

Kevin Wang

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# 2019 Semester 2 Progress

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## Aim

1. For the group, this is a framework for running a scalable workshop.
2. For me, this is a way to learn the general framework of Docker + GC.

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## Memory usage

- ▶ Why did I go through the troubles with all these technologies when laptops, RStudio Cloud, Travis and Binder exists?
- ▶ Memory (computation) usage of this workshop:
  - ▶ scMerge: 4 GB
  - ▶ monocle: 27 GB

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## Additional info

- ▶ Today, we are running two 16 cores, 60GB RAM virtual machines with 50 GB of hard disk space from the US.
- ▶ Machine 1: **35.184.155.86**
- ▶ Machine 2: **34.82.85.245**

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## 1. Setting up Google Cloud

- ▶ Type ``source("/home/setup.R")`` into your console.
- ▶ This copies a **frozen** version of the ``SydneyBioX/SingleCellPlus`` repo into your working directory.

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## 2. Testing out if we blow up the machine

- ▶ Type ``source("./scMerge.R")`` into your console.
- ▶ This will run all the necessary computations in this workshop. Single run should take 2 minutes.
- ▶ You could also try ``source("/home/user_test.R")``

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## While we wait

- ▶ **Docker** is a software and a company.
- ▶ Running a **Docker image** is like running a virtual machine, but more lightweight and more easily distributed.
- ▶ A **Dockerfile** tells Docker how to make an image.

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## While we wait

- ▶ **Google Cloud** takes in a Dockerfile that I wrote in `kevinwang09/scp\_docker` and builds that on the Cloud. (i.e. codes are reproducible)
- ▶ The built image is available on the GC and can be accessed and installed by any of GC's **virtual machines**. (i.e. hardwares are reproducible)
- ▶ Once a VM is set up, I simply upload all the usernames and passwords.



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### 3. Call me sudo

- ▶ System admin can edit all files on disk, including ``sudo rm -rf /home/ellis`` if Ellis asked too many questions.
- ▶ Users can just type ``source("/home/omg.R")`` into your console to edit the files on WD.