THE UNIVERSITY OF
MELBOURNE

Melbourne Research Cloud

MRC Demo

- Login to MRC (https://dashboard.cloud.unimelb.edu.au/auth/login/?next=/)

- The dashboard
  - Overview (Resource allocation)
  - Instances (Create, terminate and configure instances)
  - Volumes (Create, terminate, attach and backup)
  - Images (Create image, list image)
  - Access & Security (Security groups, key pairs, API access)

MRC Demo

- Create a new key pair
  - Create from the dashboard; or,
  - *$ ssh-keygen -t rsa -f cloud.key*

    (Unix/Linux/MacOS, see Putty for Windows); and,
  - *$ chmod 600 cloud.key*

    (Unix/Linux/MacOS, or get UNPROTECTED PRIVATE KEY FILE! error)

- Launching a new VM
  - Availability Zone
  - Source
  - Flavor
  - Key Pair

MRC Demo

- Connecting to VM via SSH
  - Private key (your secret key to keep secure)
  - *$ ssh -i <private-key> <username>@<hostname>*
    - *e.g., ssh -i cloud.key ubuntu@example.com*

- Install Nginx
  - $ sudo apt update
  - $ sudo apt upgrade
  - $ sudo apt install nginx

MRC Demo

- Setting up security groups
  - Security groups act as a virtual firewall that controls the traffic for one or more instances
  - It contains a set of security rules
  - Default security group only allows SSH (from anywhere)
  - Create a security group
  - Create a rule
    - CIDR (https://en.wikipedia.org/wiki/Classless_Inter-Domain_Routing)
      - 128.250.0.0/16 (All IPs from UoM)
      - x.x.x.x/32 (x.x.x.x only, use CIDR calculate for IP range calculation)
    - Security Groups

Note: be careful with security.
Only open ports that are needed!

MRC Demo

- Attach a volume
  - Check the device name:
    - *$ sudo fdisk -l*
    - *sudo* = runs commands with security privileges of another user
      - (by default: superuser)
  - Create the mounting point
    - *$ sudo mkdir /data*
  - Format the volume
    - *$ sudo mkfs.ext4 /dev/vdb*
  - Mount the volume
    - *$ sudo /dev/vdb /data*
- Create snapshots
  - Snapshot for an instance
  - Snapshot for a volume

Note: if you don't know Linux or what commands like *df -h* do, then Google is your friend!

Basic recipes to follow…

- SSH
  - *ssh-keygen -t rsa -f cloud.key* (Unix/Linux/MacOS, see Putty for Windows)
  - *chmod 600 cloud.key* (or get UNPROTECTED PRIVATE KEY FILE! error)
  - *ssh -i cloud.key ubuntu@<instance_ip>* (Ubuntu)
  - *ssh -i cloud.key ec2_user@<instance_ip>* (Amazon Linux, RHEL)
- Volume
  - *sudo fdisk -l*
    - *sudo* = runs commands with security privileges of another user (by default: superuser)
  - *sudo mkdir /data*
  - *sudo mkfs.ext4 /dev/vdb*
    - *mkfs* = make file system
    - *ext4* = type of file system (ext2, ext3, ext4)
      - See http://www.thegeekstuff.com/2011/05/ext2-ext3-ext4/ for details on differences
  - *sudo mount /dev/vdb /data*
  - *df -h*

Basic recipes to follow…

- Install software
  - *sudo apt-get install nginx*
    - *apt-get* installs/removes packages on Ubuntu installations

- Common Shell Commands
  - http://www.dummies.com/computers/operating-systems/linux/common-linux-commands/