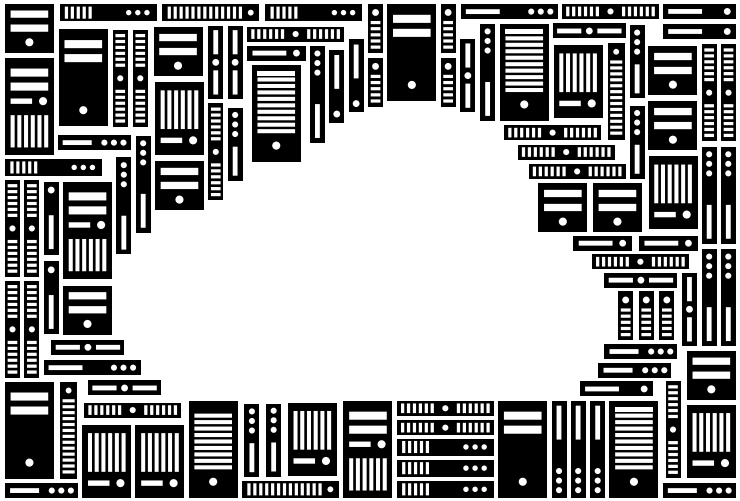
NJIT

Cloud Computing

Ryan Tolboom

New Jersey Institute of Technology

What is it?



There is NO CLOUD, just other people's computers

- A silly catchphrase with a disheartening origin
- Technically it can be IaaS, SaaS, PaaS
- Is it new?
- Why virtualize? Why not just rent servers?

What’s good about it?

Redundancy

Scalability

Co-Location

Lower Bandwidth Costs

Lower Building Costs

Lower Staffing Costs

What’s bad about it?

Recurring Costs

Loss of Physical Control

Security Concerns

How does it work?

Virtual Machines

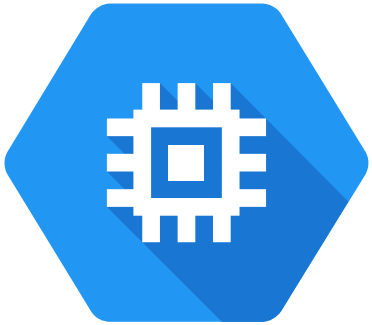
- VirtualBox, QEMU, VMware, AWS Nitro , etc.
- What are they?
- How do they work?
- Why use them?

Containers

- Docker, etc.
- What are they?
- How do they work?
- Why use them?

Who does it?

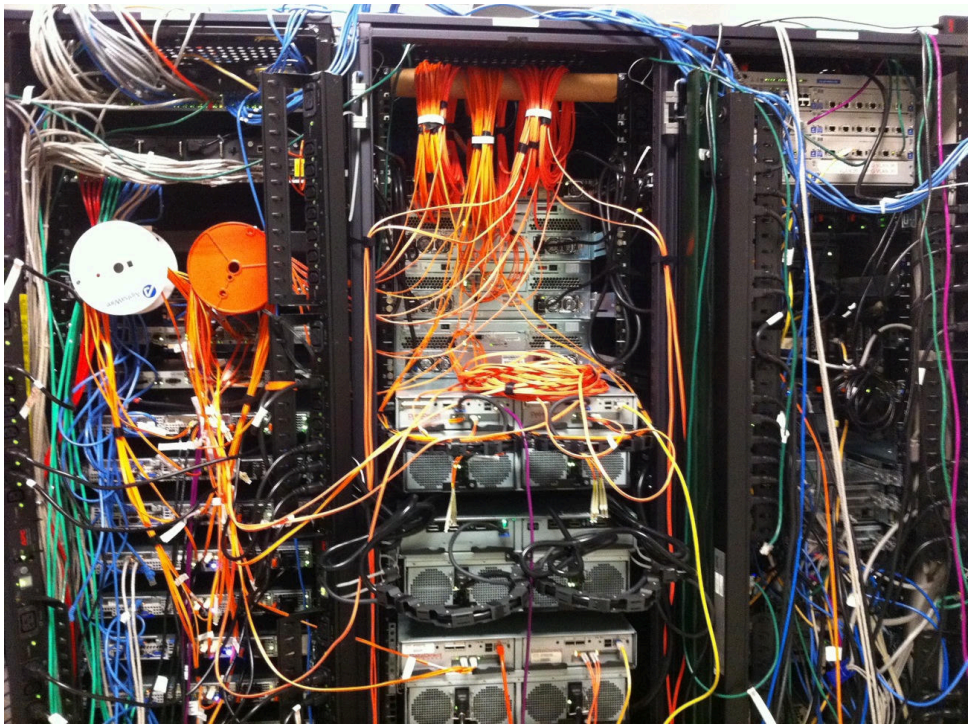
- Amazon Web Services
- Microsoft Azure
- Google Compute Engine
- Most PaaS and SaaS runs on one of these



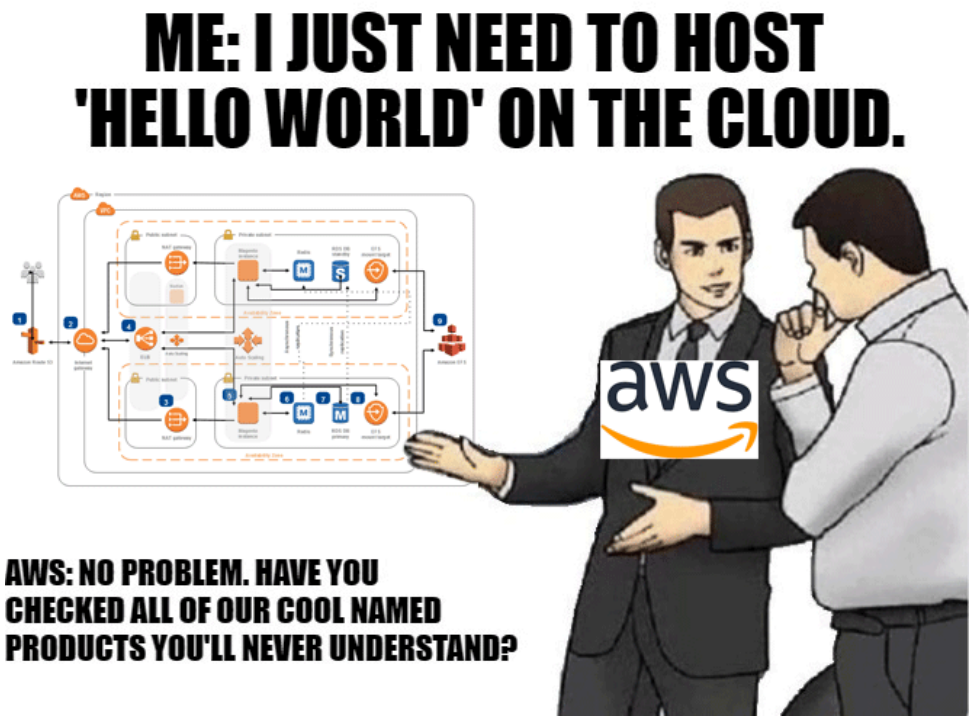
AWS, Azure, and GCE logos are used under fair use

Want to try it at home?

- /r/homelab
- Server hardware is CHEAP (data centers refresh often)
- Virtualization Platforms
  - Proxmox
  - ESXi
  - XenServer
- You will learn a lot
- You may also scare your family members and pets with loud noises and heavy computers!
- What is in the “bare metal” of a virtualization server? Memory and processor cores. The more the merrier.



What can AWS do for you?



AWS in a Nutshell is used under fair use

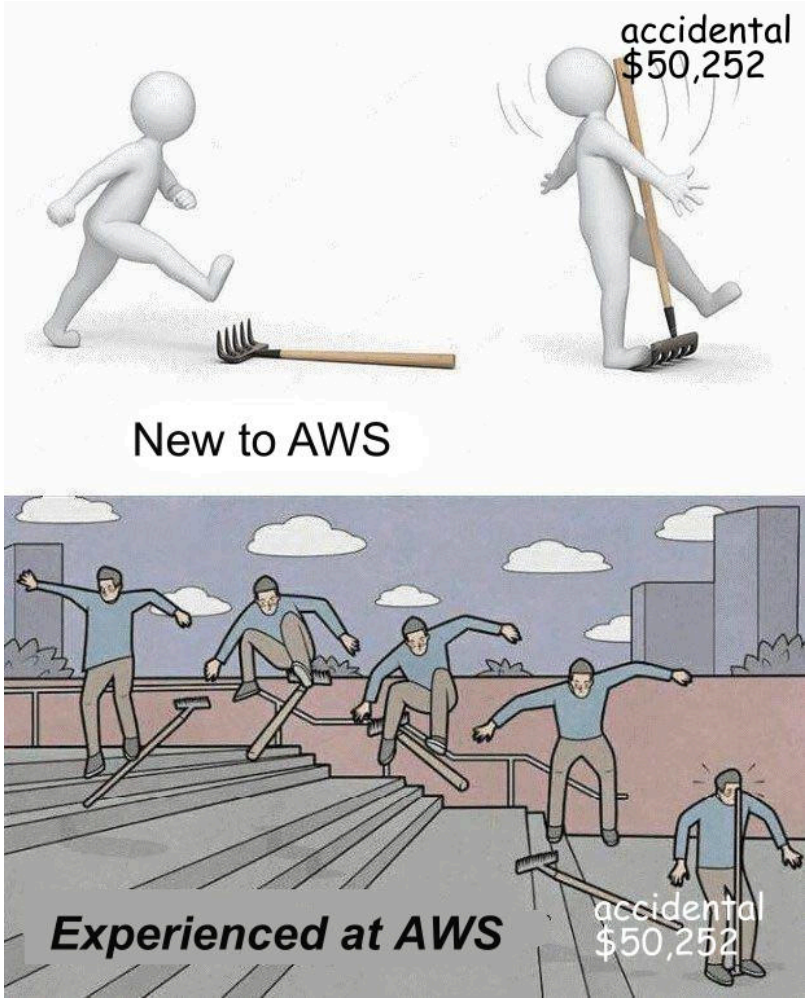
- Network architecture as code (subnets, VPCs, internet gateways, NAT gateways, load balancers, etc).
- Tons of services: S3 storage, RDS database, ECS containers, EC2 compute, IAM identity and access…
- Deploy *quickly*
- Scale *quickly*
- Unique products: spot instances, AMI sharing, mechanical turk 😀

How do you deploy to AWS?

From least favorite to most favorite:

1. AWS Web Console / Instance Management
2. AWS Command Line and scripts
3. AWS Command Line and Ansible/ Vagrant
4. Terraform and Provisioning Scripts
5. Terraform and Ansible

Terraform licensing issue?



Using AWS is used under fair use