

IDVOC

- Intro & DevOps



CRI

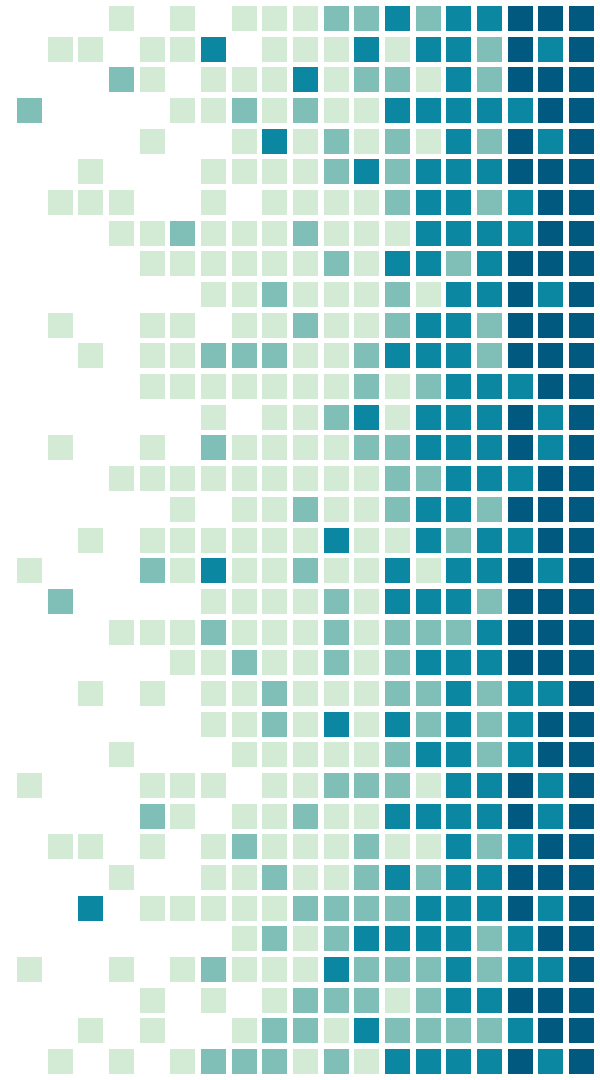
CENTRE DES RESSOURCES INFORMATIQUES



-- Cyril zarak Duval, root CRI/ACU 2020

Introduction

Generic information about the course



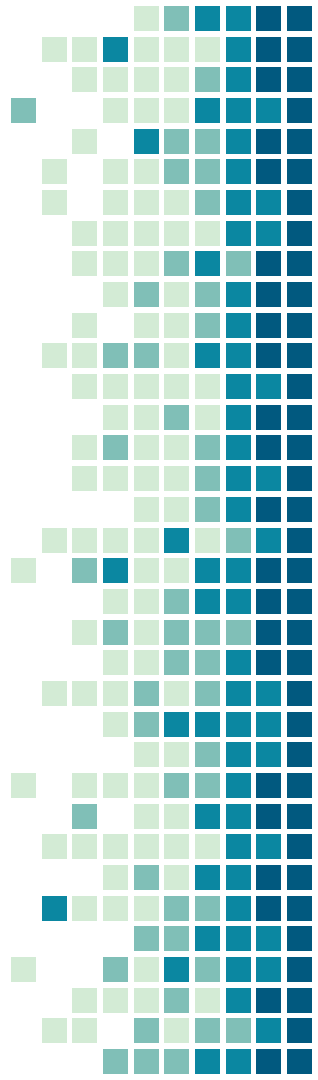
Why should you listen to the course ?

- Being able to code is nice, without the production is useless
- State of the art notions
- Having the rights tools makes you more proficient
- Subject somewhat difficult
- Getting a decent grade



Who am I ?

- Why this slide ?
 - ◆ To understand my profile and my point of view
- EPITA 2020 - CRI/root ACU
 - ◆ ~5 years of real DevOps experience
 - ◆ I know EPITA and students' POV
- "DevOps engineer" title, in fact more SRE / Ops oriented
 - ◆ Not a dev



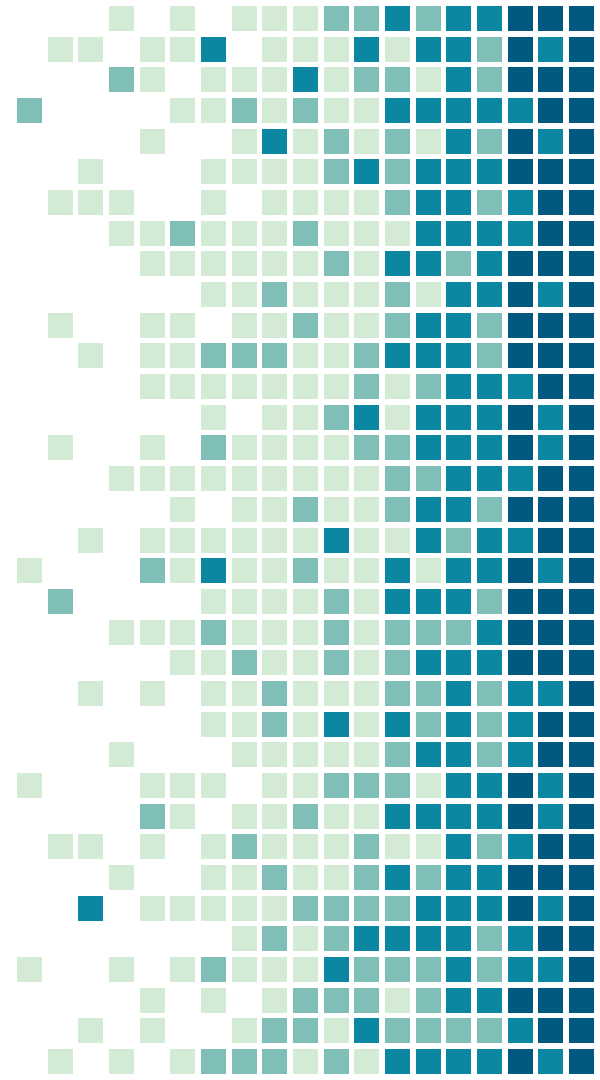
Plan

1. DevOps concepts
2. DevOps tools
 - a. YAML
 - b. docker
 - c. docker-compose



What is DevOps ?

Surprisingly, it's both Dev and Ops



DevOps

- Contraction of Development and Operations
- Development:
 - ◆ Creating code, applications, ...
 - ◆ A will to introduce changes
 - ◆ Work env: your laptop, your IDE
- Operations:
 - ◆ Ensuring services are working and available (including aforementioned applications)
 - ◆ A will to not break anything (somewhat reluctant to change)
 - ◆ Work env: servers/VMs, a text editor and ssh

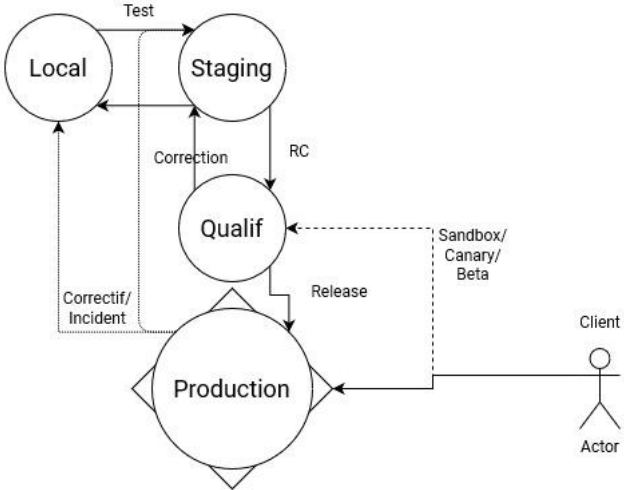
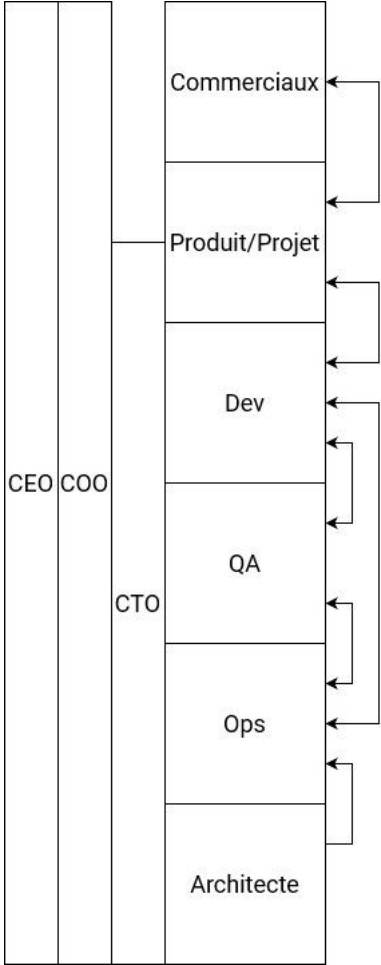


DevOps

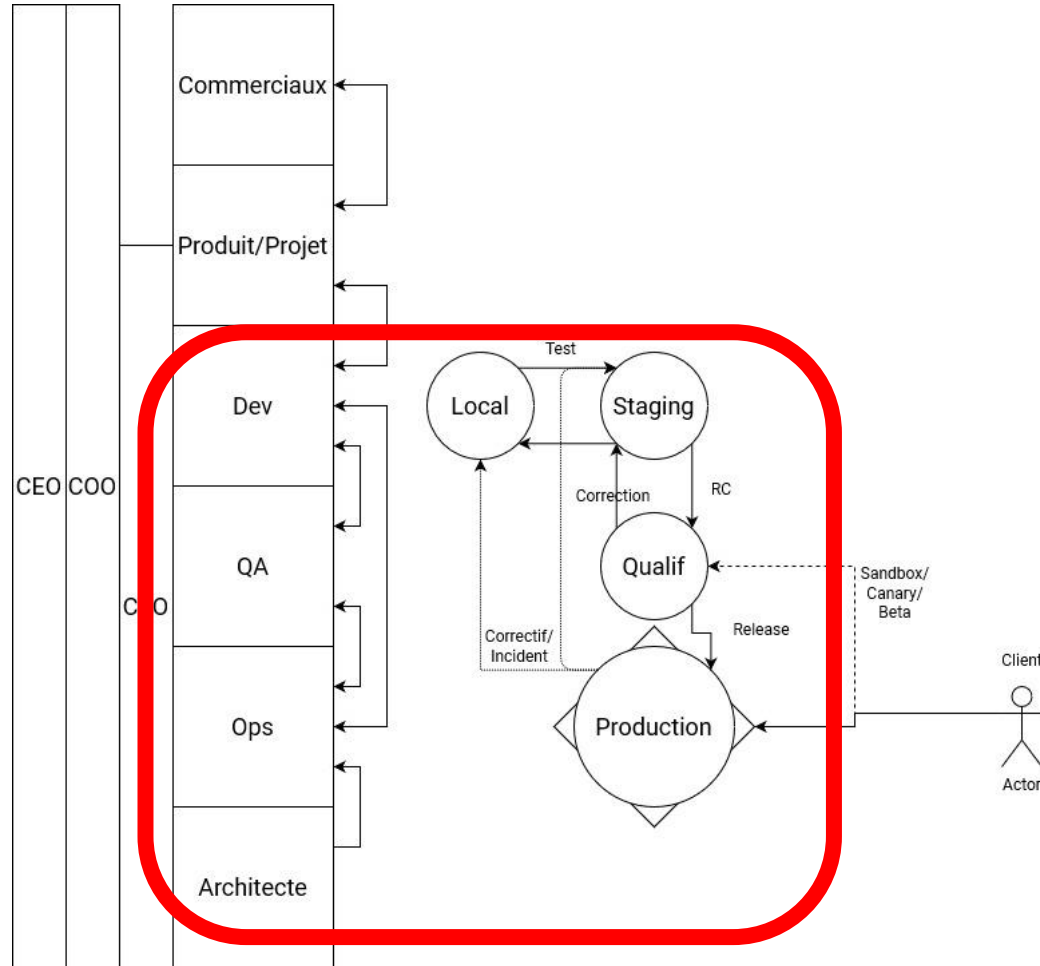
- DevOps is a set of tools and practices
- Aim to reduce – even remove – friction between Devs and Ops
- Devs are doing a bit of Ops
- Ops are doing a bit of Dev
- DevOps is not really a job per-se
- Some DevOps tools are so popular they became new standards



Devs and Ops relation

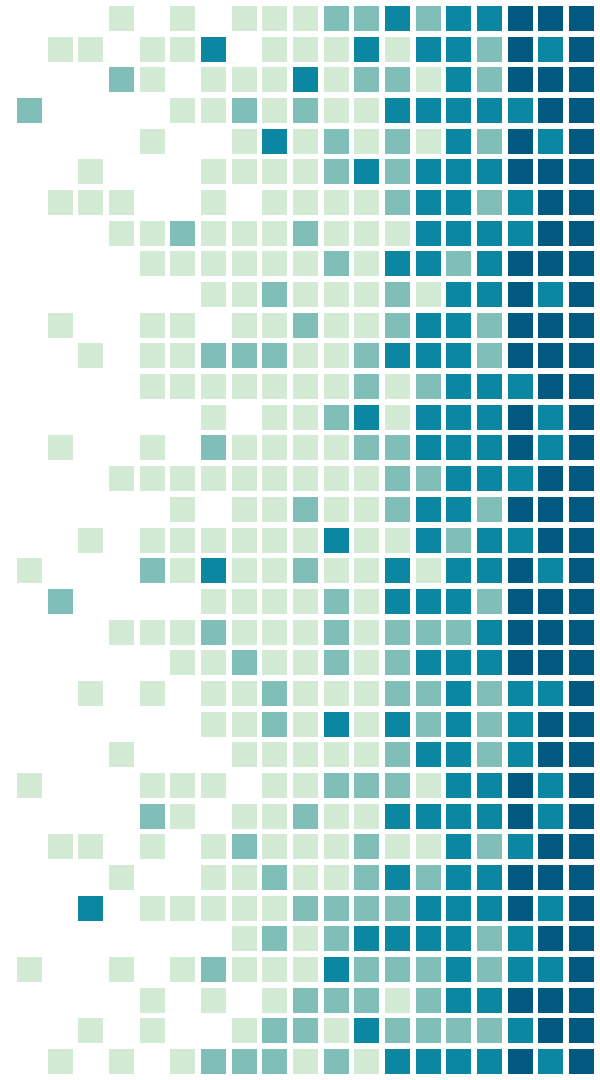


DevOps scope



What issues are solved by DevOps?

Why is everyone so psyched by DevOps ?



DevOps - Dev POV

- Devs work on their laptop
 - ◆ Their OS
 - ◆ Their libraries
 - ◆ Their environment
 - ◆ Their hardware specs
 - ◆ Their network stack
 - ◆ ...
- How to ship that to production servers seamlessly ?
- What are the meaningful differences ?



DevOps – Dev POV

- How does a Dev introduce architectural changes ?
- How to add a new dependency ?
- How to avoid “but it worked on my laptop :(” ?

But also ...

- How to reduce time-to-market ?
- How to easily understand years of dev without you ?
- How to work with coworkers ?
 - ◆ That will be different from you



DevOps - Ops POV

- How to deploy Dev's application ?
- How to make sure it's working well ?
- How to know what the dependencies are ?
- How to upgrade things without breaking anything ?
- How to avoid differences between prod and dev env ?
- How to handle config/secrets ?
- How to easily understand years of ops without you ?
- How to work with coworkers ?
 - ◆ That will be different from you



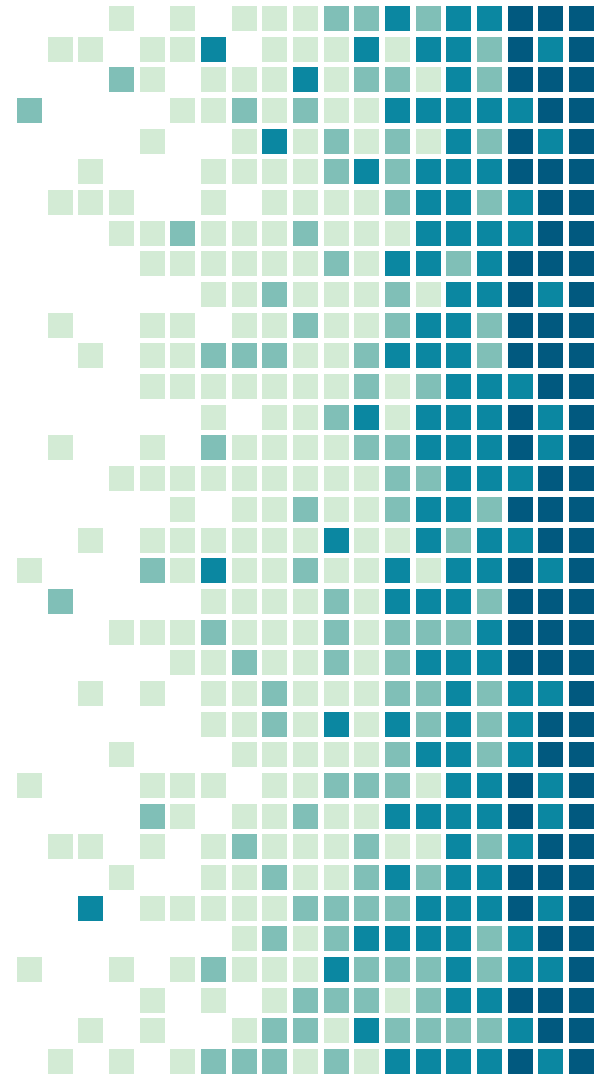
DevOps - Solutions

- Devs must have some knowledge on how things are deployed
- Devs should have some control on ops side
 - ◆ Limited, scoped, supervised ...
 - ◆ They aren't ops
 - ◆ Control should be application-oriented
- Ops should be involved in the dev process
 - ◆ Not necessarily by coding directly
 - ◆ Focus on dependencies



How does DevOps solve those issues?

Surely, it isn't magic



DevOps - Concepts

- Devops concepts are built around "12 factors"
- Goals of those 12 factors:
 - ◆ Be as declarative as possible
 - ◆ Understand interactions between app and system
 - ◆ No divergence between dev and prod
 - ◆ Try to be platform agnostic
 - ◆ Be able to scale up/down



DevOps - 12 factors - focus

- I. Codebase
 - ◆ One codebase tracked in revision control, many deploys
- II. Dependencies
 - ◆ Explicitly declare and isolate dependencies
- III. Config
 - ◆ Store config in the environment
- VII. Port binding
 - ◆ Export services via port binding
- X. Dev/prod parity
 - ◆ Keep development, staging, and production as similar as possible



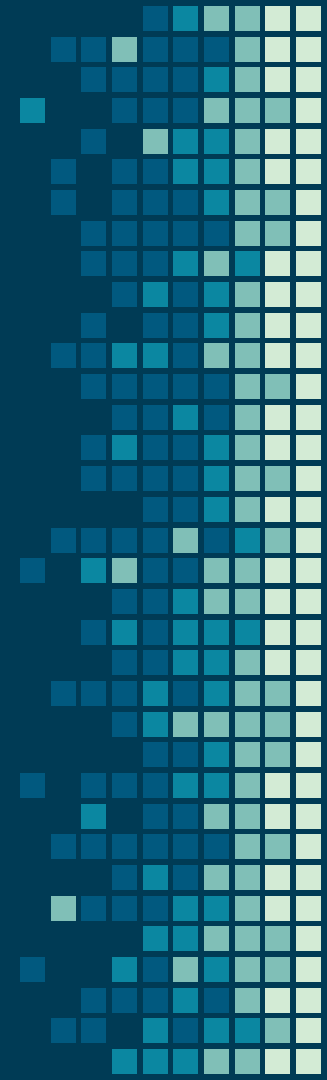
DevOps – Practical aspect

- 12 factors is not the magical solution to everything
 - ◆ It gives good advices
 - ◆ Generic concepts
- DevOps is about mentality and tools
 - ◆ Let's look at the tools to understand the mentality



Thanks !

Questions ?



Slides available on zarak.fr/

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