



KubeCon



CloudNativeCon

North America 2020

Virtual

DevOps Tools for Java Developers



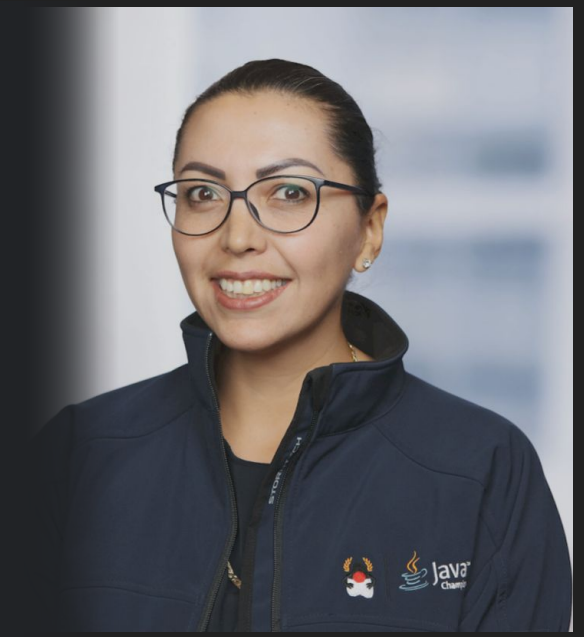
Stephen
Chin



Melissa
McKay



Baruch
Sadogursky



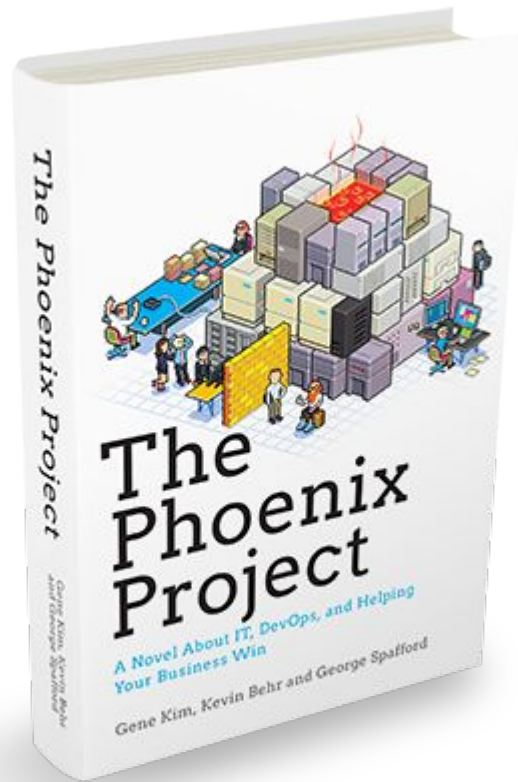
Ixchel
Ruiz

DEMO

**Why should developers
care about DevOps?**

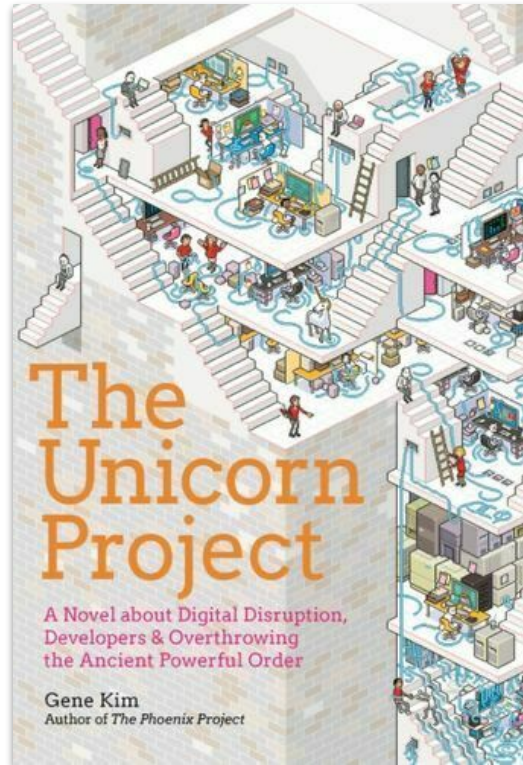


???



The Phoenix Project is a must read
for business and IT executives
struggling with the growing
complexity of IT.

— *Jim Whitehurst* —



The Five Ideals

- Locality and Simplicity
- Focus, Flow, and Joy
- Improvement of Daily Work
- Psychological Safety
- Customer Focus

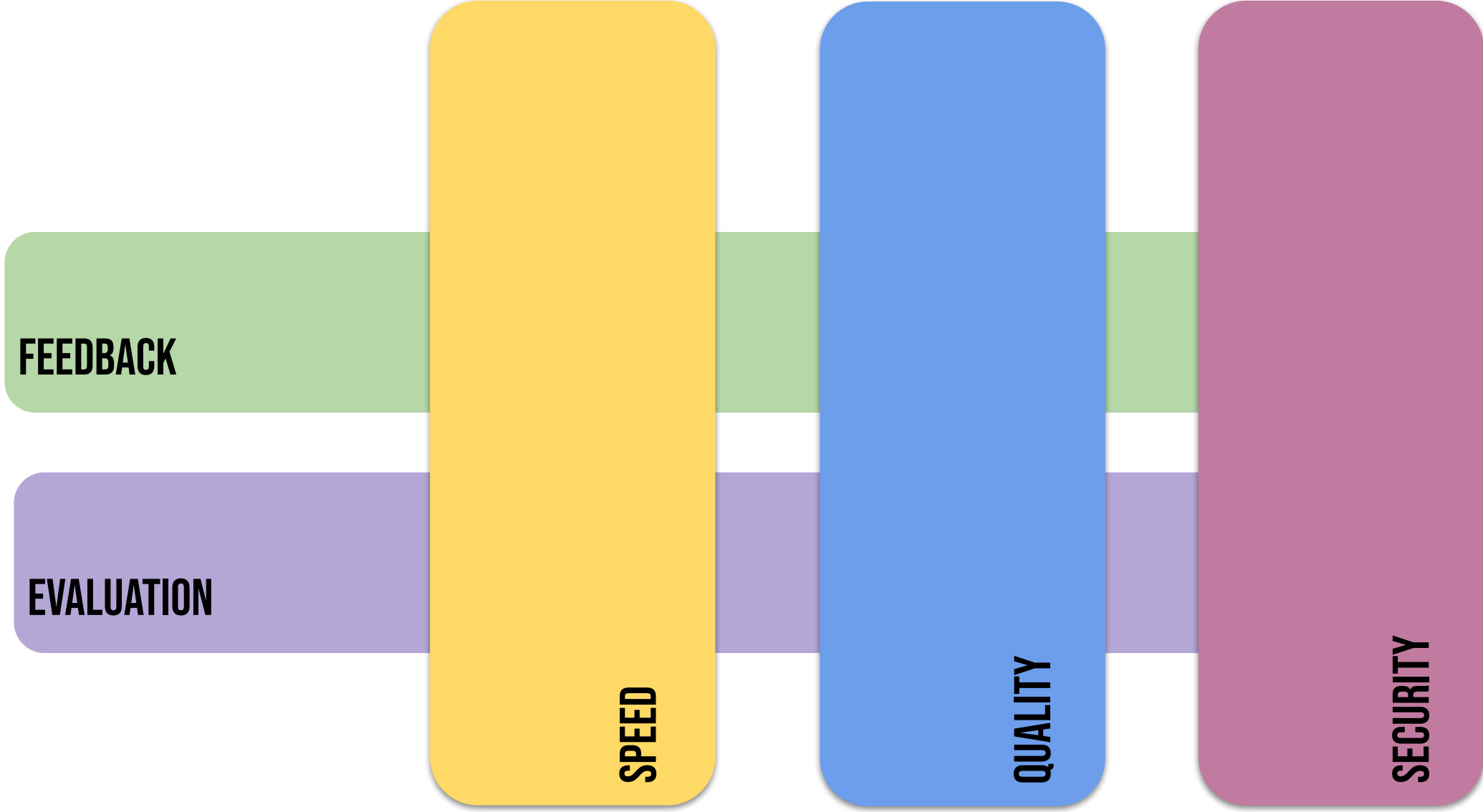
FEEDBACK

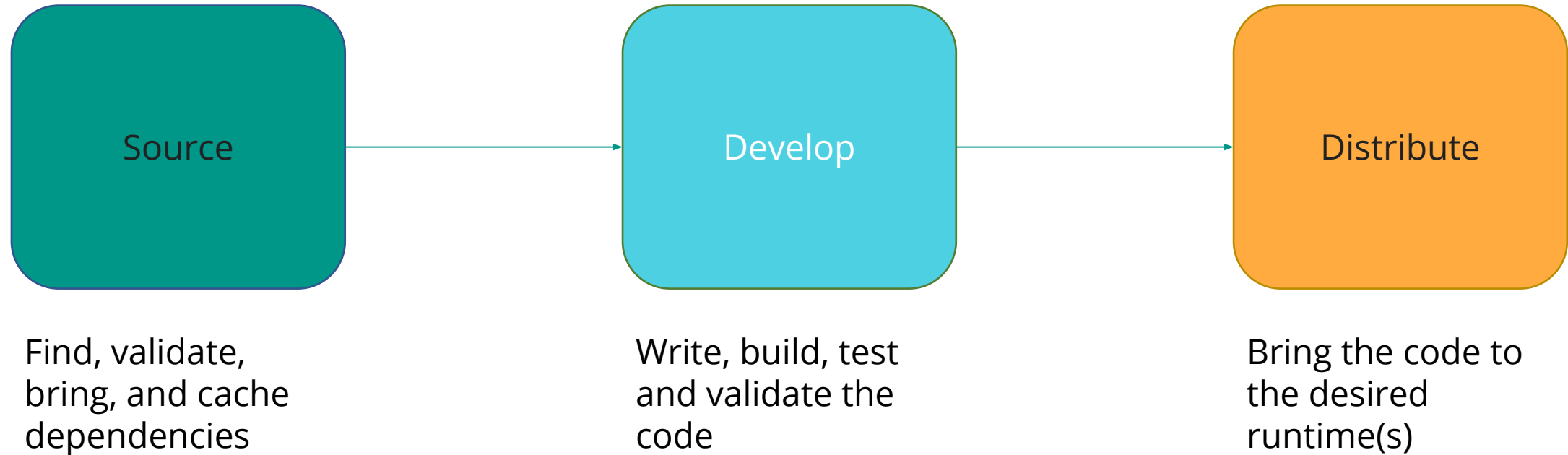
EVALUATION

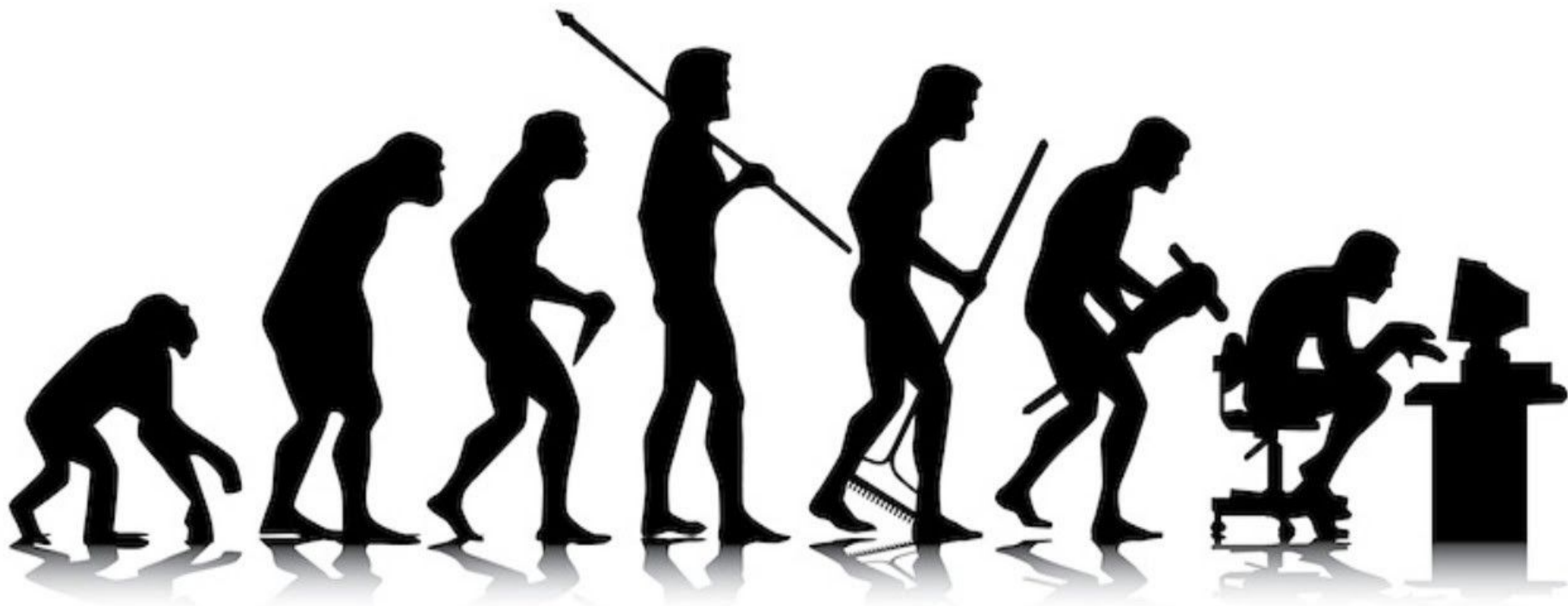
SPEED

QUALITY

SECURITY





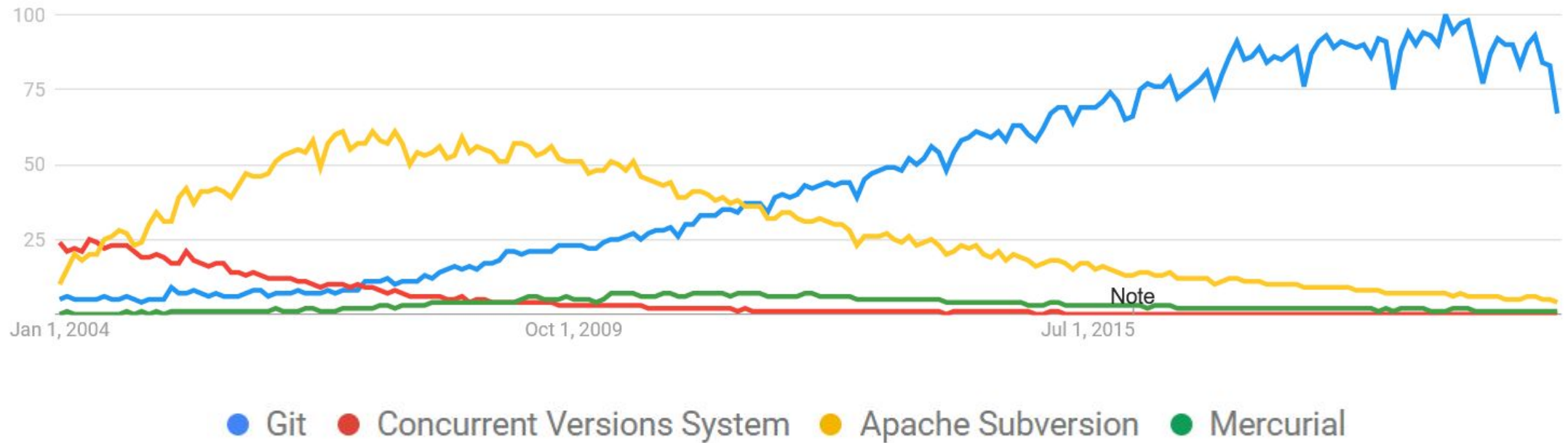


EVOLUTION OF VERSION CONTROL SYSTEMS

- 1st Generation – Locking
 - SCCS, RCS
- 2nd Generation – Optimistic Locking
 - CVS, Subversion
- 3rd Generation – Distributed
 - Git, Mercurial

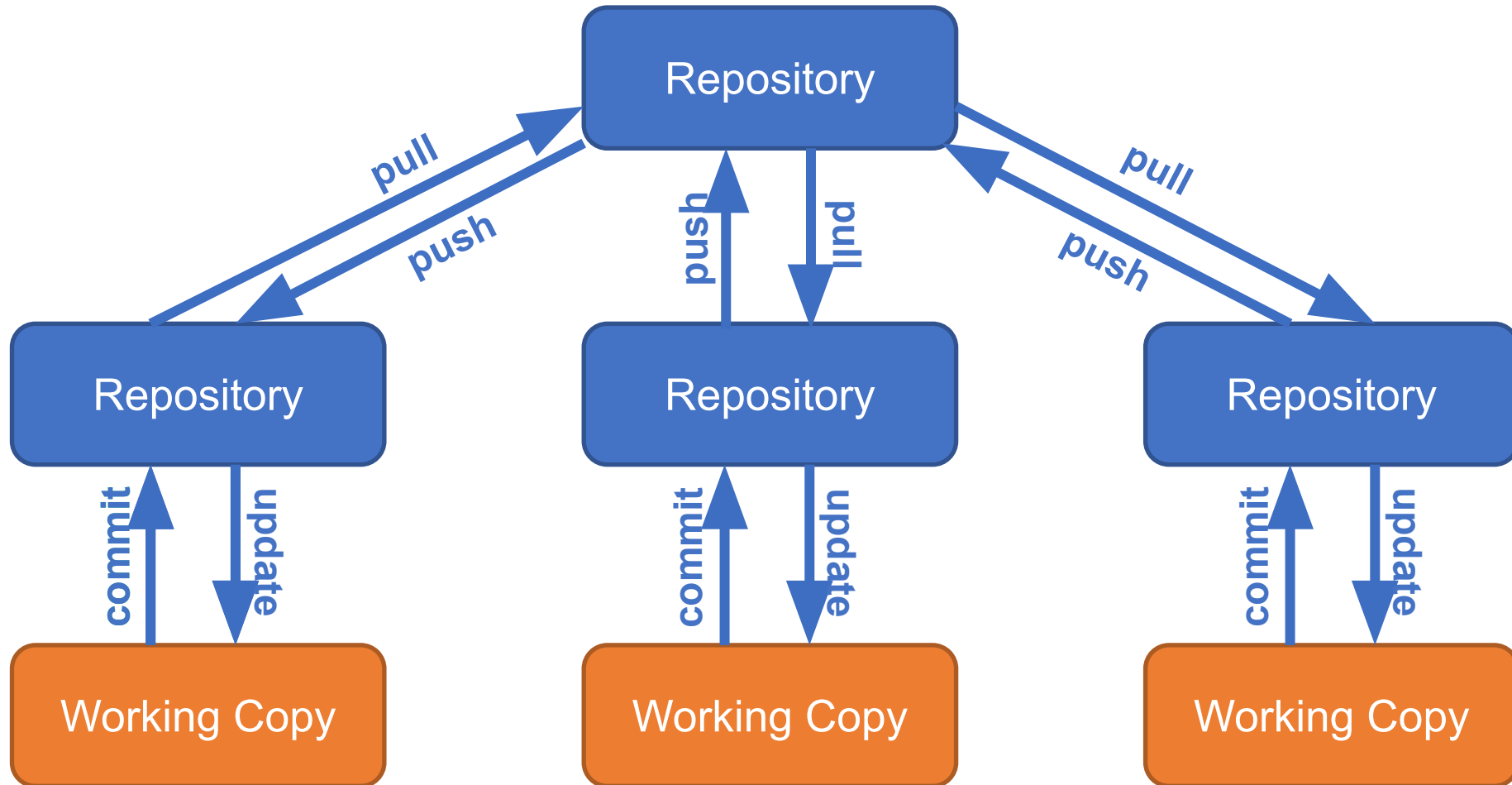


ADOPTION OF MAJOR VCS SYSTEMS

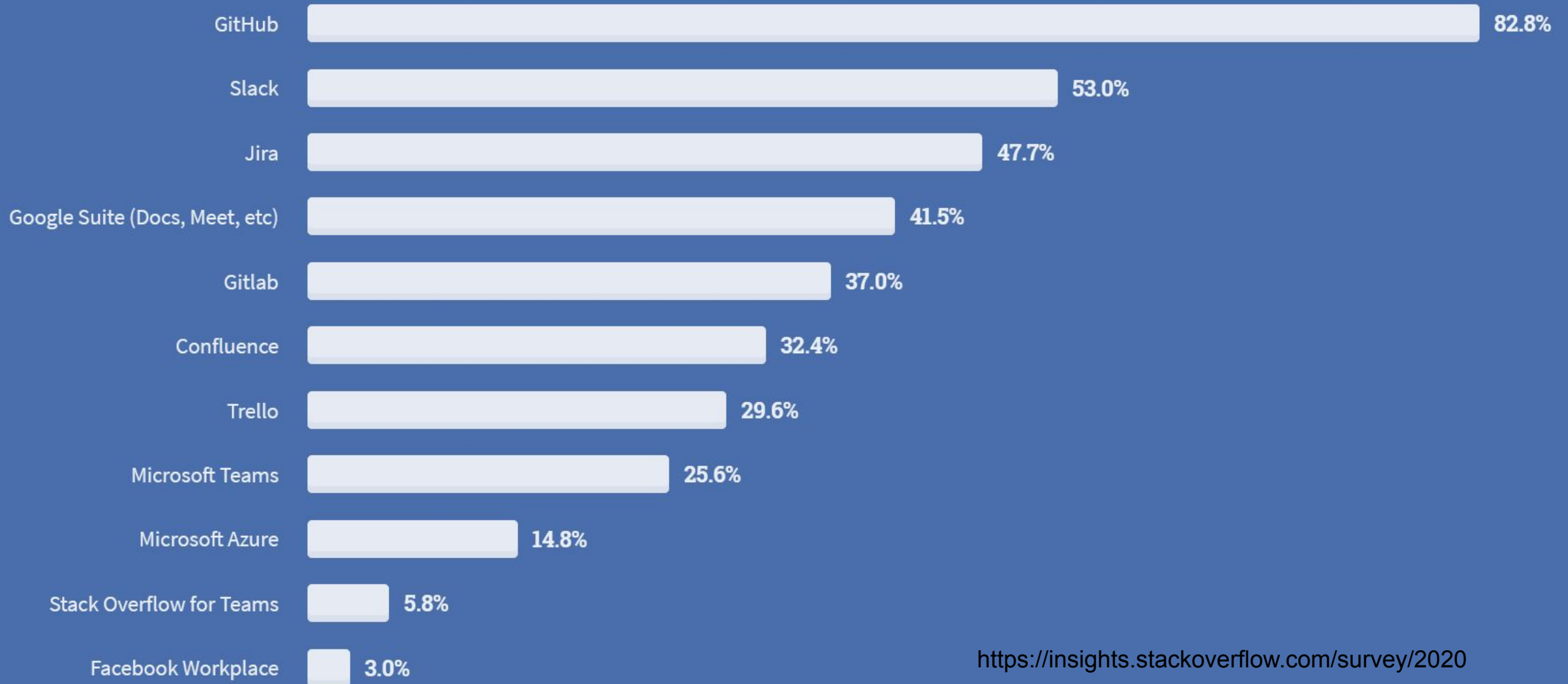


Source: Google Trends

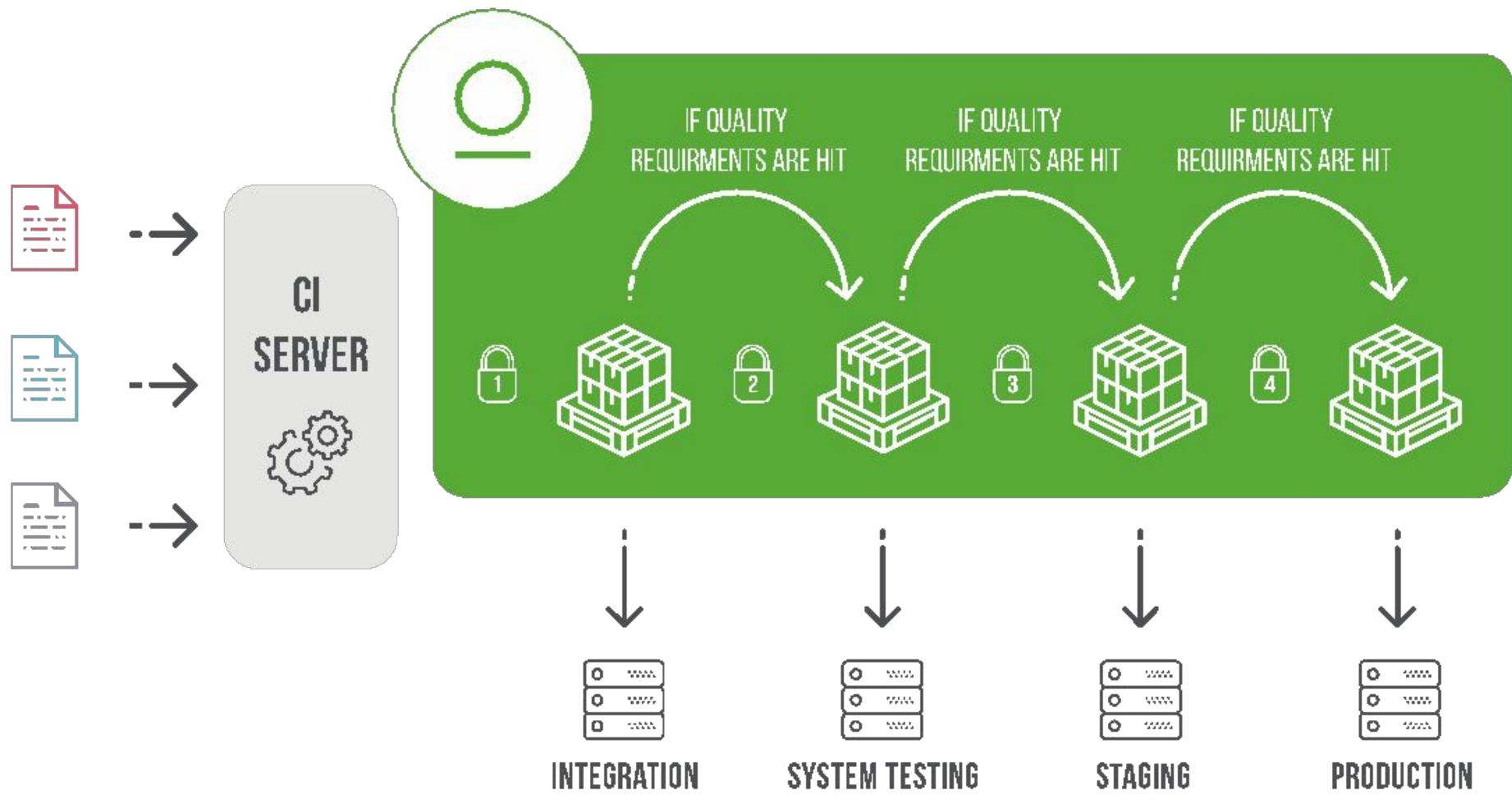
HOW DISTRIBUTED VERSION CONTROL WORKS



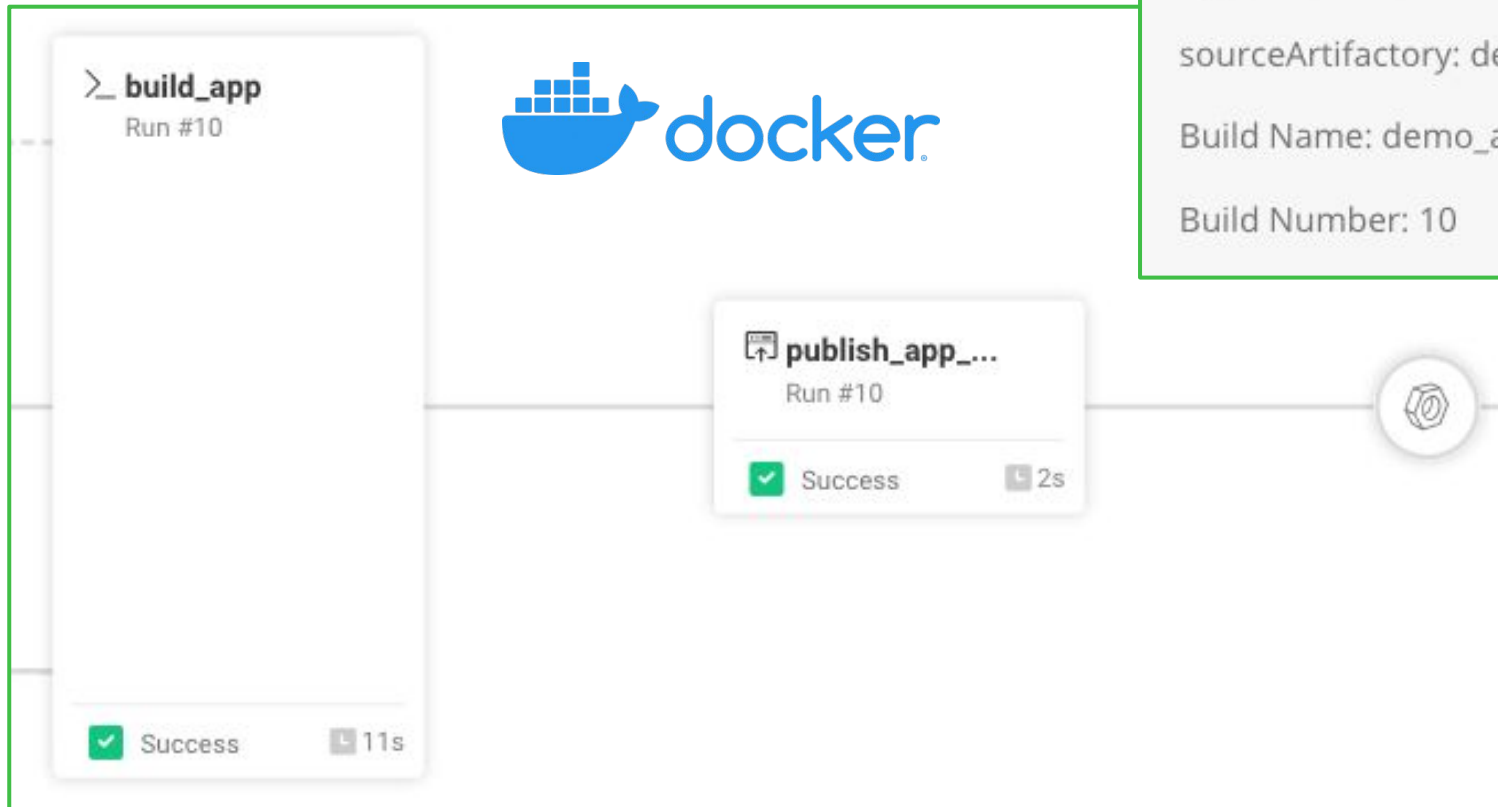
USAGE OF DEVELOPER TOOLS



<https://insights.stackoverflow.com/survey/2020>



Know your BUILD!



appl_build_info

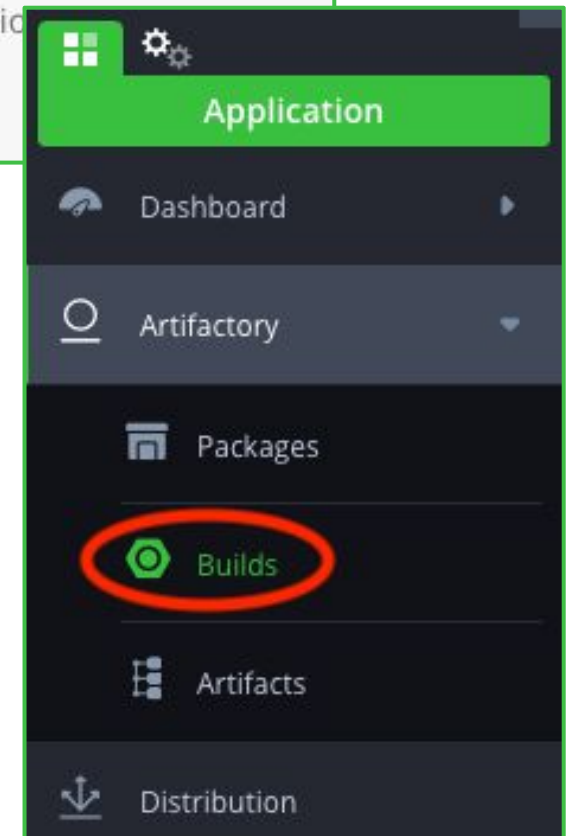
Updated At: Tuesday, June 16th 2020, 6:02 pm

Type: BuildInfo

sourceArtifactory: demoArt

Build Name: demo_application

Build Number: 10



Where are your
container
images coming
from?



 “Write once, run everywhere”

“Package Once, Deploy Anywhere”



“Snowflake server vs Phoenix server”

- Martin Fowler

“Cattle vs Pet”

- CERN

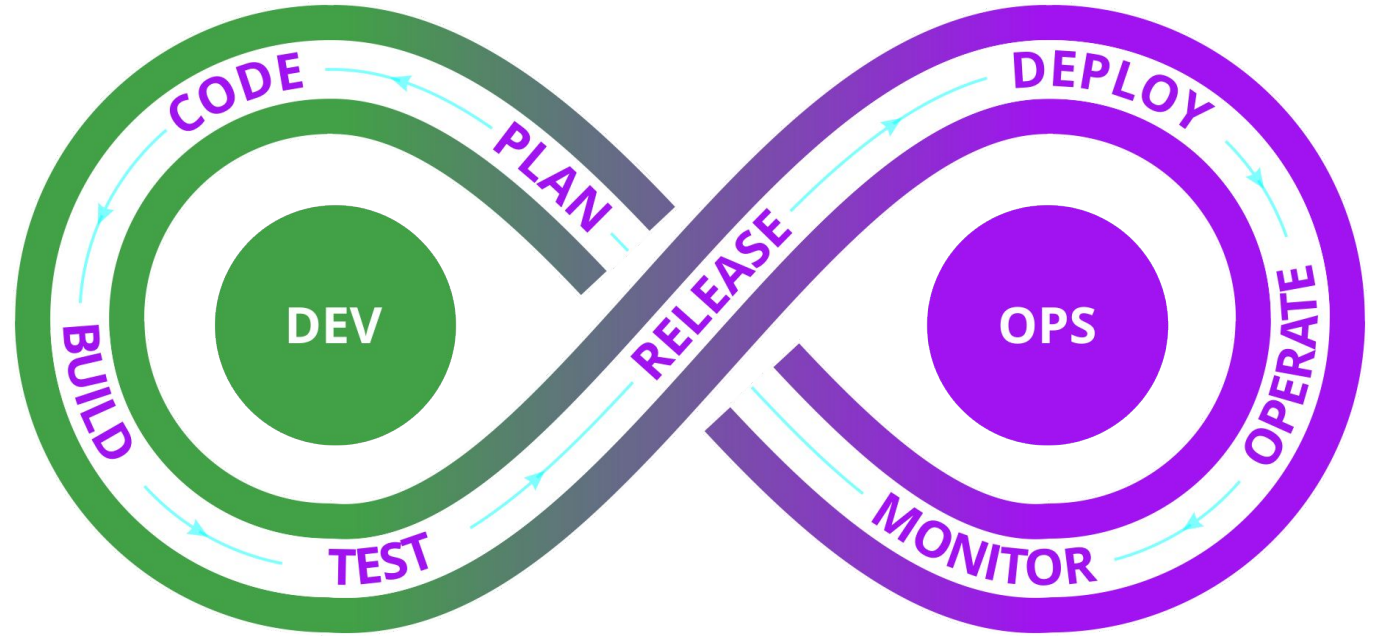
What do you really care about?

- Is it Fast?
- Is it Efficient?
- Is it Reliable?
- Is it Economical?

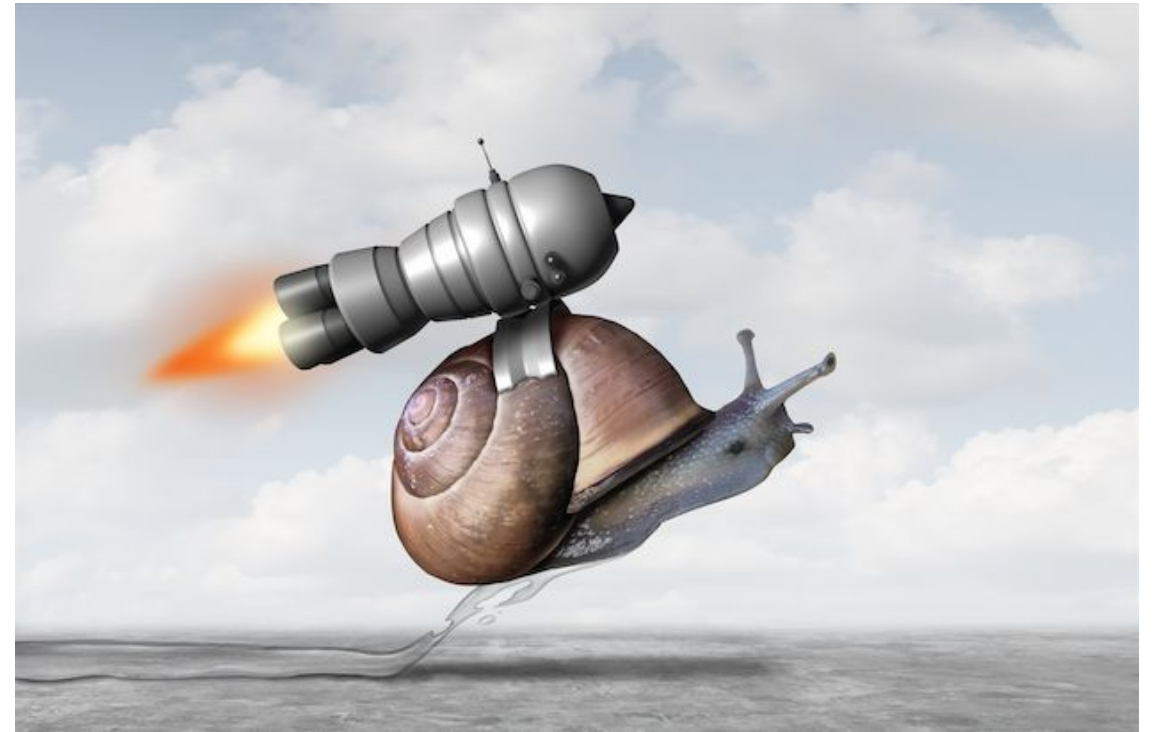


Your IT Value Stream

- Fast Enough?
- Efficient Enough?
- Reliable Enough?
- Economical Enough?



How do YOU deploy?

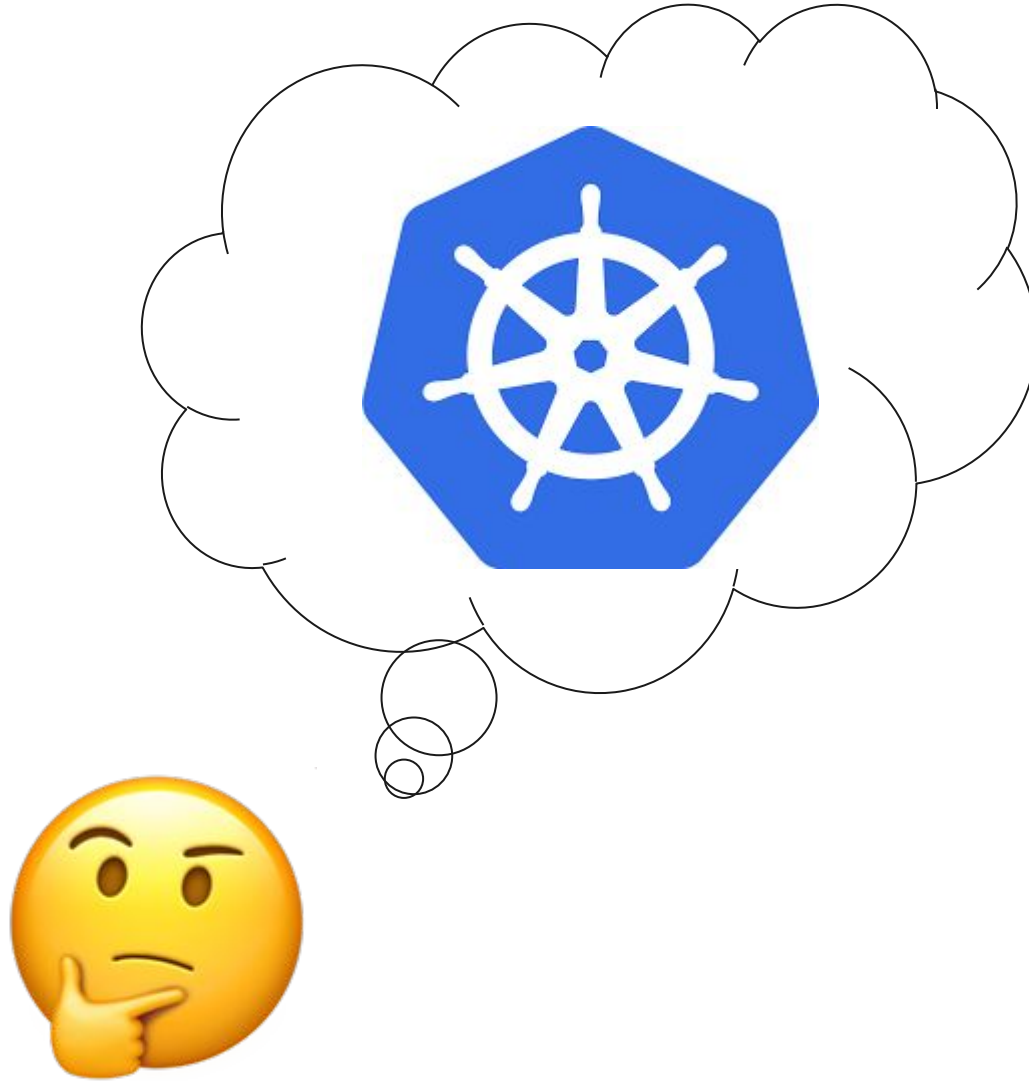




www.testcontainers.org

- Automatic discovery of local docker environment
- Pull images or build from Dockerfile
- Wait for it to be ready (log string / listening port / protocol- specific)
- Port mapping
- JUnit integration
- Reliability:
 - start from clean state
 - isolated instances
 - port randomisation
 - tag-based versioning

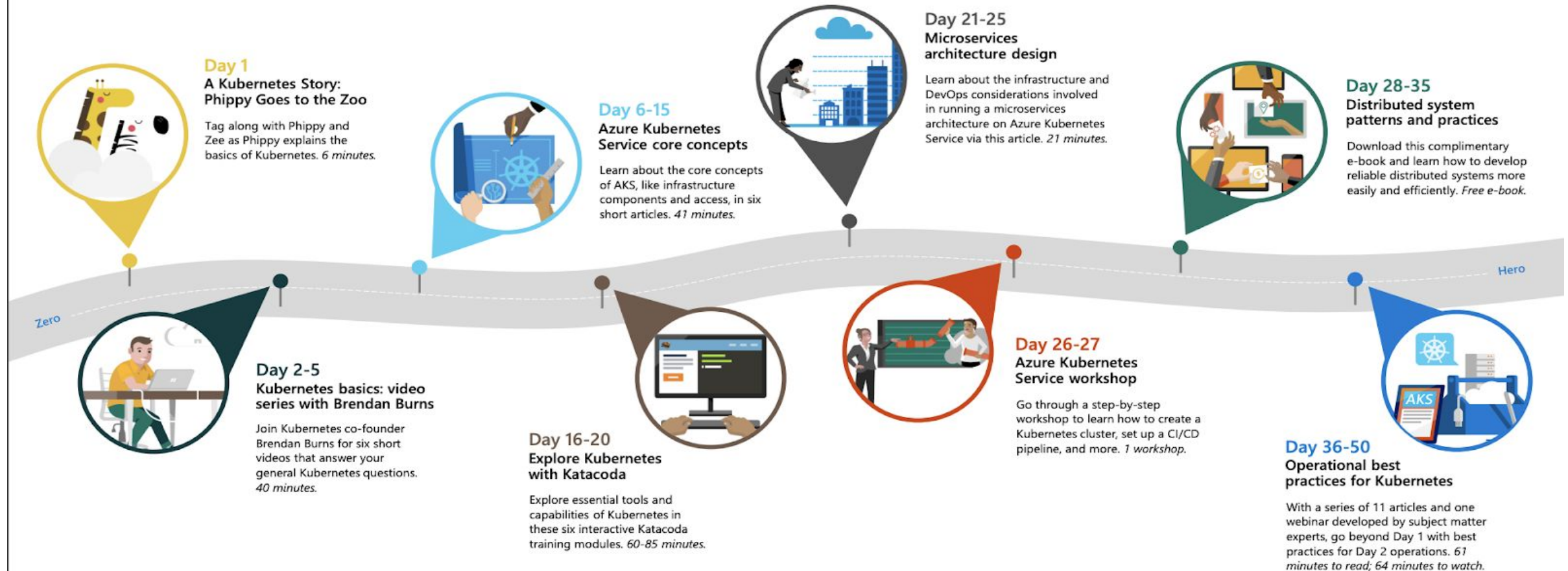
What about Kubernetes?



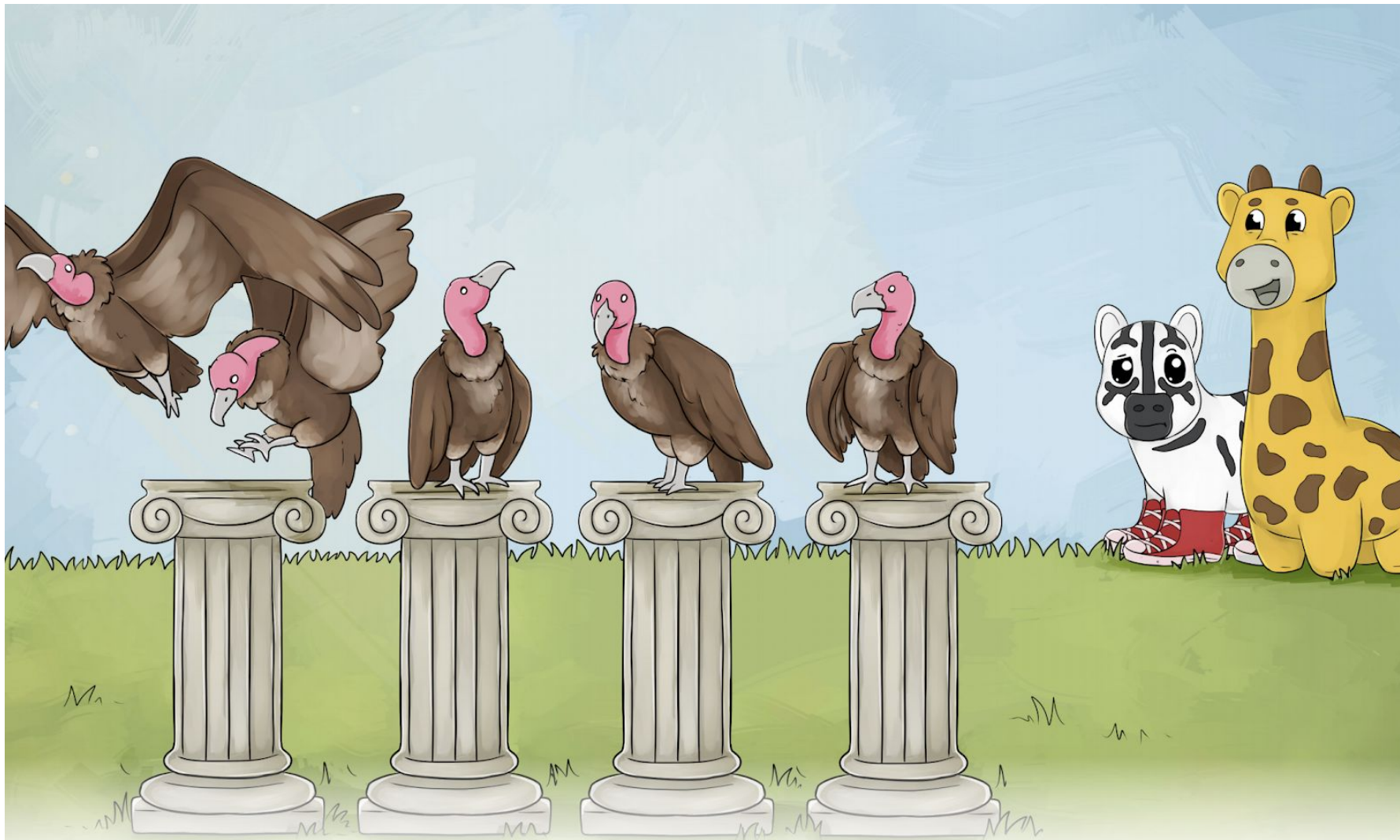
50 days from zero to hero with Kubernetes



Click the bubbles to access that resource



<https://azure.microsoft.com/en-us/resources/kubernetes-learning-path/>



Several stone pillars arose from a grassy knoll and at the top of each sat a vulture. As Zee and Phippy watched, one vulture spread its wings and flapped off into the distance. No sooner had one left than another took its place. Zee asked, "What are they doing?"

"Those are DaemonSets," said Phippy, "They make sure to occupy every pillar, rain or shine, day or night."

"I bet that if we added a new pillar, a new bird would land on it faster than you could say 'cube cuddle,'" chuckled Phippy.



Search or jump to...



Pulls

Issues

Marketplace

Explore



kelseyhightower / **kubernetes-the-hard-way**

Watch

883

Star

23.4k

Fork

6.8k

Code

Issues 40

Pull requests 28

Actions

Projects

Wiki

Security



master

kubernetes-the-hard-way / README.md

Go to file



kelseyhightower Update to Kubernetes 1.18.6

Latest commit ca96371 on Jul 18

History

6 contributors



45 lines (31 sloc)

2.9 KB

Raw

Blame



Kubernetes The Hard Way

Questionnaire Checklist: Preparing Your App for K8S

<https://jfrog.com/whitepaper/the-jfrog-journey-to-kubernetes-best-practices-for-taking-your-containers-all-the-way-to-production/>

| Tasks | Questions | K8S Guru Recommendations |
|----------------------------|--|---|
| Logging | <ul style="list-style-type: none">• How is your application logging set up?• Where will the logs be saved?• Do you need logs files or perhaps using STDOUT/STDERR is sufficient?• How will you handle multiple log files? | Consider turning your logs to softlinks by setting /dev/stdout or /dev/stderr thereby ensuring all your logs are part of the container log. |
| Data Persistency | <ul style="list-style-type: none">• Is your application stateful? Does it require data persistence?• What part of your data needs persistency? | Don't store all your data on persistent storage. Store only persistent data. |
| Termination Signals | <ul style="list-style-type: none">• How do you handle termination signals? | Use trap in your container bash entrypoint to catch termination signals and handle them properly. |

Questionnaire Checklist: Preparing Your App for K8S

<https://jfrog.com/whitepaper/the-jfrog-journey-to-kubernetes-best-practices-for-taking-your-containers-all-the-way-to-production/>

| Tasks | Questions | K8S Guru Recommendations |
|----------------------------|--|--|
| Application Restart | <ul style="list-style-type: none">• How will you survive a restart?• What happens if you kill the pod?• What happens if you crash the process in the pod?• What happens if the k8s node crashes?• How does the application behave? | A great way to test your application recovery is to kill the pods or, kill the nodes, and see what happens? |
| High Availability | <ul style="list-style-type: none">• How should I set up my nodes and load balancer to achieve zero service unavailability of my application/service? | Plan for zero service unavailability allowing for pod scheduling when performing cluster scaling (down) and planned node maintenance. |
| Probes | <ul style="list-style-type: none">• Do your applications have endpoints that can be used to check health and readiness using the Liveness and Readiness Probes? | Proper use of probes can help you implement a great “auto-healing” process for your applications and will save your engineers many sleepless nights. |

DEMO

Q & A

THANK YOU!