Cloud Computing
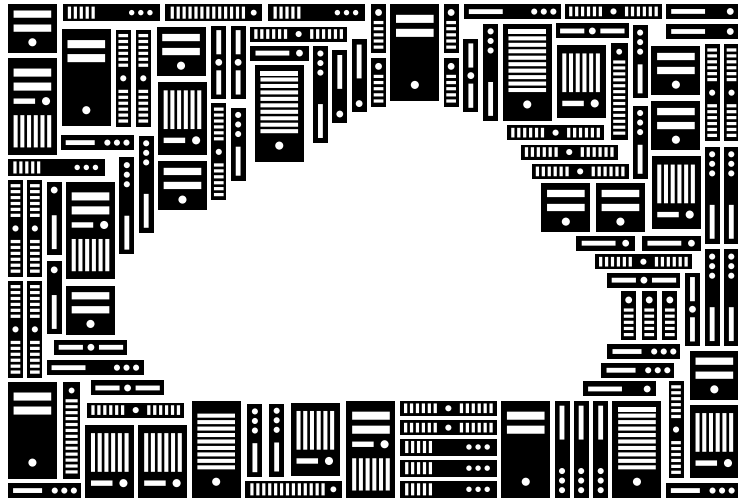
Ryan Tolboom

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?
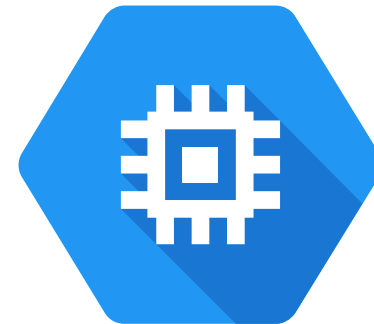
Virtual Machines

- 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
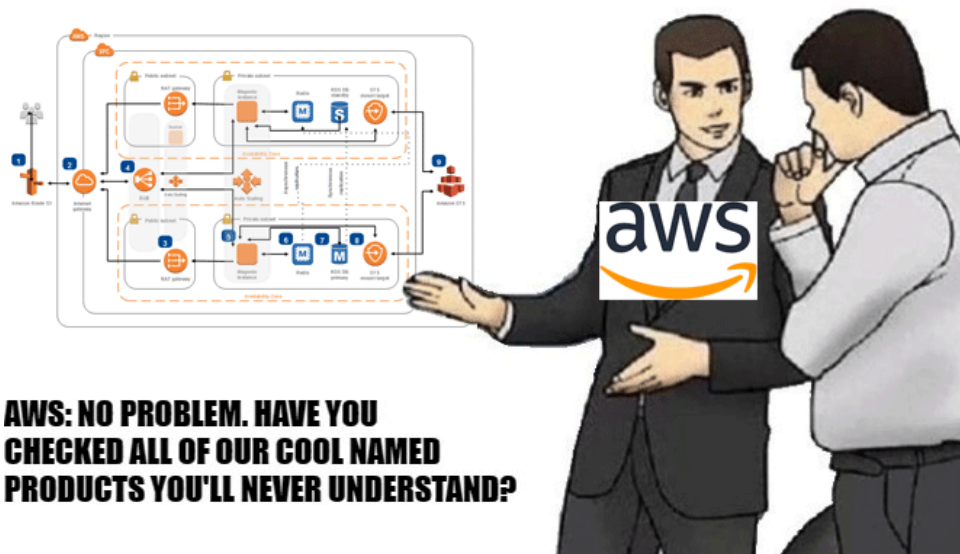
Want to try it at home?

- [/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.
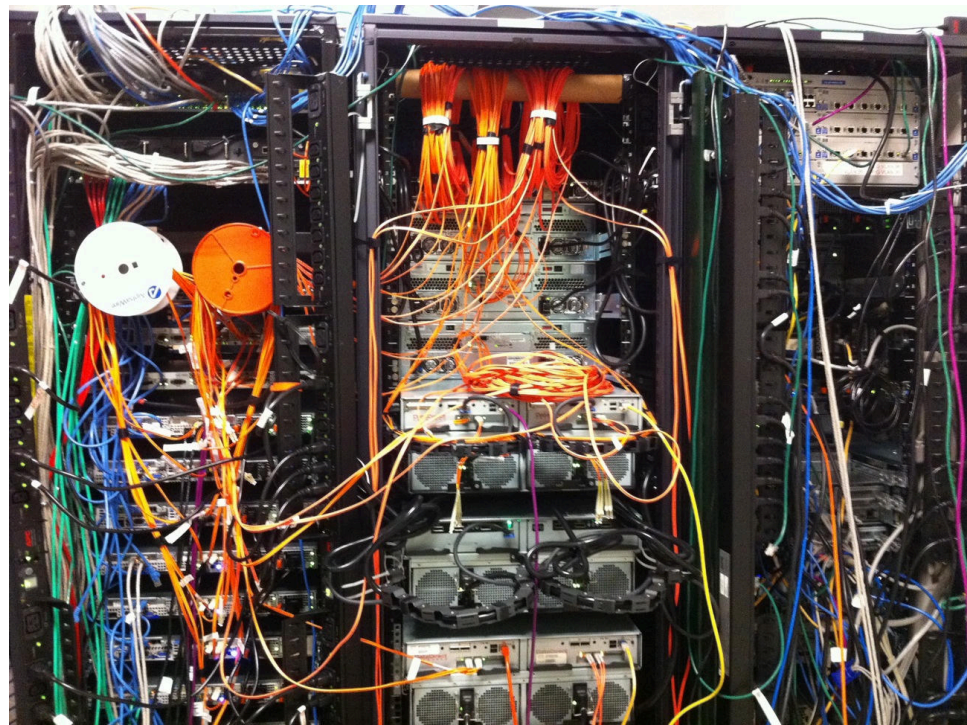
What can AWS do for you?
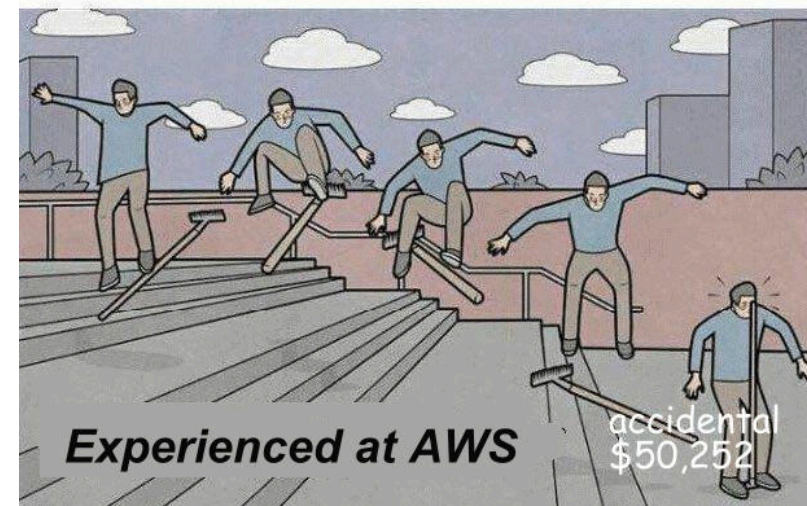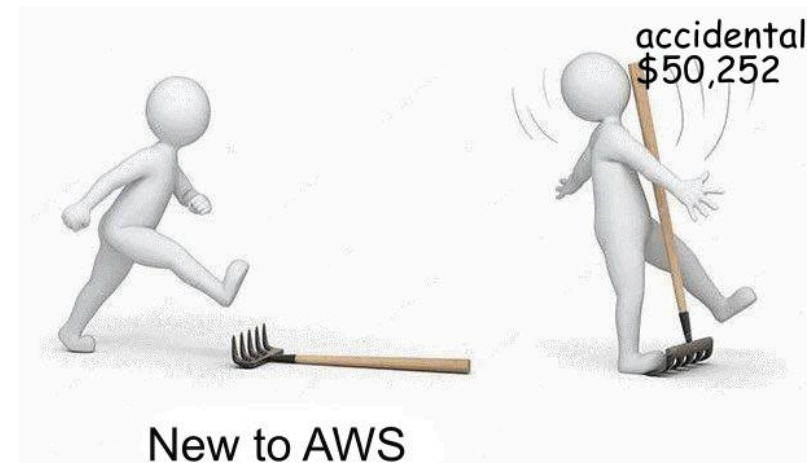

AWS in a Nutshell is used under fair use

- 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