

# Domain-Driven Transformation

## Bring (Back) Structure to Legacy Monoliths

Starring

Domain Storytelling

Refactorings

C4 Model

Special  
Appearance

Complexity

Directed By

Strangler Fig Application

Presented by

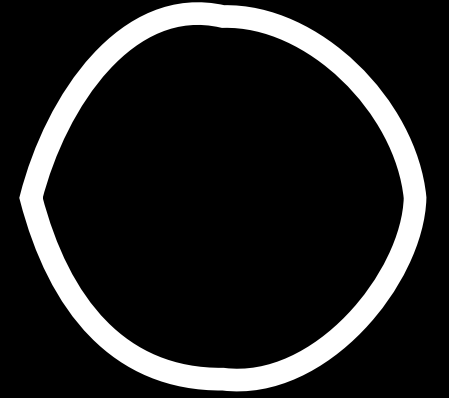
Henning Schwentner

NC-17

NO ONE 17 AND UNDER  
ADMITTED



*Metro Goldwyn Lolcat*





















Richtfest  
Elbphilharmonie

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2010/2011











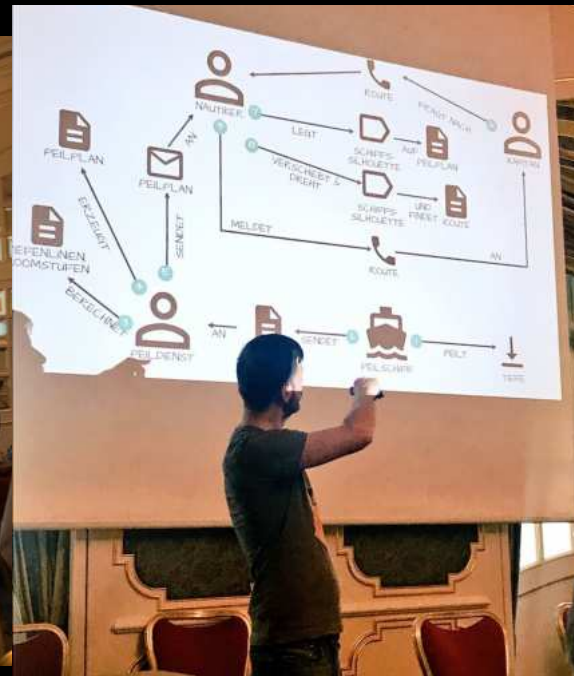
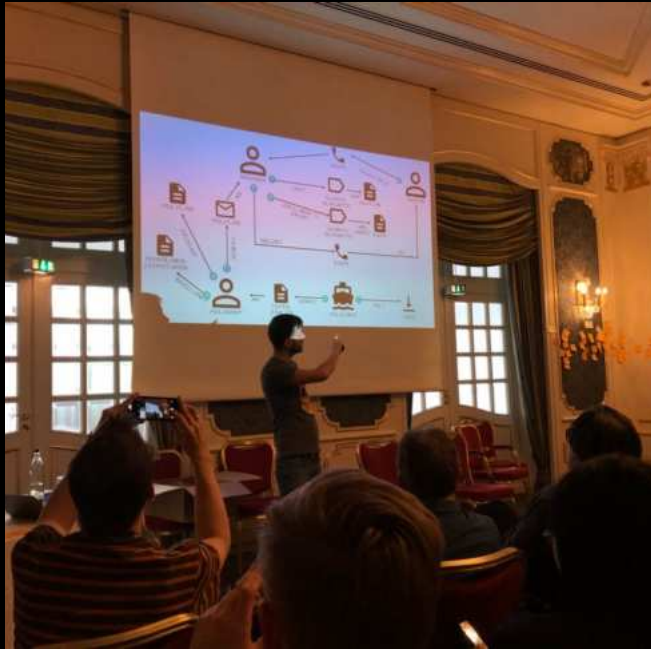








# THE NAME OF THIS SPEAKER IS HENNING SCHWENTNER



LIVE 45 MIN TALK







*The Addison Wesley Signature Series*



# DOMAIN STORYTELLING

A COLLABORATIVE, VISUAL,  
AND AGILE WAY TO BUILD  
DOMAIN-DRIVEN SOFTWARE

STEFAN HOER  
HENNING SCHWENTNER



Foreword by NICK TUNE

*The Addison Wesley Signature Series*



# DOMAIN-DRIVEN TRANSFORMATION

MODULARIZE AND MODERNIZE  
LEGACY SOFTWARE

CAROLA LILIENTHAL  
HENNING SCHWENTNER





*The Addison-Wesley Signature Series*



VAUGHN VERNON'S  
virtu

# DOMAIN STORYTELLING

A COLLABORATIVE  
AND AGILE WAY TO  
DOMAIN-DRIVEN

STEFAN HOER  
HENNING SCHWENTNER



Stefan Hofer • Henning Schwentner

## Domain Storytelling

Gemeinschaftlich, visuell und agil  
zu fachlich wertvoller Software



dpunkt.verlag

*The Addison-Wesley Signature Series*



# DOMAIN- TRANSFORMATION

MODULARIZE AND  
LEGACY SOFTWARE

CAROLA LILIENTHAL  
HENNING SCHWENTNER



Carola Lilienthal • Henning Schwentner

## Domain-Driven Transformation

Monolithen und Microservices  
zukunftsfähig machen



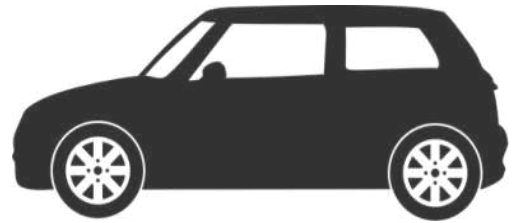
dpunkt.verlag





Story Time

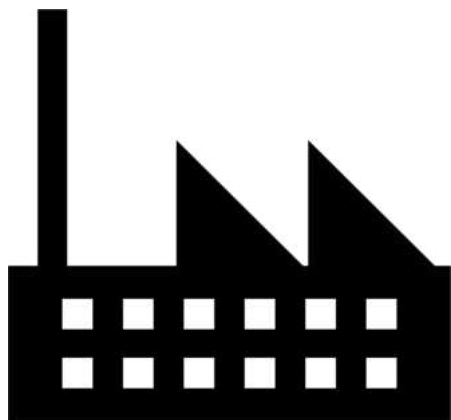




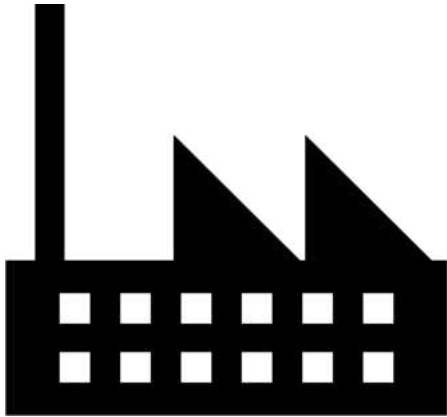
*Alphorn*  
*Auto Leasing Inc.*

*@hschwentner*









*@hschwentner*

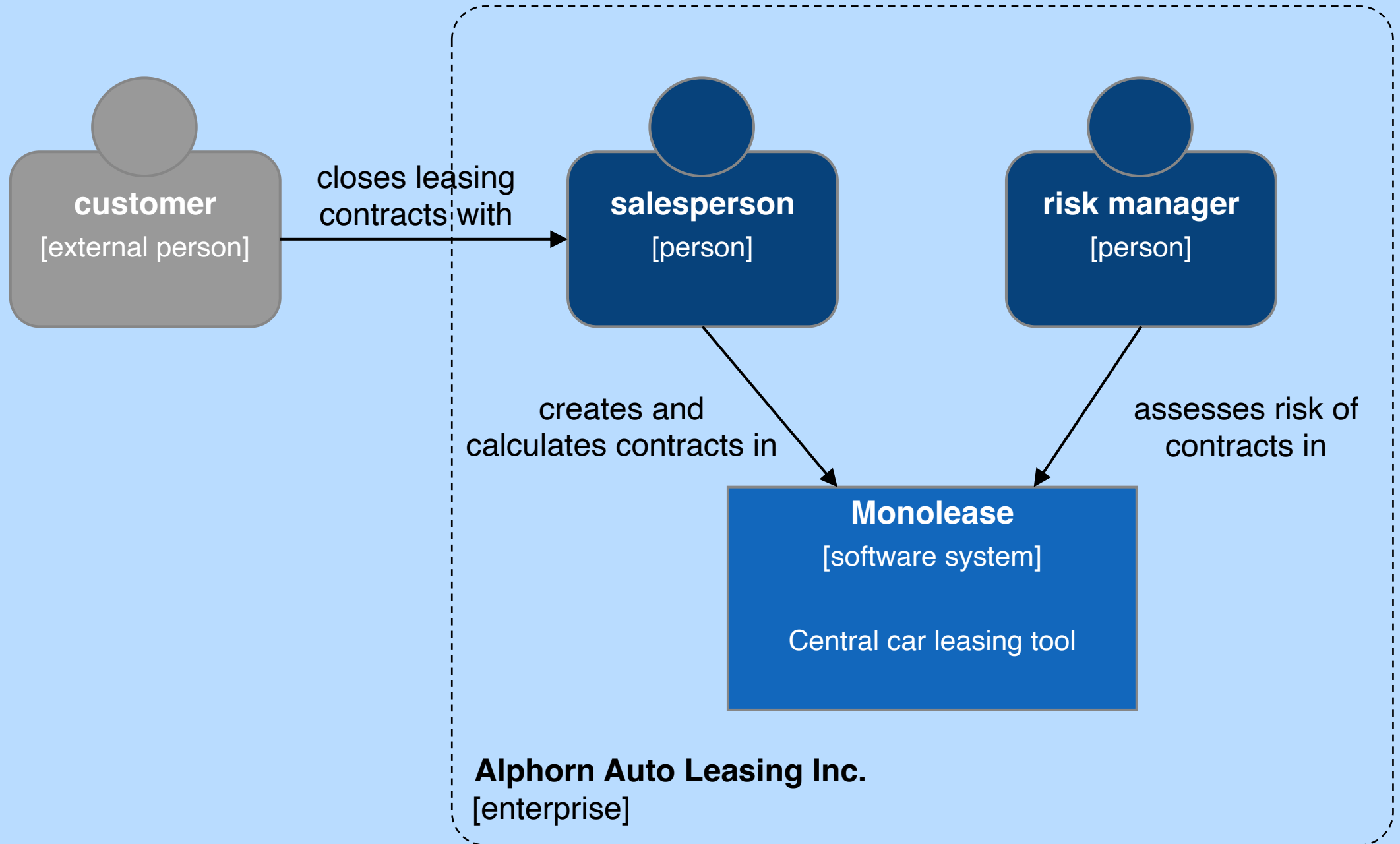


# *Monolease A*





# Context

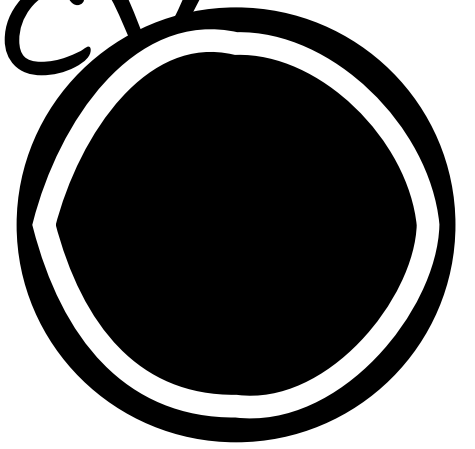








# Issues with Legacy Systems



error-prone

teams get in  
each other's  
way

long  
time to  
market

it's hard to  
build new  
ideas into  
the system

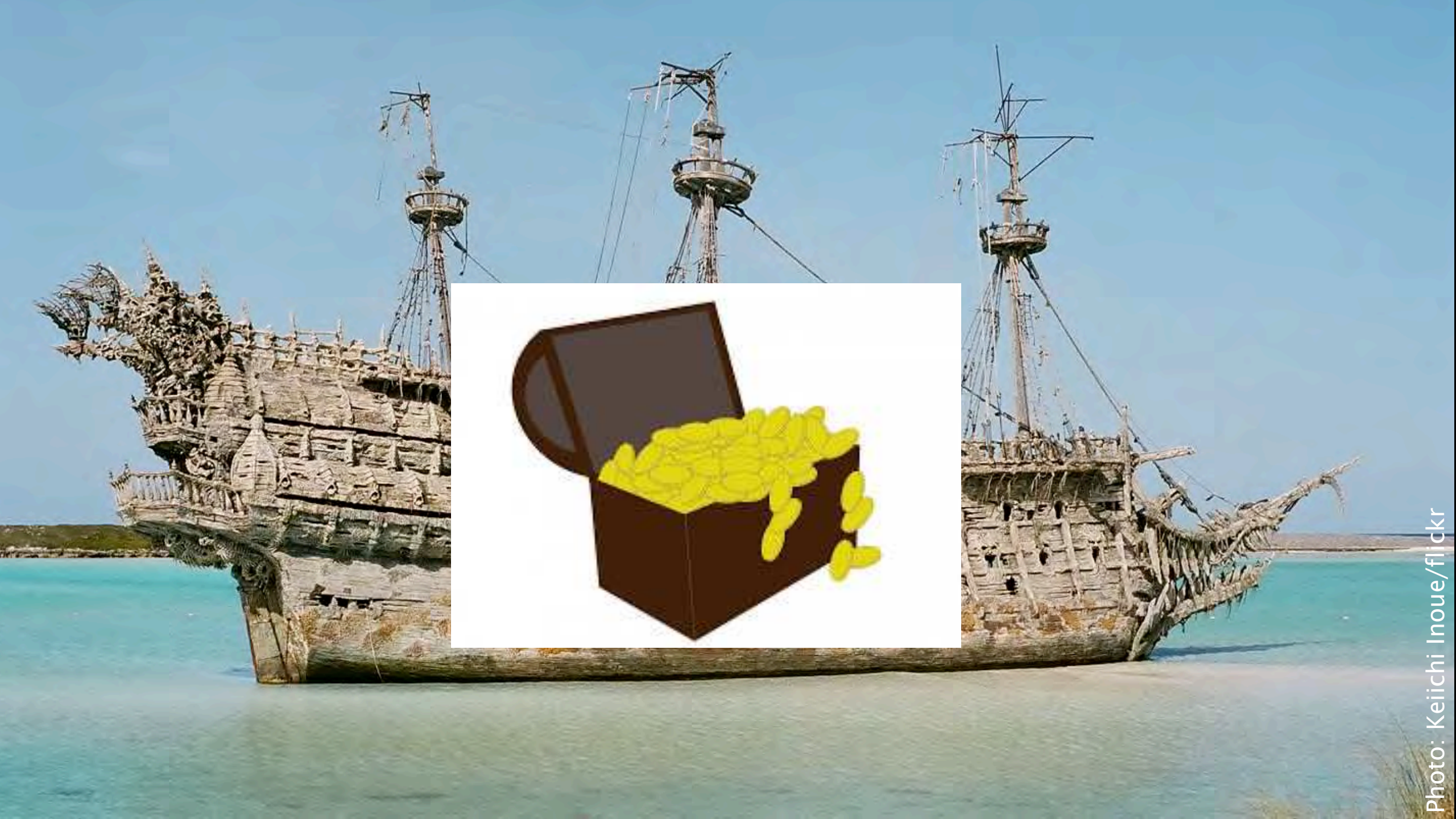
there are  
often more  
than one  
and they are  
doing more or  
less the same

@hschwentner



*Alphorn's boss:  
“Modernize it!”*

*@hschwentner*





I hate  
this old  
mess!



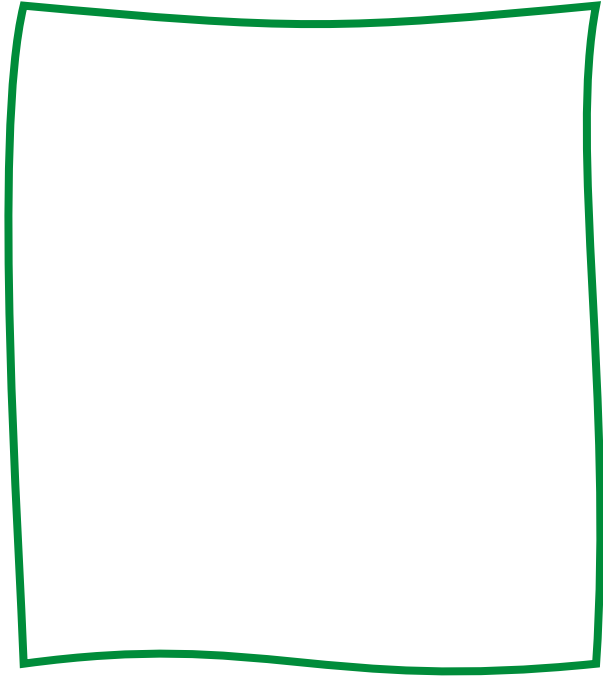
=>

This system  
has earned  
our money  
for decades

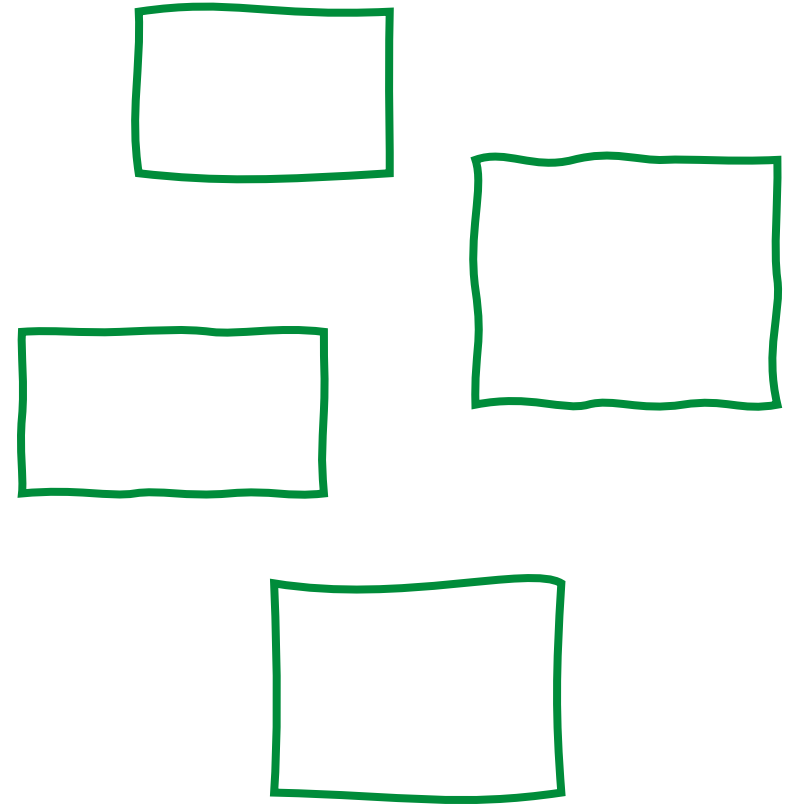


*The consultant:  
“Modularize it!”*

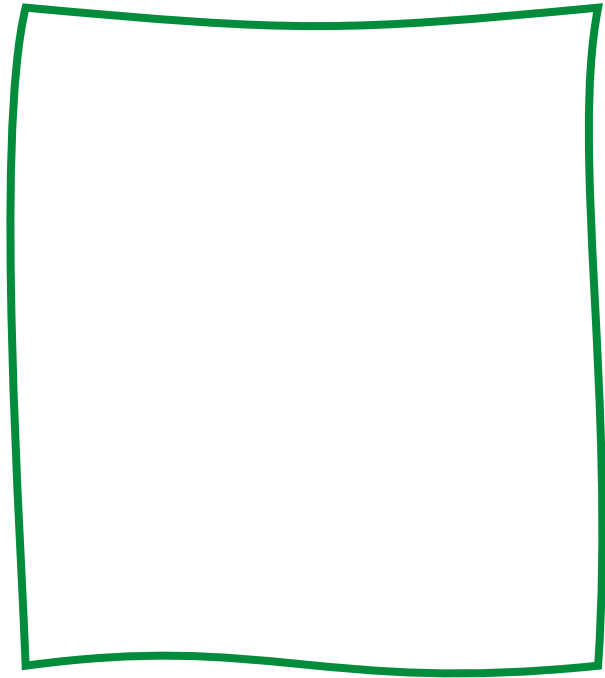




monolith

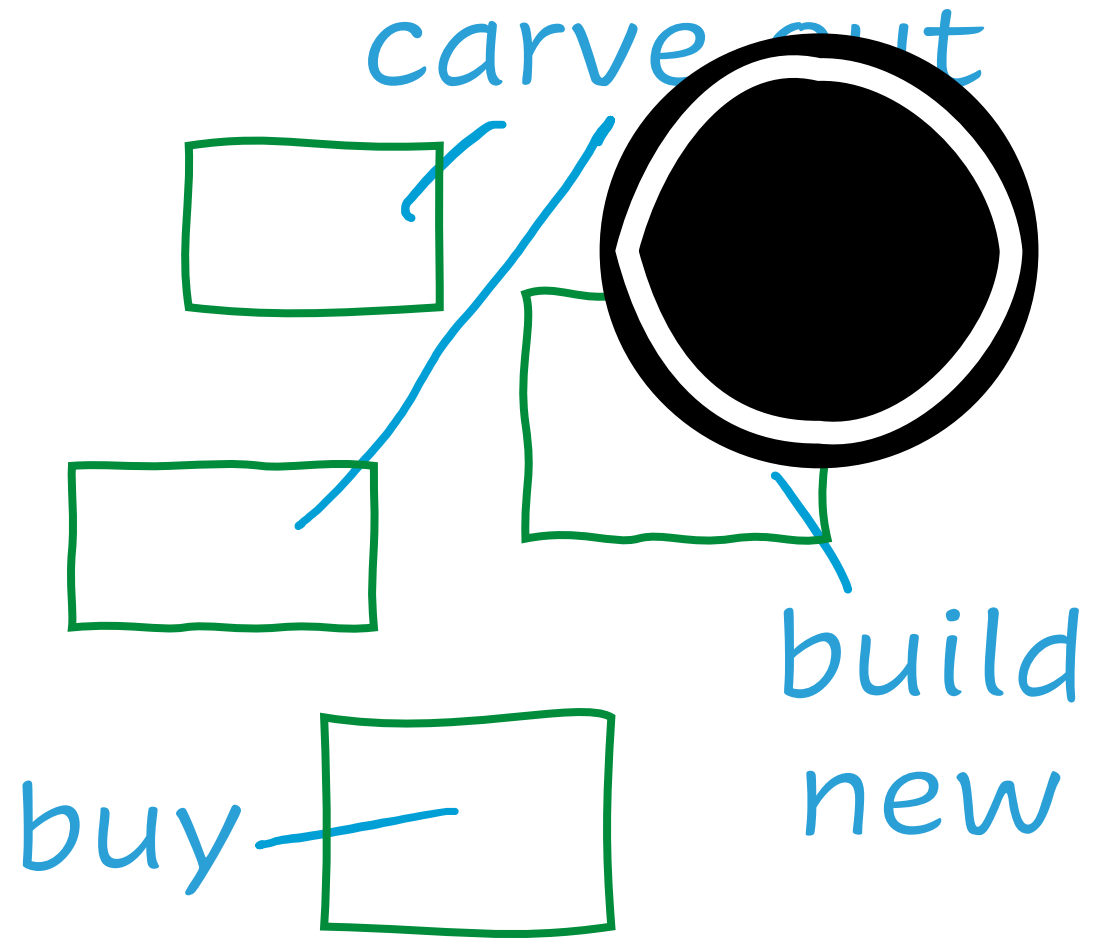


to modules



monolith

=>



to modules



**Diagnosis:**  
**from Which Diseases Does**  
**Our Patient suffer?**

**Different diseases require  
different treatment**



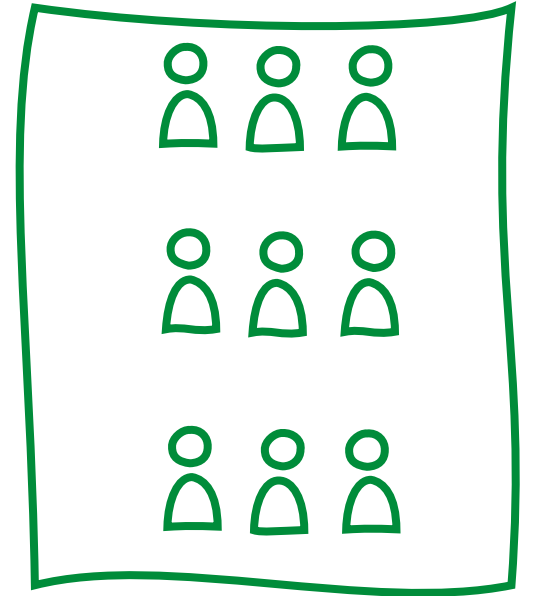
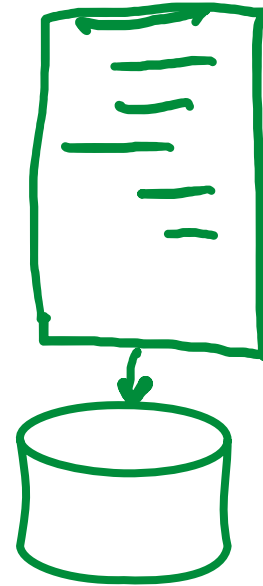
# Typical Diseases of Legacy Systems



big ball  
of mud



poorly expressed  
domain knowledge



bad  
team  
organization

@hschwentner

# Cures



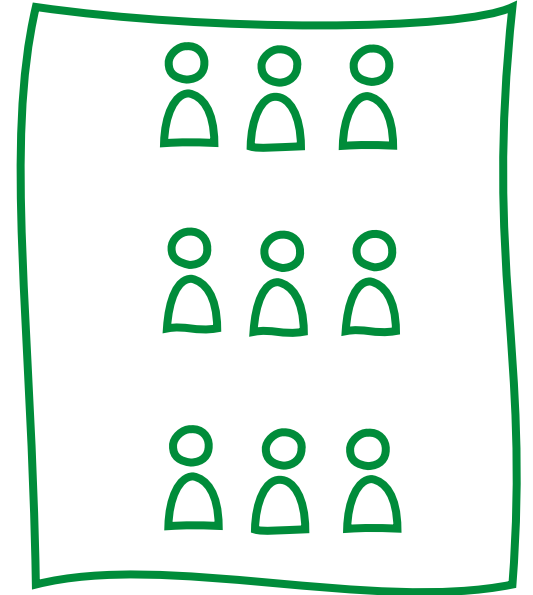
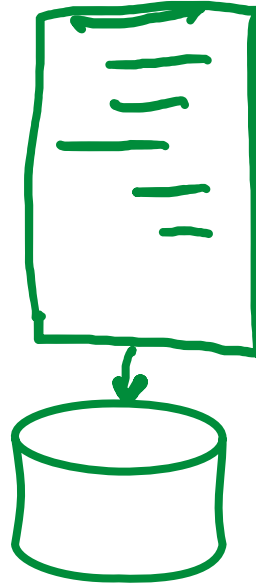
big ball  
of mud

strategic  
transformation



poorly expressed  
domain knowledge

tactical  
transformation  
@hschwentner

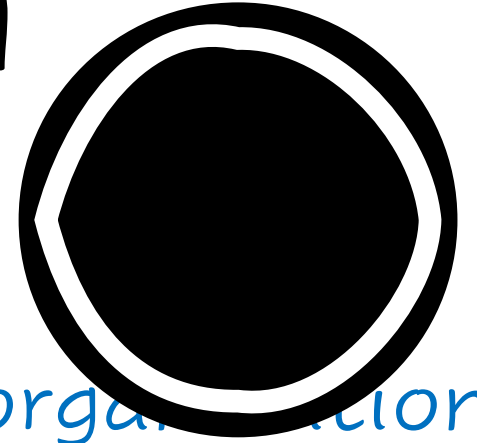


bad  
team  
organization

team-organizational  
transformation



# Domain-Driven Refactorings



## tactical transformation

- Tactical refactorings (that strengthen domain knowledge in the code)

## strategic transformation

- Strategic Refactorings
- Tactical Refactorings (that support strategic ones)

## team-organizational transformation

- Socio-Technical

Catalog:

<https://hschwentner.io/domain-driven-refactorings>

@hschwentner

Strategic





# Strategic Transformation



1. Step: Domain re-discovery
2. Step: Modeling the target architecture
3. Step: Aligning current with target architecture
4. Step: Do the move

*@hschwentner*

# Strategic Transformation



1. Step: Domain re-discovery
2. Step: Modeling the target architecture
3. Step: Aligning current with target architecture
4. Step: Do the move

*@hschwentner*

# **Step 1: Domain Re-Discovery**

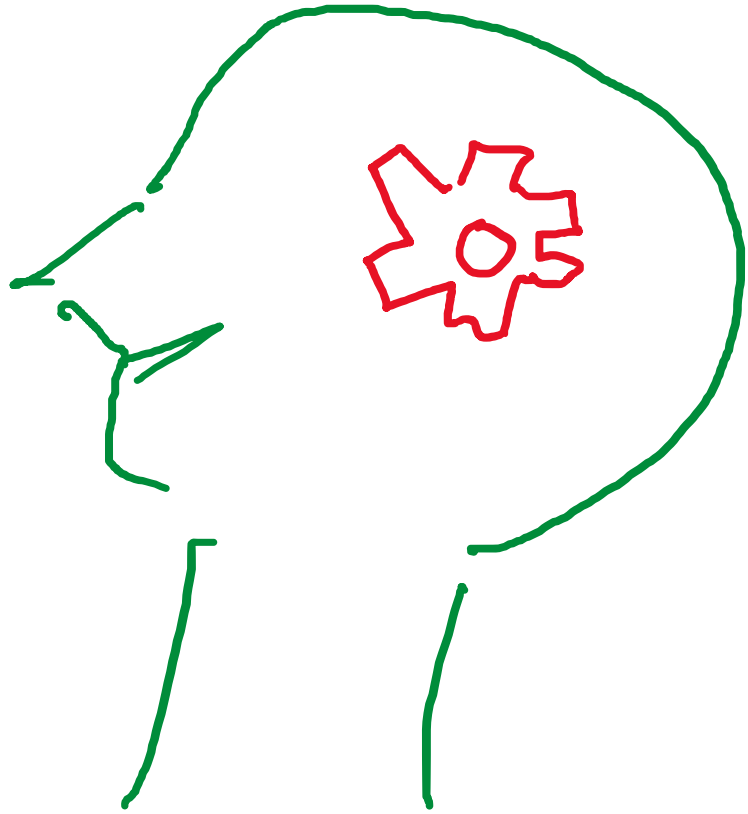


To modernize  
the legacy system  
we first have to  
put it aside

To split the monolith  
we first have to  
put it aside

# Mindset Switch





thinking  
about  
technology



thinking  
about  
business

# To build software:

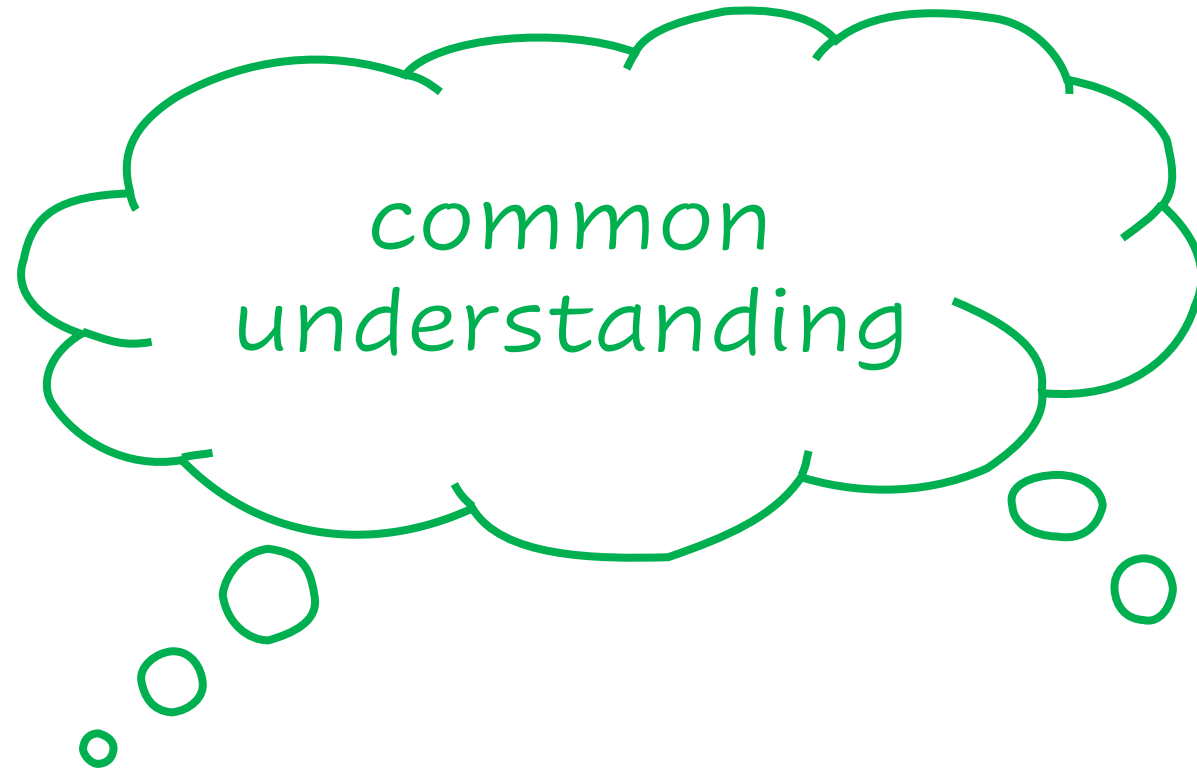


Tech people

have to understand



business people.



Tech people

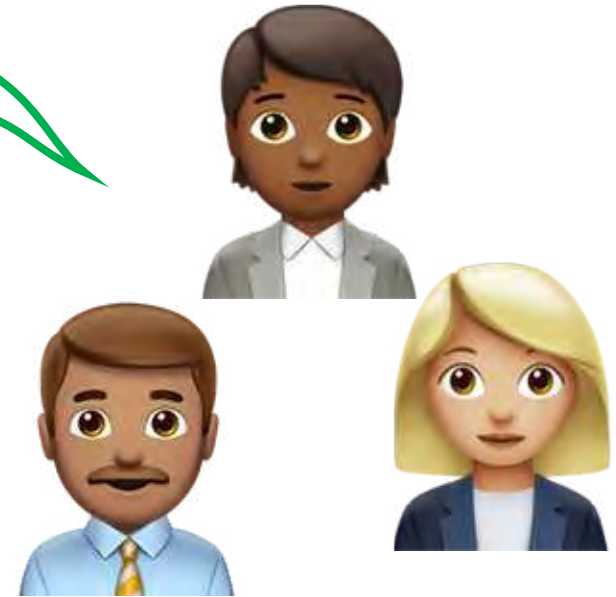


business people.





Tech people



business people.

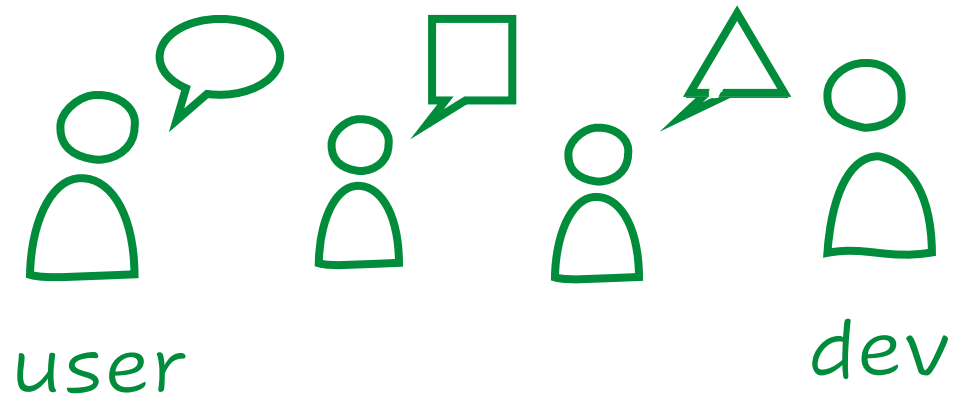
ubiquitous  
language



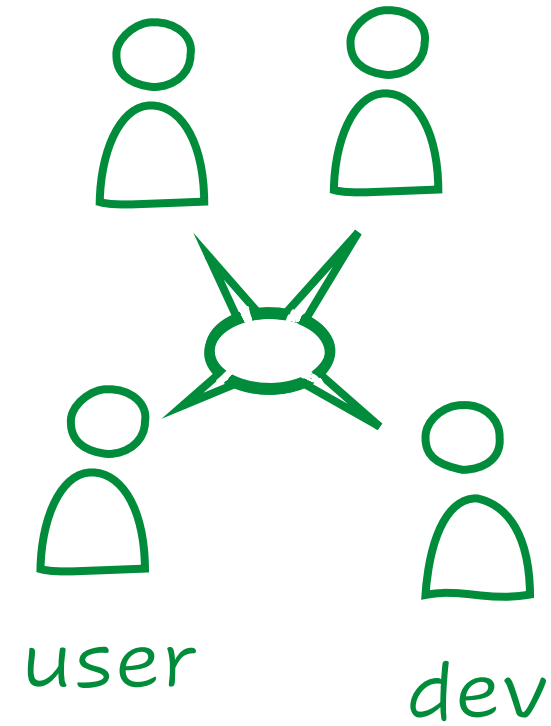
Tech people



business people.



$\Rightarrow$



telephone  
game

to

direct  
commu-  
nication





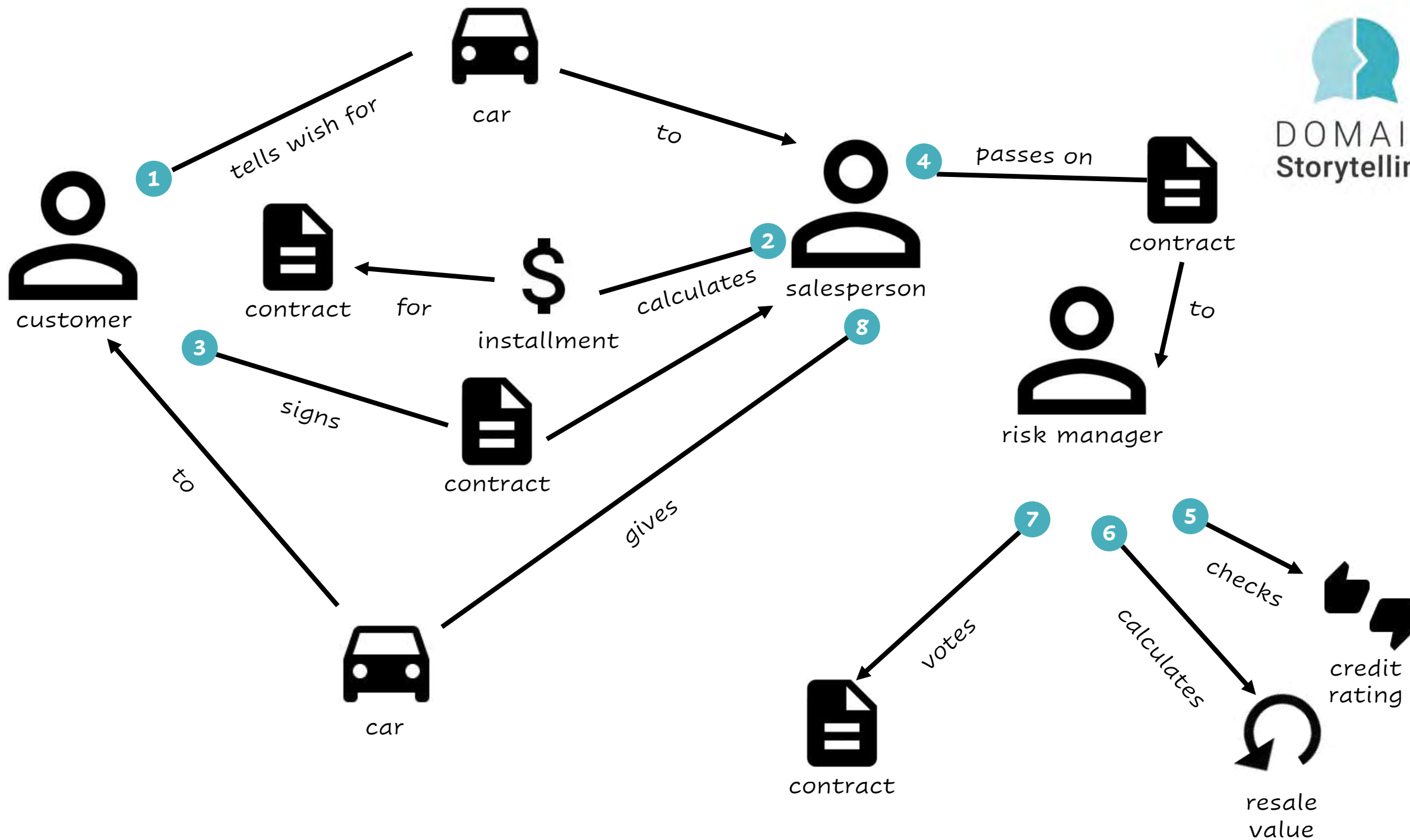
*Collaborative Modeling*

# Collaborative Modeling



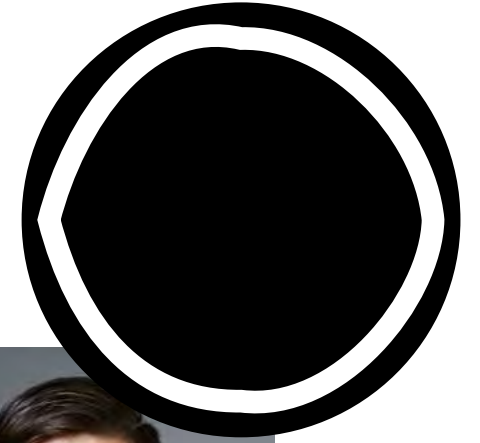
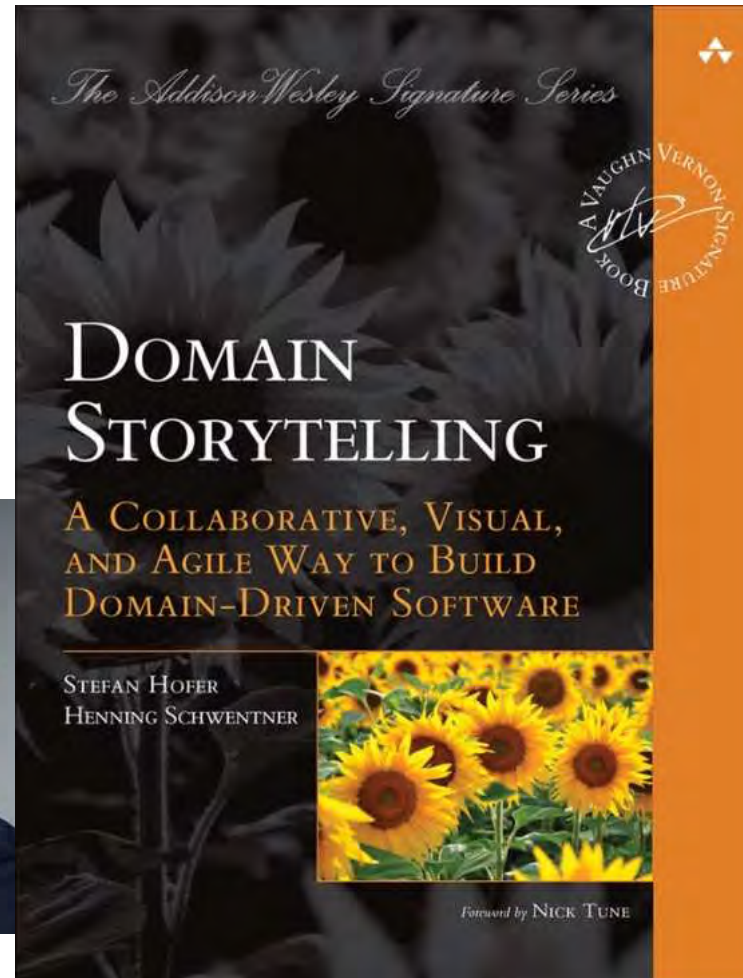
DOMAIN  
Storytelling





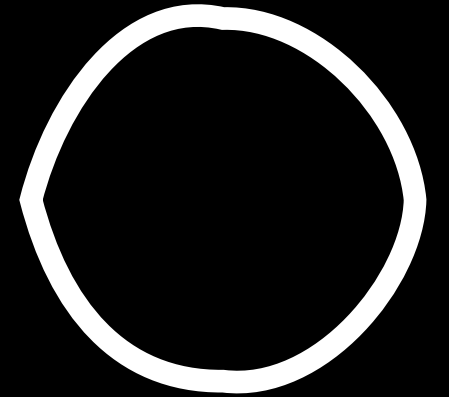


Read on in:





COMO  
CAMP



The Collaborative Modeling Unconference

May 7th–10th 2025

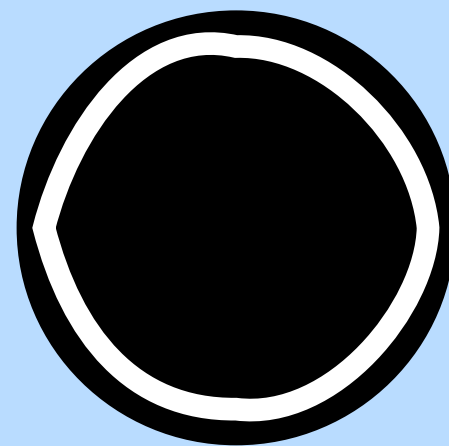
Vienna, Austria

Event Storming  
User Story Mapping  
Event Modeling  
Impact Mapping  
Domain Storytelling  
Storystorming  
Context Mapping  
Example Mapping  
etc.


[comocamp.org](https://comocamp.org)

# **Step 2: Determining the Target Architecture**

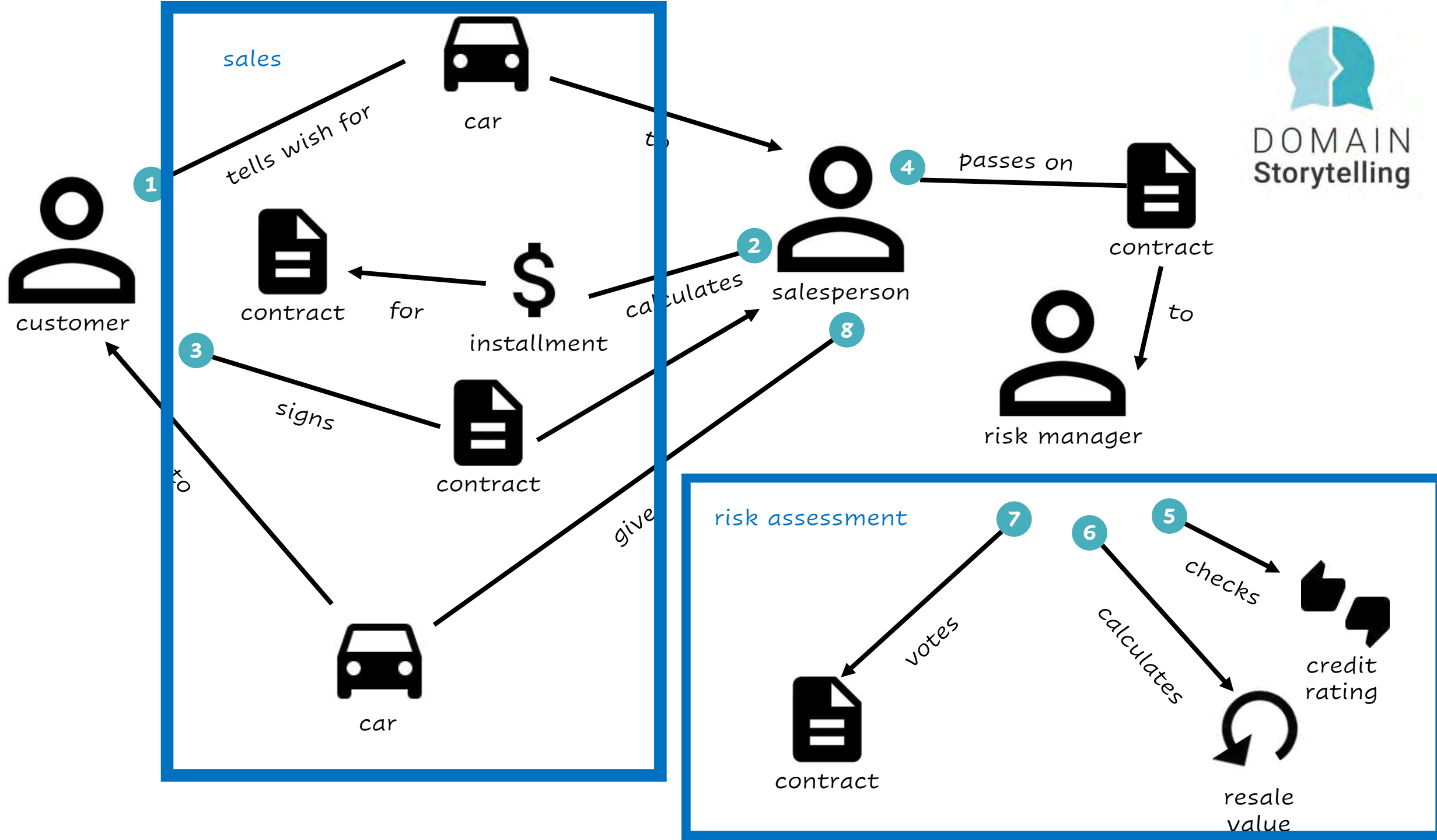




# Drawing Boundaries

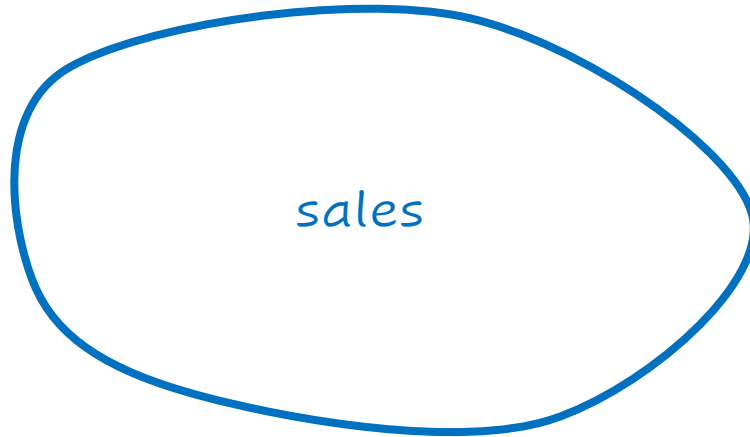
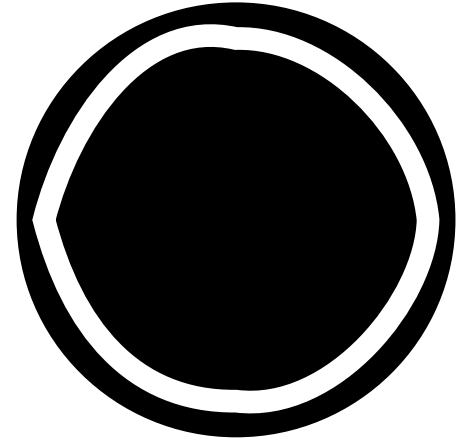


Which activities  
belong together  
(from an actor's  
perspective)?





# Context Map



**Step 3:**

**Aligning Current Architecture  
with Target Architecture**

# Aligning Current and Target Architecture

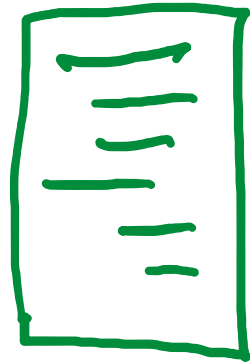


current

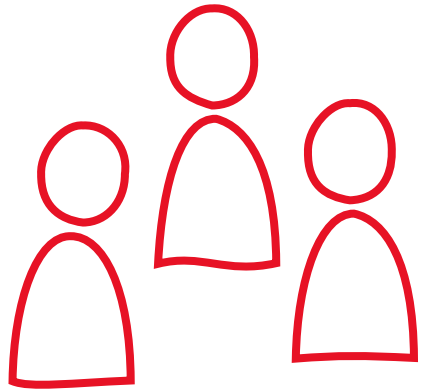


target

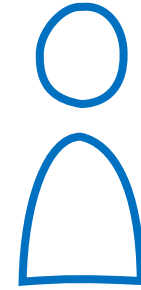
# Determining the Current Architecture



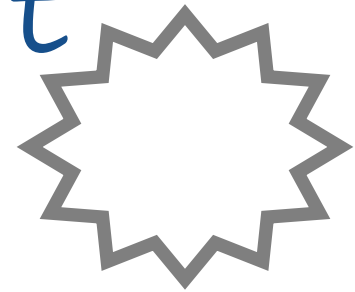
source  
code



developers



architecture  
analyst

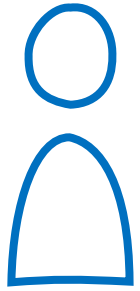


analysis tool

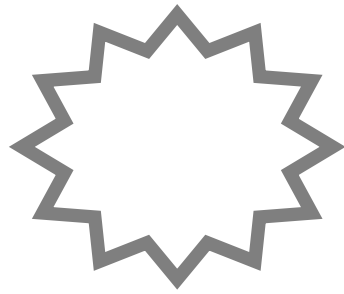
@hschwentner



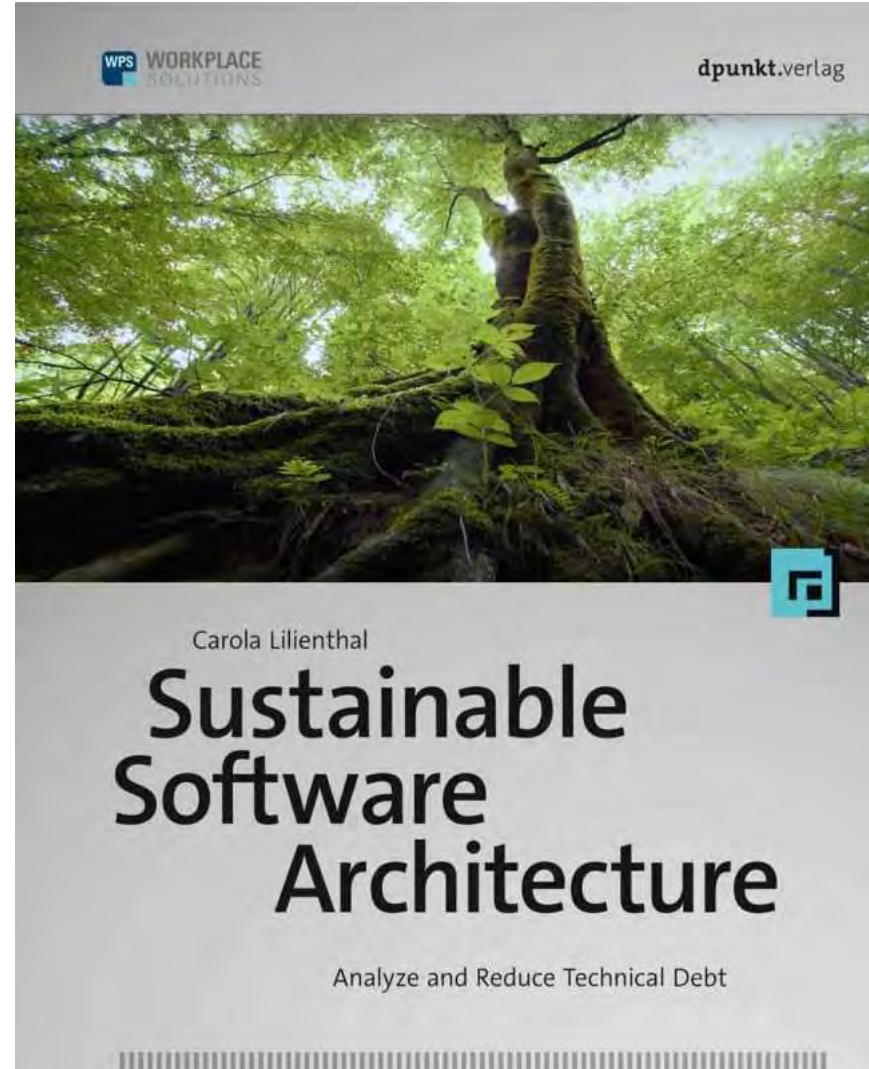
Read on in:



architecture  
analyst



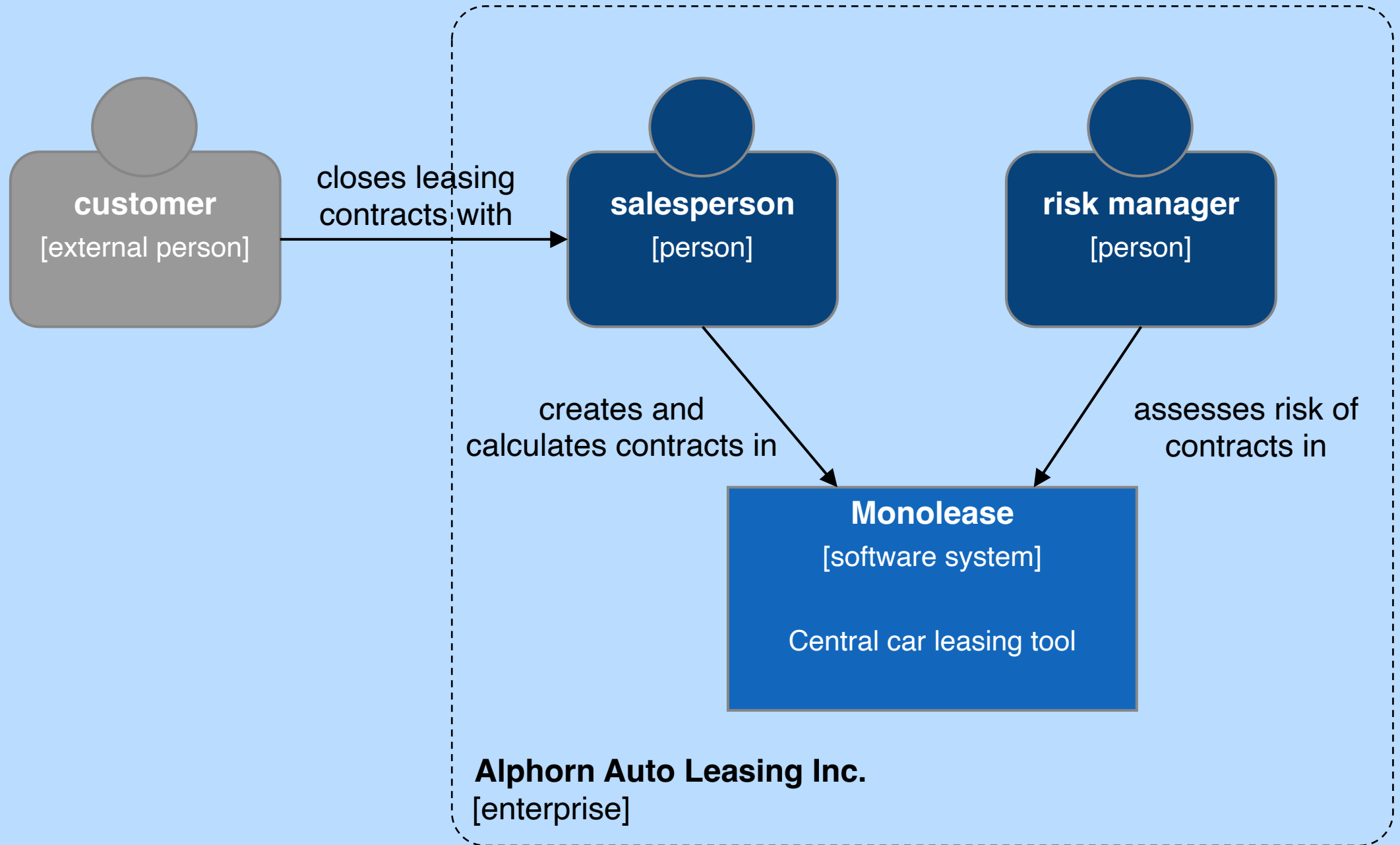
analysis tool



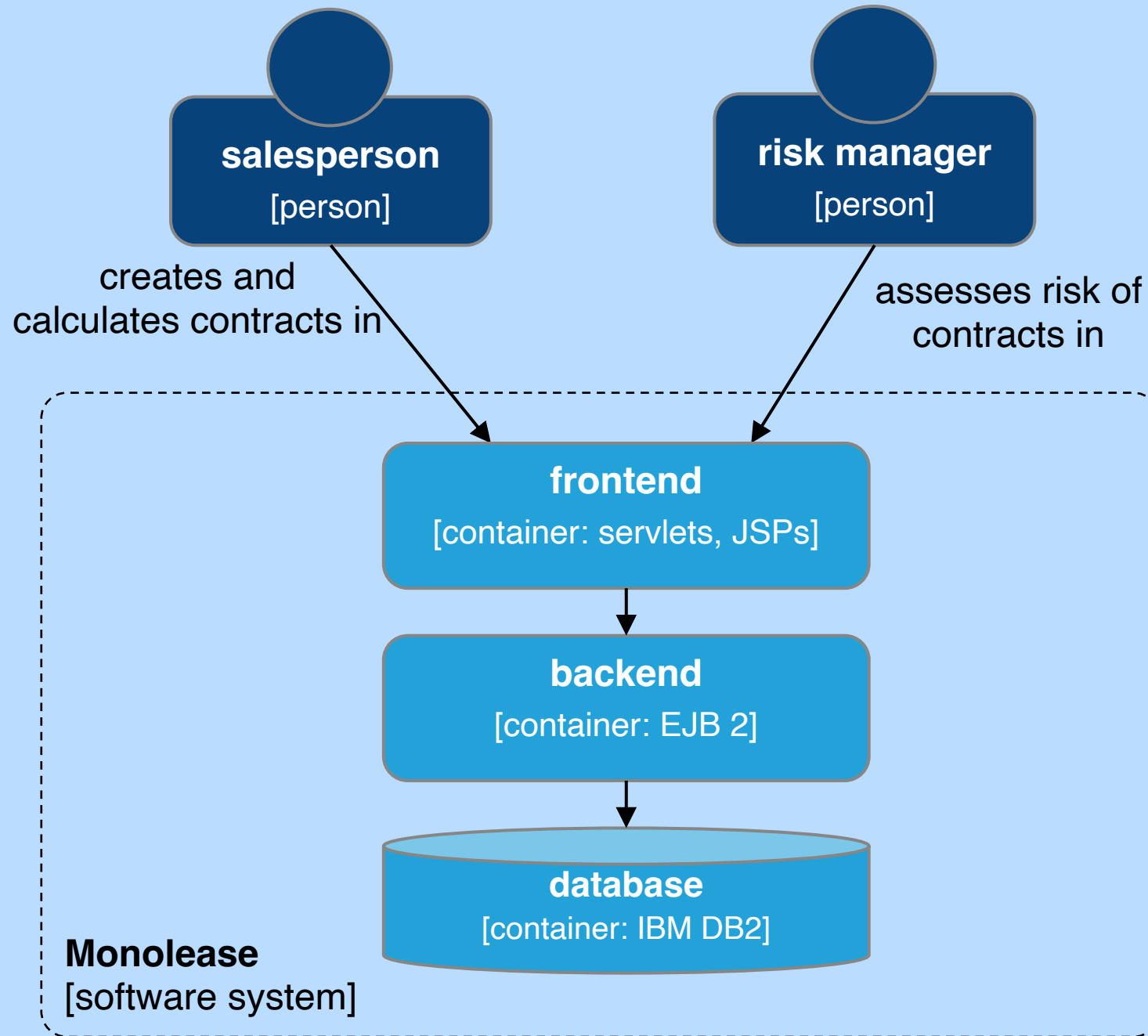
<https://sustainable-software-architecture.com>

# Context

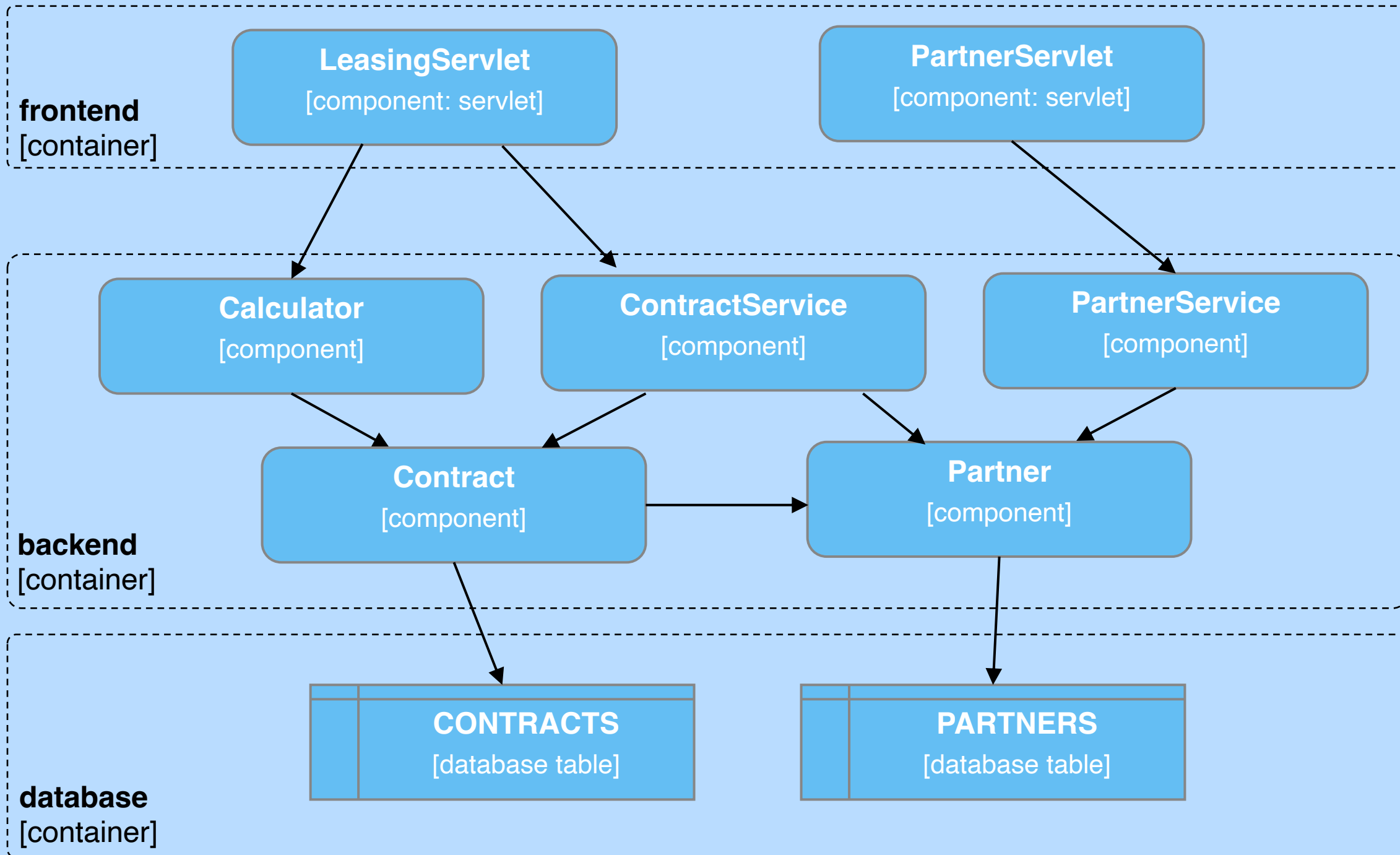
again



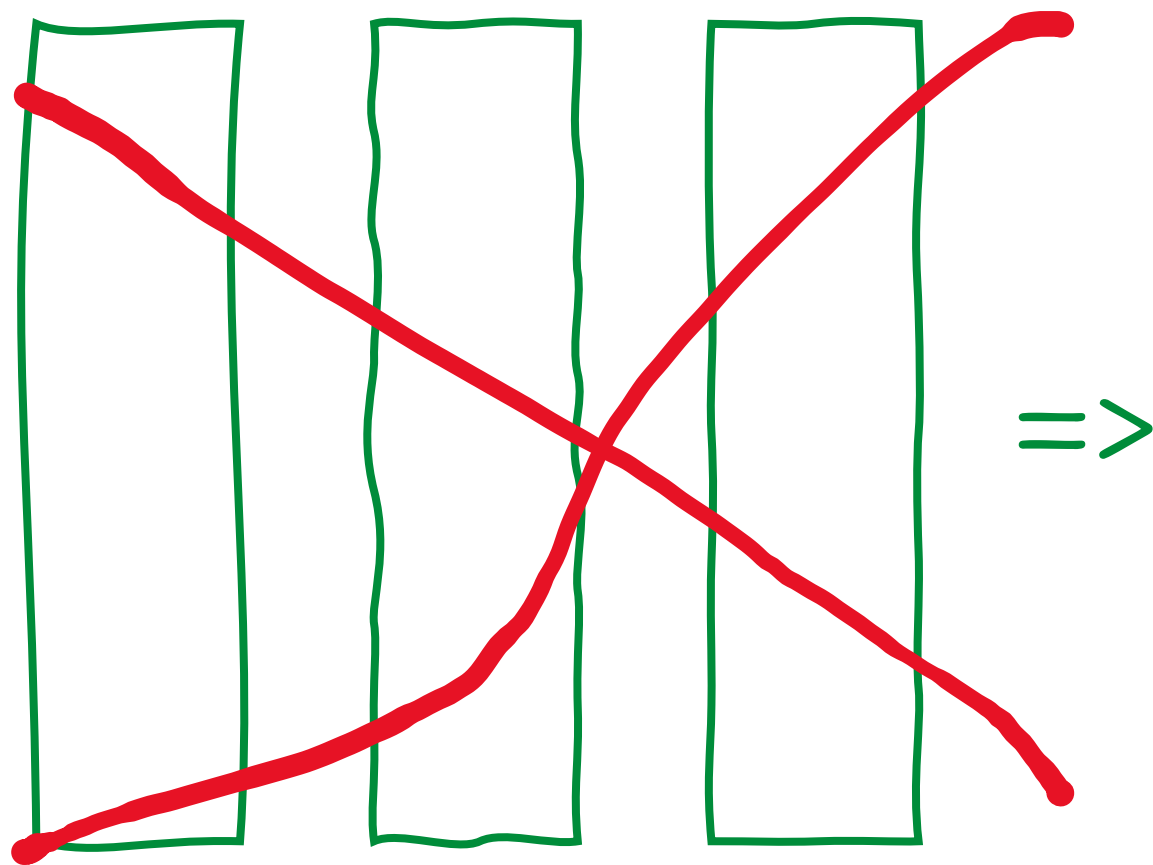
# Containers



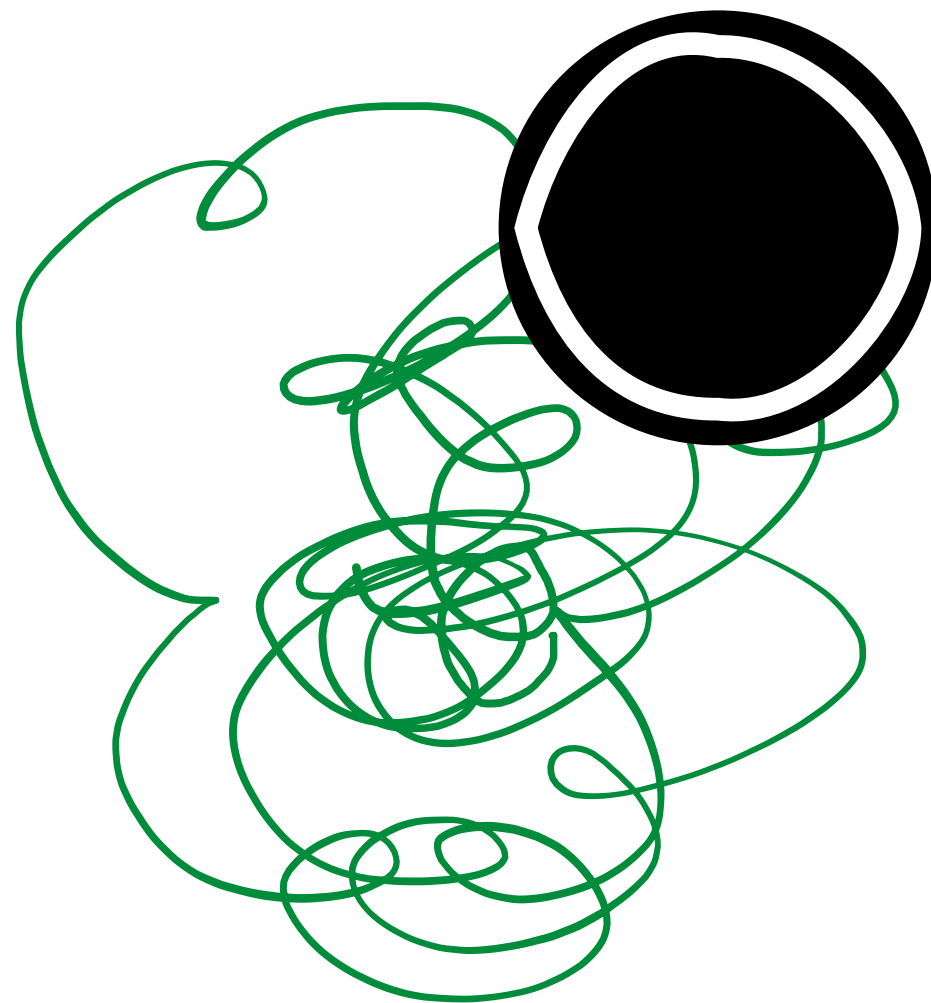
# Components







no vertical  
structuring



big ball  
of mud

# Aligning Current and Target Architecture

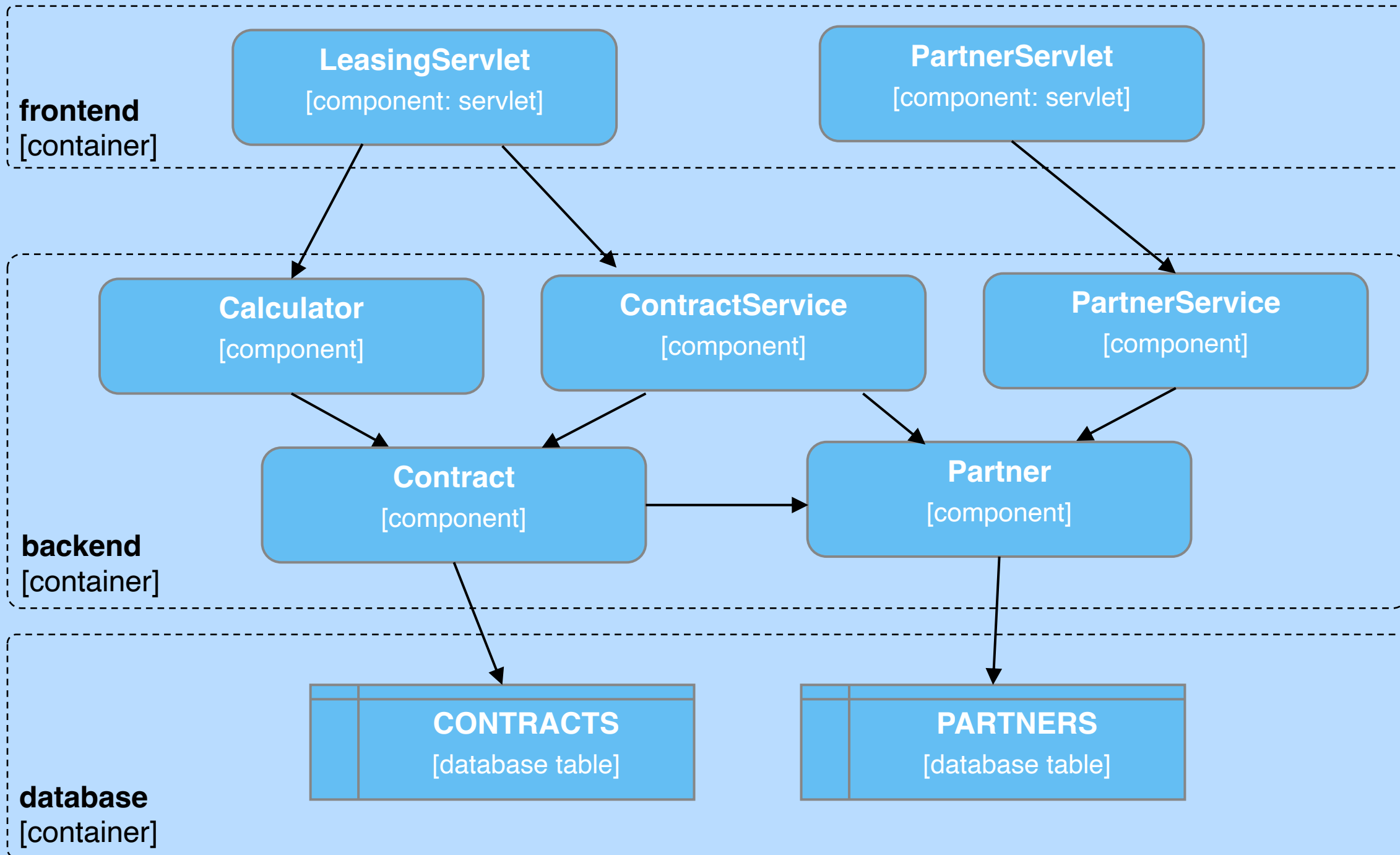


current

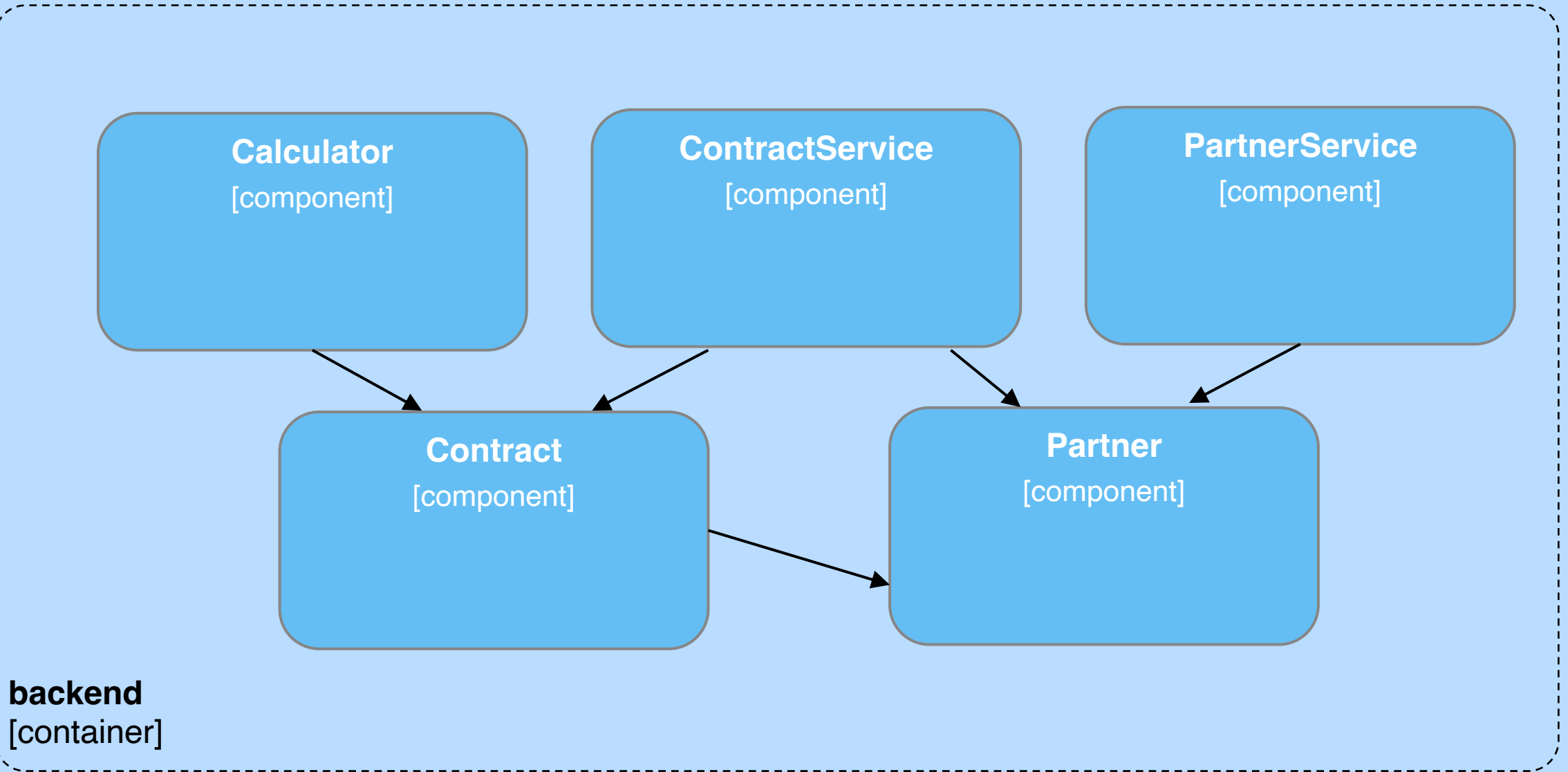


target

# Components



# Component Backend

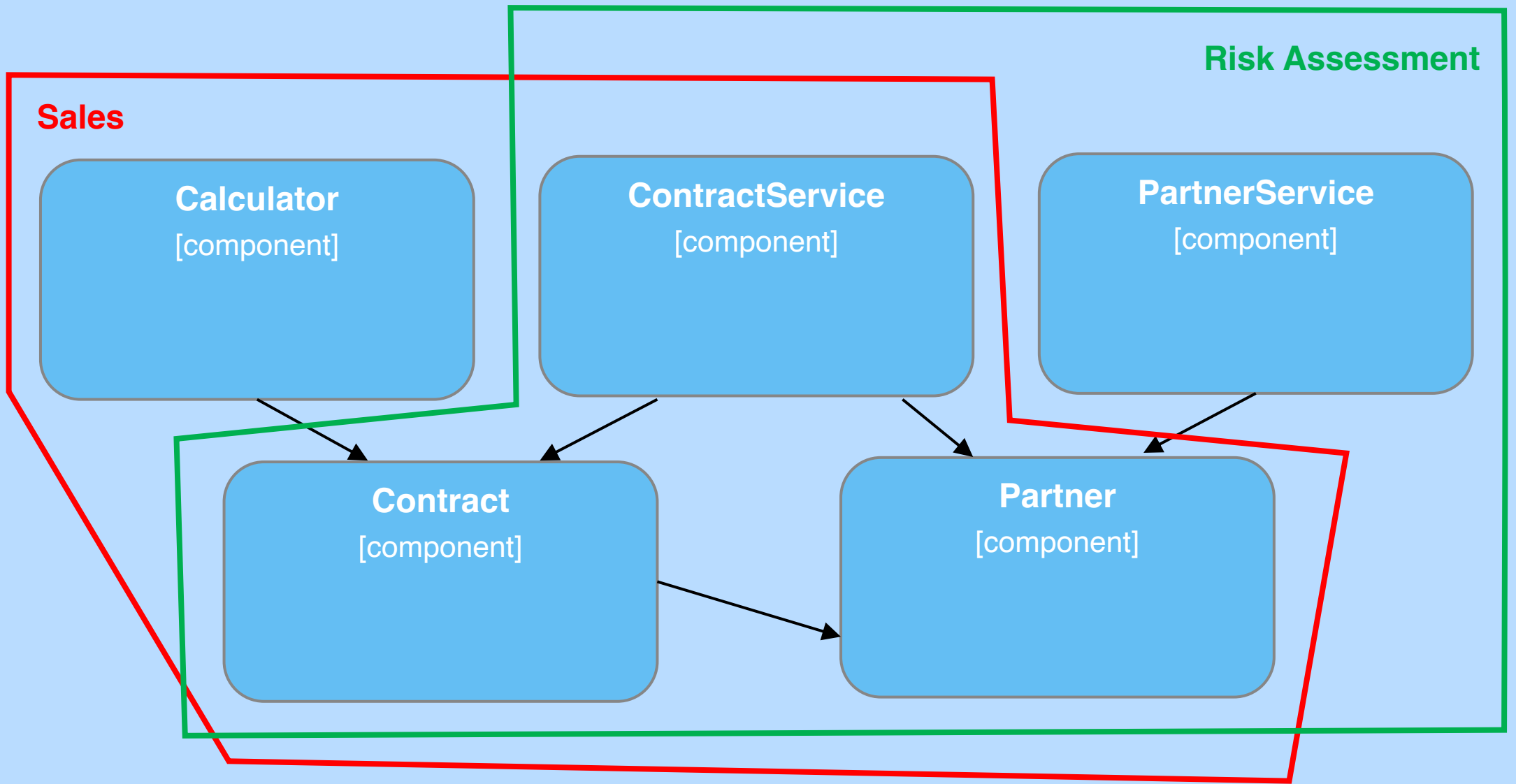




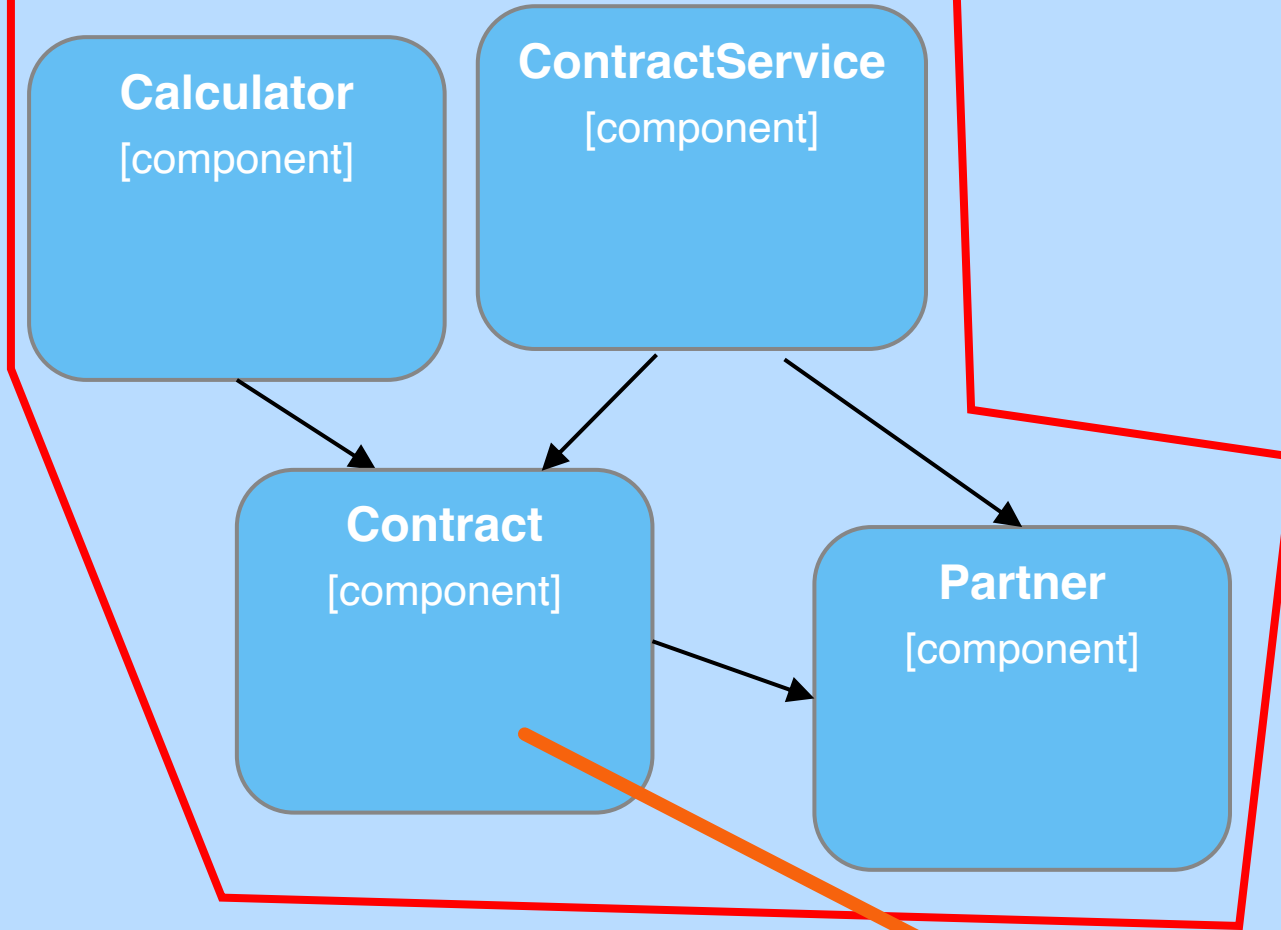
# Component Bounded Contexts



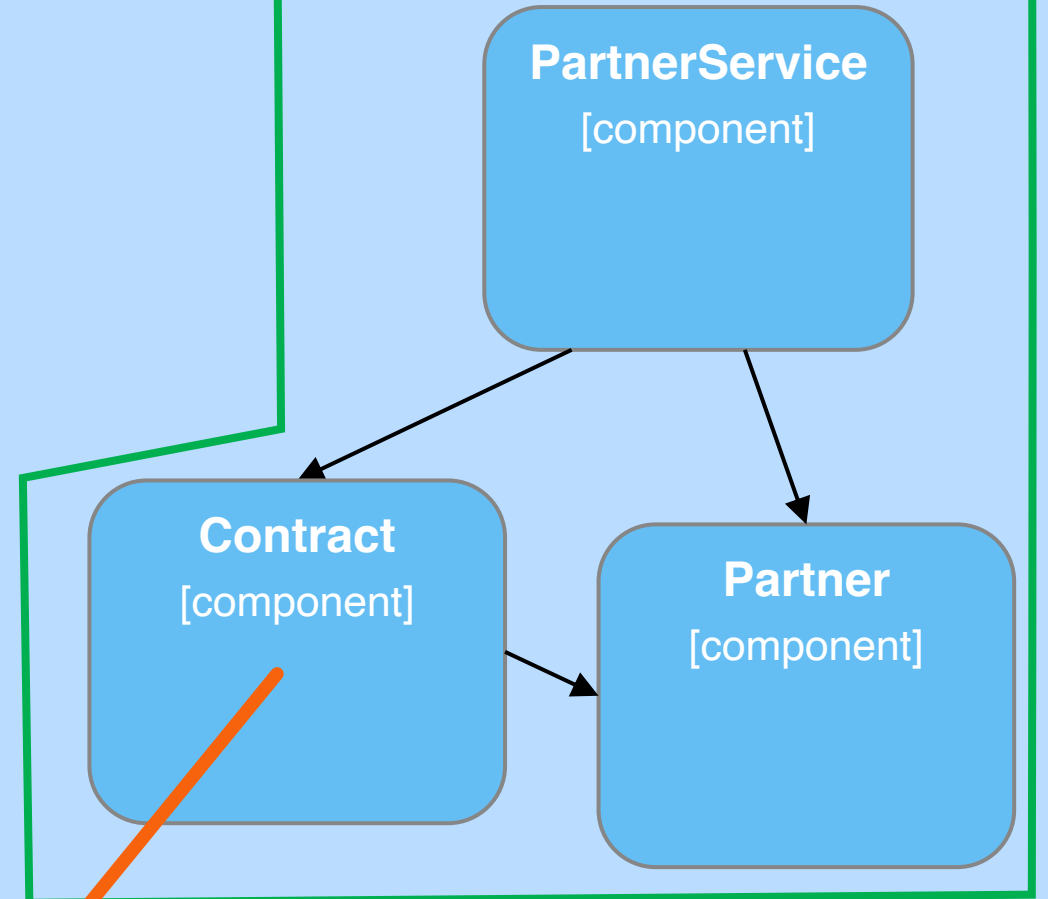
# Component Bounded Contexts



## Sales



## Risk Assessment

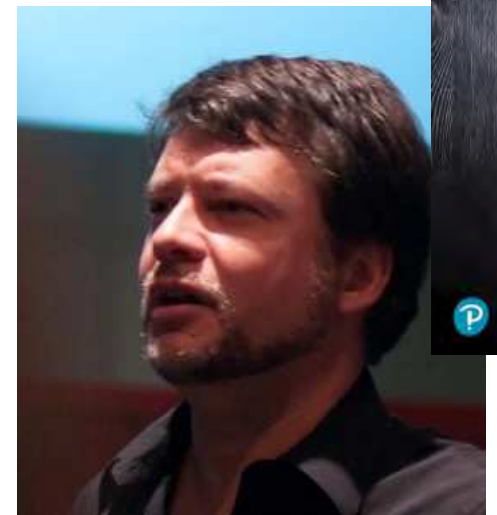


**Duplication?**

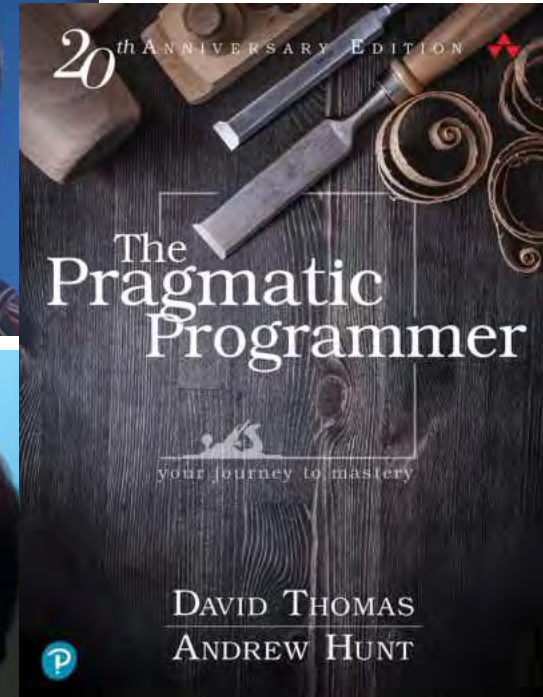
# The DRY Principle

“Every piece of knowledge must have a single, unambiguous, authoritative representation within a system.”

Dave Thomas



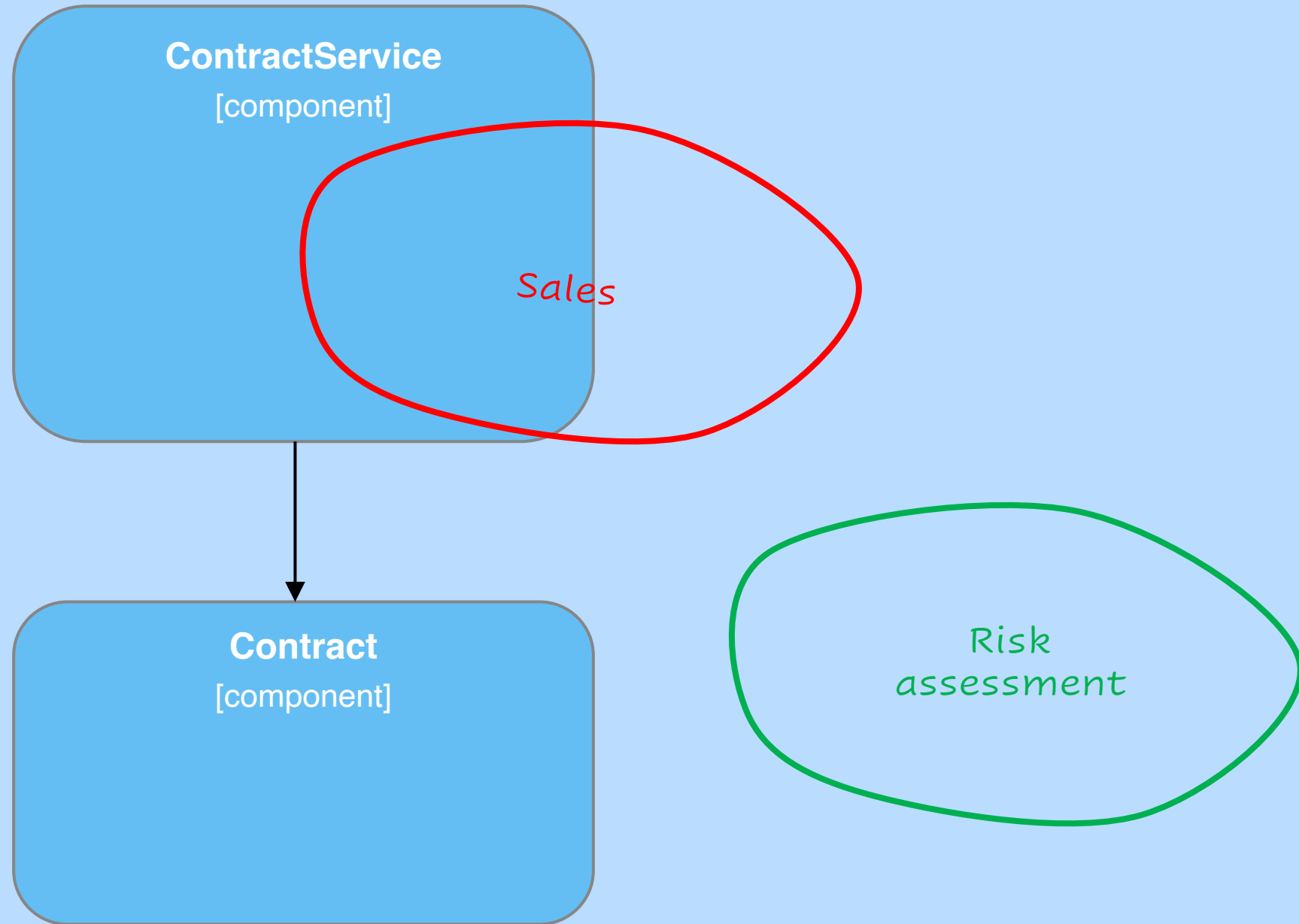
Andy Hunt



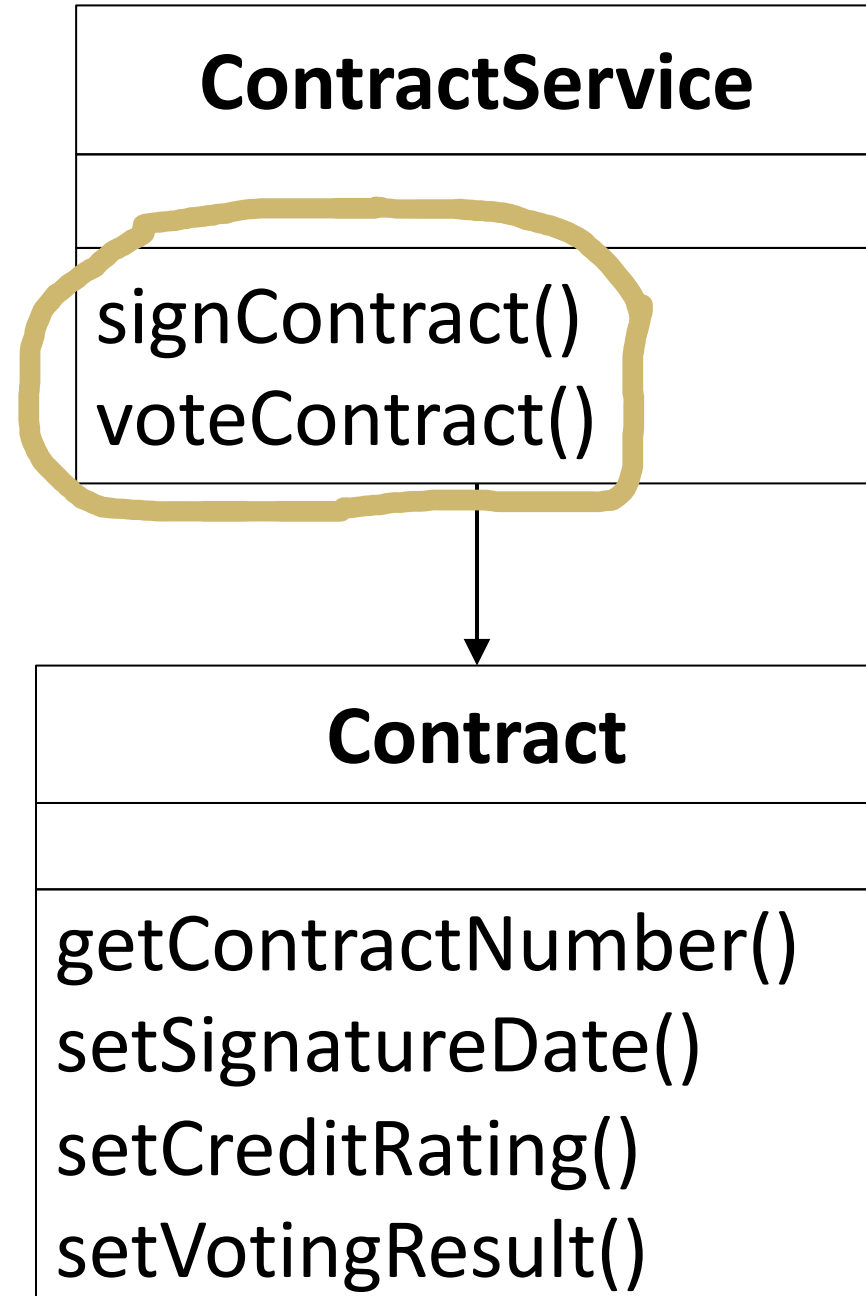
@hschwentner

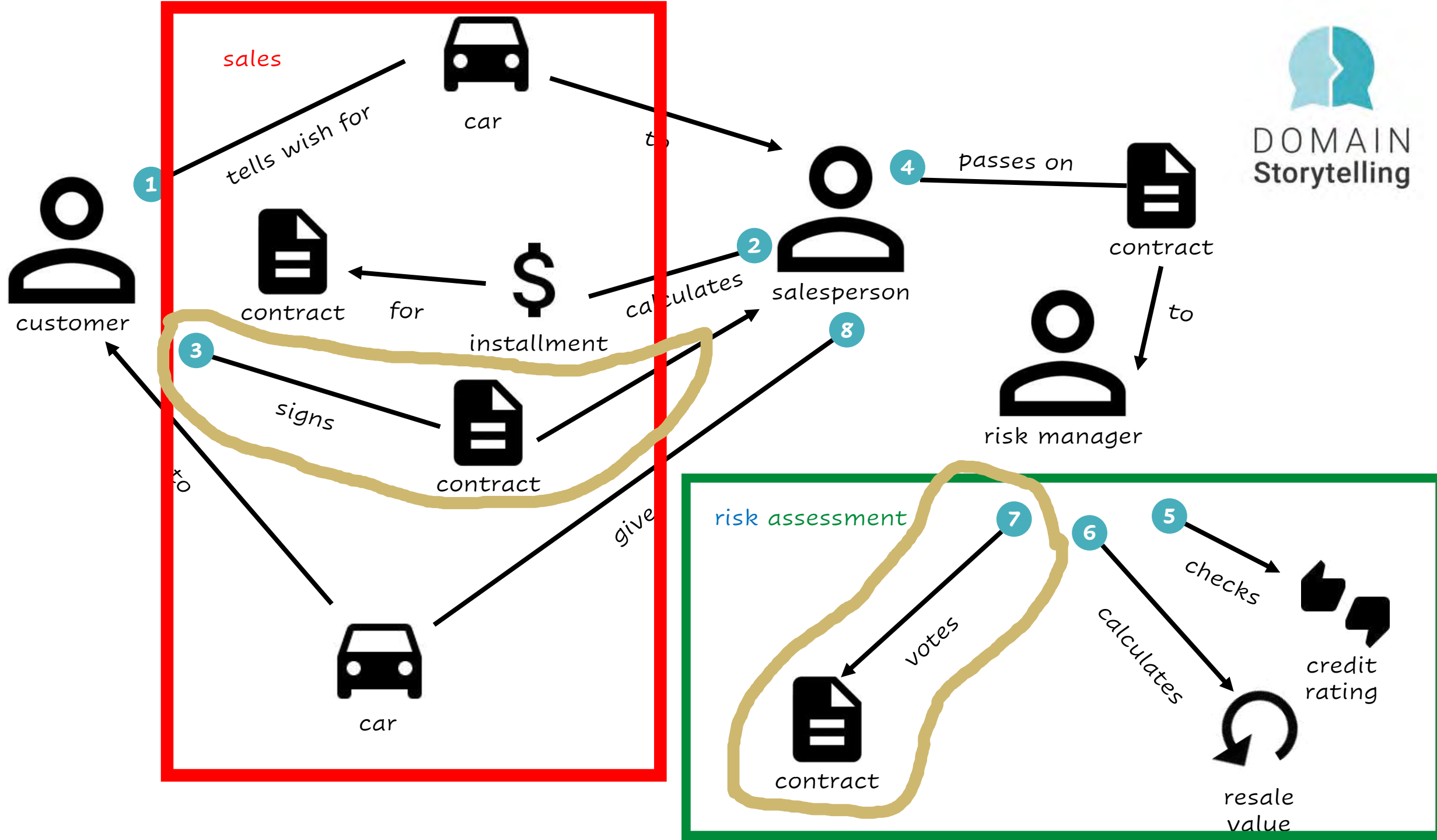


# Component Backend



# Code





# Code

**Sales**

**Risk Assessment**

**ContractService**

signContract()

voteContract()



**Contract**

getContractNumber()

setSignatureDate()

setCreditRating()

setVotingResult()



# Code

Sales

**ContractService**

signContract()  
voteContract()



**Contract**

getContractNumber()  
setSignatureDate()  
setCreditRating()  
setVotingResult()

Risk Assessment

**ContractService**

signContract()  
voteContract()



**Contract**

getContractNumber()  
setSignatureDate()  
setCreditRating()  
setVotingResult()

# Code

Sales

**ContractService**

signContract()



**Contract**

getContractNumber()  
setSignatureDate()

Risk Assessment

**ContractService**

voteContract()



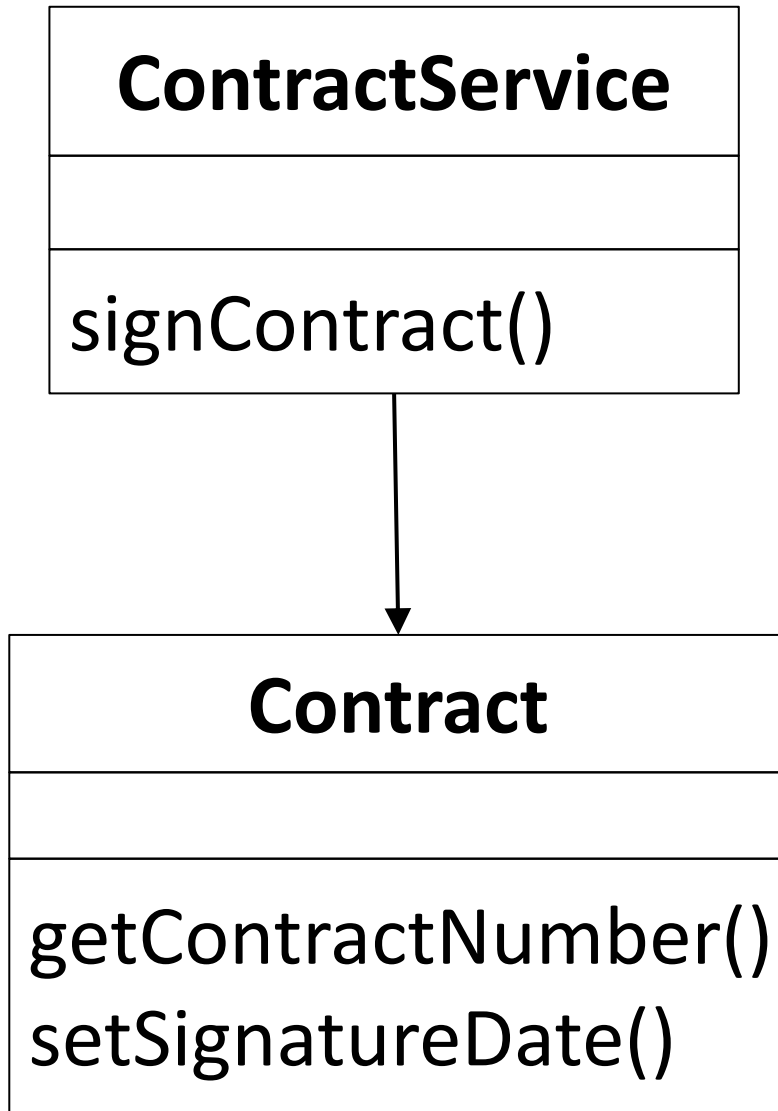
**Contract**

getContractNumber()

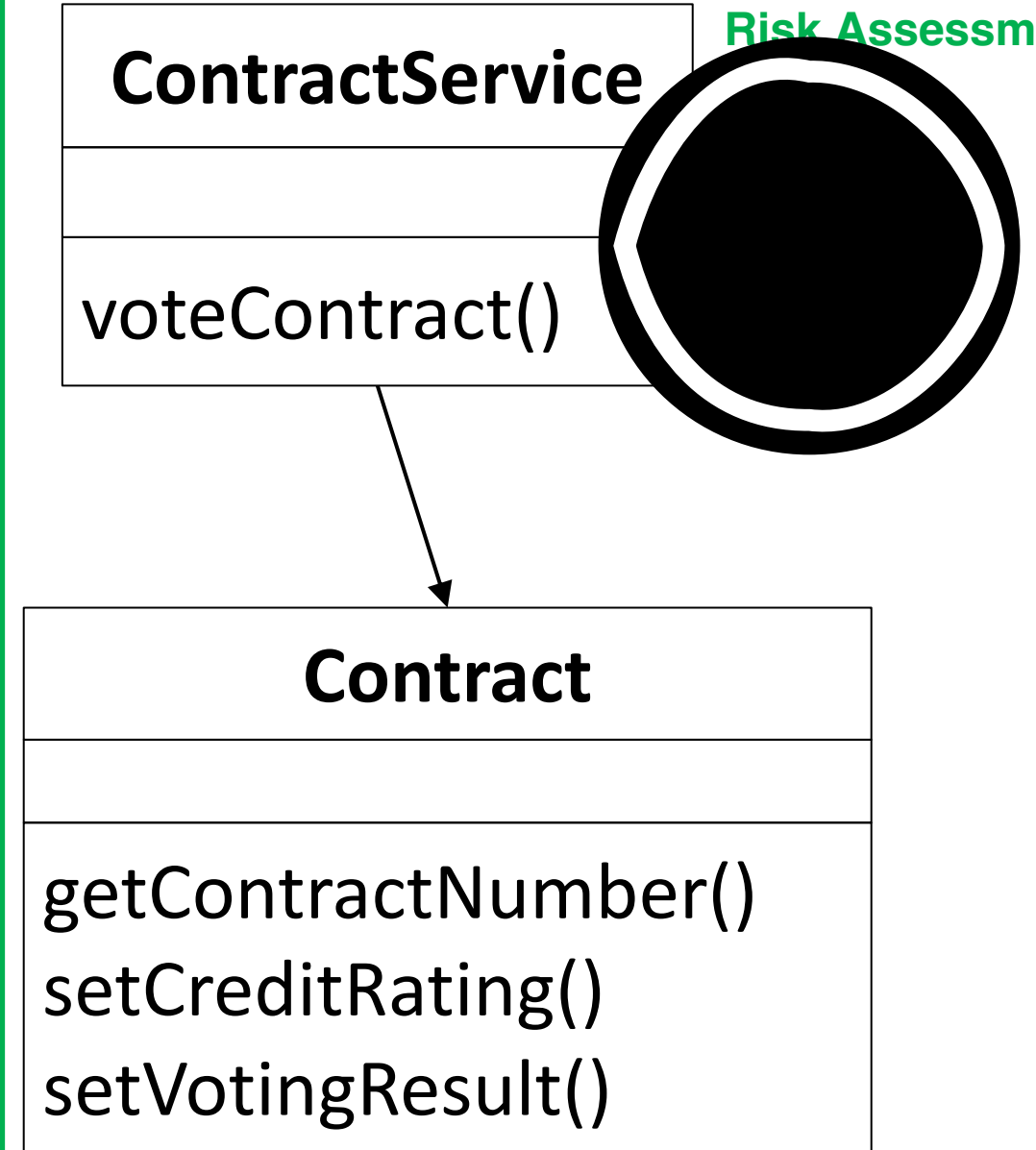
setCreditRating()  
setVotingResult()

# Code

Sales



Risk Assessment



## Monolease

### ContractService

signContract()  
voteContract()



### Contract

getContractNumber()  
setSignatureDate()  
setCreditRating()  
setVotingResult()

=>

## Sales

### ContractService

signContract()



### Contract

getContractNumber()  
setSignatureDate()

## Risk Assessment

### ContractService

voteContract()

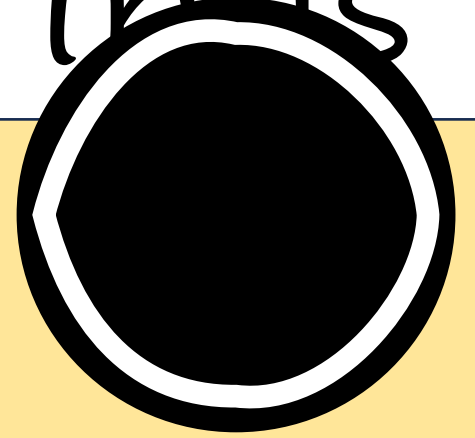


### Contract

getContractNumber()  
setCreditRating()  
setVotingResult()



# Collecting Refactorings



## Improvement Backlog

1 Extract  
Context  
"Sales"

1.1 Extract  
Specialized  
"Contract"

1.2 Extract  
Specialized  
"Contract  
Service"

2 Extract  
Context  
"Risk  
assessment"

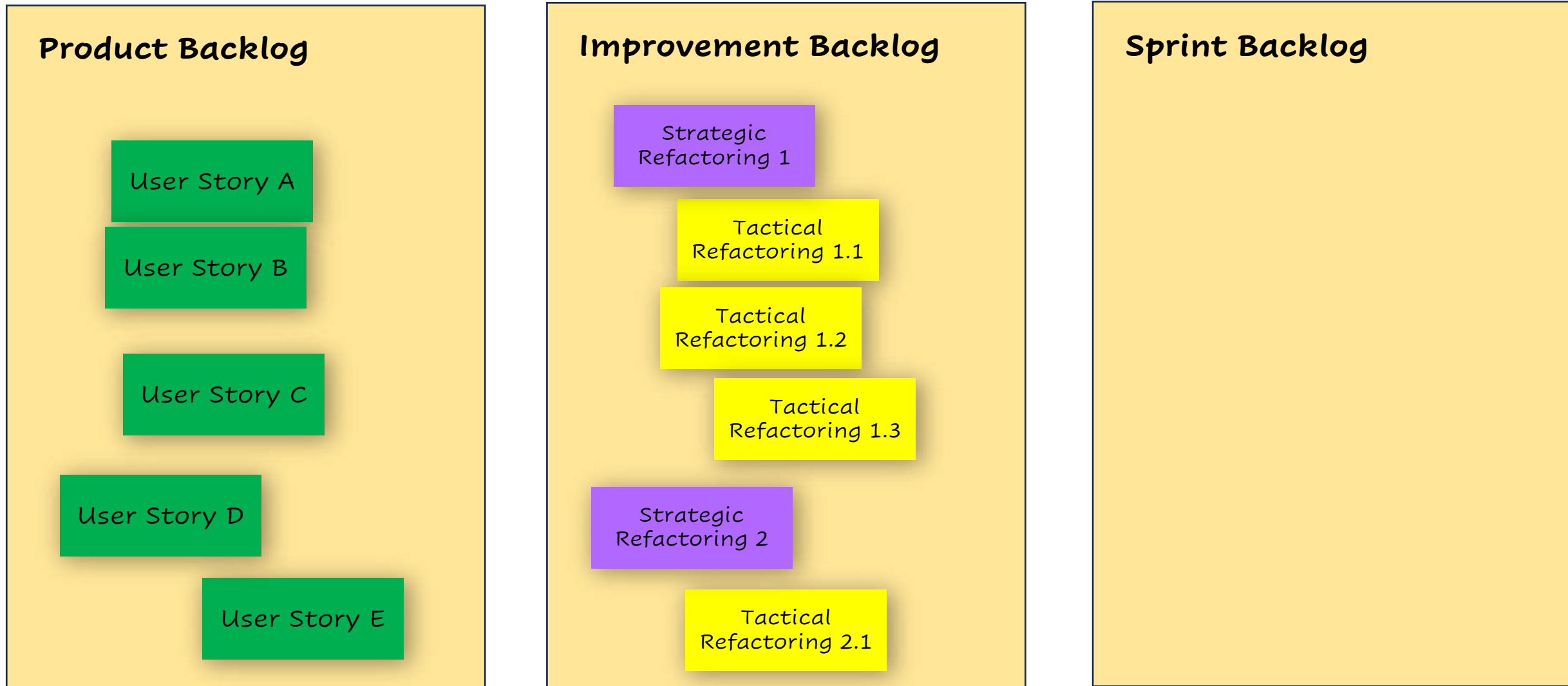
2.1 Extract  
Specialized  
"Contract"

2.1 Extract  
Specialized  
"Contract  
Service"

# **Step 4:**

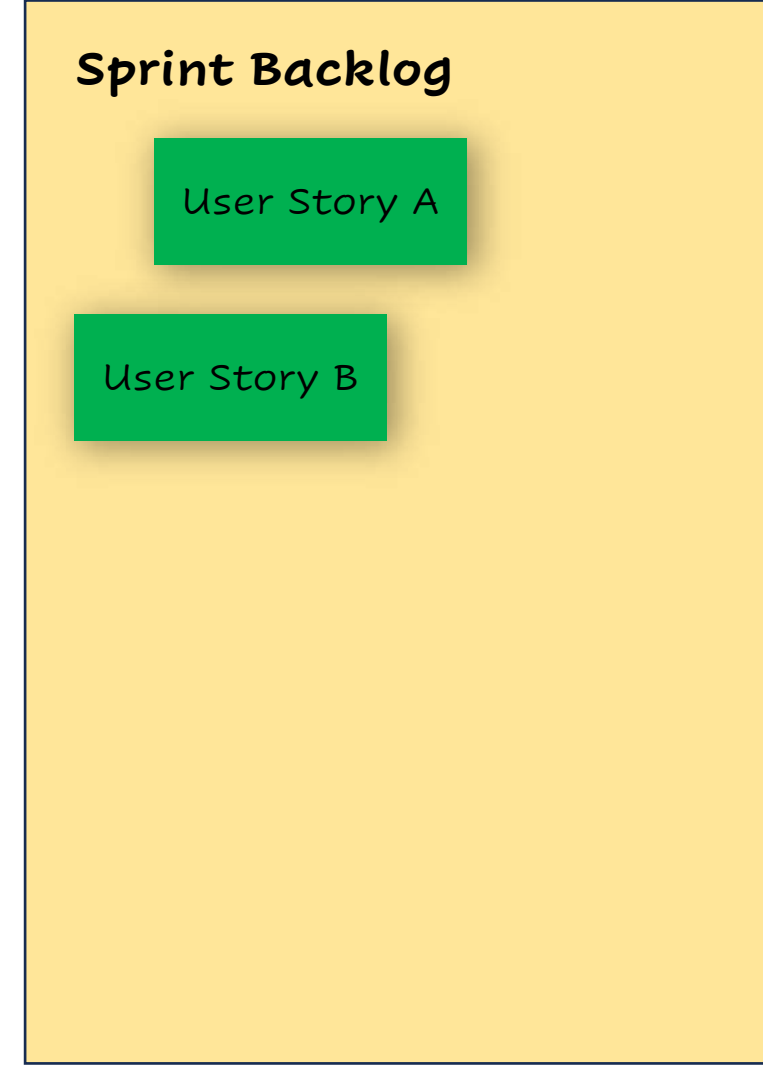
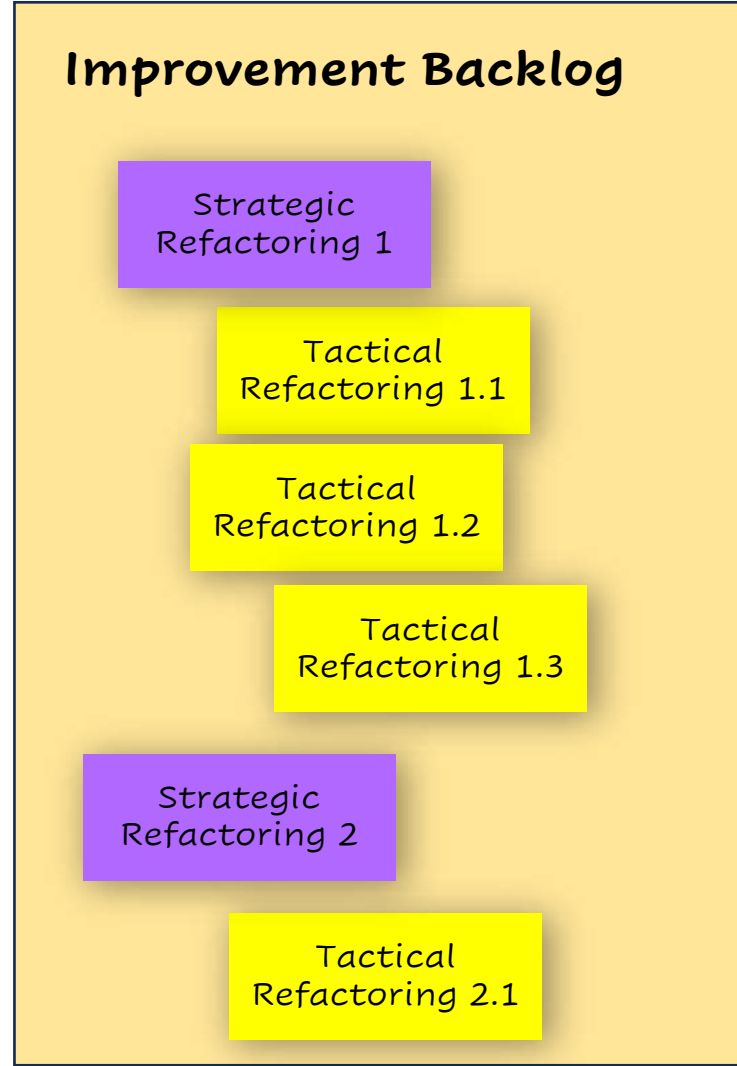
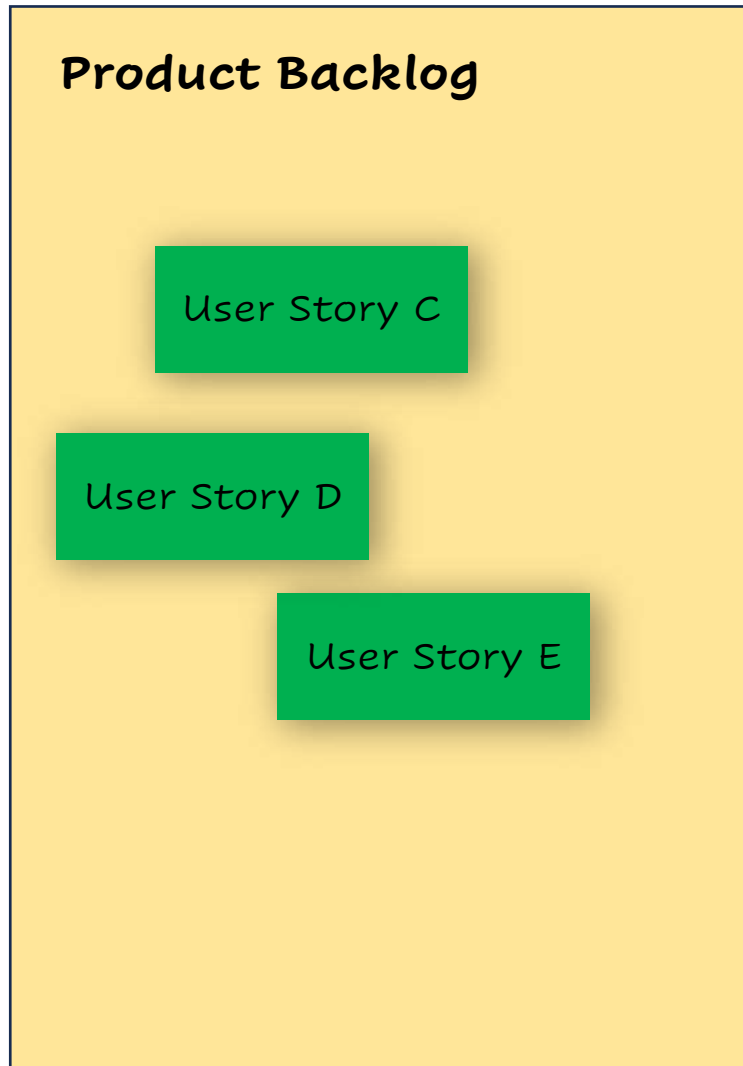
# **Do the Move**

# Planning Transformation



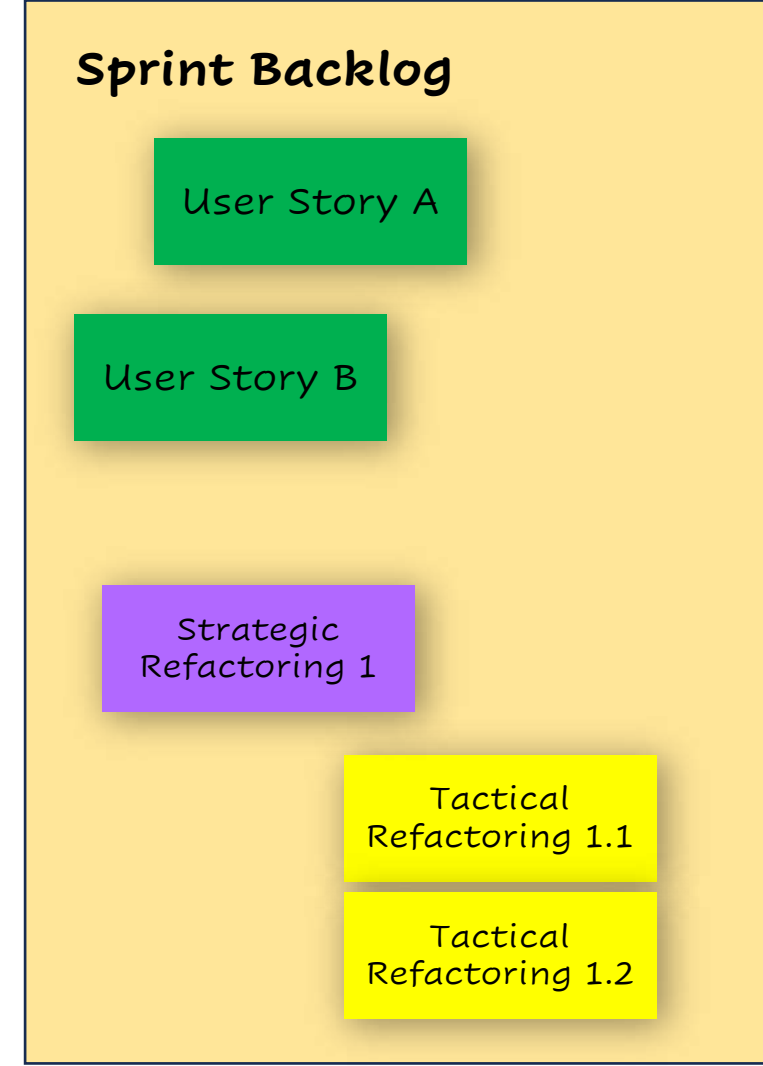
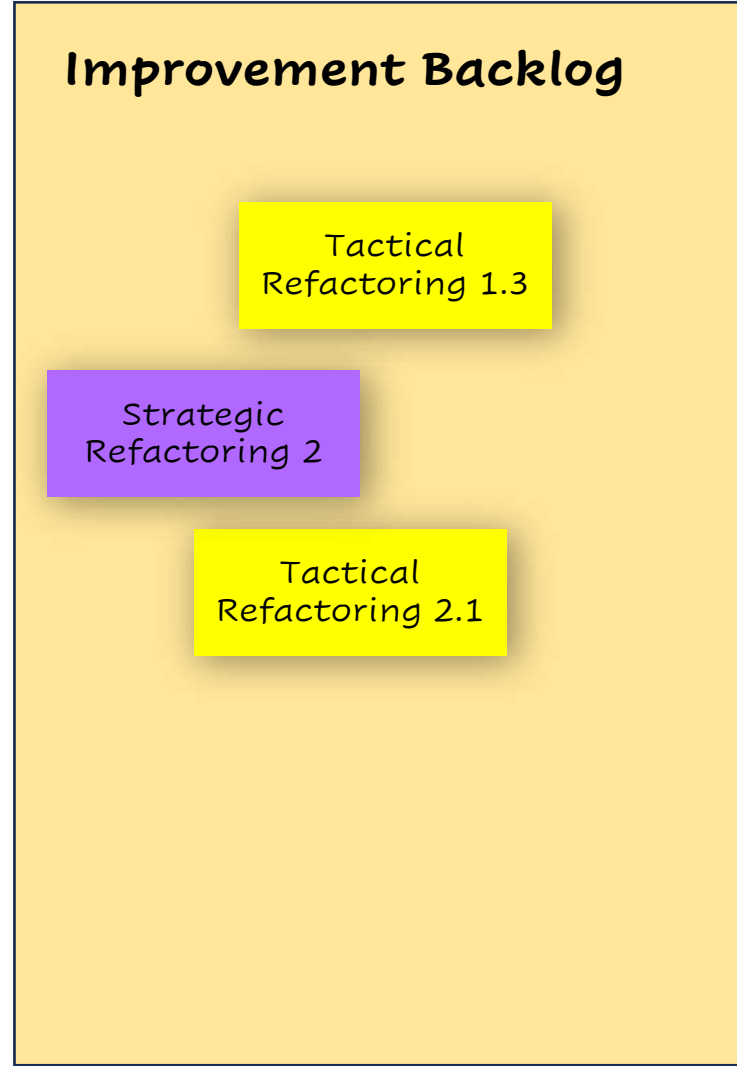
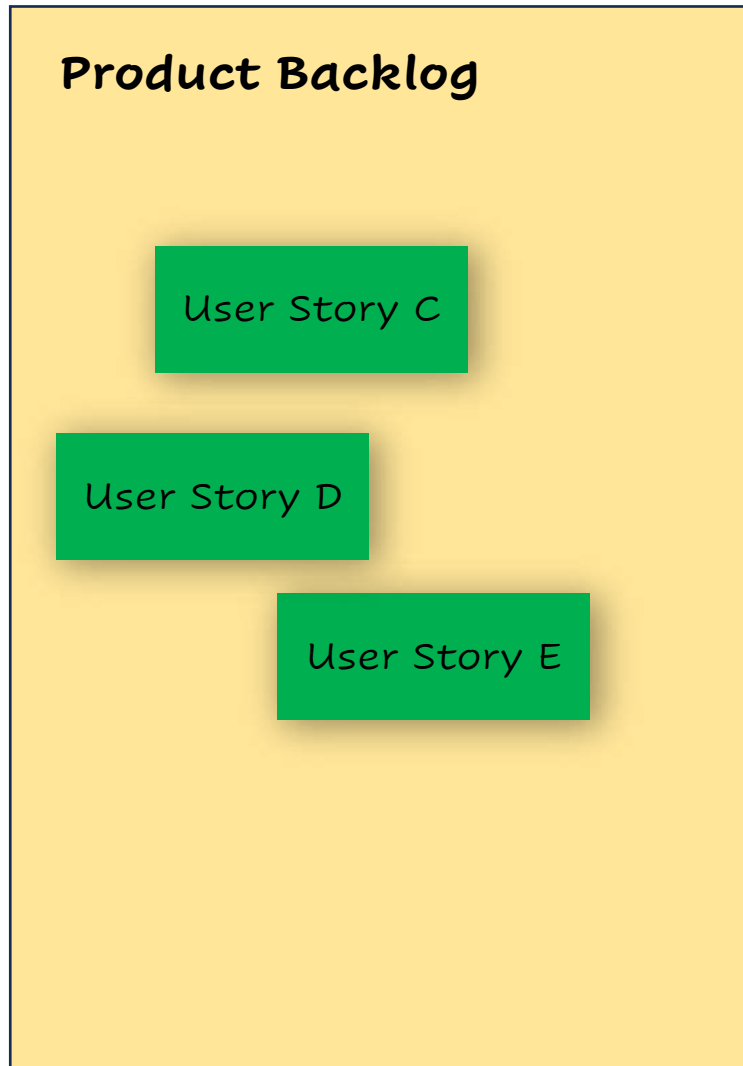
@hschwentner

# Planning Transformation



@hschwentner

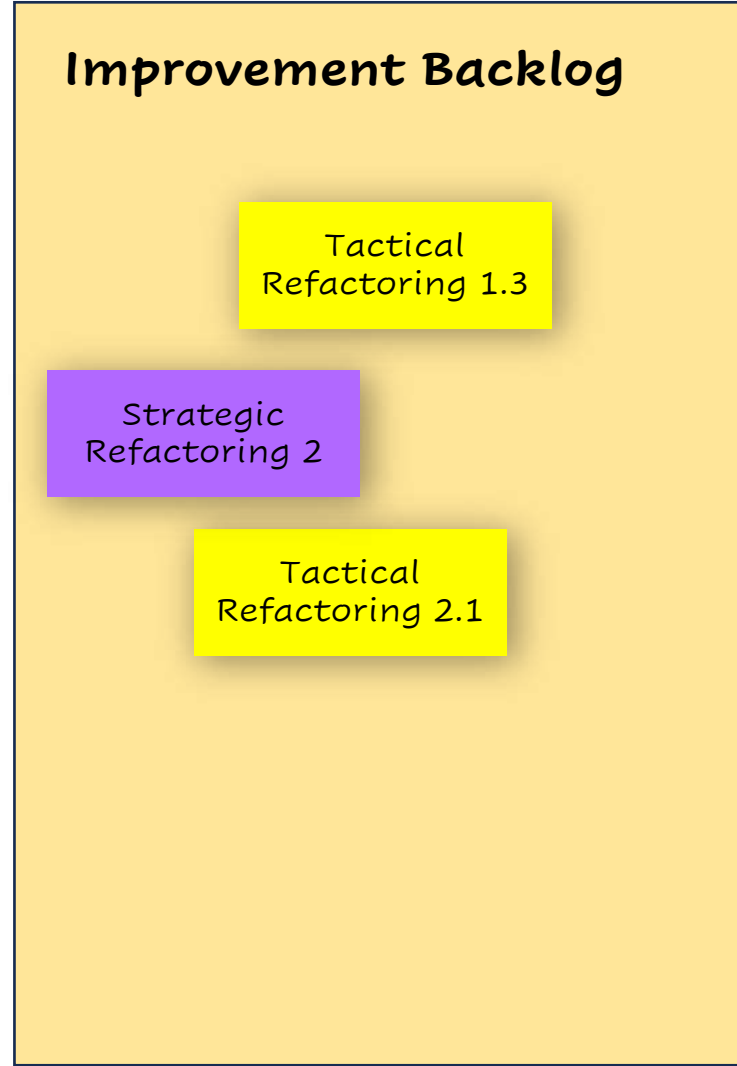
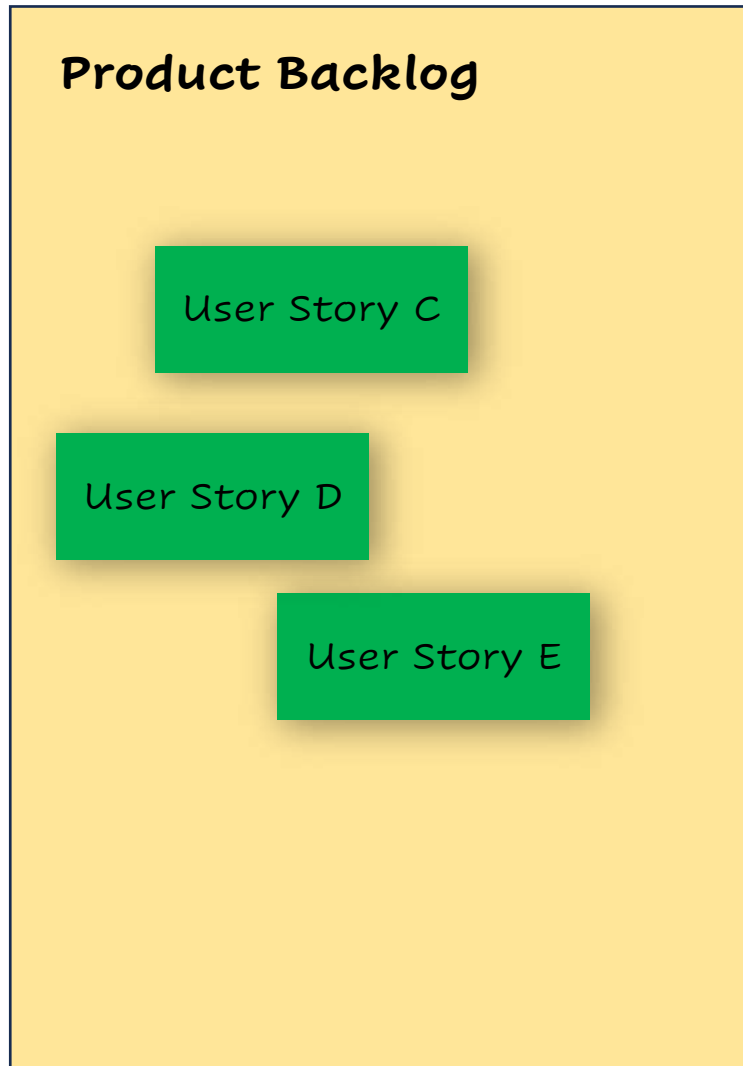
# Planning Transformation



@hschwentner

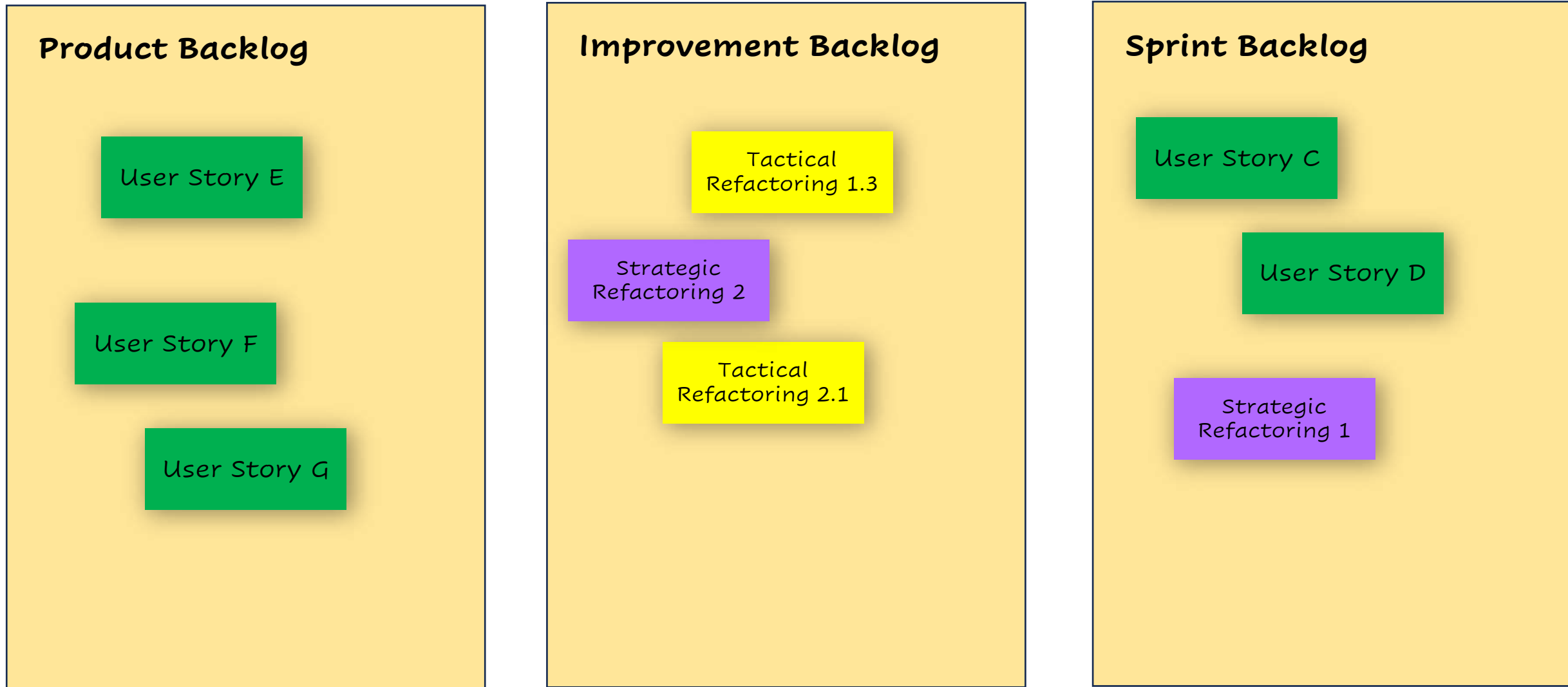


# Planning Transformation



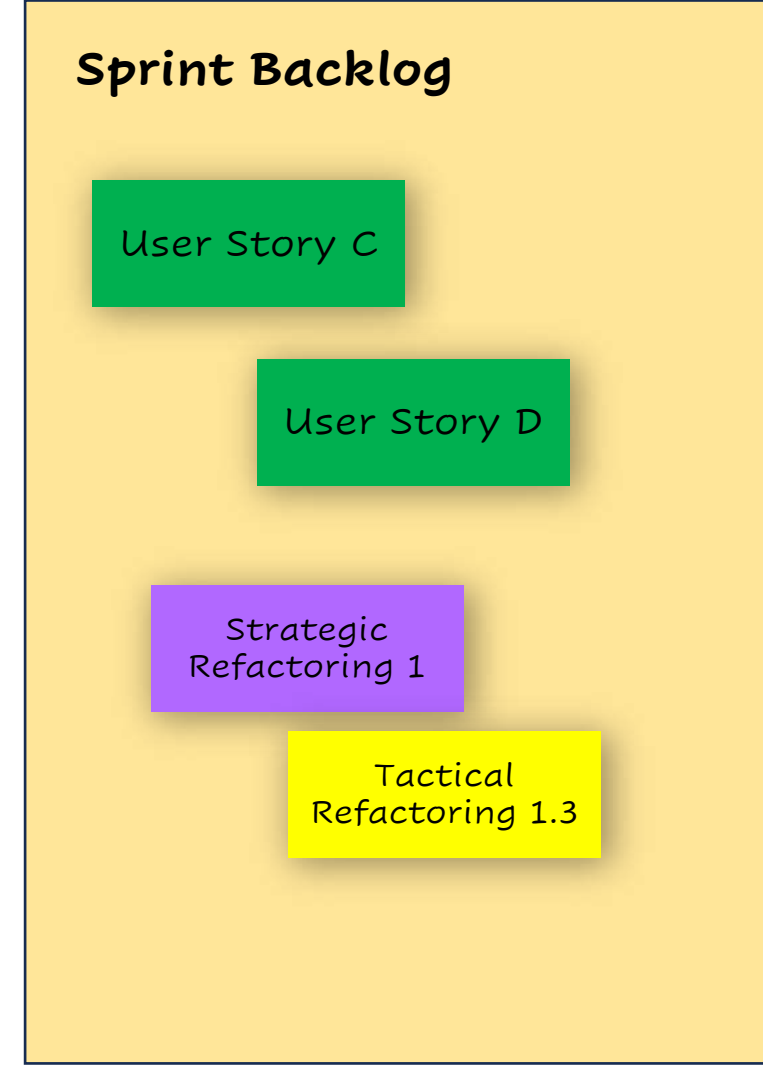
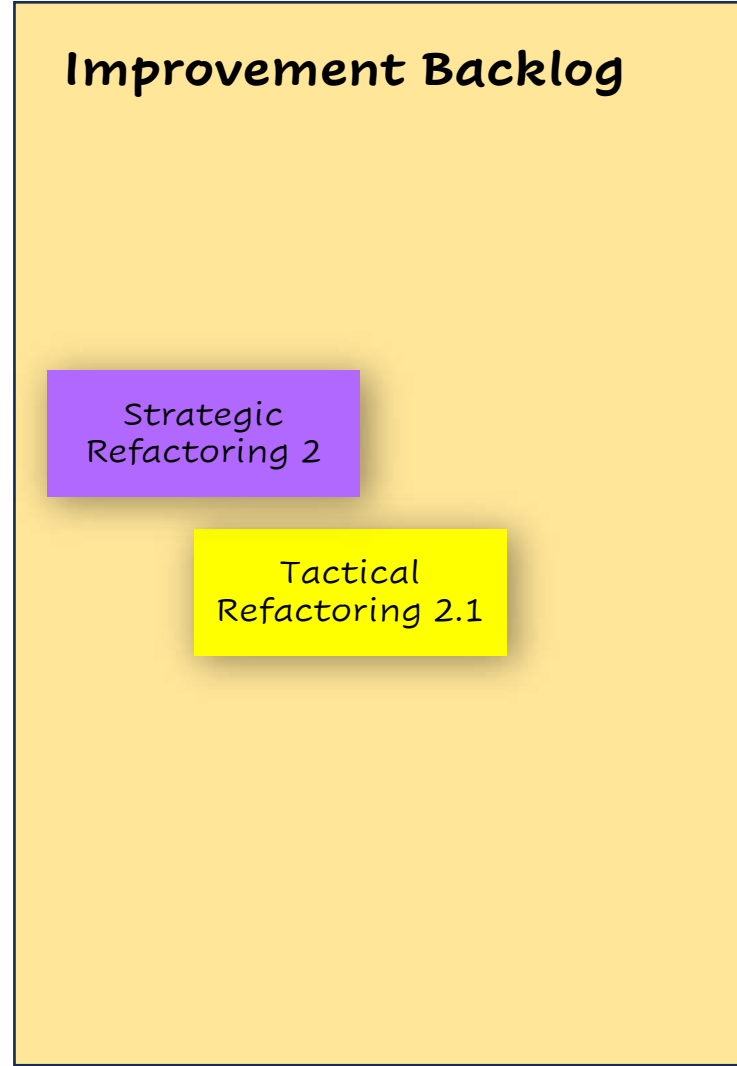
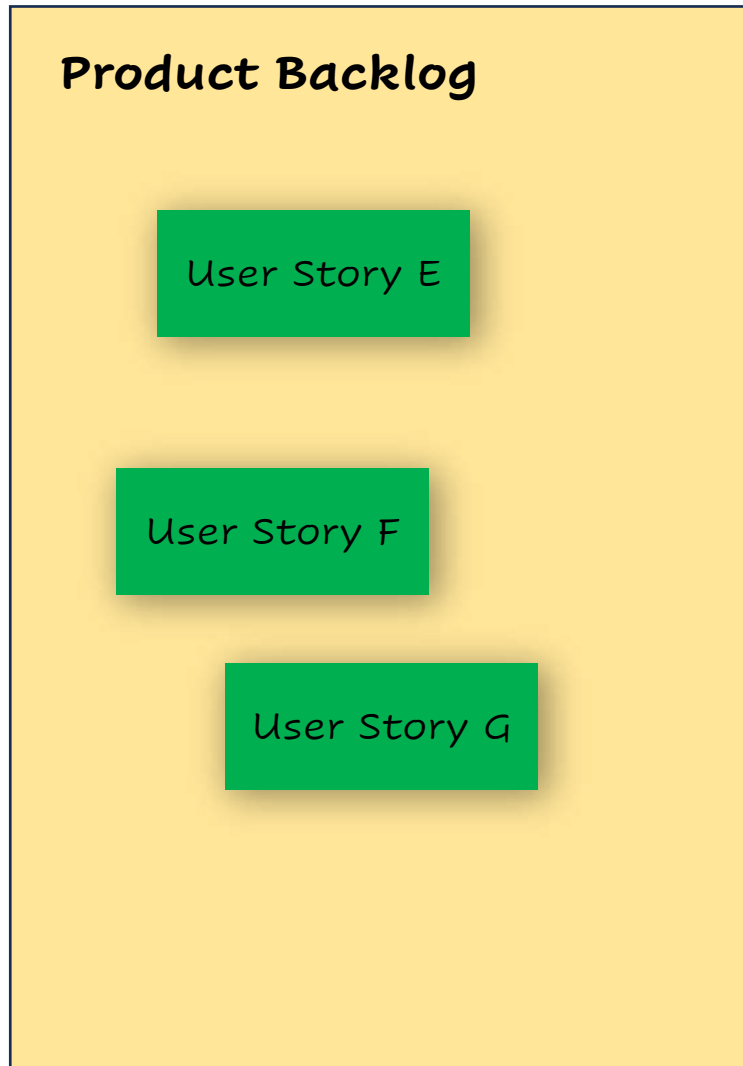
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# Planning Transformation



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# Planning Transformation



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# Planning Transformation

## Product Backlog

User Story E

User Story F

User Story G

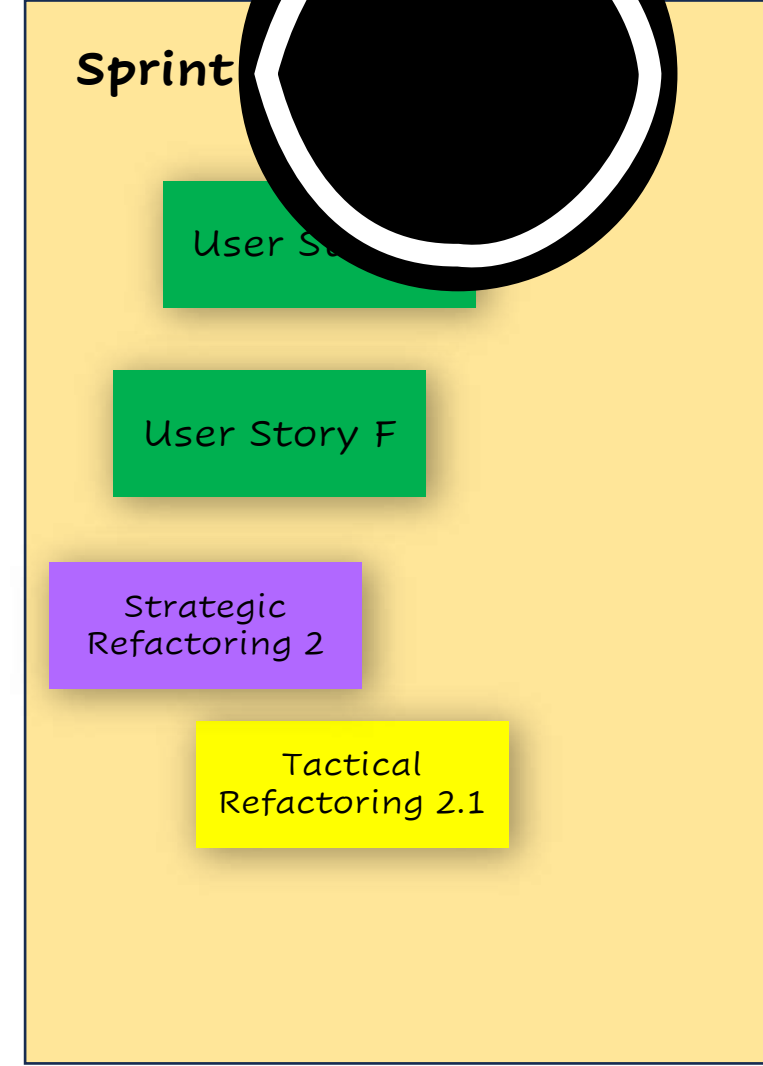
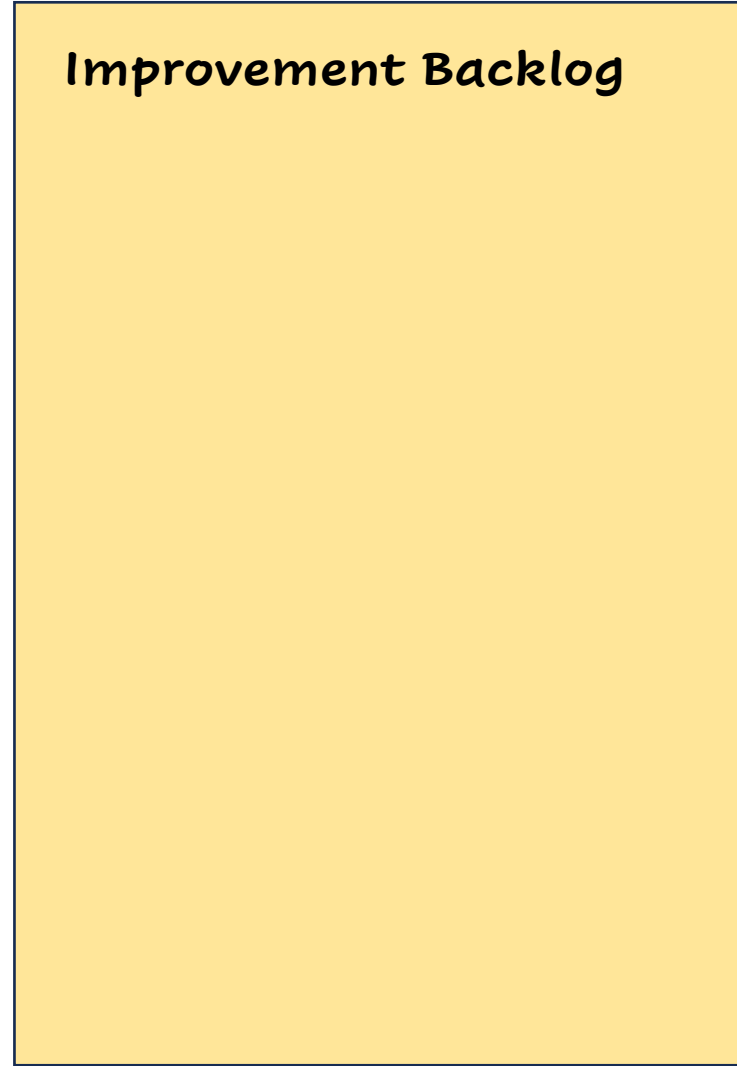
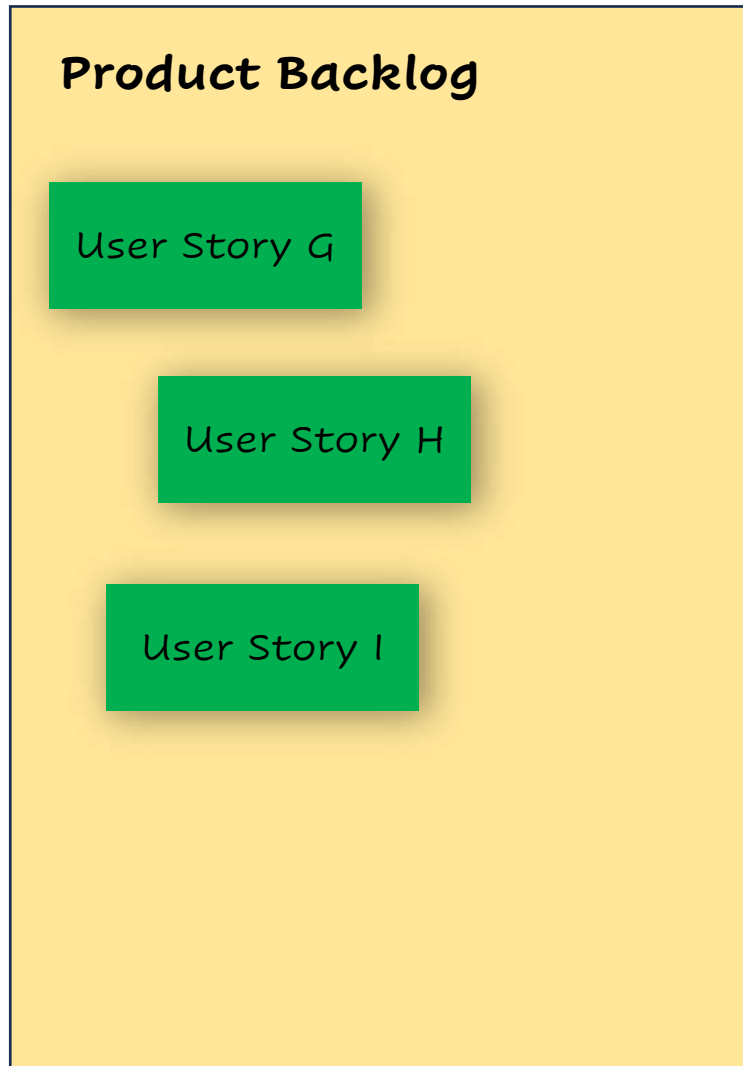
## Improvement Backlog

Strategic  
Refactoring 2

Tactical  
Refactoring 2.1

## Sprint Backlog

# Planning Transformation





## Monolease

### ContractService

signContract()

~~voteContract()~~

### Contract

getContractNumber()

setSignatureDate()

~~setCreditRating()~~

~~setVotingResult()~~

## Risk Assessment

### ContractService

voteContract()

### Contract

getContractNumber()

setCreditRating()

setVotingResult()



Code

# Code

## Monolease

**ContractService**

signContract()

**Contract**

getContractNumber()  
setSignatureDate()



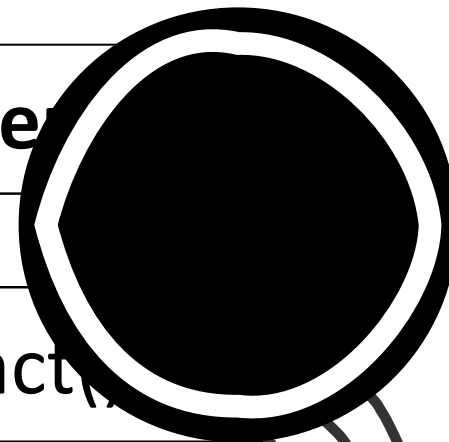
## Risk Assessment

**ContractSe**

voteContract()

**Contract**

getContractNumber()  
setCreditRating()  
setVotingResult()

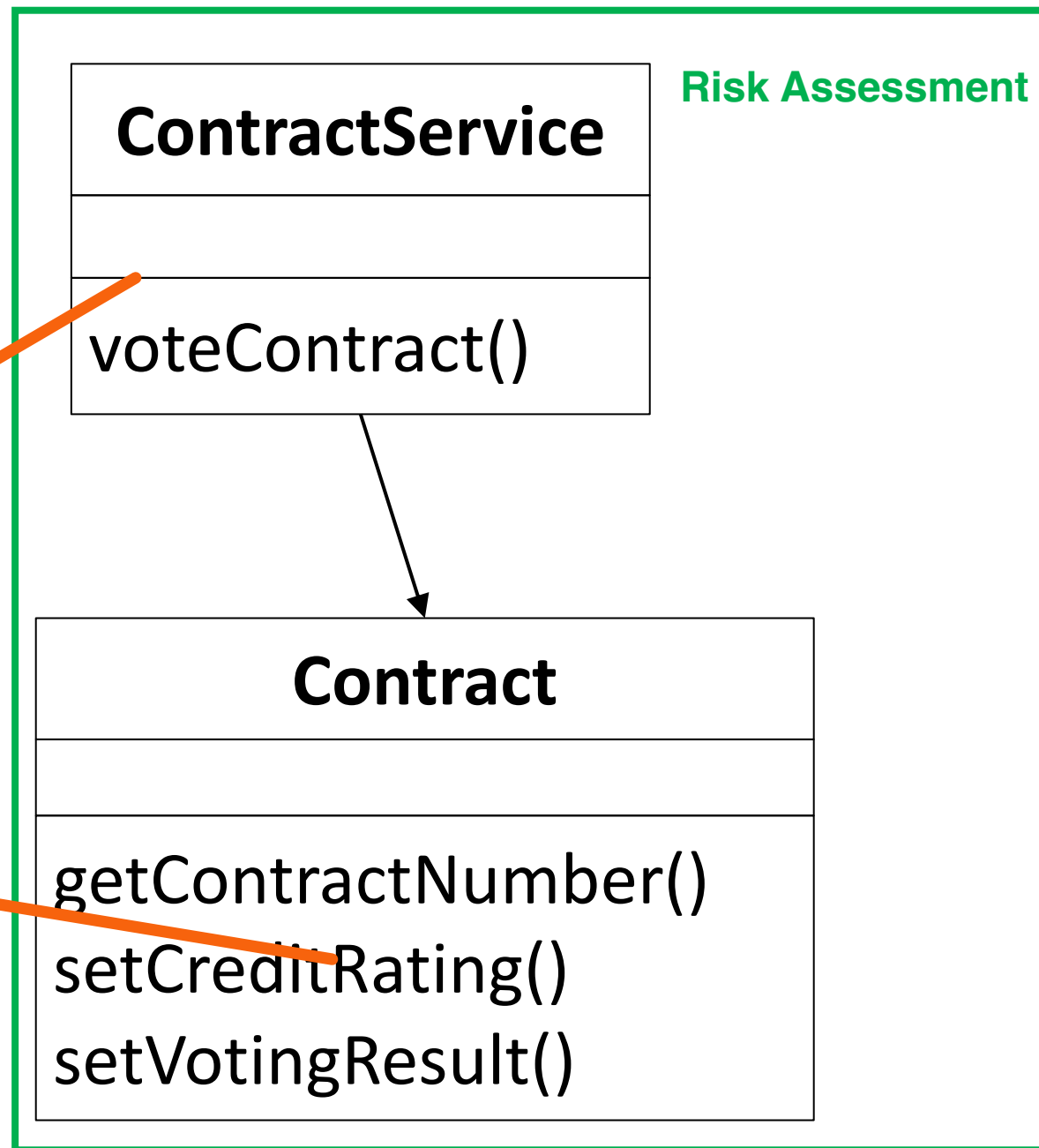


# Tactical



# Code

*anemic*



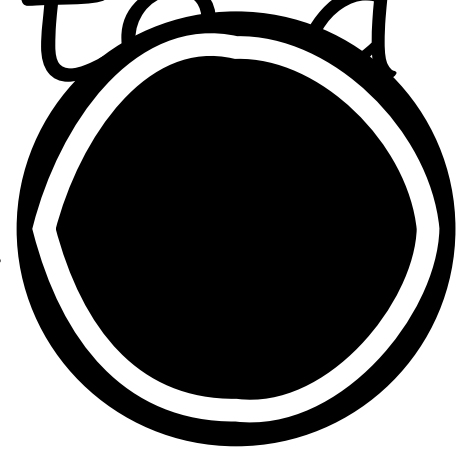




# Team- Organizational



# A Context Belongs to a Team Exclusively



# Outlook



# What Else?

Tactical transformation

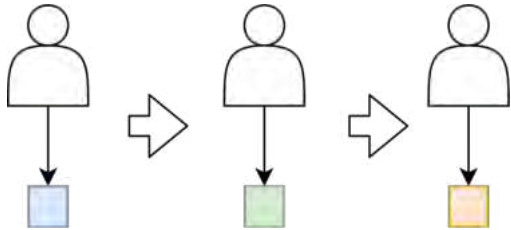
Anti-Anemia refactorings

Socio-technical transformation

Technical transformation

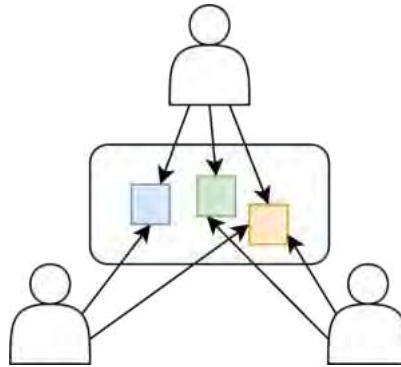
# Domain Patterns

## Pipeline Domain



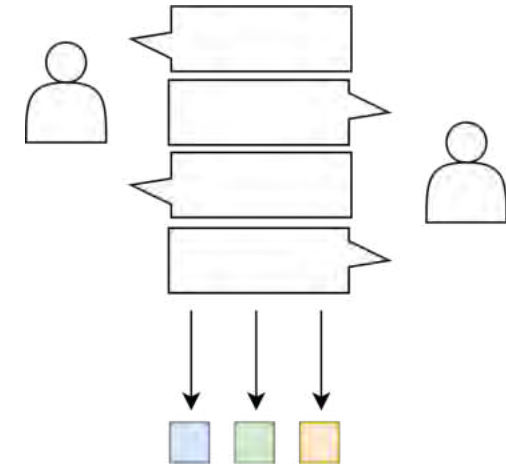
- Logistics
- Insurances and banks
- administration

## Blackboard Domain



- healthcare
- event management
- control center
- Software development
- Communication software

## Dialog Domain



- Negotiations in various domains

@hschwentner



# Conclusion



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# How to draw an Owl.

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*"A fun and creative guide for beginners"*

---



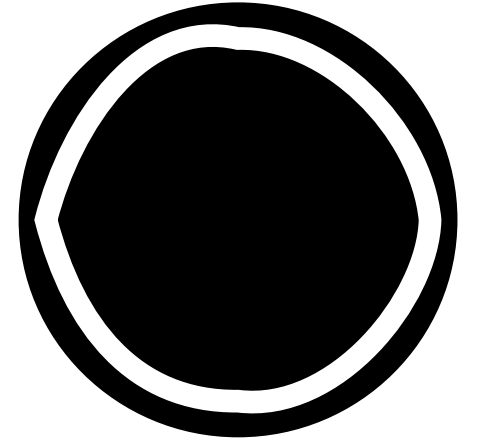
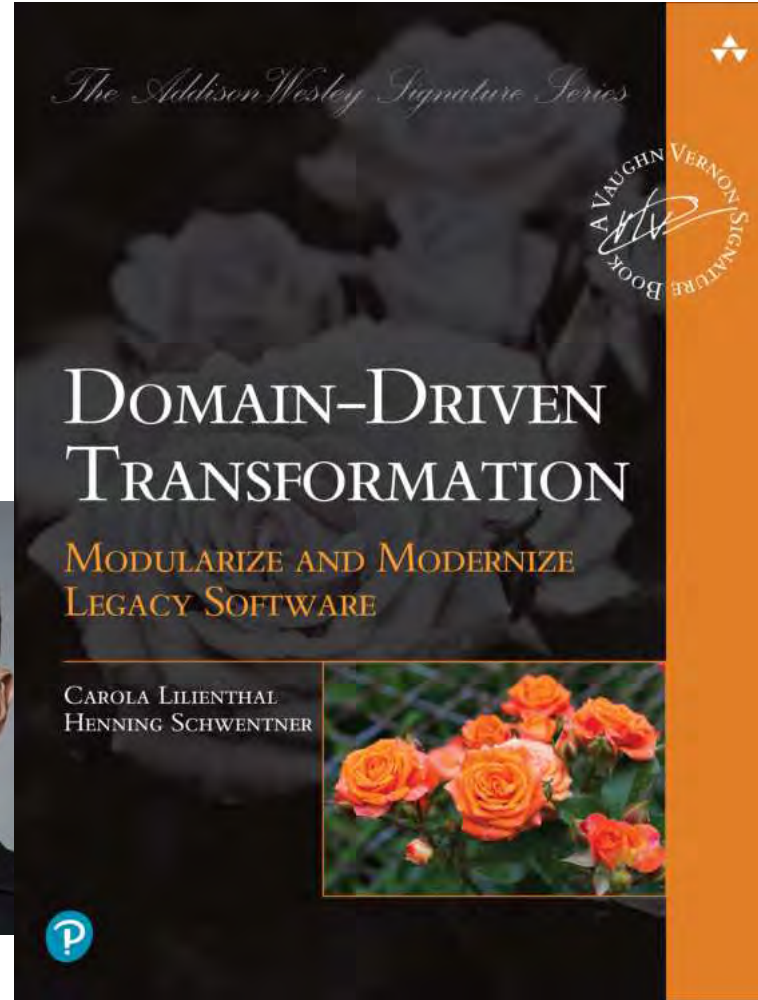
Fig 1. Draw two circles



Fig 2. Draw the rest of the damn Owl

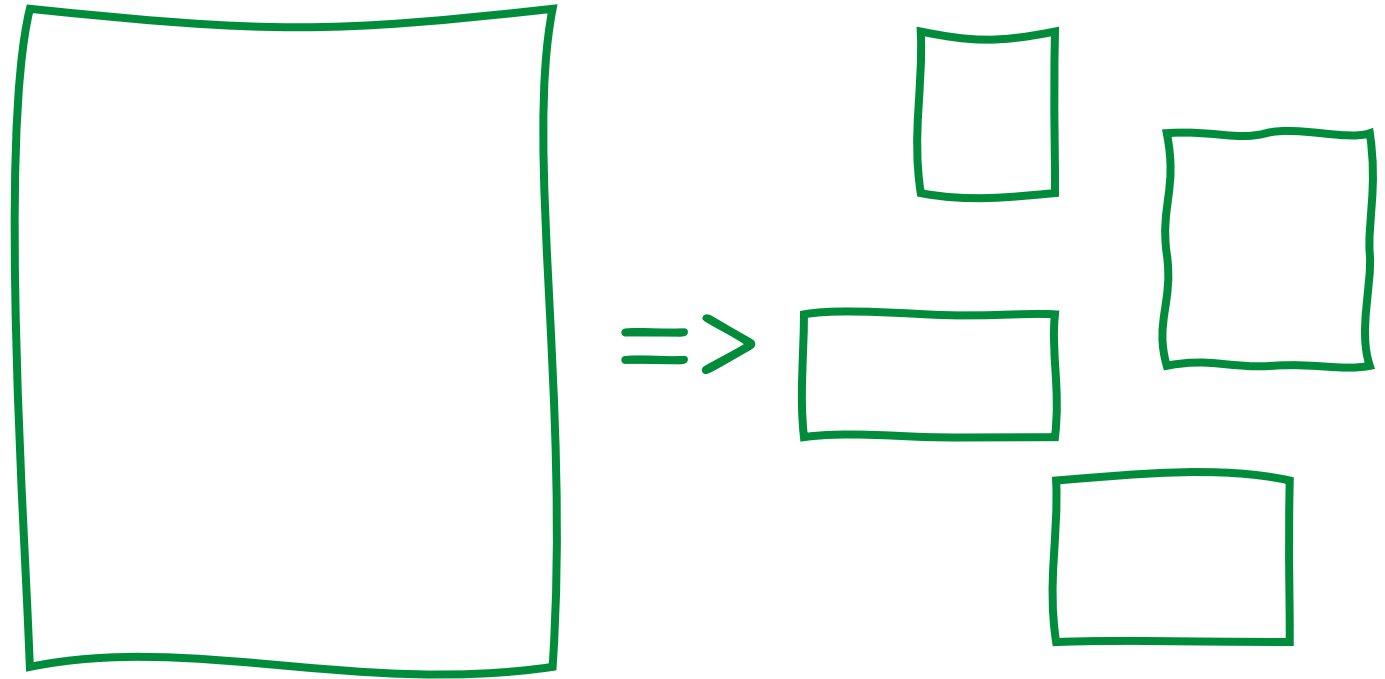
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Read on in:



<https://hschwentner.io/domain-driven-refactorings>

# Lesson:



Monolith transformation  
is possible

(and hard)

**Mistake:** Going on the journey alone

**Better:**

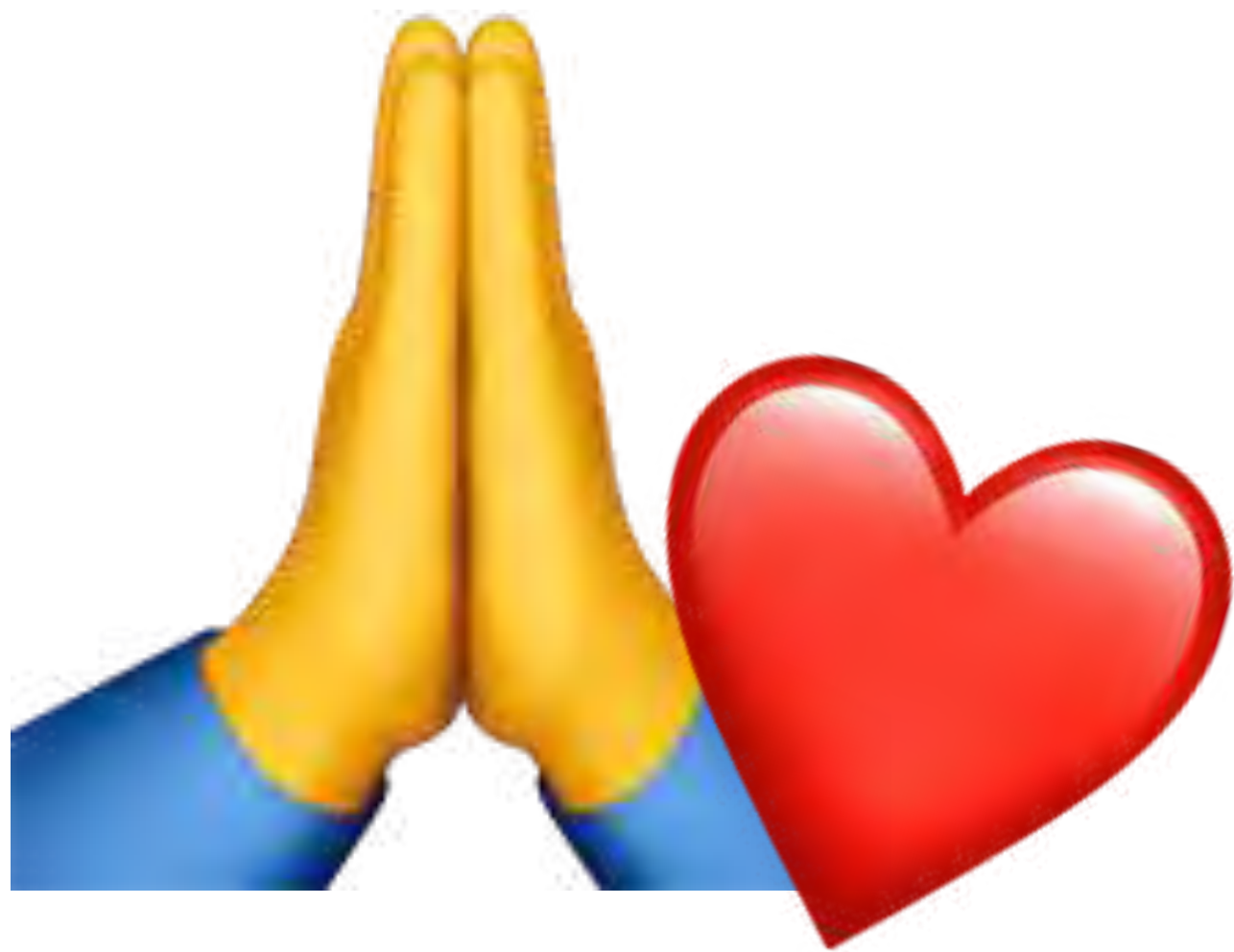


@hschwentner





Photo: Henning Schwentner



The image features a classic 'The End' title card. It consists of several concentric red circles that create a tunnel-like effect, leading to a solid black circle in the center. The words 'The End' are written in a white, cursive script font across the middle of the circles. The text has a slight drop shadow, making it stand out against the black background.

*The End*

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*This has been a presentation of*



*Metro Goldwyn Lolcat*



# Henning Schwentner

Kolleg:in gesucht  
(Deutschlandweit)



<https://hschwentner.net>



[in/henningschwentner](https://www.linkedin.com/in/henningschwentner)



[hs@wps.de](mailto:hs@wps.de)

