introduction to google cloud and deep learning

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overview

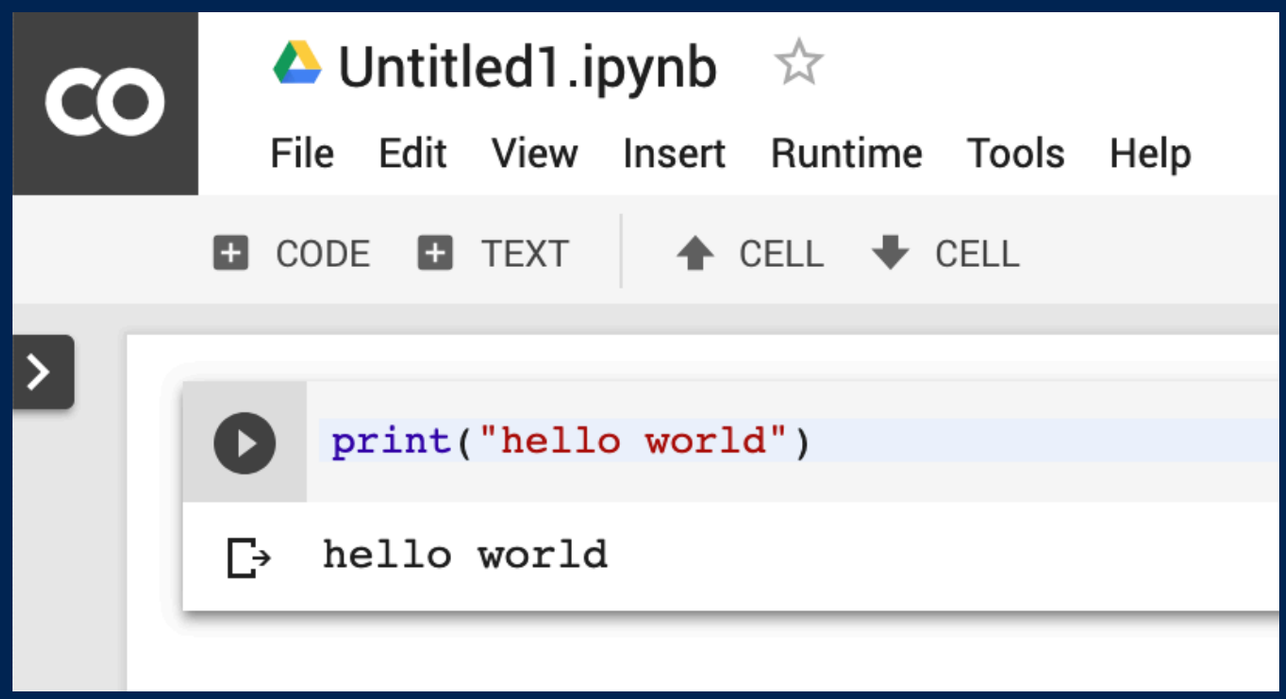
- google cloud intro
- colab, deep learning ami
- tpu: mnist demo, resnet
- buckets, quotas, python versions
- gcp tools, next steps

google cloud platform

- google's tools for building google
- battle hardened, scale
- opinionated tools for building apps
- user authentication, account management
- cloud shell, unix

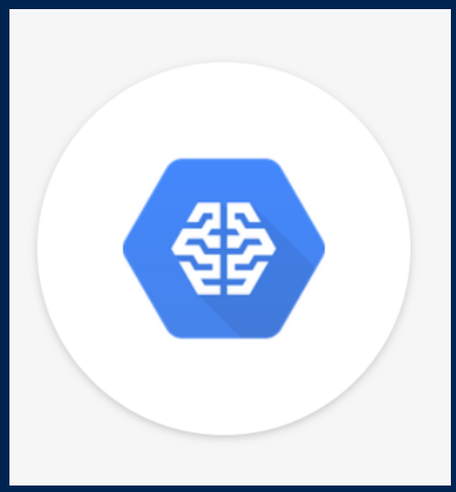
colab

- **free gpu/tpu time**
- **python import**
- **keras mnist demo**

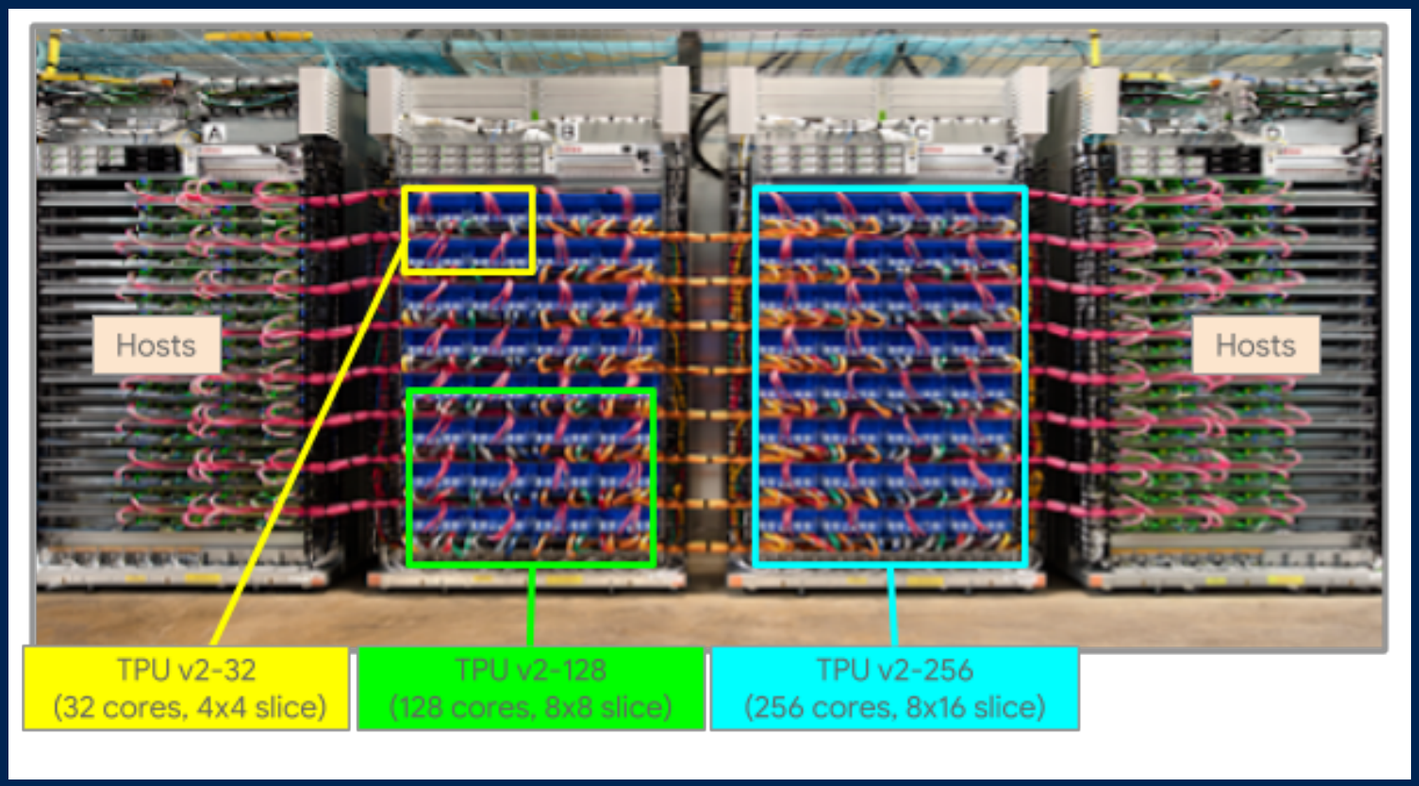


deep learning ami

- deploy via marketplace
- tensorflow 2 demo
- good starting point for experiments
- one click installer for many things

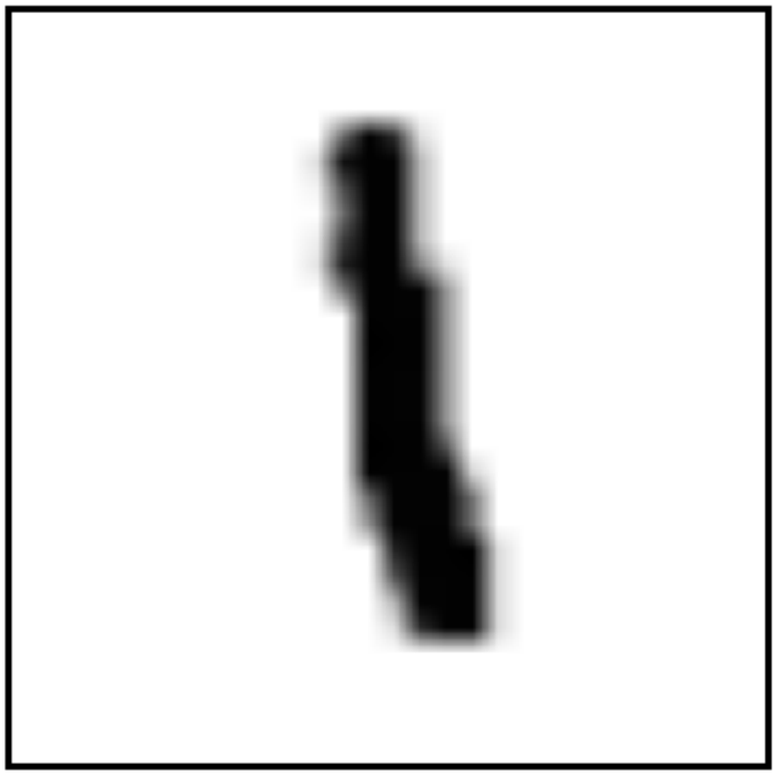


tensor processing unit



- google's cloud gpu, pods
- int8, bfloat16
- init controller, tpu via cloud command

mnist: hello world



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0	0	0	0	0	0	.7	1	0	0	0	0	0	0
0	0	0	0	0	0	.5	1	.4	0	0	0	0	0
0	0	0	0	0	0	0	1	.4	0	0	0	0	0
0	0	0	0	0	0	0	1	.4	0	0	0	0	0
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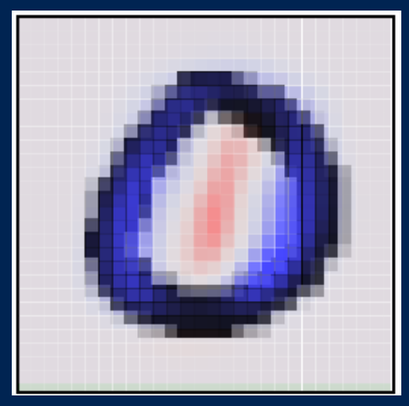
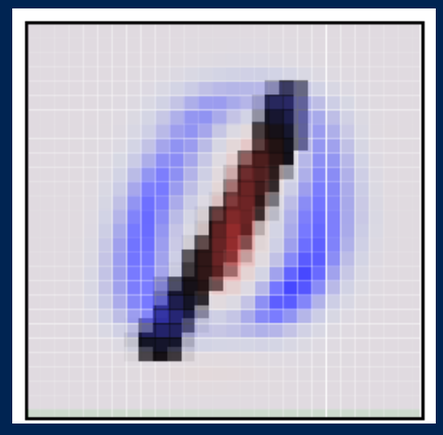
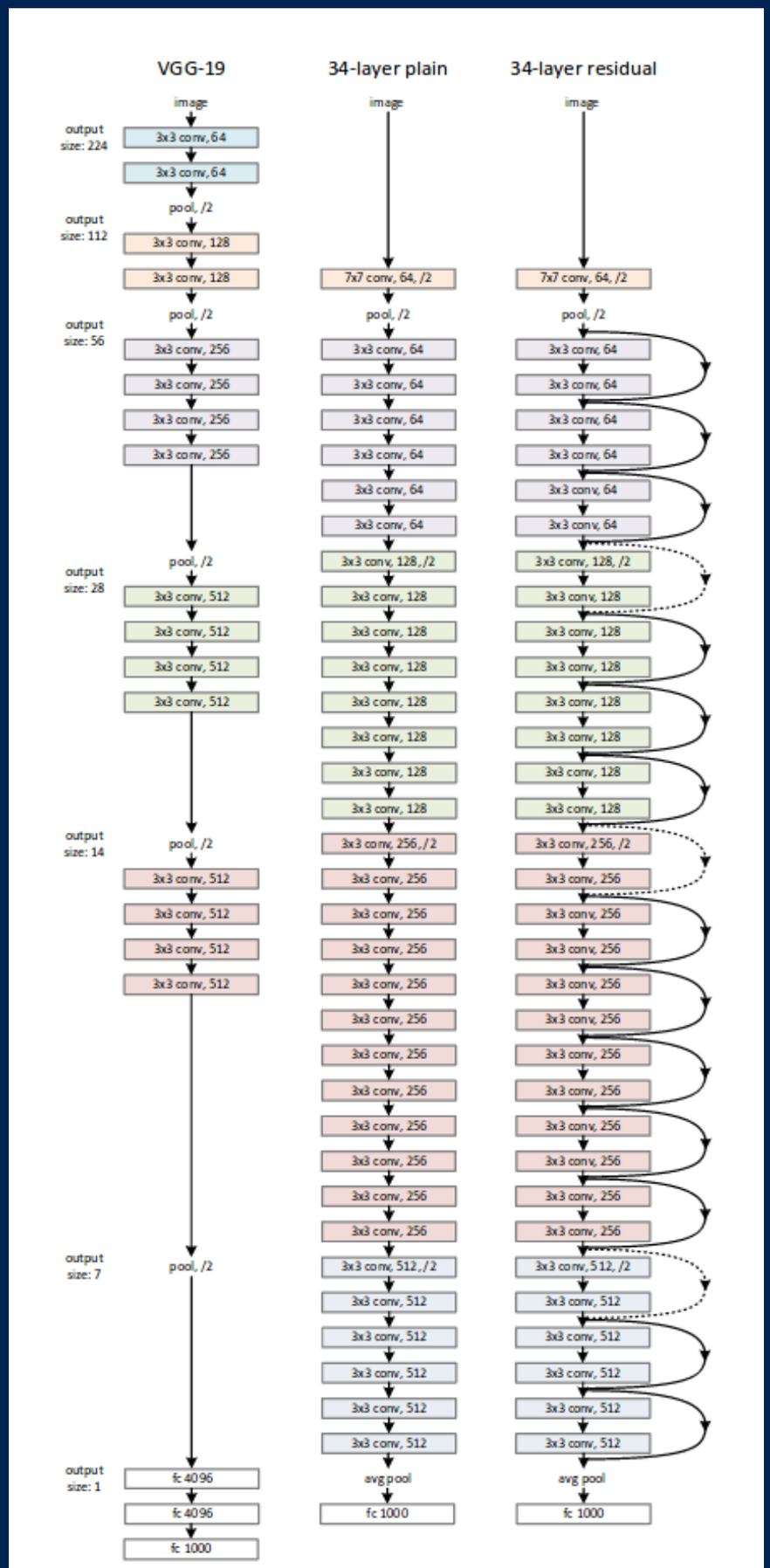
- **tpu demo**





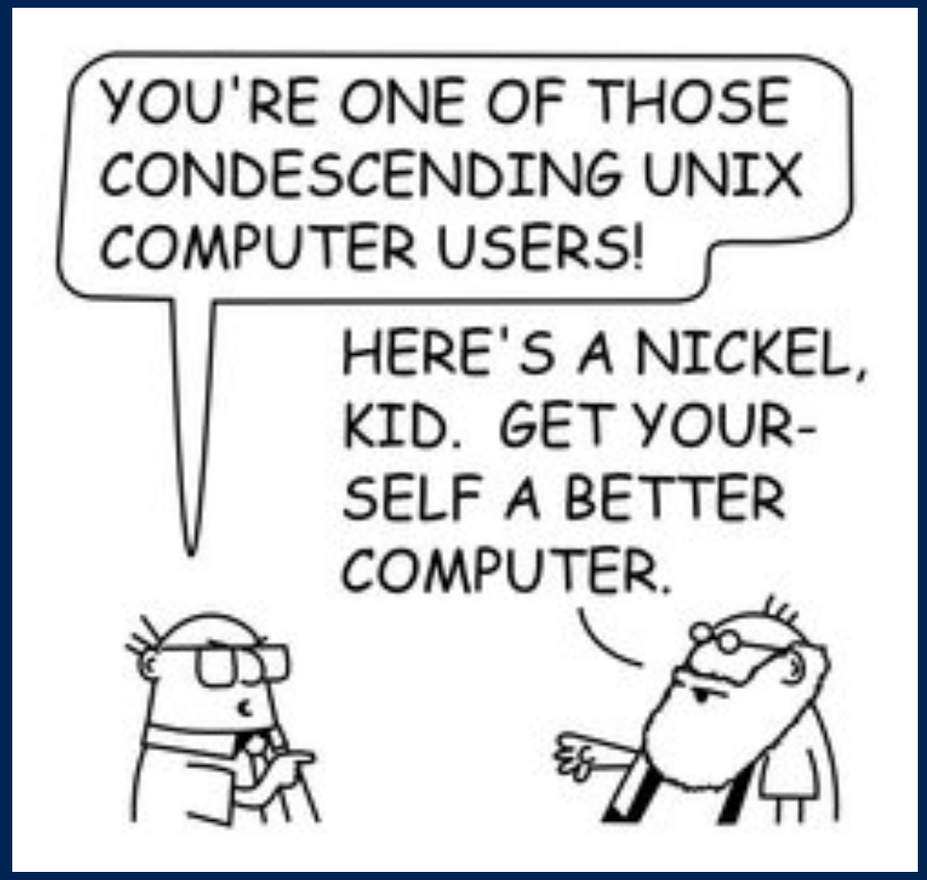
resnet

- residual networks
- imagenet training
- deploy preemptible tpu job using kubernetes
- ~13 hours to run, $1.35/hr —> <$20



errata

- **buckets, gsutil cp / rm**
- **quotas, transfer fees**
- **python 2/3, pip/pip3**
- **ubuntu/debian**
- **sudo tools, PATH**



gcp tools

- api, rest/json
- tensorboard
- bigtable, pub/sub, beam
- stackdriver, mobile app
- vision, nlp, automl

next steps

- **inception, amoebanet, mnasnet**
- **transformer**
- **retinanet, r-cnn**
- **tensorflow/tpu**
- **tensorflow/models**