Terminology

Whew! We flew through quite a bit there. Here are a few terms which we introduced that you should become familiar with:

- `git`: A tool for storing and manipulating the history of a program edited by many different users. Also known as a distributed version control system (DVCS).
- *Github.com*: A social network for programmers built around `git`. There are other sites like this, such as BitBucket.com and Sourceforge.com
- *AWS*: Amazon Web Services, a set of cloud services for programmers.
- *Heroku*: A layer on top of AWS that greatly simplifies the process of developing and deploying a web application.
- *Gravatar*: A simple site which provides a globally recognizable image that you can use in various social contexts. For example, click here and look at the little images to the left of each `git` commit; those are being pulled from gravatar.com.
- *EC2*: Elastic Compute Cloud, a fleet of virtual machines that you can rent by the hour from Amazon.
- *Virtual machine*: In practice, you are usually not renting a single physical computer, but rather a virtualized piece of a multiprocessor computer. Breakthroughs in operating systems research have allowed us to take a single computer with (say) eight processors and make it seem like eight independent computers, capable of being completely wiped and rebooted without affecting the others.

  A good analogy for virtualization is sort of like taking a house with eight rooms and converting it into eight independent apartments, each of which has its own key and climate control, and can be restored to default settings without affecting the others.

  While these "virtual computers" have reasonable performance, they are less than that of the native hardware. In practice, virtualization is not magic; extremely high workloads on one of the other "tenants" in the VM system can affect your room, in the same way that a very loud next door neighbor can overwhelm the soundproofing. Still, most of the time you don't need an eight room home or an eight processor computer; you need just one room for the night.
- *AMI*: Amazon Machine Image, an operating system + default software package which you can use to initialize any instance.
- *Availability Zone*: the physical location of the instance.
- *EC2 instance*: a particular instance, e.g. `i-2938408`.
- *IP address*: a dotted address representing a machine on the internet, e.g. `171.65.1.2`.
- *Hostname*: The name of a server, e.g. `ec2-1234.amazon.com`.
- *DNS*: The system which maps a hostname like `ec2-1234.amazon.com` to an IP address like `171.65.1.2`.

- *SSH*: Secure Shell, a means of connecting to a remote computer and execute commands.
- *Public Key*: When you hand out your public key, it is like handing out a set of special envelopes. Any who has your public key can put their message in one of these envelopes, seal it, and send it to you. But only you can open that message with your private key. Both of the "keys" in this case can be thought of as long hexadecimal numbers. Github asks for your public key to confirm your identity in future interactions; essentially for all future communications they send you a message that only you can open (with your private key). By decrypting this message and sending it back to them, they know that you must have the private key and so they authorize the operation.
- *RSA*: A kind of encryption algorithm that generates both public and private keys. Always run this locally on your machine; anyone who knows your private key can decrypt messages encrypted with the corresponding public key and thereby pose as you.