

DevOps / CI with JavaScript

Delivering somewhat continuously

Your friendly presenter (again)

Jeffrey Labonski
jlabonski@chariotsolutions.com
Consultant, Chariot Solutions

Your friendly presenter (again)

Jeffrey Labonski

jlabski@chariotsolutions.com

Consultant, Chariot Solutions

Hardcore devops believer

Devops is chronically misunderstood

So diluted it's almost homeopathic by now



What it is

(My Understanding of Truth, by Jeff Labonski, Grade 9)

What it is

(My Understanding of Truth, by Jeff Labonski, Grade 9)

- About People

What it is

(My Understanding of Truth, by Jeff Labonski, Grade 9)

- About People
- About Processes

What it is

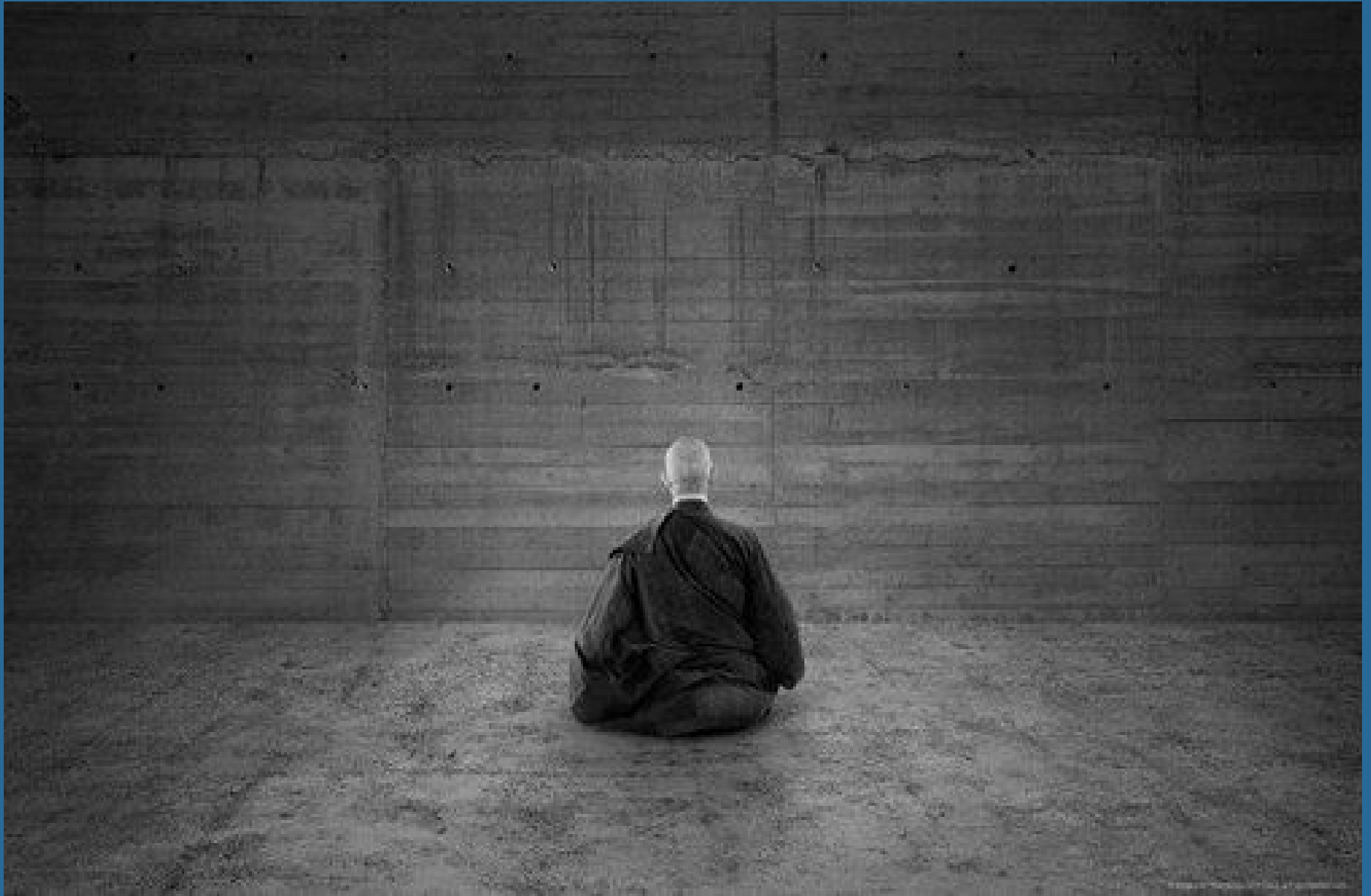
(My Understanding of Truth, by Jeff Labonski, Grade 9)

- About People
- About Processes
- A Philosophy

The Blameless Postmortem

What it is not

- A nice title for SAs like "Site Reliability Engineer"
- Magic hidden inside TOGAF or other large cert organizations
- Purchasable
- Easy
- Implementable



**Of course, software is what enables it to
occur**

The journey takes a while

BUY SEVERAL DEVOPS TODAY! *

* This statement has not been evaluated by the Software and Servers Administration. This product is not intended to diagnose, treat, cure, or prevent any project failures.

Let's actually do things!

Can't trust developers

Can't trust developers

They are all lazy and write bad code

Can't trust developers

They are all lazy and write bad code

Let's work to prevent that

Leverage toolchains

- Tighten compilation
 - tsconfig.json
 - react proptypes
 - babel / minify

Leverage toolchains more

- Lint, lint, lint
 - tslint
 - eslint

Leverage toolchains more

- Lint, lint, lint
 - tslint
 - eslint
 - package-json-verifier

Leverage toolchains more

- Lint, lint, lint
 - tslint
 - eslint
 - package-json-verifier
 - npm audit

Leverage toolchains more

- Lint, lint, lint
 - tslint
 - eslint
 - package-json-verifier
 - npm audit
 - snyk

Leverage toolchains more

- Lint, lint, lint
 - tslint
 - eslint
 - package-json-verifier
 - npm audit
 - snyk
 - markdownlint

Leverage toolchains more

- Lint, lint, lint
 - tslint
 - eslint
 - package-json-verifier
 - npm audit
 - snyk
 - markdownlint
 - tsqLint

Don't never not stop adding quality checks

They are better than you at this

```
scripts: {
  "snyk:test": "snyk test",
  "snyk:protect": "snyk protect",
  "lint": "standardx --verbose",
  "lint:fix": "standardx --verbose --fix",
  "lint:sql": "tsqllint sql/*.sql",
  "validate-package": "pjbv -w -r",
  "check-node": "check-node-version --package",
  "test": "cross-env NODE_ENV=unit nyc --reporter=lcov mocha",
  "coverage:report": "nyc report",
  "coverage:test": "nyc check-coverage",
  ...
}
```

```
scripts: {  
  "preflight": "npm run snyk:test && npm run lint && npm run
```

**Prevent engineering from doing bad things to
the repository**

Prevent engineering from doing bad things to the repository





Quality Gates

Bitbucket Pipelines


```
image:
  name: node:stable

pipelines:
  default:
    - step:
      name: "Lint, build, test"
      caches:
        - node
      script:
        - 'npm install'
        - 'npm run validate-package'
        - 'npm run lint'
        - 'npm run lint:sql'
        - 'npm test'
```

Add a branch permission to specify write and merge access to a specific branch. [Learn more](#)

Branch	Access type	Users and groups	Custom settings	
 develop	Write access	None	Deleting this branch is not allowed Rewriting branch history is not allowed	 
	Merge via pull request	 Developers	Check for at least 2 approvals Check for unresolved pull request tasks Check the last commit for 1 successful build and no failed builds	

Pipelines

What's new

Schedules

Caches

Usage



All branches

OTHER BRANCHES

develop **MAIN BRANCH**

status_code_fix

webSocket_route

webSocket

nes

master

Pipeline	Status	Started	Duration
#26 Fix linting, move chat server to /api/chat Jeffrey Labonski 469f3c3 develop	Successful	10 days ago	2 min 39 sec
#25 Merge remote-tracking branch 'origin/develop' into develop Matt Gilbride a0d2750 develop	Failed	11 days ago	1 min 11 sec
#24 conditionally broadcasts disconnect message James Kent 278d824 develop	Failed	12 days ago	1 min 8 sec
#23 broadcasting disconnect message James Kent 2ff8288 develop	Failed	12 days ago	1 min 9 sec
#22 lint Matt Gilbride fc3251d develop	Successful	12 days ago	2 min 1 sec



#25

Rerun

✦ a0d2750 Merge remote-tracking branch
'origin/develop' into develop

🔗 develop

🕒 1 min 11 sec 📅 11 days ago



Pipeline



Develop: lint, build, test,...

1m 11s

Build Artifacts docker +



Build setup

34s >

npm install

5s >

npm run validate-package

<1s >

npm run lint

2s ▾

```
+ npm run lint
```

```
> spaday-server@0.1.0 lint /opt/atlassian/pipelines/agent/build  
> standardx --verbose
```

```
standardx: Use JavaScript Standard Style (tweaked by standardx) (https://github.com/standard/standardx)  
standardx: Run `standardx --fix` to automatically fix some problems.
```

```
  /opt/atlassian/pipelines/agent/build/src/websockets/ws.js:35:25: Missing space before =>. (arrow-spa
```

```
npm ERR! code ELIFECYCLE
```

```
npm ERR! errno 1
```

```
npm ERR! spaday-server@0.1.0 lint: `standardx --verbose`
```

```
npm ERR! Exit status 1
```

```
npm ERR!
```

```
npm ERR! Failed at the spaday-server@0.1.0 lint script.
```

```
npm ERR! This is probably not a problem with npm. There is likely additional logging output above.
```

```
npm ERR! A complete log of this run can be found in:
```

```
npm ERR!   /root/.npm/_logs/2018-11-15T13_56_25_248Z-debug.log
```

Build teardown

<1s >

[Bitbucket] Pipeline for develop failed on dc4ee1a (chariotspaday/server)

Inbox x Failure x



Bitbucket <notifications-noreply@bitbucket.org>
to me

Tue, Nov 13, 1:44 PM (13 days ago)



chariotspaday / server

Failed 1 min 33 sec

develop



Jeffrey Labonski committed `dc4ee1a`
NES work in progress

[View this pipeline](#)

[Configure email notifications](#)



Reply

Forward

Can't trust ops

Can't trust ops

They are all lazy and can't deploy software

Build artifacts from code, automatically


```
npm run build:prod && tar -cvzf angular-dist.tar.gz dist
scp angular-dist.tar.gz qaserver:/angular

ssh qaserver
cd /angular
rm -rf dist && tar -xvzf angular-dist.tar.gz
```

```
pipelines:
  default:
    - step:
      name: "Lint, build, test"
      caches:
        - node
      artifacts:
        - '*.tar.gz'
      script:
        - 'npm install'
        - 'npm run lint'
        - 'npm test'
        - 'npm run build:prod'
        - 'tar -cvzf angular-dist.tar.gz --totals dist'
```

Actions across branches

```
branches:
  develop:
    - step:
        name: "Develop: lint, build, test, publish snapshot
        caches:
          - node
        artifacts:
          - '*.tar.gz'
        script:
          - 'npm install'
          - 'npm run validate-package'
          - 'npm run lint'
          - 'npm test'
          - 'npm pack'
          - 'npm publish'
```

SSH key



SSH keys for Pipelines

Generate SSH keys or add your own keys into Pipelines. If you already have a key in your Docker container you don't need to do anything here – we'll just use that.

Generate keys

Use my own keys

Known hosts

Add a host address below, then click **Fetch** to see the host's fingerprint. Read about [known hosts for Pipelines](#).

Host address

Click 'Fetch' to see the host's fingerprint

Fetch

Host address

Fingerprint

You haven't added a host yet

```
artifacts:
  - '*.tar.gz'
script:
  - 'npm install'
  - 'npm build:prod'
  - 'tar -cvzf angular-dist.tar.gz --totals dist'
  - 'scp *.tar.gz "${REMOTE_SSH}"'
  - 'ssh angular@gaserver /usr/local/bin/update_package.sh'
```



Builds - test-spring

[Distribute](#)

[Back to all builds](#)

Build ID

638

628

616

614

604

601

585

584

578

576

573

571

570

559

557

554

Agent

Gradle/4.9

Build Agent

Gradle/4.9

Started

26 November, 2018 17:...

Duration

1.2 minutes

Principal

root

Artifactory Principal

test-bitbucket

[Published Modules](#)

[Environment](#)

[Issues](#)

[Licenses](#)

[Diff](#)

[Release History](#)



[Back To All Modules](#)

Module Details: com.test:test-spring:develop-SNAPSHOT

Compare With Previous Build

4 Artifacts

Filter by Artifact Name

out of 1 < >

Artifact Name

Type

Repo Path

test-spring-develop-SNAPSHOT-javadoc.jar

javadoc-jar

test-gradle-local/com/test/test-spring/develop-SNAPSHOT/test-spring-develop-...

test-spring-develop-SNAPSHOT-sources.jar

sources-jar

test-gradle-local/com/test/test-spring/develop-SNAPSHOT/test-spring-develop-...

test-spring-develop-SNAPSHOT.jar

jar

test-gradle-local/com/test/test-spring/develop-SNAPSHOT/test-spring-develop-...

Down the rabbit hole: Docker

Benefits

Benefits

- Single, atomic deployment unit.

Benefits

- Single, atomic deployment unit.
- No dependencies

Benefits

- Single, atomic deployment unit.
- No dependencies
- Blazingly fast

Benefits

- Single, atomic deployment unit.
- No dependencies
- Blazingly fast
- Run prod from home

Benefits

- Single, atomic deployment unit.
- No dependencies
- Blazingly fast
- Run prod from home
- It's very cool

```
FROM node:10

RUN mkdir /node
RUN chown node:node /node
USER node
COPY --chown=node:node . /node
WORKDIR /node

# Optional- careful!
RUN npm rebuild --update-binary

ENTRYPOINT [ "node", "--use_strict" ]
```

```
FROM nginx:stable

COPY docker/nginx.conf /etc/nginx/nginx.conf
RUN mkdir /static
WORKDIR /static

COPY dist /static

CMD [ '/usr/sbin/nginx' ]
```



```
image:
  name: node:10

options:
  docker: true

pipelines:
  default:
    - step:
      - 'npm run build:prod'
      - 'docker login -u "${DOCKER_HUB_USER}" -p "${DOCKER_HUB_PASSWORD}'
      - 'docker build --pull -t chariotspa/server:develop .'
      - 'docker push chariotspa/server:develop'
```



#26

Rerun

469f3c3 Fix linting, move chat server to /api/chat

develop

2 min 39 sec 10 days ago



Pipeline



Develop: lint, build, test,...

2m 39s



Build setup	46s	>
npm install	6s	>
npm run validate-package	<1s	>
npm run lint	4s	>
npm audit	1s	>
npm test	2s	>
tar -cvzf ../server-src-develop.tar.gz --exclude-vcs --exclude=node_module...	<1s	>
mv ../server-src-develop.tar.gz .	<1s	>
docker login -u "\${DOCKER_HUB_USER}" -p "\${DOCKER_HUB_PASSWORD}"	<1s	>
docker build --pull -t chariotspa/server:develop .	49s	>
docker push chariotspa/server:develop	13s	>
Build teardown	2s	>

Takeaway (whew!)

- Quality gates
- Automate your builds & deployment
- Configuration as code

Takeaway (whew!)

- Quality gates
- Automate your builds & deployment
- Configuration as code
 - ECR / EBS / EC2 / ELB / RDS / ETC

Takeaway (whew!)

- Quality gates
- Automate your builds & deployment
- Configuration as code
 - ECR / EBS / EC2 / ELB / RDS / ETC
 - Cloudformation / Terraform / GDM

Takeaway (whew!)

- Quality gates
- Automate your builds & deployment
- Configuration as code
 - ECR / EBS / EC2 / ELB / RDS / ETC
 - Cloudformation / Terraform / GDM
 - Kubernetes

Takeaway (whew!)

- Quality gates
- Automate your builds & deployment
- Configuration as code
 - ECR / EBS / EC2 / ELB / RDS / ETC
 - Cloudformation / Terraform / GDM
 - Kubernetes
 - ServiceNow / vmWare vRa & vRo

Takeaway (whew!)

- Quality gates
- Automate your builds & deployment
- Configuration as code
 - ECR / EBS / EC2 / ELB / RDS / ETC
 - Cloudformation / Terraform / GDM
 - Kubernetes
 - ServiceNow / vmWare vRa & vRo
 - Wherever the cloud takes you

Never stop improving