



# Building the core

Armin Pašalić, 16.09.2020, GOTOpia EUROPE 2020



# We are Solarisbank

# 300+



## Strong tech background

+45% of our staff are talented developers & digital product experts



## Unique mix of experts

A great mix of bankers, entrepreneurs and legal experts combined



## Diverse team

More than 50 nationalities working together



Solarisbank

Public



# Armin Pašalić

Social networks: @krule

Father and a husband.

With **Solarisbank** engineering for over 4 years. Most of that time spent researching, designing, building and maintaining the core-banking system.

I do things related to distributed systems, system and software architecture, domain design, testing and, in general, trying to make software nice and enjoyable to work with.



# First to the market



What is this core-banking?





core



# What is core banking?

The core banking platform is the core software component that keeps track of all accounts, funds, and money movements while acting as a connection point to the outside world through integrations with payment networks like SEPA, Target2, or SWIFT. The system also has to serve all data points necessary to fulfill the reporting requirements we have as a regulated German bank.

<https://www.solarisbank.com/blog/getting-to-the-core-of-the-matter-why-solarisbank-built-its-own-core-banking/>



batteries included





# Language

Should be ubiquitous, maybe?

I would like to make banking terminology used in this talk a bit closer to the average tech person enjoying this talk. For every term I will try to find as close equivalent as I can from our, technical day to day jargon.

I also might miss some term and if you detect it, please ask after the talk and I will try my best to explain.



SEPA

Single Euro Payments Area

Real world distributed system connecting banks and making transfers possible in Europe



BIC

Bank Identifier Code

Like a DNS record, making it possible for banks to resolve where to direct the transfers.



Bundesbank

Central Bank of Federal Republic of Germany.



but...







scalability?



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Photo by [Kev Costello](#)

reliability?



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control?

mitigation





challenge accepted





first steps



DDD

# Event Sourcing





CQRS

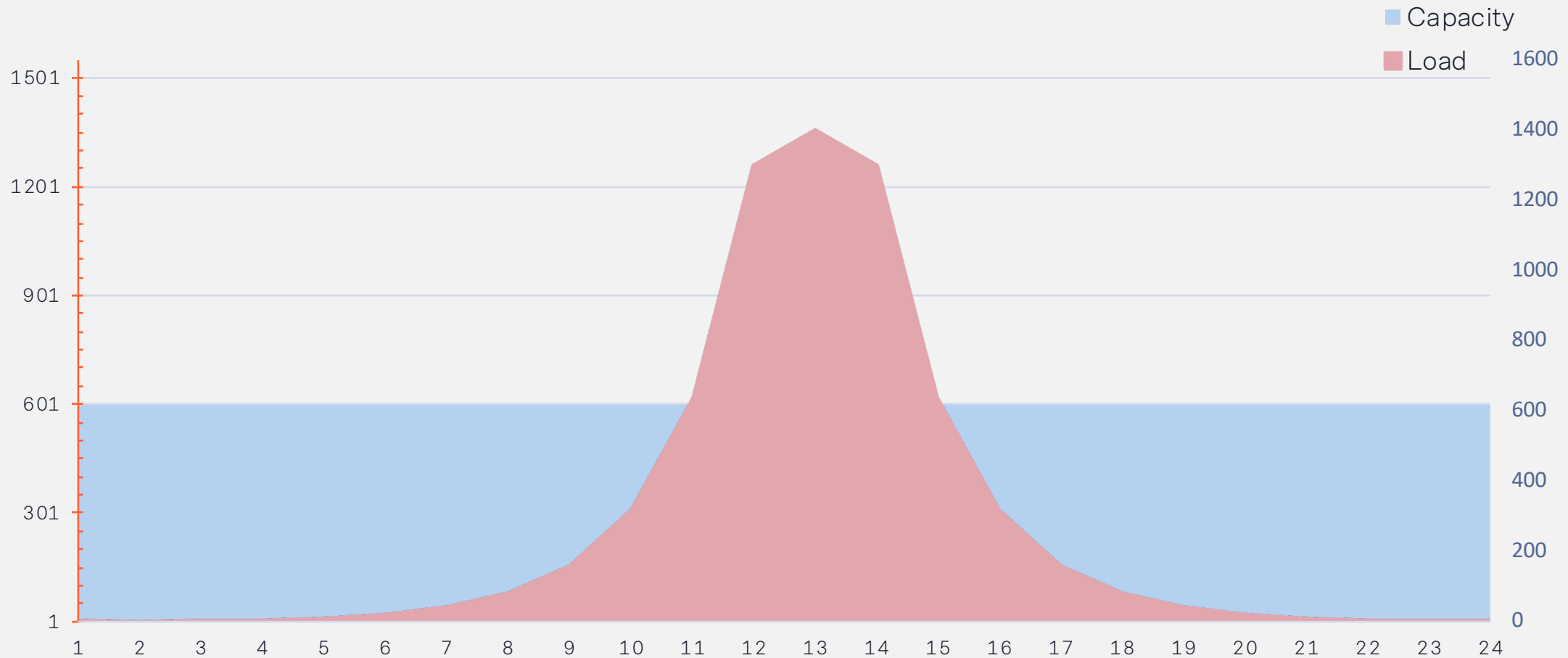


one & 1/3



# No measures in place

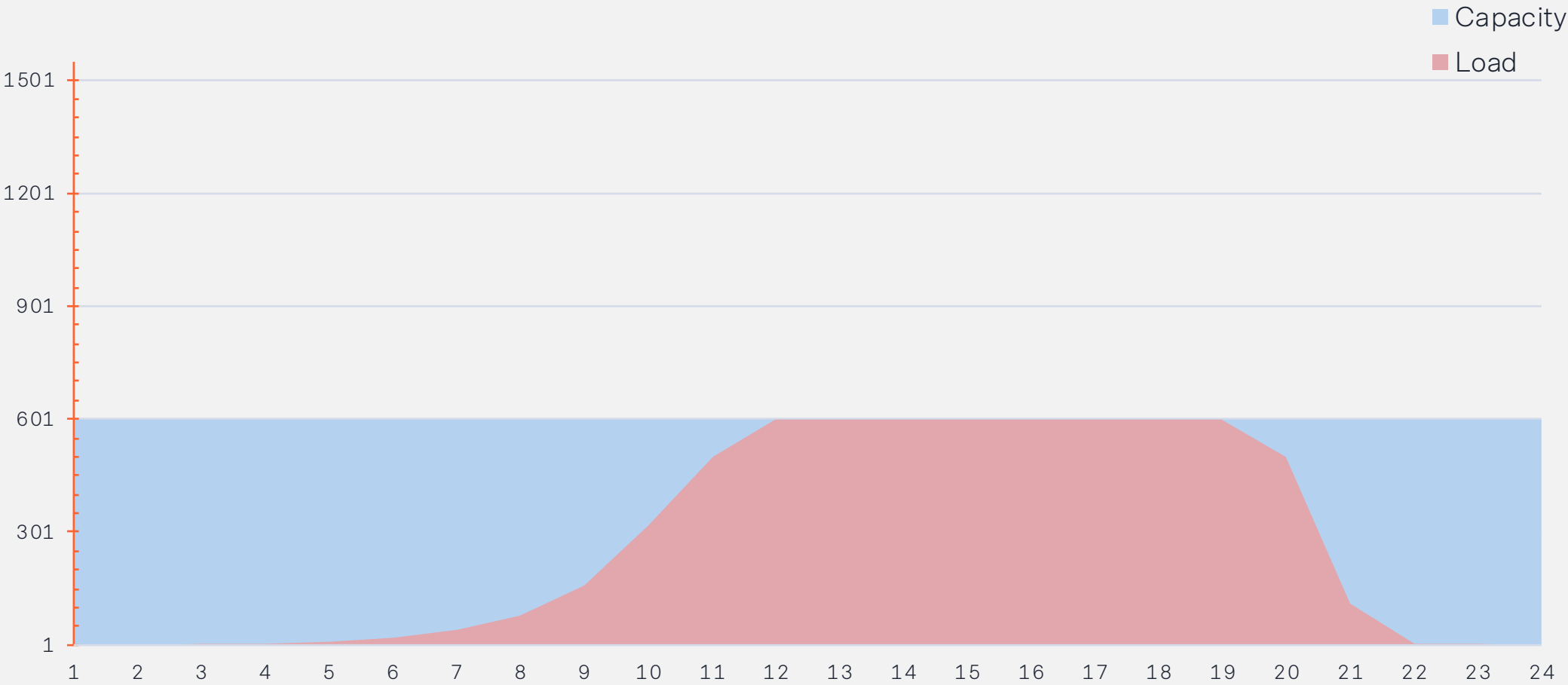
Illustration purposes only, not an actual situation...





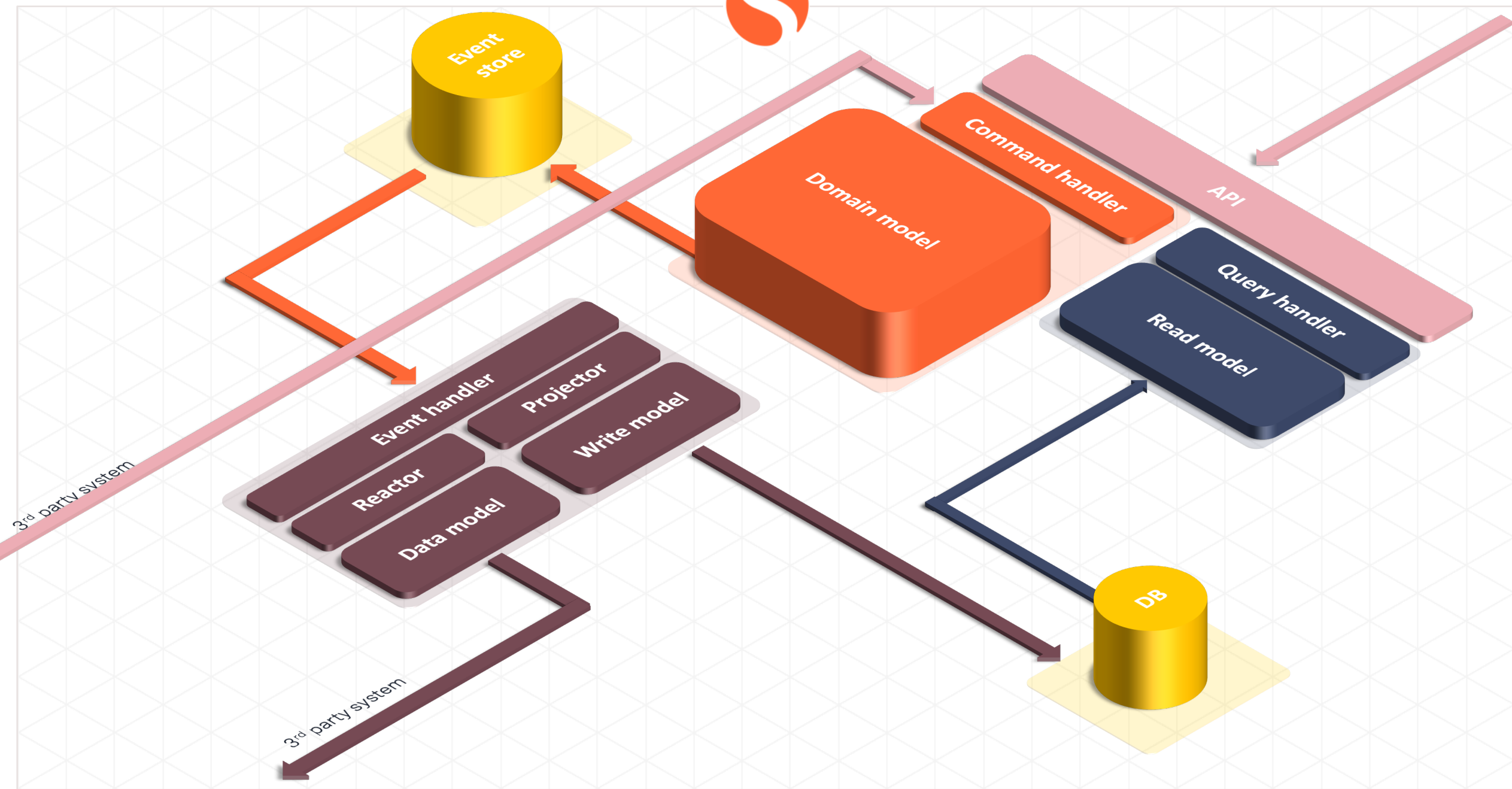
# Temporal distribution of the load

Illustration purposes only, not an actual situation...



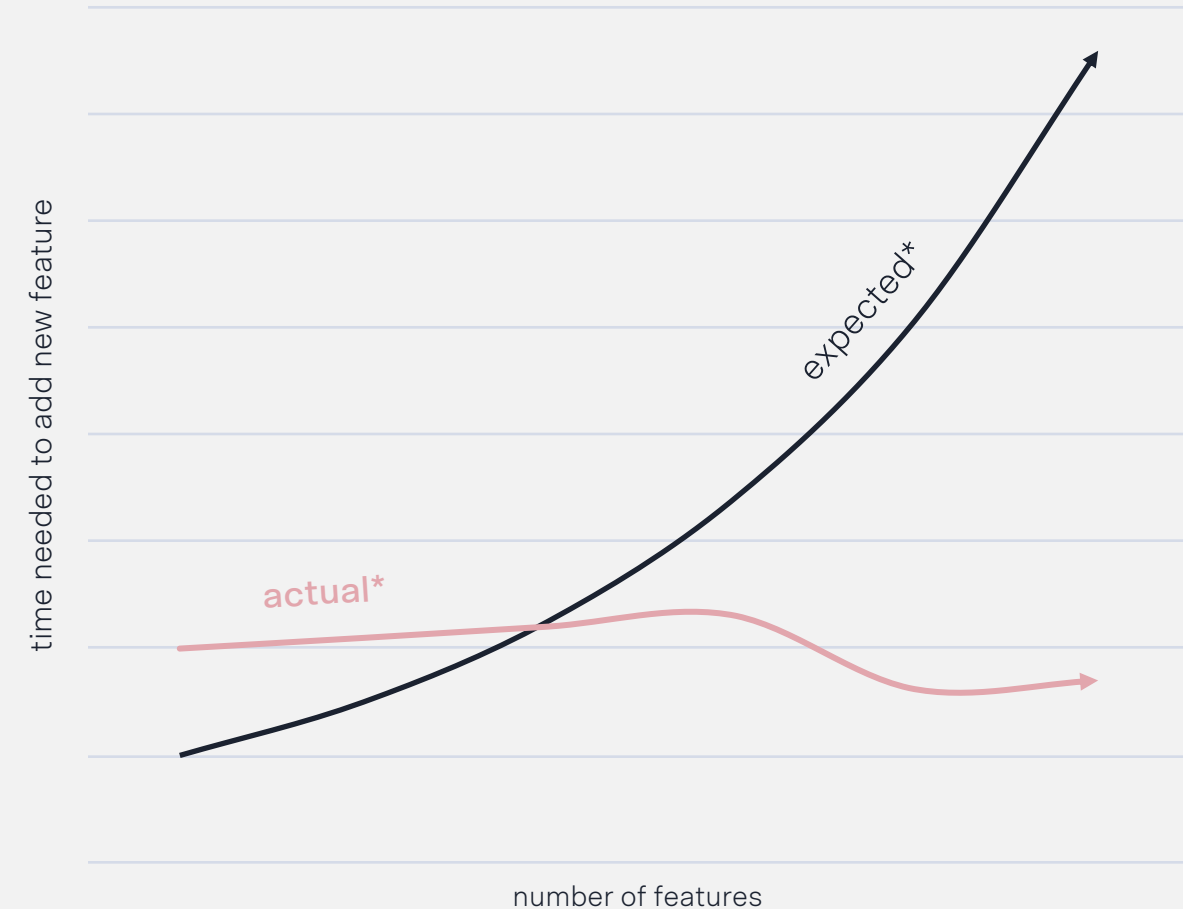
eventually consistent





# Benefits

we acquired by adding a new system

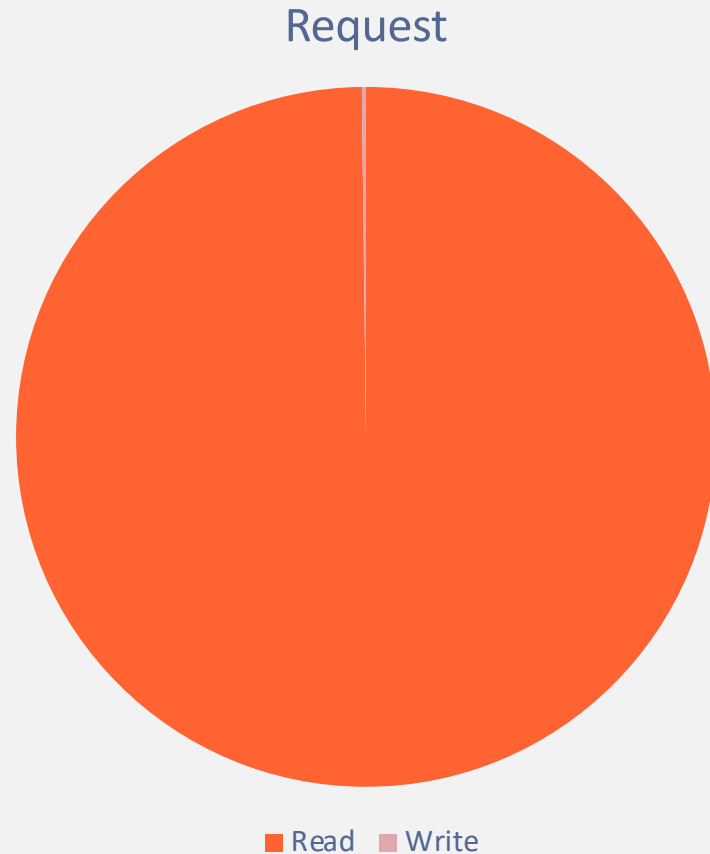


## Under control

Became **the source of truth** for the business competency in question. Adding new features was no longer nearly impossible.

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## Scalable

Ability to purposefully project data and independently scale and endpoint following request distribution patterns.



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## Under control

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## Resilient

Potential issues with the underlying system would not affect the operations of the partner facing API.

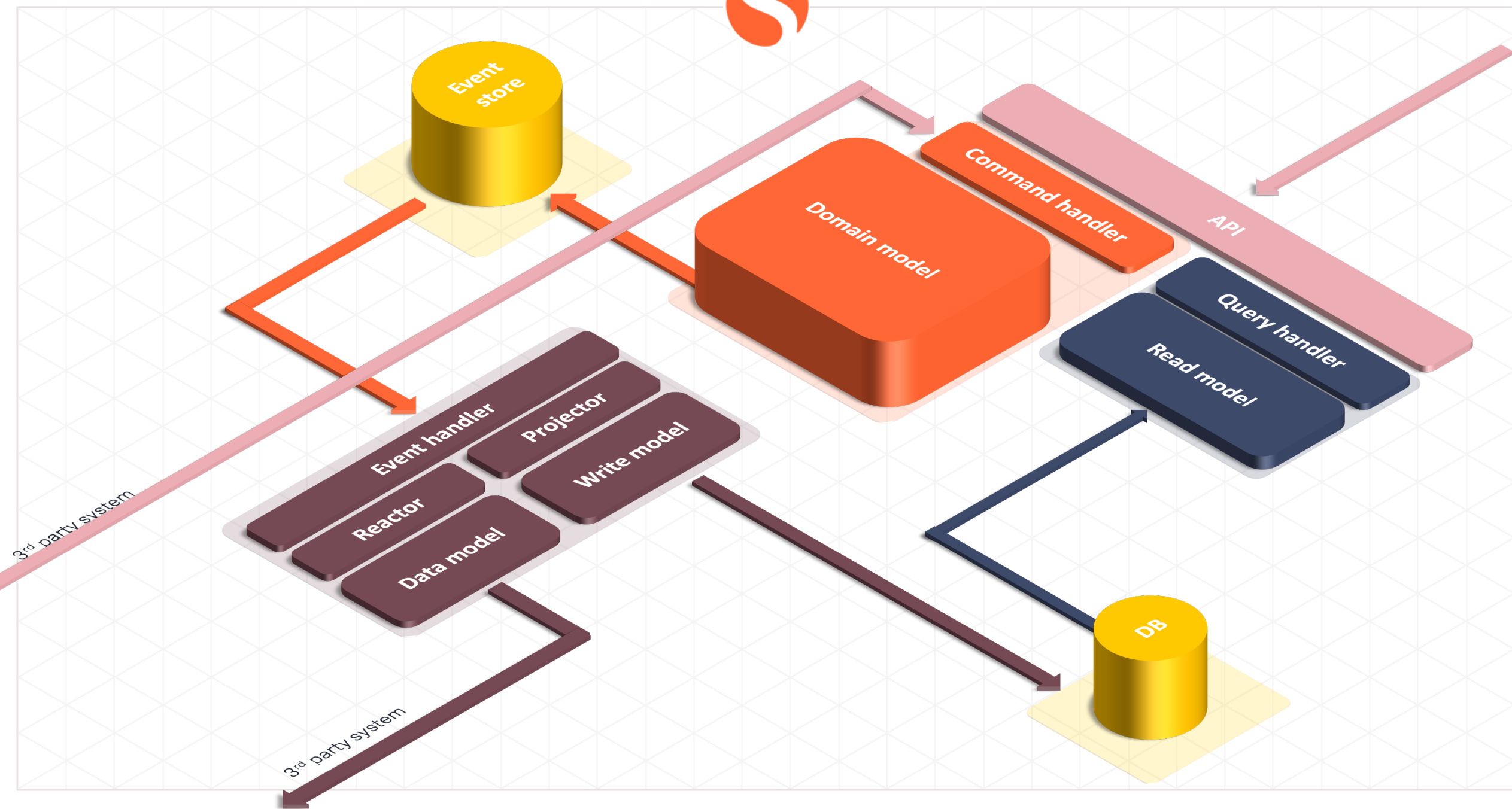


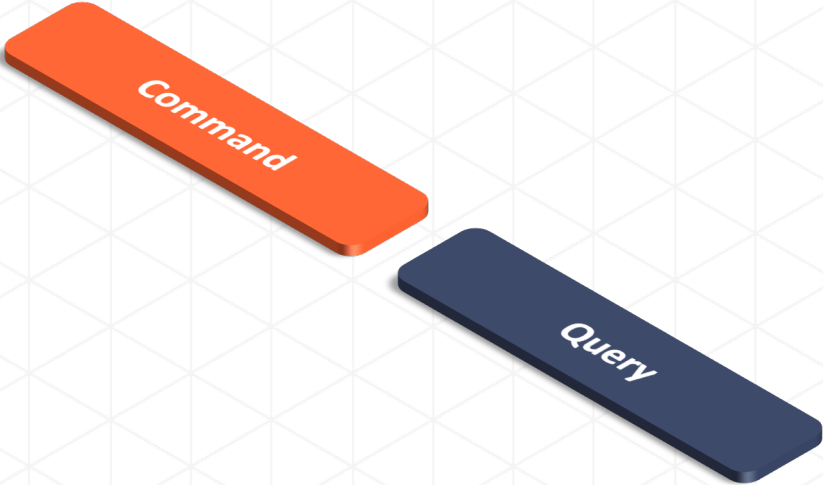
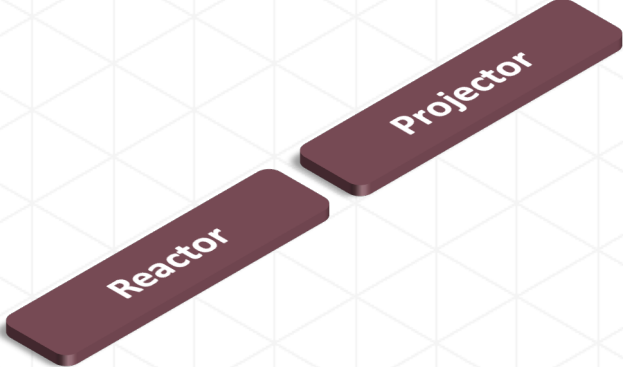
corona

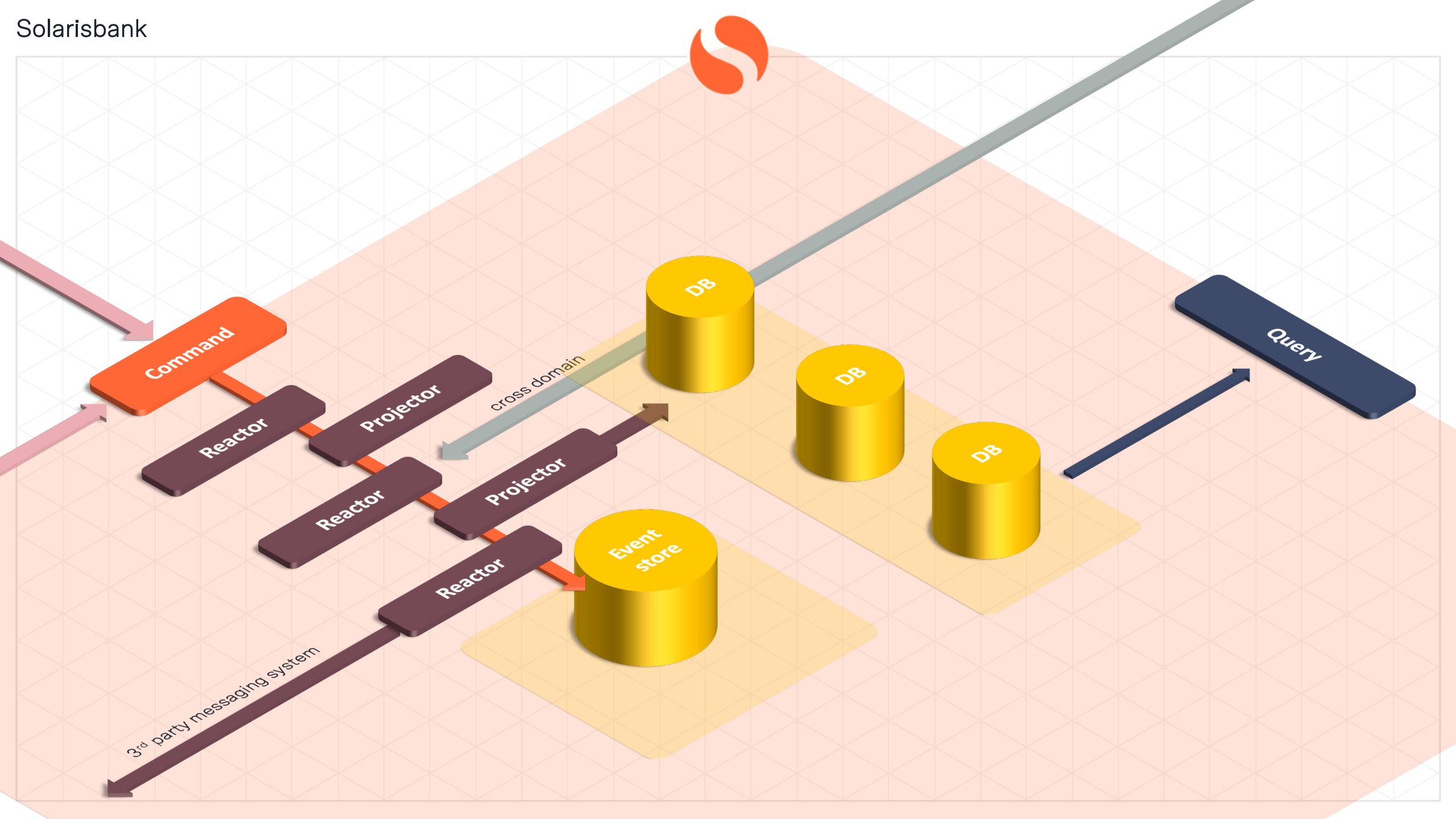


# event storming









it was not all that smooth



singletons





not always eventual





present time

new BIC code: 11010101



you build it, you run it



going live





# Small victories

some of them at least...



Photo by [Robert Collins](#)



## Able to onboard big partners

Potential partners which we might have rejected in the past due to scale concerns are now welcome on our system.



## Scalable

Internal system can move money in milliseconds between partners in our network.



## Still growing

While we still don't have all of the competencies we want, we are growing the team and building them right now.



# We are the core (banking)

# 15+



## Go & Ruby

Are the languages of choice. Emphasis on Golang.



## DDD, ES, CQRS

We are working with exciting but proven software design concepts.



## Impact

Building the plumbing of the future, today!



Photo by me :-)



# Additional links

Other, relevant links, talks and stuff

- [Getting to the core of the matter: why Solarisbank built its own core-banking system](#)
- [GOTO 2015 • DDD & Microservices: At Last, Some Boundaries! • Eric Evans](#)
- [GOTO 2014 • Event Sourcing • Greg Young](#)
- [Martin Fowler on Event Collaboration](#)
- [SEPA - by European Central Bank](#)

and one more thing :-)



Thank you!

