CEE Community Open Days
16-17 March 2016 | Prague

Building Read Models using event streams

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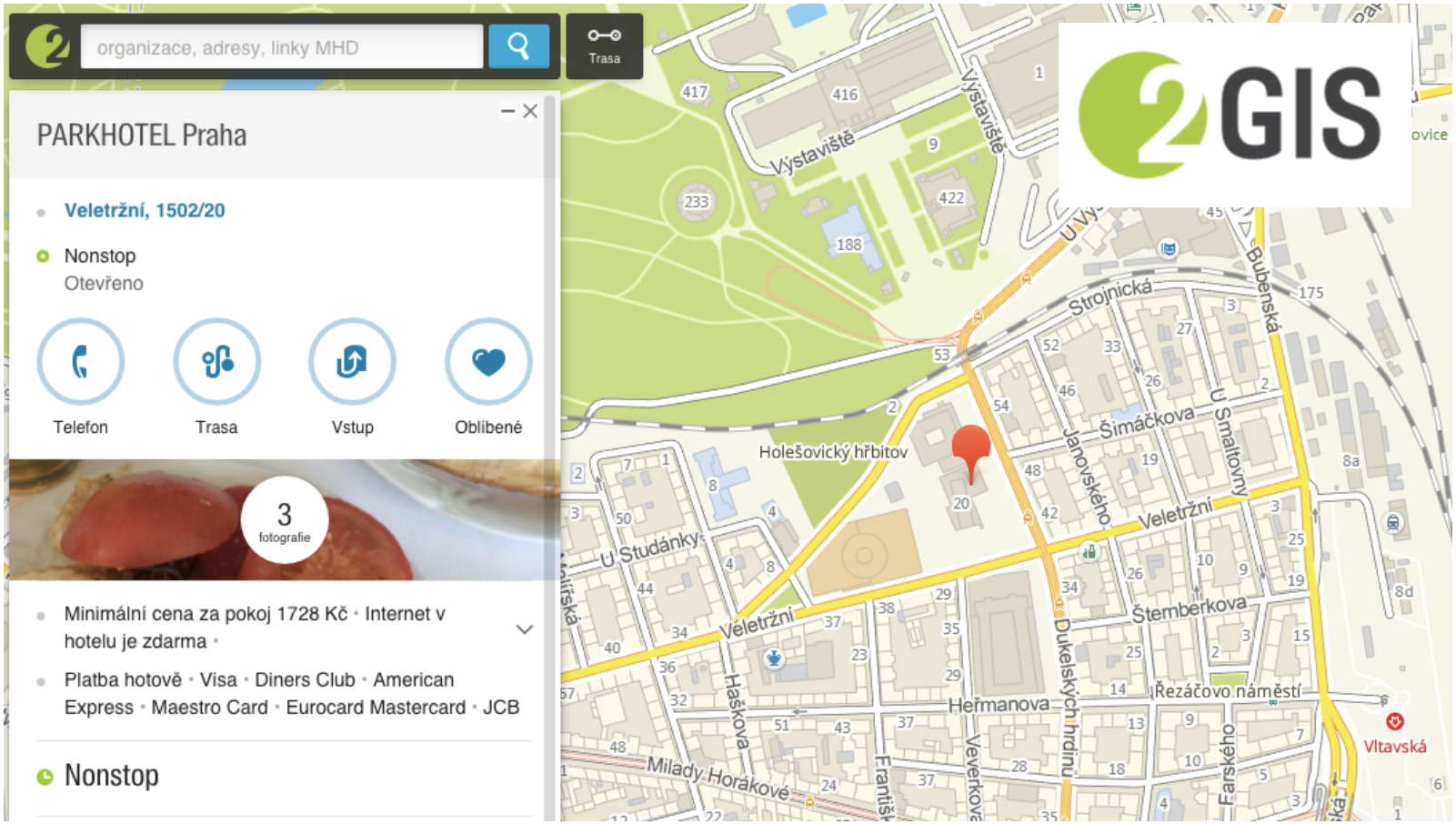
@denisivanov

About me

About me

Applied math and computer science

About me


organizace, adresy, linky MHD
Trasa
PARKHOTEL Praha
Veletržní, 1502/20
Nonstop
Otevřeno
Telefon
Trasa
Vstup
Oblíbené
3
fotografie
Minimální cena za pokoj 1728 Kč · Internet v hotelu je zdarma ·
Platba hotově · Visa · Diners Club · American Express · Maestro Card · Eurocard Mastercard · JCB
Nonstop
2GIS
Holešovický hřbitov
Veletržní
Strojnická
Šimáčkova
Štemberkova
Řezáčovo náměstí
Heřmanova
Milady Horákové
U Studánky
Janovského
Dukelských hrdinů
Bubenská
Vltavská

Business Domain

Sales

Business Domain

- Sales staff with different responsibilities

Business Domain

- Sales staff with different responsibilities
- Many business processes and workflows

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- Consistency checks (validations)

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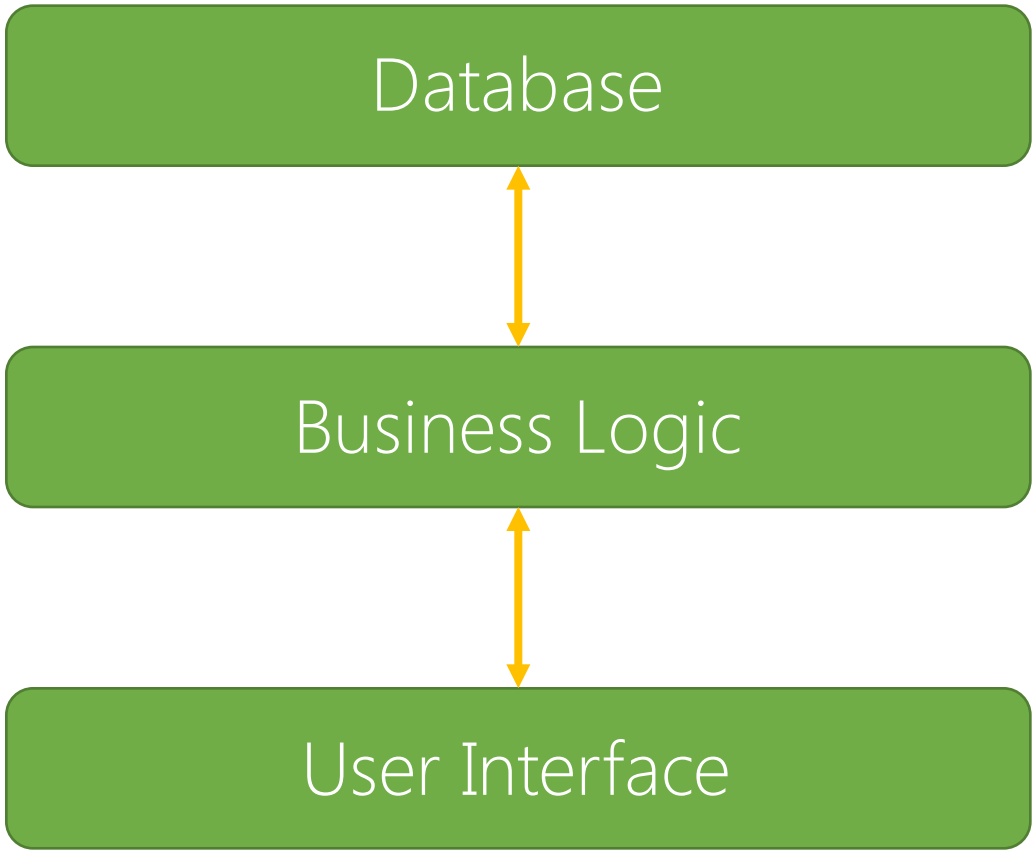
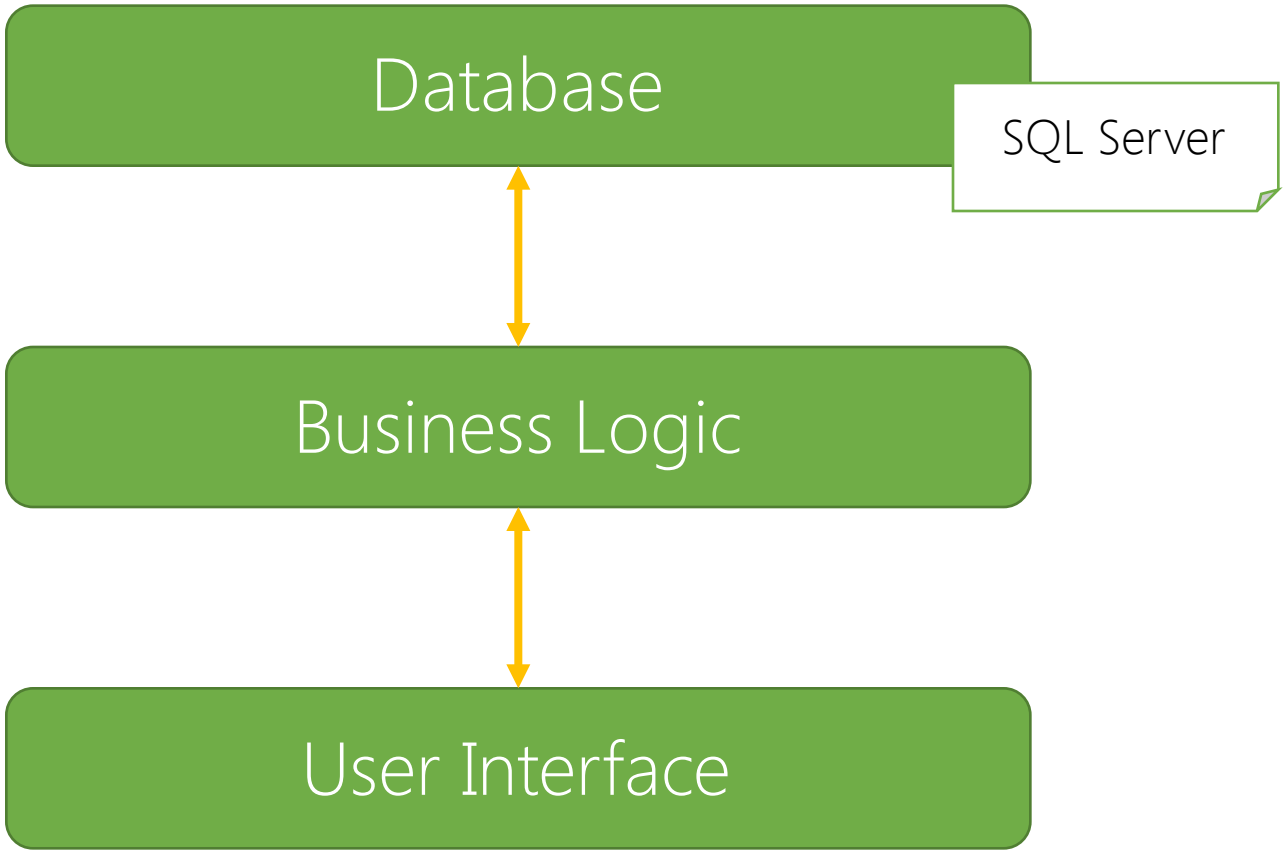
- Many business processes and workflows
- Consistency checks (validations)
- Reports

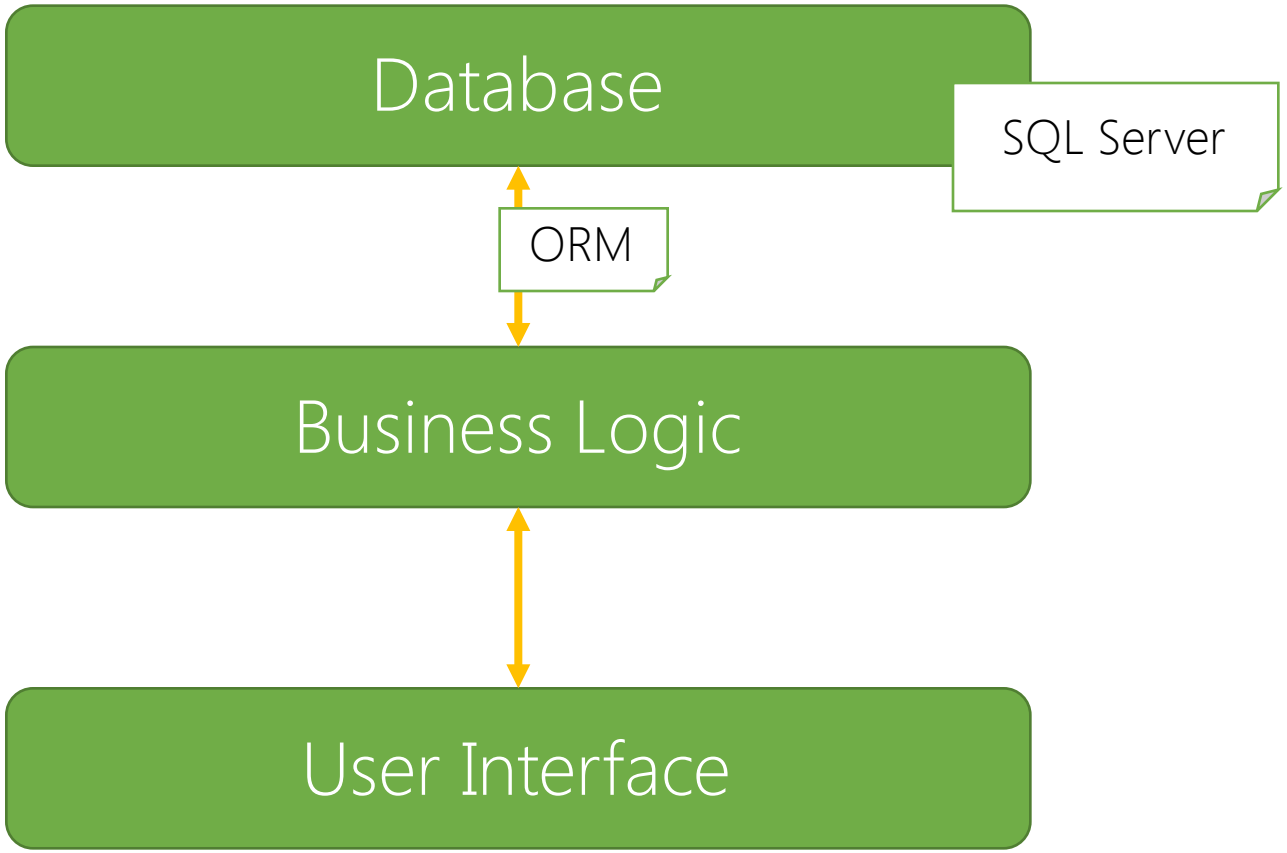
Classical approach



Classical approach



Classical approach



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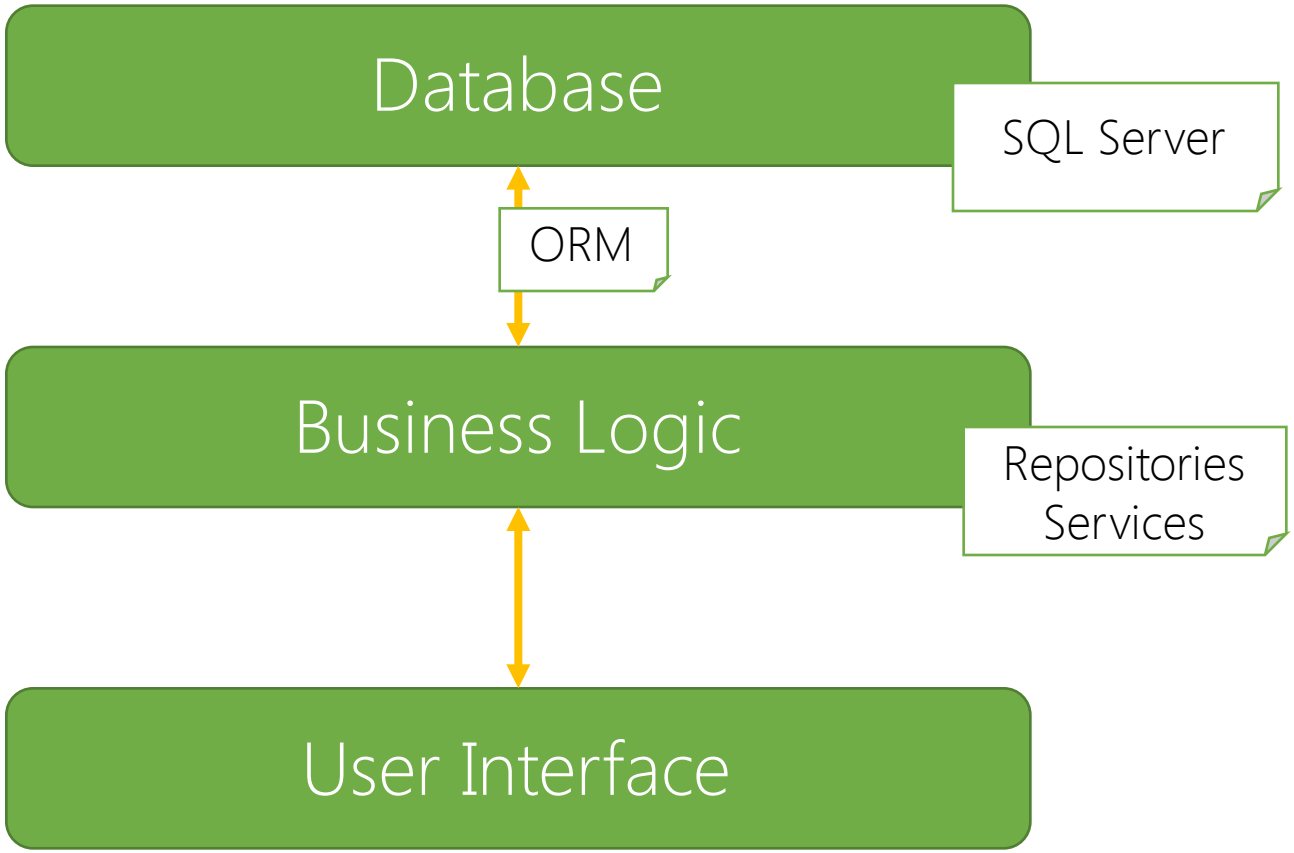
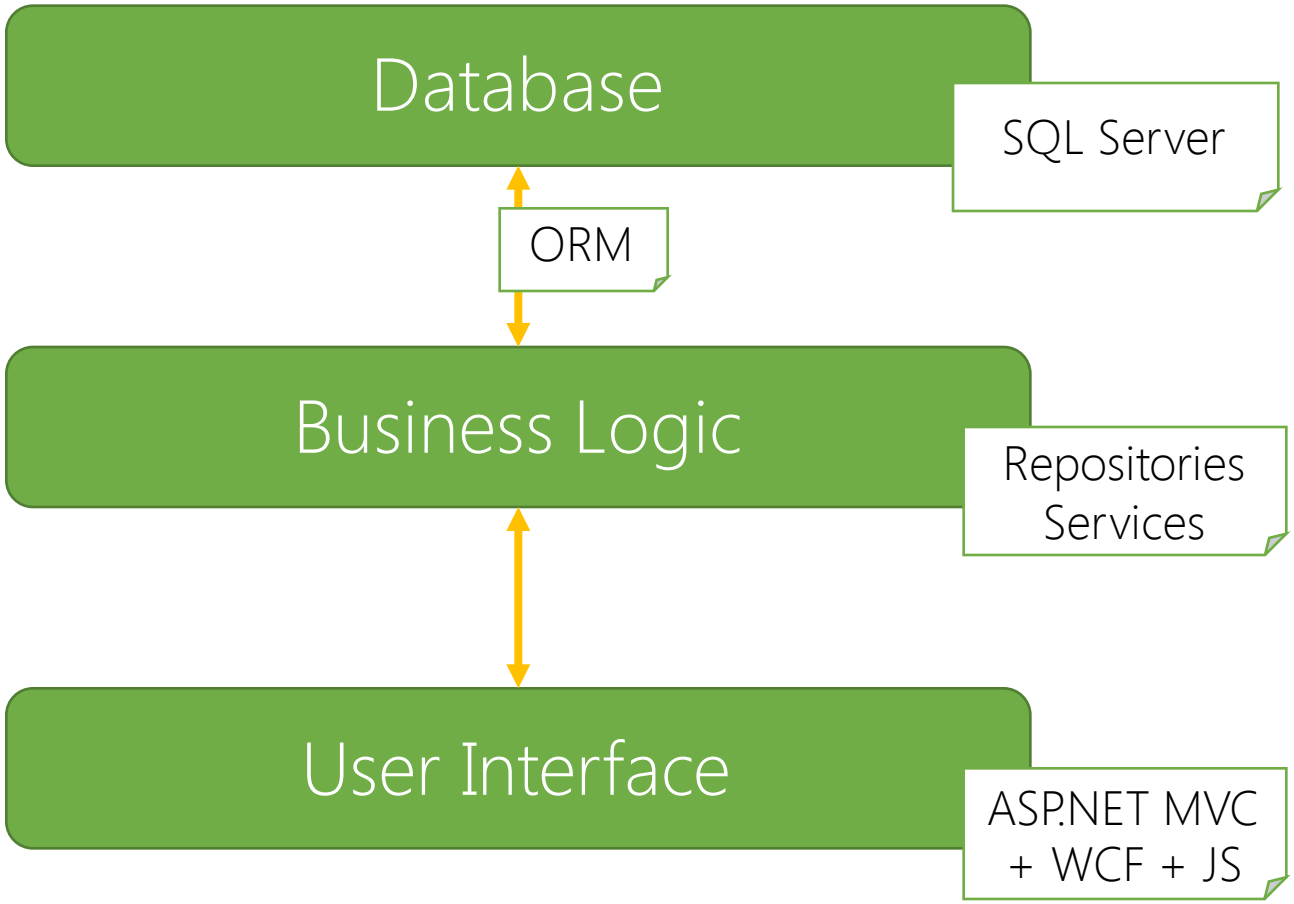


Classical approach



Restrictions

- Queries on data model cause loss of meaning

Restrictions

- Queries on data model cause loss of meaning
- Balance between reads and writes

Restrictions

- Queries on data model cause loss of meaning
- Balance between reads and writes
- Changes in the data model

Restrictions

- A lot of parameterized querying criteria

Restrictions

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- Generic query API

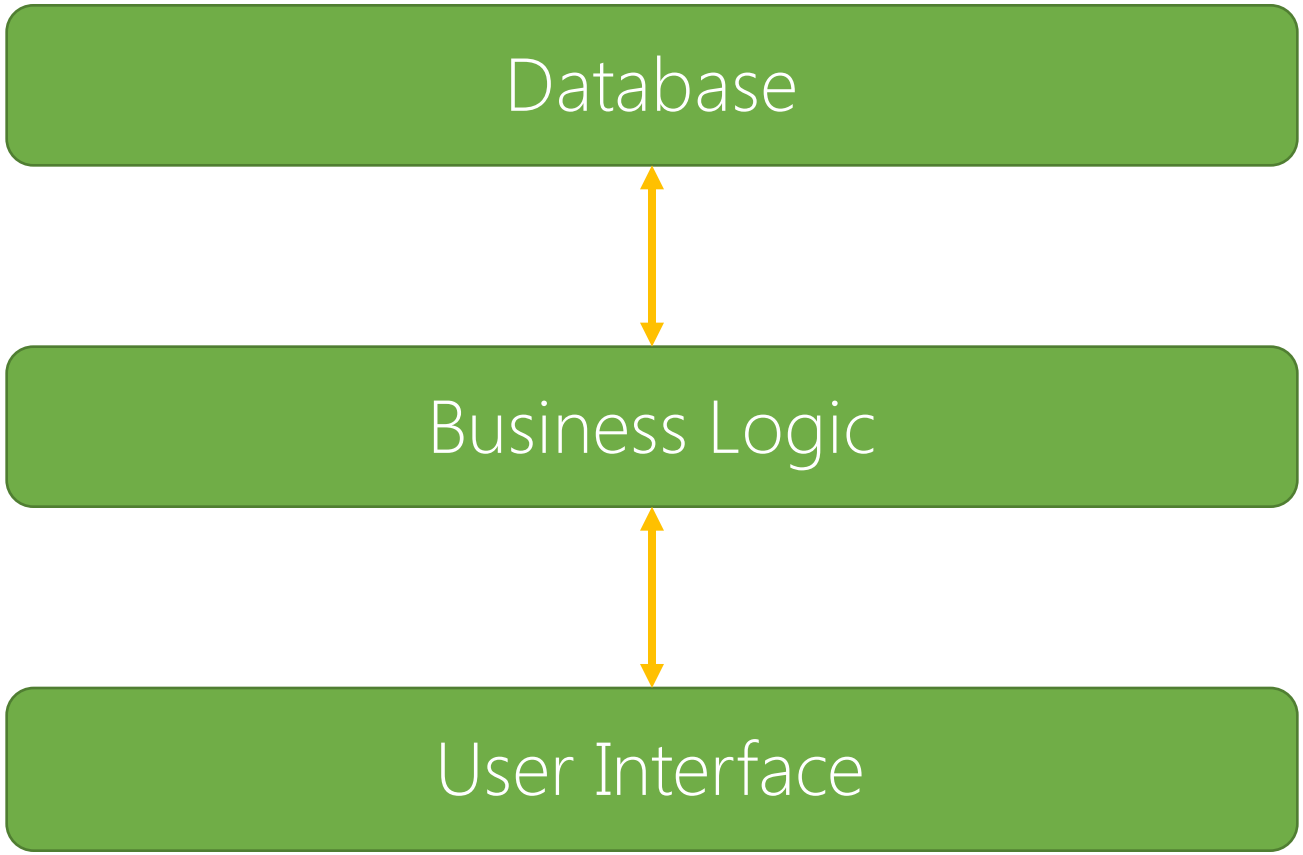
Restrictions

- A lot of parameterized querying criteria
- Generic query API
- Querying data from many systems or derived data

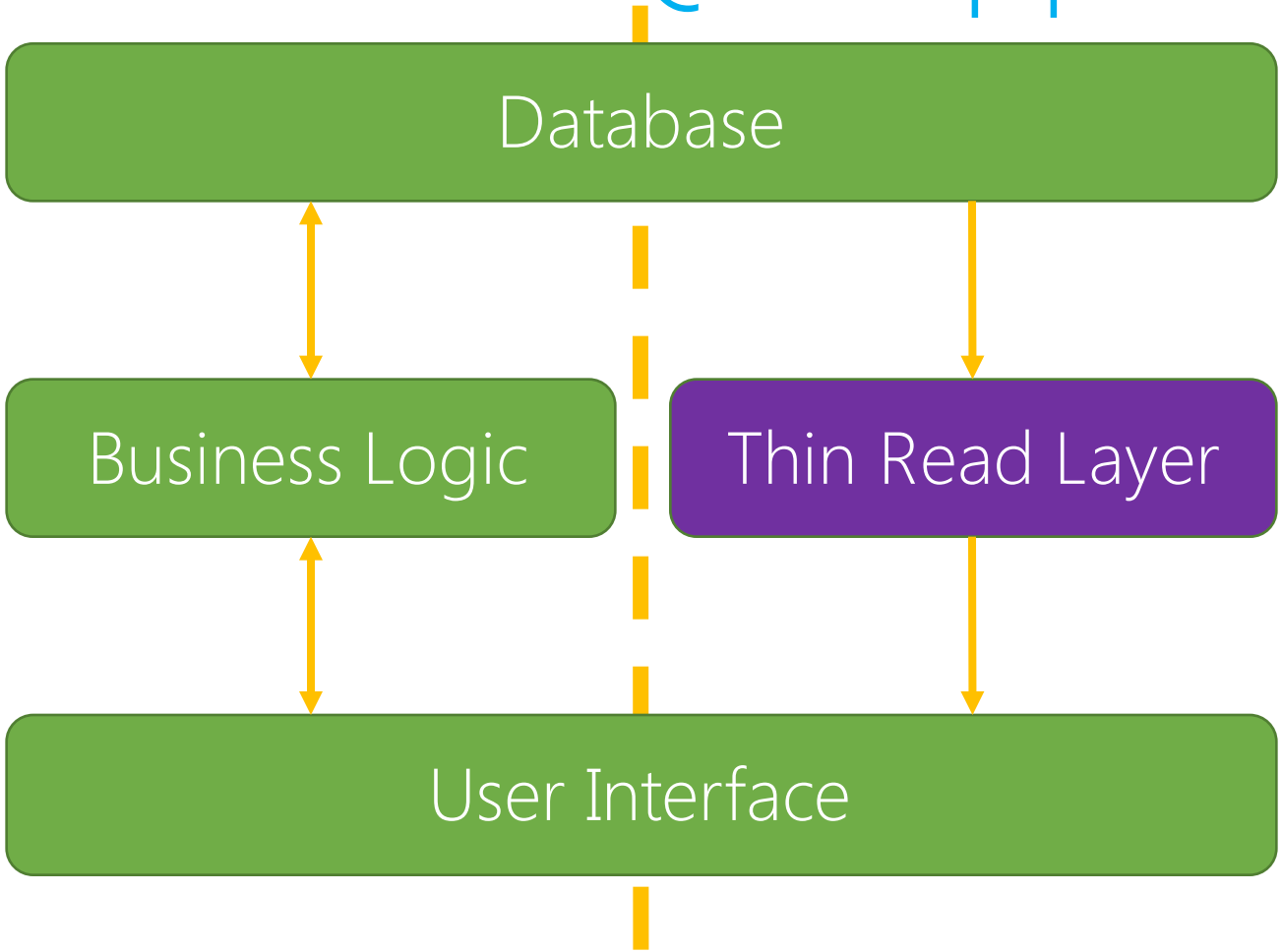
Another approach

Command and Query Responsibility Segregation

CQRS approach



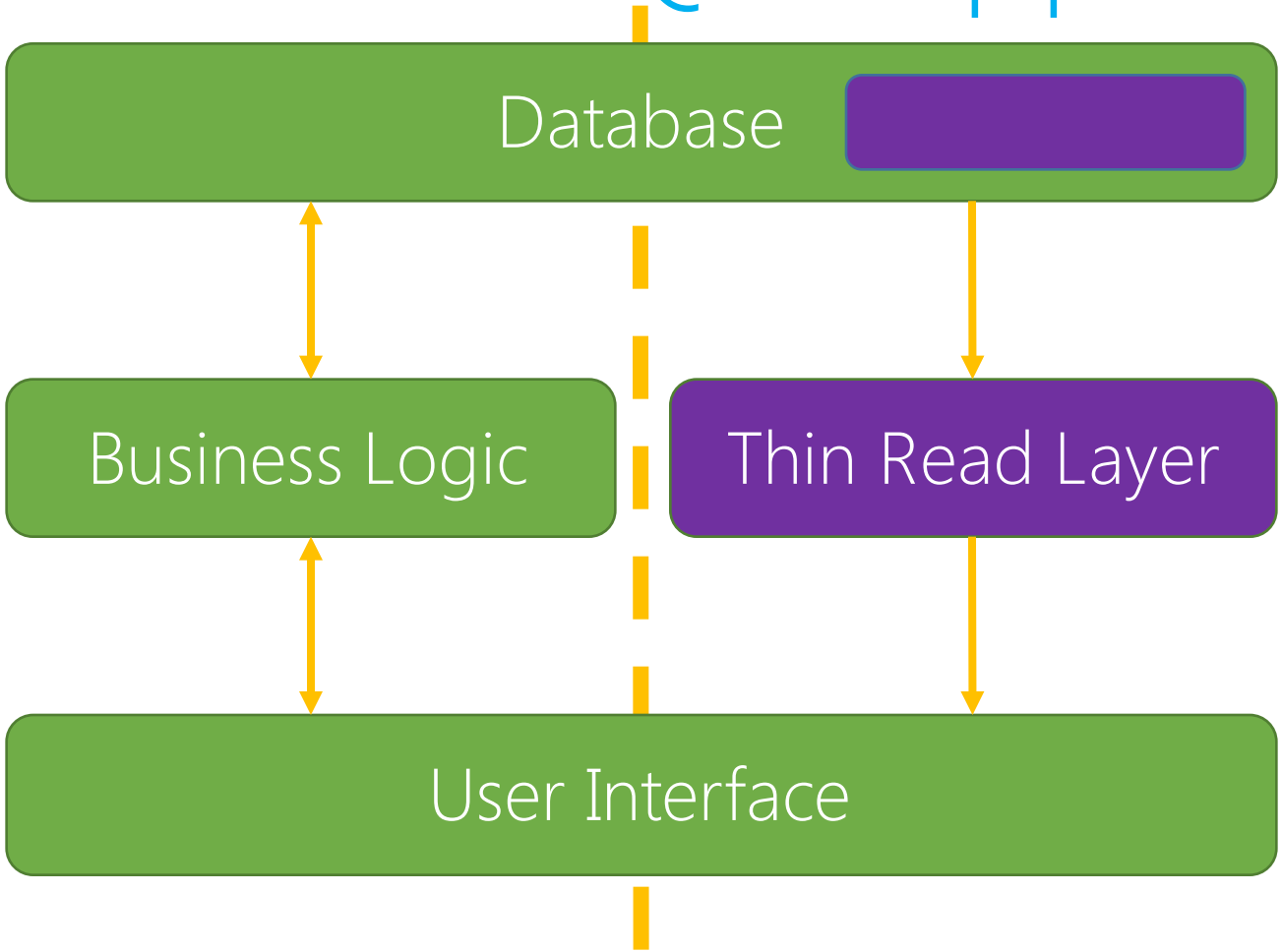
CQRS approach



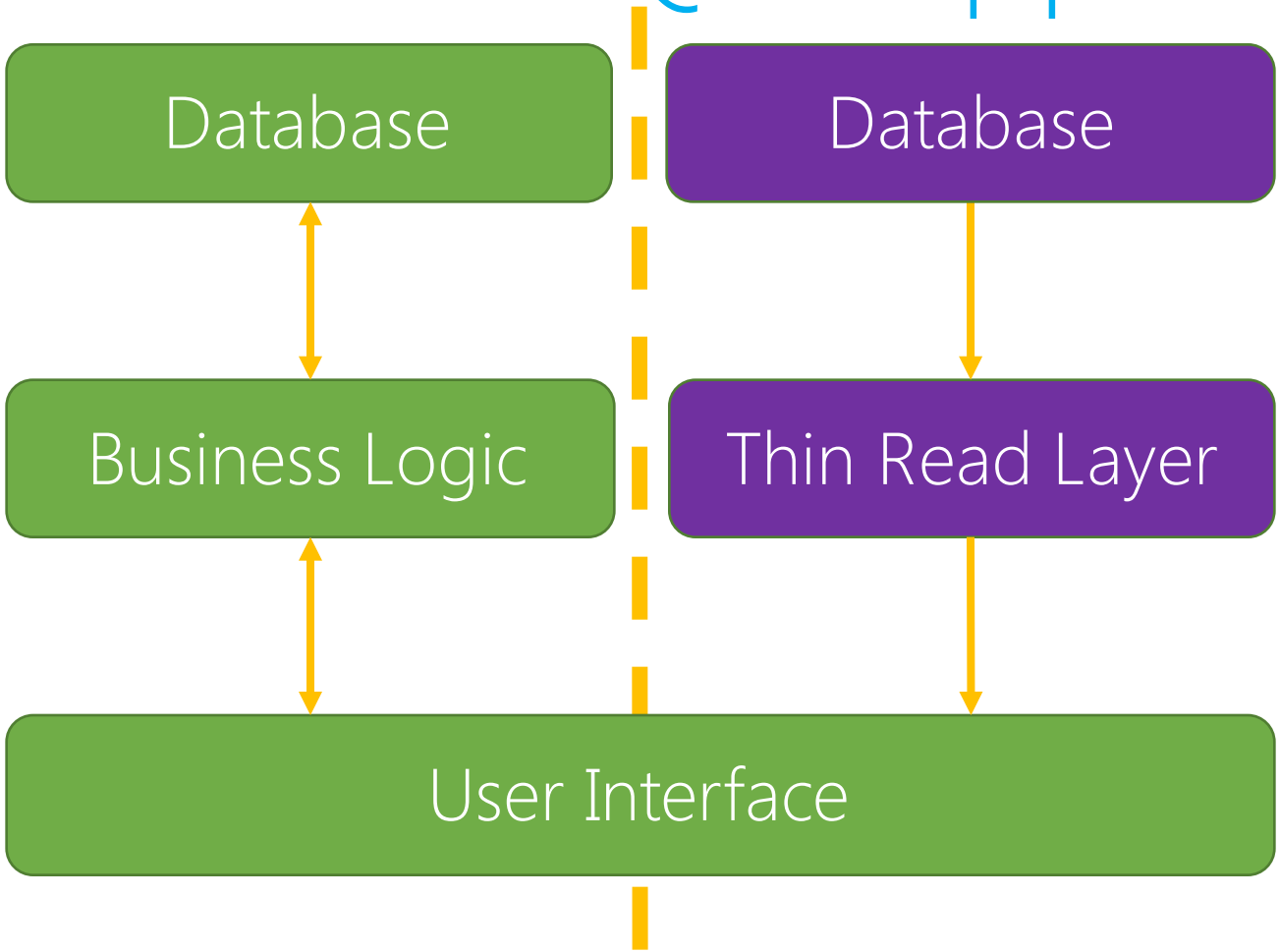
CQRS approach

Bounded context

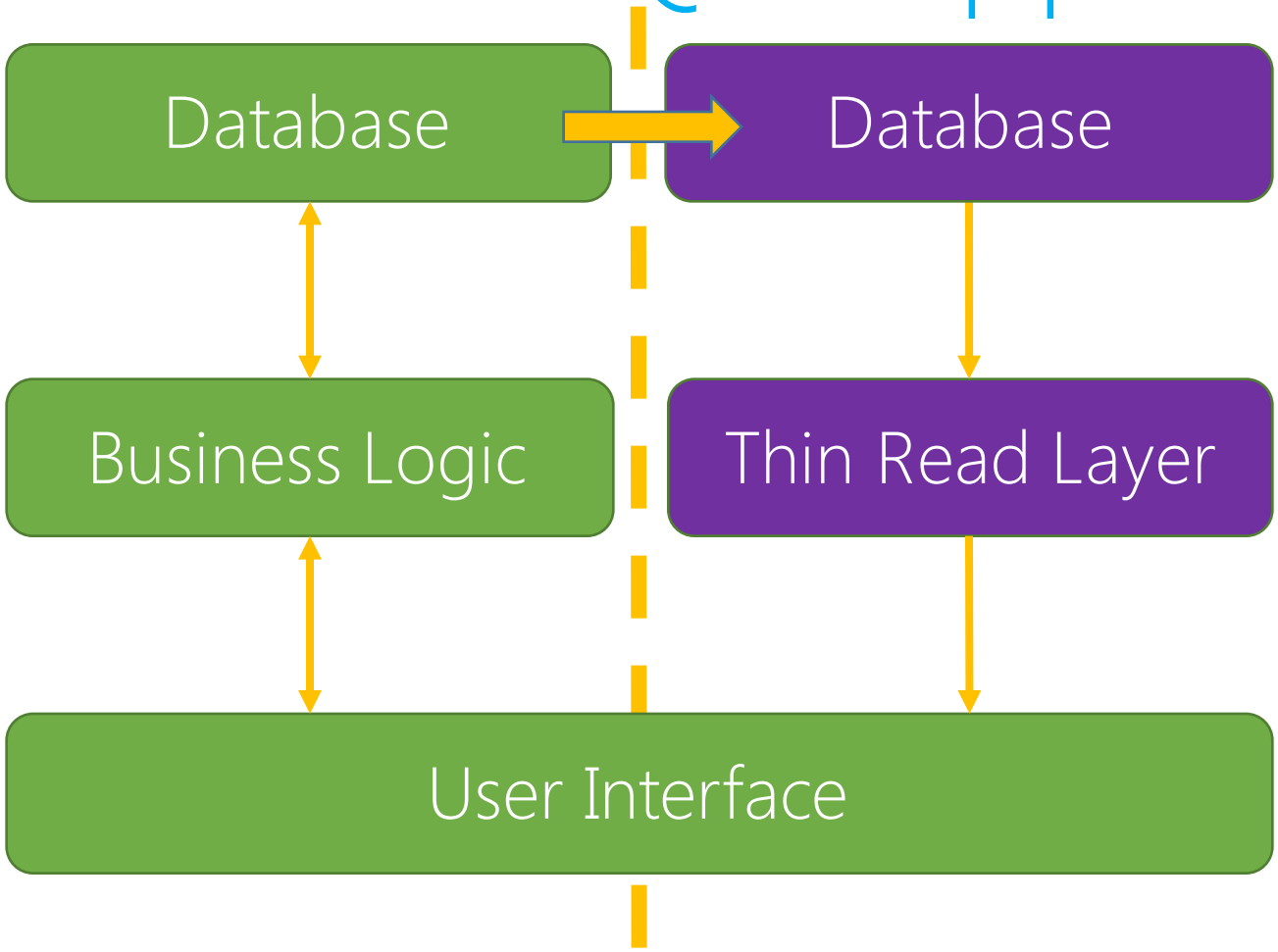
CQRS approach



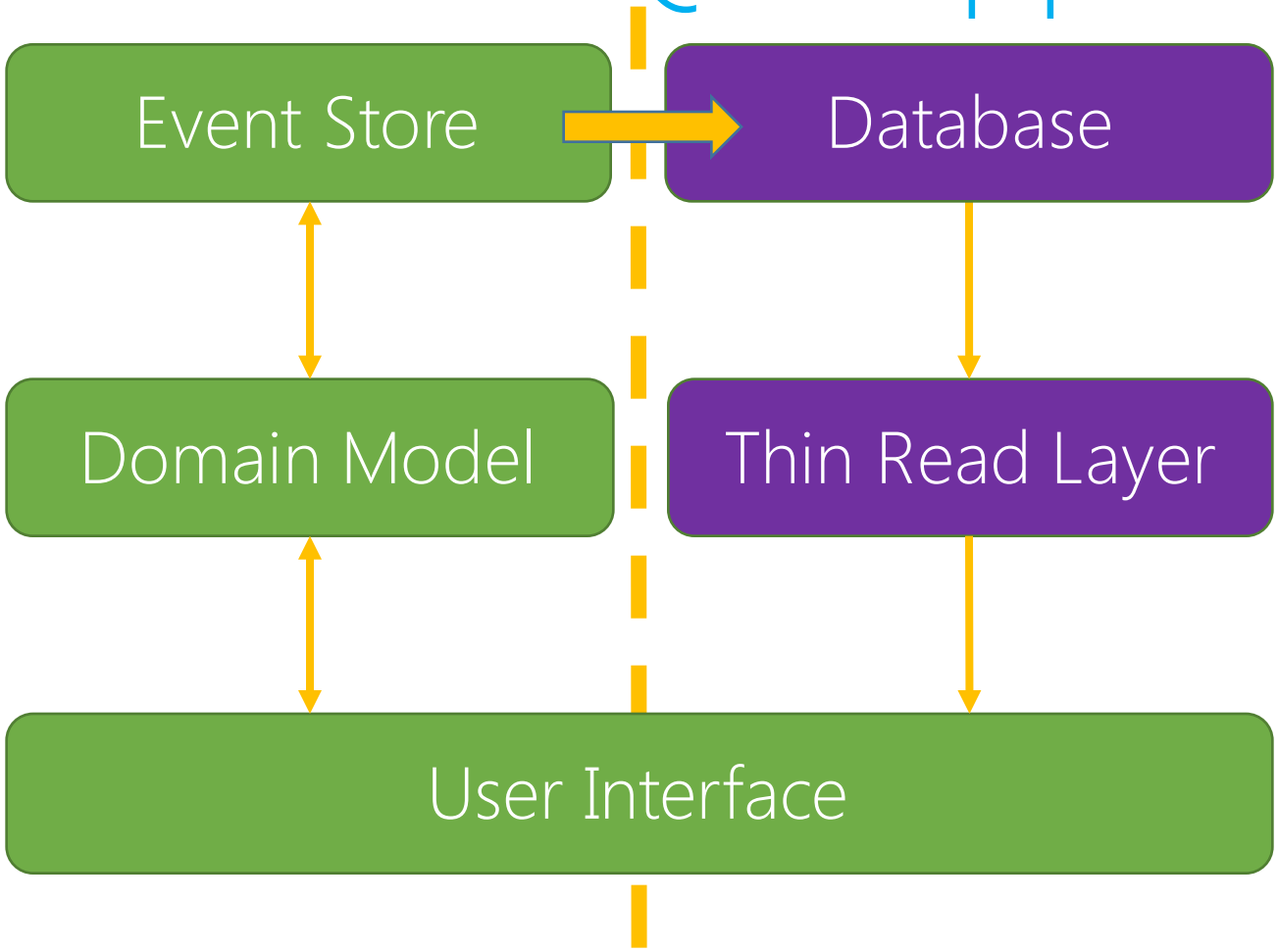
CQRS approach



CQRS approach



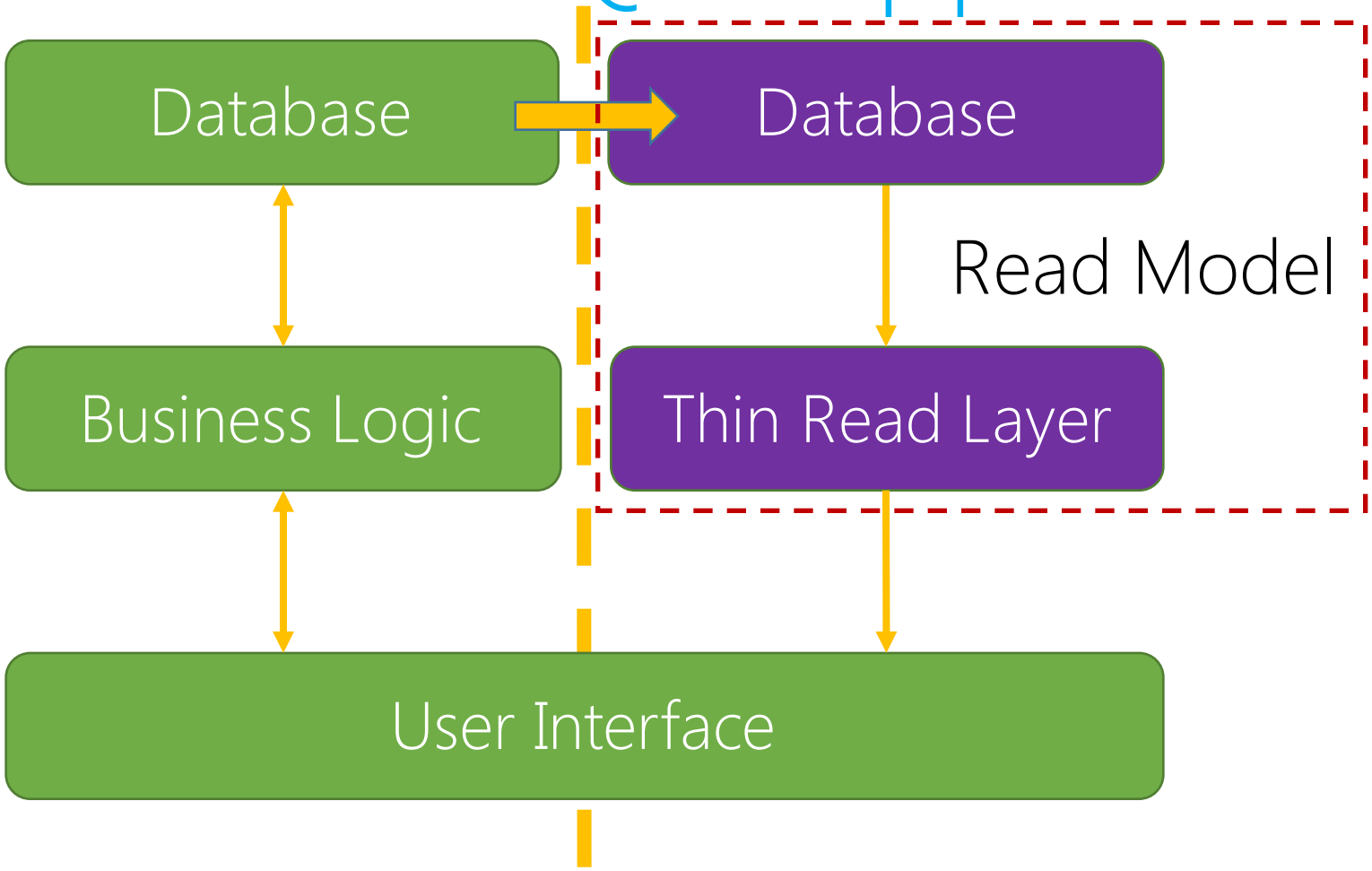
CQRS approach



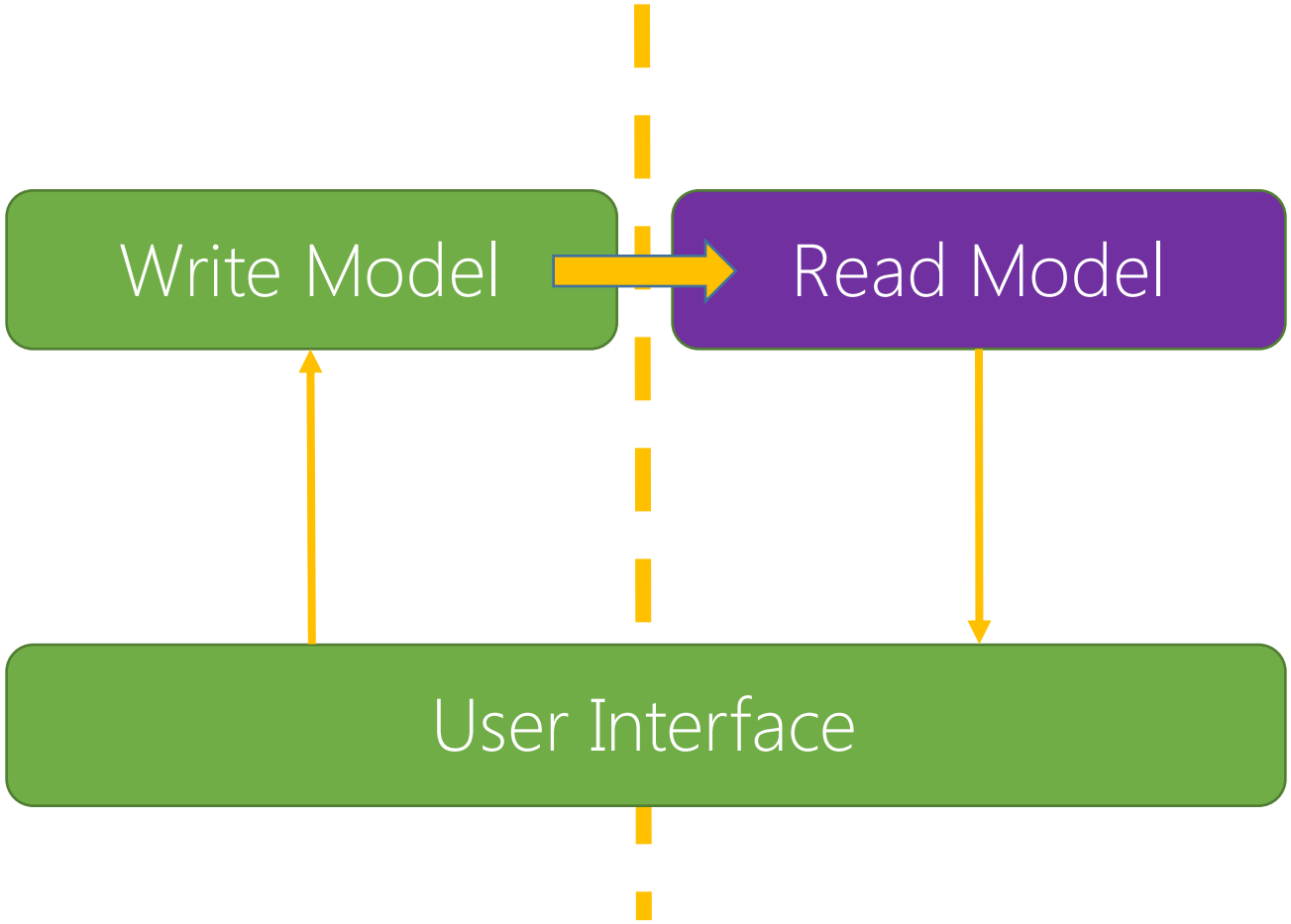
CQRS approach

Eventual consistency

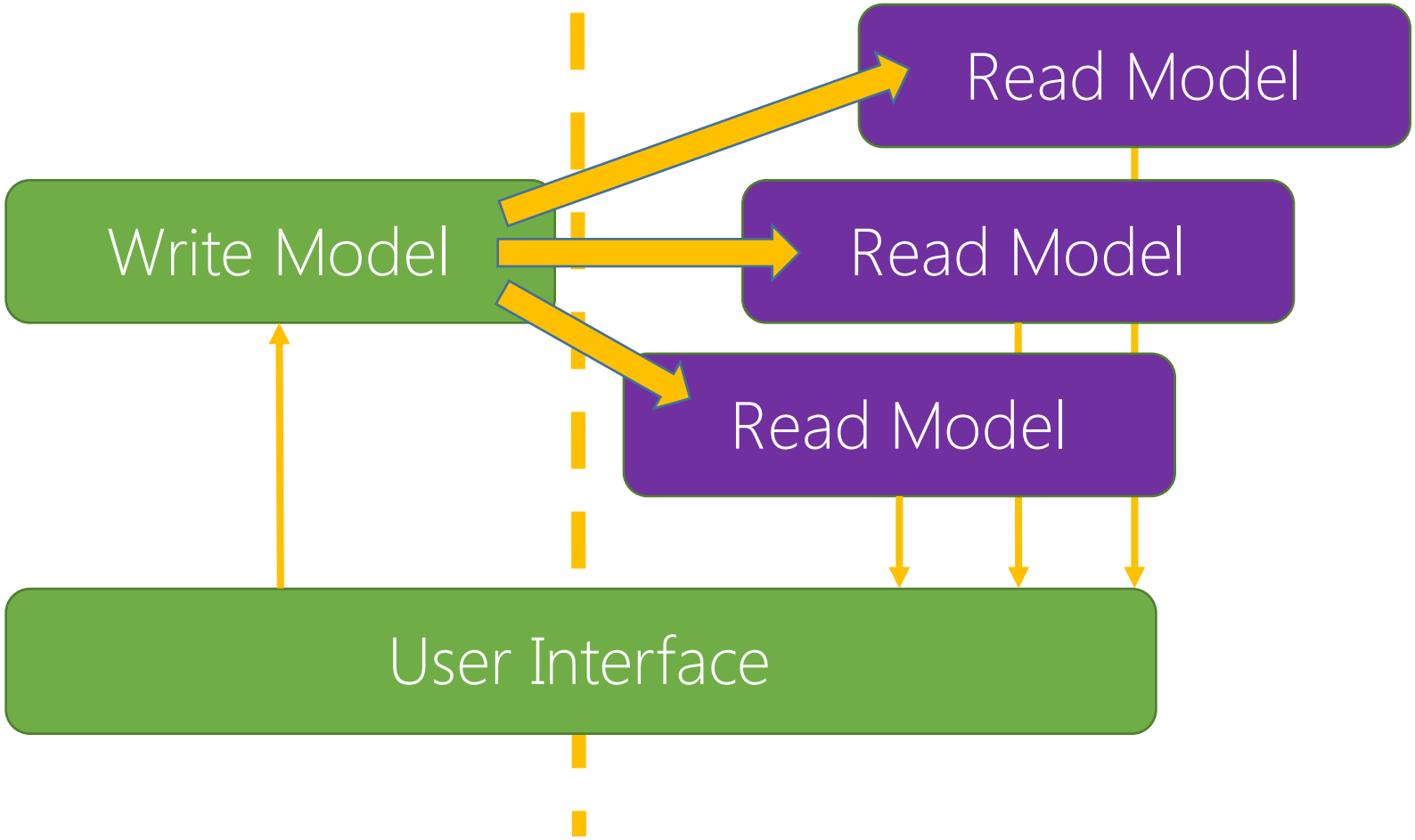
CQRS approach



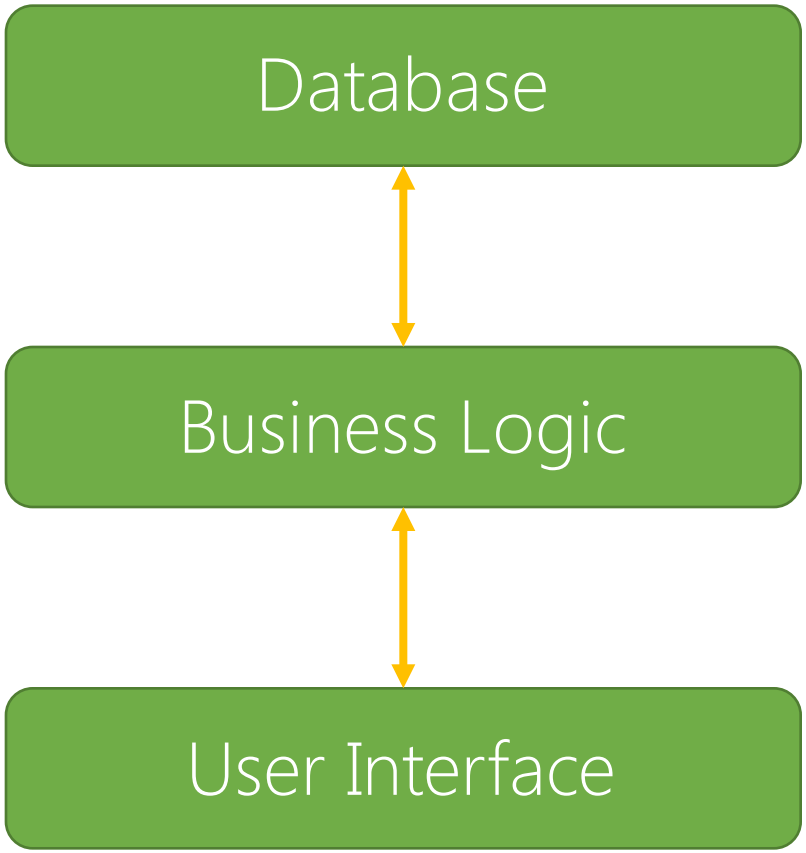
CQRS approach



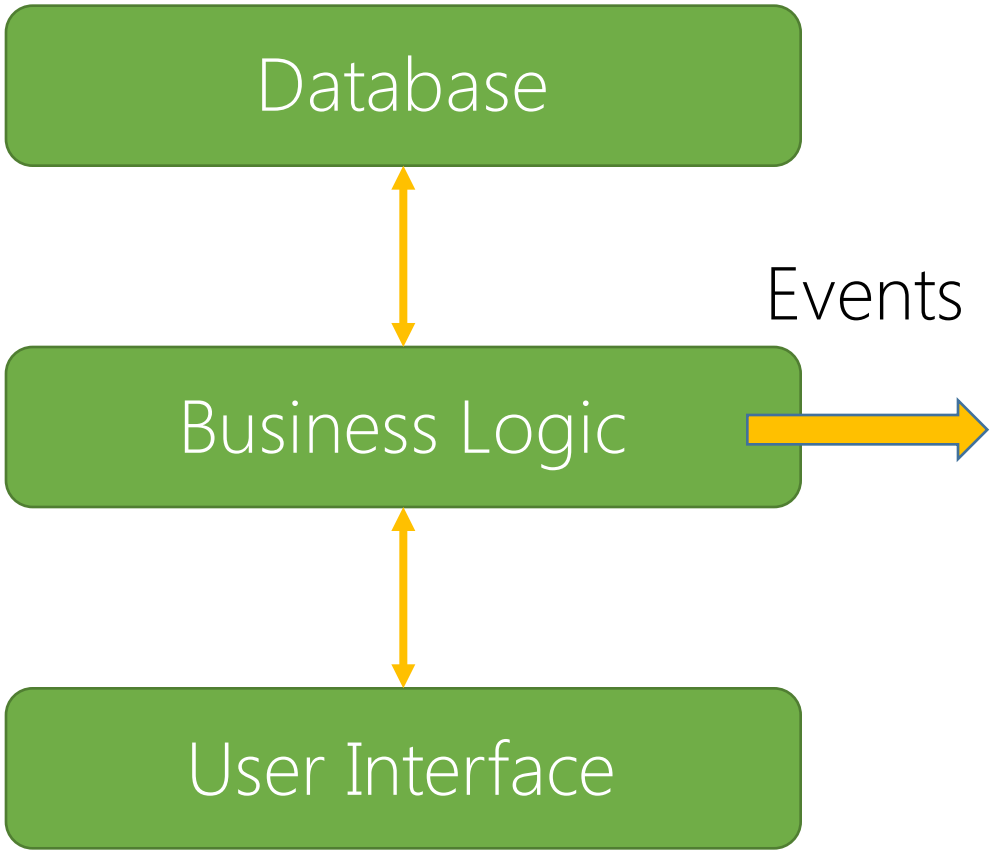
CQRS approach



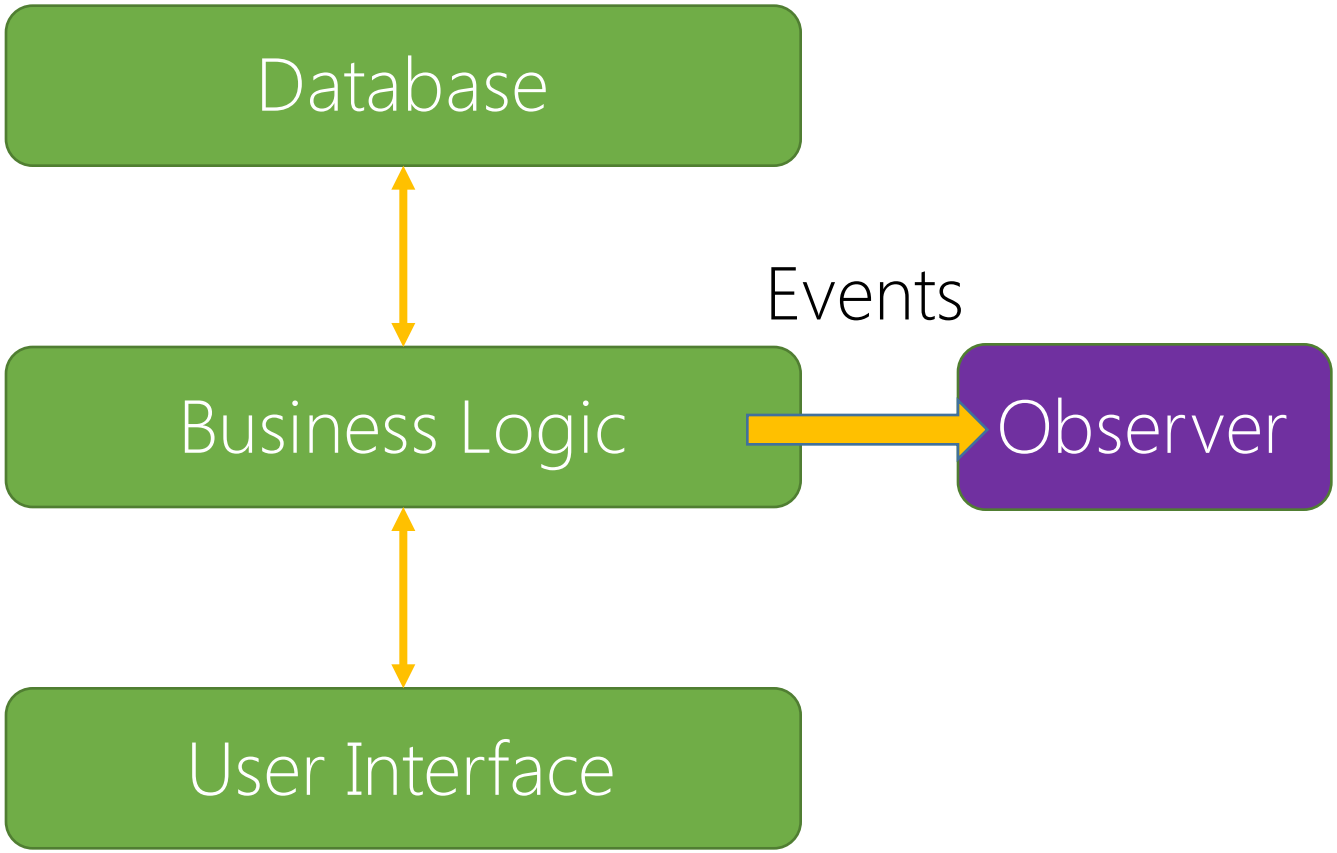
Moving to Read Model



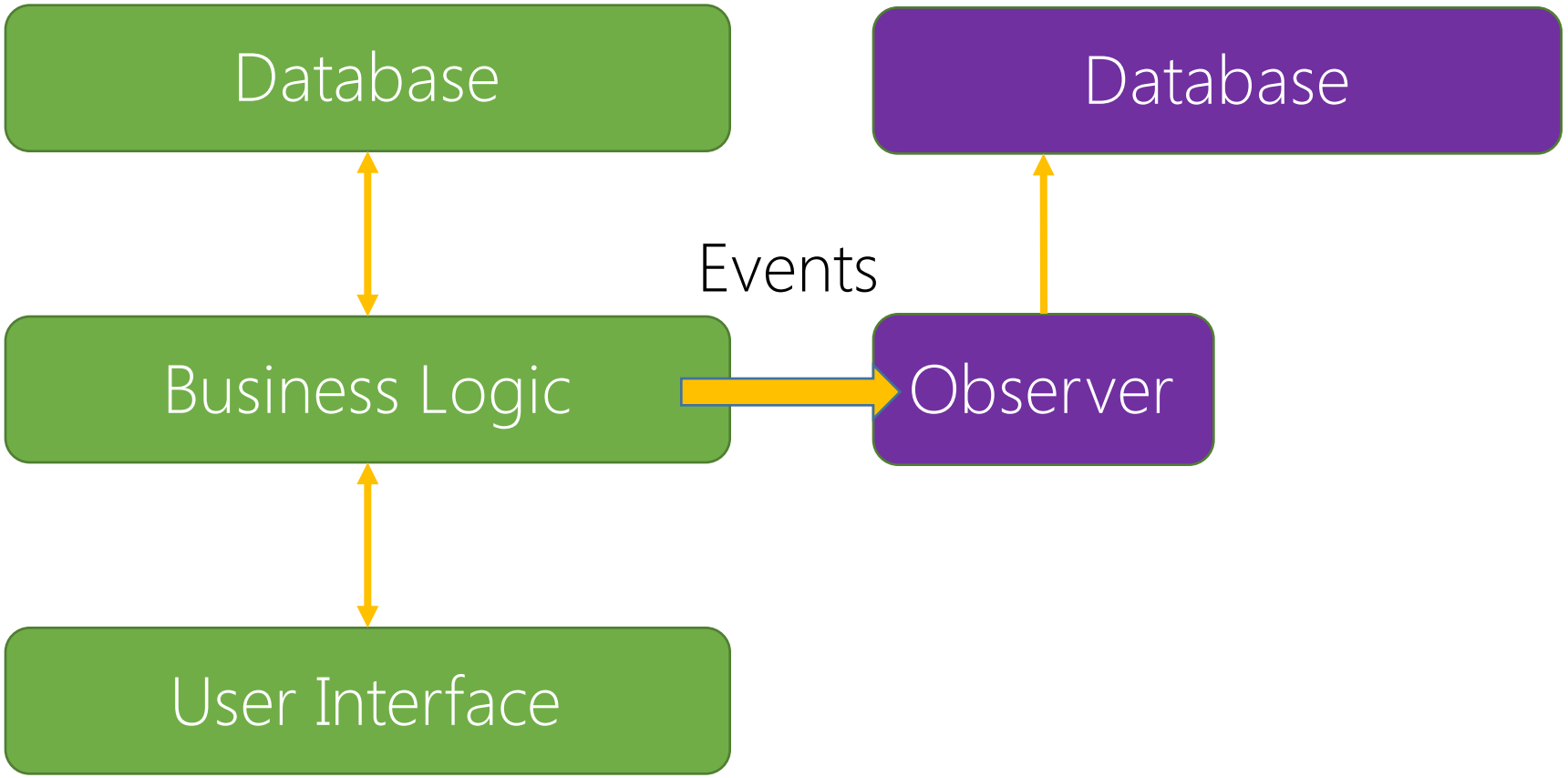
Moving to Read Model



Moving to Read Model



Moving to Read Model



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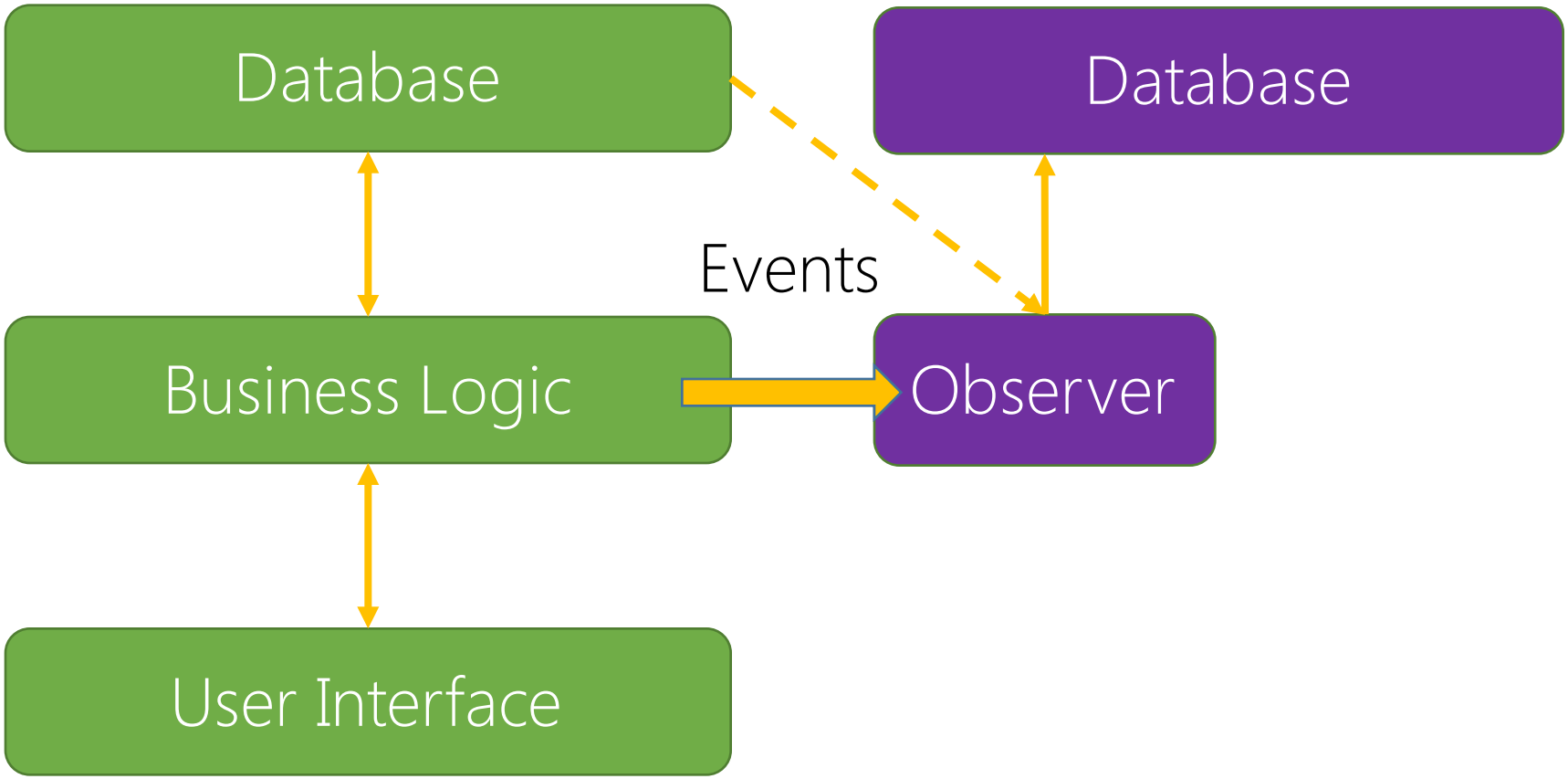

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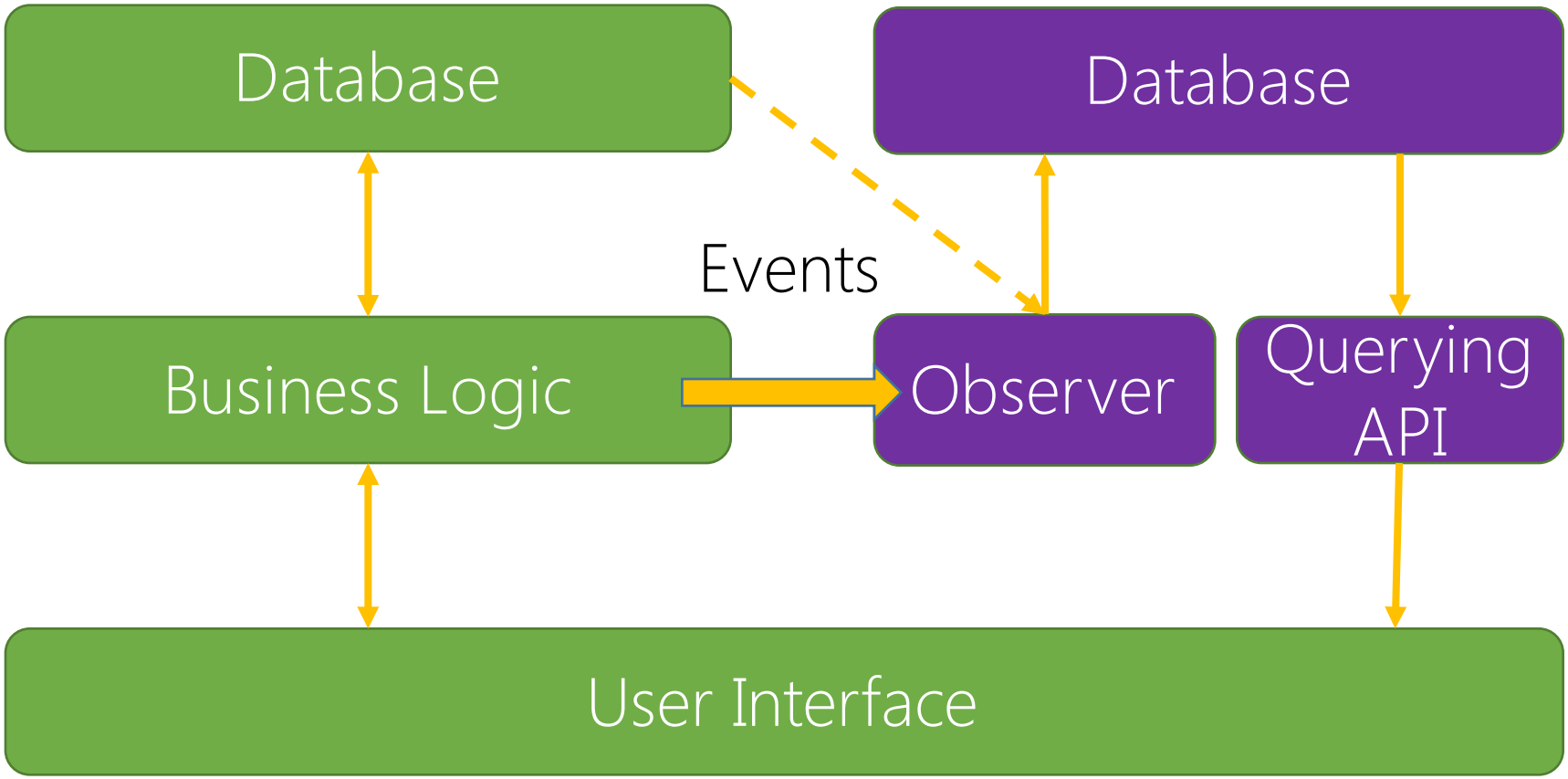
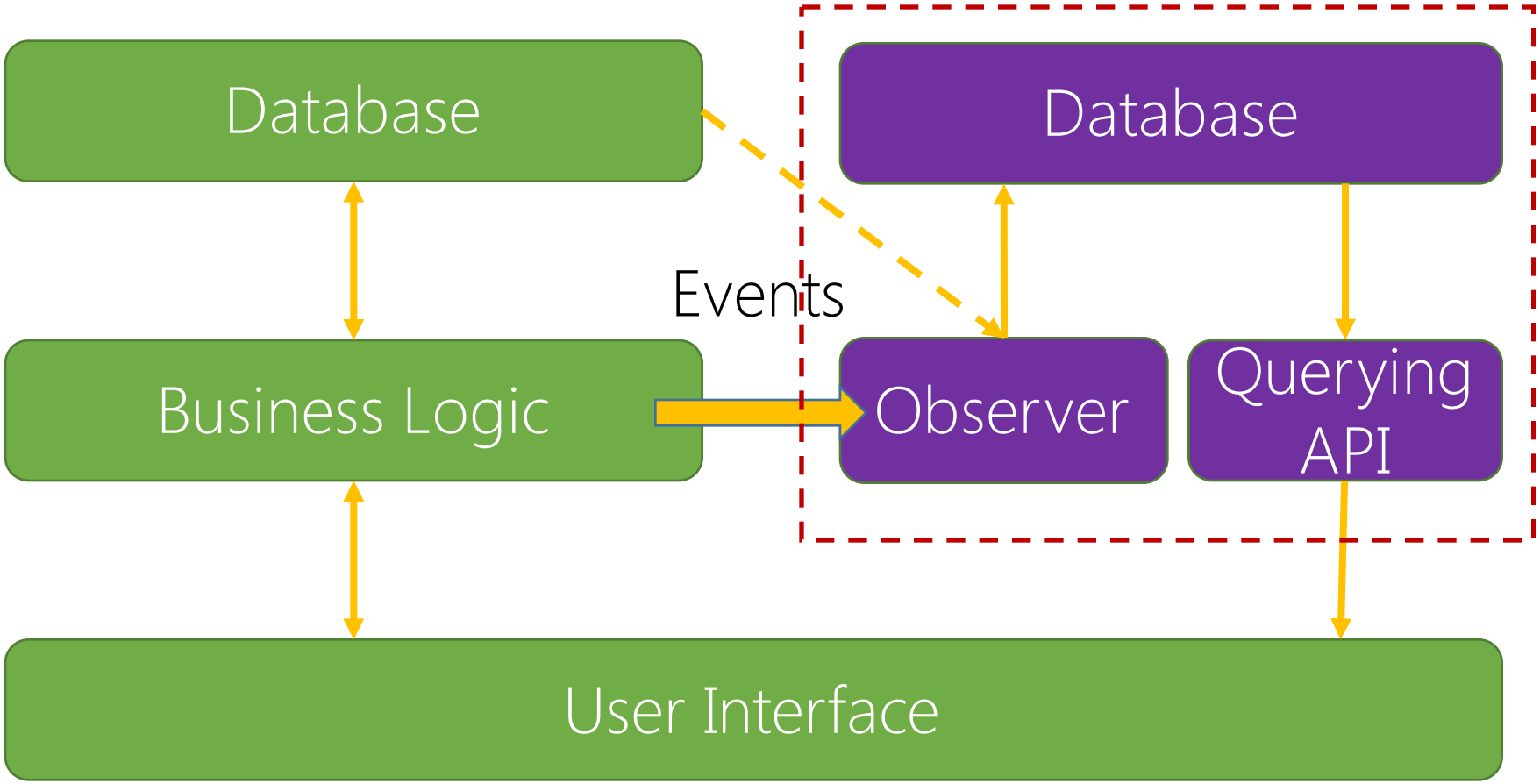


Moving to Read Model

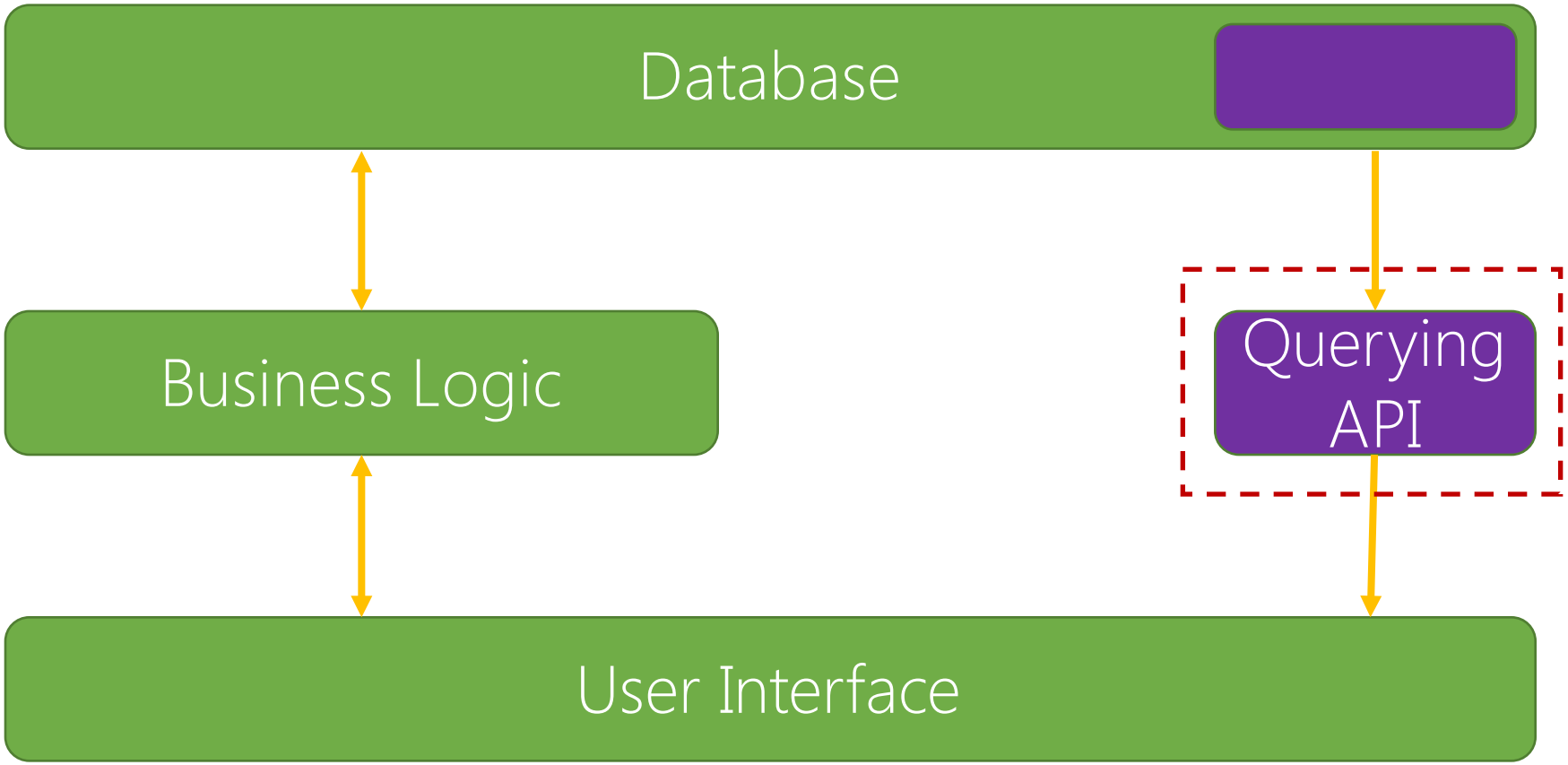
NuClear River

https://github.com/2gis/nuclear-river

NuClear River



NuClear River



NuClear River. Querying

- REST API based on OData protocol

NuClear River. Querying

- REST API based on OData protocol
- WebAPI + OData libs + EF stack

NuClear River. Querying

- REST API based on OData protocol
- WebAPI + OData libs + EF stack
- Driven by Read Model description (DSL)

NuClear River. Querying

Demo

NuClear River. Observer

- Pipeline-based

NuClear River. Observer

- Pipeline-based
- Separated facts storage

NuClear River. Observer

- Pipeline-based
- Separated facts storage
- Controls invariants when building aggregates in Read Model

NuClear River. Observer

- Pipeline-based
- Separated facts storage
- Controls invariants when building aggregates in Read Model
- Also driven by descriptions (DSL)

NuClear River. Telemetry

- Uses ELK (Elasticsearch+Logstash+Kibana) stack

NuClear River. Telemetry

- Uses ELK (Elasticsearch+Logstash+Kibana) stack
- Provides an ability to publish any tracing information

NuClear River. Querying

Demo

Profits

- High alignment with business

Profits

- High alignment with business
- Proper level of Read Model decoupling

Profits

- High alignment with business
- Proper level of Read Model decoupling
- Open standard API

Profits

- High alignment with business
- Proper level of Read Model decoupling
- Open standard API
- Performance

Summary

- Classical approach works, but not always

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- Start from business case, determine bounded context

Summary

- Classical approach works, but not always
- Start from business case, determine bounded context
- Choose the right pattern

Summary

- Classical approach works, but not always
- Start from business case, determine bounded context
- Choose the right pattern
- Use NuClear River to save costs

Thank you!

Denis Ivanov

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@denisivanov

NuClear River

https://github.com/2gis/nuclear-river

https://2gis.gitbooks.io/nuclear-river/content/en/index.html