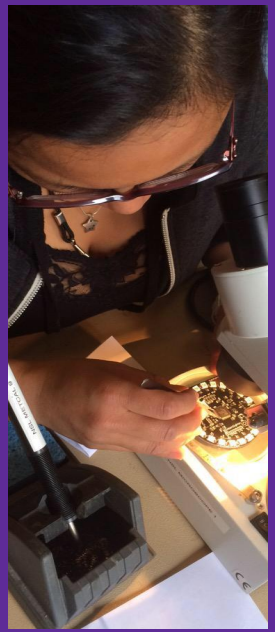
journey to devops

a story in two acts

Murriel Perez McCabe

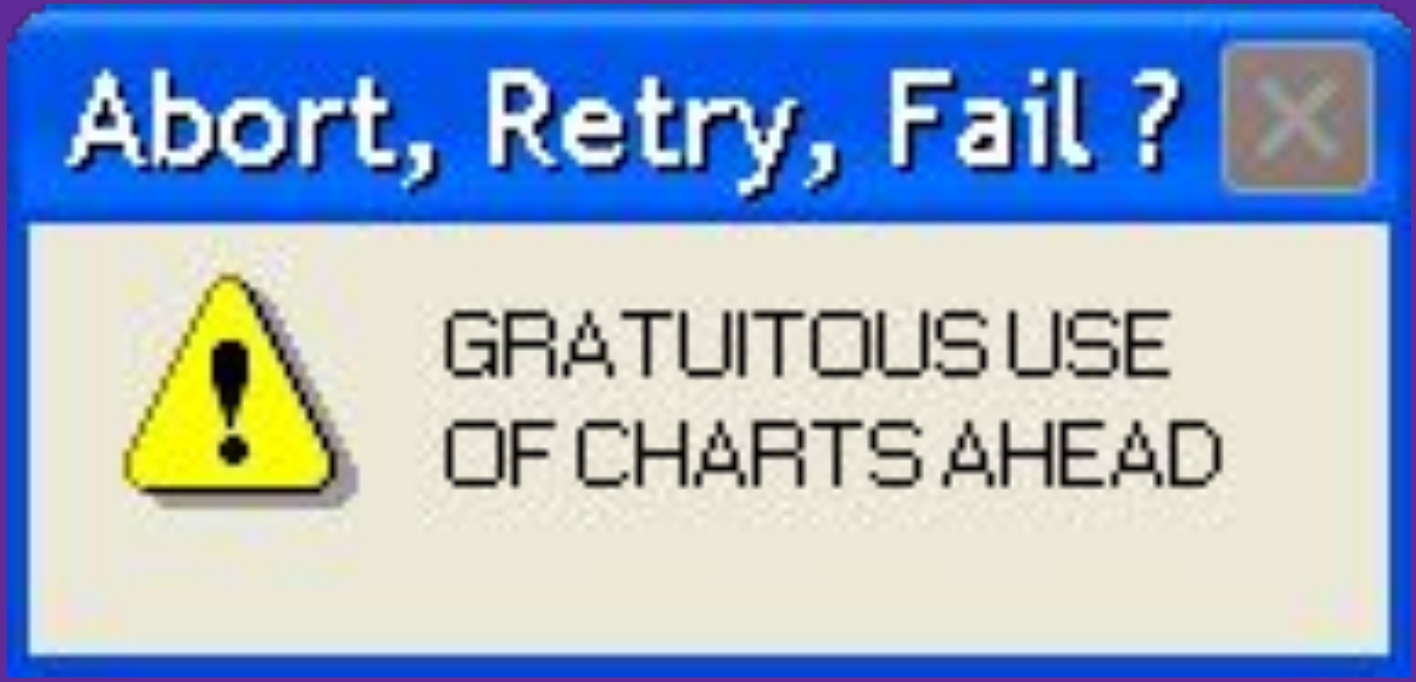
devops | customer engineer | solutions architect

```
apiVersion: devops/v20
kind: Bio
metadata:
  name: murriel
  labels:
    job: devops
    job: cloud
spec:
  containers:
    - name: orion
      image: russianblue
      command: ["cat"]
spec:
  replicas: 3
    hobbies:
       - name: making
       - name: gardening
       - name: community
```

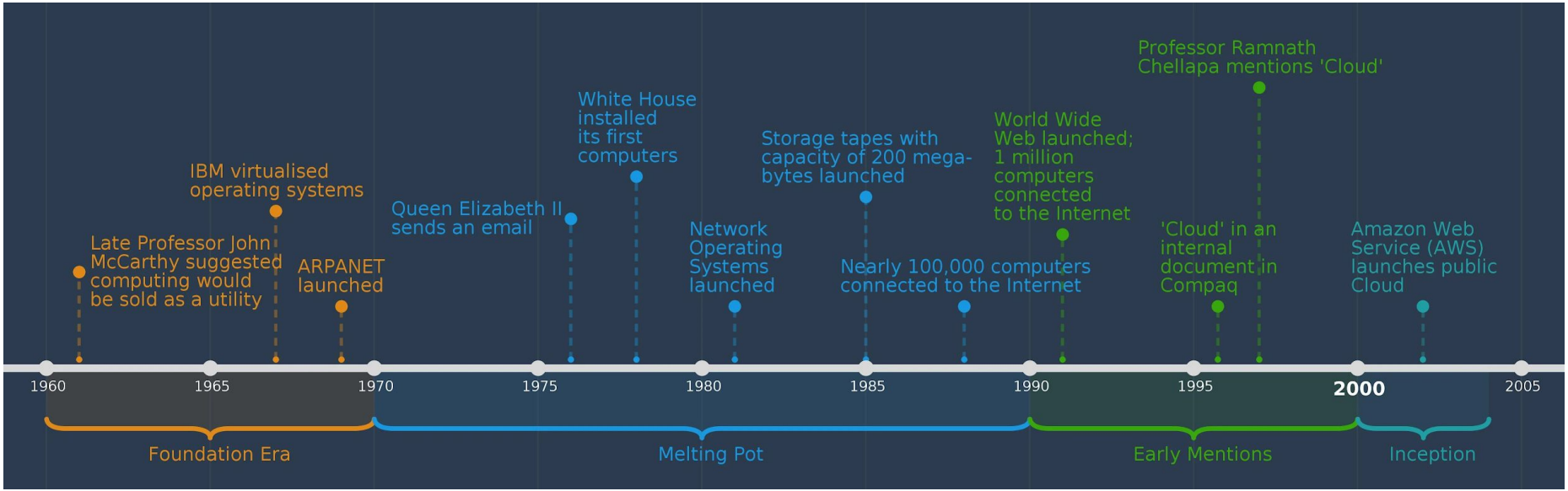


act i

reflecting on the past

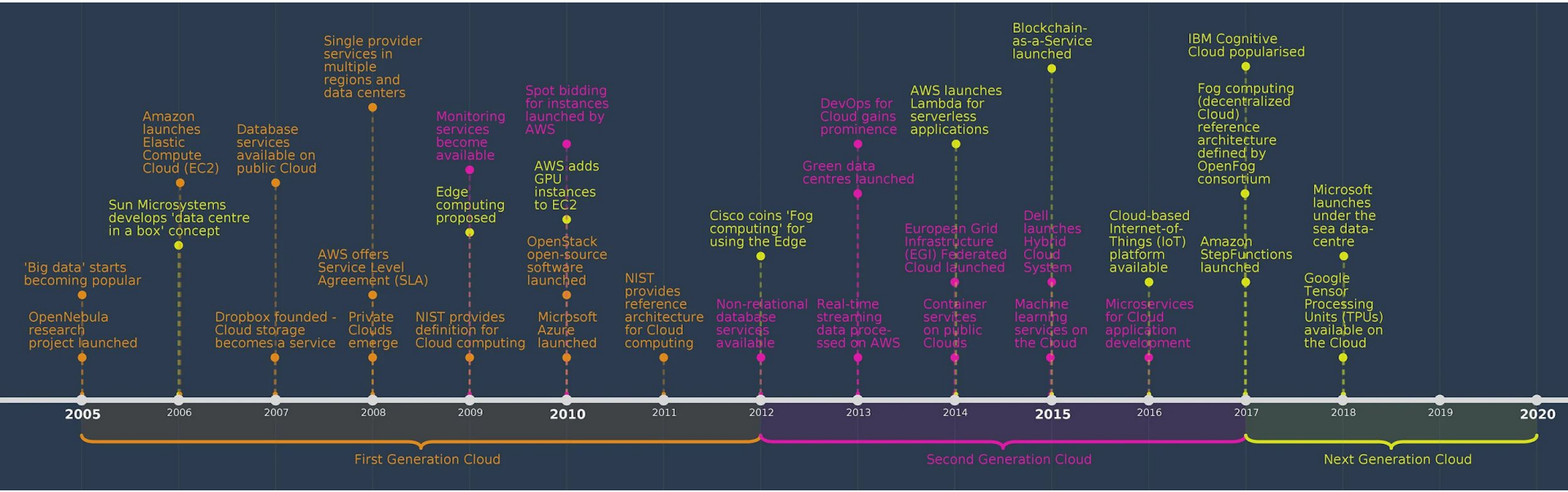

Abort, Retry, Fail ?
GRATUITOUS USE
OF CHARTS AHEAD

moments in cloud history (1960-2005)



https://www.bcs.org/content-hub/history-of-the-cloud/ 1960-2005

moments in cloud history (2005-2020)



https://www.bcs.org/content-hub/history-of-the-cloud/

women in computing

1843 - Ada Lovelace
Antoine Claudet - File:Ada Byron daguerreotype by Antoine Claudet 1843 or 1850.jpg, Own work

1944 - Hedy Lamarr

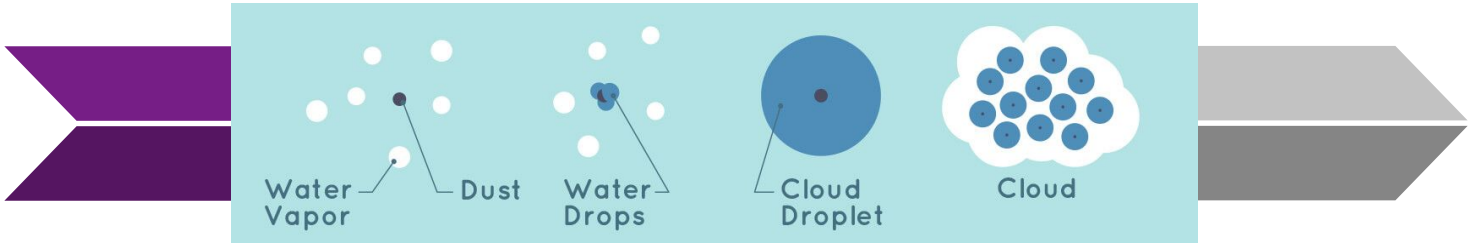
1952 - Grace Hopper
Credit: Science History Images/Alamy Stock Photo

http://feministing.com/2012/08/04/a-timeline-of-women-in-world-computing/
https://hackernoon.com/a-brief-history-of-women-in-computing-e7253ac24306 by @kurafire
https://en.wikipedia.org/wiki/Timeline_of_women_in_computing
https://www.purdueglobal.edu/blog/information-technology/history-women-information-technology-6-female-computer-science-pioneers/
https://computerhistory.org/activities-resources/women-in-computing-history/

accomplishments

* 1800s: Ada Lovelace (1815–1852, British), was an analyst of Charles Babbage's analytical engine (an early mechanical general-purpose computer) and is often described as the first computer programmer, since her notes on the engine include the first algorithm intended to be processed by a machine.
* 1926: Grete Hermann (1901-1984, German) published the foundational paper for computerized algebra. It was her doctoral thesis, titled "The Question of Finitely Many Steps in Polynomial Ideal Theory", and published in Mathematische Annalen.
* 1940s: American women were recruited to do ballistics calculations and program computers during WWII. Around 1943-1945, these women, who were called "computers," used a Differential Analyzer in the basement of the Moore School of Electrical Engineering to speed up their calculations, though the machine required a mechanic to be totally accurate and the women often rechecked the calculations by hand.
* 1940s: Jean Bartik, Betty Holberton, Frances Spence, Kathleen Antonelli, Marlyn Meltzer, and Ruth Teitelbaum were the original programmers of the ENIAC, the world's first general-purpose electronic computer. All were American except Kathleen Antonelli was born in Ireland.
* 1940s: Women worked as WREN Colossus operators during World War II in Bletchley Park, England. Colossus was the world's first electronic, digital, programmable computer, and was used by British codebreakers to help read encrypted German messages.
* 1942: Austrian-American actress Hedy Lamarr (1913–2000, born in Austria), co-invented an early form of spread-spectrum broadcasting with composer George Antheil.* 1950s: Orbital calculations for the United States' Explorer 1 satellite were solved by the NASA Jet Propulsion Laboratory's all-female team using mechanical calculators, supplemented with logarithmic calculations performed by hand. Many of the women were recruited right out of high school.
* 1952: Grace Hopper (1906–1992, American), developed the first ever compiler for an electronic computer, known as the A-0 System.
* 1960s: Mary Allen Wilkes (American) became the first developer of an operating system (LAP) for the first minicomputer (LINC). In 1965 she became the first person to use a computer in a private home.
* 1961: Dana Ulery (1938-, American) became the first female engineer at Jet Propulsion Laboratory, developing real-time tracking systems using a North American Aviation Recomp II, a 40-bit word size computer.
* 1962: Jean E. Sammet (1928-, American), developed the FORMAC programming language.
* 1965: Sister Mary Kenneth Keller (1914? – 1985) became the first American woman to earn a PhD in Computer Science. Her thesis was titled "Inductive Inference on Computer Generated Patterns."
* 1969: Jean E. Sammet (1928-, American) became the first person to write extensively about the history and categorisation of programming languages.
* 1972: Karen Spärck Jones (1935 – 2007, British) introduced the concept of inverse document frequency (IDF) weighting in information retrieval.
* 1972: Adele Goldberg (1945-, American), was one of the designers and developers of the Smalltalk language, which appeared in 1972.
* 1972: Sandra Kurtzig (American) founded ASK Computer Systems, an early Silicon Valley startup.
* 1974: Jean E. Sammet (1928-, American) became the first female president of the Association for Computing Machinery.
* 1978: Sophie Wilson (1957-, British), designed the Acorn Microcomputer.
* 1978: The Association for Women in Computing was founded in Washington, D.C.
* 1979: Carol Shaw (American) became the first woman to program and design a video

my journey to devops and the cloud



Discovering Tech

From black box QA Testing at a San Francisco startup to certification bootcamps

IT Consulting

From a tech support technician to a systems administrator and solutions architect to starting a consulting business

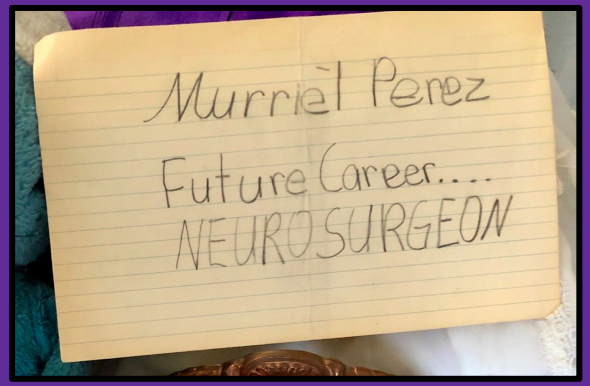
IT Manager

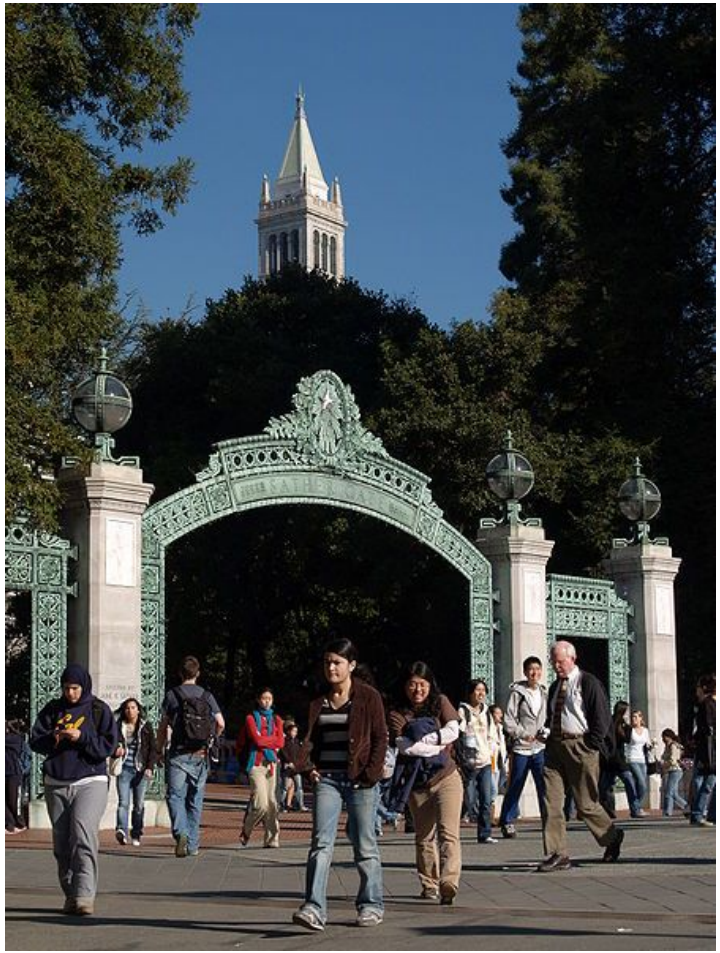
IT Operations + everything in technology including the data ~~kitchen~~ sink. Discovering lean manufacturing and The Cloud. Managing the software development life cycle.
DIGITAL TRANSFORMATION!

DevOps Engineer

Automation!
Configuration Management!
Cloud Engineering!
Microservices!

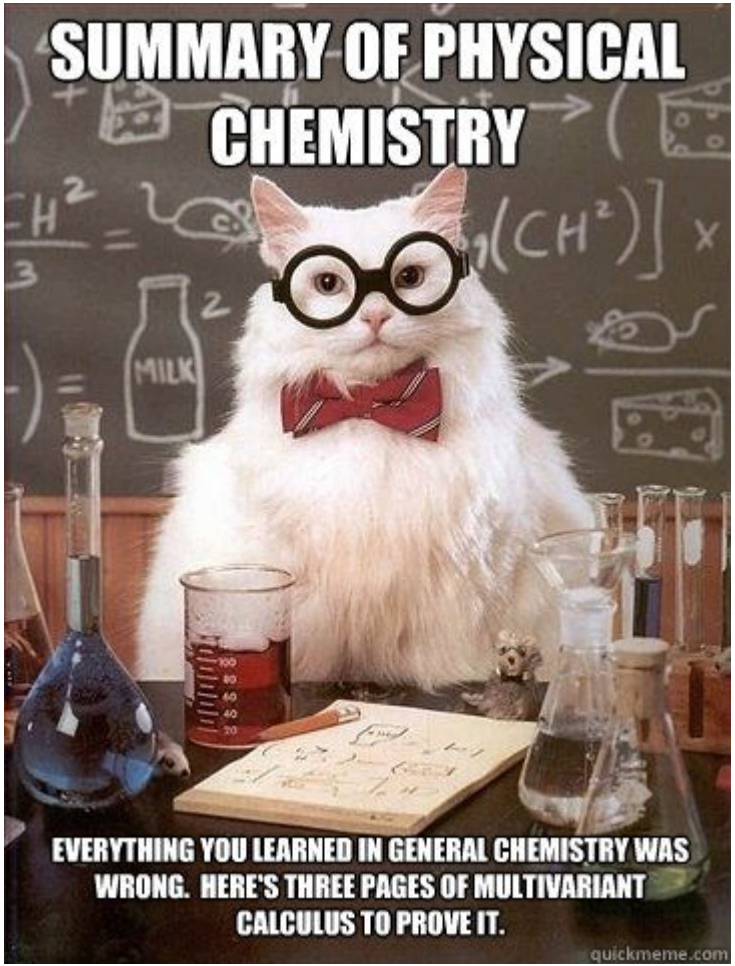
in the beginning

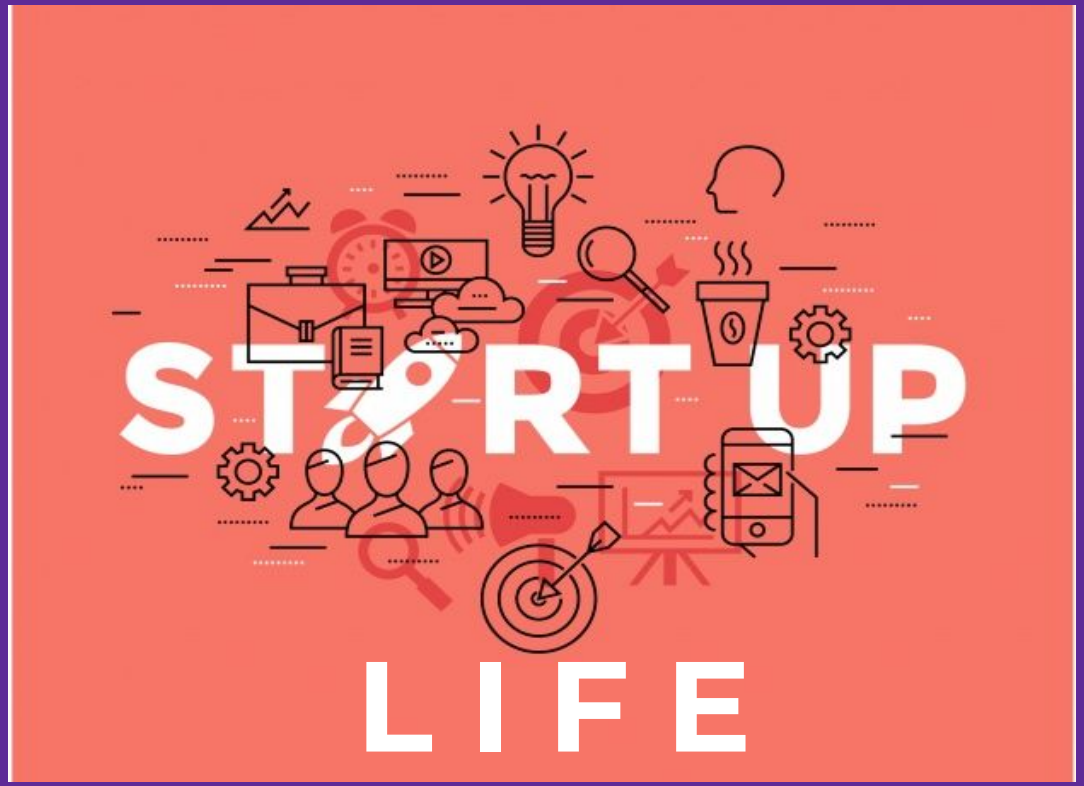




https://commons.wikimedia.org/wiki/File:UCBerkeleyCampanileSatherGate.jpg

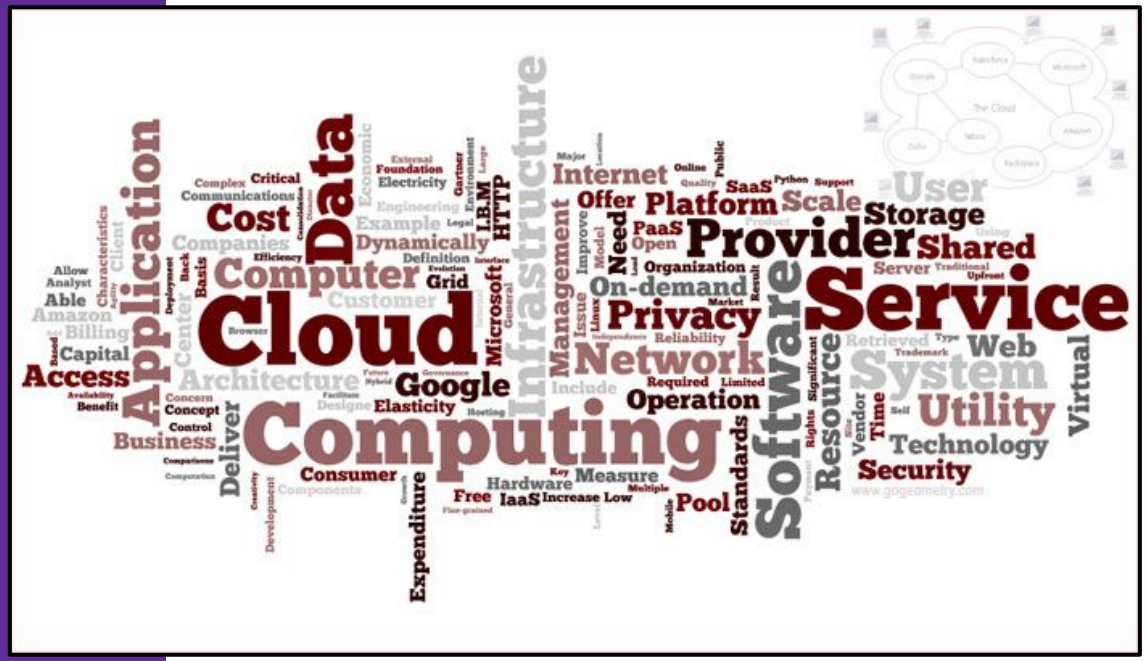
this was not the road for me




START UP
LIFE

boutique consulting

life at a managed service provider



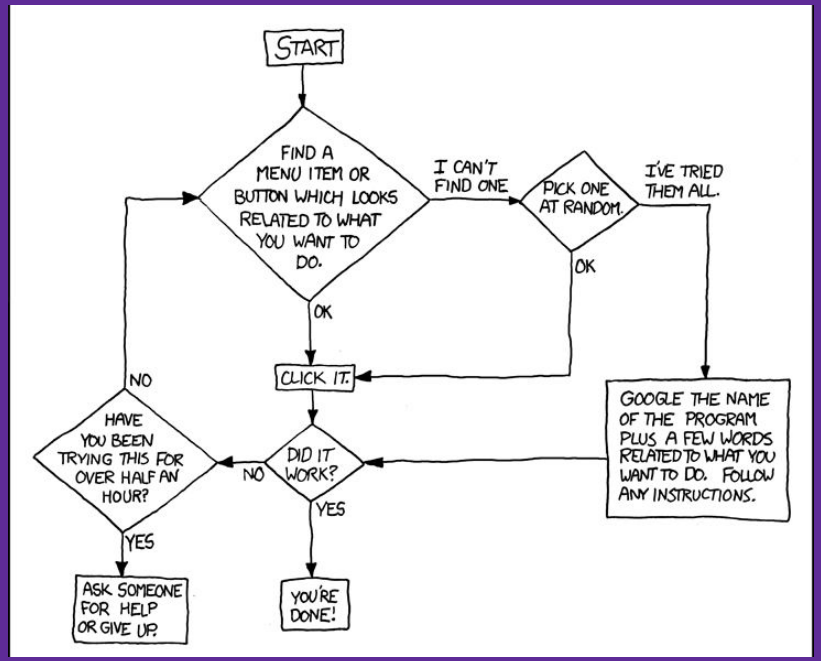
Which Cat To Choose

Cat5e

Cat6

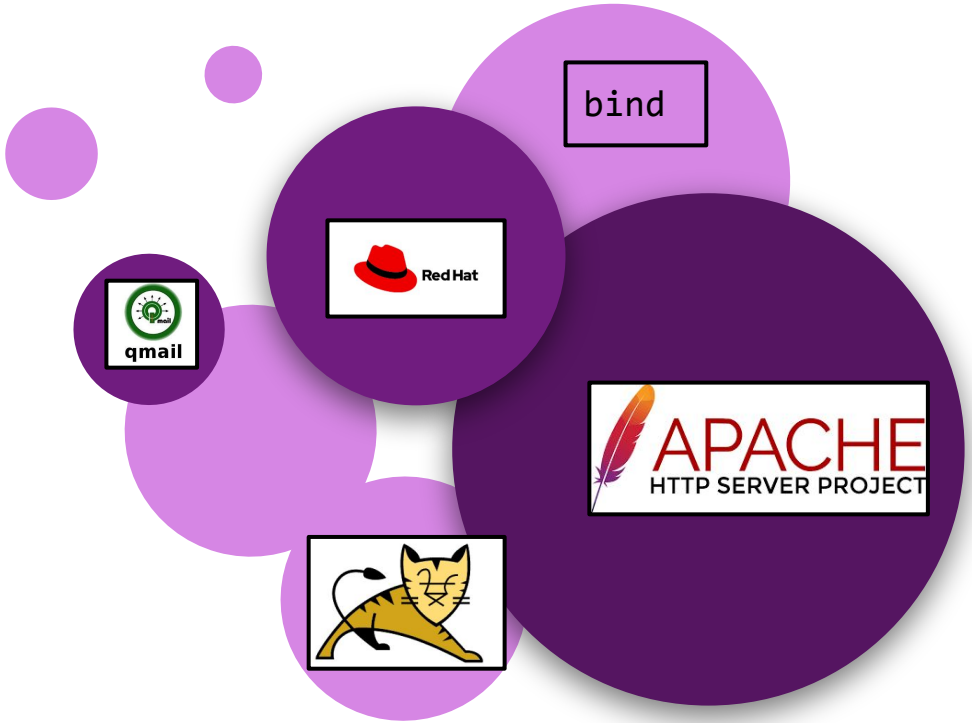
Cat6a

Outsourced IT Services



https://xkcd.com/627/

Hosting Services



freelance
consulting

IT Manager

DevOps Engineer

Senior DevOps Engineer

Tech Support

Systems Administrator

Network Engineer

Build Engineer

Vendor Management

Project Manager

DBA and Business Analyst

SAP Administrator

Hardware Procurement

IT Manager

DevOps Engineer

Senior DevOps Engineer

Systems Administrator

Release Engineer

Site Reliability Engineer

Cloud Engineer

Developer

https://i.imgur.com/CxVoe1a.jpg

you don’t have to walk the road alone

community

LA DevOps

Meetups

Slack and Discord

Local Conferences
(& Conference Communities)

- Sparklecon
- SoCal Linux Expo
- LayerOne
- ShellCon
- SuperCon
- DataCon LA
- Grace Hopper (Remote)
- DefCon (Remote)

mentorship

Girls in Tech LA

University Programs

- UCLA Society of Woman Engineers

Women in STEM LA

Rails Girls LA

DjangoGirls

education

Technovation

Girls Build LA

DIY Girls

Girl Scouts

9 dots

advocacy

https://femtech.la

Celebrate Diversity

Share Narratives

Create Community

Advocate and Sponsor

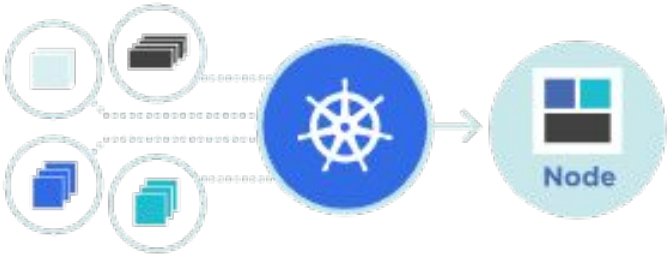
act ii

the present and future

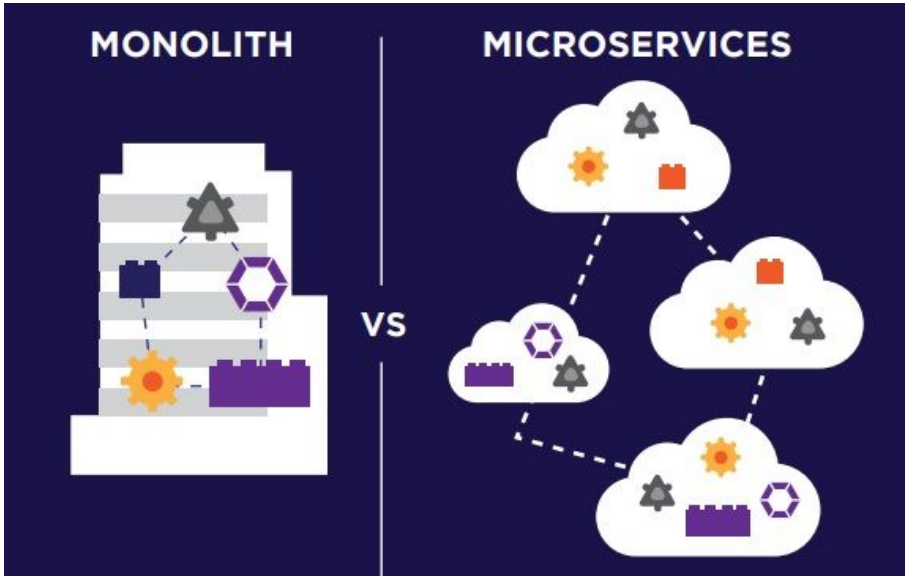
fun with kubernetes

k8s is gr8!

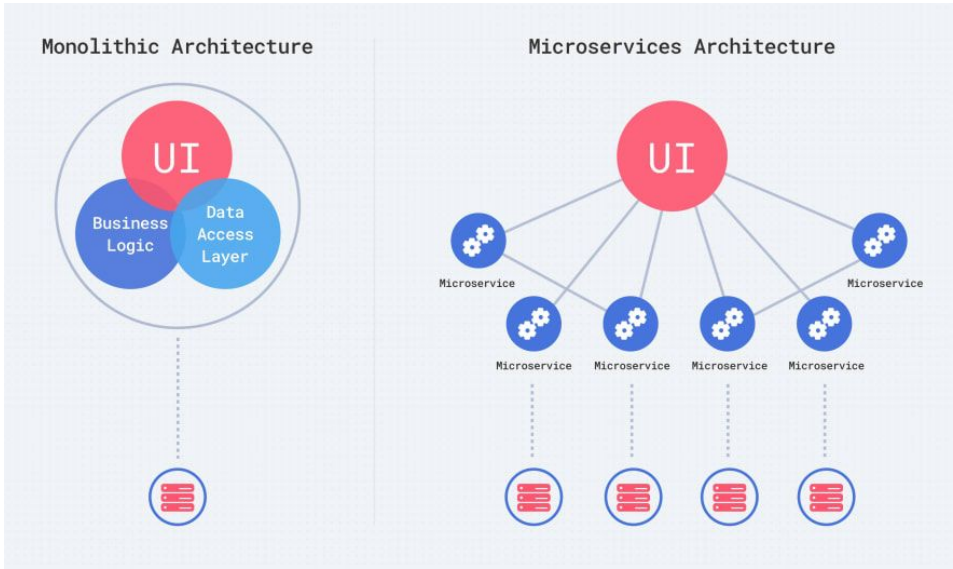
Kubernetes (K8s) is an **open-source** platform for automating deployment, scaling, and management of *containerized* applications.



k8s: now with 100% more microservices!



https://www.castsoftware.com/blog/microservices-architecture-can-wait.-or-can-it



https://dev.to/alex_barashkov/microservices-vs-monolith-architecture-4l1m

trying kubernetes

*Play-with-Kubernetes Classroom**

https://www.katacoda.com/courses/kubernetes
https://training.play-with-kubernetes.com
https://www.qwiklabs.com
https://acloudguru.com/

running kubernetes

minikube

- Kubernetes project
- VMs as K8s nodes
- Single node
- Different runtimes
- Resource intensive/slower

kind

- Kubernetes project
- docker containers as nodes
- fast

microk8s

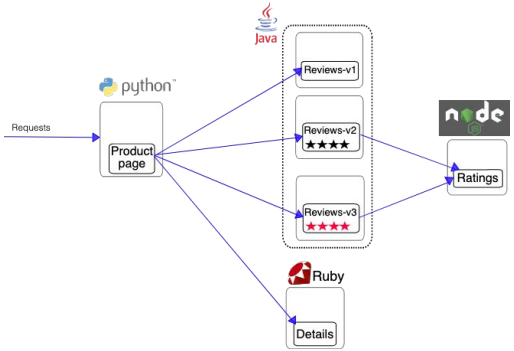
- Lightweight upstream K8s from Canonical.
- Linux and snap
- Single Node
- For clusters, laptops, IoT and Edge
- Production ready

k3s

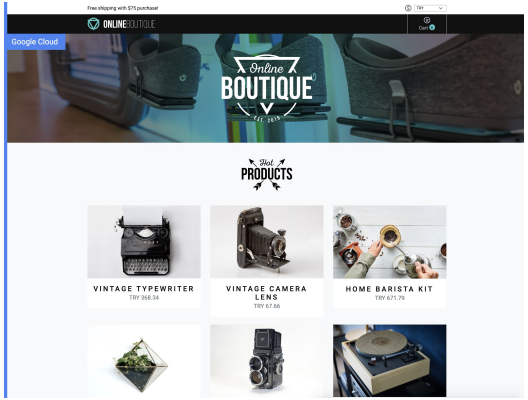
- Minified version of Kubernetes from rancher Labs
- Lightweight, optimized for edge
- Production Ready

“useful” projects

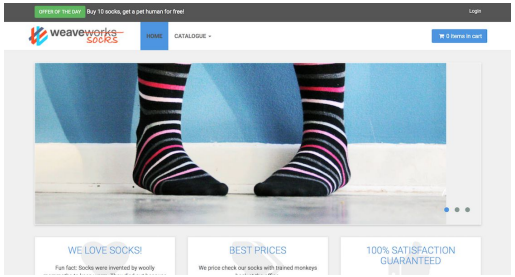
- PHP Guestbook
- Wordpress
- Kanboard Kanban
- Miniflux - RSS Reader
- Crossword *(Kenzan)*
- Online Boutique *(Google)*
- Stan’s Robot Shop *(Instana)*
- Sock Shop *(Weaveworks)*
- Book Info - Istio
- Acme Fitness
- Yelb (Food Recs)



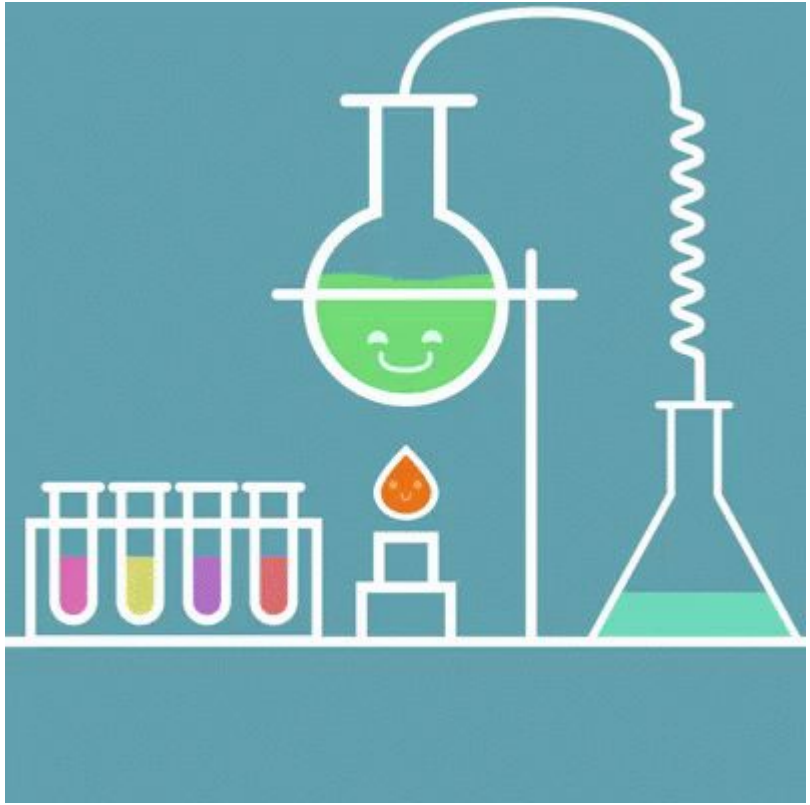
book info site



a 10-tier microservices eCommerce site

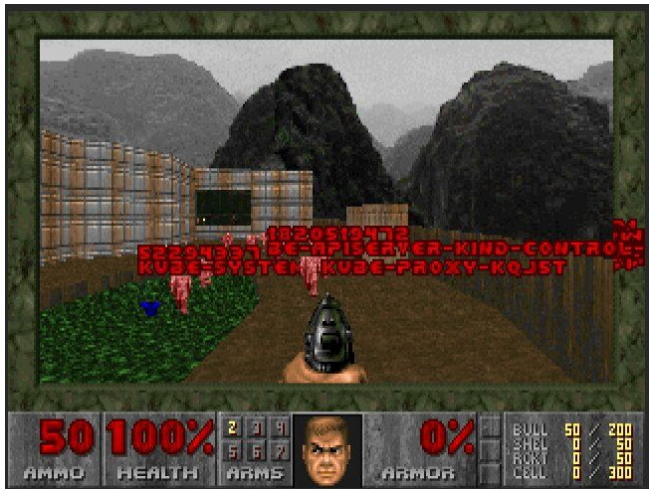


experimental modes ahead



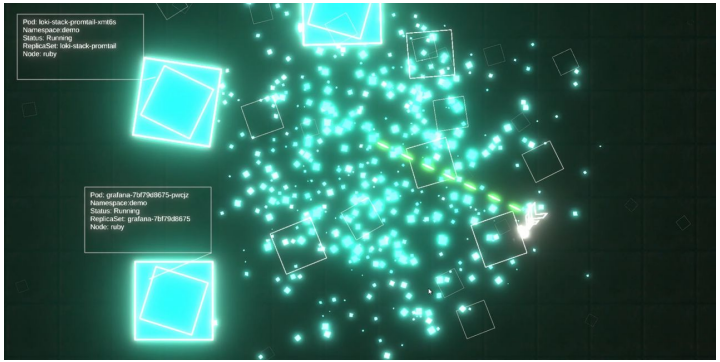
games

Kube Doom

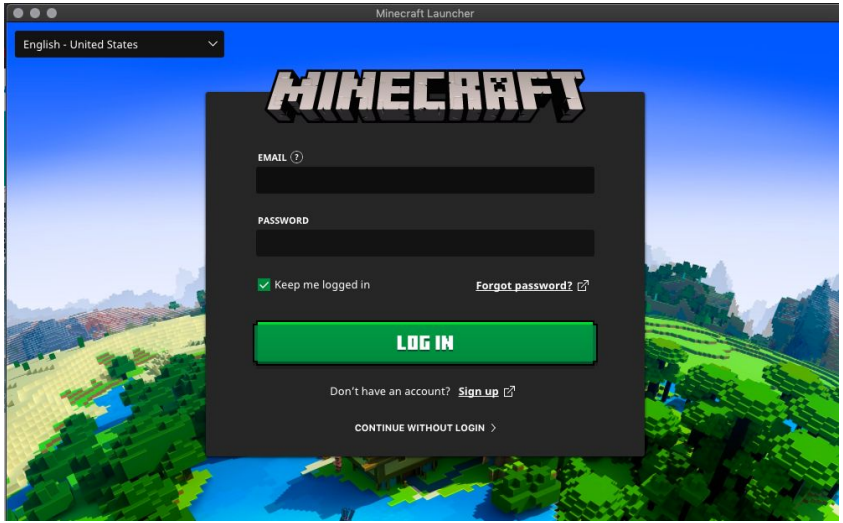


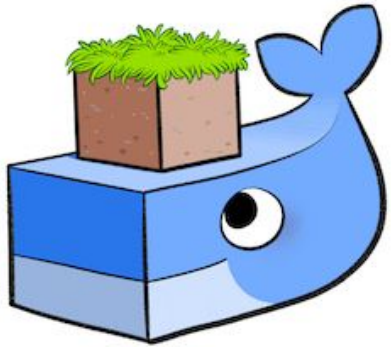
KubeInvaders

kube-chaos



minecraft

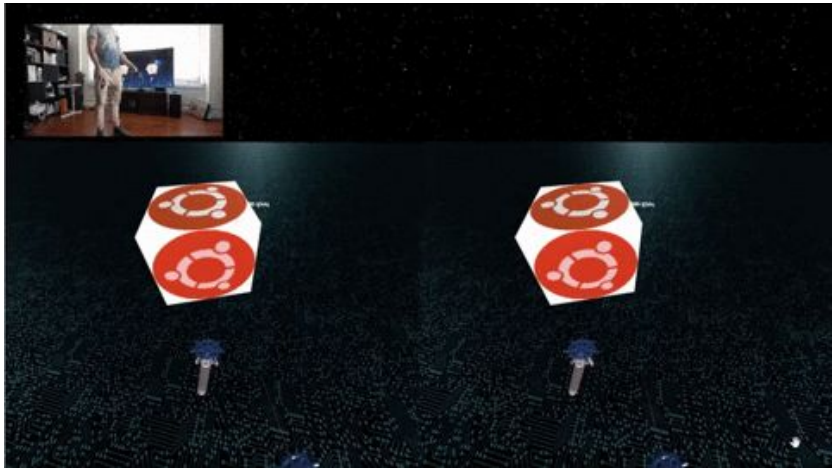




dockercraft - *minecraft in docker* | **kubecraft** - *visualize k8s pods in minecraft* | **minecraft roulette** - drop into a random world

more games

Kubernetes in VR

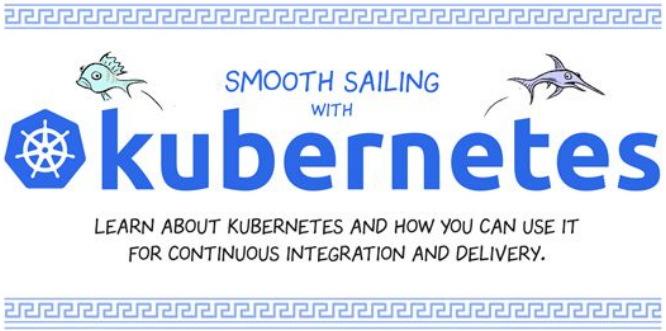


visualize your cluster.
a 2016 KubeCon project created by Ryan van Niekerk

Game of PODs

learn k8s by playing.
hosted on kodekloud

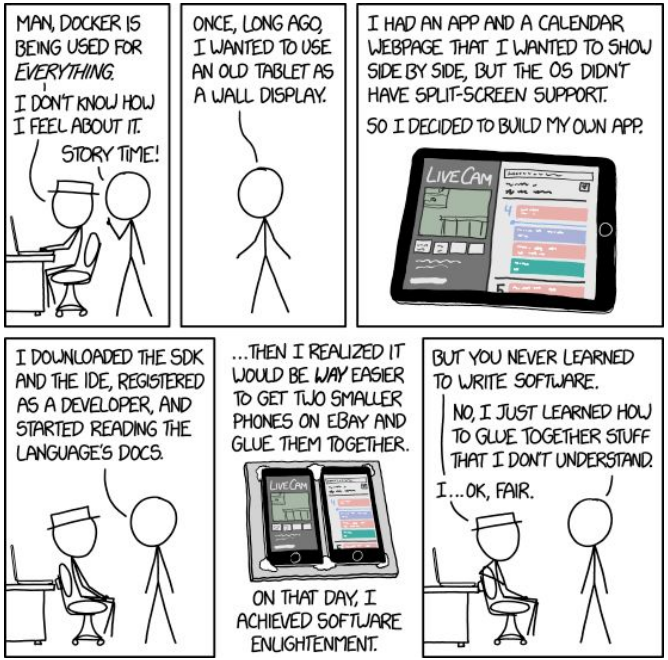
A picture is worth a thousand `CrashLoopBackOff`s



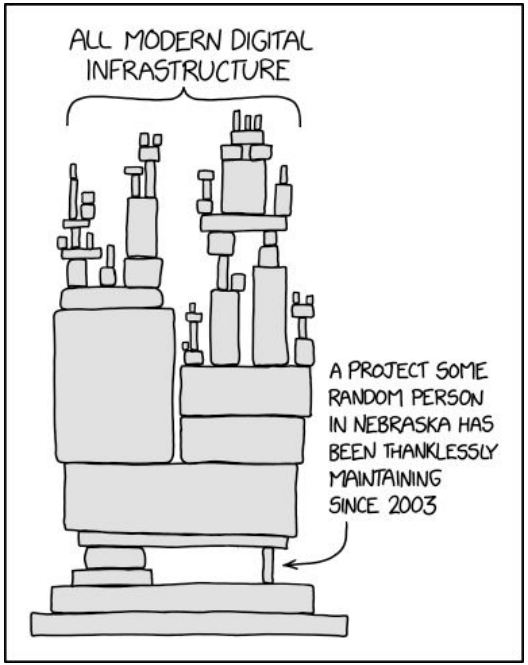
https://cloud.google.com/kubernetes-engine/kubernetes-comic

https://www.cncf.io/the-childrens-illustrated-guide-to-kubernetes/

xkcd

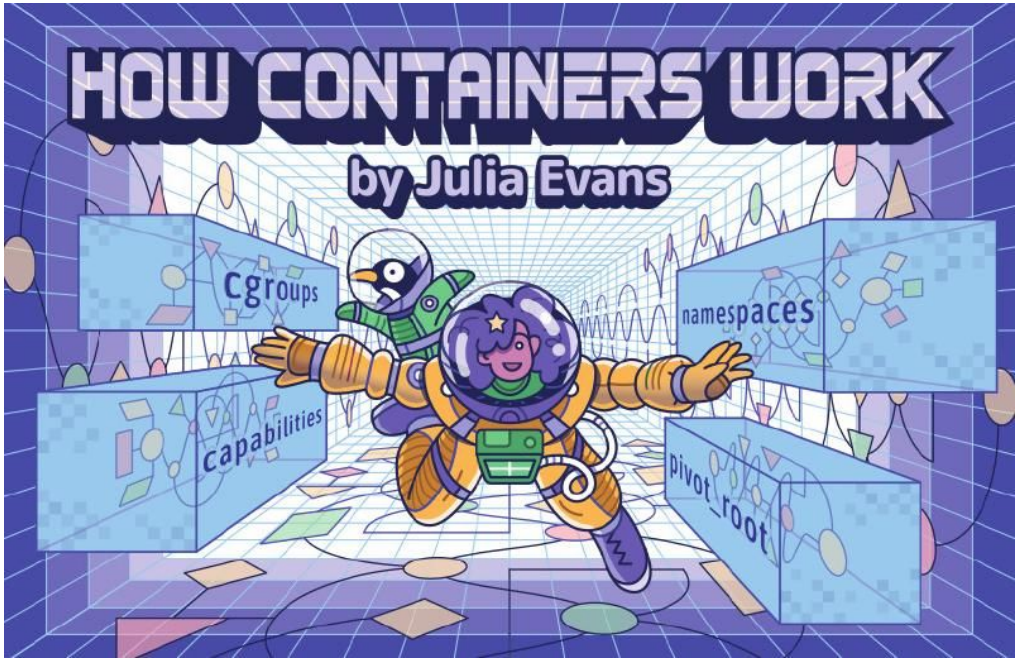


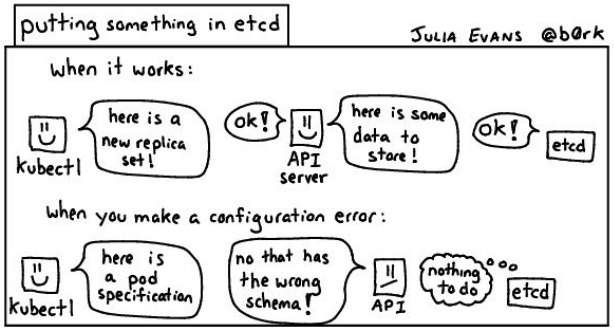
https://xkcd.com/1988/



https://xkcd.com/2347

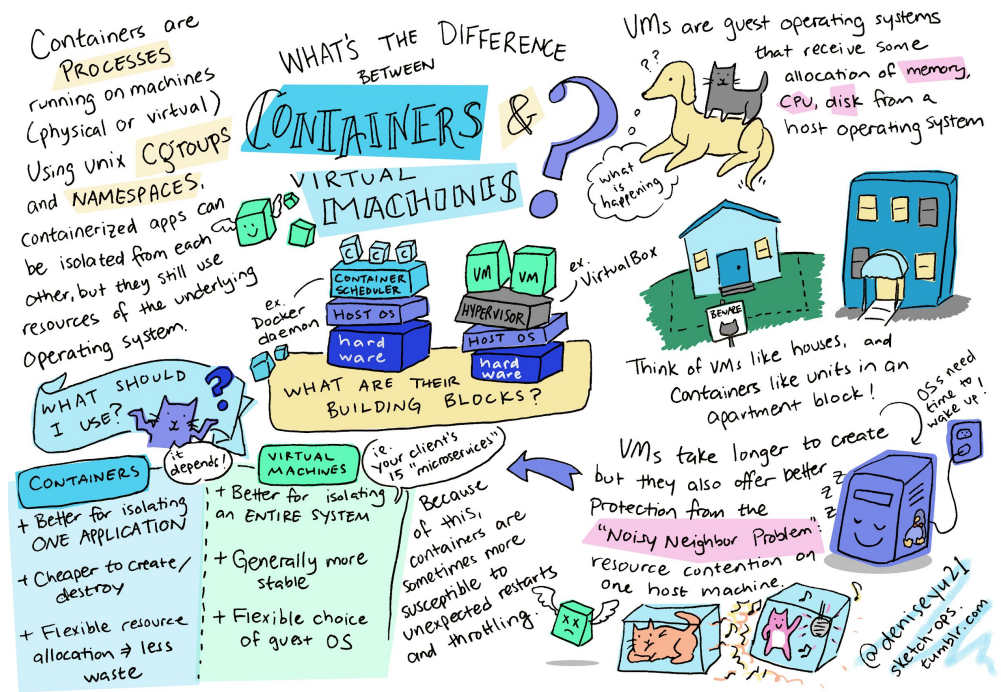
julia evans @bork





https://wizardzines.com/zines/containers/
https://drawings.jvns.ca/scenes-from-kubernetes/

denise yu



https://deniseyu.io/art [CCBY SA]

Resources and References

Principles

- https://12factor.net
- https://landing.google.com/sre/books/

Comics

- https://logdna.com/how-to-learn-kubernetes-the-best-tutorials-comics-and-guides/
- https://www.npmjs.com/package/chart.xkcd

Running Kubernetes

- https://www.katacoda.com/courses/kubernetes
- https://kubernetes.io/docs/tutorials/hello-minikube/
- https://microk8s.io/
- https://kind.sigs.k8s.io/

Links of Links

- https://techbeacon.com/enterprise-it/47-advanced-tutorials-mastering-kubernetes
- https://github.com/ramitsurana/awesome-kubernetes
- https://awesome-kubernetes.readthedocs.io/

Resources and References

Kubernetes Demo Applications

- https://www.freecodecamp.org/news/learn-kubernetes-in-under-3-hours-a-detailed-guide-to-orchestrating-containers-114ff420e882/
- https://github.com/kubernetes/examples
- https://github.com/kenzanlabs/kubernetes-ci-cd
- https://geek-cookbook.funkypenguin.co.nz/recipes/kubernetes/miniflux/
- https://www.virtuallyghetto.com/2020/06/interesting-kubernetes-application-demos.html
- https://github.com/GoogleCloudPlatform/microservices-demo
- https://www.instana.com/blog/stans-robot-shop-sample-microservice-application/
- https://github.com/instana/robot-shop
- https://istio.io/latest/docs/examples/bookinfo/
- https://github.com/microservices-demo/microservices-demo/tree/master/deploy/kubernetes (sock shop)
- https://github.com/mreferre/yelb
- https://github.com/vmwarecloudadvocacy/acme_fitness_demo

Agones

- https://opensource.google/projects/agones

Resources

KubeDoom

- https://github.com/storax/kubedoom
- https://github.com/baez90/psdoom-containers

kube-chaos

- https://www.shogan.co.uk/kubernetes/i-made-a-kubernetes-game-where-you-explore-your-cluster-and-destroy-pods/
- https://github.com/Shogan/kube-chaos

kube-invaders

- https://kubernetes.io/blog/2020/01/22/kubeinvaders-gamified-chaos-engineering-tool-for-kubernetes/
- https://github.com/lucky-sideburn/KubeInvaders

Minecraft

- https://github.com/docker/dockercraft
- https://hub.docker.com/r/itzg/minecraft-server/ | https://github.com/hoeghh/k8s-minecraft
- https://github.com/stevesloka/kubecraft
- https://github.com/solarhess/kubernetes-minecraft-server
- https://www.juliaferraioli.com/blog/2015/11/containerized-minecraft-roulette/
- https://codeburst.io/run-a-minecraft-server-for-free-on-kubernetes-ac82a892969e
- Docker, Kubernetes, Rancher, Minecraft - https://www.youtube.com/watch?v=oILc0ywDVTk

Kubernetes in VR

- https://medium.com/@iamnayr/building-the-kubernetes-virtual-reality-experience-b681464f0c98
- https://github.com/thenayr/kuberentes-vr-frontend

Game of Pods

- https://kodekloud.com/p/game-of-pods
- https://www.shogan.co.uk/kubernetes/i-made-a-kubernetes-game-where-you-explore-your-cluster-and-destroy-pods/

More ~~Resources~~ Cats

- Cats of Engineering - https://www.adafruit.com/galleries/cats-of-engineering
- Cat As A Service - https://cataas.com
- Cat As A Service on Heroku - https://cataas.herokuapp.com
- The Cat API - https://thecatapi.com
- Cat Purr Generator - https://purrli.com/

Thank You!

 www.murrielgrace.com

 xmurriel