

# introduction to cloud computing ☁

[brettkoonce.com/talks](https://brettkoonce.com/talks)

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# outline

- **best way to get started**
- **interesting tools in general**
- **machine learning related thoughts**
- **recap, next steps**

# bare metal

- **ubuntu 18.04 lts**
- **cores, 16gb  $\cong$  ram, 128gb  $\cong$  m.2/ssd**
- **old gpu, ampere, 8gb  $\cong$  ram**
- **motherboard, power supply**

# kubernetes

- **container orchestration**
- **build docker images**
- **deploy to cloud, autoscaling**
- **devops --> developers**
- **> sudo snap install microk8s --classic**

# pub/sub

- **publisher/subscriber pattern**
- **build apps using decoupled actors passing messages**
- **thing a --> thing b --> thing c ...**
- **cheap, scalable, easy to reason about**

# firebase

- **mobile/web app backend**
- **global shared database**
- **update notifications**
- **write key on server, client updates**
- **fan out**

# beam

- **edit, transform, load (etl)**
- **compose sets of transforms**
- **scalable**
- **open source, java**

# colab

- **jupyter notebooks on demand**
- **free gpu/tpu time**
- **colab pro: get better access/reduced limits**
- **swift notebook**



# kubeflow

- **open source mlops project**
- **> mikrok8s.enable kubeflow**
- **jupyter notebooks**
- **build/train/deploy pipelines, tf-serving**
- **fashion mnist demo**


# ai notebooks

- **google's managed kubeflow service**
- **pre-built images**
- **tf 1.15, 2.x, pytorch, cuda, mkl**
- **easy to get started with**

# tpu

- **custom asic's**
- **large clusters, compute on demand**
- **xla**
- **jax: numpy --> xla bridge**

# swift for tensorflow

- **simplify the process of generating xla code**
- **type safety, auto differentiation**
-  **: cnn's w/ s4tf**
- **intro to s4tf talk --> oct 2020**

# recap

- **linux base**
- **layers on top**
- **add complexity, power, abstractions**
- **local vs. cloud**

# how to get started

- **byob(oxen)**
- **colab**
- **google cloud free credits**
- **tfrc, cloud tpu demos**

**thanks for coming!**