

Continuous Delivery

and Zero Downtime



AXEL FONTAINE
@axelfontaine
axelfontaine.com

Entrepreneur - Public Speaker - Continuous Delivery Expert



Flyway

flywaydb.org



photon

getphoton.com

AXEL FONTAINE

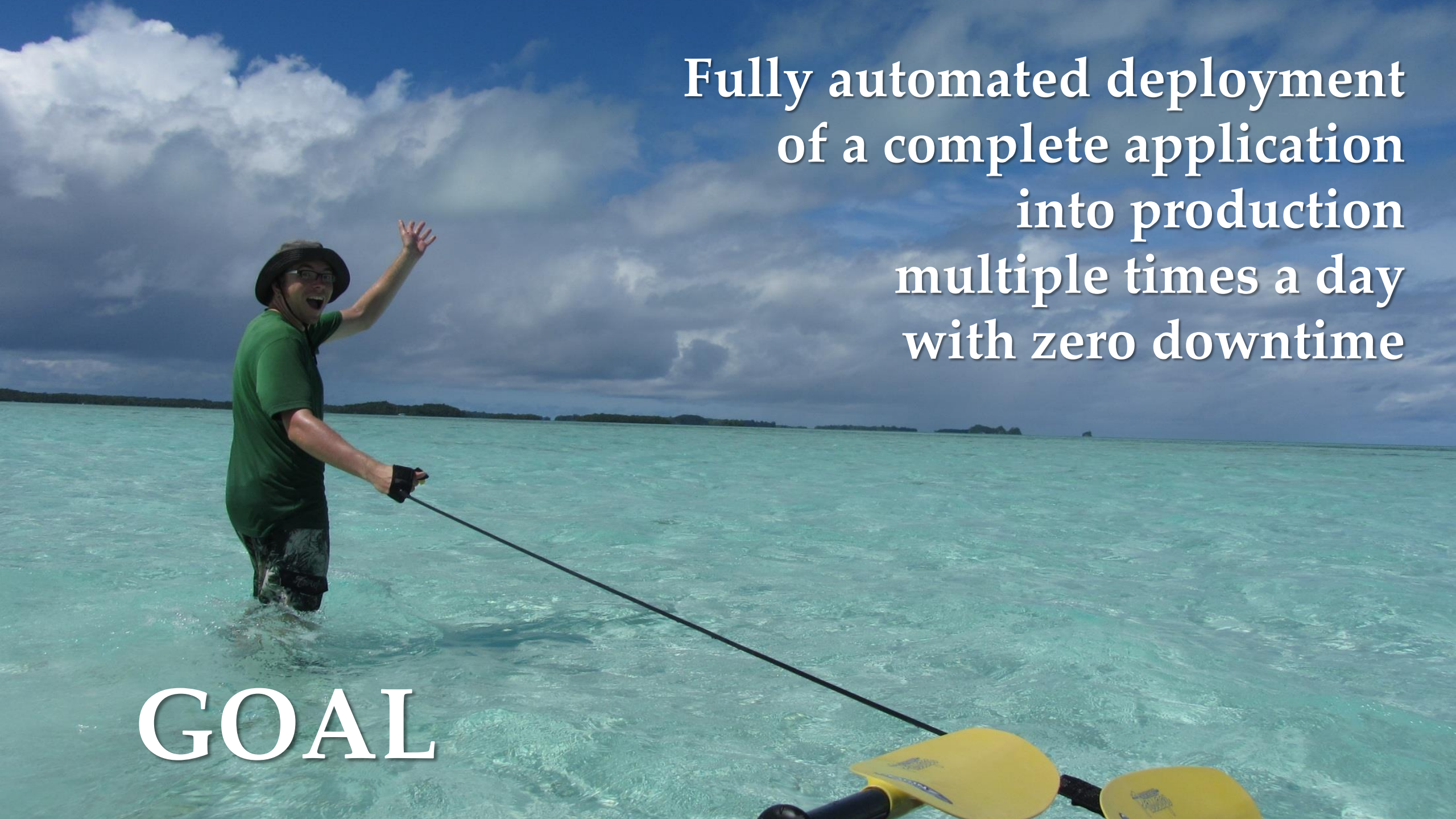
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Entrepreneur - Public Speaker - Continuous Delivery Expert

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. He has a joyful expression and his right hand is raised in a celebratory gesture. The background shows a vast expanse of water under a blue sky with scattered white clouds. In the bottom right corner, the yellow blades of a kayak are visible.

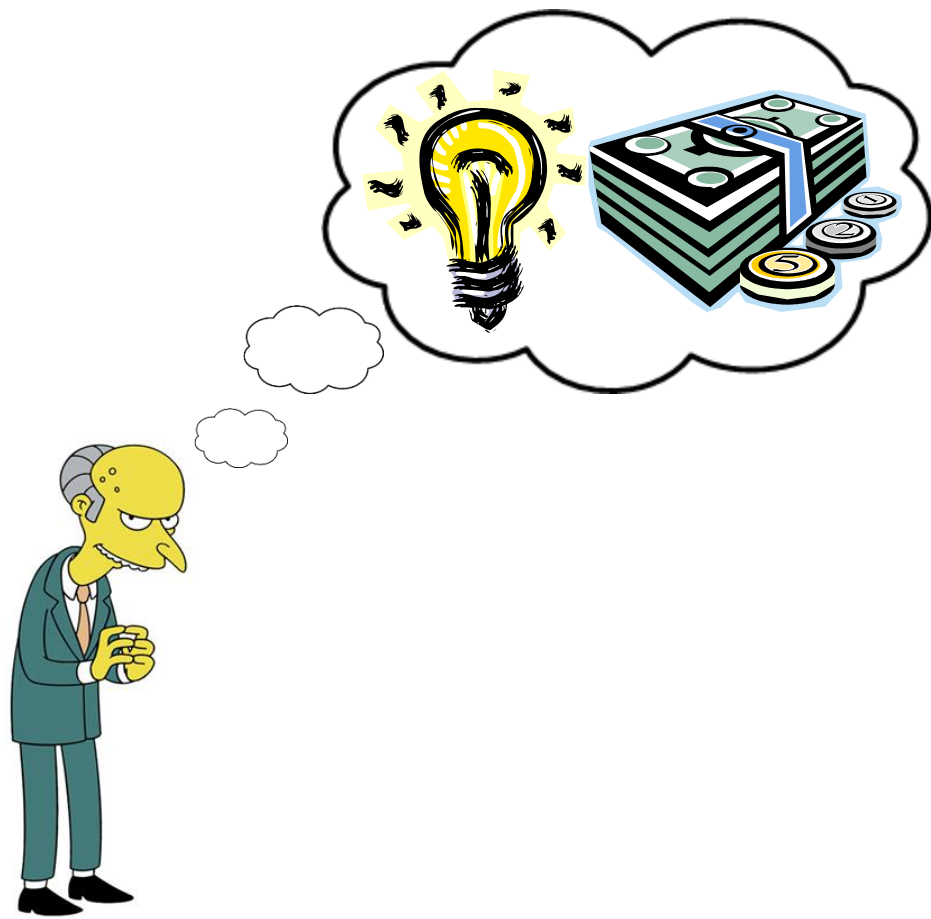
Fully automated deployment
of a complete application
into production
multiple times a day
with zero downtime

GOAL



Putting
things
into

PERSPECTIVE



KANBAN



KANBAN



A delivery person wearing a black helmet and jacket is riding a blue and yellow motorcycle. The motorcycle is heavily loaded with a large stack of cardboard boxes, secured with yellow straps. The rider is moving from left to right across the frame. The background is a blurred city street with buildings and other people, suggesting motion. The text "CONTINUOUS DELIVERY" is overlaid in white, serif font on the left side of the image.

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 for items and shops

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

VERSAND *für* UMME
 DIESEN MONAT GIBT'S *in* DEUTSCHLAND!
 Jetzt einkaufen

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 / layout

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stackoverflow.com



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site design / lo

rev 2014 **25** 1347

stackoverflow.com

Prerequisites



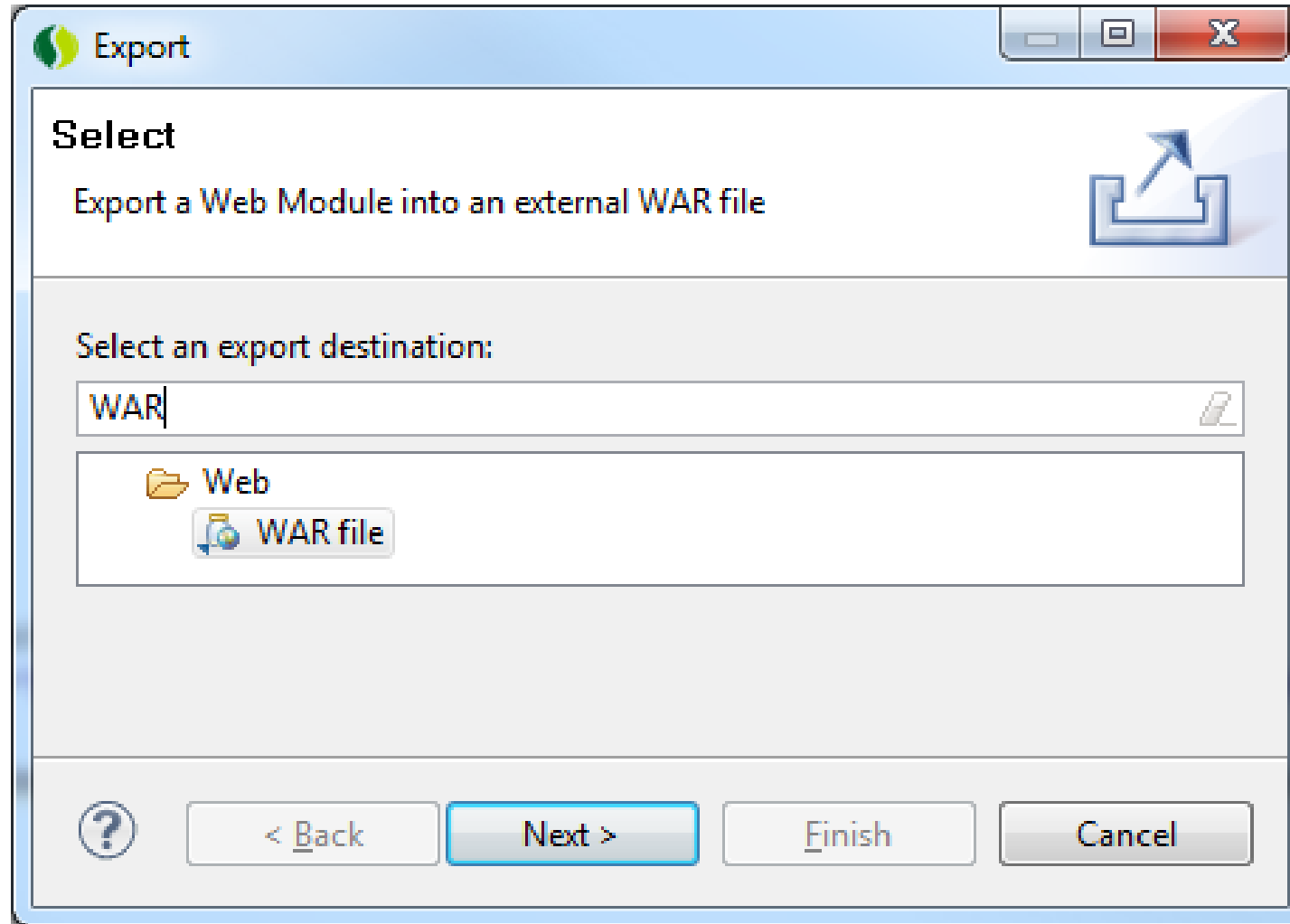
Process

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

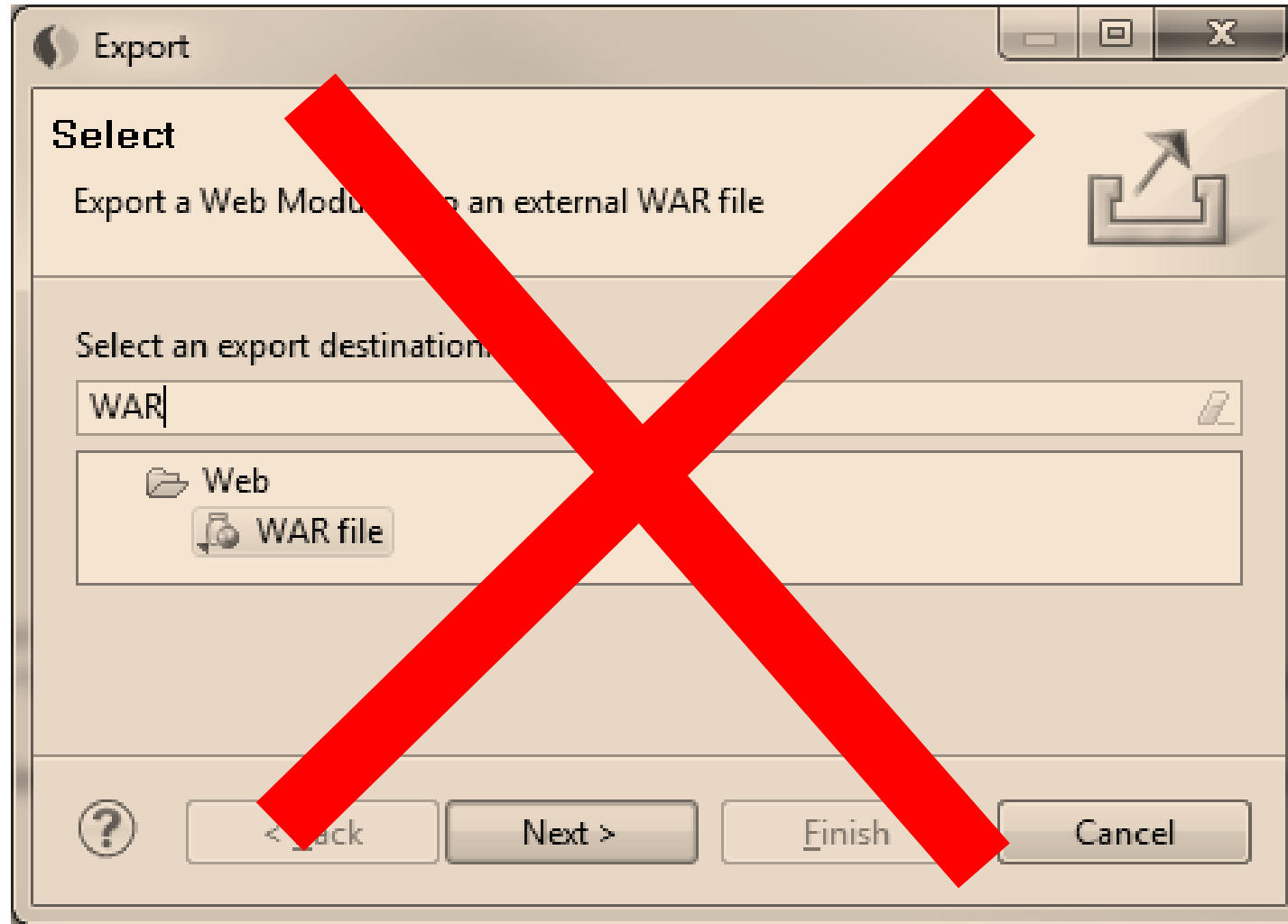


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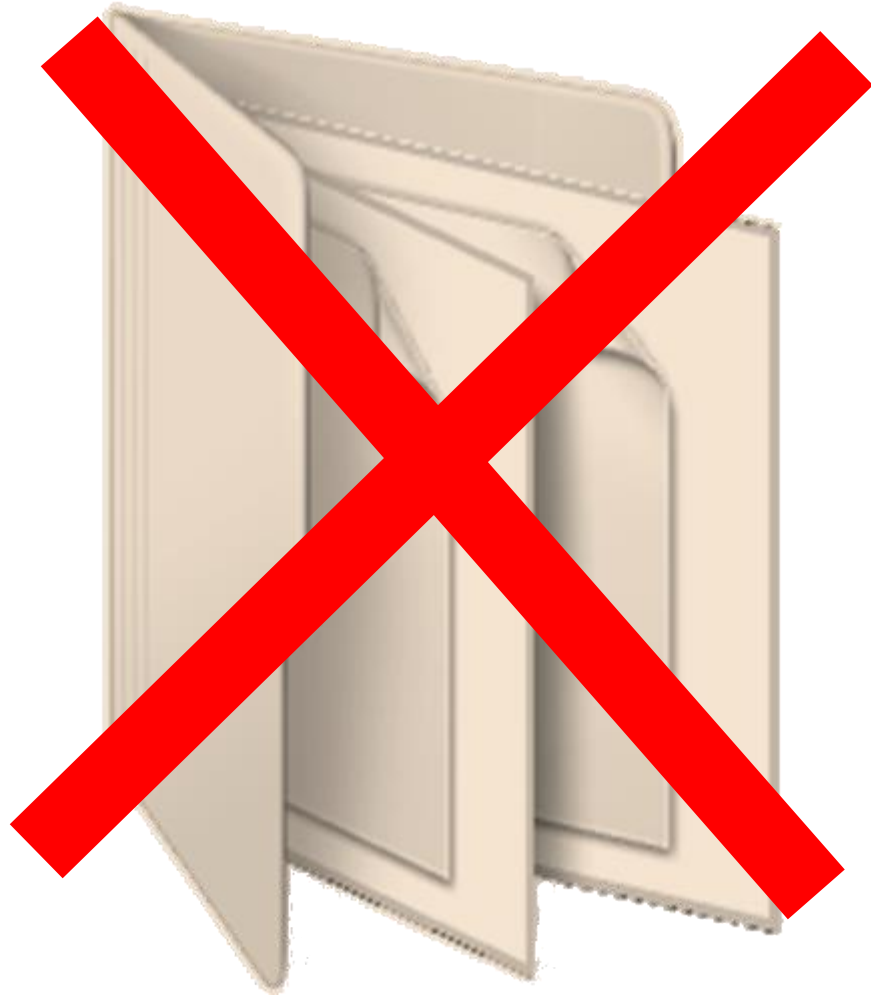
Build



Build



Version Control



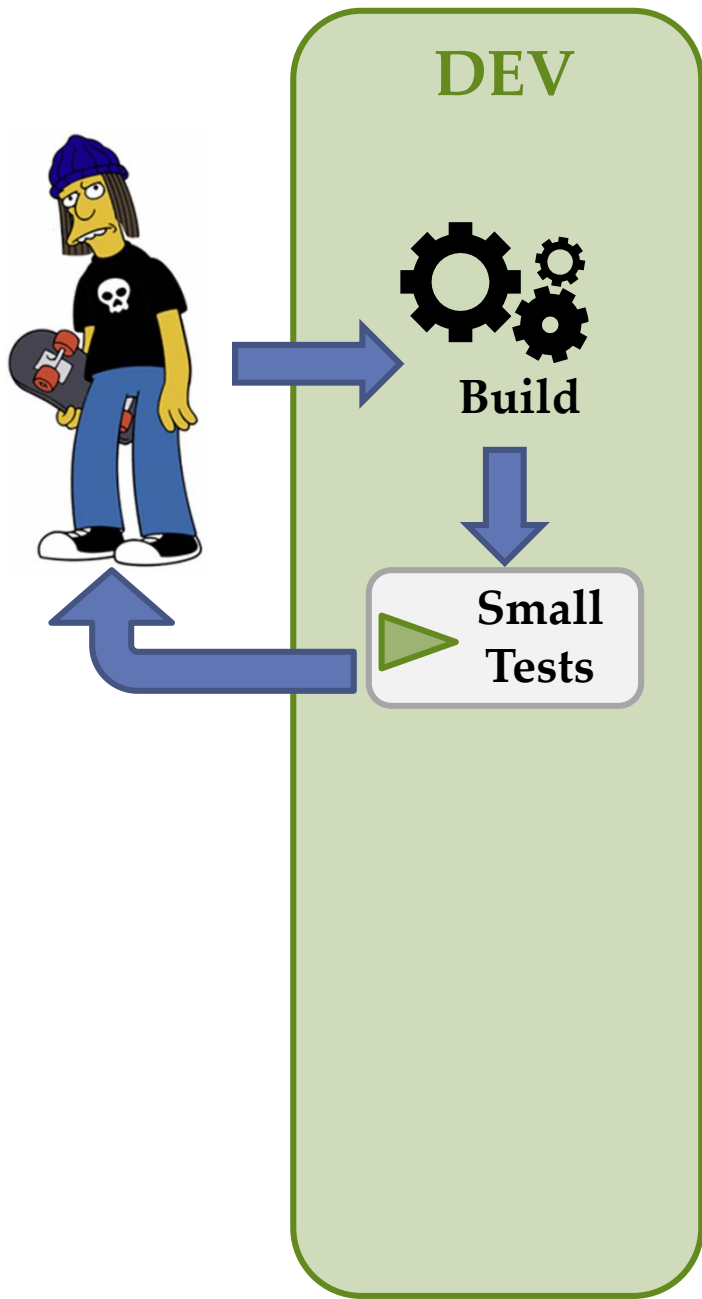
Version Control

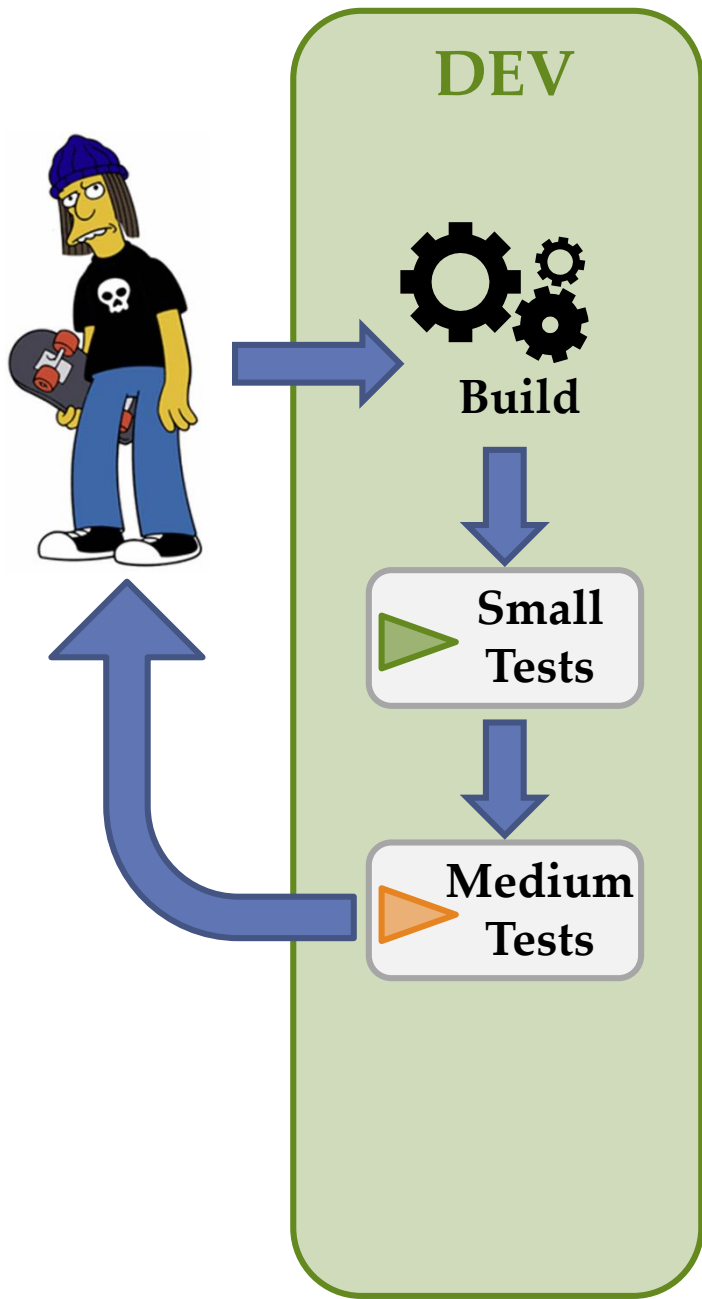


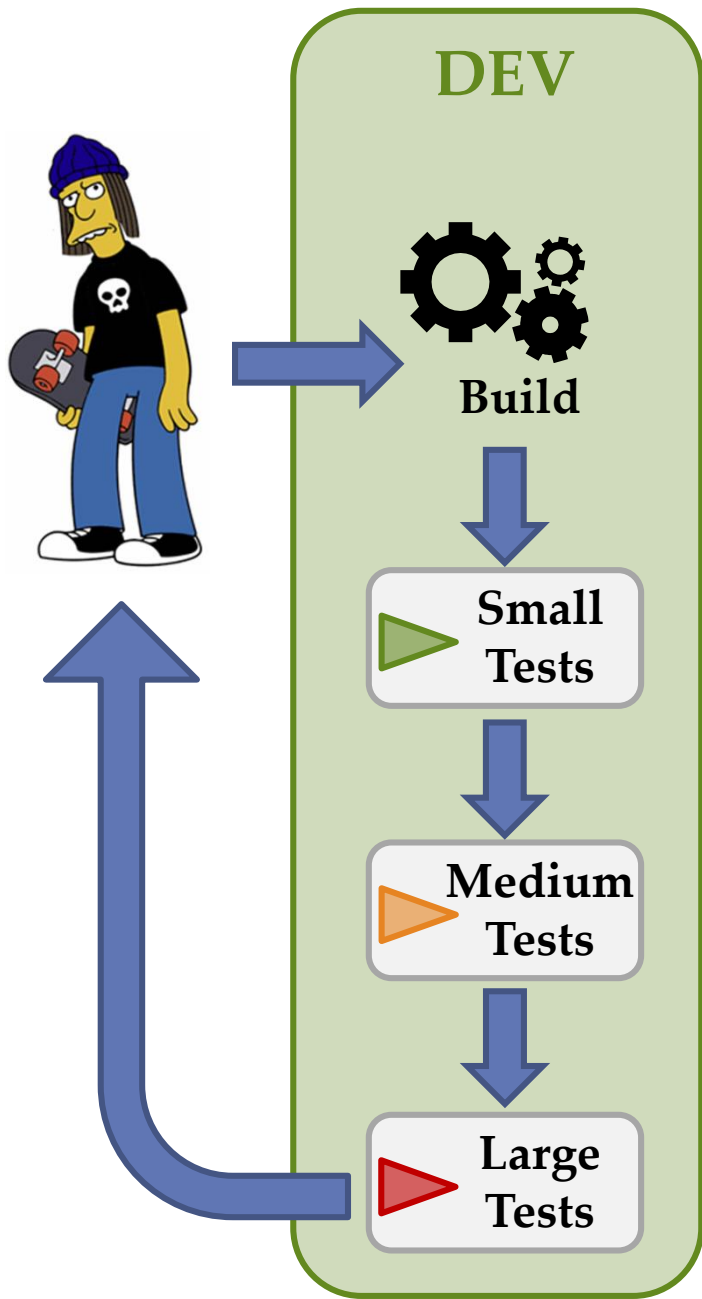
Test

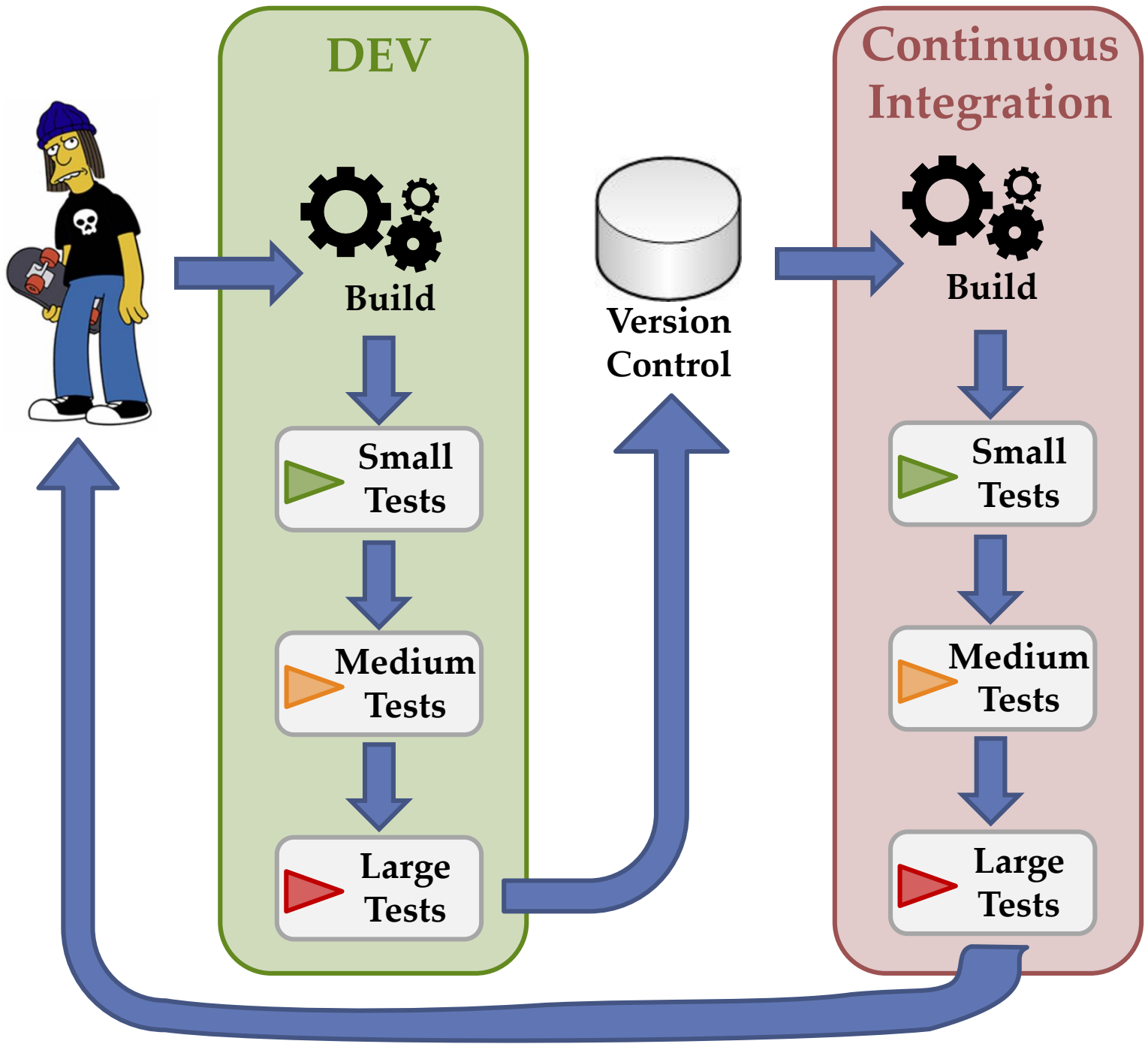


Test









DEPLOYMENT automation

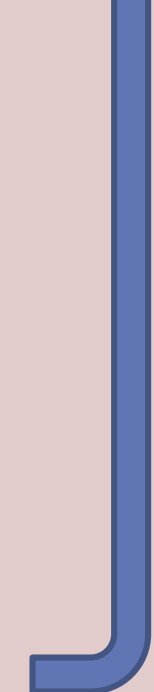
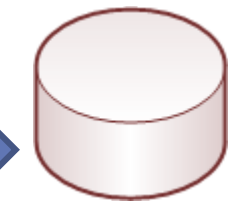
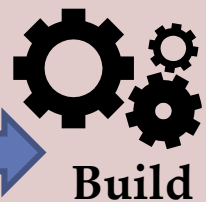
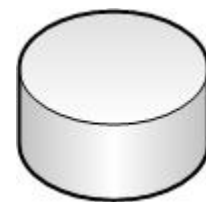
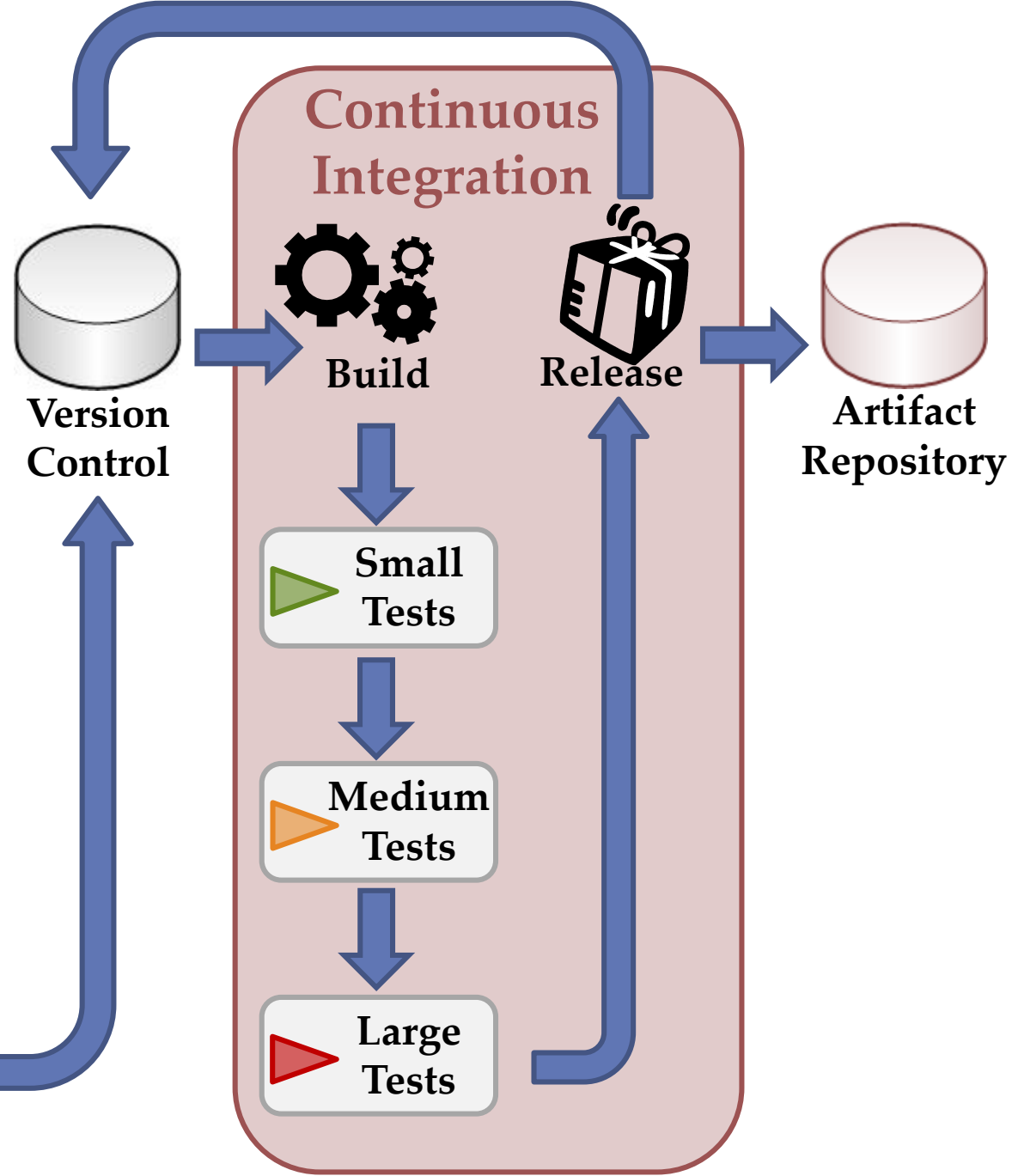
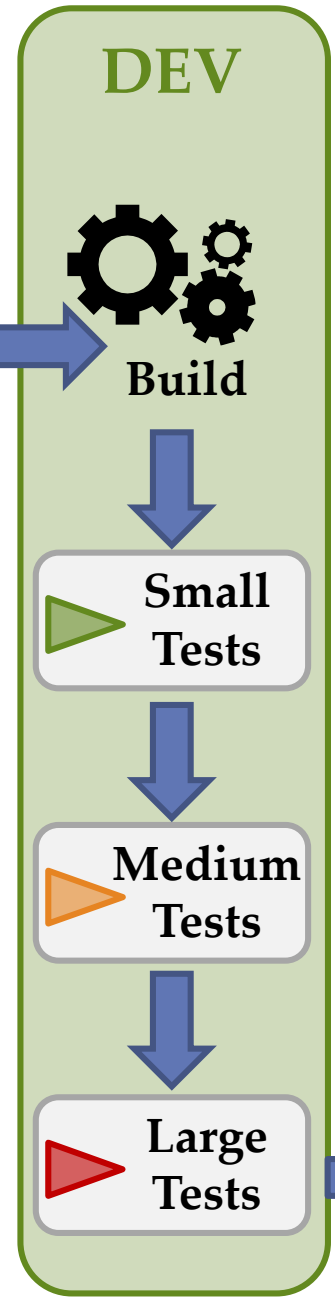


do

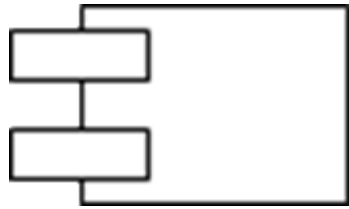
NOT

deploy

SNAPSHOTS !



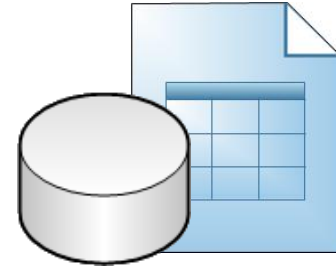
What gets deployed?



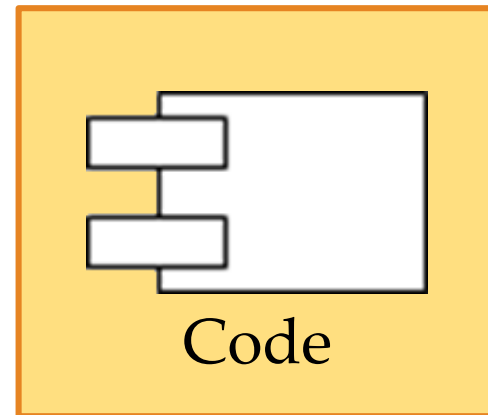
Code



Configuration



DB Delta



**Deployment
Package**

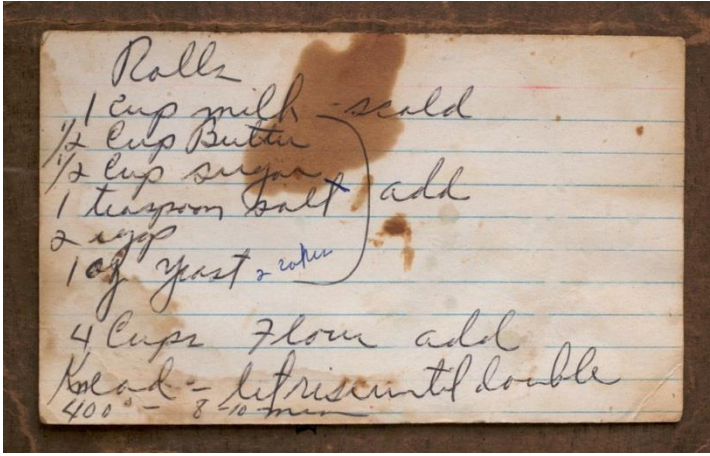
Rolls

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

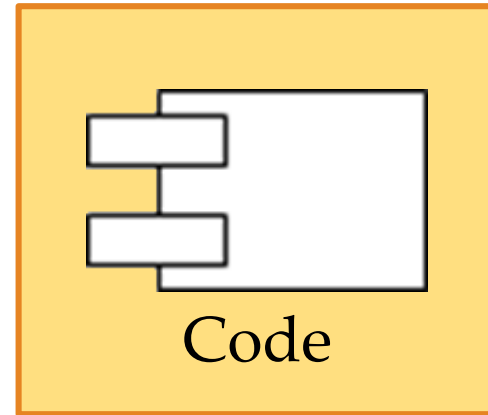
add

4 cups flour add

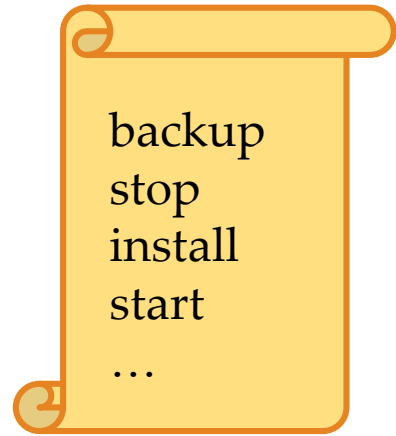
Knead - let rise until double
400° - 8-10 min



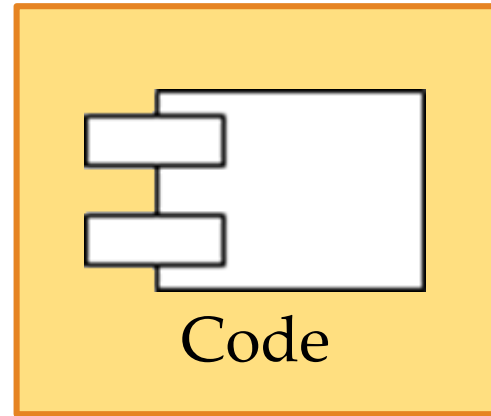
**Deployment
Script**



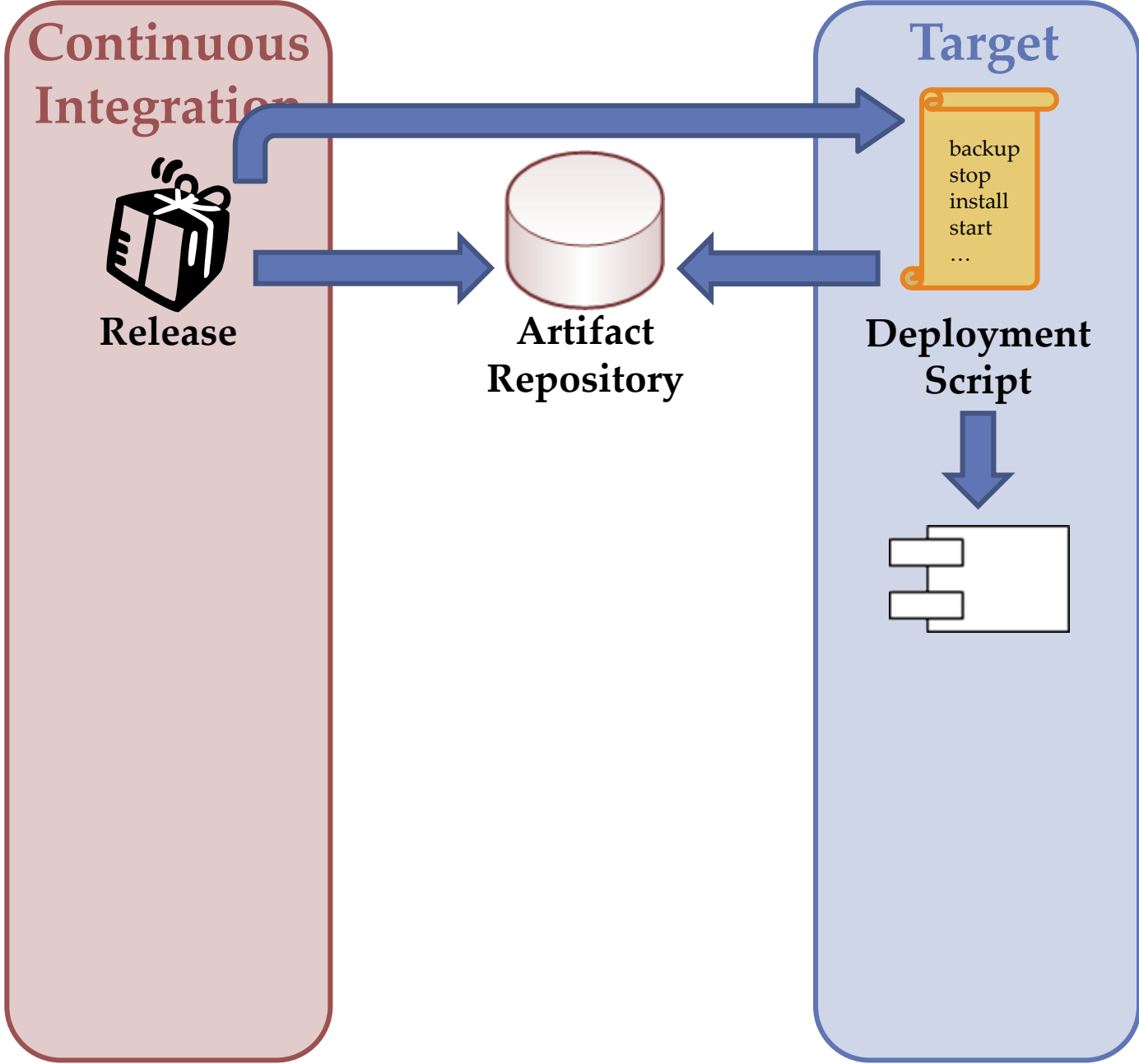
**Deployment
Package**



**Deployment
Script**



**Deployment
Package**



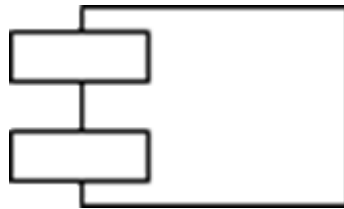


Configuration



Maybe it could
change one day

≠ Environments

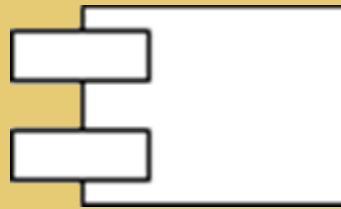


Code



Deployment
Package

Environment Detection



Code

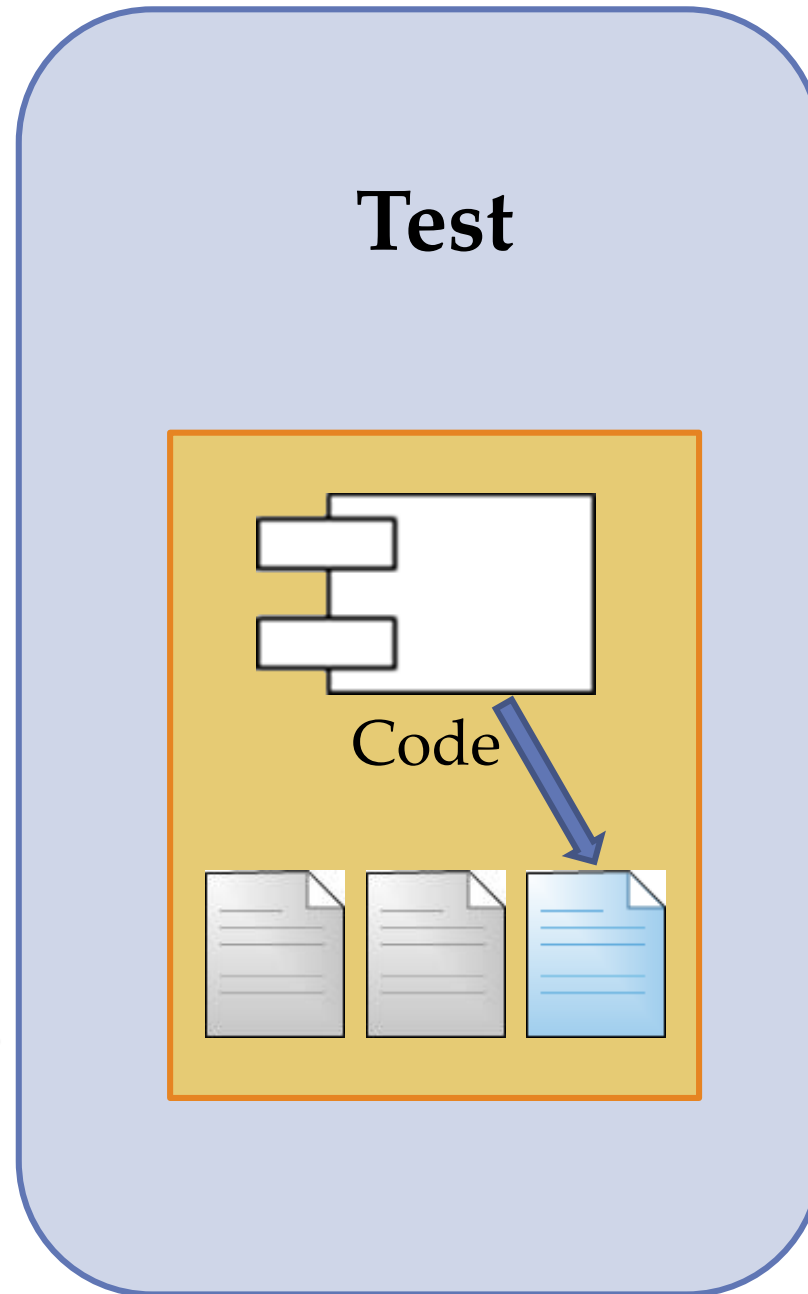


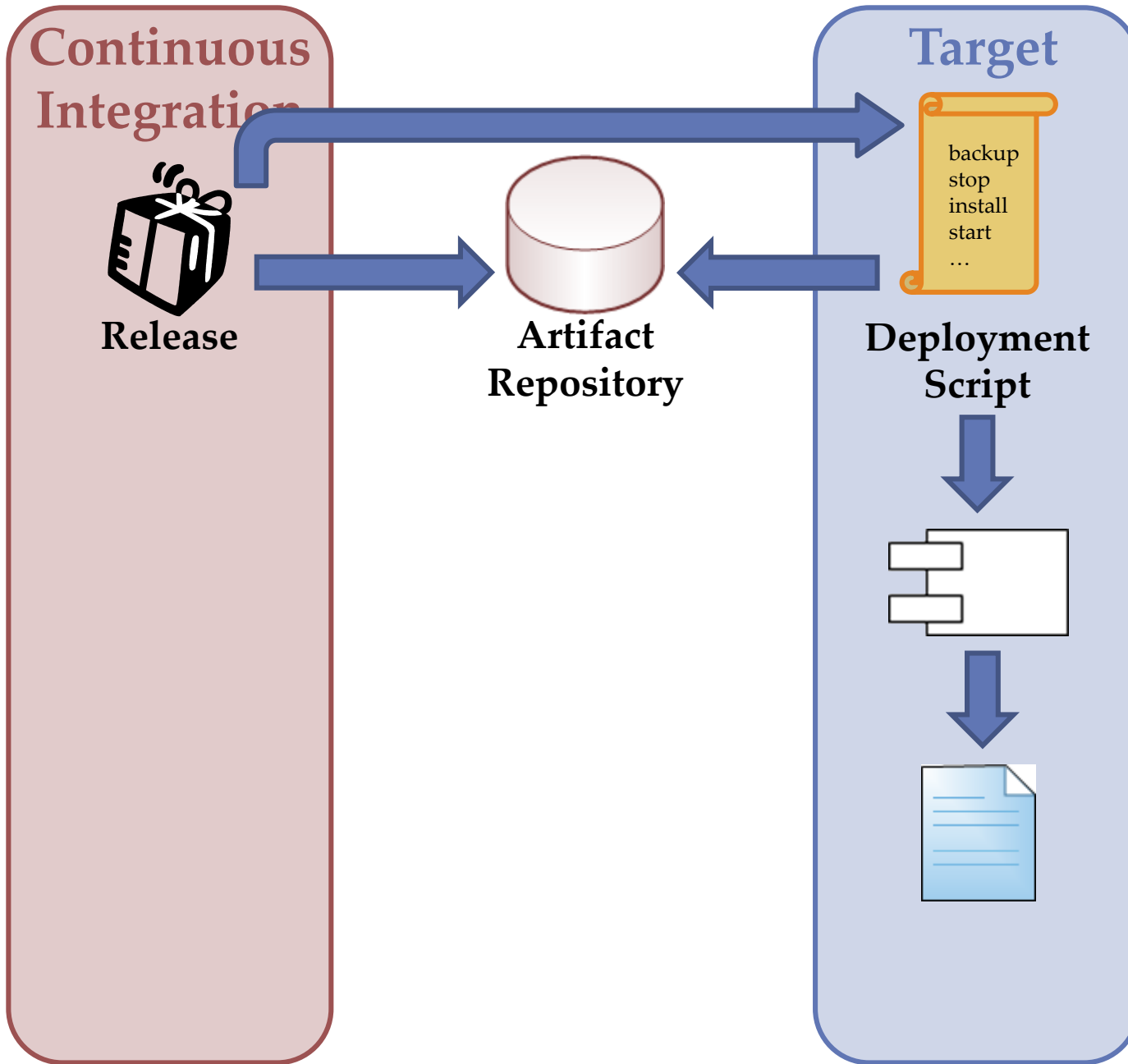
Deployment
Package

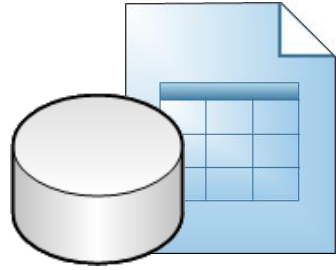
**Environment
Detection**



**Auto-
Configuration**







DB Delta



The Fear
of
DDL



DML

VS



DDL

Name	Balance
Homer	163
Marge	214
Bart	9
Lisa	25

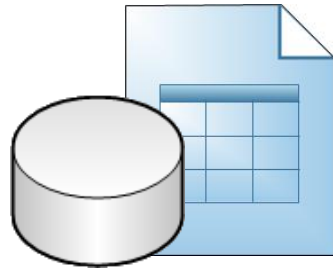
Name	Balance
Homer	0
Marge	0
Bart	0
Lisa	0

DML

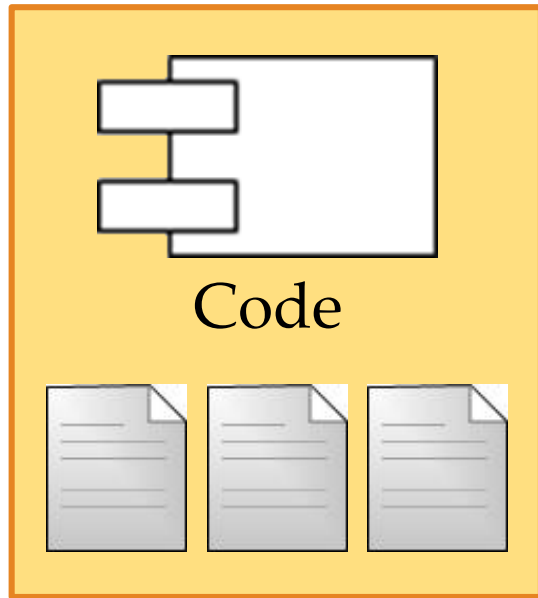
VS

Name
Homer
Marge
Bart
Lisa

DDL

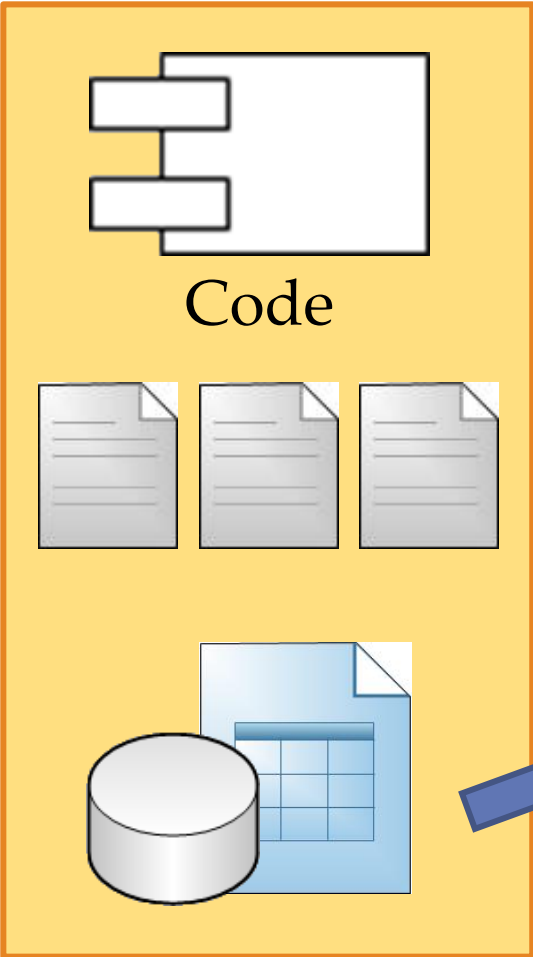


DB Delta



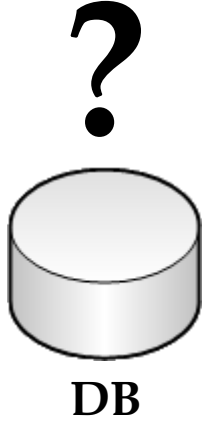
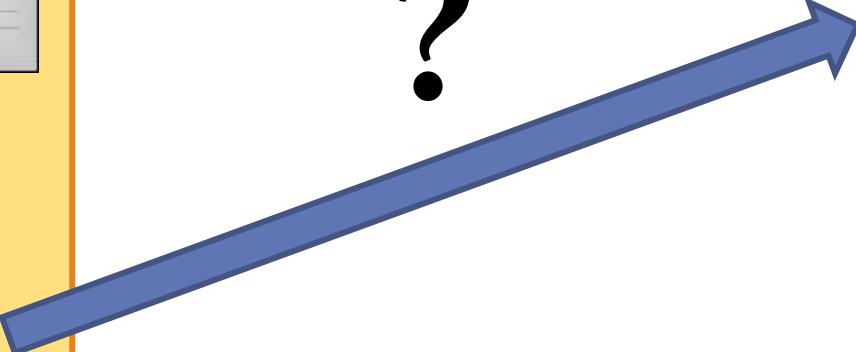
Code

**Deployment
Package**



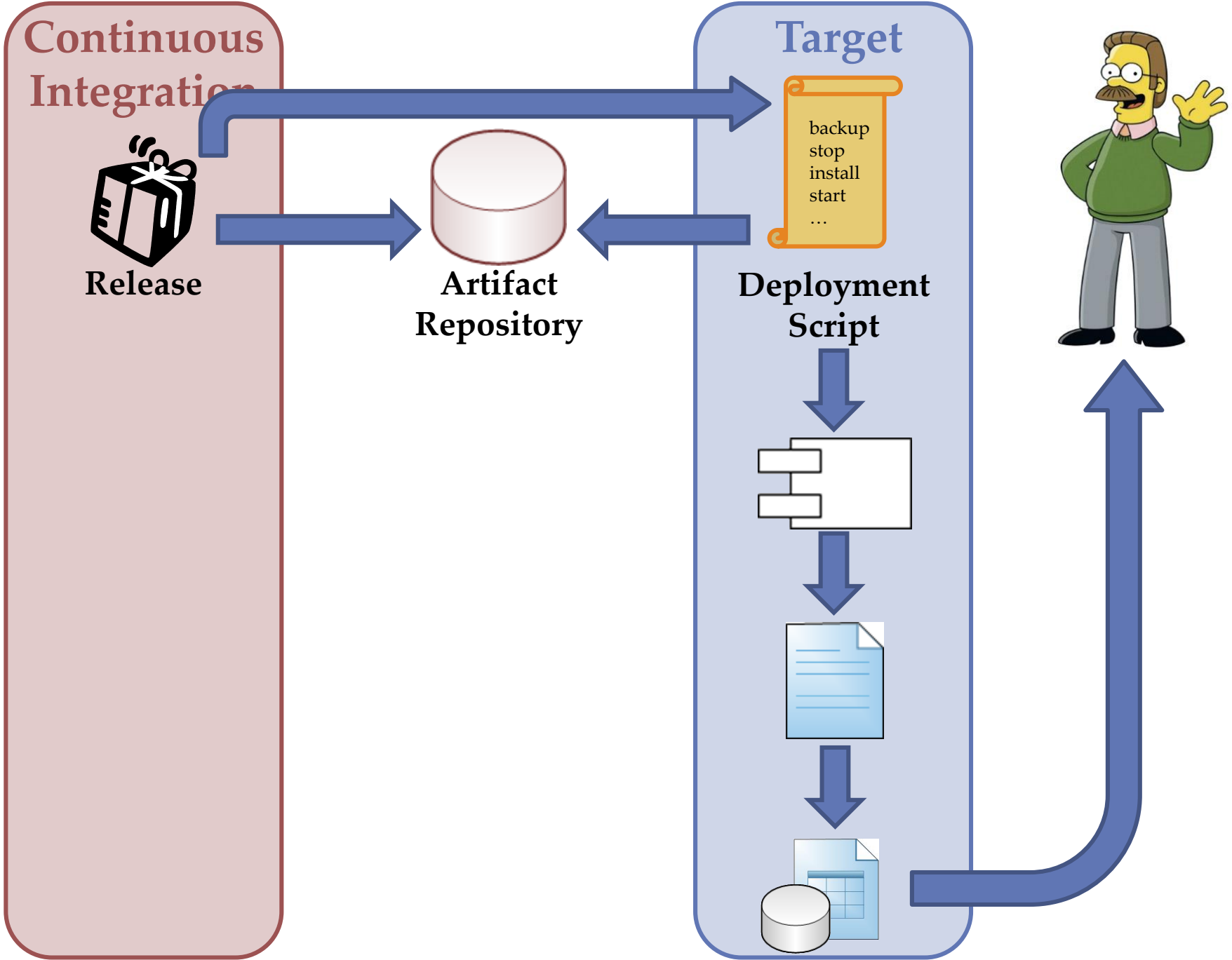
**Deployment
Package**

?





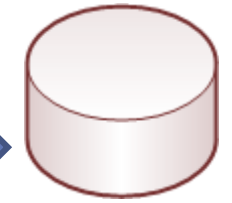
flywaydb.org



Continuous Integration



Release

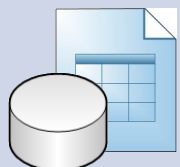
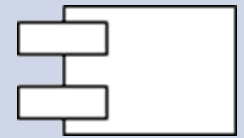


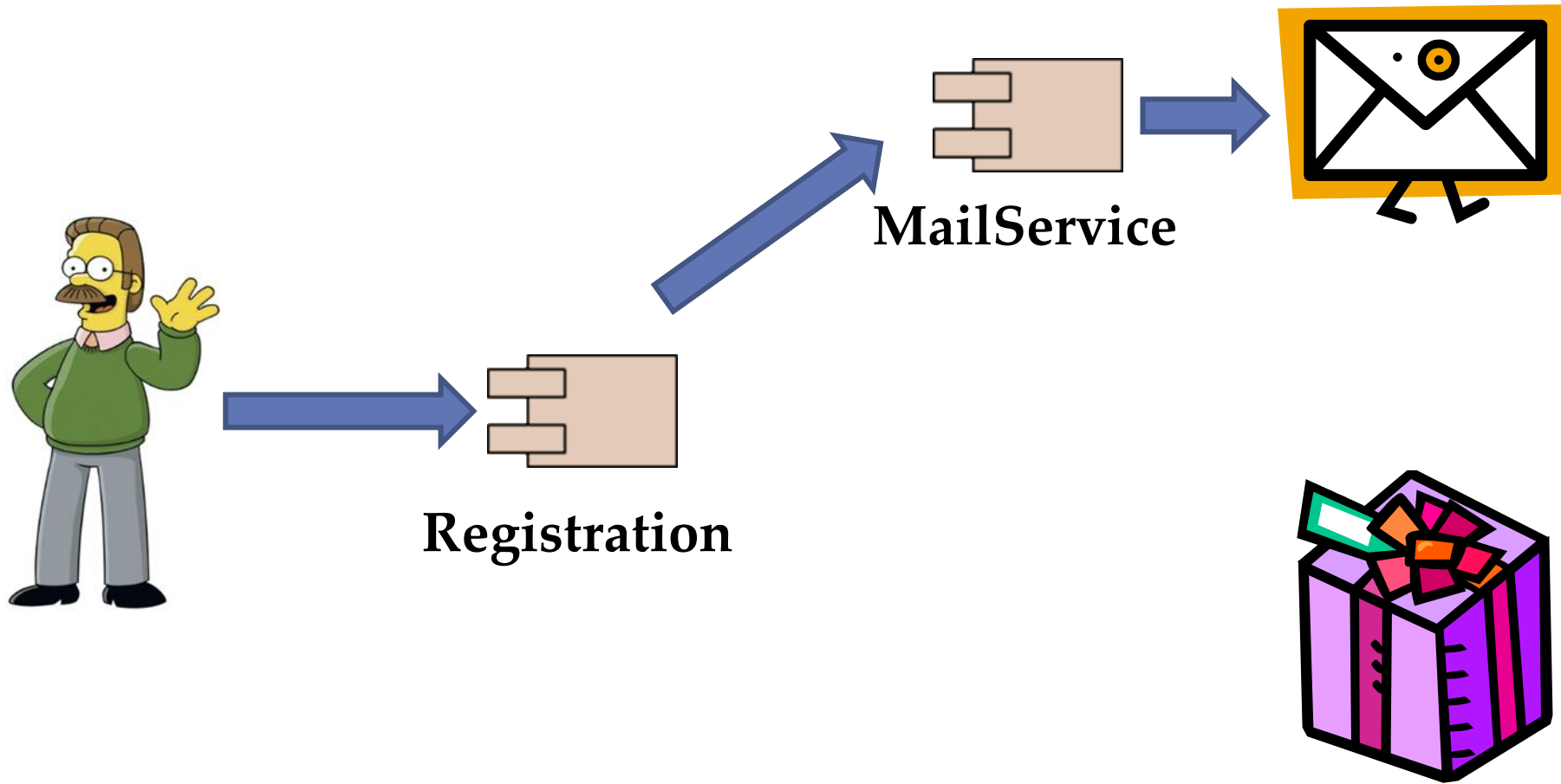
Artifact Repository

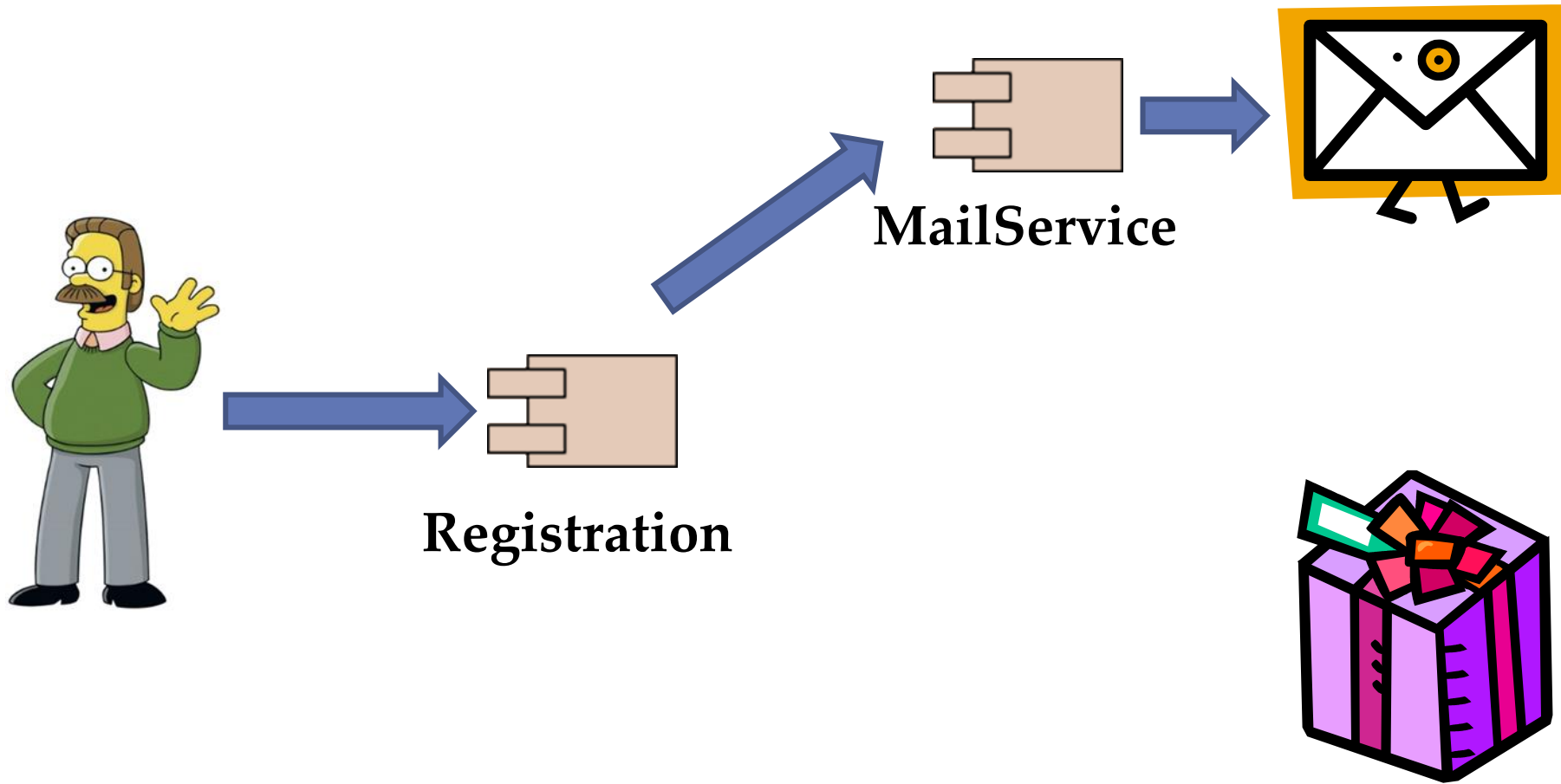
Target

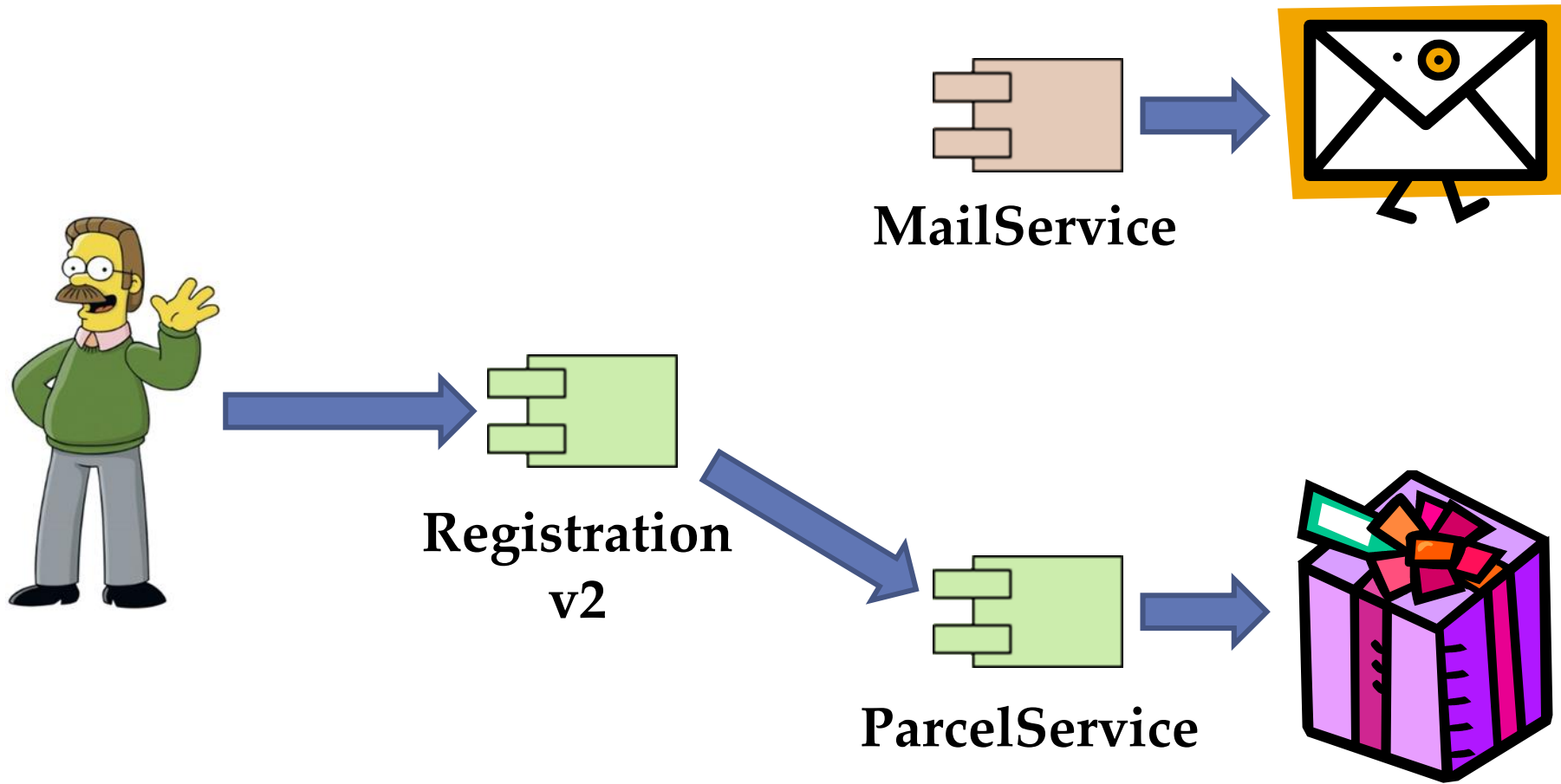


Deployment Script



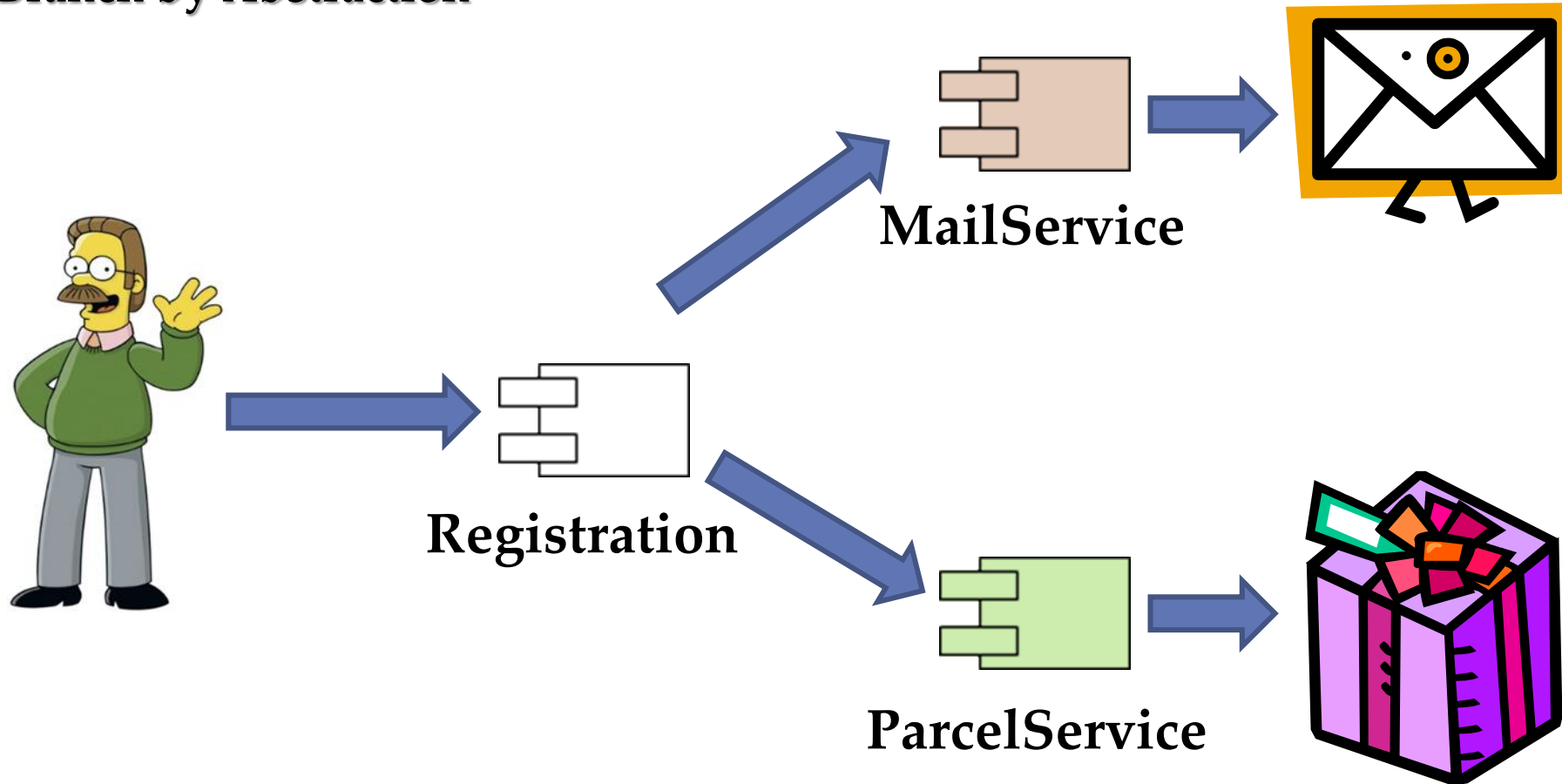






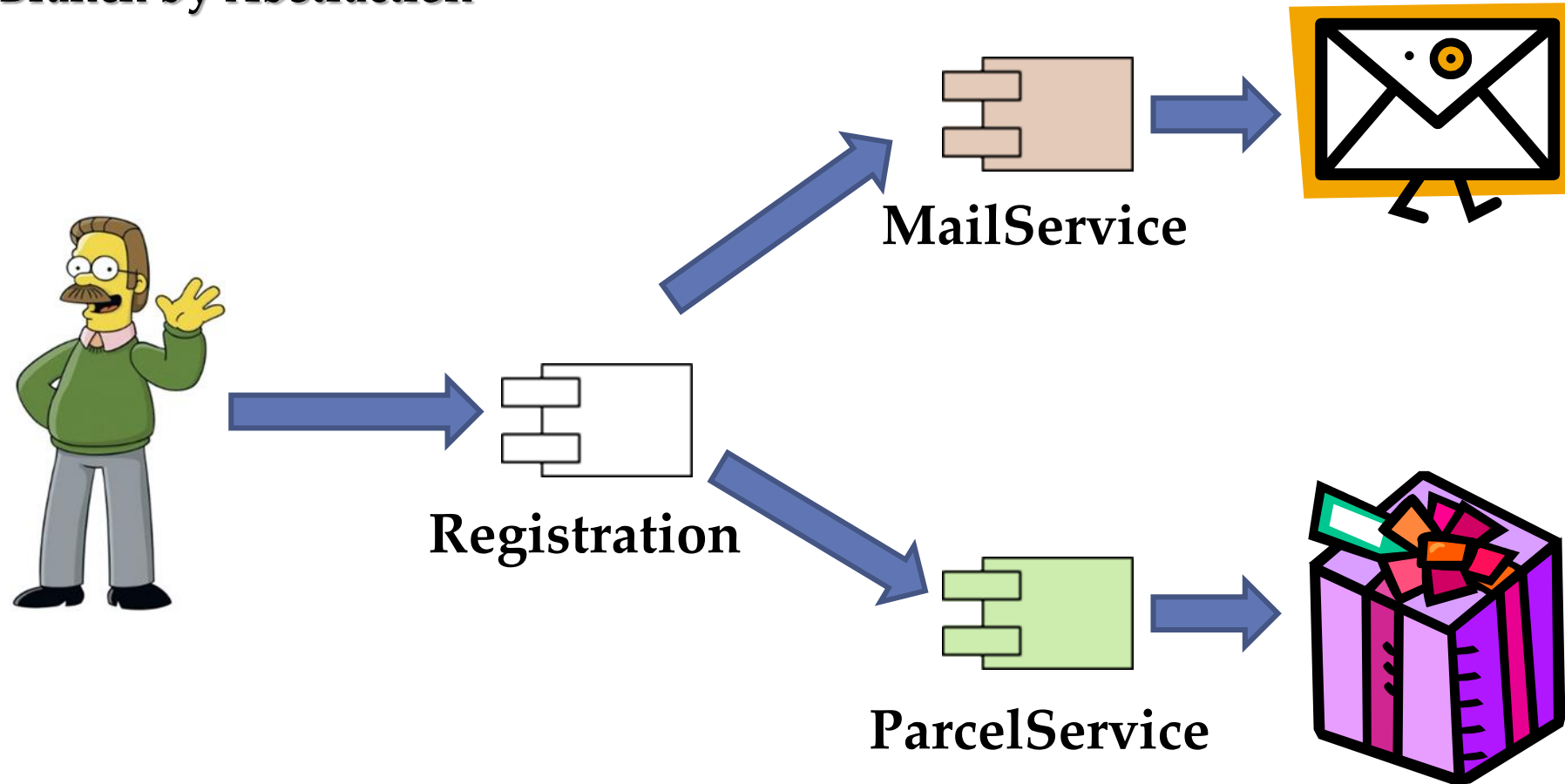
Feature Toggles

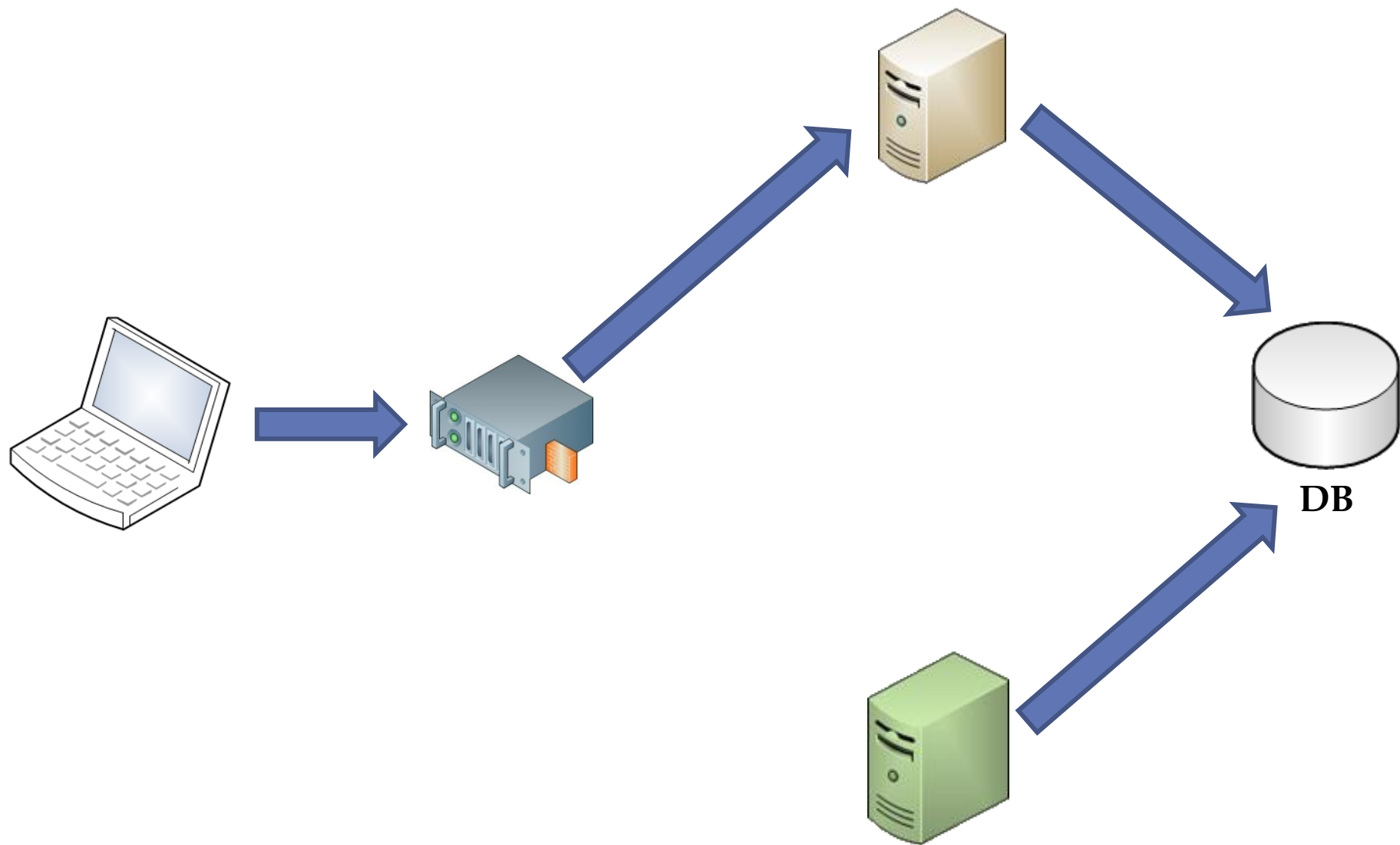
Branch by Abstraction

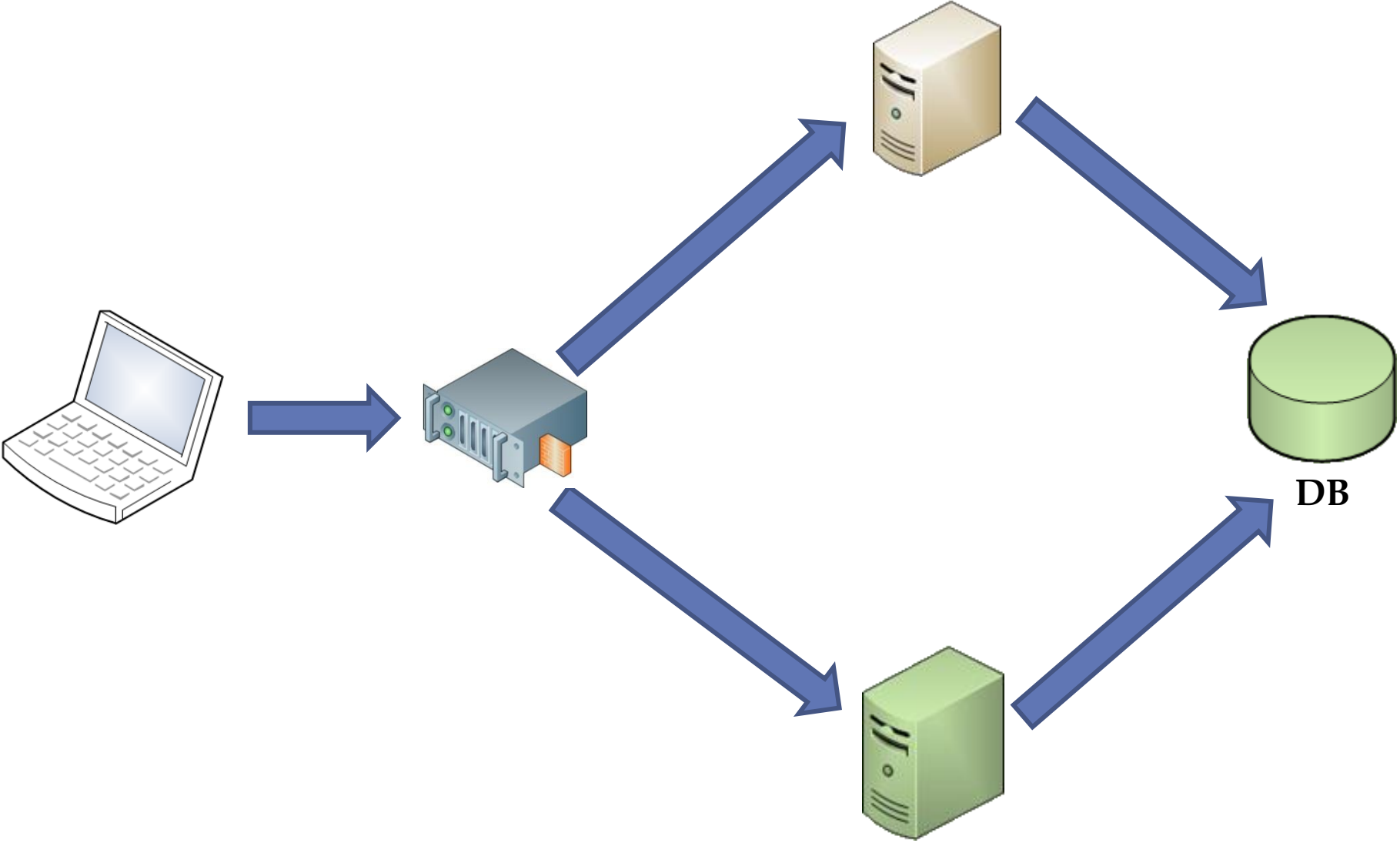


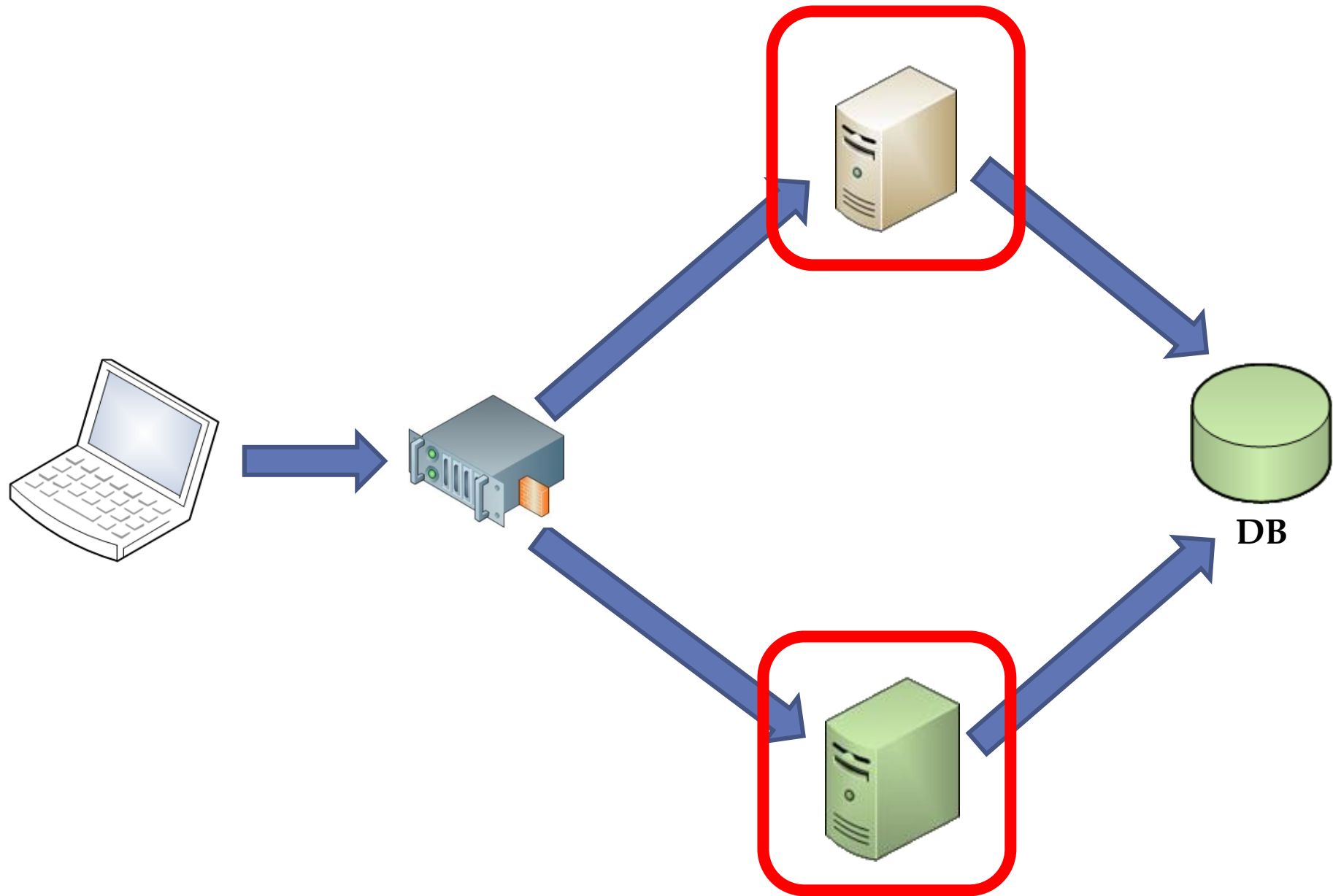
Feature Toggles

Branch by Abstraction



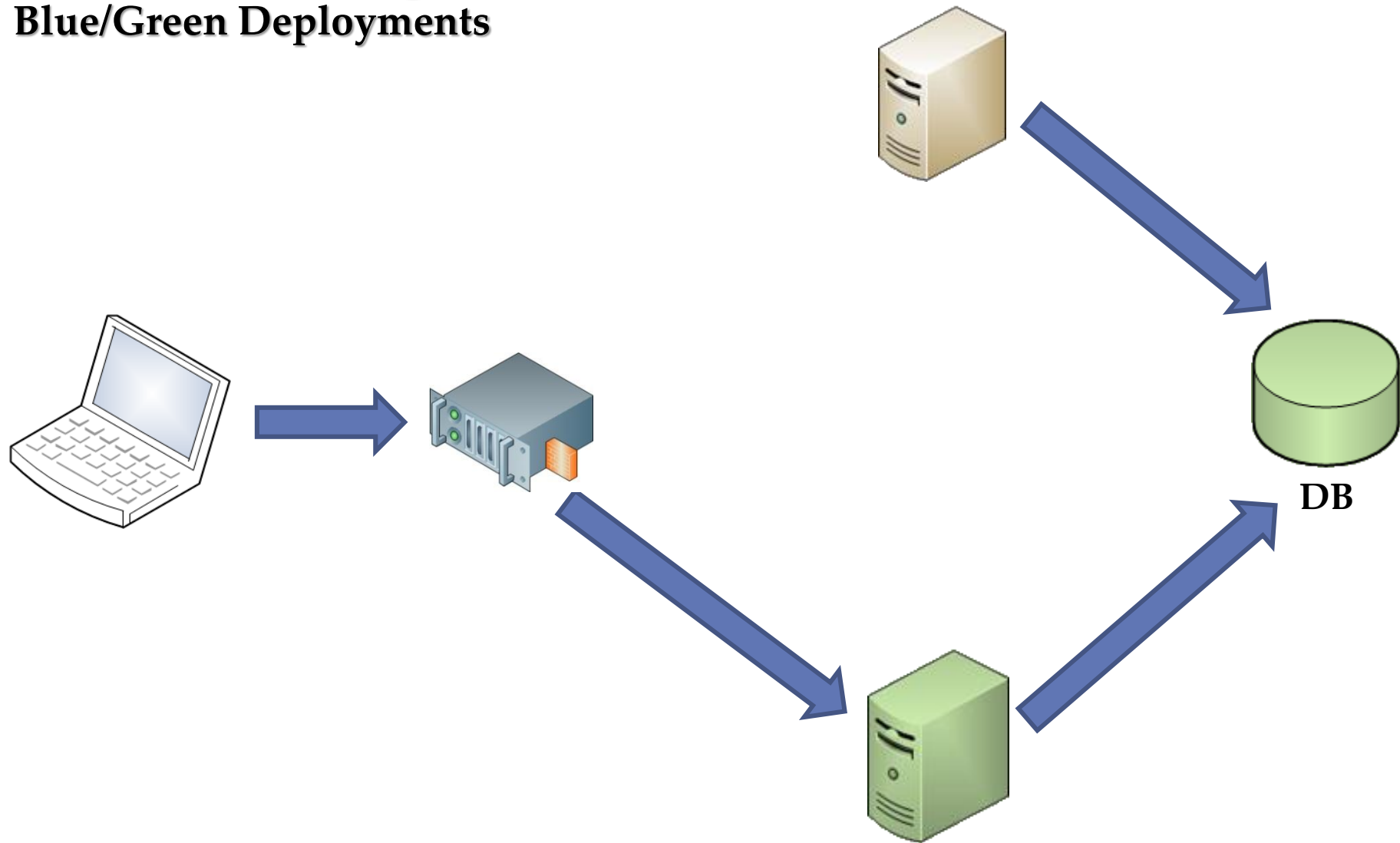


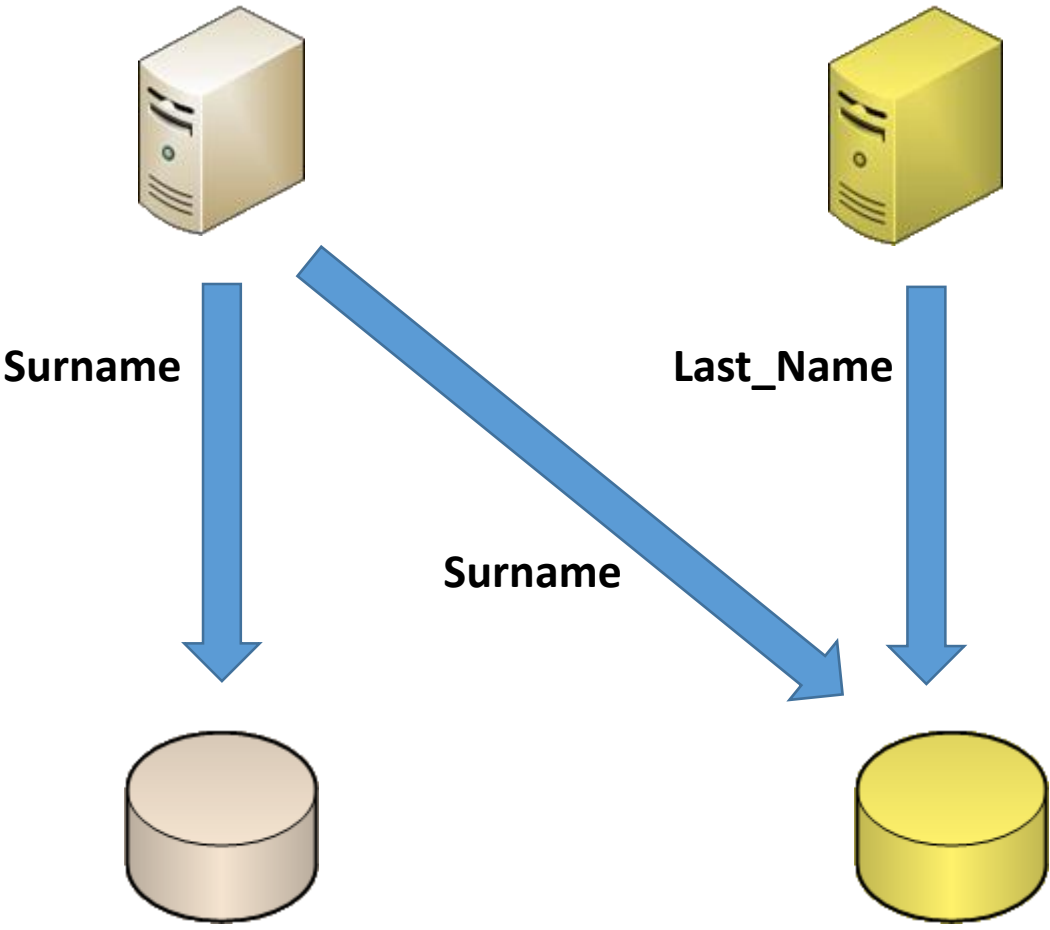




State Management

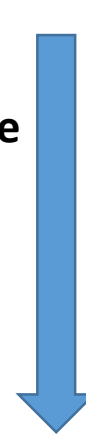
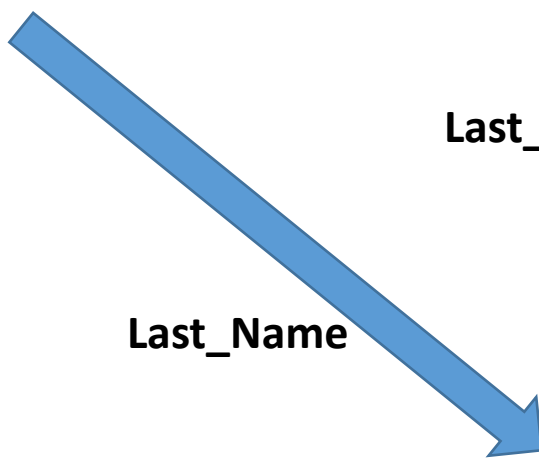
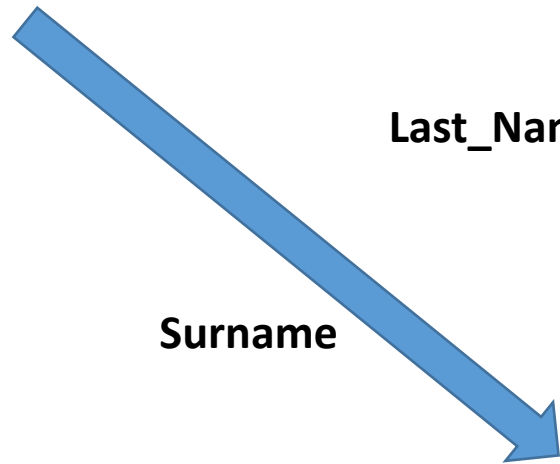
Blue/Green Deployments





FirstName	Surname
Homer	Simpson
Roger	Rabbit
Lucky	Luke

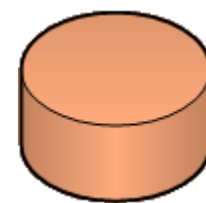
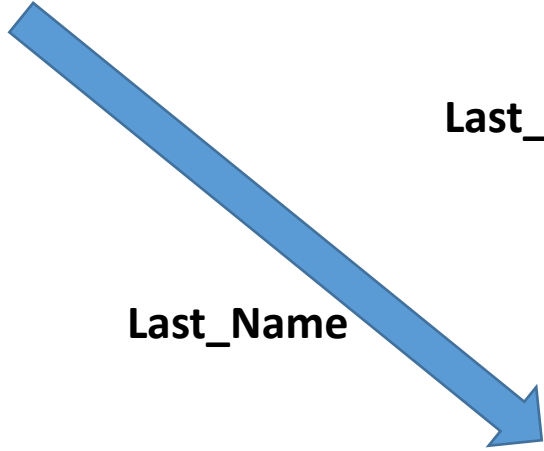
~~ALTER TABLE RENAME COLUMN~~



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

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

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

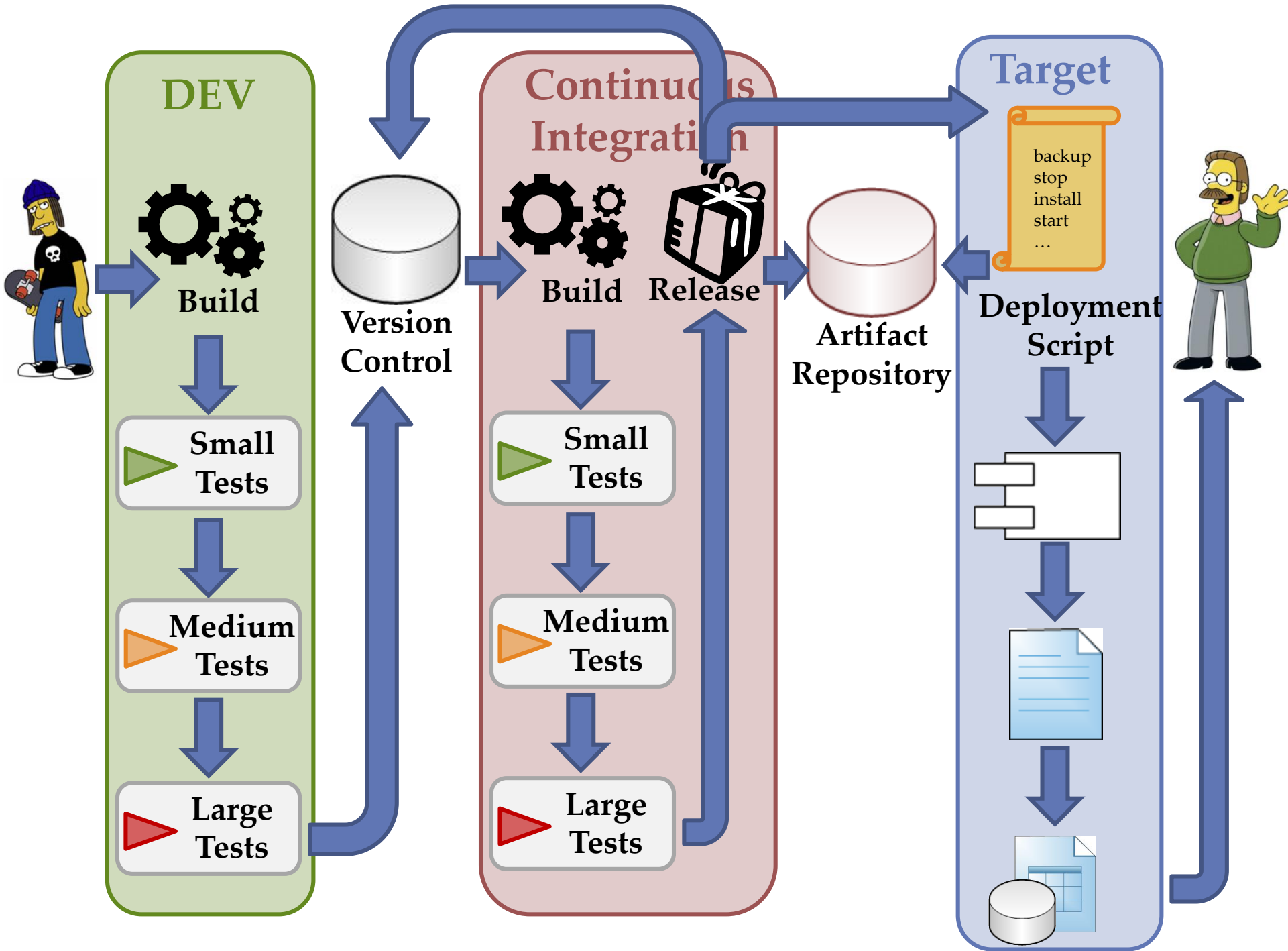


FirstName	Last_Name	ast_Name
Homer	Simpson	mpson
Roger	Rabbit	abbit
Lucky	Luke	uke



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

Summary



CHRISTOPHER LAMBERT

SEAN CONNERY

HIGHLANDER

THERE CAN BE ONLY ONE

DIRECTED BY RUSSELL MULCAHY



DVD
VIDEO

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 EXECUTIVE PRODUCERS PETER DINEN
EDITOR SAAR KLEIN PRODUCTION DESIGNER DAN WEIL DIRECTOR OF PHOTOGRAPHY OLIVER WOOD PRODUCED BY DOUG LIMAN PATRICK CHOWLEY RICHARD N. GLASSTON
BASED ON THE NOVEL BY ROBERT LUDLUM EXECUTIVE PRODUCERS FRANK MARSHALL ROBERT LUDLUM SCREENPLAY BY TONY GURDY AND WILLIAM BLAKE HERRON
DIRECTED BY DOUG LIMAN A UNIVERSAL RELEASE



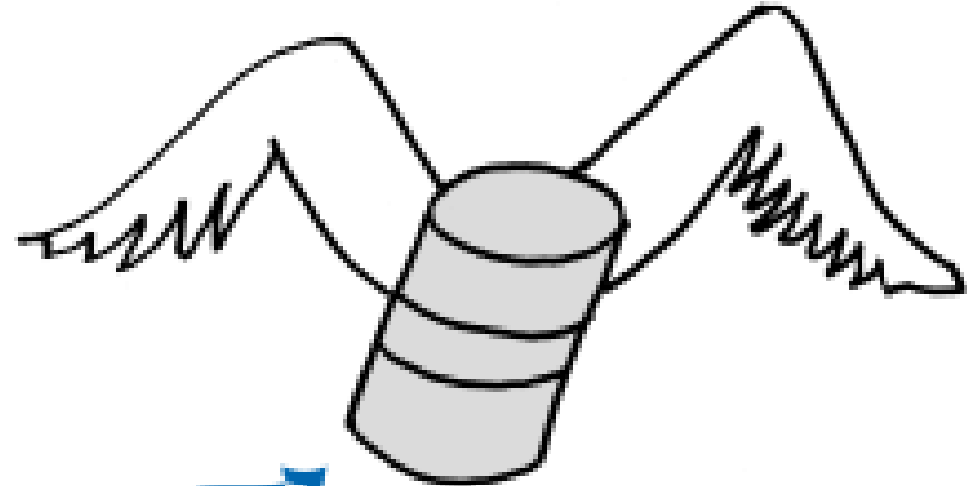
Universal International Pictures
www.thebourneidentity.com

UNIVERSAL PICTURES

A UNIVERSAL RELEASE







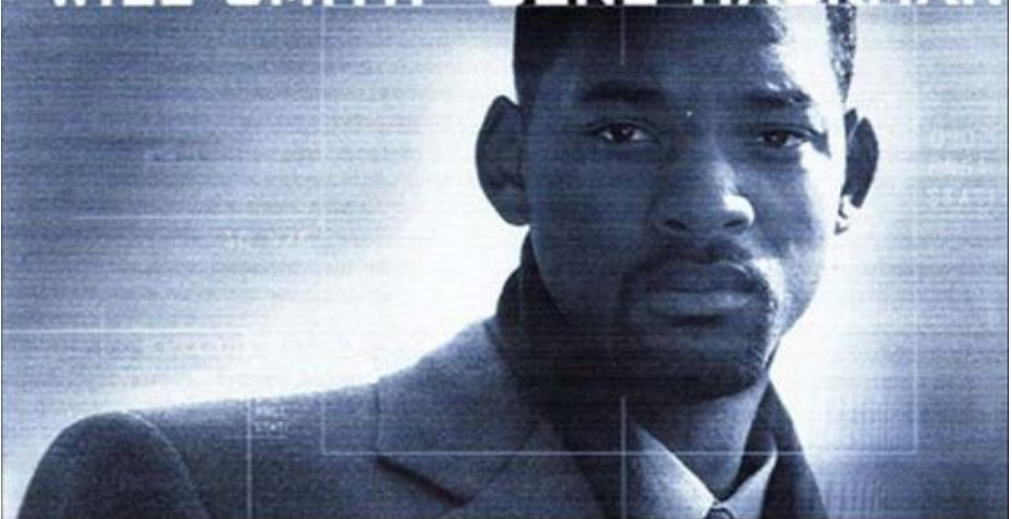
Flyway



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





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Software Development Expert

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business@axelfontaine.com

Further reading:

<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/>