Using Jenkins in Cooperative Regression Testing

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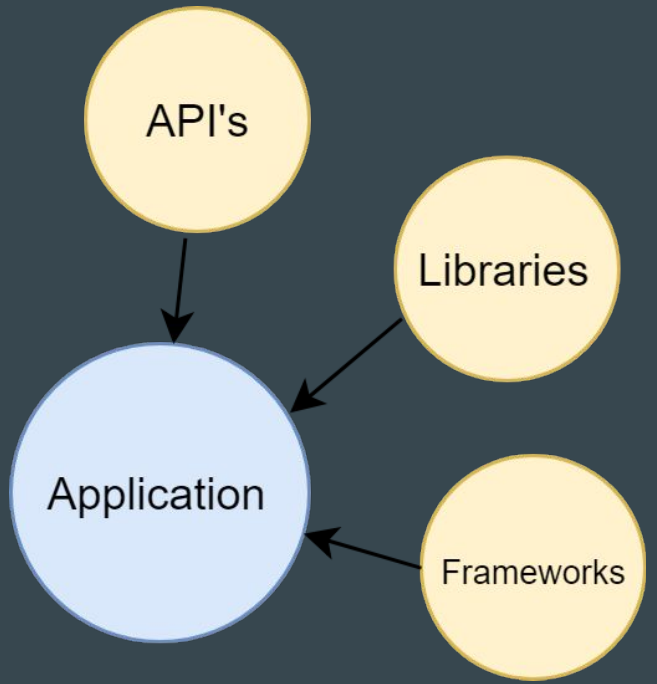
A Master Thesis at Axis Communications

- The master thesis was done together with fellow student Philip Ridderheim
- The purpose of the thesis to look at possibilities of cooperation between development teams in regards of software regression testing
- The end result was an implemented workflow in Jenkins
- Title: Automated Cooperative API Regression Testing Using Jenkins

Problem Background

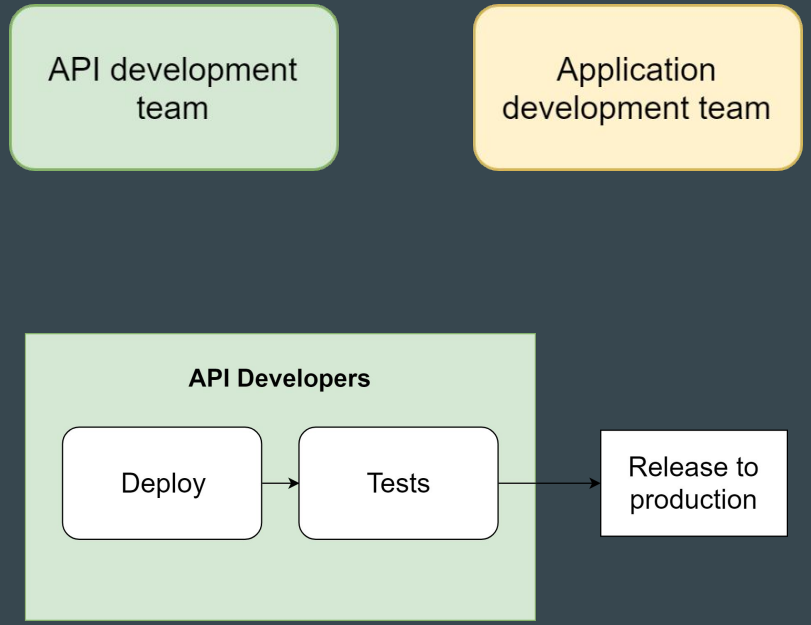
Today's applications include a lot of different dependencies. These dependencies might pose a challenge when ensuring the quality of the application.

How can interdependent code be regression tested in a cooperative effort?

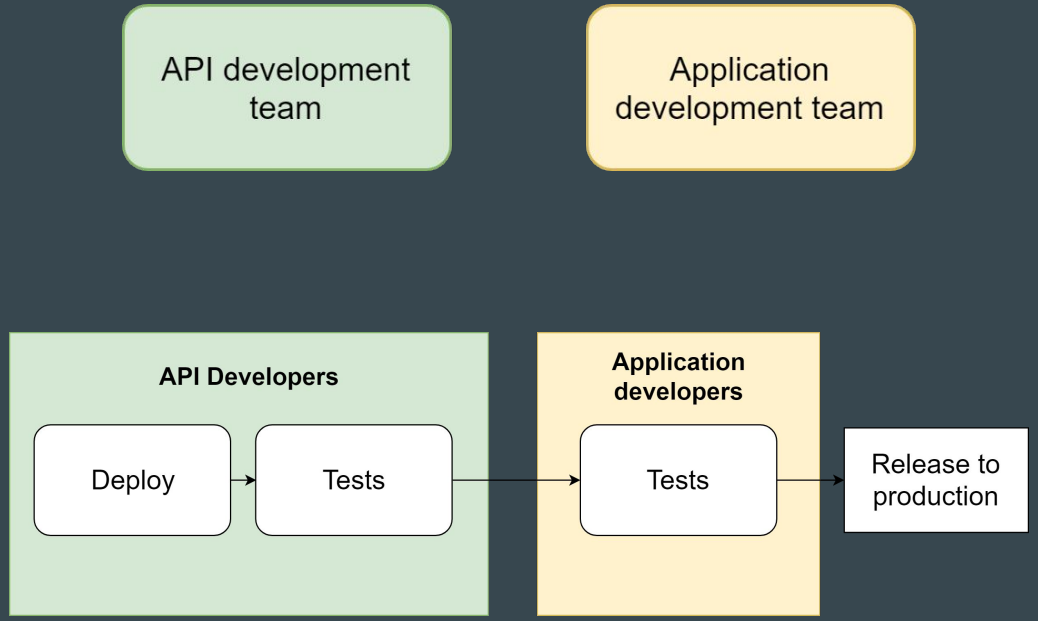


Initial Situation

The Old Workflow



Improved Workflow



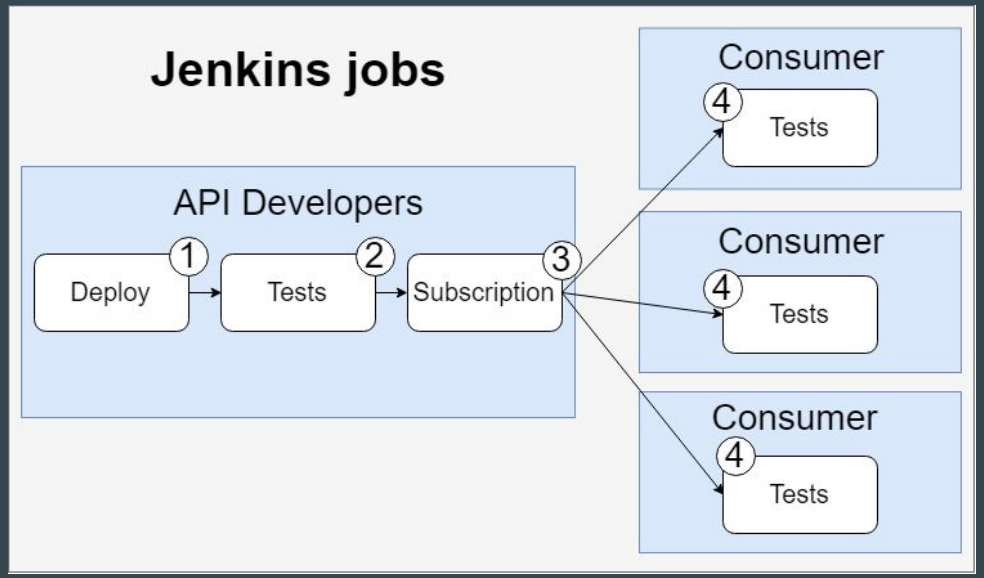
What is Jenkins?

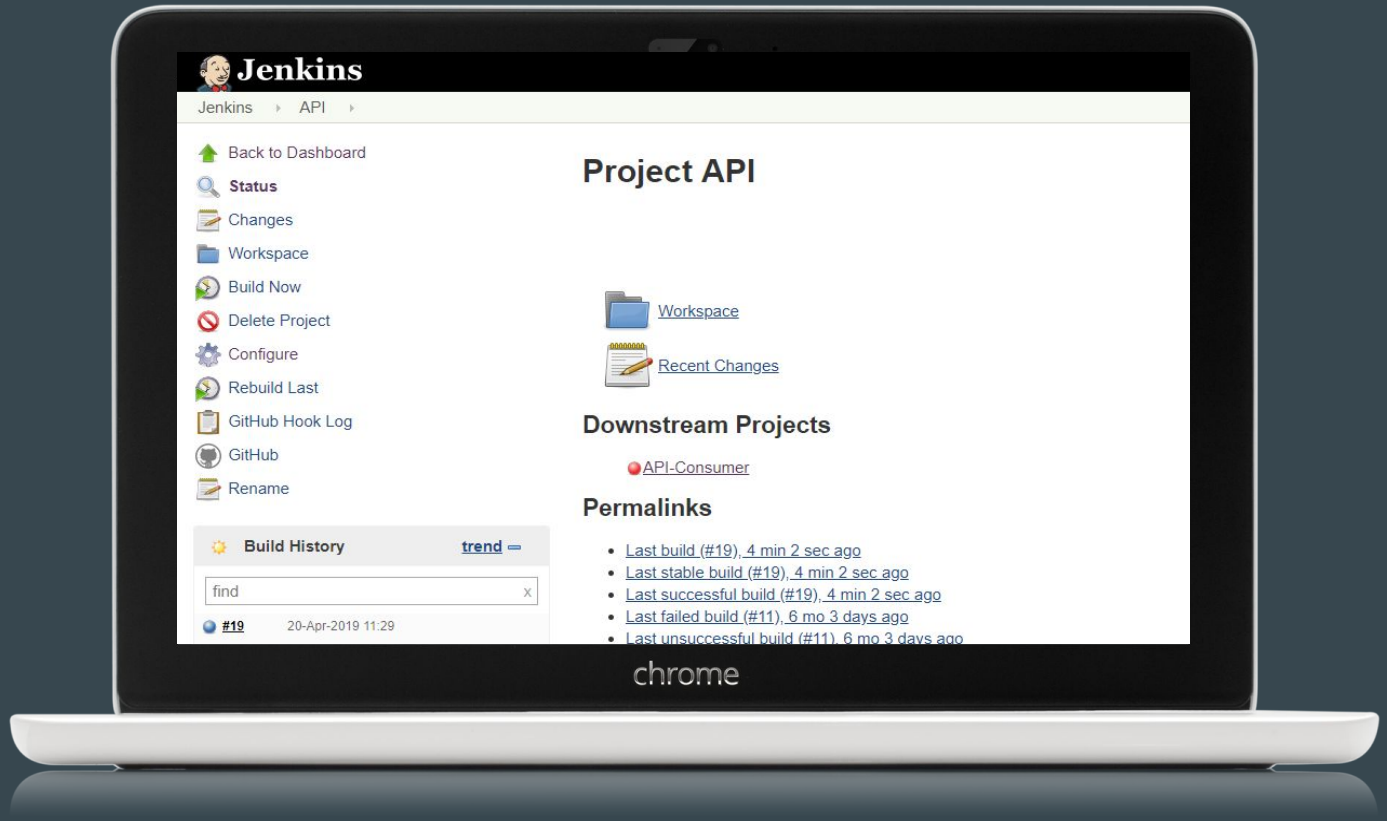
- Jenkins is an automation server
- It automates repetitive tasks that do not require human interactions, e.g. continuous delivery
- Works by creating “jobs” (tasks) or more complex pipelines
- Jenkins can be configured in a variety of ways to suit different needs, e.g. different plugins, master/slave server configurations

What is Needed to Create a Jenkins Job?

1. Source Code Management - GitHub, Gerrit, GitLab etc.
2. Set Build Triggers - On git commit, periodically, after another job etc.
3. Set Build Environment - Provide configuration files, set build name etc.
4. Creating the Build - Building the application, execute script, deploy code to a server, run a test suite etc.
5. Set Post-build Actions - Publish test results, send email notification, trigger other jobs etc.

Implemented Workflow in Jenkins




Jenkins
Jenkins
API
Back to Dashboard
Status
Changes
Workspace
Build Now
Delete Project
Configure
Rebuild Last
GitHub Hook Log
GitHub
Rename
Build History
trend
find
#19
20-Apr-2019 11:29
Project API
Workspace
Recent Changes
Downstream Projects
API-Consumer
Permalinks
Last build (#19), 4 min 2 sec ago
Last stable build (#19), 4 min 2 sec ago
Last successful build (#19), 4 min 2 sec ago
Last failed build (#11), 6 mo 3 days ago
Last unsuccessful build (#11), 6 mo 3 days ago
chrome

Thank you for listening!

Questions?