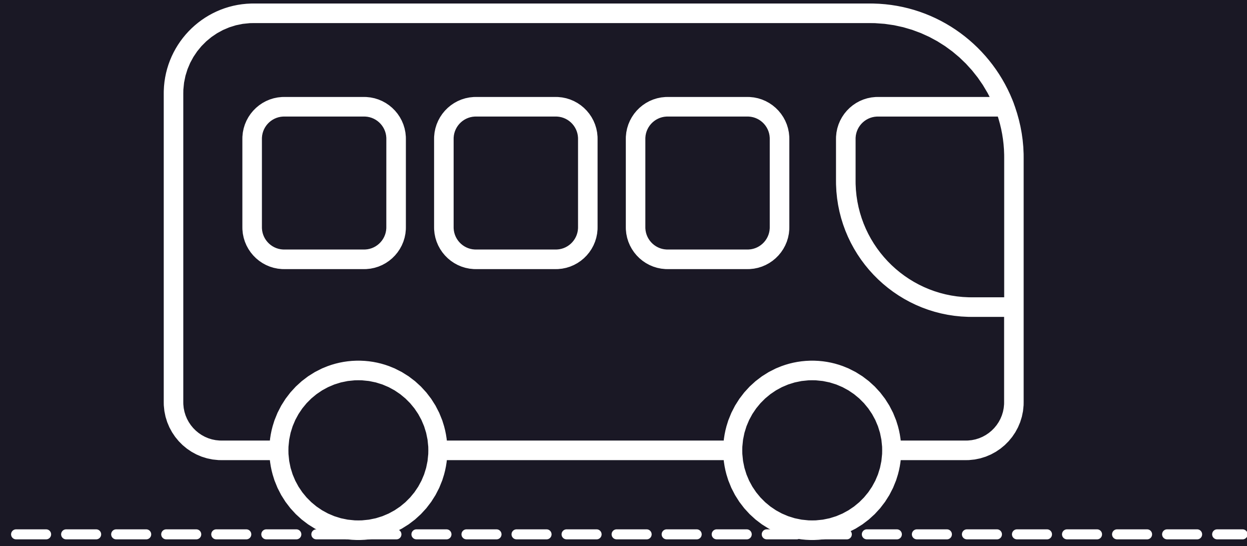
Extending Solidus with the new Event Bus



more flexibility for the topmost flexible e-commerce platform

Marc Busqué - @waiting-for-dev

Marc Busqué Pérez

nebulab

solidus

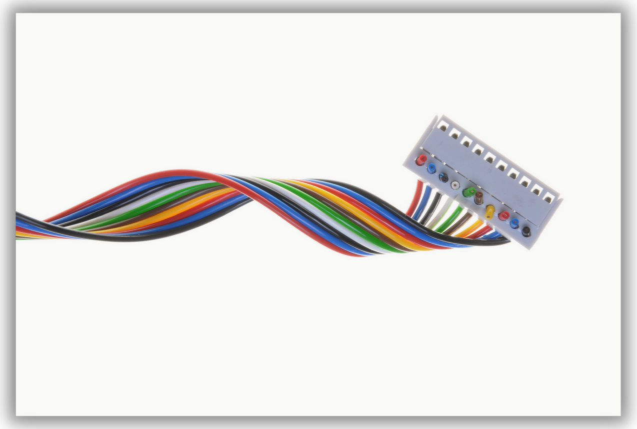
hanami dry-rb

@waiting-for-dev

@waiting_for_dev

Event
BUS

Event
BUS



Event

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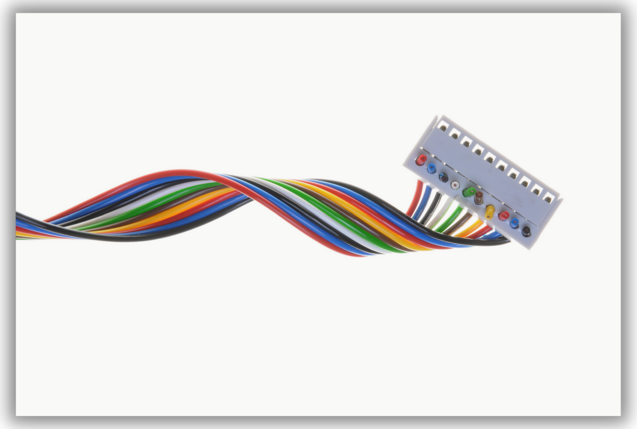
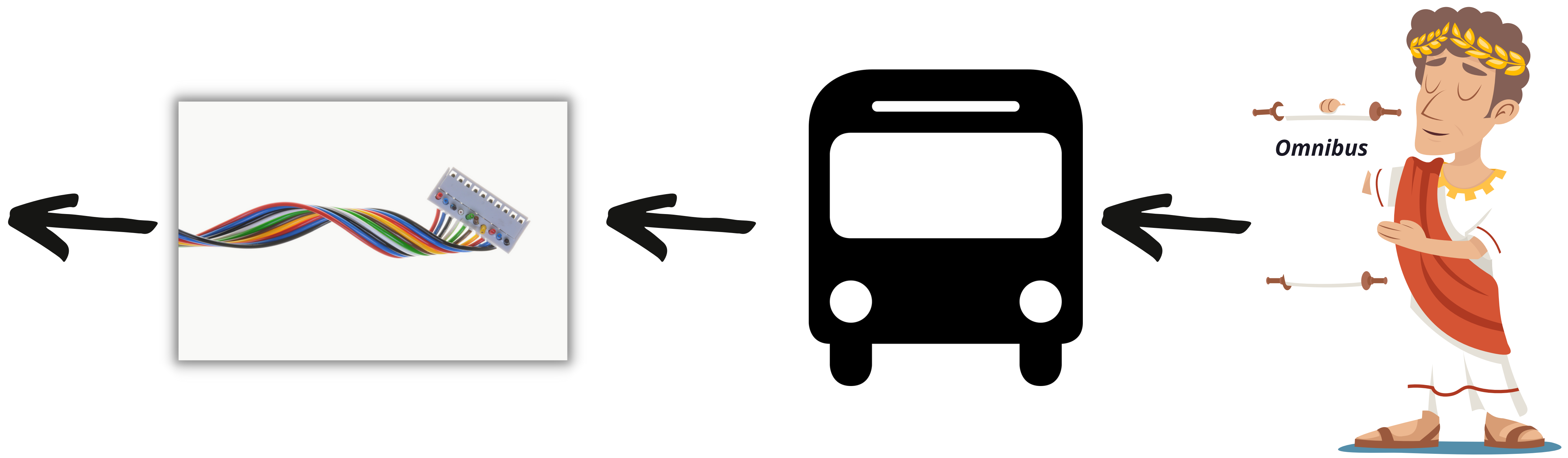


Event

BUS



Event

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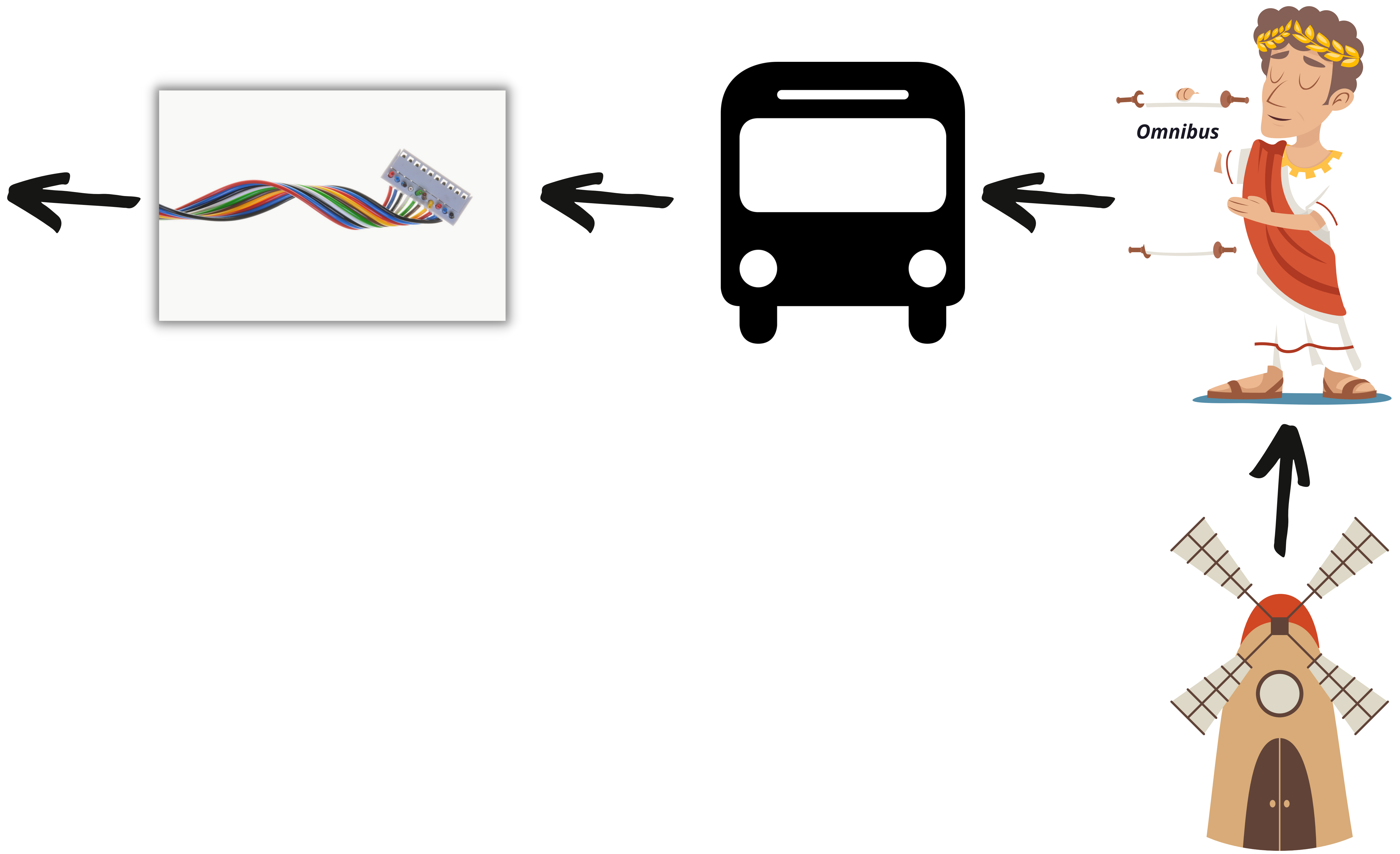
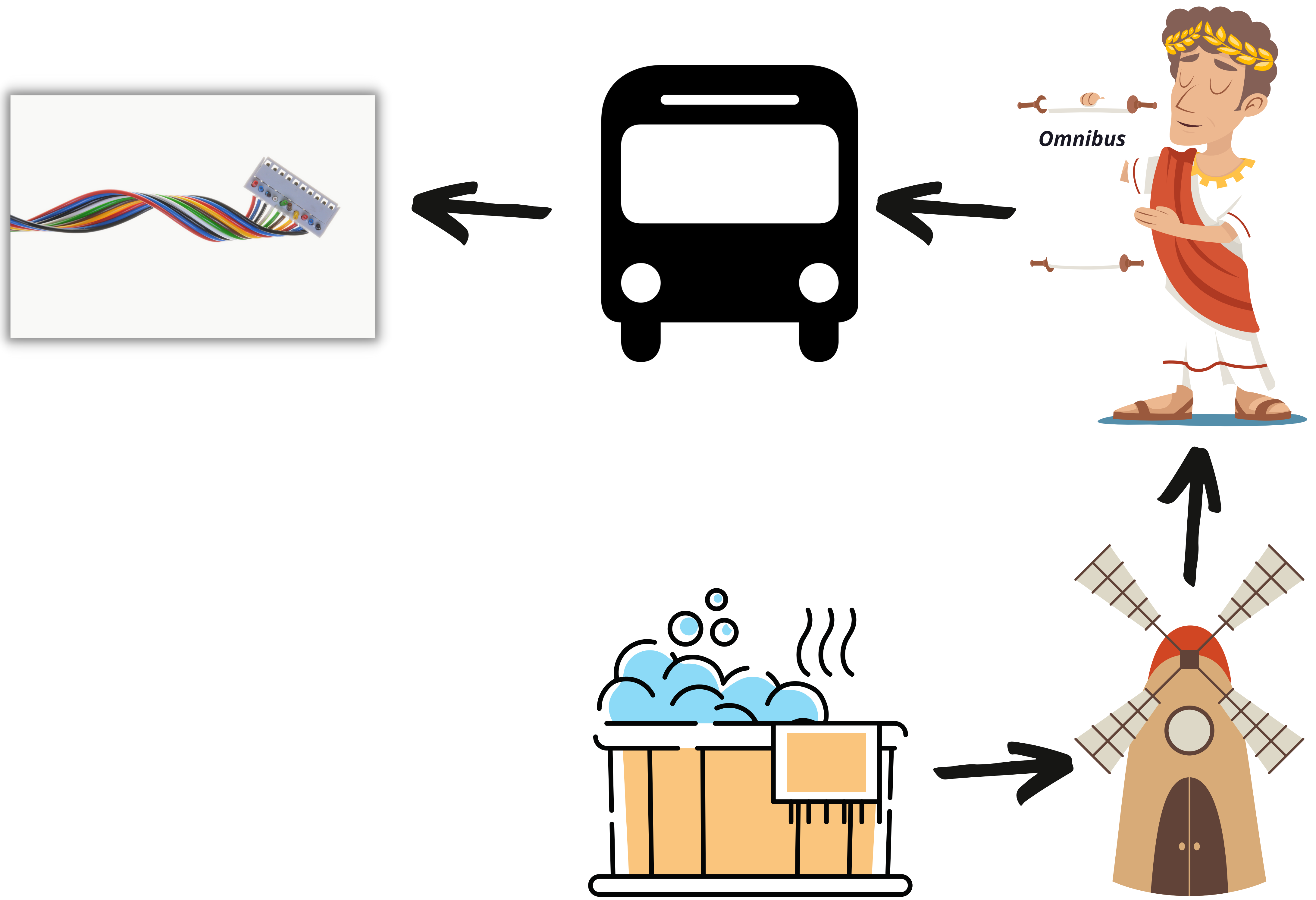
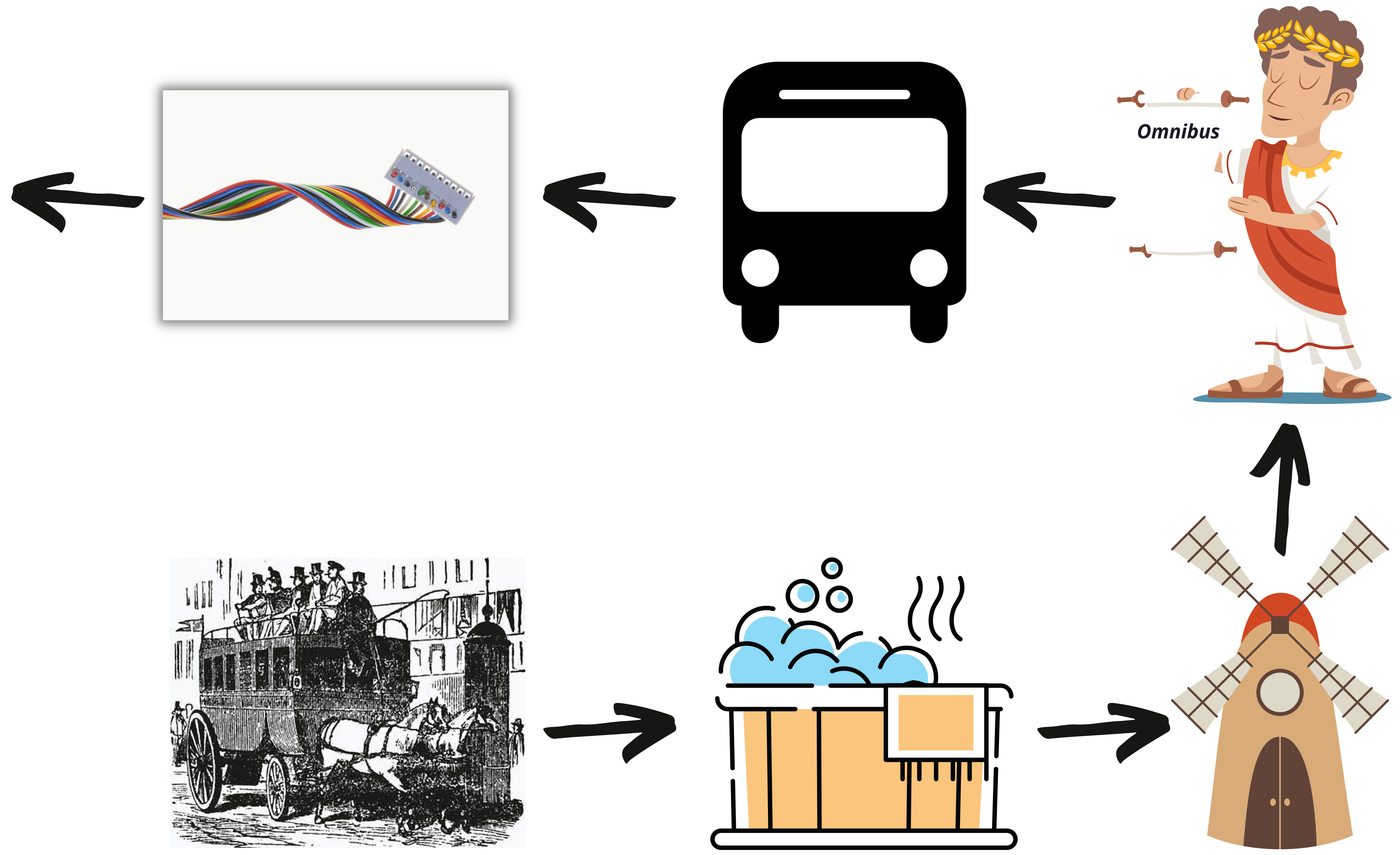
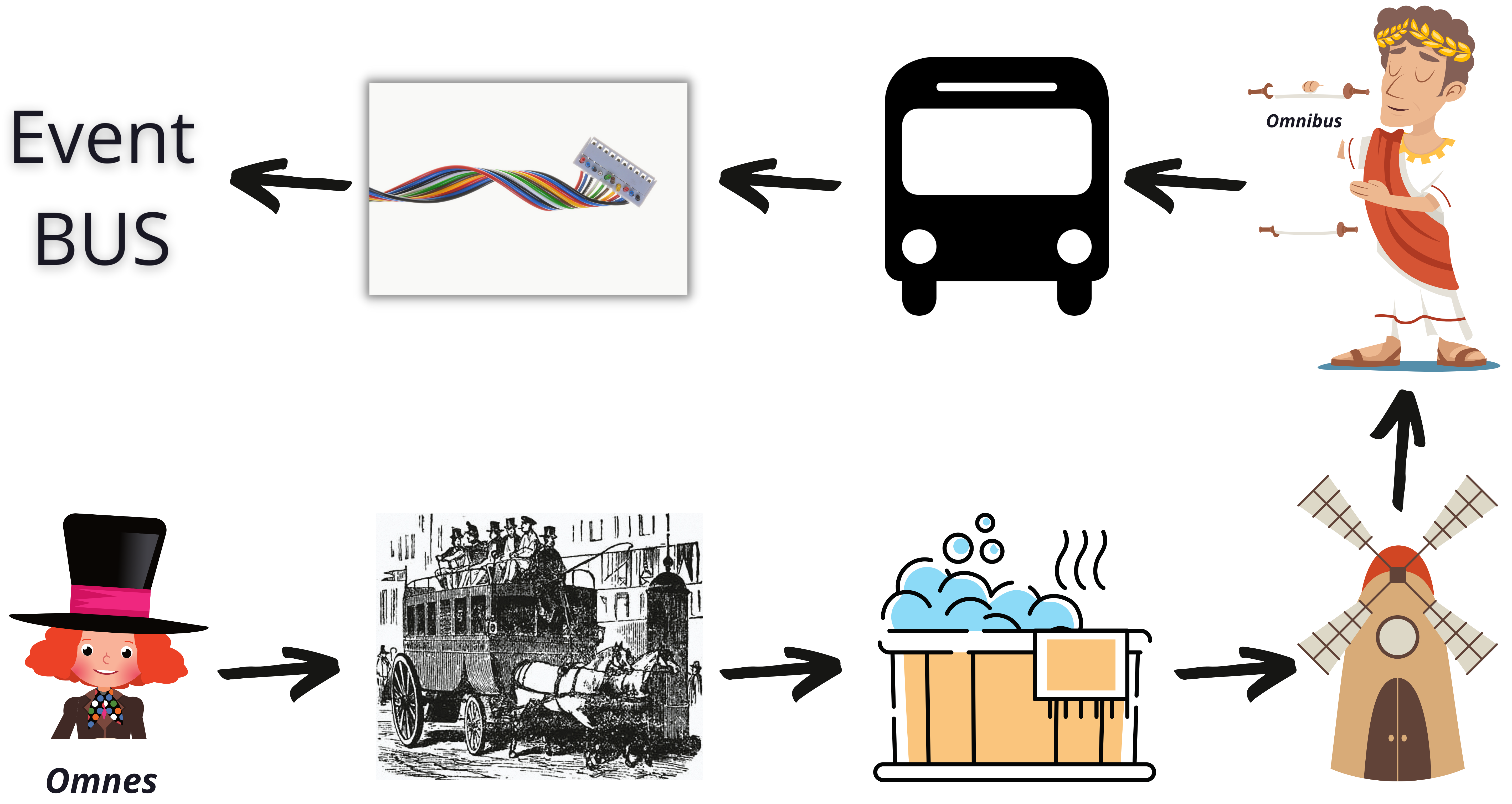


Event
BUS



Event BUS




Event
BUS
Omnibus
Omnes

1. Extending Solidus
2. Event notification
3. The Event Bus on Solidus

① EXTENGING SOLIDUS

1.1. Custom service classes
1.2. Monkey Patching
1.3. The Event Bus

1.1. Custom Service Classes

- Parts of the business logic are encapsulated in classes.
- We can replace those classes with custom ones.

E.g.: Only allow adding one item for each variant

```ruby
# config/initializers/spree.rb
Spree.config do |config|
  config.order_contents_class = 'MyStore::OrderContents'
  # ...
end
```

```ruby
# app/services/my_store/order_contents.rb
module MyStore
  class OrderContents < Spree::OrderContents
    def add(variant, _quantity = 1, options = {})
      return if order.contains?(variant)

      super(variant, 1, options)
    end
  end
end
```

1.2. Monkey patching

- Ruby allows us to reopen classes at any time.
- We can leverage that to override or modify the default behavior.

Module#prepend

Module#include

Module#class_eval

ActiveSupport::Concern

Direct reopening

E.g.: Require a minimum amount to checkout.

```ruby
# config/application.rb
module MyStore
  class Application < Rails::Application
    # ...
    overrides = "#{Rails.root}/app/overrides"
    Rails.autoloaders.main.ignore(overrides)
    config.to_prepare do
      Dir.glob("#{overrides}/**/*.rb").each do |override|
        load override
      end
    end
  end
end
```

```ruby
# app/overrides/my_store/spree/order/require_min_checkout.rb
module MyStore
  module Spree
    module Order
      module RequireMinCheckout
        def checkout_allowed?
          total > 30 && super
        end

        ::Spree::Order.prepend(self)
      end
    end
  end
end
```

1.2. Monkey patching

- Ruby allows us to reopen classes at any time.
- We can leverage that to override or modify the default behavior.

Not an extensibility pattern
Duct-tape solution
Break upgrades

E.g.: Require a minimum amount to checkout.

```ruby
# config/application.rb
module MyStore
  class Application < Rails::Application
    # ...
    overrides = "#{Rails.root}/app/overrides"
    Rails.autoloaders.main.ignore(overrides)
    config.to_prepare do
      Dir.glob("#{overrides}/**/*.rb").each do |override|
        load override
      end
    end
  end
end
```

```ruby
# app/overrides/my_store/spree/order/require_min_checkout.rb
module MyStore
  module Spree
    module Order
      module RequireMinCheckout
        def checkout_allowed?
          total > 30 && super
        end

        ::Spree::Order.prepend(self)
      end
    end
  end
end
```

1.3. The Event Bus

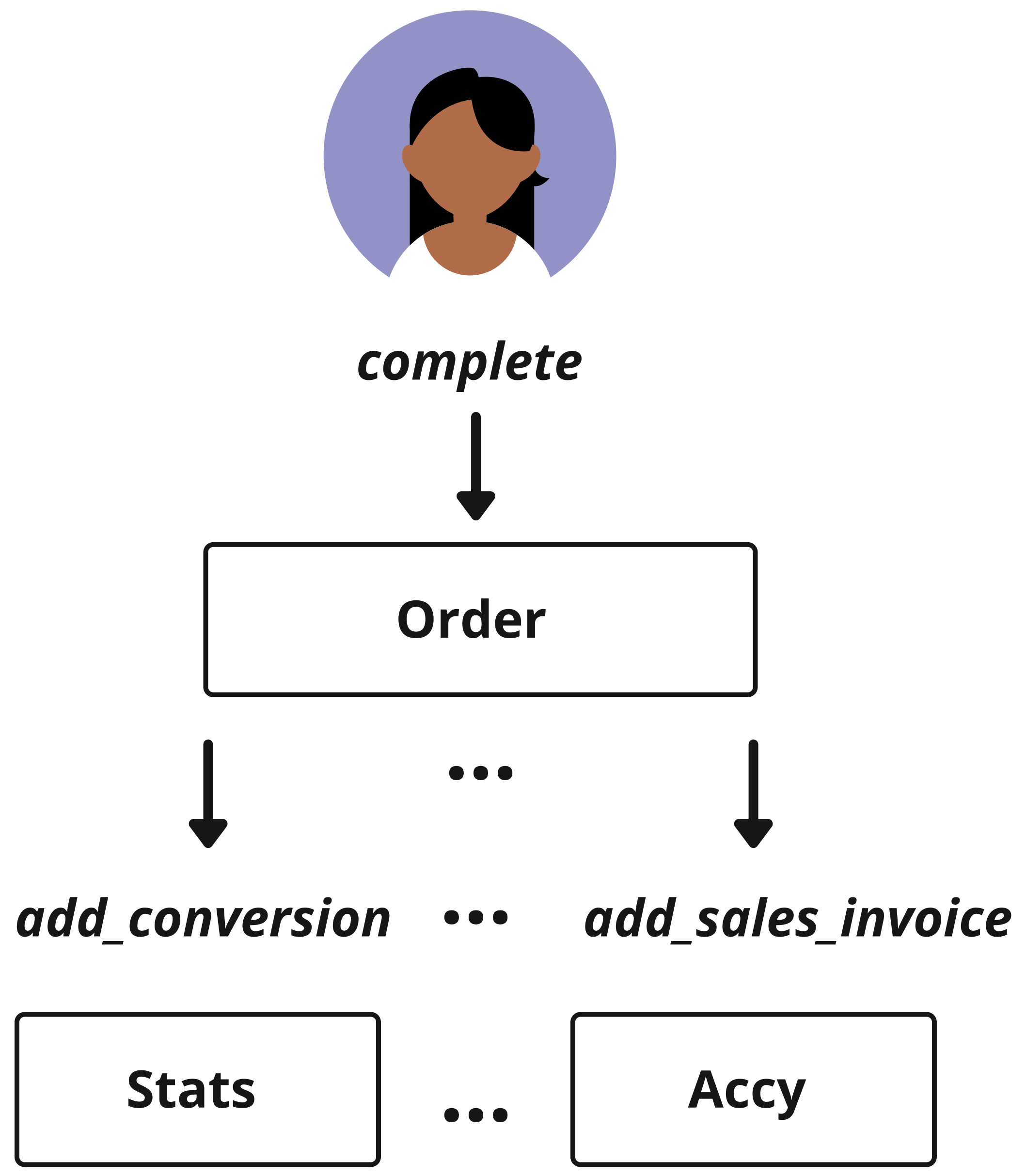
- Pub/Sub pattern.
- It allows us to extend behavior that is independent to the core domain model.

E.g.: Send an SMS to the user when an order is placed.

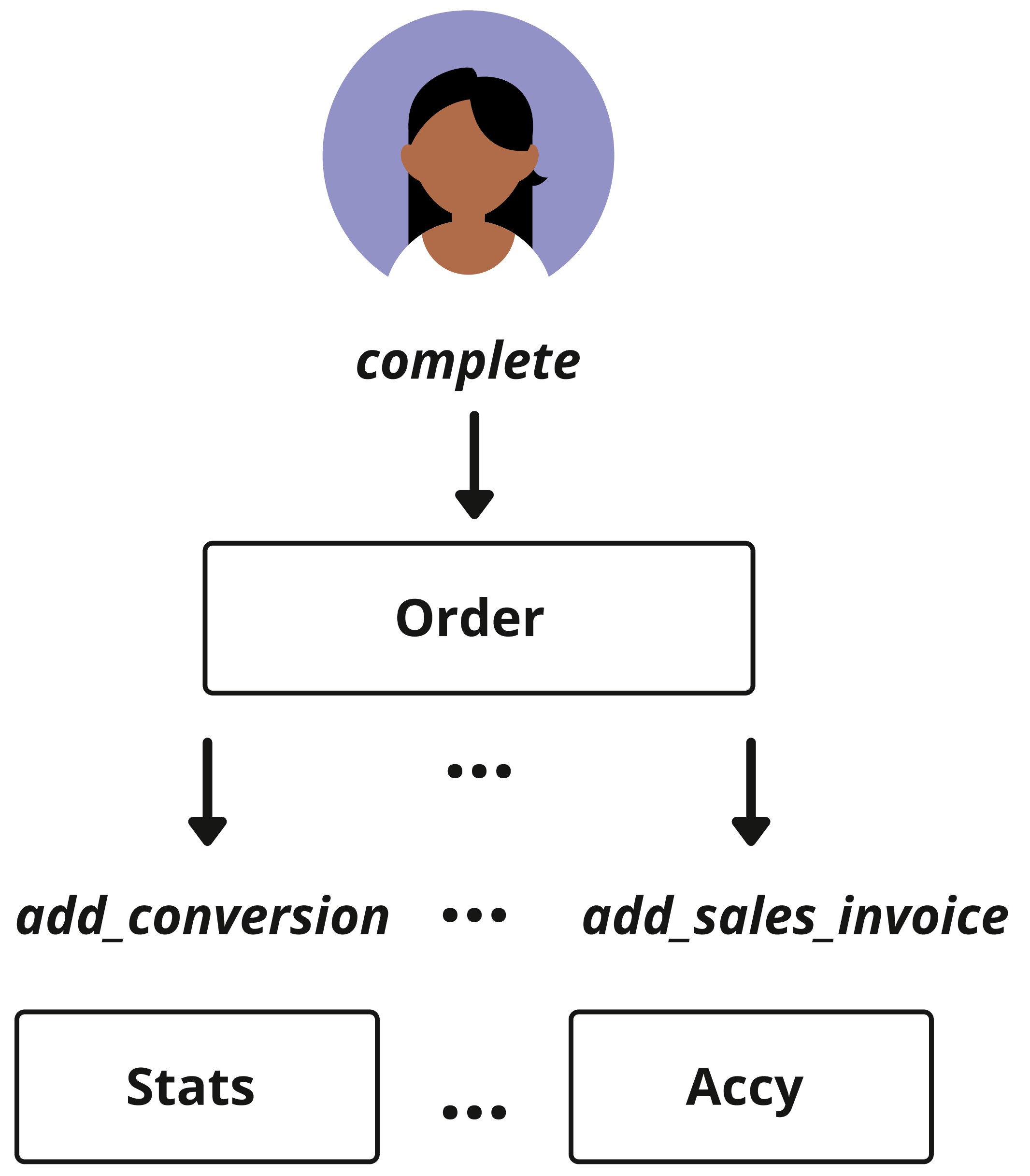
```ruby
# app/subscribers/my_store/sms_notification_subscriber.rb
module MyStore
  module SmsNotificationSubscriber
    include Spree::Event::Subscriber

    event_action :notify_order_completed, event_name: :order_finalized

    def notify_order_completed(event)
      order = event.payload[:order]
      SmsService.new.notify_order_completed(order)
    end
  end
end
```

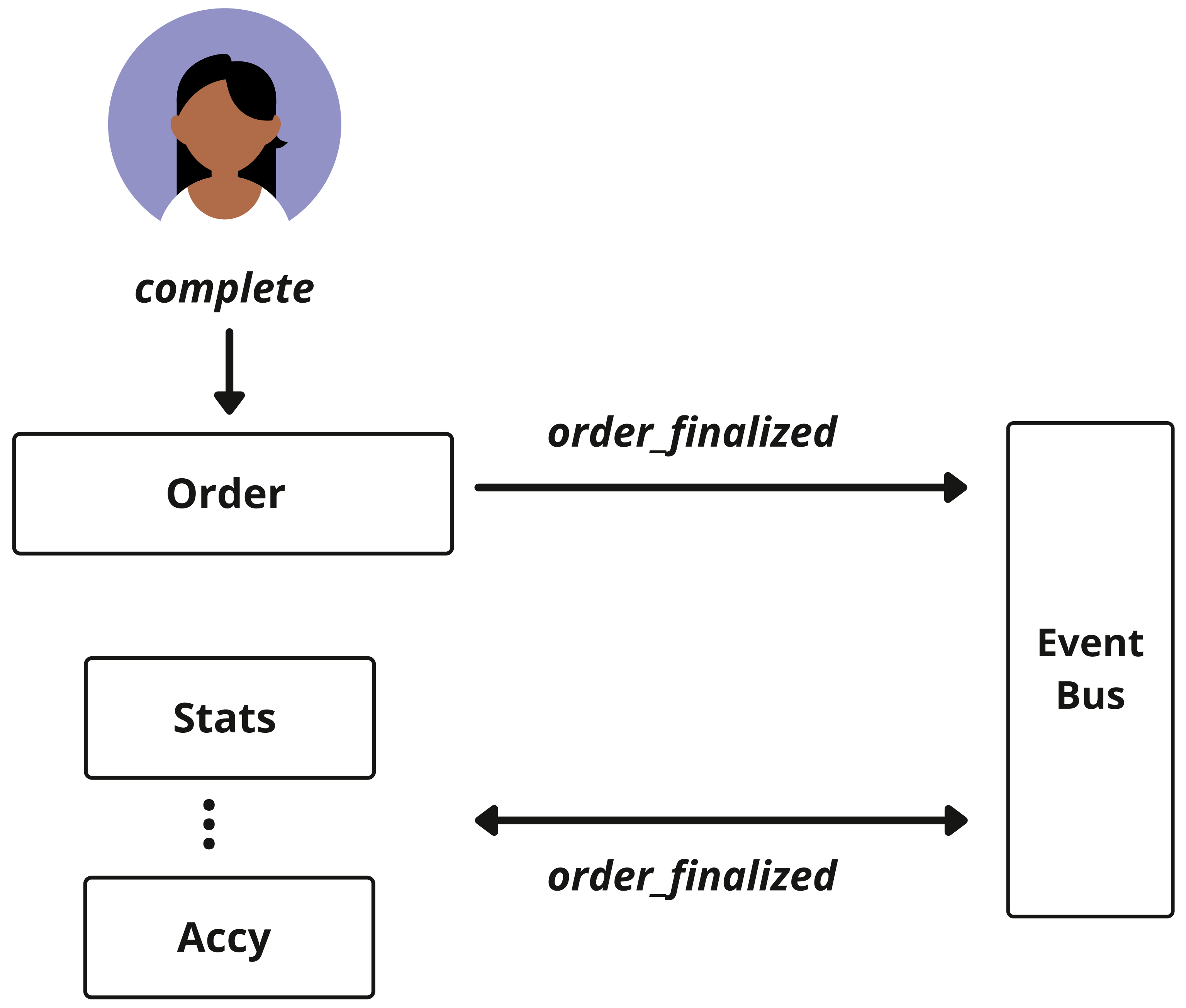
2 EVENT NOTIFICATION

2.1. What is Event Notification?



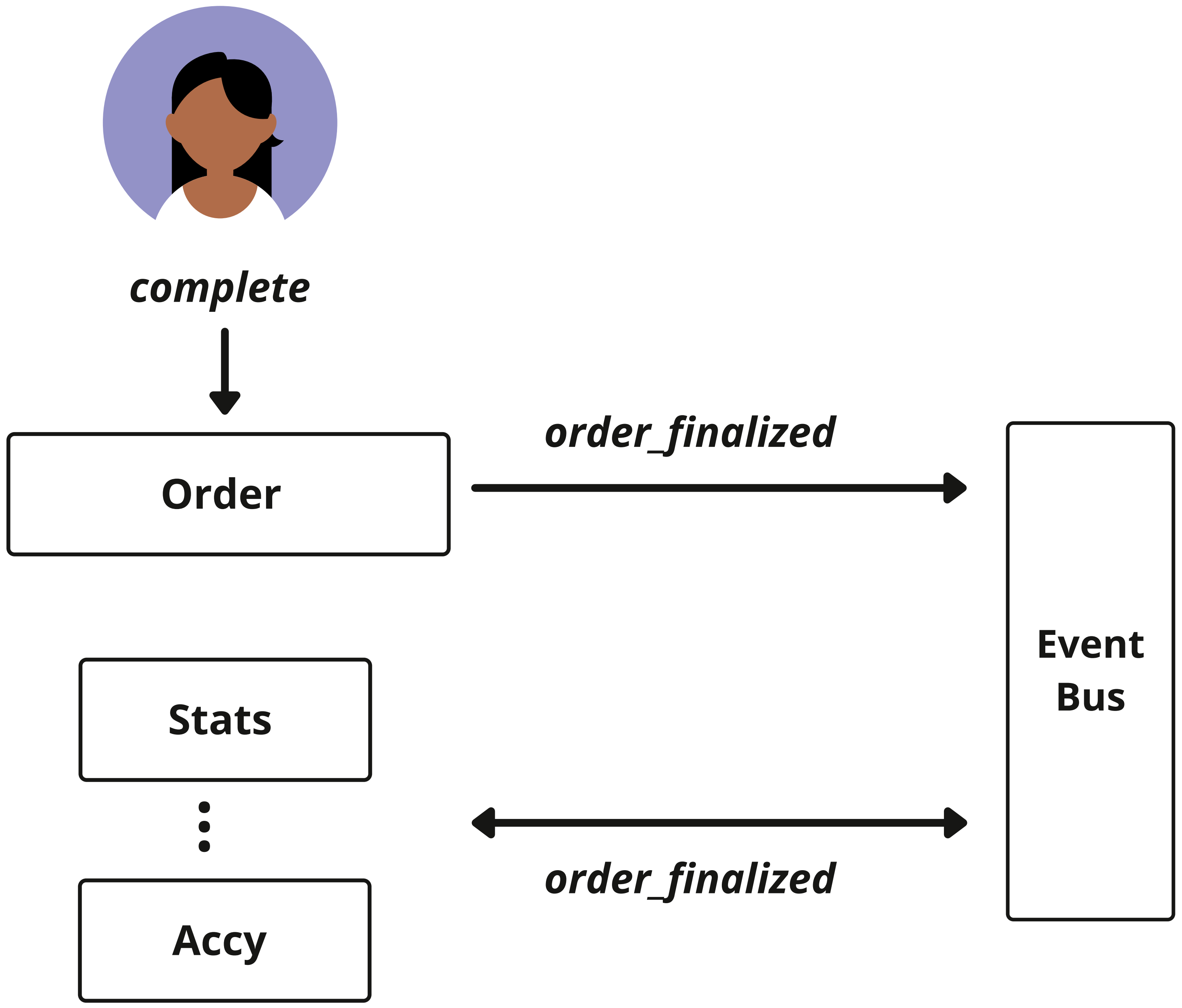
2.1. What is Event Notification?





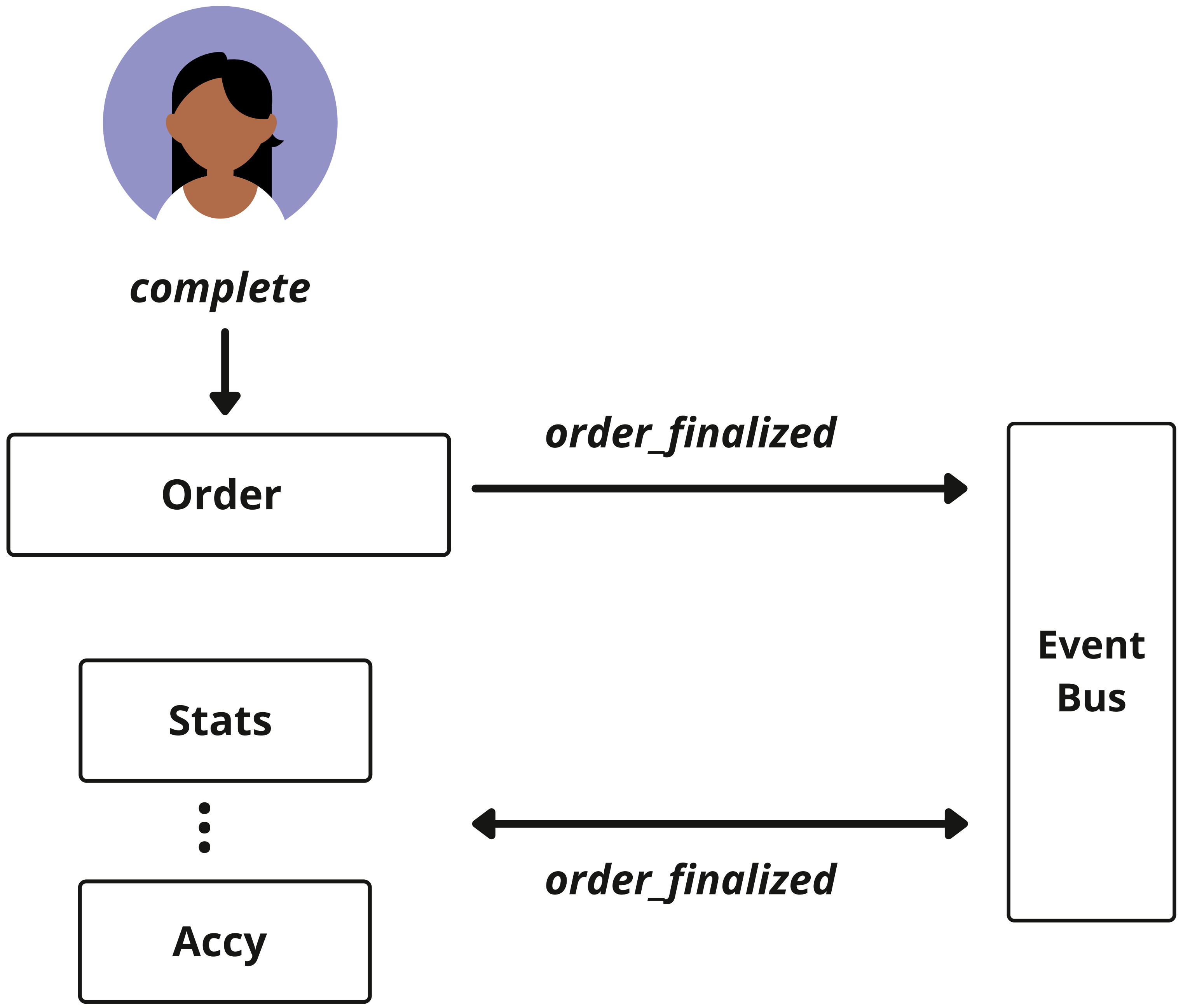
2.2. Pros

- Decoupling (dependency inversion).



2.2. Pros

- Decoupling (dependency inversion).
- Event storage.

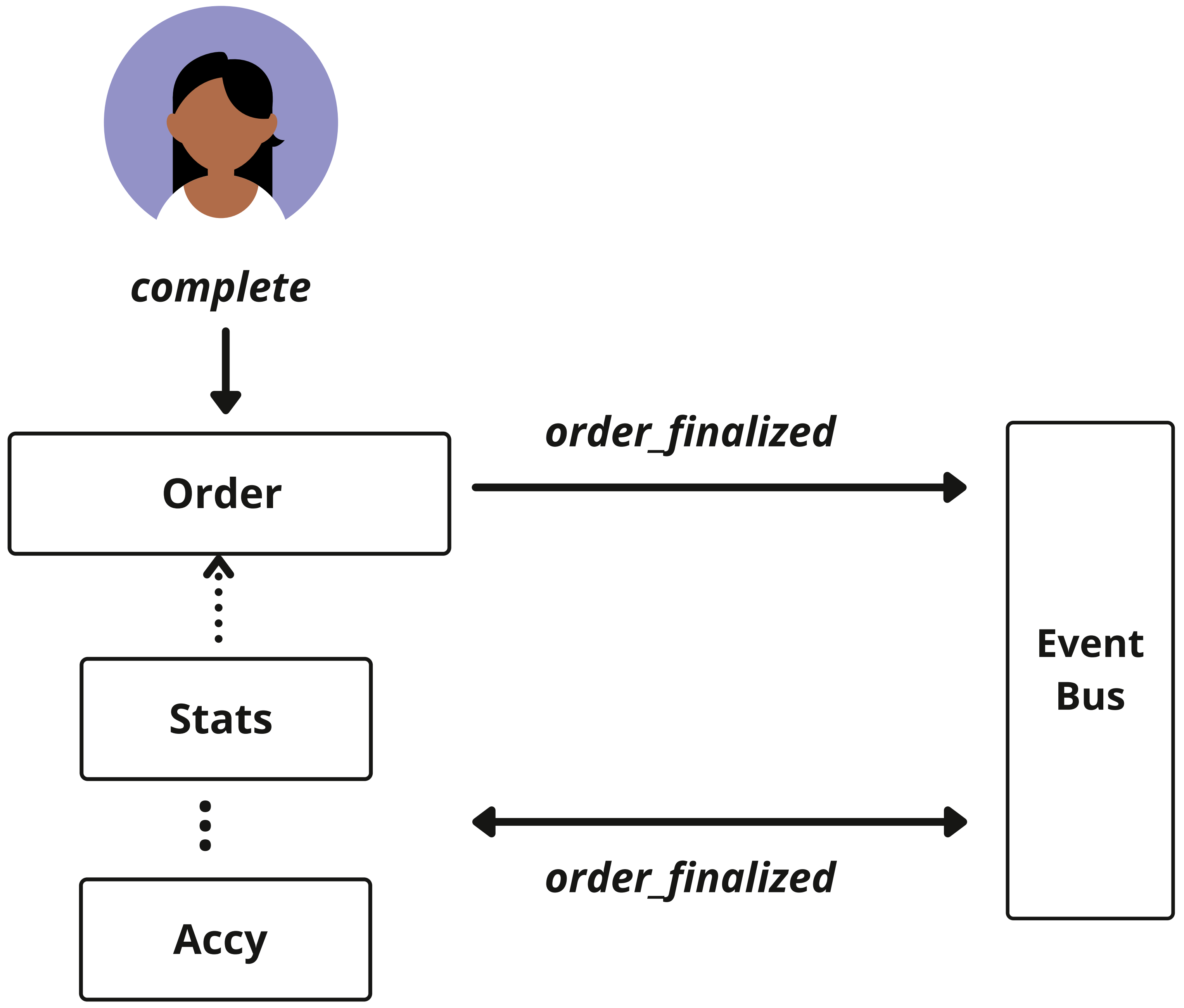


2.2. Pros

- Decoupling (dependency inversion).
- Event storage.

How much upstream data do we publish?

- Few: subscribers need to query back.

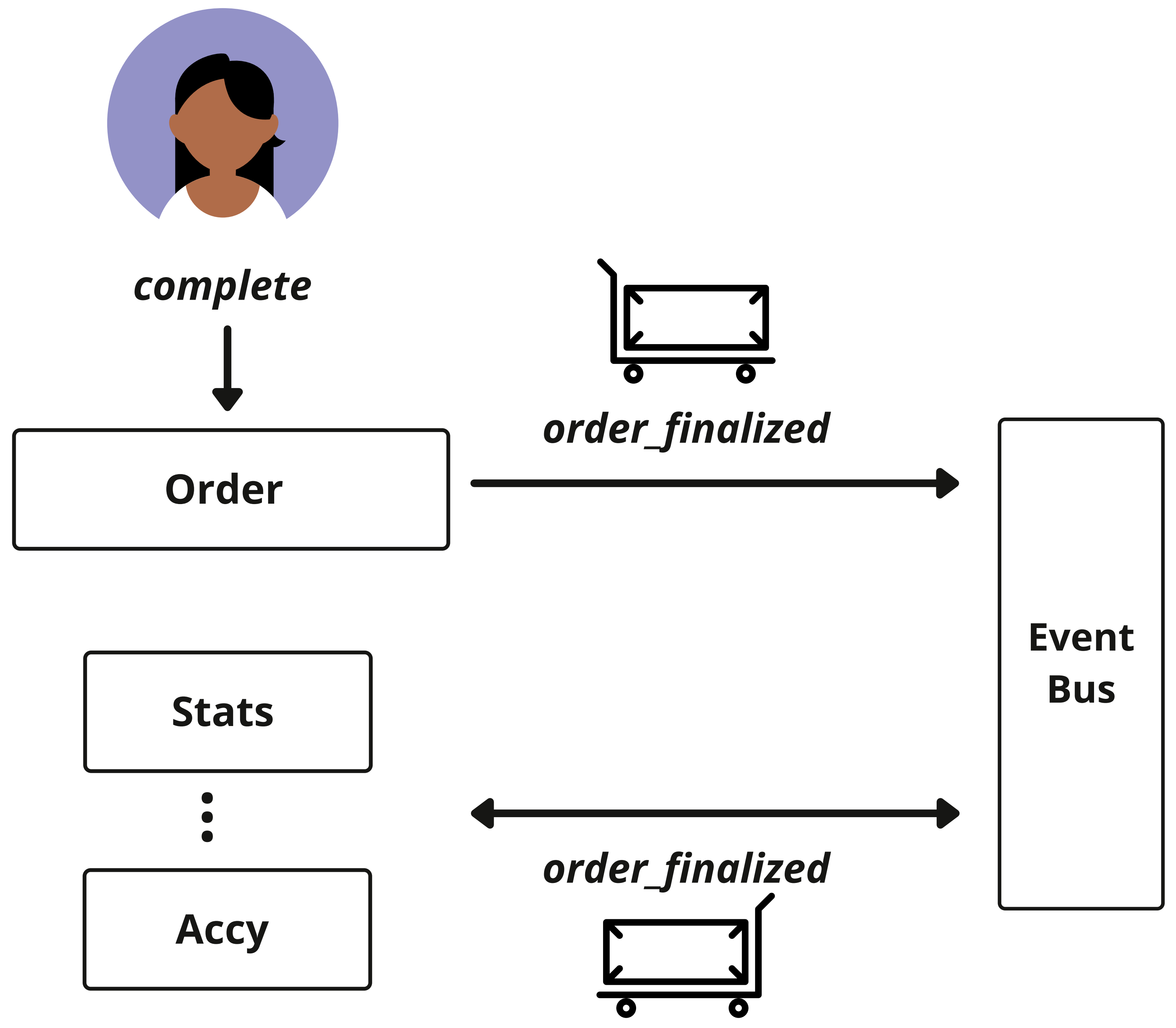


2.2. Pros

- Decoupling (dependency inversion).
- Event storage.

How much upstream data do we publish?

- Few: subscribers need to query back.
- All: the state is transferred.

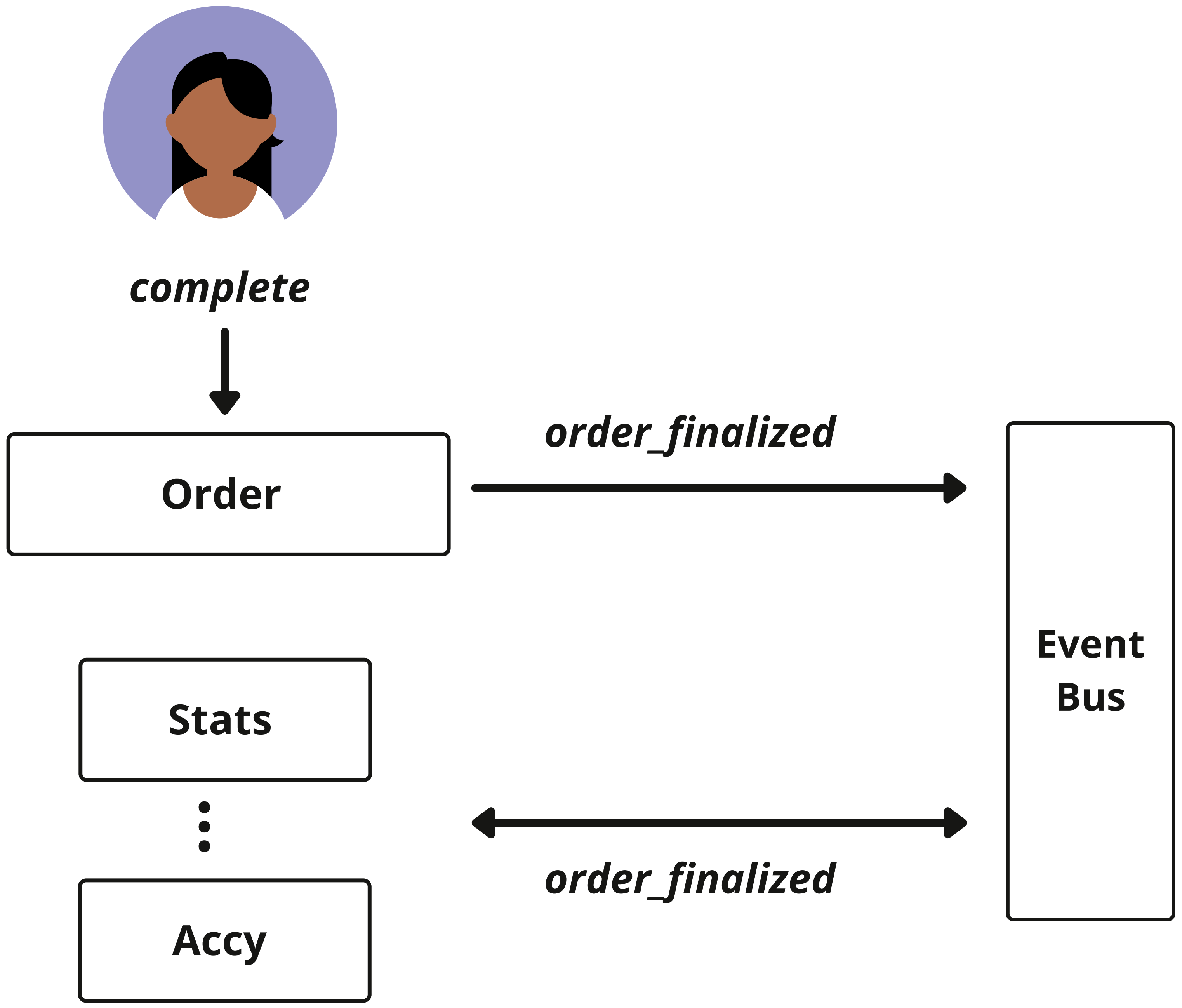


2.2. Pros

- Decoupling (dependency inversion).
- Event storage.

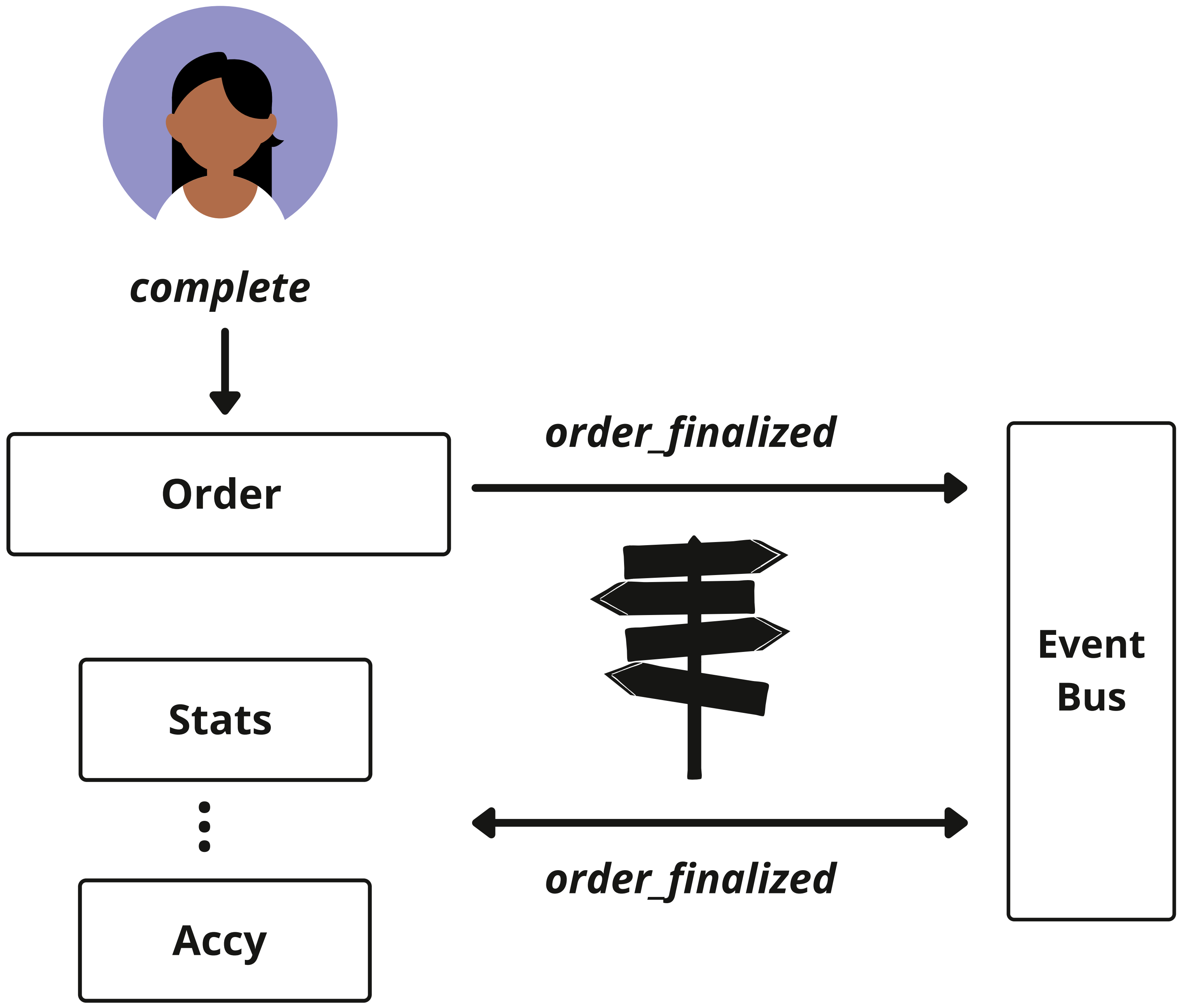
How much upstream data do we publish?

- Few: subscribers need to query back.
- All: the state is transferred.
- Change: event sourcing (reproducible state).



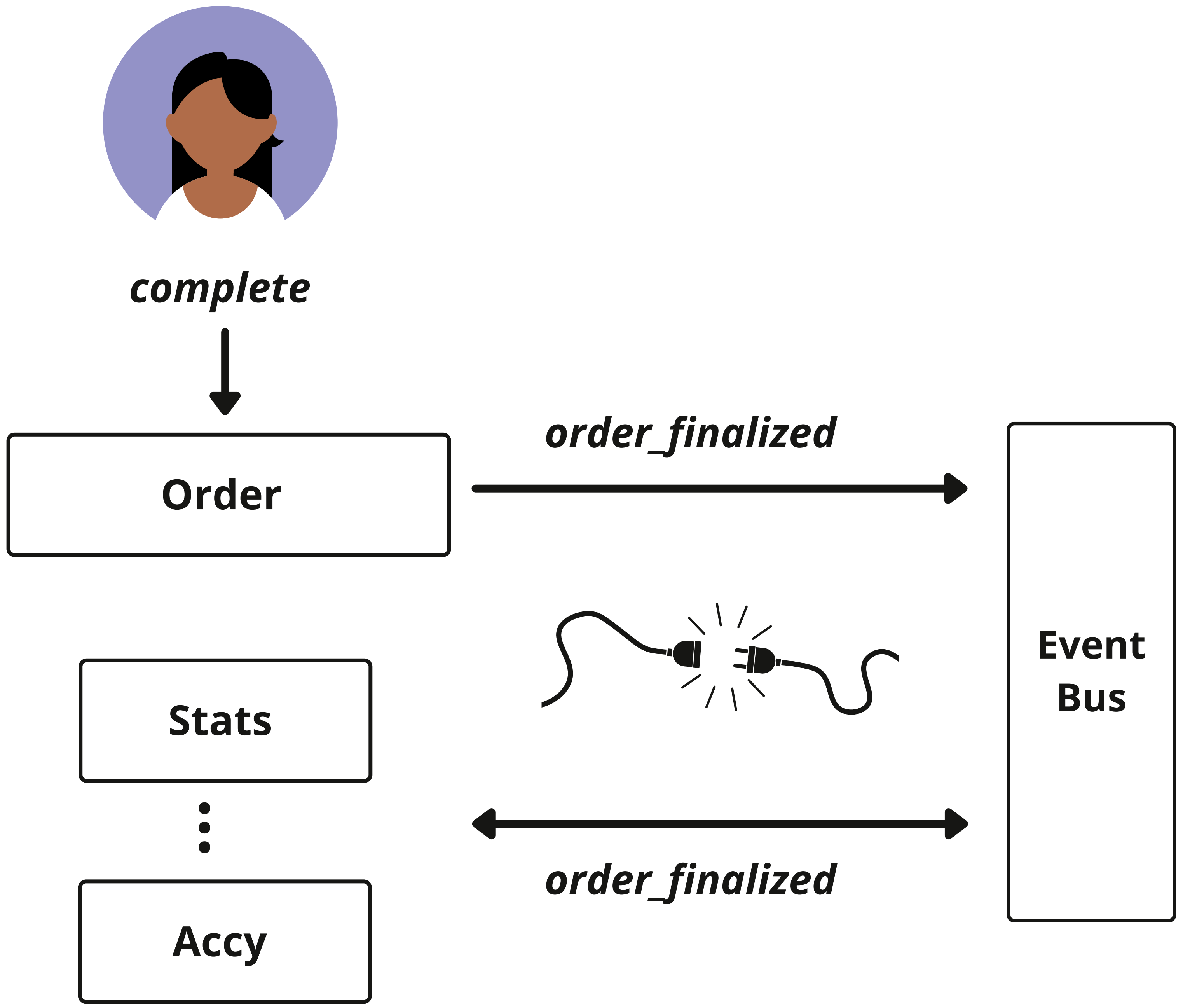
2.2. Cons

- Indirection:
  - Non-linear narrative.
  - Obervability.
  - Testing.



2.2. Cons

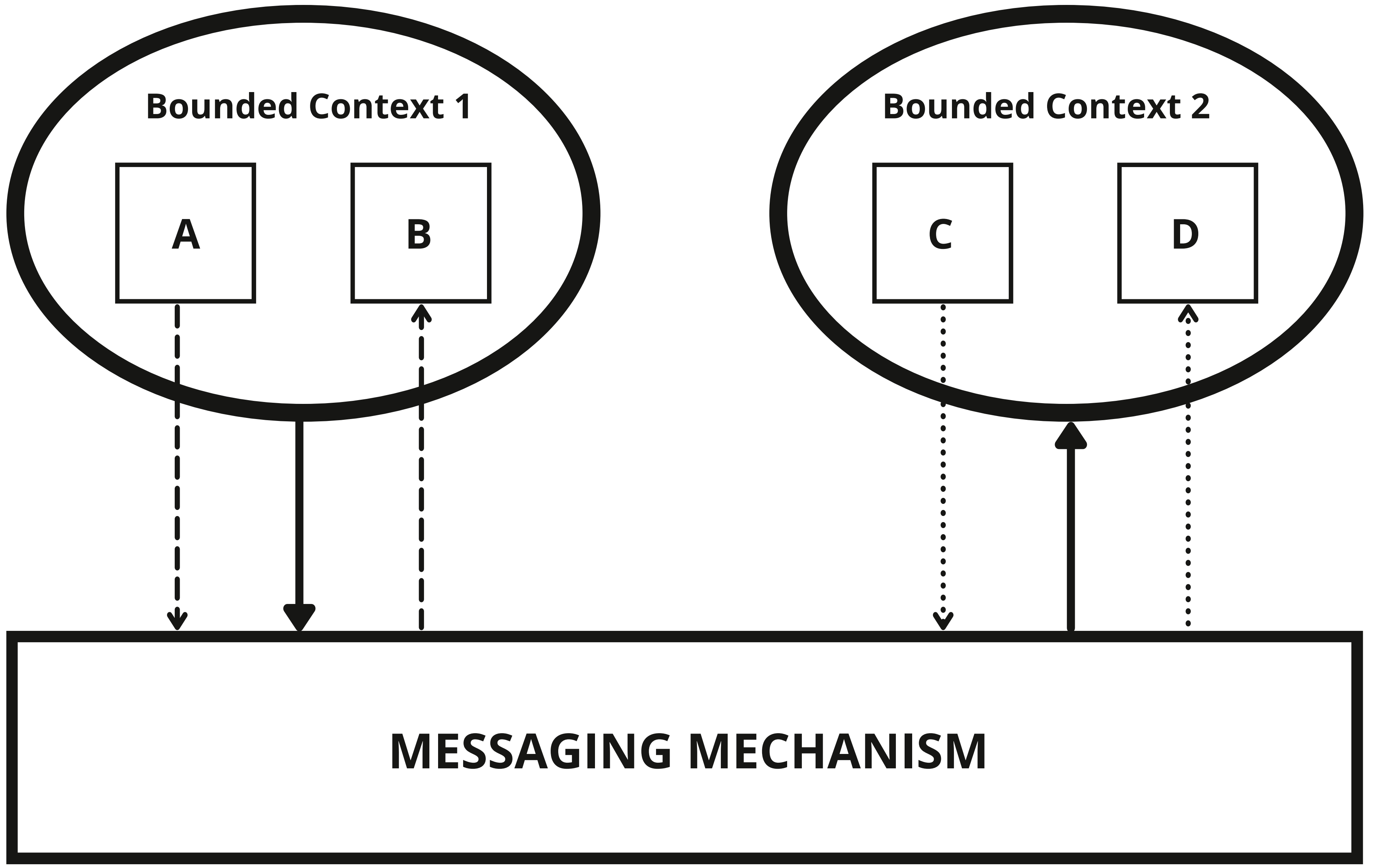
- Indirection:
  - Non-linear narrative.
  - Obervability.
  - Testing.
- Message delivery issues.



2.3. When to use

- Communication between different transactional boundaries.

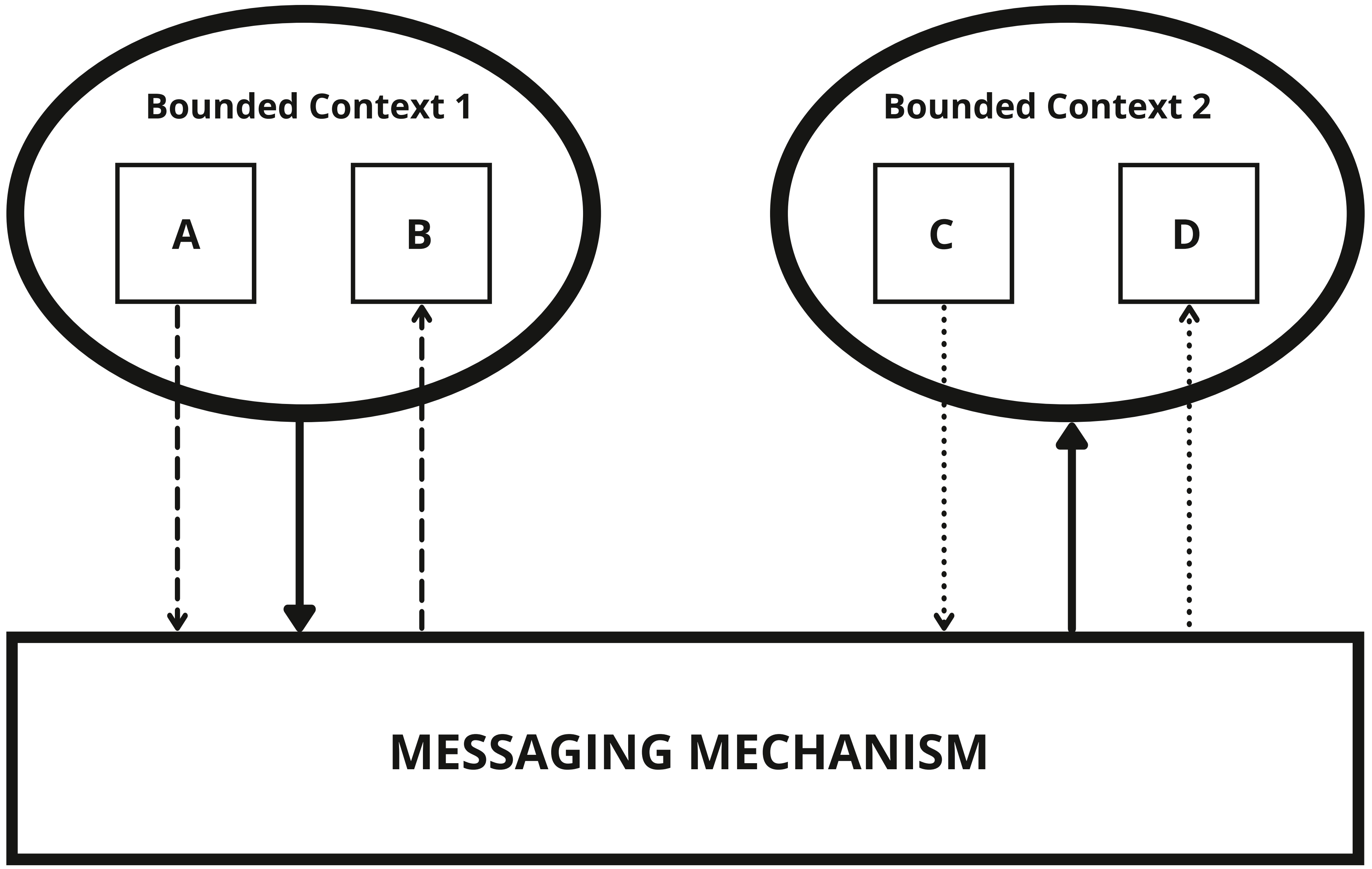
E.g.: DDD



2.3. When to use

- Communication between different transactional boundaries.
- Careful of passive-agressive commands (Martin Fowler).

E.g.: DDD



2.3. When to use

- Communication between different transactional boundaries.
- Careful of passive-agressive commands (Martin Fowler).

E.g.: order_finalized

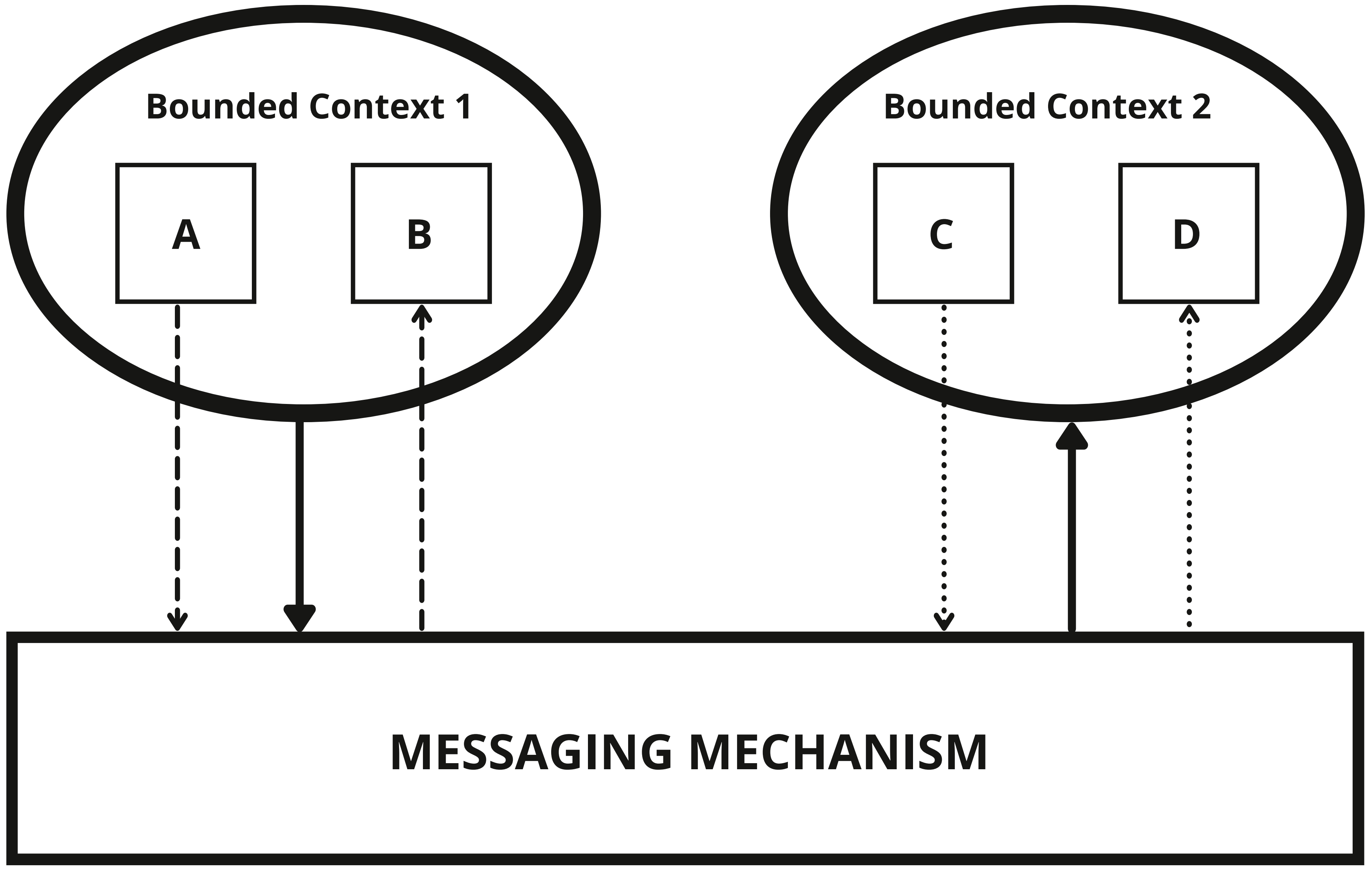
✓ send an email

✓ collect stats

✗ check user before marking as completed

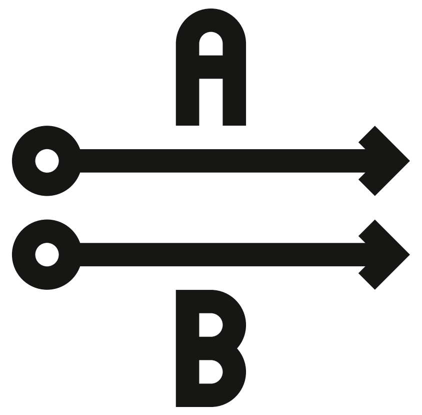
✗ add free item to the order

E.g.: DDD



2.4. How to use

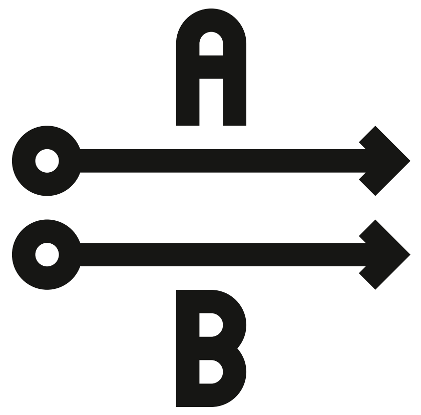
ASYNC



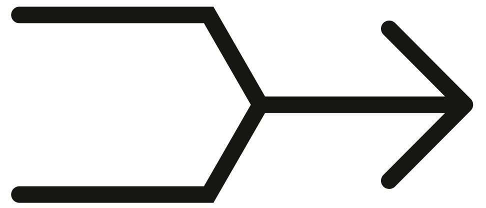
independent

2.4. How to use

ASYNC



independent



idempotent

2.4. How to use

ASYNC

independent

idempotent

fault-tolerant

2.5. Event Notification on Solidus

👍 Free-form event content (payload).

👎 No persistence.

```ruby
# solidus:core/app/models/spree/order.rb
module Spree
  class Order
    # ...
    def finalize!
      #...
      Spree::Event.fire :order_finalized, order: self
    end
  end
end
```

```ruby
# app/subscribers/my_store/sms_notification_subscriber.rb
module MyStore
  module SmsNotificationSubscriber
    include Spree::Event::Subscriber

    event_action :notify_order_completed, event_name: :order_finalized

    def notify_order_completed(event)
      order = event.payload[:order]
      SmsService.new.notify_order_completed(order)
    end
  end
end
```

2.5. Event Notification on Solidus

👍 Free-form event content (payload).

👎 No persistence.

👍 Sync: agnostic of the adapter.

👎 Easy to cross boundaries.

```
# solidus:core/app/models/spree/order.rb
module Spree
  class Order
    # ...
    def finalize!
      #...
      Spree::Event.fire :order_finalized, order: self
    end
  end
end
```

```
# app/subscribers/my_store/sms_notification_subscriber.rb
module MyStore
  module SmsNotificationSubscriber
    include Spree::Event::Subscriber

    event_action :notify_order_completed, event_name: :order_finalized

    def notify_order_completed(event)
      order = event.payload[:order]
      SmsService.new.notify_order_completed(order)
    end
  end
end
```

③ THE EVENT BUS ON SOLIDUS

3.1. Basic usage: Pub/Sub
3.2. Event registration
3.3. Testability
3.4. Observability
3.5. What's next?

3.1. Basic usage: Pub/Sub

- Fire with name and payload.

```ruby
# solidus:core/app/models/spree/order.rb
module Spree
  class Order
    # ...
    def finalize!
      #...
      Spree::Event.fire :order_finalized, order: self
    end
  end
end
```

```ruby
# app/subscribers/my_store/sms_notification_subscriber.rb
module MyStore
  module SmsNotificationSubscriber
    include Spree::Event::Subscriber

    event_action :notify_order_completed, event_name: :order_finalized

    def notify_order_completed(event)
      order = event.payload[:order]
      SmsService.new.notify_order_completed(order)
    end
  end
end
```

3.1. Basic usage: Pub/Sub

- Fire with name and payload.
- Subscriber modules:
  - Match with *event_action* (and *event_name).*

```ruby
# solidus:core/app/models/spree/order.rb
module Spree
  class Order
    # ...
    def finalize!
      #...
      Spree::Event.fire :order_finalized, order: self
    end
  end
end
```

```ruby
# app/subscribers/my_store/sms_notification_subscriber.rb
module MyStore
  module SmsNotificationSubscriber
    include Spree::Event::Subscriber

    event_action :notify_order_completed, event_name: :order_finalized

    def notify_order_completed(event)
      order = event.payload[:order]
      SmsService.new.notify_order_completed(order)
    end
  end
end
```

3.1. Basic usage: Pub/Sub

- Fire with name and payload.
- Subscriber modules:
    - Match with *event_action* (and *event_name).*
- *Subscriber block:*
    - We can subscribe to all the events matching a regex.

```ruby
# solidus:core/app/models/spree/order.rb
module Spree
  class Order
    # ...
    def finalize!
      #...
      Spree::Event.fire :order_finalized, order: self
    end
  end
end
```

```ruby
# app/services/my_store/my_service.rb
# ...
Spree::Event.subscribe(:order_finalized) do |event|
  order = event.payload[:order]
  SmsService.new.notify_order_completed(order)
end
# Spree::Event.subscribe(/^order_.+$/) do |event|
#   # ...
# end
```

3.2. Event registration

- Register an event before using it.
    - Avoids subscribing to invalid events.
    - Avoids name collision.

```ruby
# config/initializers/spree.rb
Spree.config do |config|
  # ...
end

Spree::Event.register :custom_event
```

```ruby
Spree::Event.subscribe(:cstm_evnt) do |event|
  # ...
end
```

```
'cstm_evnt' is not registered as a valid event name.

Did you mean? custom_event

All known events are:

  'order_finalized', 'order_recalculated', 'reimbursement_reimbursed', 'reimbursement_errored', 'custom_event'

You can register the new events at the end of the `spree.rb` initializer:

Spree::Event.register('cstm_evnt')
```

3.2. Event registration

- Register an event before using it.
  - Avoids subscribing to invalid events.
  - Avoids name collision.
- Register at the end of *config/initializers/spree.rb*.

```ruby
# config/initializers/spree.rb
Spree.config do |config|
  # ...
end

Spree::Event.register :custom_event
```

```ruby
Spree::Event.subscribe(:cstm_evnt) do |event|
  # ...
end
```

```
'cstm_evnt' is not registered as a valid event name.

Did you mean? custom_event

All known events are:

  'order_finalized', 'order_recalculated', 'reimbursement_reimbursed', 'reimbursement_errored', 'custom_event'

You can register the new events at the end of the `spree.rb` initializer:

Spree::Event.register('cstm_evnt')
```

3.3. Event testability

- Scope a block to only some listeners. It allows keeping the side effects of other listeners out of the way.

```ruby
# spec/rails_helper.rb
require 'spree/event/test_interface'
Spree::Event.enable_test_interface
```

```ruby
# spec/subscribers/my_store/sms_notification_subscriber.rb
require 'rails_helper'

RSpec.describe MyStore::SmsNotificationSubscriber do
  let(:sms_queue) { SmsService.test_queue }

  it 'sends an SMS when an order is finalized' do
    order = create(:spree_order)

    Spree::Event.performing_only(described_class) do
      Spree::Event.fire(:order_finalized, order: order)
    end

    expect(sms_queue.count).to be(1)
  end
end
```

3.3. Event testability

- Scope a block to only some listeners. It allows keeping the side effects of other listeners out of the way.
- Fine-grained control with `Spree::Event::Subscriber.listeners`.

```ruby
# spec/rails_helper.rb
require 'spree/event/test_interface'
Spree::Event.enable_test_interface
```

```ruby
# spec/subscribers/my_store/sms_notification_subscriber.rb
require 'rails_helper'

RSpec.describe MyStore::SmsNotificationSubscriber do
  let(:sms_queue) { SmsService.test_queue }

  it 'sends an SMS when an order is finalized' do
    order = create(:spree_order)
    listeners = described_class.listeners(:order_finalized)

    Spree::Event.performing_only(listeners) do
      Spree::Event.fire(:order_finalized, order: order)
    end

    expect(sms_queue.count).to be(1)
  end
end
```

3.3. Event testability

- Scope a block to only some listeners. It allows keeping the side effects of other listeners out of the way.
- Fine-grained control with `Spree::Event::Subscriber.listeners`.
- Stub helpers.

```ruby
# spec/services/my_store/custom_service_spec.rb
require 'rails_helper'
require 'spree/testing_support/event_helpers'

RSpec.describe MyStore::CustomService do
  include Spree::TestingSupport::EventHelpers

  describe '#call' do
    stub_spree_events
    order = create(:spree_order)

    described_class.new.call(order)

    expect(:custom_event).to have_been_fired.with(
      a_hash_containing(order: order)
    )
  end
end
```

3.4. Event observability

- An event contains the firing time and the location of the firing code.

```ruby
Spree::Event.subscribe(:order_finalized) do |event|
  puts event.firing_time
  puts event.caller_location
end
# 2022-01-01 00:00:00 UTC
# /path/to/file/that/fired/the/event:99:in `<main>'
```

3.4. Event observability

- An event contains the firing time and the location of the firing code.
- A firing allows inspecting the number of subscribers executed, and for each of them:
    - The execution time.
    - The associated listener.
    - The result.
    - A benchmark measurement.

```ruby
firing = Spree::Event.fire :order_finalized, order: order
puts firing.event.inspect
puts firing.executions.count
puts firing.executions[0].then do |execution|
  puts execution.execution_time
  puts execution.listener
  puts execution.result
  puts execution.benchmark
end
# #<Spree::Event::Event...>
# 3
# 2022-01-01 00:00:00 UTC
# #<Spree::Event::Listener...>
# #<Spree::Order...>
#   0.179883   0.036038   0.215921   (  0.220189)
```

3.5. What's next?

docs

3.5. What's next?

DOC

docs

more events

3.5. What's next?

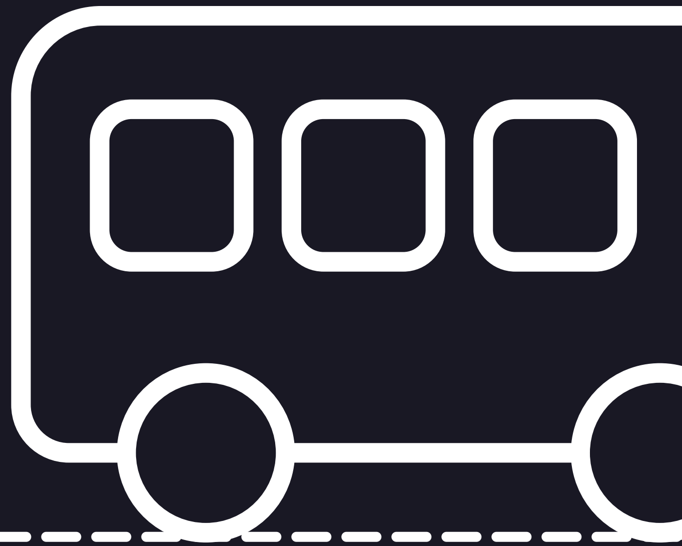
DOC

docs

more events

remove old adapter

Thanks!!



https://github.com/waiting-for-dev/solidusconf7_event_bus

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