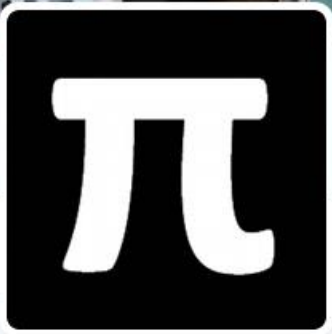


NoSQL Unit & Travis CI

Test Automation for NoSQL Databases

Tobias.Trelle@codecentric.de @tobiastrelle



Tobias Trelle

@tobiastrelle

Software Craftsman | Architect . Blogger
. Speaker . Author . Organizer of
@MongoDUS

codecentric AG, Solingen/DE

trelle.com

- Senior IT Consultant @ codecentric AG
- Java / JEE / EAI / RDBMS background
- Committer @ Spring Data MongoDB
- Organizer of MongoDB User Group Düsseldorf



ttrelle



@tobiastrelle

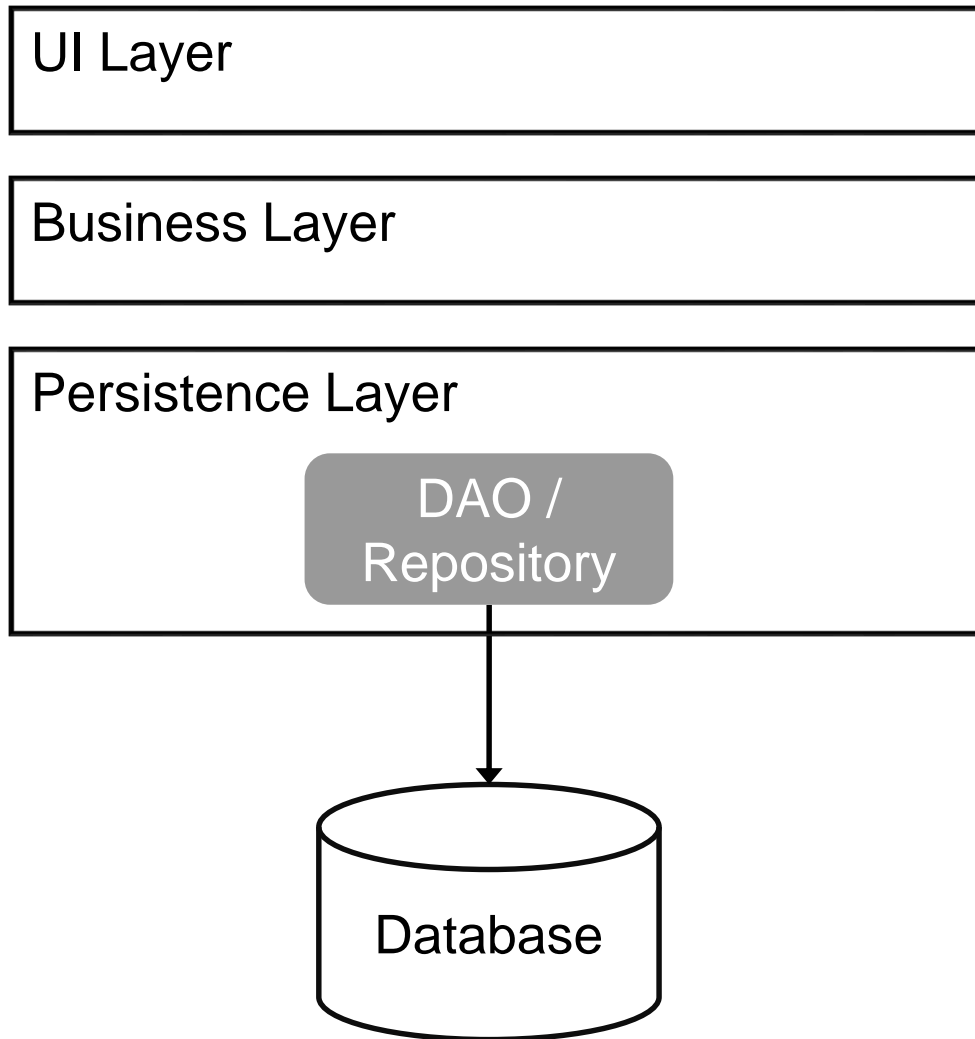


Agenda

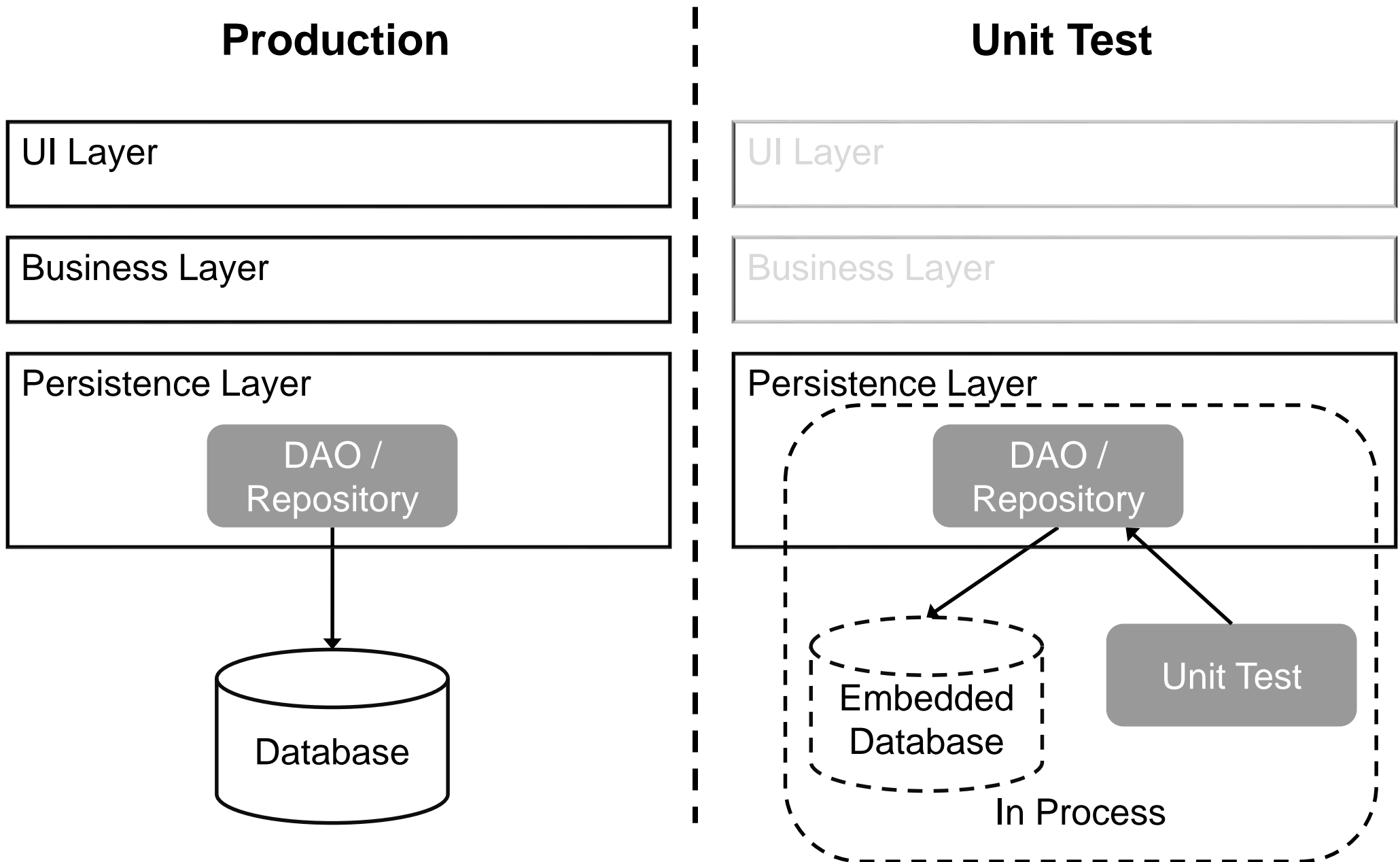
- Unit Testing
- NoSQL Unit
- Travis CI

Unit Testing Your Persistence Layer

Production



Unit Testing Your Persistence Layer



Unit tests should ...

- be fast
- run in isolation
- load test data
- compare data

NoSQL Unit

Github - <https://github.com/lordofthejars/nosql-unit>

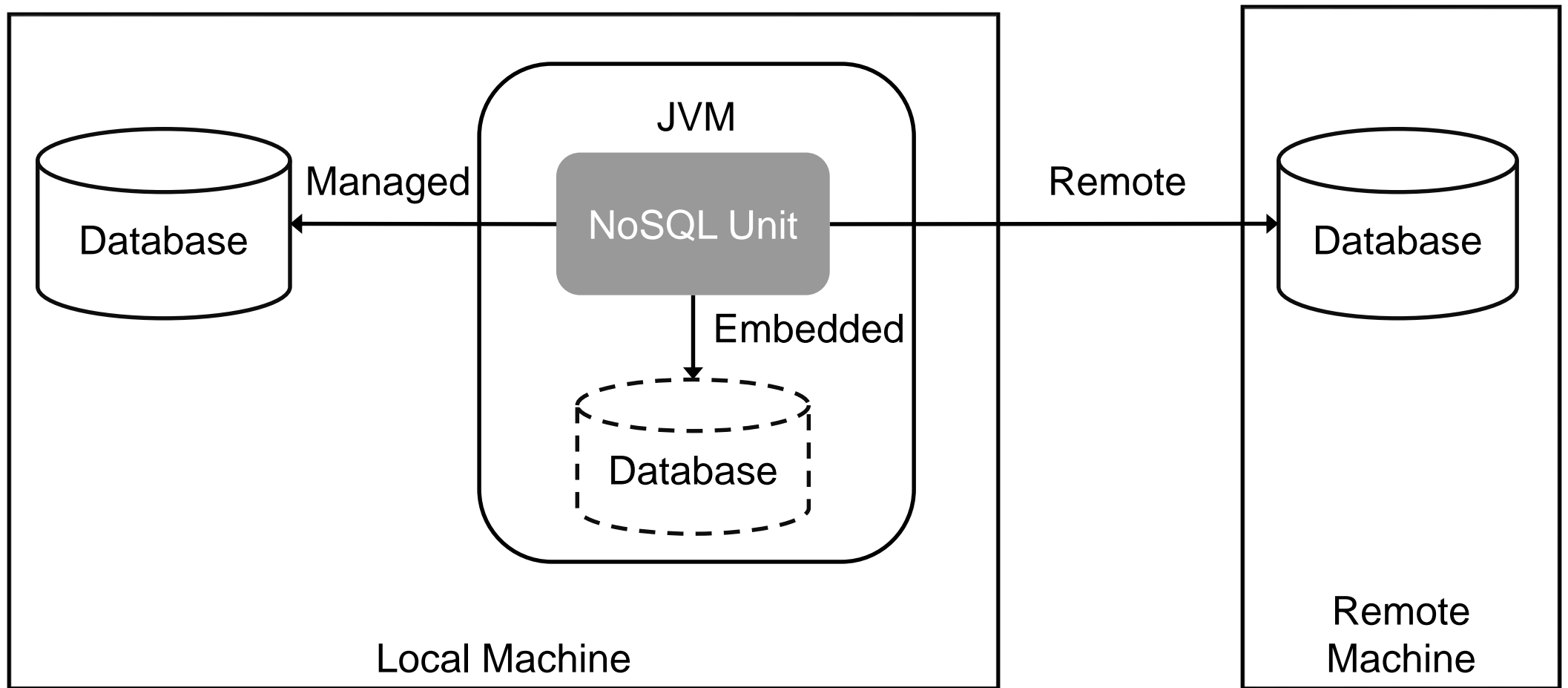
Benefits

- Database Lifecycle Management
- Connection Management
- Load Test Data
- Compare Data

How does it work?

- JUnit Extension
- JUnit Rules
- Annotations

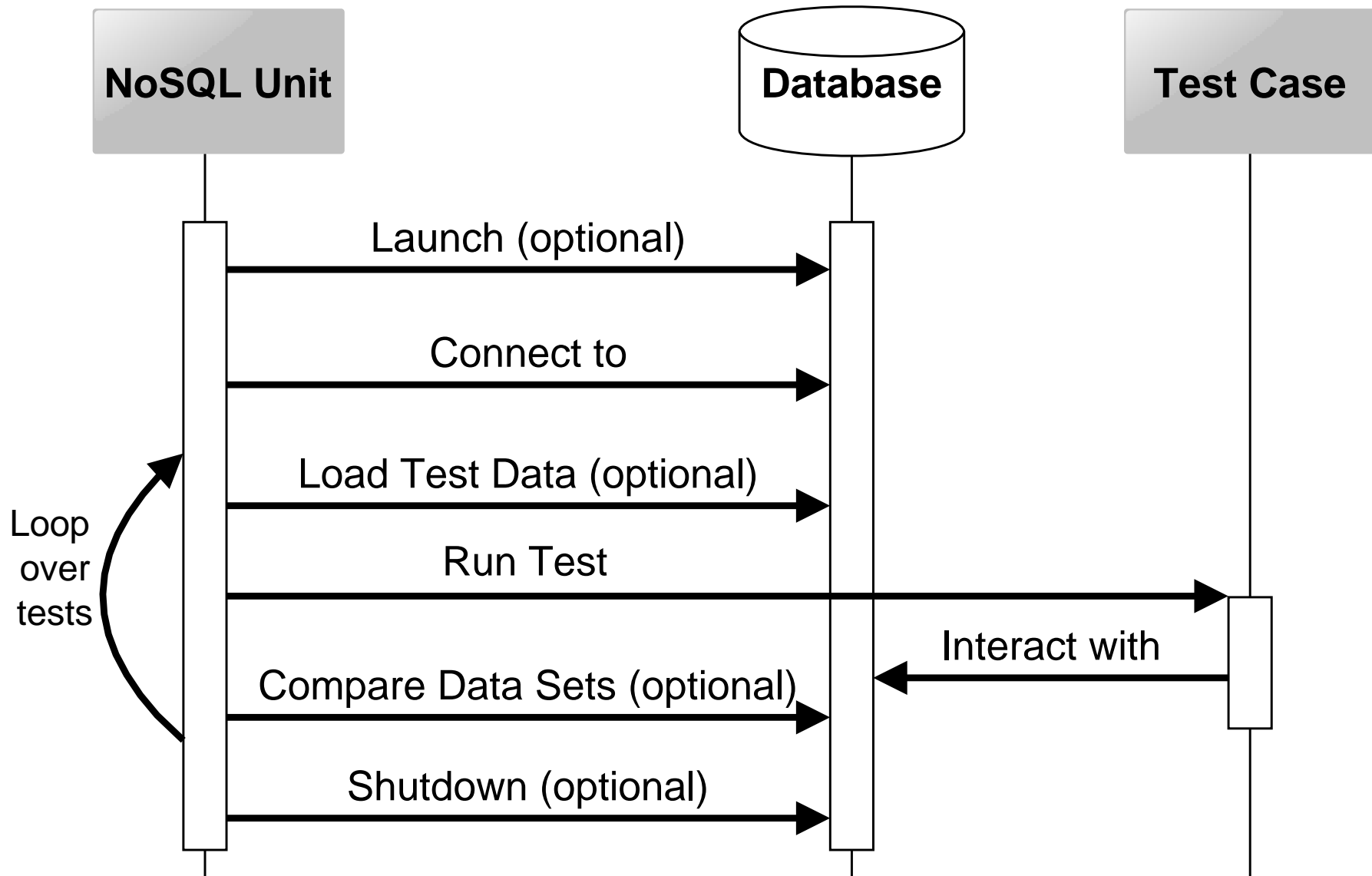
NoSQL Unit > Database Management Options



NoSQL Unit > Supported Databases

Database	Type	Impl Language	Embedded	Managed / Remote
Cassandra	Column	Java	✓	✓
CouchDB	Document	Erlang	---	✓
Elasticsearch	Document	Java	✓	✓
HBase	Column	Java	✓	✓
Infinispan	In Memory	Java	✓	✓
MongoDB	Document	C++	fongo Mock	✓
Neo4j	Graph	Java	✓	✓
Redis	Key/Value	C/C++	NoSQL Unit Mock	✓

NoSQL Unit > Lifecycle



NoSQL Unit > Redis Example

Create embedded instance
once for all tests

```
public class EmbeddedRedisTest {
```

```
@ClassRule
```

```
public static EmbeddedRedis embeddedRedis = newEmbeddedRedisRule().build();
```

```
@Rule
```

```
public RedisRule redisRule = newRedisRule().defaultEmbeddedRedis();
```

```
/** Unit under test. */
```

```
private KeyValueRepository repository;
```

Get connection once per test

```
@Test
```

```
@UsingDataSet( loadStrategy = LoadStrategyEnum.DELETE_ALL )
```

```
@ShouldMatchDataSet( location="keyvalue.json" )
```

```
public void should_insert_string() {
```

```
    // given
```

```
    KeyValueRepository repo = new KeyValueRepository( getJedisInstance() );
```

```
    // when
```

```
    repo.setValue("hello", "redis");
```

```
    // then: should match data
```

```
}
```

```
}
```

Prepare
data

Compare given and
expected data after test

```
{  
  "data": [  
    {"simple": [  
      { "key": "hello", "value": "redis"}  
    ]  
    }  
  ]  
}
```

NoSQL Unit > MongoDB Example

```
public class RemoteMongoDBTest {

    @Rule // use already running "remote" instance
    public MongoDBRule mongoRule = new MongoDBRule(
        mongoDb().databaseName("test").host("localhost").port(27017) .build()
    );

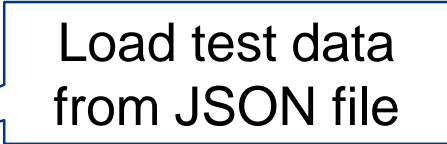
    /** Unit under test. */
    private OrderRepository repository;

    @Test
    @UsingDataSet(locations = "orders.json", loadStrategy =
        LoadStrategyEnum.CLEAN_INSERT)

    public void should_find_all_orders() {
        // given
        repository = createOrderRepository();

        // when
        List<DBObject> orders = repository.findAll();

        // then
        assertThat(orders, notNullValue());
        assertThat(orders.size(), is(2));
    }
}
```



Load test data from JSON file

```
{
  "orders": [
    {
      "type": 4711,
      "desc": "1st order"
    },
    {
      "type": 42,
      "desc": "2nd order"
    }
  ]
}
```


NoSQL Unit MongoDB supports

- Replica Sets
- Sharded Environments
- Sharded Env. + Replica Sets

...in managed mode.

Travis CI

<http://www.travis-ci.org>

Free Continuous Integration Platform:

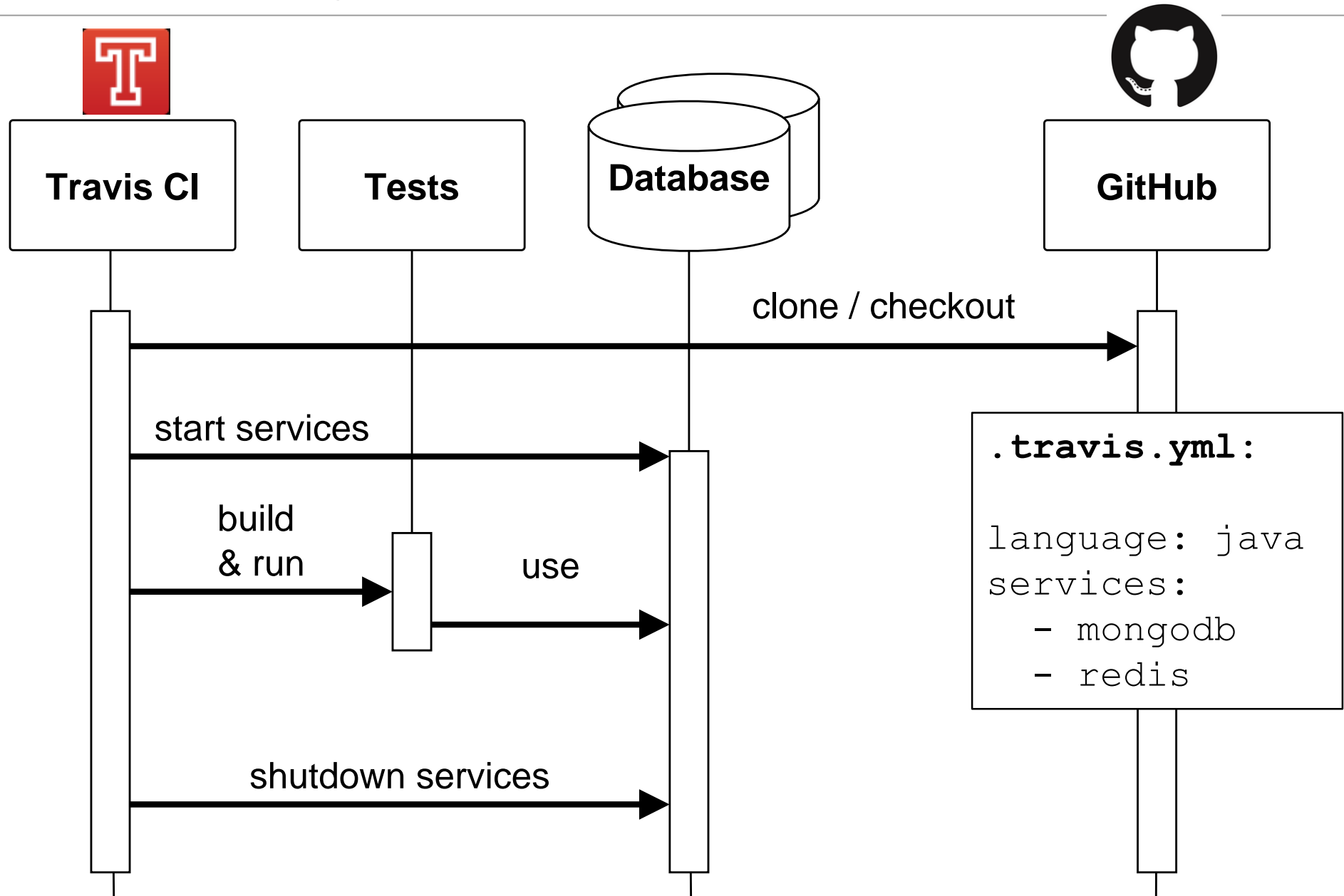
Lanugages:

- C/C++
- Closure
- Erlang
- Go
- Groovy
- Java
- JavaScript / Node.js
- Objective-C
- Ruby
- Scala
- ...

Services:

- MySQL
- PostgreSQL
- MongoDB
- CouchDB
- Redis
- Riak
- RabbitMQ
- Memcached
- Cassandra
- Neo4j
- ...

Travis CI > Lifecycle



Travis CI > Demo

GitHub navigation bar with repository name 'ttrelle / spring-data-examples', search bar, and navigation links (Explore, Gist, Blog, Help).

PUBLIC ttrelle / **spring-data-examples**

Unwatch 5 | Star 36 | Fork

Examples for using Spring Data for JPA, MongoDB, Neo4j, Redis — Edit

68 commits | 1 branch | 0 releases | 1 contributor


branch: master | **spring-data-examples** / +

added missing jackson libs		
ttrelle	authored 2 months ago	latest commit 0882cdf366
springdata-jpa	Added link to the latest blog post on MongoDB GridFS	2 years ago
springdata-mongodb	removed nested travis config	2 months ago
springdata-neo4j	Use current versions of Spring FW & Neo4j API	10 months ago
springdata-redis	added missing jackson libs	2 months ago
.travis.yml	fixed syntax err	2 months ago
README.md	added build status	2 months ago
pom.xml	added redis module	2 months ago

- Code
- Issues
- Pull Reques
- Wiki
- Pulse
- Graphs
- Network
- Settings

HTTPS clone URL
`https://github`
You can clone with `h` or Subversion.

Travis CI > Demo

 branch: **master** ▾

spring-data-examples / **.travis.yml**



ttrele 2 months ago fixed syntax err

1 contributor

 file | 5 lines (4 sloc) | 0.048 kb

```
1 language: java
2 services:
3   - mongodb
4   - redis
```

Travis CI > Demo

The screenshot displays the Travis CI web interface. On the left sidebar, there is a search bar and a list of repositories. The repository 'ttrelle/spring-data-examples' is highlighted. The main content area shows the build details for this repository, including a table of build information and a terminal log snippet.

ttrelle/spring-data-examples build passing

Examples for using Spring Data for JPA, MongoDB, Neo4j, Redis

Build	State	Finished	Duration	Message	Commit	Compare	Author
12	Passed	about a month ago	1 min 33 sec	added missing jackson libs	0882cdf (master)	52a54cd5fda6...0882cdf3663c	ttrelle

```
1 Using worker: worker-linux-7-2.bb.travis-ci.org:travis-linux-16
2
3 $ git clone --depth=50 --branch=master git://github.com/ttrelle/spring-
10 $ cd ttrelle/spring-data-examples
11 $ git checkout 0882cdf3663cbf5023aaa39b7b100c55e2bed17
12 $ sudo service mongodb start
13 * Starting database mongodb      $ sudo service redis-server start
14 redis-server start/running, process 1337
15 $ sleep 3
16 $ java -version
17 java version "1.7.0_45"
18 Java(TM) SE Runtime Environment (build 1.7.0_45-b18)
19 Java HotSpot(TM) 64-Bit Server VM (build 24.45-b08, mixed mode)
20 $ javac -version
21 javac 1.7.0_45
22 $ mvn install -DskipTests=true -B -V
686 $ mvn test -B
```

Online Resources

NoSQL Unit

<https://github.com/lordofthejars/nosql-unit>

Travis CI

<https://travis-ci.org/>

NoSQL Unit Examples

<https://github.com/ttrelle/nosqlunit-examples>

QUESTIONS?

Tobias Trelle

codecentric AG
Merscheider Str. 1
42699 Solingen

tel +49 (0) 212.233628.47
fax +49 (0) 212.233628.79
mail Tobias.Trelle@codecentric.de
twitter @tobiastrelle

www.codecentric.de
blog.codecentric.de/en/author/tobias-trelle
www.xing.com/net/mongodb-dus

