



NILS HARTMANN

<https://nilshartmann.net>

GraphQL Subscriptions with Kafka and Debezium

Slides (PDF): <https://graphql.schule/galaxy-2022>

NILS HARTMANN

nils@nilshartmann.net

Software Developer, Architect and Coach from Hamburg

Java, Spring, GraphQL, TypeScript, React



<https://graphql.schule/video-kurs>



<https://reactbuch.de>

HTTPS://NILSHARTMANN.NET

Client 1

Client 2

Client 3

```
subscription {  
    onNewCustomer  
    {...}  
}
```

```
subscription {  
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    {...}  
}
```

Service

A simple use-case

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Client 2

Client 3

```
mutation {  
  addCustomer(...)  
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Service

A simple use-case

Service Instance 1

Service Instance 2

A simple use-case 🤔

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Service Instance 1

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A simple use-case 🤔

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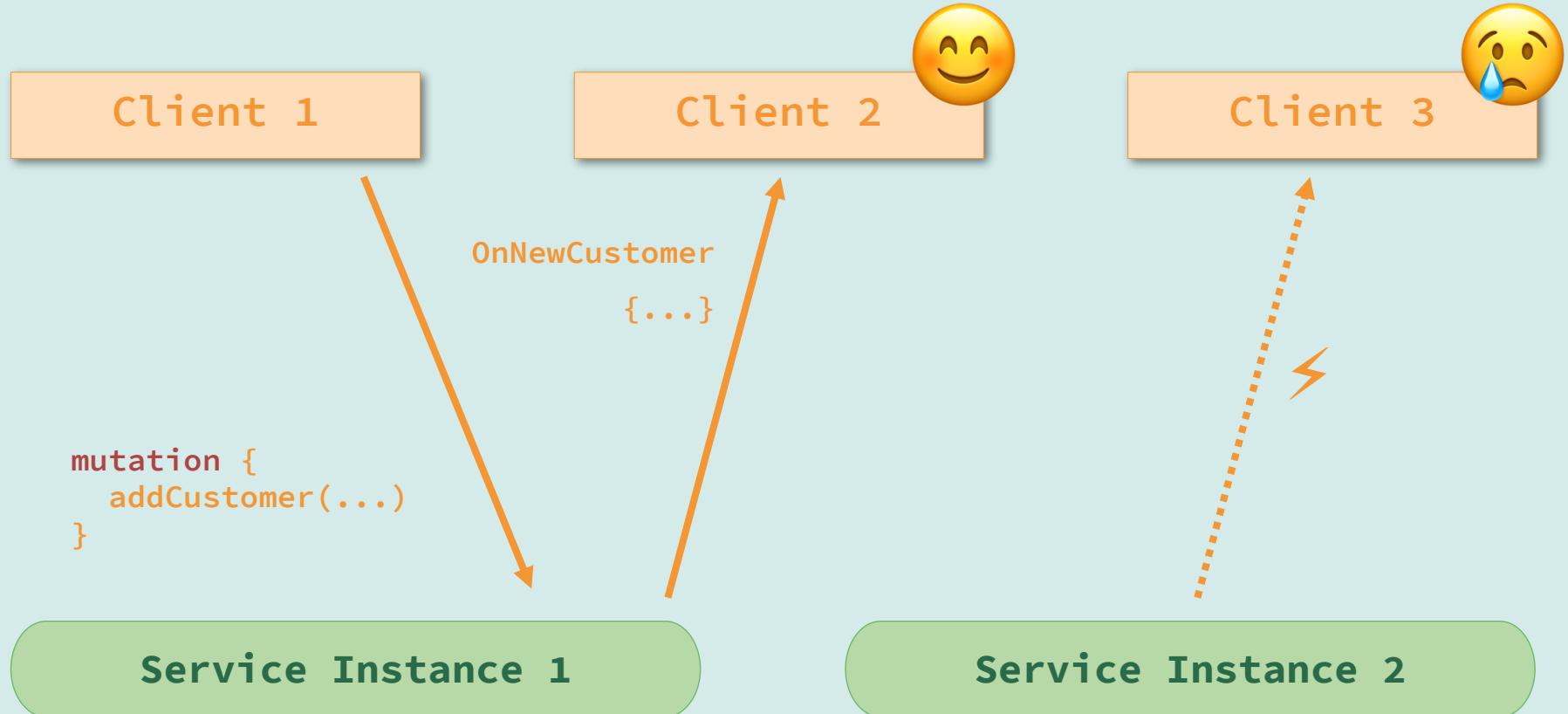
```
mutation {  
  addCustomer(...)  
}
```

OnNewCustomer
{...}

Service Instance 1

Service Instance 2

A simple use-case 🤔



A simple use-case 🤔

Client 1

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Service Instance 1

Service Instance 2

Message Broker (Apache Kafka)

Message Broker

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Service Instance 1

Service Instance 2

Message Broker (Apache Kafka)

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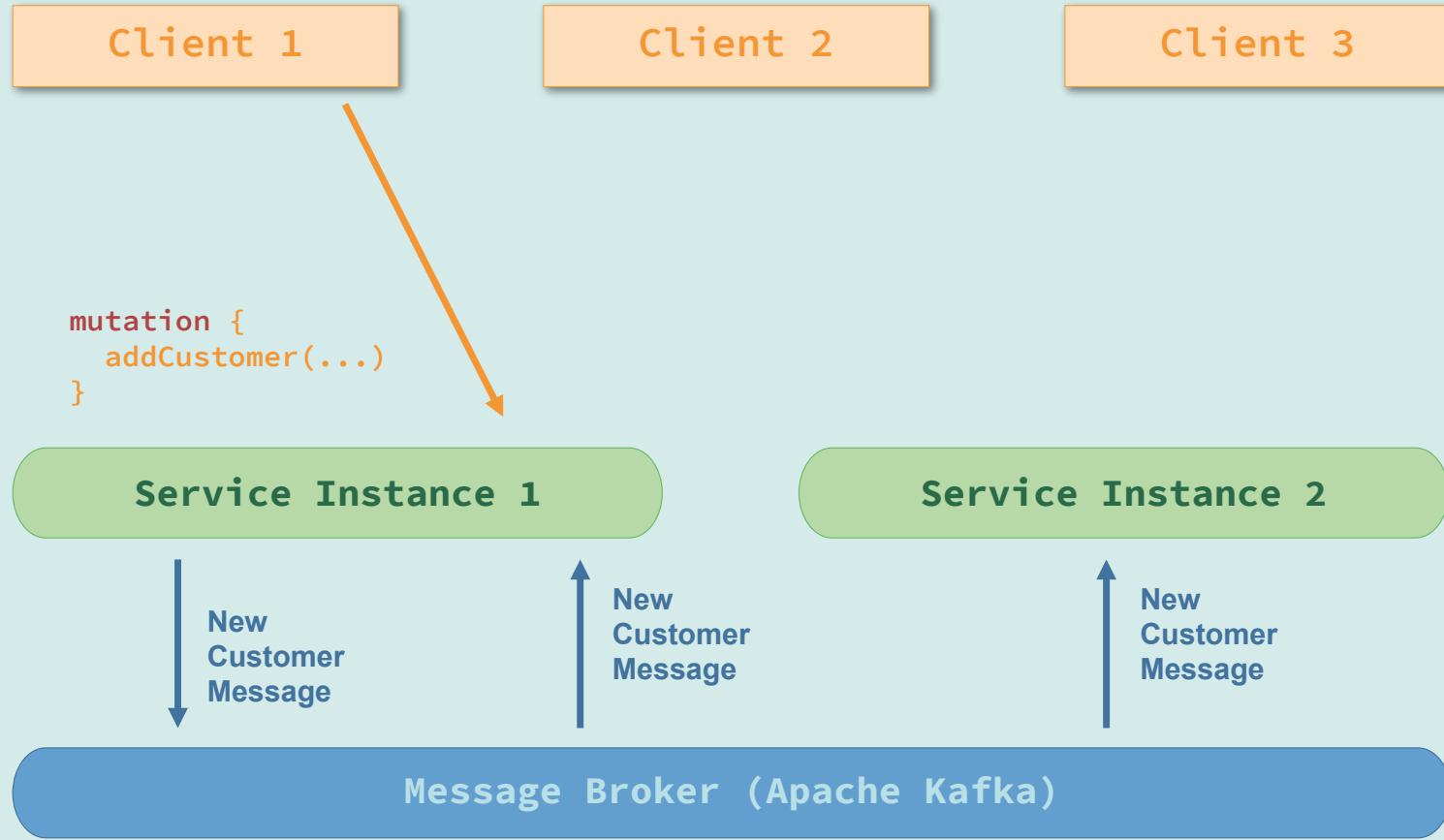
Service Instance 1

Service Instance 2

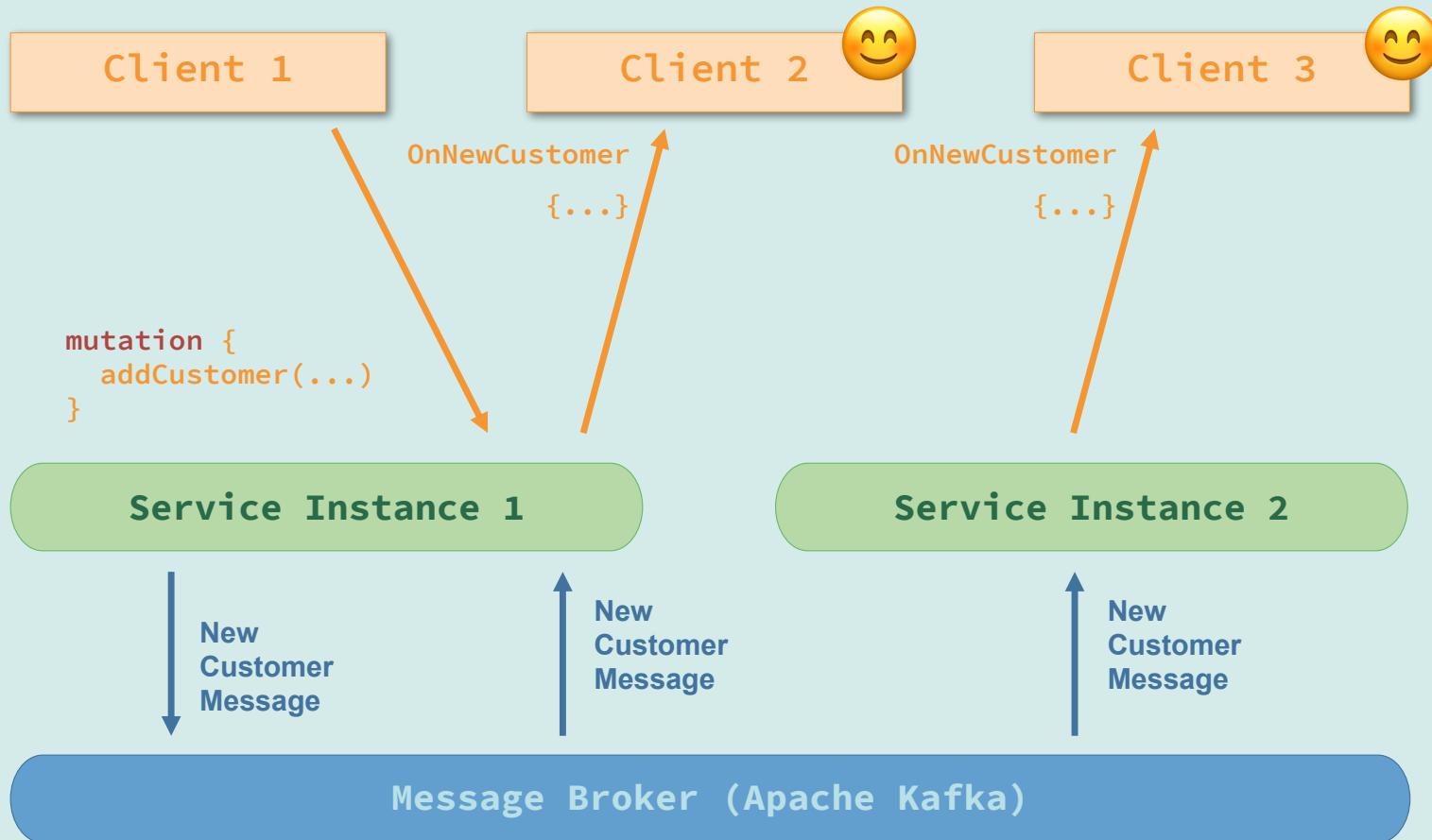
New
Customer
Message

Message Broker (Apache Kafka)

Message Broker



Message Broker



Message Broker

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mutation {  
  addCustomer(...)  
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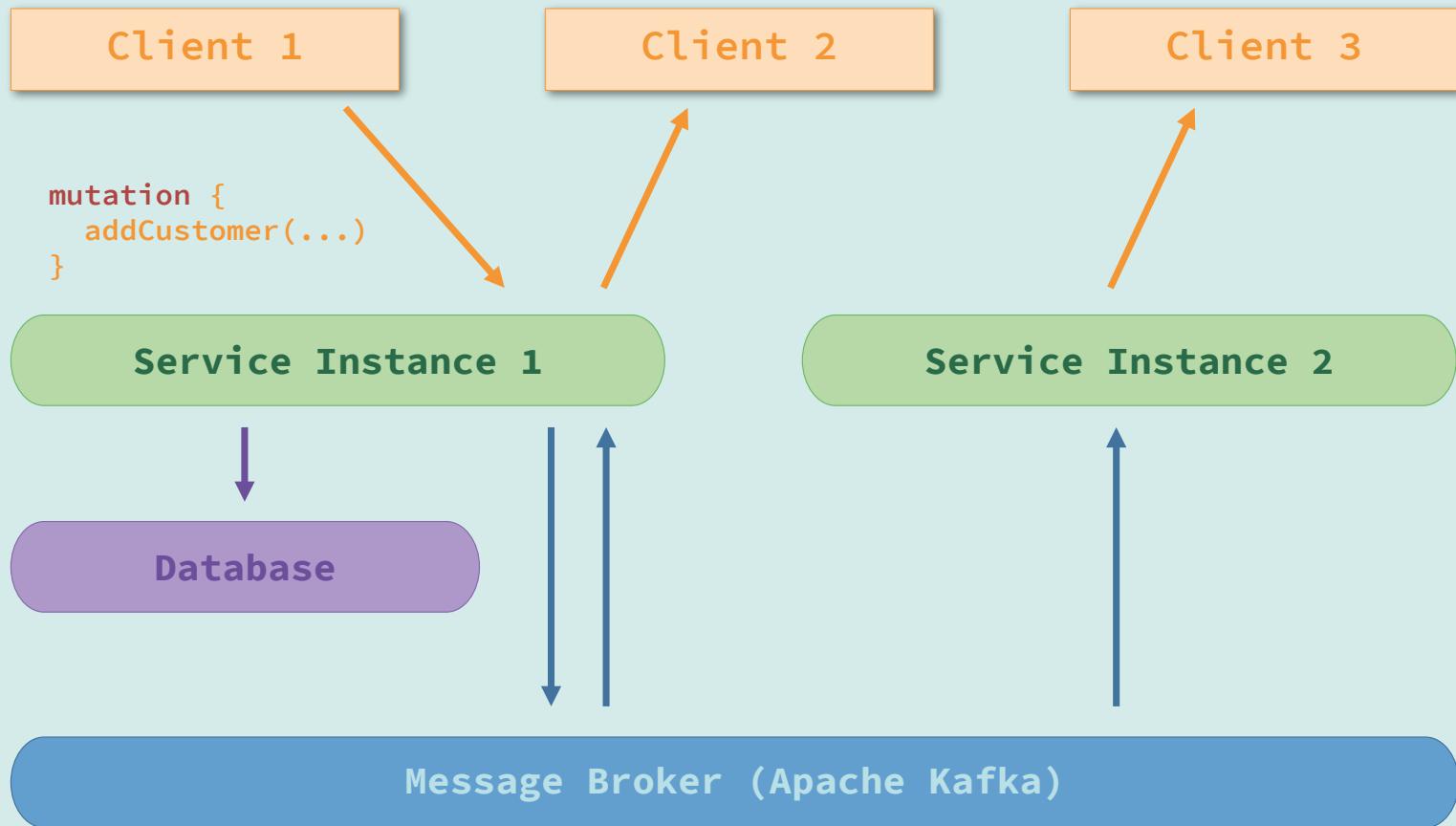
Service Instance 1

Service Instance 2

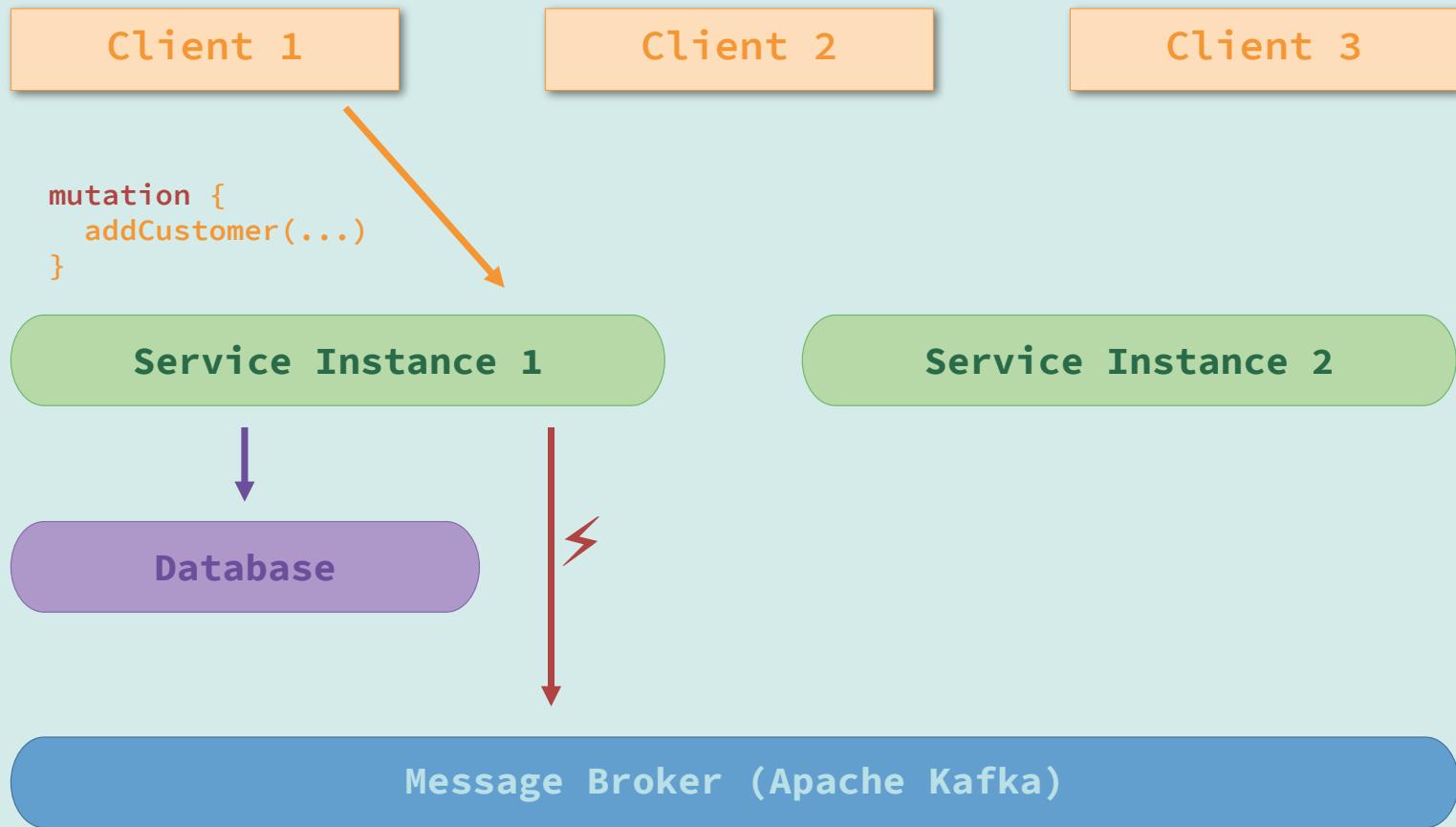
Database

Message Broker (Apache Kafka)

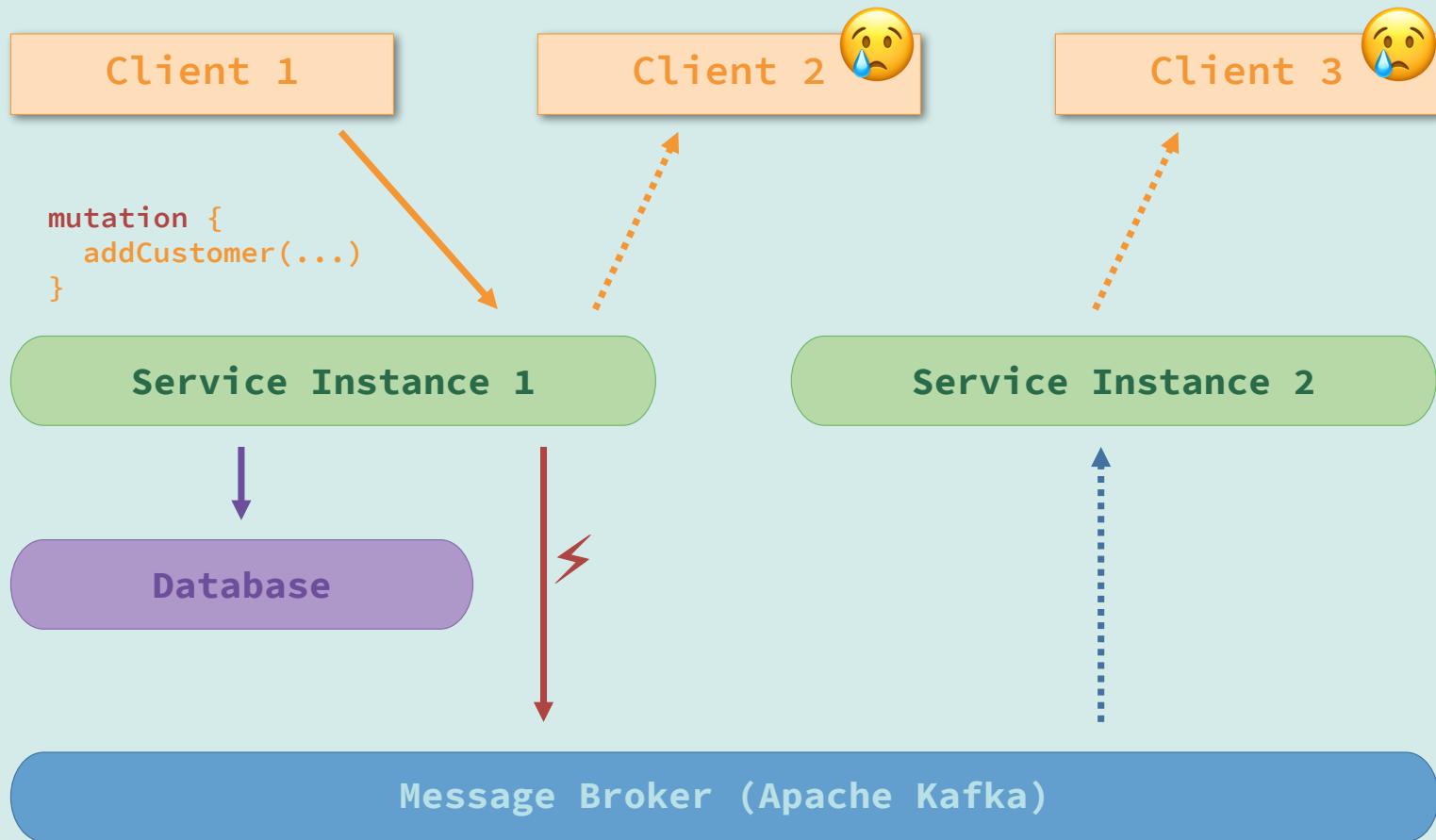
Adding a database...



Adding a database...



Adding a database...



Adding a database...

Client 1

Client 2

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Service Instance 1

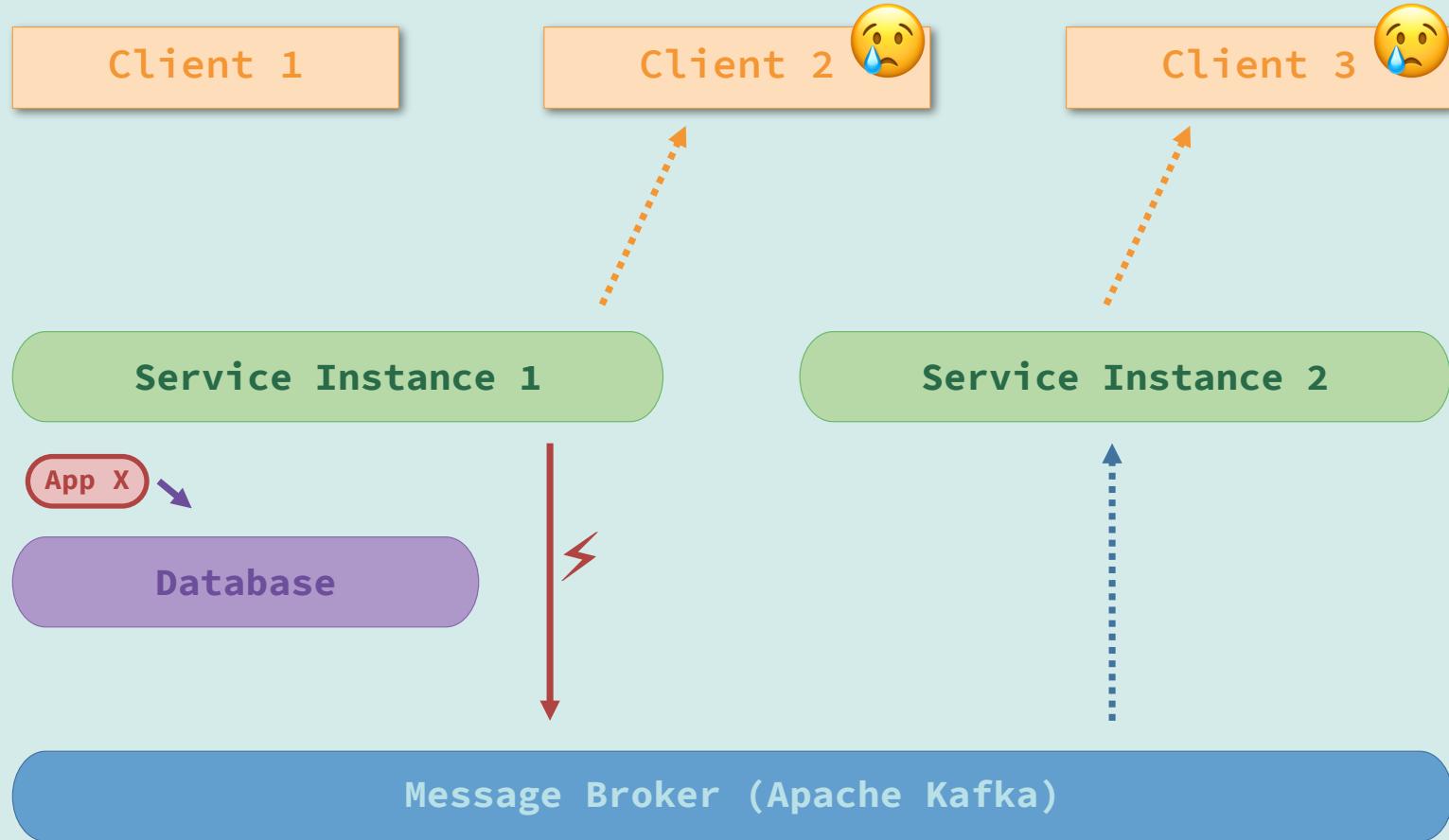
Service Instance 2

App X

Database

Message Broker (Apache Kafka)

Adding a database...

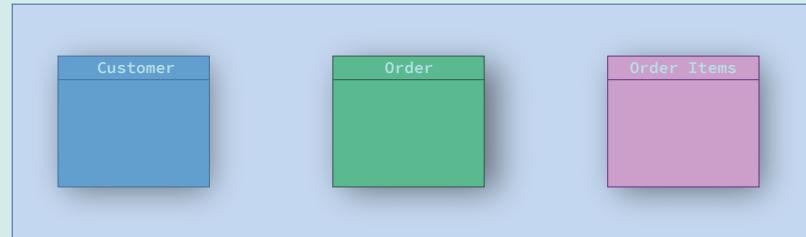


Adding a database...

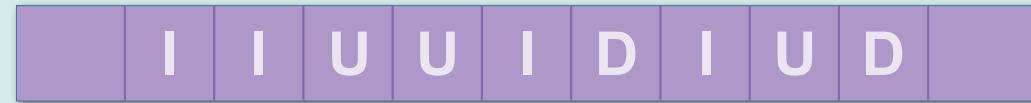
Change Data Capture (CDC)

Debeziun

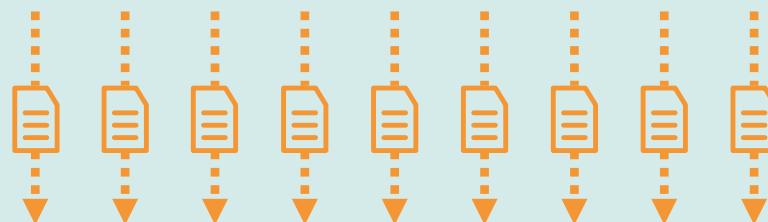
Database



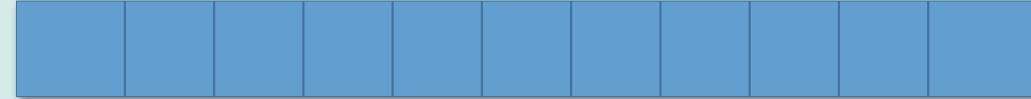
Transaction Log



Debezium Change Event



Apache Kafka



Debezium – <https://debezium.io>

Debezium

Change Event

```
{  
  source: { table: "customers" },  
}  
}
```

Debezium – <https://debezium.io>

Debezium

Change Event

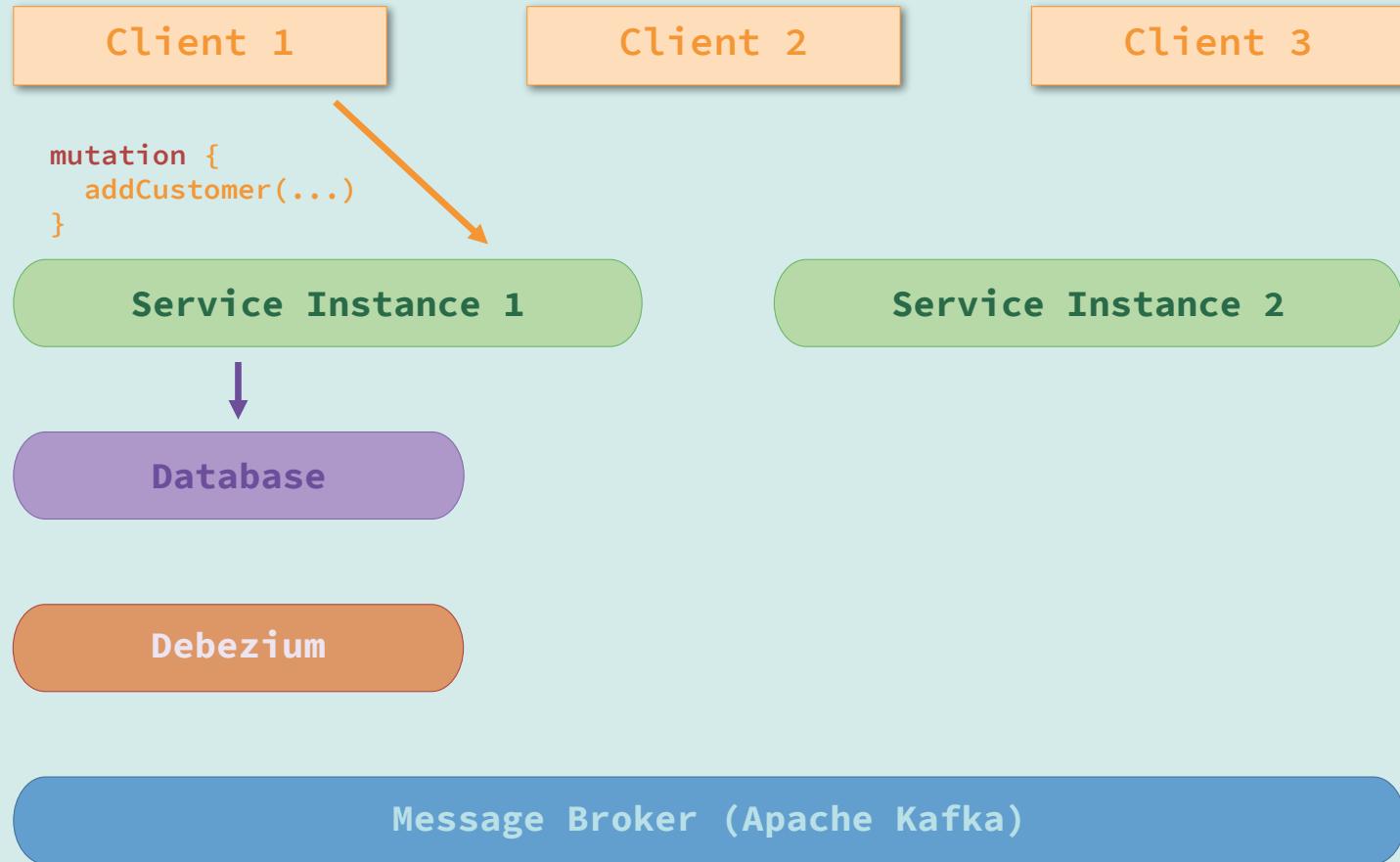
```
{  
  source: { table: "customers" },  
  op: "update",  
}  
}
```

Debezium – <https://debezium.io>

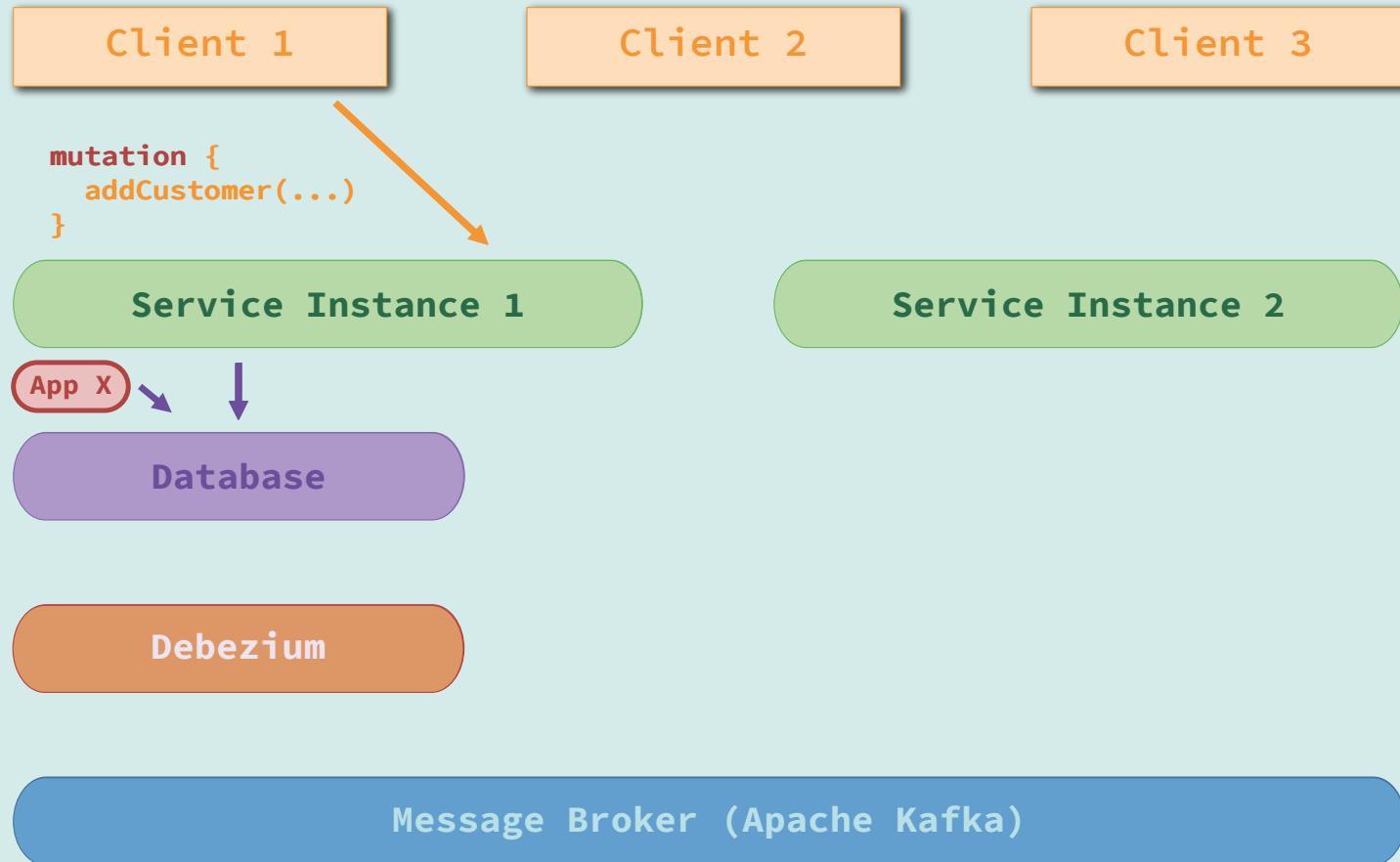
Debezium

Change Event

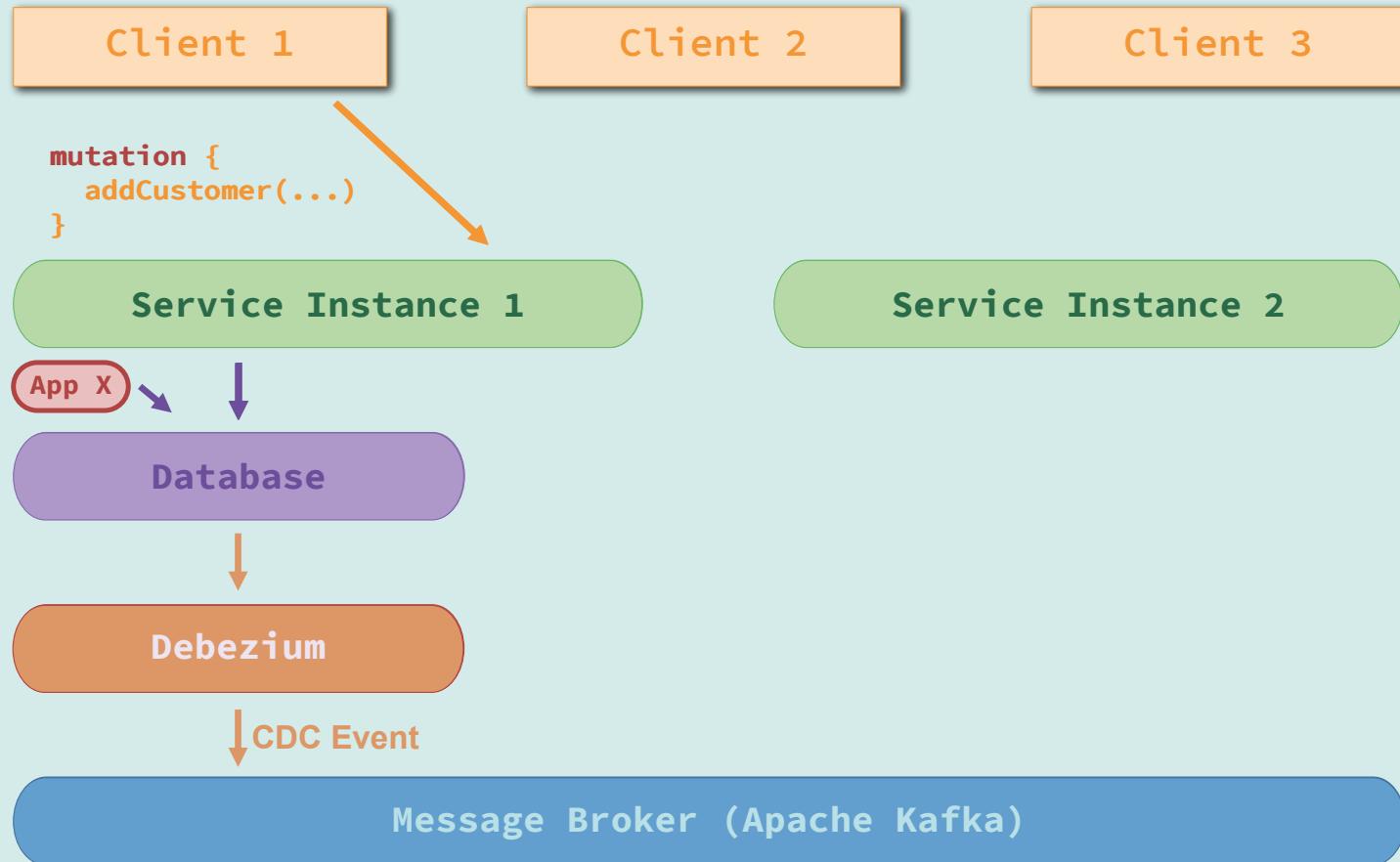
```
{  
    source: { table: "customers" },  
    op: "update",  
  
    before: {  
        id: 1000,  
        name: "Heinz",  
        address: "Somewhere 123"  
    },  
  
    after: {  
        id: 1000,  
        name: "Clara",  
        address: "Mainroad 47"  
    }  
}
```



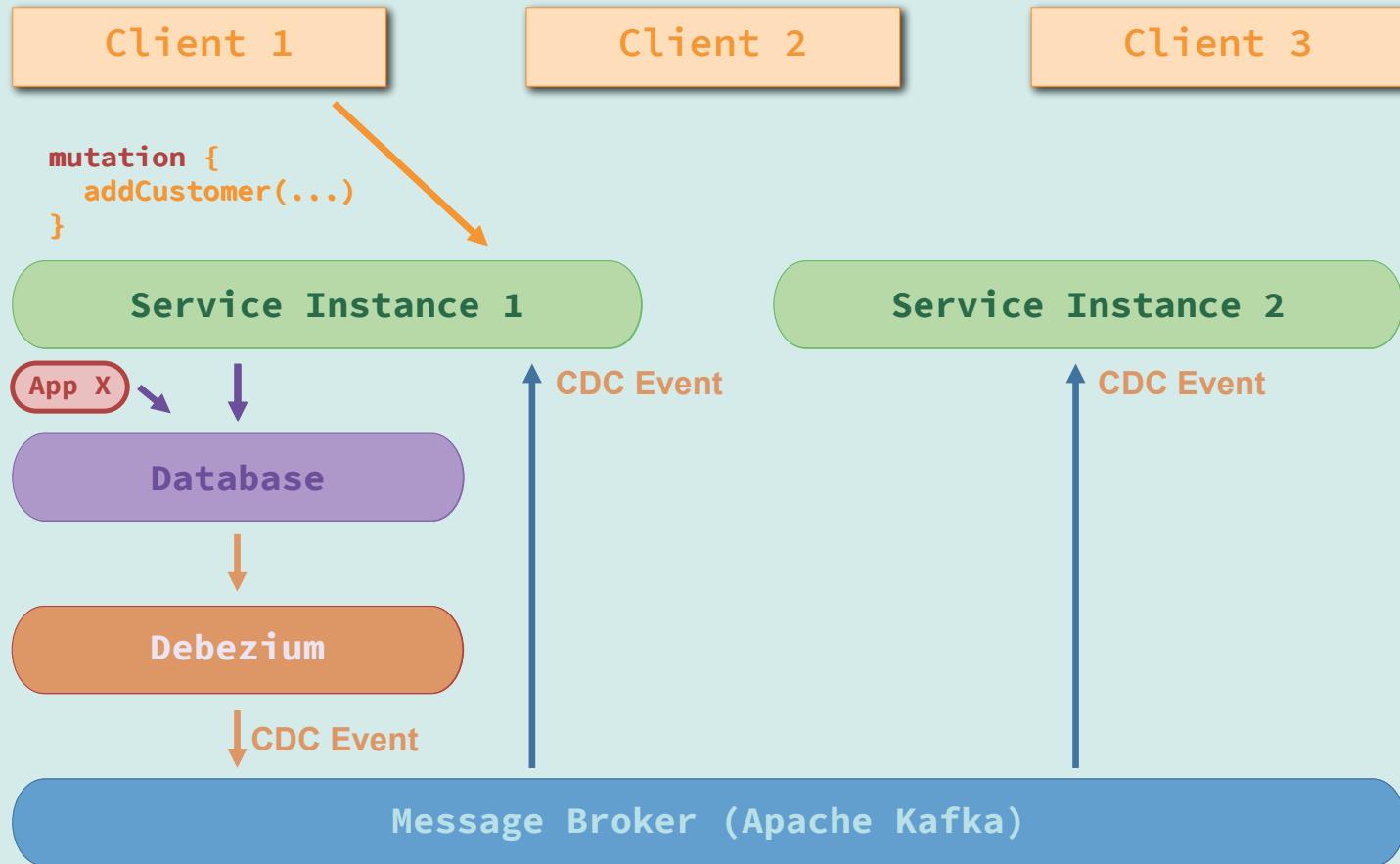
Debezium



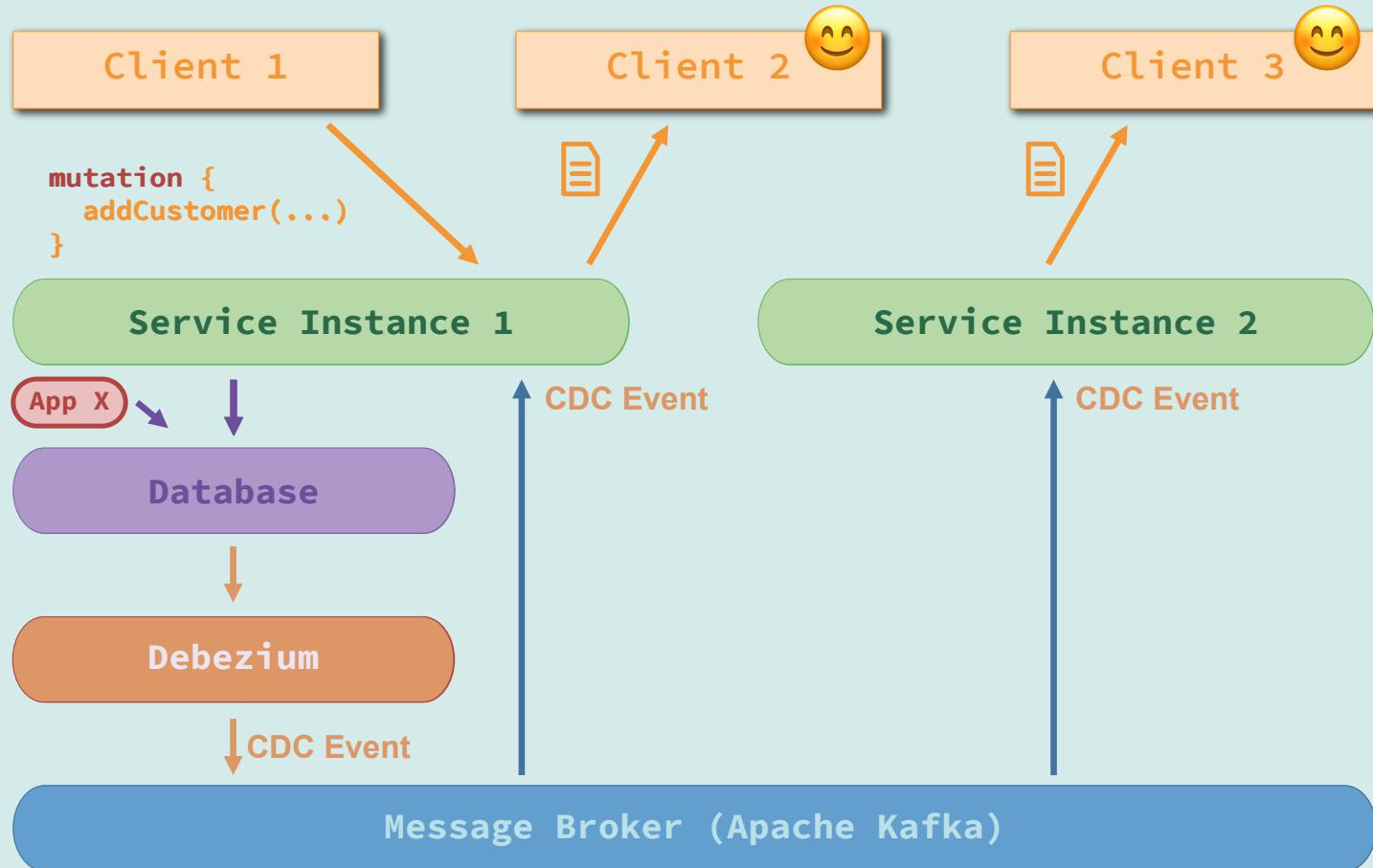
Debezium



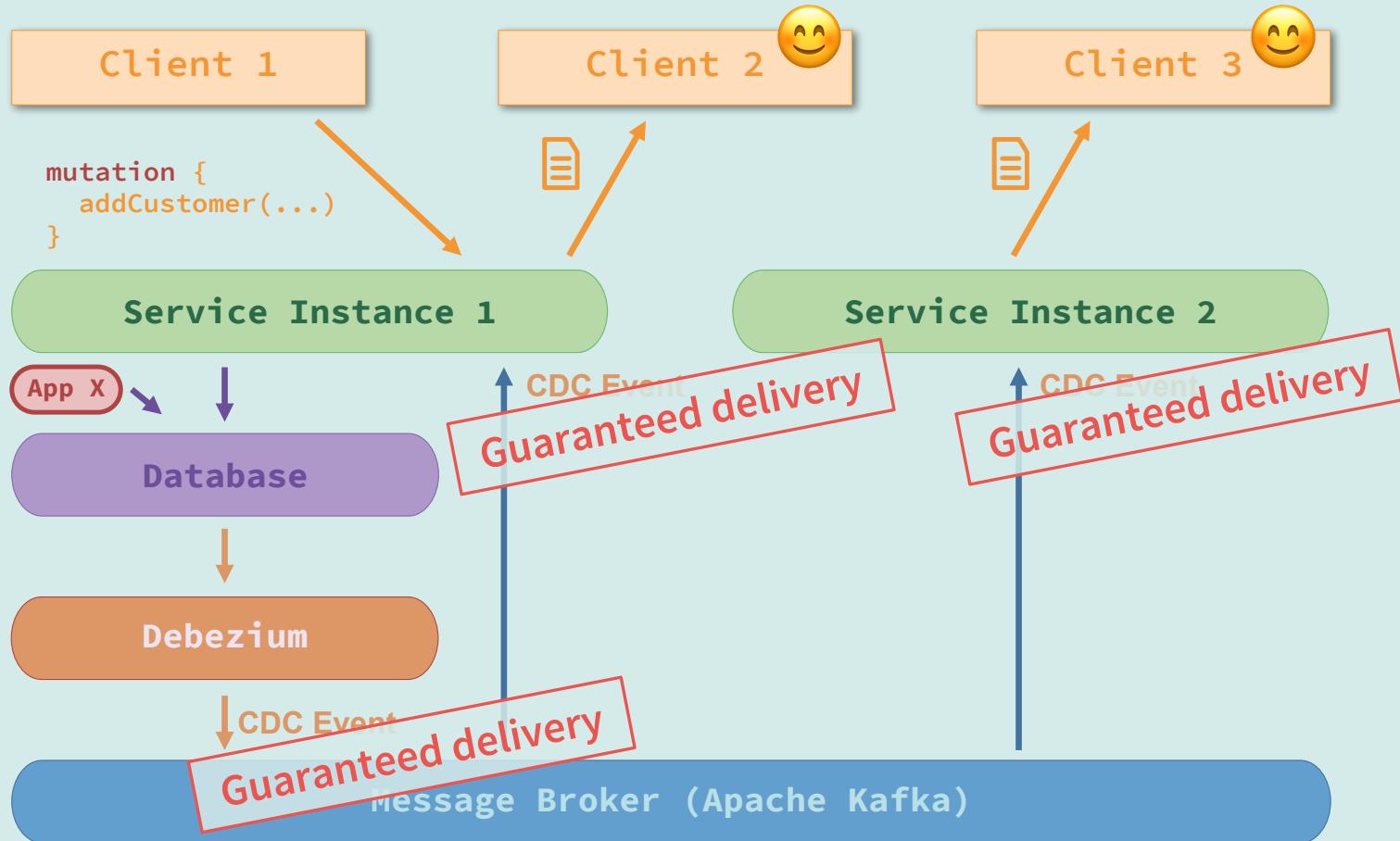
Debezium



Debezium



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Debezium



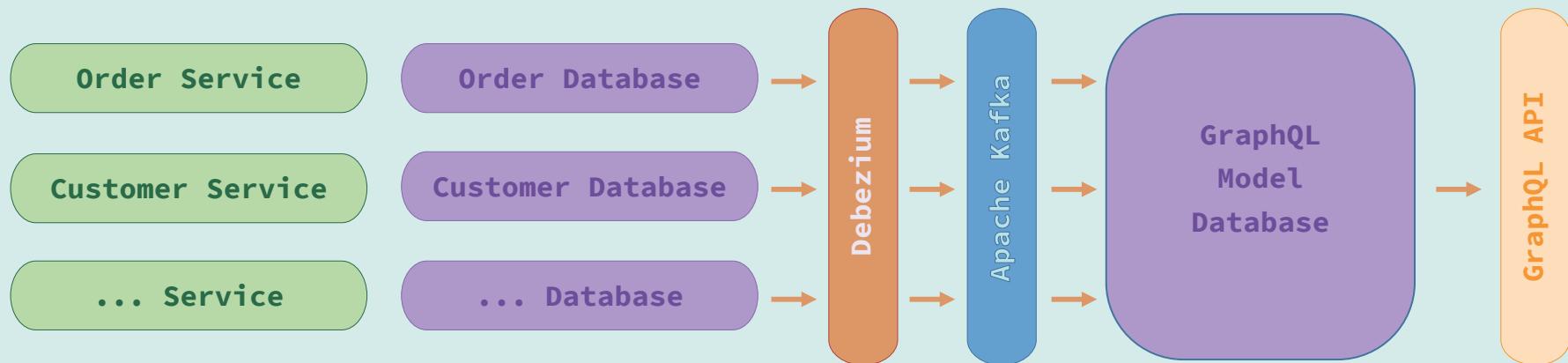
<https://graphql.schule/galaxy-example>

What's next?

"Read model" database for GraphQL API 🤔

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Thanks a lot!

Slides: <https://graphql.schule/galaxy-2022> (PDF)

Source-Code: <https://graphql.schule/galaxy-example>

Contact: nils@nilshartmann.net