THE FRONTEND ARCHITECT

AND HOW THEY WORK IN MODERN SYSTEMS

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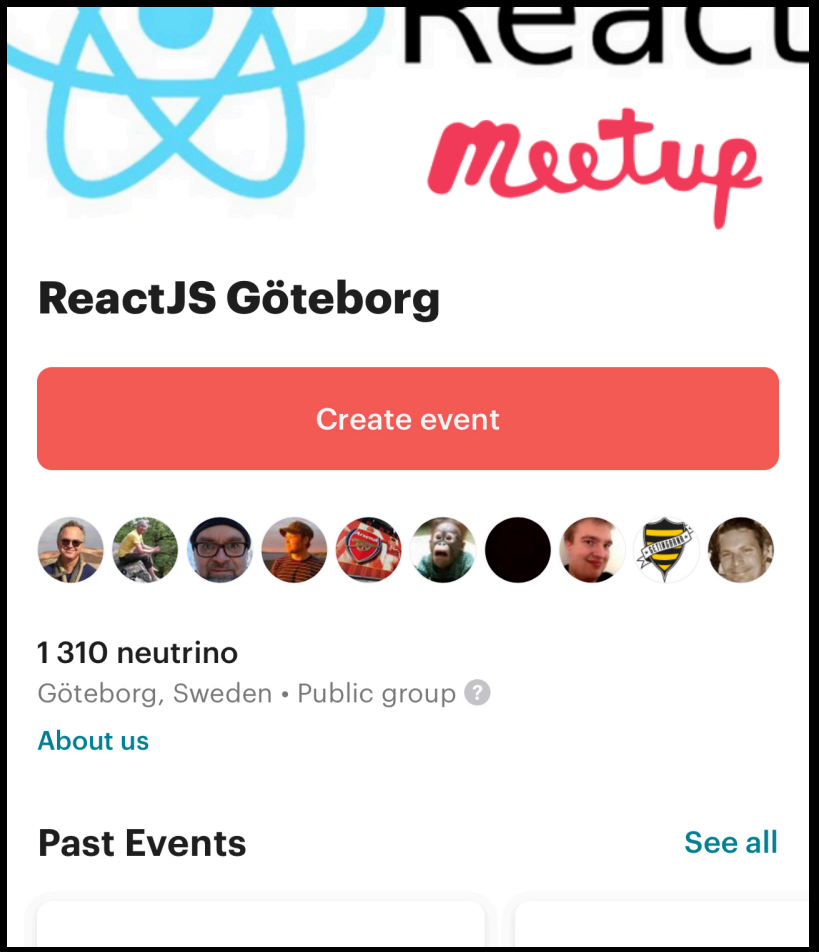
AGENDA

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

BACKGROUND

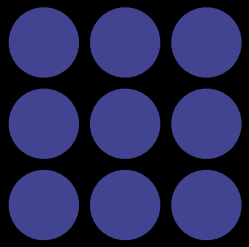
BACKGROUND

- React Meetup
- *Devops for design: Using Figmagic 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*



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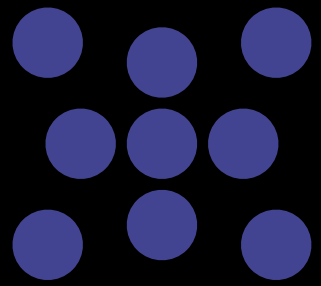

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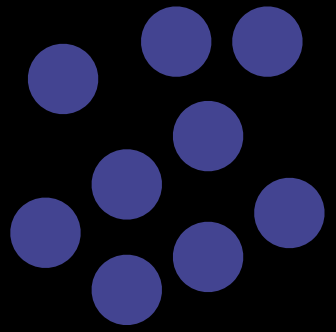


ENTROPY

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.

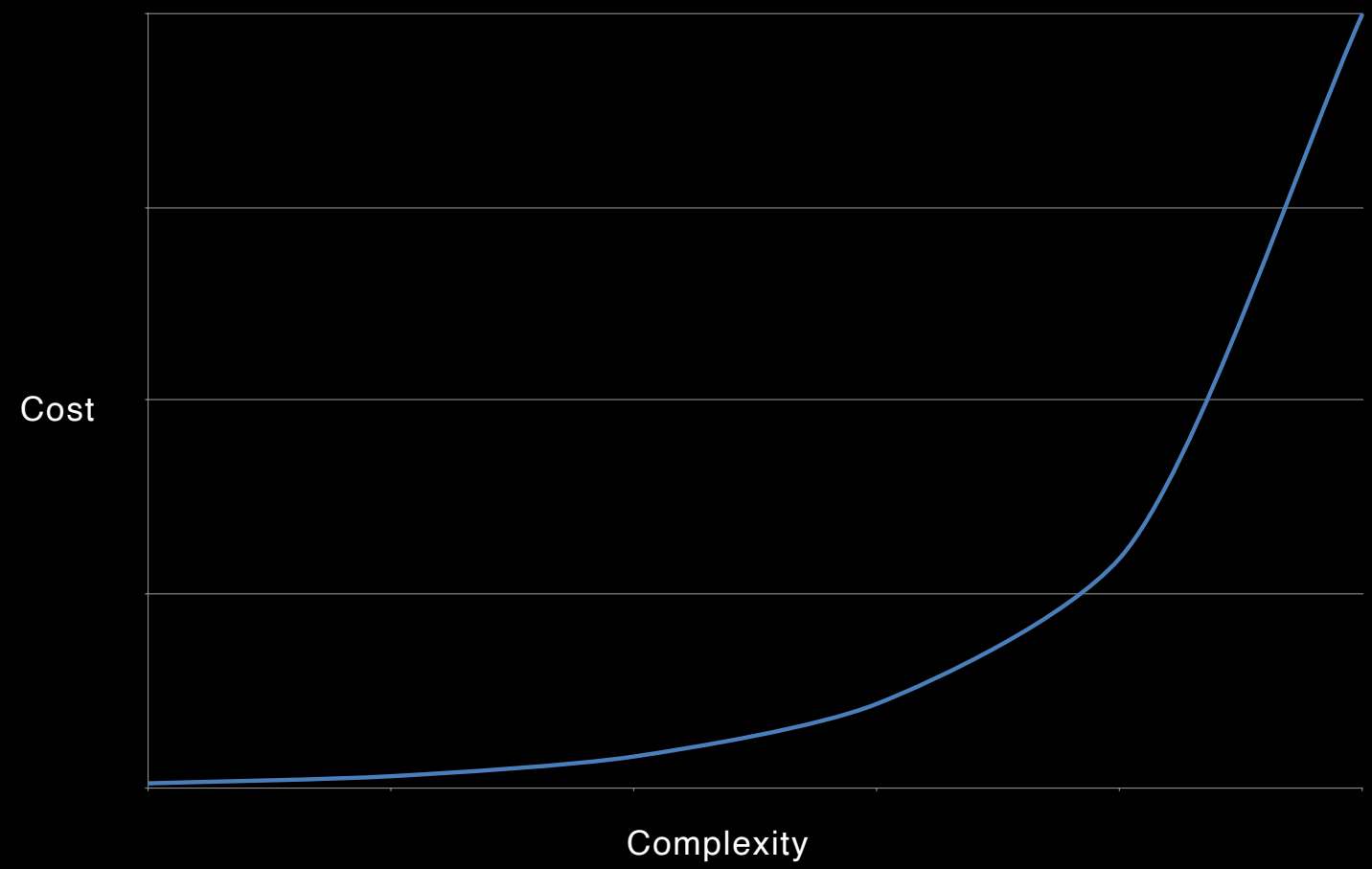
BACKGROUND - ENTROPY

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*.

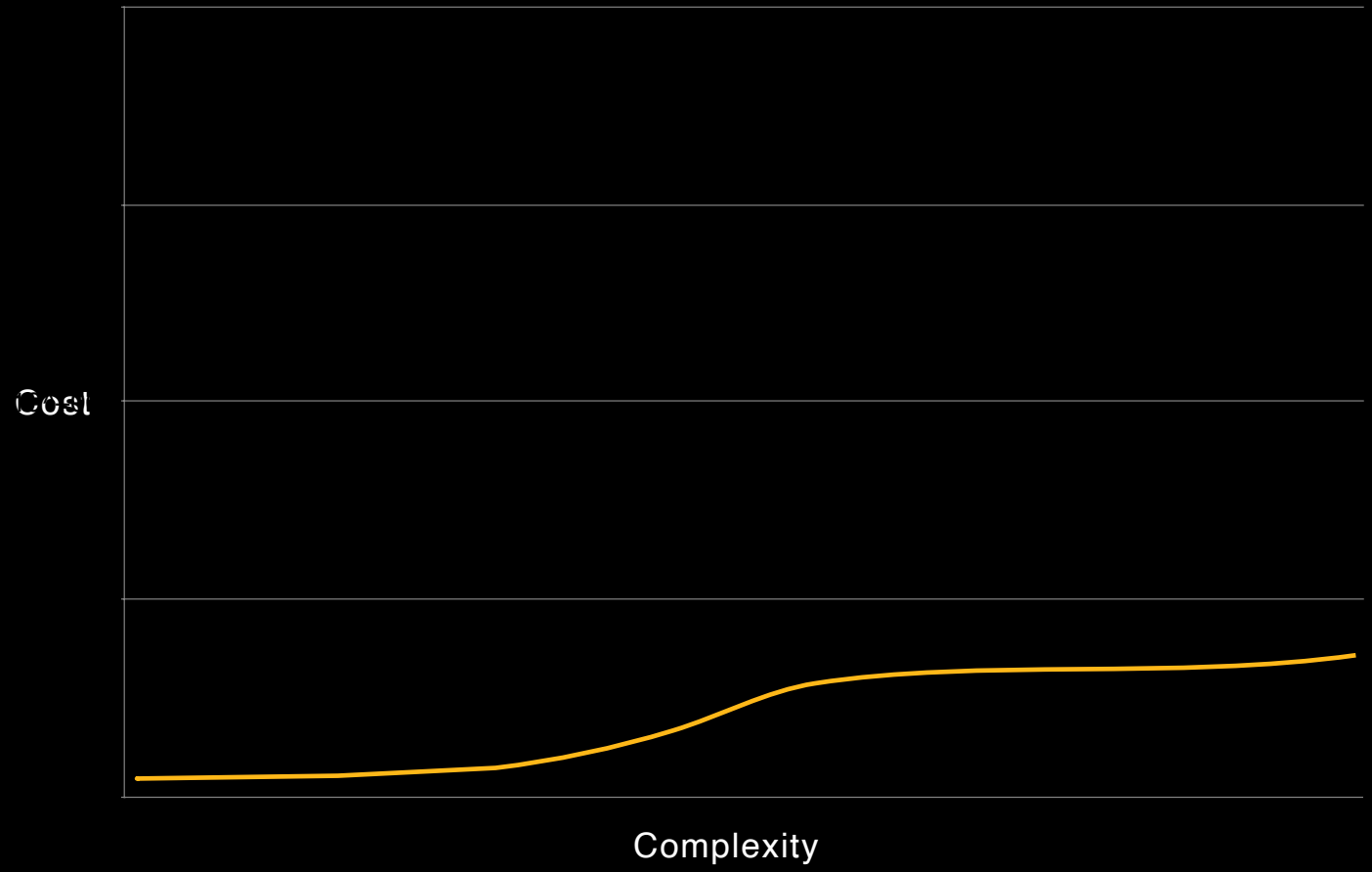
ENERGY

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 ?

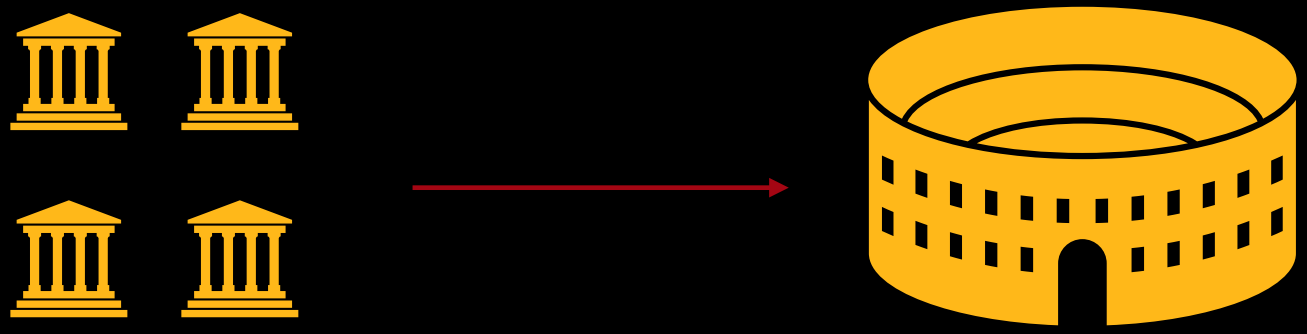
WHAT IS ARCHITECTURE

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

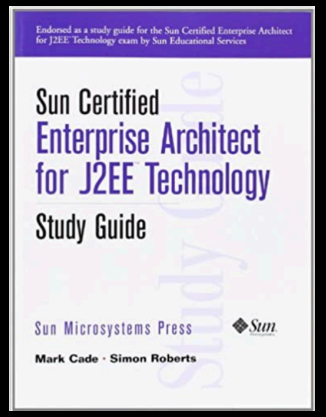
- Small composable units of structure, behaviour with interfaces
- Software architecture is not set in stone, it's ***changeable***, **malleable**, **tangible**

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

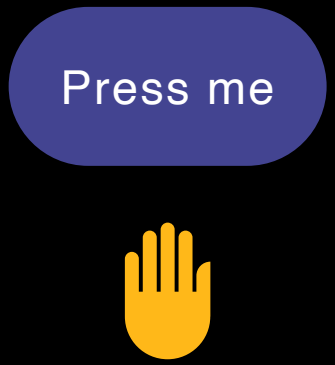


WHAT IS AN ARCHITECT - CHARACTERISTICS

- 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



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

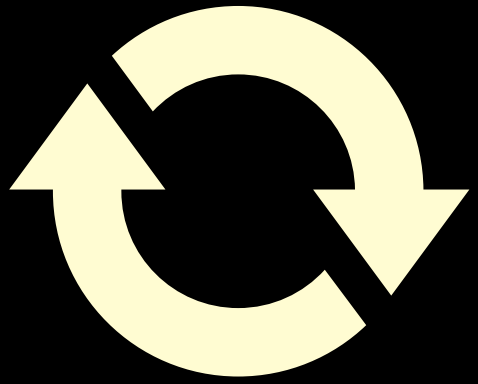
CALLISTA

EMBRACE CHANGE

BUT LEARN HOW TO MANAGE IT

WHAT IS AN ARCHITECT - WHAT WE DO

STRUCTURE



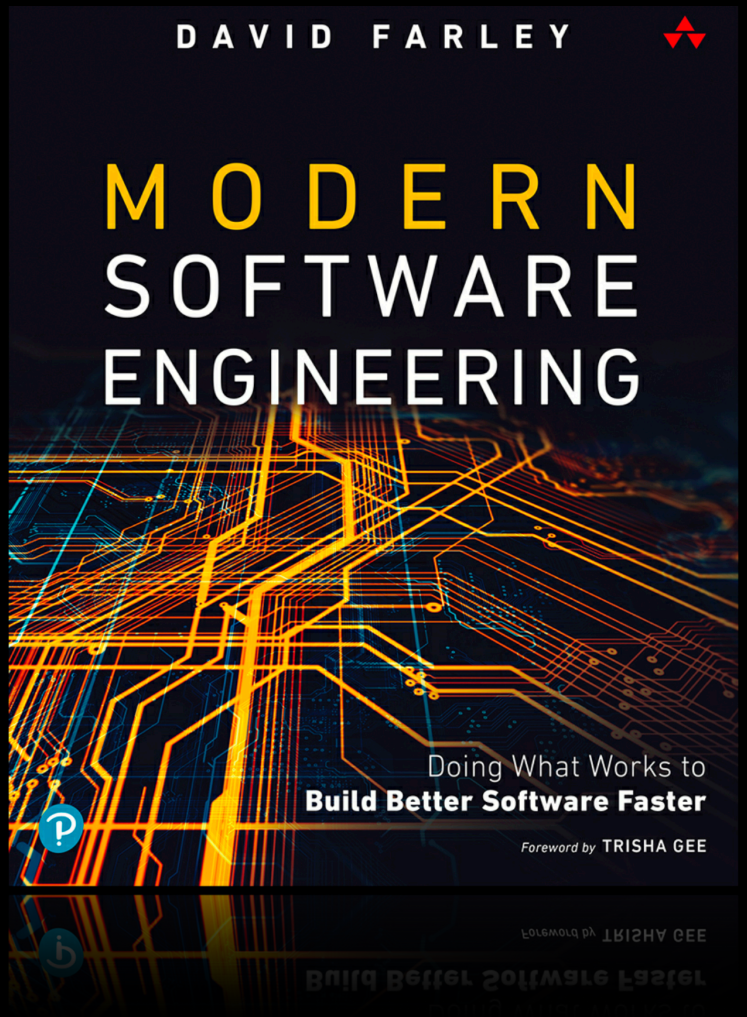
BEHAVIOUR

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



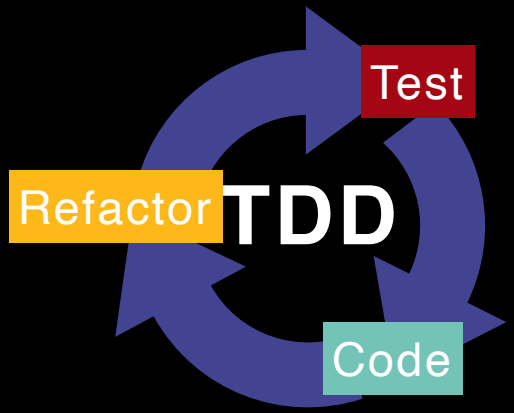
WE WANT TO WRITE BETTER SOFTWARE QUICKLY

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
  - Persistance
  - 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

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A REFERENCE ARCHITECTURE

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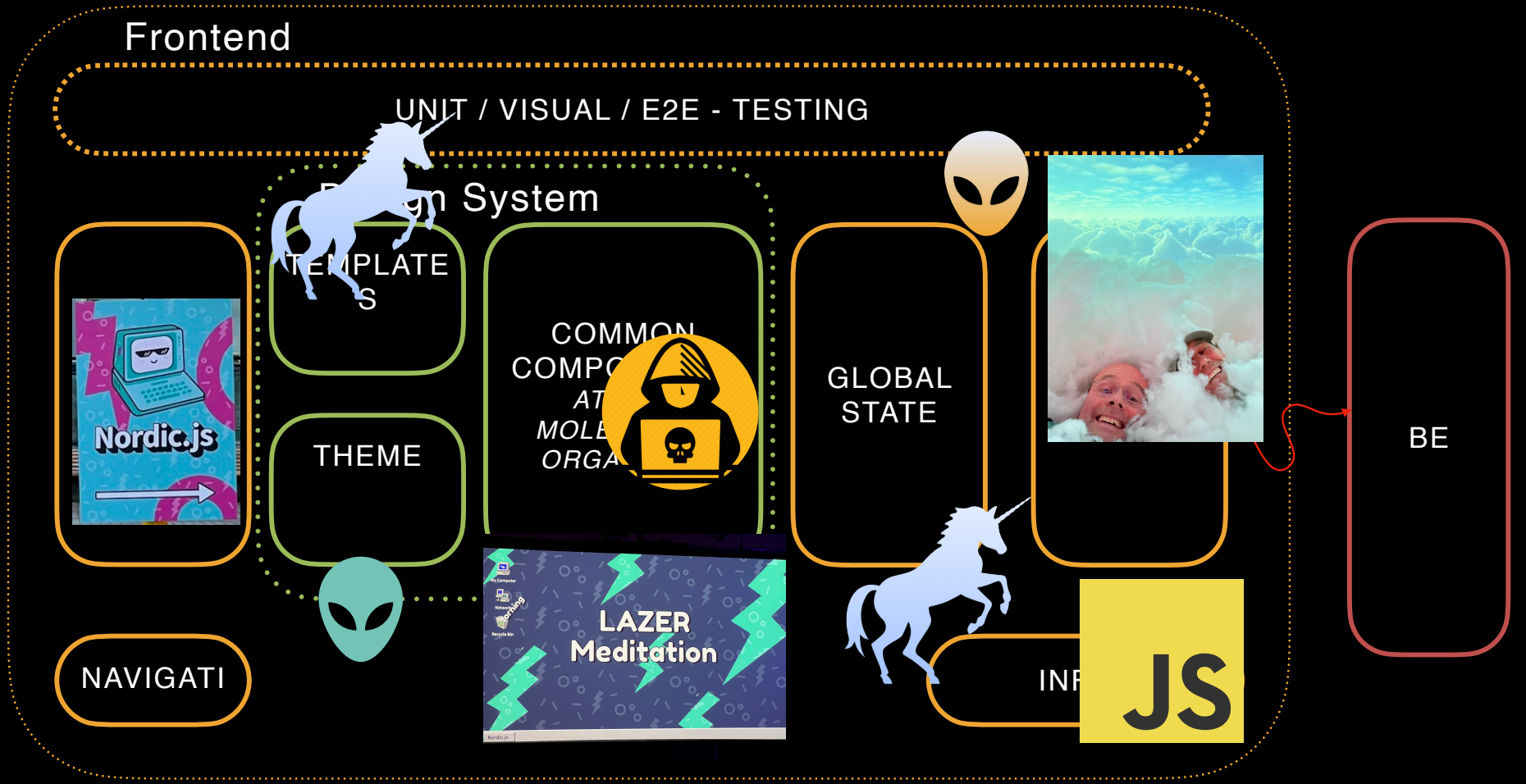

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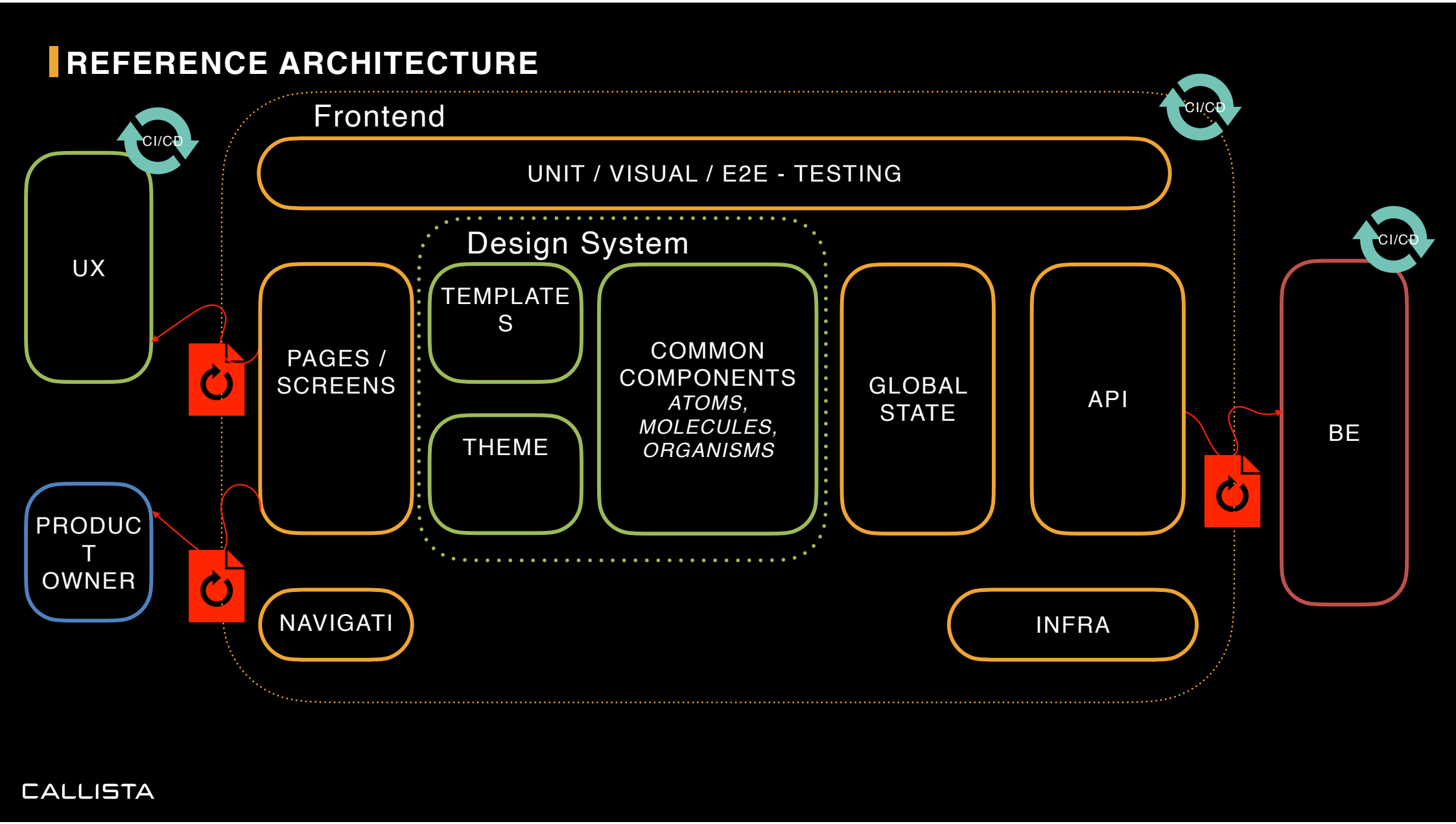

SUMMARY

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- 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 documention
- *Customer collaboration* over contract negotiation
- *Responding to change* over following a plan