Write Side of CQRS

A quick introduction with a small program.

Write Side of CQRS

- Provides mechanisms in order to read and write entities (advertises, publishers, campaigns, etc) in platform’s universe.

Write Side of CQRS

Abstractions

- Database
  - Provides persistent mechanism in order to write/delete a Document/Datum with the notion of StorageUpdate
  - Providers of Database component to choose from:
    - Kafka

```
public interface BomDatabase {

    CompletableFuture<Void> isReady();

    CompletableFuture<Void> write(String topicName, String key, Map<String, byte[]> headers, JsonNode document);

    CompletableFuture<Void> delete(String topicName, String key, Map<String, byte[]> headers);

    CompletableFuture<Void> latchWrite(String topicName, String key, Map<String, byte[]> headers, JsonNode document);

    CompletableFuture<Void> latchDelete(String topicName, String key, Map<String, byte[]> headers);
}
```

Write Side of CQRS

Basic Abstractions

- Storage (Materialized View)
  - It gets updated from Database component periodically (synchronizer)

```
public interface Storage {

        void update(String topicName, StorageUpdate... updates) throws StorageUpdateException;
}
```

  - Provides crud operations on the Documents.
  - Delete: StorageUpdate(key = ‘someValue’, sourceNode = null), so when sourceNode is null, synchronizer removes this entry from Storage.
  - Providers of Storage component to choose from:
    - Elastic Search
    - Heap (in-memory ConcurrentHashMap)

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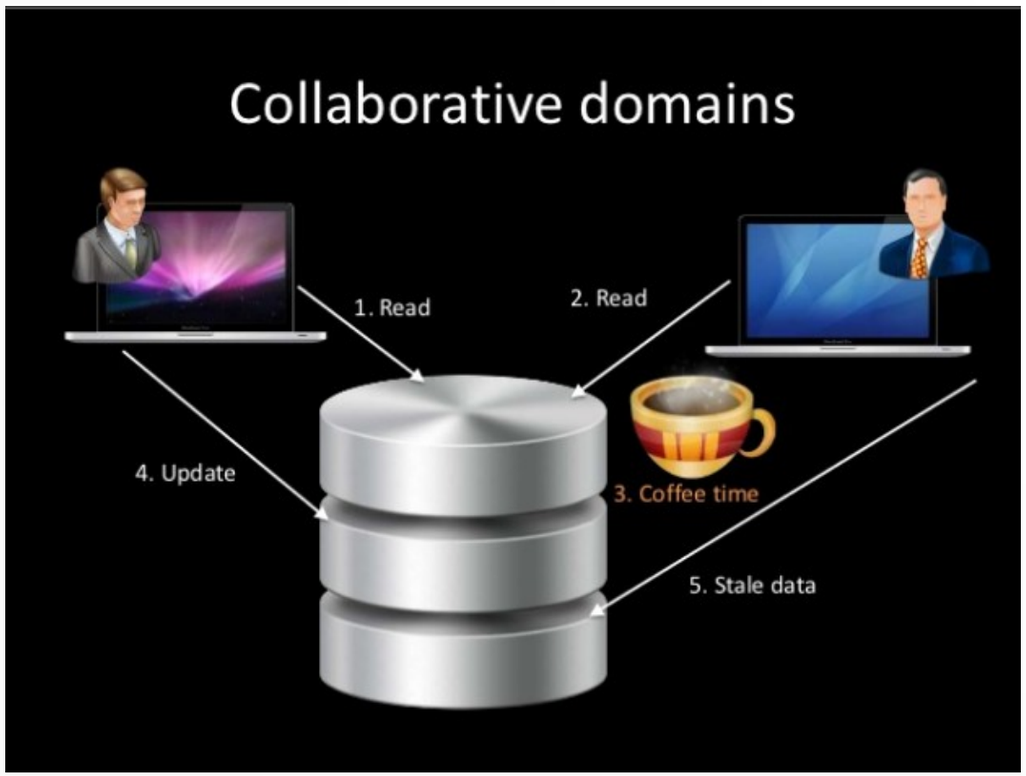
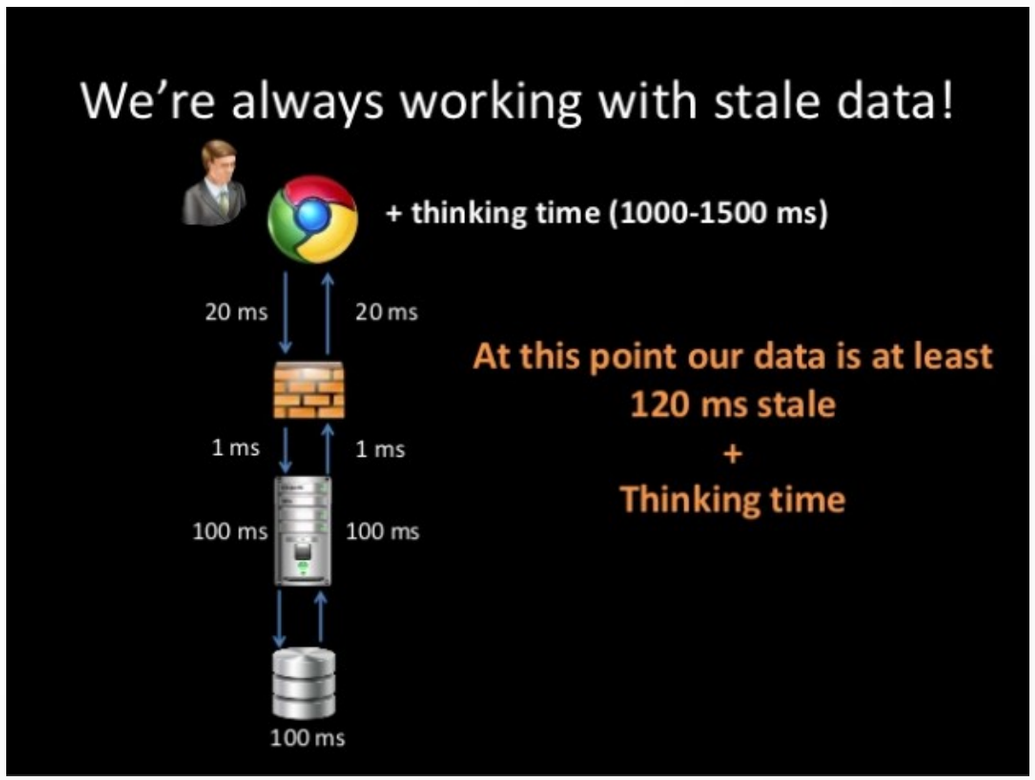
Operations:

- Synchronization Mechanism (Synchronizer)
  - The purpose of synchronization is to reflect the current state of Database component to Storage component, that means we have eventual consistency (consistency gaps defined by time interval of synchronizer)
- Latch write operation
  - Block until operation has applied and Storage is in sync with Database

Write Side of CQRS





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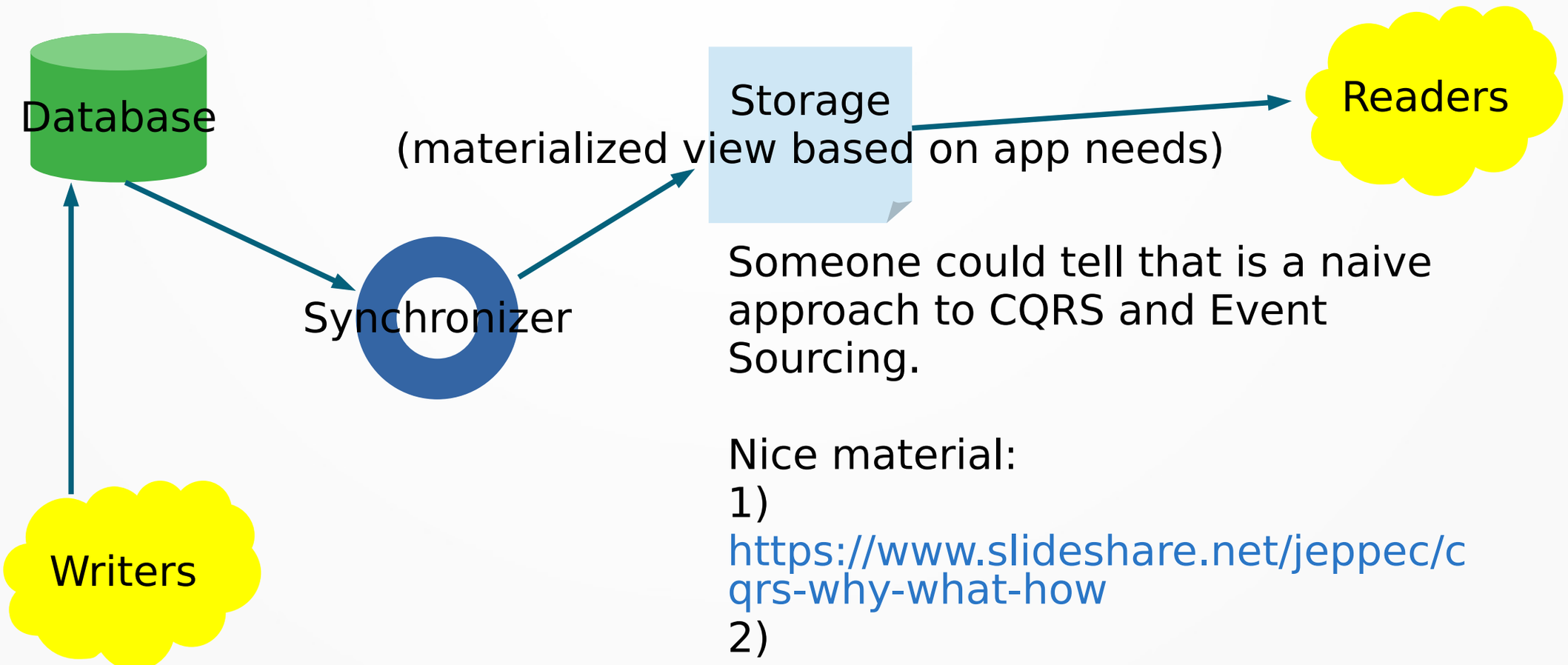

Someone could tell that is a naive approach to CQRS and Event Sourcing.

Nice material:

1)
https://www.slideshare.net/jeppec/cqrs-why-what-how

2)
https://www.slideshare.net/LorenzoNicora/from-c-to-q-one-event-at-the-time-event-sourcing-illustrated

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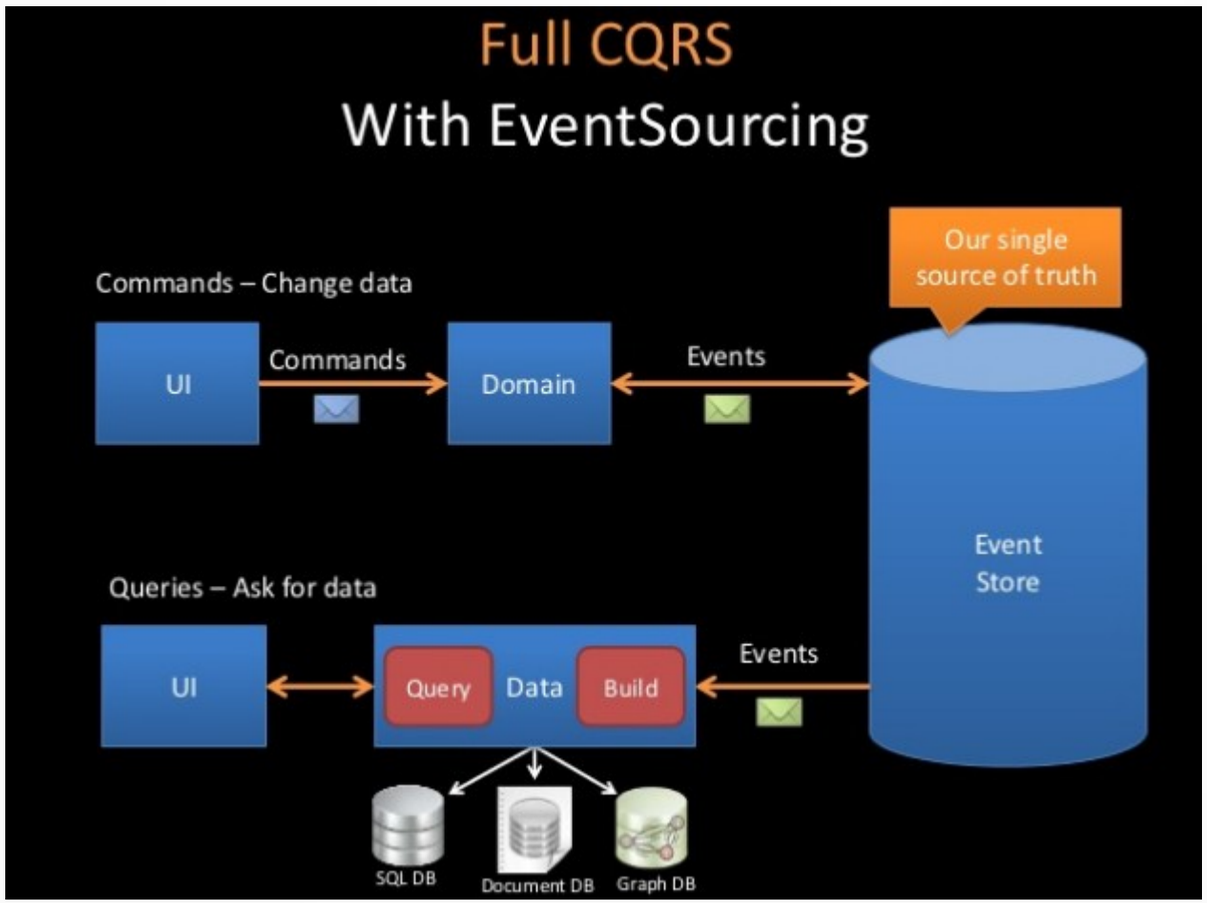

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Demo time

Thank you!