

# THE FRONTEND ARCHITECT

*AND HOW THEY WORK IN MODERN SYSTEMS*

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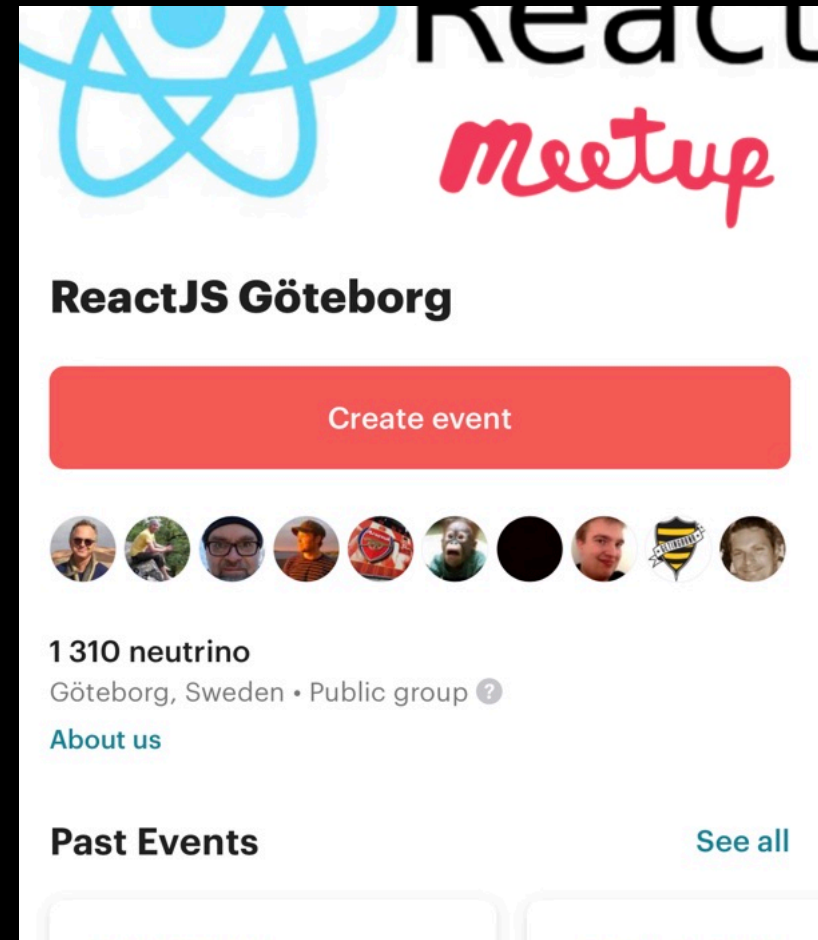
## AGENDA

- Background
- What is Architecture
- What is an Architect
- Frontend Reference Architecture
- Summary

# BACKGROUND

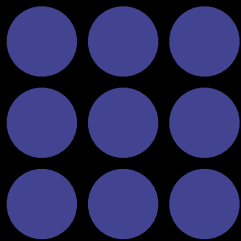
## BACKGROUND

- React Meetup
- *Devops for design: Using Figma to support continuous design* - Mikael Vesavouri ( Polestar )
- *Equitable Development: Understanding the dynamics of FE engineering teams* - Jack-Edward Oliver ( Cloudbees )
- Maturing ...
- Reducing Complexity
- Learning



## BACKGROUND - ENTROPY

- The communication edges of a FE team.
- Reducing **Complexity**
- Mitigating **Entropy**
  - *Lack of order or predictability; gradual decline into disorder*

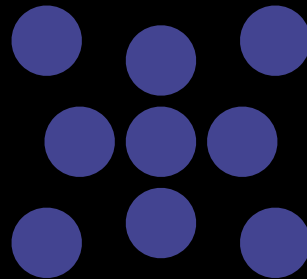


ENTROPY



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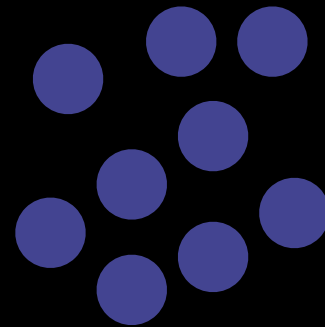


ENTROPY



## BACKGROUND - ENTROPY

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ENTROPY



## BACKGROUND - ENTROPY

We can use the analogy of a teenagers' bedroom. If no energy or work is put in, the room quickly becomes messy and disordered and has a high level of entropy.

**ENERGY**





## BACKGROUND - ENTROPY

But... if you put energy back into containing entropy you can start reducing entropy.

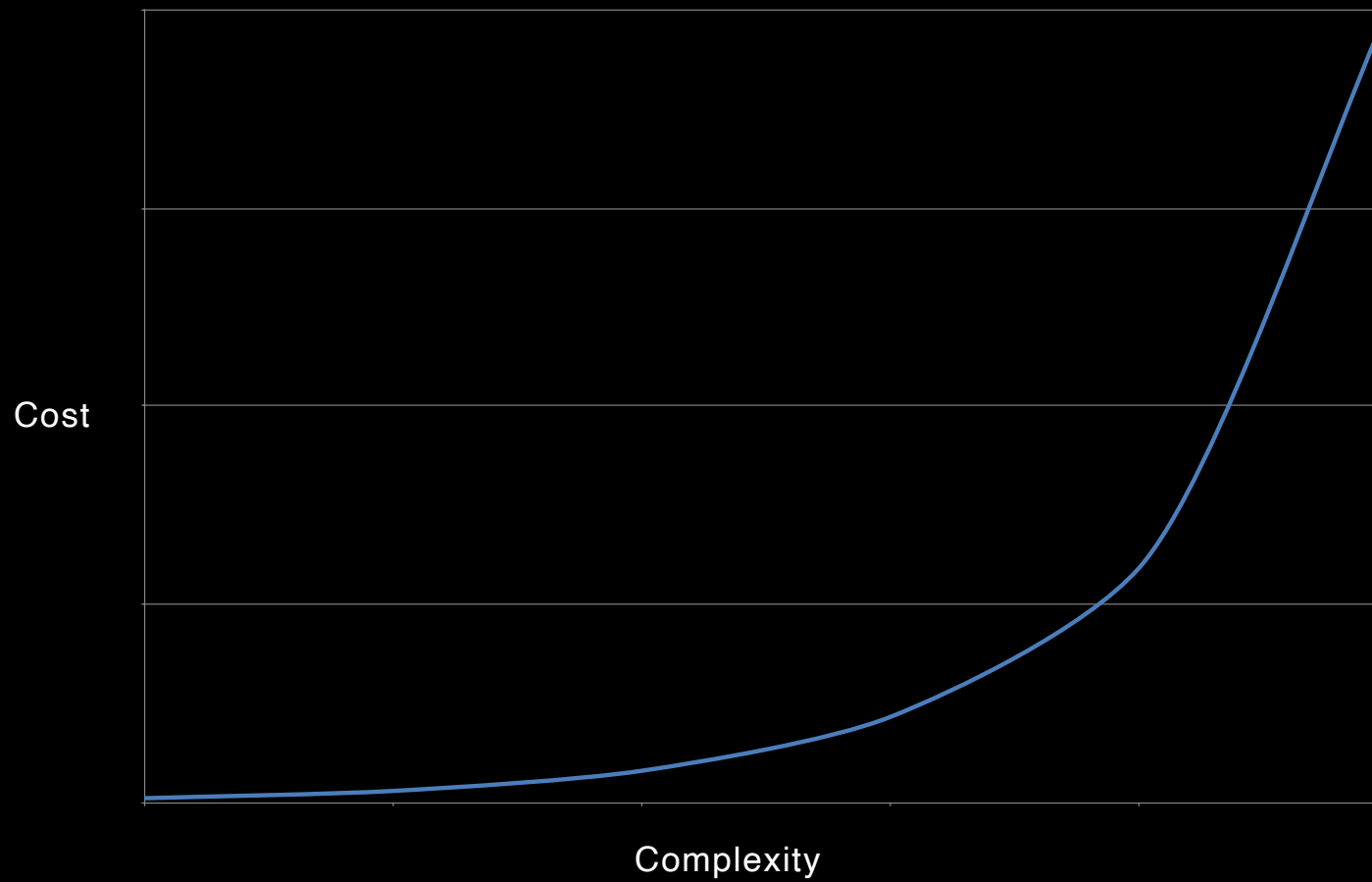
And, end up with an Ikea catalogue bedroom!

- The Architect is the *house keeper* of our system, the *boy scout*, *cleaner upper*.

ENERGY

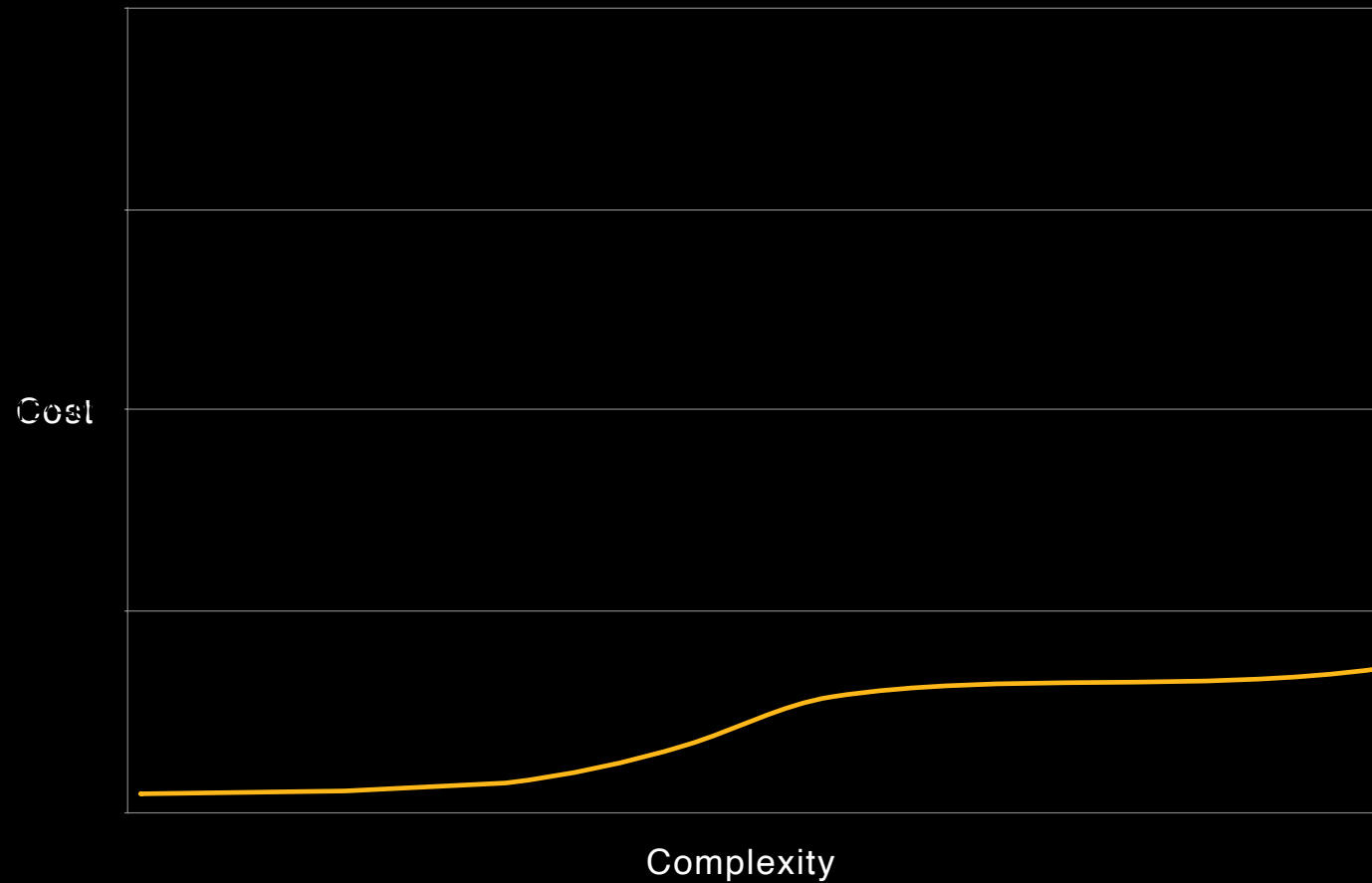


## BACKGROUND - COST VS COMPLEXITY



## BACKGROUND - ENTROPY

- If we put energy back, we reduce complexity, we reduce cost!



## BACKGROUND - SUMMARY

- We want to write bug free well functioning software!
- We want to
  - reduce complexity
  - Reduce costs
- Change comes at a cost, be prepared for entropy!
  - How do we maintain quality while minimmizing complexity ?

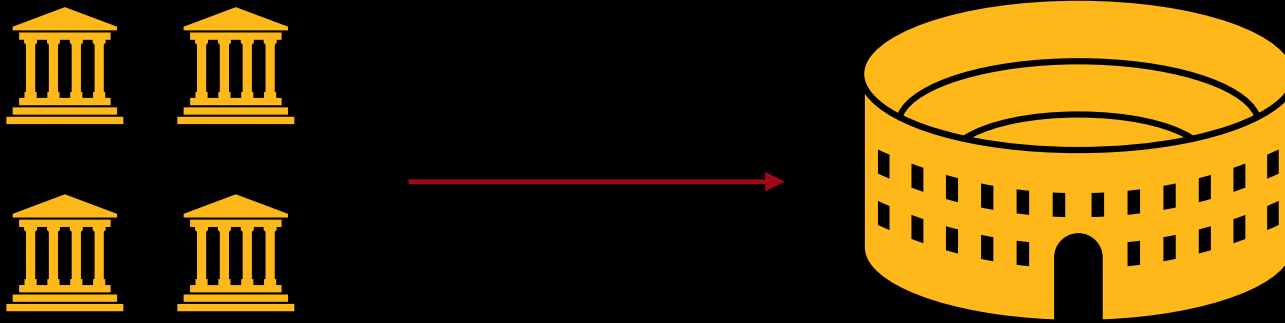
# WHAT IS ARCHITECTURE

## WHAT IS ARCHITECTURE

- It's a set of structuring principles that enables a system to be comprised of a set of simple systems
- Small composable units of **structure**, **behaviour** with **interfaces**
- These units can be composed into larger systems

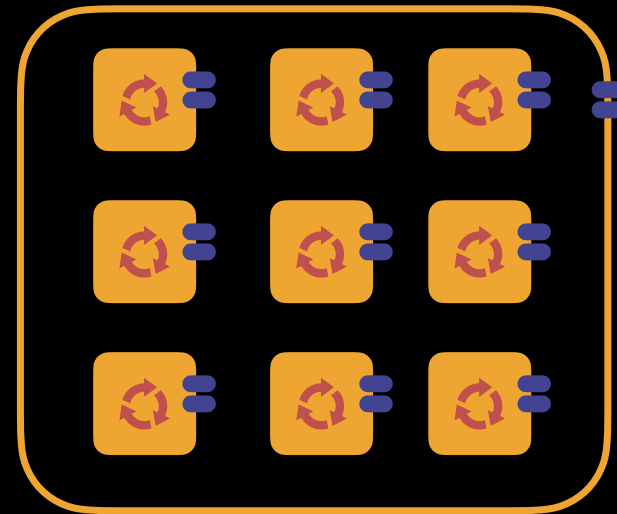
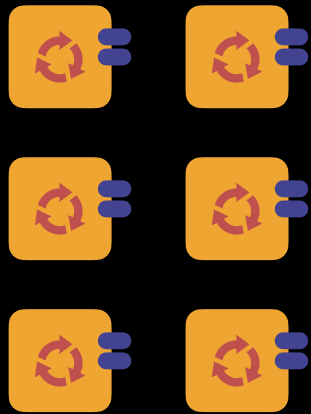
## WHAT IS ARCHITECTURE - STRUCTURE

- Small composable units of **structure**



## WHAT IS ARCHITECTURE

- Small composable units of **structure**, **behaviour** with **interfaces**
- Software architecture is not set in stone, it's **changeable**, **malleable**, **tangible**





# WHAT IS AN ARCHITECT

## WHAT IS AN ARCHITECT

- The ideal architect should be a person of letters, a *mathematician*, familiar with *historical* studies, a diligent student of *philosophy*, acquainted with music, not ignorant of medicine, learned in the responses of *jurisconsults*, familiar with *astronomy* and *astronomical calculations*.

- VITRUVIUS, CIRCA 25 BC



## WHAT IS AN ARCHITECT - CHARACTERISTICS

- Well-rounded
- Working knowledge of the business and tech
- Broad knowledge of Technology
- Mature
- Experienced
- Educated
- Learns quickly
- A leader
- Communicates well
- Can make difficult decisions when necessary

## WHAT IS AN ARCHITECT - VS DEVELOPER

*THE DEVELOPER IS CONCERNED WITH WHAT HAPPENS WHEN A USER PRESSES A BUTTON*

Press me



## WHAT IS AN ARCHITECT - VS DEVELOPER

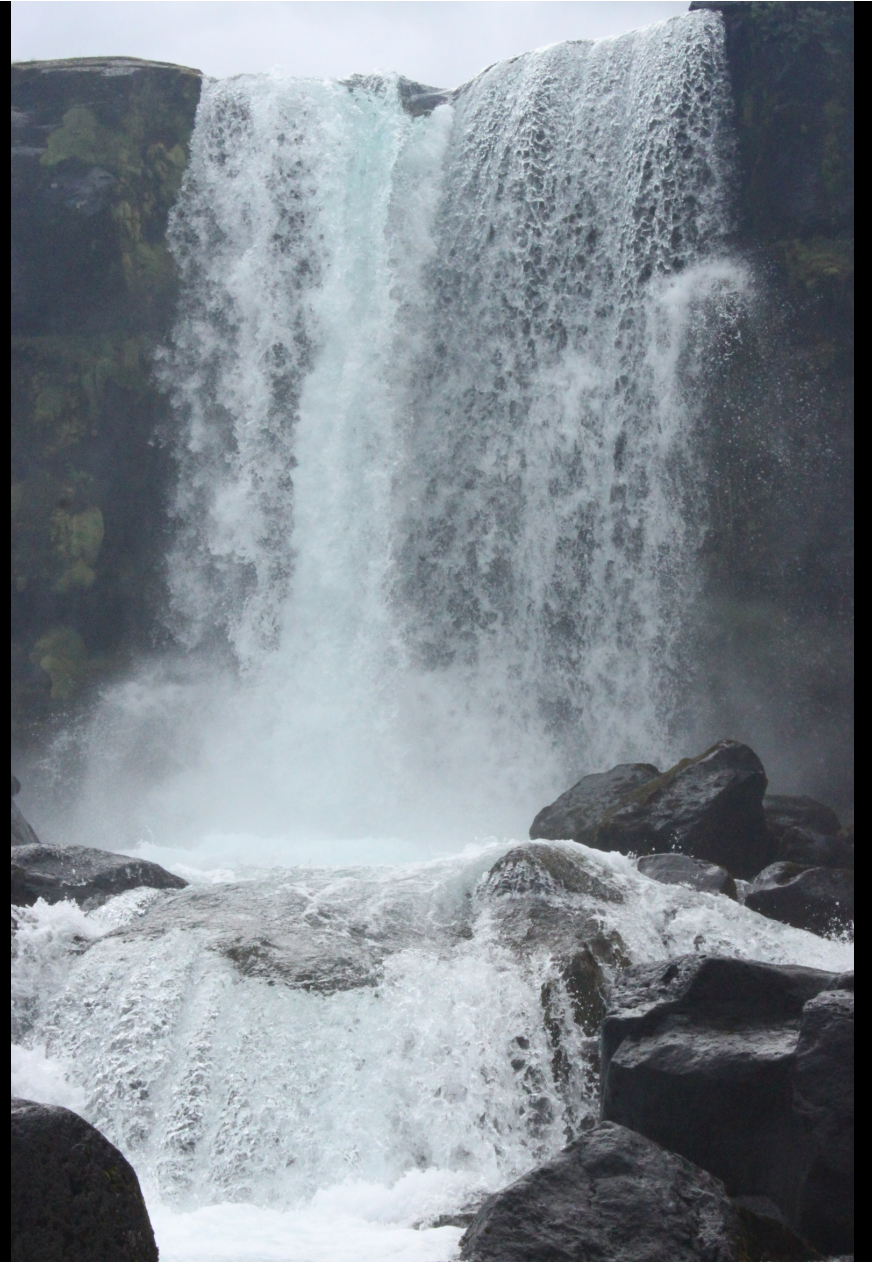
*THE ARCHITECT IS CONCERNED WITH WHAT HAPPENS WHEN 1000 USERS PRESS THE BUTTON!*



# THE PROCESS

# WHAT IS AN ARCHITECT - STRUCTURE

## STRUCTURE



# WHAT IS AN ARCHITECT - WATERFALL

## STRUCTURE



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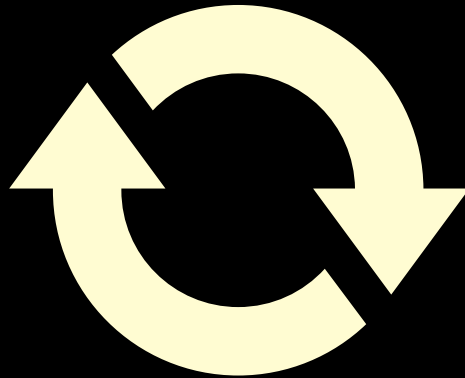


**EMBRACE CHANGE**

*BUT LEARN HOW TO MANAGE IT*

# WHAT IS AN ARCHITECT - WHAT WE DO

STRUCTURE



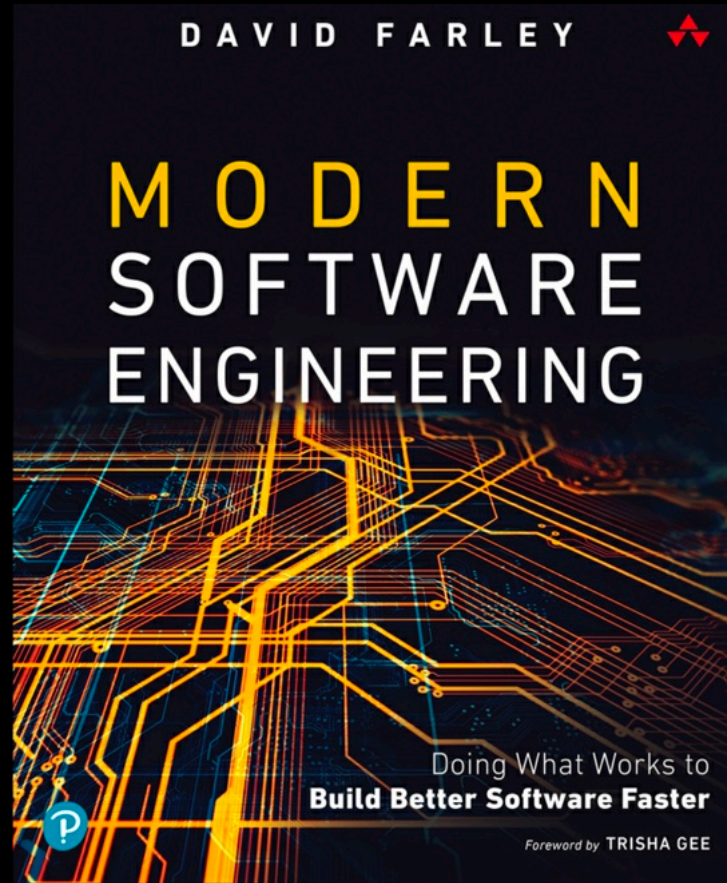
BEHAVIOUR

INTERFACE

## WHAT IS AN ARCHITECT - WHAT WE DO

- Create software architecture
- A software infrastructure that addresses service level requirements that satisfy the business requirements and features.
- Communicates decisions
- Provide Inspiration
- Guidance
- Mitigate risk
- Reduce complexity
- Makes everyone happy ...?

# WHAT IS AN ARCHITECT - DAVID FARLEY



*WE WANT TO WRITE BETTER SOFTWARE QUICKLY*

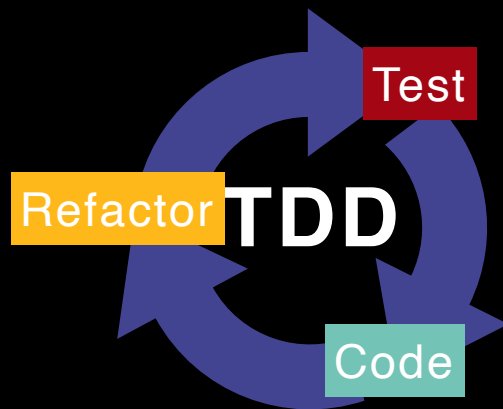
*NOT WORSE SOFTWARE SLOWLY*

## WHAT IS AN ARCHITECT - DAVID FARLEY

- Expert Learners
- Iterations
- Feedback
- Incrementally
- Empirical
- Experimental



- Experts at Managing Complexity
- Modularity
- Cohesion
- Separation of concerns
- Abstractions
- Coupling



## BACKGROUND - COMPLEXITY

- Accidental Complexity
  - Networks
  - Persistence
  - Concurrency
  - API's
  - The complexity of the computer and it's environment
- Essential Complexity
  - Inherent in solving the problem
    - » Algorithms
    - » Calculations
    - » Addition of an item to a shopping cart
  - Bad code ...

**ORGANISATION**

**EXTERNAL**

**PARTNERS**

**TECHNOLOGY**

**TEAM**

**SUPER STAR**

**DEVELOPERS**

## **BACKGROUND - COMPLEXITY**

- Accidental Complexity

**ORGANISATION**

**EXTERNAL**

**PARTNERS**

- Essential Complexity

**TECHNOLOGY**

**TEAM**

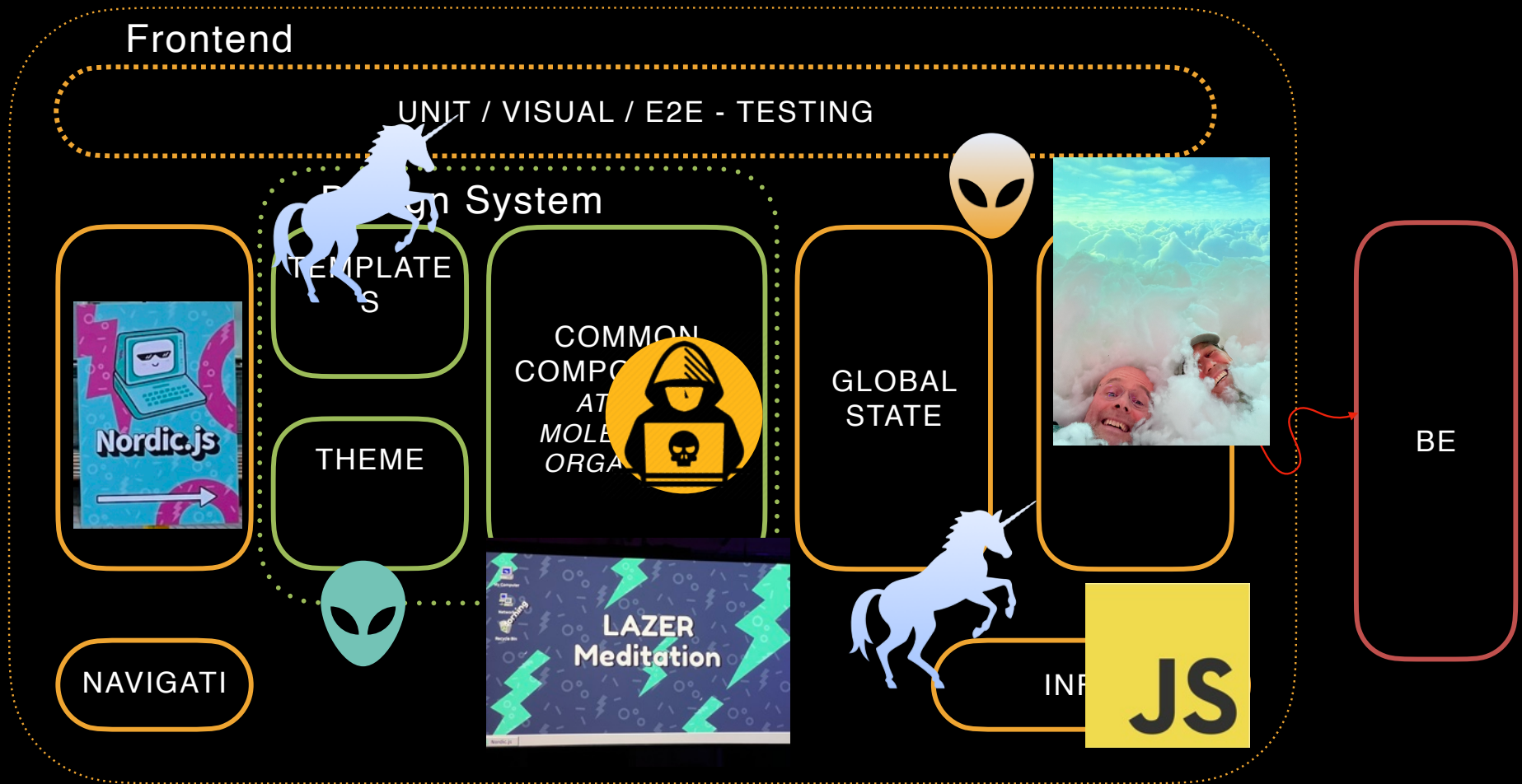
**SUPER STAR**

**DEVELOPERS**

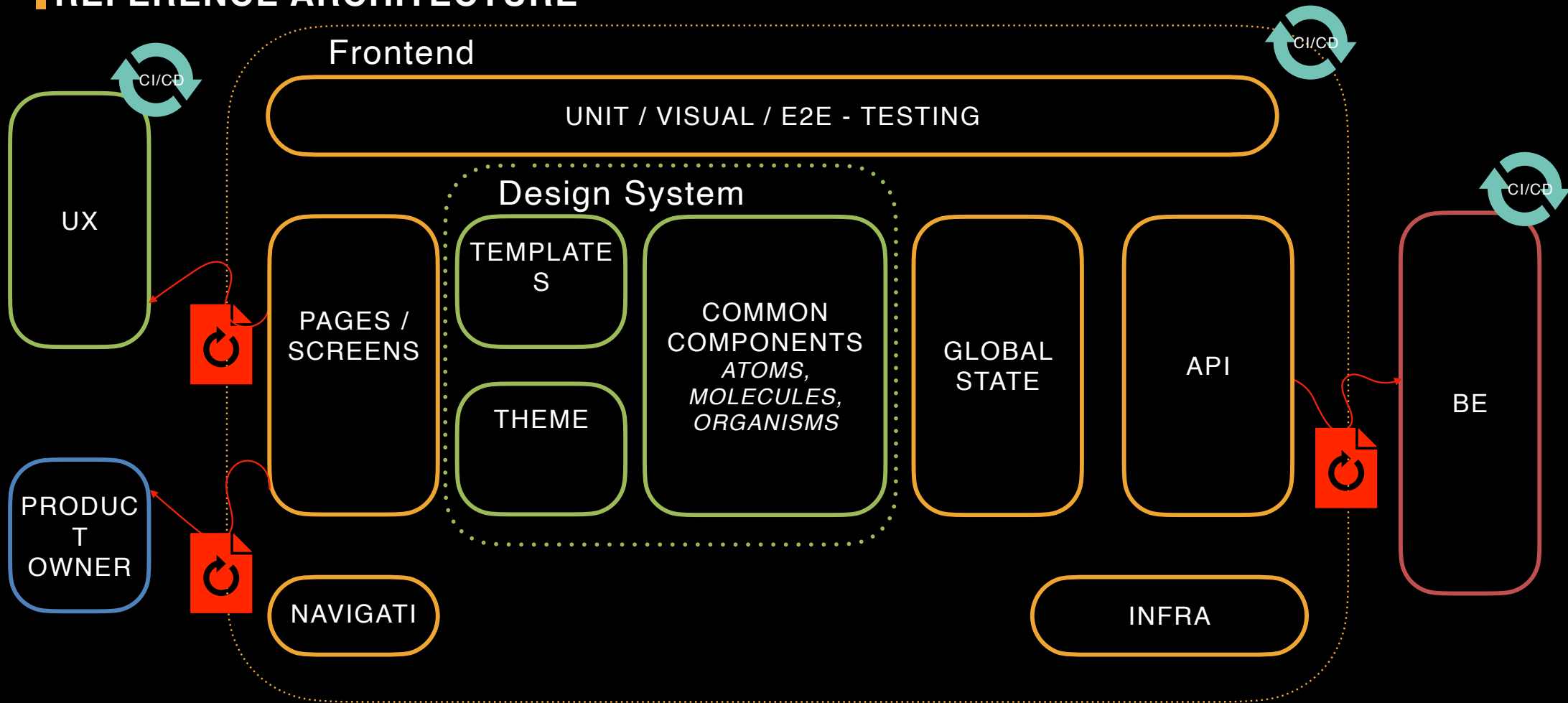


# A REFERENCE ARCHITECTURE

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# REFERENCE ARCHITECTURE



# SUMMARY

## | SUMMARY

- The static role of the architect has changed to be *dynamic*.
- We are *drivers* in
  - Reducing Complexity
  - Learning
- *Tamers* of Entropy
- *Gatekeepers* at the edges of the FE team.
- *Empiricists* (who eat) evidence and experimentation, as a basis of architectural decisions.
- *Communicator*
- *Star gazers ...*

## WHAT IS AN ARCHITECT - AGILE MANIFESTO

- *Individuals and interactions* over process and tools
- *Working Software* over comprehensive documentation
- *Customer collaboration* over contract negotiation
- *Responding to change* over following a plan

