Let us know what you think

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EVENT SOURCING?

- All changes in the system are captured as a sequence of events
WHY EVENT SOURCING?

- IT: Information Technology
  - do not loose information!
- Audit log
- Re-create system state
ME + AUDIT = HIBERNATE ENVERS

```java
@Entity
public class Person {
    @Id
    @GeneratedValue
    private int id;

    @Audited
    private String name;

    @Audited
    private String surname;

    @Audited
    @ManyToOne
    private Address address;
}```
ME

- coder @ SOFTWAREMILL
  - Lightbend consulting partner
- mainly Scala
- open-source: MacWire, ElasticMQ, Bootzooka, ...
- http://www.warski.org / @adamwarski
THE GOAL

- Get the benefits of Event Sourcing …
- … still being able to leverage RDBMS features
  - transactions
  - schema
  - SQL
OTHER APPROACHES

- Event Store (https://geteventstore.com)
- Akka Persistence (http://doc.akka.io/docs/akka/current)
- Eventuate (http://eventuate.io)
- + more
EVENTS

- Immutable
- Primary source of truth
- Past tense
EVENTS

- Payload: arbitrary json (case class)
- Event type (name of class)
- Aggregate type & id
- Id, timestamp
- Transaction id
- User id
**HOW?**

- Events are stored in a dedicated table
- Basing on events, a read model is updated
  - similar to what a “traditional” CRUD model could be
- Consistency: both done in a single transaction
SLICK

- We operate on `DBIOAction[T]`
- a description of actions to be done
  - execution deferred later
- can be sequenced using `flatMap`
- yes, it’s a Monad
EVENT SOURCING LIVE
**POTENTIAL PROBLEMS**

- Ordering of concurrent events operating on the same aggregate root
- `DBIOAction` “leaks”
- Future wrapping
SUMMING UP: FUNCTIONS INVOLVED

- **Commands:** `Data => CommandResult[S, F]`
  that is, `DBIOAction[(Either[S, F], List[Event])]`

- **Event listeners:** `Event => DBIOAction[List[Event]]`

- **Model updates:** `Event => DBIOAction[Unit]`
LINKS

- https://github.com/softwaremill/slick-eventsourcing
- README+blog longer than code
- only a skeleton
- probably for customisation

- https://github.com/adamw/slick-eventsourcing-pres
THANK YOU!
Please

Remember to rate this session

Thank you!