

Refactoring Towards Clean Architecture



Mosh Hamedani

programmingwithmosh.com @moshhamedani

Repository

Mediates between the domain and data mapping layers using a collection-like interface for accessing domain objects.

PoEAA - Martin Fowler



Repository

LINQ
Stored Procedures

Repository

- Minimizes duplicate query logic**
- Provides better separation of concerns**
- Decouples from persistence frameworks**

**Repository pattern is already
implemented in Entity Framework.**

No need to re-implement it!





Using Repository Pattern

Small Projects

Simple queries

Medium/Large Projects

With complex and duplicated
queries

Data Access Concerns

Querying Logic

Eager Loading

Filtering

Problems

Complex queries

Fat controllers

Fat services

Exercise

Go through **GigsController** and replace all instances of using DbContext with a call to repository.



Clean Architecture

Hexagonal Architecture (Ports and Adapters)

Onion Architecture

BCE (Boundary, Control, Entity)

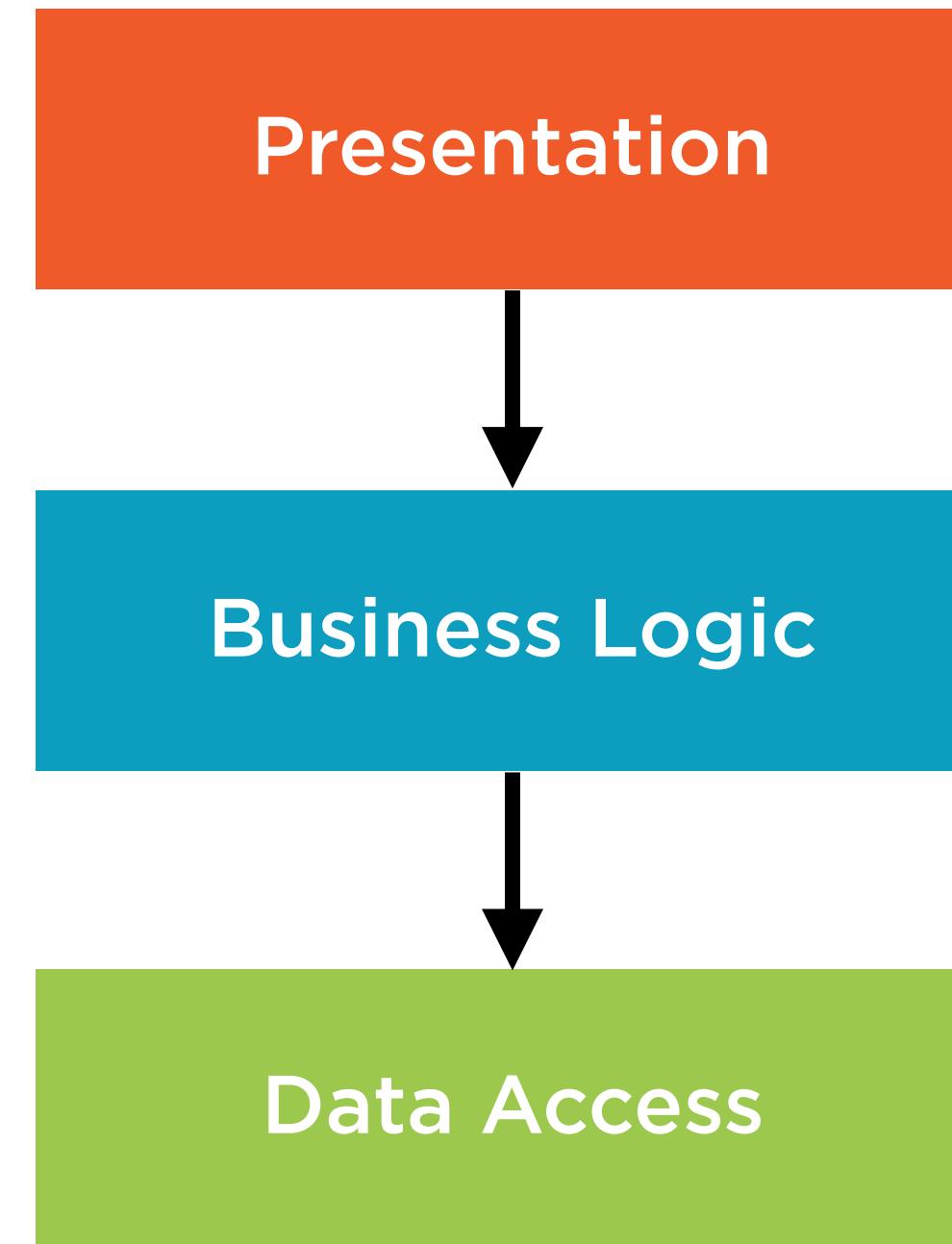
Separation of Concerns

Clean Architecture

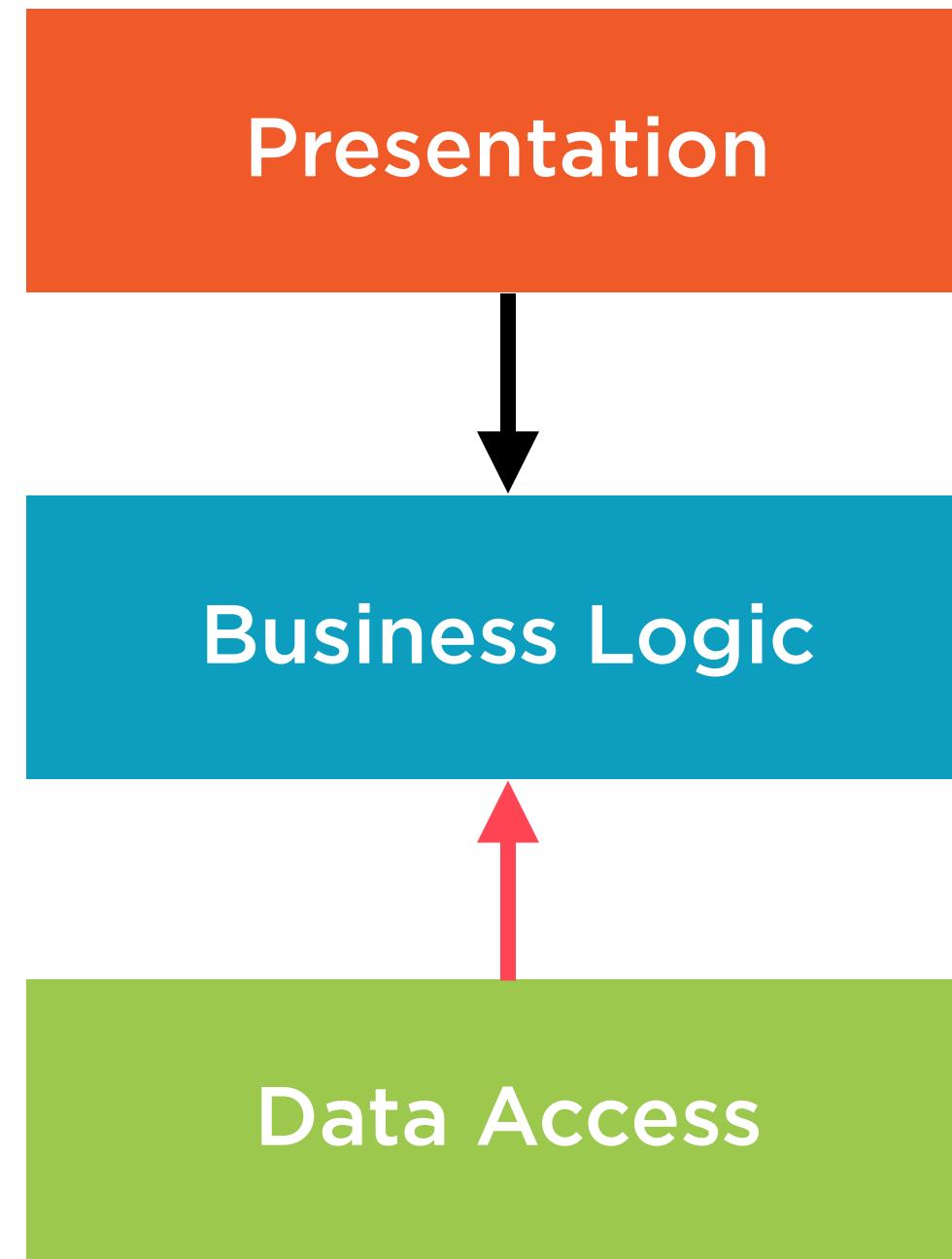


- Independent of frameworks**
- Independent of UI**
- Independent of database**
- Testable**

Traditional Layered Architecture

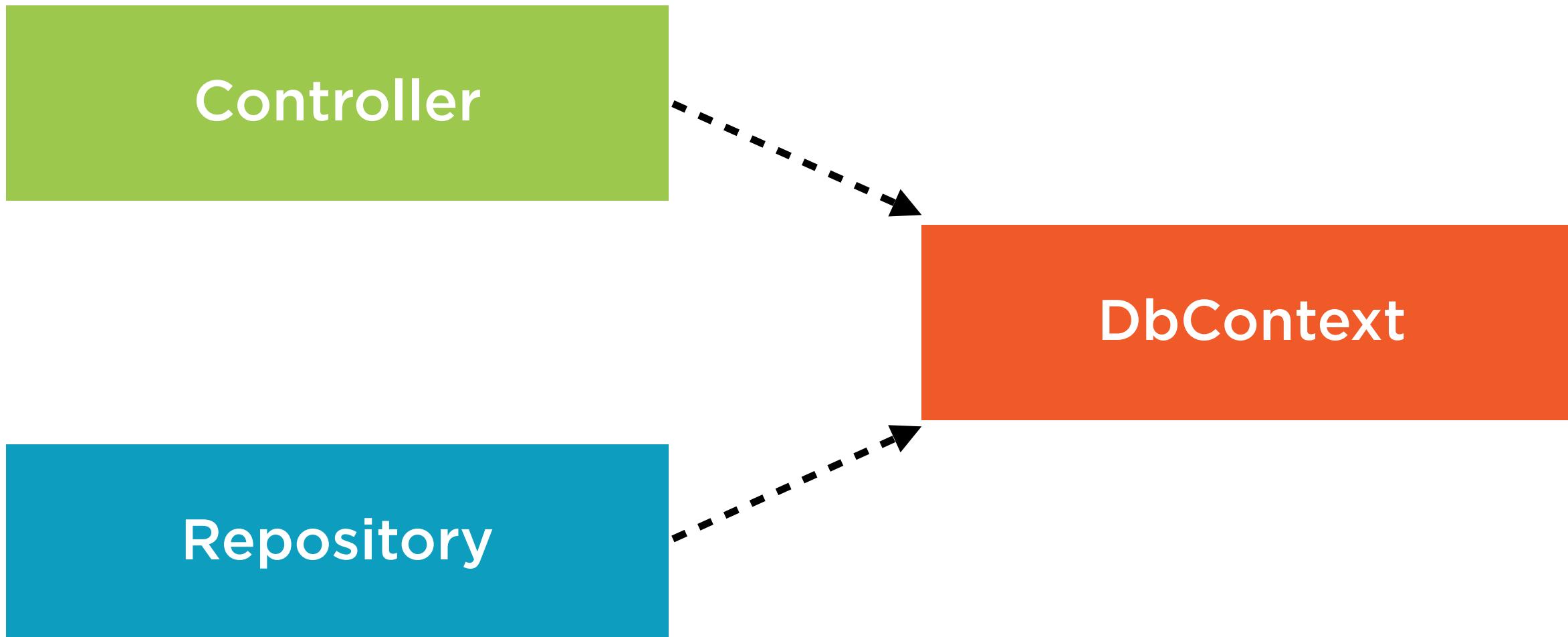


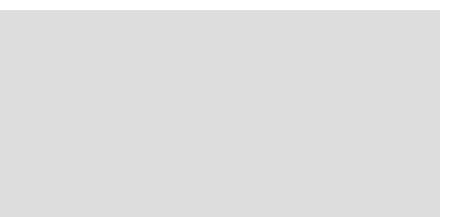
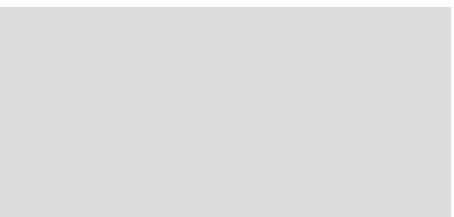
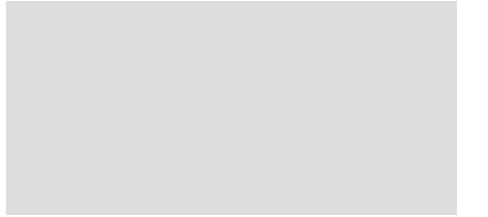
Traditional Layered Architecture





Coupling to Entity Framework





Evolution of Entity Framework

ObjectContext

Prior to v4.1

DbContext

v4.1+

Issues with DbContext Everywhere

Productivity

Many places to change

Team Work

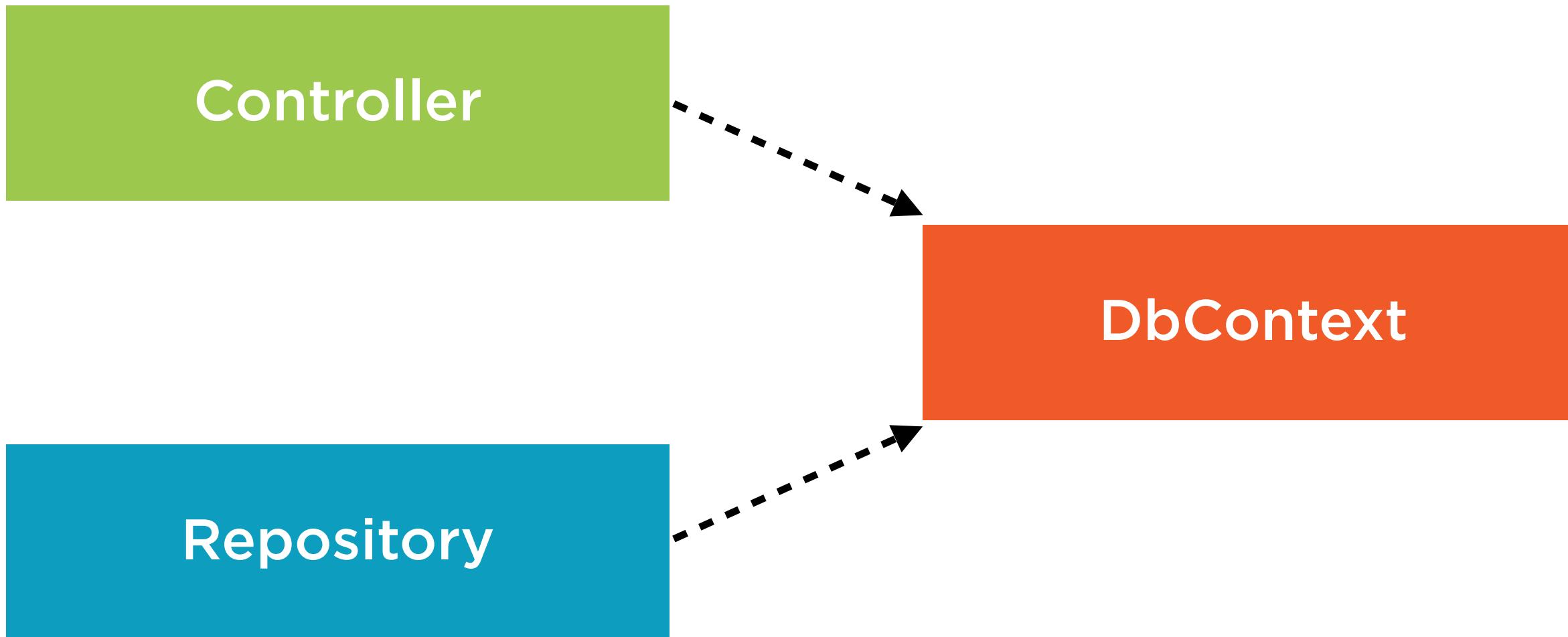
More merge conflicts

Deployment

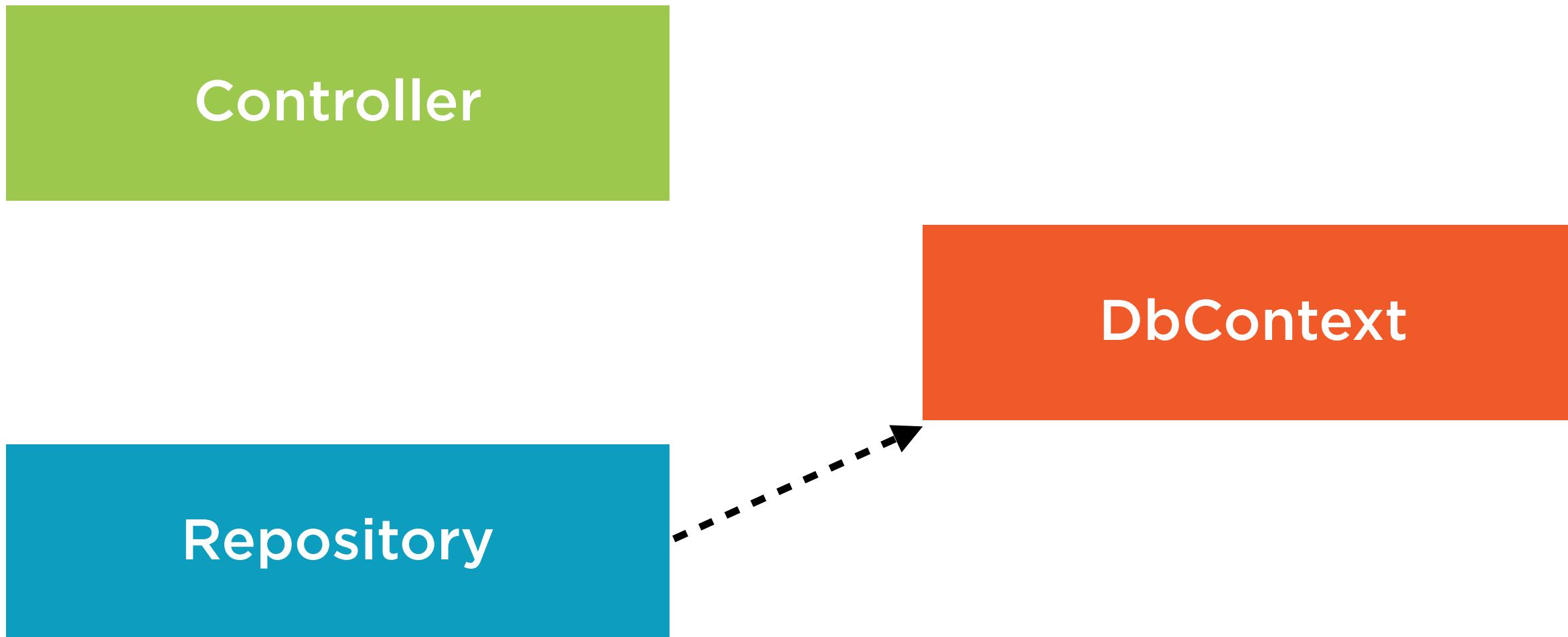
Heavier deployments

Separate what changes from
what doesn't.

Coupling to Entity Framework



Coupling to Entity Framework



Unit of Work

Maintains a list of objects affected by a business transaction and coordinates the writing out of changes.

PoEAA - Martin Fowler

Persisting Changes

GigRepository

GenreRepository

Save()

Save()

Contract

Repository

Add(object)
Remove(object)
Get(id) : object

UnitOfWork

Complete()

Summary

Separation of Concerns

Repository Pattern

Decouple from Entity Framework

Clean Architecture