Jenkins

- Open source CI, CD tool
- Highly customizable
- Pretty much the same as GitLab CI, Travis CI
- Self-hosted, web application UI
- Since 2004, a lot of resources and tutorials available, large community
## Build Queue

No builds in the queue.

## Build Executor Status

<table>
<thead>
<tr>
<th>Executor</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>jenkins-slave-6-k15x5-7f414654</td>
<td>1 Idle, 2 Idle</td>
</tr>
<tr>
<td>jenkins-slave-6-levi3-8ce9598c</td>
<td>1 Idle, 2 Idle</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>S</th>
<th>W</th>
<th>Name</th>
<th>Last Success</th>
<th>Last Failure</th>
<th>Last Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>OpenShift Sample</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Test OpenShift Job</td>
<td>16 hr - #1</td>
<td>N/A</td>
<td>12 sec</td>
</tr>
</tbody>
</table>
Jenkins

- Jobs
  - are tasks executed by Jenkins
  - can be accessed in web UI
    - in tree hierarchy of folders
  - where - master / agent
  - when – manually, periodically, job triggers

- integration with repositories via plugins
- results, archive artifacts (on master or other archive enabled by plugin)
Jenkinsfile (Declarative Pipeline)

```
pipeline {  
  agent any  
  stages {  
    stage('Build') {  
      steps {  
        sh 'make'  
      }  
    }  
    stage('Test') {  
      steps {  
        sh 'make check'  
        junit 'reports/**/*.xml'  
      }  
    }  
    stage('Deploy') {  
      steps {  
        sh 'make publish'  
      }  
    }  
  }  
}
```

Jenkinsfile (Scripted Pipeline)

```
node {  
  stage('Example') {  
    if (env.BRANCH_NAME == 'master') {  
      echo 'I only execute on the master branch'  
    } else {  
      echo 'I execute elsewhere'  
    }  
  }  
}
```

1. Execute this Pipeline or any of its stages, on any available agent.
2. Defines the "Build" stage.
3. Perform some steps related to the "Build" stage.
4. Defines the "Test" stage.
5. Perform some steps related to the "Test" stage.
6. Defines the "Deploy" stage.
7. Perform some steps related to the "Deploy" stage.
Why pipelines?

- no multiple freestyle jobs in chain
  - created by triggers like this ->
- jenkinsfile, in repository
- visualization, easier to understand
- ability to fork/join, loop, work in parallel
## Stage View

**Average stage times:**
(Average full run time: ~27y 220d)

<table>
<thead>
<tr>
<th>#34</th>
<th>Mar 03 18:56</th>
<th>81 commits</th>
<th>1min 34s</th>
<th>failed</th>
</tr>
</thead>
<tbody>
<tr>
<td>#33</td>
<td>Dec 22 13:00</td>
<td>3 commits</td>
<td>17s</td>
<td>1min 54s</td>
</tr>
<tr>
<td>#32</td>
<td>Dec 22 12:33</td>
<td>20 commits</td>
<td>15s</td>
<td>1min 35s</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1min 38s</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1min 29s</td>
</tr>
<tr>
<td>#31</td>
<td>Dec 22 12:16</td>
<td>No Changes</td>
<td>16s</td>
<td>1min 40s</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1min 42s</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1min 29s</td>
</tr>
<tr>
<td>#30</td>
<td>Dec 22 12:10</td>
<td>No Changes</td>
<td>15s</td>
<td>2min 11s</td>
</tr>
</tbody>
</table>
Jenkins

• examples of plugins (Jenkins is based on plugins)
  • Pipeline plugin
  • embeddable-build-status
  • Job Configuration History
  • Pre SCM BuildStep / Multiple SCMs plugin
  • Copy Artifact

• variables & build parameters
  • usage – variables in scripts, flow control

• credentials
  • if used as variable in script, also hidden if ‘echo’ed, e.g.
Jenkins 2.0 & Blue ocean

- pipeline-oriented, GUI
• commercial version
  • PaaS
  • additional plugins
  • security
  • support