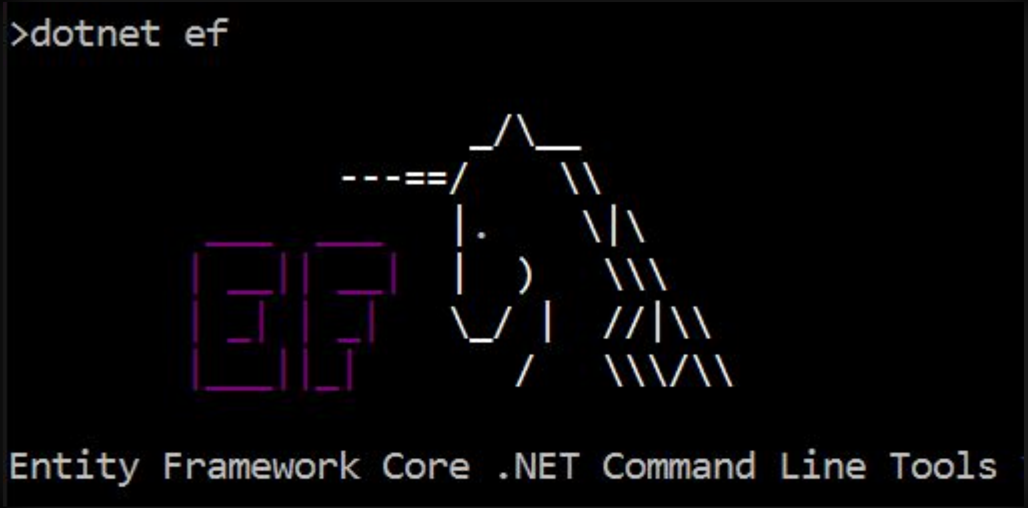
OBJECTBAY

coding for compliments

Turning PostgreSQL into an Event Store with Marten

Motivation



```
>dotnet ef

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Entity Framework Core .NET Command Line Tools
```
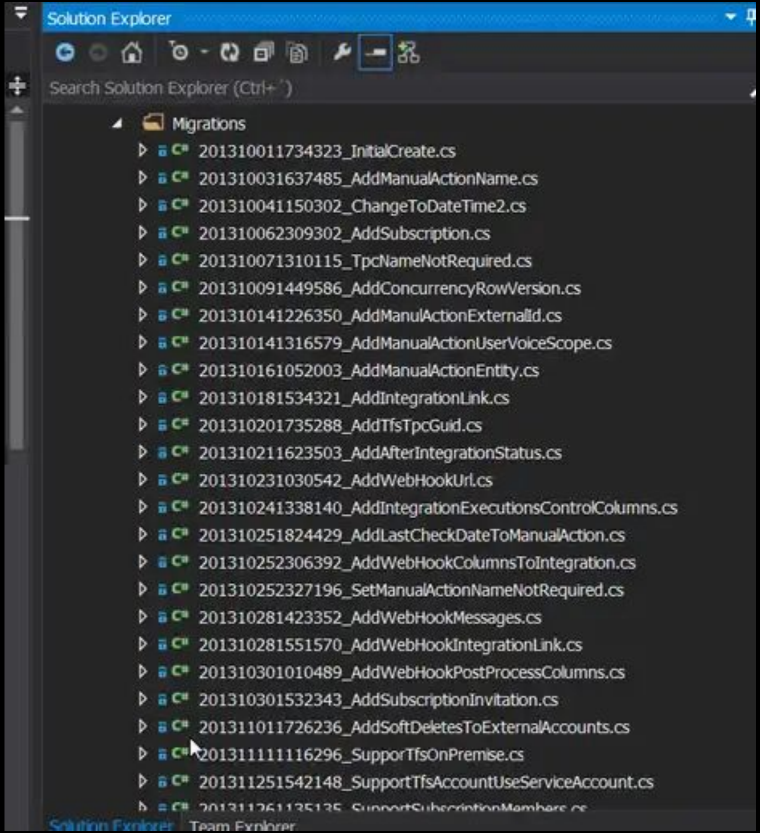
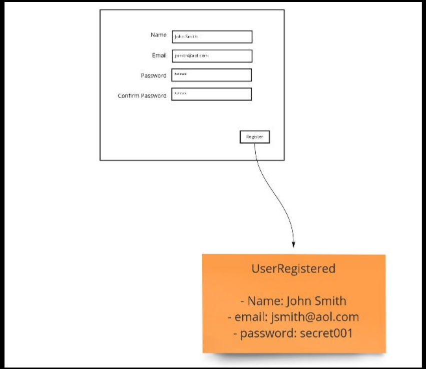

Motivation



Migrations

```
201310011734323_InitialCreate.cs
201310031637485_AddManualActionName.cs
201310041150302_ChangeToDateTime2.cs
201310062309302_AddSubscription.cs
201310071310115_TpcNameNotRequired.cs
201310091449586_AddConcurrencyRowVersion.cs
201310141226350_AddManulActionExternalId.cs
201310141316579_AddManualActionUserVoiceScope.cs
201310161052003_AddManualActionEntity.cs
201310181534321_AddIntegrationLink.cs
201310201735288_AddTfsTpcGuid.cs
201310211623503_AddAfterIntegrationStatus.cs
201310231030542_AddWebHookUrl.cs
201310241338140_AddIntegrationExecutionsControlColumns.cs
201310251824429_AddLastCheckDateToManualAction.cs
201310252306392_AddWebHookColumnsToIntegration.cs
201310252327196_SetManualActionNameNotRequired.cs
201310281423352_AddWebHookMessages.cs
201310281551570_AddWebHookIntegrationLink.cs
201310301010489_AddWebHookPostProcessColumns.cs
201310301532343_AddSubscriptionInvitation.cs
201311011726236_AddSoftDeletesToExternalAccounts.cs
201311111116296_SupporTfsOnPremise.cs
201311251542148_SupportTfsAccountUseServiceAccount.cs
201311261135135_SupportSubscriptionMembers.cs
```

Requirements

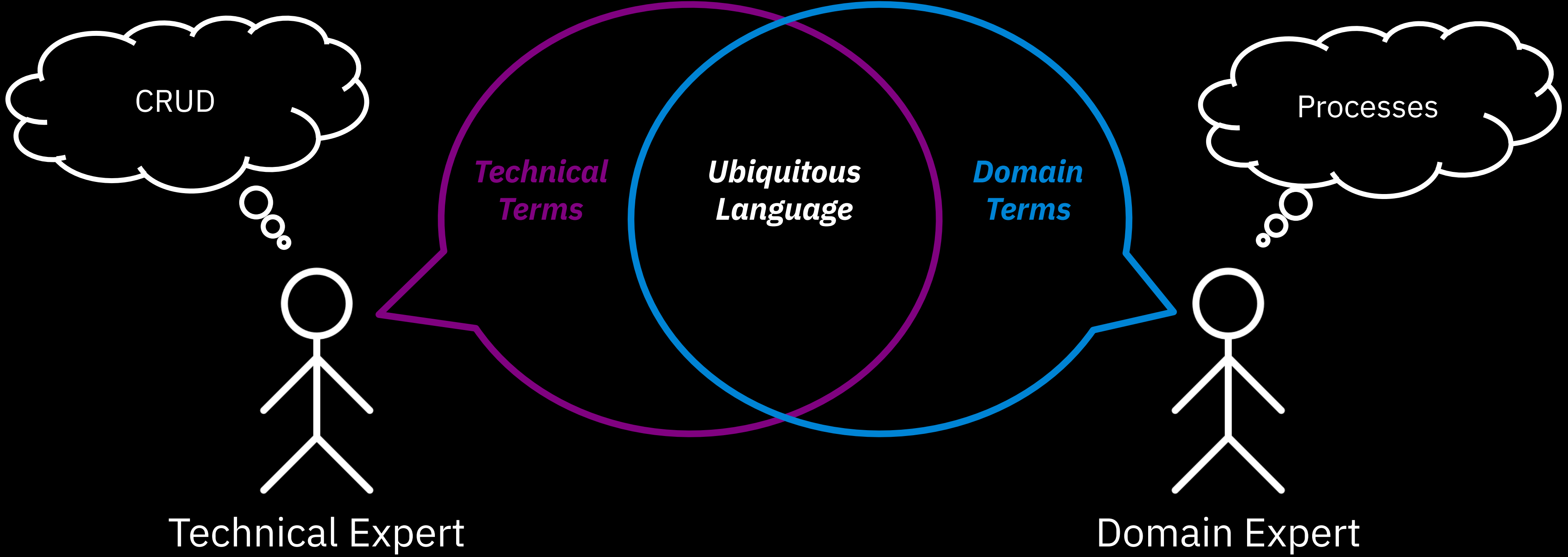


Name: John Smith
Email: jsmith@aol.com
Password: *****
Confirm Password: *****

UserRegistered

- Name: John Smith
- email: jsmith@aol.com
- password: secret001

Language


CRUD
Technical Terms
Ubiquitous Language
Domain Terms
Processes
Technical Expert
Domain Expert

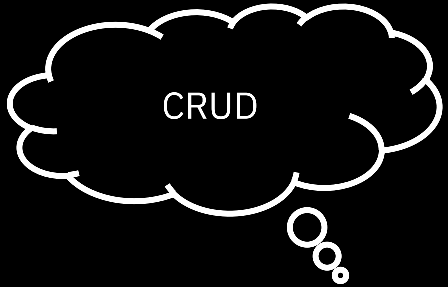
Language

CRUD

Processes

“It's developer (mis)understanding that's released in production, not the experts' knowledge”

Language



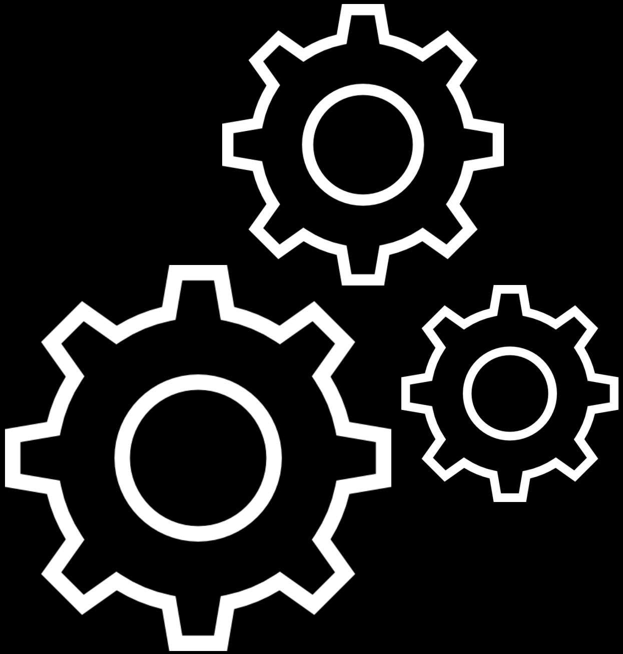
POST	CREATE
GET	READ
PUT	UPDATE
DELETE	DELETE

CREATE
READ
UPDATE
DELETE

Language of the Business is Processes

CRUD

Processes



Create Bank Account
Update Balance 150$
Update Balance 100$
Update Balance 75$

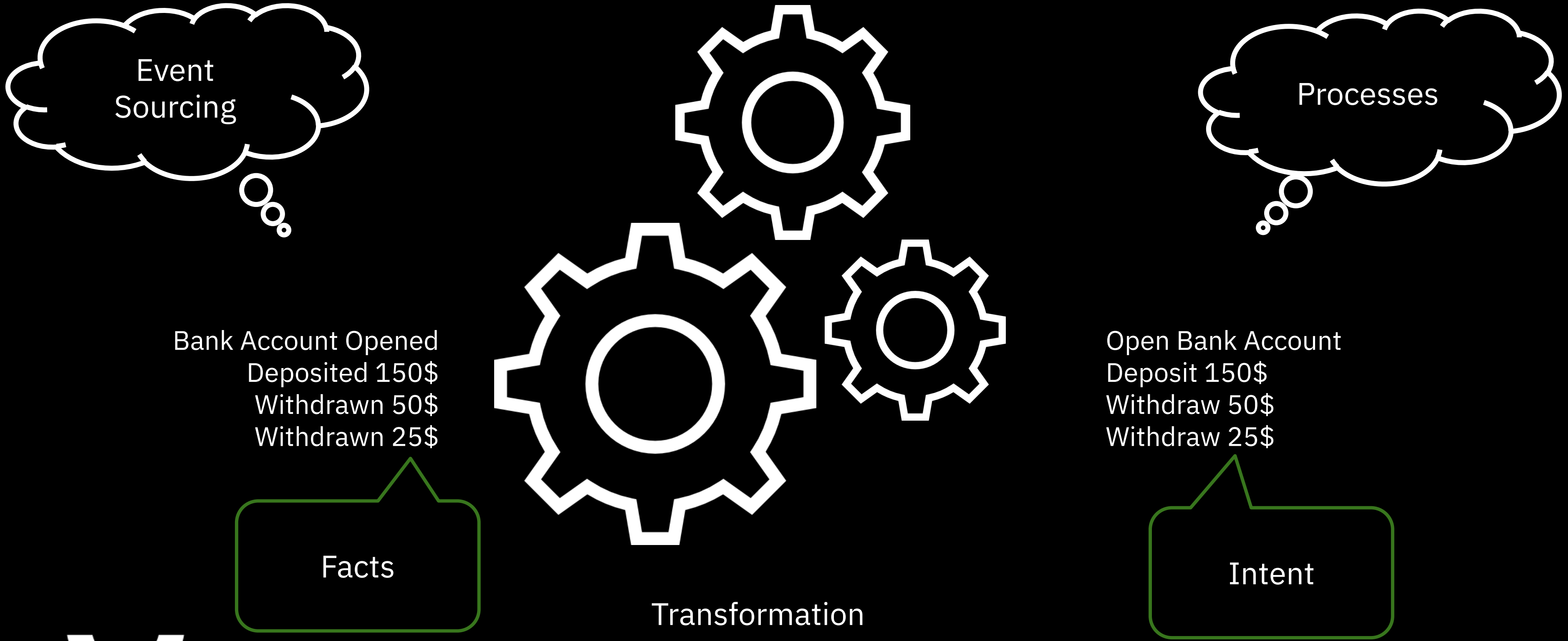
Maintaining Current State

Transformation

Open Bank Account
Deposit 150$
Withdraw 50$
Withdraw 25$

Intent

Language of the Business is Processes

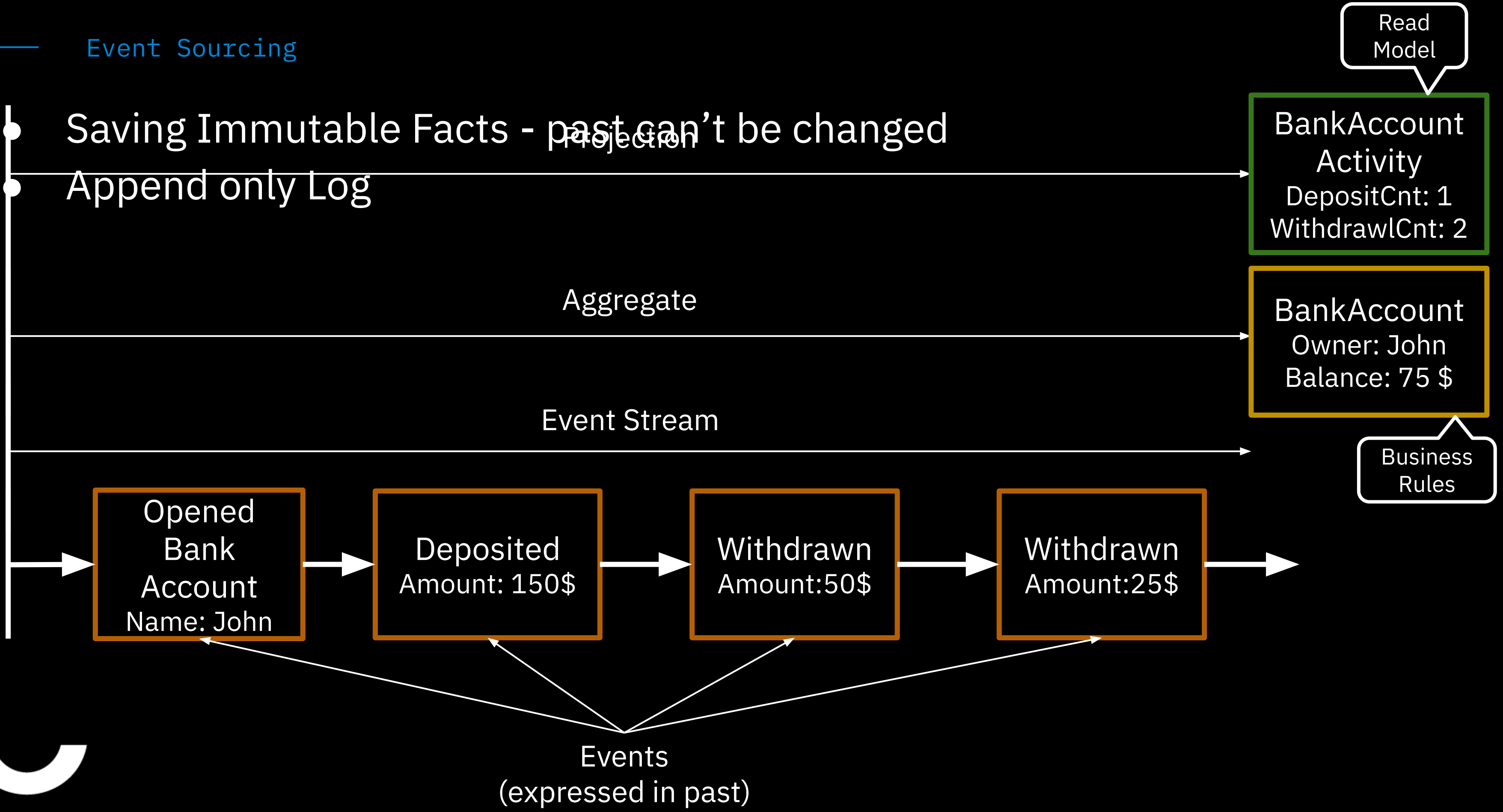


Bank Account Opened
Deposited 150$
Withdrawn 50$
Withdrawn 25$

Open Bank Account
Deposit 150$
Withdraw 50$
Withdraw 25$

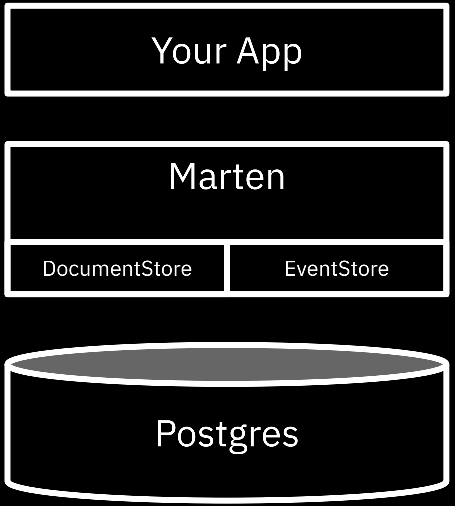
Event Sourcing

- Saving Immutable Facts - past can't be changed
- Append only Log



Marten

- Since 2015, OSS (MIT License)
- On-Top of Postgres
- Comprehensive Documentation
- Opinionated
- Offers / Combines
  - Document Store
  - Event Store
- Utilizes JSONB Support
- Handles Migrations
- Version 8 right now



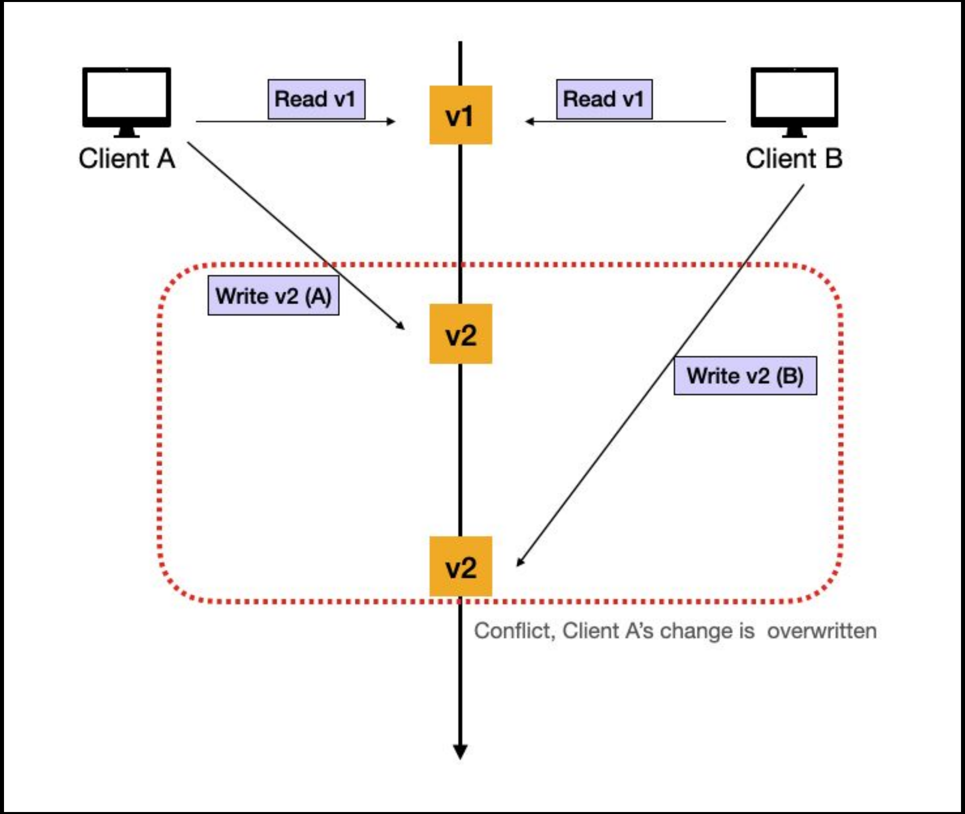
Marten

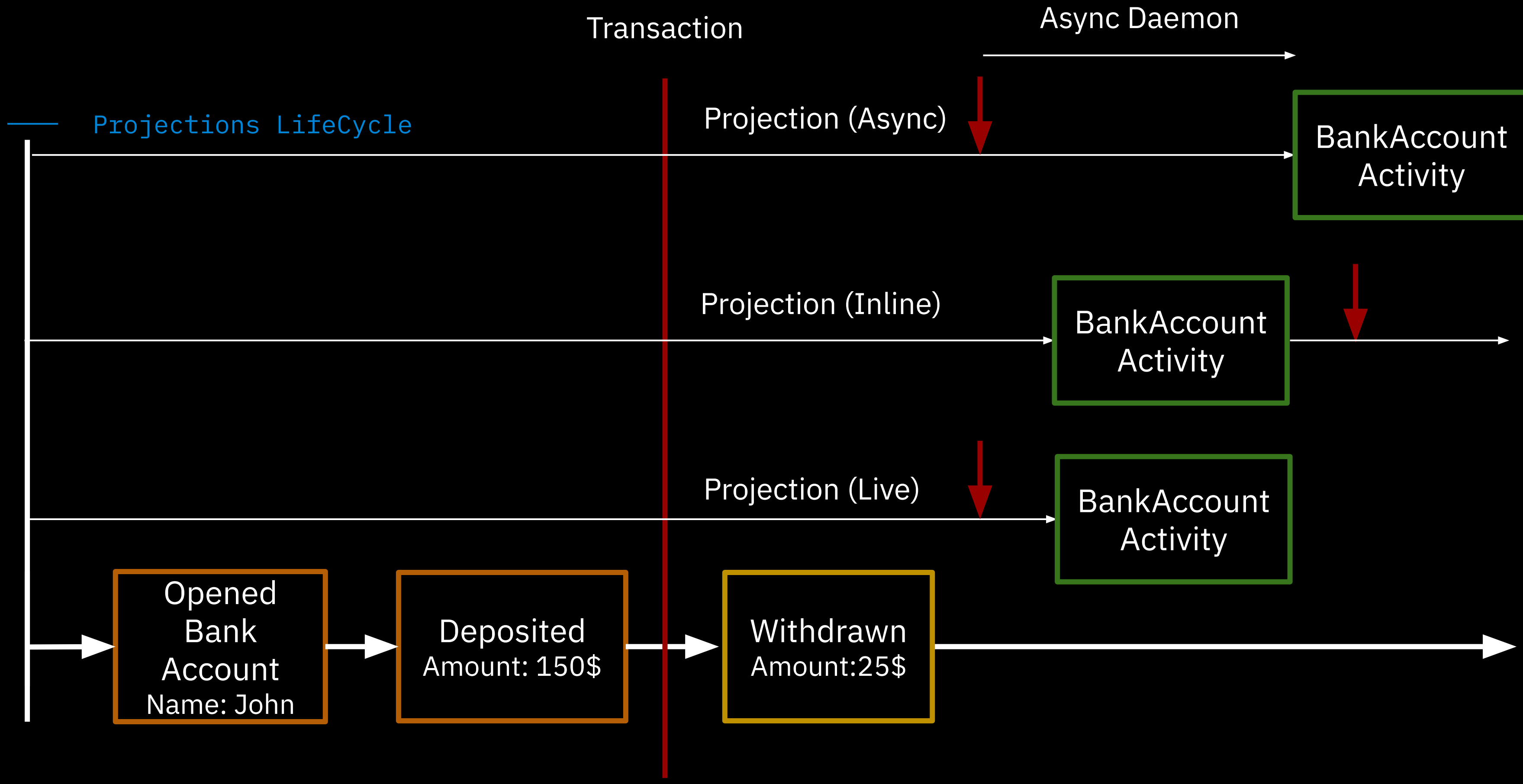
- DocumentStore (Configuration, ConnectionString)
- Unit of Work Sessions (like DbContext)
  - IDocumentSession - Read and Write
  - IQuerySession - Read-only
  - SaveChangesAsync()
- LINQ Support

Marten

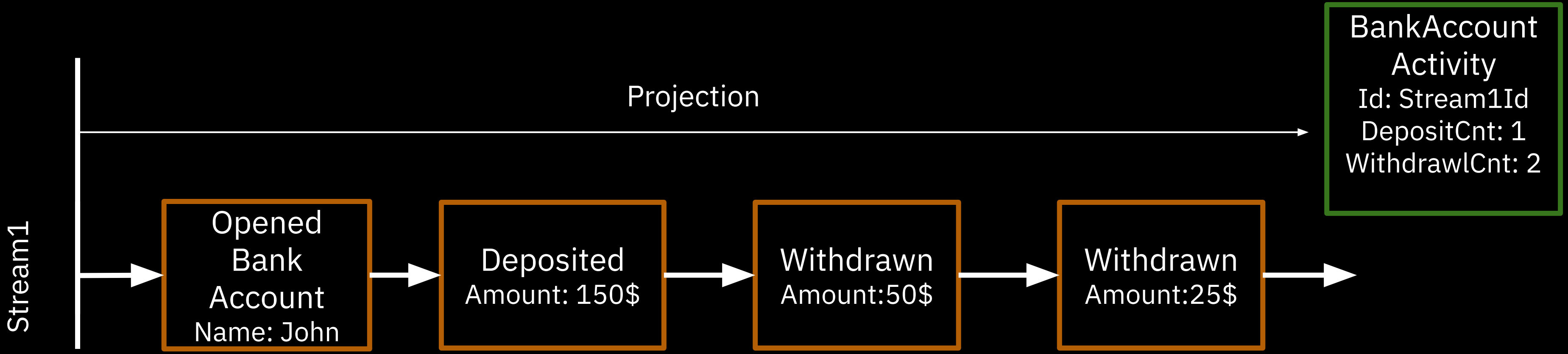
DEMO

Optimistic Concurrency

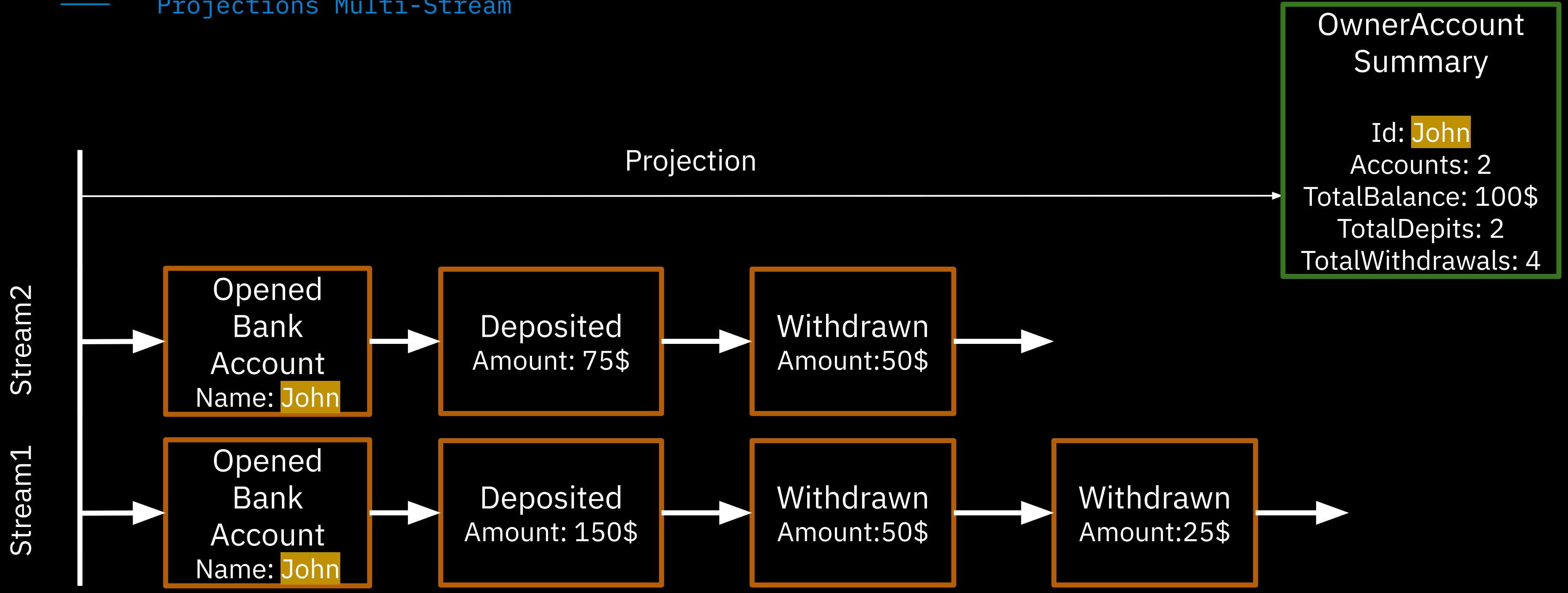



Transaction
Async Daemon
Projections LifeCycle
Projection (Async)
BankAccount Activity
Projection (Inline)
BankAccount Activity
Projection (Live)
BankAccount Activity
Opened Bank Account Name: John
Deposited Amount: 150$
Withdrawn Amount:25$

Projections Single-Stream



Projections Multi-Stream



Marten - Findings

- Business-Language down to Database
- Focus on Business
- Prepared for Future Questions
- Separation of Read and Write Model
- Read-Models in the same Database
- Rehydrate new Read-Models on demand
- Fits CQRS (Command Query Responsibility Segregation)
- Fits Vertical Slice Architecture
- Marten <-> Wolverine, a perfect match (Critter-Stack)
- Active Development / Maintenance

Marten - Findings

- Opinionated - “It’s Magic”
- Alternative concept to traditional CRUD
  - Knowledge sharing
- Data-Intensive Application considerations
- Event-/Stream-Design
- Close the Books (Archiving / Compacting)
- Read-Model Complexity and their Hydration process
- GDPR Compliance (Crypto-Shredding, Separate Table, Masking, ...)