Orientation in Objects

Continuous Database Design

Entwicklertag Karlsruhe
Mai 2017

Orientation in Objects GmbH

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Version: 2.0

Ihr Sprecher

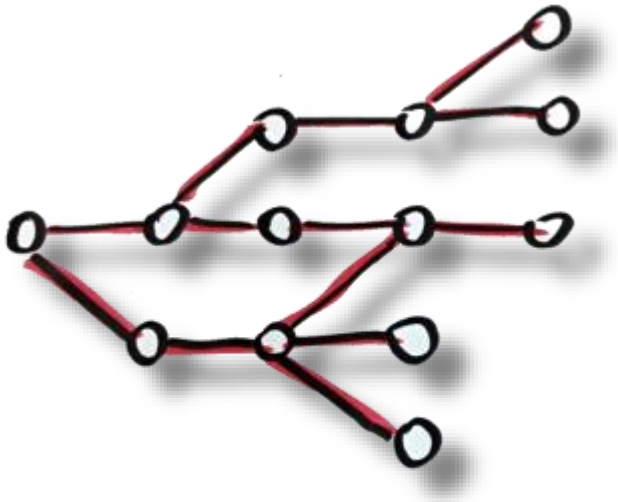
Orientation in Objects

Thorsten Maier

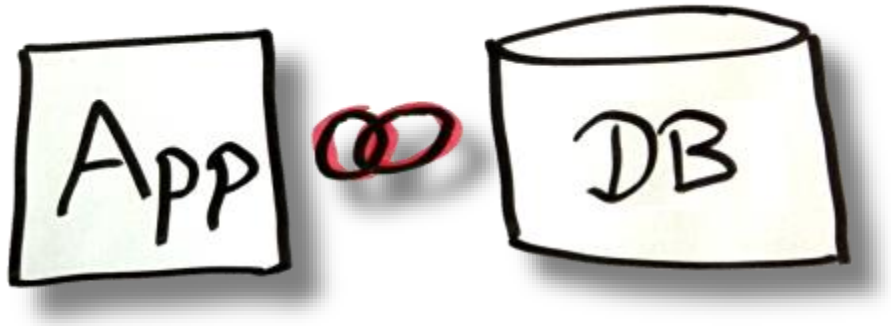
Trainer, Berater, Entwickler

@ThorstenMaier

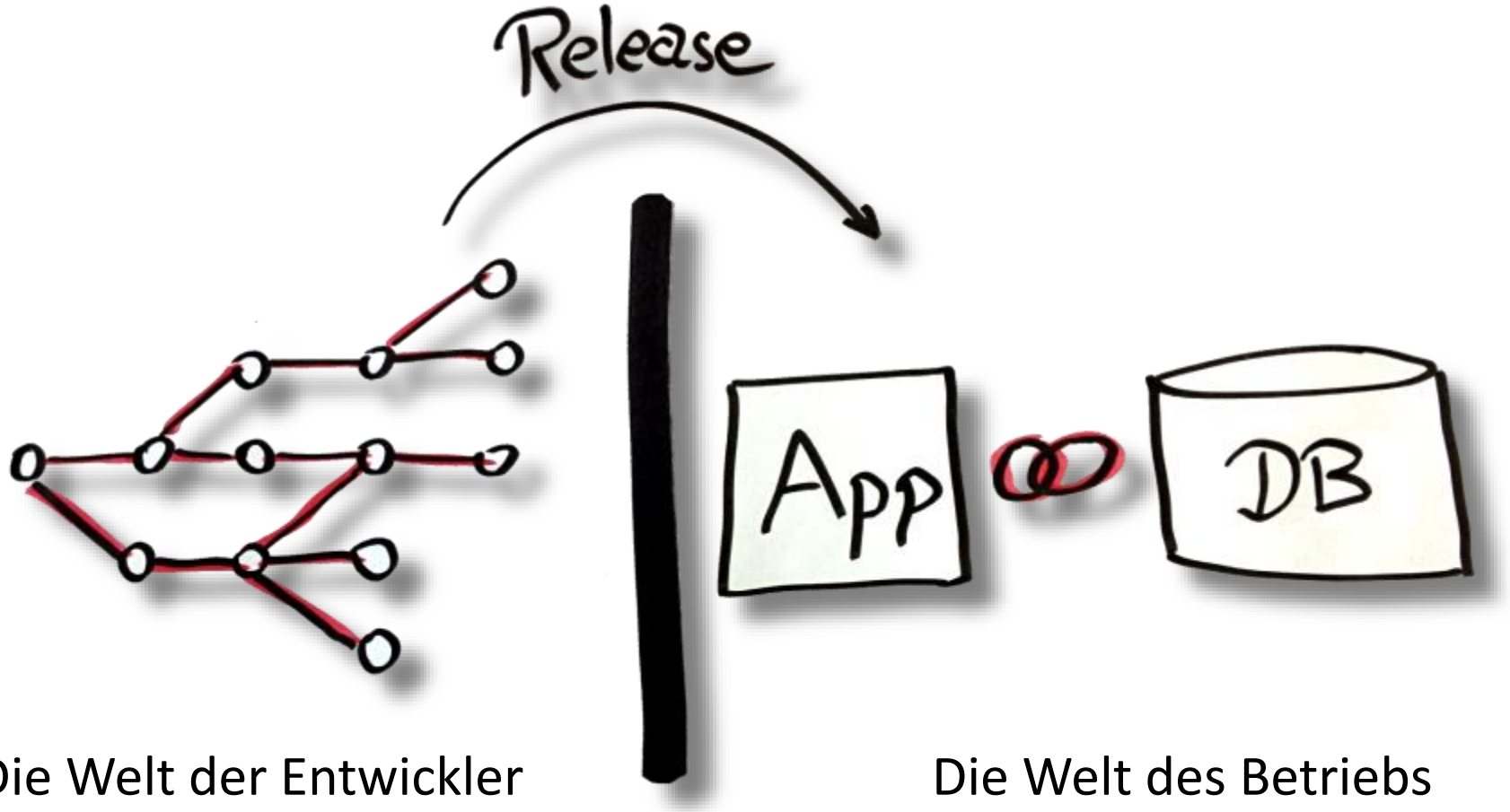
Orientation in Objects



Die Welt der Entwickler



Die Welt des Betriebs



Die Welt der Entwickler

Die Welt des Betriebs

Continuous Delivery

Orientation in Objects

Wann Continuous Delivery?

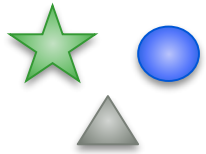
Schnelle Reaktion auf Anforderungsänderungen

Orientation in Objects

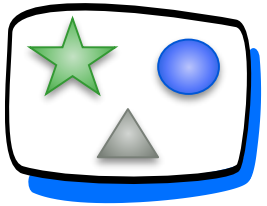
Was brauchen wir dazu?

Automatisierung

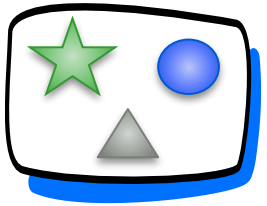
Modularisierung



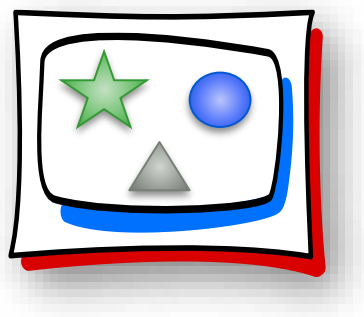
3 Bausteine



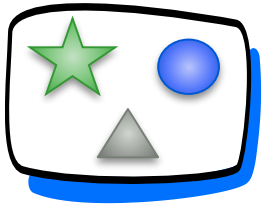
Anwendung mit 3 Bausteinen



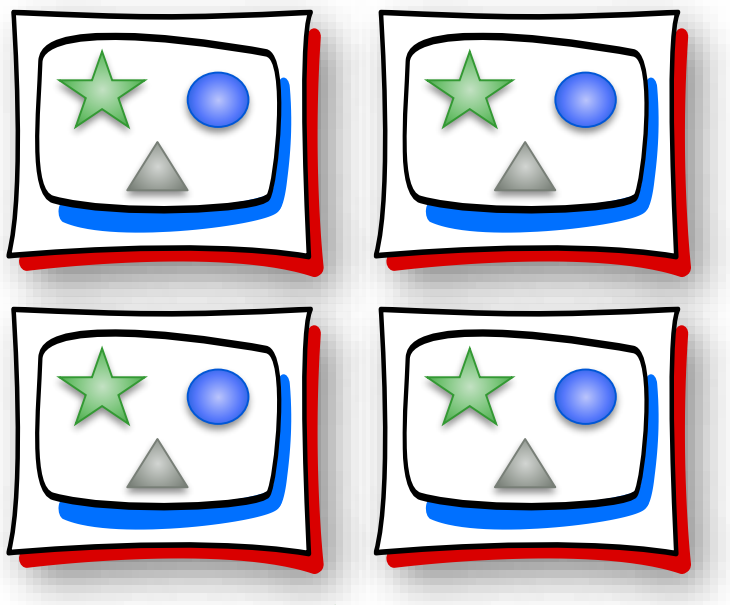
Anwendung mit 3 Bausteinen



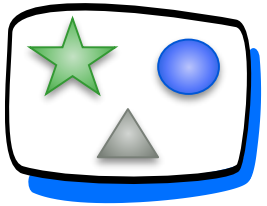
Deployment auf einem Server



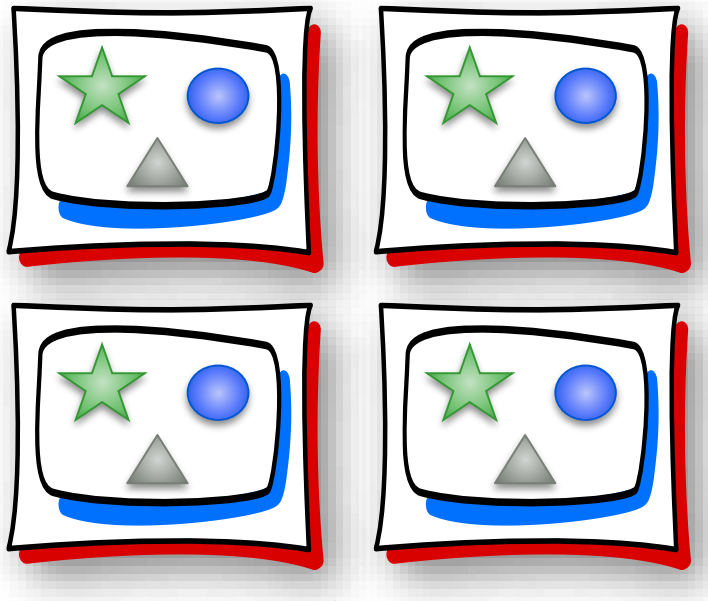
Anwendung mit 3 Bausteinen



Baustein wird 4 mal benötigt



Anwendung mit 3 Bausteinen

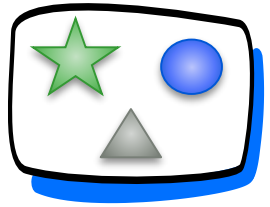


Baustein ★ wird 4 mal benötigt

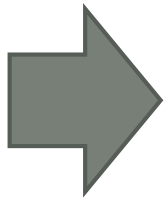
Nachteile

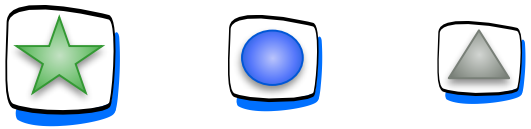
● **wird nur 2 mal benötigt**

Änderung an ● erfordert Reploy von ★

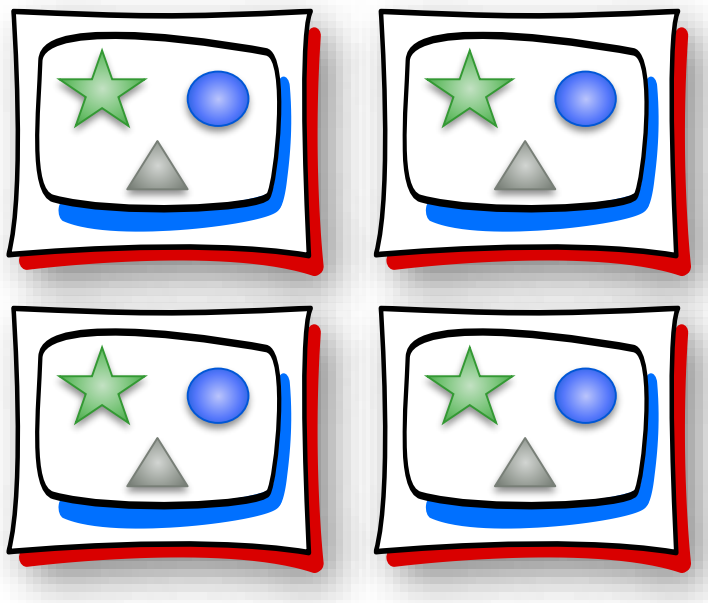


Anwendung mit 3 Bausteinen

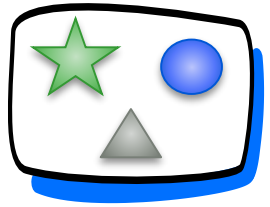




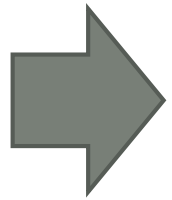
Unabhängige Artefakte

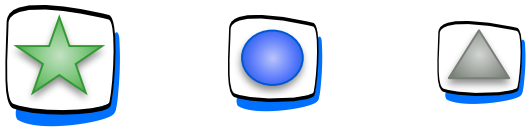


Baustein wird 4 mal benötigt

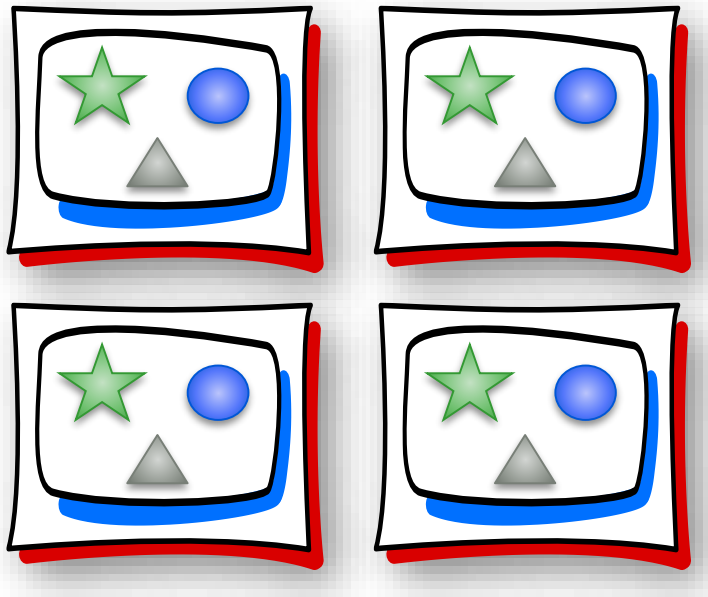


Anwendung mit 3 Bausteinen

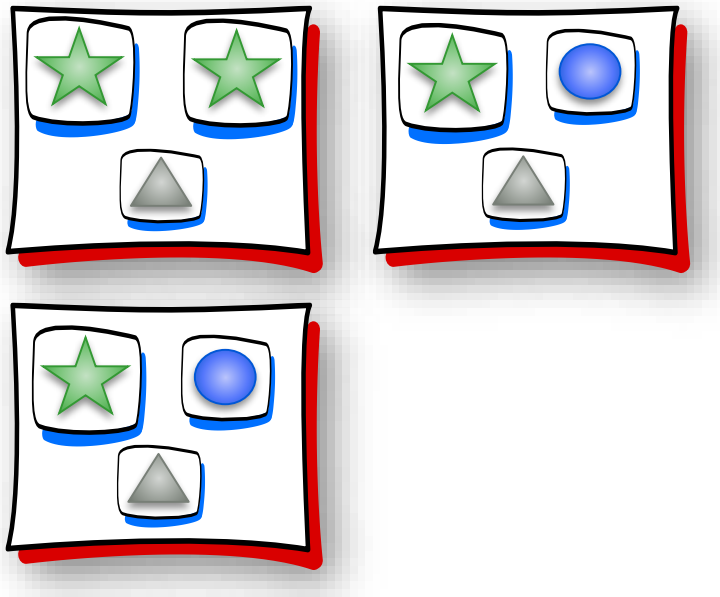




Unabhängige Artefakte



Baustein  wird 4 mal benötigt



Flexible Skalierung auf 3 Server

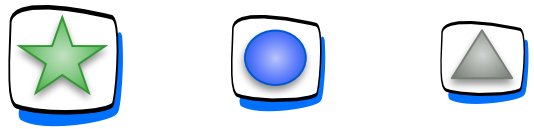
Vorteile

Isolierte Entwicklung

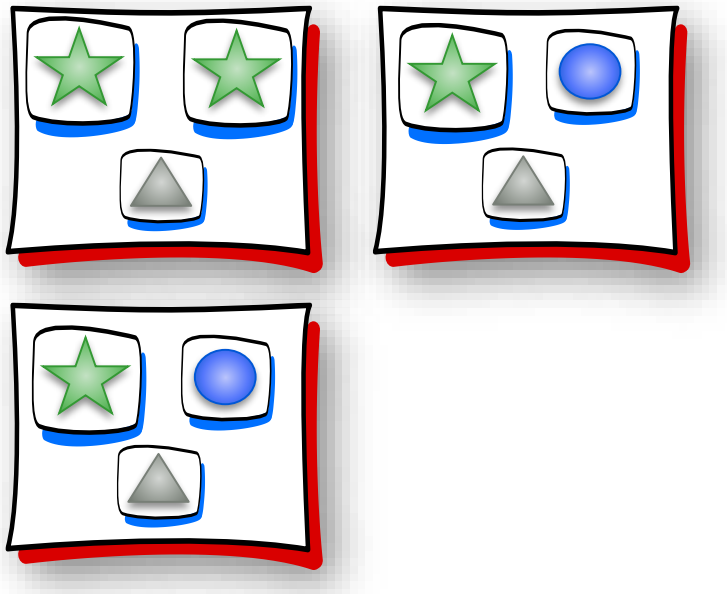
Schnellere Reaktionszeiten

Austauschen im laufenden Betrieb

Continuous Delivery wird möglich



Unabhängige Artefakte



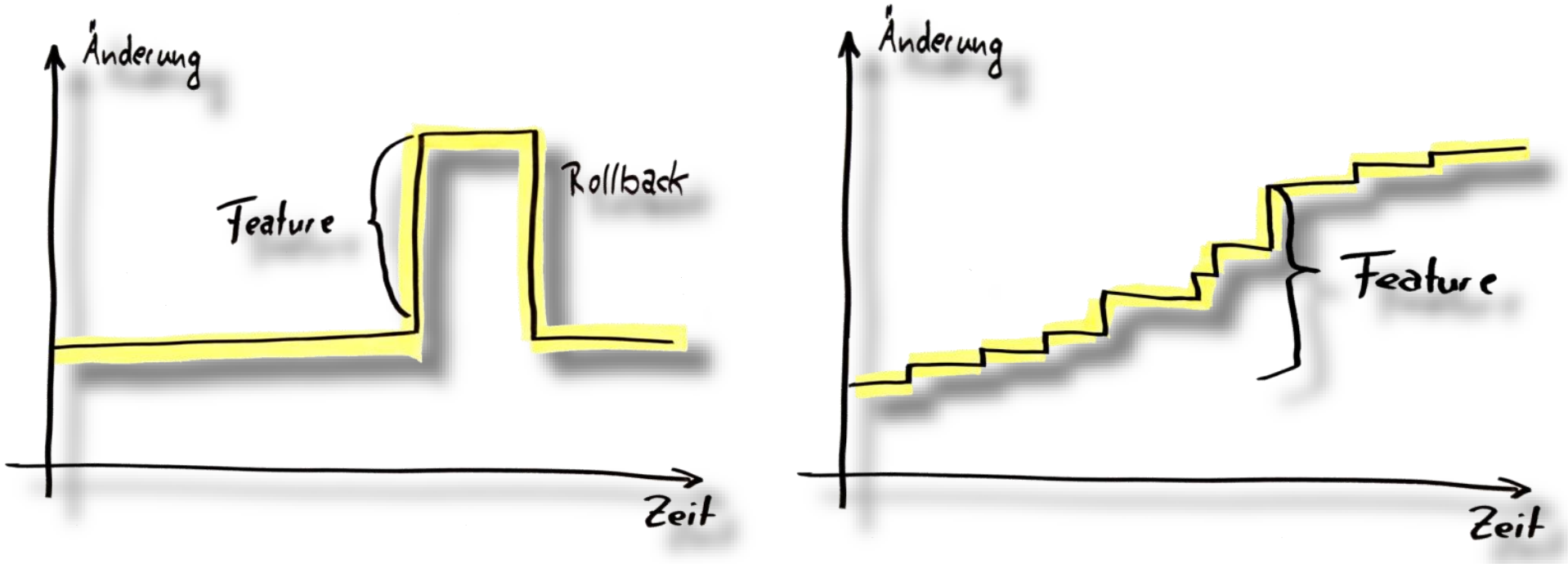
Flexible Skalierung auf 3 Server

Orientation in Objects

Was brauchen wir noch?

Umdenken was ein Feature ist

30 Feature pro Tag?



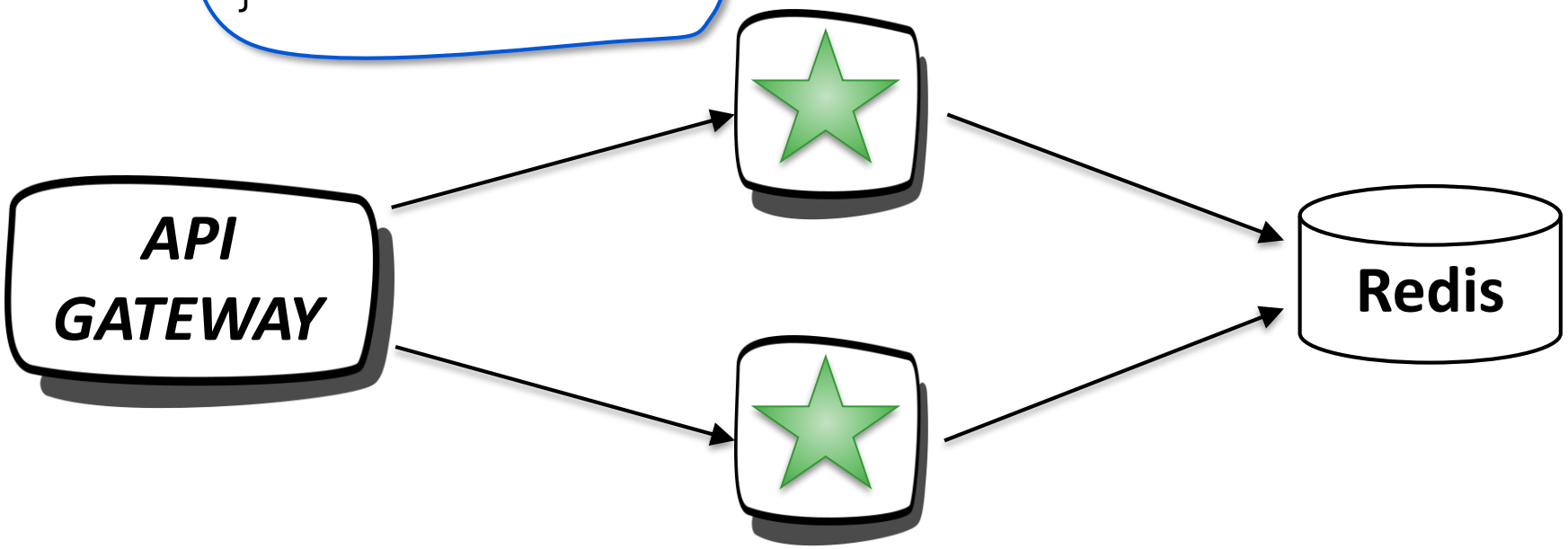
Deploy ≠ Feature Launch

Orientation in Objects

Wir brauchen noch mehr

Zustandslose Anwendung

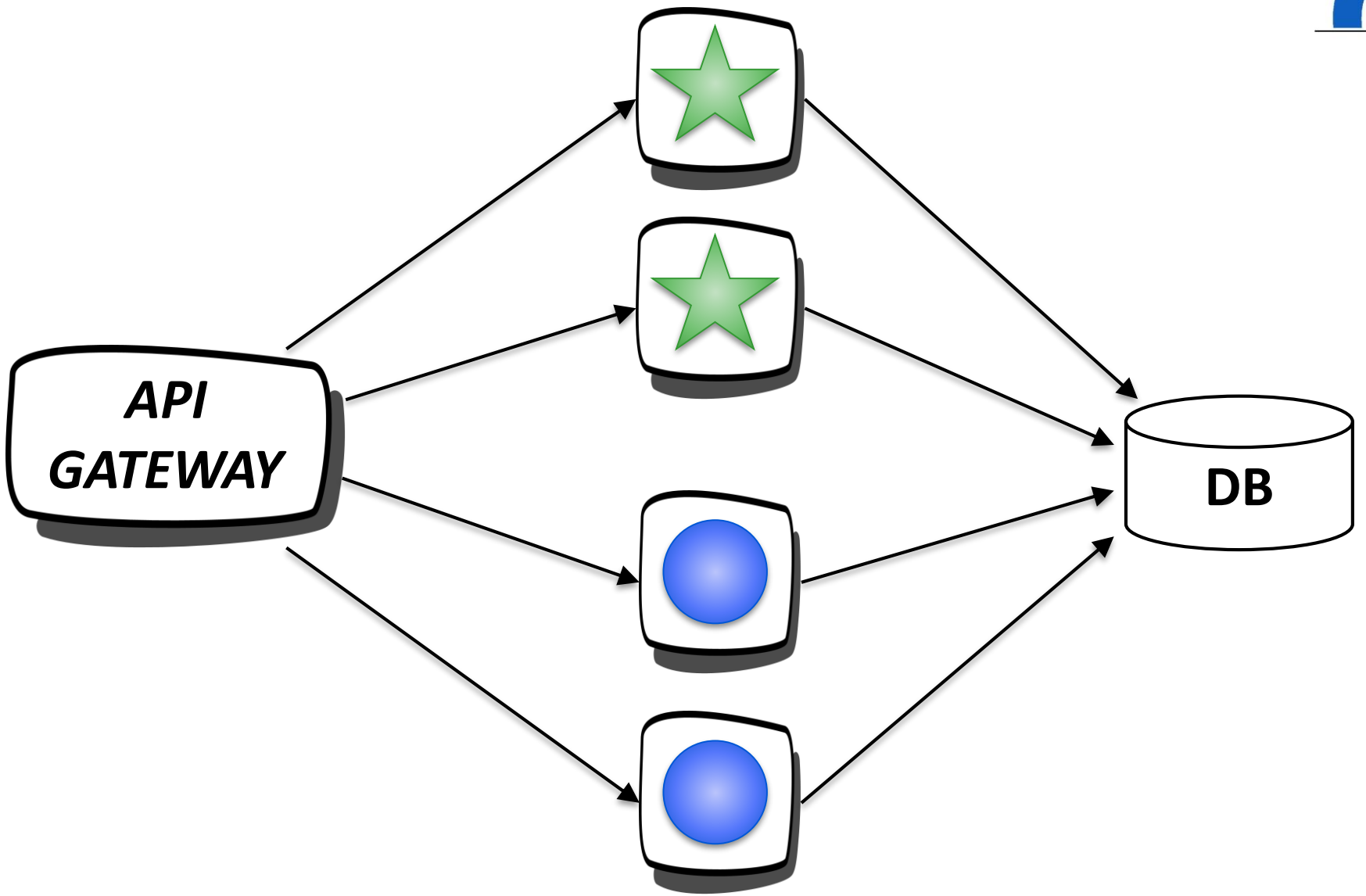
```java
@EnableRedisHttpSession
public class SpringSessionConfig {
    @Bean
    public JedisConnectionFactory connectionFactory() {
        return new JedisConnectionFactory();
    }
}
```

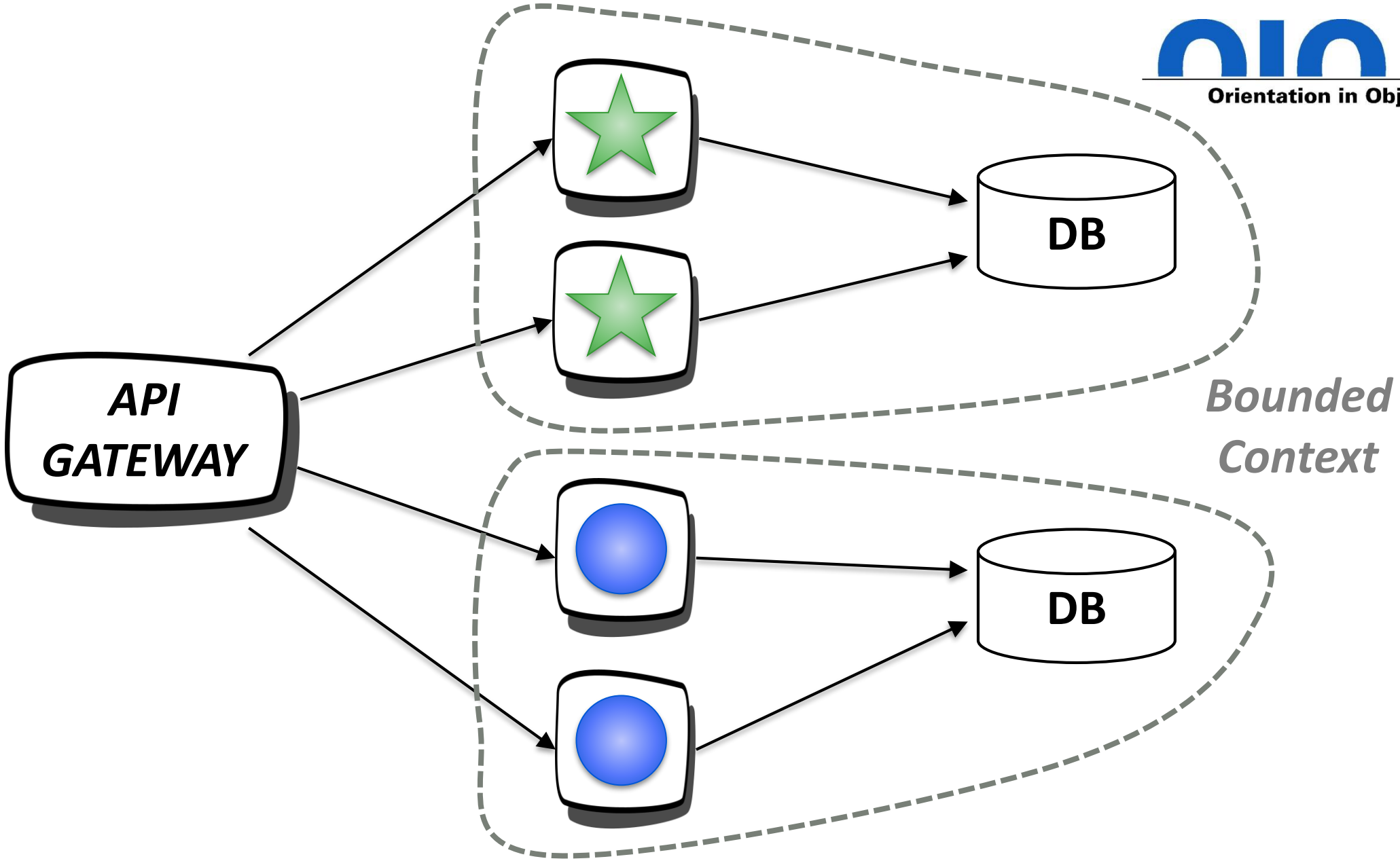


Orientation in Objects

Wie viele Datenbanken haben wir eigentlich?

Eine? Mehrere?


API
GATEWAY
DB



Orientation in Objects

Schemaänderungen

Wie ändern wir das Schema?

```
public class Person {
    private String firstname;
}
```

	id [PK] bigint	firstname character va
1	1	Thorsten
2	2	Max
3	3	John
4	4	Dieter

```
public class Person {
    private String firstname;
    private String lastname;
}
```

	id [PK] bigint	firstname character varying(255)	lastname character varying(255)
1	1	Thorsten	Maier
2	2	Max	Mustermann
3	3	John	Doe
4	4	Dieter	Develop

Hibernate: hbm2ddl.auto=update in production?

52

Is it okay to run Hibernate applications configured with `hbm2ddl.auto=update` to update the database schema in a production environment?

stackoverflow

Hibernate: hbm2ddl.auto=update in production?

52

Is it okay to run Hibernate applications configured with `hbm2ddl.auto=update` to update the database schema in a production environment?

13 Answers

active oldest **votes**

70

NOOOOOOOOOOOOOOOOOOO! :)

It's unsafe.

Despite folks in Hib do their best, you simply cannot rely on automatic updates **in production**. Write you own patches, review them with DBA, test them, then apply them manually.

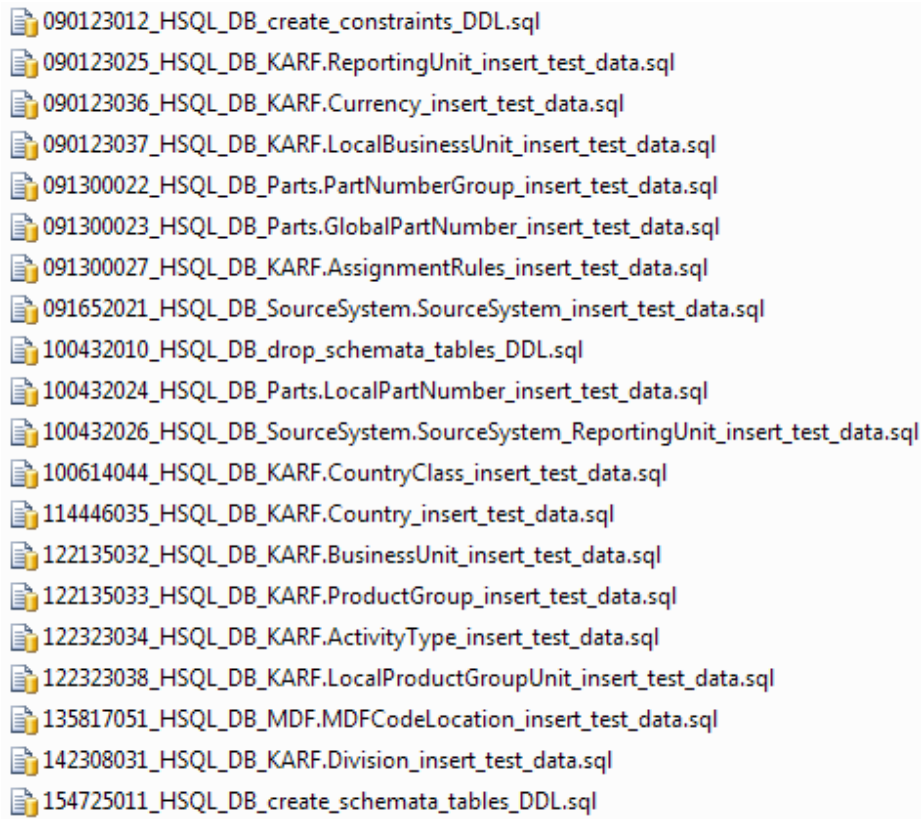
Theoretically, if hbm2ddl update worked in development, it should work in production too. But in reality, it's not always the case. :-(

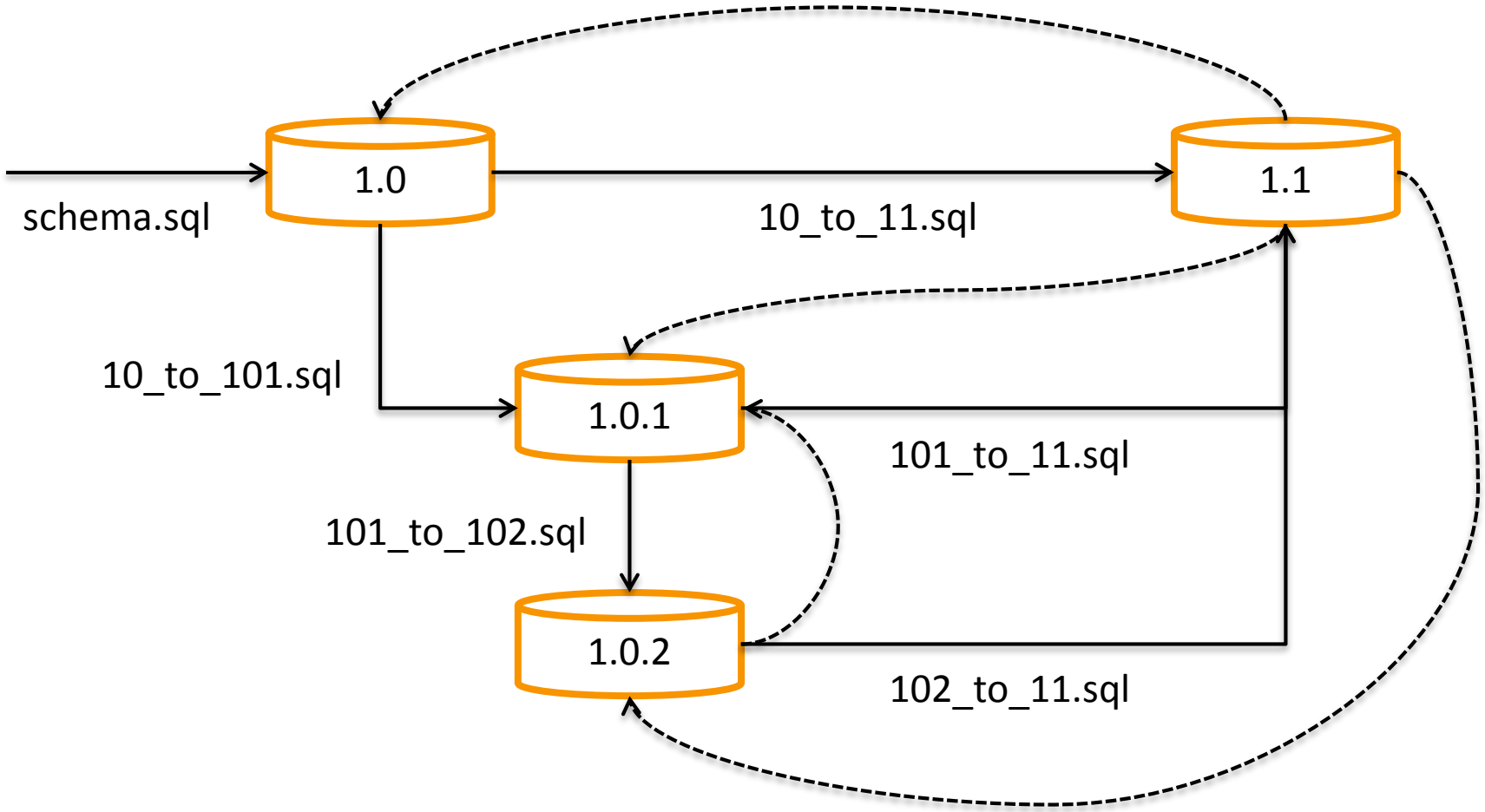
Even if it worked OK, it may be suboptimal. DBAs are paid that much for a reason.

http://stackoverflow.com/questions/221379/hibernate-hbm2ddl-auto-update-in-production

Orientation in Objects

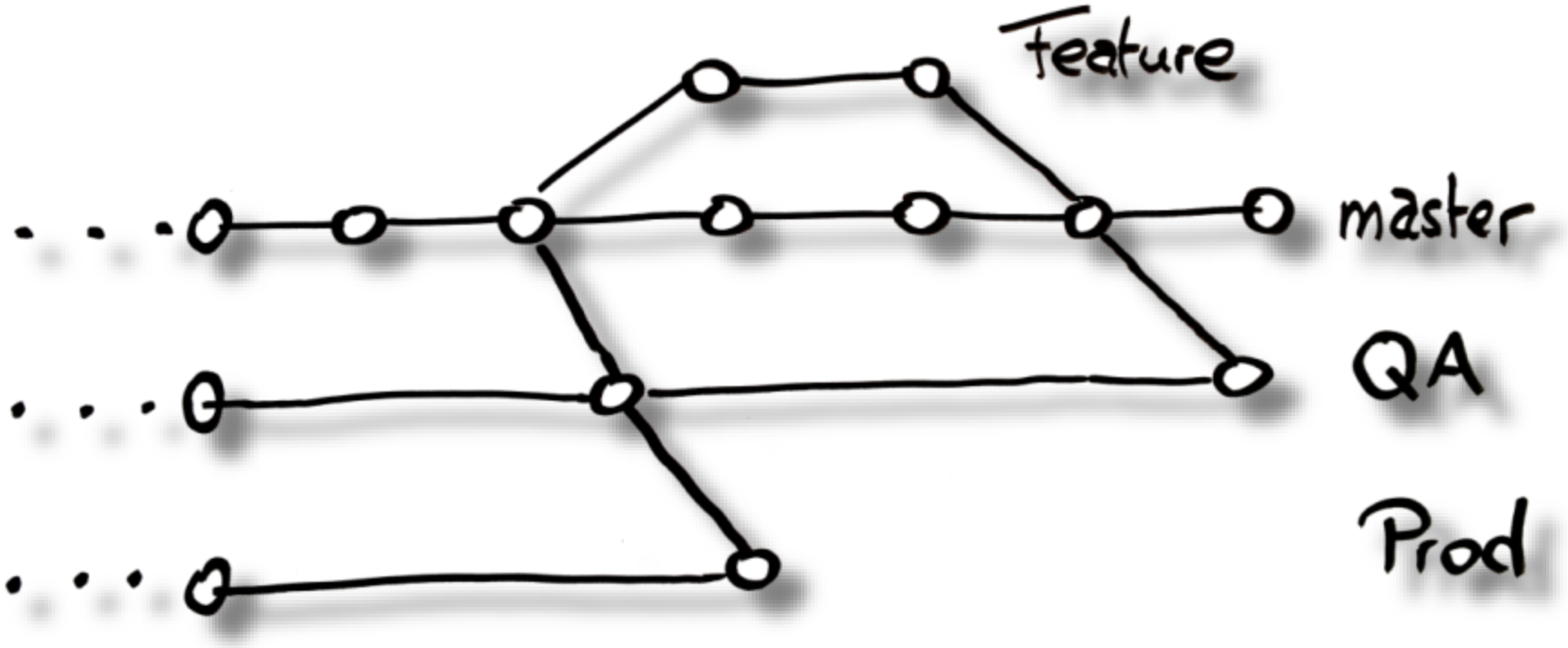
*„Vor dem Update von **Version 1.0.2** auf **1.1***
*musst du erst noch **die <u>neuen</u> SQL-Skript** einspielen.“*





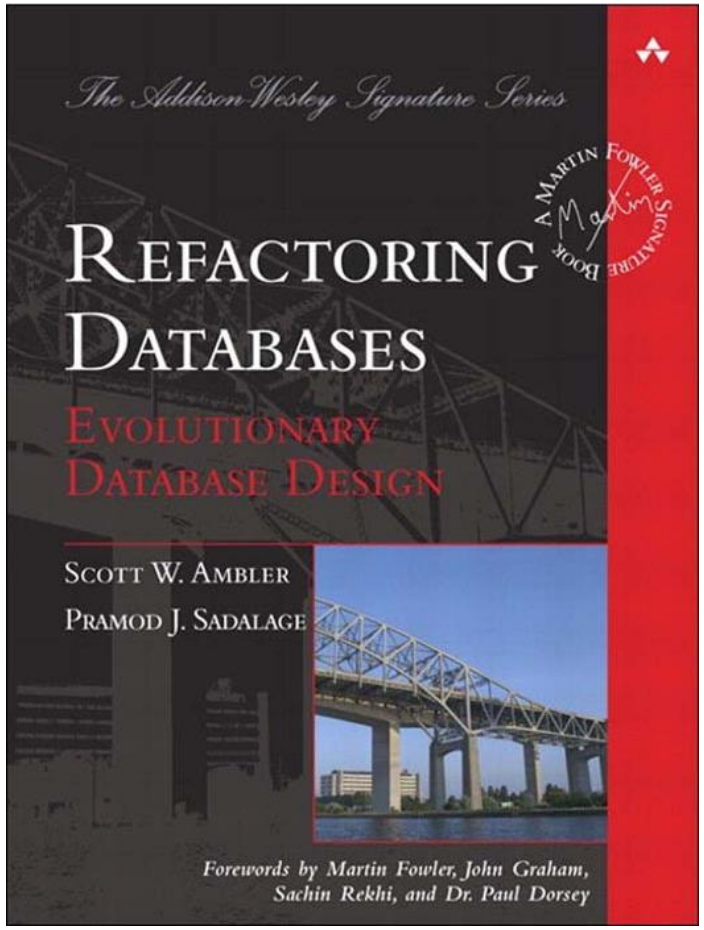
Eigentlich noch komplizierter

Orientation in Objects



Die Lösung

Orientation in Objects

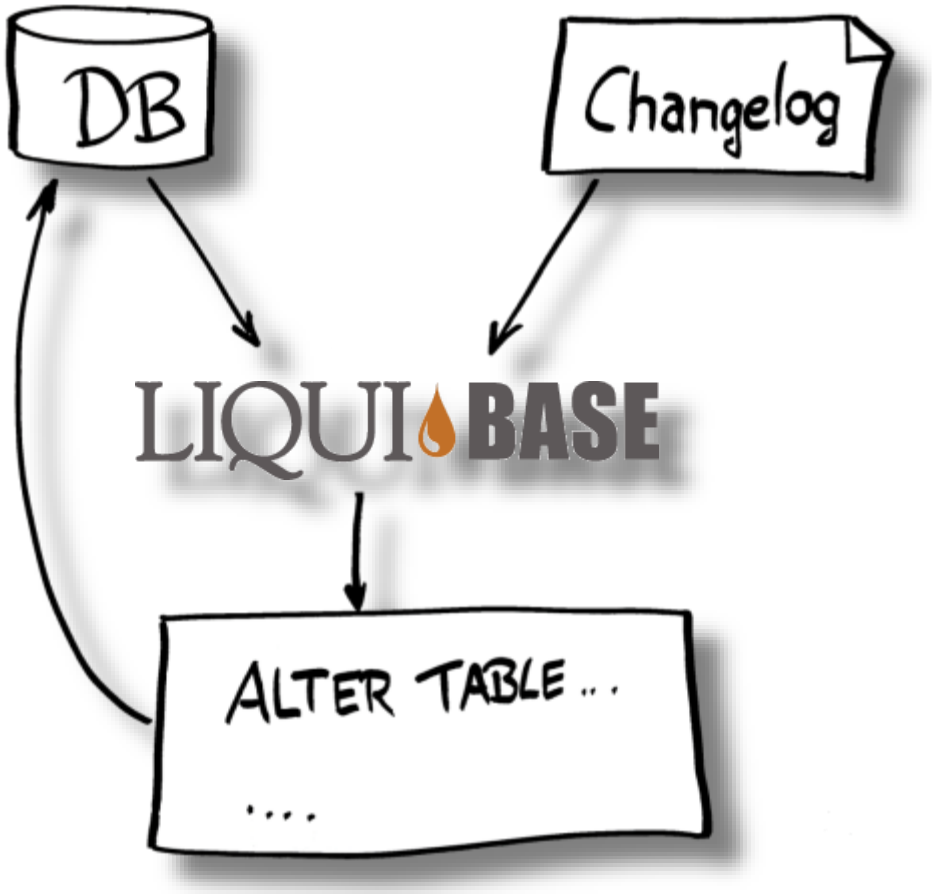


LIQUIBASE

Flyway

Liquibase

Orientation in Objects



Changelog.xml

Orientation in Objects

```
<changeSet author="tmaier" id="1495491474">
  <createTable schemaName="public" tableName="person">
    <column name="address" type="varchar(255)"/>
  </createTable>
</changeSet>
```

Metadaten in der Datenbank

Orientation in Objects

Edit Data - Lokal (localhost:5432) - .databasechangelog

Datei Bearbeiten Anzeigen Werkzeuge Hilfe

Keine Begrenzu

	id [PK] character vary	author [PK] character v:	filename [PK] character varyi	da ti	m ch	description character varying(255)	cc ch	ta ch	lic ch	
1	1286898681365-1	tmaier (generated)	1.1-schema-diff.xml	20	3a	Create Table	"		1.9	
2	1286898681365-10	tmaier (generated)	1.1-schema-diff.xml	20	49	Add Foreign Key Constraint	"		1.9	
3	1286898681365-11	tmaier (generated)	1.1-schema-diff.xml	20	22	Add Foreign Key Constraint	"		1.9	
4	1286898681365-12	tmaier (generated)	1.1-schema-diff.xml	20	63	Add Foreign Key Constraint	"		1.9	
5	1286898681365-13	tmaier (generated)	1.1-schema-diff.xml	20	6e	Add Foreign Key Constraint	"		1.9	
6	1286898681365-14	tmaier (generated)	1.1-schema-diff.xml	20	d3	Add Foreign Key Constraint	"		1.9	
7	1286898681365-15	tmaier (generated)	1.1-schema-diff.xml	20	32	Create Sequence	"		1.9	
8	1286898681365-16	tmaier (generated)	1.1-schema-diff.xml	20	86	Create Sequence	"		1.9	
9	1286898681365-2	tmaier (generated)	1.1-schema-diff.xml	20	b7	Create Table	"		1.9	
10	1286898681365-3	tmaier (generated)	1.1-schema-diff.xml	20	33	Create Table	"		1.9	
11	1286898681365-4	tmaier (generated)	1.1-schema-diff.xml	20	10	Add Column	"		1.9	
12	1286898681365-5	tmaier (generated)	1.1-schema-diff.xml	20	a0	Add Column	"		1.9	
13	1286898681365-6	tmaier (generated)	1.1-schema-diff.xml	20	49	Add Column	"		1.9	
14	1286898681365-7	tmaier (generated)	1.1-schema-diff.xml	20	66	Modify Column	"		1.9	

255 Zeilen.

Orientation in Objects

Liquibase aktualisiert

beim Starten der Anwendung

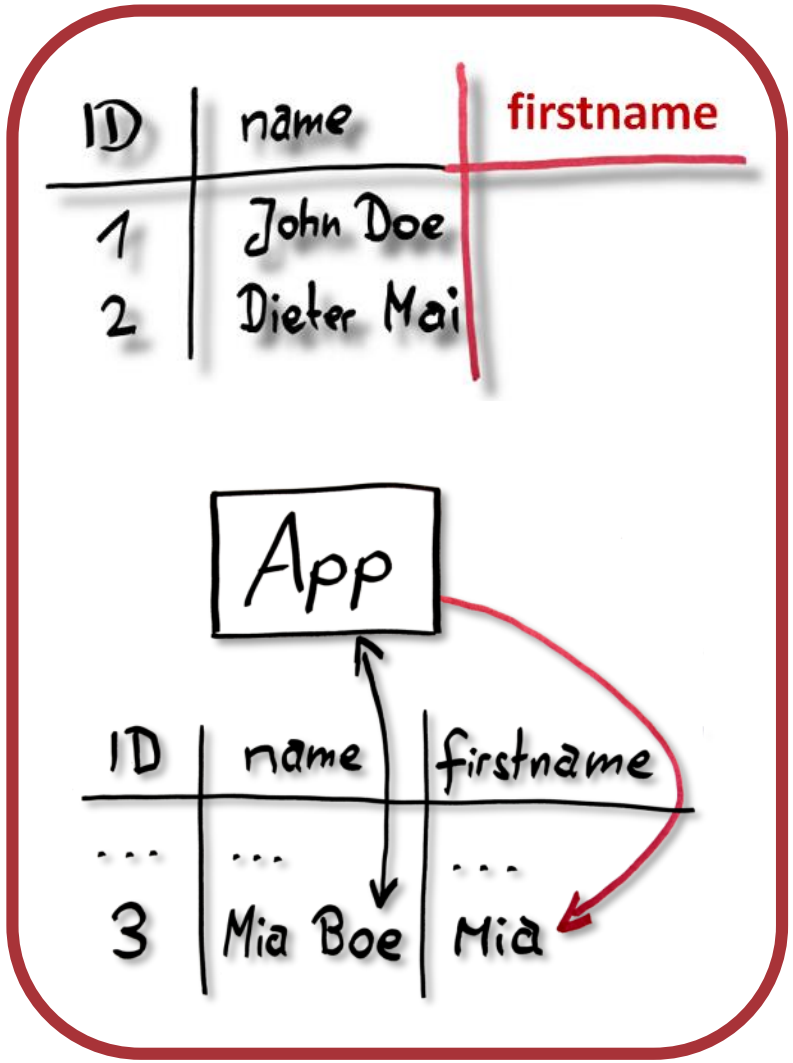
automatisch die Datenbank.

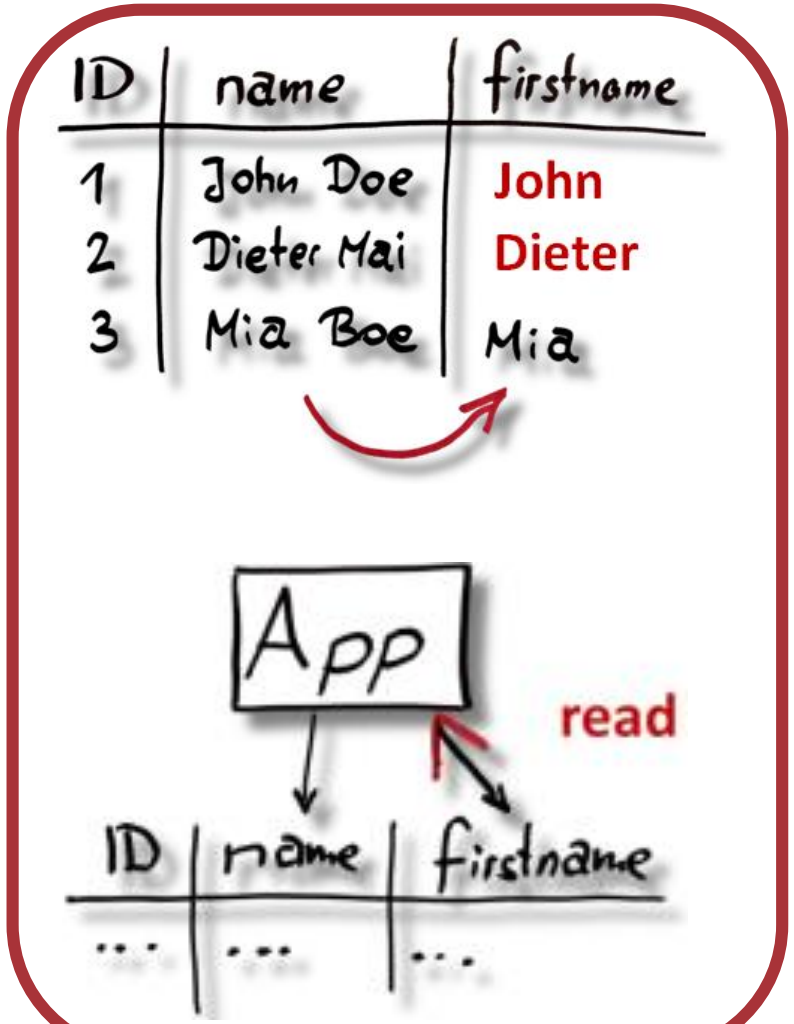
Orientation in Objects

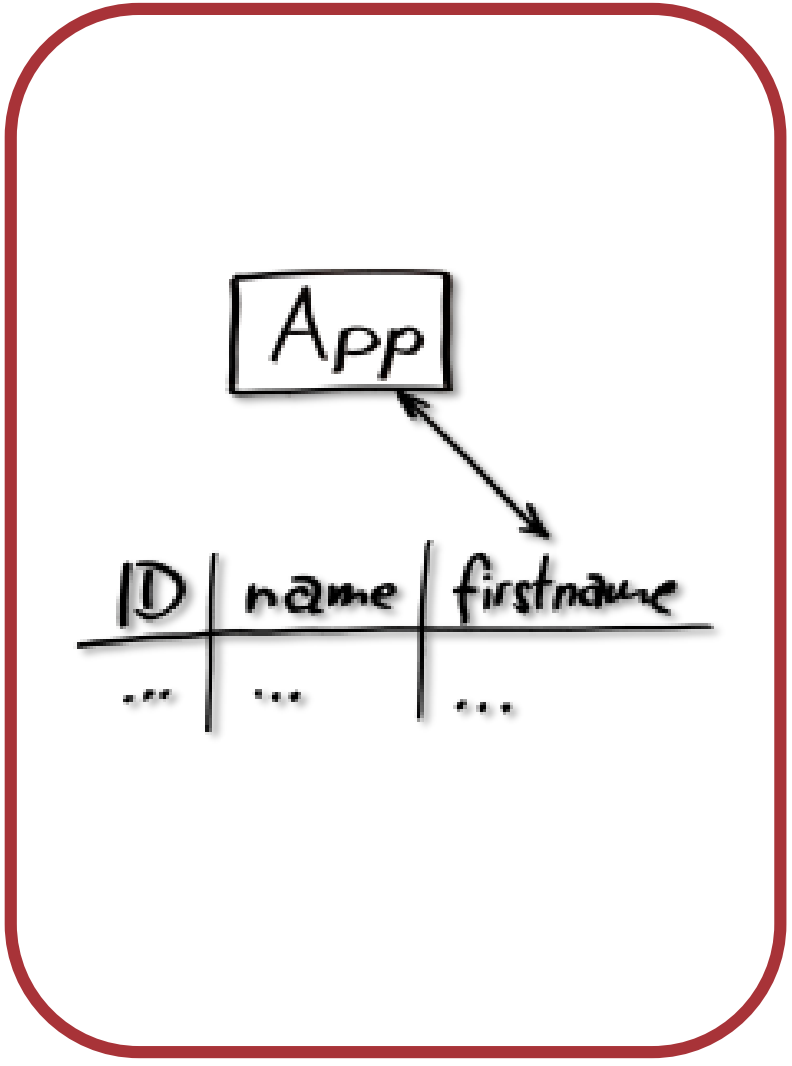
BEISPIEL

Orientation in Objects

Ersetze die Spalte **Name**
durch die Spalte
Vorname

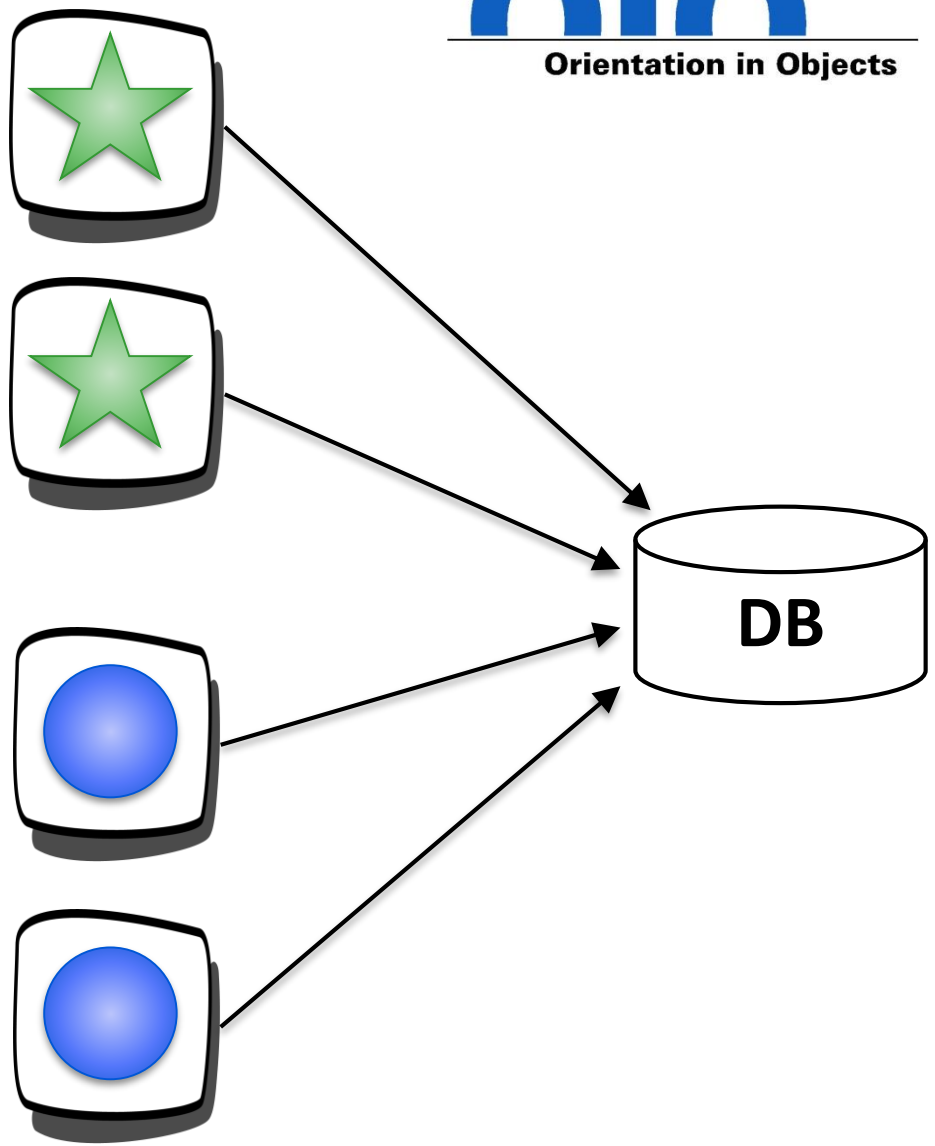






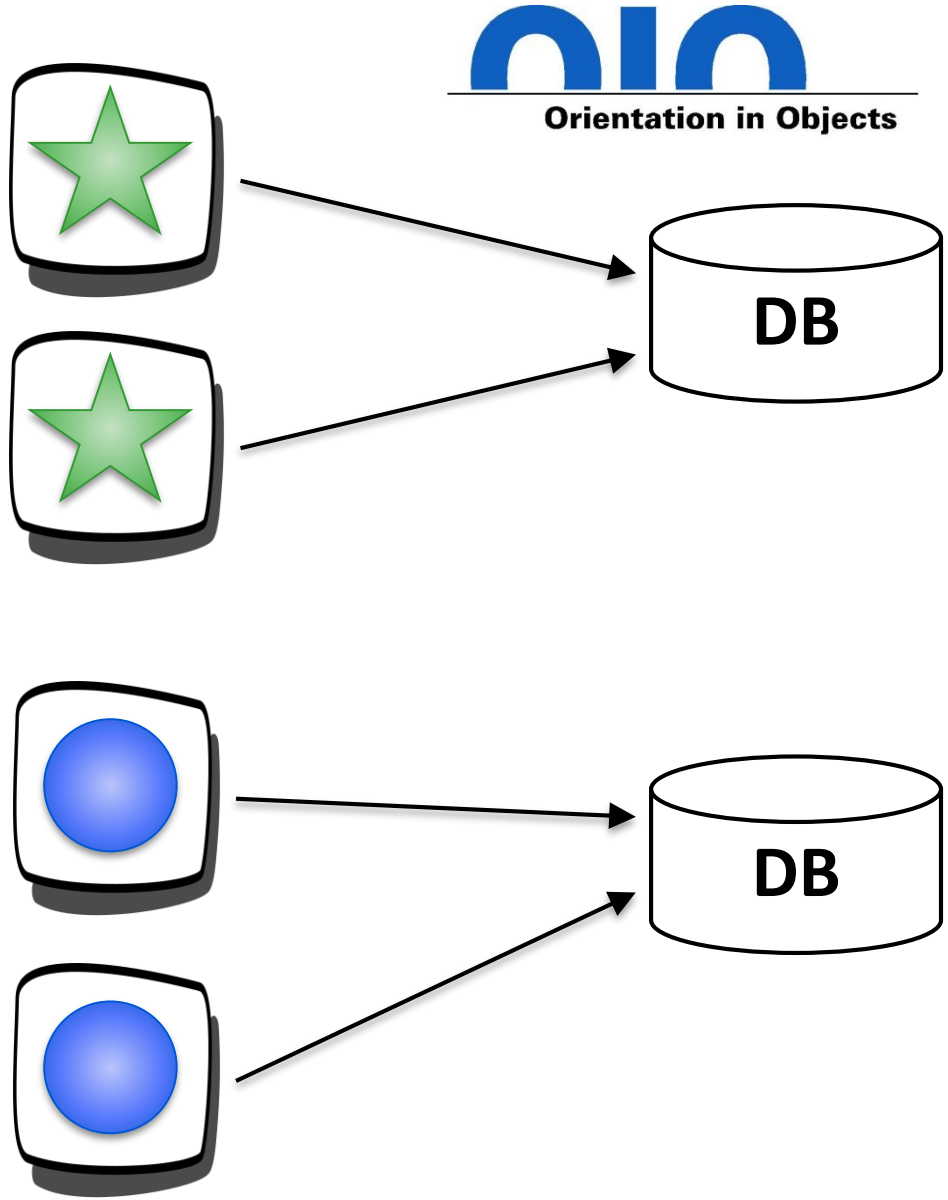
Wer *ändert wann die DB?*

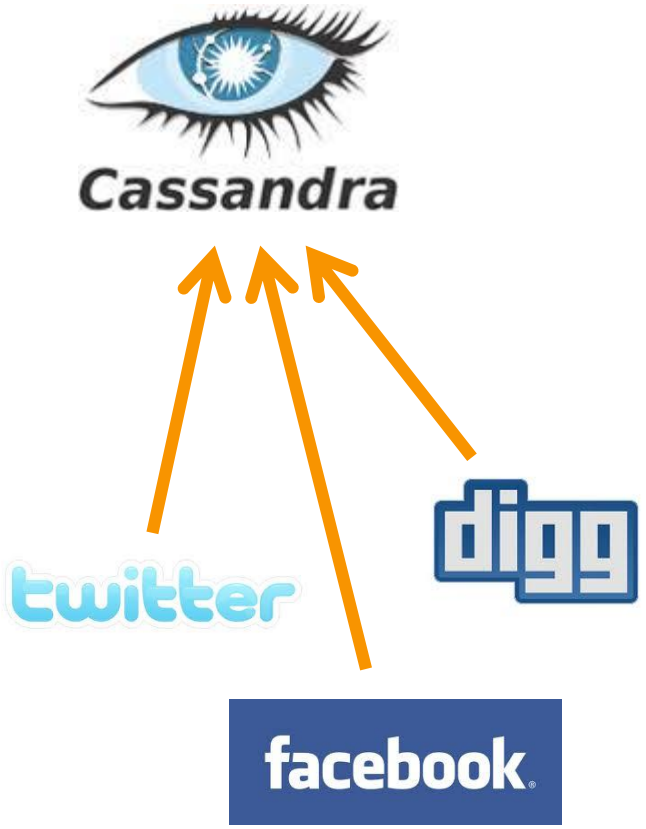
It depends ;-)



Zu viele Köche

Ab einer gewissen Größe nur noch so!





Warum nehmen wir eigentlich keine

schemalose NoSQL DB?

Orientation in Objects

Relationale Datenbanken skalieren nicht

Warum?

Normalisierung => Joins

Forderung nach Konsistenz => Transaktionen

Orientation in Objects

NoSQL

=

Relationale Datenbank

- Transaktionen - Normalisierung - Joins - Konsistenz - ***hartes Schema***

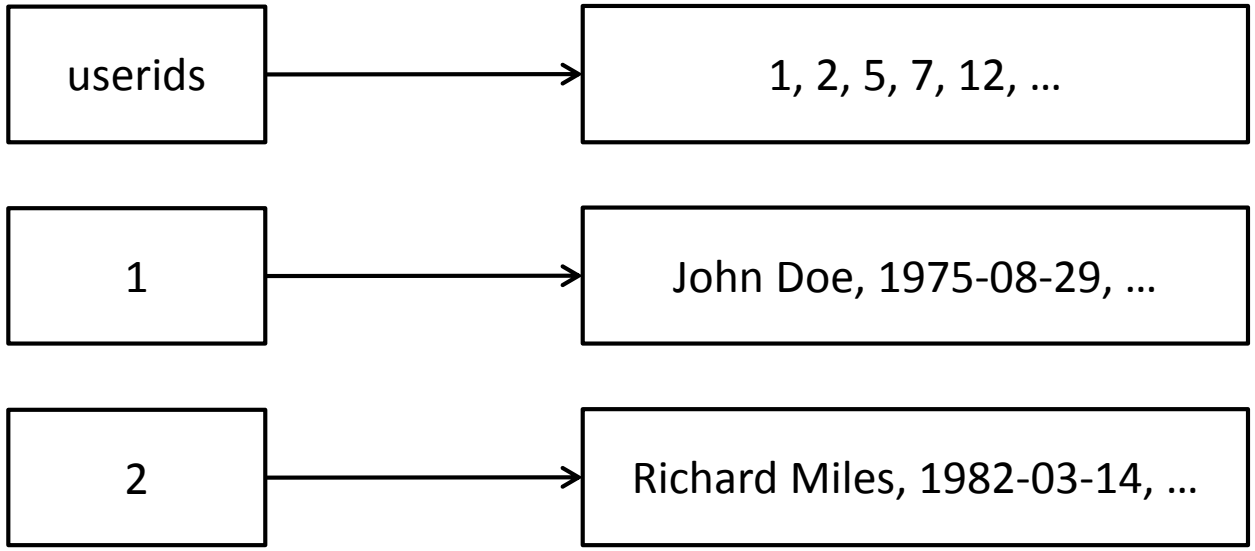
(+) Skalierung

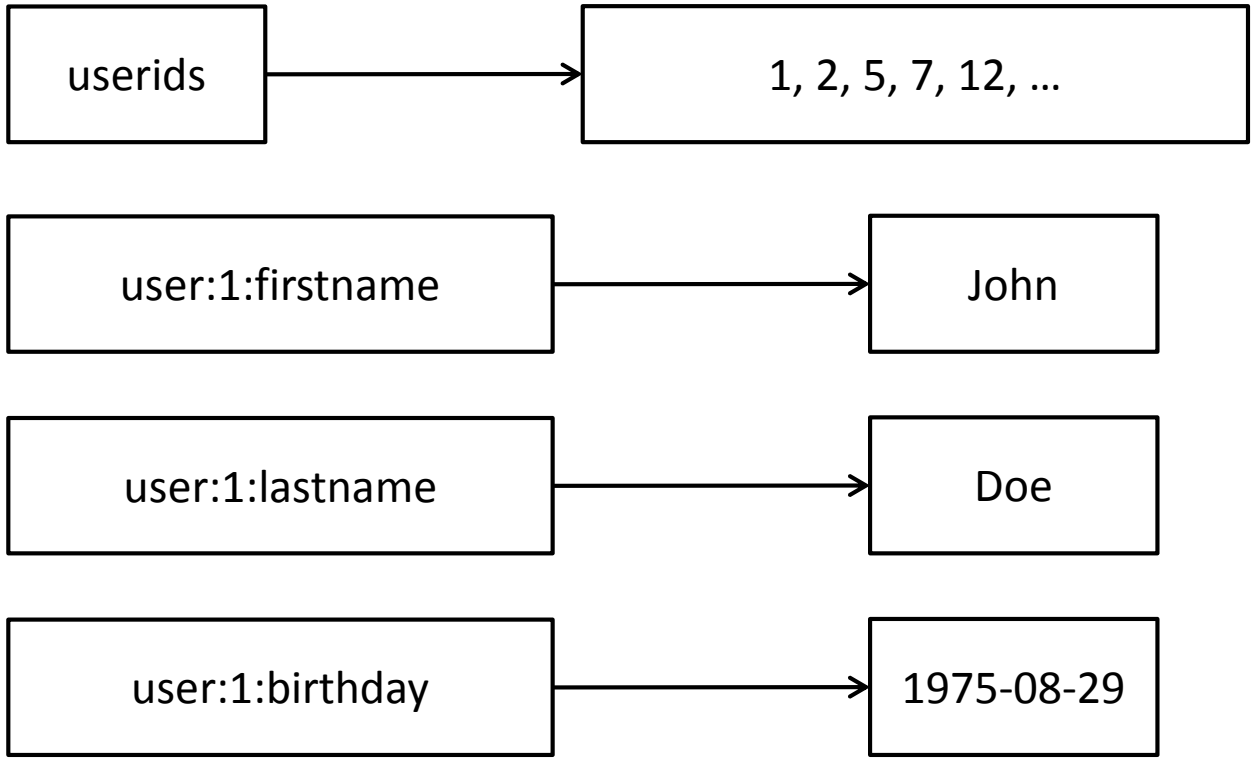
(+) Performance

Datenmodellierung NoSQL

Konkret für den Anwendungsfall

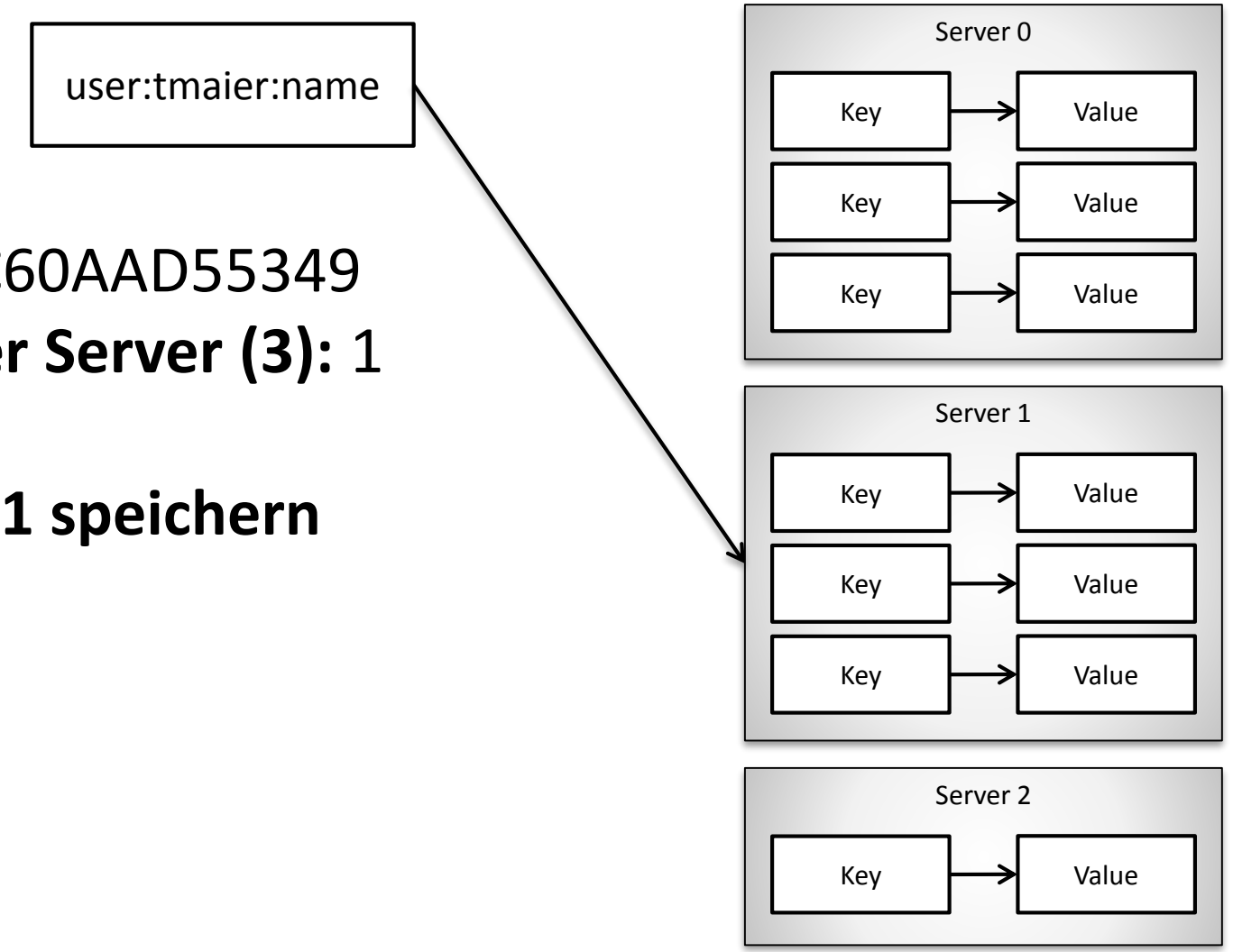
Denormalisierung und Duplizierung sind normal

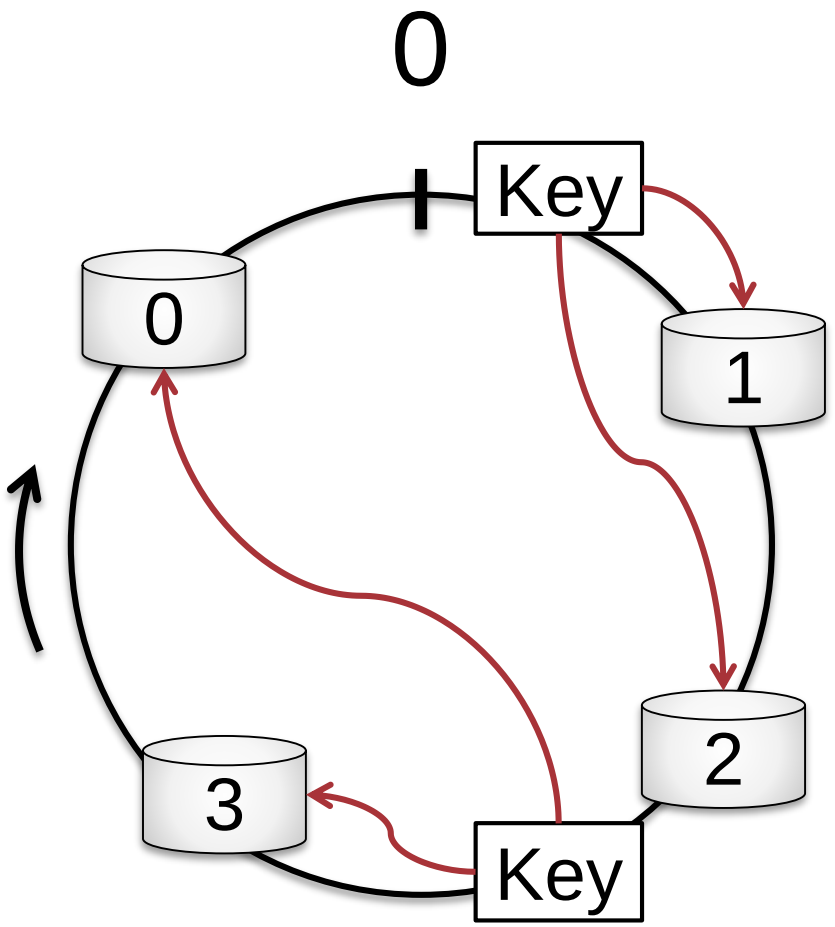




Key-Hash: 39E5DC60AAD55349
Modulo Anzahl der Server (3): 1

➔ **Key auf Server 1 speichern**





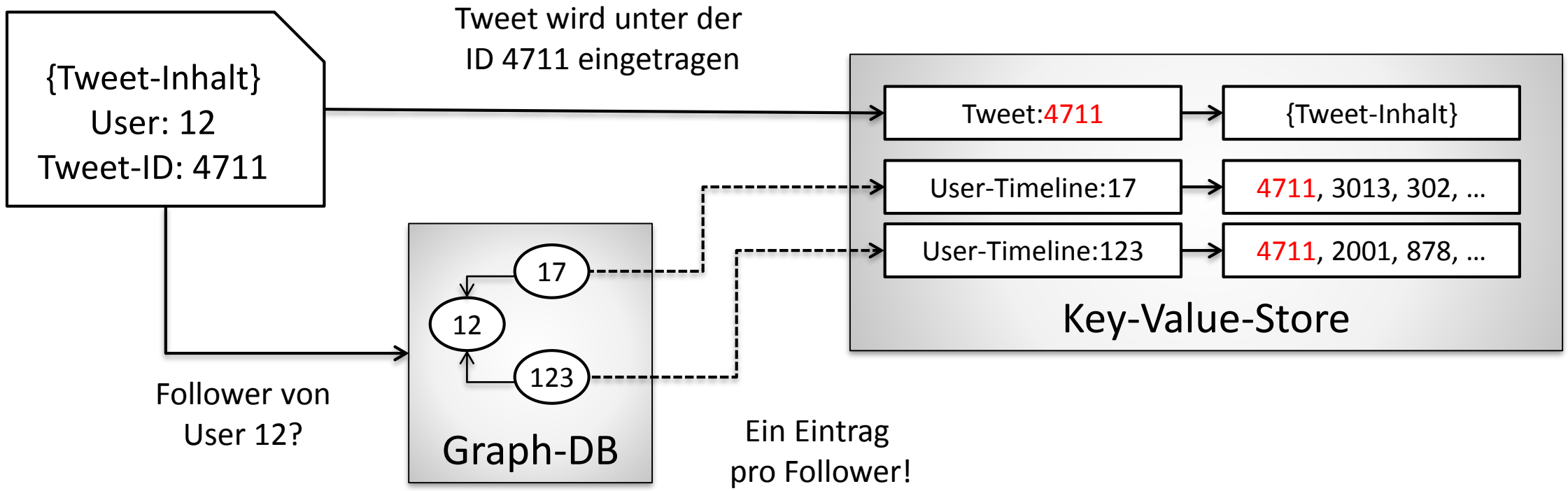
Orientation in Objects

Twitter

Viel Aktion beim Schreiben, wenig beim Lesen

300.000 reads/sec
6000 writes/sec

@ThorstenMaier



@ThorstenMaier

Orientation in Objects

NoSQL?

Falls die ***Anforderungen*** *passen!*

Anwendung kümmert sich um das ***„Schema“***

Orientation in Objects

Fragen ?

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Orientation in Objects

Vielen Dank für ihre Aufmerksamkeit !

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