MicroServices

meet Real World projects

innoQ

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Lessons Learned

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Architecture Consulting...

“We want to have a microservice architecture!”

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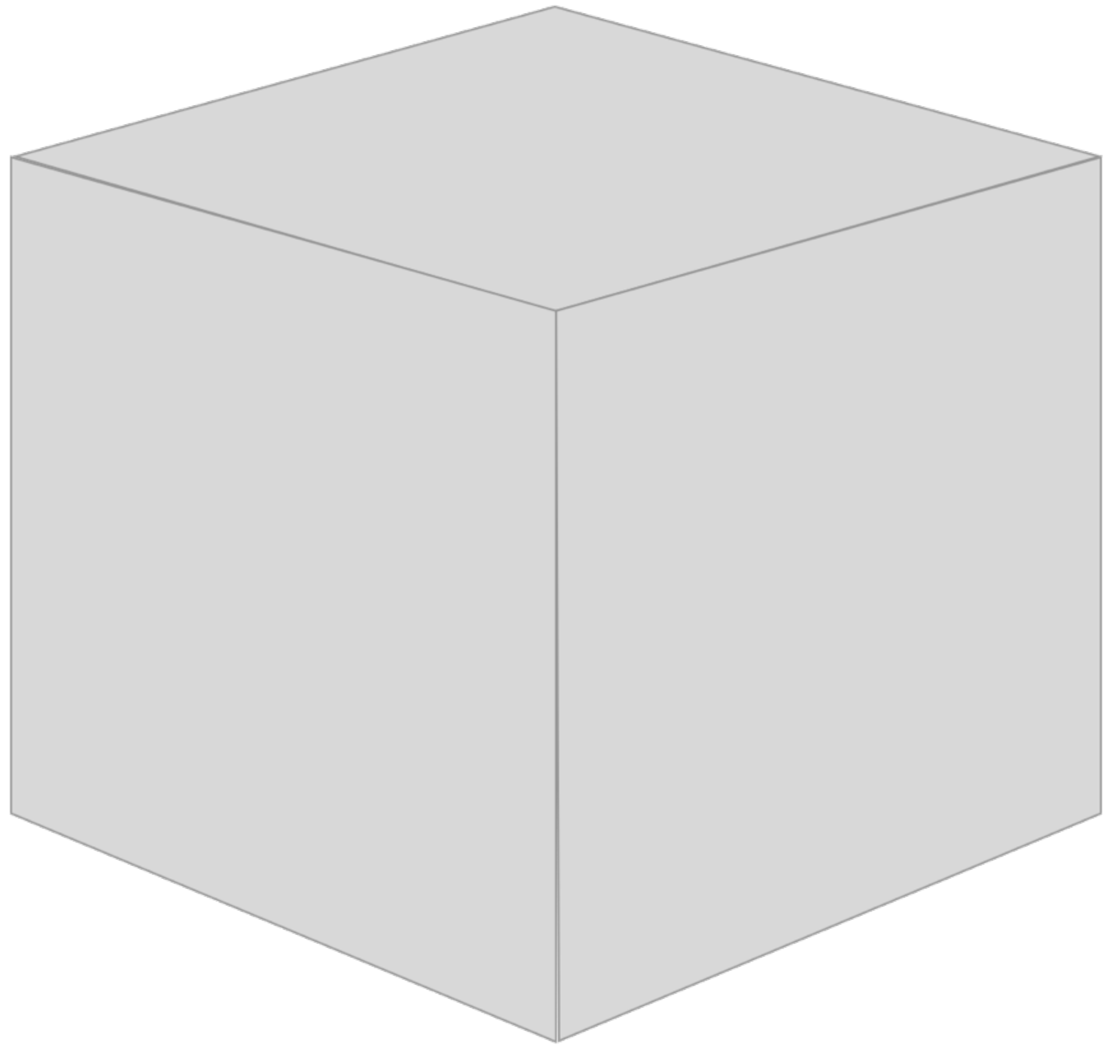
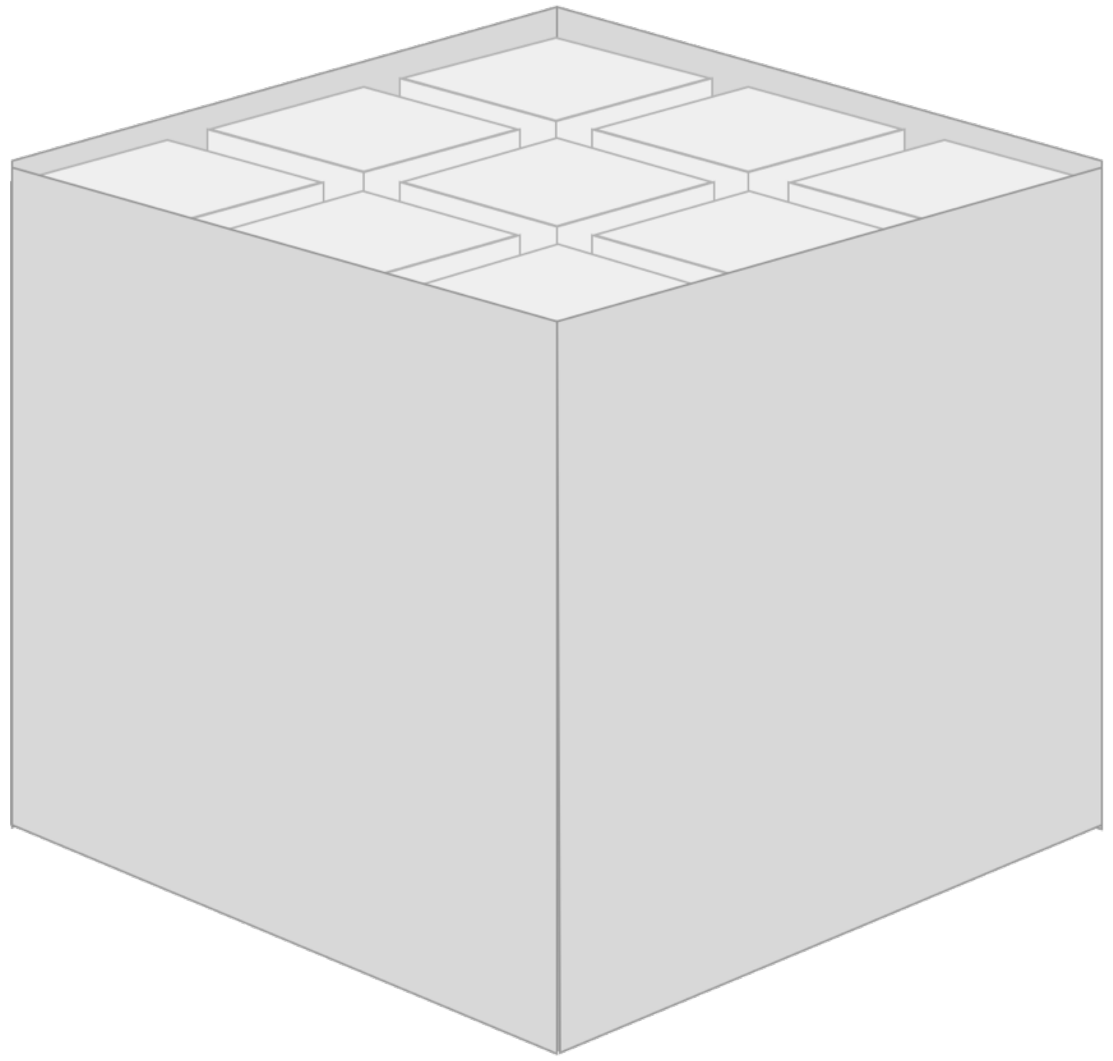
— Every Customer, 2015



When reviewing a monolithic application …



…and taking a look into the black box…

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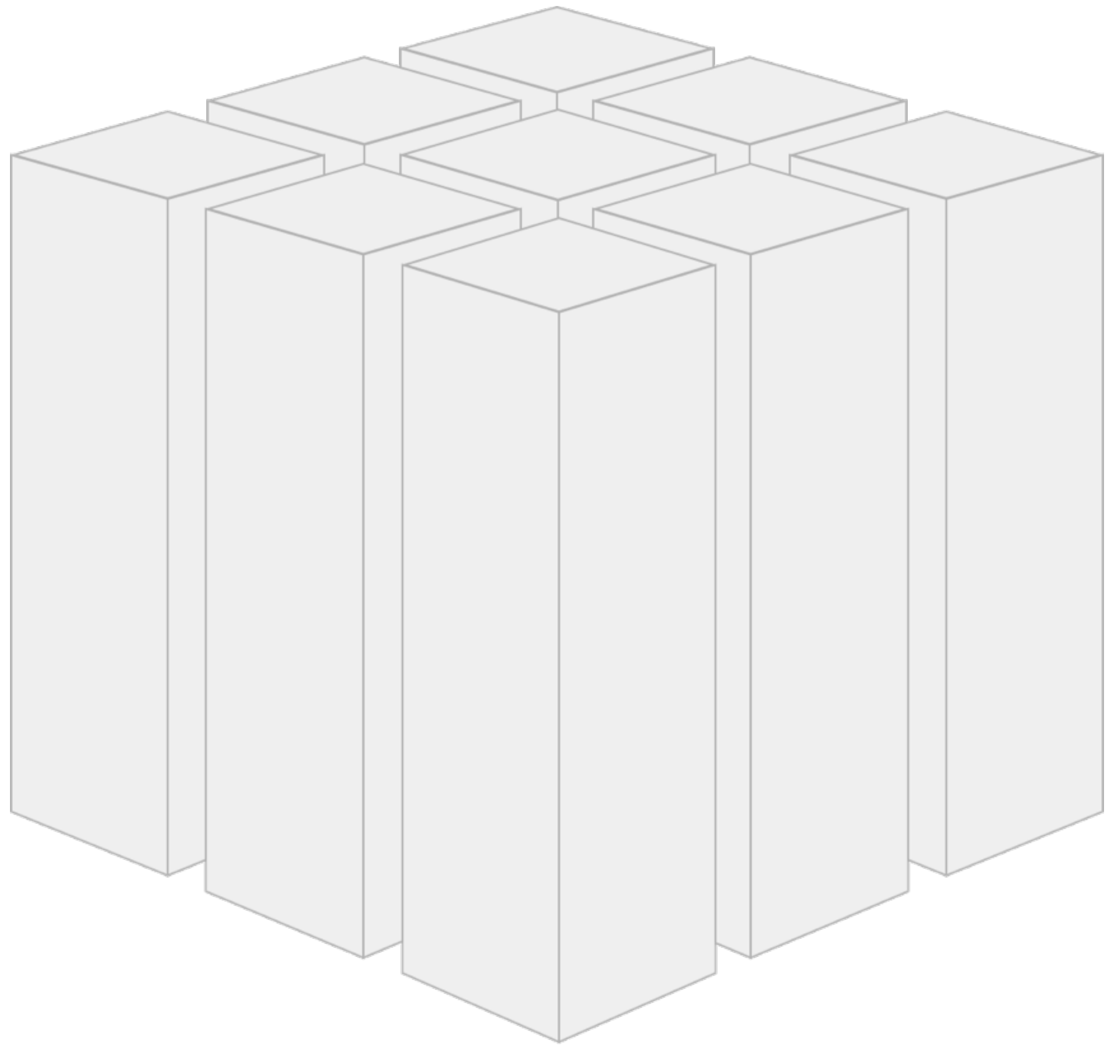

…you'll likely find it consists of multiple Bounded Contexts.

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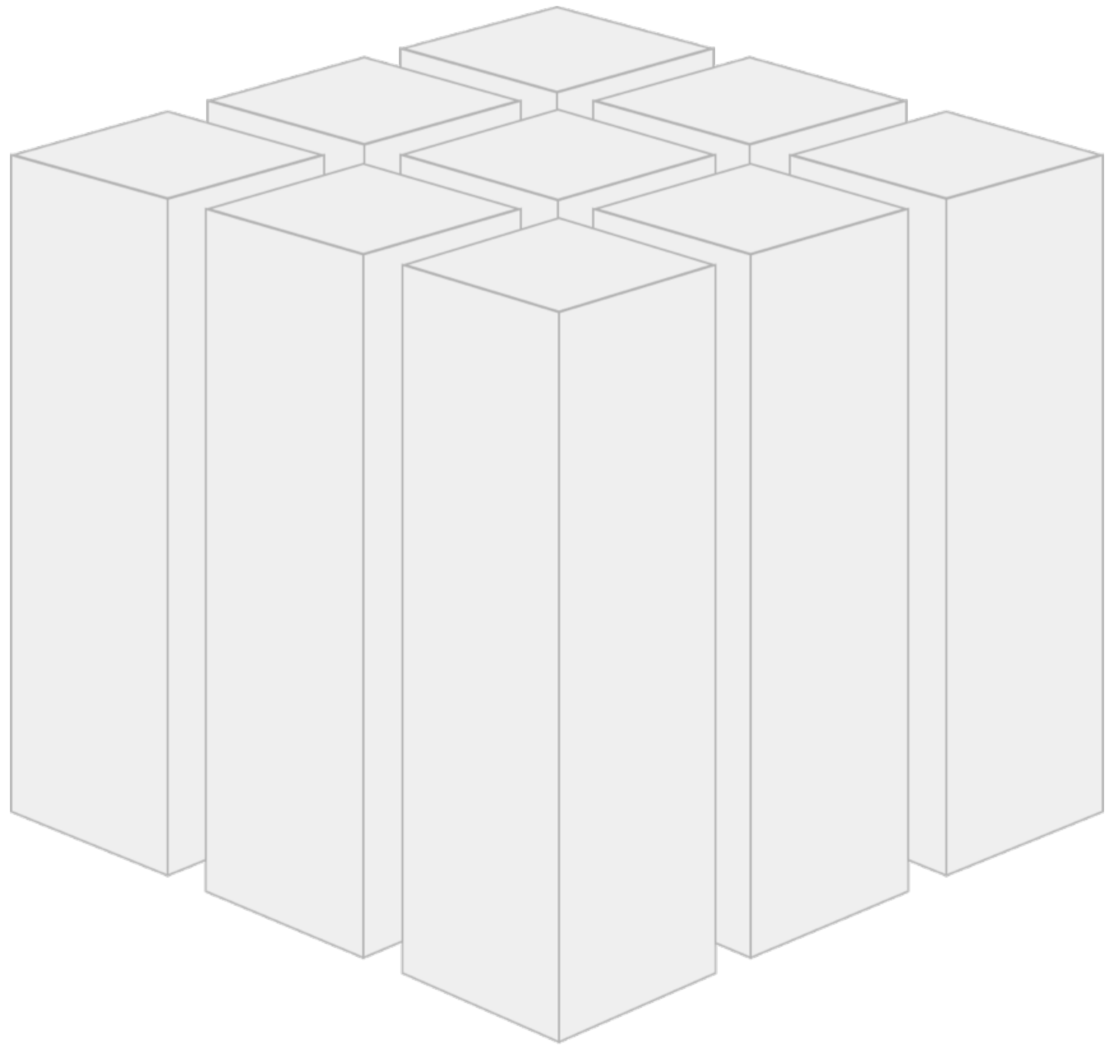
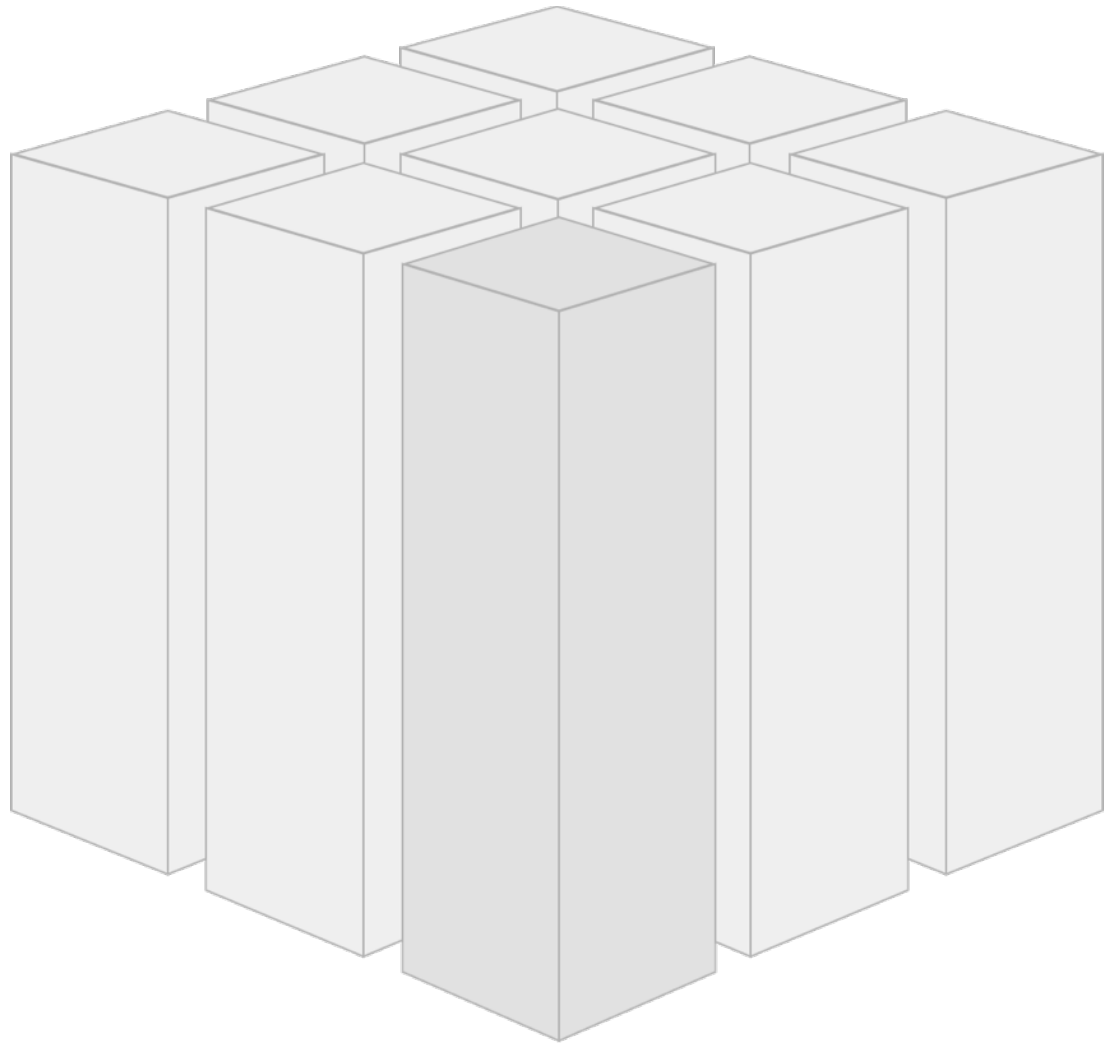
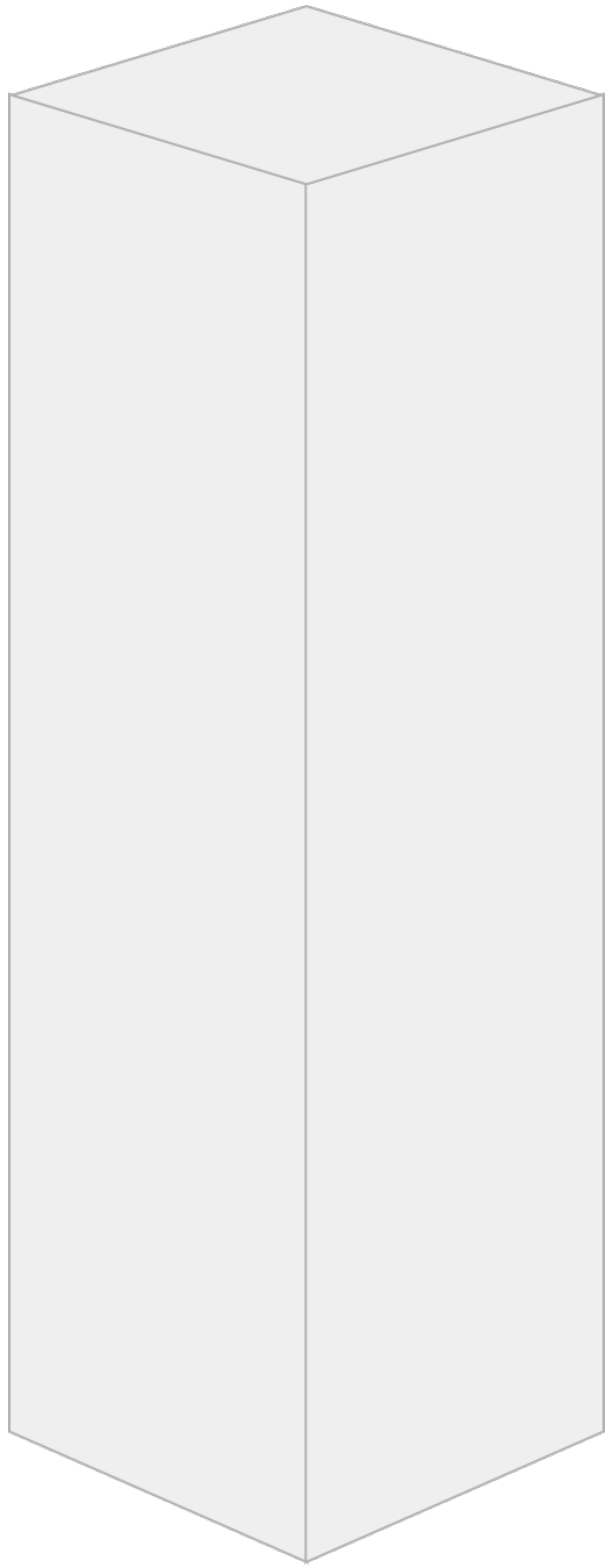


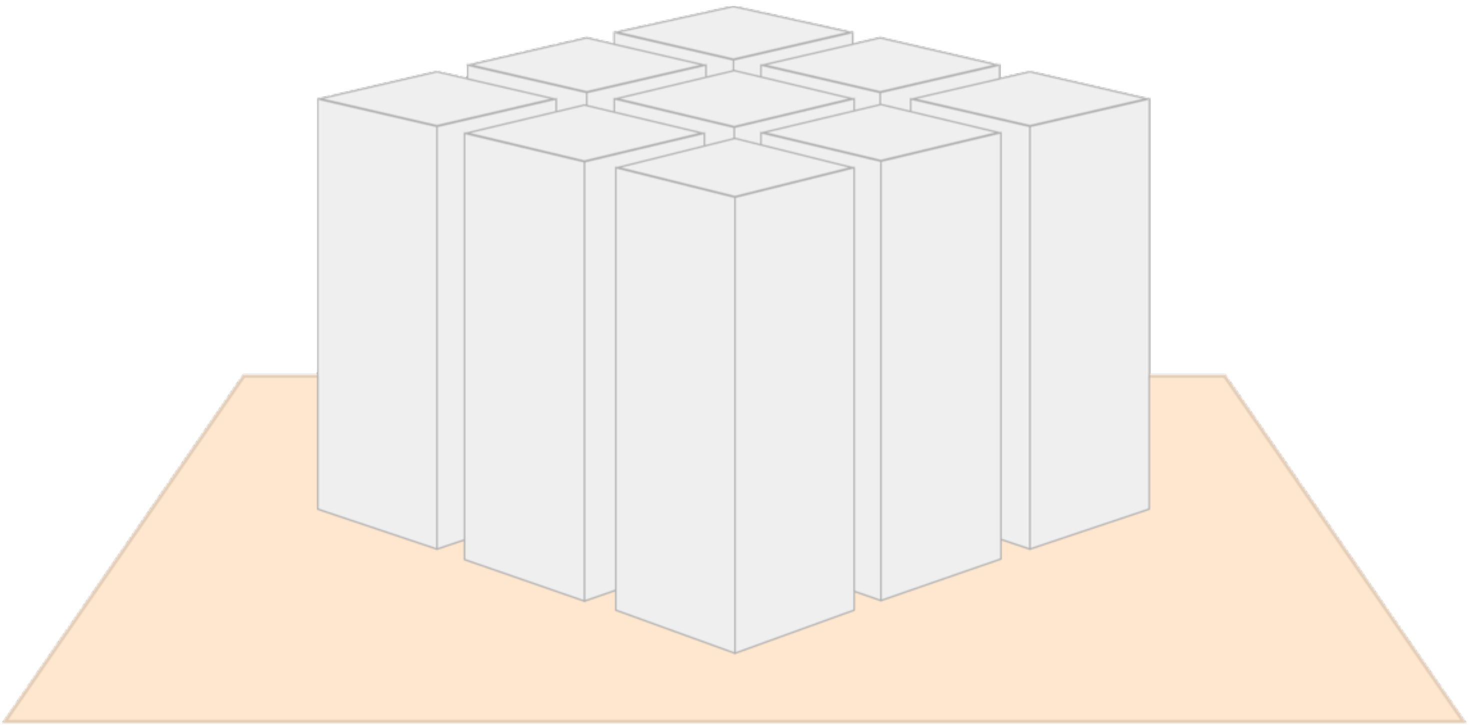
If you cut a monolithic system along its very domains …



… and wrap every domain in a **separate, replaceable** web application …



… then that application can be build as a **self-contained system** (SCS).



more information on

self-contained systems (SCS)

can be found at

http://scs-architecture.org/

Architectural Decisions

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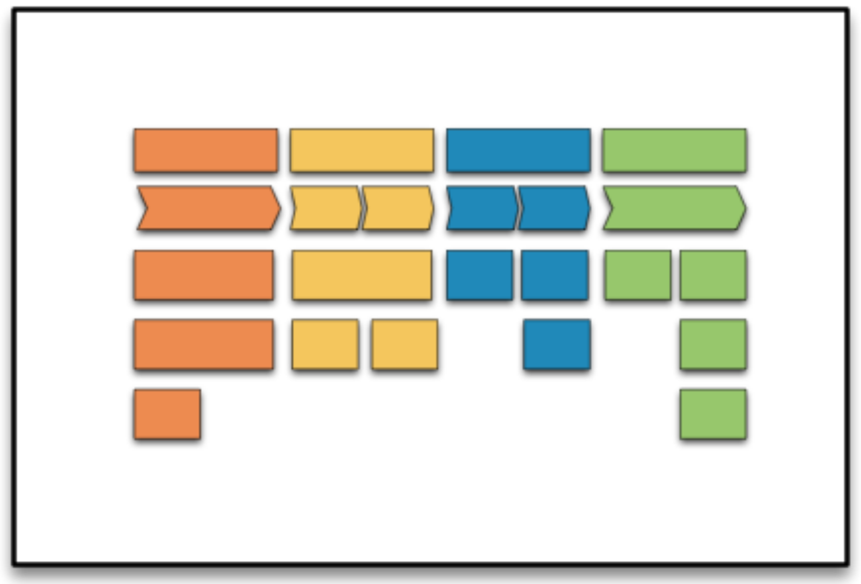
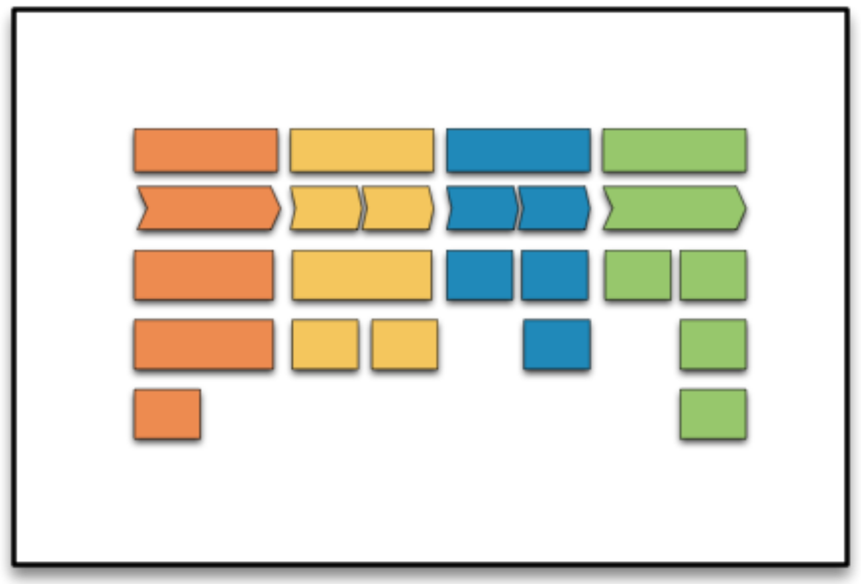


- Domain Architecture

Architectural Decisions



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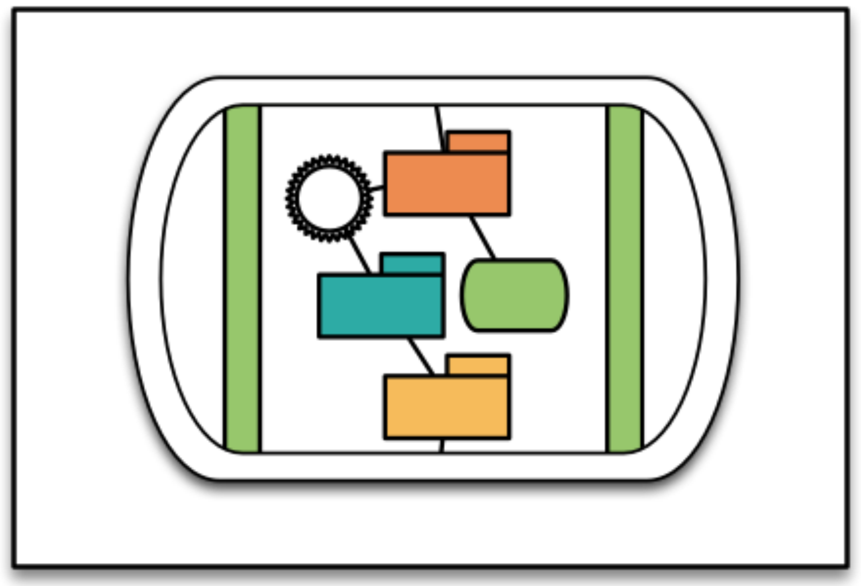
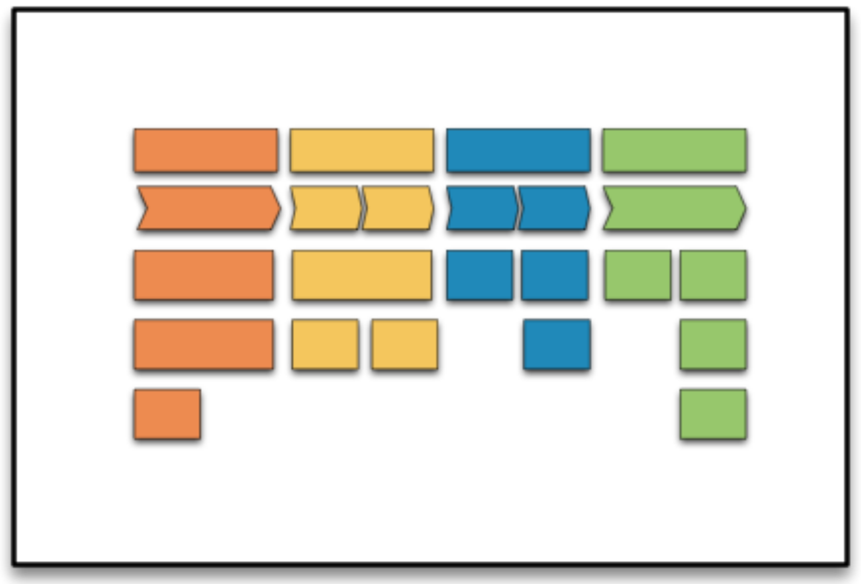
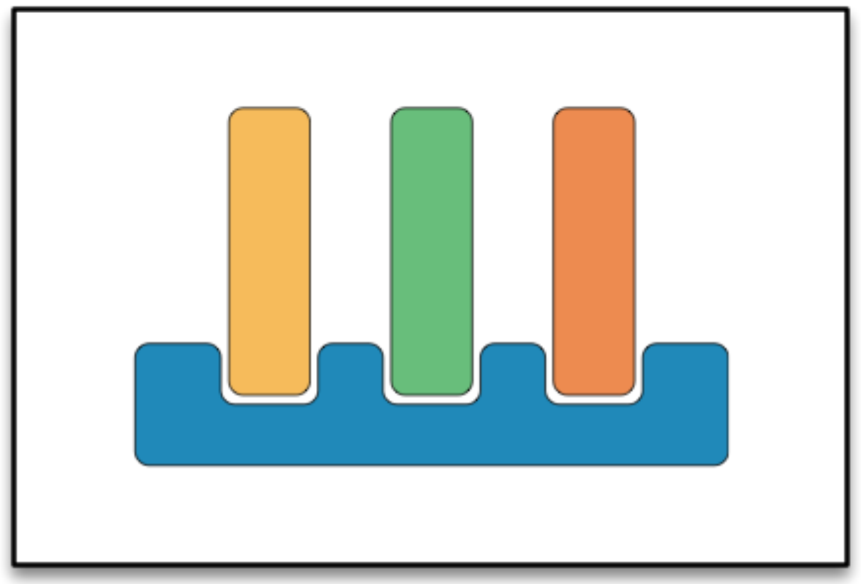


- Micro Architecture

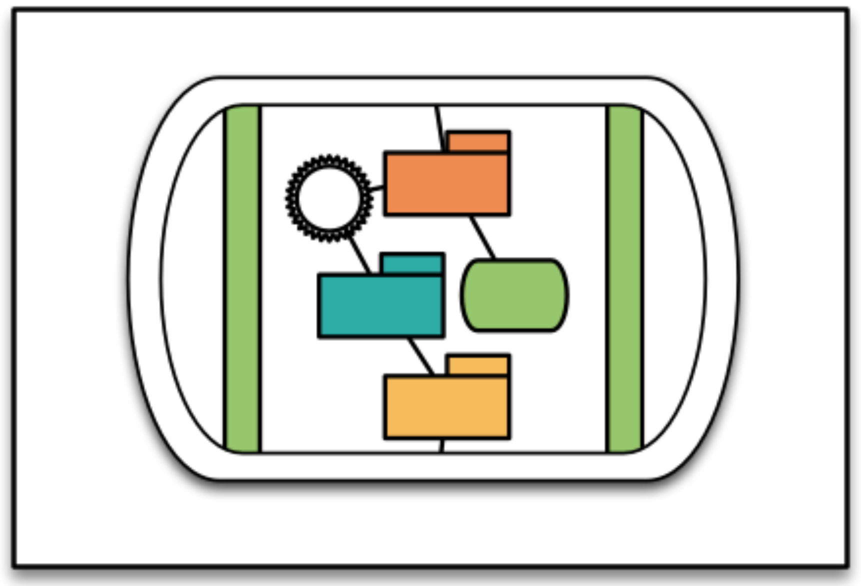
Architectural Decisions



› Domain Architecture



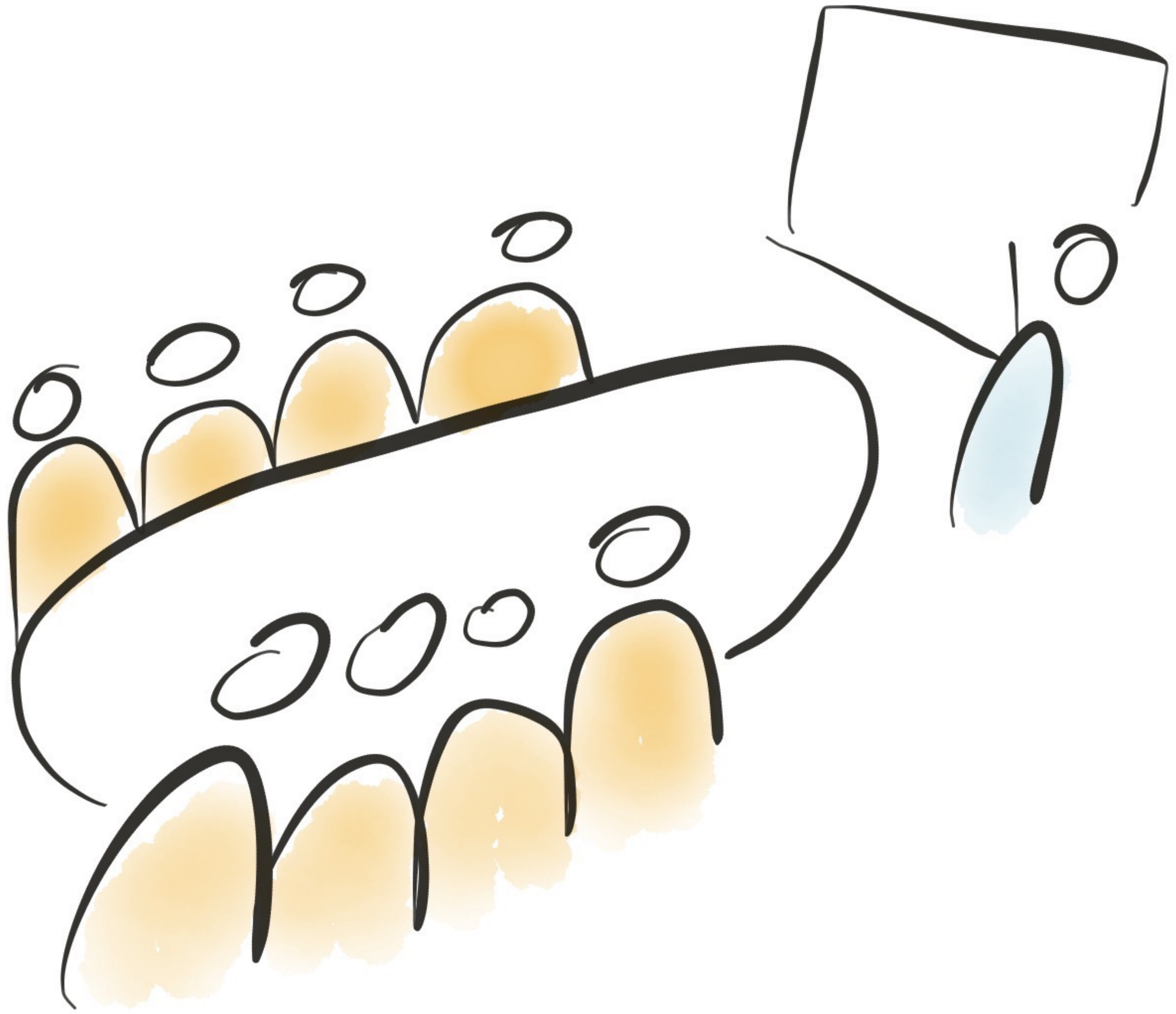
› Macro Architecture



› Micro Architecture

Isn't there more than that...

At a project meeting...



Did you think about the people

who make your architecture exist?

us vs. them

“Don’t care about this, it’s our business!”

“Alarming is our concern, don’t bother about it!”

“No need for a discussion, we always fix that during deployment.”

“That’s part of the handover to operations.”

overcome “us vs. them”

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- cross-functional != cross-department

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- have one manager to decide on a team’s targets

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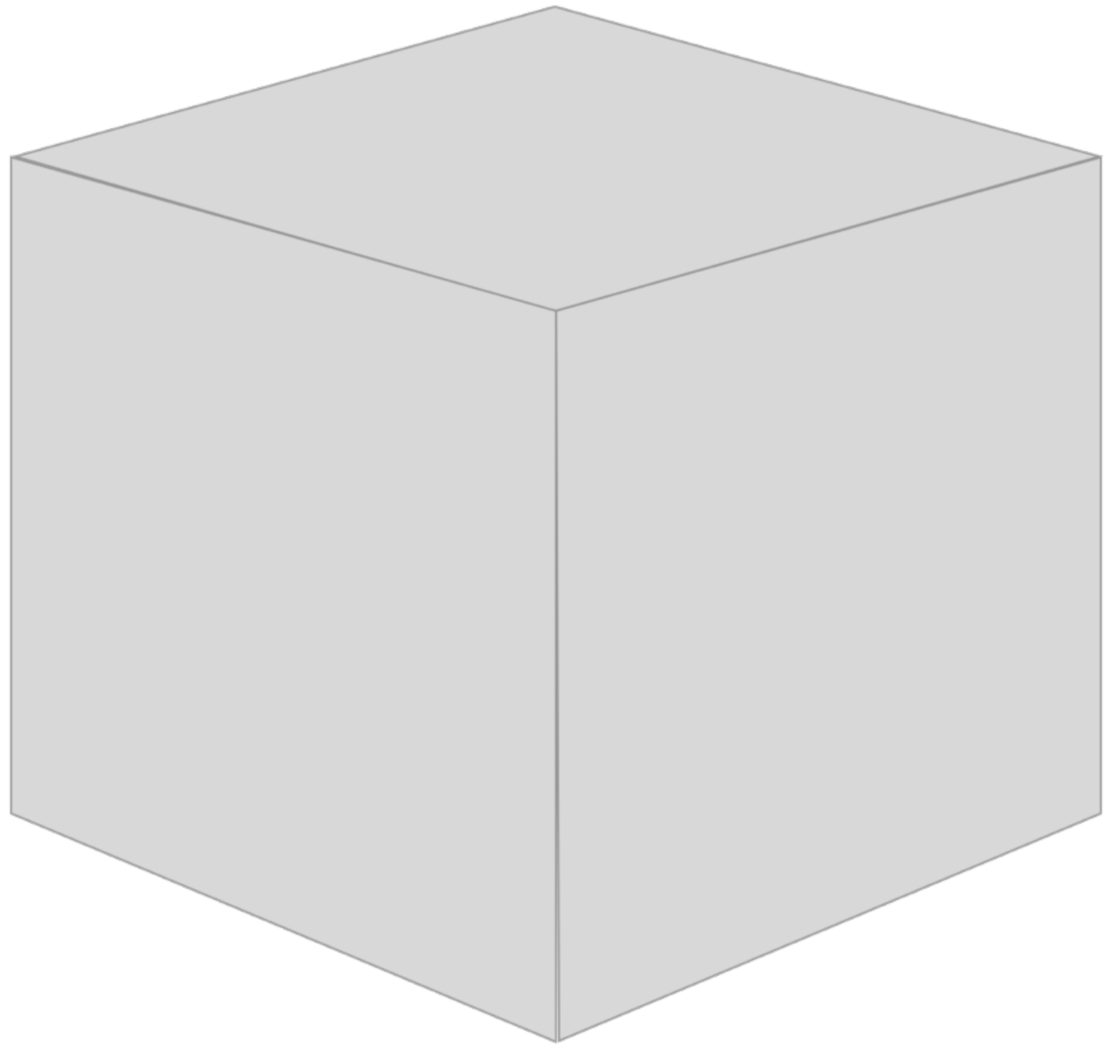
overcome “us vs. them”

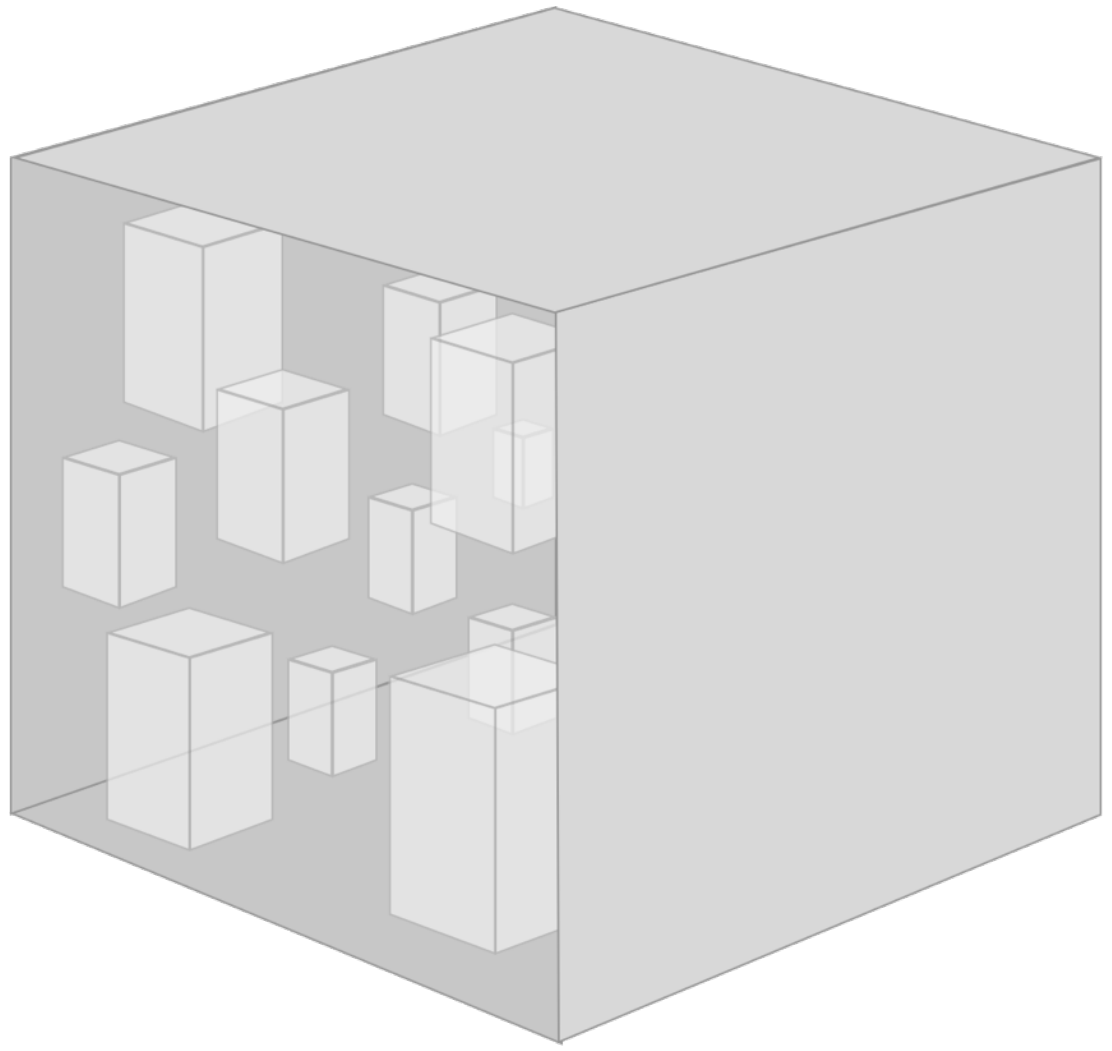
- cross-functional != cross-department
- have one manager to decide on a team’s targets
- don’t neglect team-building
- trust is not optional

well-known pros are subjective

“Operating a monolith is easier!”



Of course it’s easier…

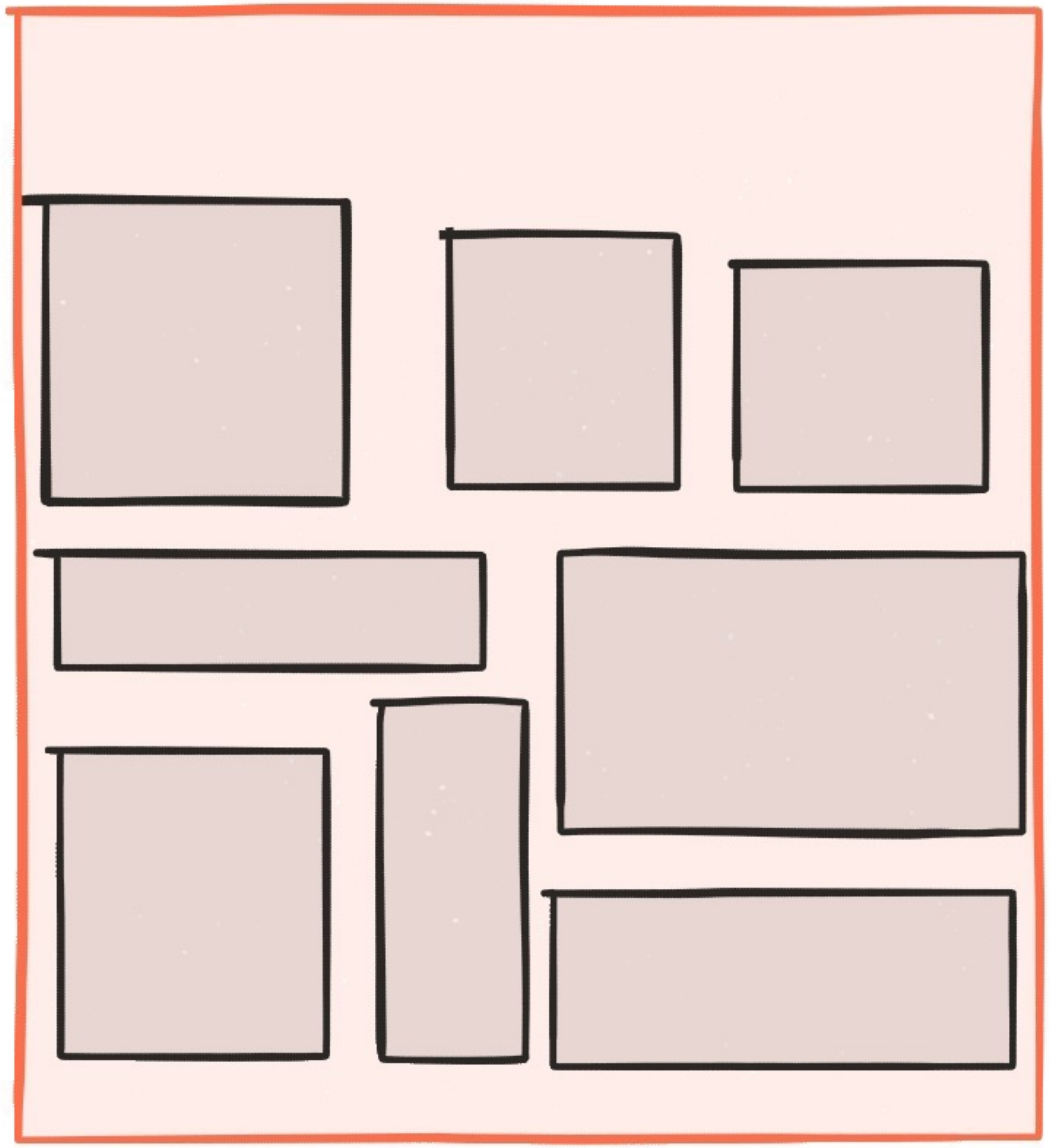


It’s always easier for you…

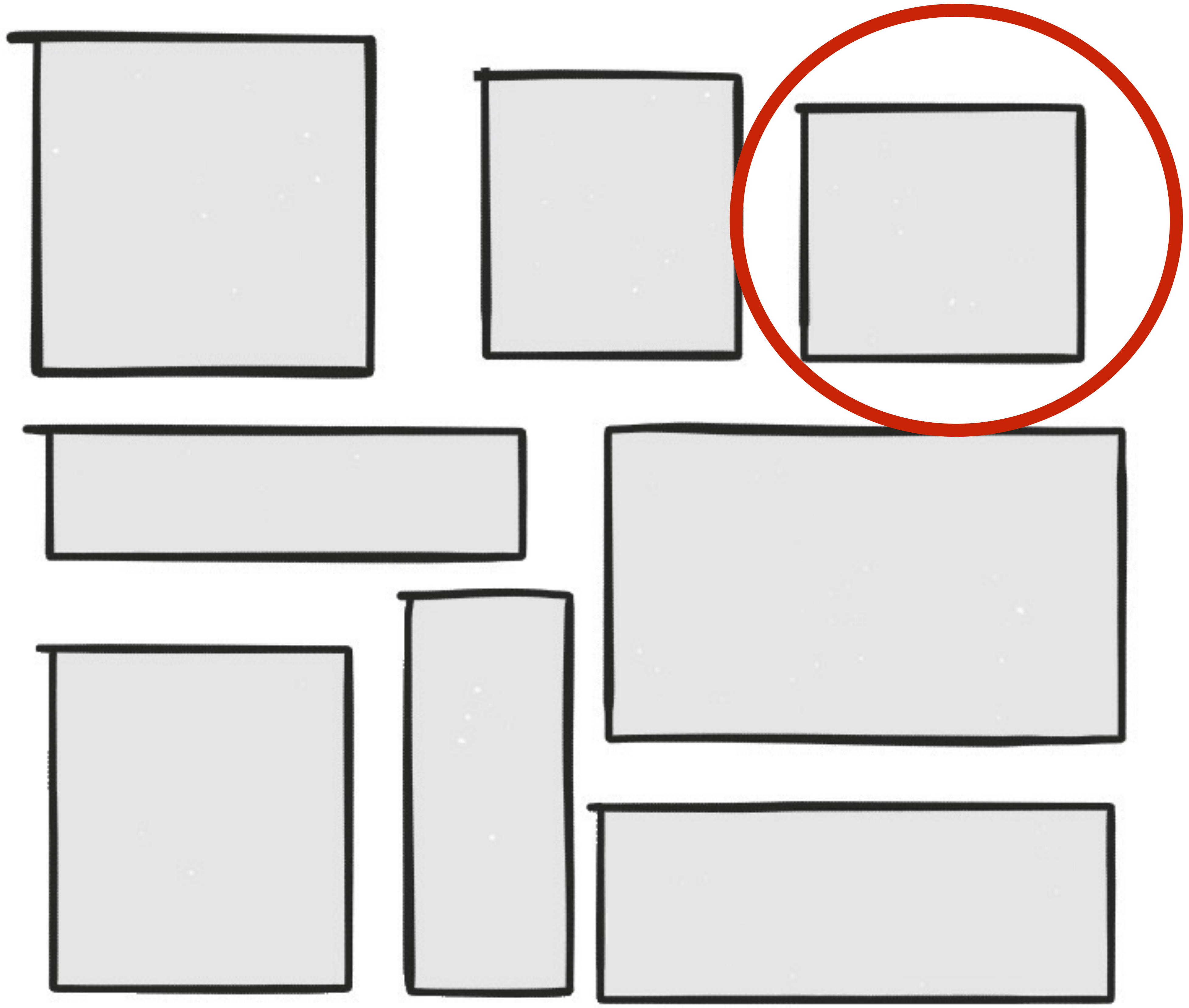
…if the complexity is on someone else’s desk.

“Operational costs are increased!”

Monolith



Microservices?



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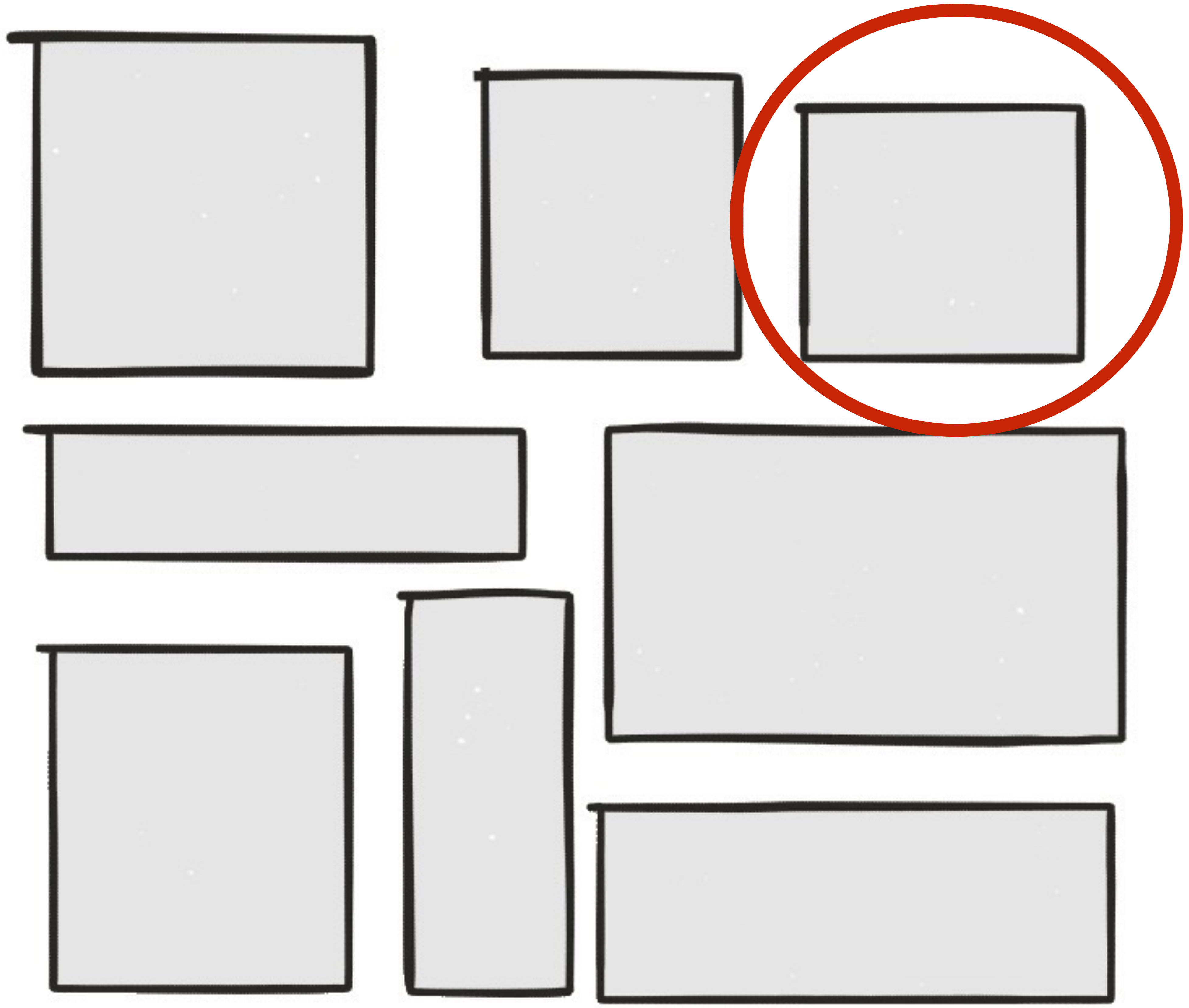
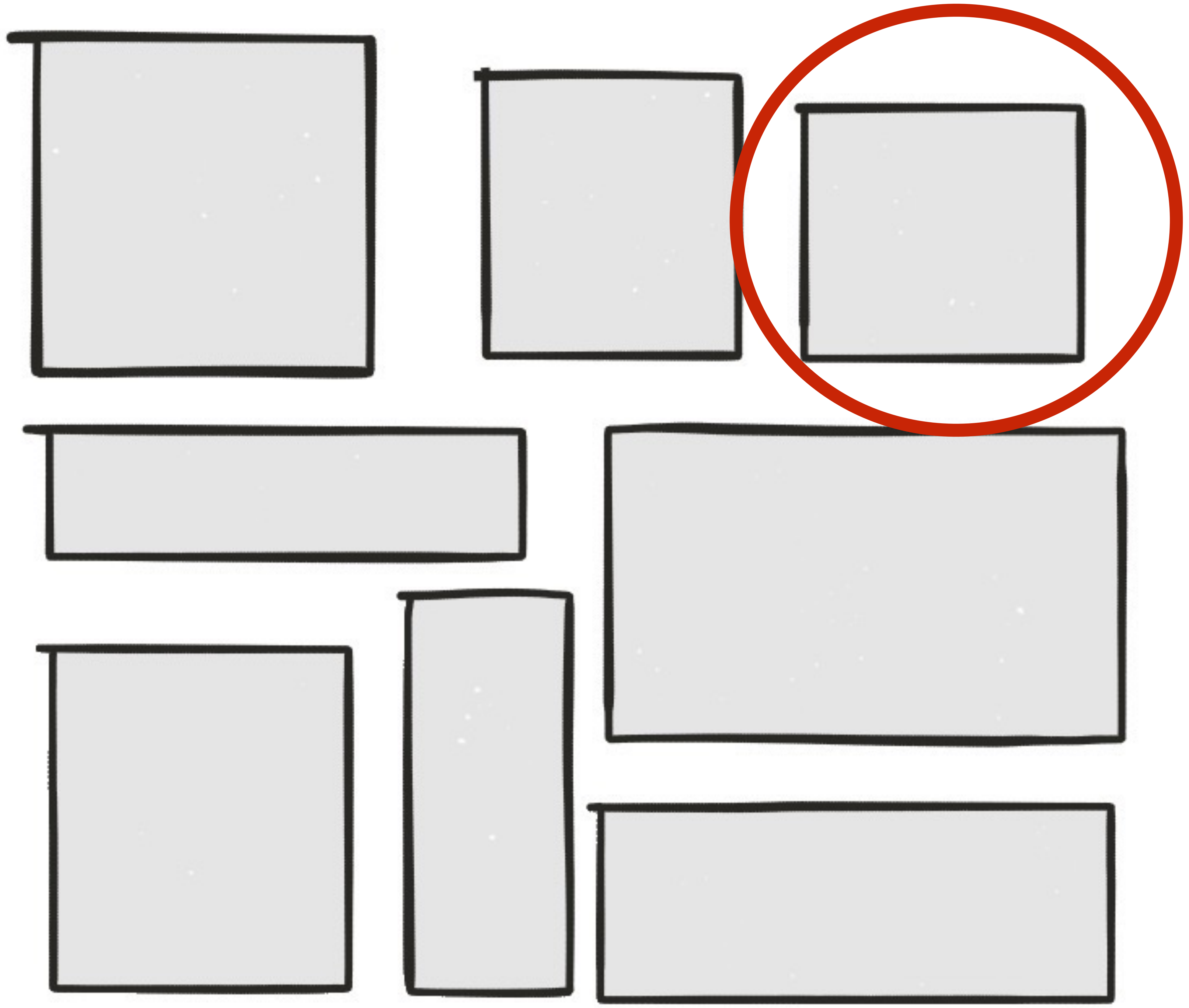


smaller components!

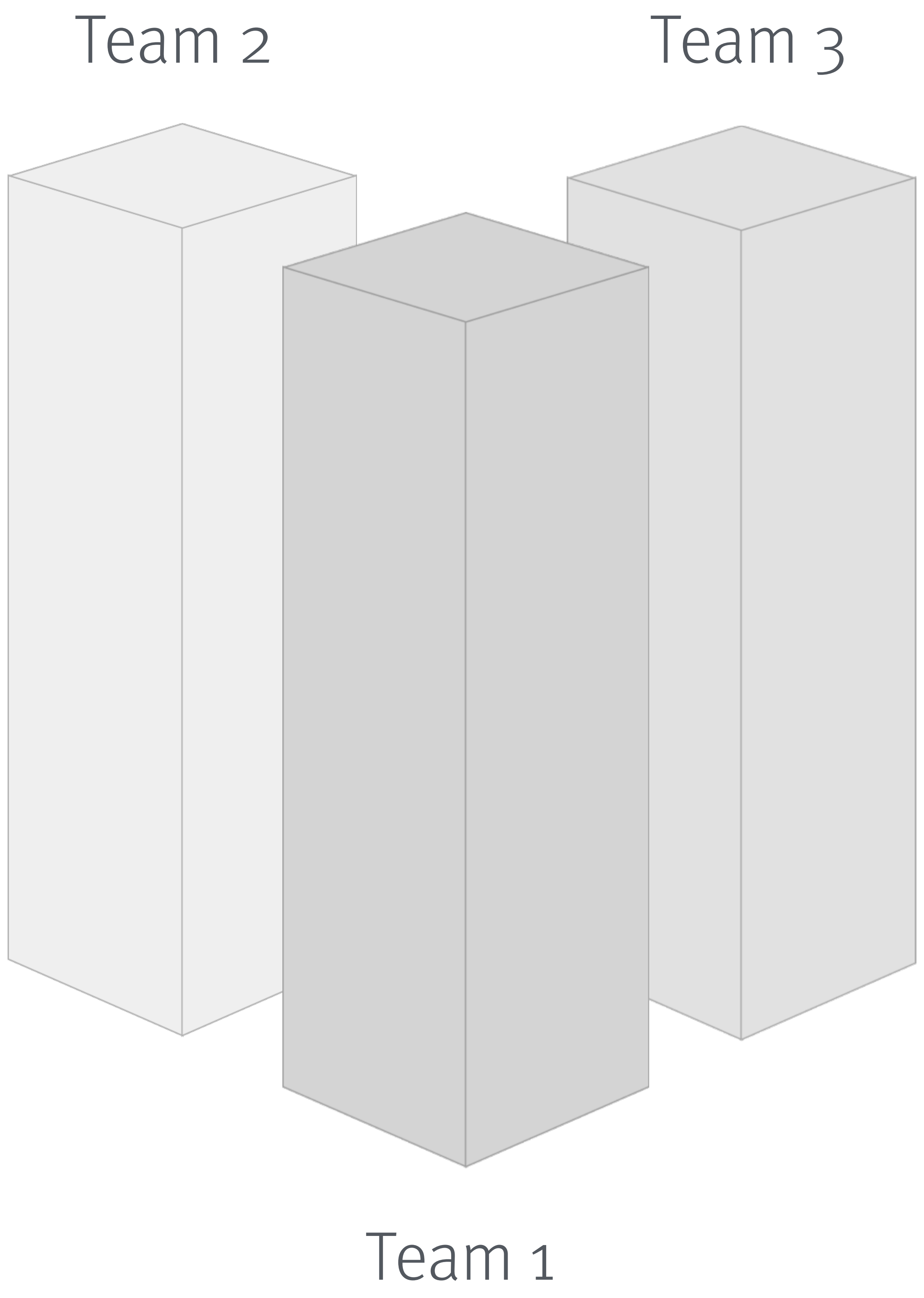
Microservices?



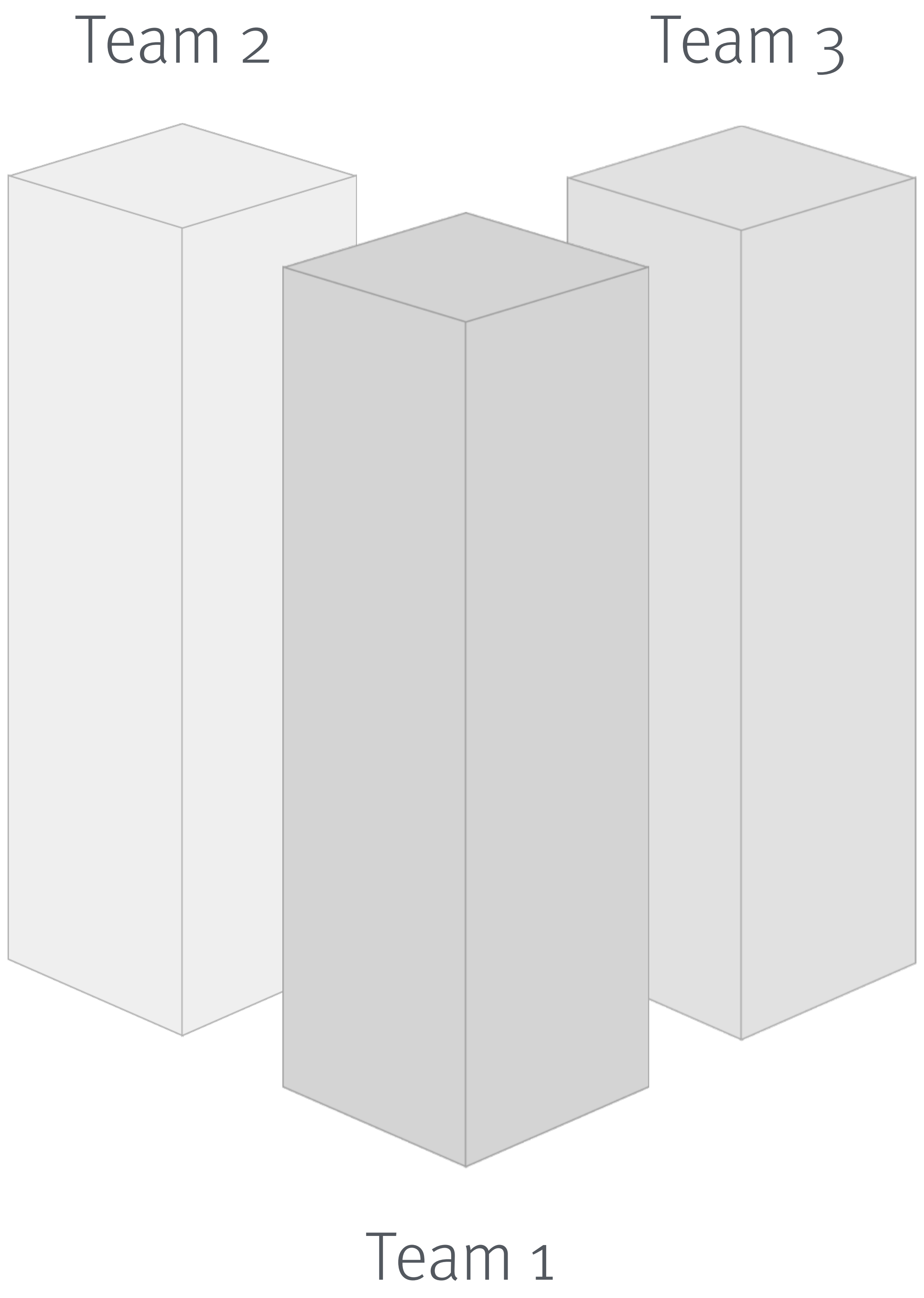
smaller components!

- easier to test
- quicker to automate
- faster roundtrips

“Separating teams duplicates work!”



The manageable, domain specific scope enables the development, operation and maintenance of an SCS by an **autonomous team**.

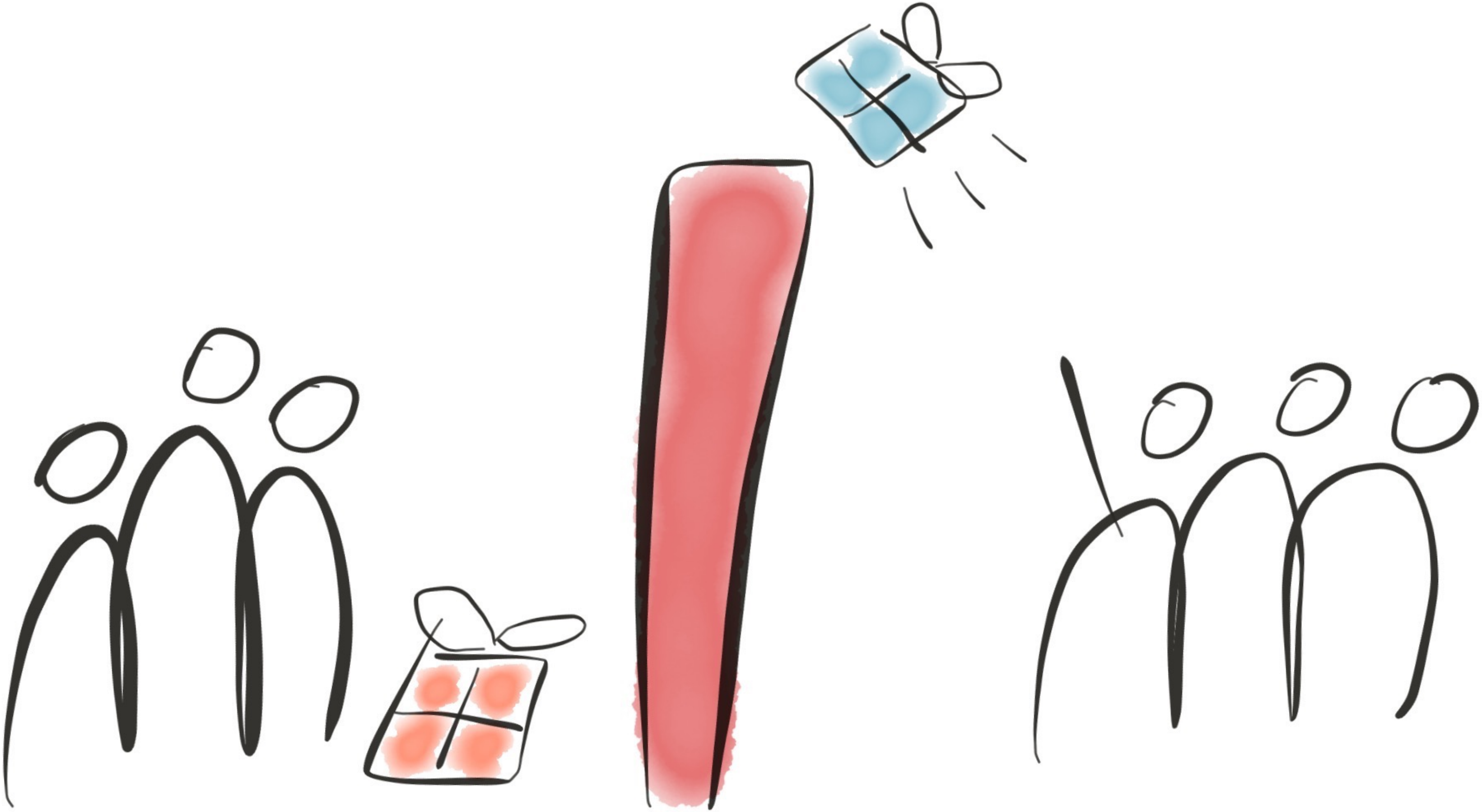


share ideas

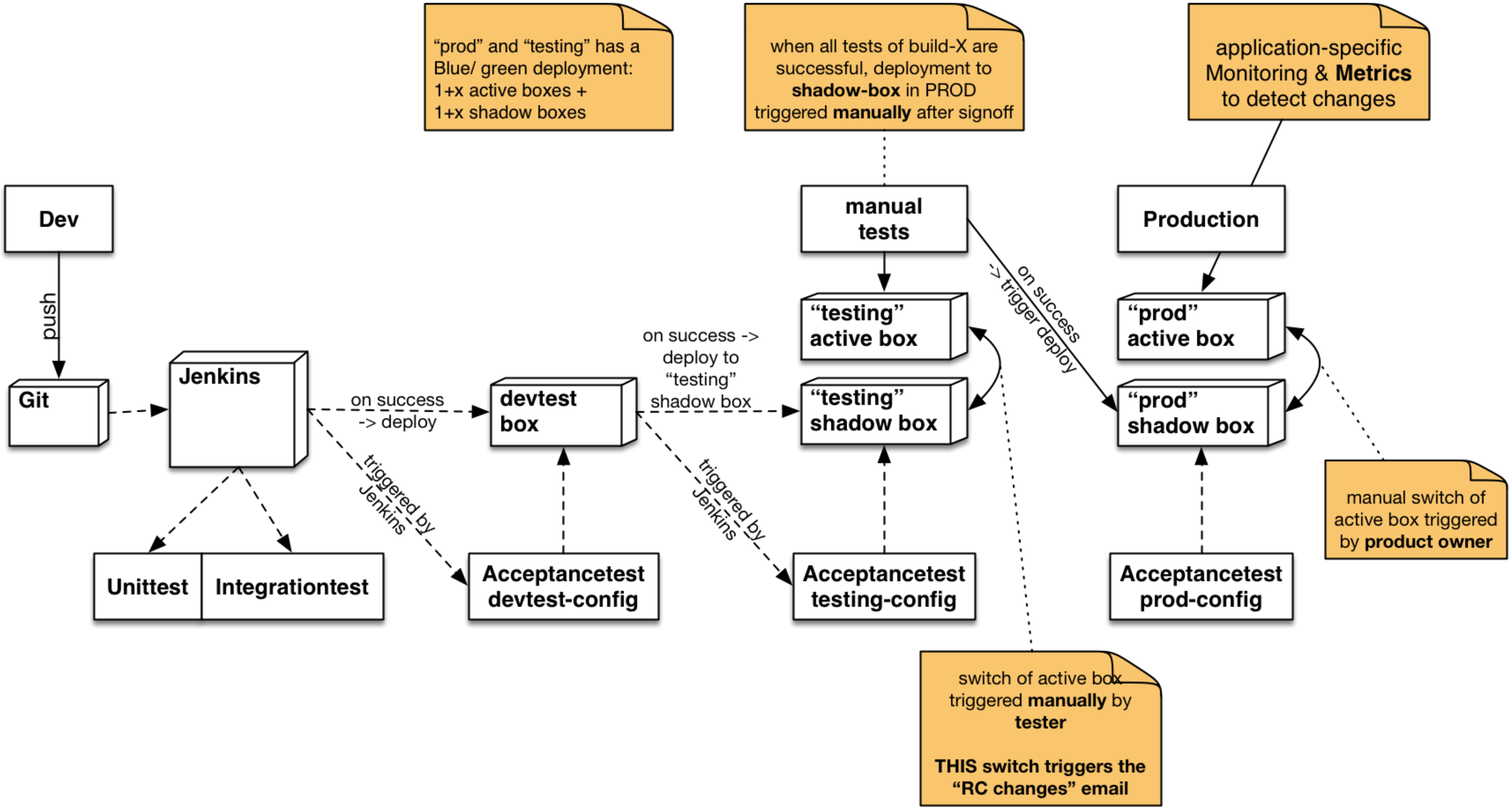
share concepts

don’t share functional code

“Deployments cannot be faster,
we have an established process!”



Sample of a deployment-pipeline



“prod” and “testing” has a Blue/ green deployment:
1+x active boxes +
1+x shadow boxes

when all tests of build-X are successful, deployment to **shadow-box** in PROD triggered **manually** after signoff

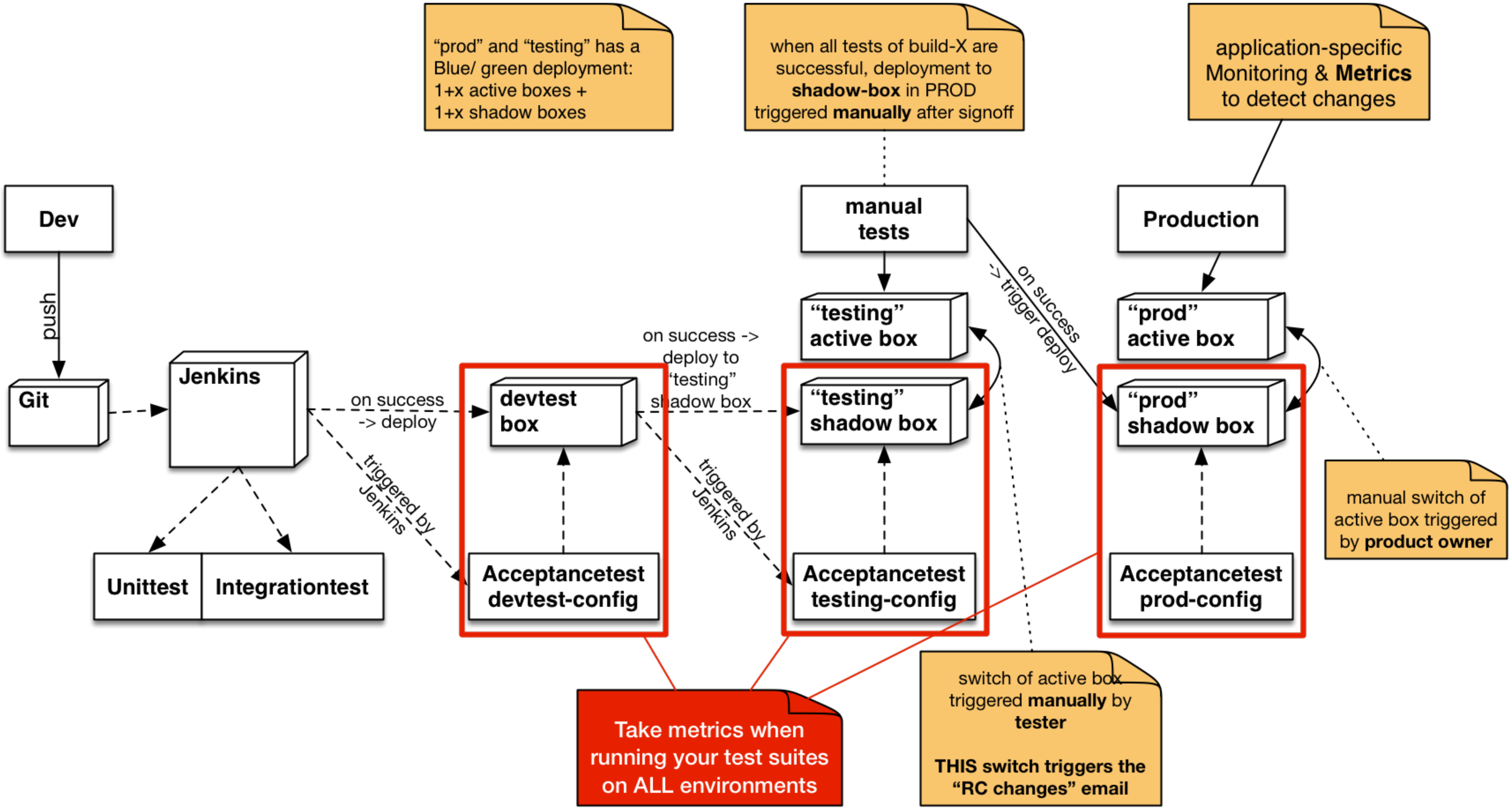
application-specific Monitoring & **Metrics** to detect changes

manual switch of active box triggered by **product owner**

switch of active box triggered **manually** by **tester**

THIS switch triggers the “RC changes” email

Sample of a deployment-pipeline



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application-specific Monitoring & **Metrics** to detect changes

Dev

push

Git

Jenkins

Unittest

Integrationtest

on success -> deploy

triggered by Jenkins

devtest box

Acceptancetest devtest-config

on success -> deploy to "testing" shadow box

triggered by Jenkins

manual tests

"testing" active box

"testing" shadow box

Acceptancetest testing-config

on success -> trigger deploy

Production

"prod" active box

"prod" shadow box

Acceptancetest prod-config

manual switch of active box triggered by **product owner**

Take metrics when running your test suites on ALL environments

switch of active box triggered **manually** by **tester**

THIS switch triggers the "RC changes" email

What this taught us

What this taught us

- enable fast feedback for your team

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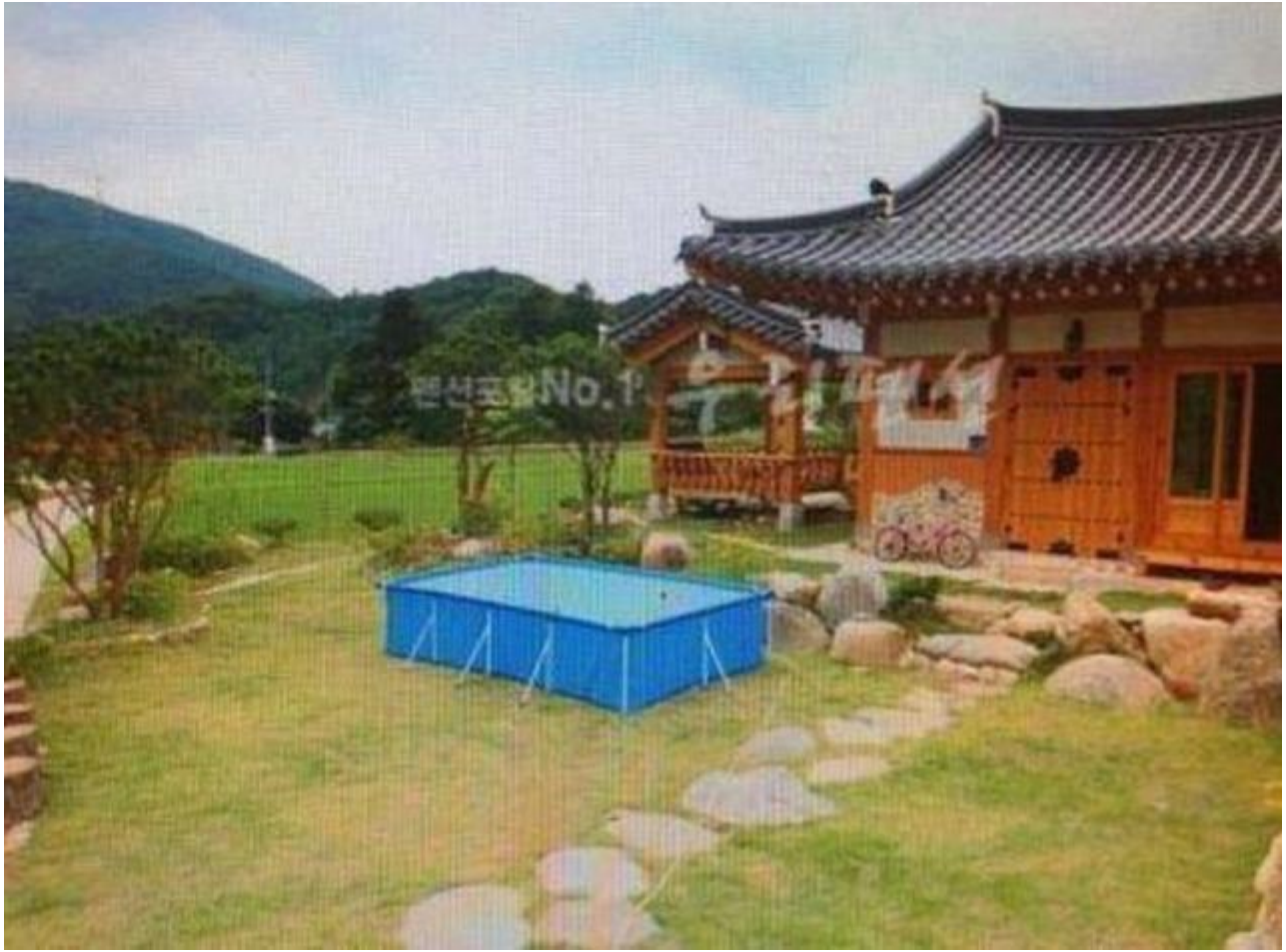
- enable fast feedback for your team
- automate what’s next to you first
- do your homework before you teach others
- other people will notice the benefits
- complex processes can be adopted, divide them and take one step at a time

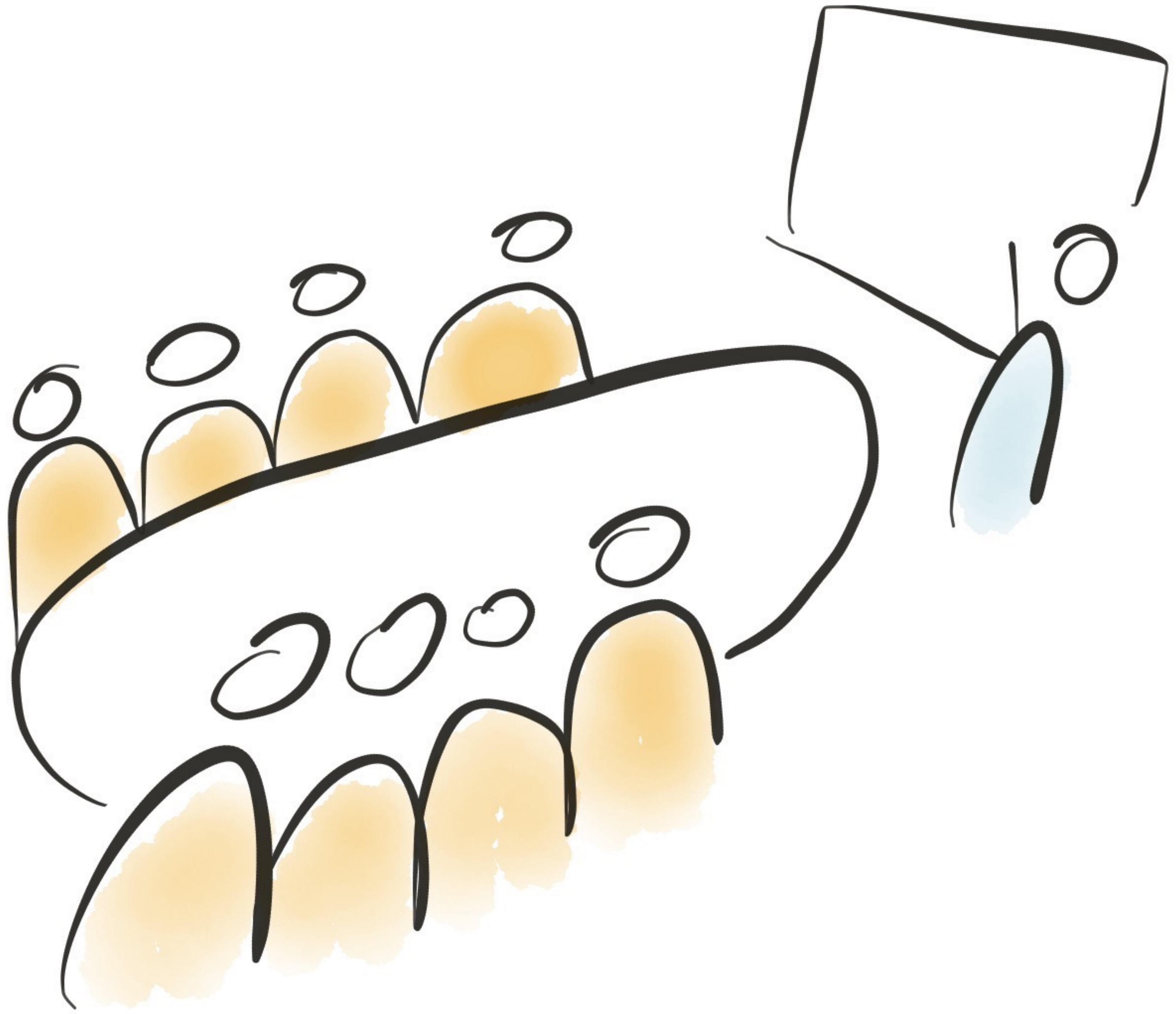
summarized:

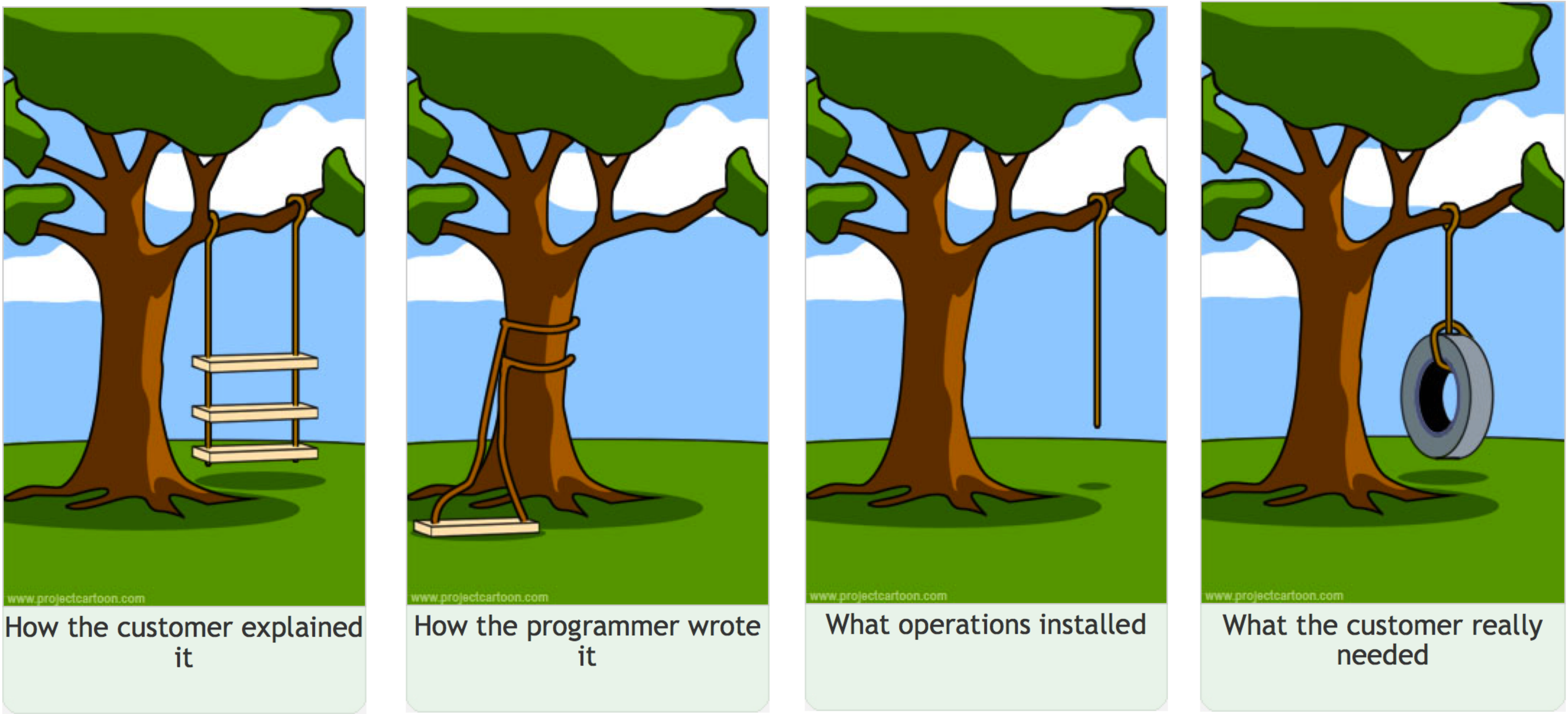
change perspectives!



http://izismile.com/2013/01/22/buyers_beware_its_a_matter_of_perspective_3_pics.html

A company which
embraced and evolved





How the customer explained it

How the programmer wrote it

What operations installed

What the customer really needed

http://projectcartoon.com/cartoon/1

Summary

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- distributed systems are hard - **organizational impact**, too

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- **Don’t overwhelm people**, change one thing at a time

Summary

- distributed systems are hard - **organizational impact**, too
- don't forget: there's always at least one **other perspective**
- **Don’t overwhelm people**, change one thing at a time
- not everyone who **wants** microservices is immediately **capable** to establish them

Thank you!

Questions?

Comments?

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