

# Multiplayer Minecraft in Mere Moments


The background of the slide is a Minecraft game scene. In the center, the word "AWS" is written in large, brown, pixelated letters on a grey stone wall. To the right, a player character with a dark skin and a blue and white patterned shirt is visible. The scene is set in a grassy area with a blue sky.

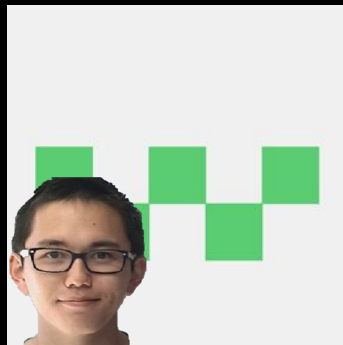
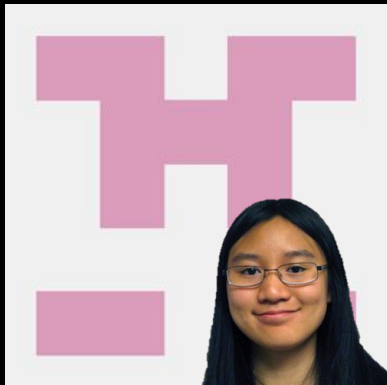
Using *AWS/Docker/REX-Ray* to deploy  
a Minecraft Server in 30 minutes


SCaLE 15x  
March 2, 2017

Proud Heng  
Akira Wong

# About Us

- Proud Heng [@proud\\_heng](#) 
  - Math-CS Junior @ UCSD
  - Mentor for WHS Robotics
  - Keeps Minecraft on “Peaceful”



- Akira Wong [@akiraw95](#) 
  - CS Senior @ UCI
  - Knows what FORTRAN is
  - nano-using casual



Minecraft Is  
**HUGE**

I want to play



with my kids and friends!

Need to set up a Minecraft server, but...

What dependencies  
are there?

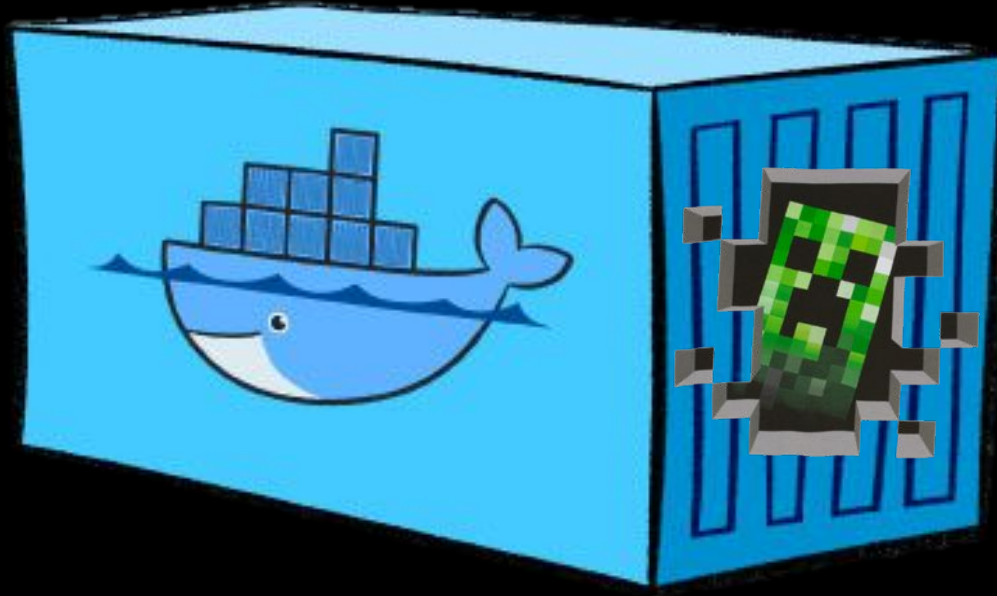
What if something needs to  
be updated?

**IT'S COMPLICATED!**

How do I configure ports  
and IP addresses?

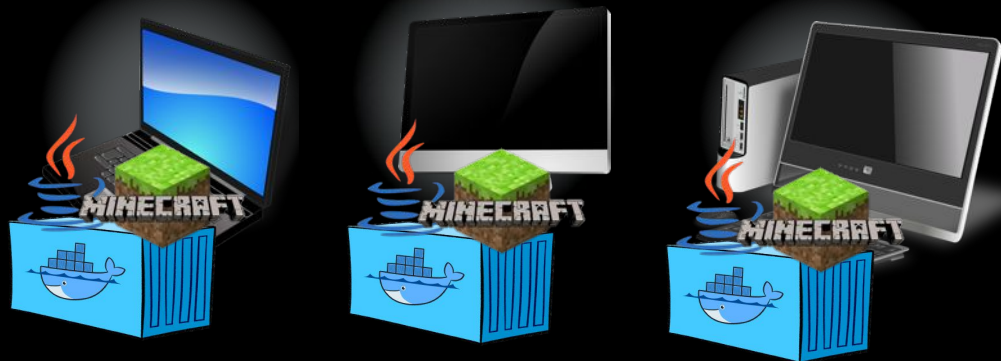
How do I make sure it  
stays online?

# Solution: Containers



# What's a Container anyway?

- Isolated app environment, similar to a VM
- More lightweight; scalable
- Portable



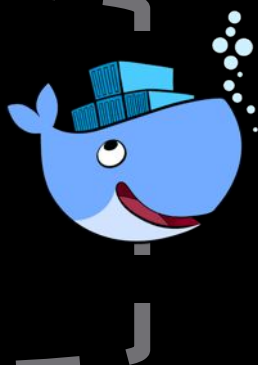
Docker container



# What's a Container anyway?

## Automated configuration

```
Dockerfile
FROM ...
RUN ...
EXPOSE ...
CMD ...
```



## Stateless

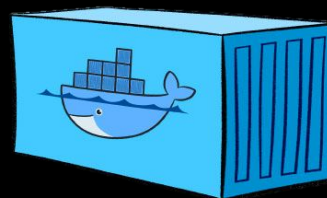
store data  
in container

```
01111001011000010111
10010010009001010010
01000101010110000010
11010101001001100001
01111001001000010010
00010010000100100001
```

kill container

```
01111001011000010111
10010010009001010010
01000101010110000010
11010101001001100001
01111001001000010010
00010010000100100001
```

start container  
again...



...state not  
retained

Statelessness - What was that?

Containers **do not** retain data between instances

ONE TINY PROBLEM...









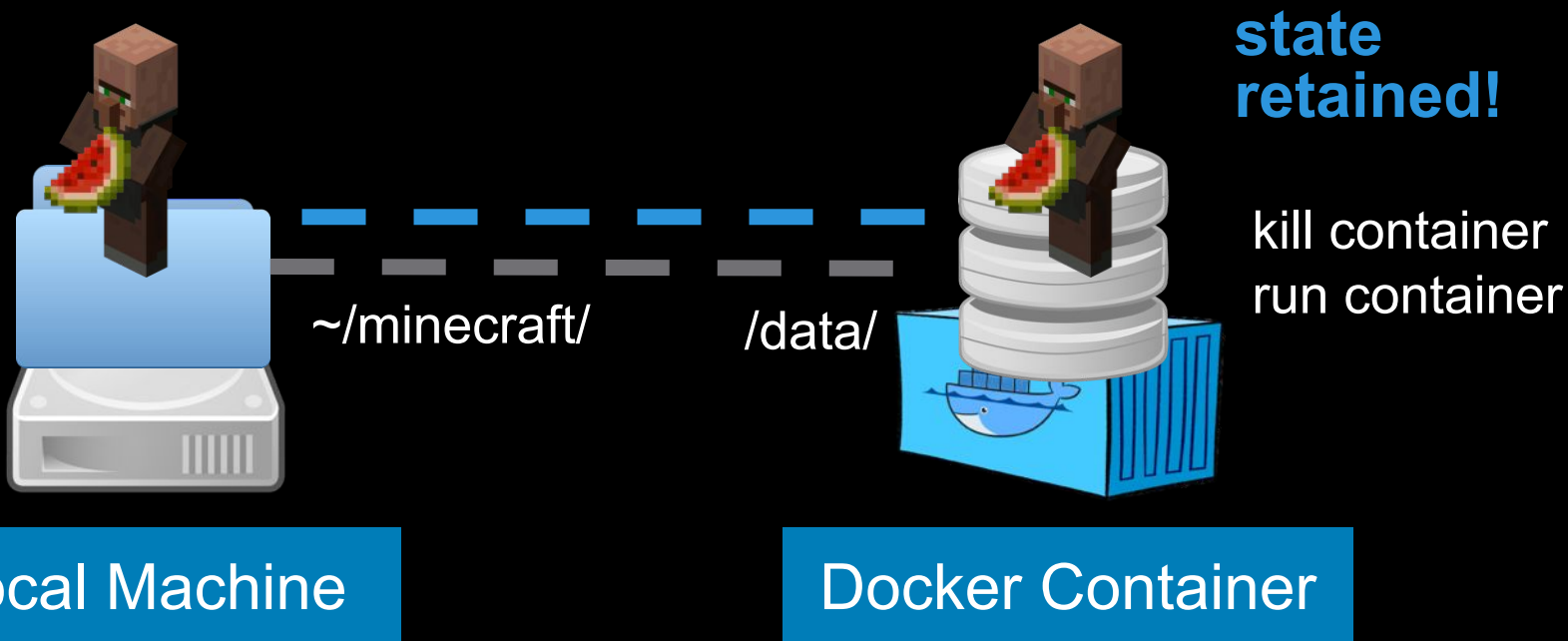


How do I make sure my Minecraft server's data is safe?



# Volume Mounts

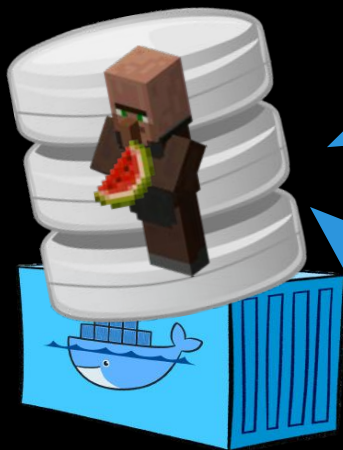
- My container needs to be **stateful** to store Minecraft server data.
- Mount local directory as volume for container.



# REX-Ray to the rescue

## Where should we save our Minecraft server data?

Mount local storage as volume for container!



Instead of local storage...  
Mount cloud storage as volume for container!



REX-Ray

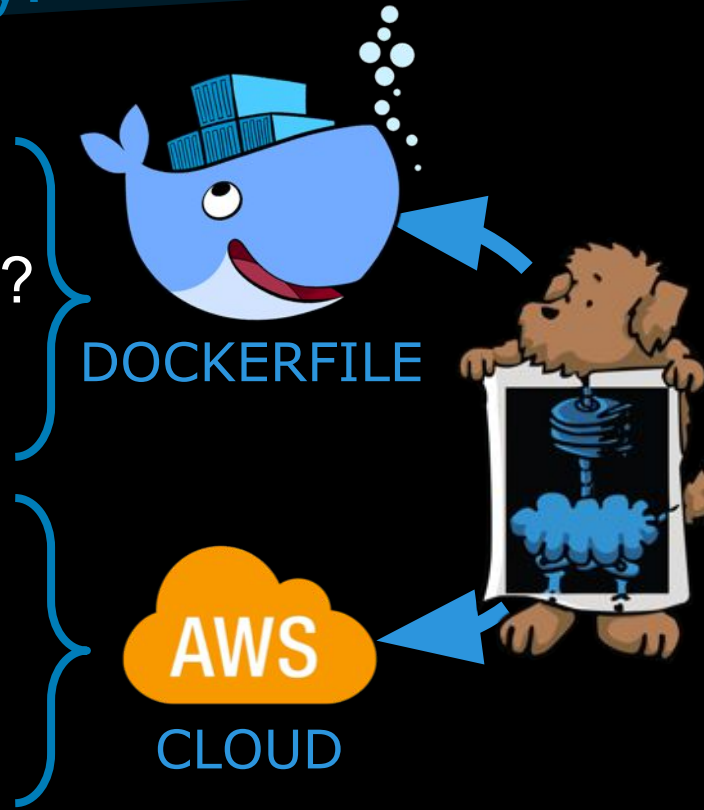


# DEMO



# Setting up Minecraft servers is easy!

- What dependencies are there?
- What if something needs to be updated?
- How do I configure ports?
- How do I configure IP addresses?
- How do I make sure it stays online?
- How do I make sure my Minecraft server's data is safe?





# Now what can you do?

- Configure a virtual machine on AWS
- Install Docker and REX-Ray
- Get a Minecraft server running
- Play Minecraft with friends and family
- Upgrade your AWS virtual machine





## Docker

- Automated application deployment
- Isolated application environment
- <https://www.docker.com/what-docker>



## REX-Ray

- Open source volume driver for Docker
- Mounts remote volumes to store application data
- <http://rexray.readthedocs.io/en/stable/#rex-ray>



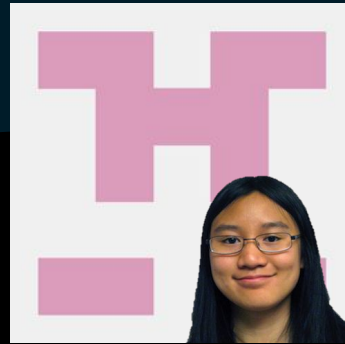
## EC2/EBS

- Deploy virtual machines in the cloud
- Persistent storage in the cloud
- <https://aws.amazon.com/ec2/details/>

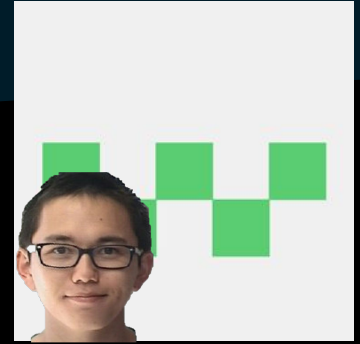
# Resources & Contact Info

proud.heng@gmail.com

wong.akira95@gmail.com



@proud\_heng



@akiraw95

<https://github.com/akiraw95/minecraft-container>

The screenshot shows the GitHub repository page for 'akiraw95/minecraft-container'. The page includes the repository name, navigation tabs (Code, Issues, Pull requests, Projects, Wiki, Pulse, Graphs, Settings), and repository statistics (2 commits, 1 branch, 0 releases, 1 contributor). The main content area displays the 'Dockerfile + Instructions for Deploying Stateful Minecraft Server via Container' with a table of files:

File Name	Description	Last Commit
Dockerfile	Dockerfile & README Instructions	40 minutes ago
README.md	Dockerfile & README Instructions	40 minutes ago