

GOING BEYOND BUSINESS RULES WITH MORPHIR





Hi, I'm Damian Reeves

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- Scala and Programming Language Enthusiast
- Believer In & Supporter Of Open Source
- Father of Four (Three Boys and One Girl)
- Married To A Beautiful Woman Who Is A Teacher
- Blessed To Be Speaking At Functional Scala For The Fourth Time

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01 BUSINESS RULES

Oh what fun it is to write, the latest regulations!!!

MORPHIR WHILE

03 YOU WORK

Or is it whistle... whatever same difference???

02 BUSINESS RULES ENGINES

The fun just won't stop (somebody stop me).

04 Exploring Morphir

Show me something good!



INTRODUCTION

It's that time of year again, and that
certain season



INTRODUCTION

It's that time of year again, and that
certain season

Where functional programmers
give Ol' Grumpy a reason



INTRODUCTION

A reason to reflect on an old
Winter's tale



INTRODUCTION

A reason to reflect on an old
Winter's tale

Of technical rewrites and
deployments at scale



INTRODUCTION

What's that you may ask?



INTRODUCTION

What's that you may ask?

What work is so ~~eruel~~ cool?



INTRODUCTION

Join in all of Who-ville

Let's discuss business rules



What Is Your Motivation?

This green mountain
dweller wants you to
remember



What Is Your Motivation?

This green mountain dweller
wants you to remember

Not presents or dreidels this
month of December

What Better To Discuss In December!



GDPR

**General Data Protection
Regulation**
Privacy for the EU and the
Brits!



GLBA

Gramm Leach Bliley Act
Privacy regulations for US
finance firms



HIPAA

**Health Insurance
Portability and
Accountability Act!**
More US stuff about data
privacy, but for your health
information

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information

And Others... What Joy?
Hip-Hooray

Regulations And Standards Oh What A Treat!

What other kind of coding could make a developer's heart complete?

- To implement rules that must be correct
- Where bugs and misinterpretations, leave governments upset



New Tech & New Platforms?

Then reimplement...

Core rules and regulations, to whose benefit?

- Deploying to Spark... rewrite it again
- Kubernetes or Kafka... still more of the same





This Rhyming



Incessant



And Somewhat A Chore



Enjoyed It?



No Matter



I Shan't Promise More!

Tech Evolution & Business Rules

Despite the fact all organizations do it...

A tech transformation, evolution, or modernization initiative should not require you to rewrite your business rules.



Domain Driven Design

Wikipedia states:

Domain-driven design is predicated on the following goals:

- placing the project's primary focus on the core domain and domain logic;
- basing complex designs on a model of the domain;
- initiating a creative collaboration between technical and domain experts to iteratively refine a conceptual model that addresses particular domain problems.



Domain Driven Design

One More Time

For The People In The Back

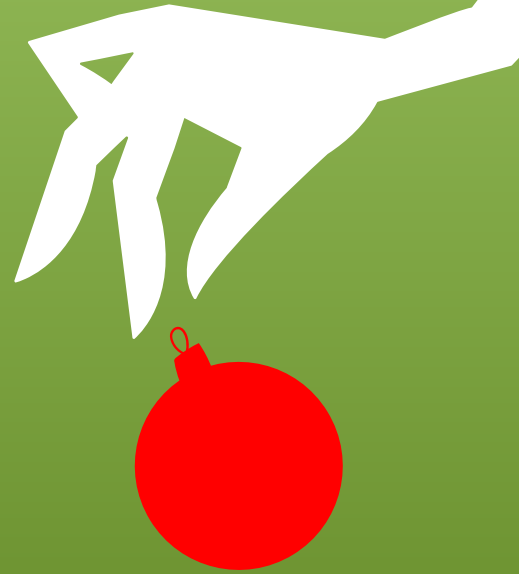
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YouR Core
Domain Is Where
The Value Exists!



The Core Domain Is Where The Value Of



Your Organization



Your Department



Your Project

Exists!



So Why Do We
Re-implement It?



So Why Do We Re-implement It?

Across Departments?

When We Change
Execution
Environments?

When We Change
Programming
Languages?

02

BUSINESS RULES Engines (BREs)



Definition Time

Gartner Defines A Business Rules Engine As

A business rule engine (BRE) is a specific collection of design-time and runtime software that enables an enterprise to explicitly define, analyze, execute, audit and maintain a wide variety of business logic, collectively referred to as “rules.” A BRE can be purchased independently or comes embedded in a business process management suite (BPMS). A BRE enables IT and/or business staff to define rules using decision trees, decision tables, pseudonatural language, programming-like code or other representation techniques.

<https://www.gartner.com/en/information-technology/glossary/bre-software>

Business Rules Engines Allow You To



Define

Script based
Declarative
Hybrid



Manage

Low/No-code
Full Platform
Source Code



Automate

Embeddable
Called As A Service
SaaS

BREs Help You
Capture The
Logic Of Your
Core Domain!



o3

Morphir

(A BRE & More)



morphir



Morphir Explained

Functional Domain Modeling

Morphir allows you to model your domain in a pure functional manner.

Open Source

Ecosystem of tools provided by FINOS a member of the Linux Foundation

Provides a Data Format

Morphir provides the MorphirIR as a data format for capturing logic.

Used In Enterprises

Used in enterprises and birthed in the Financial Services Industry

Code as Data

The MorphirIR is your code captured as data so you can inspect, transform, execute, etc.

Abstraction

Focused on abstracting business logic from execution platform and tech choices

Core Morphir Concepts



Types

Define data models, schemas, data and operational contracts



Values

Provides the ability to capture values, define functions (not just their signatures)



Modules

Encapsulate, organize, share, and distribute Types & Values

Think About Tooling Like A Compiler Pipeline



Front-End

Programming language
like: Elm, Scala, Bosque,
F#, etc
Data format like TypeSpec,
Avro, etc
Anything that produces IR.



IR

Represents your schema
and logic.
As a data format allows
transformation, filtering,
rewrites, etc.



Back-End

Generate code: Scala,
Typescript, JSON Schema,
etc
Visualize the IR
Evaluate the IR

03

Exploring Morphir



morphir



Our Story Continues...

North Pole

At the northeast of poles,
where things often get cold
A buzz arises with talk of a
heist



Our Story Continues...

North Pole

The algorithm stolen
Who'd be so emboldened
To steal lists of who's
naughty and nice



Our Story Continues...

North Pole

At such late stages
Amidst technology changes
The sentiment data to crunch



Our Story Continues...

North Pole

A trusty, wise elf
Not manning a shelf
Shares his heartfelt hunch



Our Story Continues...

North Pole

Not being nostalgic
But Morphir has the logic
Captured and stored onto
disk



Our Story Continues...

North Pole

Amidst all the changes
And versioning ranges
Someone mitigated the risk



Demo



THANKS!

To Organizers, Morphir Maintainers &
Contributors, & Capital One Associates

<https://www.github.com/finos/morphir>

<https://www.github.com/finos/morphir-scala>

<https://morphir.finos.org>

<https://www.github.com/DamianReeves/functional-scala-2023>

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