



*WHY HEXAGONAL, ONION,  
AND CLEAN ARCHITECTURE  
ARE ANSWERS TO THE  
WRONG QUESTION —  
AND WHAT TO ASK INSTEAD*

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odrotbohm (Oliver Drotbohm)



Oliver Drotbohm

odrotbohm · he/him

Frameworks & Architecture in the Spring engineering team, OpenSource enthusiast, all things Java, DDD, REST, software architecture, drums & music

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Spring Open Source Engineering

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spring-projects/spring-modulith

Public

Modular applications with Spring Boot

Java 1k 173

xmolecules/jmolecules-integrations

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Technology integration for jMolecules

Java 106 27

spring-playground

Public

A collection of tiny helpers for building Spring applications

Java 102 11

xmolecules/jmolecules

Public

Libraries to help developers express architectural abstractions in Java code

Java 1.4k 110

spring-restbucks

Public

Implementation of the sample from REST in Practice based on Spring projects

Java 1.3k 428

lectures

Public

Lecture scripts and slides I use during the Software Engineering course at TU Dresden

Java 74 25

572 contributions in the last year

Contribution settings

2025

2024

2023

2022

2021

2020

2019

2018

2017

2016

@xmolecules

@st-tu-dresden

@FasterXML

More

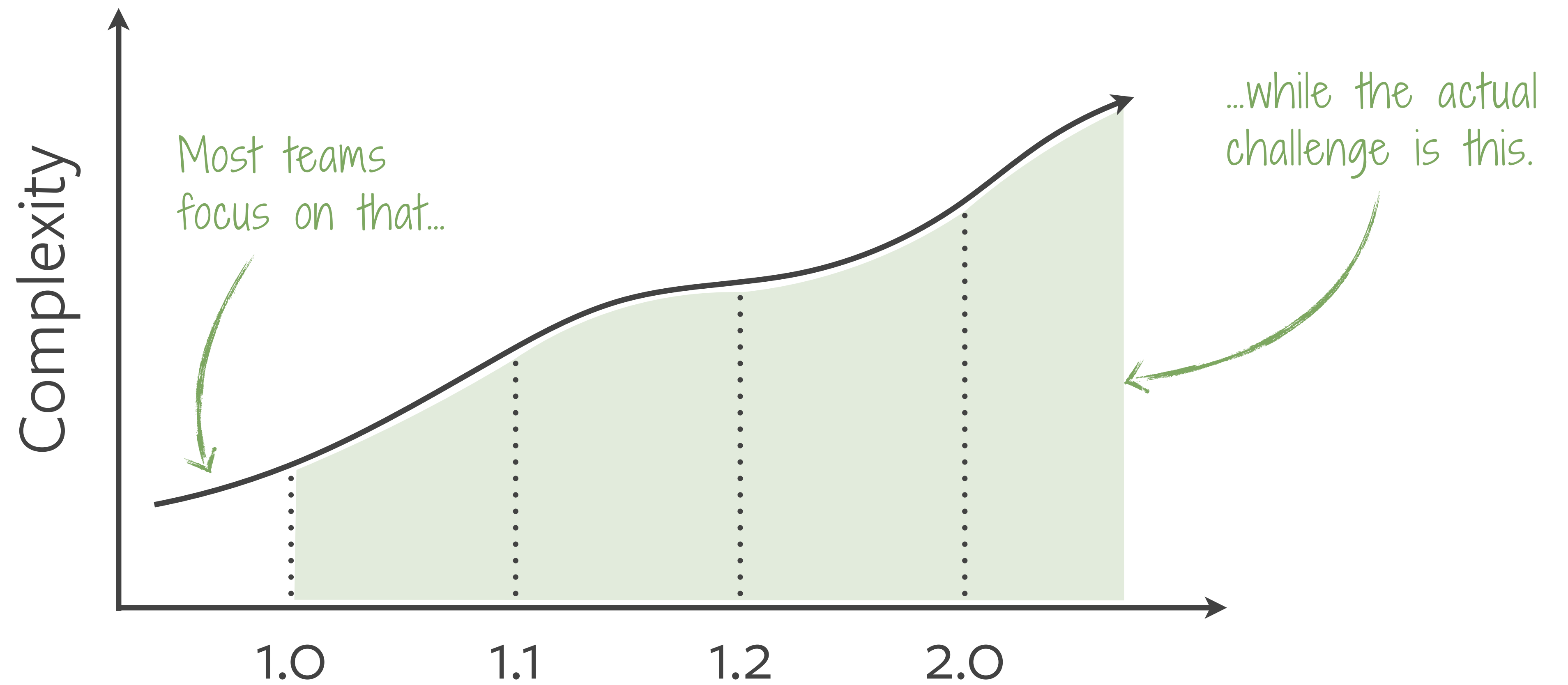
Activity overview

Contributed to [xmolecules/jmolecules-integrat...](#), [odrotbohm/spring-modulith-pri...](#), [odrotbohm/spring-restbucks](#) and 43 other repositories

Code review

74% Commits

24% Issues

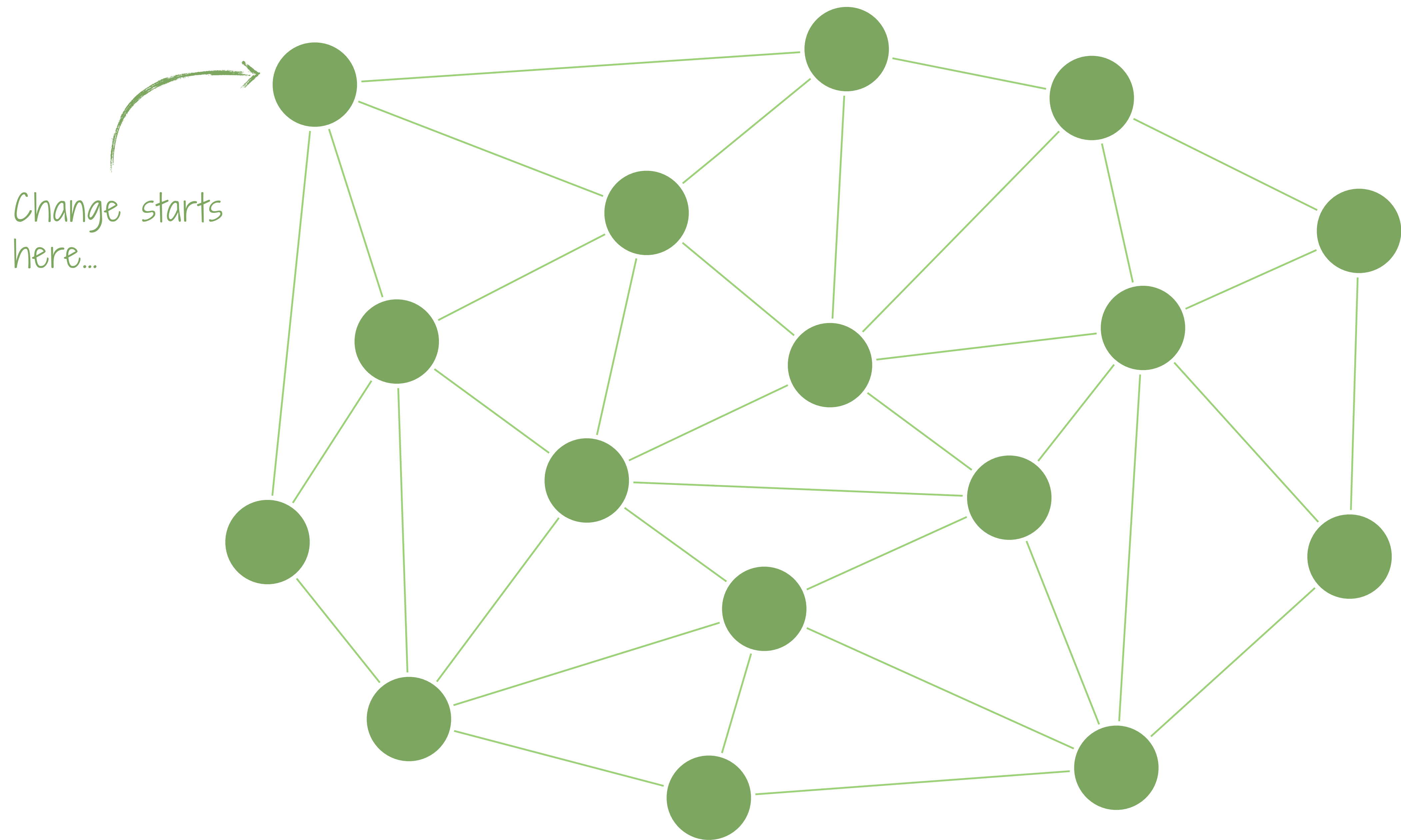


***Cost of Software***  
***≈***  
***Cost of Change***

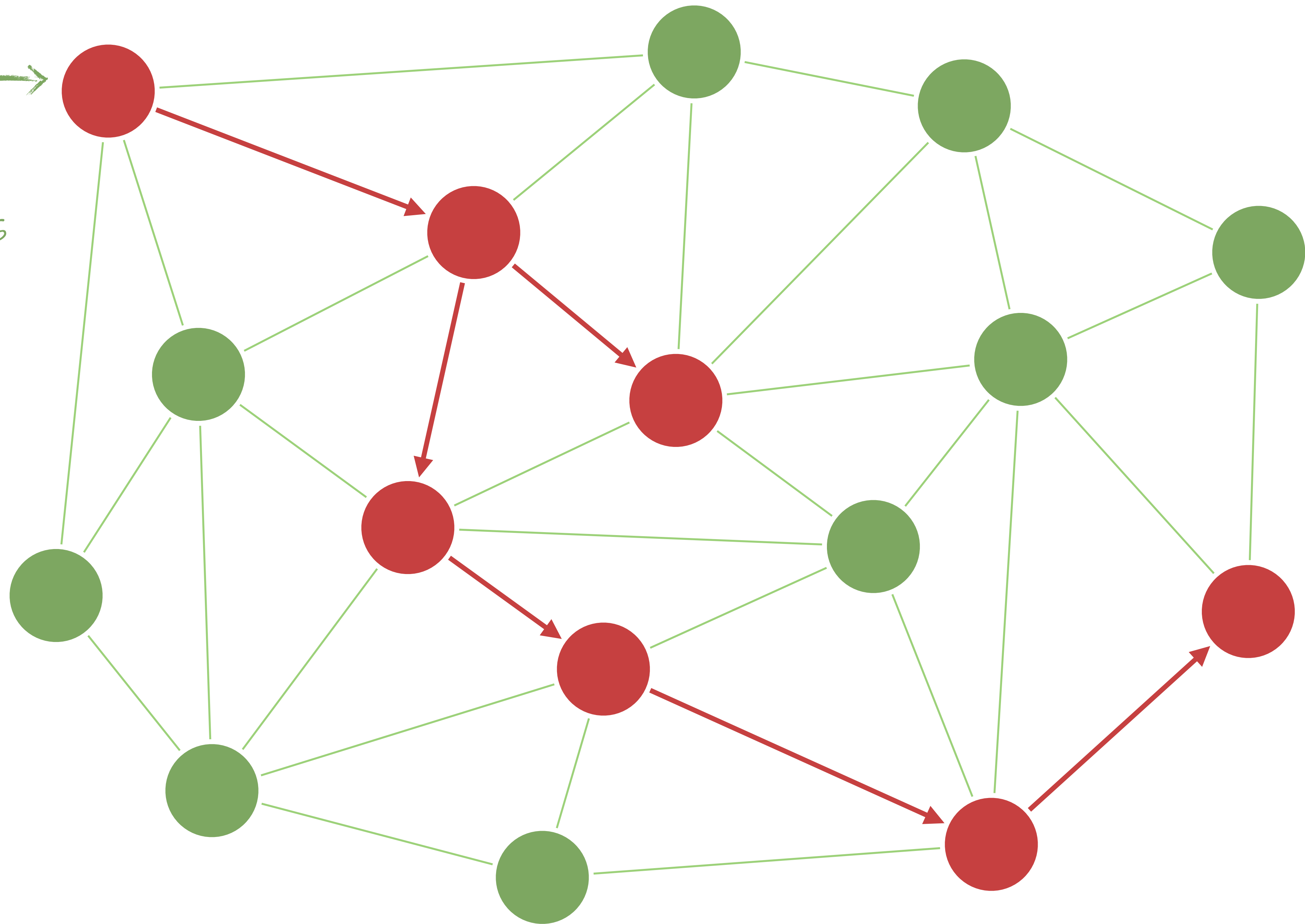
*Beck - A Daily Practice of Empirical Software Design — <https://www.youtube.com/watch?v=yBEcq23OgB4> (2023)*

*Yourdon, Constantine - Structured Design — Fundamentals of a Discipline of Computer Program and Systems Design (1979)*

***Cost of Change***  
***≈***  
***Coupling***



Change starts  
here...



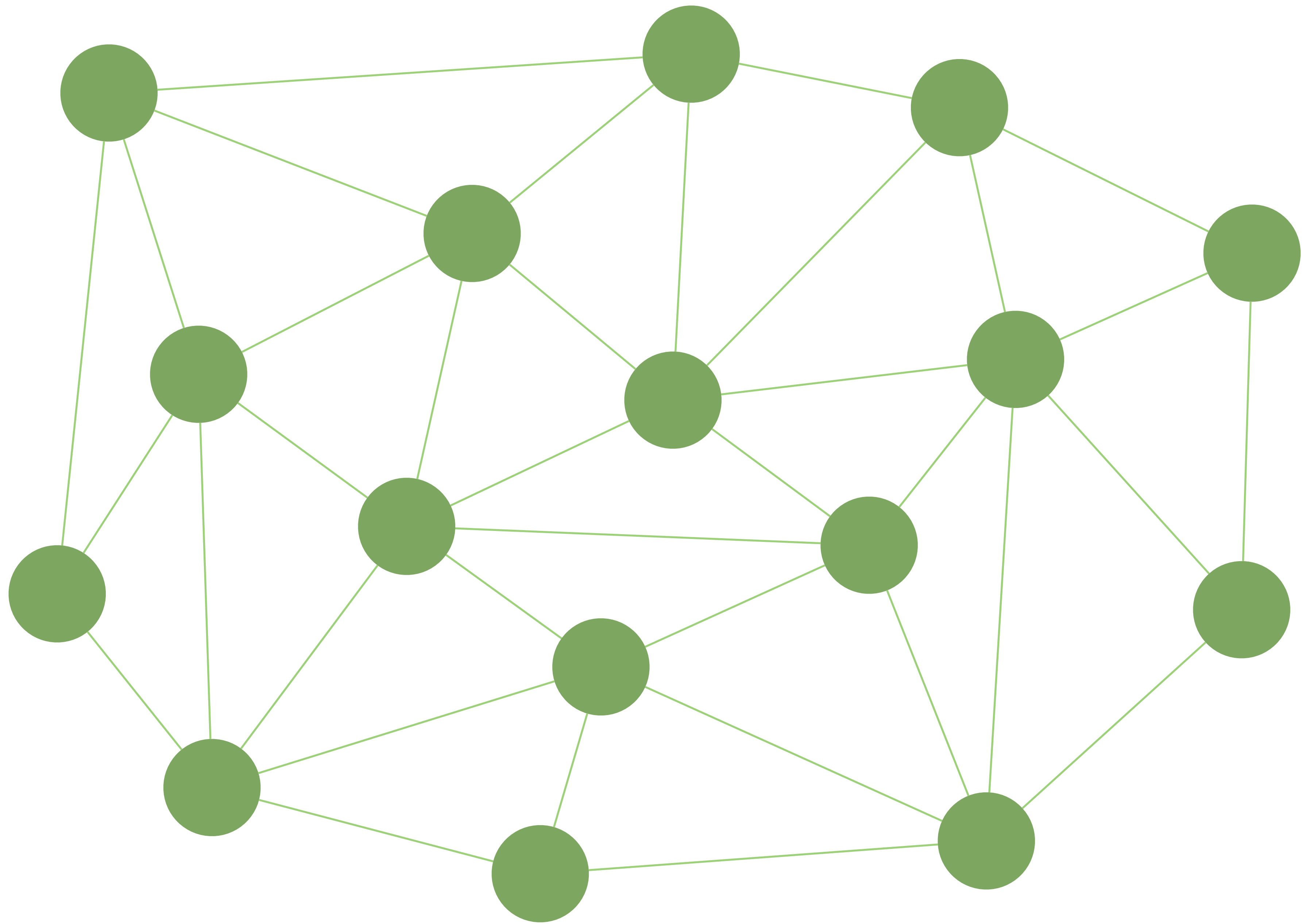
***Not all coupling  
is born equal***

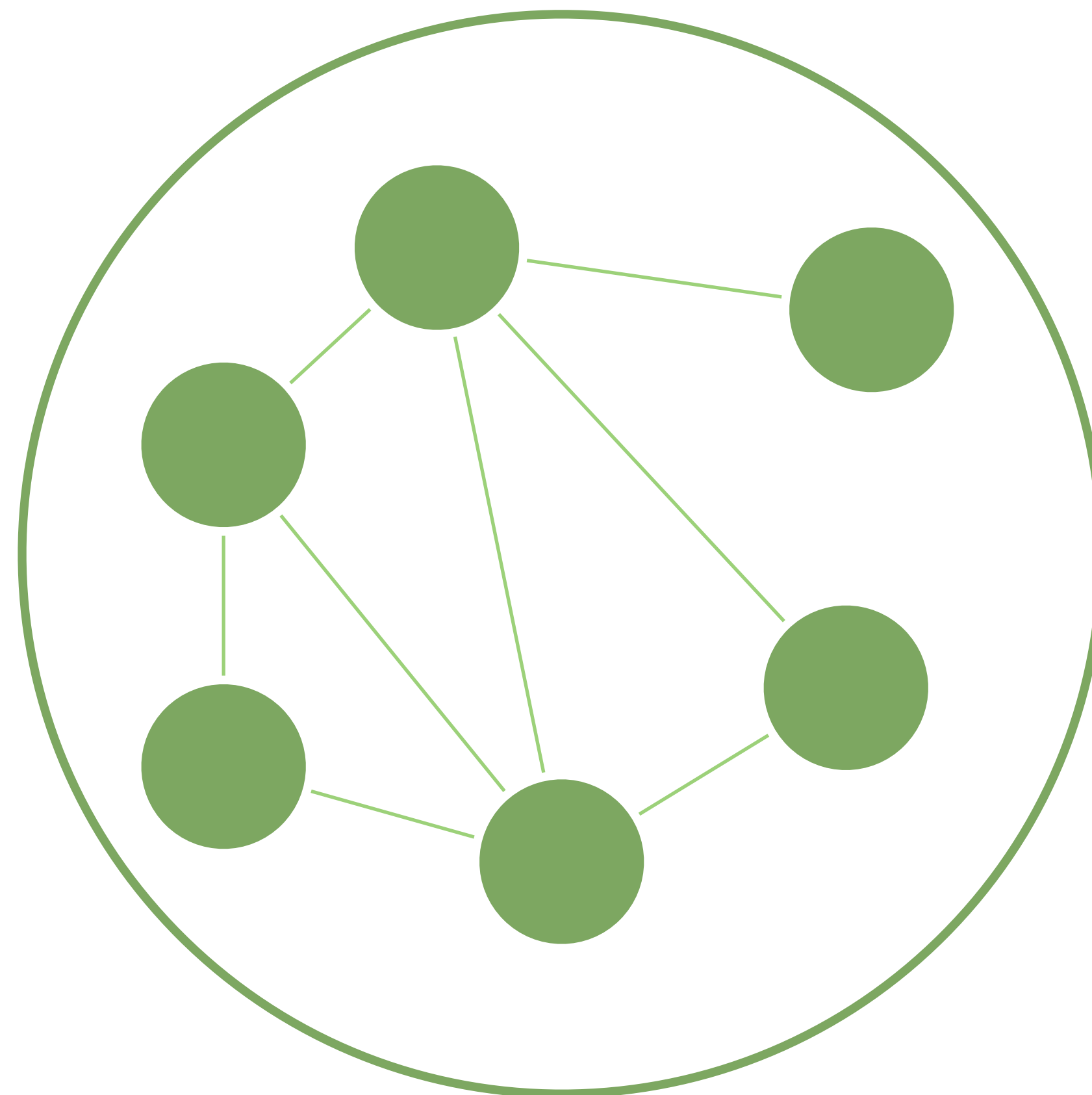
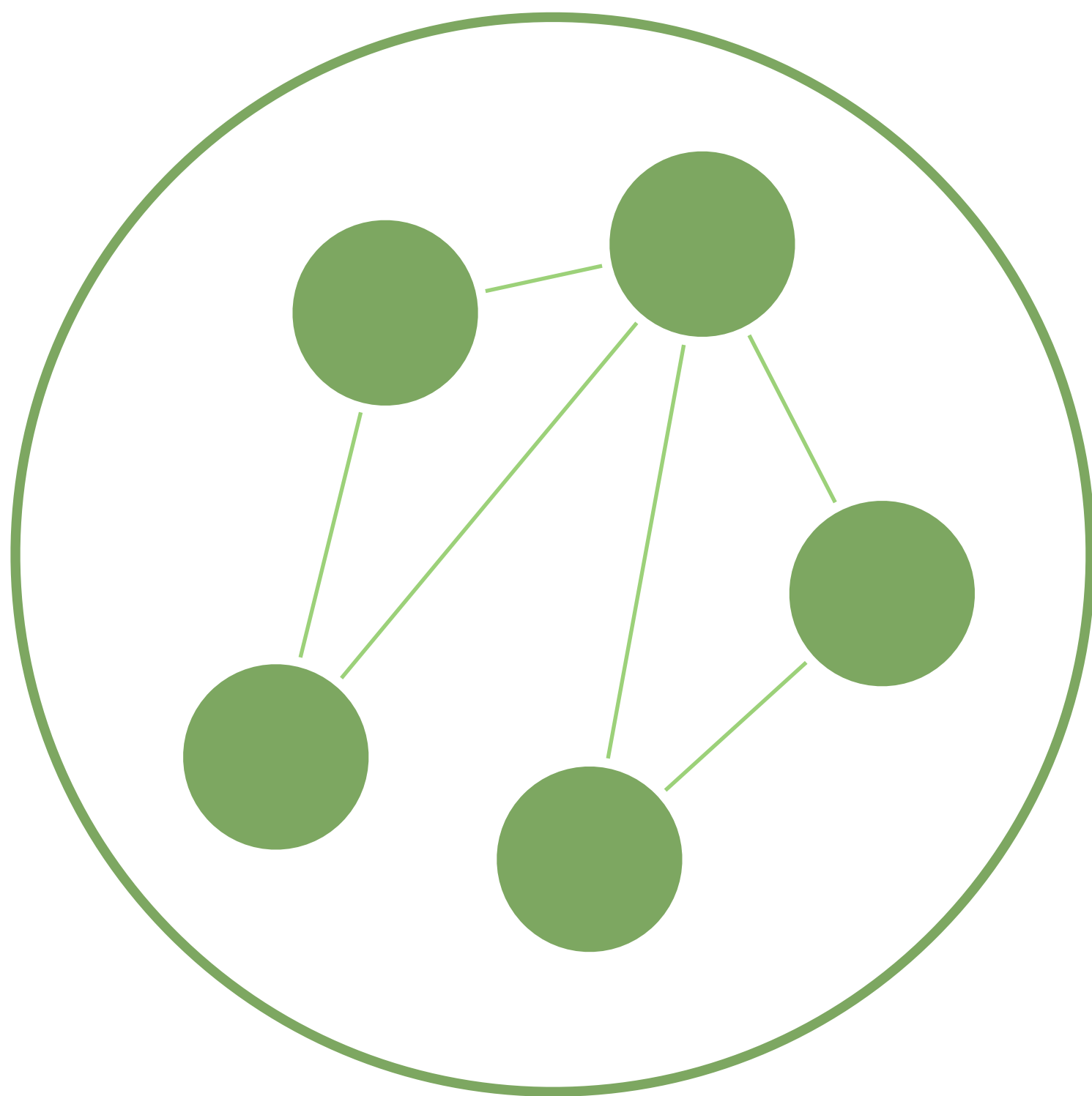
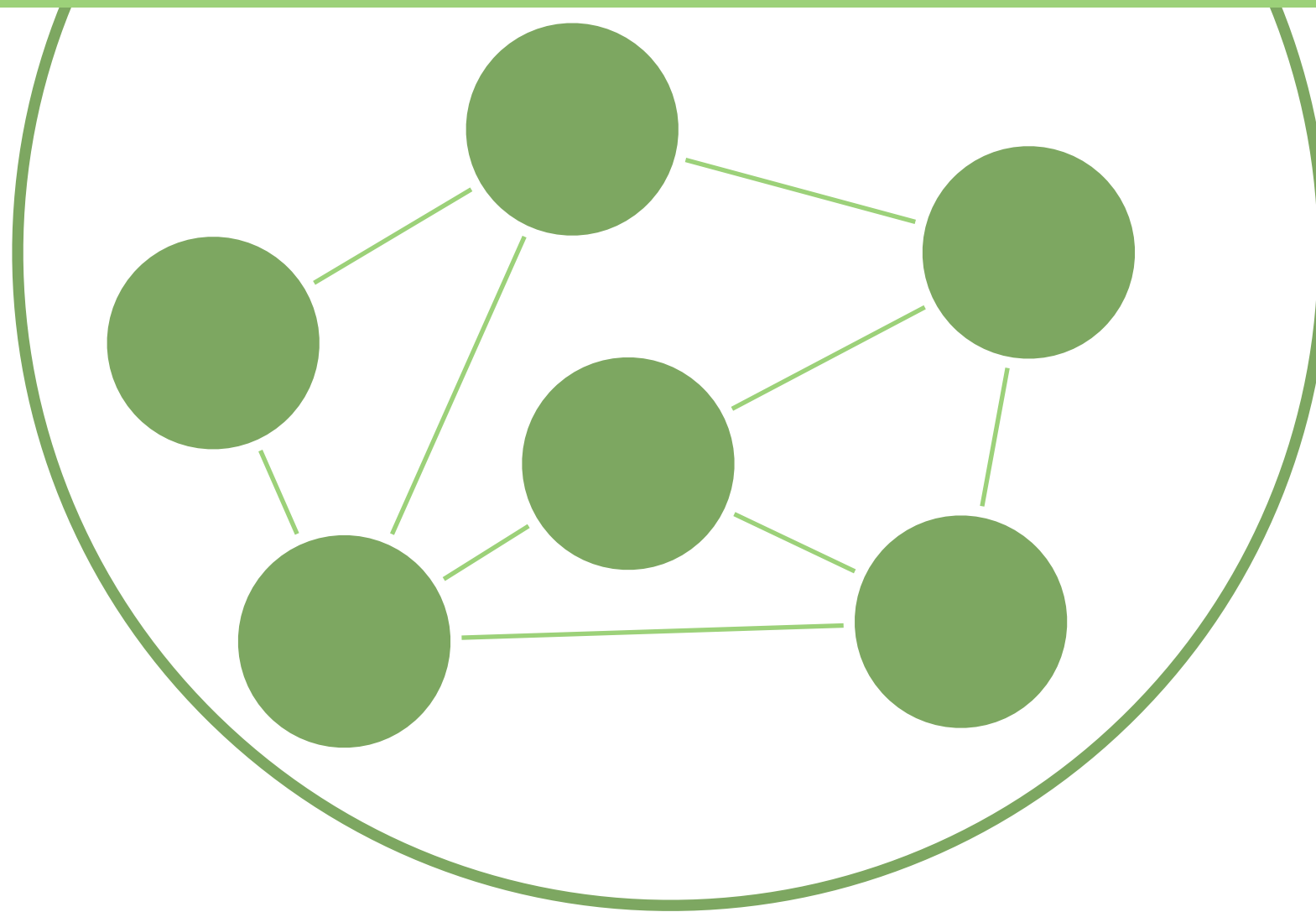
***Decoupling  
has its cost, too***

***Cohesion***

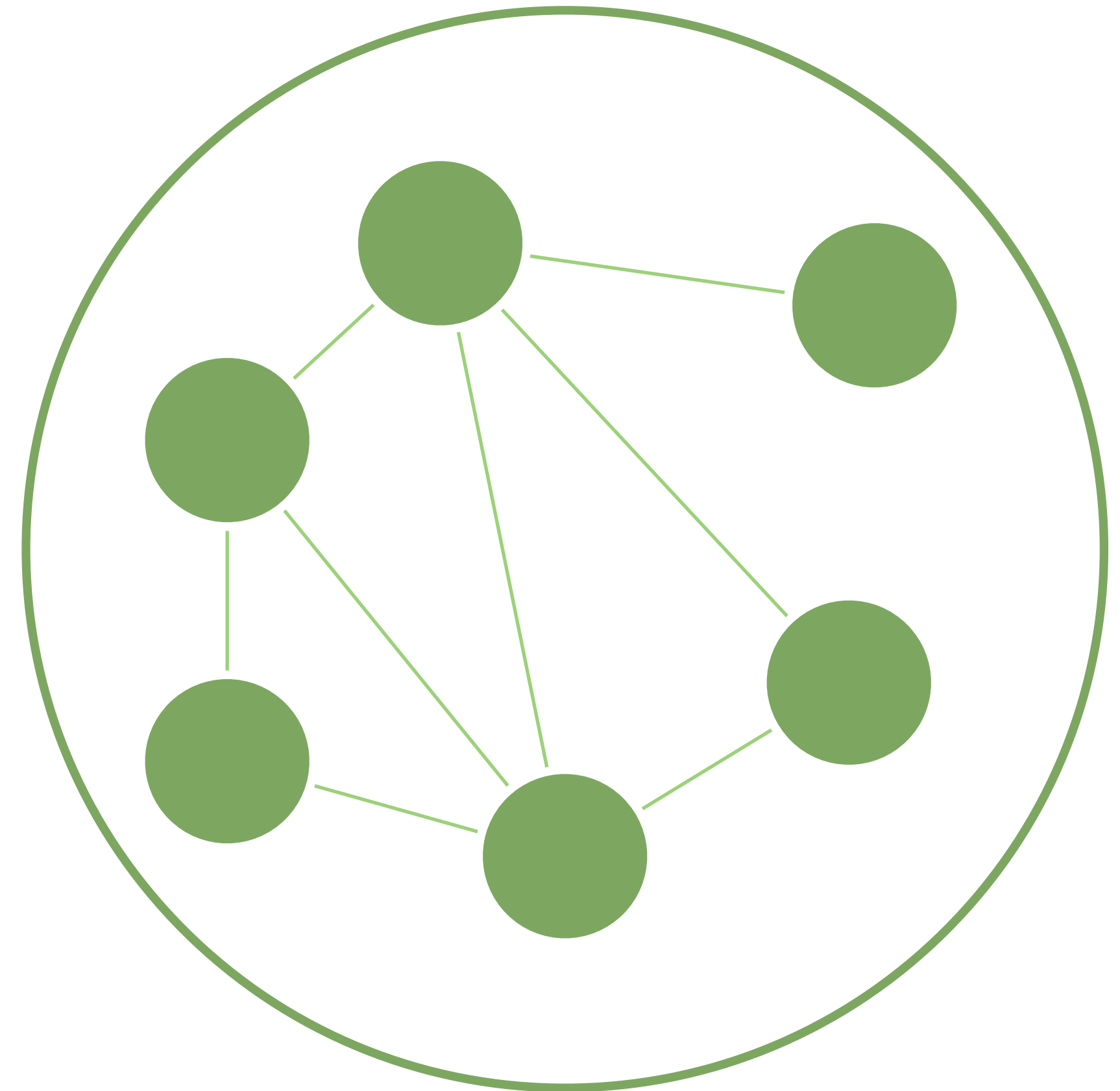
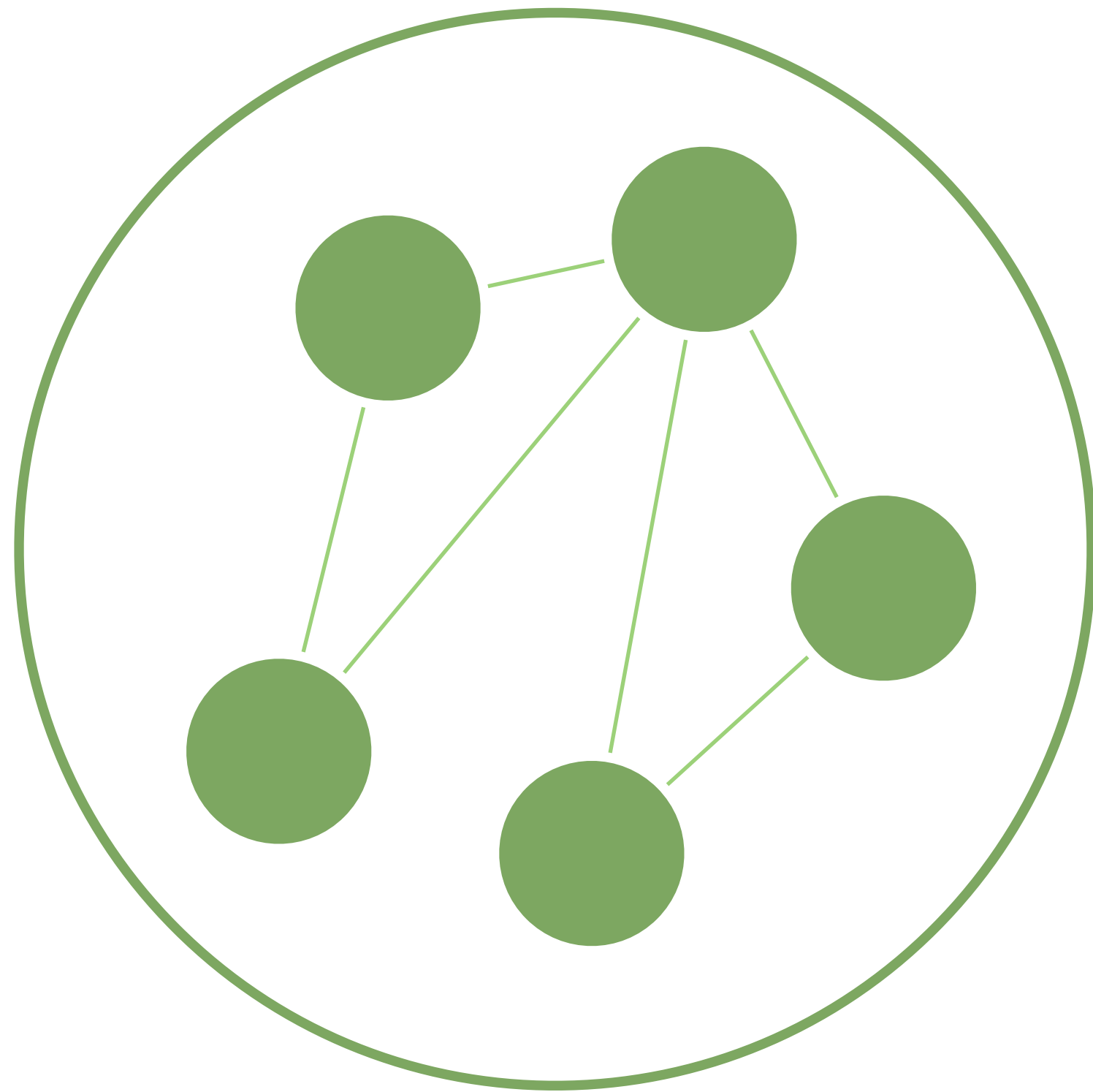
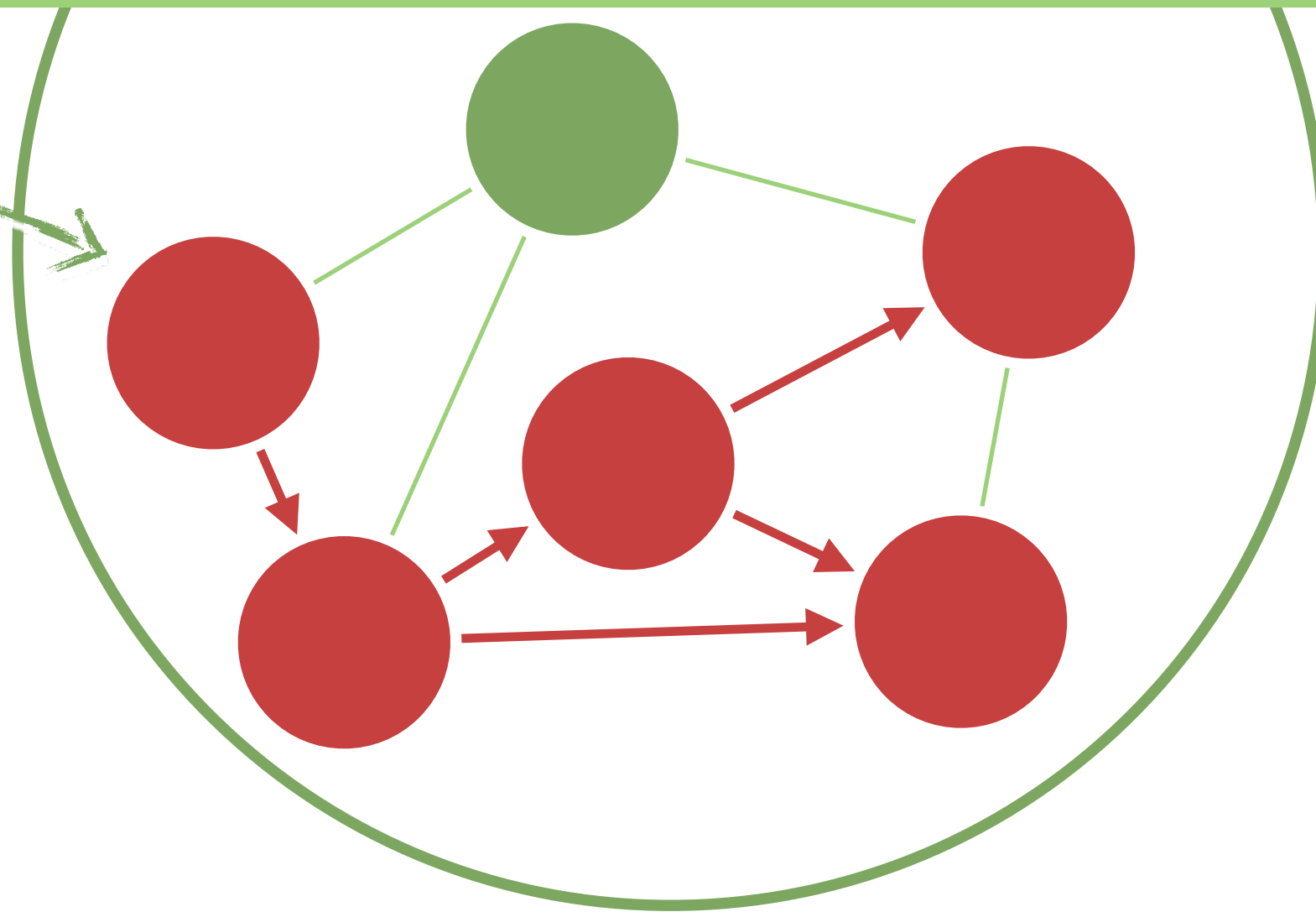
***Cohesion is coupling  
in the right™ places***

***Software design is the  
act of modeling  
units of strong cohesion,  
loosely coupled to each other.***





Change starts  
here...





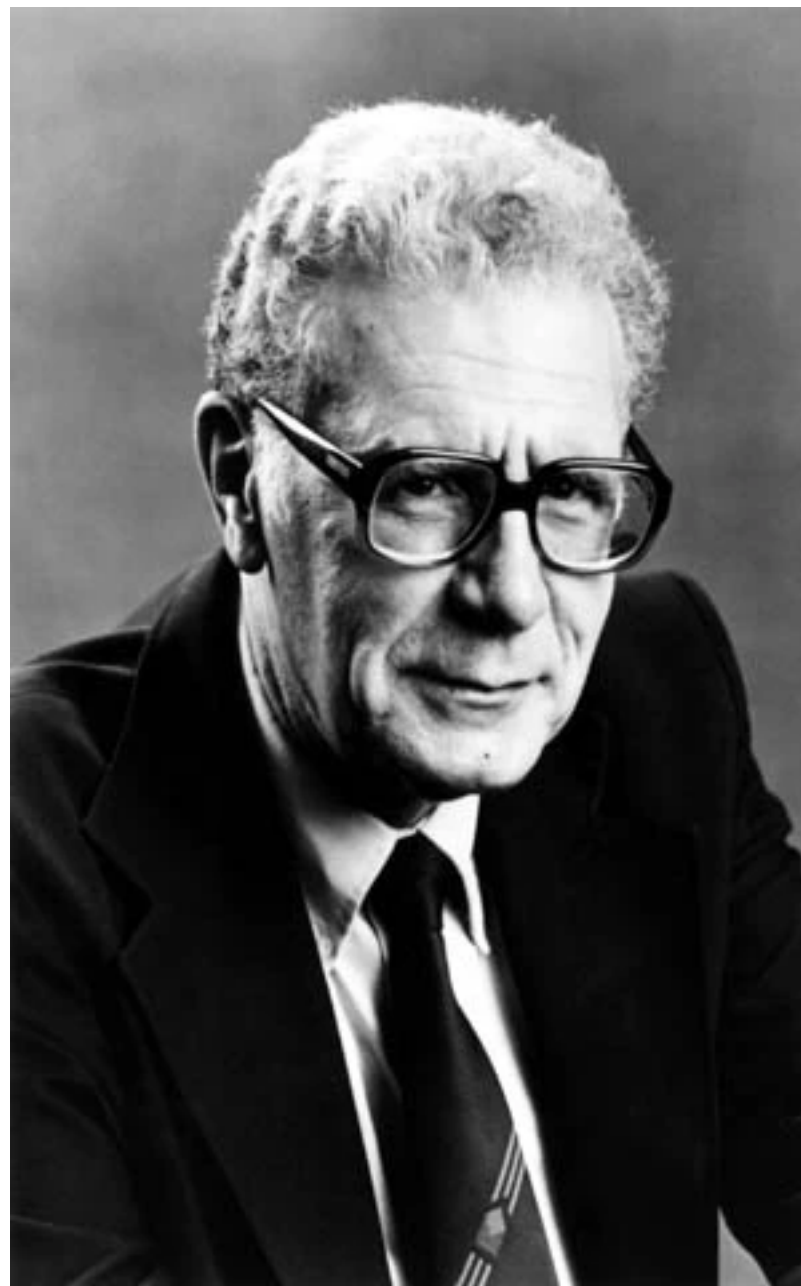
**Oliver Drotbohm**

@odrotbohm@chaos.social

A software system's structure is essentially a formalized bet on change patterns you anticipate having to deal with in the future.

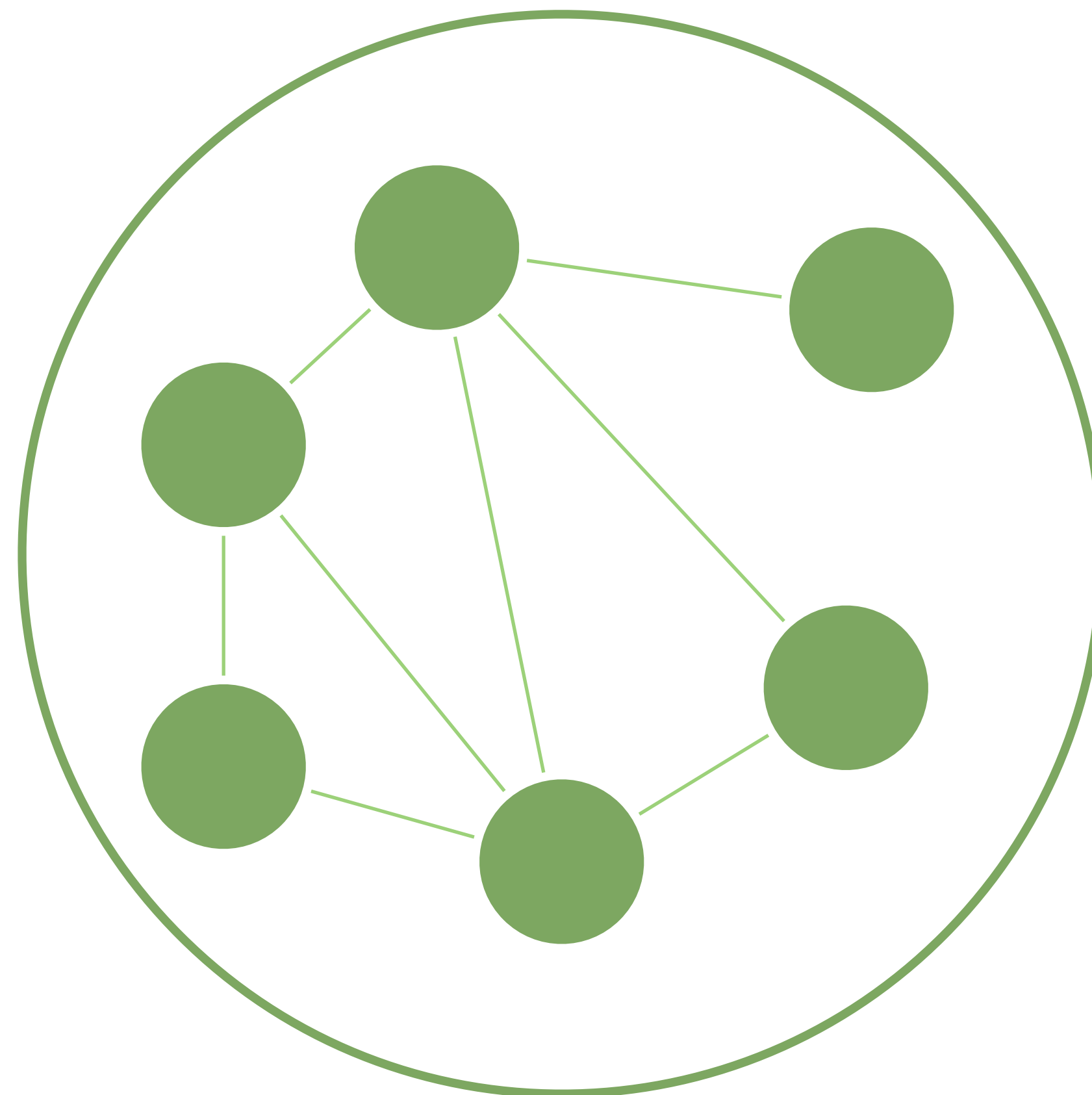
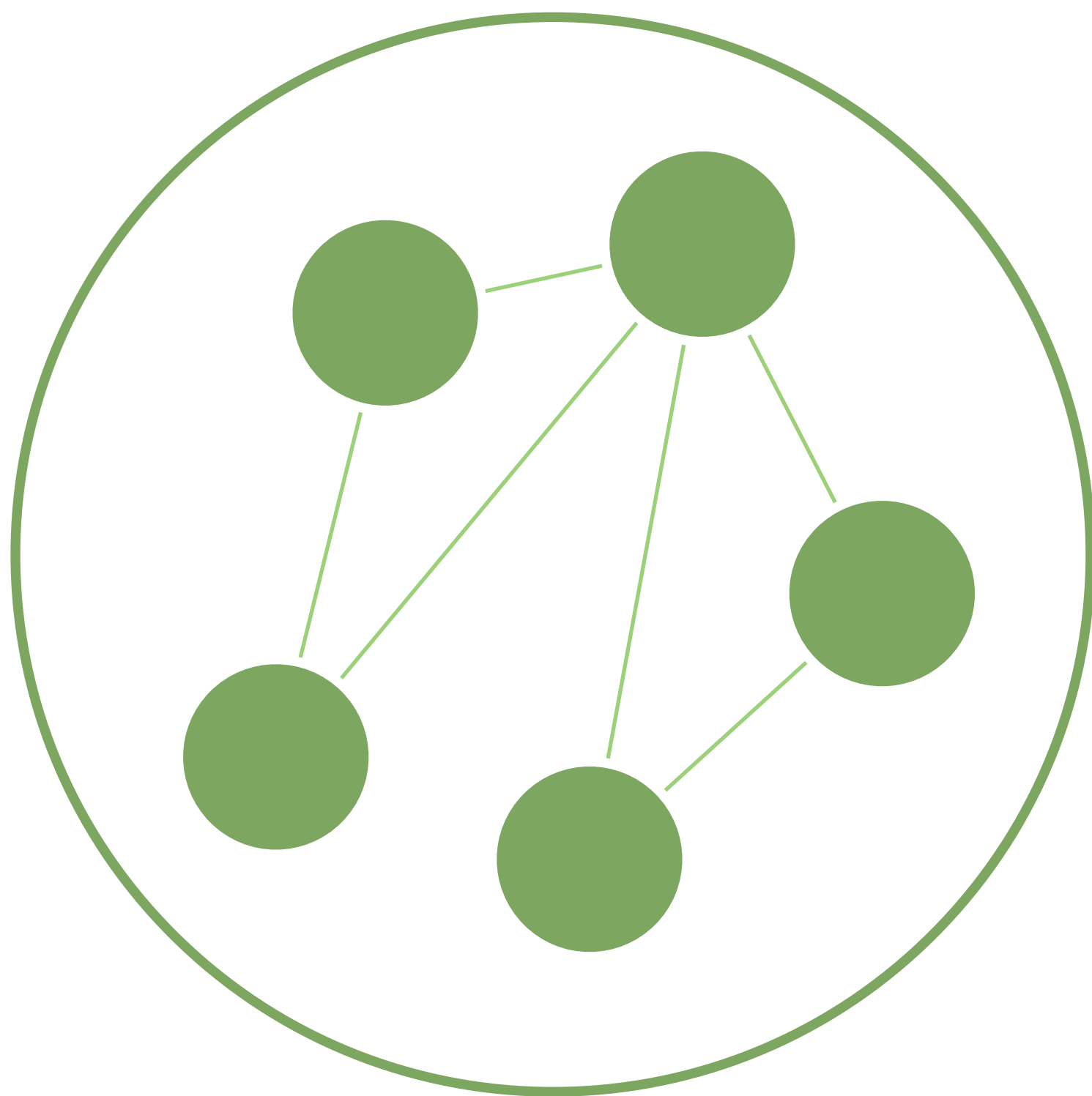
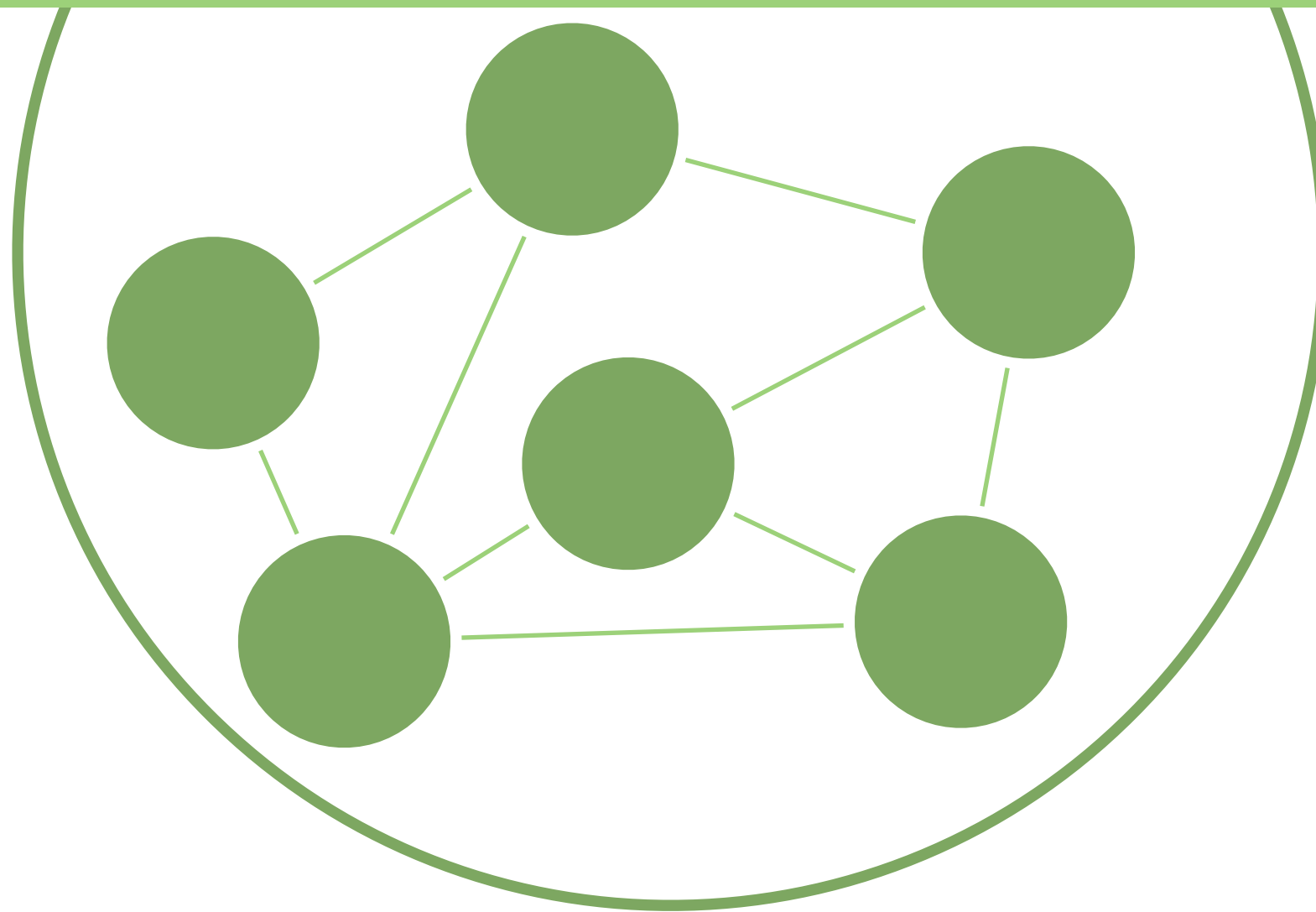
14. Jan. 2025, 11:55 · 🌐 · Ivory for Mac

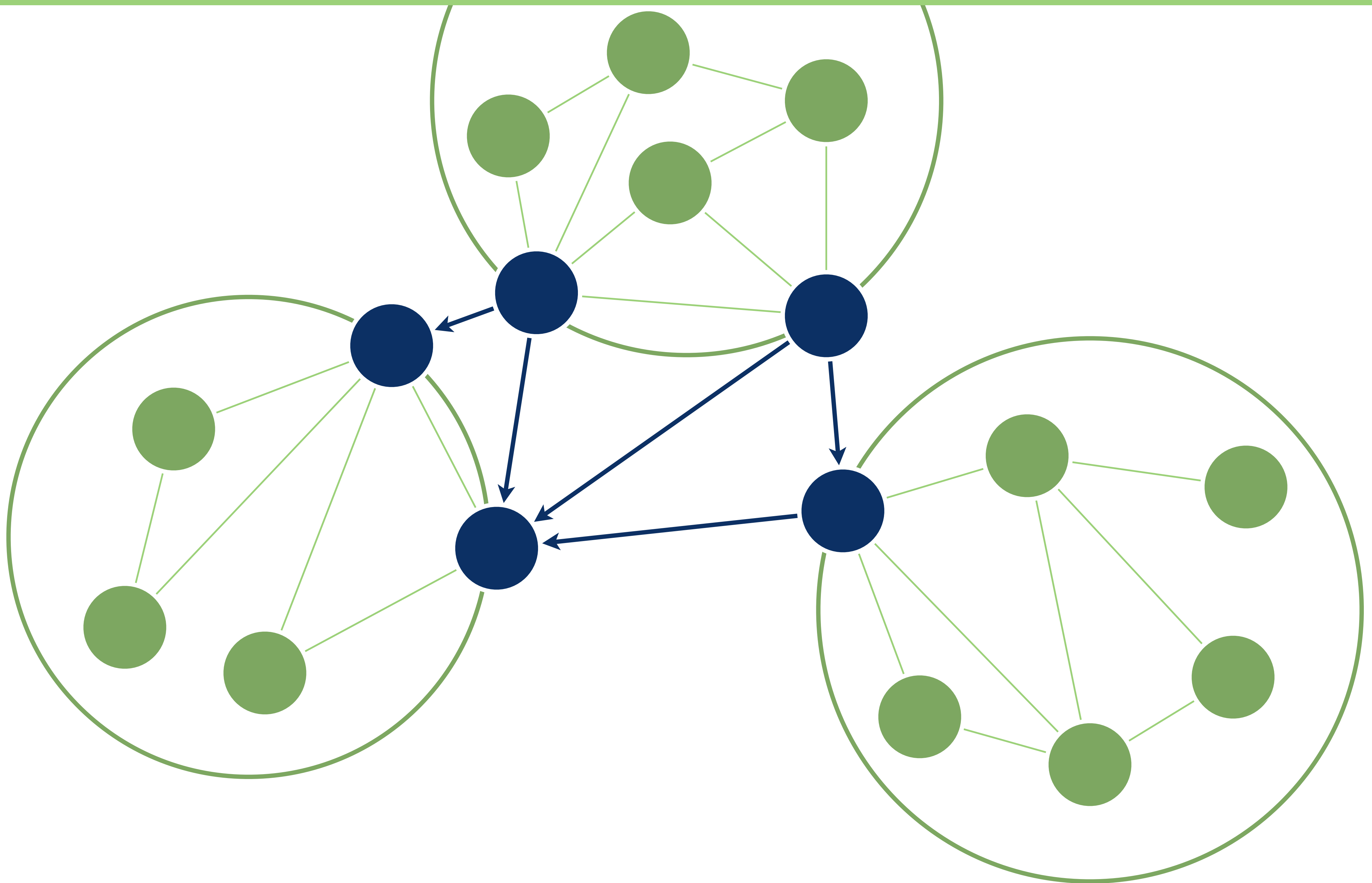
<https://chaos.social/@odrotbohm/113826340530554922>



**“A system is never the  
sum of its *parts*,  
it’s the product of  
their *interactions*.”**

— Russel L. Ackoff

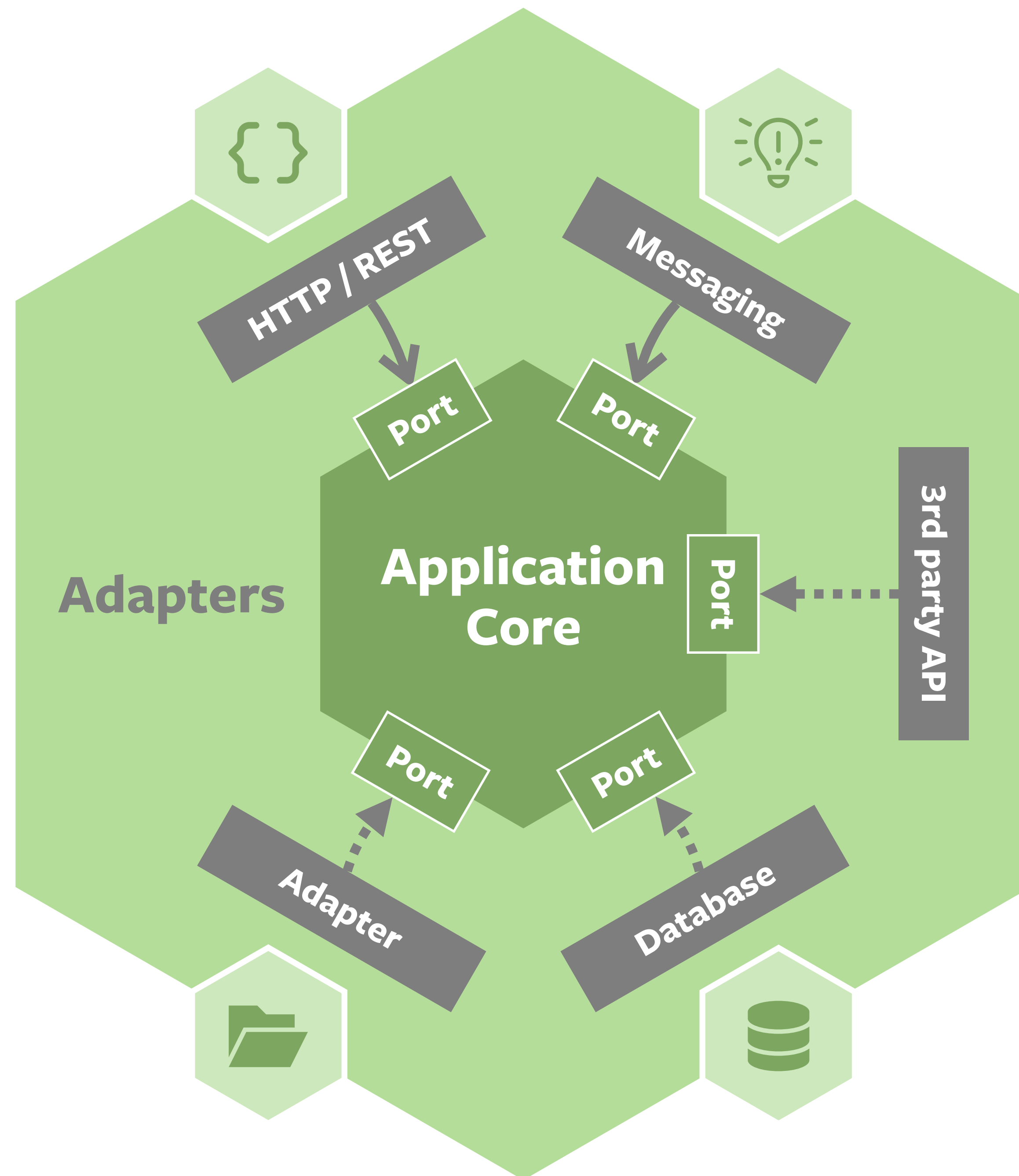




# ***Separation of Concerns Architectures***

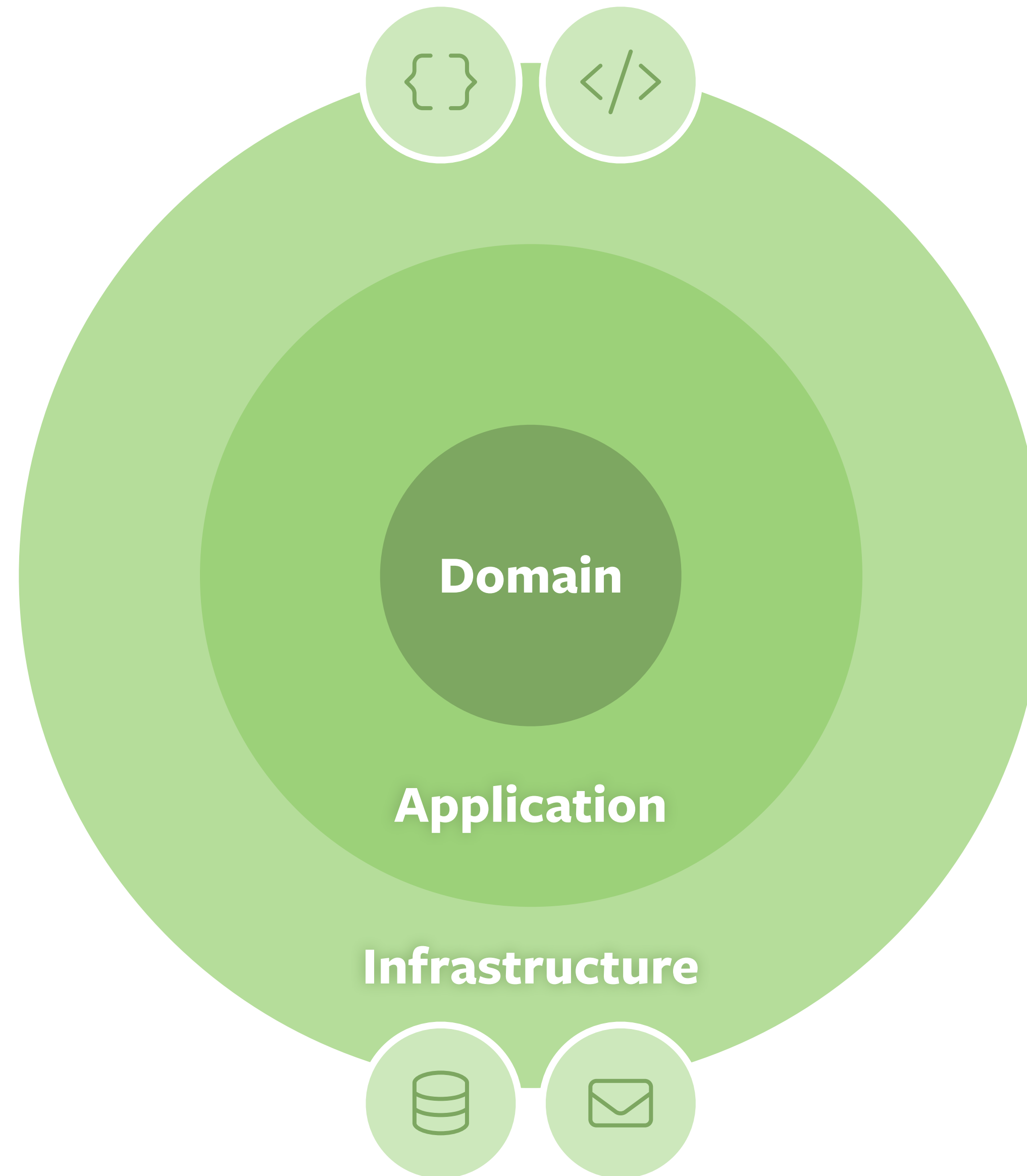
# ***Hexagonal Architecture***

2005

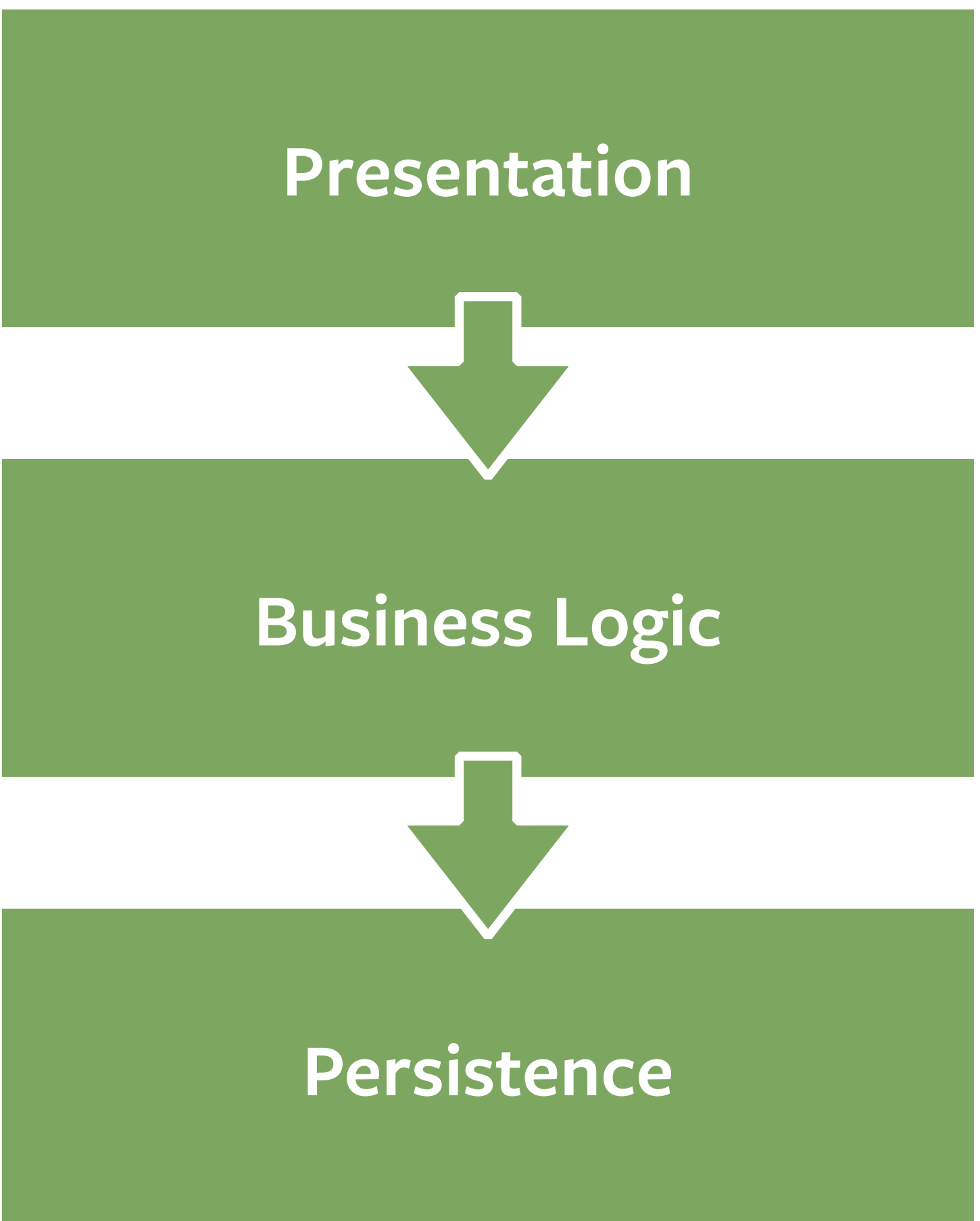


# ***Onion Architecture***

2008

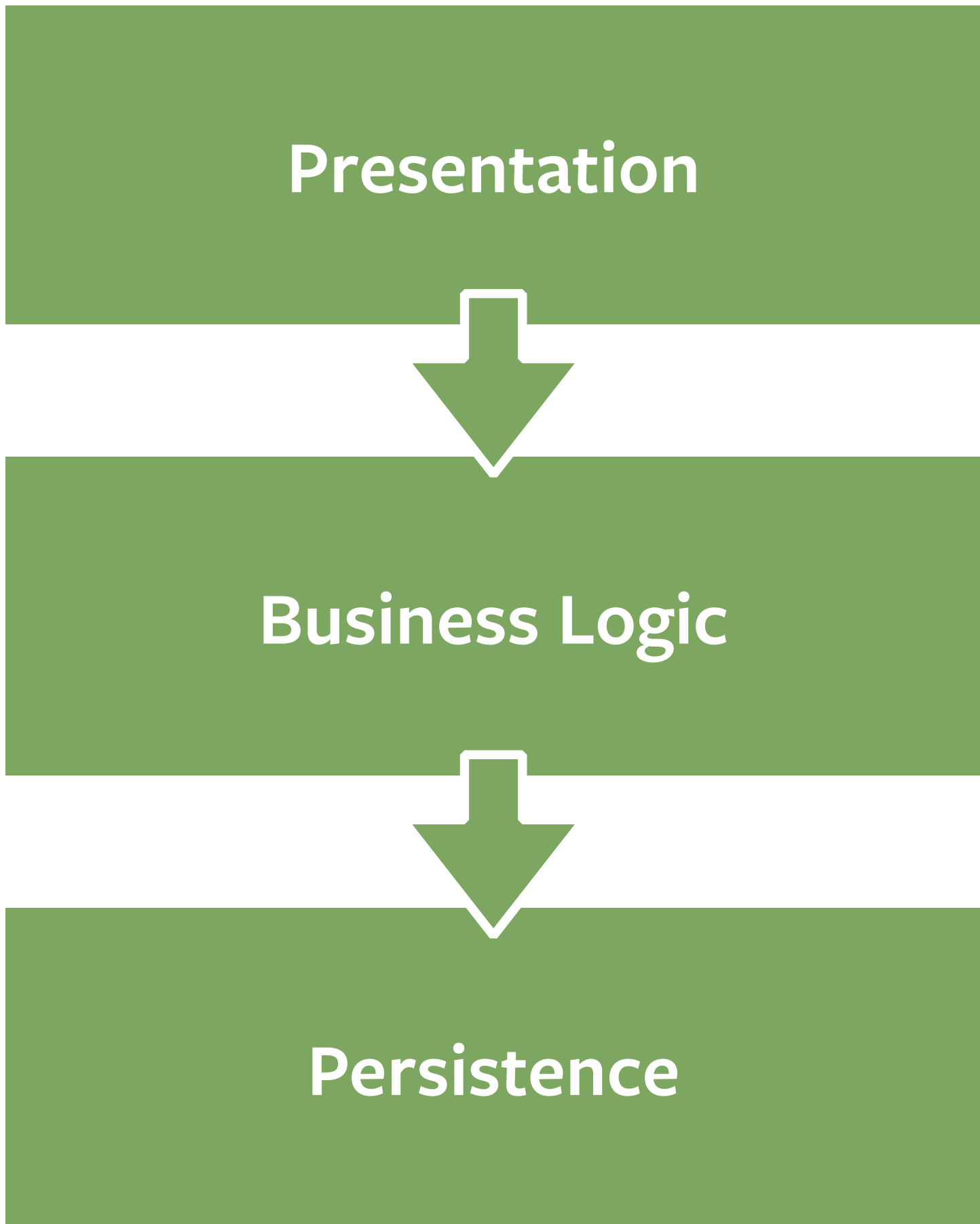


# Layered Architecture

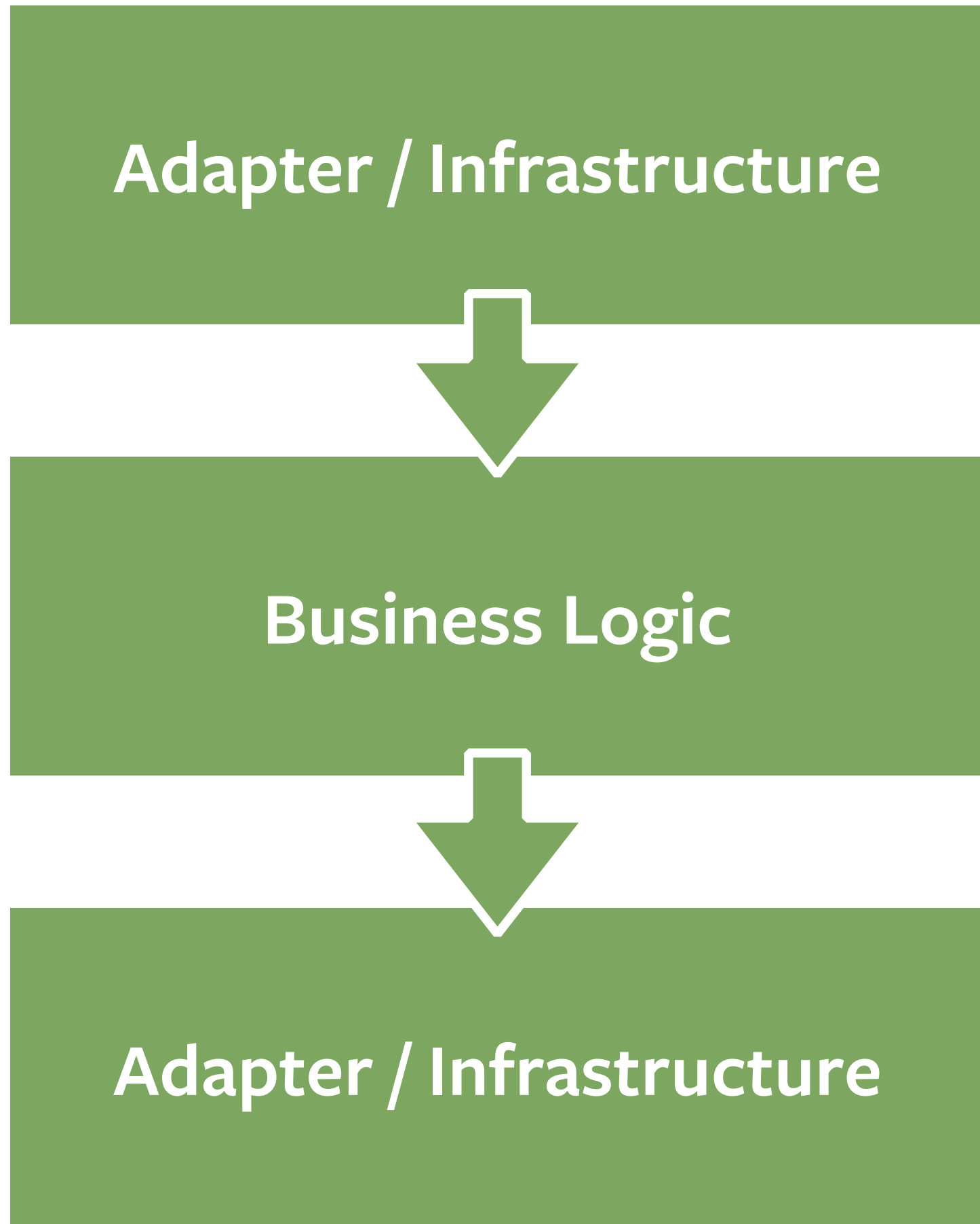


# Hexagonal- / Onion- Architecture

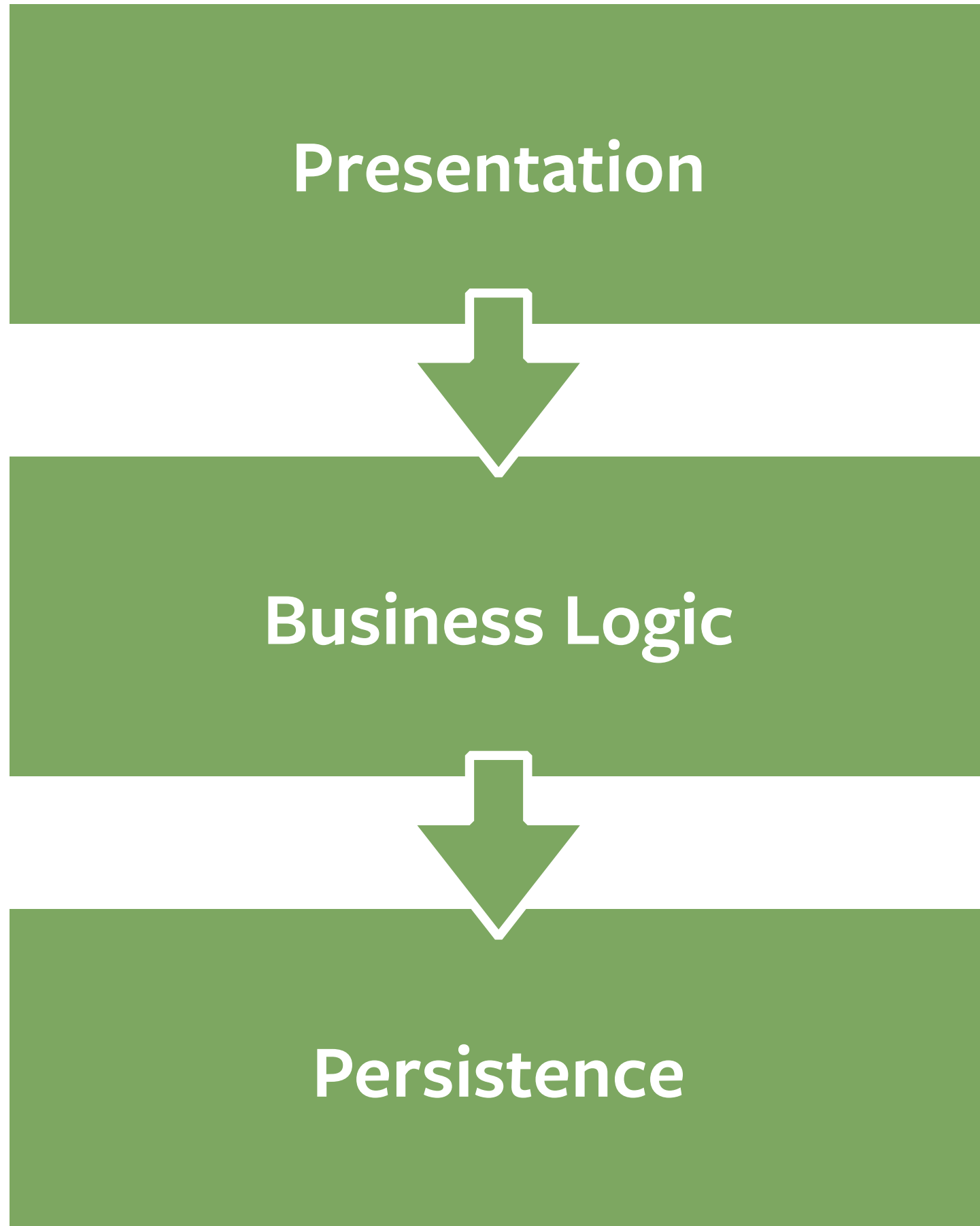
## Layered Architecture



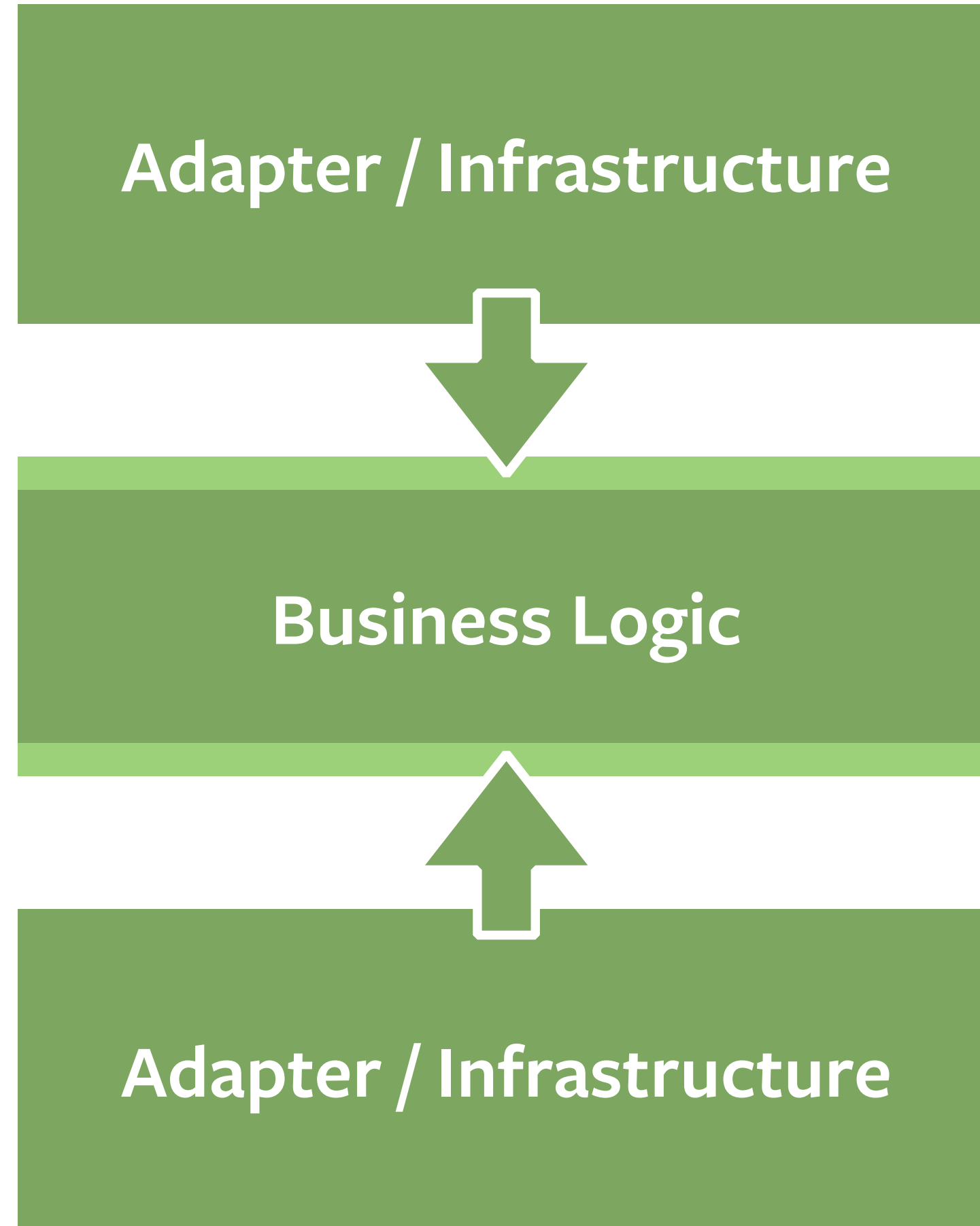
## Hexagonal- / Onion- Architecture



## Layered Architecture



## Hexagonal- / Onion-Architecture



Spring



Layered

Presentation →

Business →

Persistence

Hexagonal

Driving Adapter →

Port ← Application → Port

← Driven Adapter

Onion

Infrastructure →

Application / Domain

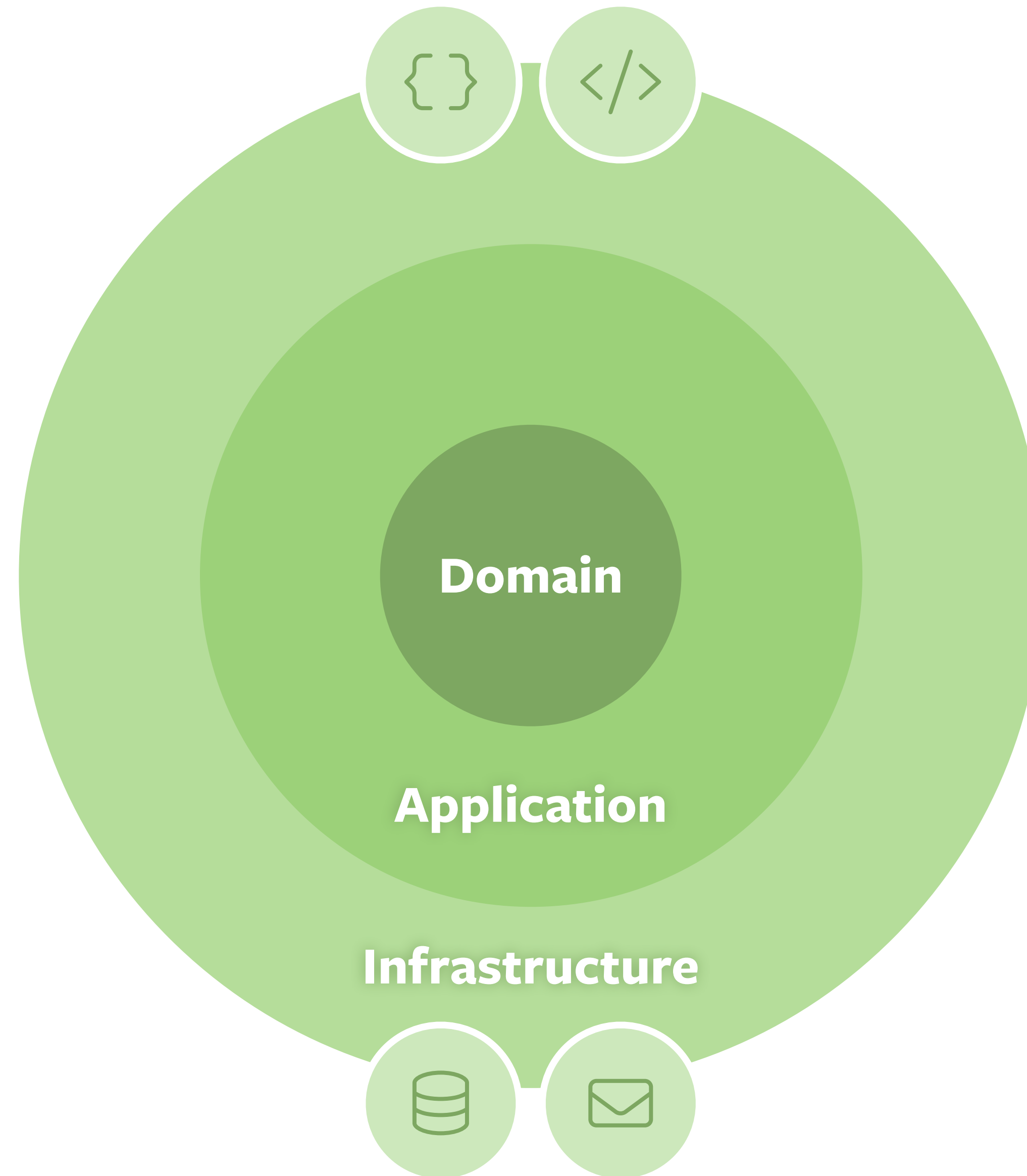
← Infrastructure

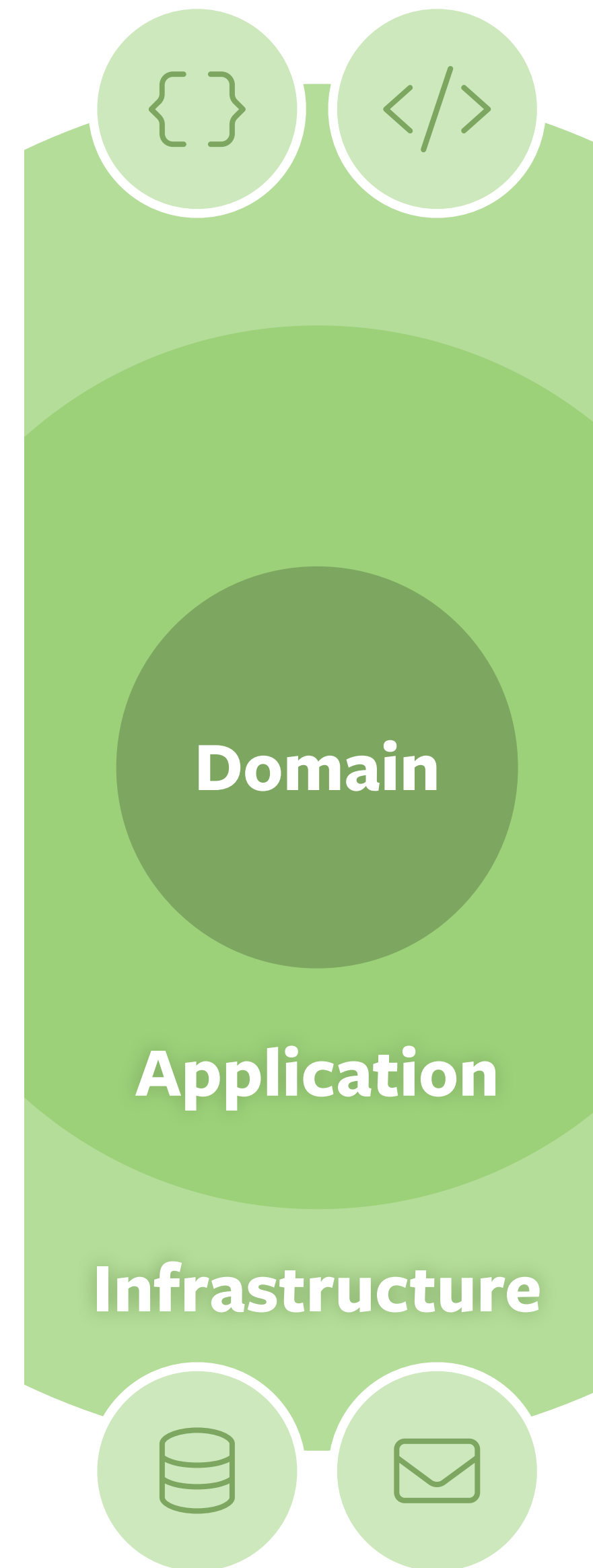
# ***Goals & Effects***

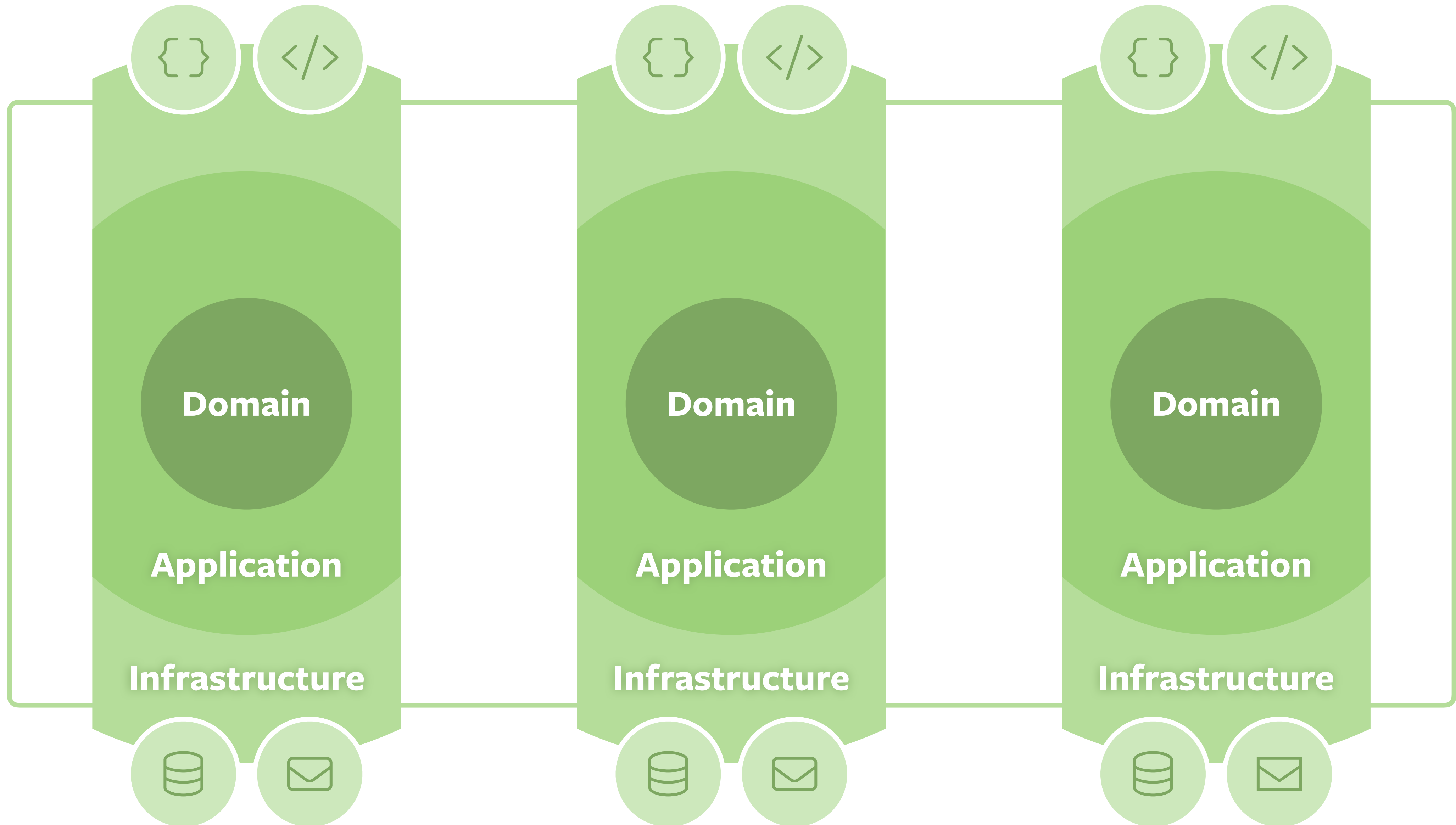
***Testability***

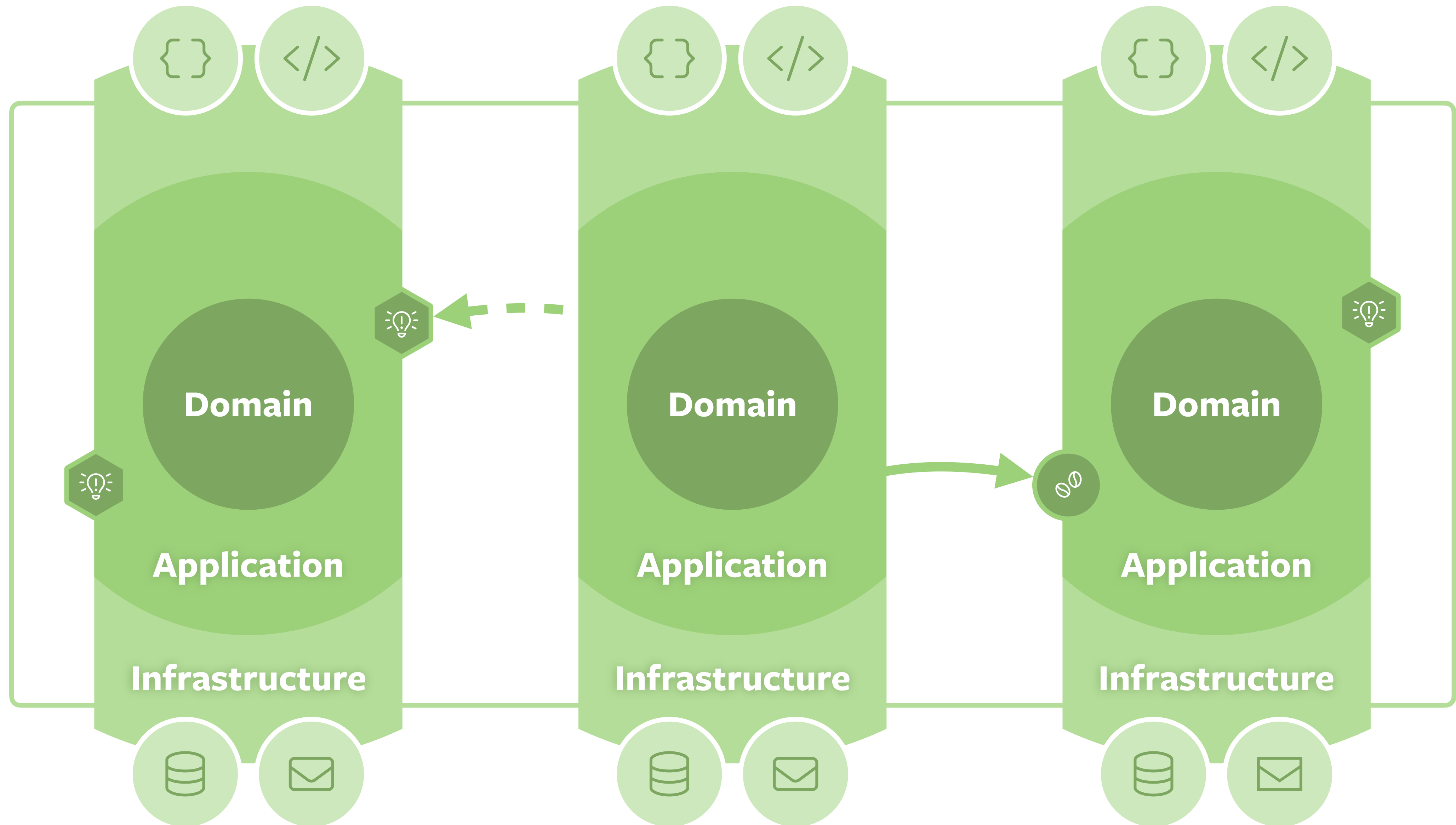
# ***Technology-Free Domain***

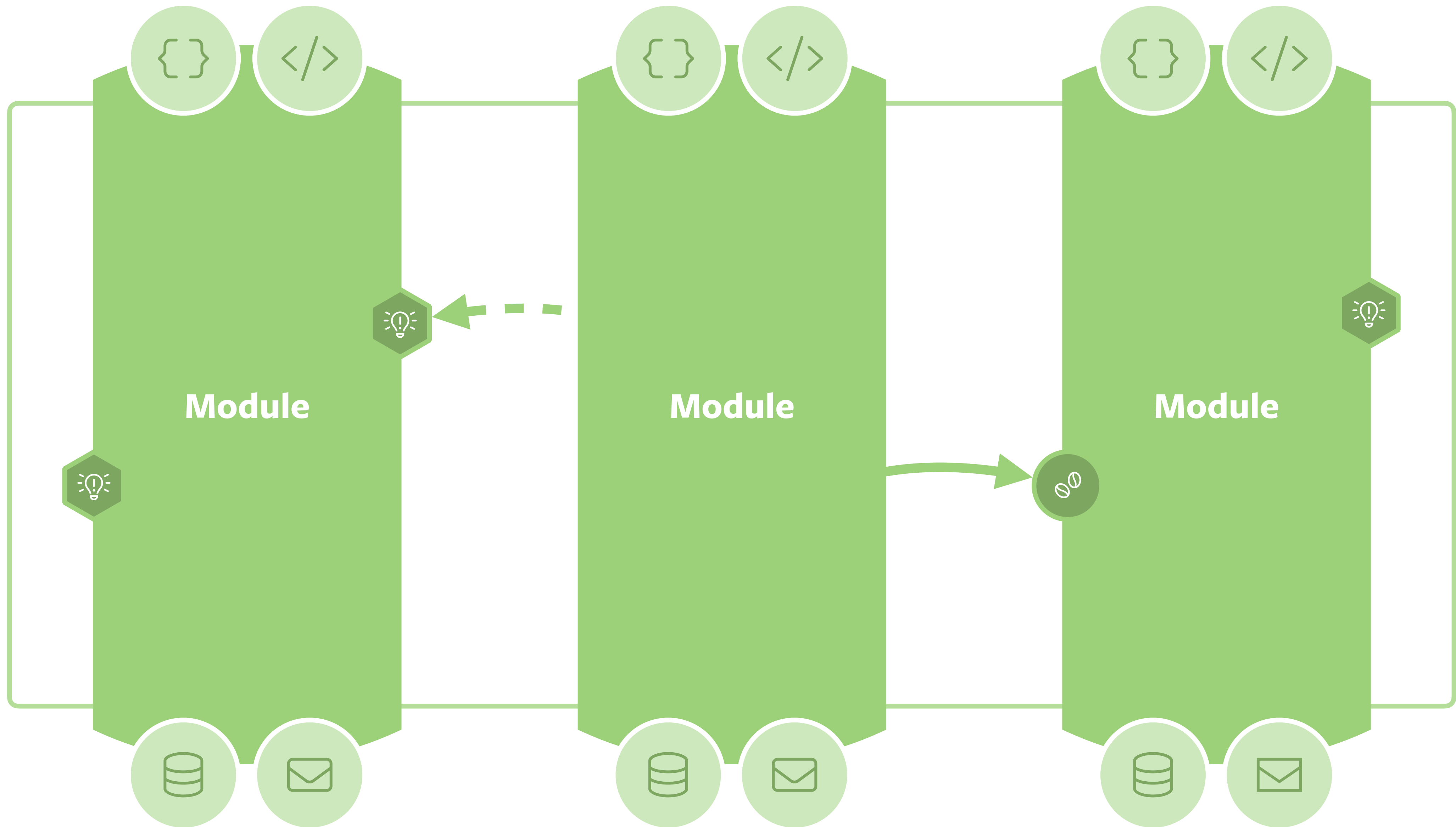
***Domain Centric?***











# ***Code structure***

*Severely inspired by Simon Brown's <https://static.simonbrown.je/modular-monoliths.pdf>*



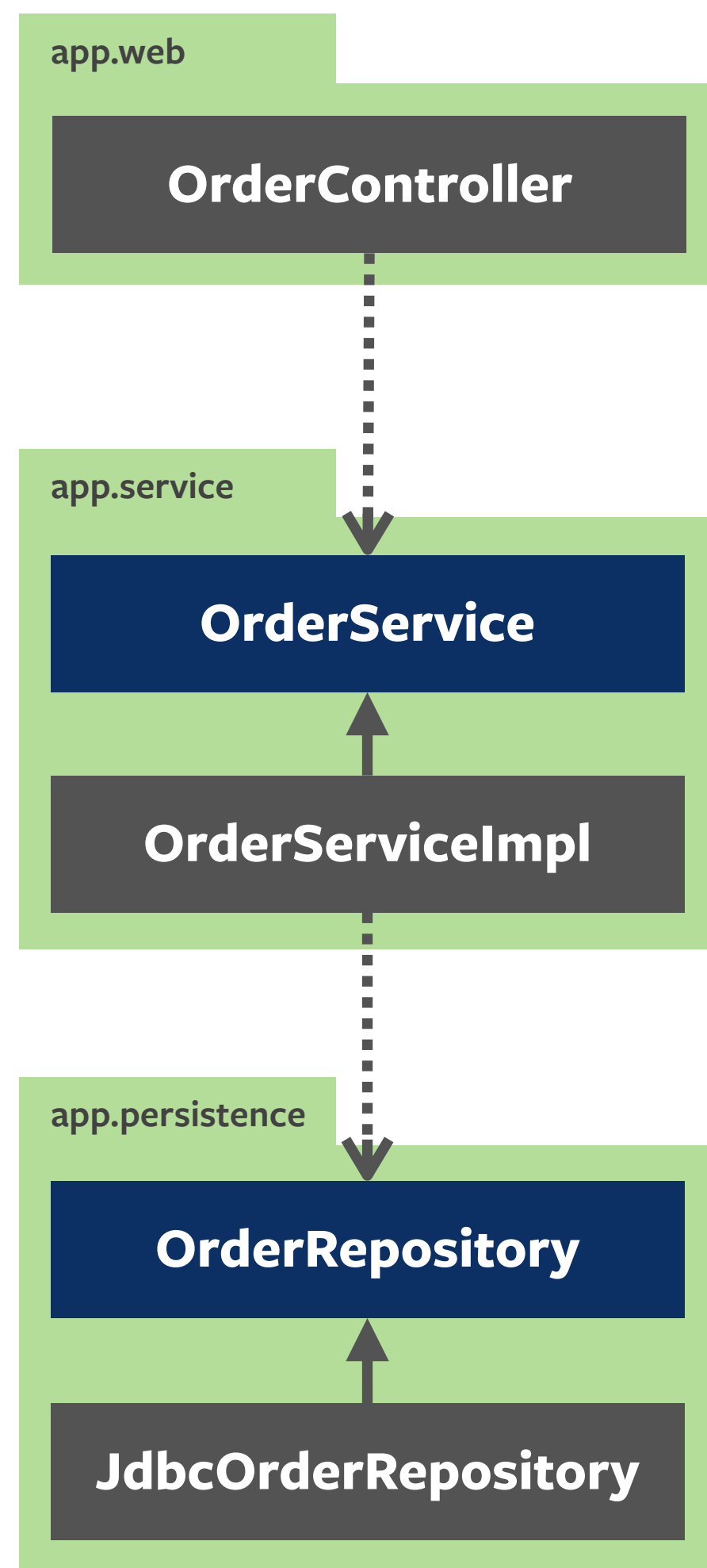
**Oliver Drotbohm** 🥁 & 💻  
@odrotbohm



Coined *Drotbohm's* law yesterday: from the structure of a software system you can derive the book the architect read most recently...

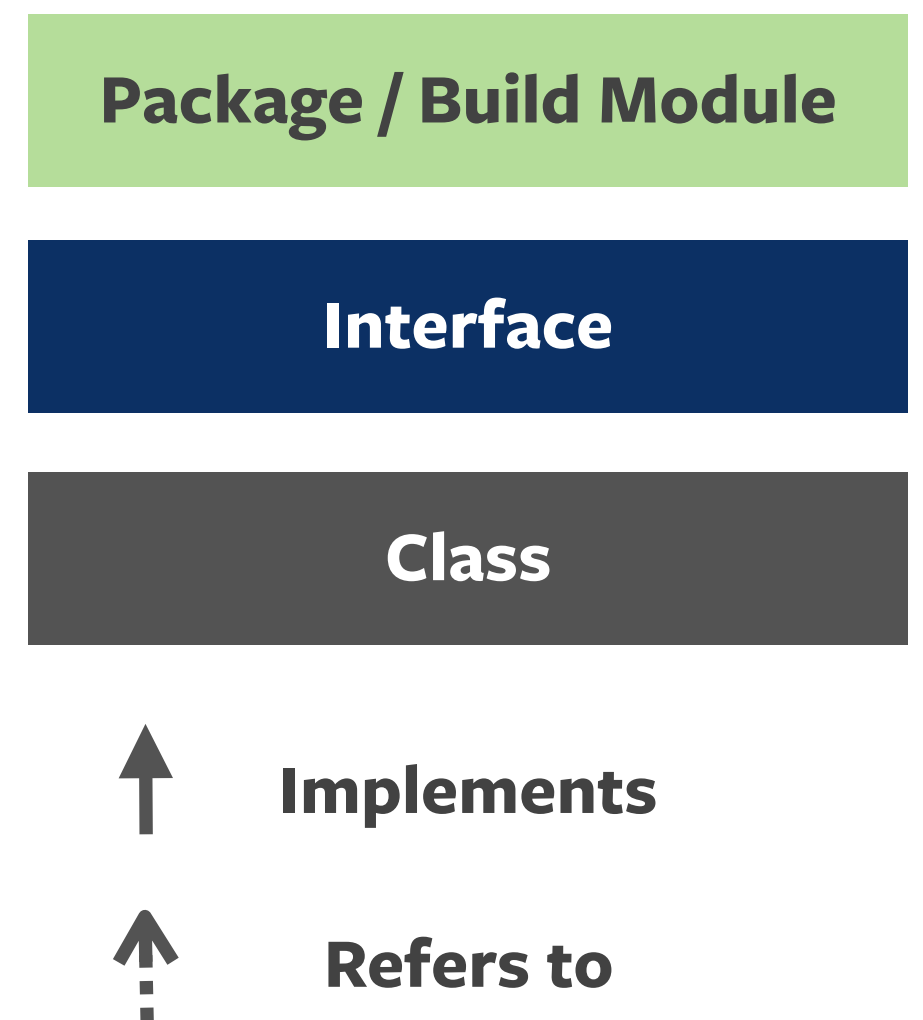
[Post übersetzen](#)

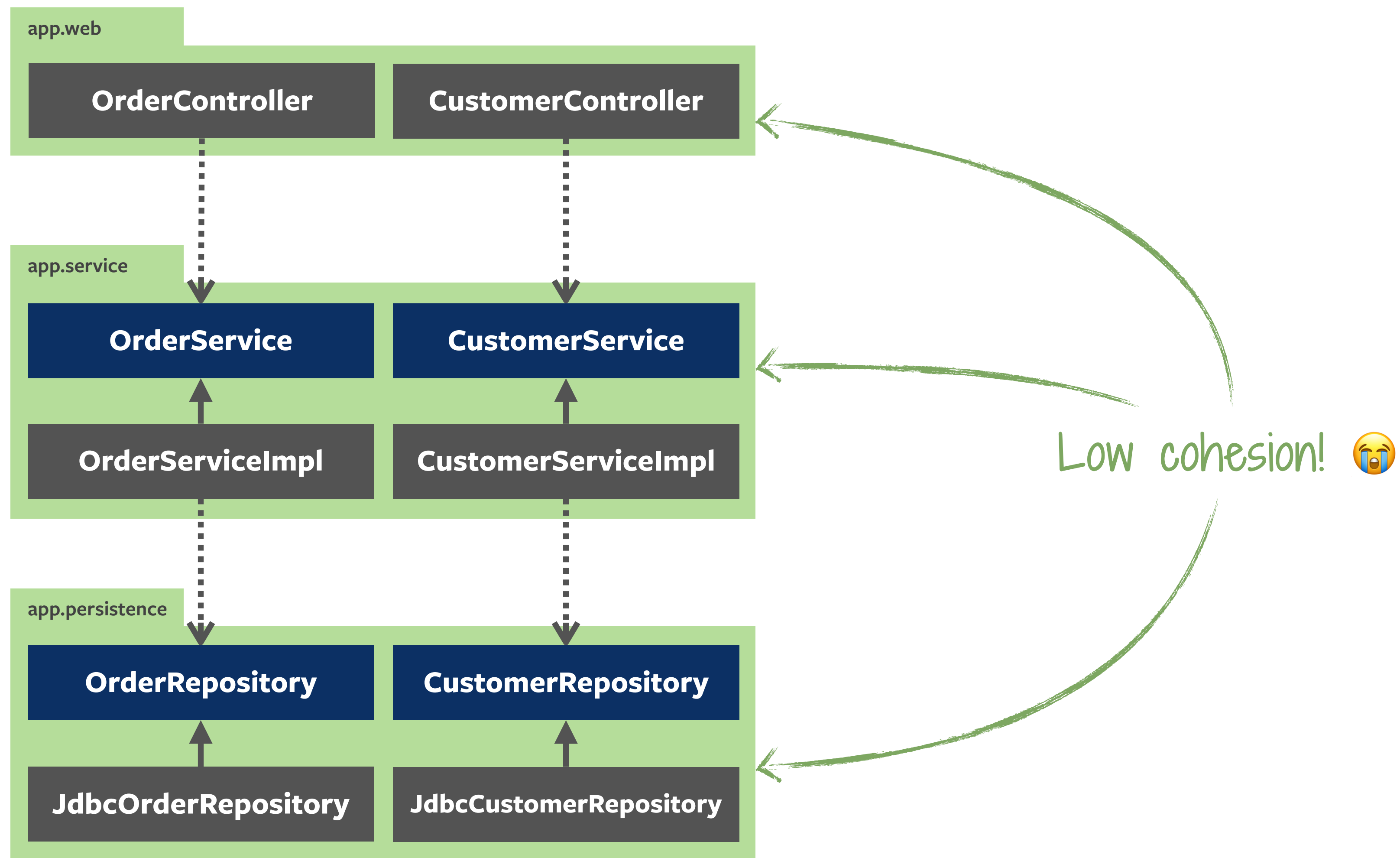
8:11 vorm. · 7. Juli 2016 aus Stuttgart, Deutschland



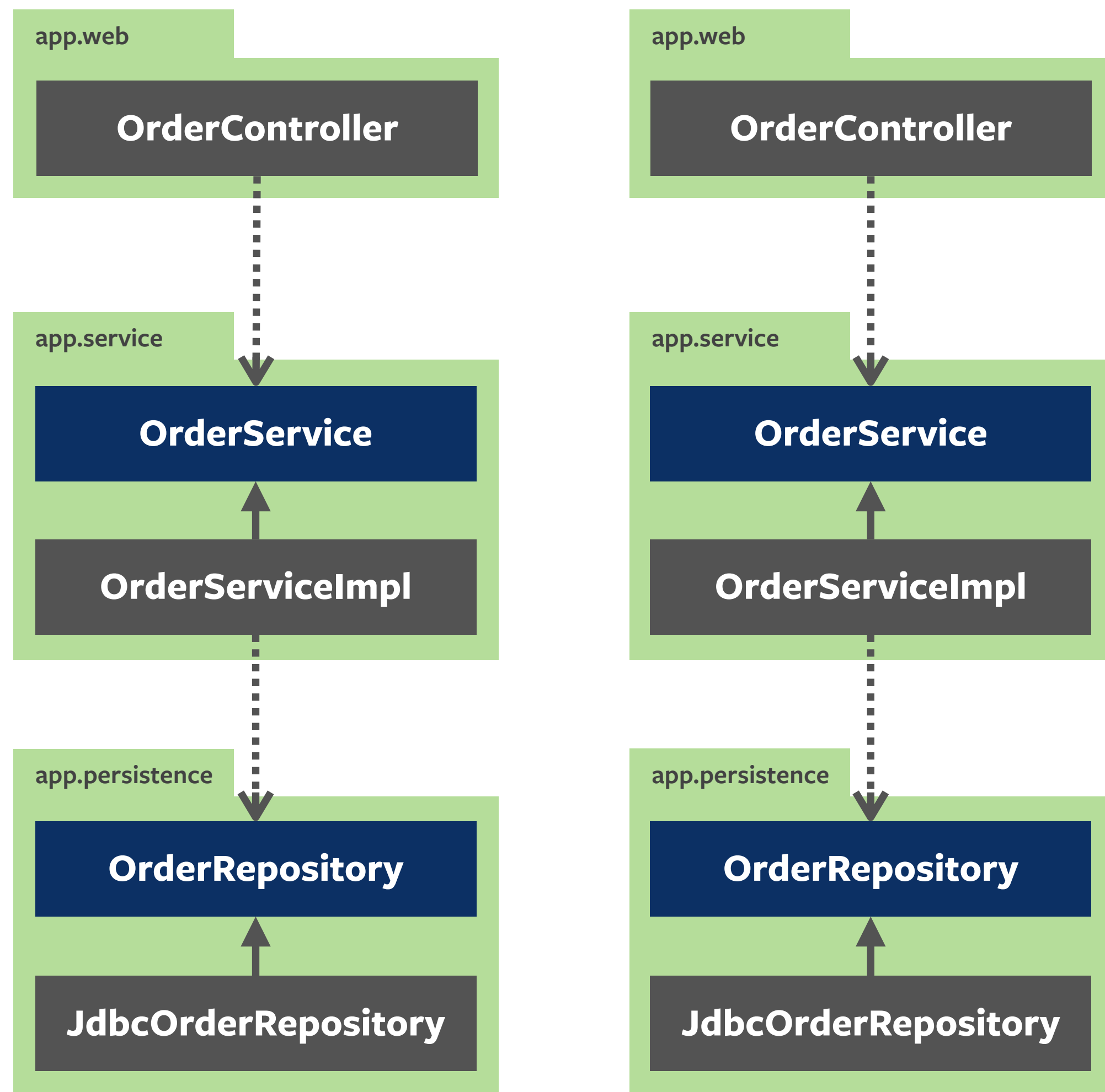
Classic Layers

Legend

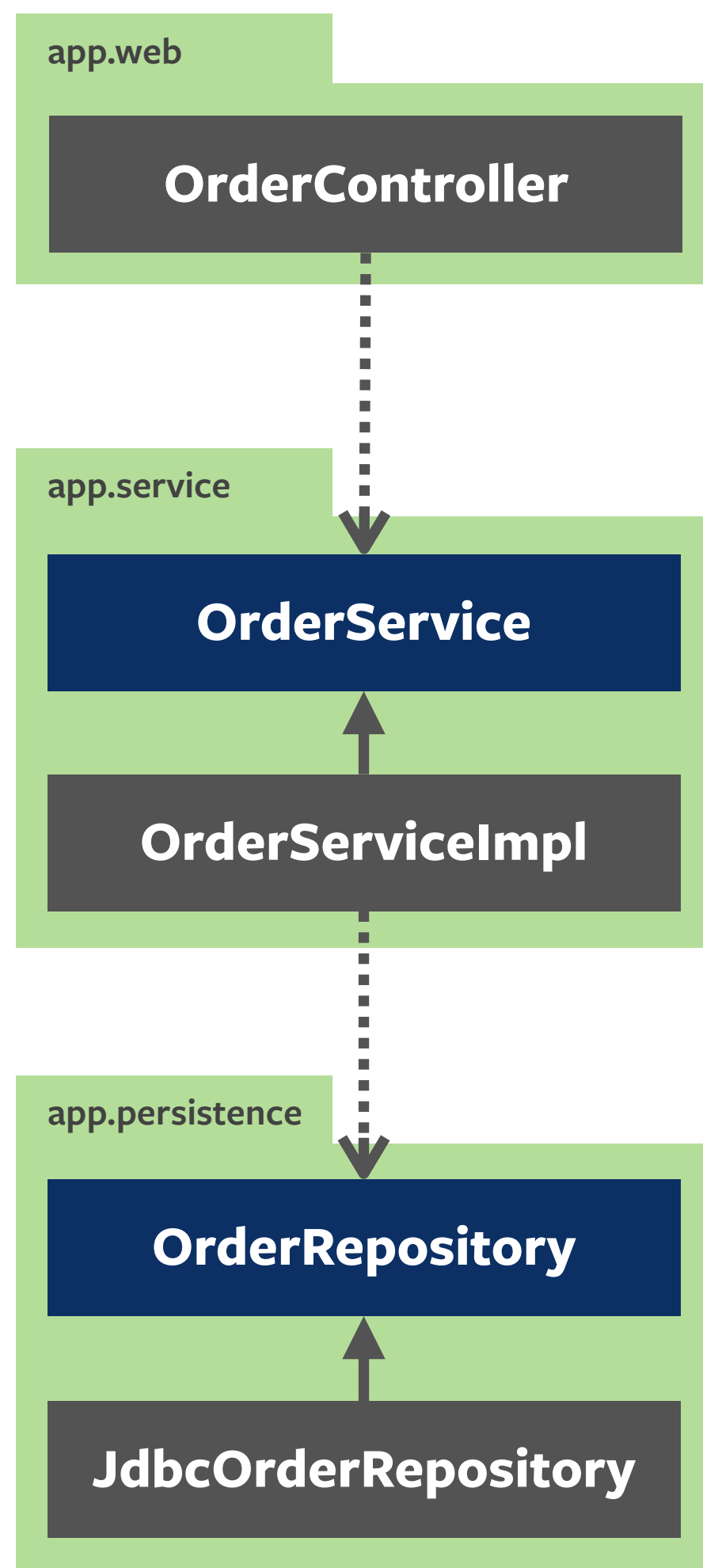




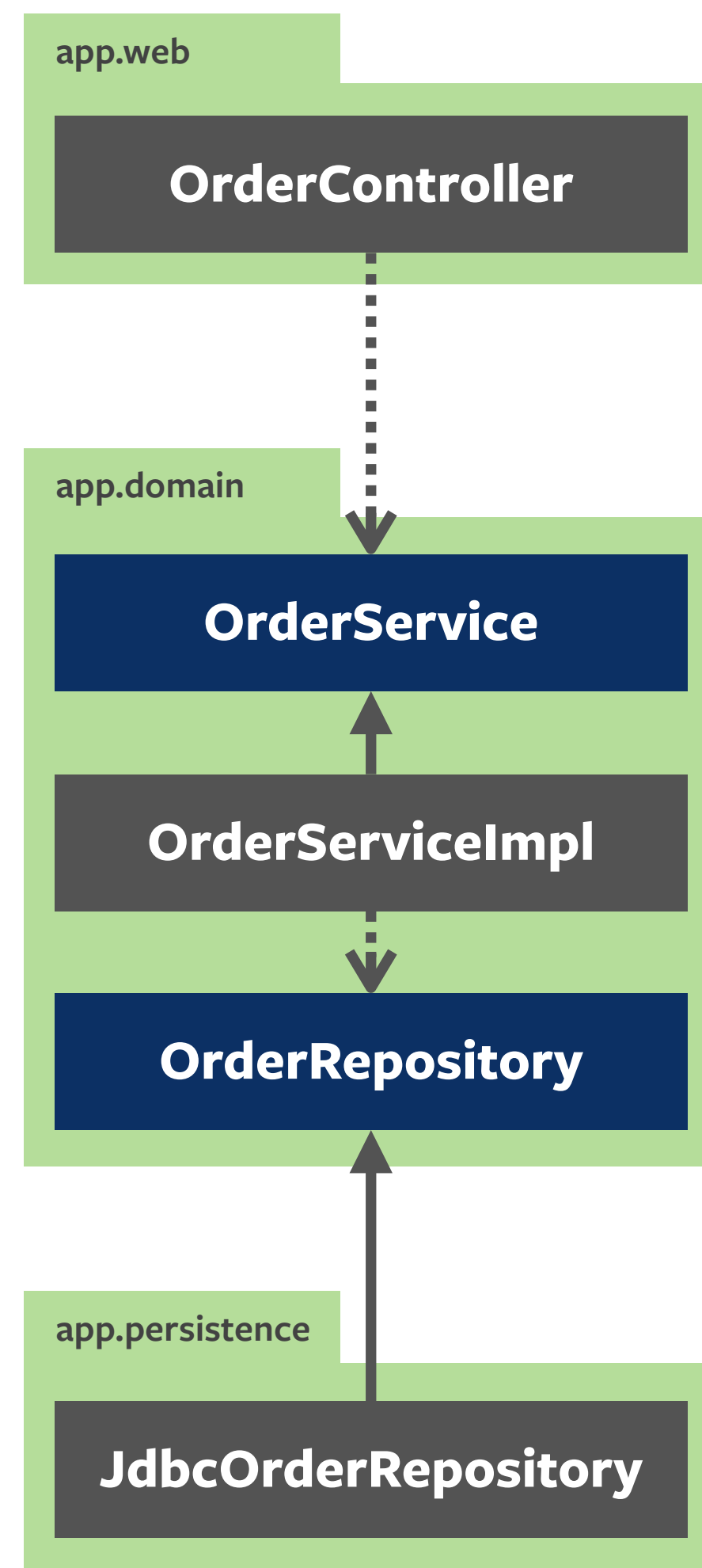
Classic Layers



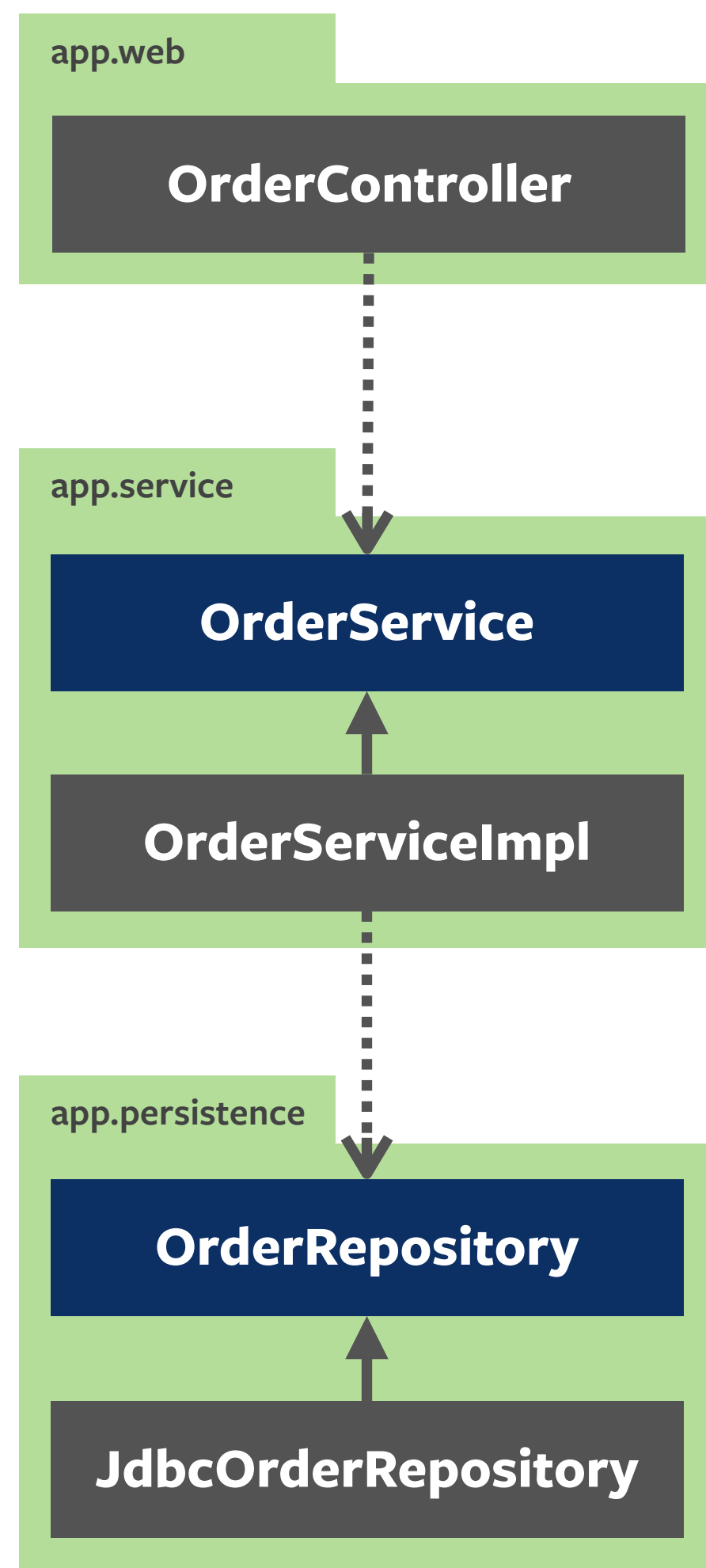
Classic Layers



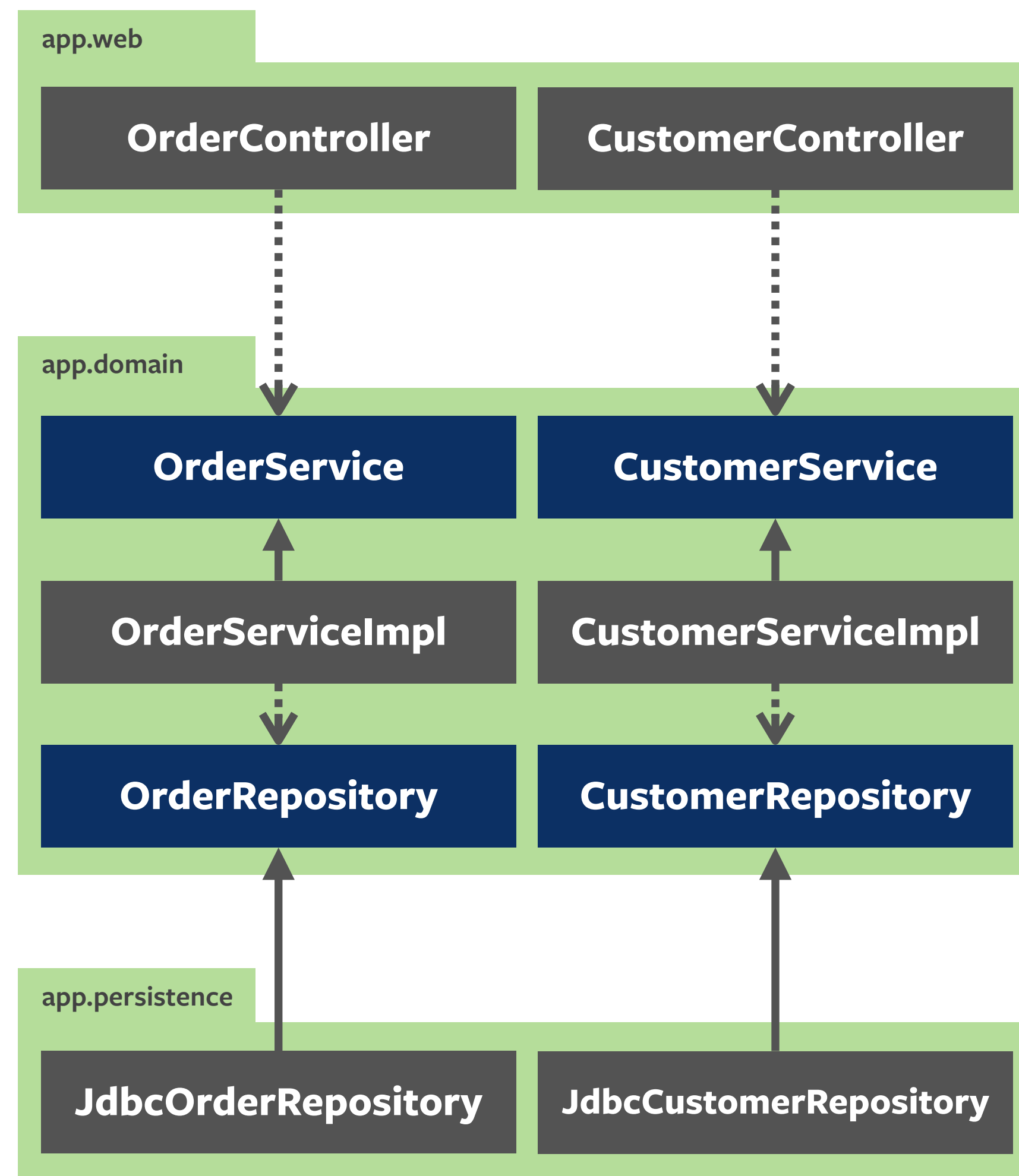
Classic Layers



Hexagonal / Onion

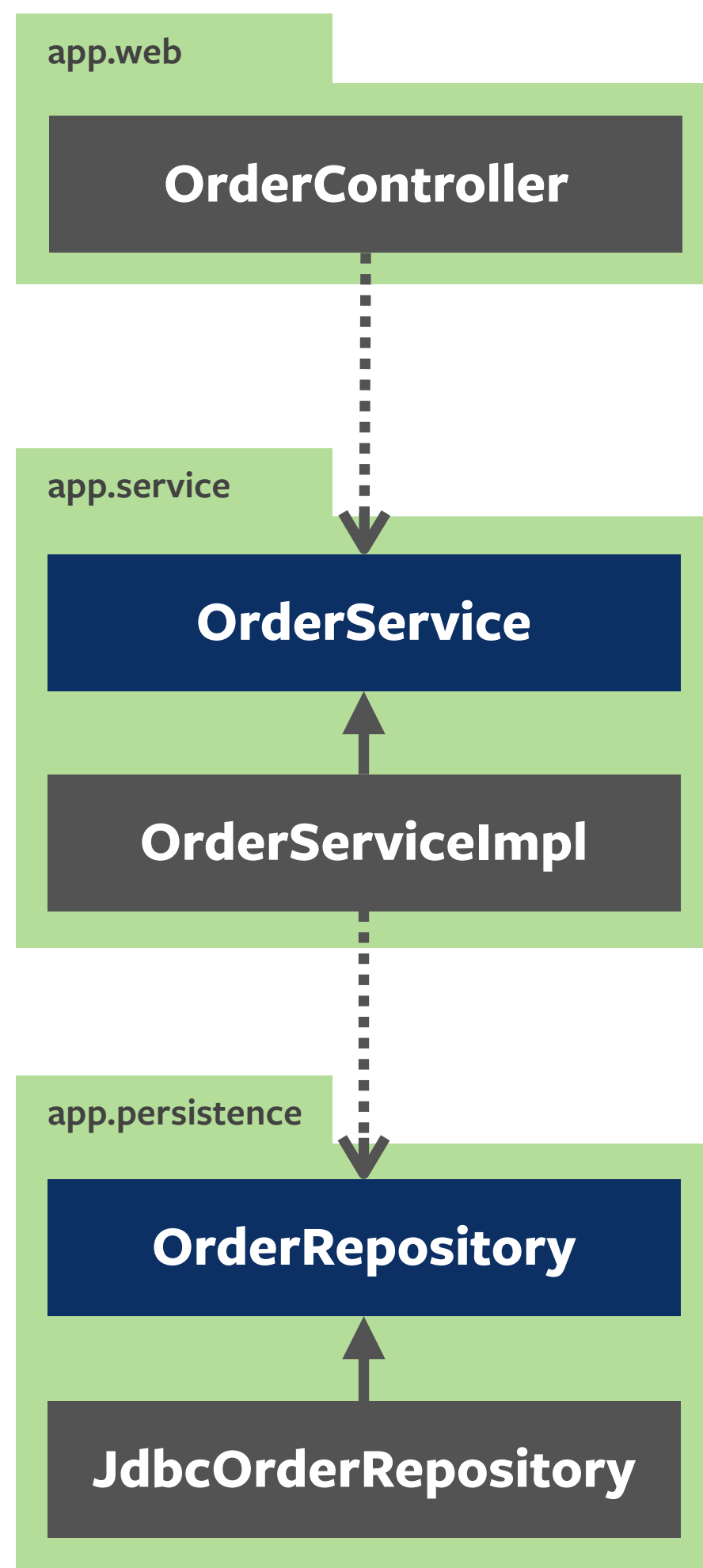


Classic Layers

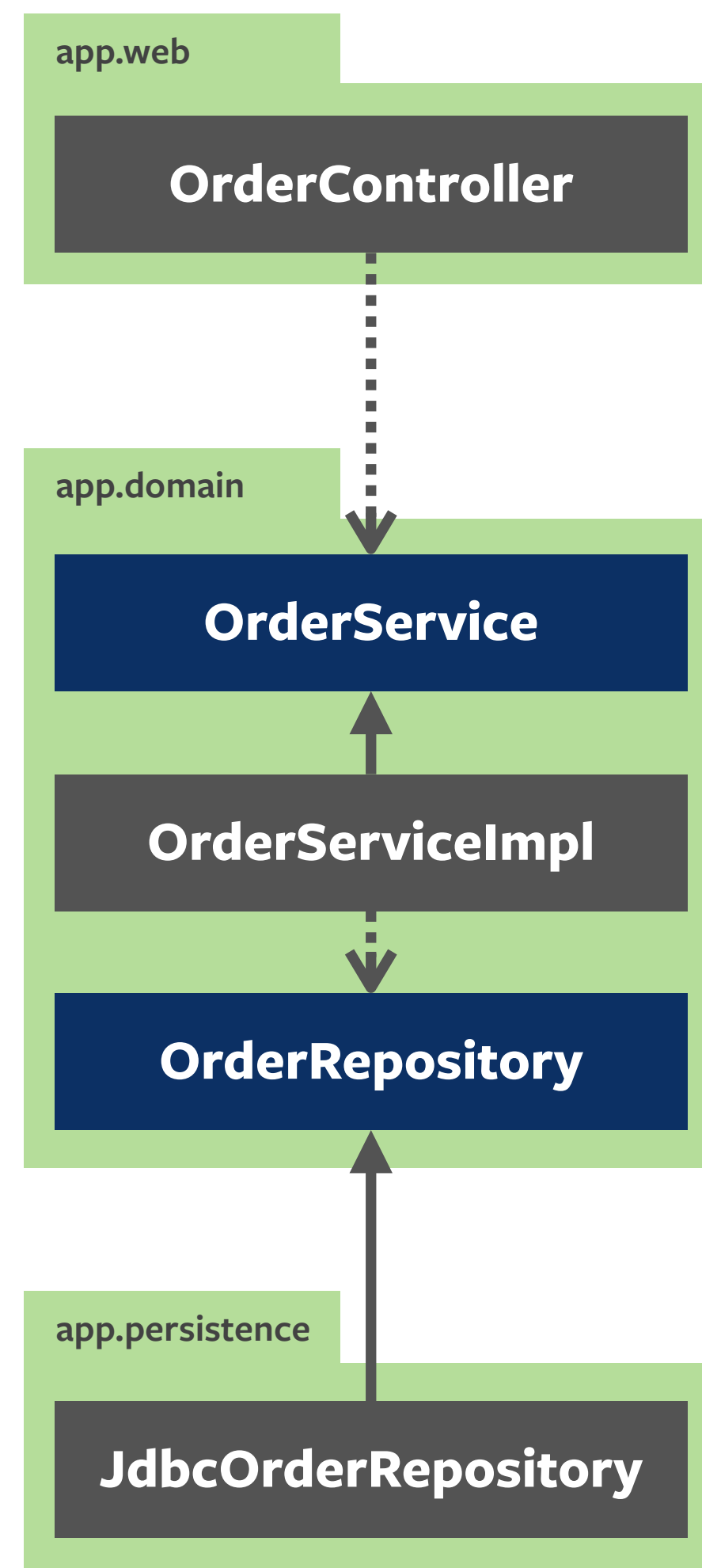


Hexagonal / Onion

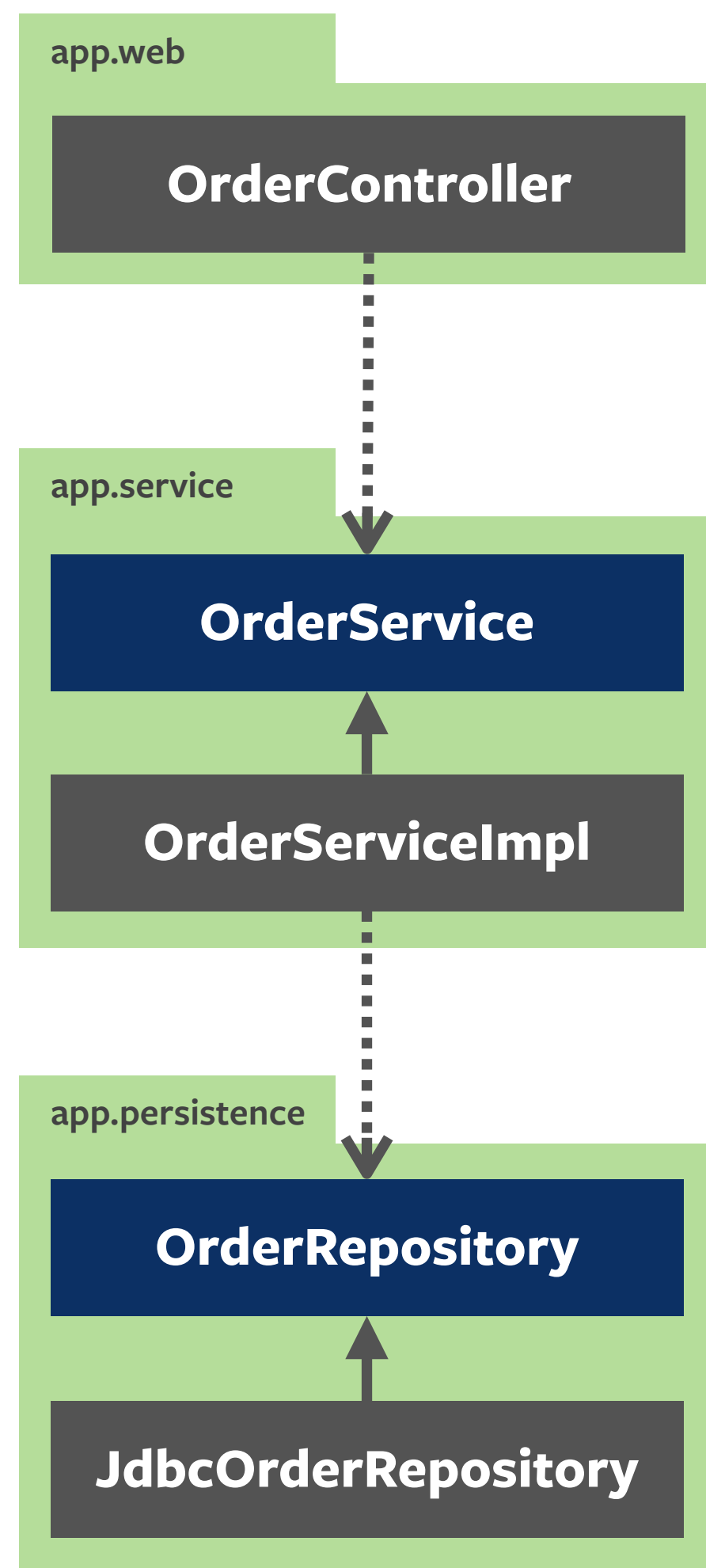
Low cohesion, too! 😭



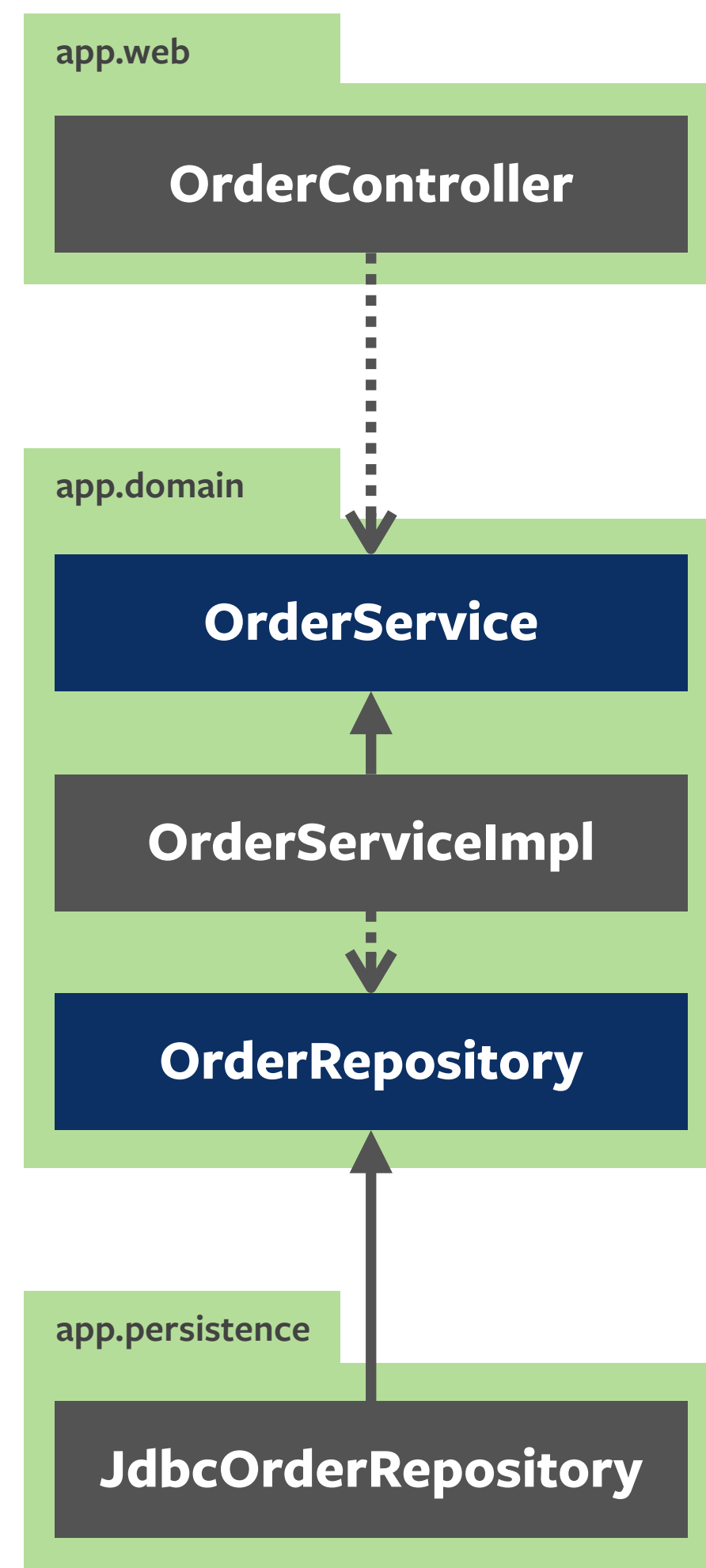
Classic Layers



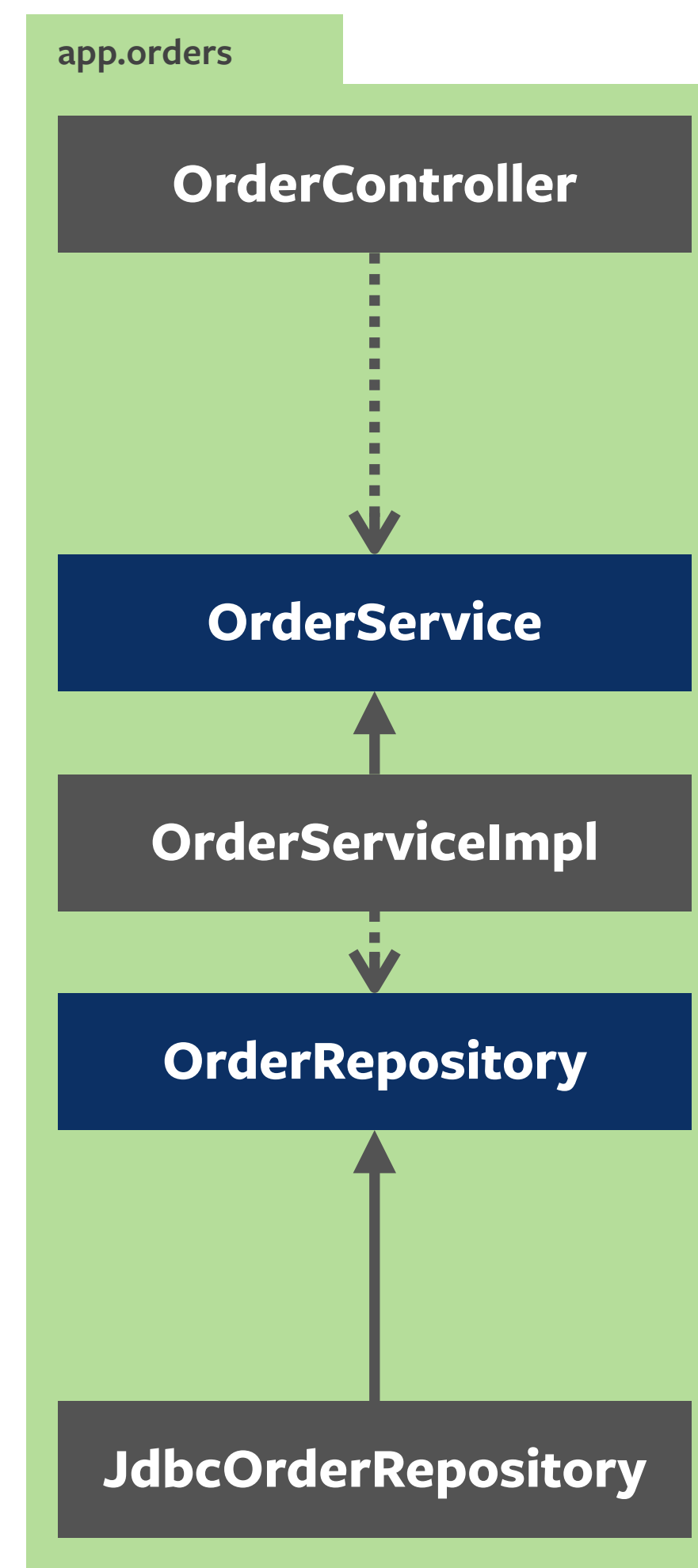
Hexagonal / Onion



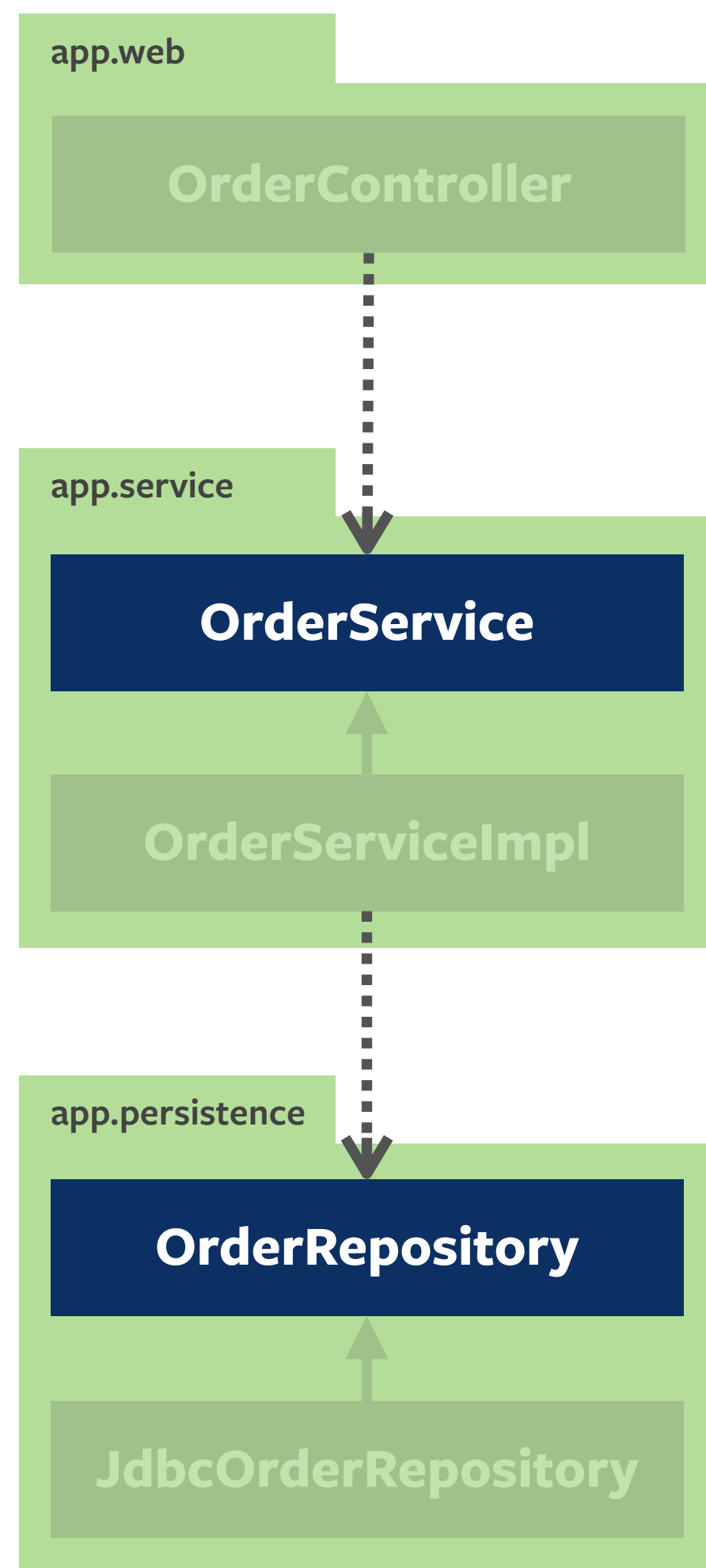
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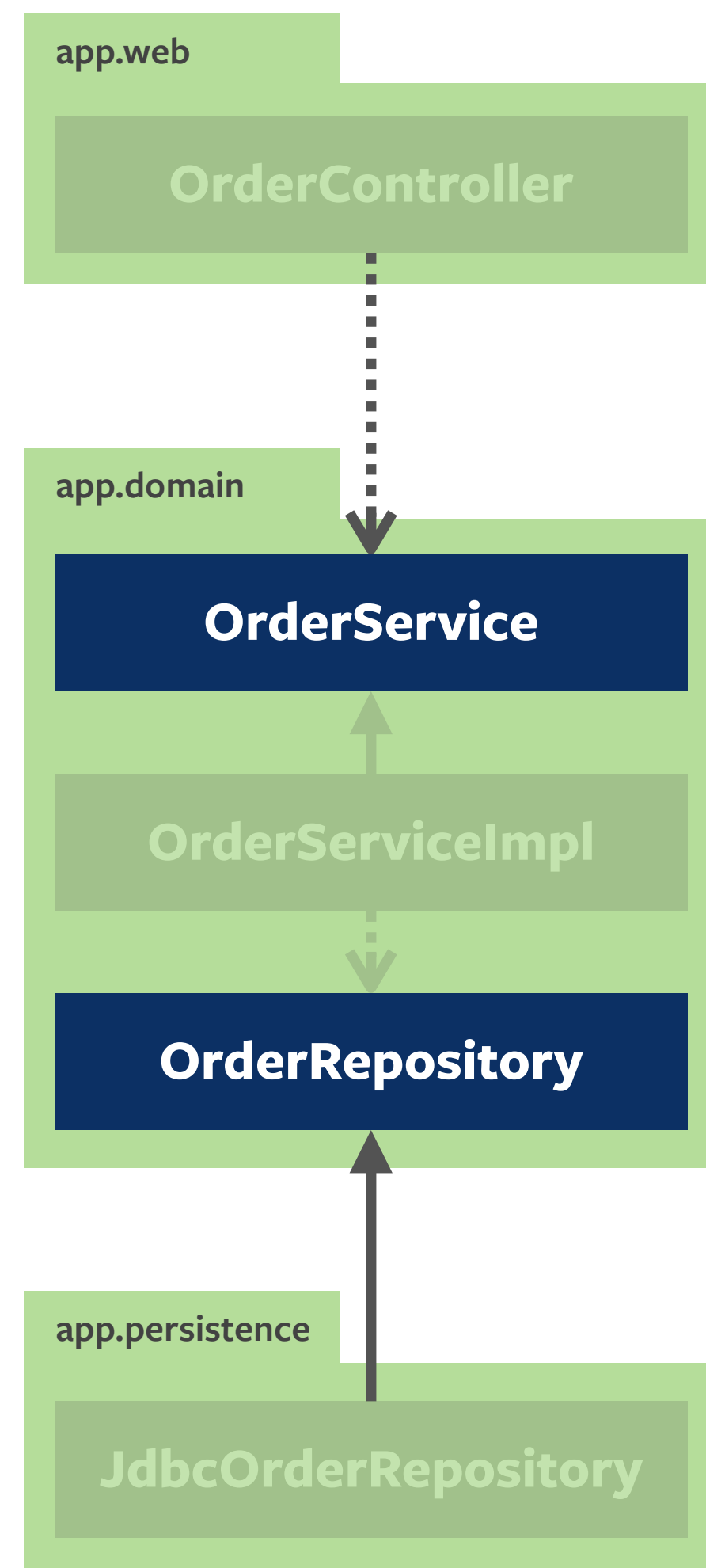
Hexagonal / Onion



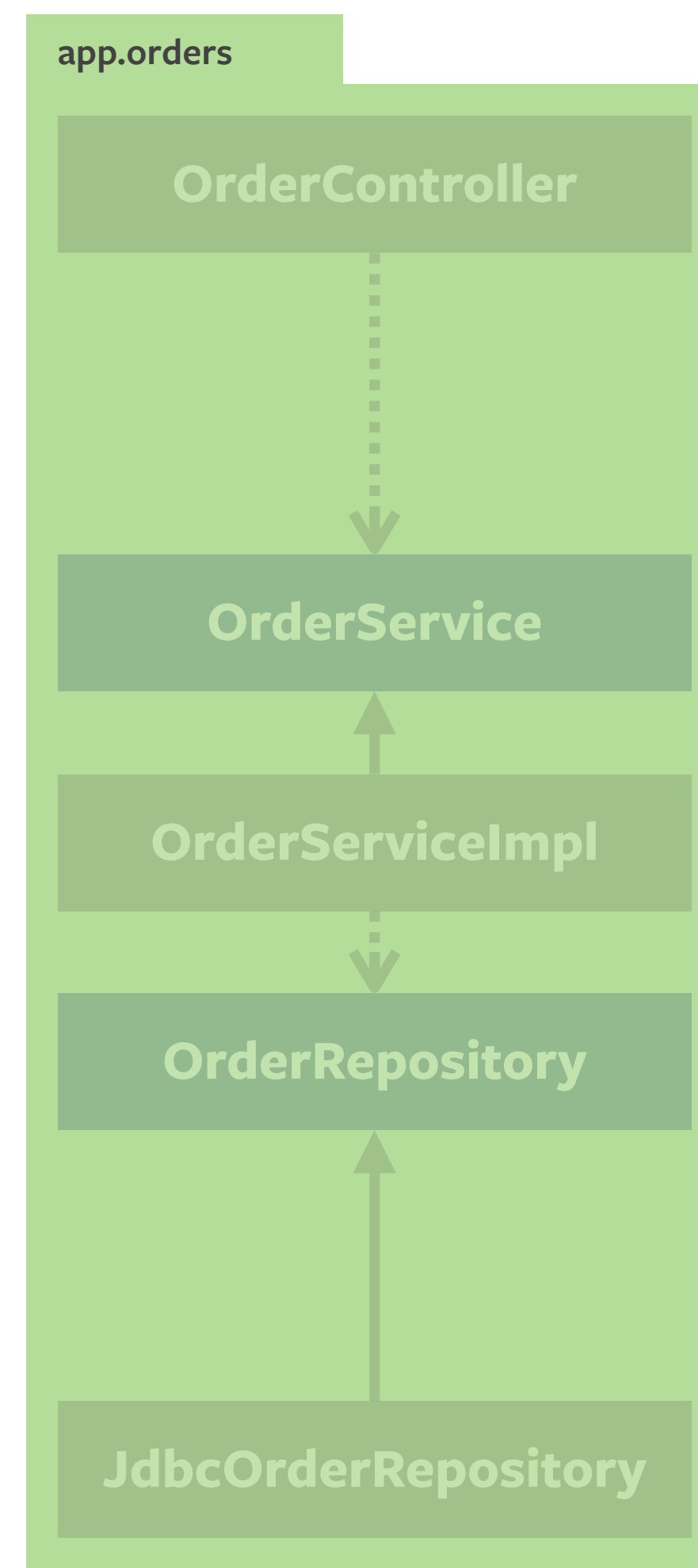
Modular



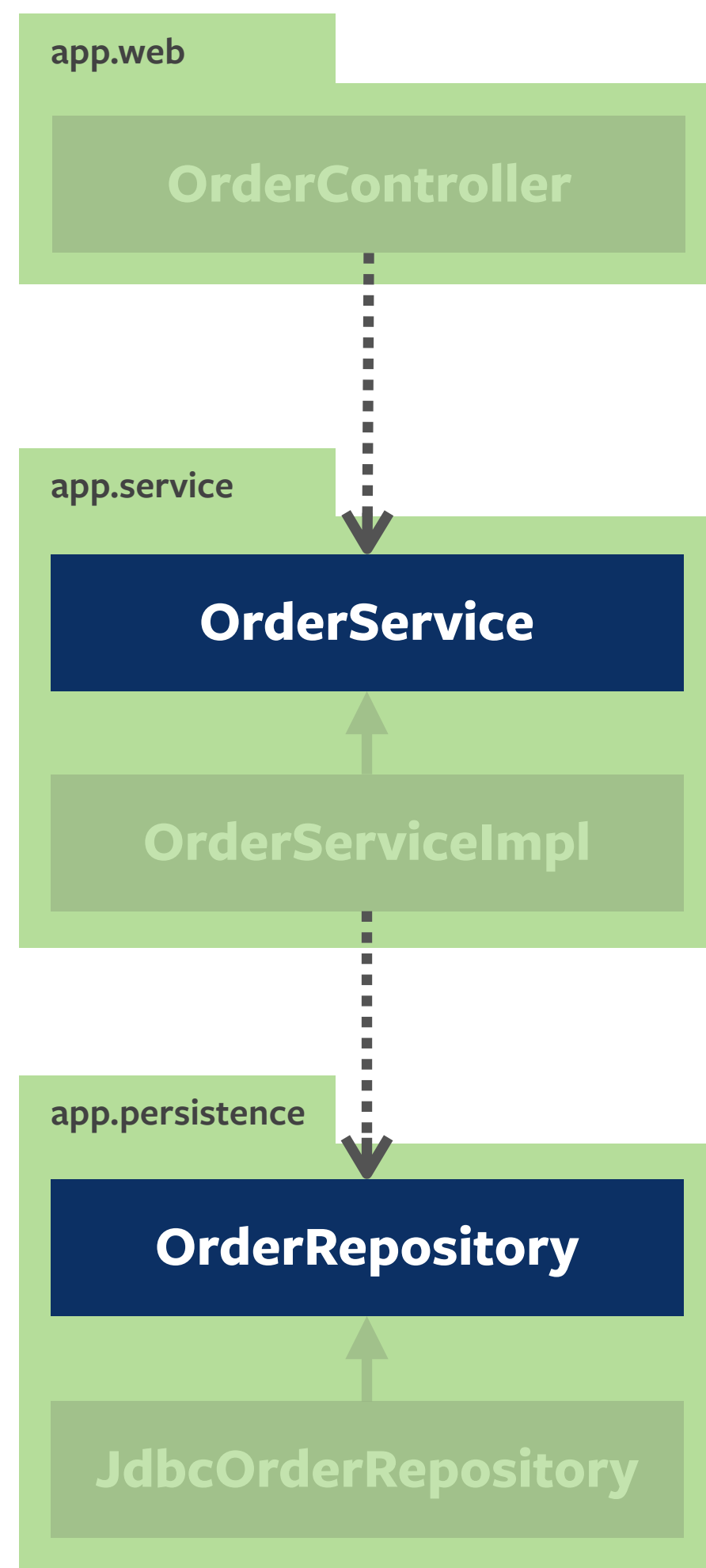
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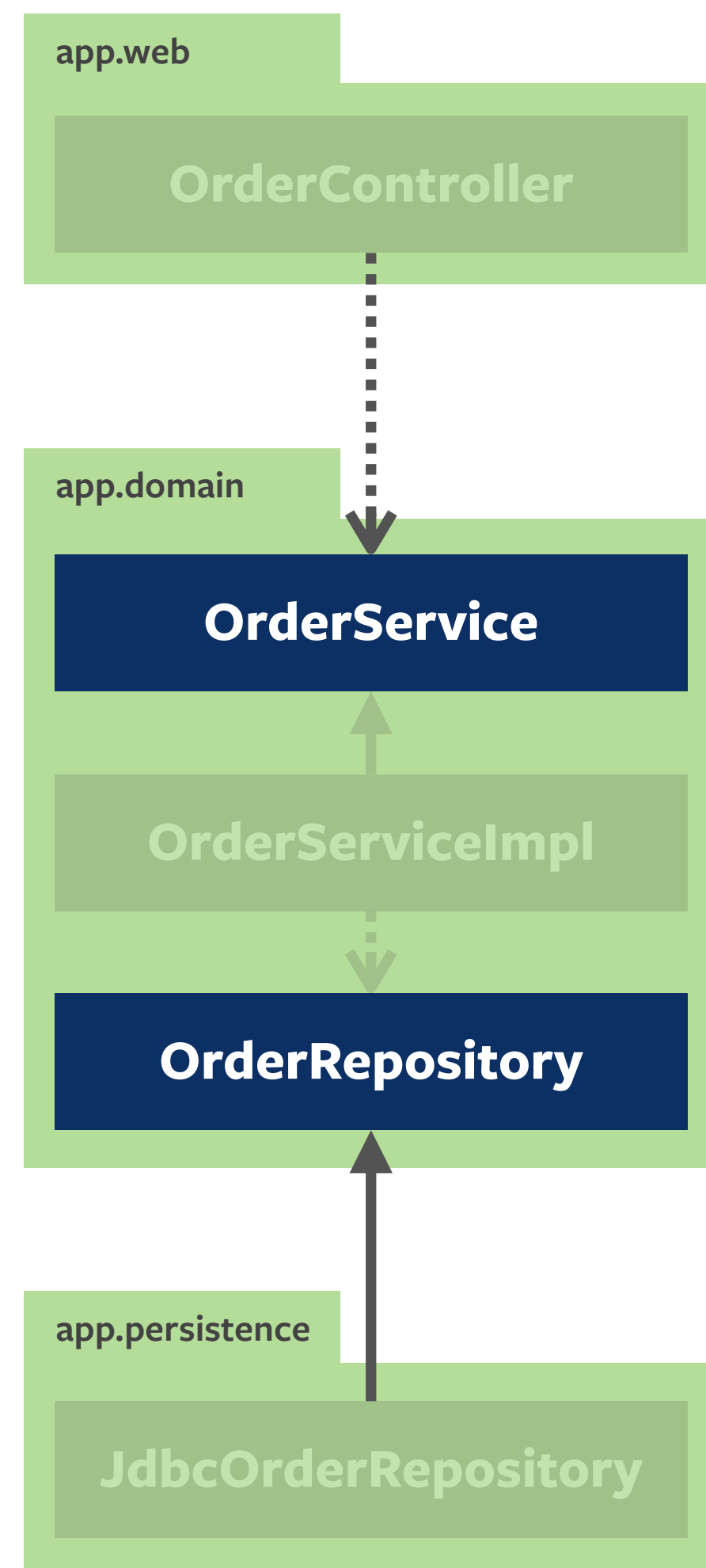
Hexagonal / Onion



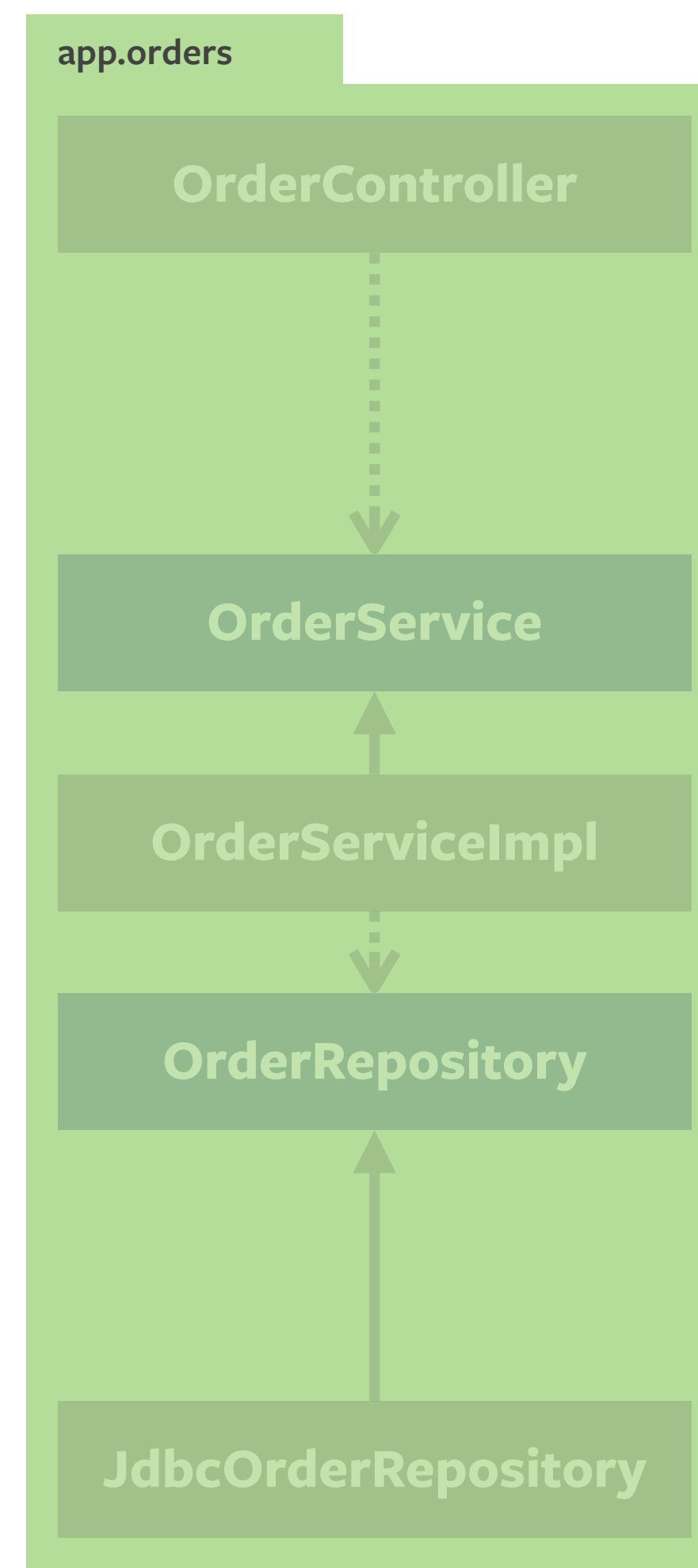
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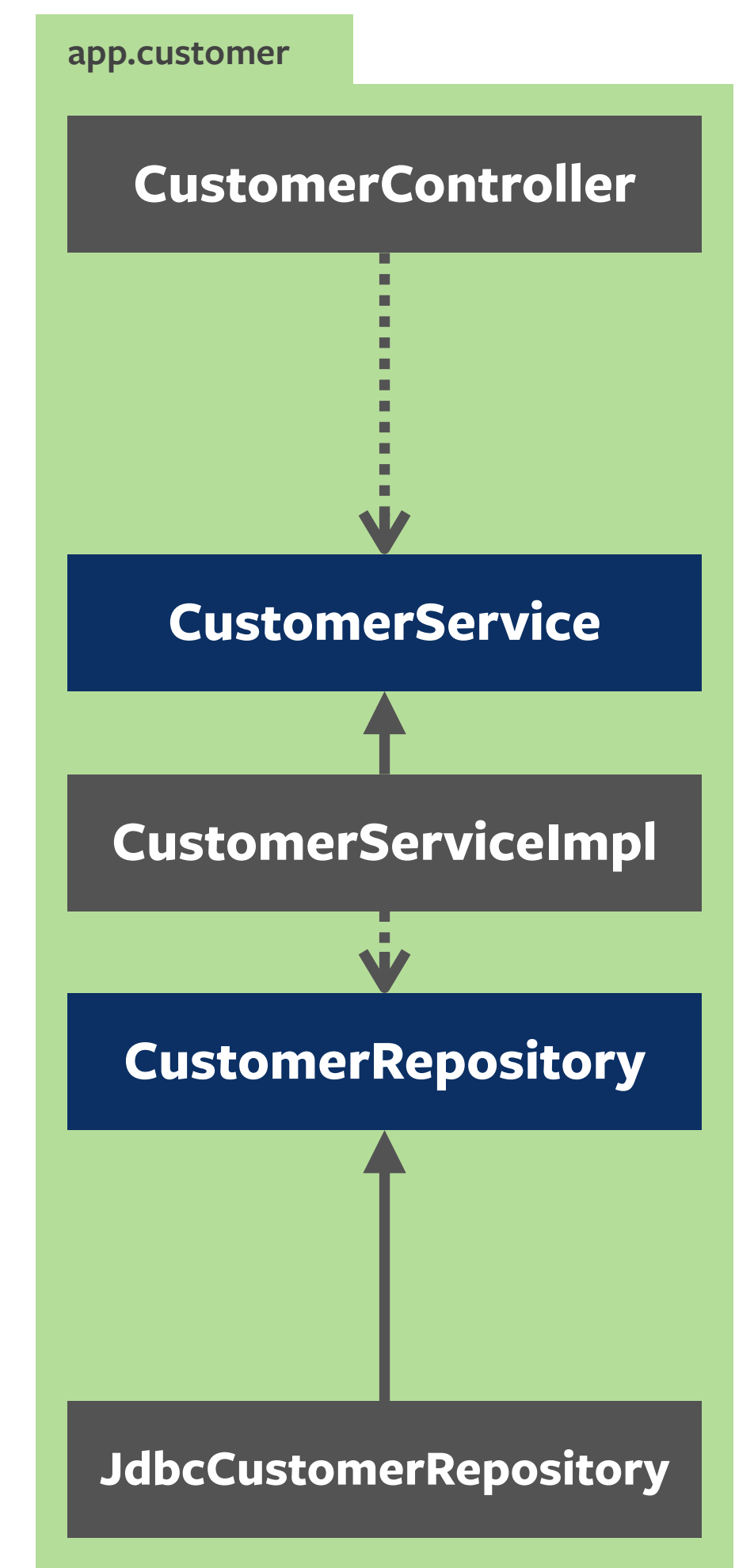
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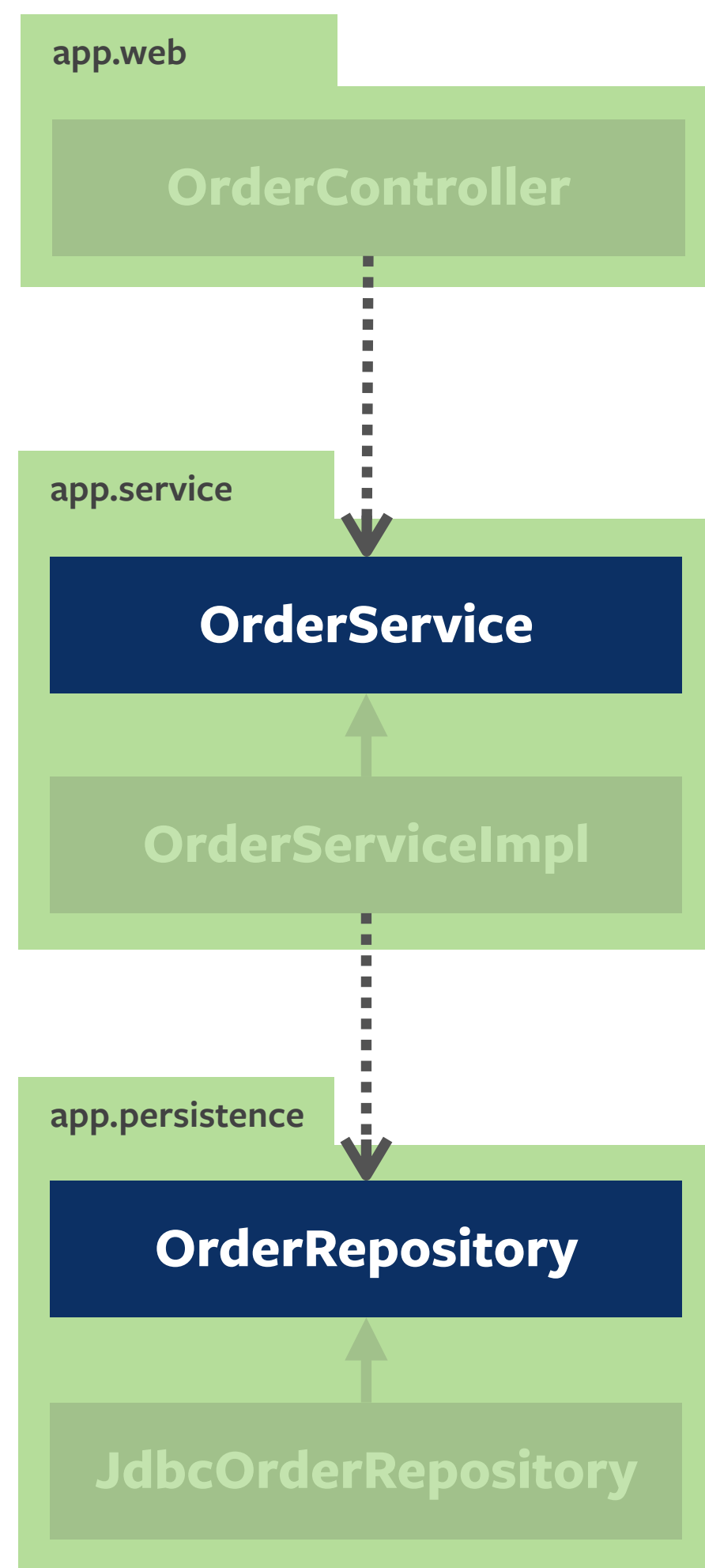


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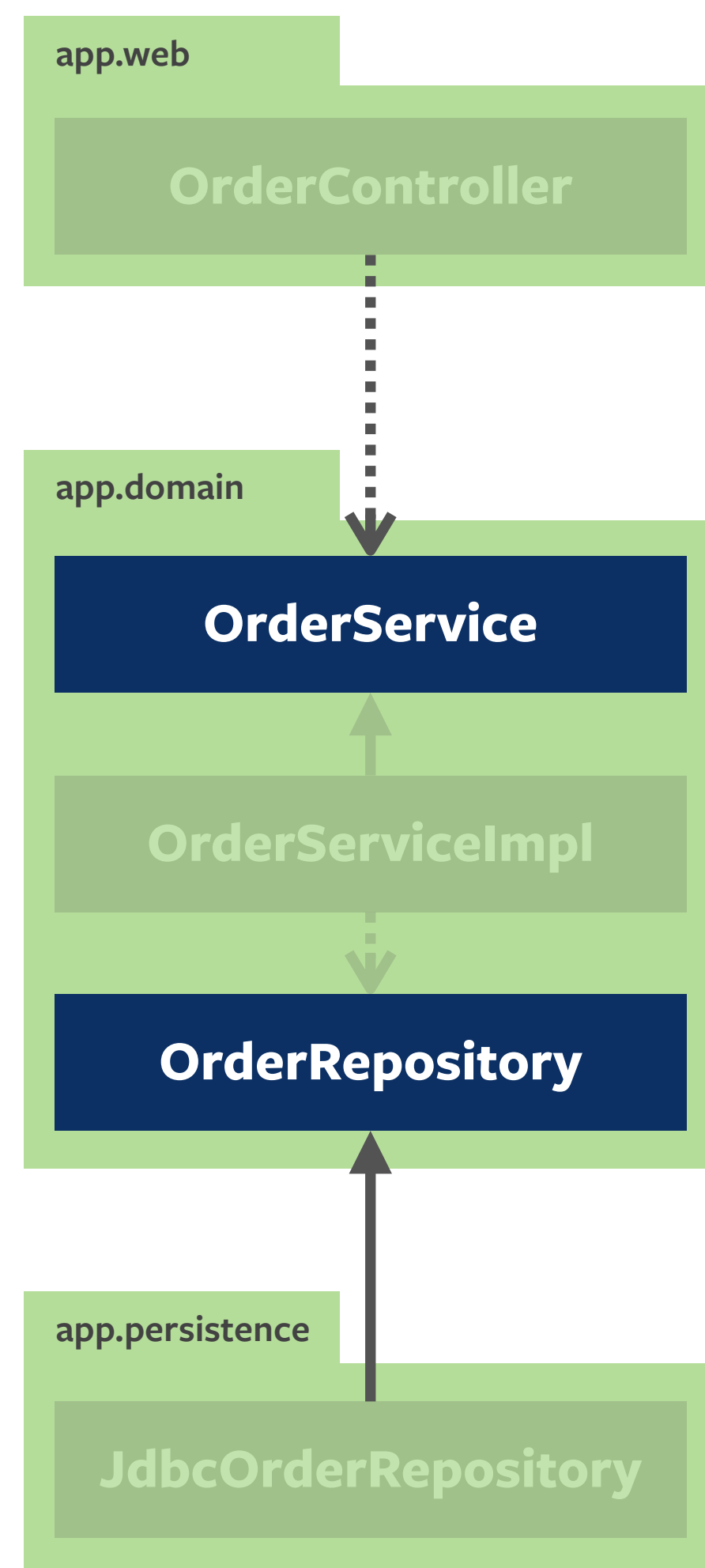


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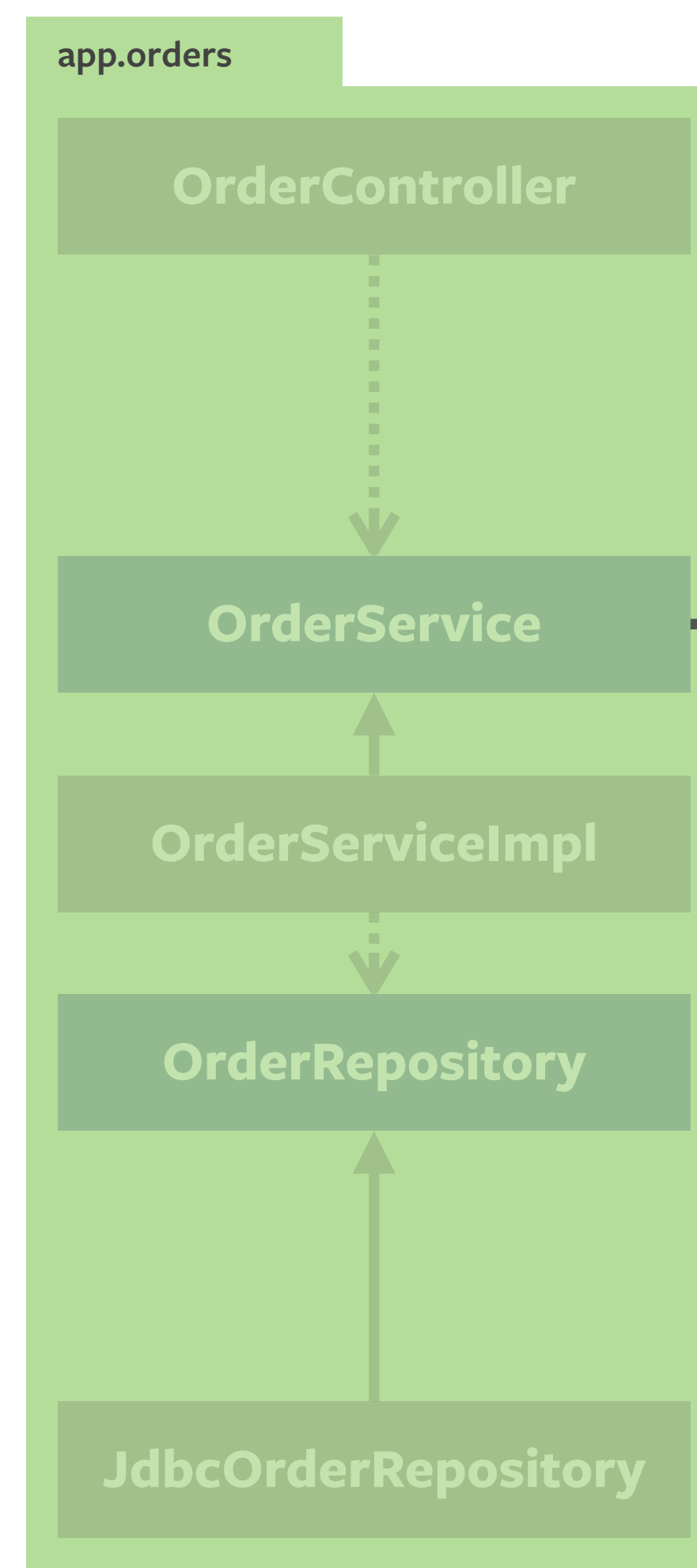




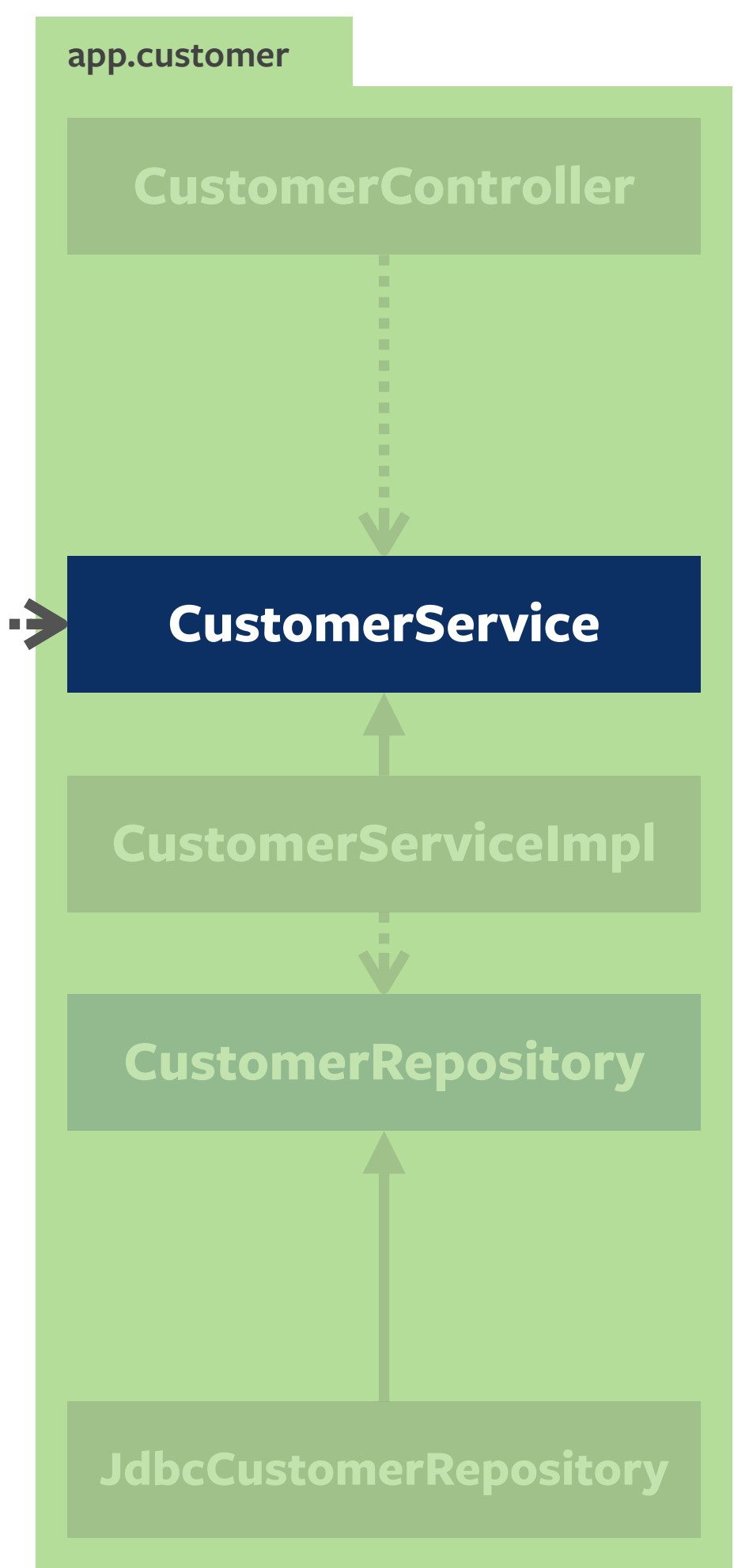
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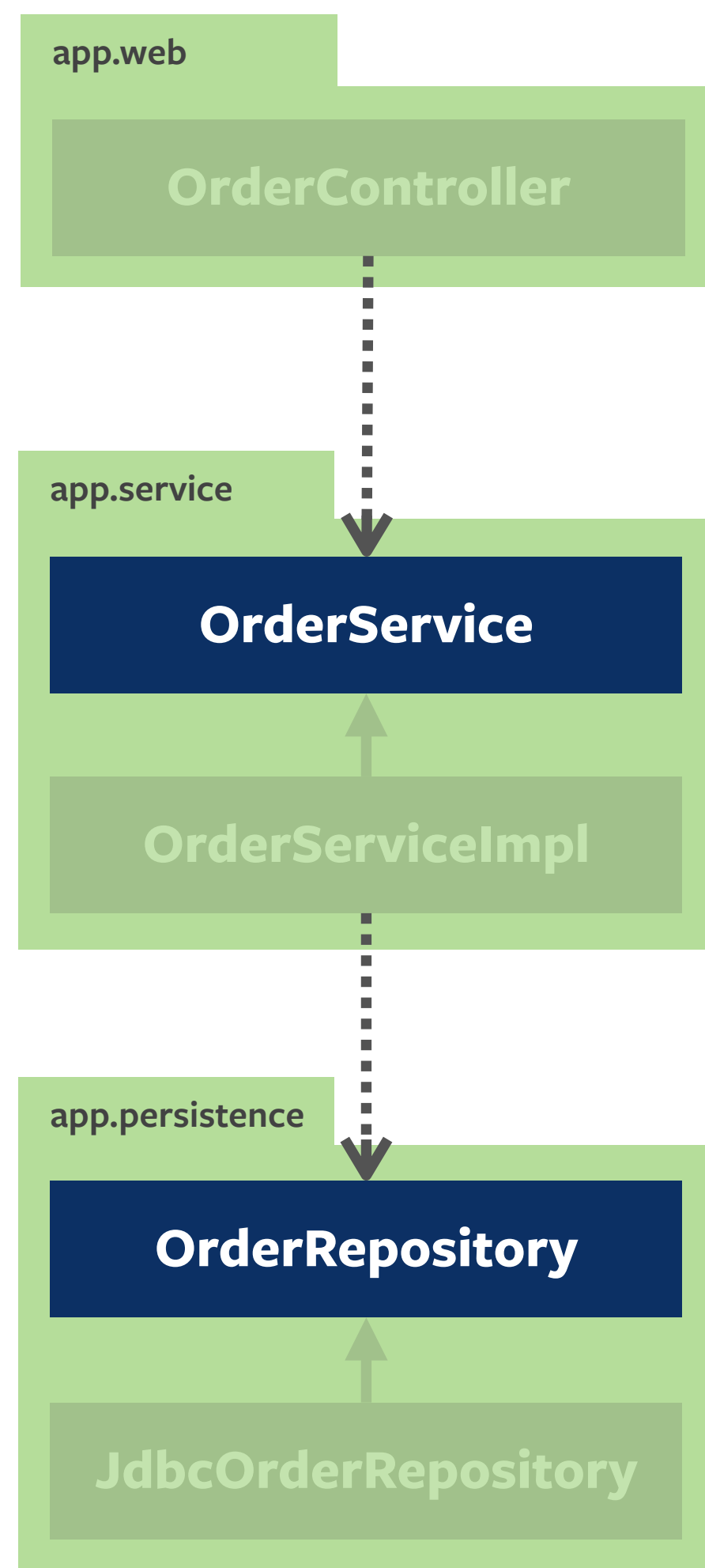


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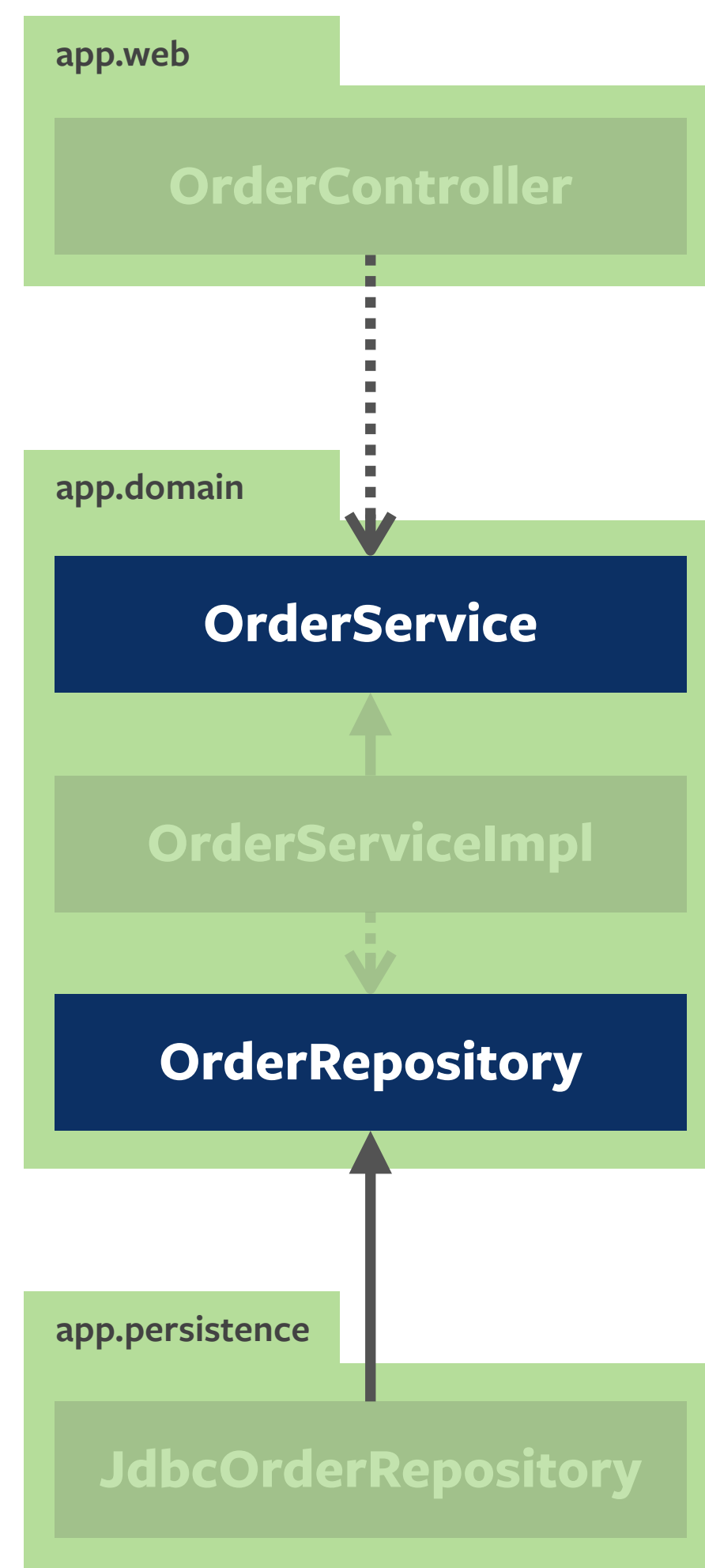


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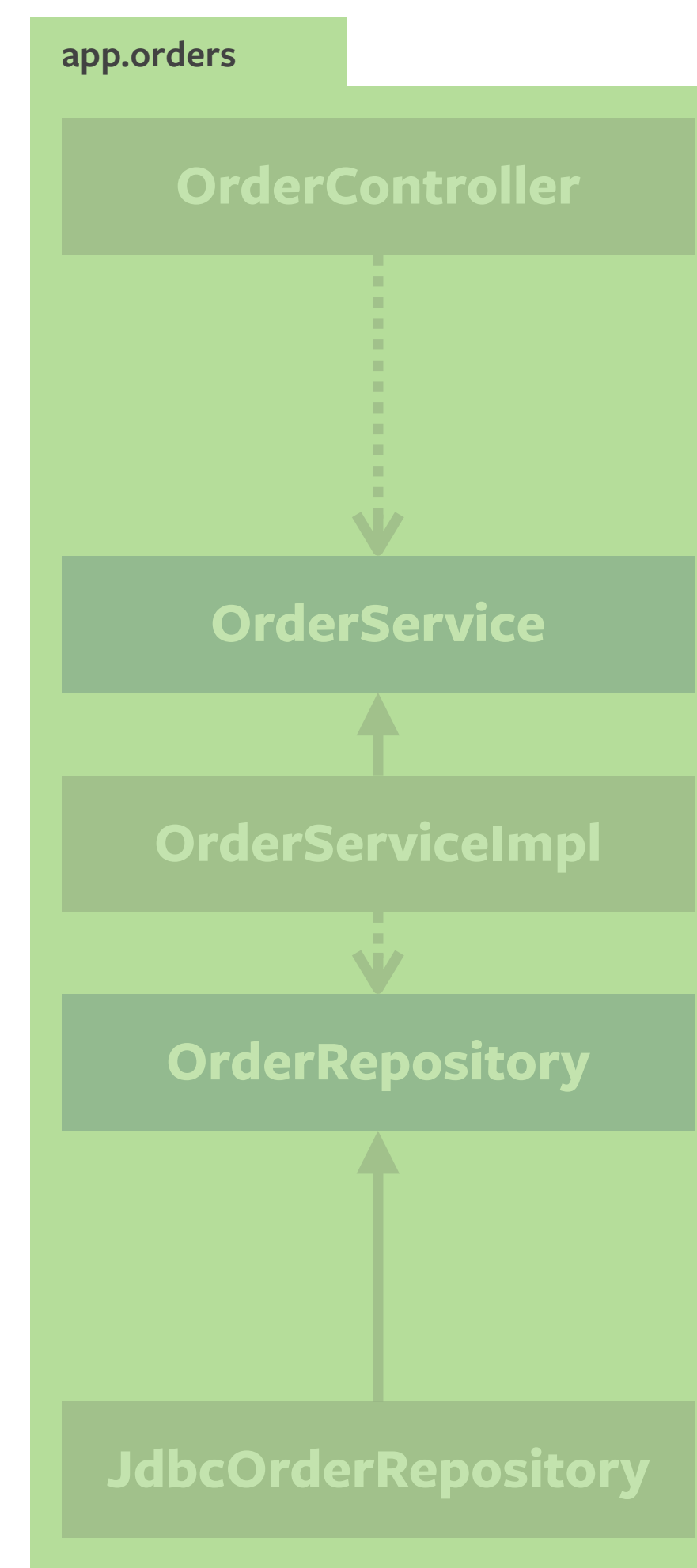




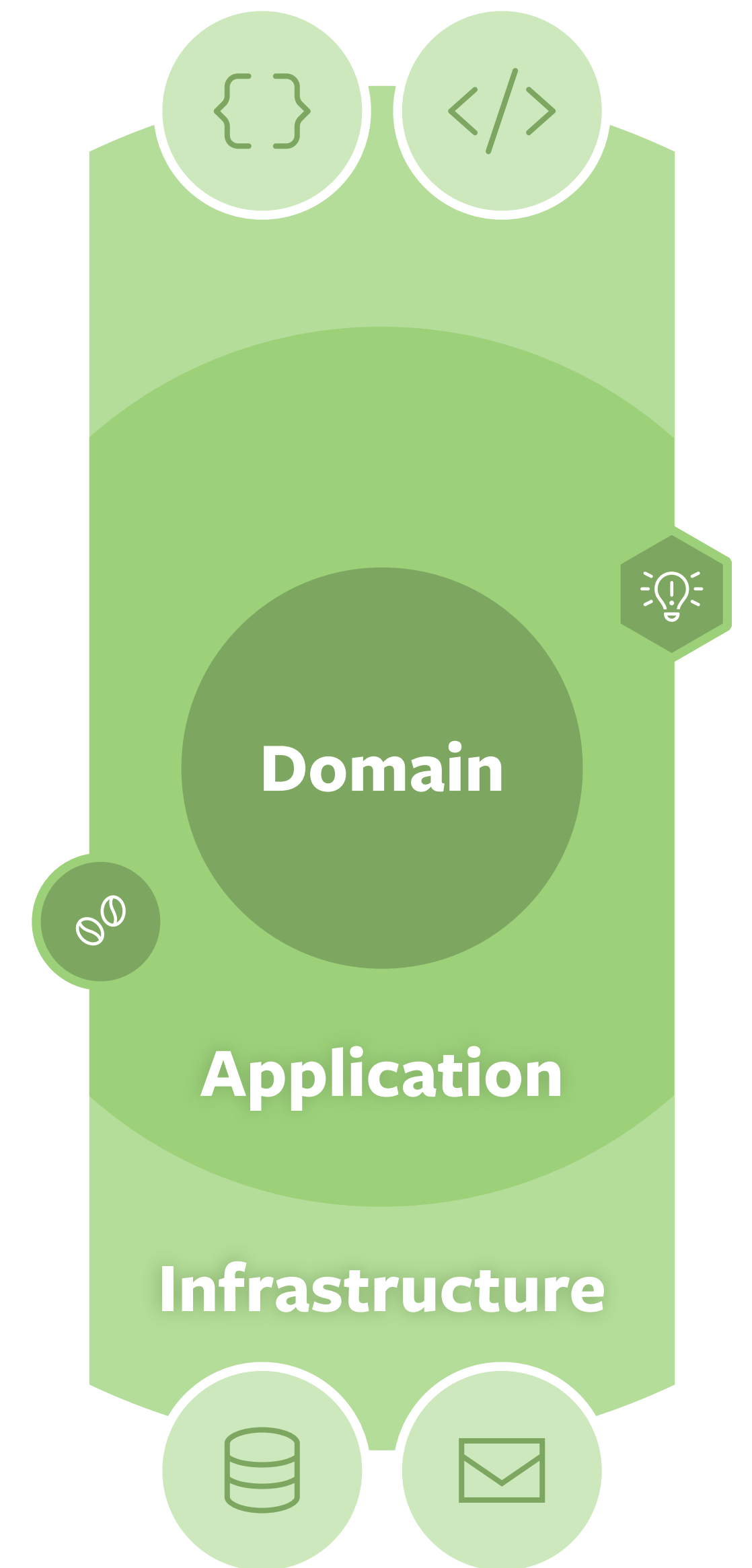
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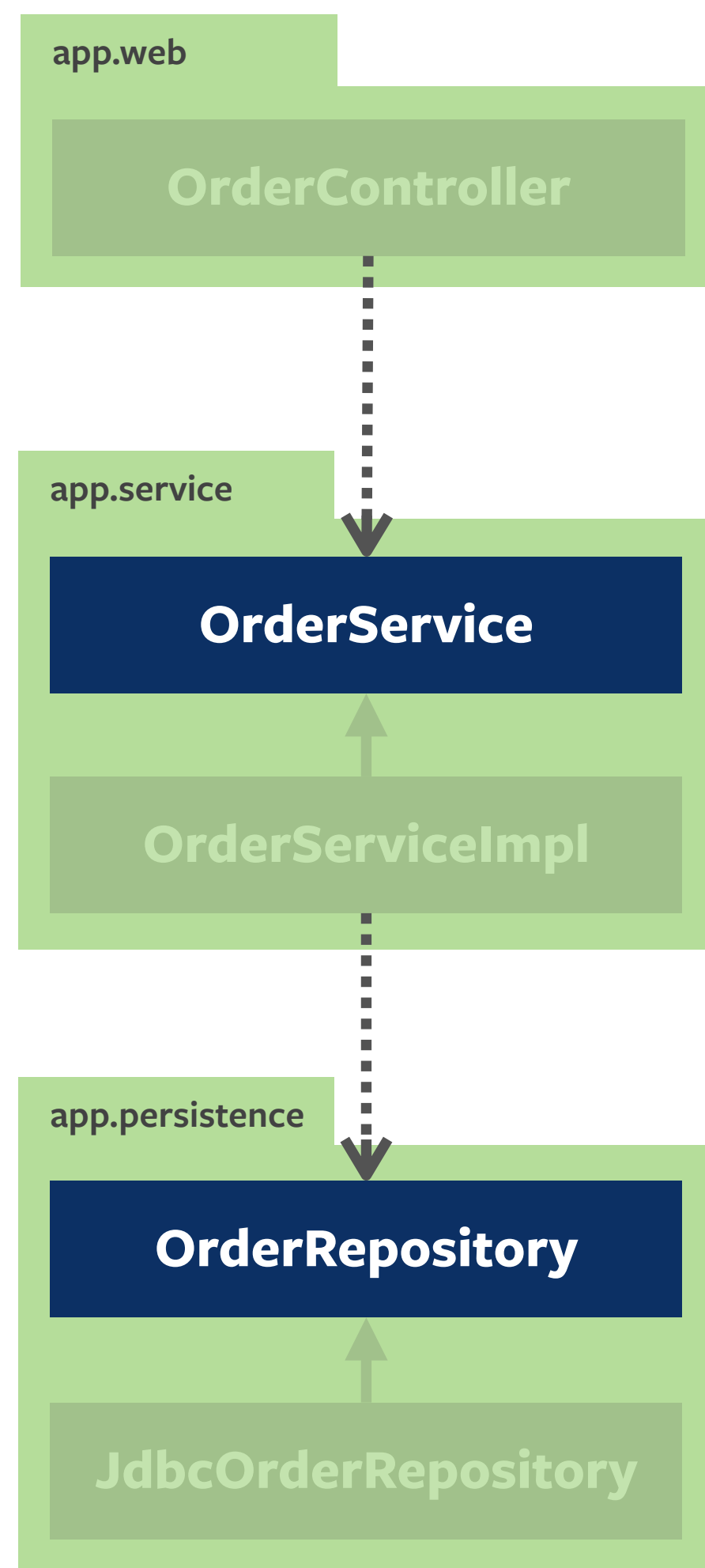


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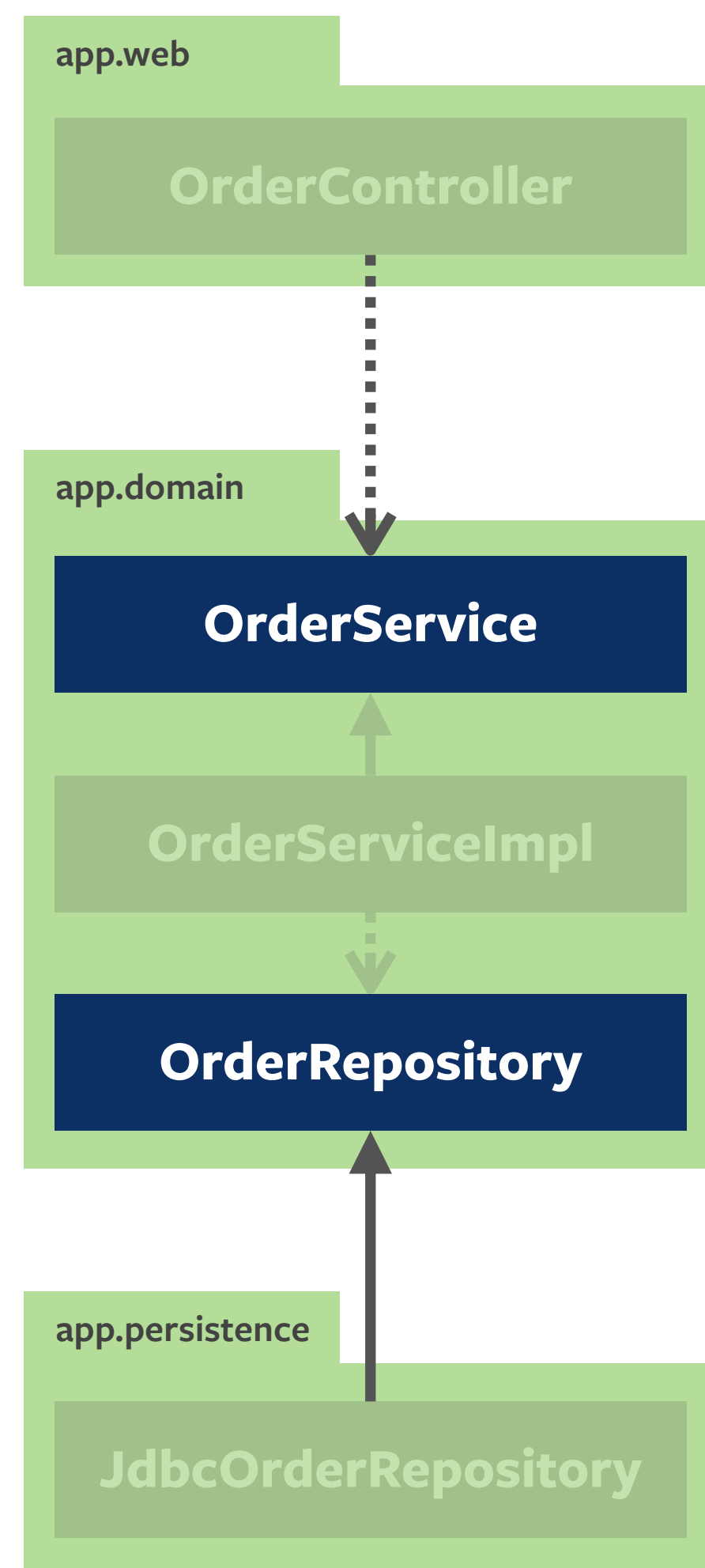


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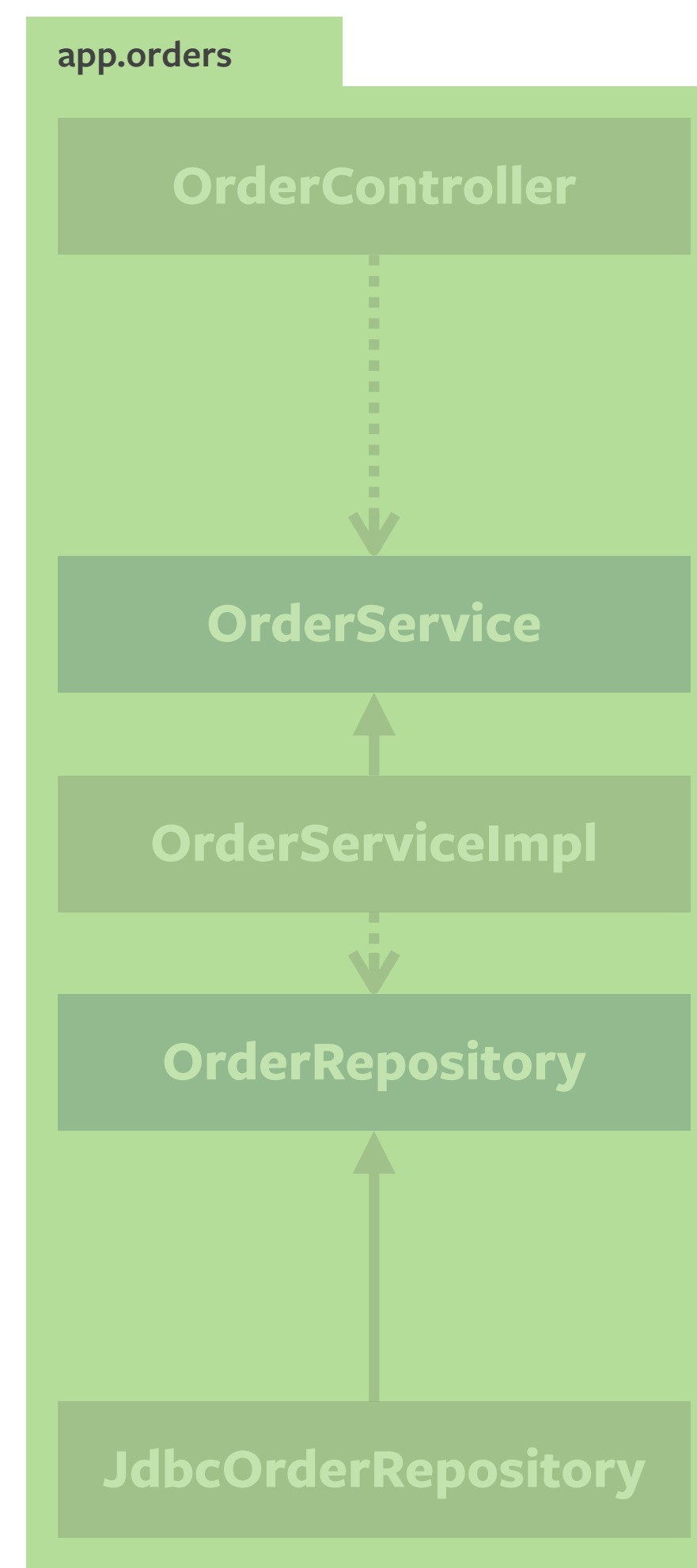




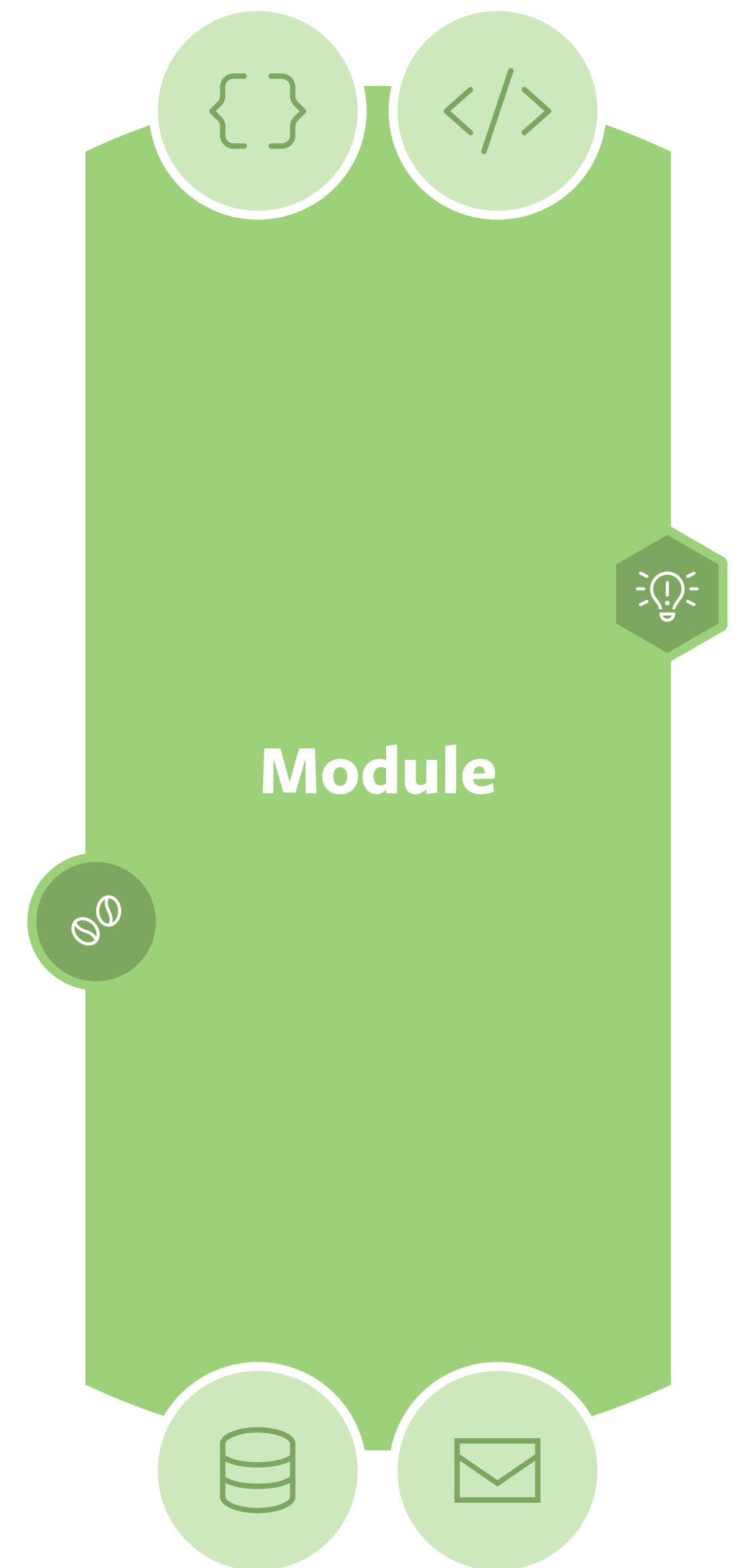
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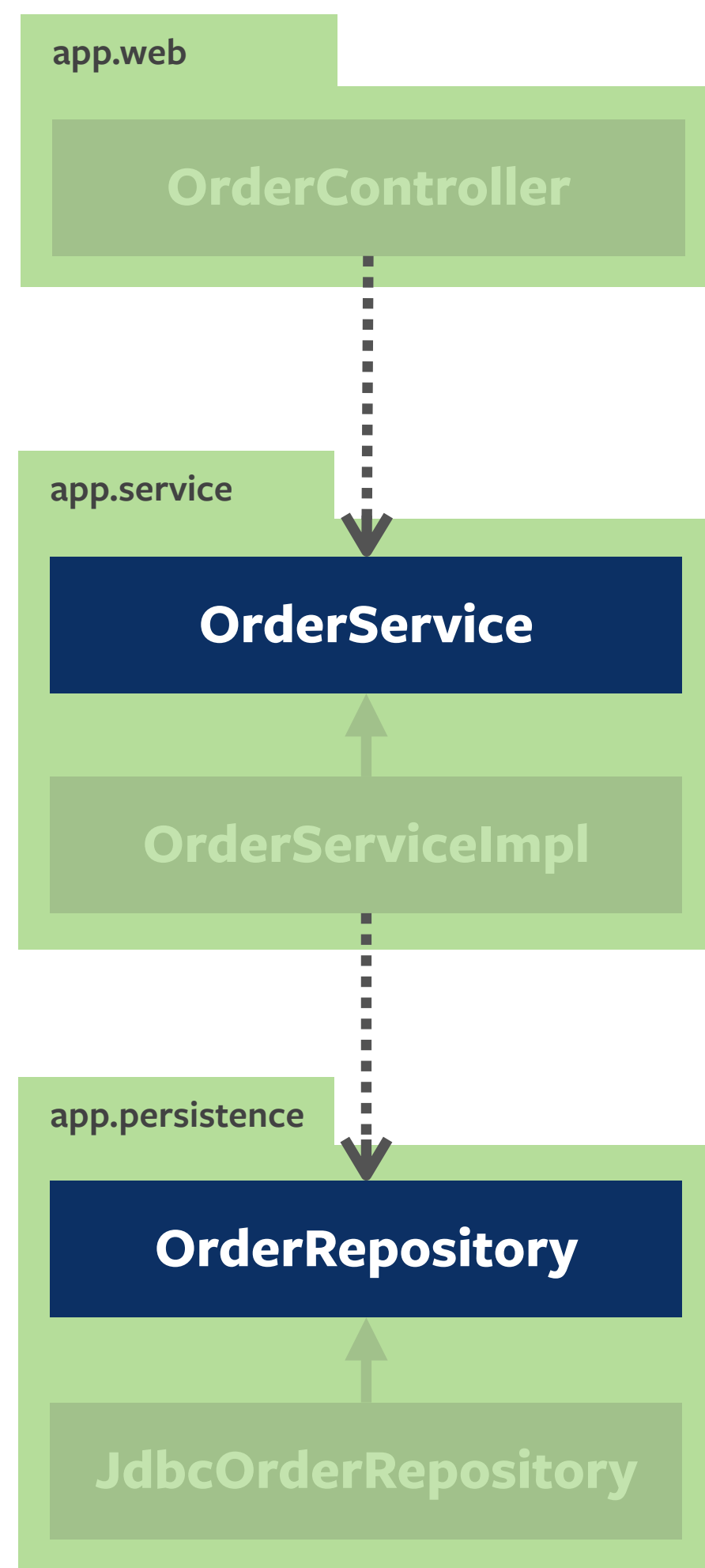


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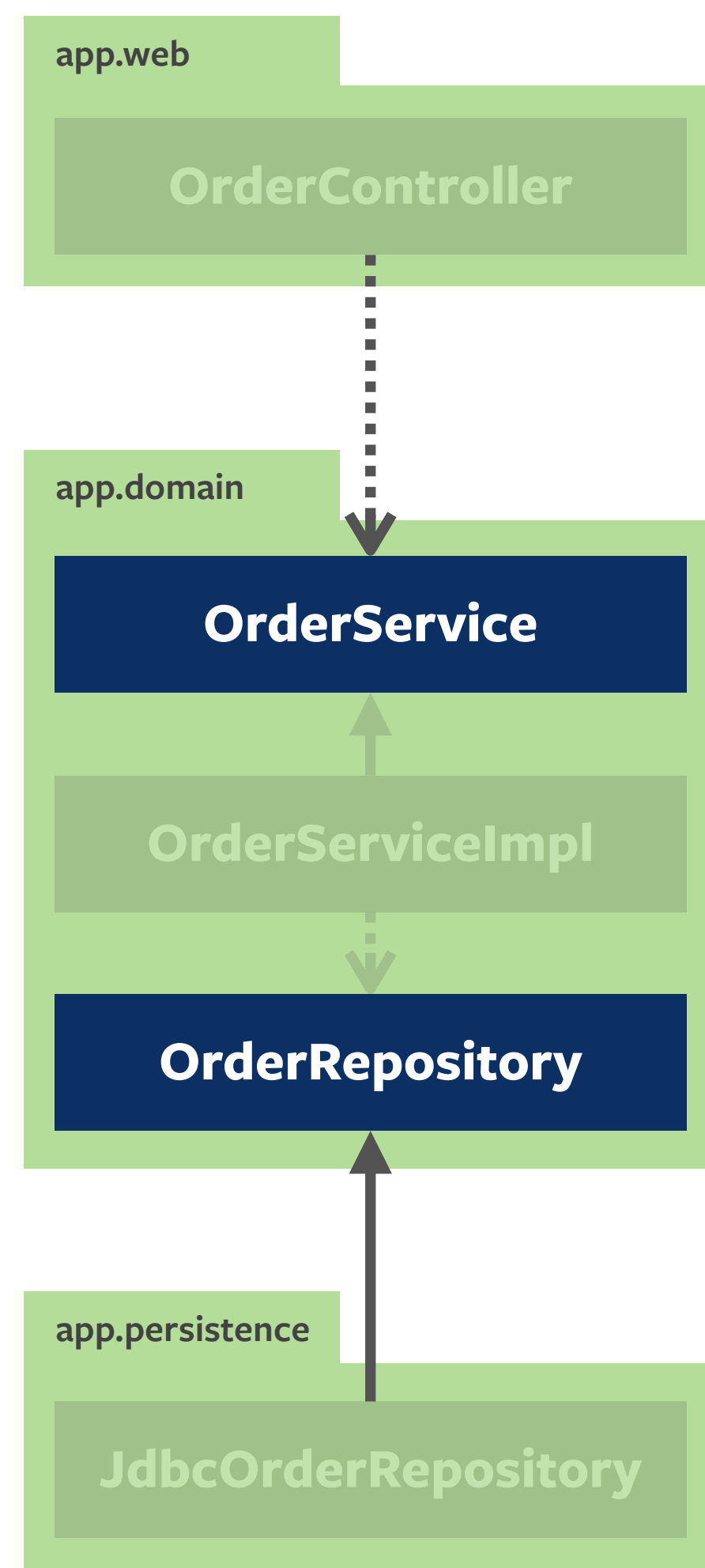


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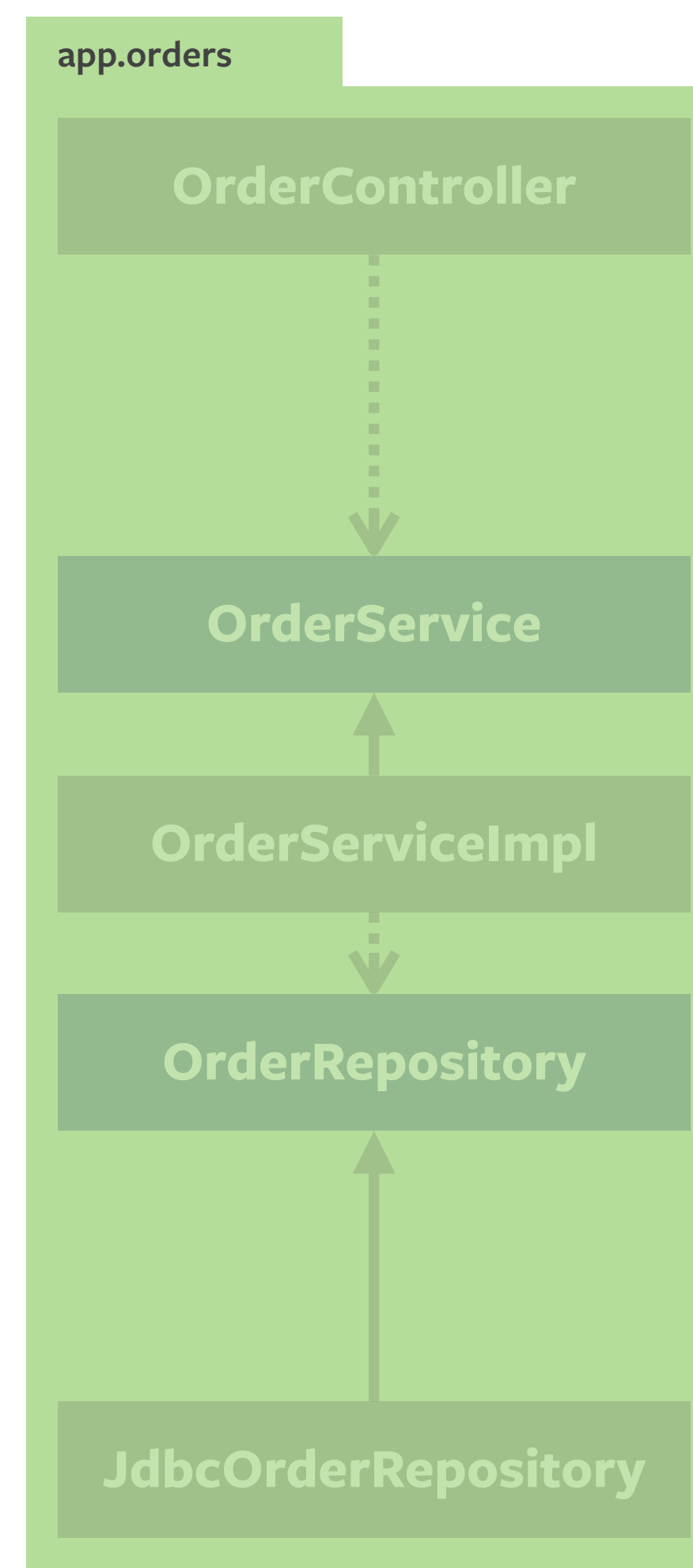




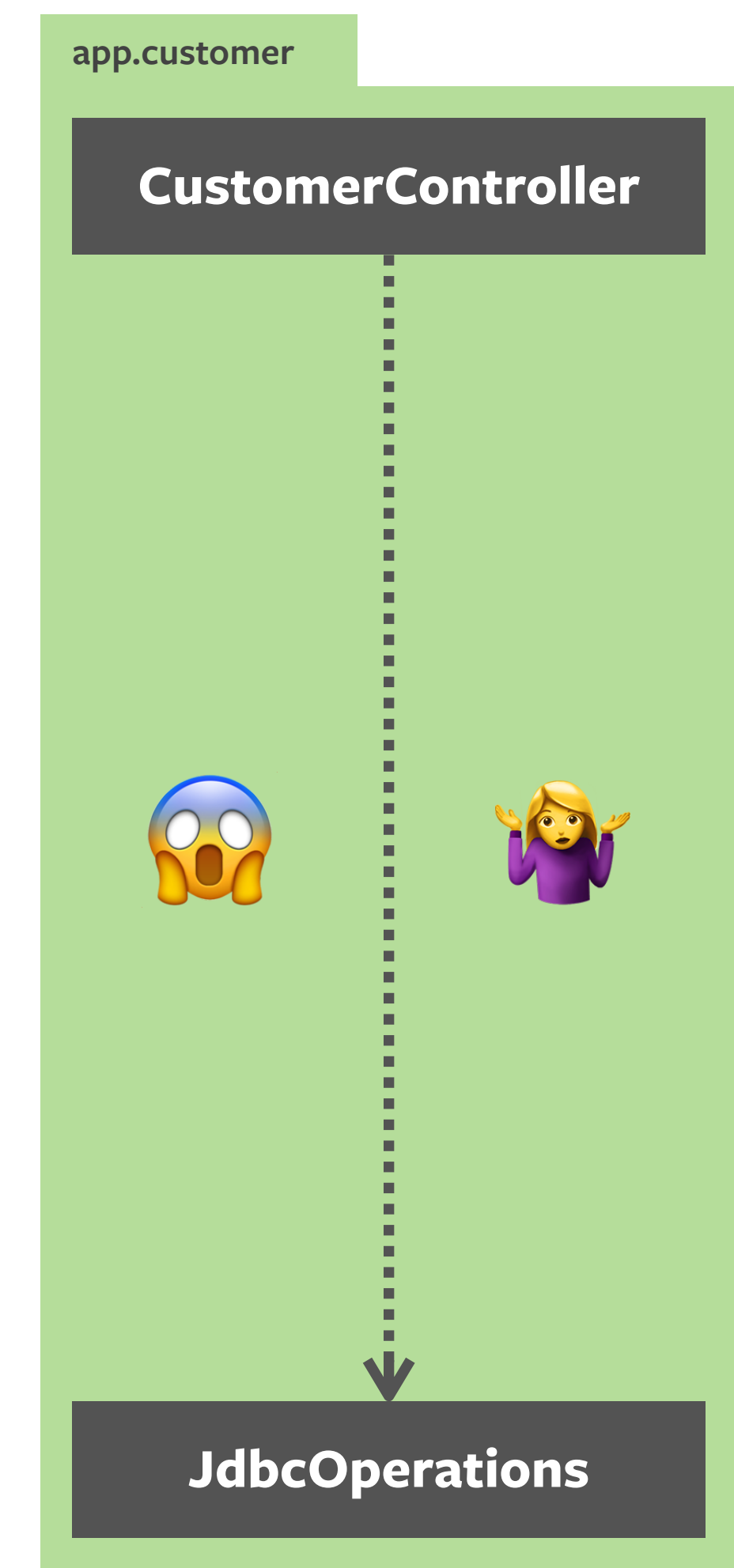
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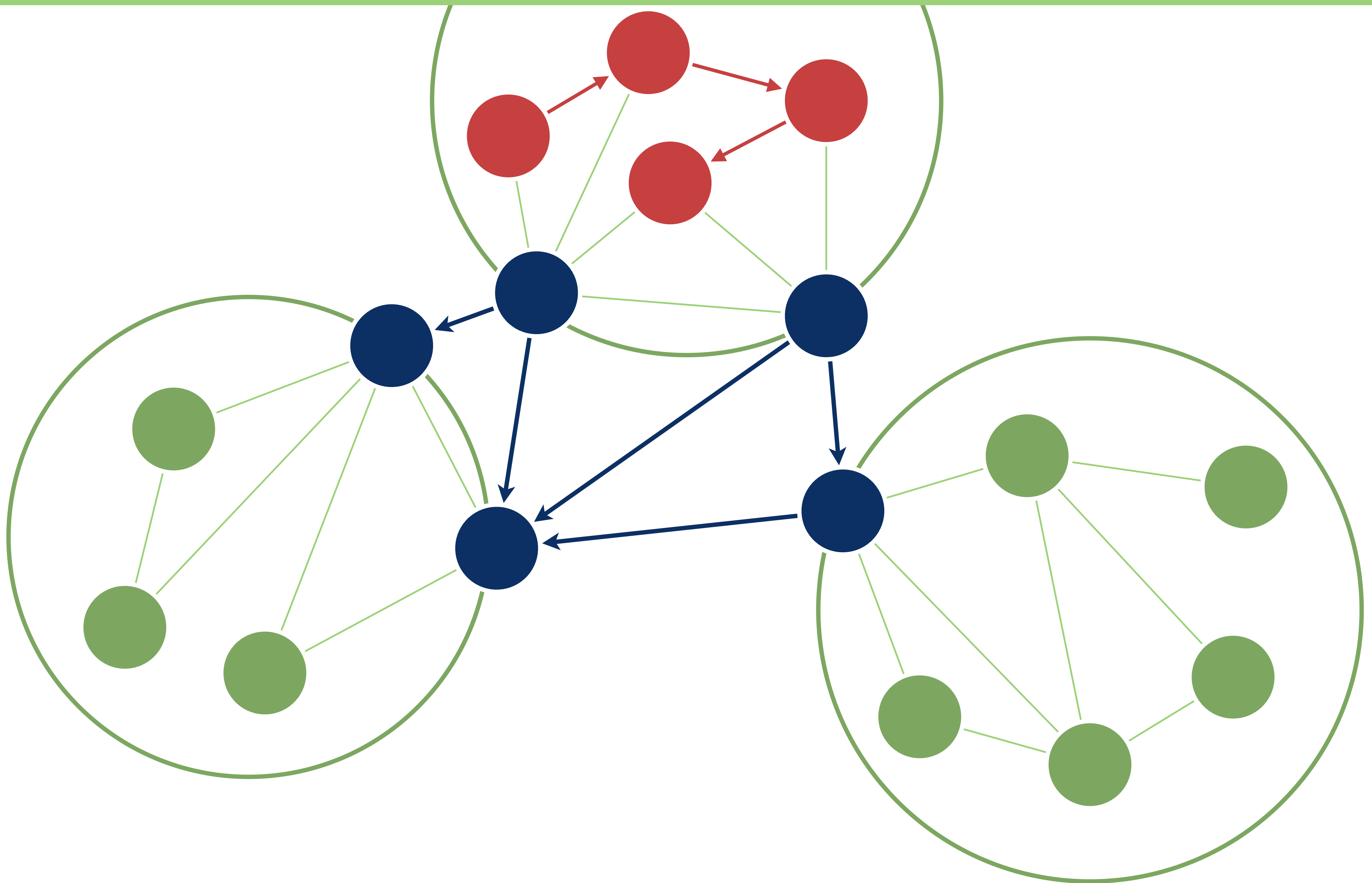
Hexagonal / Onion



Modular



Avoid internal complexity  
if domain permits





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The primary objective of system decomposition is to support change. To contain the effects of a change to as few as possible elements. If your decomposition strategy does not align with that, it's distracting at best and harmful at worst.

24. Sept. 2024, 19:16 · 🌐 · Ivory for iOS

<https://chaos.social/@odrotbohm/113193662068876374>

# ***Strategic considerations***

***Functional  
Decomposition  
over  
Technical  
Decomposition***

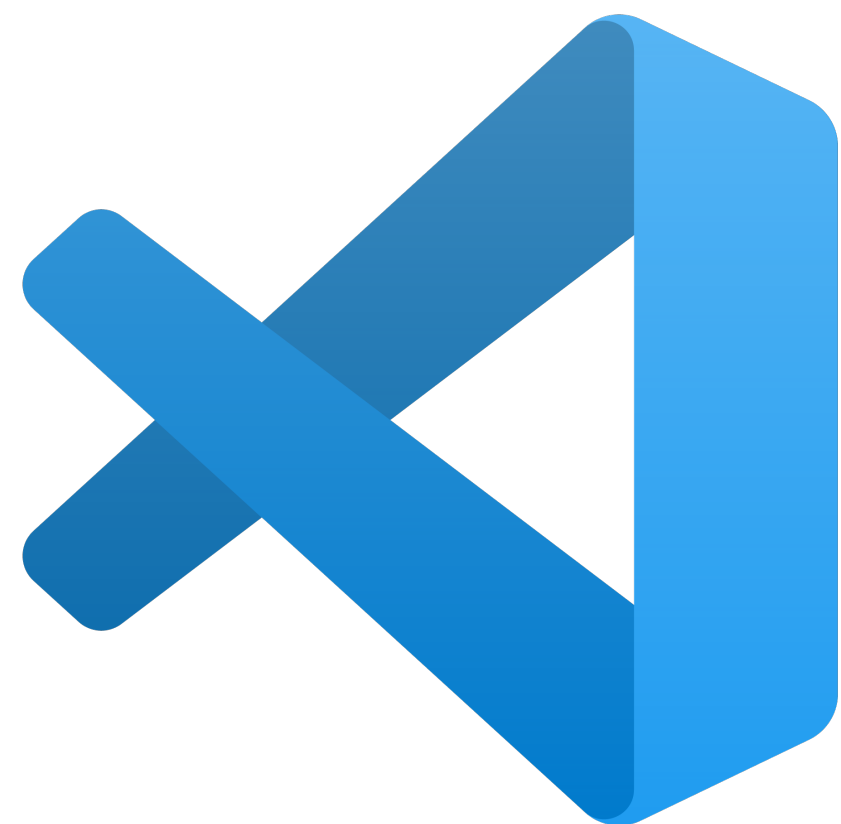
***Intrinsic Complexity***

***determines***

***Accidental Complexity***

# ***Encapsulation over Organisation***

***One more thing...***



VSCode



jMolecules

# ***Thank you!***



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