Improvement of Continuous Integration / Development Pipeline using Github Actions

U.S. Citizenship and Immigration Services
Under the Supervision of Sean Marcia and Carlo Cena - Software Engineer

coding it forward >

U.S. Citizenship and Immigration Services

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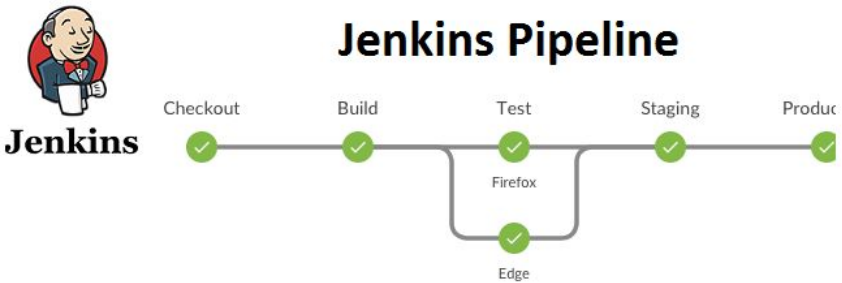
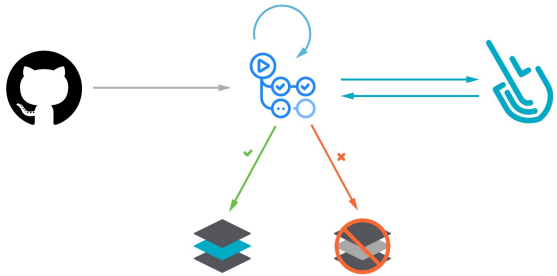
Migration Motivation

- Current CI/CD pipeline is Jenkins
    - Helps automate the parts of software development related to building, testing, and deploying
- Right now USCIS engineers rely on a lot of third party applications, trying to minimize too many dependencies
- Try to centralize software development into as little applications / tools as possible



Introduce Github Actions!

- Engineers are already using Github as their version control system of choice
- Therefore, introduce Github actions to assist in CI / CD pipeline
  - Can take advantage of seamless integration with existing GitHub repositories and workflows
  - Serverless instead of manually setting up machine like Jenkins
  - Personalized customization
  - Integration with other Github features very easily!



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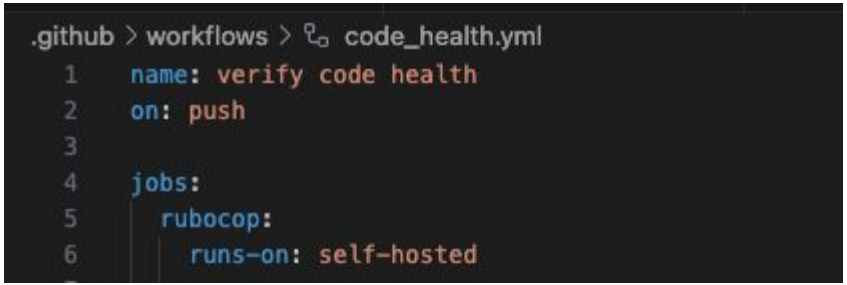
What actions are being automated?

- Start drafting YAML file to run steps in Ruby on Rails applications that will check...
  - If correct version of Ruby was installed
  - Vulnerability scanner on Ruby on Rails applications with Brakeman
  - Check for other vulnerabilities with Bundler Audit
  - Run automated tests for Ruby code with rspec
  - Upload code coverage from unit tests using Simple Cov Library



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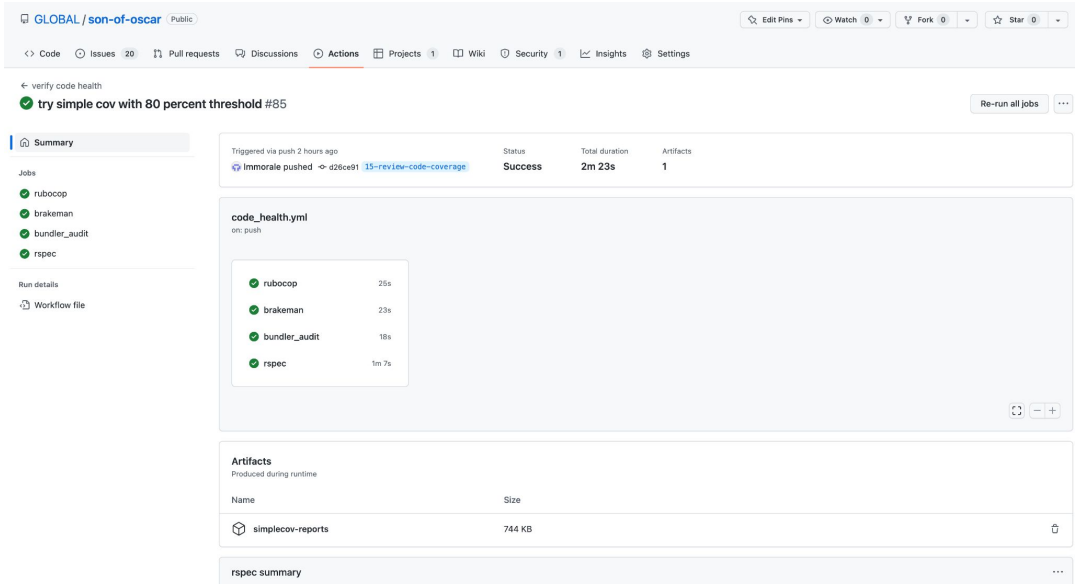
Running Actions Live

- https://git.uscis.dhs.gov/GLOBAL/son-of-oscar/actions/runs/65744



Next Steps

- Automate additional checks and plug ins that we want to run automatically by adding to the YAML file
    - Current YAML file primarily deals with code health
- Right now automated continuous development and integration is being done for current repositories
    - Can expand CI/CD development for other repositories in USCIS organization by using current YAML file as a reference
- Start reaching out to teams to move away from Jenkins CI/CD development

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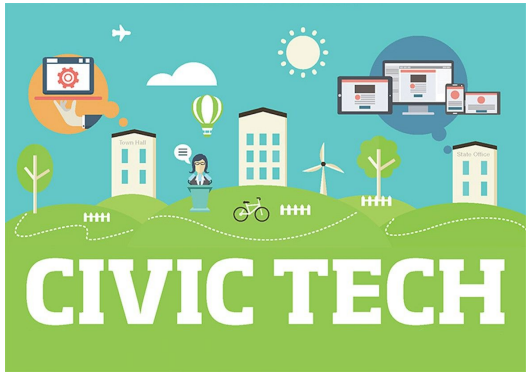
Reflection

- Grew more comfortable with pairing engineering techniques
- Learned about Ruby on Rails development and importance of self imposed checks before pushing code
- Demystified the civic technology experience!
- Grew more comfortable in my skills and when to reach out for help



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Thank You!

Special thanks to JC, Sean, and everyone else in the Global team!

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Any Questions!