

# WHERE THE HELM ARE YOUR BINARIES?

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#dockercon

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## ABOUT ME

THAT'S WHAT I DO:  
I DRINK AND  
I KNOW THINGS.



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# WHAT THE HELM IS HELM?

Dependency manager for Kubernetes

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# WHAT DEPENDENCY MANAGERS AND PRINTERS HAVE IN COMMON?

Why I Believe

Printers



Were Sent From

Hell

To Make Us Miserable

By The Oatmeal

<http://theoatmeal.com>



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# So you want to write a package manager

You woke up this morning, rolled out of bed, and thought, “Y’know what? I don’t have enough misery and suffering in my life. I know what to do—I’ll write a language package manager!”

...

## Package management is awful, you should quit right now

Package management is a nasty domain. Really nasty. On the surface, it *seems* like a purely technical problem, amenable to purely technical solutions. And so, quite reasonably, people approach it that way. Over time, these folks move inexorably towards the conclusion that:

1. software is terrible
2. people are terrible
3. there are too many different scenarios
4. nothing will really work for sure
5. it’s provable that nothing will really work for sure
6. our lives are meaningless perturbations in a swirling vortex of chaos and entropy



sam boyer

@sdboyer

systems | people

📍 Detroit metro

📅 Joined December 2008

# HELM SUMMIT

SAVE YOUR SEAT

Join us for the inaugural Helm Summit in Portland, Oregon on February 21-22! Helm Summit provides an opportunity for new and existing users and contributors to Helm and Charts to share stories and best practices.

Day 1: All Things Helm - a wide range of in depth talks from community members for users and developers Evening: Happy Hour + Speed Networking event (details to follow)



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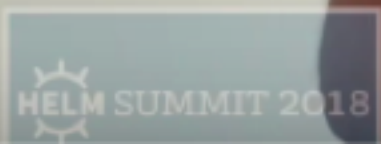


# Charts More People

ha – Senior Senior Developer

8

WHERE THE  
HELL  
ARE YOUR BINARIES?



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# HOW TO DEPLOY ANYTHING TO K8S

- Copy YAML
- Paste YAML
- Fix indents
- Repeat

# KUBERNETES RESOURCE

```
{  
  "kind": "Deployment",  
  "apiVersion": "extensions/v1beta1",  
  "metadata": {  
    "name": "my-release-docker-app-chart"  
  },  
  "spec": {  
    "containers": [  
      {  
        "name": "docker-app-chart",  
        "image": "docker.artifactory/docker-app:1.0",
```

# LET'S BUILD A NEW ONE!

```
> docker build -t docker.artifactory/docker-app:1.1
```

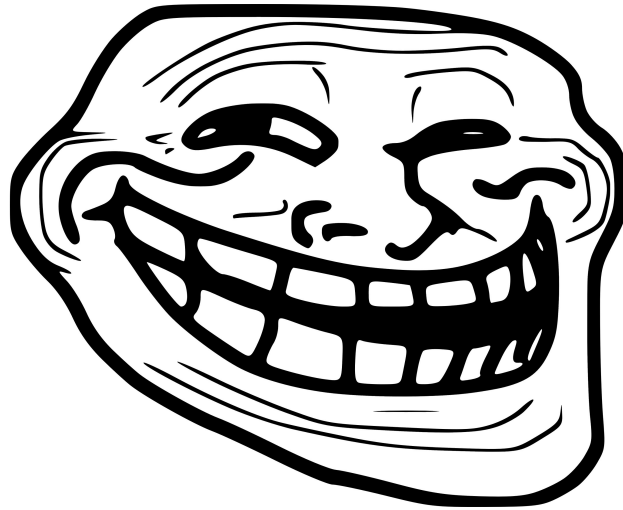
# ONE LAST THING...

```
> sed -i.bak  
`s#docker.artifactory/docker-app:1.1#{imageTag}#`  
deployment.yaml
```



## OR JUST USE :LATEST

```
"image": "docker.artifactory/docker-app:latest"
```



# ENTER HELM

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# ENCAPSULATED PACKAGES OF KUBERNETES DEPLOYMENTS

All this...

xrayxray-analysis

xray-event

xray-indexer

xray-nfs-server

xray-persist

Becomes this

xray

# POWERFUL TEMPLATING FOR DESCRIPTOR FILES

```
{
  "kind": "Deployment",
  "apiVersion": "extensions/v1beta1",
  "metadata": {
    "name": "{{ template \"docker-app.fullname\" . }}"
  },
  "spec": {
    "containers": [
      {
        "name": "{{ template \"docker-app.name\" . }}",
        "image": "{{ .Values.image.repository }}:{{ .Values.image.tag }}"
      }
    ]
  }
}
```

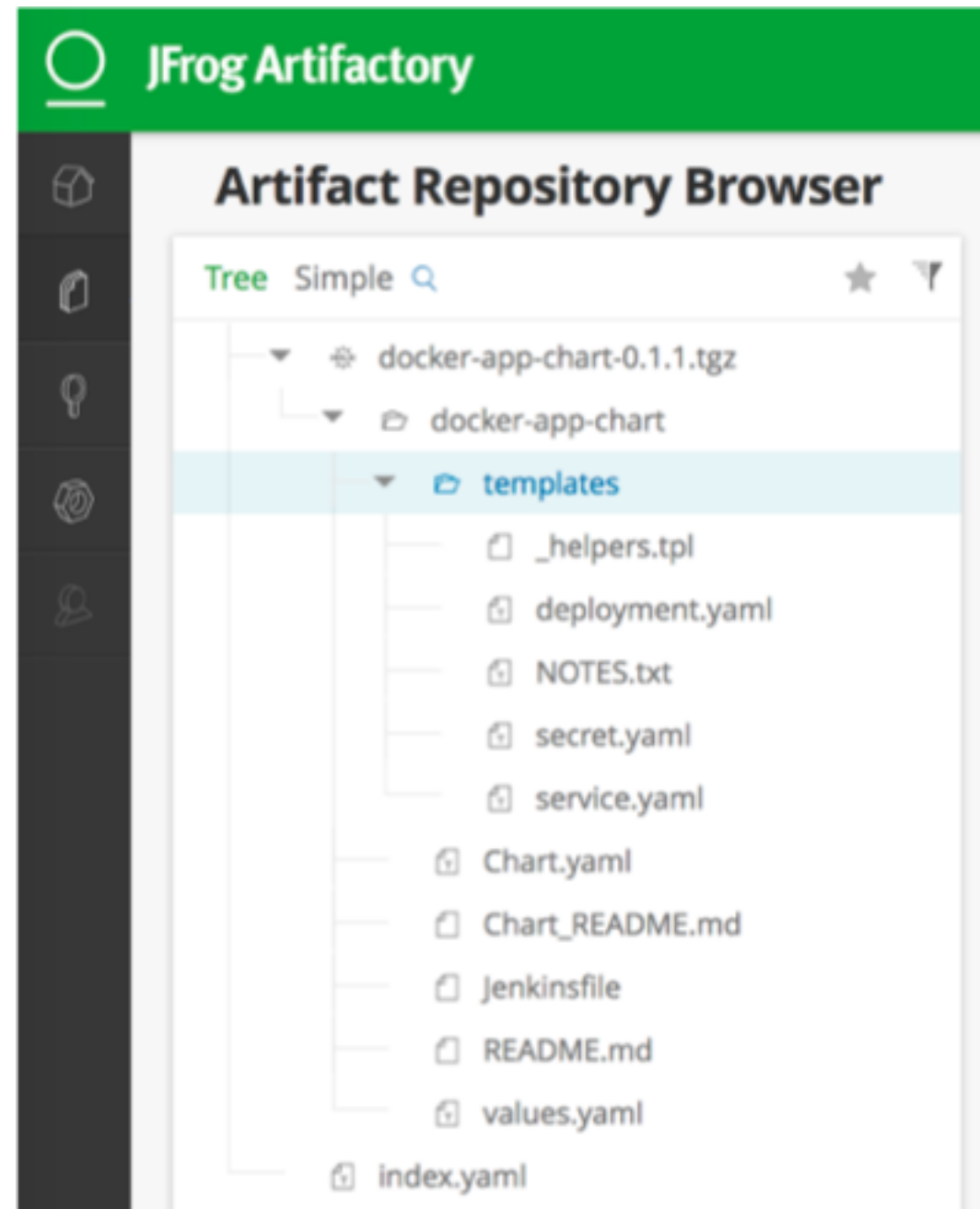
# VALUES:

```
# Default values for docker-app.  
# This is a YAML-formatted file.  
# Declare name/value pairs to be passed into your templates.
```

```
image:  
  repository: docker.artifactory/docker-app  
  tag: 1.1  
  secretName: regsecret  
  pullPolicy: Always
```

# SIMPLE!

- Templates
- Values
- Metadata



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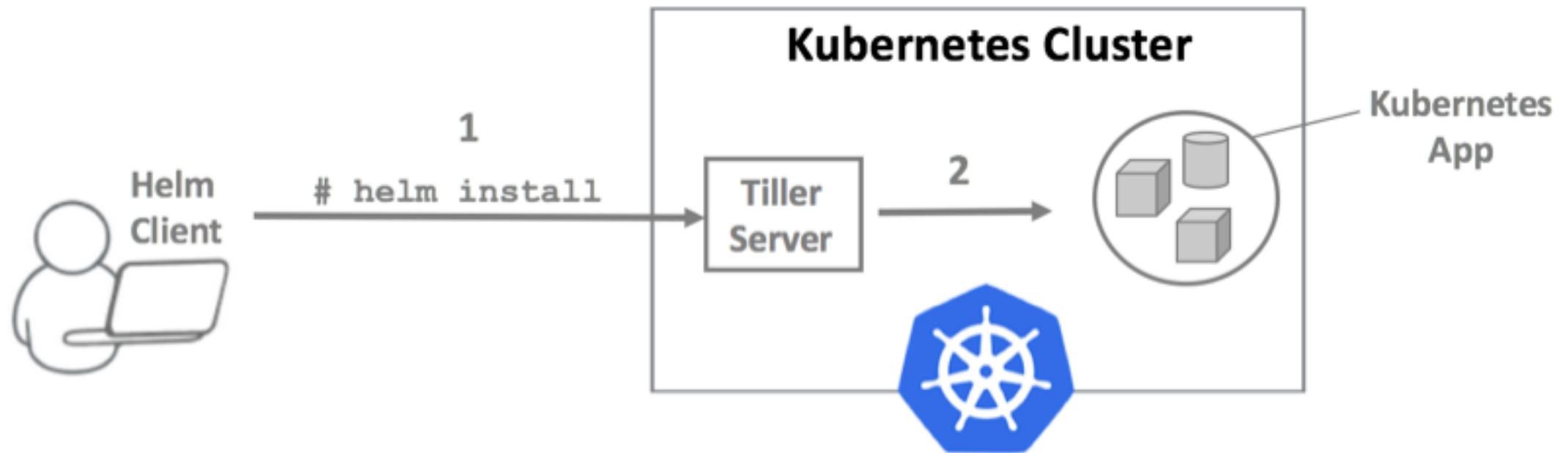
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# CHART <=> IMAGE RELATIONSHIP

- Using templates we can reuse charts for multiple image versions
- But not really...
  - Templates will be populated from values within the chart
  - Otherwise, they has to be provided on each run
  - You don't want to require versions of images from the client!

# KUBERNETES CLUSTER CONTROL



# TWO PARTS

## Helm client

- Local chart development
- Managing repositories
- Interacting with the Tiller server

## Tiller Server

- Listening for incoming requests from the Helm client
- Combining a chart and configuration to build a release
- Installing charts into Kubernetes, and then tracking the subsequent release
- Upgrading and uninstalling charts by interacting with Kubernetes

# HELM COMMANDS

```
>helm init  
>helm search  
>helm install  
>helm status  
>helm repo
```



# HELM REPOSITORIES

- Official repository - [kubernetes.io/helm/](https://kubernetes.io/helm/)

Discover & launch great  
Kubernetes-ready apps

Search charts...

159 charts ready to deploy



acs-engine-autoscaler

2.1.1 stable ☆ 0



aerospike

v3.14.1.2 stable ☆ 0

anchore

anchore-engine

0.1.6 stable ☆ 0



artifactory

5.8.3 stable ☆ 17



buildkite

3 stable ☆ 1



burrow

0.17.1 incubator ☆ 0



cassandra

incubator ☆ 3



centrifugo

1.7.3 stable ☆ 0

# HELM REPOSITORIES

- Official repository - [kubernetes.io/helm/](https://kubernetes.io/helm/)
- Get a local one!
- Option 1: Create your own:
  - Run an http server with index.yaml
  - Run `helm repo index` to generate one the index
- Option 2: Use JFrog Artifactory
  - Universal Artifact Repository which supports Docker, Helm and everything else

# USE ARTIFACTORY: TAKE YOUR METADATA SERIOUSLY

Where the hell is my binary?

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# SHOWNOTES

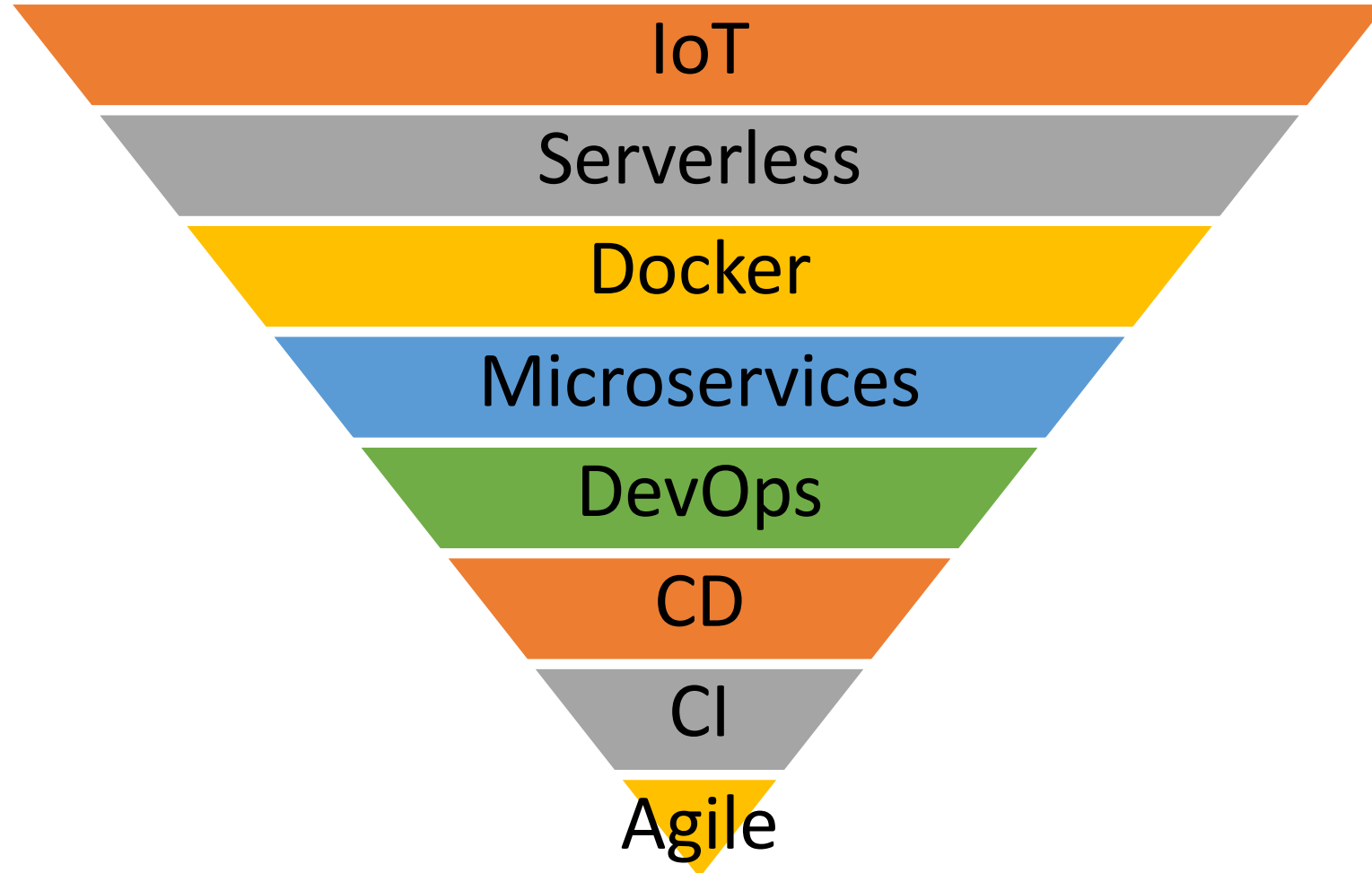
- [www.jfrog.com/shownotes](http://www.jfrog.com/shownotes)
- Slides
- Video (tomorrow!)
- All the links!
- Ratings, comments
- Raffle!

# THE AGE OF BINARIES

2018



2001

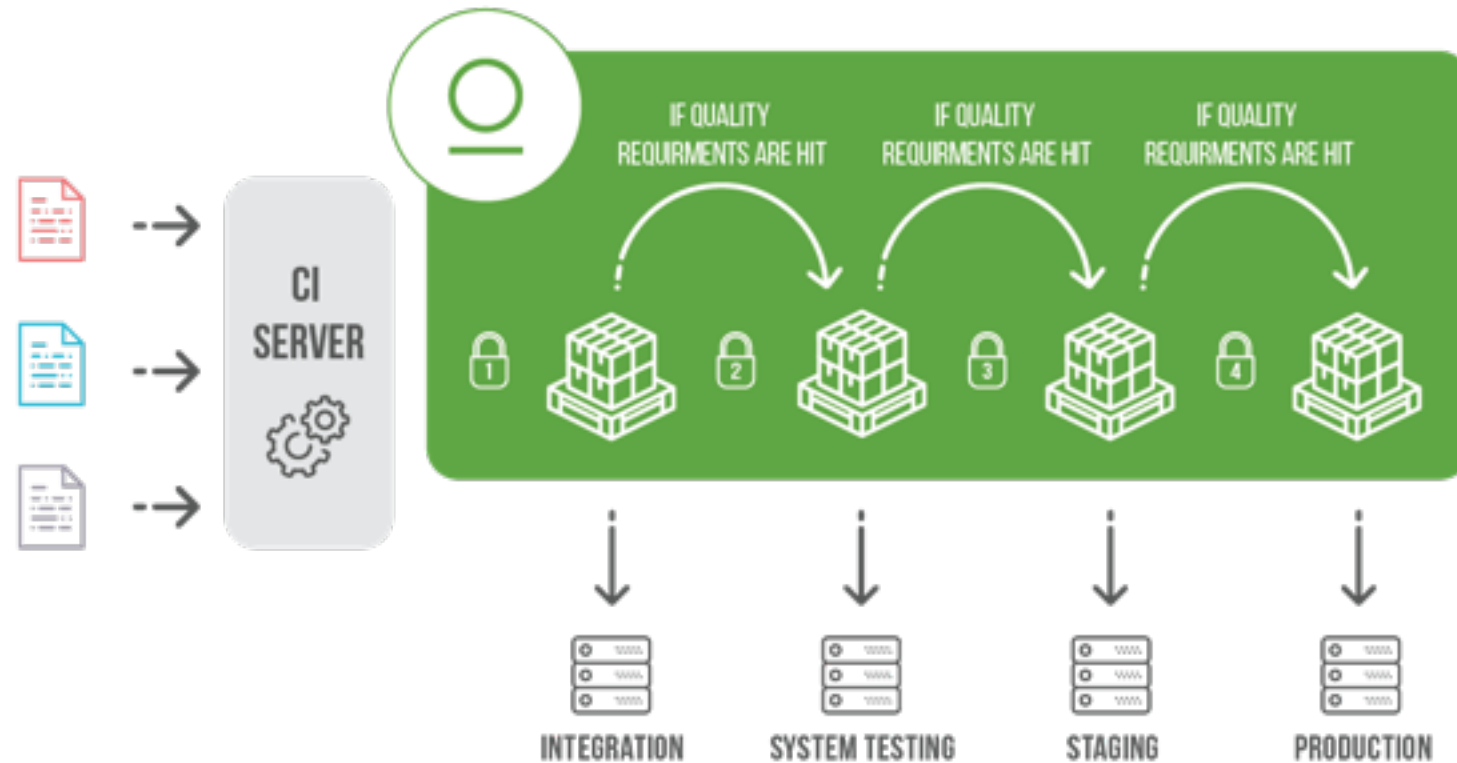


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# WHO CARES ABOUT THOSE BINARIES ANYWAY?



- QUALITY GATES -

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Dev. Team

1

Declare new dependencies

- Build Tools / Dependency Managers -



**DEPENDENCY MANAGERS**



**DEPENDENCY MANAGERS EVERYWHERE**

```
FROM ubuntu
```

```
RUN apt-get install -y software-properties-common python
```

```
RUN apt-get install -y nodejs
```

```
RUN mvn install
```

```
RUN download_random_shit_from_internetz.sh
```

```
RUN mkdir /var/www
```

```
ADD app.js /var/www/app.js
```

```
CMD ["/usr/bin/node", "/var/www/app.js"]
```

FROM ubuntu  **Dependency manager**

RUN apt-get install -y software-properties-common python

RUN apt-get install -y nodejs

RUN mvn install

RUN download\_random\_shit\_from\_internetz.sh

RUN mkdir /var/www

ADD app.js /var/www/app.js

CMD ["/usr/bin/node", "/var/www/app.js"]

FROM ubuntu  **Dependency manager**

RUN apt-get install -y software-properties-common python  **Dependency Manager**

RUN apt-get install -y nodejs 

RUN mvn install

RUN download\_random\_shit\_from\_internetz.sh

RUN mkdir /var/www

ADD app.js /var/www/app.js

CMD ["/usr/bin/node", "/var/www/app.js"]

```
FROM ubuntu ← Dependency manager

RUN apt-get install -y software-properties-common python ← Dependency Manager
RUN apt-get install -y nodejs ← Dependency Manager
RUN mvn install ← "Make me do it!" Dependency Manager
RUN download_random_shit_from_internetz.sh

RUN mkdir /var/www

ADD app.js /var/www/app.js

CMD ["/usr/bin/node", "/var/www/app.js"]
```



```
FROM ubuntu ← Dependency manager

RUN apt-get install -y software-properties-common python ← Dependency Manager
RUN apt-get install -y nodejs ← Dependency Manager
RUN mvn install ← "Make me do it!" Dependency Manager
RUN download_random_shit_from_internetz.sh ← As good as any other Dependency Manager

RUN mkdir /var/www

ADD app.js /var/www/app.js

CMD ["/usr/bin/node", "/var/www/app.js"]
```

```
FROM ubuntu ← Dependency manager

RUN apt-get install -y software-properties-common python ← Dependency Manager
RUN apt-get install -y nodejs ← Dependency Manager
RUN mvn install ← "Make me do it!" Dependency Manager
RUN download_random_shit_from_internetz.sh ← As good as any other Dependency Manager

RUN mkdir /var/www ← Probably not a Dependency Manager (but who knows)

ADD app.js /var/www/app.js

CMD ["/usr/bin/node", "/var/www/app.js"]
```



FROM ubuntu ← **Dependency manager**

RUN apt-get install -y software-properties-common python ← **Dependency Manager**

RUN apt-get install -y nodejs ← **Dependency Manager**

RUN mvn install ← **"Make me do it!" Dependency Manager**

RUN download\_random\_shit\_from\_internetz.sh ← **As good as any other Dependency Manager**

RUN mkdir /var/www ← **Probably not a Dependency Manager (but who knows)**

ADD app.js /var/www/app.js ← **It does bring a file from the outside, so...**

CMD ["/usr/bin/node", "/var/www/app.js"]

FROM ubuntu ← **Dependency manager**

RUN apt-get install -y software-properties-common python ← **Dependency Manager**

RUN apt-get install -y nodejs ← **Dependency Manager**

RUN mvn install ← **"Make me do it!" Dependency Manager**

RUN download\_random\_shit\_from\_internetz.sh ← **As good as any other Dependency Manager**

RUN mkdir /var/www ← **Probably not a Dependency Manager (but who knows)**

ADD app.js /var/www/app.js ← **It does bring a file from the outside, so...**

CMD ["/usr/bin/node", "/var/www/app.js"] ← **God knows what app.js does, but I bet it is a Dependency Manager of some kind**



Dev. Team

1

Declare new dependencies

- Build Tools / Dependency Managers -





Dev. Team

1 Declare new dependencies

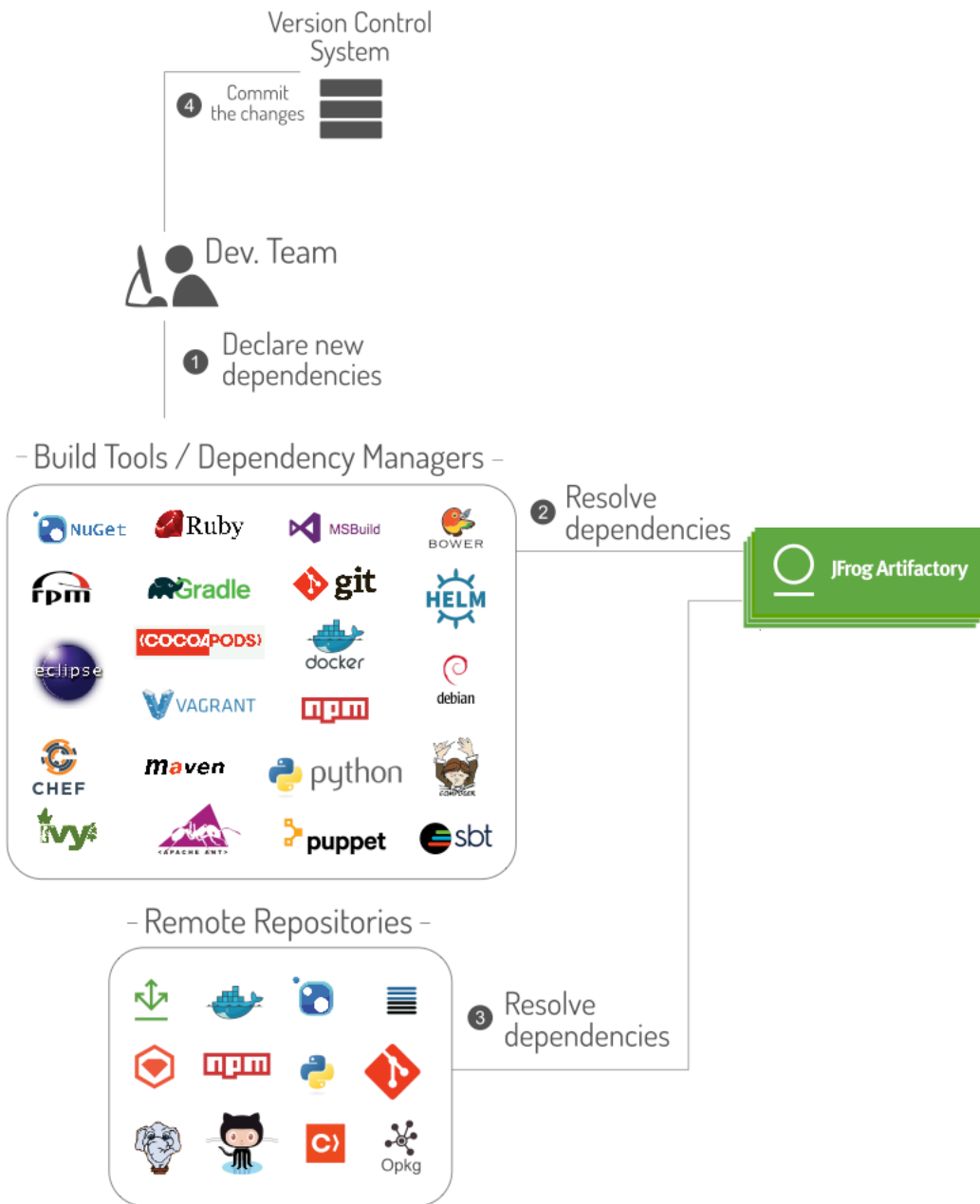
- Build Tools / Dependency Managers -

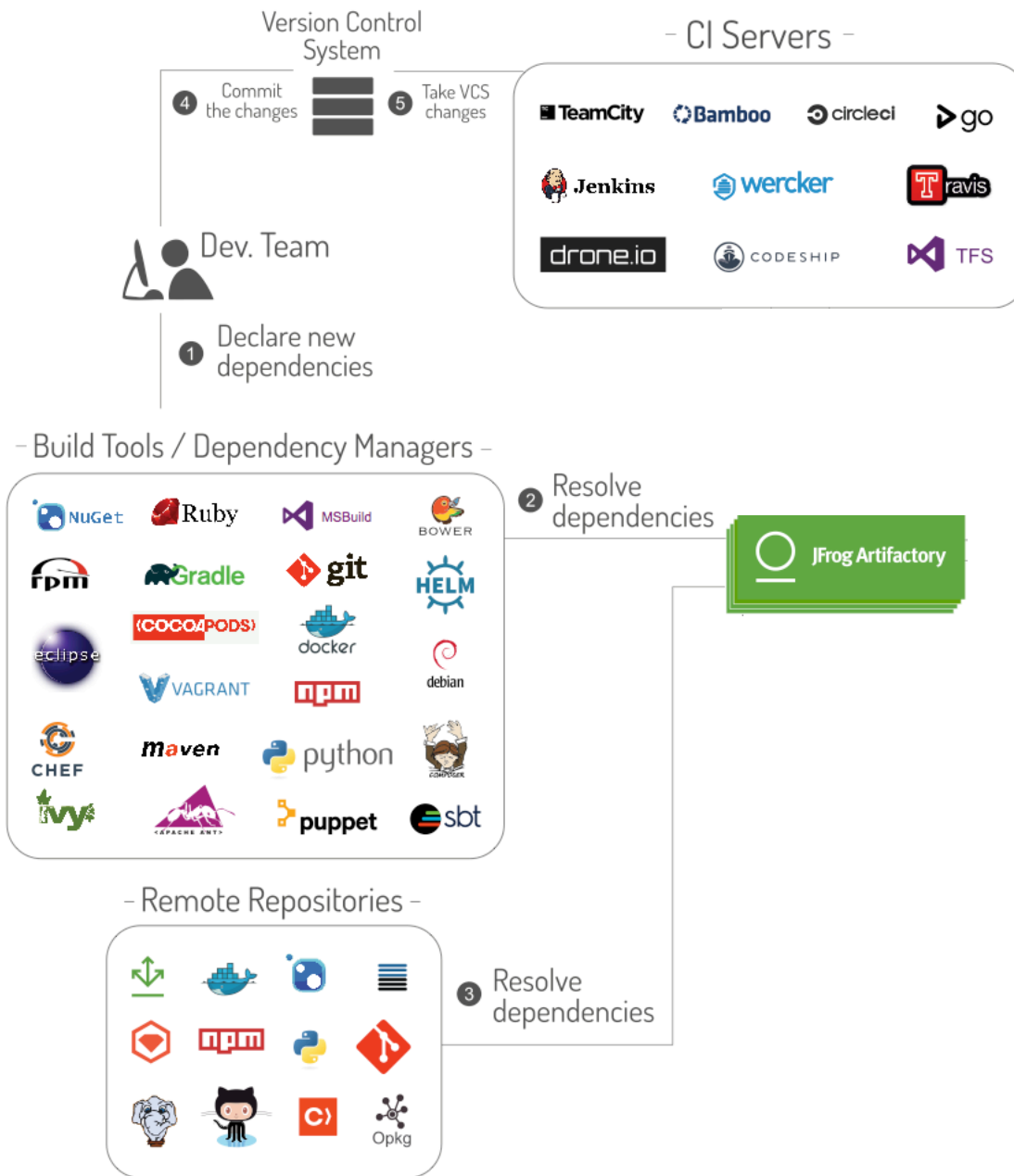


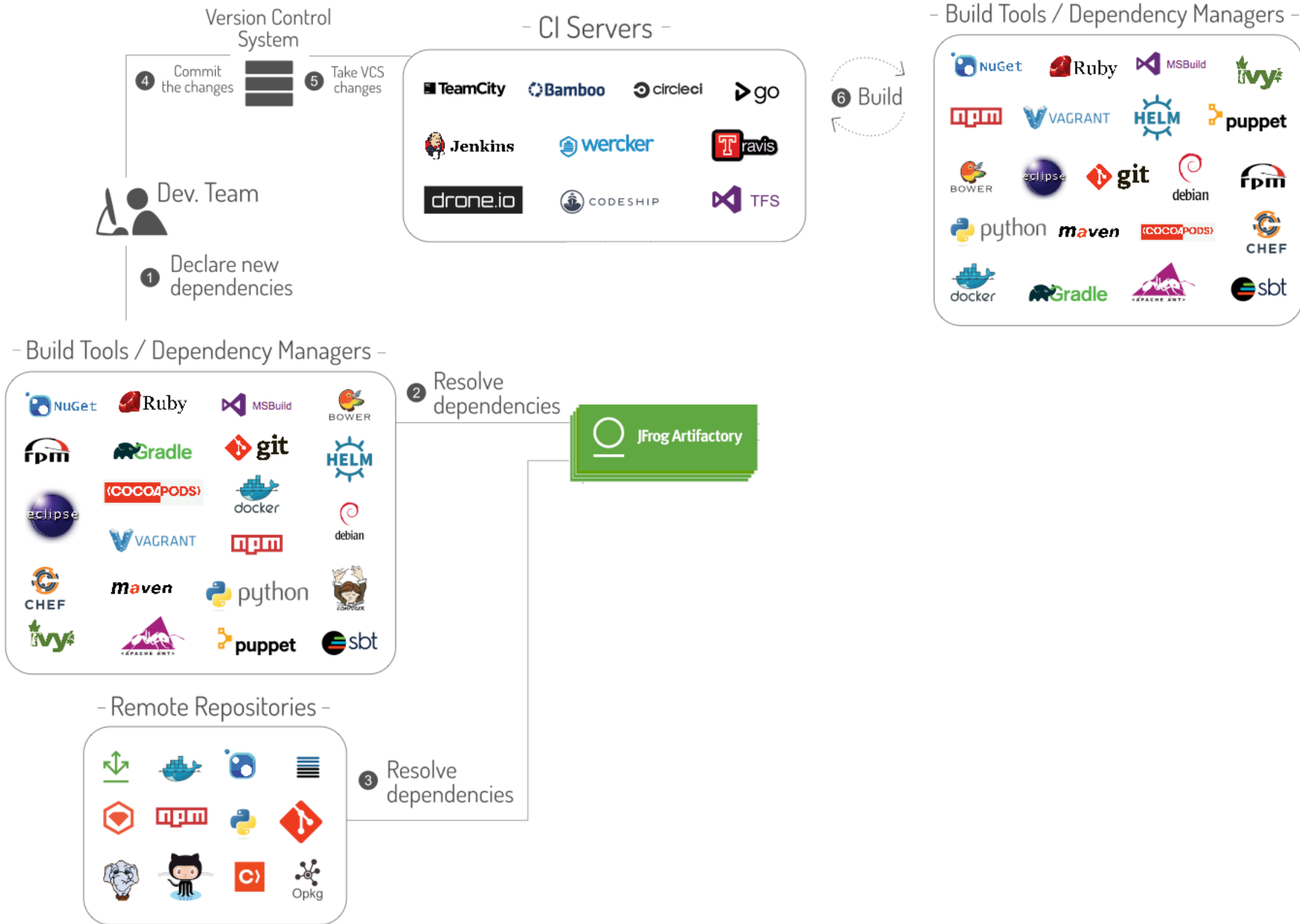
2 Resolve dependencies









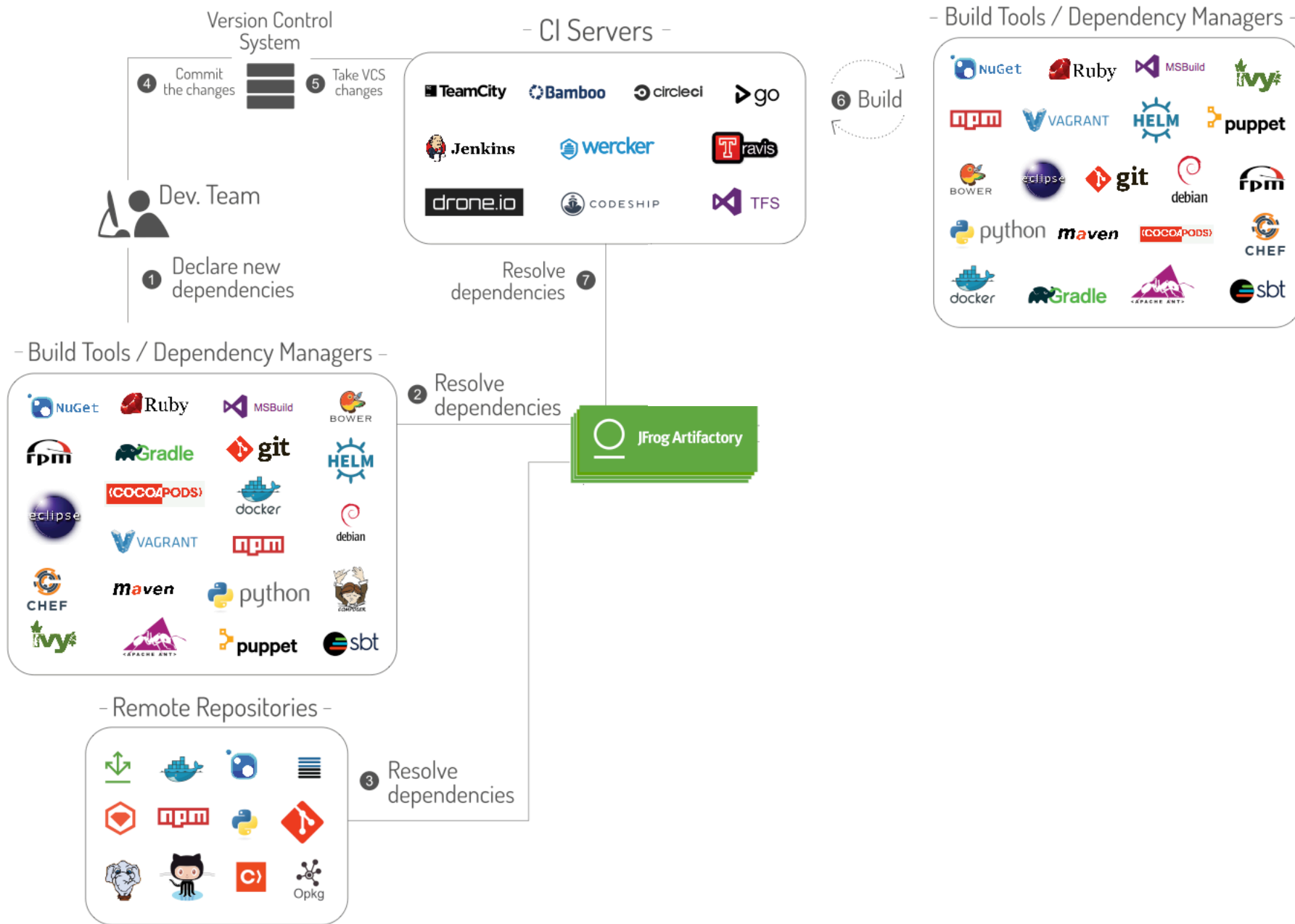


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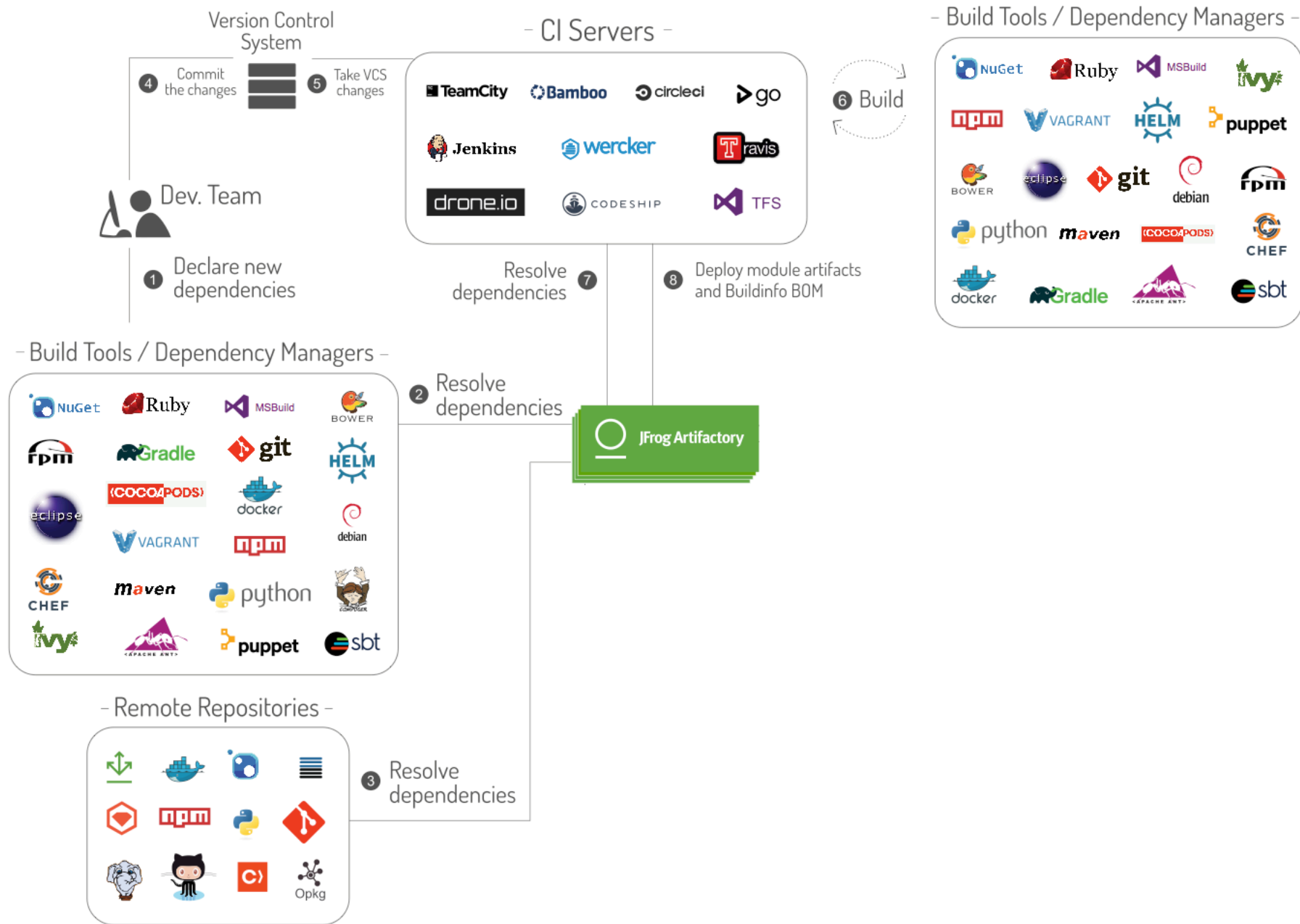




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#dockercon

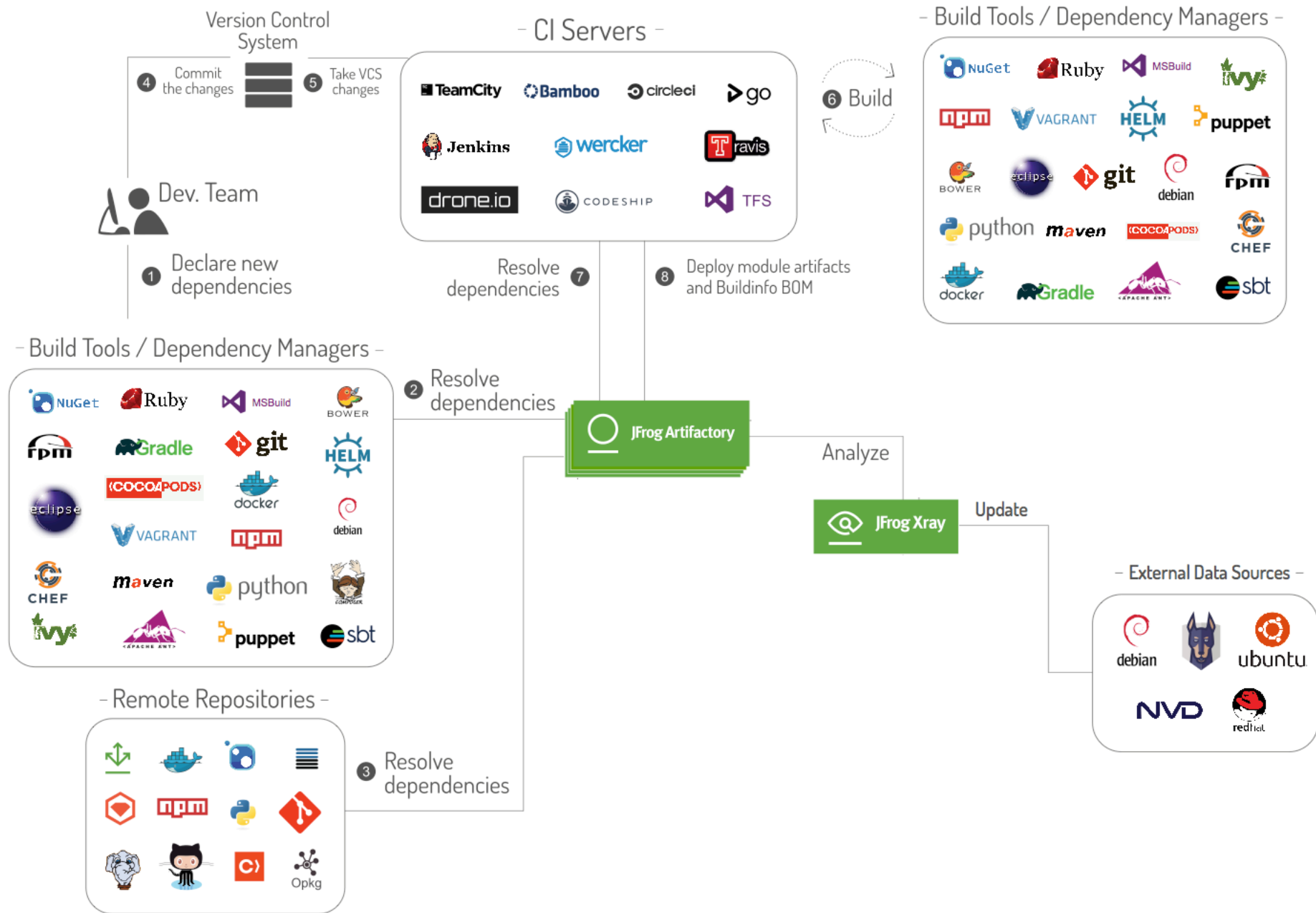
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#dockercon

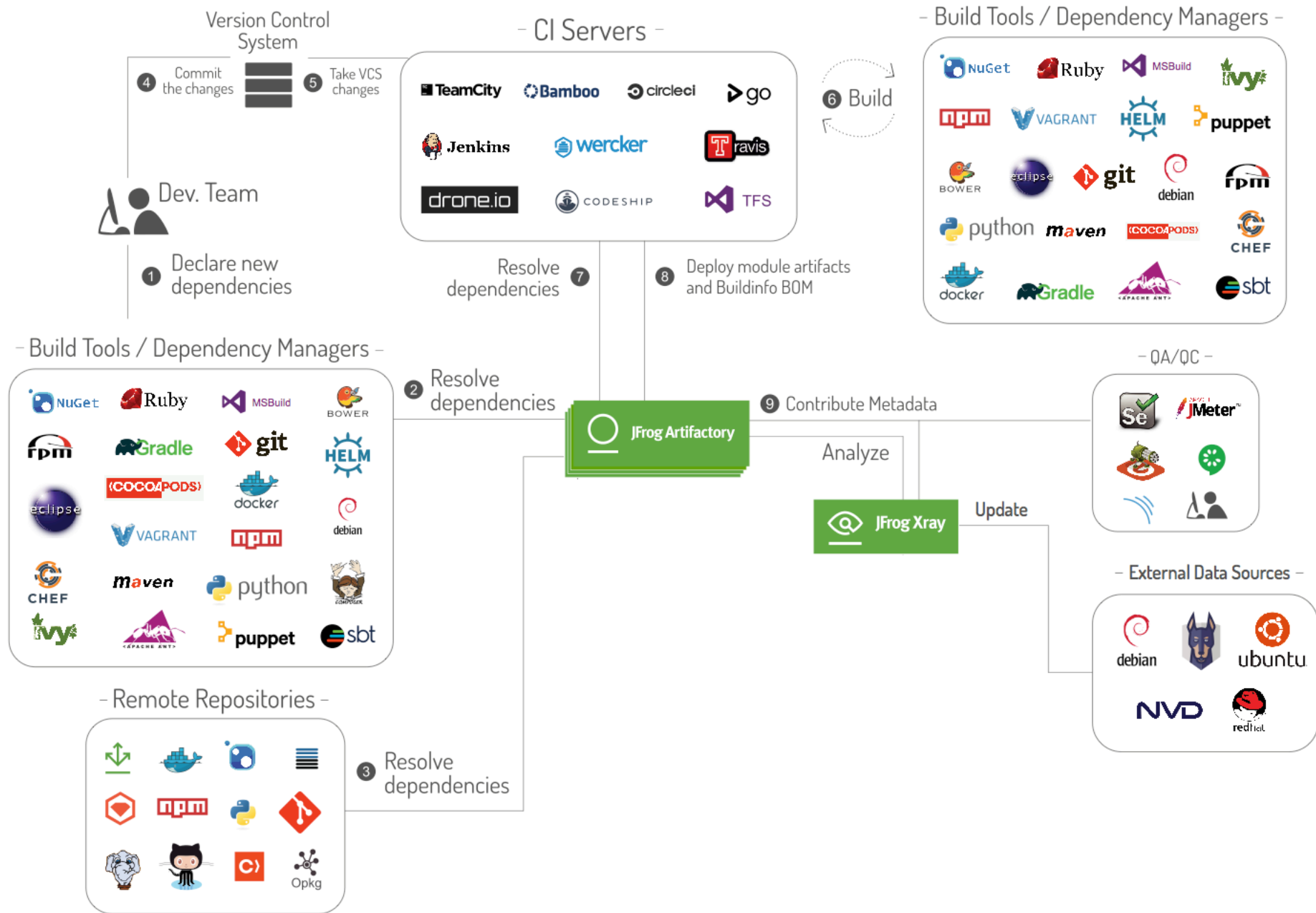
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#dockercon

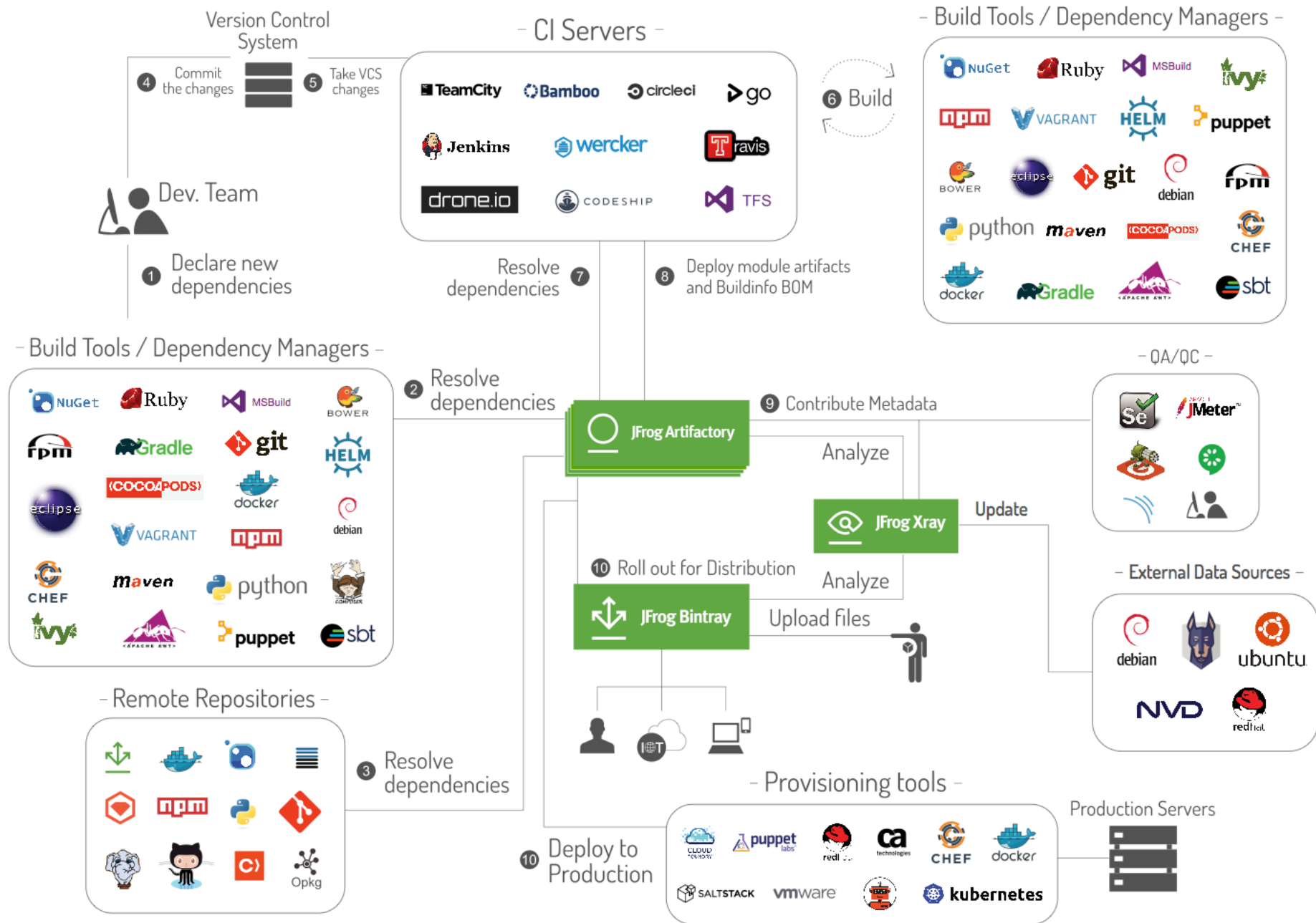
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# DEMO TIME

Talk is cheap, show me the code!

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- Raffle!