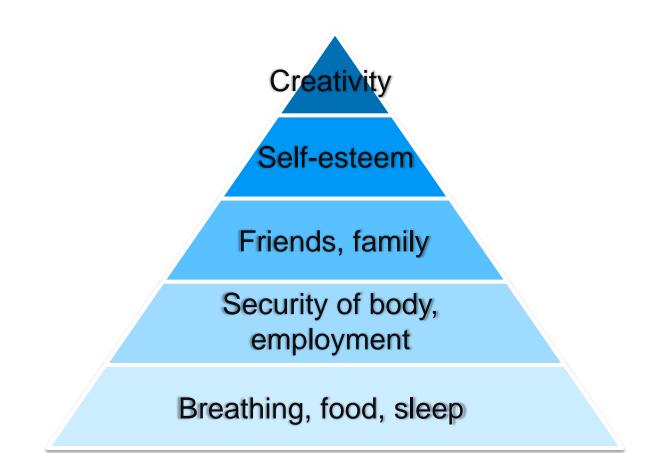
#### **Continuous delivery story with FIFA**

Introducing best practices in legacy project

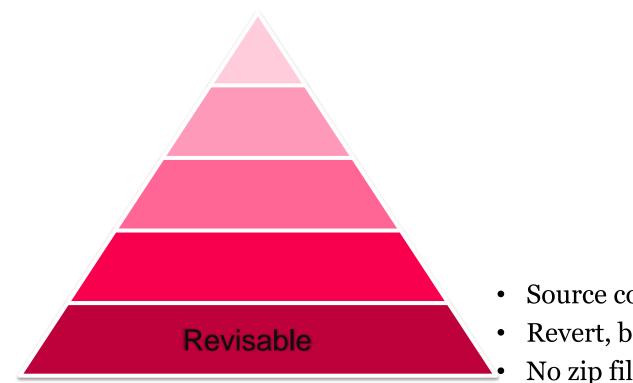
Mirosław Jedynak Architect @ Making Waves







## Revisable

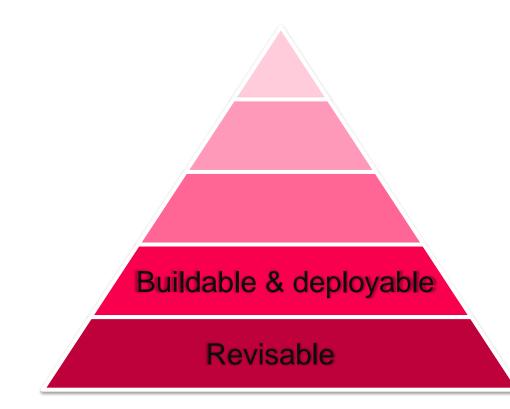


- Source control
- Revert, branch and merge
  - No zip files/shared disk



3

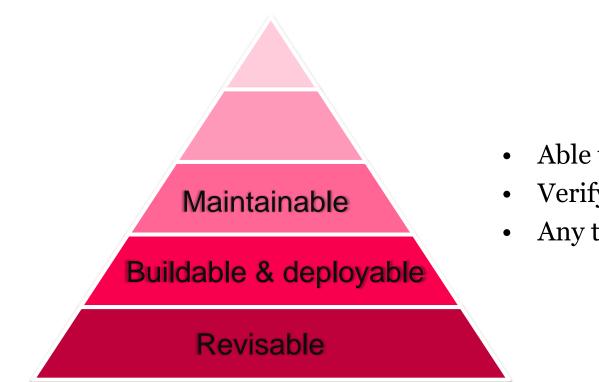
## Buildable & deployable



- Able to compile code
- Built automatically
- Deploy as easily as you can build it



### Maintainable



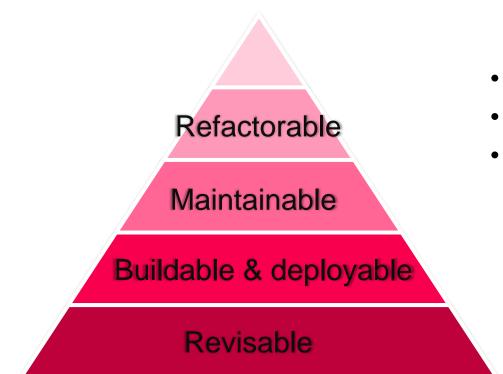
5

#### Able to fix bugs

- Verify them
- Any tests at all?



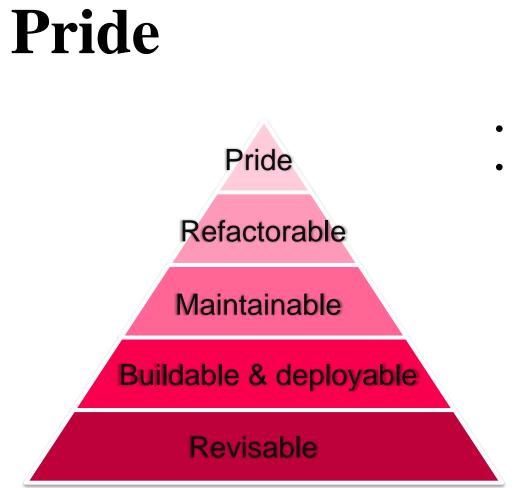
### Refactorable



6

- Follow conventions
- Refactor without fear
- Automated unit tests

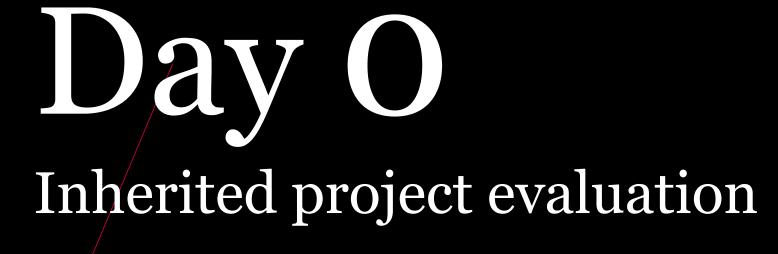




- "It's clear to me"
- "Ok, John was here"



source: www.wesport.org.uk





# **Clever solutions**

# Code duplication

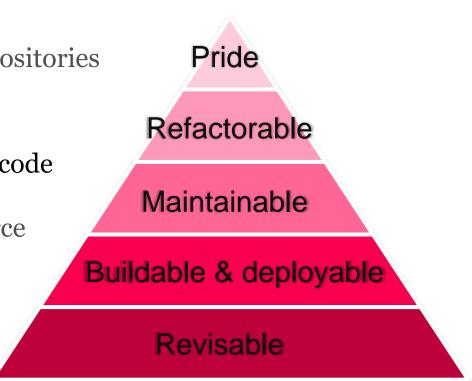


# Day 1 Transfer source control



## **Revisable at FIFA**

- Multiple SVN repositories
  - Code duplication between repositories
  - Missing revisions
- Sometimes challenging to obtain code deployed to production
  - Assemblies without clear source
  - Not versioned
- Changes directly on production
  - In markup (aspx)
  - In assemblies







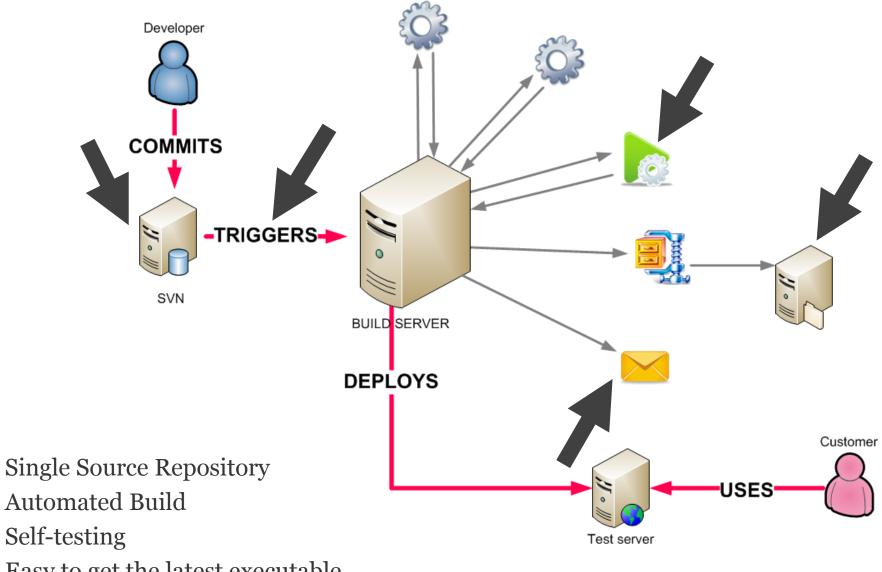


practice where team members integrate their work frequently, usually at least daily - leading to multiple integrations per day

Continuous Integration



#### CONTINUOUS INTEGRATION



Easy to get the latest executable

# Day 3 Establish internal test environment



## **Testing - inheritance**

- Manual test suite
  - Army of testers
  - Functionality exploration
  - Regression
  - Input for automation





# **Testing - improvements**

- Unit tests
  - Hard to introduce
- Functional acceptance tests
  - UI tests
  - Fragile
- Smoke tests
  - Useful when automating deployment

02.01.2013





mbunit











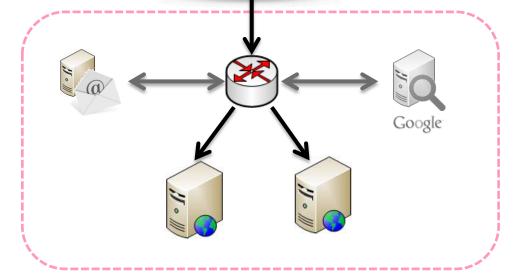


## **Testing environment**

- Similar to production
  - Operating system/IIS version
  - Load balancer

• Isolated

• Mocked external systems





How long would it take in your organization to deploy a change that involves just a single line of code?

How long would it take to set up production environment when your data center blows up?



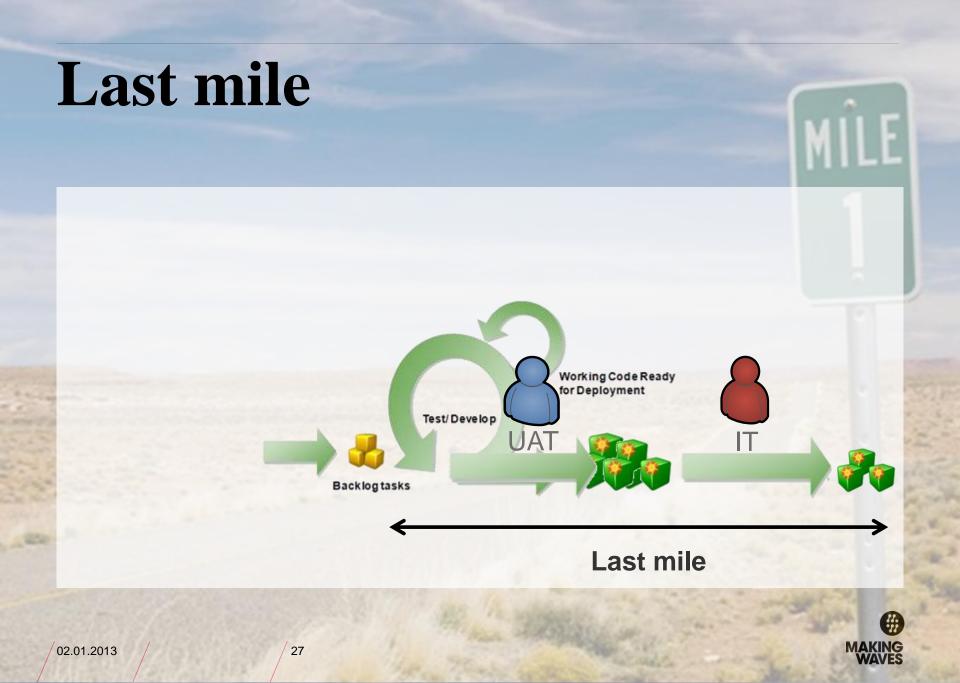
# Project goal: shorten release cycle

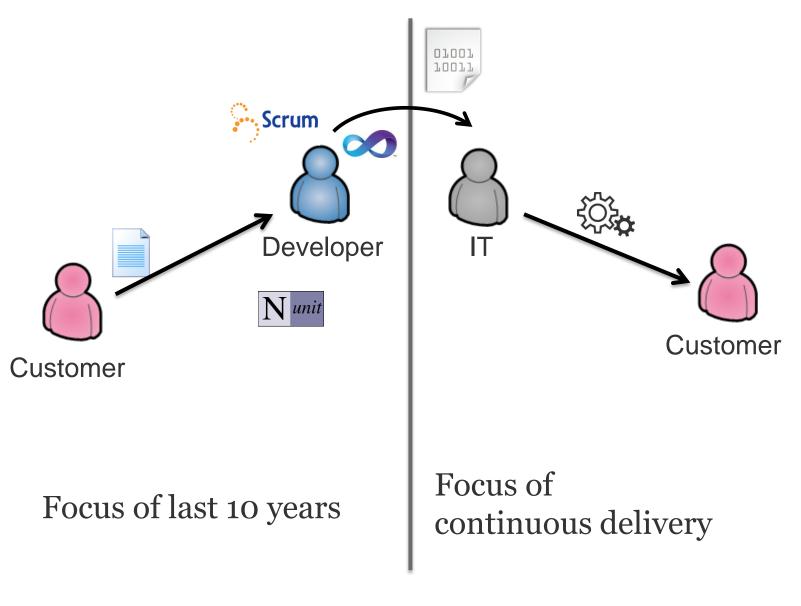


a set of practices and principles aimed at building, testing and releasing software faster and more frequently.



Continuous Delivery







#### **Principles behind the Agile Manifesto**

#### We follow these principles:

Our highest priority is to satisfy the customer through **early** and **continuous delivery** of valuable software.

Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.

Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.

Business people and developers must work together daily throughout the project.

Build projects around motivated individuals. Give them the environment and support they need,

# Day 4 Convince customer – business value



### **Business value**

- Feedback from users
  - Competitive advantage
  - Fail fast and early

#### Cleaner, more modern

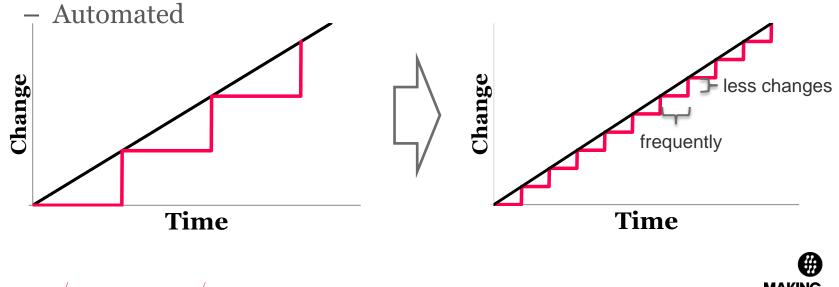
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		0 \$ 3	Alter Gawley	Dream this exeming? - We're having some false over far dream taright, do you want to join	Sep 15
More -		ं 🗶 २	Mendih Blackwell	bithday plans - Hey pays? I'm turning 25 a week from today. Since my bithday fails on a Wedness	Sep 14
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Dearth people	Search people	日金の	Susame, me (4)	Ning on weekend? - Poter On Thu, Mar 6, 2008 at 1:12 AM, Susanne Nagy reura@gox;	Sep 14
- Jason Hiking		0 👷 🛛	me . Phi, Mendith (5)	Hite this westand - 1, great ideal I call shatgun in Peterls car. On Wed, Bep 14, 2011 at	Sep 14
Call phone		0 🔅 🗖	Kathleen Chen	Costume party - I'm thinking of dressing up as a big pine tree for the party on Friday. Do you have	Jun 29
Anelie     Emily		0 🕁 🛛	Paul McDunald	Fun Hike Yesterlay! - Thanks for the great hike posterlay, it was assessmed Paul - Paul	Jun 29
· Jacon		0.0.2	Anale Renater	$\lambda dy$ 4D weekand - H there: I heard you'll be around this weekand and H low to go for a bins. Are	Jun 28
<ul> <li>Manudith</li> <li>Paul</li> </ul>			- Ji Bach	Yanhale concert Friday - Hey man, then's a great concert this Friday evening. It's be great if you-	Jun 22
- Peter			Yan Tanytin	(NNN). Hey Hand - I haved you found a great place to go hiding. Lat me know when werks meeting	Mar 28
u Alat		0	Tan Tanytin	Updates - Hya, Since we haven't spoken in a while, I figured 76 send you some updates. This has	110410
• Ardex			Roads, me (2)	Anyone going to Yasamite this weekand? - Yas? So excited On Fit, Sep 19, 2008 at 2:04 PM, Rec	91908



### **Business value**

- Feedback from users
  - Competitive advantage
  - Fail fast and early
- Reduced risks of release



### **Business value**

- Feedback from users
  - Competitive advantage
  - Fail fast and early
- Reduced risks of release
  - Automated
- Real progress
  - Definition of done
- Quicker return of investment



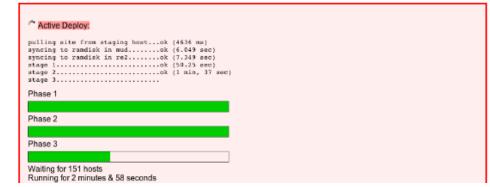
# Examples



#### Deployment

When the staging version is ready, click the button below.

WARNING: This sync's the staging version to the live servers. In theory this is what will change, but you might want to test it maybe?



#### Waiting for 151 hosts

#### FEATURING



Flickr was last deployed 42 minutes ago, including 5 changes by 4 people.

In the last week there were 85 deploys of 677 changes by 21 people.

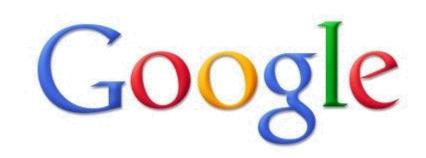


## Examples











### Most software developed by large teams spends a significant proportion of its development time in an unusable state.



# Waterfall

# Black art

# "All/hands on board"

### "We deploy on Saturday"

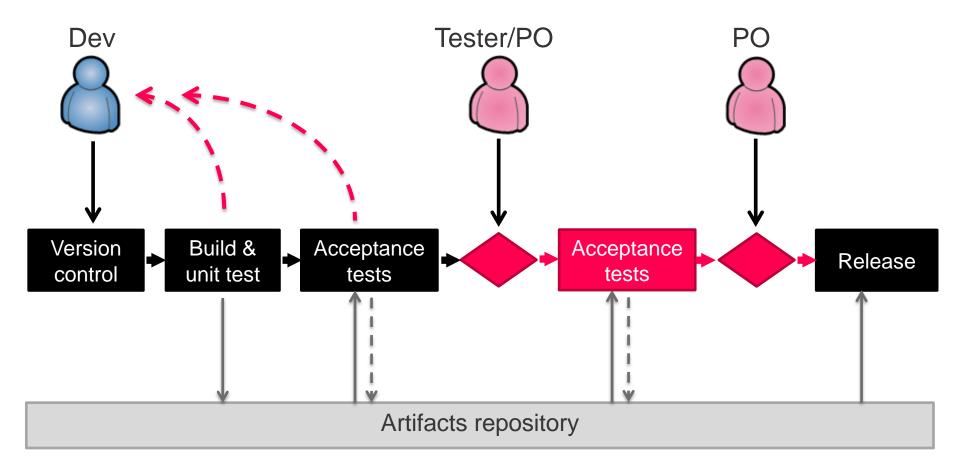
/ Deployment – bad parts



# Day 5 Design deployment pipeline



## **Deployment pipeline**





# When it hurts, do it more often



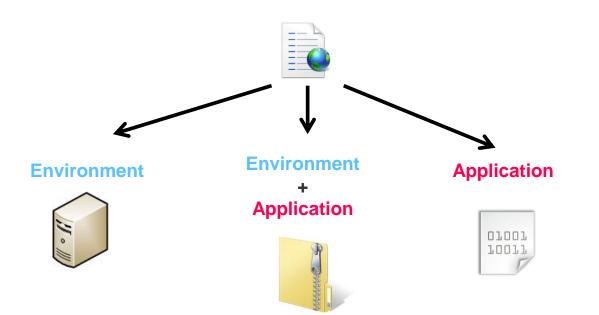
## Day 6 Manage environment configuration

#### 

## It's easier to break system by changing one line of config than one line of code

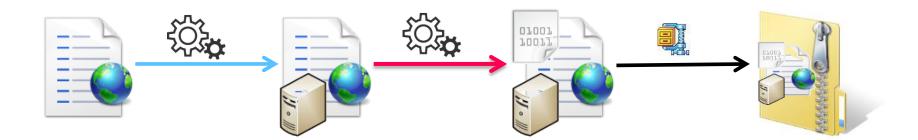


#### **Configuration types**





#### **Configuration templating**



Configuration template

Environmentspecific configuration Environment & application specific Deployment package



#### Troubles

- \* Rollback
  - \* Deploy last good version
  - \* Rollback scripts less tested than deployment
  - \* Avoid Fix-forward fire
- \* Hotfix
  - \* Follow regular deployment pipeline
  - \* It is a tested path
  - \* It has known time of deployment





### **Continuous deployment**

- Deploy continuoulsy
- After each change

#### **Continuous delivery**

- Be production ready
- Release any time



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## Best practices How we get there



## **Best practices - Summary**

- Version everything
- Similar environment

- Automate existing procedure
- Manage configuration

- Most expensive/risky first
- Deploy never easy try as soon as possible



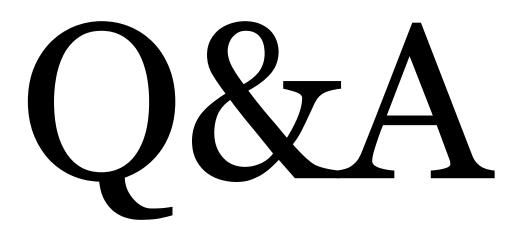
#### **Doubts/Fears**

• Setup time

- Sum up deployment and fix times

- Replacing software
  - Release to beta environment for early adopters
- Confidence in automation
  - Do it more often





#### Mirosław Jedynak <u>m.jedynak@makingwaves.pl</u>

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### Database deployment

- separate database migrations
  - expansion scripts changes not breaking backwards compatibility with the existing version
  - contraction scripts clean up any database structure that is no longer needed

