Popular Java Libraries

Sander Mak
FELLOW & SOFTWARE ARCHITECT

@Sander_Mak

Spring Framework

Spring Framework

J2EE Development without EJB - *Rod Johnson*

Spring Framework

J2EE Development without EJB - *Rod Johnson*

"Rebel" framework

Dependency Injection

Dependency Injection
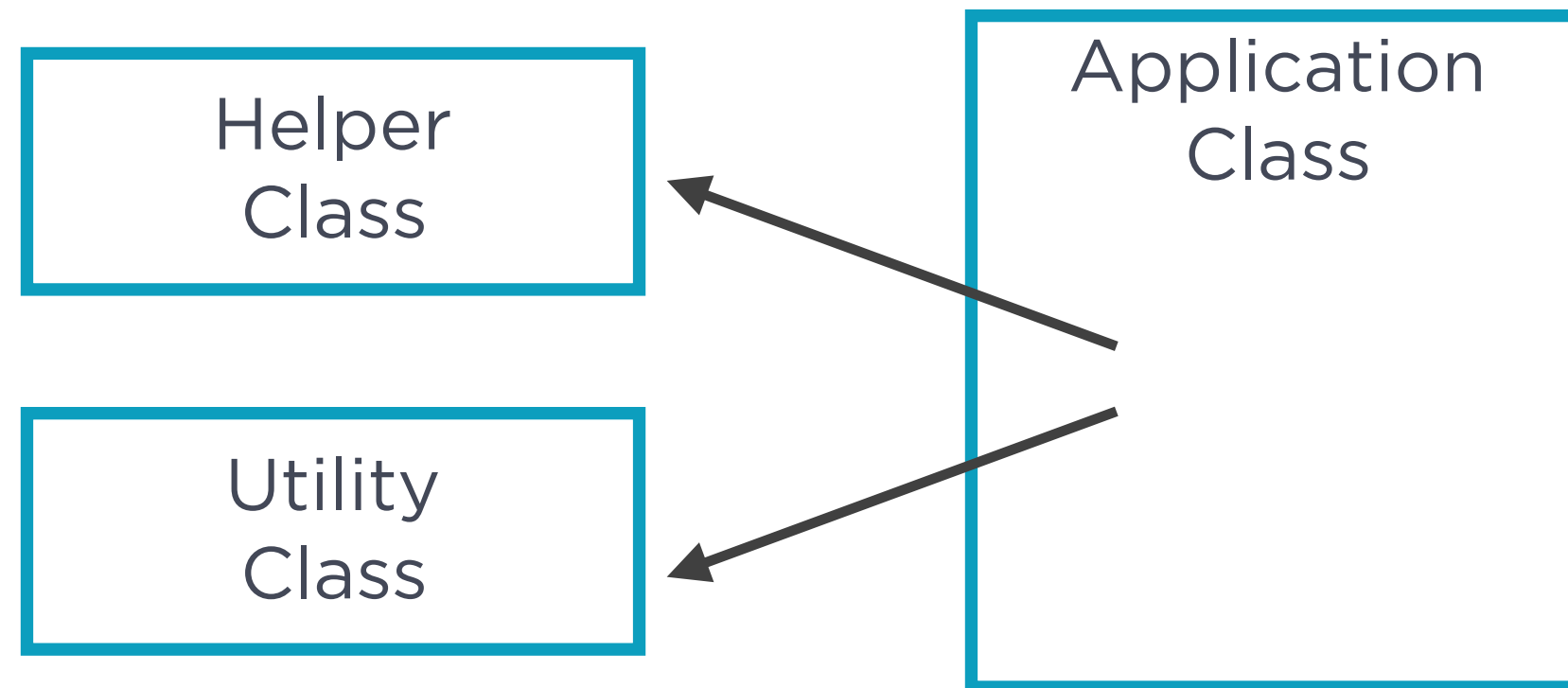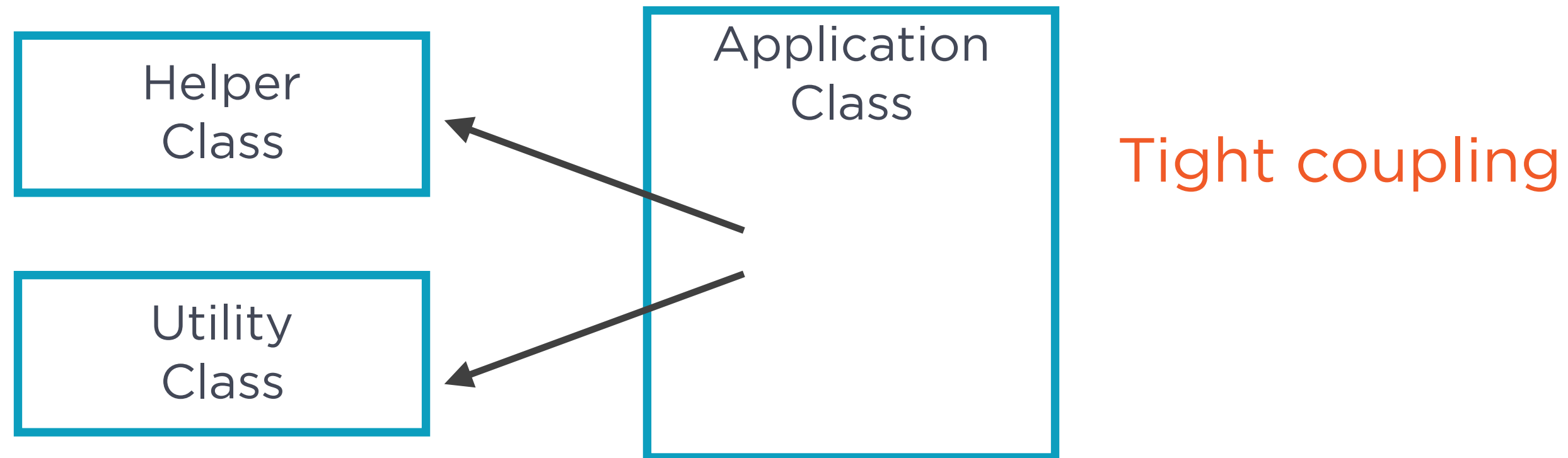
Application
Class

Dependency Injection

Helper
Class
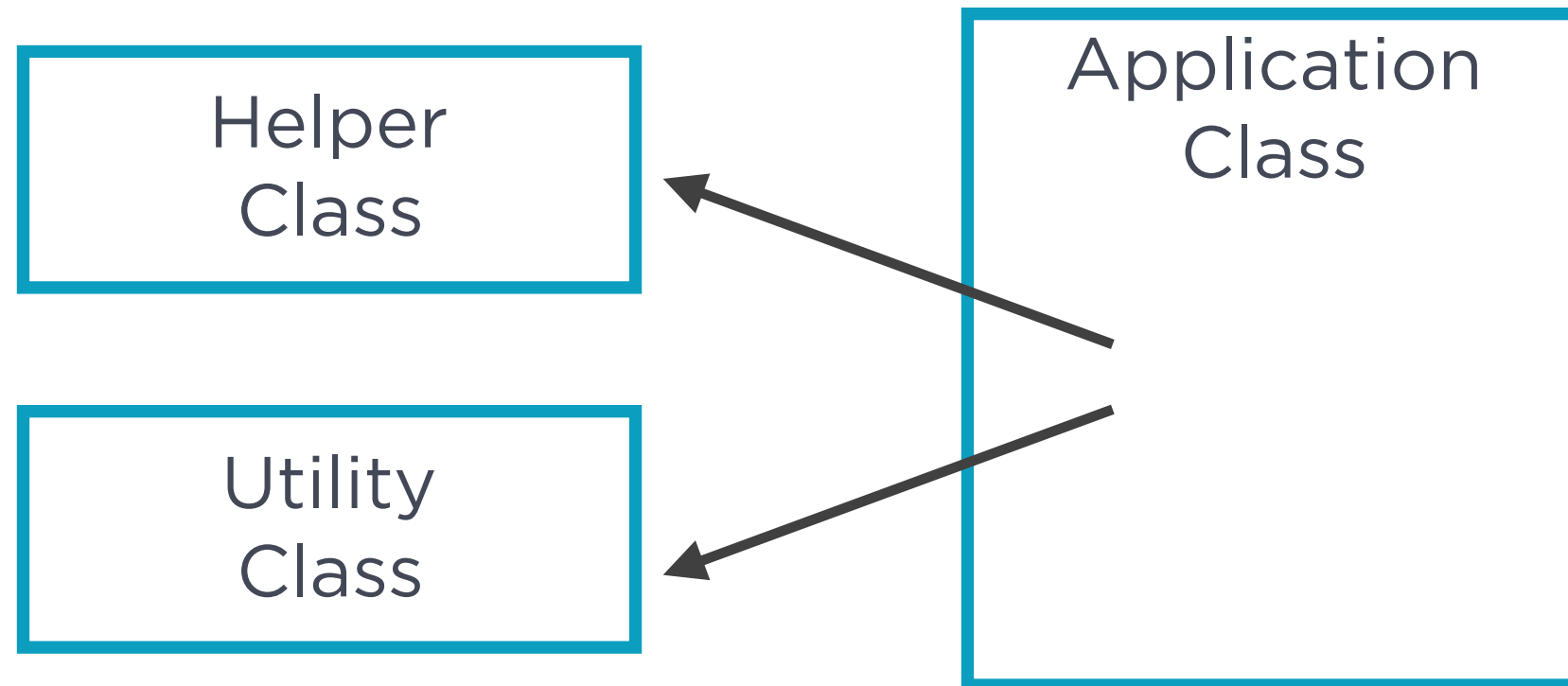
Utility
Class

Application
Class

Dependency Injection

Helper
Class

Utility
Class

Application
Class

Dependency Injection

Helper
Class

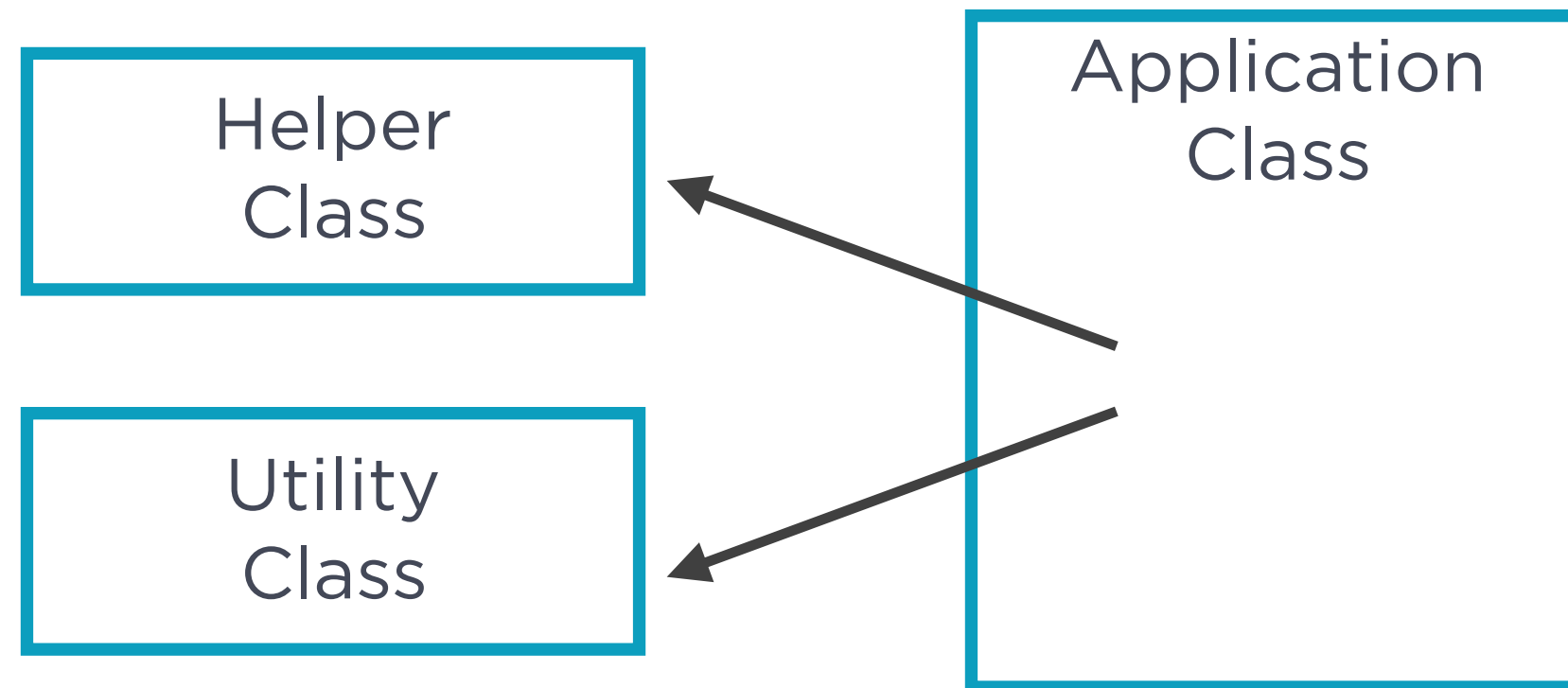Application
Class

Utility
Class

Tight coupling

Dependency Injection

Helper Class

Utility Class

Application Class

Tight coupling

Single implementation

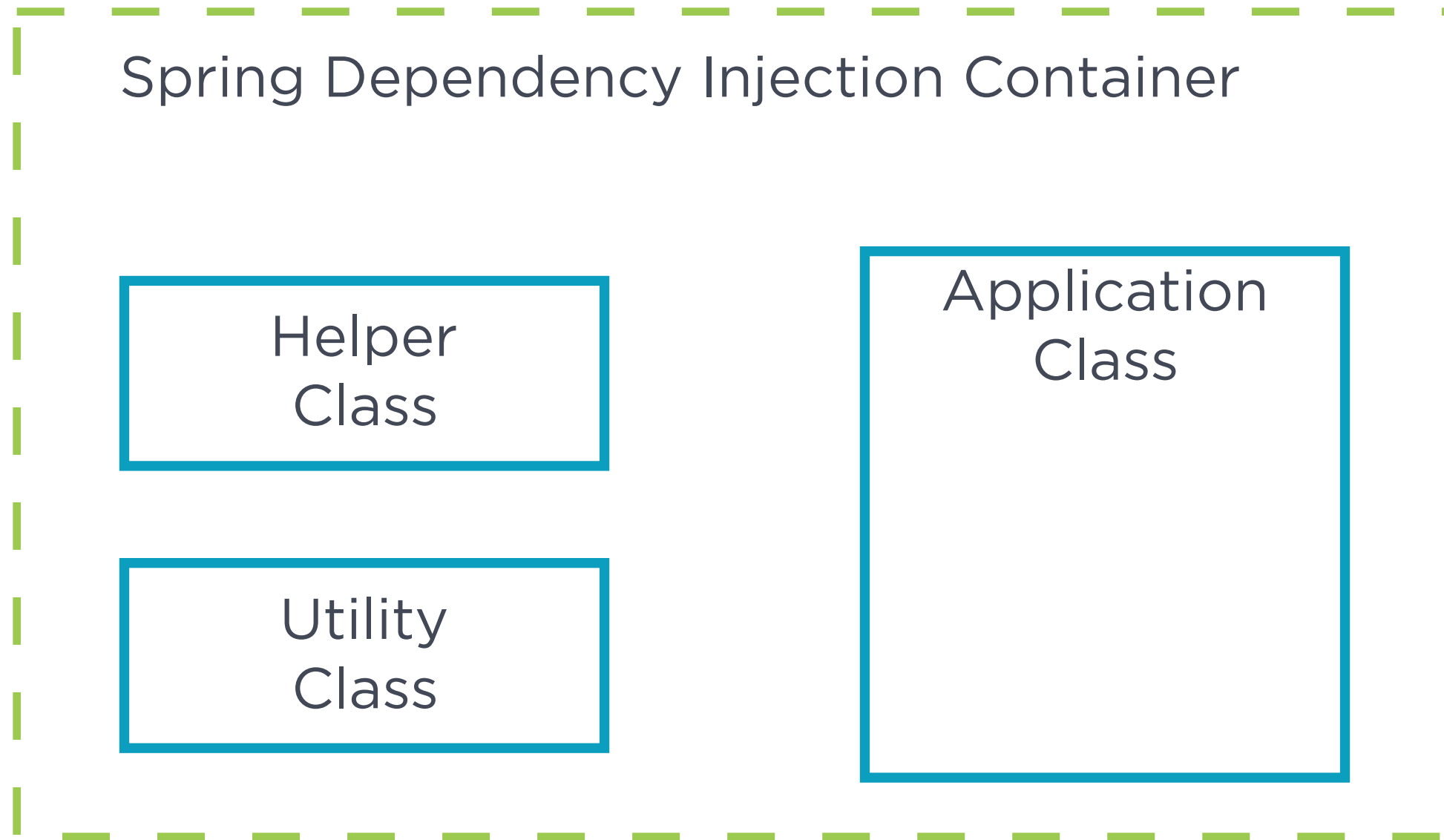# Dependency Injection

Helper Class

Utility Class

Application Class

Tight coupling

Single implementation

Hard to test in isolation

Dependency Injection

Spring Dependency Injection Container

Helper
Class

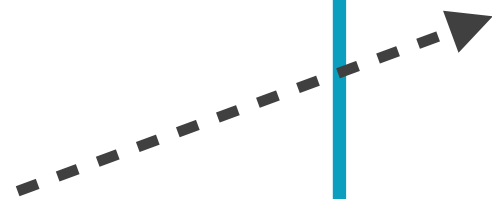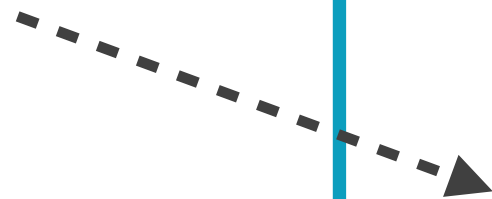Utility
Class

Application
Class

Dependency Injection

Spring Dependency Injection Container
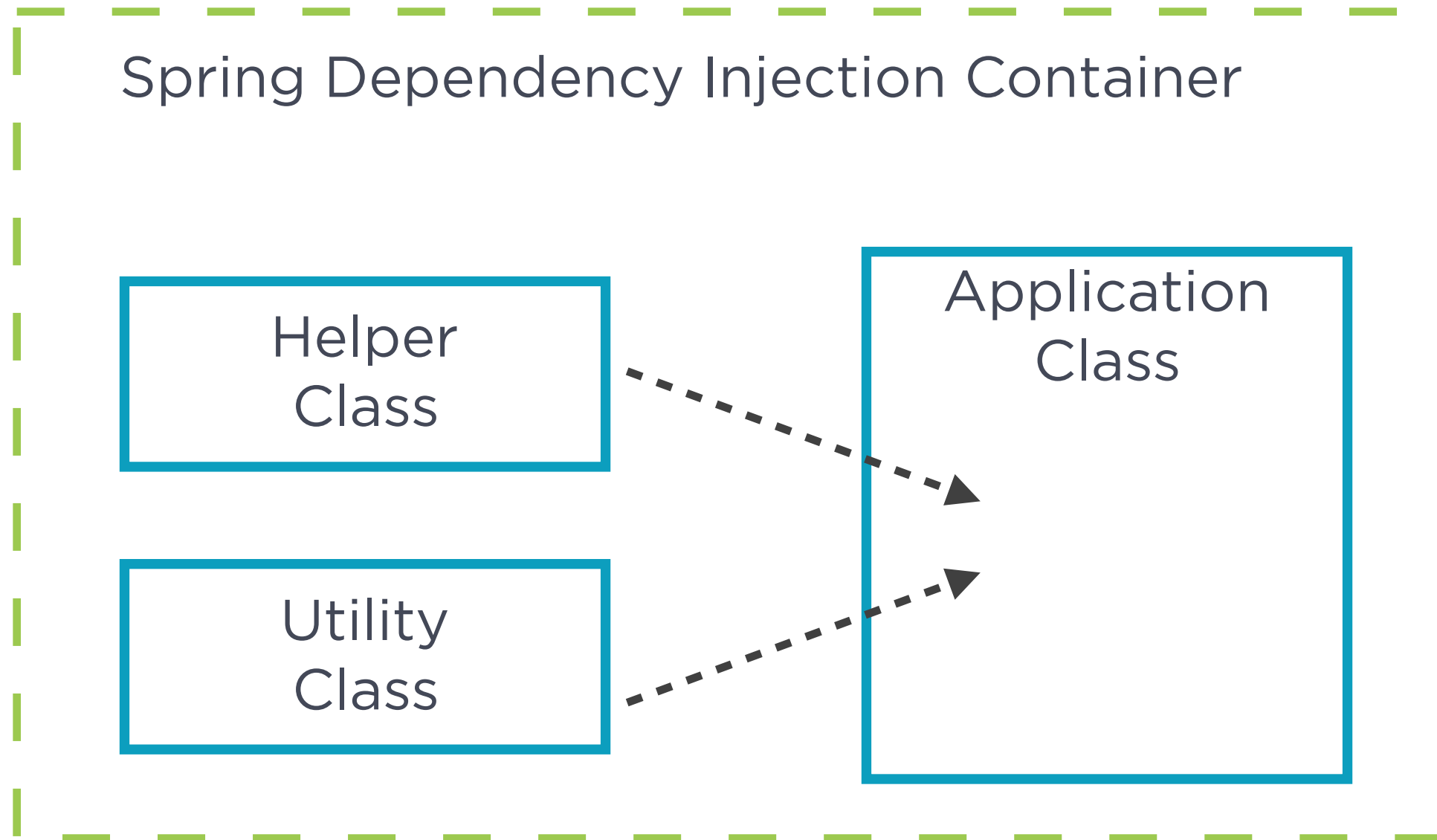
Helper Class

Utility Class

Application Class

Dependency Injection

Dependency Injection

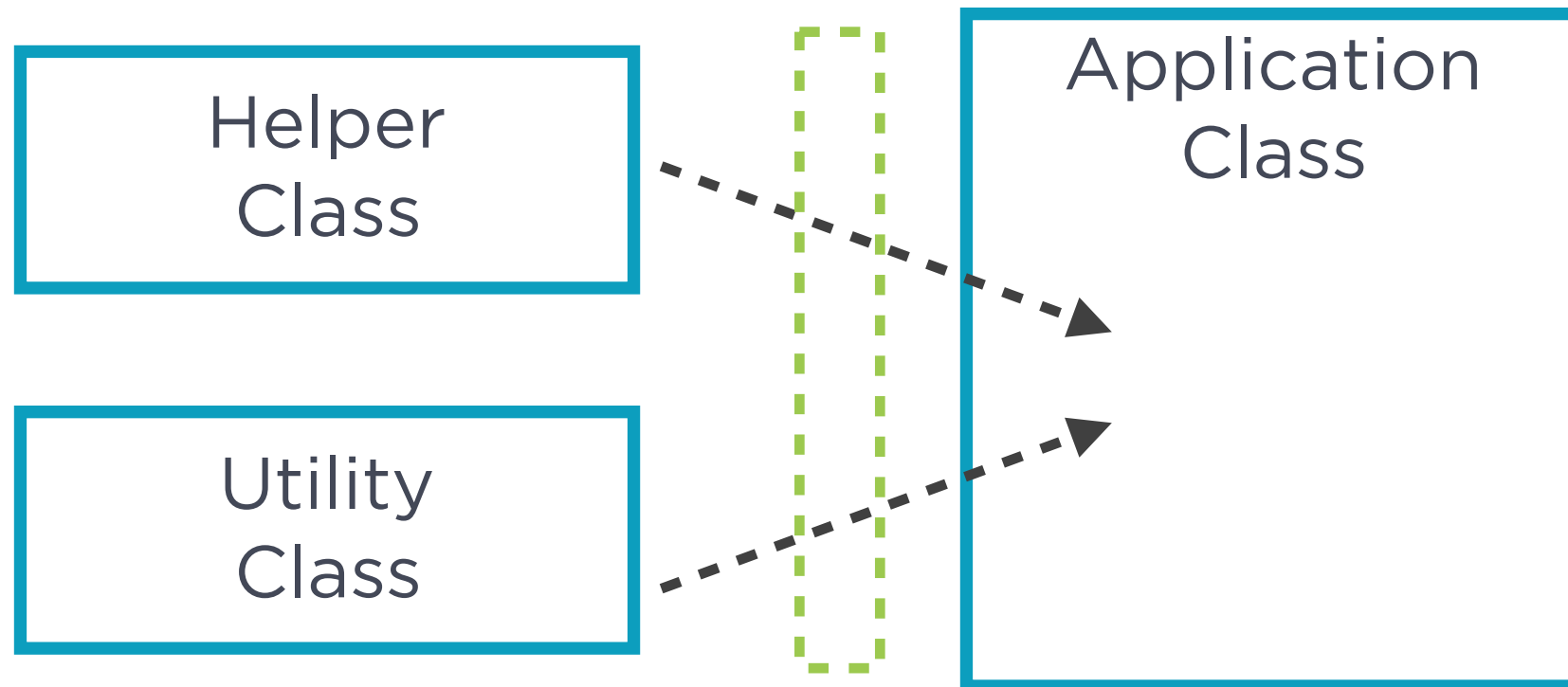Spring Dependency Injection Container

Helper Class

Utility Class

Application Class

Decoupling

Flexible composition

Dependency Injection

Spring Dependency Injection Container

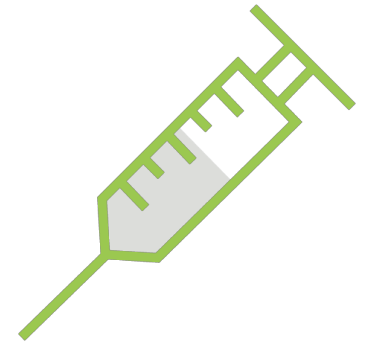| Helper Class | → | Application Class |

Utility Class

Decoupling

Flexible composition

Cross-cutting concerns

Spring Framework

Dependency Injection container

Spring Framework

Dependency Injection container

Integration with data-access technologies

Spring Framework

Dependency Injection container

Integration with data-access technologies

Integration with Java EE technologies

Spring Framework

Dependency Injection container

Integration with data-access technologies

Integration with Java EE technologies

Spring Web

Spring Framework

Dependency Injection container

Integration with data-access technologies

Integration with Java EE technologies
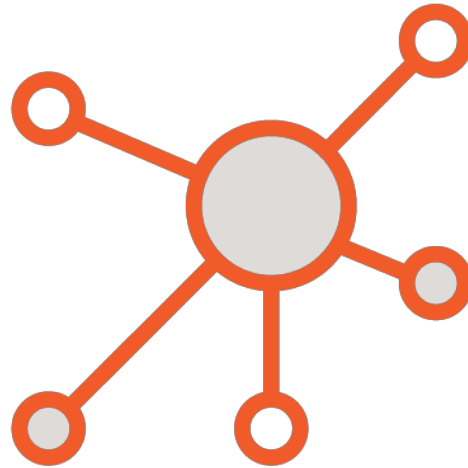
Spring WebFlux

Other Commonly Used Libraries

Other Commonly Used Libraries

Utility
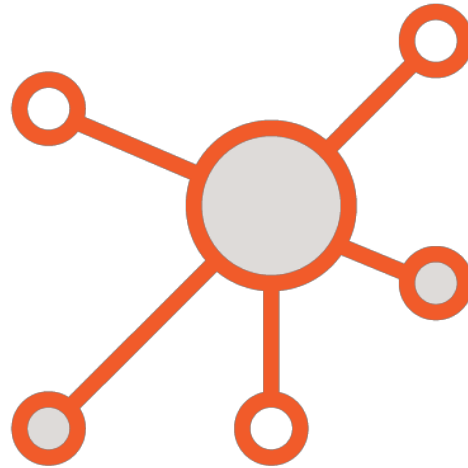
Other Commonly Used Libraries

Utility

Distributed systems

Other Commonly Used Libraries

Utility

Distributed systems

Data-access

Utility Libraries

Utility Libraries

Google Guava

Utility Libraries

Google Guava   Additional collections

Utility Libraries

Google Guava Additional collections
Caching

Utility Libraries

Google Guava Additional collections
Caching
IO helpers

Utility Libraries

Google Guava

Apache Commons

Utility Libraries

Google Guava

Apache Commons Collections

Utility Libraries

Google Guava

Apache Commons Collections

CSV

Utility Libraries

Google Guava

Apache Commons Collections
CSV
IO

Utility Libraries

Google Guava

Apache Commons Collections

CSV

IO

...

Utility Libraries

Google Guava

Apache Commons

Apache Log4J

Utility Libraries

Google Guava

Apache Commons

Apache Log4J Structured application logging

Distributed System Libraries
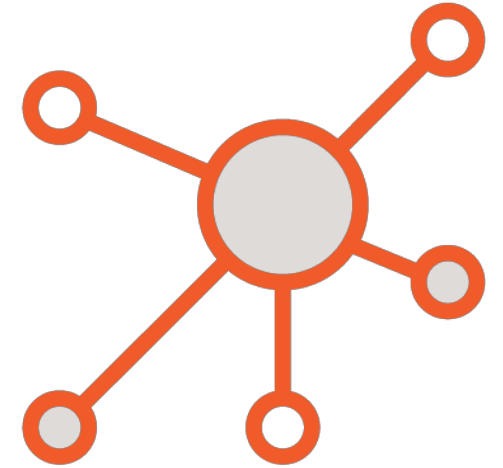
Distributed System Libraries
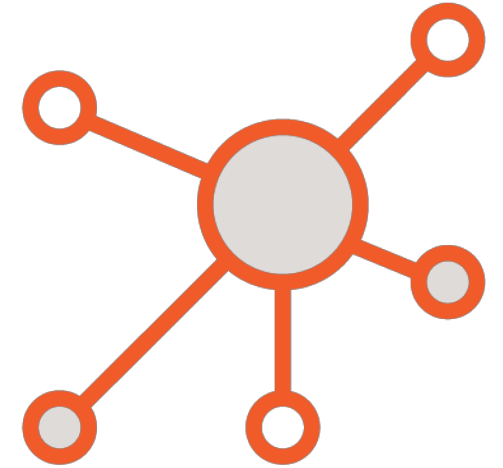
Netty

Distributed System Libraries

Netty   High-performance networking
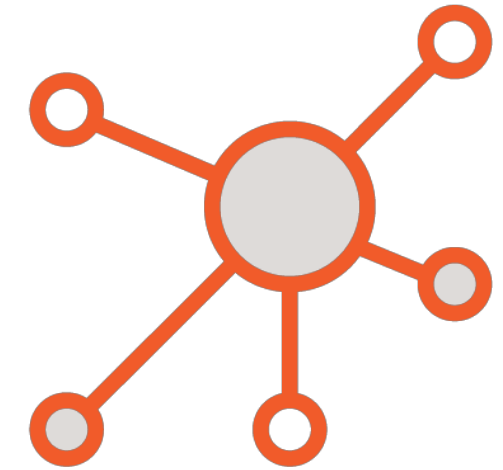
Distributed System Libraries
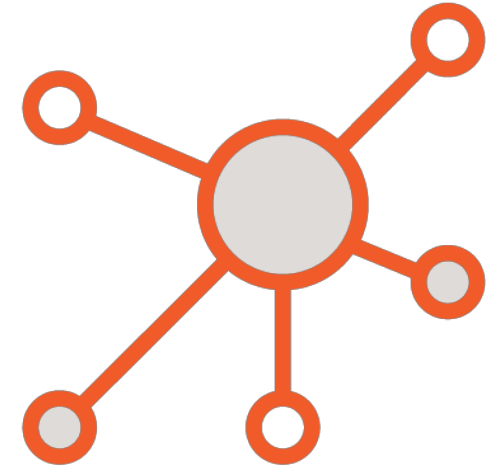
Netty

Akka

Distributed System Libraries

Netty

Akka   Actor model for concurrency
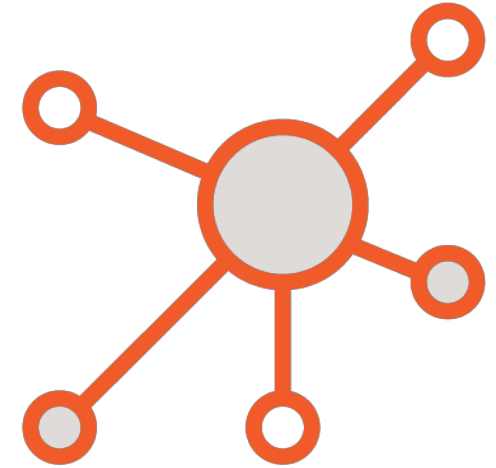
Distributed System Libraries

Netty

Akka

Actor model for concurrency
Clustering and distribution
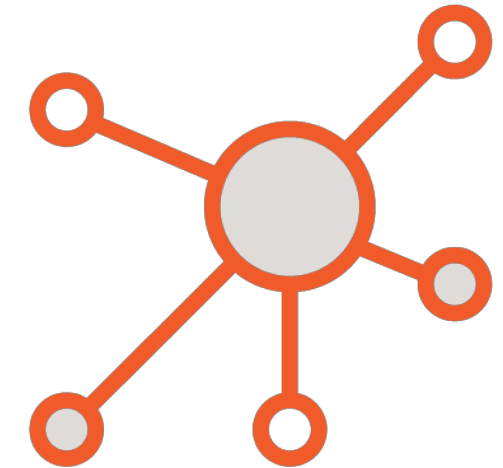
Distributed System Libraries
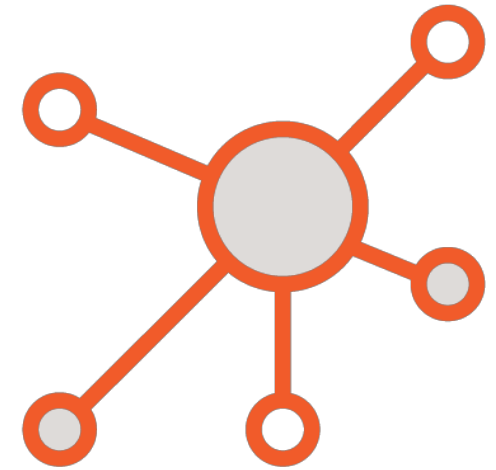
Netty

Akka

RxJava

Distributed System Libraries

Netty

Akka

RxJava   Reactive programming
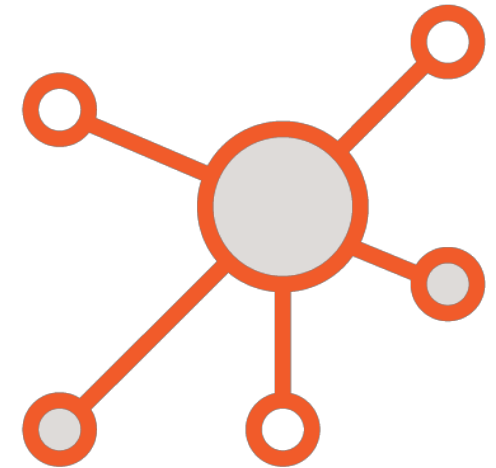
Distributed System Libraries

Netty

Akka

RxJava   Reactive programming
Async & event-based model
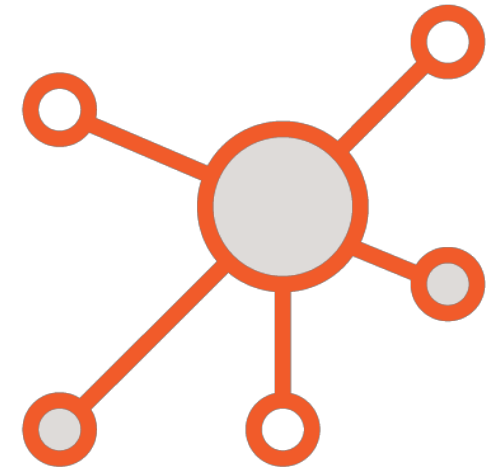
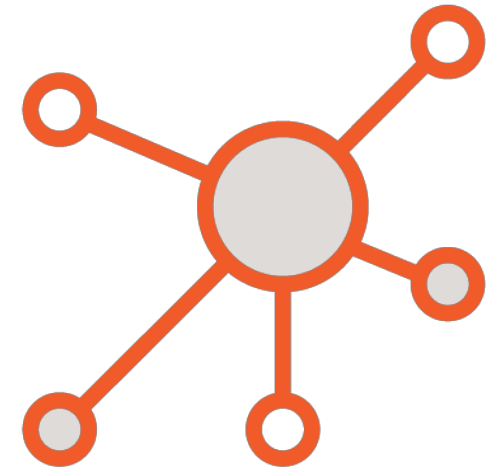# Distributed System Libraries
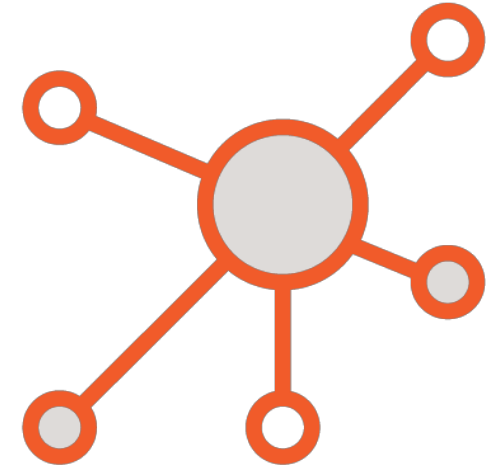
Netty

Akka

RxJava

Apache Camel

Distributed System Libraries

Netty

Akka

RxJava

Apache Camel Enterprise application integration

Distributed System Libraries

Netty

Akka

RxJava

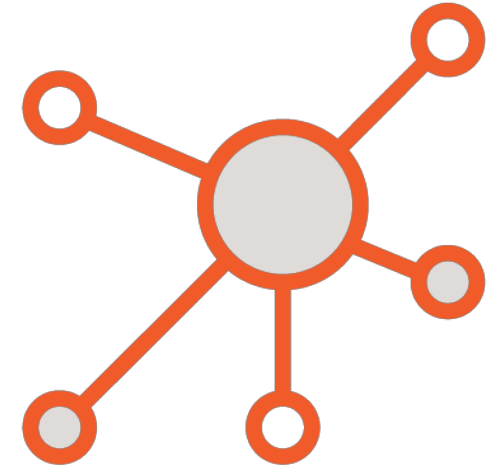Apache Camel Enterprise application integration
Many transports & connectors
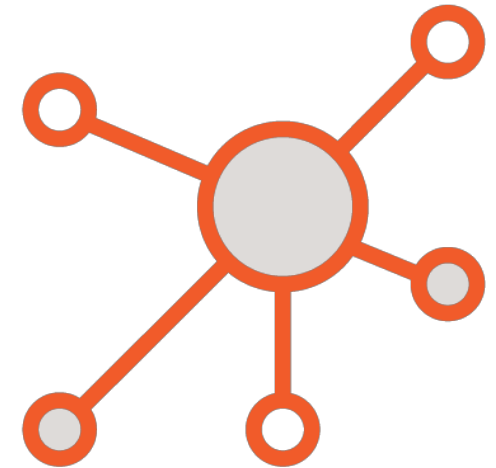
Distributed System Libraries

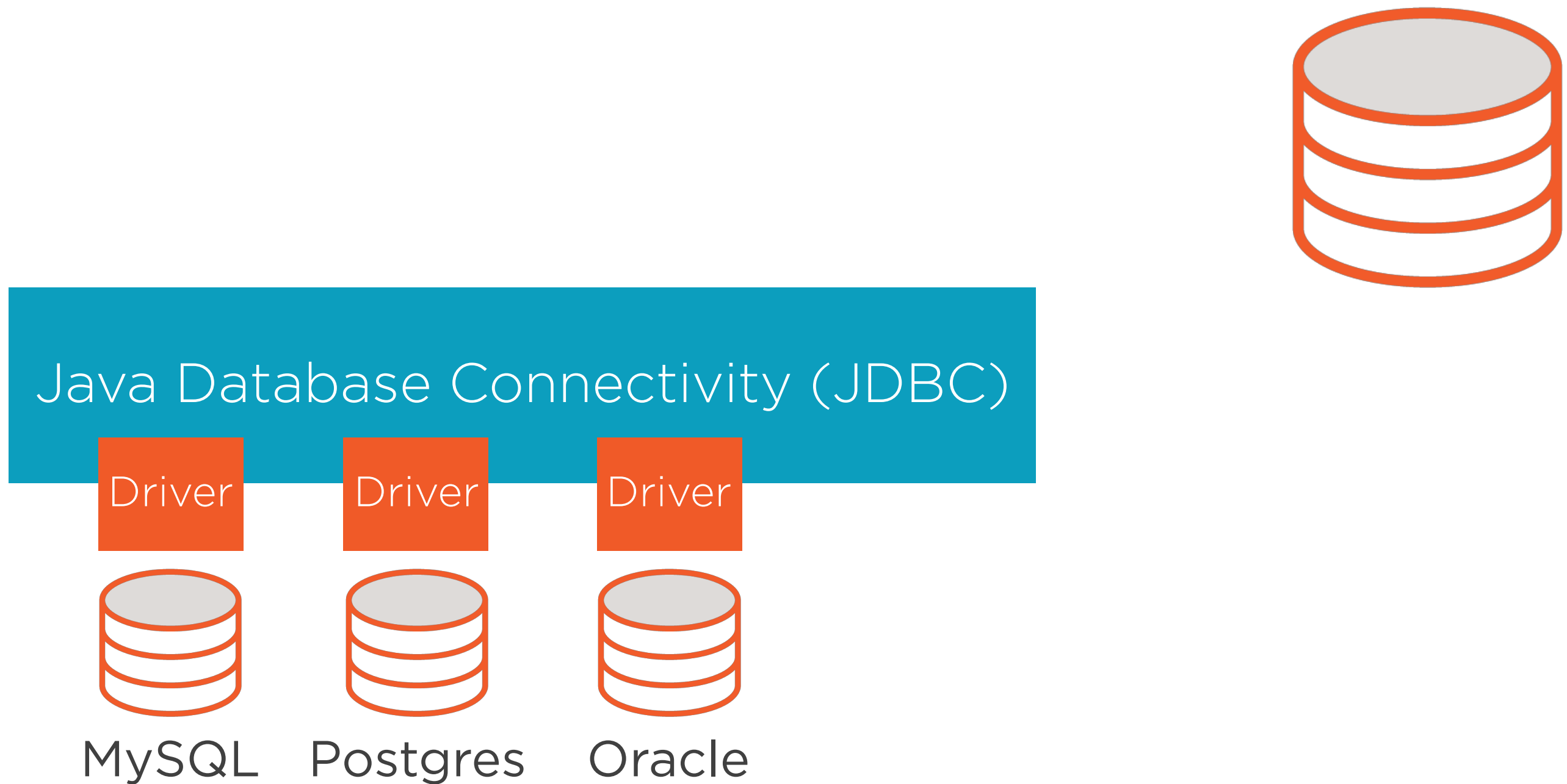Netty

Akka

RxJava

Apache Camel
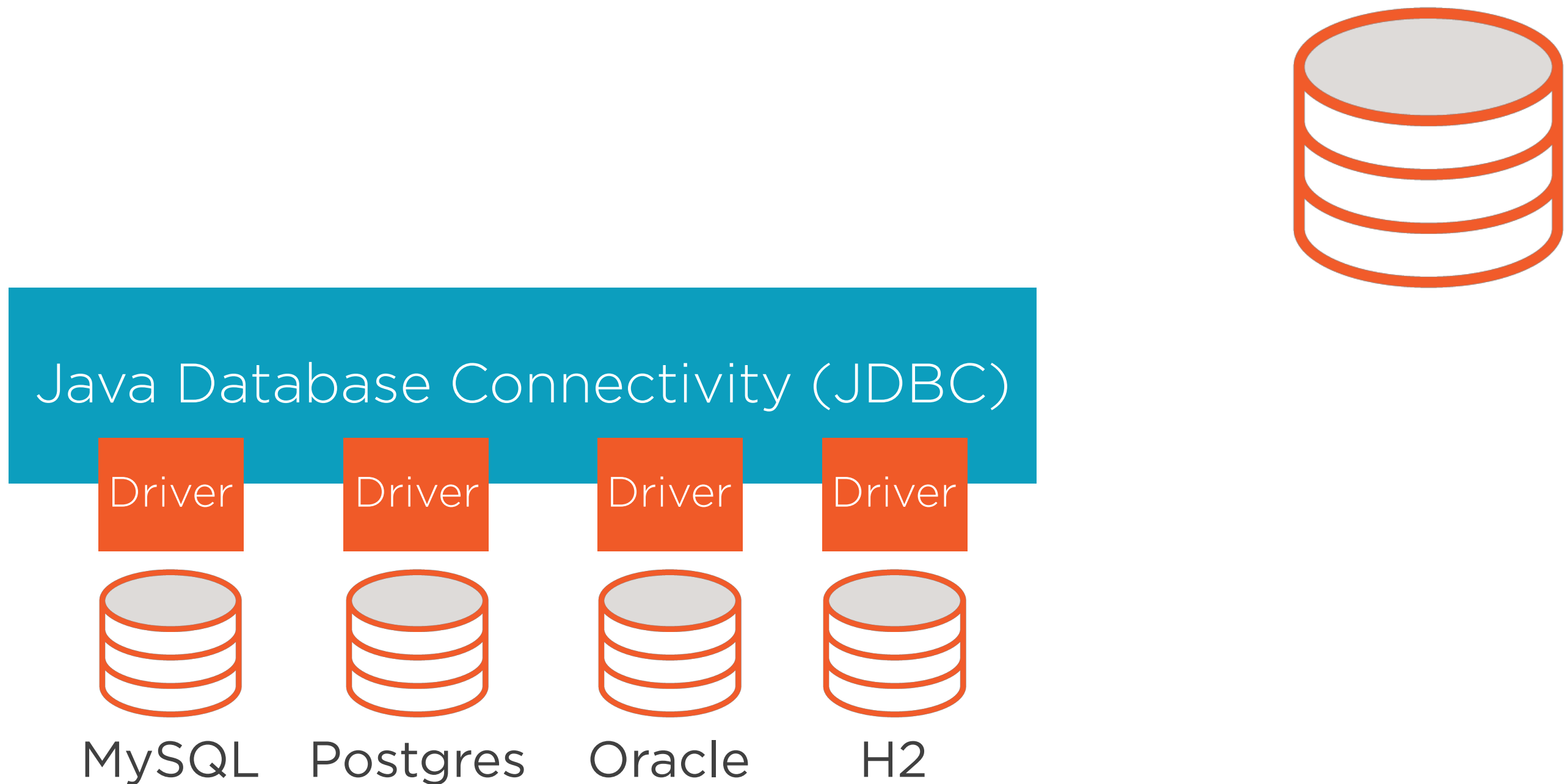
Data-access Libraries

Data-access Libraries

Java Database Connectivity (JDBC)
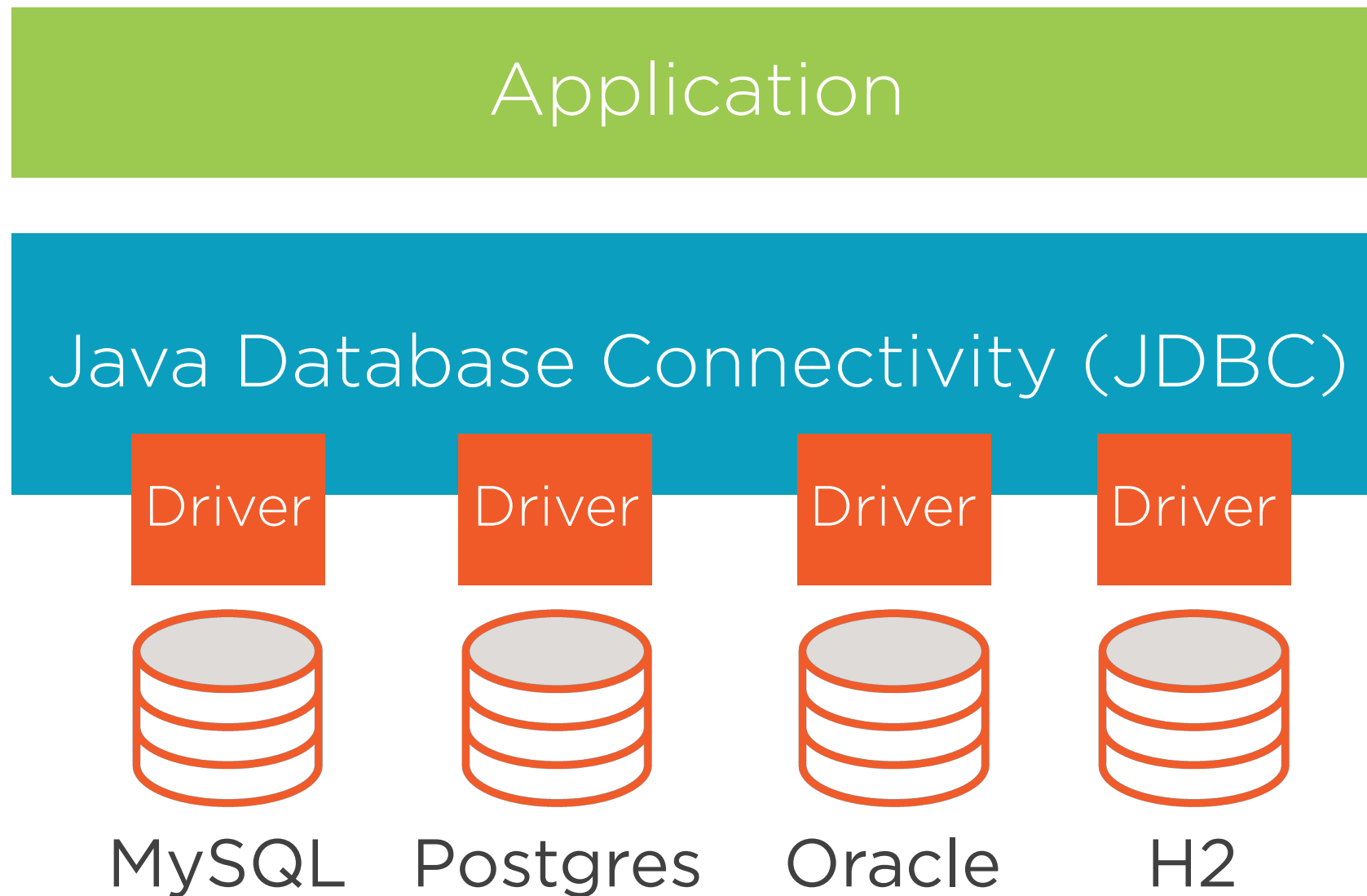
Data-access Libraries

Java Database Connectivity (JDBC)

Driver   Driver   Driver
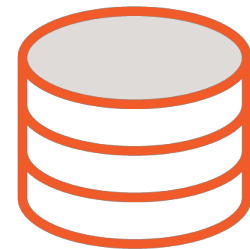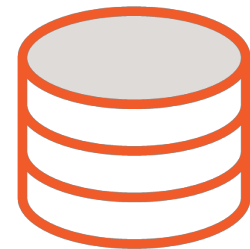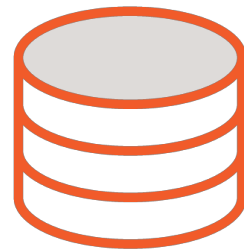
MySQL   Postgres   Oracle
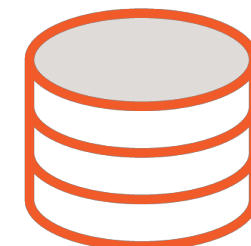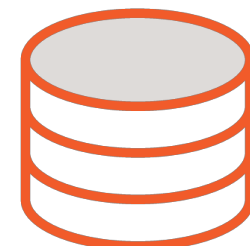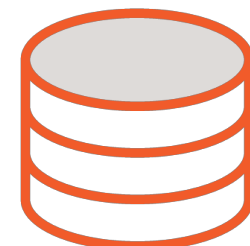
Data-access Libraries

Java Database Connectivity (JDBC)

Driver   Driver   Driver   Driver

MySQL   Postgres   Oracle   H2

Data-access Libraries

Data-access Libraries

Data-access Libraries

Application

ORMs:
Hibernate, EclipseLink

Java Database Connectivity (JDBC)
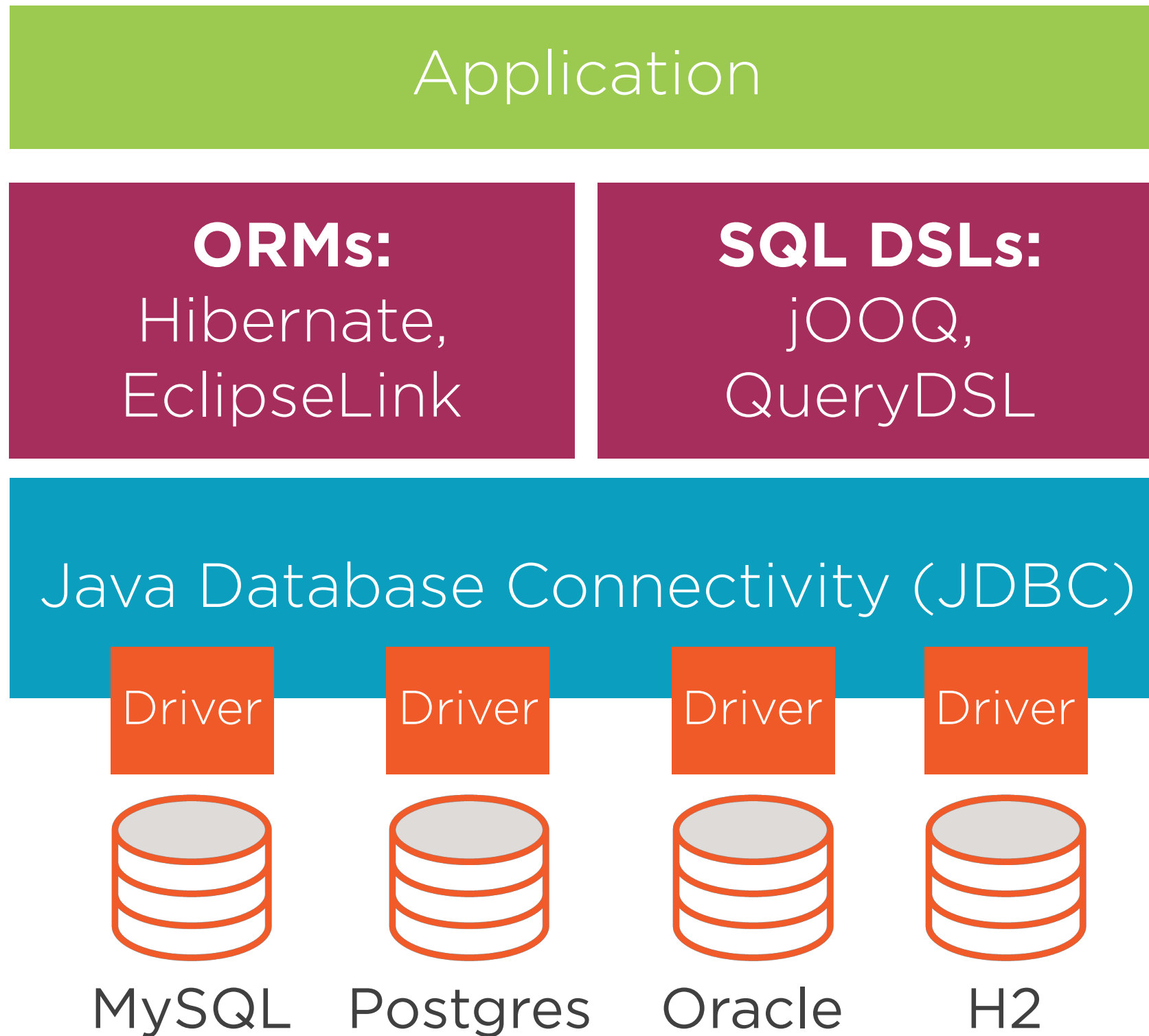
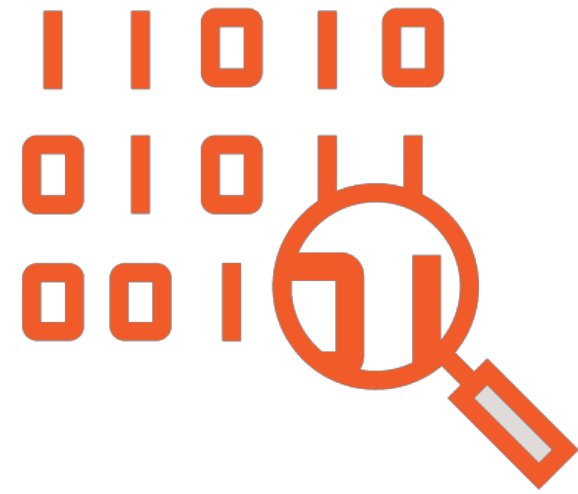Driver Driver Driver Driver

MySQL Postgres Oracle H2

Data-access Libraries

Application

| **ORMs:** Hibernate, EclipseLink | **SQL DSLs:** jOOQ, QueryDSL |

Java Database Connectivity (JDBC)

Driver   Driver   Driver   Driver

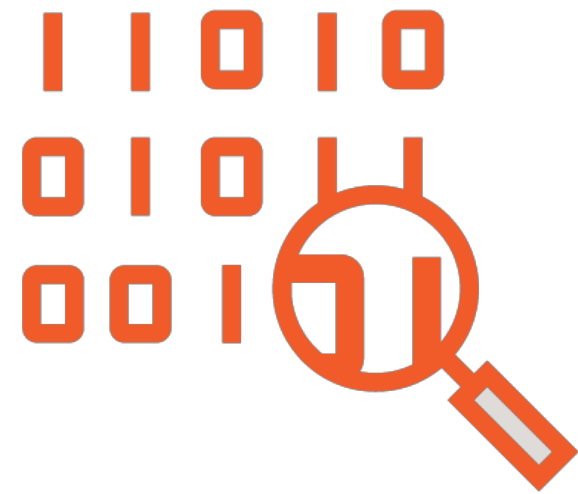MySQL   Postgres   Oracle   H2

Java-based Data Processing

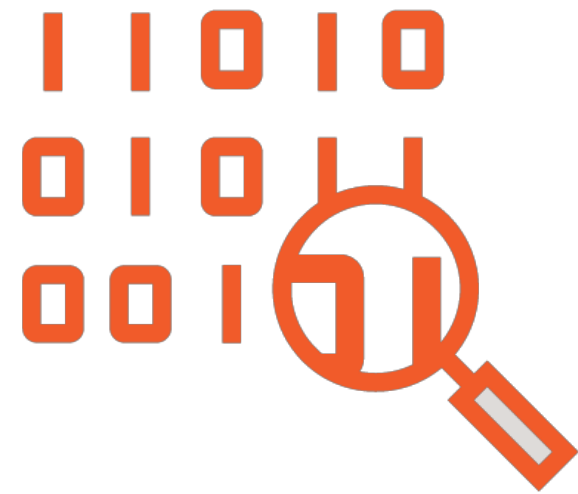# Java-based Data Processing

Big Data:
Processing

Java-based Data Processing

Big Data:
Processing

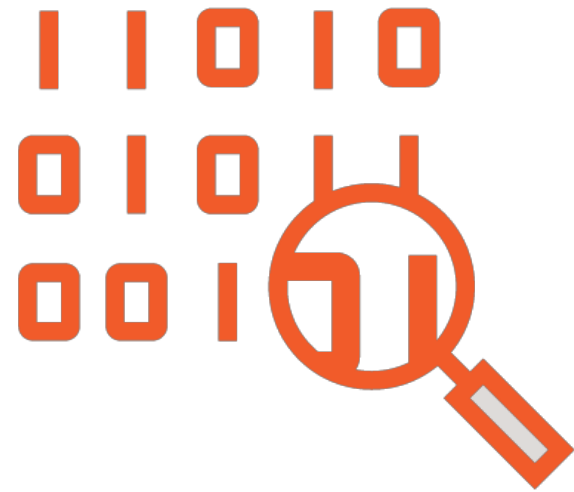**Apache Hadoop**

Java-based Data Processing

Big Data:
Processing

Apache Hadoop

Apache Spark

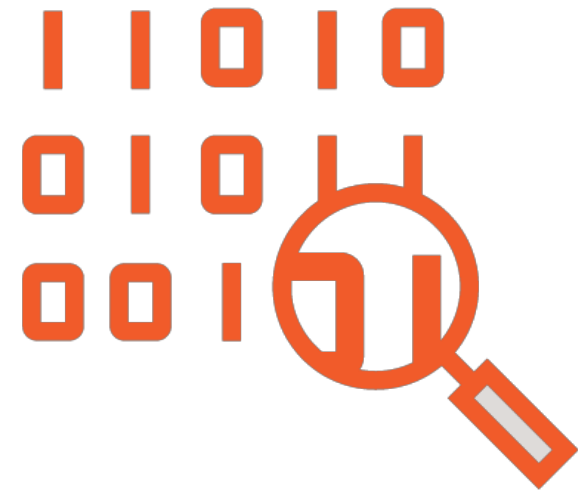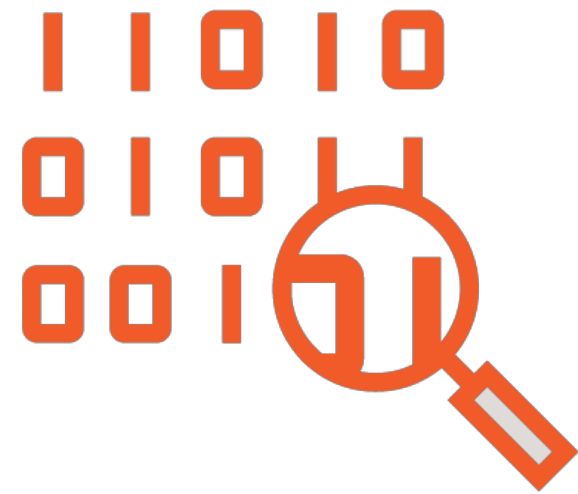# Java-based Data Processing

Big Data:
Processing

Apache Hadoop   **Apache Spark**

DL4J: Deep Learning for Java

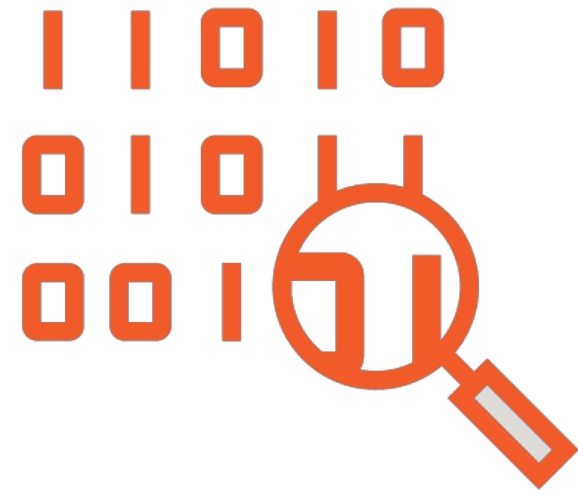# Java-based Data Processing

Big Data:
Storage

Java-based Data Processing

Big Data:
Storage

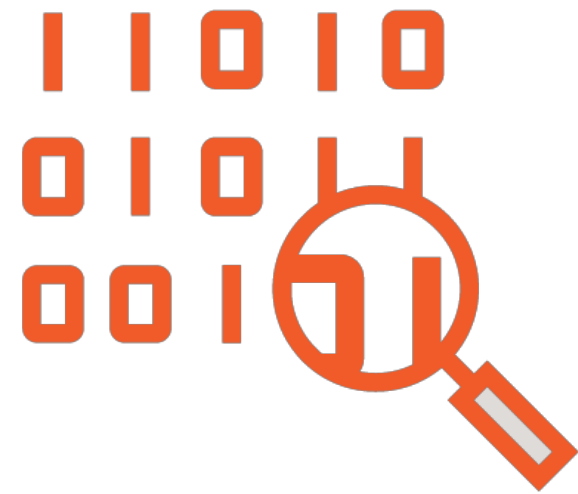**Cassandra**

Java-based Data Processing

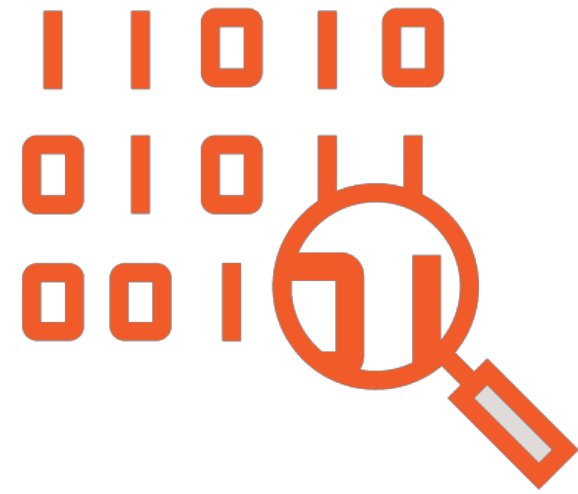Big Data:
Storage

Cassandra

Neo4J

Java-based Data Processing

Big Data:
Storage

Cassandra

Neo4J

ElasticSearch

Java-based Data Processing

Big Data:
Storage

Cassandra **Neo4J**

ElasticSearch

Hadoop Distributed File System (HDFS)

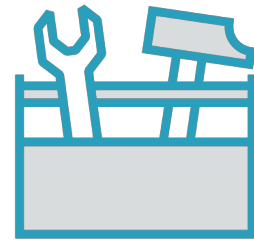# Summary

Summary

Summary

Spring: dependency injection
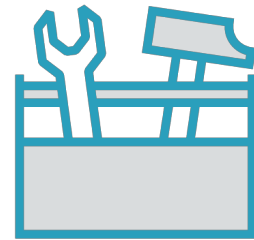
Summary

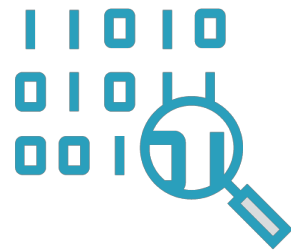Spring: dependency injection

Many popular libraries

Summary

Spring: dependency injection

Many popular libraries

Java-based data processing