# Modern Linux Administration

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# Version Control

Who knows what this is?

Who has used it before?

Who uses it for every project?

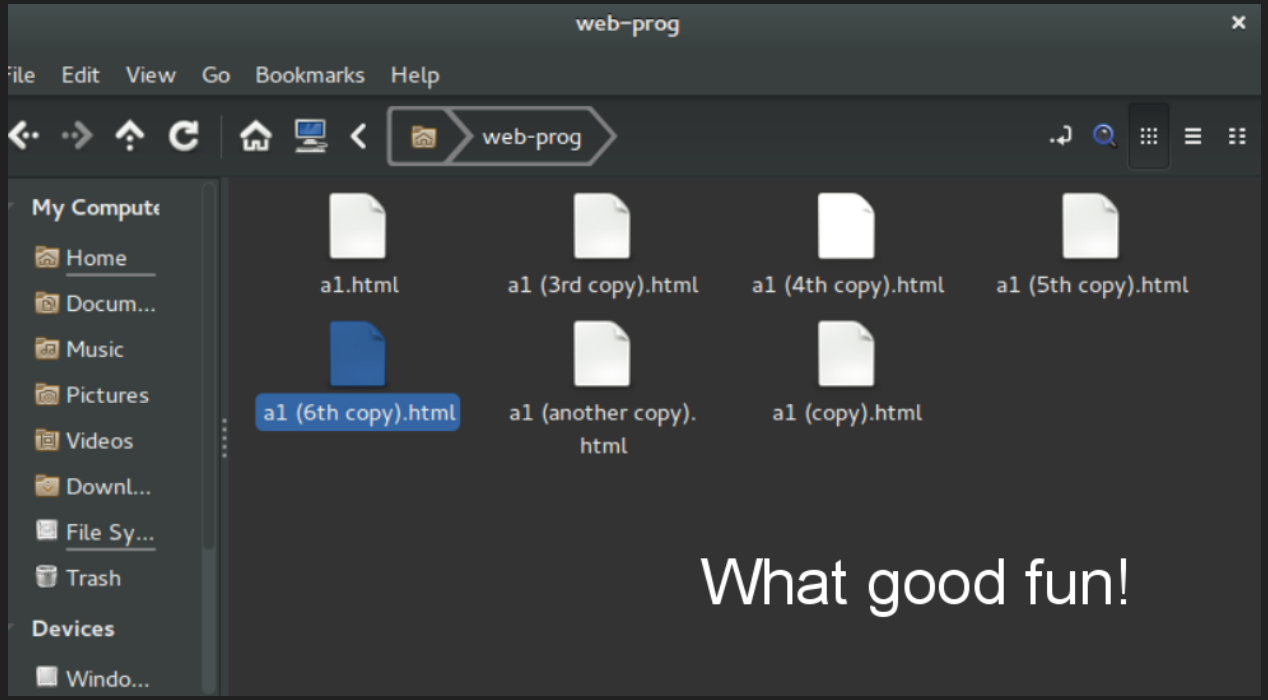
# Version Control

A tool that tracks the evolution of your code.

- Tracks changes to the code
- Provides an audit trail (why is this important?)
- Allows us to go back in time
- Allows us to test new things in parallel (branching)
- Allows many people to work on the same code easily

  - Git is without a doubt the most popular tool, you need to learn it!
  - You should be writing code to configure your servers!

# Better than this...



# It makes life better

Everything should be in version control...

# What does a SysAdmin do?

1. Puts out fires
2. Builds infrastructure (this could be cloud, datacentre, networking, storage etc)
3. Supports infrastructure (hardware failures, capacity, performance, etc)
4. Deals with security (patching and sometimes breaches)
5. Helps deploy software (often via Continuous Integration)
6. Builds tools (to do all the above)
7. Automates stuff (all of the above)
8. Many more things...

# What makes life easier for SysAdmins?

Tools and processes that offer:

- Consistency
- Automation
- Repeatability
- Idempotence and Atomicity
- A single source of truth
- Easy roll back

Especially if you manage many machines...

# What is DevOps

The practice of Operations and Development working together throughout the entire life-cycle of some software/system, from design through to production support, through to decommissioning.

It’s really good when this happens!

# Managing Servers

I have 1000 servers I manage.

I need to update a package on all of them.

What should I do?

- SSH into each one individually?
- Write a script to do this?
  - Is this scalable?
- Give up and be a manager?

# Imagine

- What if I could use code to define the state I want my servers to be in?
- What if that code could be kept in version control?
- What if that version control could be the single source of truth for all my servers and I never had to guess what state they were in?
- What if there was a tool that could take this code and use it to automatically configure all my servers?

# Puppet

Puppet == Configuration Management == Version Control for servers

# More Puppet

Puppet is designed to manage the configuration of Unix-like (and Windows) systems declaratively (you’re “declaring” what state you want something to be in).

The user describes system resources and their state using Puppet's configuration language (very similar to Ruby) and this information is stored in files called manifests.

Puppet works using the client-server model. You run a master and install the agent on nodes you want to manage.

The nodes periodically hit the master asking if it has any new configuration for them, if so, it is pushed down and applied without the need for user input.

# Let’s get into it

We’re going to configure a Puppet master and set it up to manage itself.

We will then write a trivial manifest and apply it.

From there you should play with it, this is very much a learn by doing concept.

Go here: https://github.com/dushankw/rmit-usap-2016

NOTE: I’m going to be using AWS and presume you have your accounts setup, if not, there are instructions in the git repository.