Event Sourcing with Elixir

By Peter Ullrich

Why use Event Sourcing?

Why use Event-Sourcing?

1. Auditing
2. Debugging
3. Historic State (aka. Time Travel)
4. Alternative State
5. Recover lost state
6. Memory Image

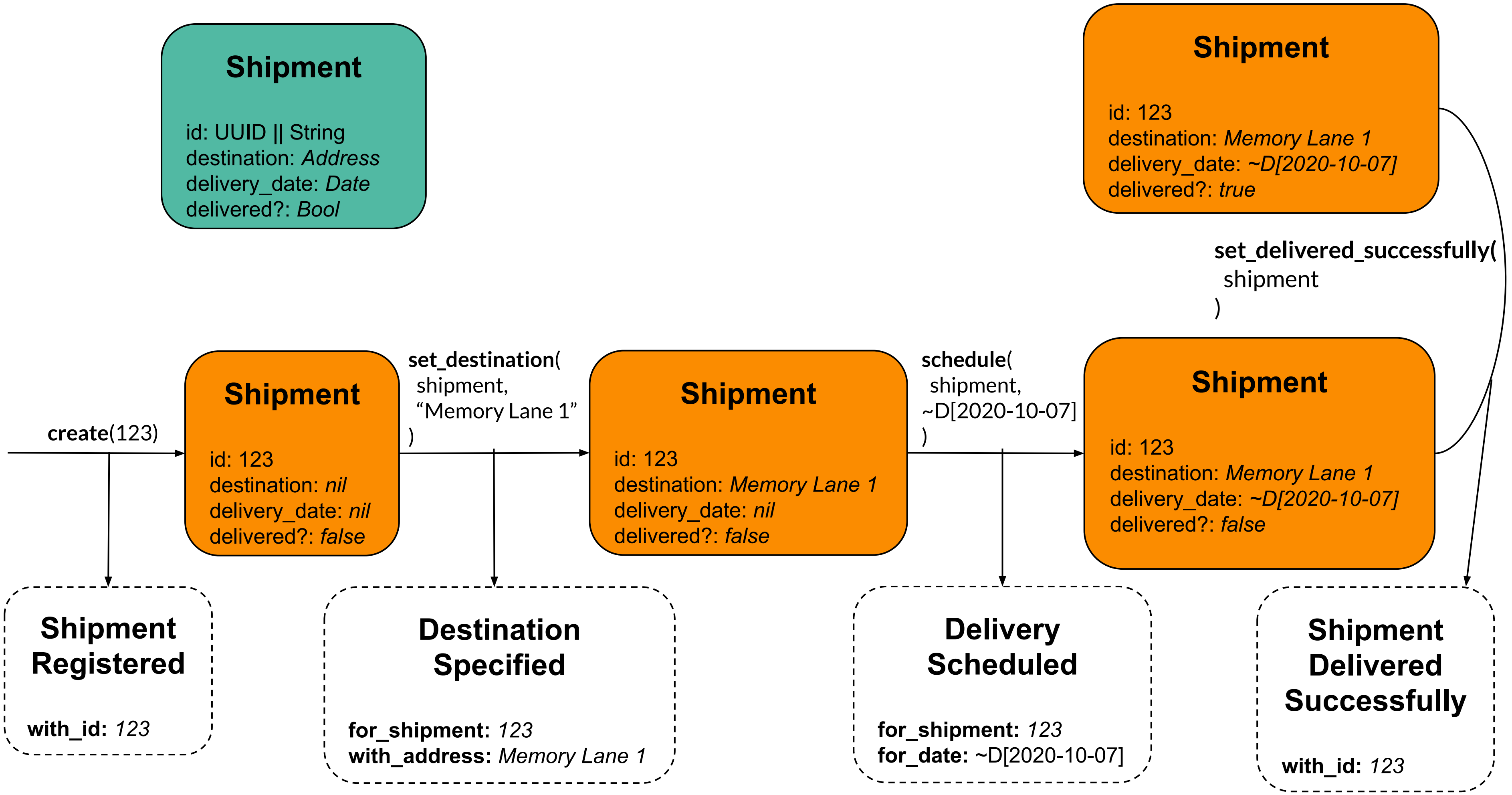
What is “Event Sourcing”?

What is Event-Sourcing?

Technique

1. Document every Application State Change with an Event
2. Persist all Events in a (separate) storage system
3. That’s it (more or less)

Example


Shipment
id: UUID || String
destination: *Address*
delivery_date: *Date*
delivered?: *Bool*
create(123)
Shipment
id: 123
destination: *nil*
delivery_date: *nil*
delivered?: *false*
set_destination(shipment, "Memory Lane 1")
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schedule(shipment, ~D[2020-10-07])
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Shipment Registered
with_id: *123*
Destination Specified
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Delivery Scheduled
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Shipment Delivered Successfully
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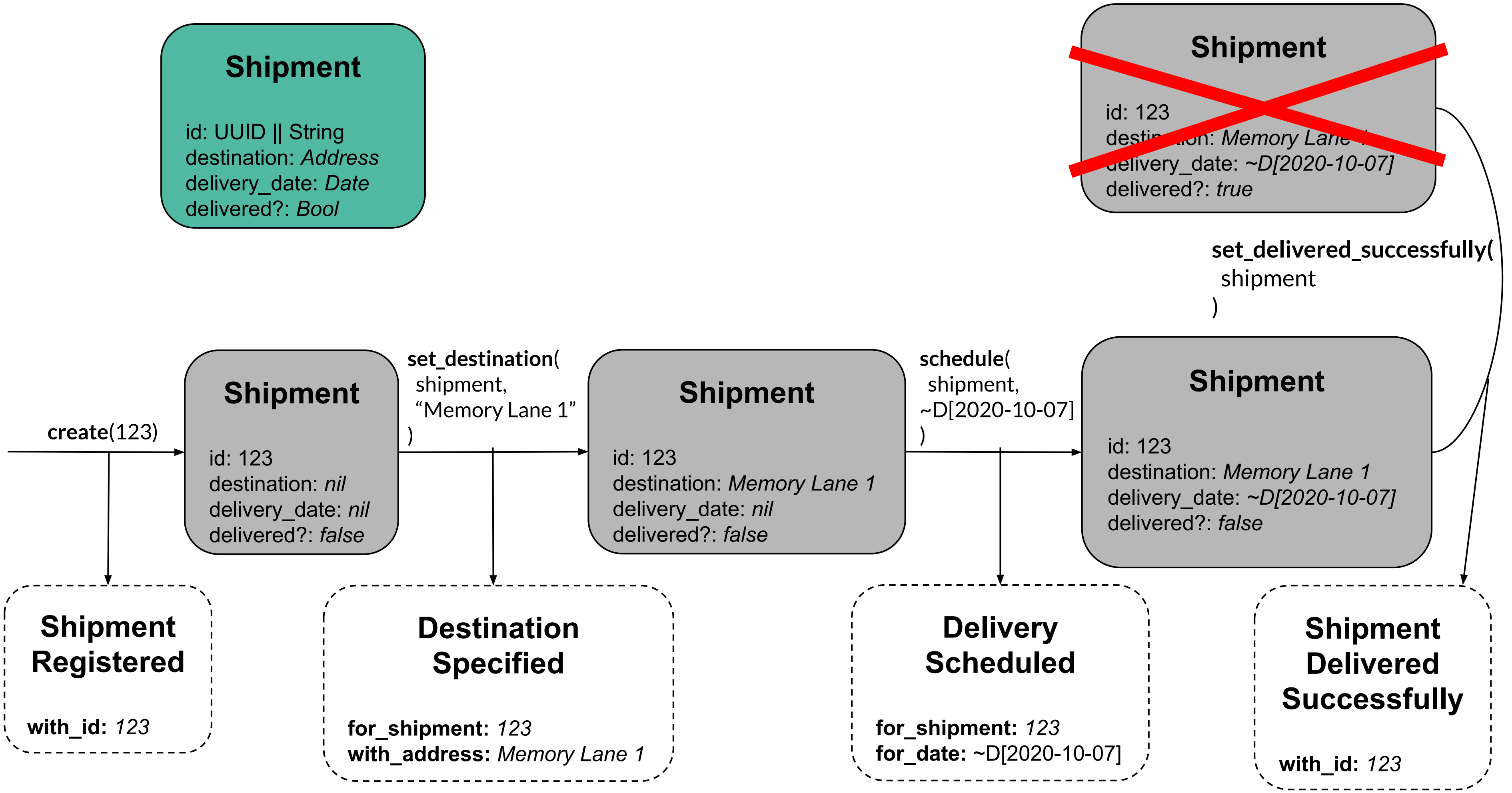
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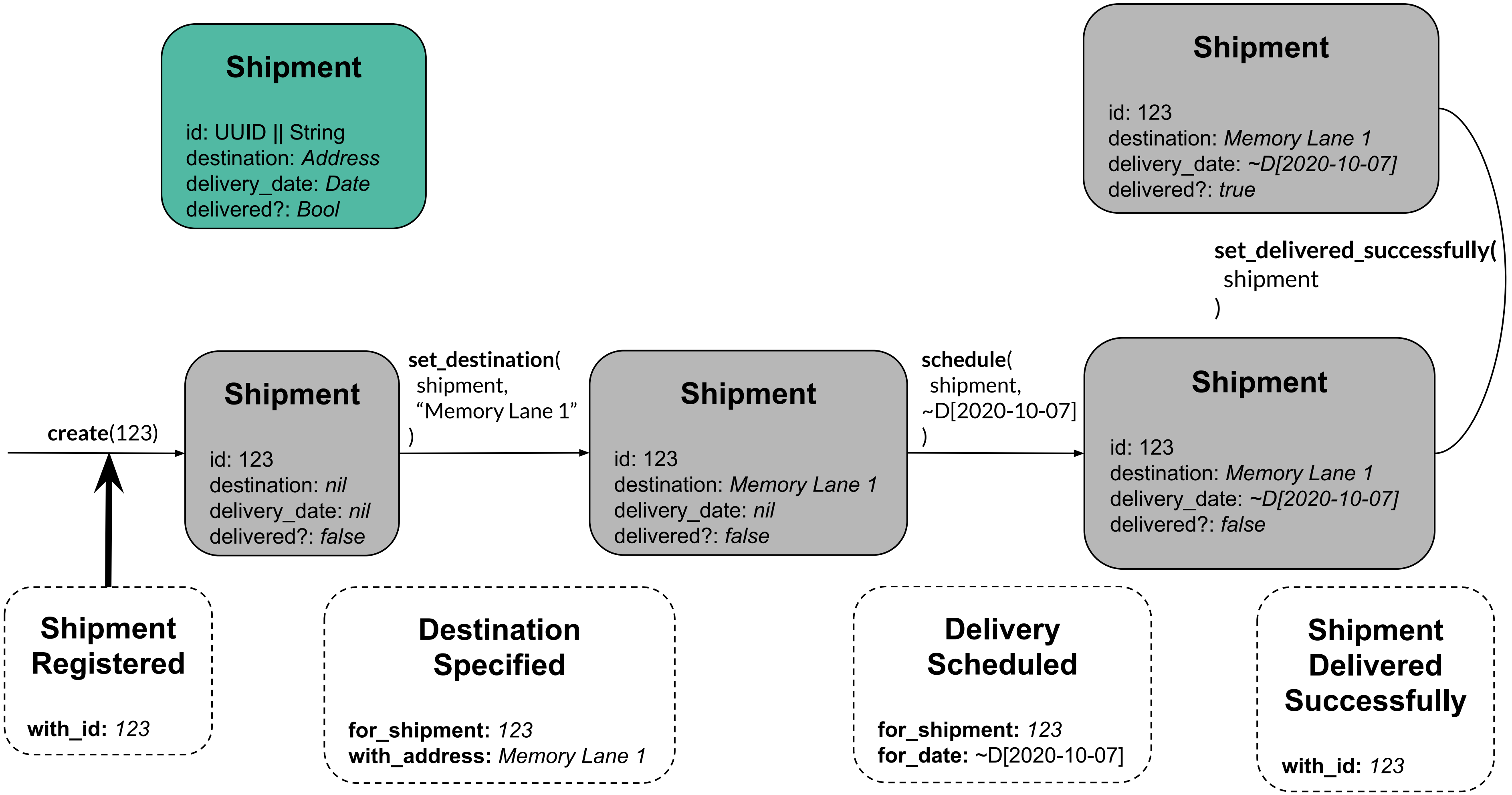
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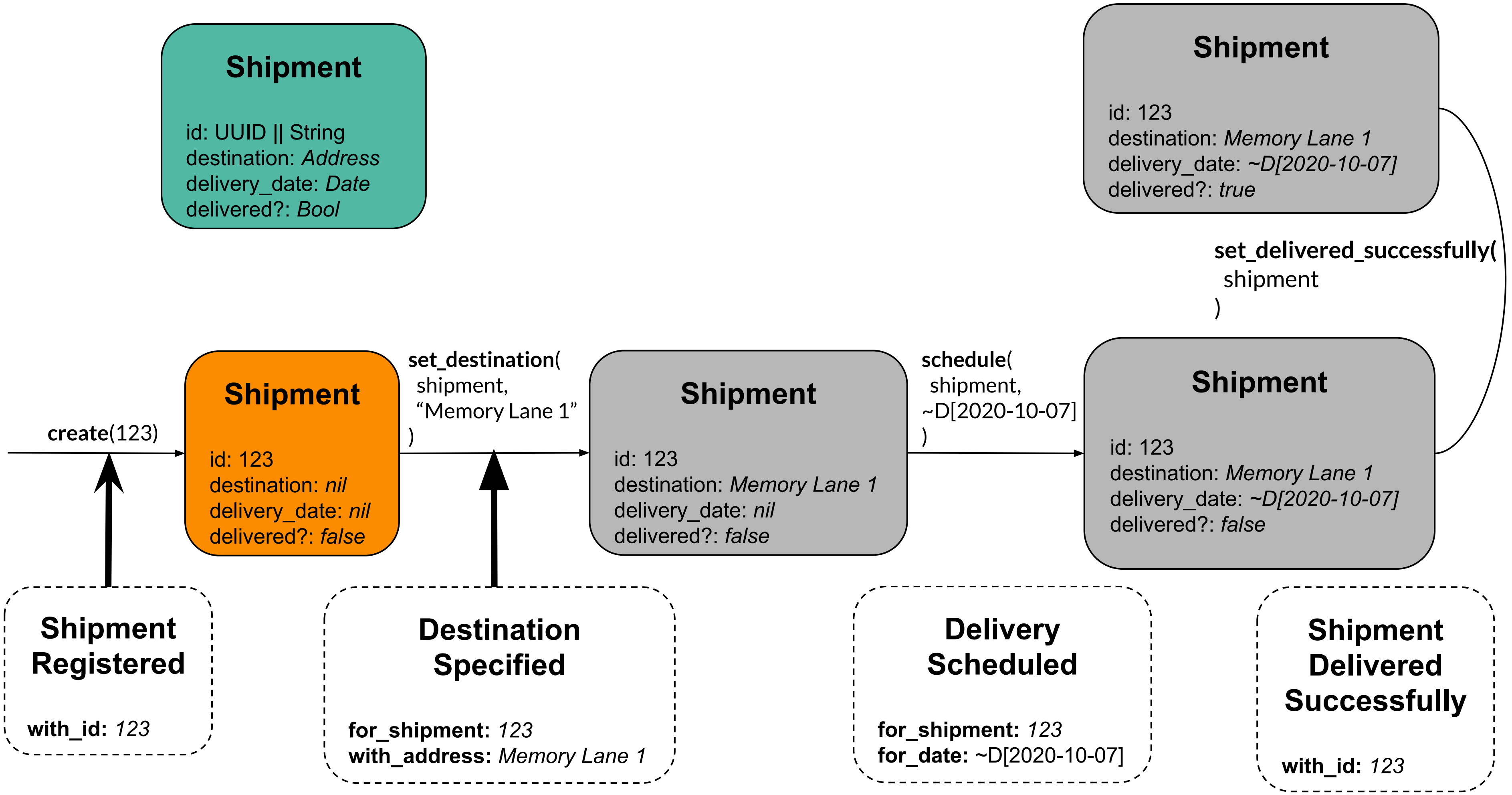
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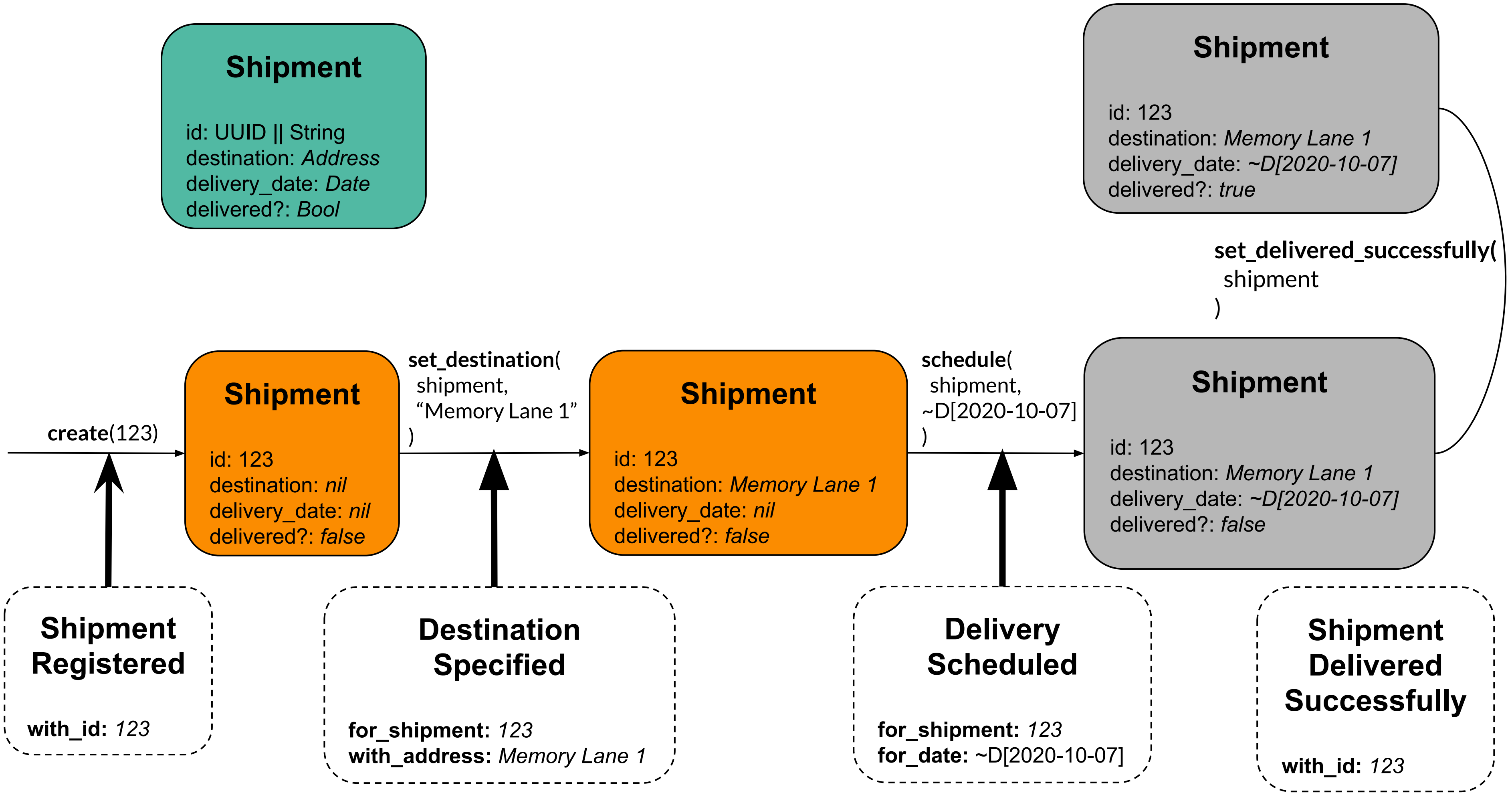
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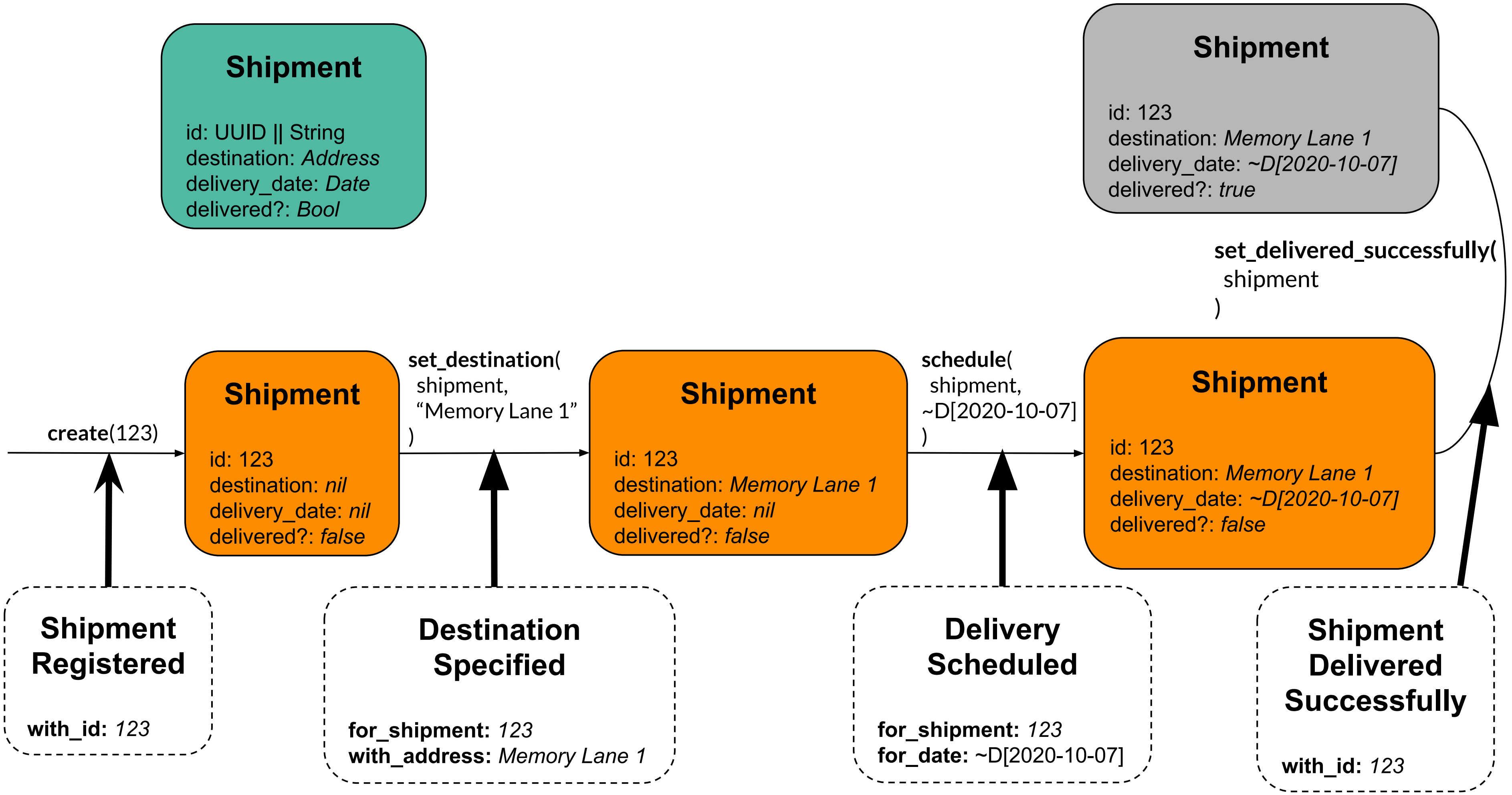
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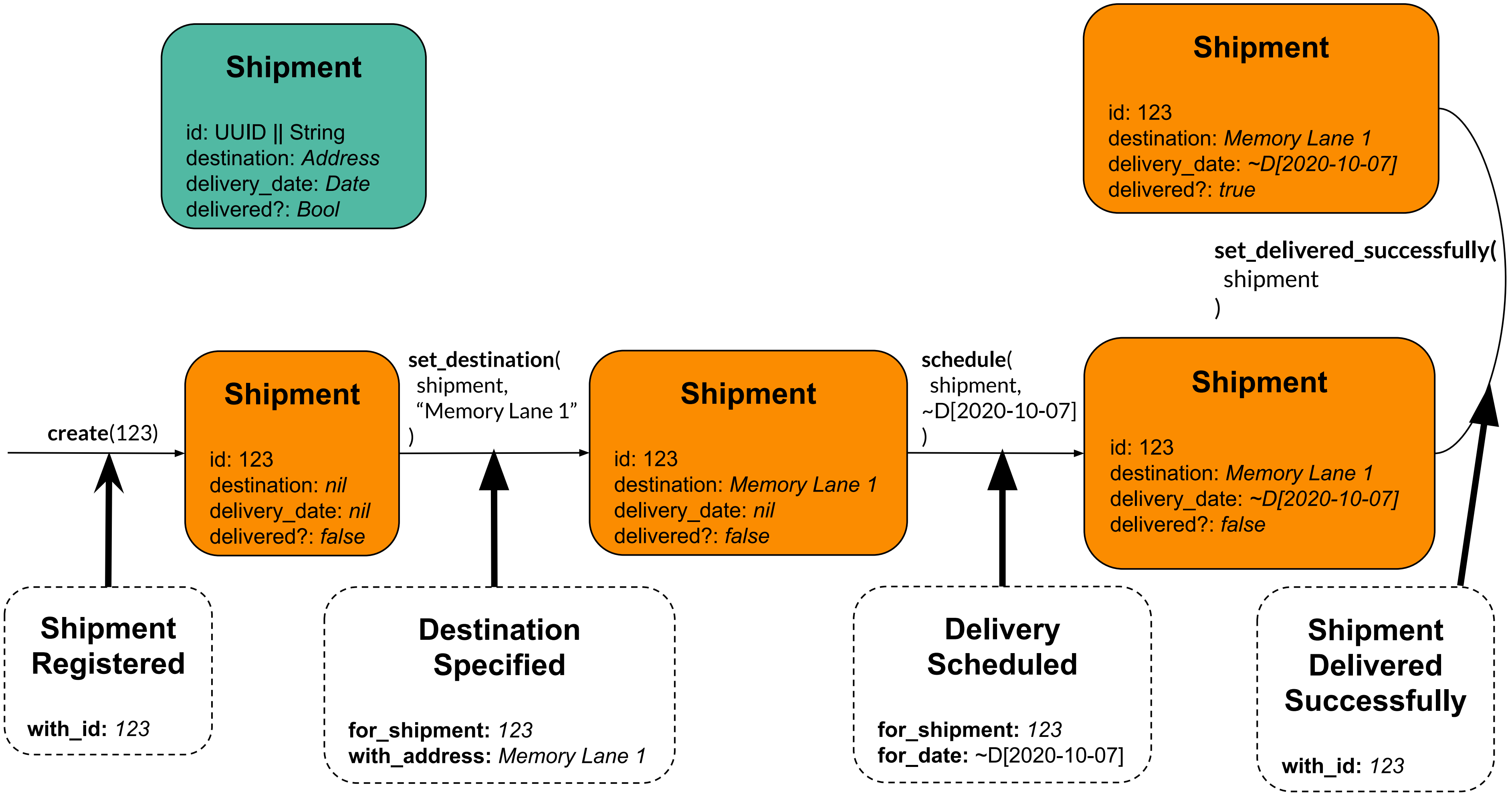
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Streams & Events

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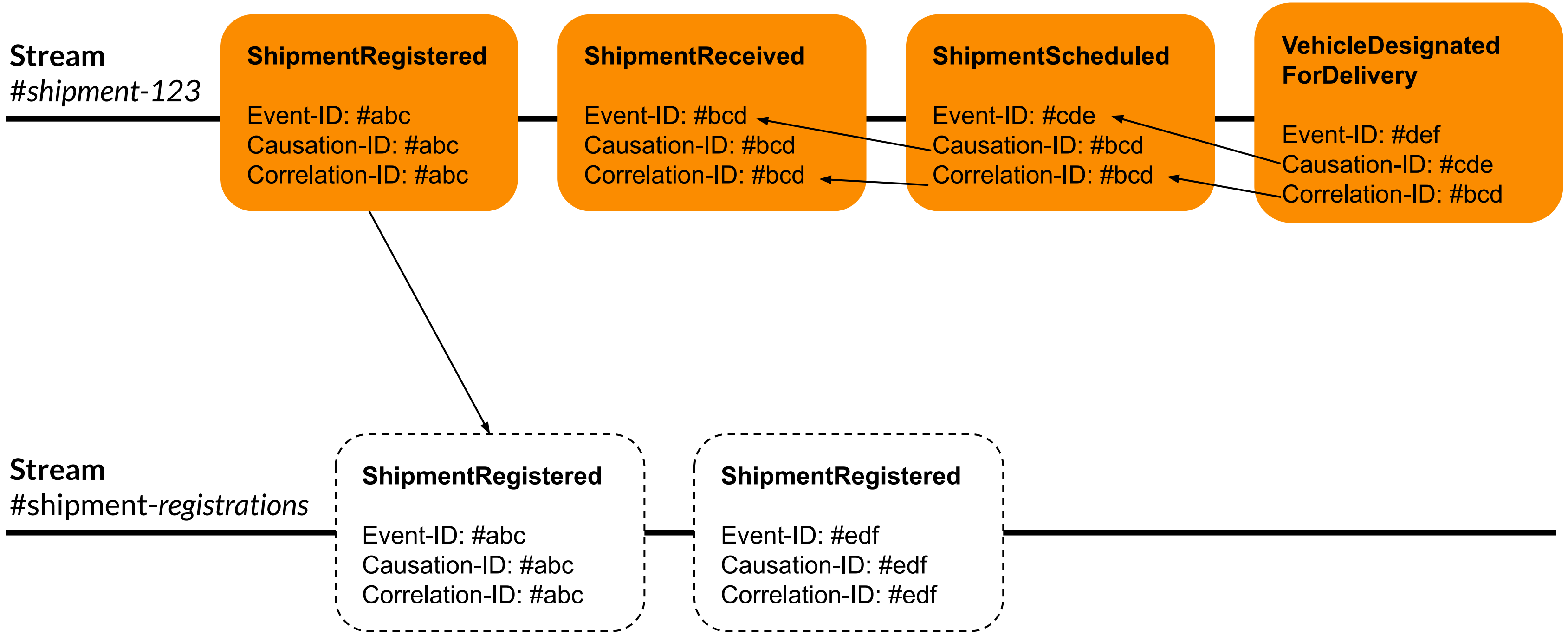


How to get started?
(Demo)

Pros & Cons

Pros & Cons of the Commanded EventStore

Pros

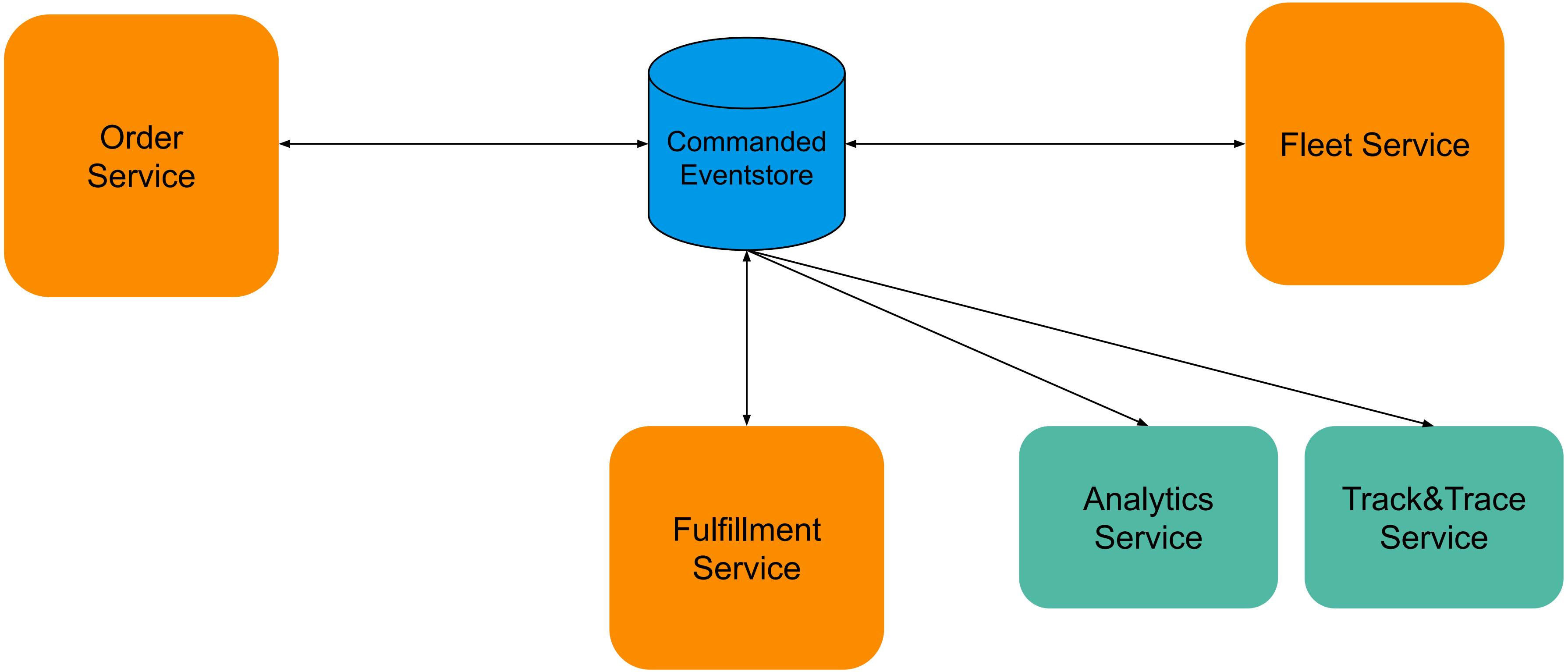
- (Relatively) easy to set up
- Not too hard to understand
- Good documentation

Cons

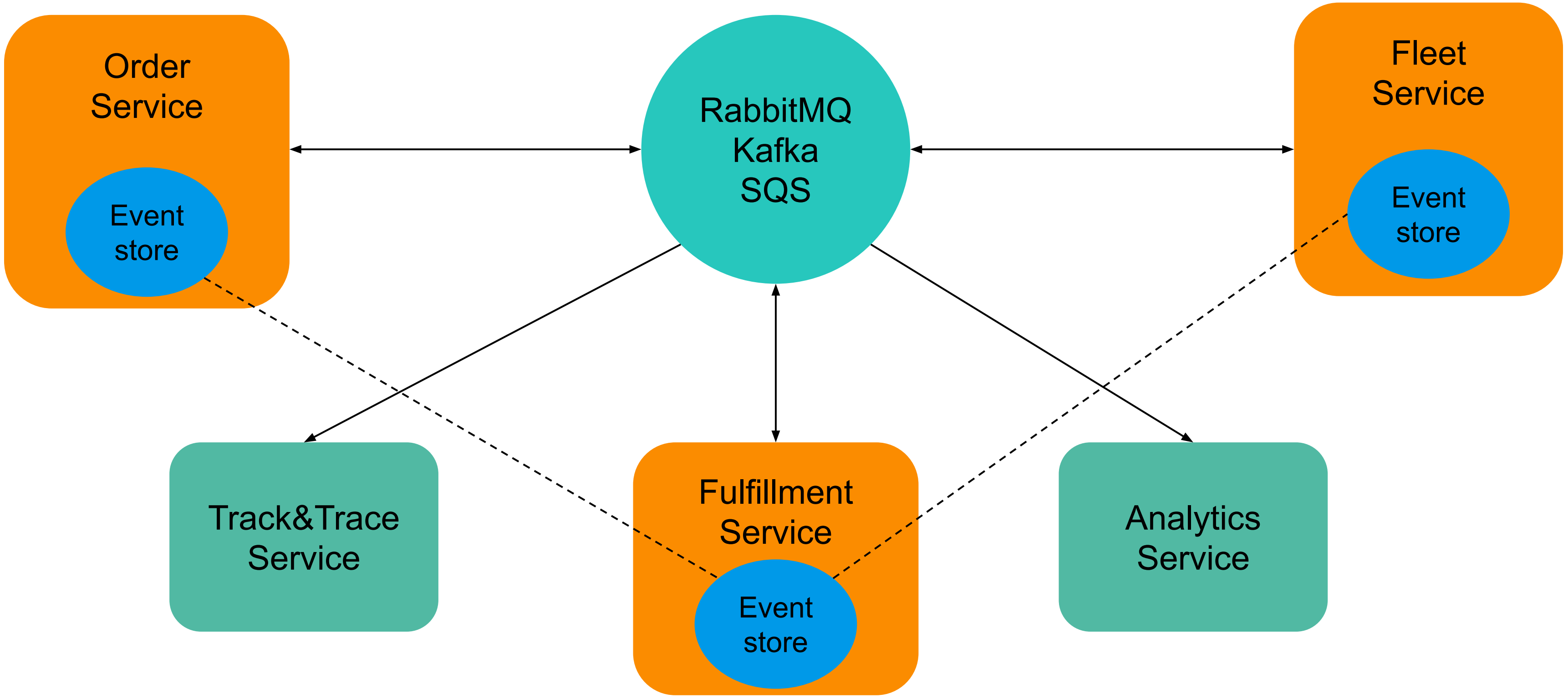
- No “batteries included”

  E.g. *No exponential Back-off*
- Heavy buy-in (Postgres Scheme)

An Example Shipping Architecture



Alternative Architecture



Thank you!

Code

https://github.com/PJUllrich/event-sourcing-with-elixir

Twitter & GitHub

@pjullrich

Resources

- Demo Code: https://github.com/PJUllrich/event-sourcing-with-elixir
- Event-Sourcing by Greg Young
- The Many Meanings of Event-Driven Architecture by Martin Fowler
- DDD, Event-Sourcing, and CQRS by Golo Roden
- Event-driven Architectures by Maciej Kaszubowski
- Event-sourcing Microservises by InfoQ
- Versioning in an Event Store by Greg Young