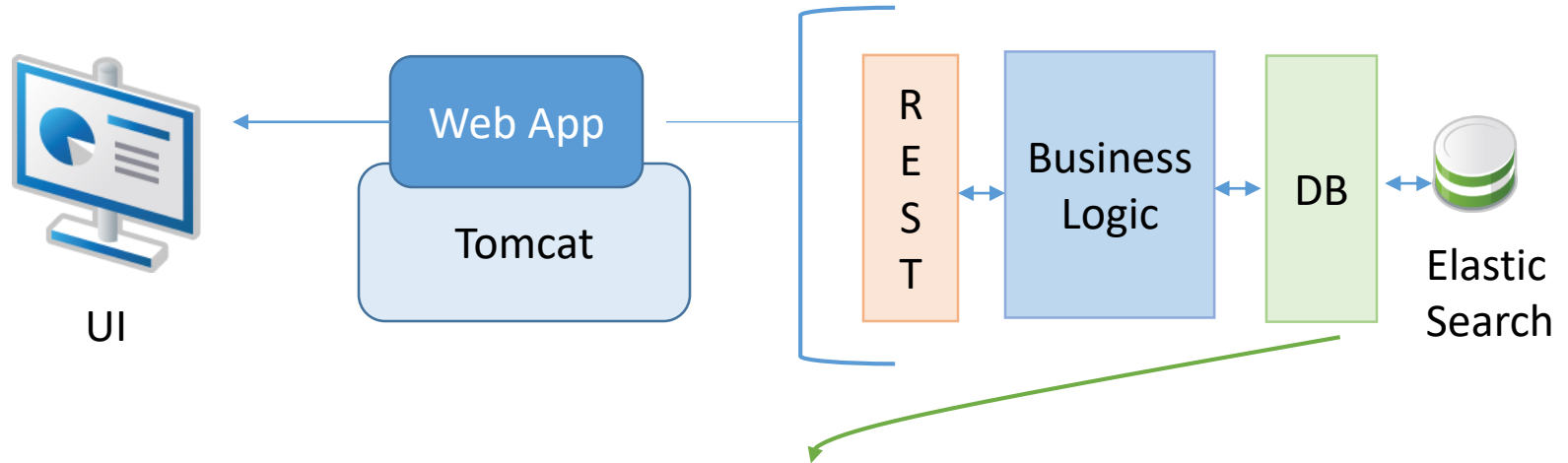| Framework	%
Spring MVC	40%
JSF	21%
Vaadin	16%
Google Web Toolkit	10%
Grails	7%
Play 2	6.5%
Struts 2	6%
Struts 1	4.5%
Other[1]	18.5%

REBELLABS * Multiple selections were possible and the results were normalized to exclude non-users
[1] Including Wicket, Seam, Tapestry, Play 1, ZK framework, VRaptor and about 40 others

Has 20+ add on projects to solve all enterprise application needs.

What is Spring?

Provides implementation of the common functionality.

1. Create a connection to Elastic Search
2. Create a query and get results.
3. Close connection.
4. Manage connections in a pool.
5. Return the results.

Replace with a single call to Spring Data

Spring Data Example

Index (database): nam

Type (table): test_runs

Id
Timestamp
Status, etc

1. Create Data bean

```java
@Document(indexName = "nam", type = "test_runs")
public class TestRun {

    @Id
    private String id;
    private Date timestamp;
    private String os;
    private String version;
    private String testRunId;
    private String runtype;
    private String status;
```

Read from Elastic Search's TestRun table

2. Spring Data code to read from Elastic Search

```java
public interface TestRunsRepository extends ElasticsearchRepository<TestRun, String>
{
    // Use the default CRUD methods provided by Spring Data.
    // Add any additional DB related functionality here.

    List<TestRun> findByTestRunIdOrderByTimestampAsc(String testRunId);

}
```

Default Methods:
findAll()
findOne(id)
save()
delete()
count()
exists()

Spring Data Example (Continued)

Code to read the data:

```
@Autowired
private TestRunsRepository runsRepository;

public void readTestRuns()
{
    Iterable<TestRun> runsList = runsRepository.findAll();

    List<TestRunDetails> runDetailsList = runDetailsRepository.findByTestRunIdOrderByTimestampAsc(testRunId);

    ...
}
```
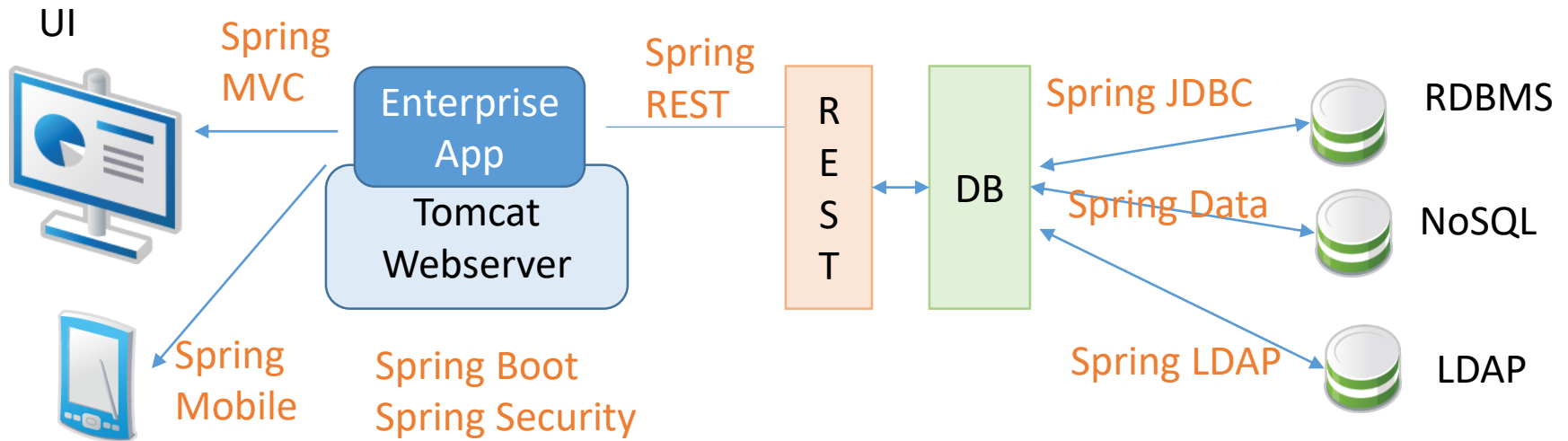
Benefits of Spring

- Handles the infrastructure so you can focus on your application.

- Standardizes handling of the plumbing code.

- Reduces code and speeds up development.

- Helps develop generic independent applications.

- Single framework for all layers of the application.

- And more…

Spring Projects

UI

Spring MVC

Enterprise App

Tomcat Webserver

Spring REST

R E S T

DB

Spring JDBC

RDBMS

Spring Data

NoSQL

Spring Mobile

Spring Boot
Spring Security

Spring LDAP

LDAP

Spring Cloud, Spring Social, Spring Batch, Spring Integration, etc

Key Terms

- Dependency Injection
  - @Autowired

```java
@Autowired
private TestRunsRepository runsRepository;

public void readTestRuns()
{
    Iterable<TestRun> runsList = runsRepository.findAll();

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    ...
}
```

- Spring AOP - Aspect Oriented Programming
  - Separation of "cross cutting" concerns
  - Modularize functionality that is used across – Logging, Auditing, etc.

Getting Started

- Go to Spring Initializr - https://start.spring.io/

- Select projects you want and build an application.

- Import into eclipse and start coding!