
ThinkingLabs
Ghent, Belgium
On the left and back, Korenlei
On the right and front, Graslei
The Practices That Make Continuous Integration
Thierry de Pauw, Continuous Delivery consultant
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thinkinglabs.io

Being vulnerable …

I’m **shy** and **introverted**


ThinkingLabs
Feature Branching is Evil
Continuous Delivery Conference NL 2016
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Continuous Integration Test

everyone in the team commits at least once a day to Mainline

every commit to Mainline triggers an automated build and execution of all automated tests

whenever the build fails it gets fixed within 10 min

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Continuous Integration is a practice to ensure always working software and to get feedback within a few minutes to whether any given change broke the application.

– Jez Humble

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14 practices

Team Working for CI

Coding for CI

Building for CI

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Team Work for CI

1. Version Control Everything
2. Agree as a Team to never Break the Build
3. Do not Push to a Broken Build
4. When Broken Revert

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allan kelly
@allankellynet

Replying to @SteveSmith_Tech and @davefarley77

Historically I meet 1 team a year on average who aren't using version/source code control. Common reasons:
- very immature team
- SQL
- PickOS derivative or ERM/CRM system

Last category may even lack tooling

5:34 PM · Nov 8, 2020 · Twitter Web App

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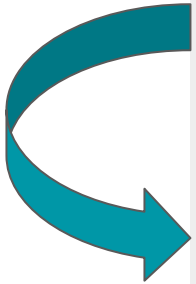

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Without Version Control:

- no single source of truth
- hard to rollback a deployment
- all other CI practices fall flat

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First practice that requires a tool!

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Version Control System is a communication tool.

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From now on, our code in revision control will always build successfully and pass its tests.

– James Shore

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Stop the line, fix immediately

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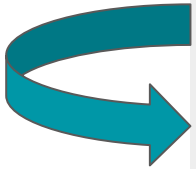

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The whole team owns the failure

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Precondition to
Continuous Integration

Fix a broken build within 10 mins

Otherwise …
a whole team at stand still
disables on-demand releases

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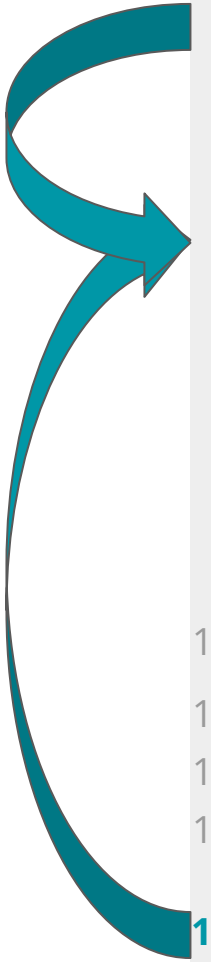
Why 10 mins?

because Have a Fast Build



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Coding for CI

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Break large changes in a series of small incremental changes

=> keep the application always working

=> never tearing the application apart

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This is hard work!

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Continuous Integration
= integrate early and often

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When not Committing Frequently

- introduce batch work
- integrating becomes time-consuming
- prevents communication with the team

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When Committing Frequently

- changes are small
- merge conflicts are less likely
- reverting a failing change is easier

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Gentle design pressure to ...

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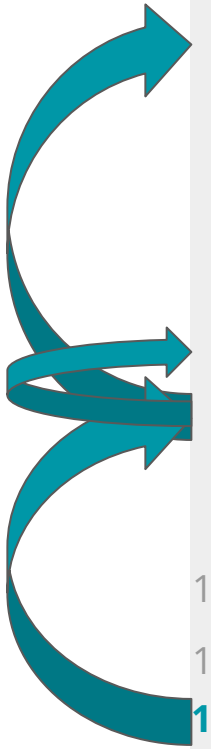
Only commit when
the Local Build says SUCCESS

=> Test Driven Development



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Small increments
requires a decoupled codebase

=> improves quality

=> reduces engineering time

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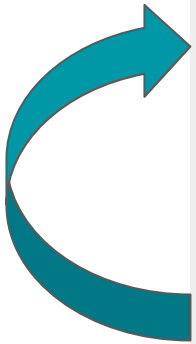
Little unknown gem

Strong enabler for Continuous Integration



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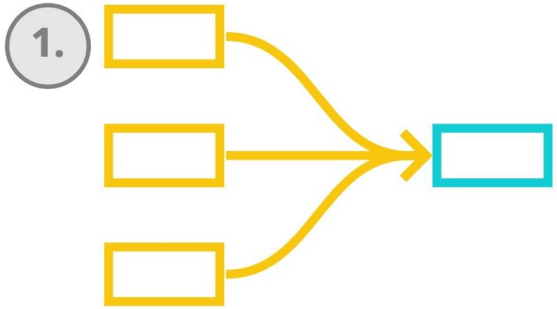

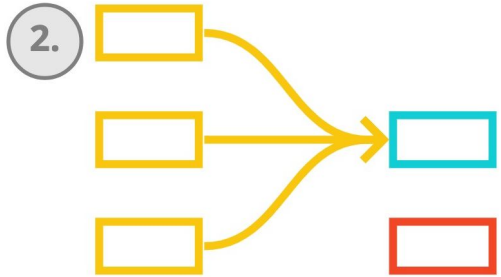

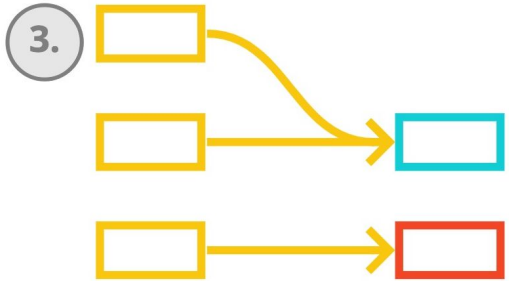

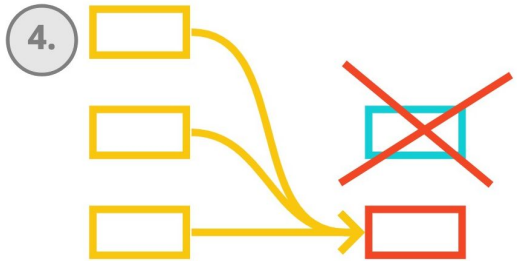

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What if a feature
takes too long to implement?

=> perfectly acceptable to have
unfinished functionality
in production

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Feature Toggles

enabler of Operability and Resilience

but ...

comes with their fair share of problems

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Building for CI

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Build Script -> **SUCCESS** or **FAILURE**

Used by
Local Build and Commit Build

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Second and last practice that requires a tool!

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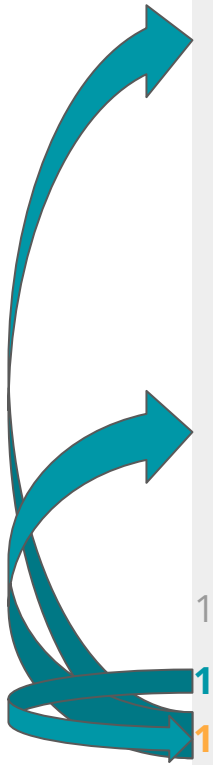
Prevent broken build

=> run a Local private Build
before committing



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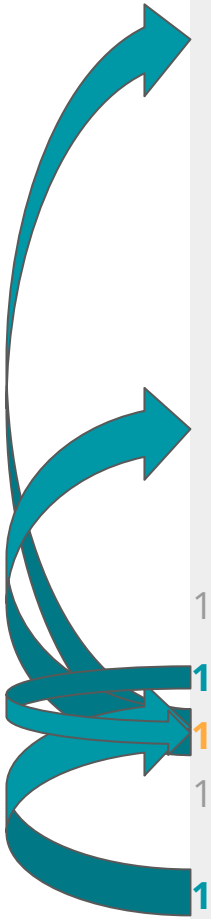
Commit to Mainline

=> triggers the Commit Build

Monitor the Commit Build!



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No tests = no feedback

=> cannot Commit Frequently

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Gain confidence

- enough automated tests
- and of high-quality

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Types of tests:

- Unit Tests
- Integration Tests
- Automated Acceptance Tests
- Smoke Tests

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Commit Frequently

=> Fast Build

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When the Build is slow

- not executing the Local Build
- execute the Local Build less often

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What is fast?

- 10 min is the limit
- under 5 min is the focus
- 30s is plain bonus for engineers

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12. Run a Local Build
13. Have a Vast Amount of High Quality Automated Tests
14. **Have a Fast Build**

ThinkingLabs

Non Reliable Tests (aka Flaky Tests)

=> increases delivery lead time

Credits to Maaret Pyhäjärvi (@maaretp)

1. Version Control Everything
2. Agree as a Team to never Break the Build
3. Do not Push to a Broken Build
4. Revert When Broken
5. Make all changes in Small Increments
6. Commit Frequently
7. Commit Only on Green
8. Decouple the Codebase
9. Adopt Expand-Contract
10. Hide Unfinished Functionality
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15. **Have Reliable Tests**

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ThinkingLabs

How can we fix Flaky Tests?
=> put them in Quarantine

1. Version Control Everything
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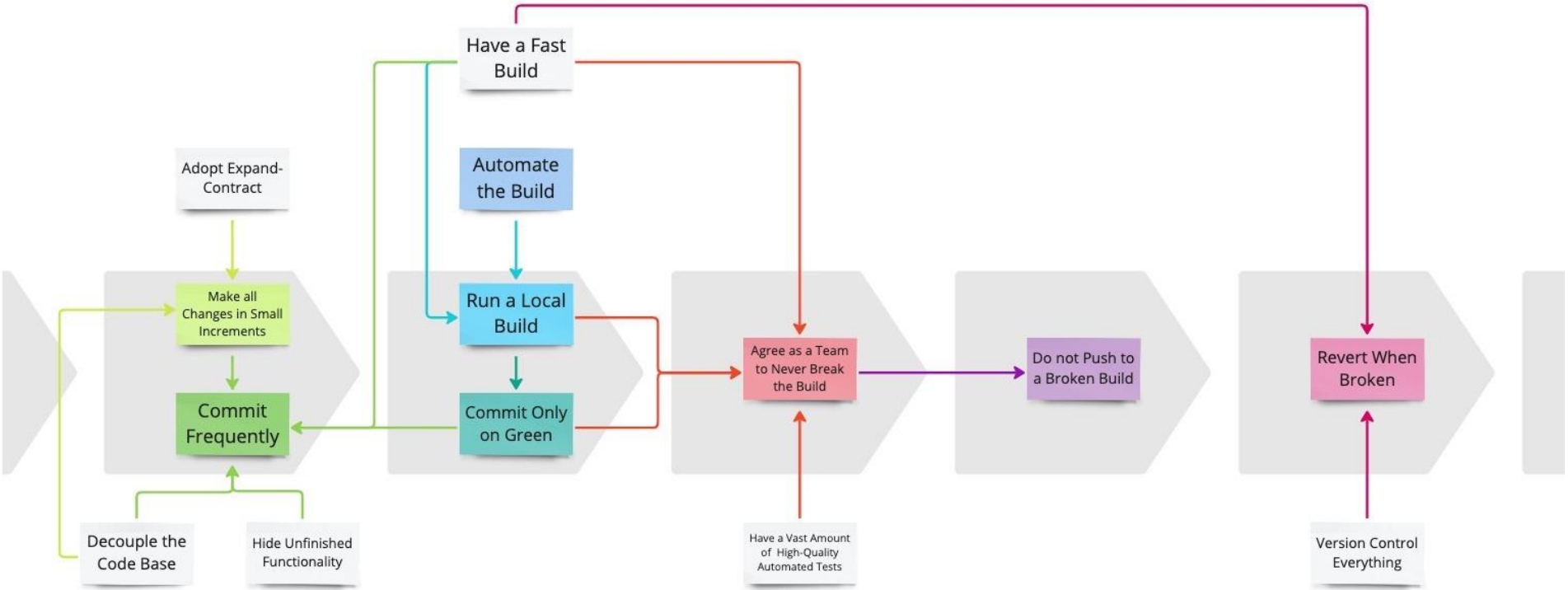
Only two tools!

- Version Control System
- Automated build

ThinkingLabs

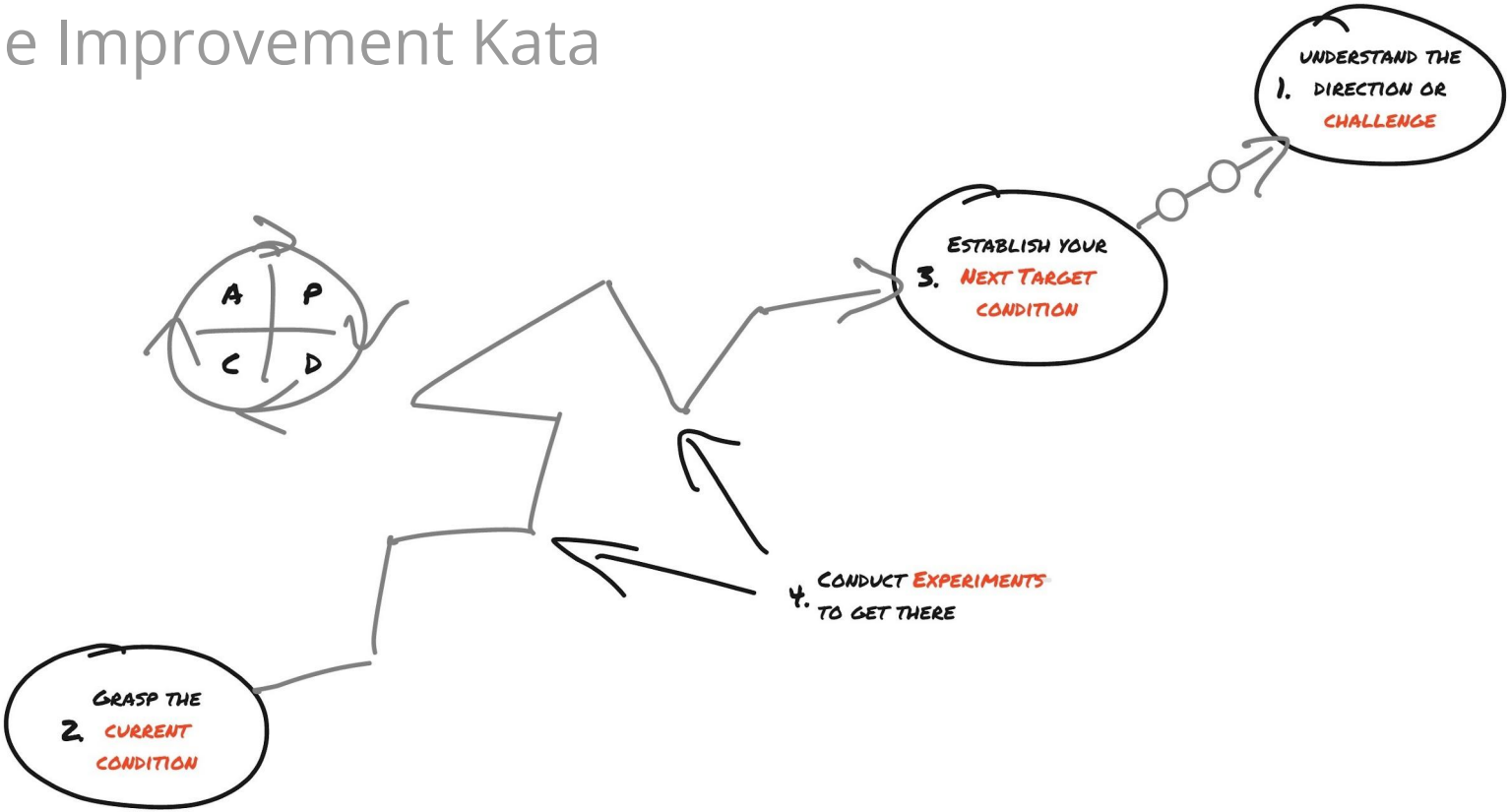


Adapted from Michael Lihs (@kaktusmimi), ThoughtWorks

Where do we start?

ThinkingLabs

The Improvement Kata



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Continuous Integration

together with trunk-based development

predicts

higher throughput and quality.

Hello, I am Thierry de Pauw

The article series: The Practices that make Continuous Integration

https://thinkinglabs.io/the-practices-that-make-continuous-integration

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