475 Software Engineering for Industry : Topic 3
Continuous Delivery

Assessed - work in a group of 3.

This week we will look at how we can put together a set of tools and processes to build a deployment pipeline, and how this can affect our software delivery. We will do this through a combination of reading, practical work, writing and discussion.

Reading

Start by looking at this paper on The Deployment Production Line by Humble, Read and North. http://continuousdelivery.com/wp-content/uploads/2011/04/deployment_production_line.pdf

Then have a look at this case study from Facebook about how they have evolved their delivery practices: https://code.fb.com/web/rapid-release-at-massive-scale/

You could also look at something focusing more on the process side, rather than the tools, for example looking at Kanban http://leankit.com/blog/2014/06/kanban-and-continuous-delivery/

Practical

The aim of this week's exercise is to think about a process and a pipeline of tools that allow a developer to check in a change to the source code of an application, and have that change pass through appropriate quality gates, triggering a build, suitable tests, and - if everything is successful - being deployed to a production (or production-like) environment.

If you have worked in, or know about, an industrial team with a sophisticated build process, draw a diagram showing the flow from developer keyboard to production. Show the flow from one phase to another, which tools are involved at each stage, what the conditions are for passing or failing are, and the human processes as well as the tools. How long does it take for a change to process from the developer's machine to the hands of the users - in the best case, in the worst case, on average? What affects this?

If you haven't worked on a team that uses a process like this, you could either a) find a case study of a company that does online and describe what they do (but make sure you have sufficient detail), or b) set up your own pipeline using open source and online tools and describe that.

Writing

Once you have drawn out your example delivery process and pipeline, write a summary of your thoughts on how the use of such a pipeline might affect an industrial development project. You are limited to **300 words**, so this is not a long essay, just a short statement of your thoughts, with supporting evidence and references.

Address one of the following questions:

- To what degree can automation help developers deliver software projects more reliably?
- What do you think constrains how frequently an organisation can release new software?
- Is it possible to do continuous delivery for embedded systems?

300 words is not a lot, so try to focus on your points and be interesting!

Submission As a group, submit a pdf (`topic3.pdf`) of your 2-page write-up via CATE.

Deadline Monday 4th Feb, 9am.

Note that the deadline is Monday at 9am - i.e. in the **morning**. We suggest you think of it as midnight Sunday.

Discussion

During the class on Tuesday 5th Feb, we will discuss your thoughts and experiences. We will ask some groups to briefly present their work, and others to describe their thoughts. We hope for a good discussion amongst the class.

Schedule

Tuesday 29th Jan exercise released
Friday 1st Feb (9-11am) - lab session (lab 219).
Monday 4th Feb (9am) - deadline for submission to CATe.

Tuesday 5th Feb (11am-1pm) - discussion class (lecture theatre 340).

Page 2 of the submission is not graded, but you must demonstrate that you have done something reasonable for that part in order to have page 1 graded.

On page 1 we are looking for you to express your thoughts and ideas based on your reading, experience and discussions, backed up by evidence. The grading scheme is as follows:

Assessment

In your written work we are looking for you to express your thoughts and ideas based on your reading, experience and discussions, backed up by evidence.

F- E

Little or no understanding of the given topic demonstrated.

D

Shows an incorrect or flawed understanding of how or why to apply the given tools/techniques.

C

Shows a reasonable, but limited, understanding of the application of ideas and techniques covered, and the context in which they apply.

B

Shows a good understanding of how to apply these techniques and the problems that they solve. Arguments are well presented and backed up by references.

A

Displays a broad understanding of the use of these techniques, comparing different approaches and the forces that might make them suitable for different situations, displaying evidence of further independent reading and thought, beyond what was suggested and covered in the class.

A*

Gives an excellent and insightful commentary, comparing different tools and approaches and displaying evidence of further independent reading and thought. Demonstrates critical thinking and considered opinion, but backed up by references and practical experience.