Break New Ground

“If I could change the world…”

– Eric Clapton

Break New Ground

Gerenciamento de transações em ambientes distribuídos

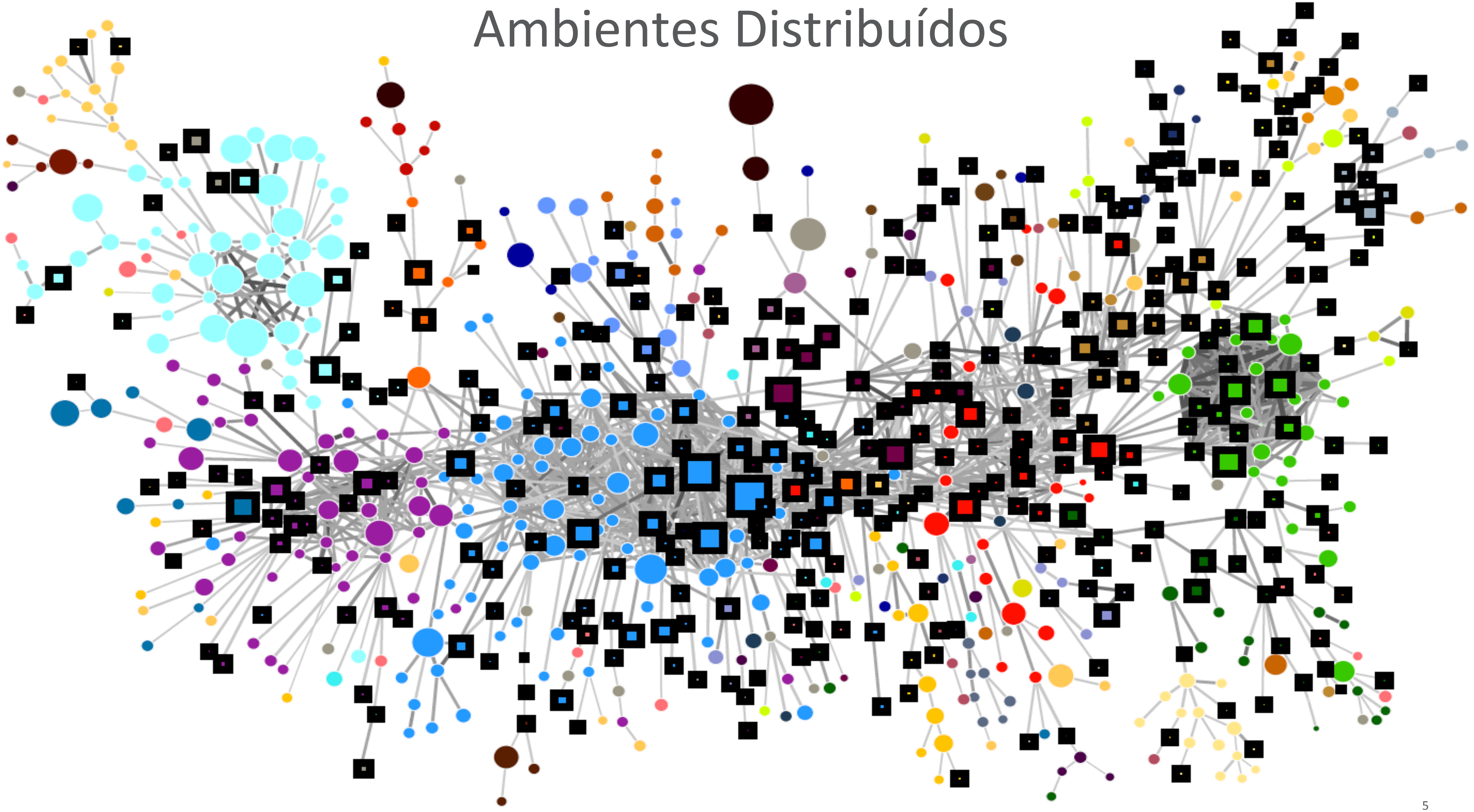
Elder Moraes
Developer Advocate

Julho, 2019

ORACLE

Safe Harbor Statement

Ambientes Distribuídos



Consistência

ACID

Atomicity

Consistency

Isolation

Durability

ACID

Ambientes
Distribuídos

Atomicity

Consistency

Isolation

Durability

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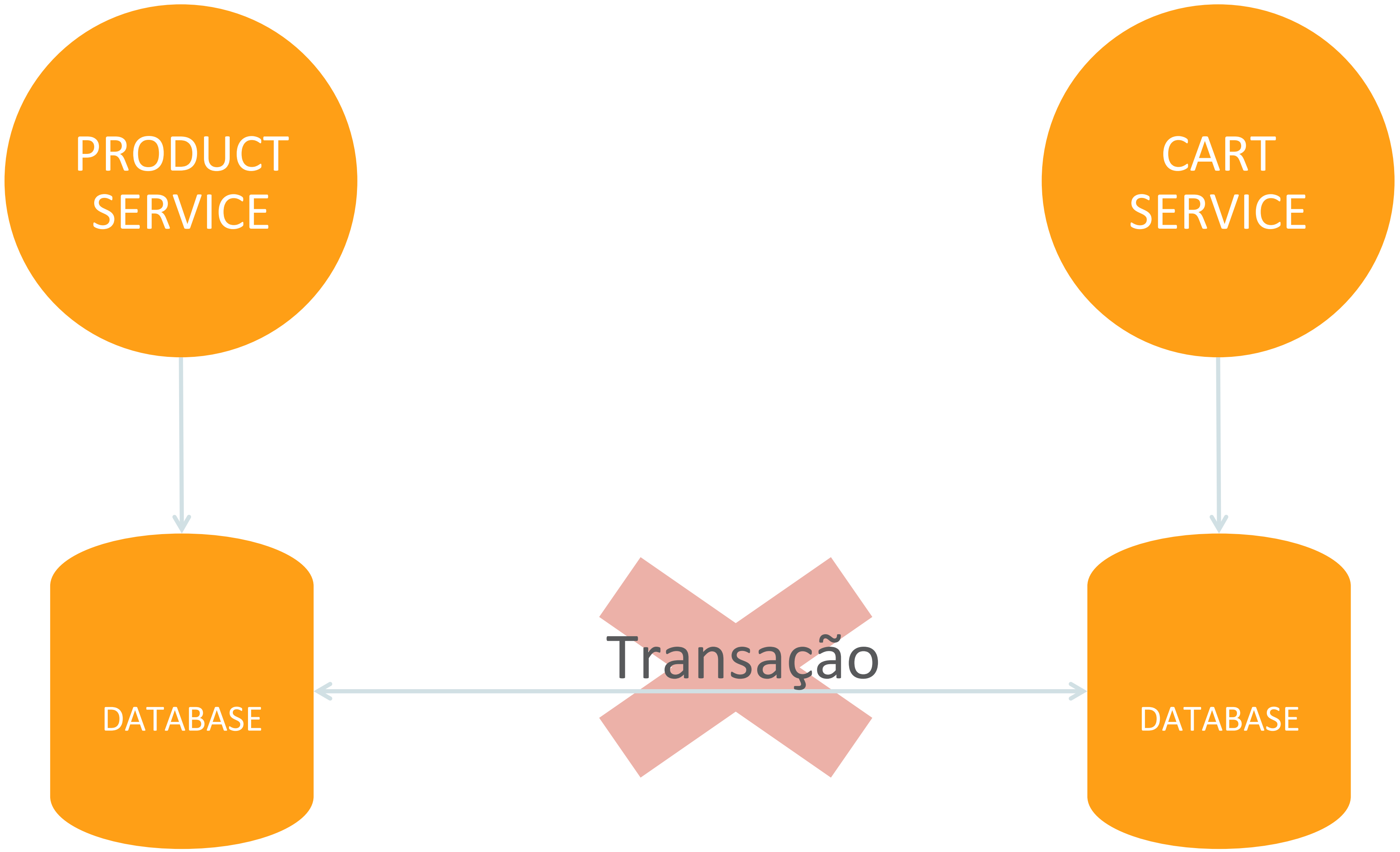

PRODUCT SERVICE
CART SERVICE
DATABASE
Transação
DATABASE

BASE

Basically **A**vailability

Soft-state

Eventual consistency

BASE

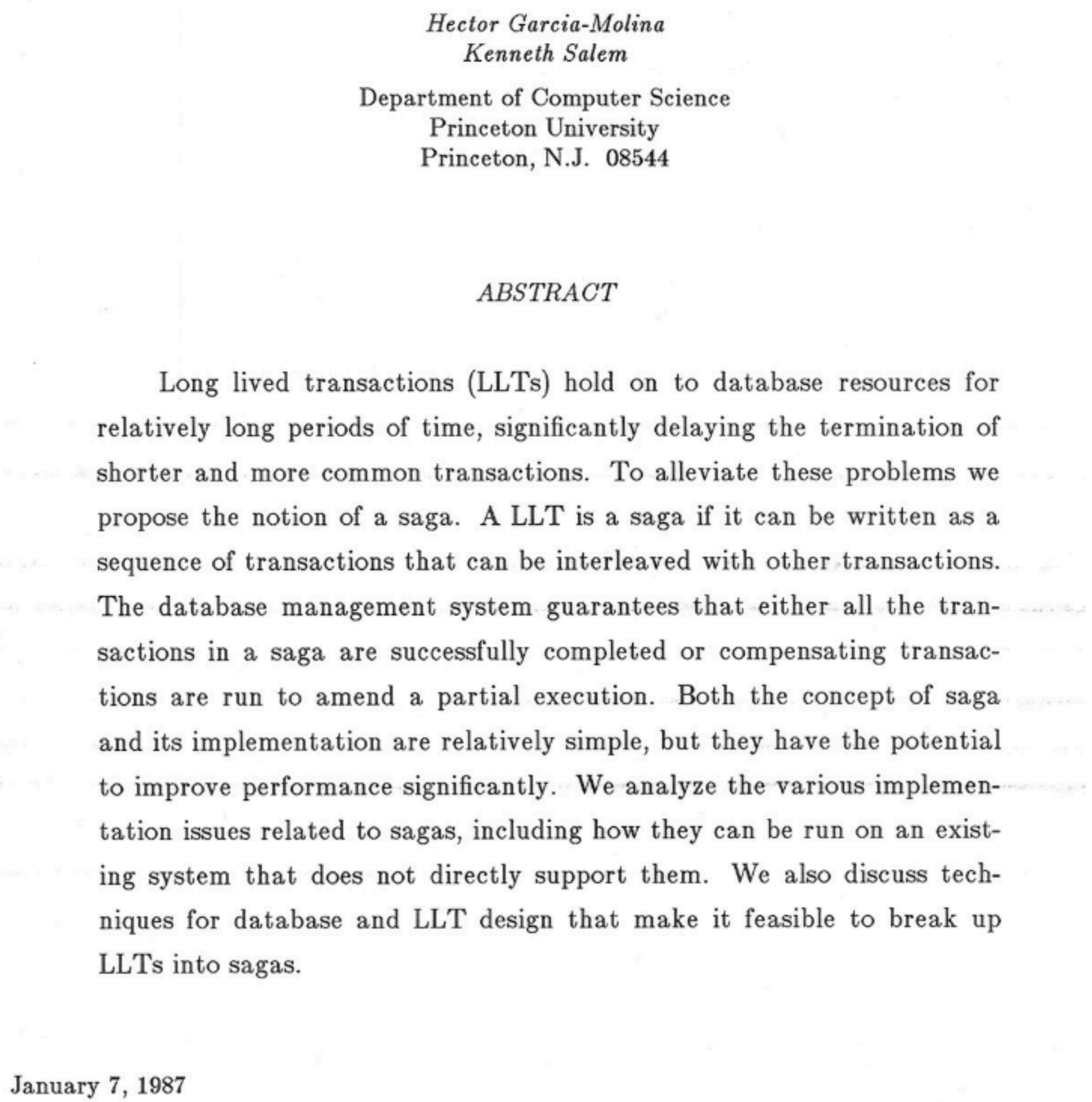
Ambientes Distribuídos

Basically **A**vailability

Soft-state

Eventual consistency

HOW???



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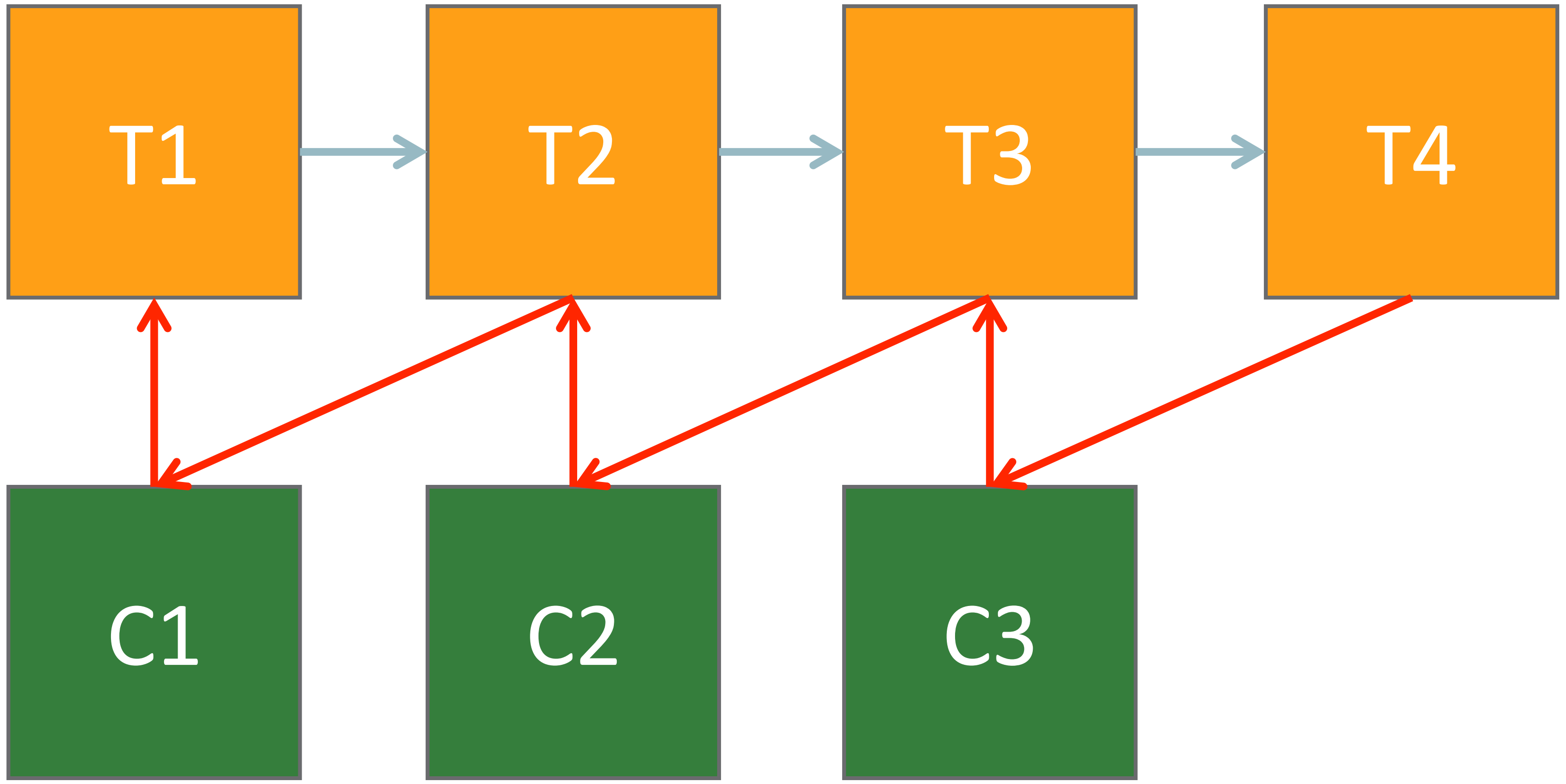
Princeton University
Princeton, N.J. 08544

ABSTRACT

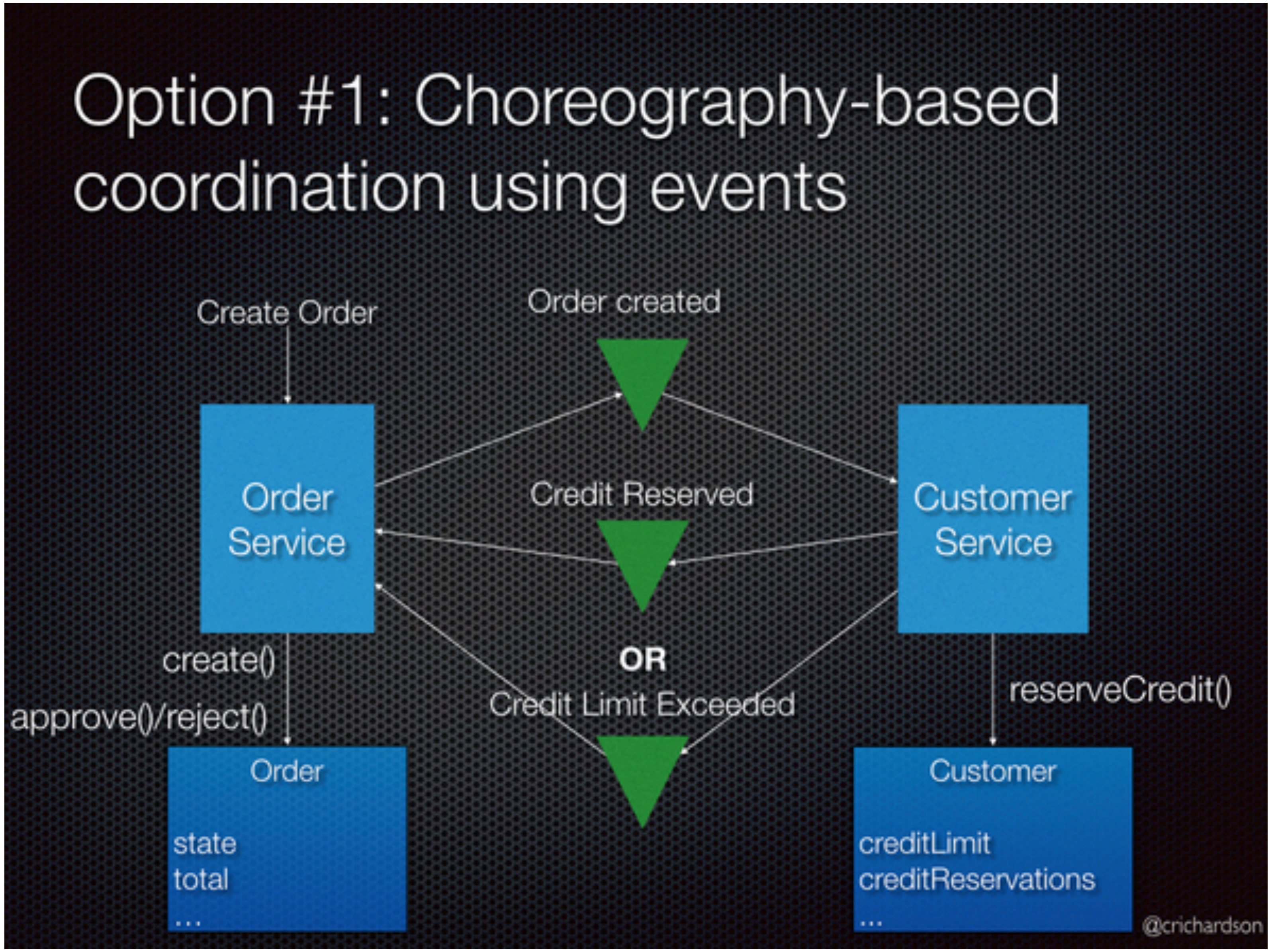
Long lived transactions (LLTs) hold on to database resources for relatively long periods of time, significantly delaying the termination of shorter and more common transactions. To alleviate these problems we propose the notion of a saga. A LLT is a saga if it can be written as a sequence of transactions that can be interleaved with other transactions. The database management system guarantees that either all the transactions in a saga are successfully completed or compensating transactions are run to amend a partial execution. Both the concept of saga and its implementation are relatively simple, but they have the potential to improve performance significantly. We analyze the various implementation issues related to sagas, including how they can be run on an existing system that does not directly support them. We also discuss techniques for database and LLT design that make it feasible to break up LLTs into sagas.

January 7, 1987

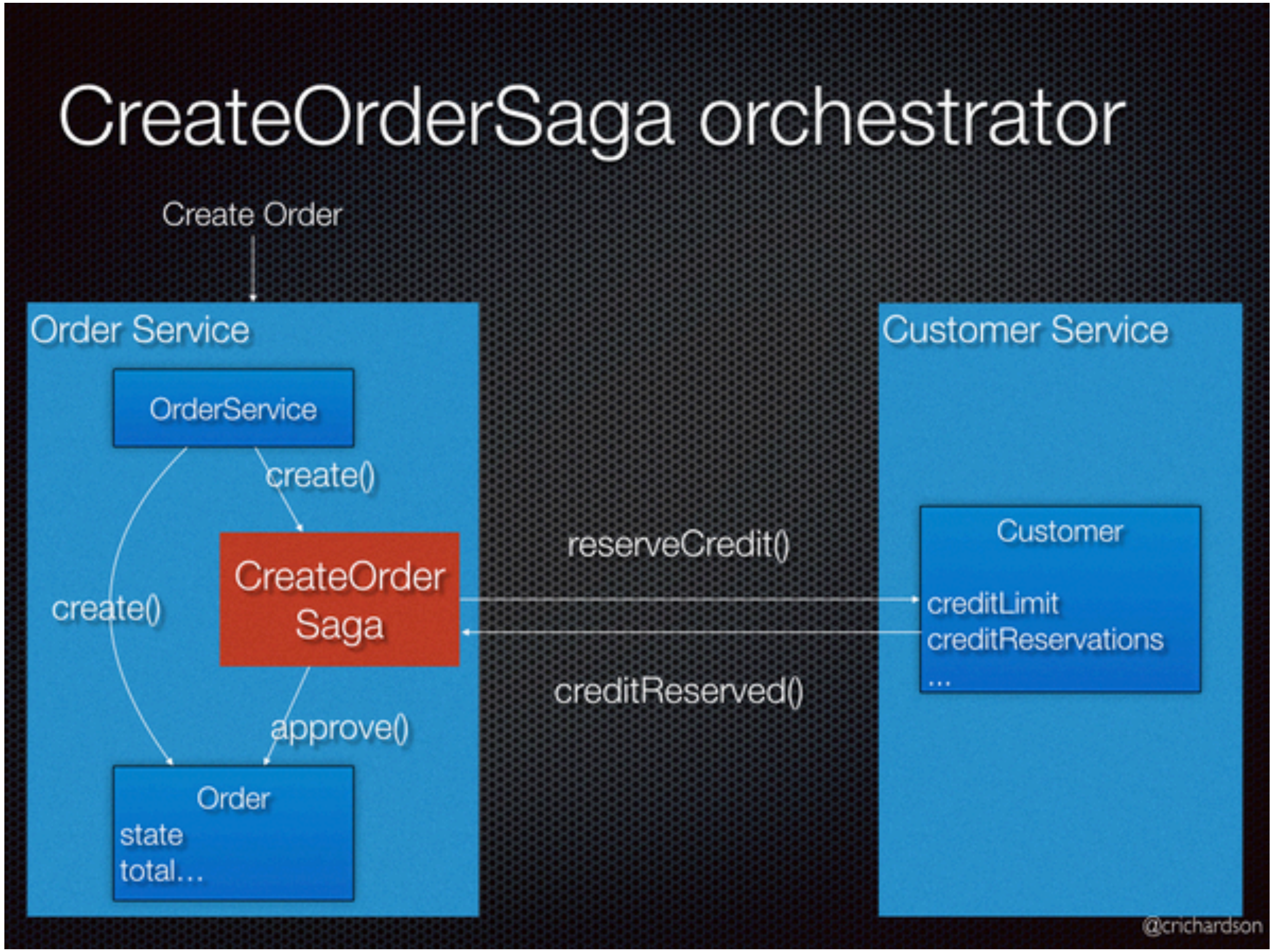
http://bit.ly/sagaspattern



Transações de Compensação



https://microservices.io/patterns/data/saga.html



https://microservices.io/patterns/data/saga.html http://fnproject.io/

https://camel.apache.org/

Apache Camel

- Framework de integração
- Open source
- Baseado nos Enterprise Integration Patterns
- Funciona com HTTP, Active MQ, JMS, JBI, SCA, MINA e CXF
- Integração com Spring, CDI, Blueprint e Guice

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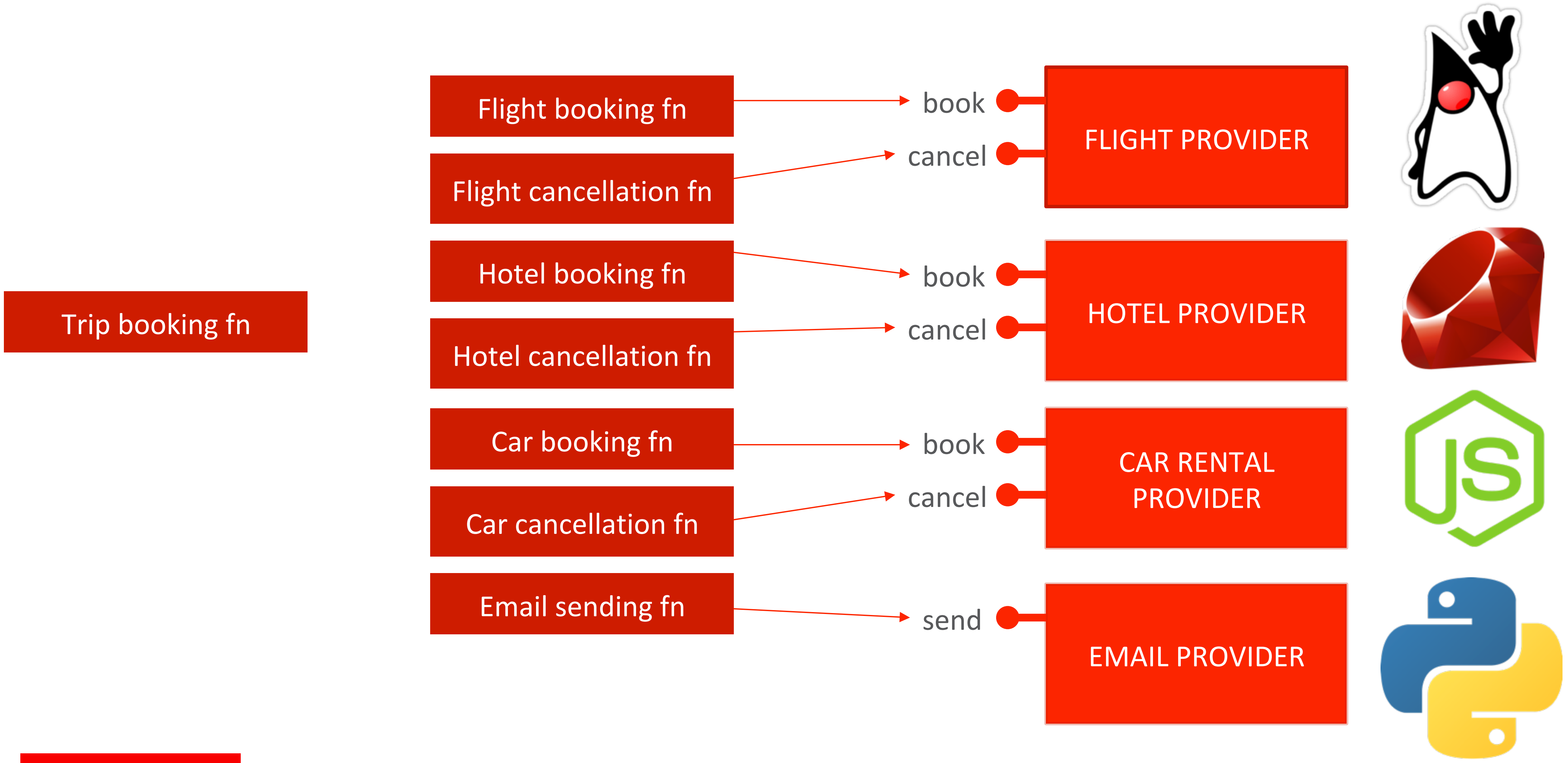
```java
rest().post("/flight/book")
   .param().type(RestParamType.header).name("id").required(true).endParam()
   .route()
   .saga()
       .propagation(SagaPropagation.SUPPORTS)
       .option("id", header("id"))
       .compensation("direct:flight-cancel")
   .log("Buying travel #${header.id}")
   .to("http://localhost:8080/hotel/book")
   .log("Hotel for travel #${header.id} has been booked");

from("direct:flight-cancel")
.log("Travel booking #${header.id} has been cancelled");
```

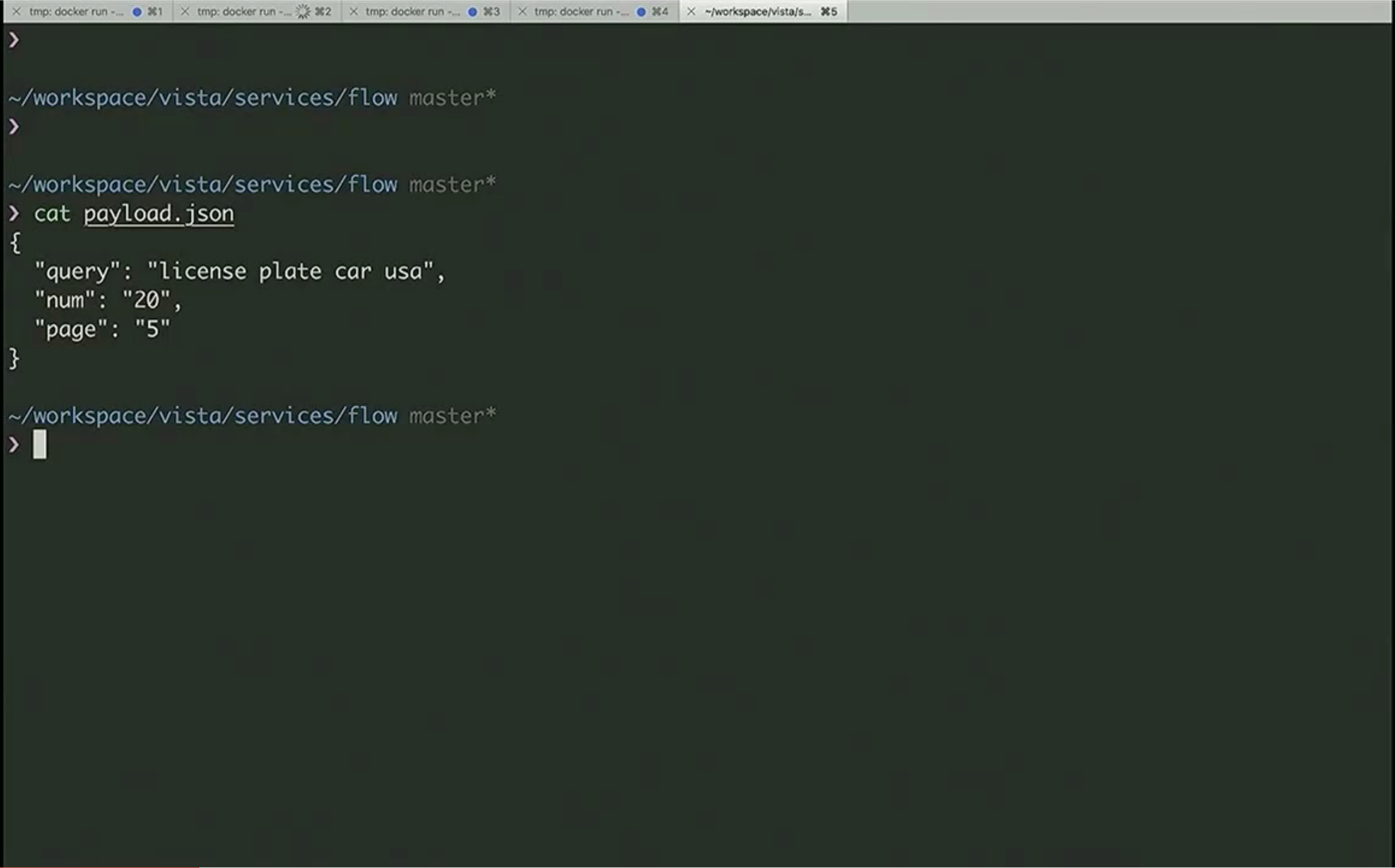
fn

- Plataforma serverless
- Open source
- Baseado em containers Docker
- FaaS
- Fn Flow é módulo que gerencia o encadeamento de funções

ORACLE

```java
public void book(TripReq input) {
     Flow f = Flows.currentFlow();

     FlowFuture<BookingRes> flightFuture =
          f.invokeFunction("./flight/book", input.flight, BookingRes.class);

     FlowFuture<BookingRes> hotelFuture =
          f.invokeFunction("./hotel/book", input.hotel, BookingRes.class);

     FlowFuture<BookingRes> carFuture =
          f.invokeFunction("./car/book", input.carRental, BookingRes.class);

     flightFuture.thenCompose(
          (flightRes) -> hotelFuture.thenCompose(
               (hotelRes) -> carFuture.whenComplete(
                    (carRes, e) -> EmailReq.sendSuccessMail(flightRes, hotelRes, carRes)
               )
               .exceptionallyCompose( (e) -> retryCancel("./car/cancel", input.carRental, e)
          )
          .exceptionallyCompose( (e) -> retryCancel("./hotel/cancel", input.hotel, e) )
     )
     .exceptionallyCompose( (e) -> retryCancel("./flight/cancel", input.flight, e) )
     .exceptionally( (err) -> {EmailReq.sendFailEmail(); return null;} );
}
```

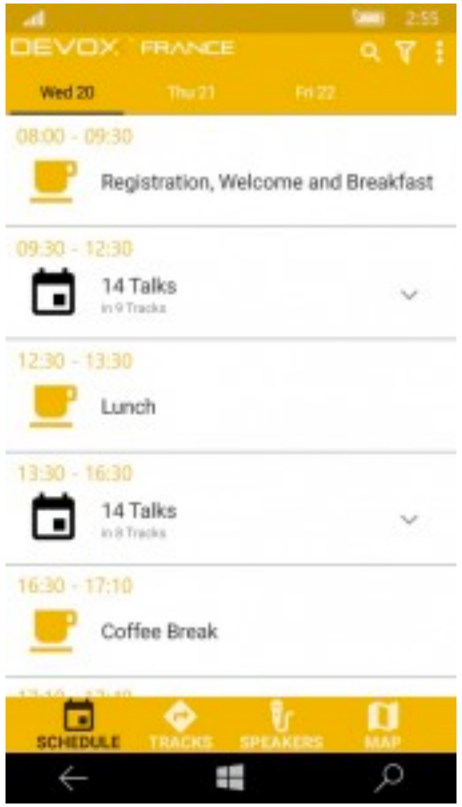

Trip booking fn
Flight booking fn
Flight cancellation fn
Hotel booking fn
Hotel cancellation fn
Car booking fn
Car cancellation fn
Email sending fn
book
cancel
FLIGHT PROVIDER
book
cancel
HOTEL PROVIDER
book
cancel
CAR RENTAL PROVIDER
send
EMAIL PROVIDER



tmp: docker run -... ⌘1 | tmp: docker run -... ⌘2 | tmp: docker run -... ⌘3 | tmp: docker run -... ⌘4 | ~/workspace/vista/s... ⌘5

```
❯

~/workspace/vista/services/flow master*
❯

~/workspace/vista/services/flow master*
❯ cat payload.json
{
  "query": "license plate car usa",
  "num": "20",
  "page": "5"
}

~/workspace/vista/services/flow master*
❯
```

My Devoxx, by Gluon


2:55

DEVOX FRANCE

Wed 20 Thu 21 Fri 22

08:00 - 09:30
Registration, Welcome and Breakfast

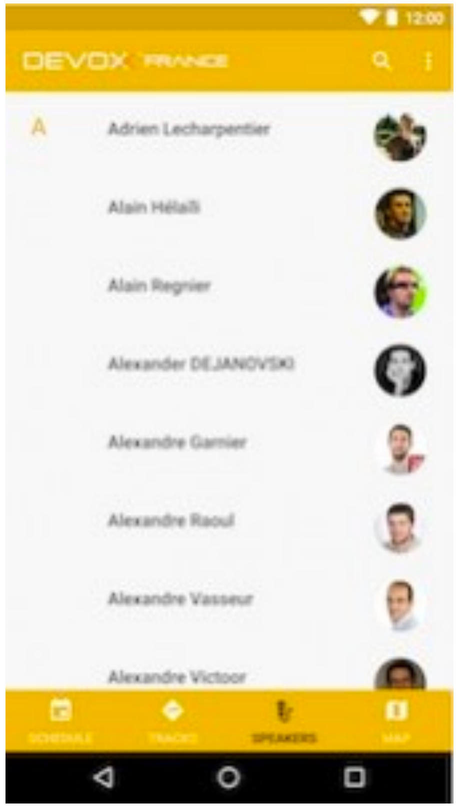
09:30 - 12:30
14 Talks
in 9 Tracks

12:30 - 13:30
Lunch

13:30 - 16:30
14 Talks
in 8 Tracks

16:30 - 17:10
Coffee Break

SCHEDULE TRACKS SPEAKERS MAP

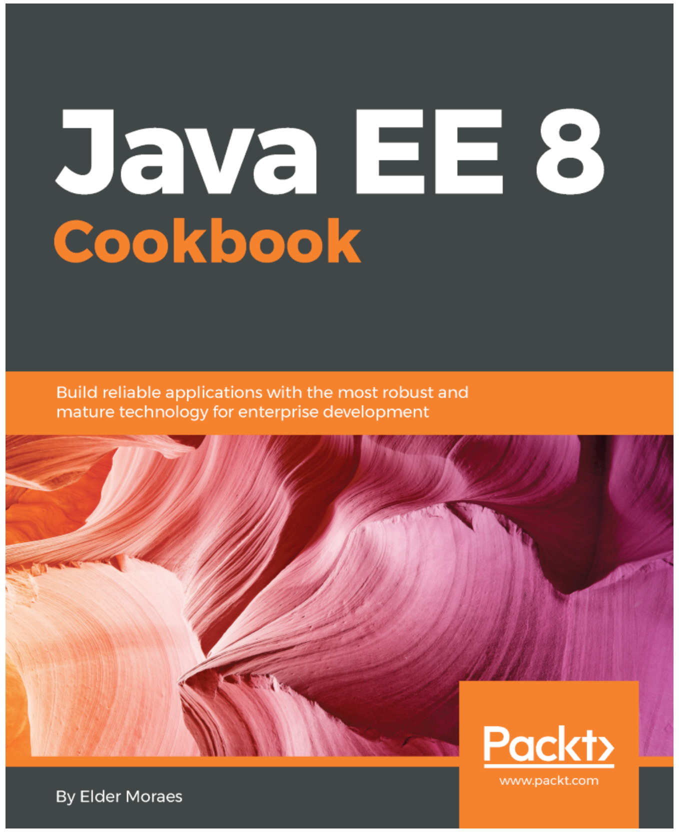

12:00

DEVOX FRANCE

A
Adrien Lecharpentier
Alain Hélaili
Alain Regnier
Alexander DEJANOVSKI
Alexandre Garnier
Alexandre Raoul
Alexandre Vasseur
Alexandre Victoor

SCHEDULE TRACKS SPEAKERS MAP

http://gluonhq.com/serverless-functions-gluon-cloudlink-oracle-fn/


Java EE 8
Cookbook
Build reliable applications with the most robust and mature technology for enterprise development
Packt>
www.packt.com
By Elder Moraes

@elderjava

book.eldermoraes.com

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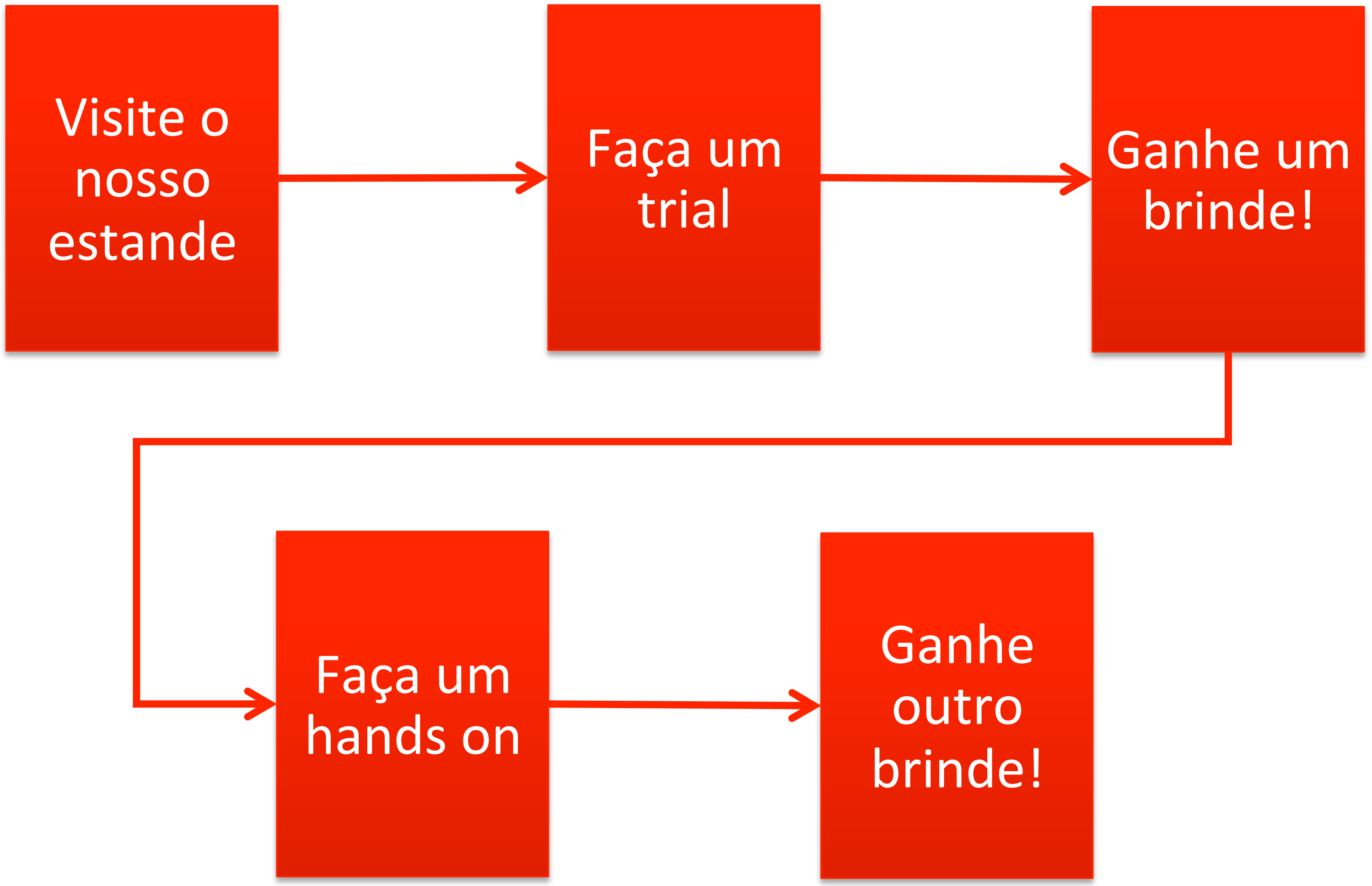
SOUJava
sociedade de usuários java

Java@Cloud Age

bit.ly/javacloudage


Visite o nosso estande
Faça um trial
Ganhe um brinde!
Faça um hands on
Ganhe outro brinde!

Break New Ground

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