

Continuous Delivery

from Zero to Hero



AXEL FONTAINE

@axelfontaine

axelfontaine.com

Entrepreneur - Public Speaker - Continuous Delivery Expert



Flyway

flywaydb.org



photon

getphoton.com

AXEL FONTAINE

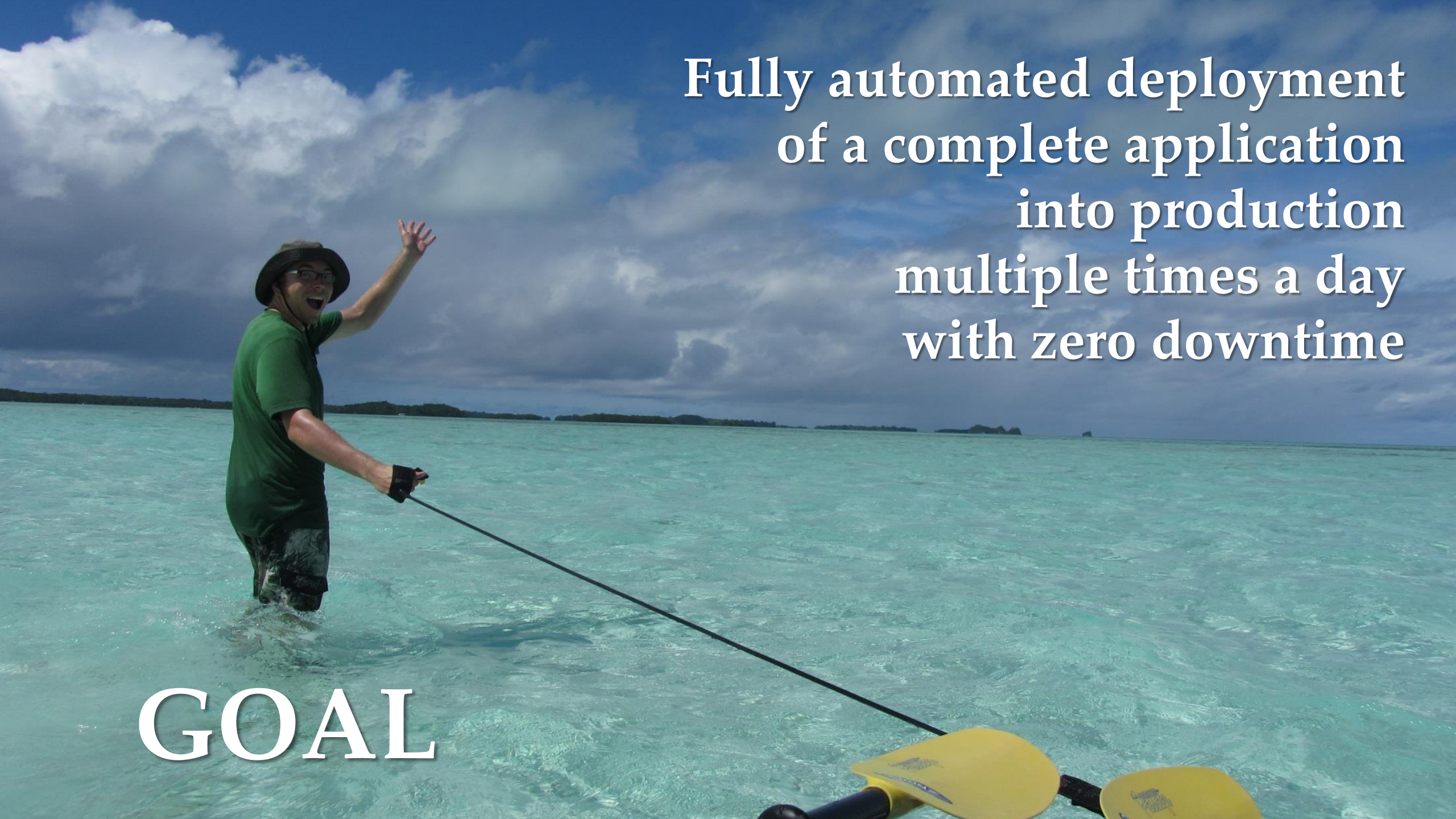
@axelfontaine

axelfontaine.com

Entrepreneur - Public Speaker - Continuous Delivery Expert

about

questions

A man wearing a green t-shirt, a hat, and glasses is standing in shallow, clear turquoise water. He is holding a black rope that extends from the foreground towards him. His right arm is raised in a celebratory gesture. In the foreground, the yellow blades of a kayak are visible. The background shows a vast expanse of water under a blue sky with scattered white clouds.

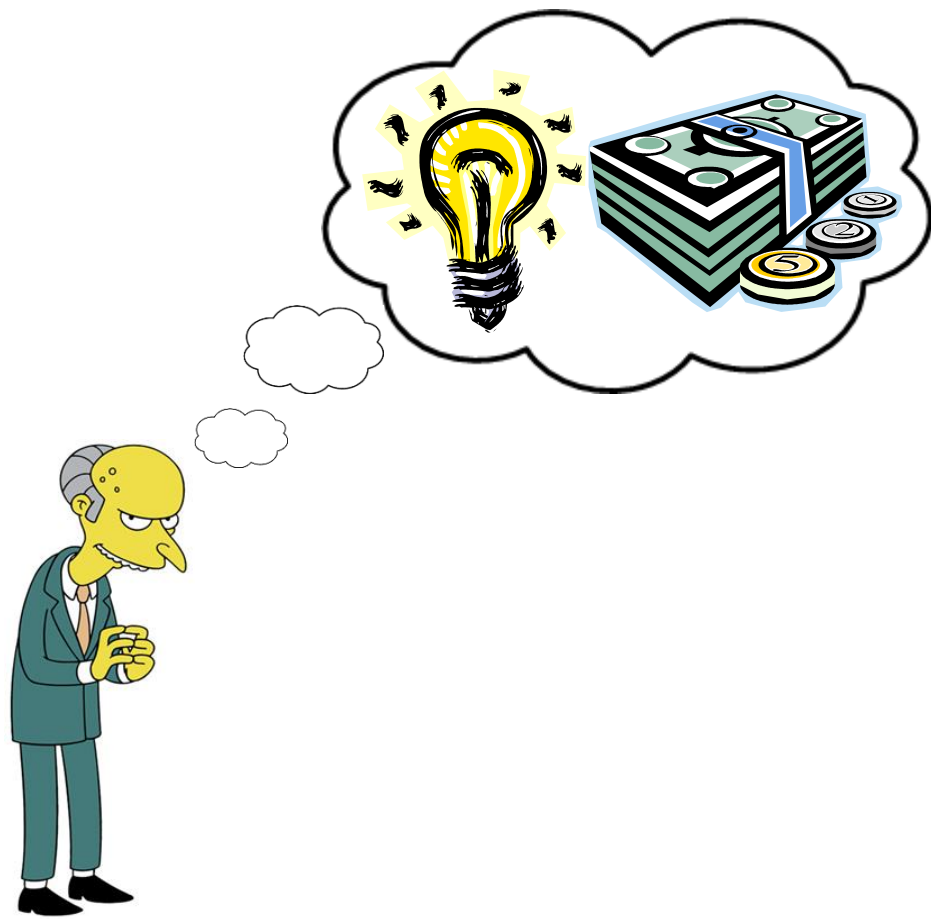
Fully automated deployment
of a complete application
into production
multiple times a day
with zero downtime

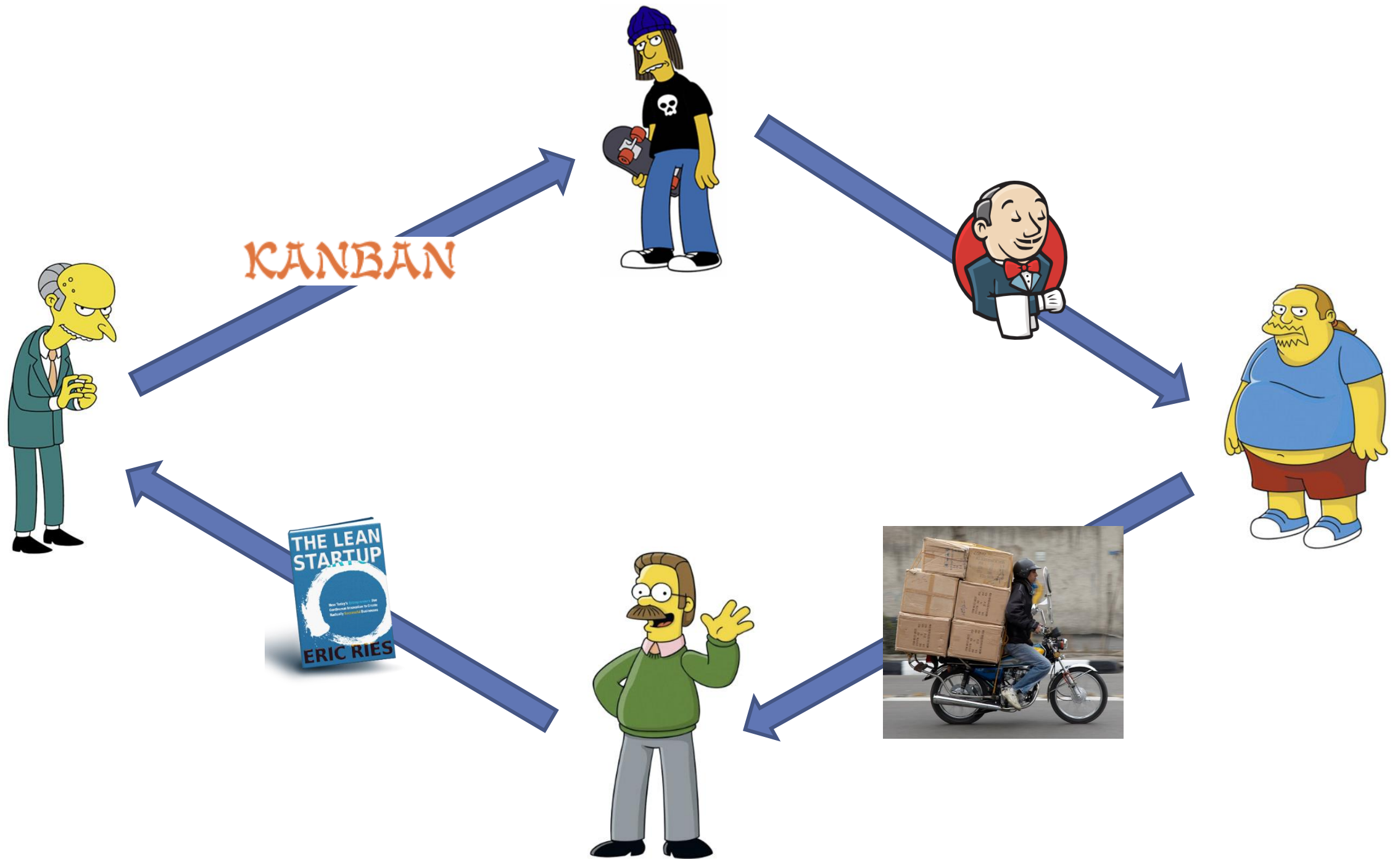
GOAL

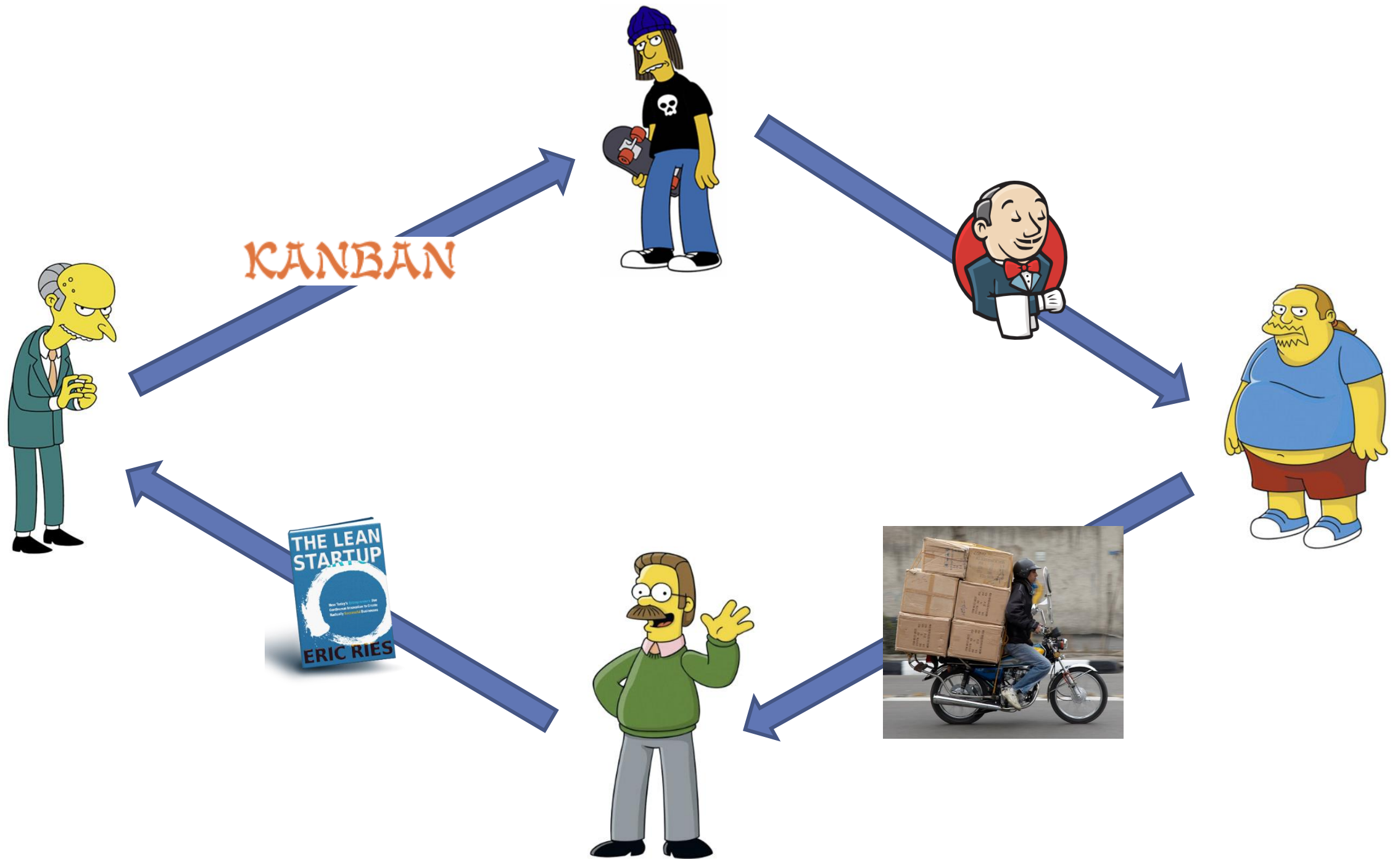


Putting
things
into
PERSPECTIVE

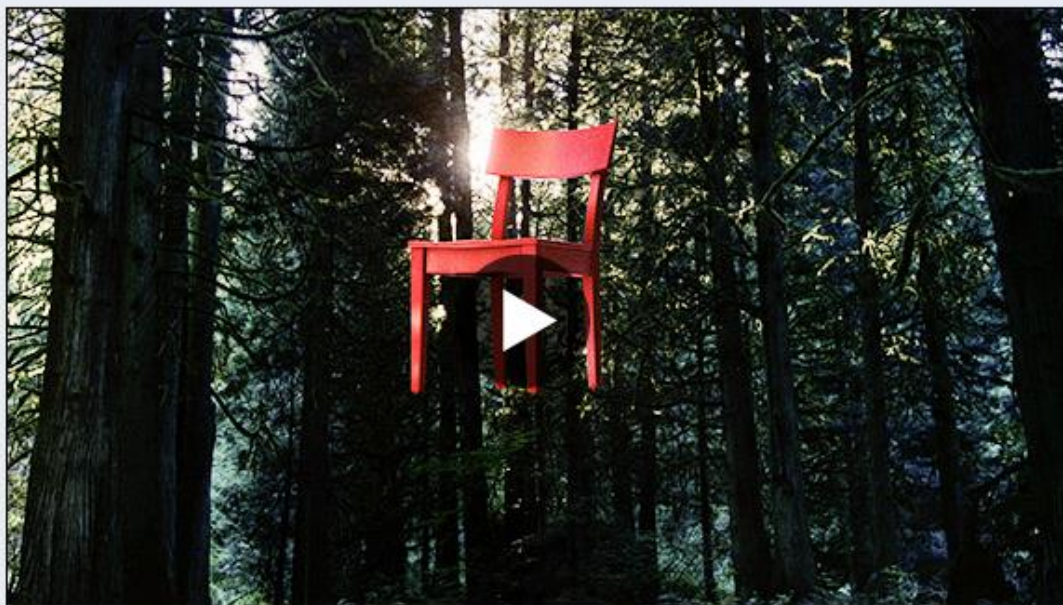
NE NITH
SWITZERLAND







CONTINUOUS DELIVERY



Things that connect us

We honor the everyday things that bring us together and celebrate people everywhere opening up and connecting. [Share](#)

Sign Up

It's free and always will be.

First Name:

Last Name:

Your Email:

Re-enter Email:

New Password:

I am:

Select Sex:

Birthday:

Month:

Day:

Year:

Why do I need to provide my birthday?

By clicking Sign Up, you agree to our [Terms](#) and that you have read our [Data Use Policy](#), including our [Cookie Use](#).

Sign Up

[Create a Page for a celebrity, band or business.](#)



**Share your life
in photos**

Sign up now

or login with your ID:  

© by [Tannenberg](#)

Upload

More ways to get your photos online.

Multiple ways to upload your photos to Flickr—through the web, your mobile device, email or

Discover

See what's going on in your world.

Keep up with your friends and share your stories with comments & notes. Add rich

Share

Your photos are everywhere you are.

Upload your photos once to Flickr, then easily and safely share them through Facebook.

Etsy[Register](#)[Sign In](#)[Search](#) [Cart](#)

Etsy is now in Spanish! [Change your language preferences](#) to test it out.

**Browse**[Art](#)[Home & Living](#)[Jewelry](#)[Fine Jewelry](#)[Women](#)[Men](#)[Kids](#)[Vintage](#)[Weddings](#)[Craft Supplies](#)[Trending Items](#)[Pictoplasma](#)**Handpicked Items** [See more](#)[Picked by pitsispopis](#)

Yellow hair bow / Hand Croc...
Plexida €6.00 EUR



blue felt bold geometric neck...
pergamondo €26.05 EUR



Denim bow hair barrette, jea...
Akamatra €9.47 EUR



Opposites attract. Crochet b...
sidirom €12.63 EUR



Questions

Tags

Users

Badges

Unanswered

Ask Question

Top Questions

interesting

198

featured

hot

week

month

-2

votes

2

answers

24

views

how do i get the number of members on status name

mysql

sql

sql-server

join

14s ago dragon112 139

0

votes

1

answer

15

views

Problem while playing video in jsp - How to redirect to another page after playing the video?

java

html

jsp

19s ago bhagyas 262

0

votes

0

answers

2

views

Can inline elements contain block elements?

html

24s ago Vimal Basdeo 458

0

votes

0

answers

1

view

What is the Fastest .net web solution?

asp.net

web-services

asp.net-ajax

ajax.net

24s ago JCPflux 63

2

votes

1

answer

13

views

How to get time format using country ISO code in android?

android

time-format

27s ago Sathya 2,093

Favorite Tags

flyway ✕

Add

Ignored Tags

Add

network tag filters »

Recent Tags

c# × 81

java × 53

c++ × 52

php × 43

javascript × 41

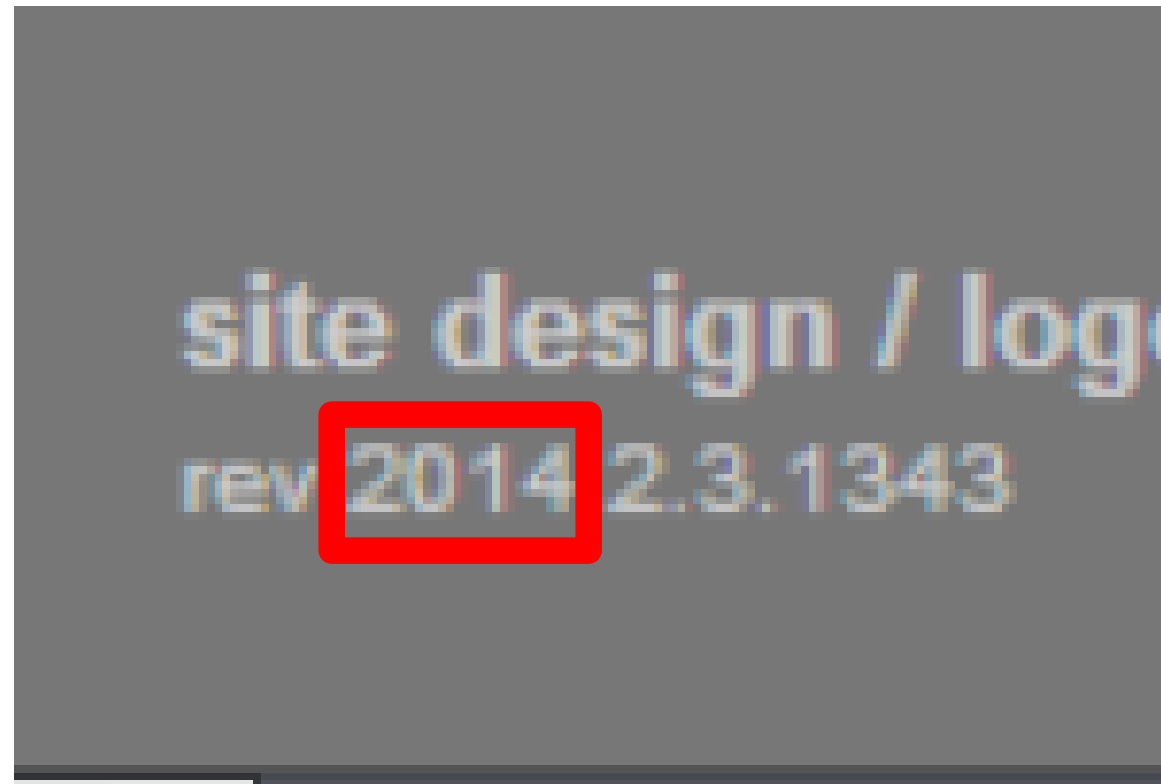
jquery × 28

android × 22



site design / logo
rev 2014.2.3.1343

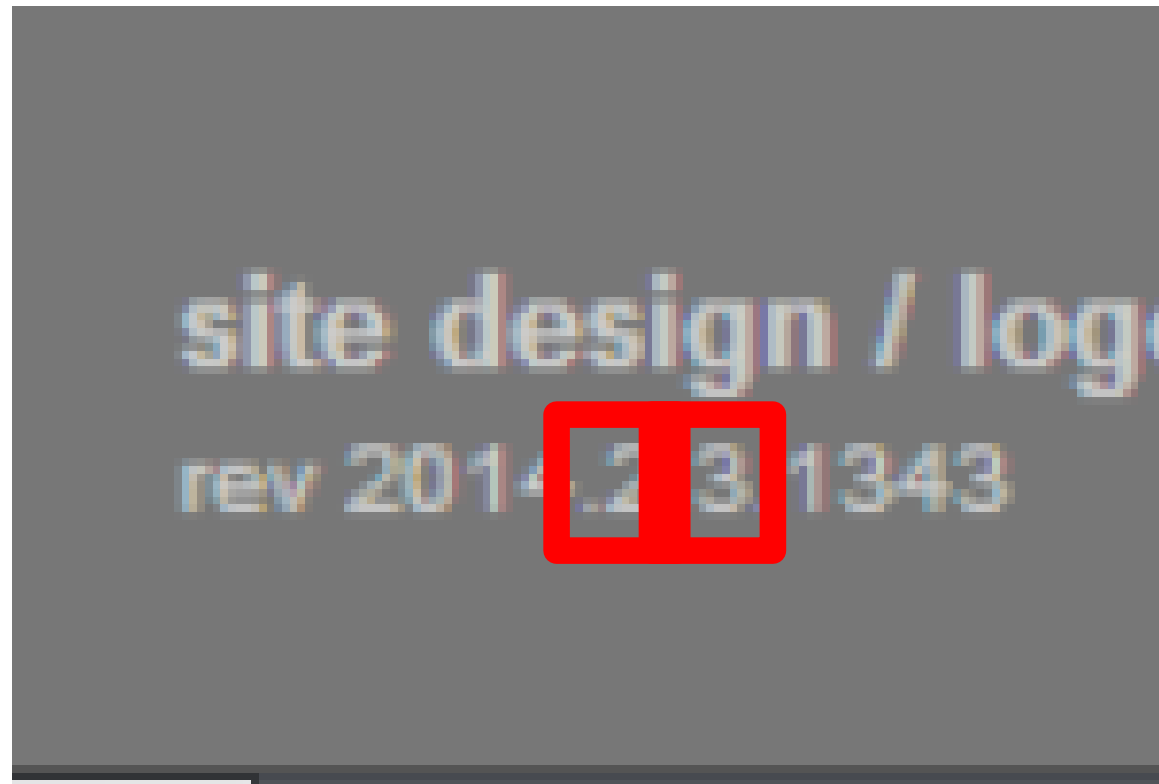
stackoverflow.com



stackoverflow.com



stackoverflow.com



stackoverflow.com

Prerequisites



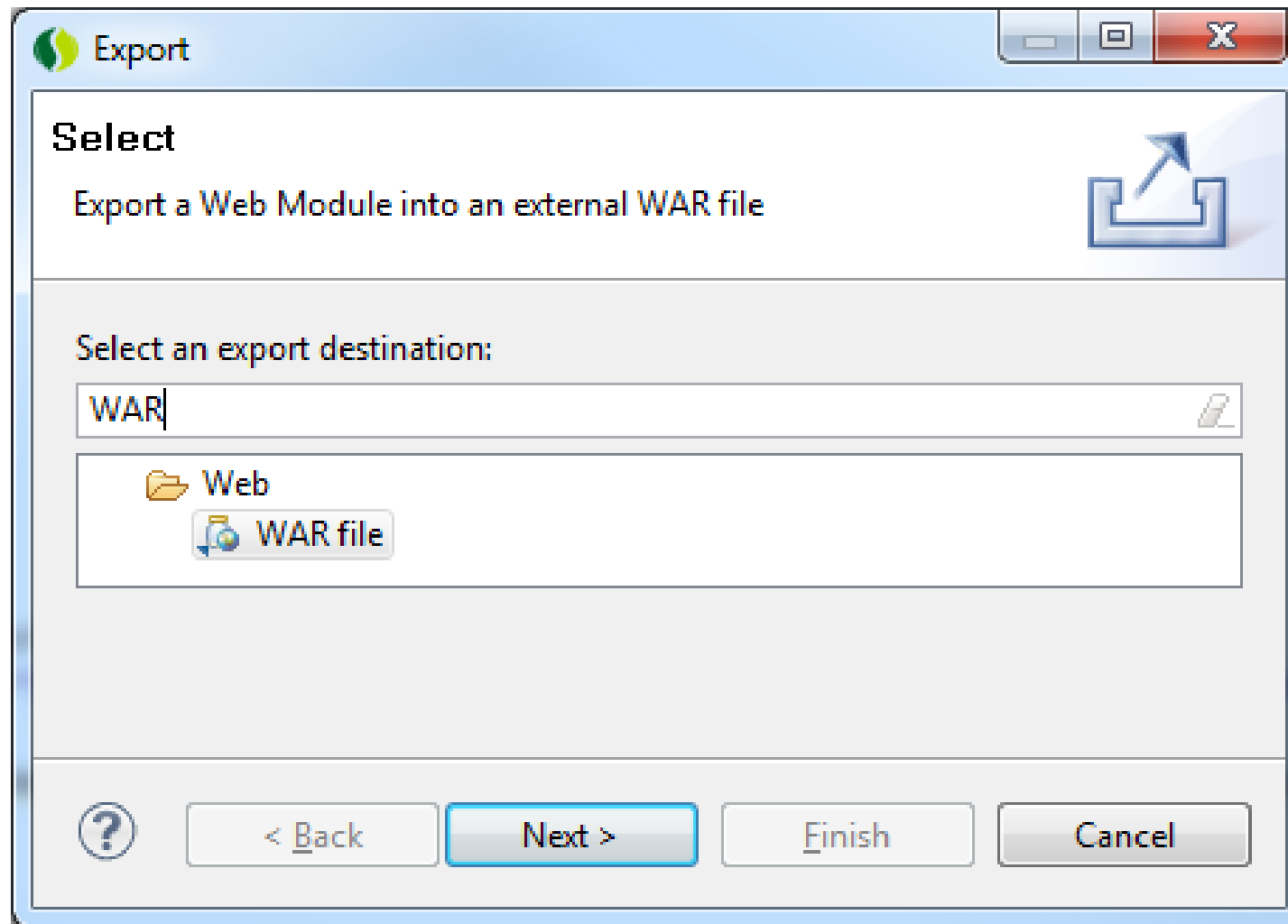
Process

<http://www.flickr.com/photos/feffef/460299340/in/photostream/>

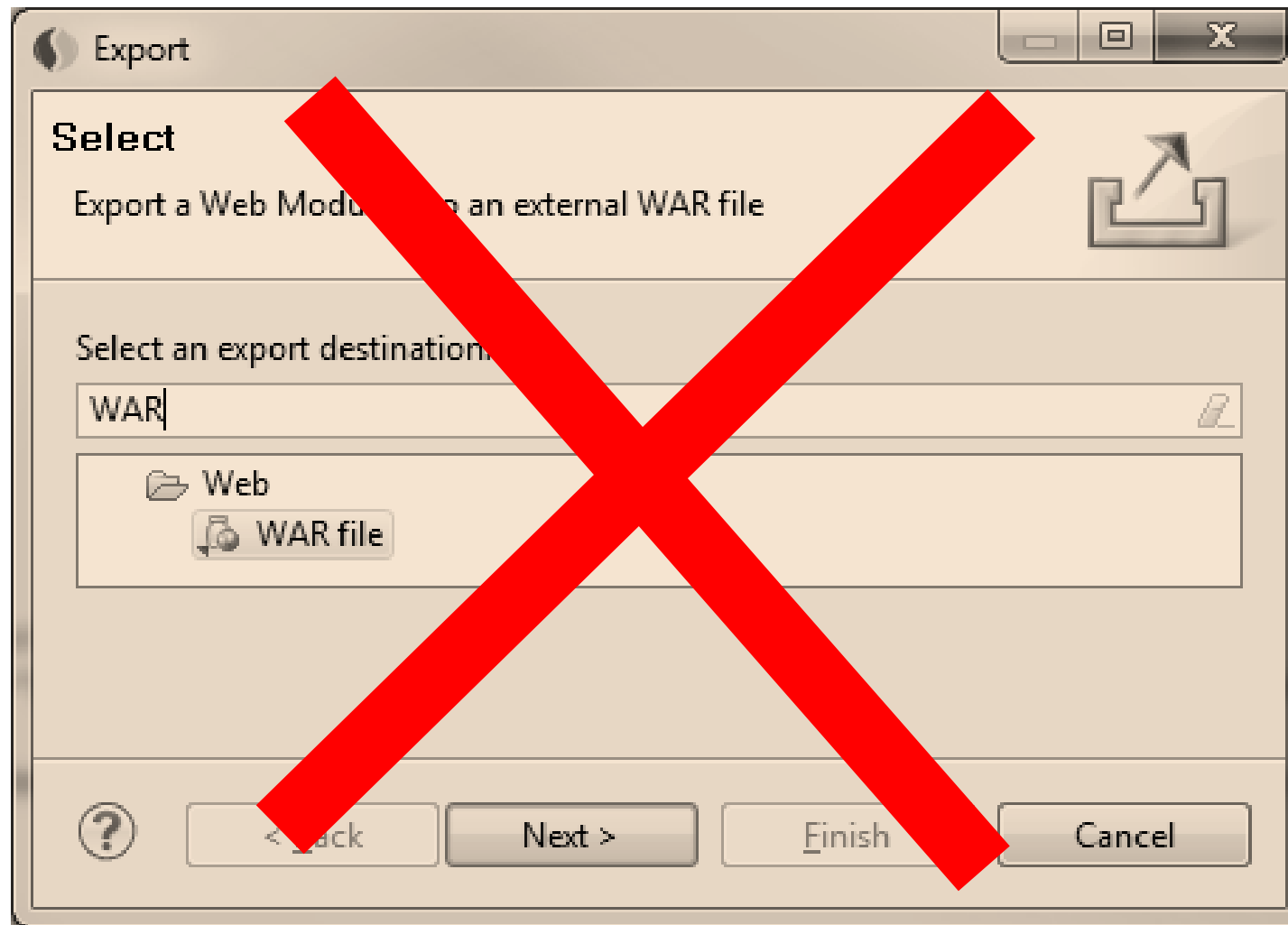


Process

<http://www.flickr.com/photos/feffef/460299390/in/photostream/>



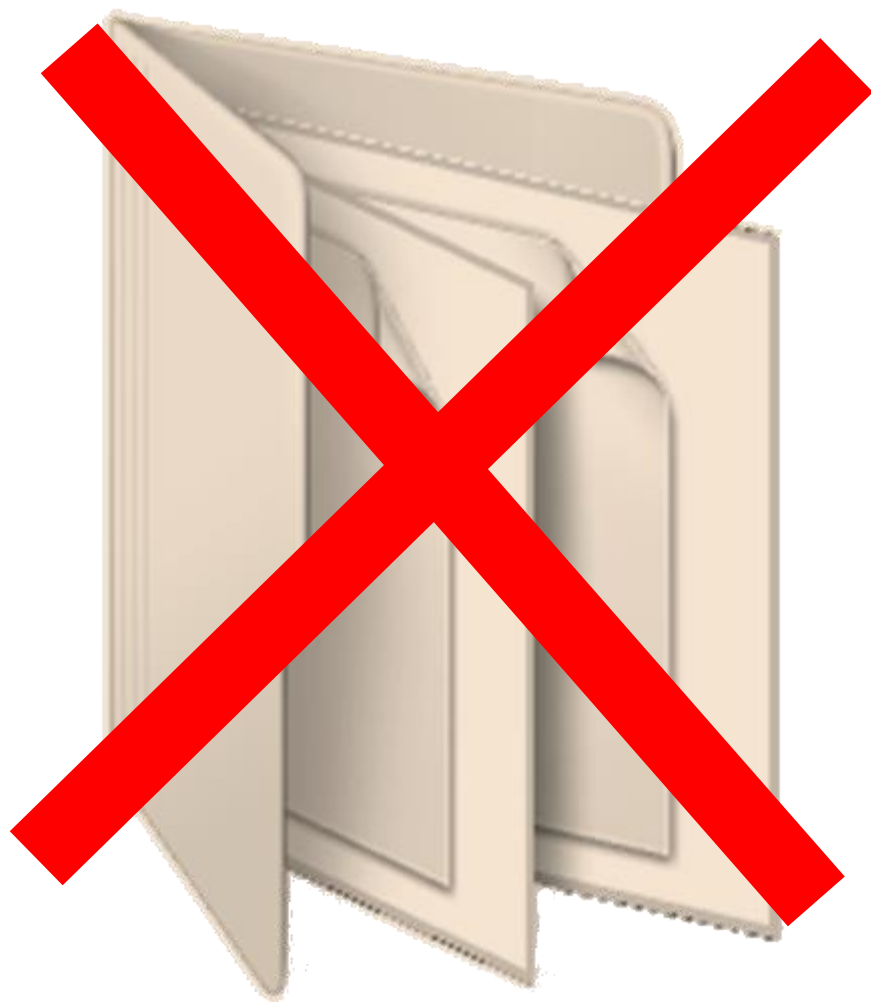
Build



Build



Version Control



Version Control



Test

<http://www.flickr.com/photos/vitorcastillo/2994723741/>



Test

▶ Small

Unit Test

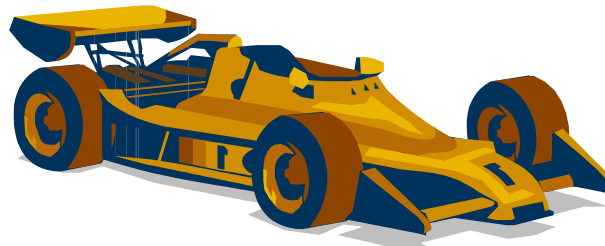
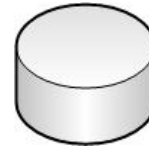


JU**nit**



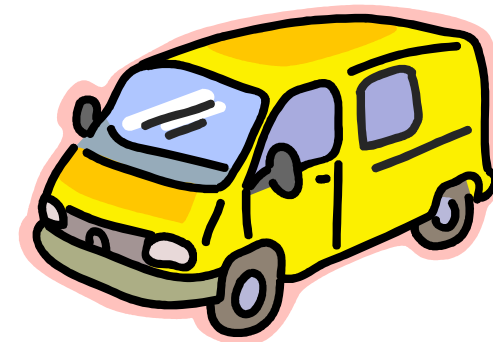
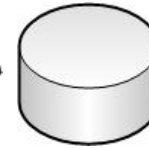
▶ Medium

Component Test



▶ Large

Acceptance Test



▶ Small

Unit Test



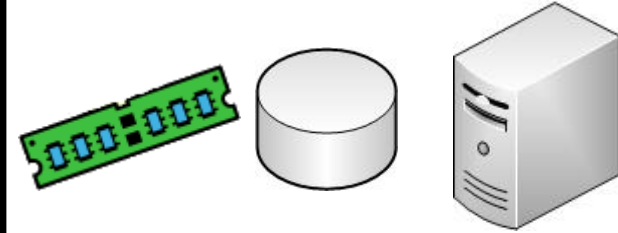
▶ Medium

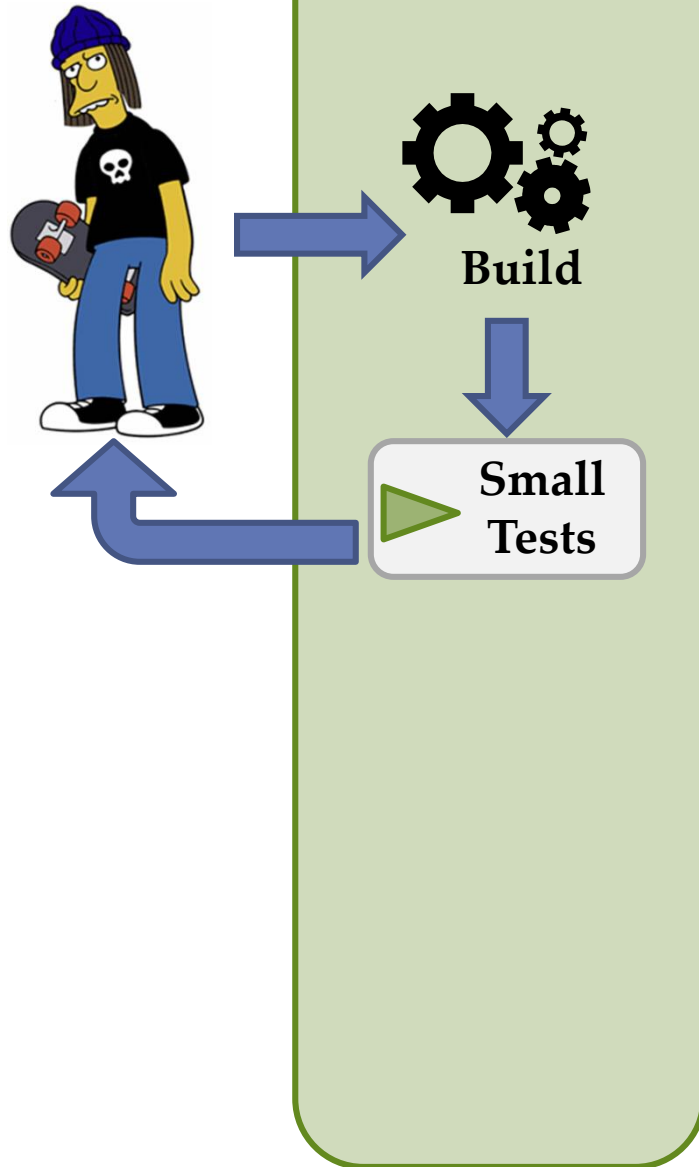
Component Test

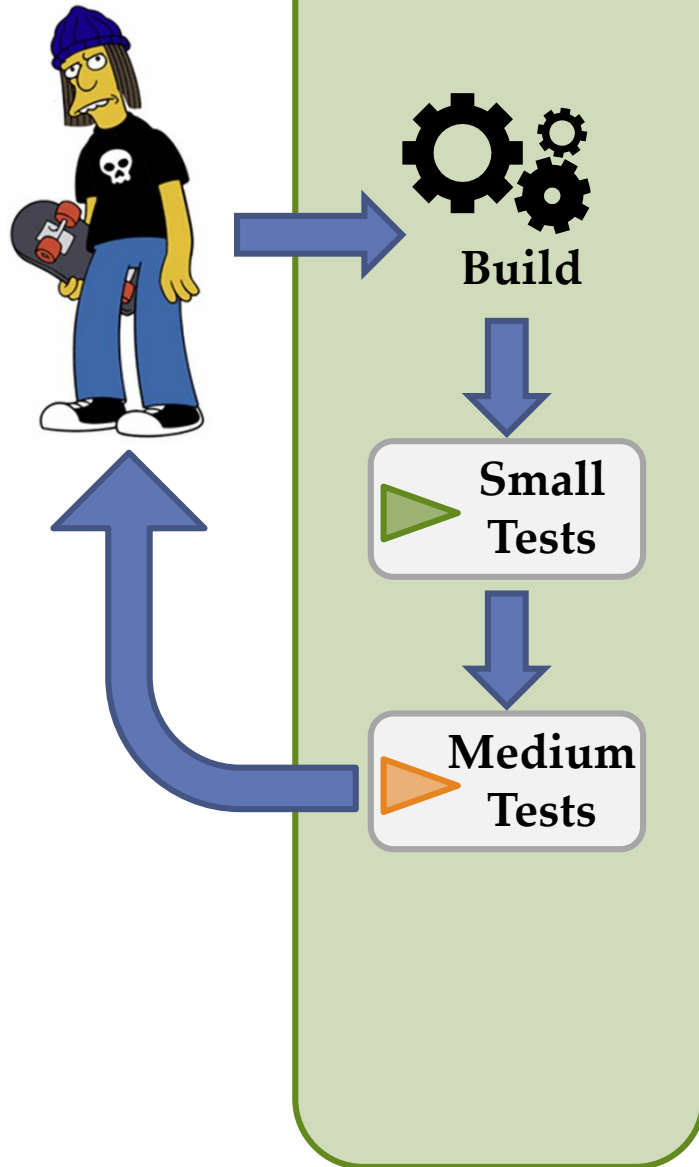


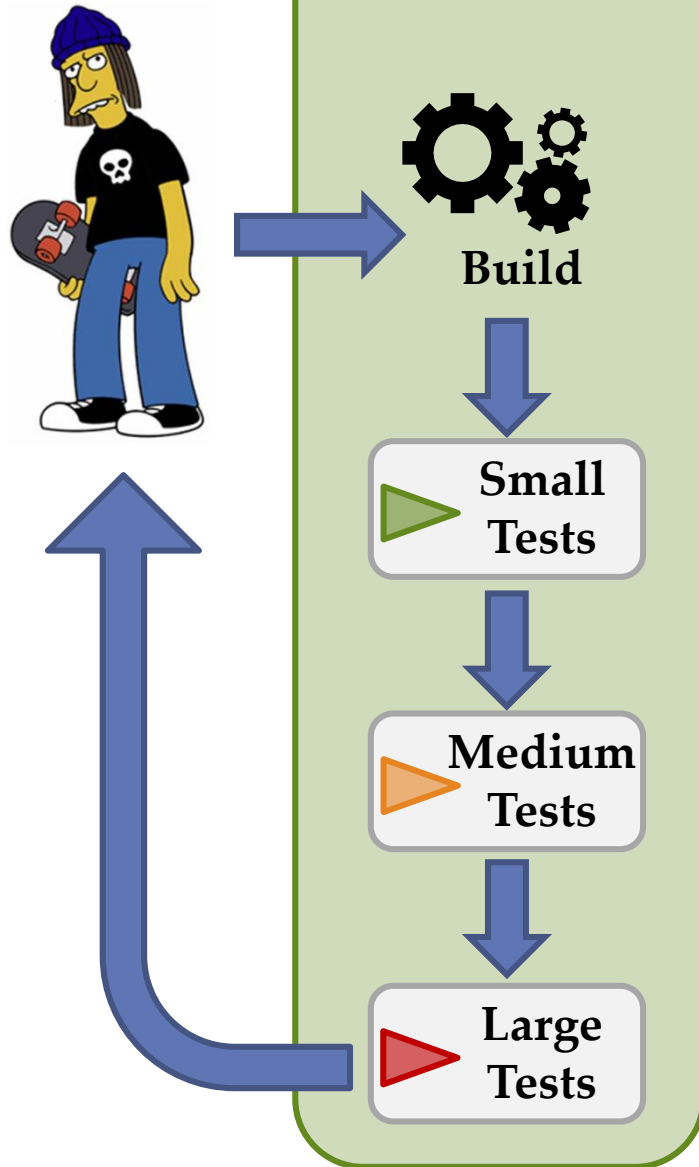
▶ Large

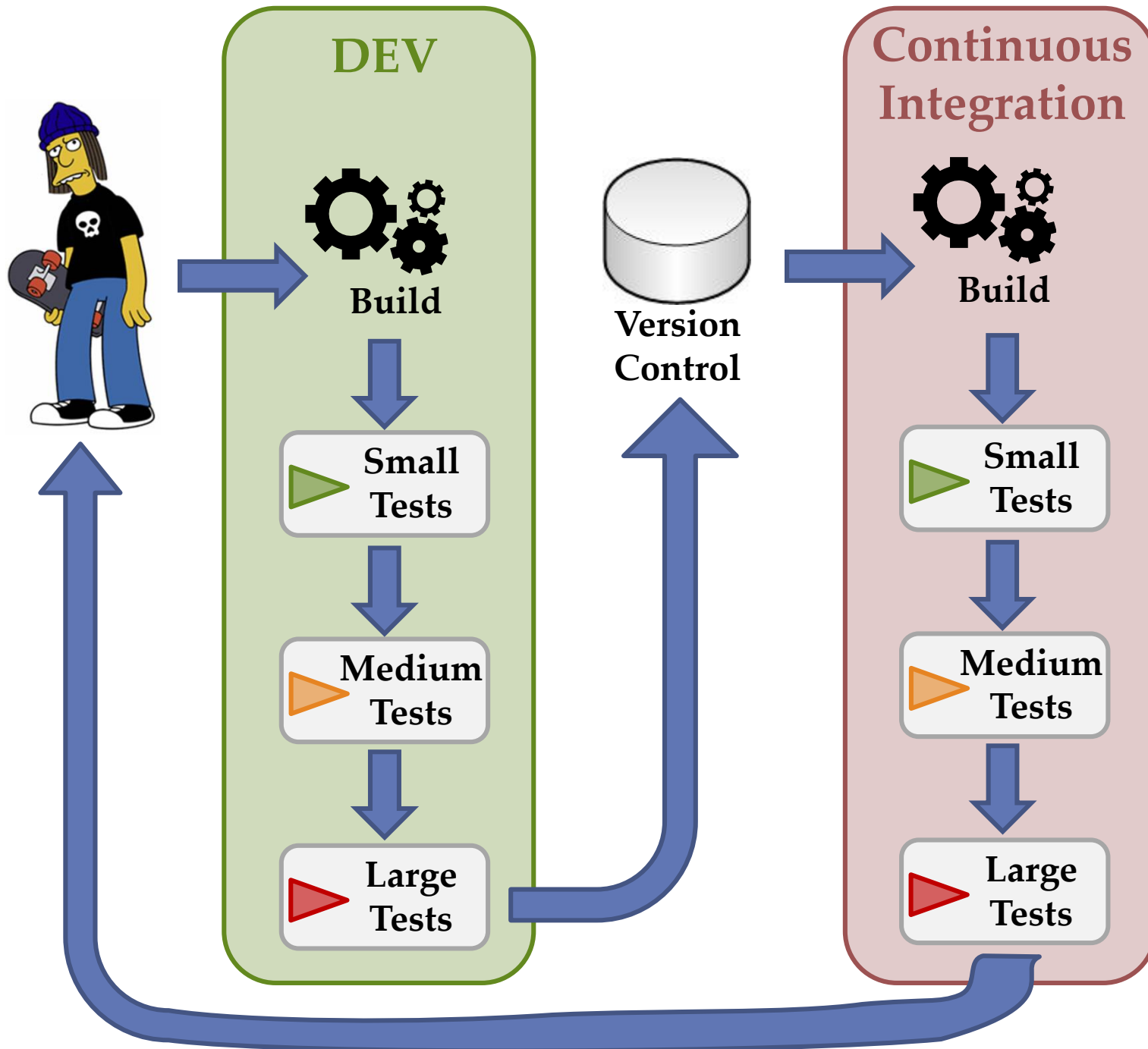
Acceptance Test











hands-on

LB

HAProxy :9000 -> :9000

CI

Jenkins :8080 -> :8080

Artifactory :8081 -> :8081

APP1

Jetty :9100 -> :9101

SSH :22 -> :9111

APP2

Jetty :9100 -> :9102

SSH :22 -> :9112

DB

H2 :9200 -> :9200

VirtualBox 10.0.2.2:xxxx

DEPLOYMENT

automation

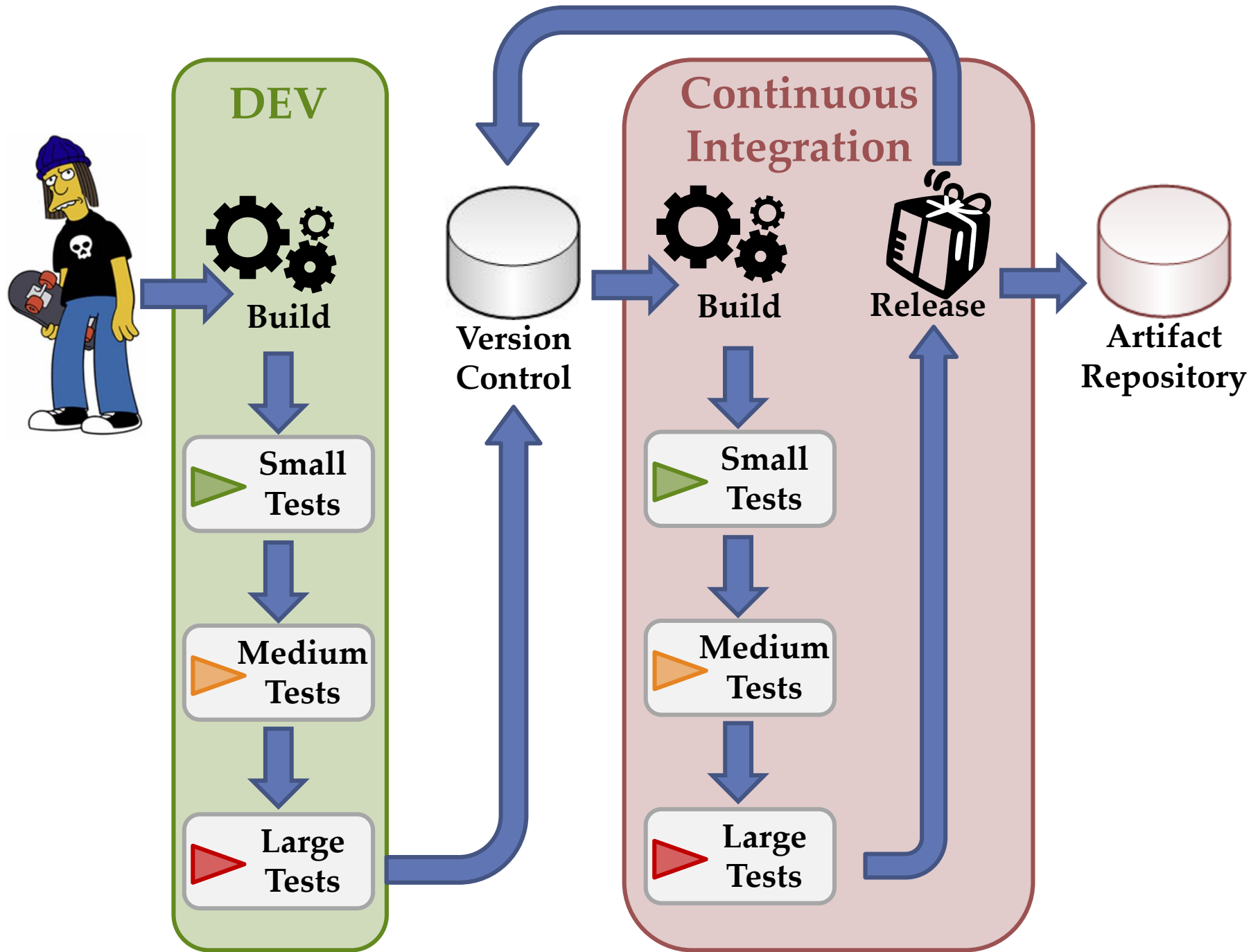


do

NOT

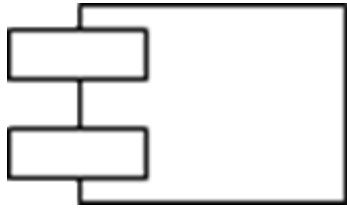
deploy

SNAPSHOTS !



hands-on

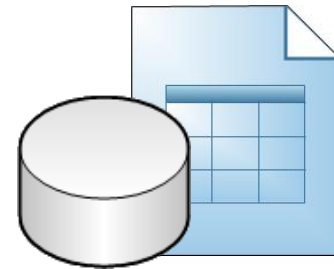
What gets deployed?



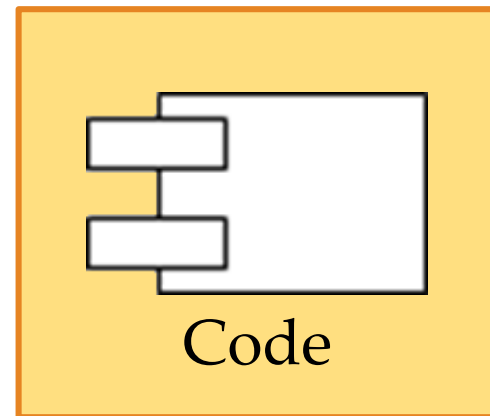
Code



Configuration



DB Delta



**Deployment
Package**

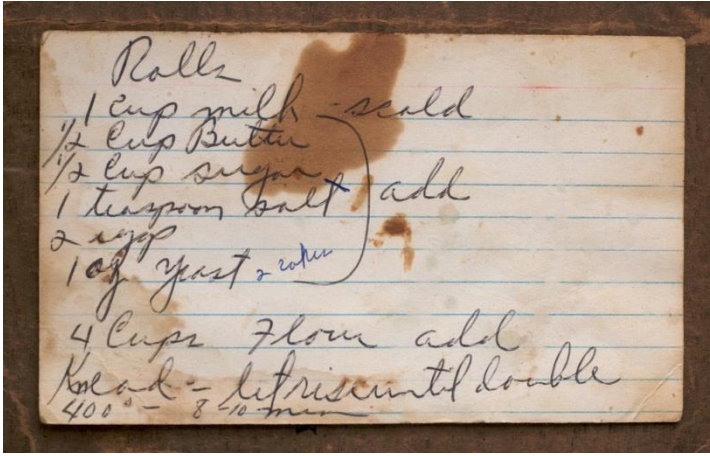
Rolls

1 cup milk - scald
1/2 cup Butter
1/2 cup sugar
1 teaspoon salt
2 eggs
1 oz yeast & water

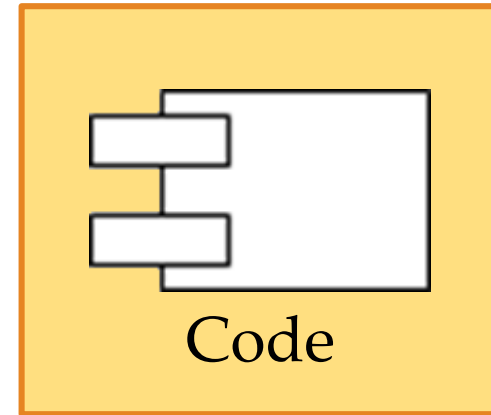
add

4 cups flour add

Knead - let rise until double
400° - 8-10 min



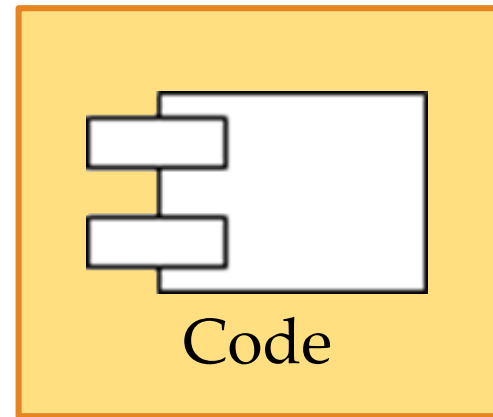
**Deployment
Script**



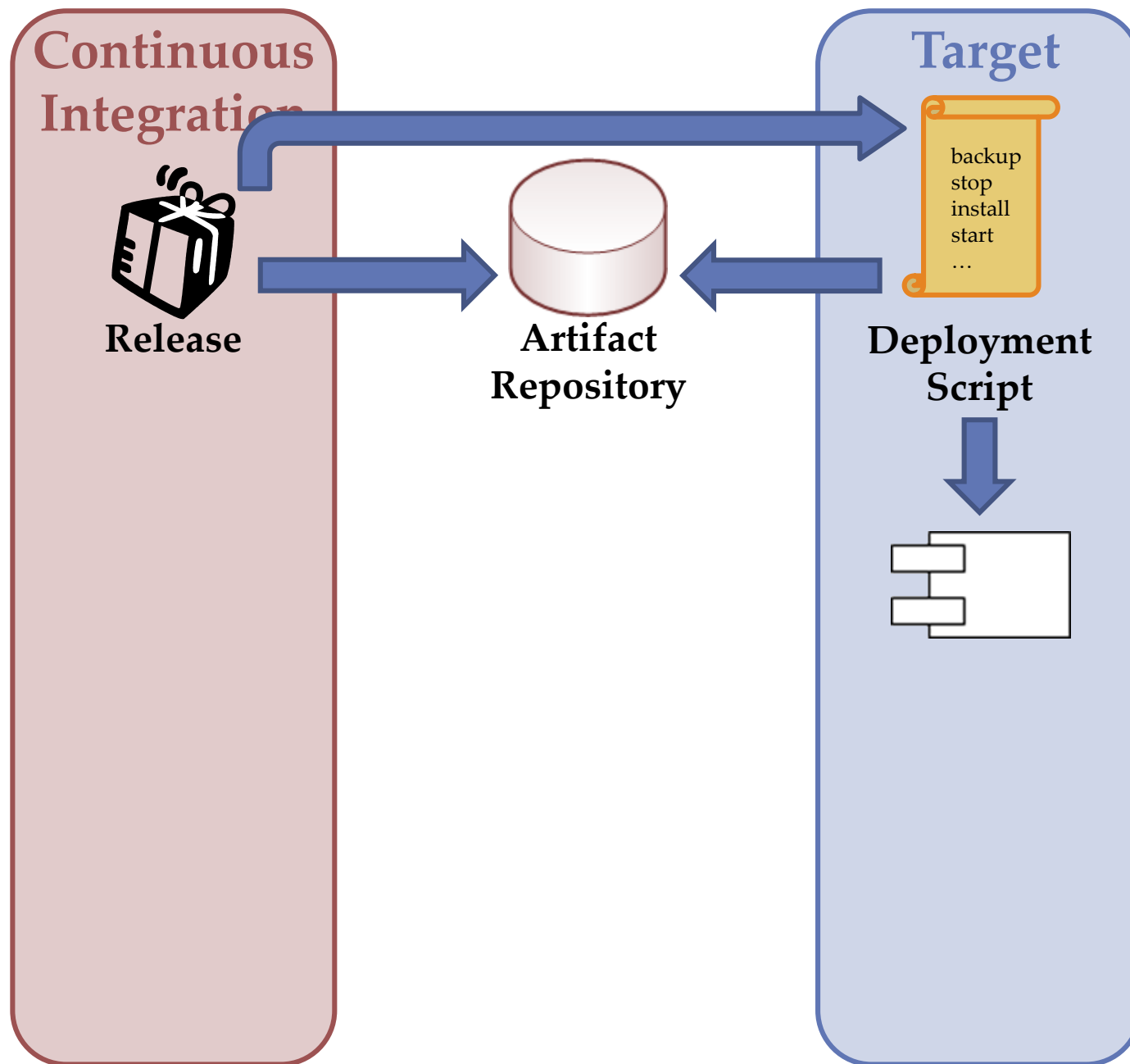
**Deployment
Package**



**Deployment
Script**



**Deployment
Package**



hands-on

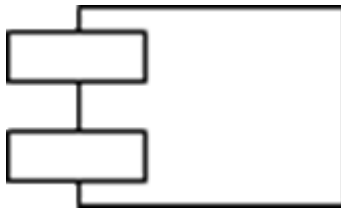


Configuration



Maybe it could
change one day

≠ Environments

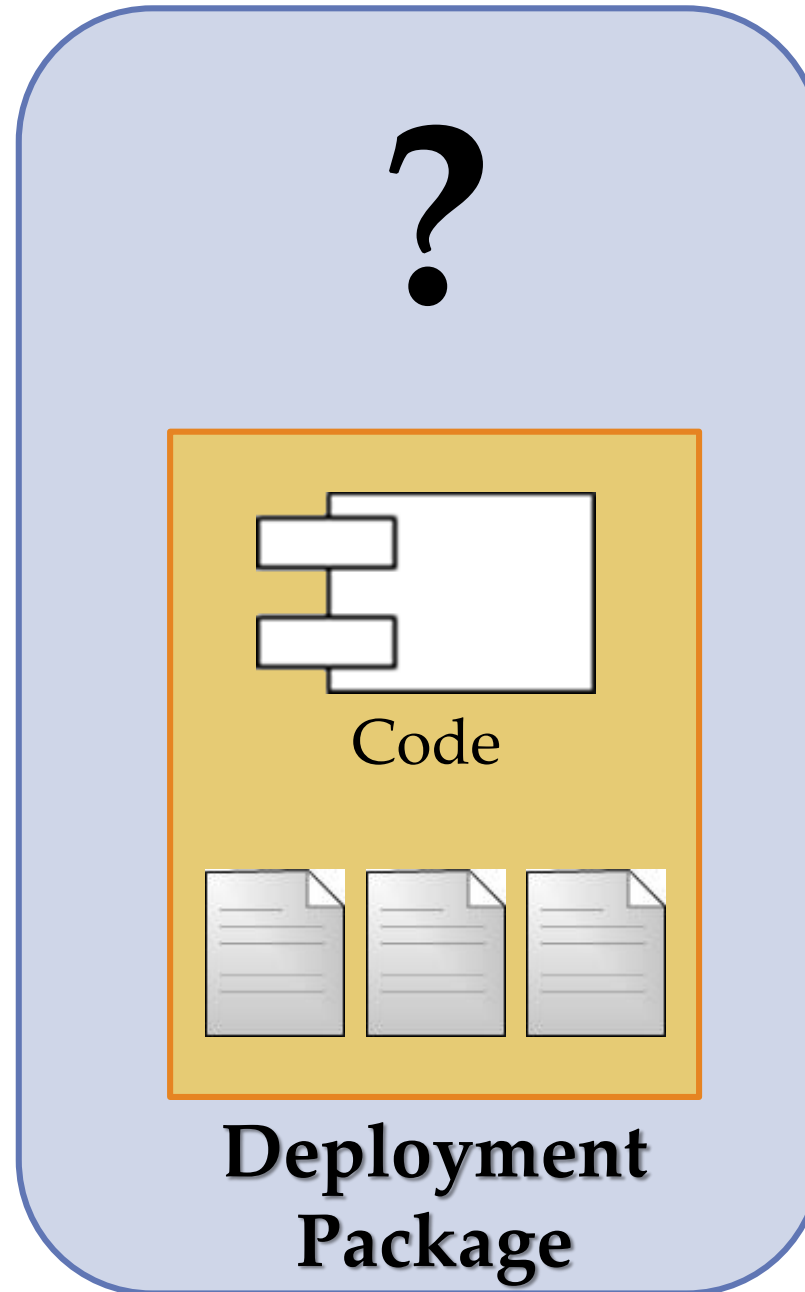


Code



Deployment
Package

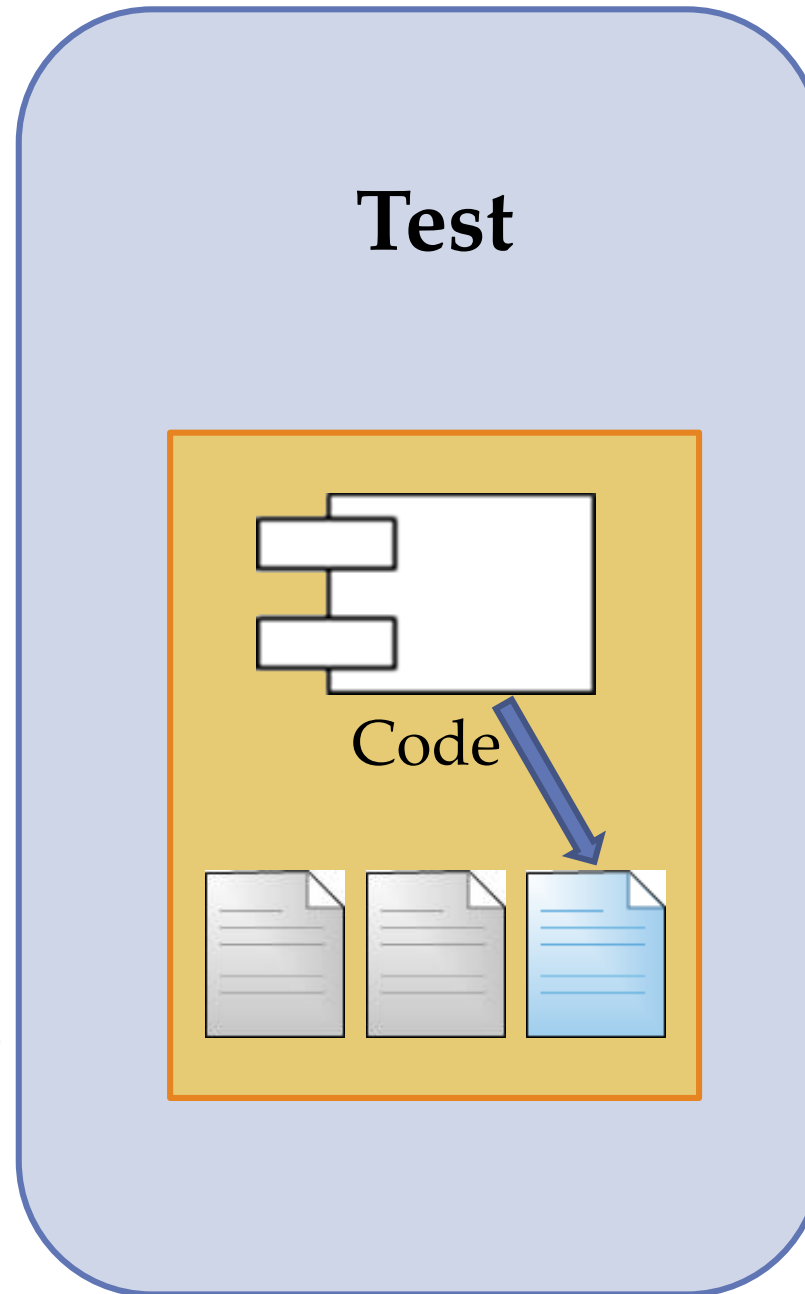
Environment Detection

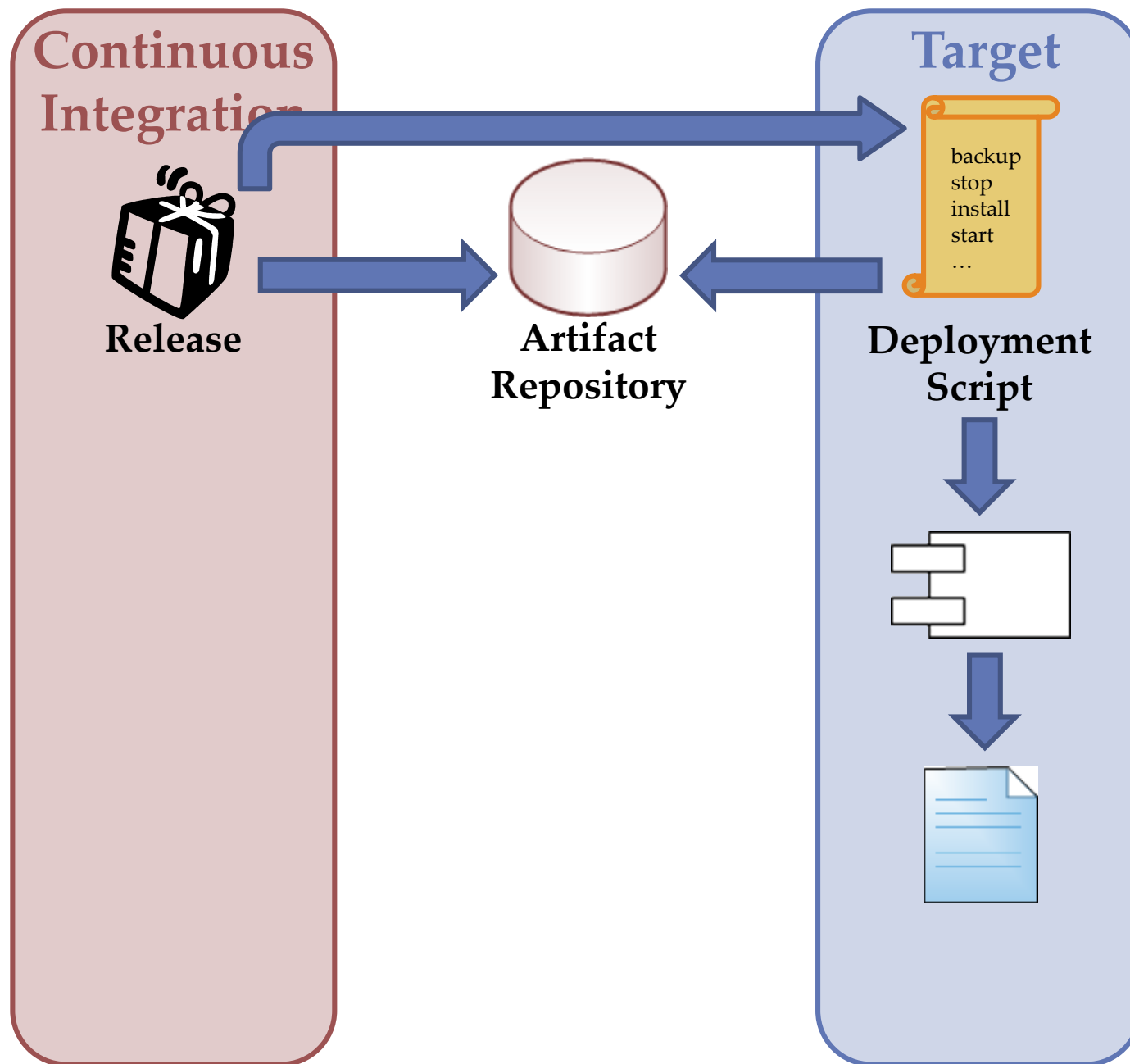


Environment Detection

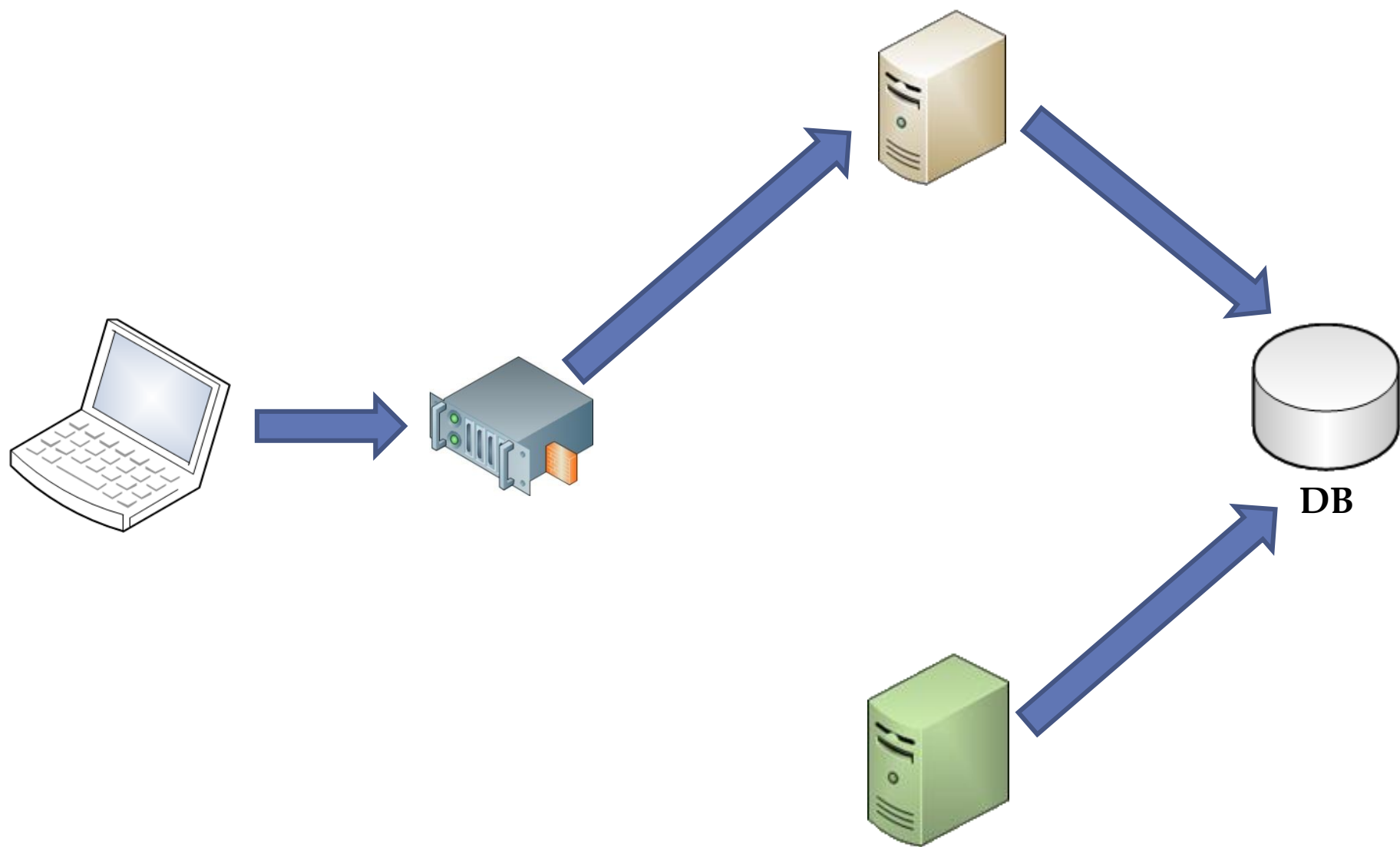


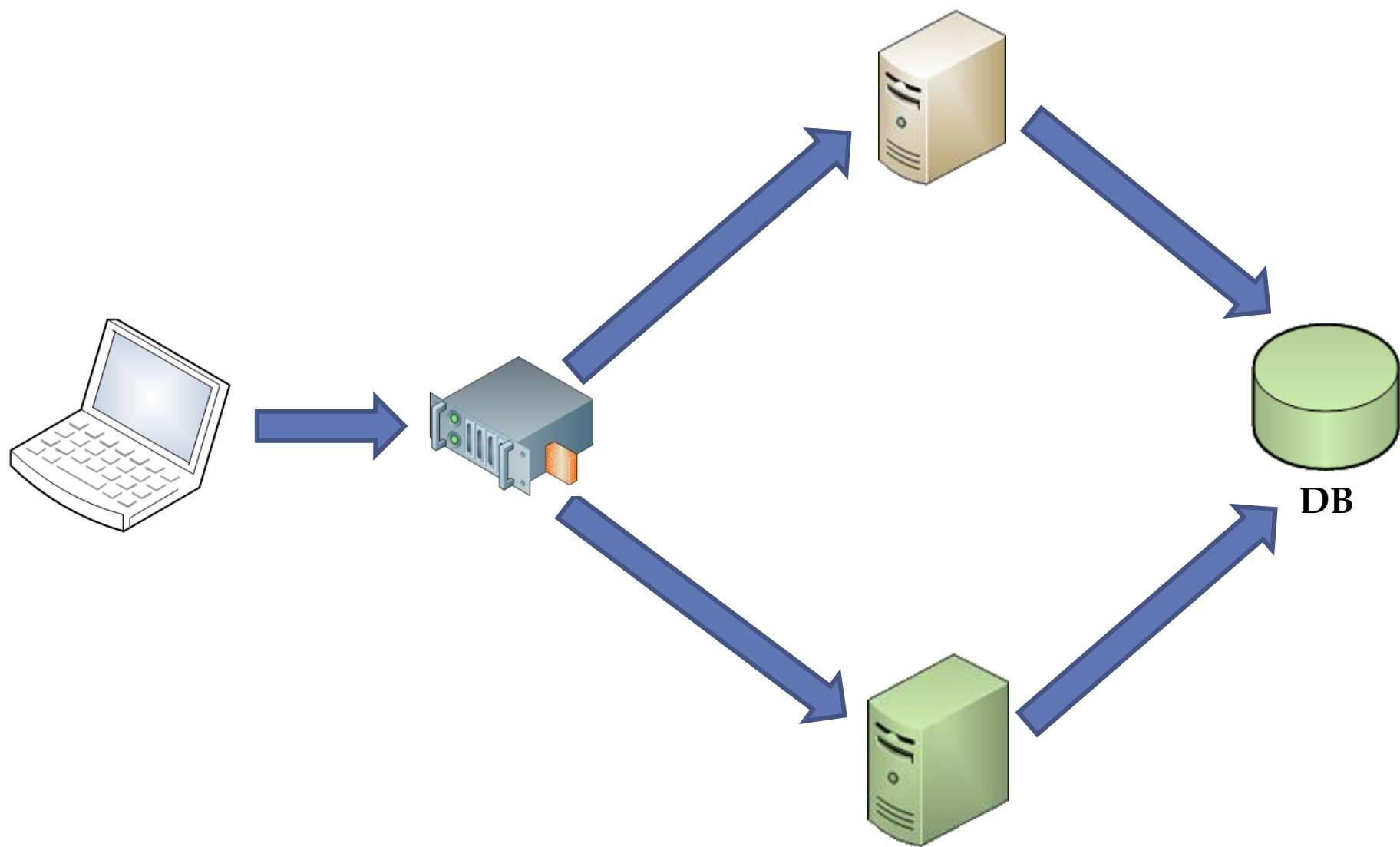
Auto- Configuration

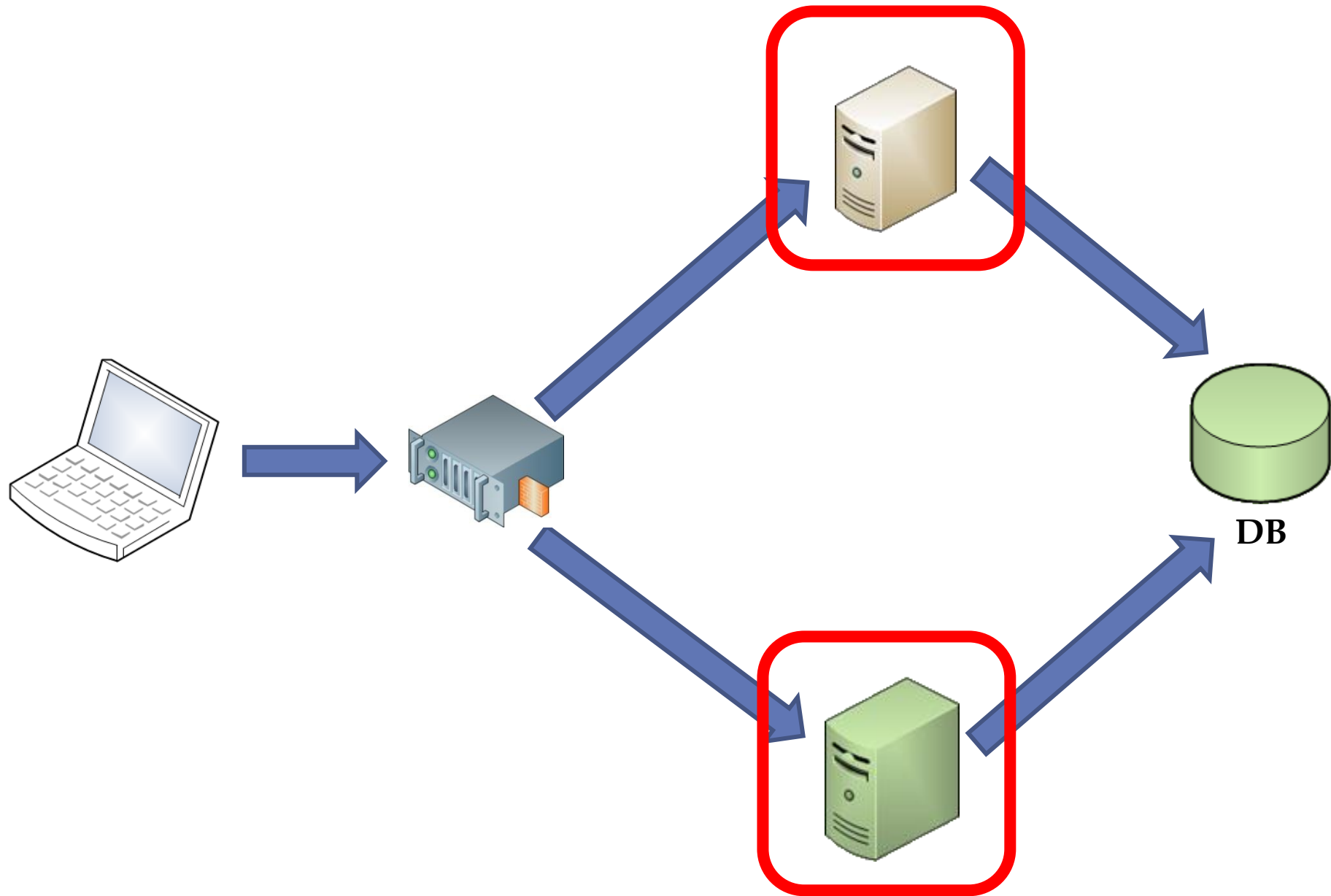




hands-on

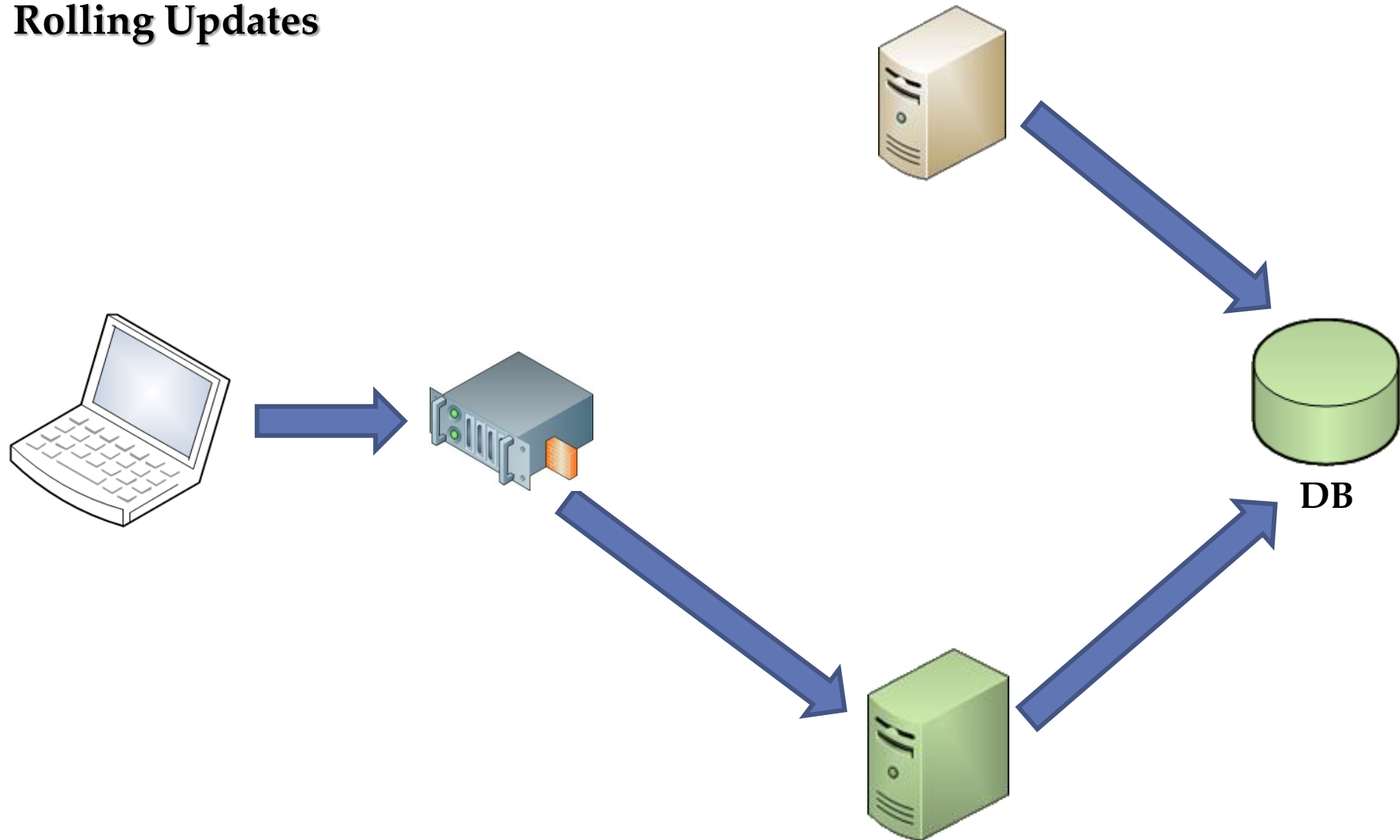




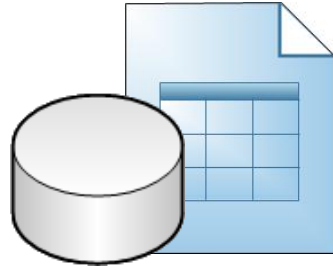


Zero Downtime

Rolling Updates



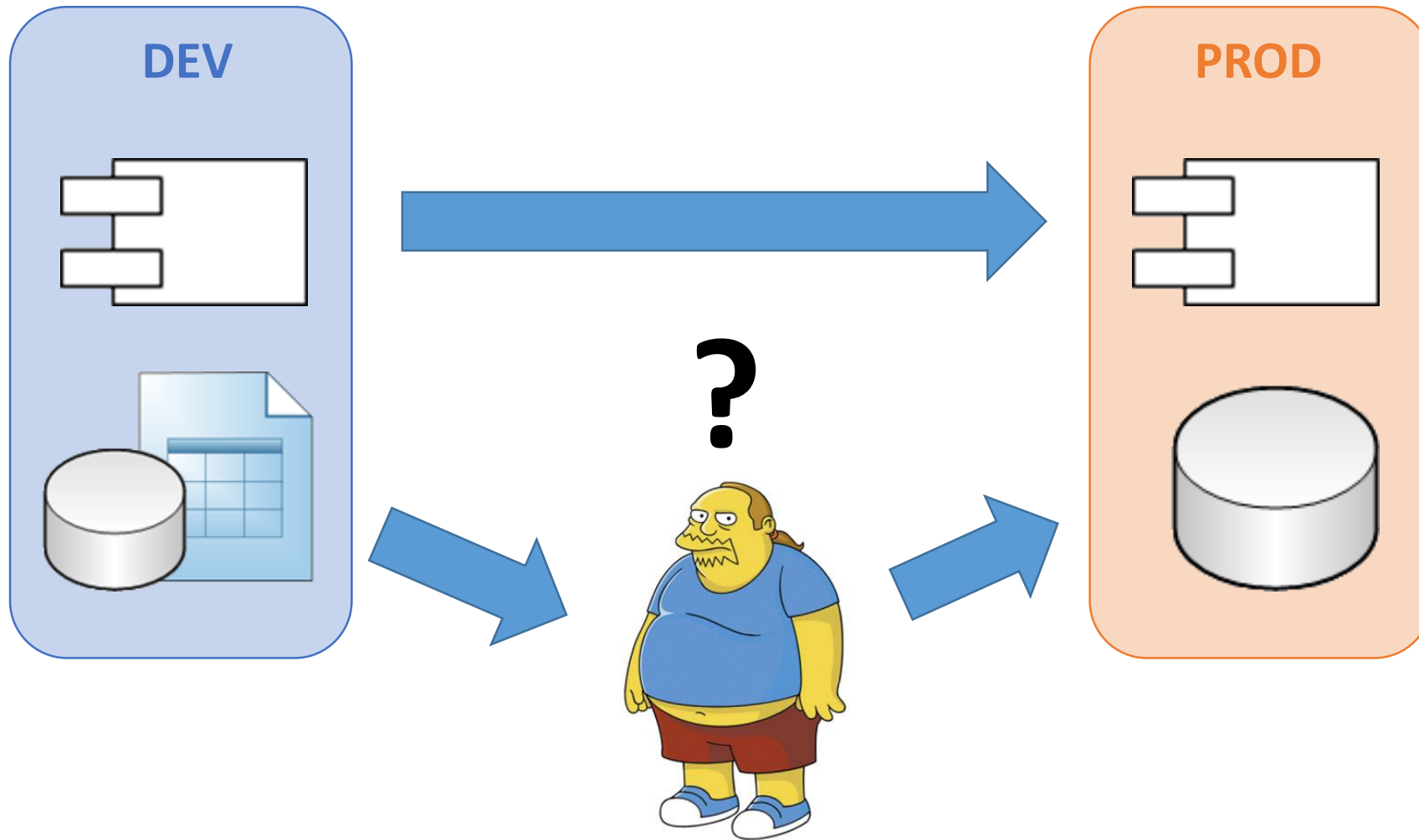
hands-on



DB Delta



The Fear
of
DDL





DML

VS



DDL

Name	Balance
Homer	163
Marge	214
Bart	9
Lisa	25

Name	Balance
Homer	0
Marge	0
Bart	0
Lisa	0

DML

VS

Name
Homer
Marge
Bart
Lisa

DDL

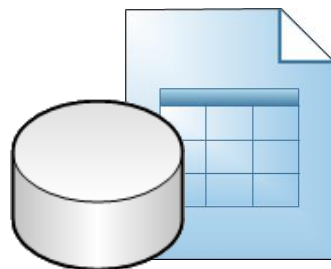


DML

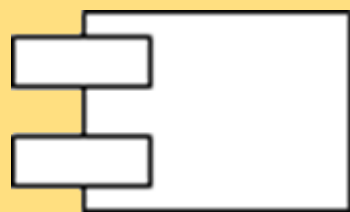
VS



DDL



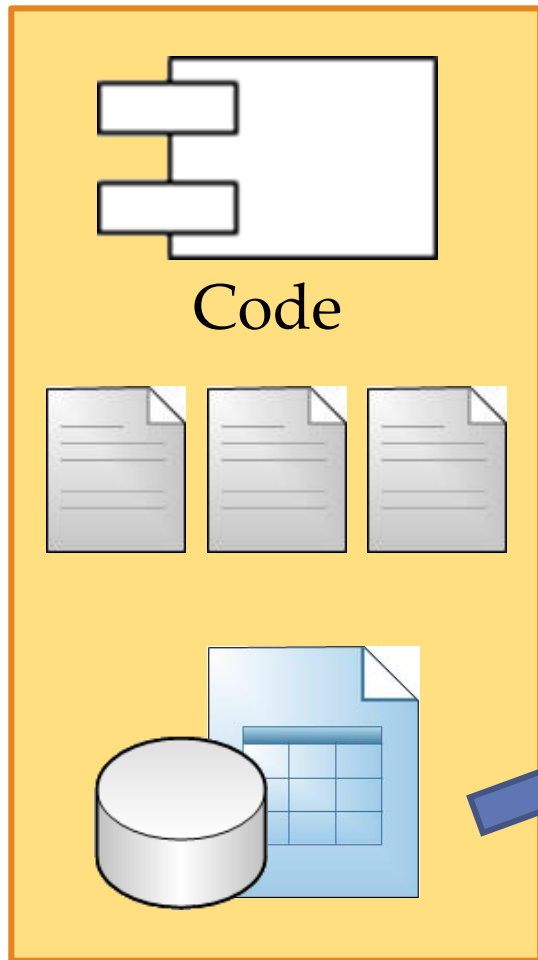
DB Delta



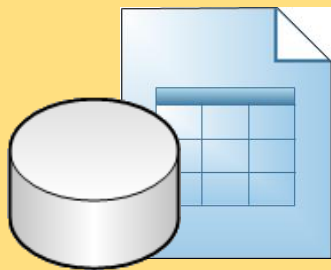
Code



**Deployment
Package**

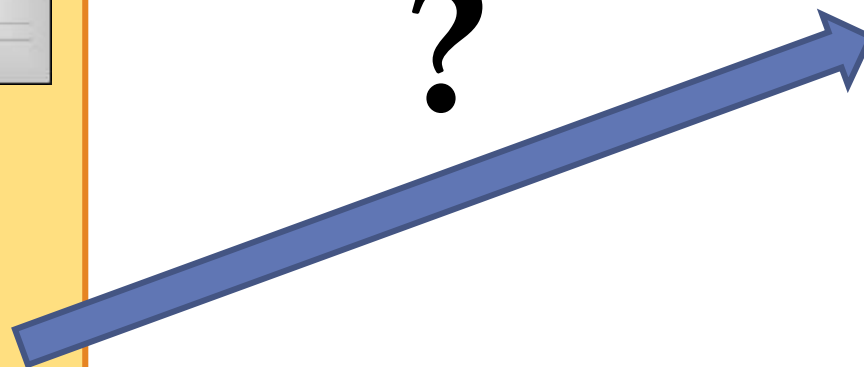


Code

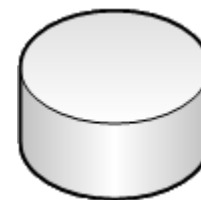


**Deployment
Package**

?



?

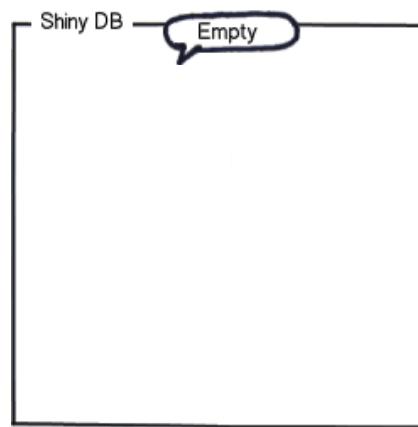


DB

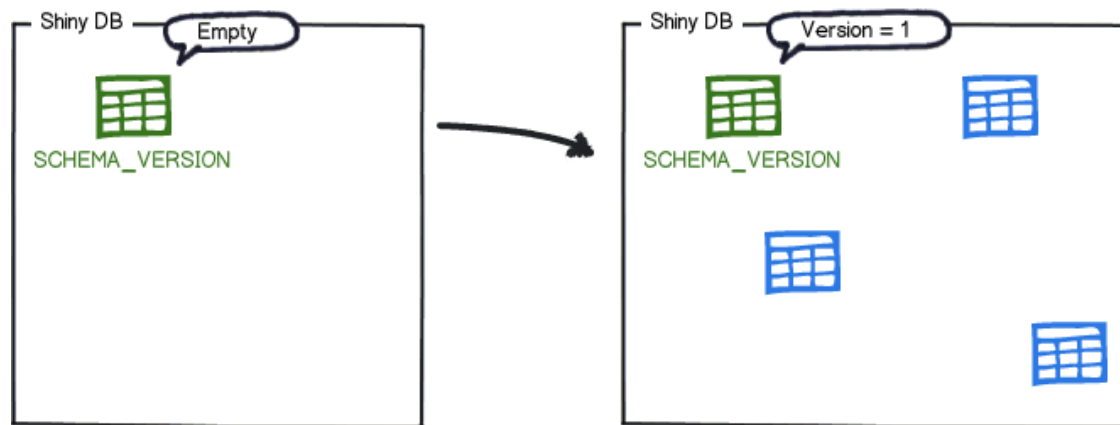


flywaydb.org

How does
Flyway work?



Empty DB

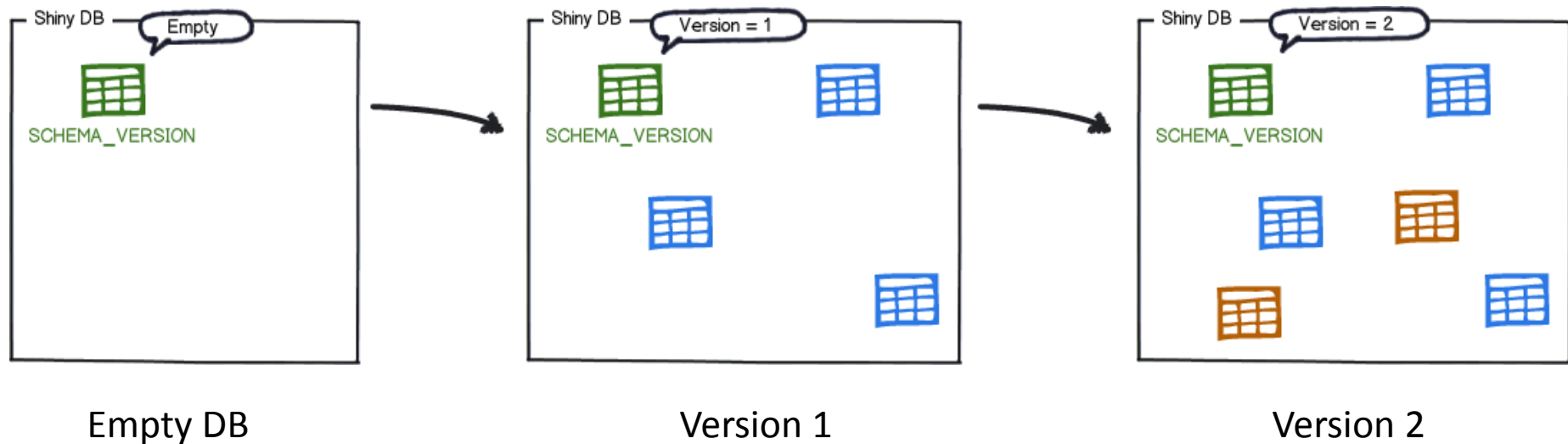


Empty DB

Version 1

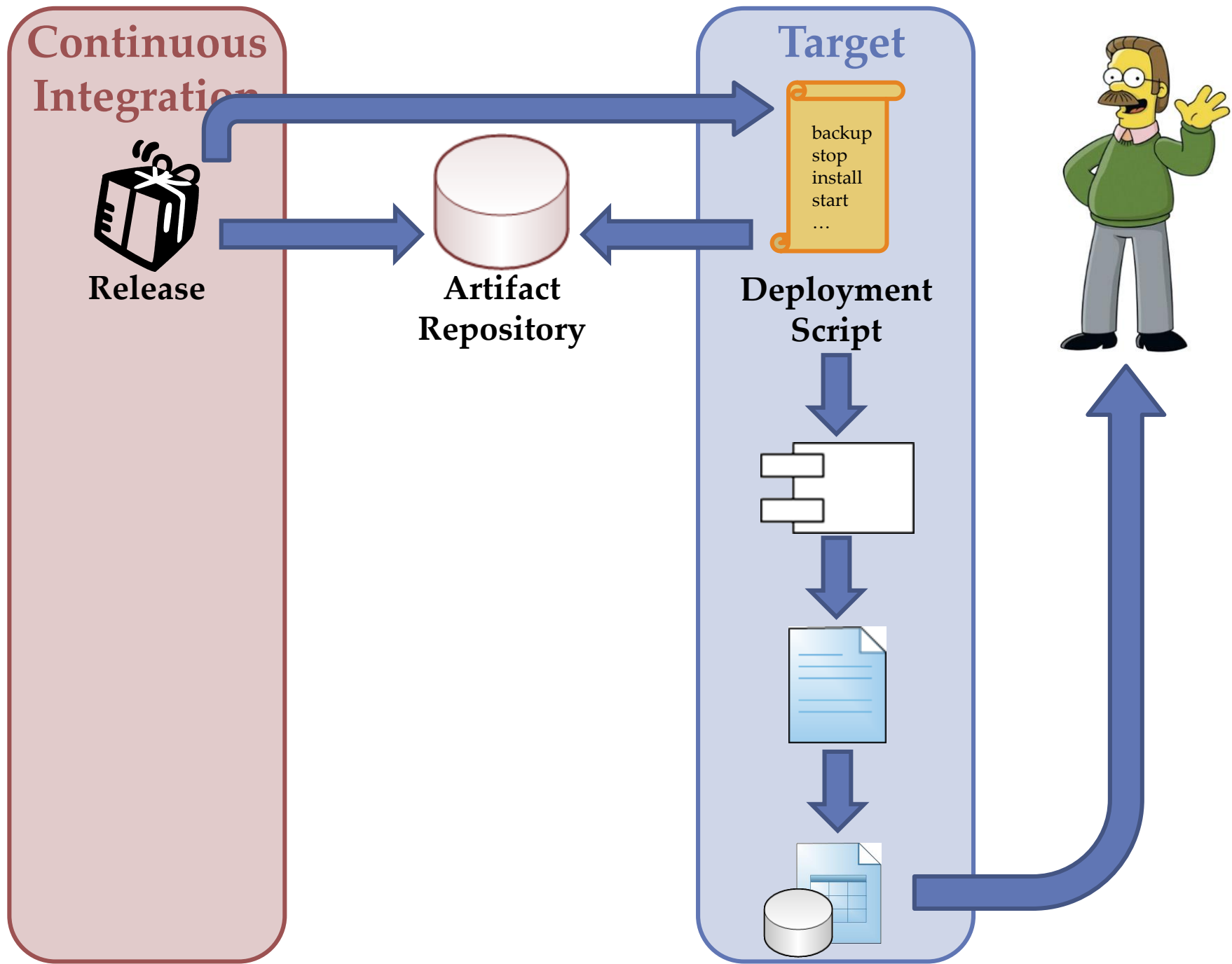
schema_version

version_rank	installed_rank	version	description	type	script	checksum	installed_by	installed_on	execution_time	success
1	1	1	Initial Setup	SQL	V1__Initial_Setup.sql	1996767037	axel	2010-05-04 22:23:00.0	546	true



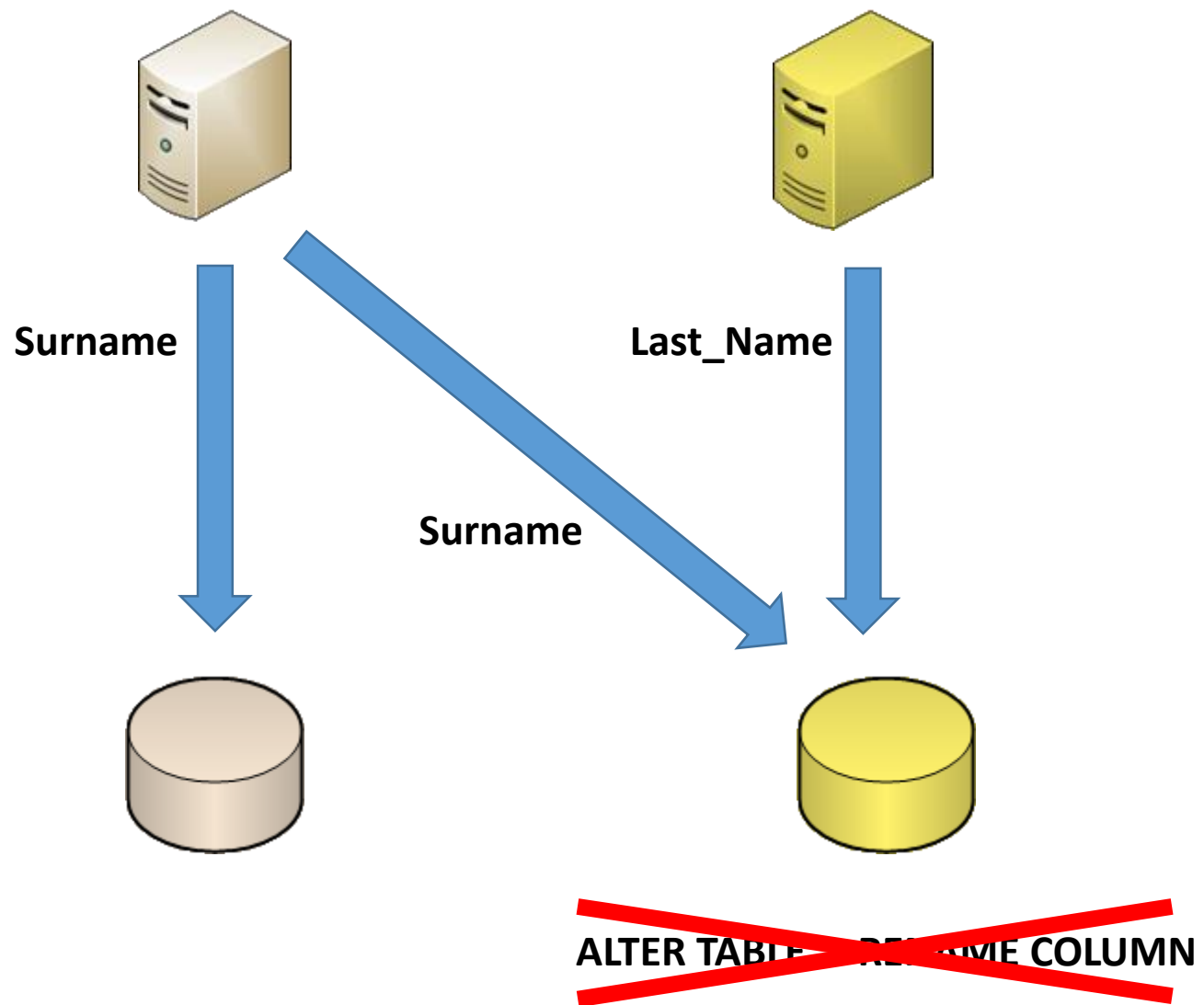
schema_version

version_rank	installed_rank	version	description	type	script	checksum	installed_by	installed_on	execution_time	success
1	1	1	Initial Setup	SQL	V1__Initial_Setup.sql	1996767037	axel	2010-05-04 22:23:00.0	546	true
2	2	2	First Changes	SQL	V2__First_Changes.sql	1279644856	axel	2010-05-06 09:18:00.0	127	true

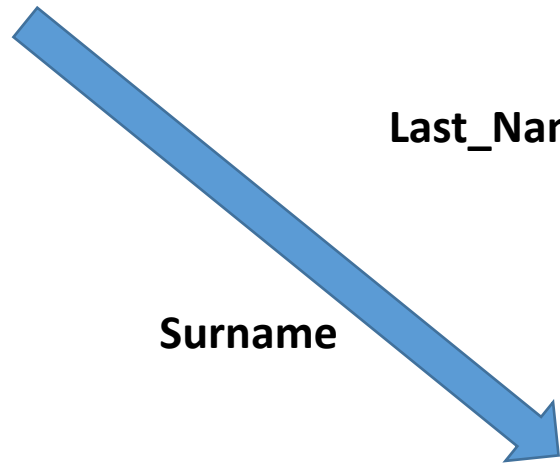


hands-on

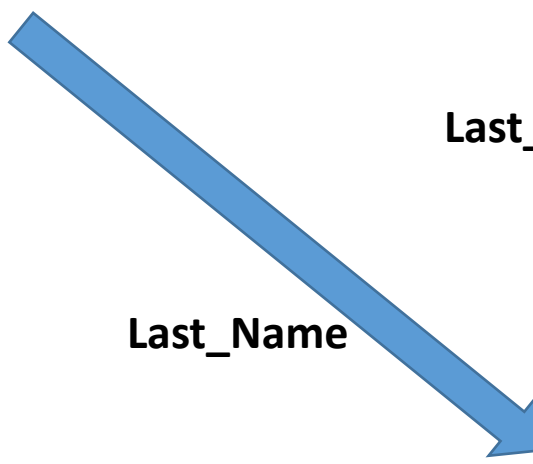
Backwards-compatible migrations



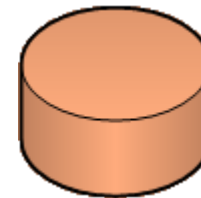
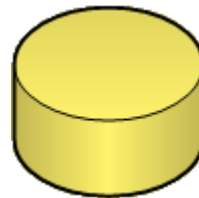
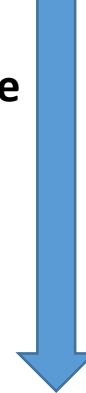
FirstName	Surname
Homer	Simpson
Roger	Rabbit
Lucky	Luke



Last_Name



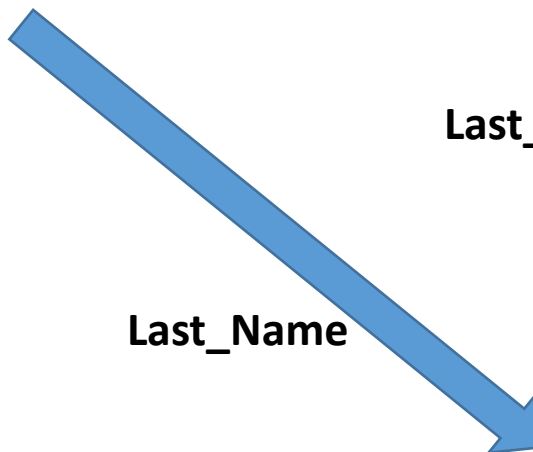
Last_Name



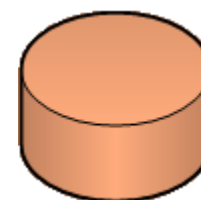
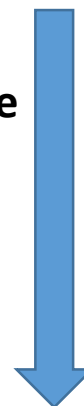
ALTER TABLE ...
ADD COLUMN Last_Name
UPDATE ... SET Last_Name = Surname
CREATE TRIGGER ...

DROP TRIGGER ...
ALTER TABLE ...
DROP COLUMN Surname

FirstName	Surname	Last_Name
Homer	Simpson	Simpson
Roger	Rabbit	Rabbit
Lucky	Luke	Luke



Last_Name



DROP TRIGGER ...
ALTER TABLE ...
DROP COLUMN Surname

FirstName	Last_Name	ast_Name
Homer	Simpson	mpson
Roger	Rabbit	abbit
Lucky	Luke	uke

The Addison-Wesley Signature Series



REFACTORING DATABASES

EVOLUTIONARY
DATABASE DESIGN

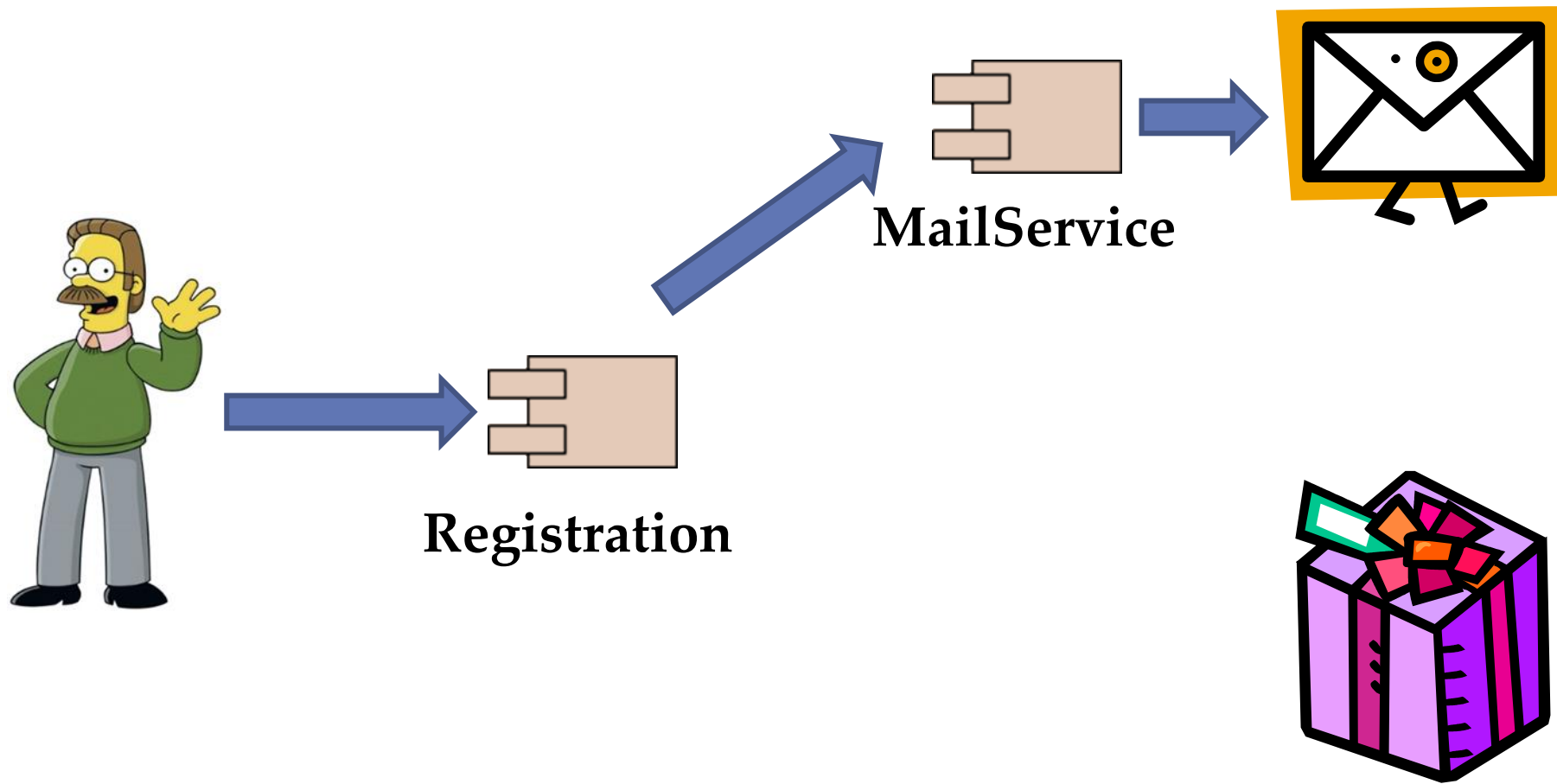
SCOTT W. AMBLER

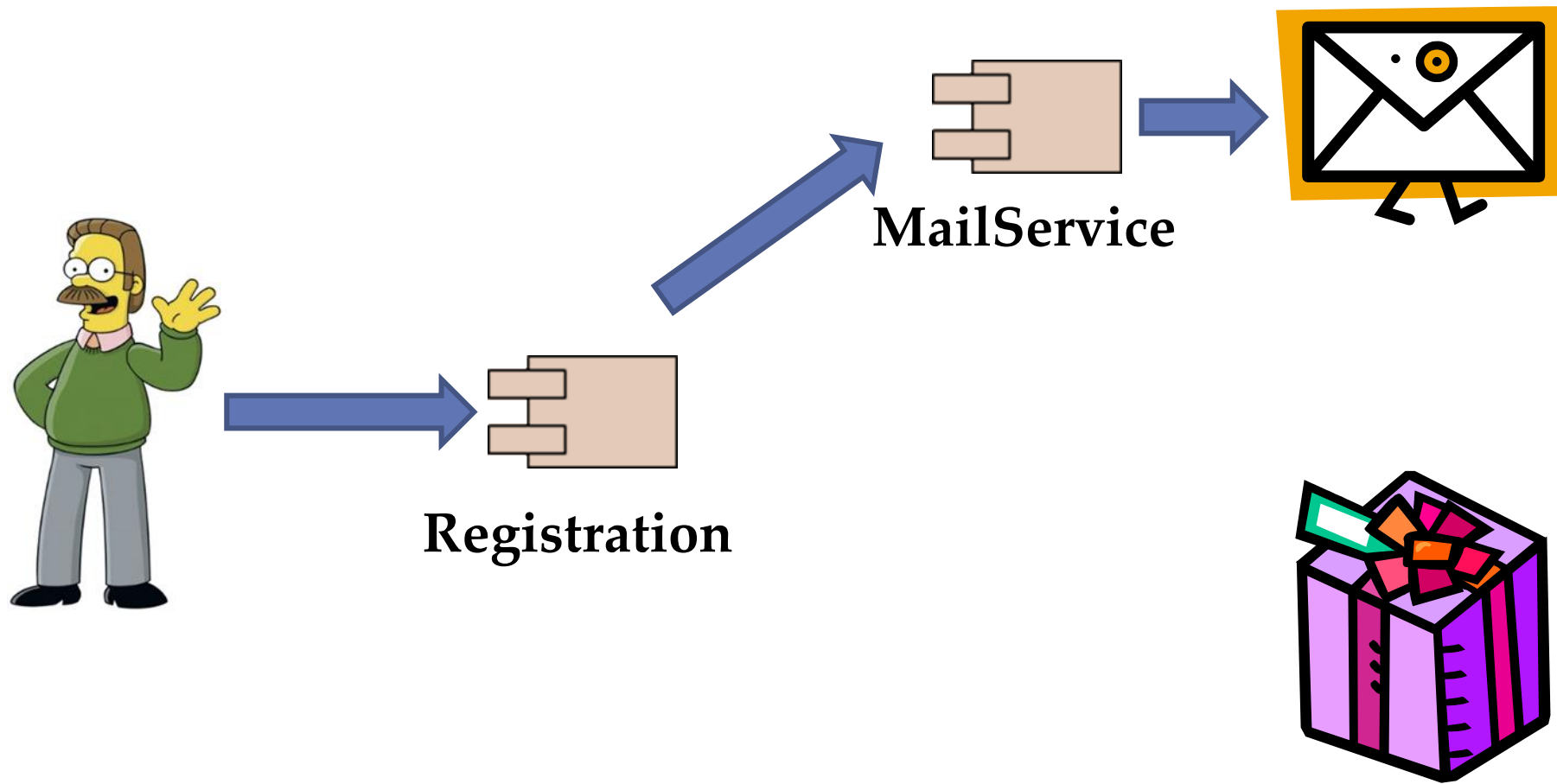
PRAMOD J. SADALAGE

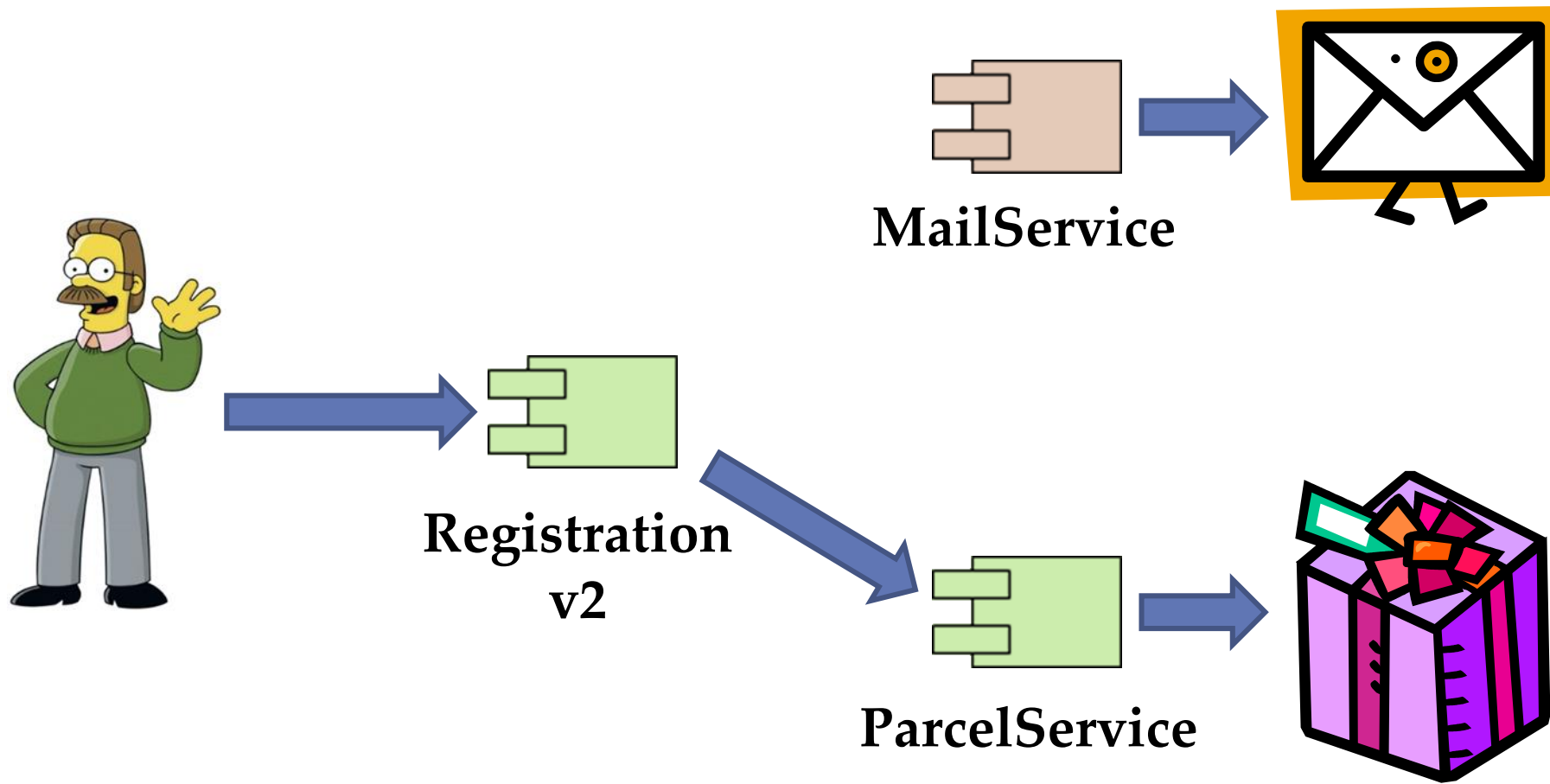


*Forewords by Martin Fowler, John Graham,
Sachin Rekhi, and Dr. Paul Dorsey*

hands-on

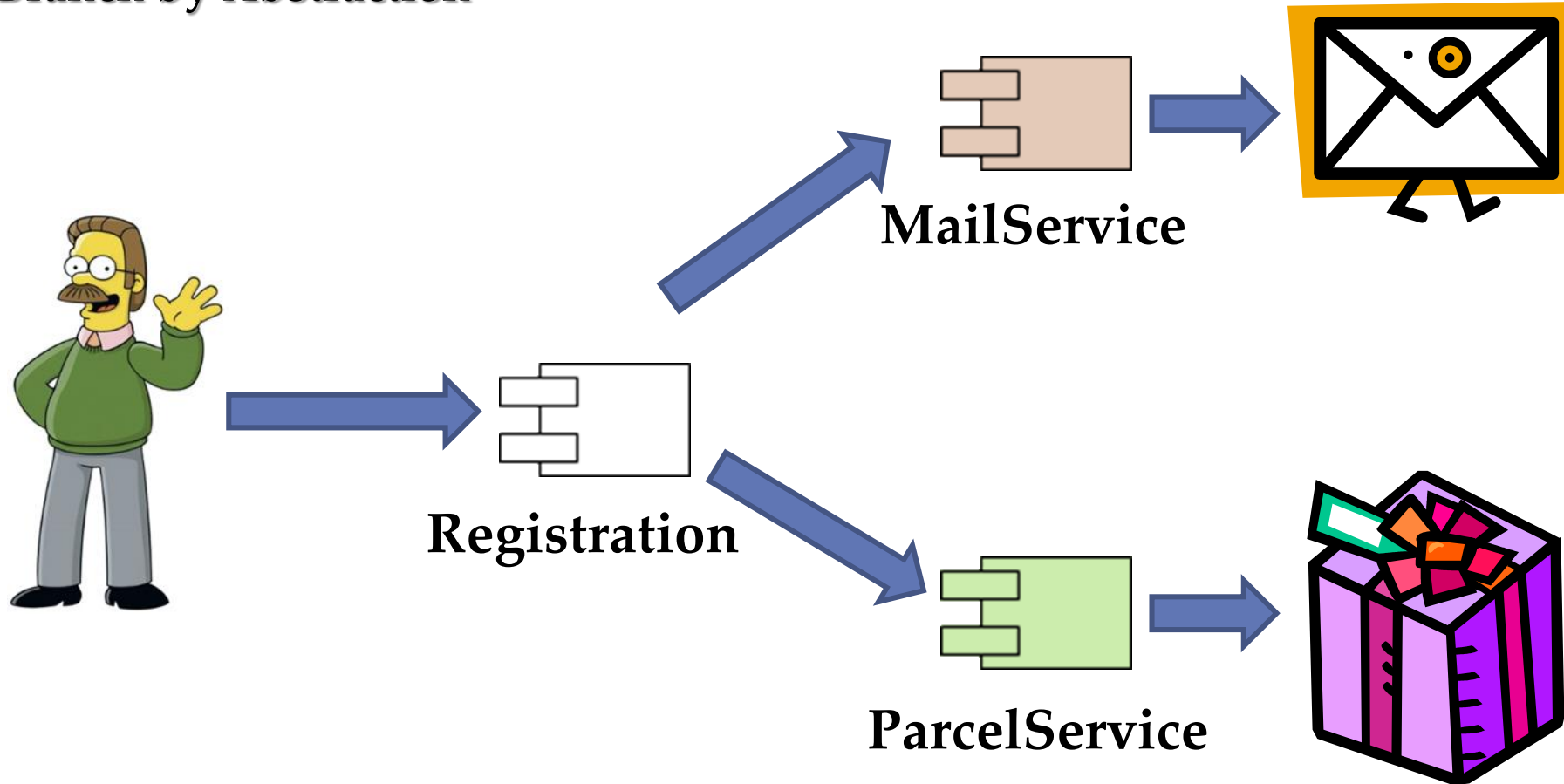






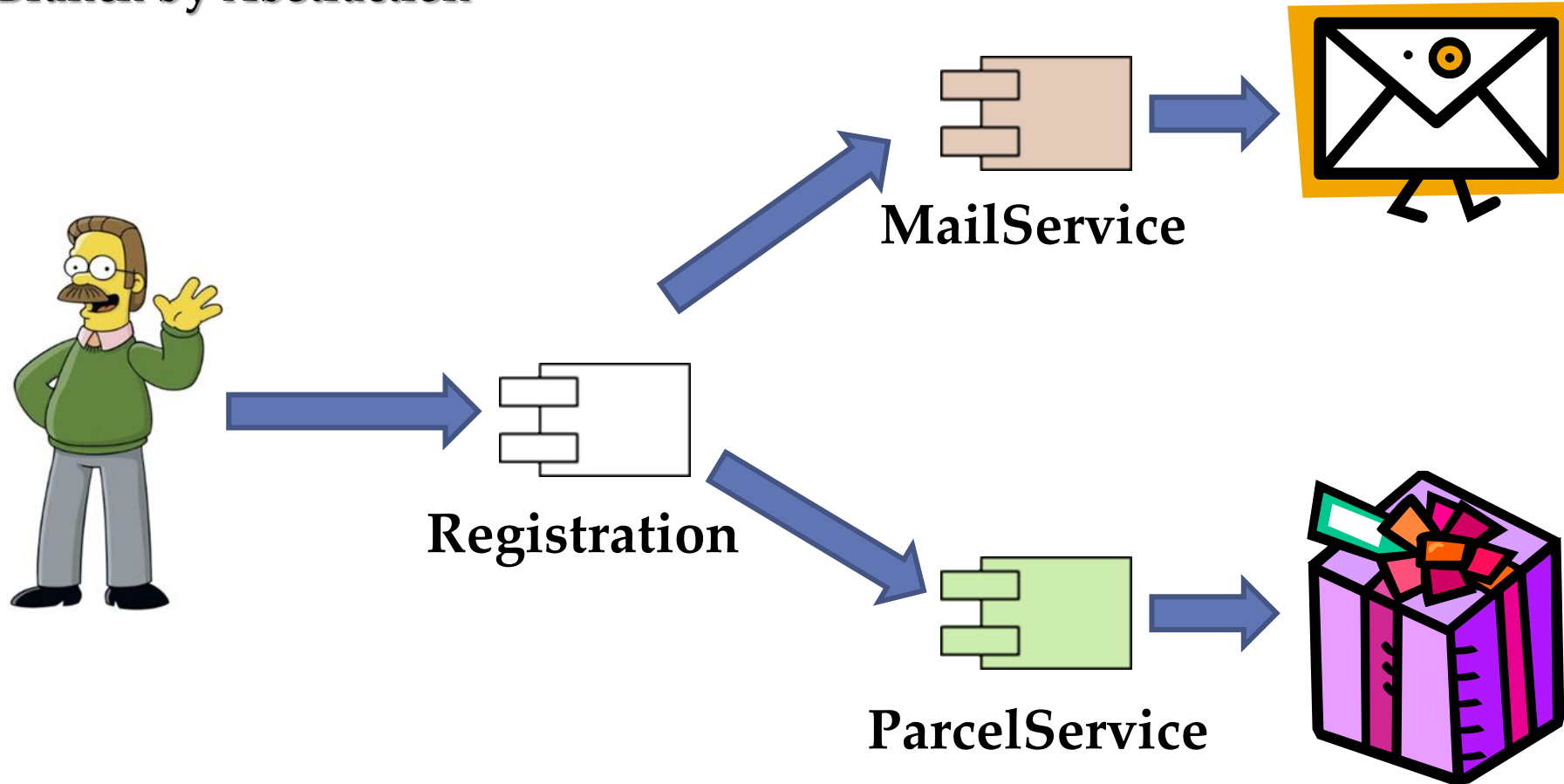
Feature Toggles

Branch by Abstraction



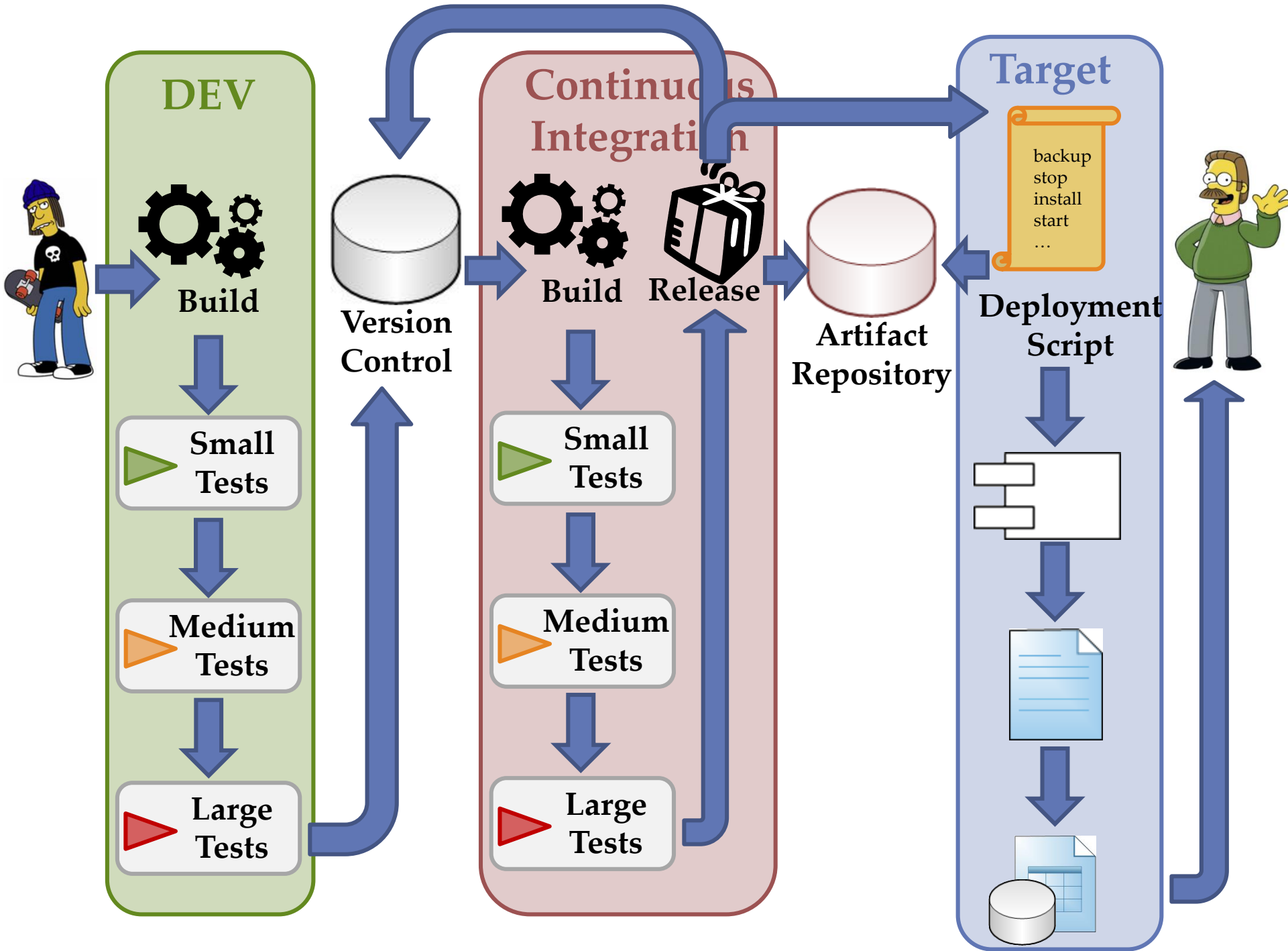
Feature Toggles

Branch by Abstraction



hands-on

Summary



CHRISTOPHER LAMBERT

SEAN CONNERY

HIGHLANDER

THERE CAN BE ONLY ONE

DIRECTED BY RUSSELL MULCAHY



STUDIO CANAL

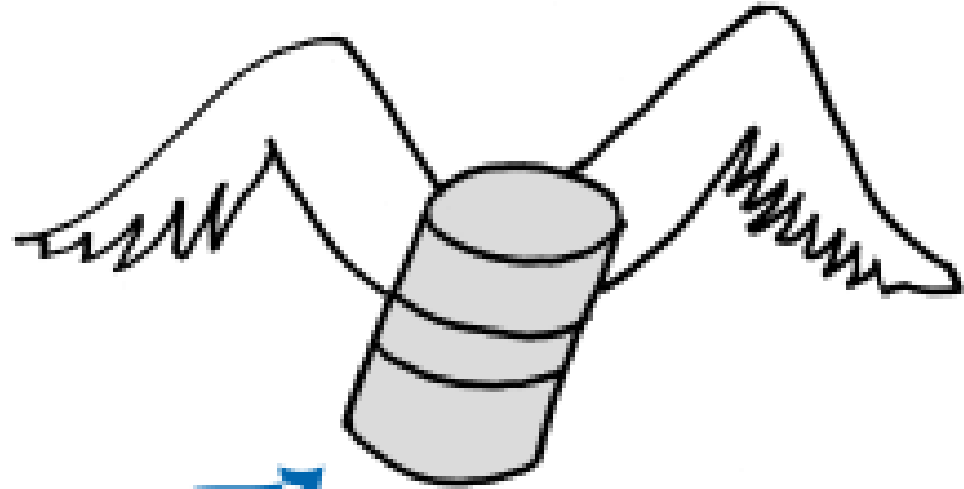


MATT DAMON IS JASON BOURNE

THE BOURNE IDENTITY

UNIVERSAL PICTURES PRESENTS A KENNEDY/MARSHALL-HYPNOTIC PRODUCTION A DOUG LIMAN FILM MATT DAMON "THE BOURNE IDENTITY" FRANKA POTENTE
CHRIS COOPER CLIVE OWEN BRIAN COX ADEWALE AKINNUOYE-AGBAJE MUSIC BY JOHN POWELL COSTUME DESIGNER JULIANNE JORDAN EDITOR PETER DUNN
EXECUTIVE PRODUCERS SAAR KLEIN PRODUCED BY DAN WEIL DIRECTED BY OLIVER WOOD PRODUCED BY DOUG LIMAN PATRICK CHOWLEY RICHARD N. GLASZIN
BASED ON THE NOVEL BY ROBERT LUDLUM SCREENPLAY BY TONY GURDY AND WILLIAM BLAKE HERRON
DIRECTED BY DOUG LIMAN A UNIVERSAL RELEASE





Flyway



WIDE DIGITALLY
MASTERED **SCREEN**

A
DON SIMPSON/JERRY BRUCKHEIMER
PRODUCTION
A FILM BY
TONY SCOTT

WILL SMITH GENE HACKMAN

ENEMY OF THE STATE

IT'S NOT
PARANOIA
IF THEY'RE REALLY
AFTER YOU.

DVD
VIDEO

15

The Addison-Wesley Signature Series



A MARTIN FOWLER SIGNATURE
BOOK
Martin

CONTINUOUS DELIVERY

RELIABLE SOFTWARE RELEASES THROUGH BUILD,
TEST, AND DEPLOYMENT AUTOMATION

JEZ HUMBLE,
DAVID FARLEY



One more thing



<http://axelfontaine.com/blog/final-nail.html>

<http://axelfontaine.com/blog/environment-detection.html>

<http://martinfowler.com/bliki/FeatureToggle.html>

<http://googletesting.blogspot.com/2010/12/test-sizes.html>

<http://blog.shinetech.com/2012/12/18/simple-session-sharing-in-tomcat-cluster-using-the-session-in-cookie-pattern/>



AXEL FONTAINE

Software Development Expert

@axelfontaine

axelfontaine.com

business@axelfontaine.com