# Campus Network Design Workshop

## A few Linux Basics

UNIVERSITY OF OREGON

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# Our chosen platform

**Ubuntu Linux 14.04.3 LTS 32-bit**

– LTS = Long Term Support

– no GUI, we administer using ssh

– Ubuntu is Debian underneath

- There are other platforms you could use:

– CentOS / RedHat, FreeBSD, …

- This isn't a UNIX admin course, but some knowledge is necessary:

– Worksheets are mostly step-by-step

– Please help each other or ask us for help

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# You need to be able to....

- Be *root* when necessary: `sudo <cmd>`
- Install packages

  `$ sudo apt-get install <pkg>`
- Edit files

  `$ sudo joe /etc/mailname`

  `$ sudo vi /etc/mailname`
- Check for the process "apache"

  `$ ps auxwww | grep apache`
- Start/Stop services

  `$ service <NAME> start | stop | restart`

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# joe editor

- Ctrl-C quit without saving
- Ctrl-K X to quit and save
- Cursors work as you expect
- We provide a PDF reference in the materials

# vi editor

- The default editor for all UNIX and Linux distributions

- Can be difficult to use

- If you know it and prefer to use vi please do

- We provide a PDF reference in the materials

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# Other tools

- Terminate foreground program:
  - `ctrl-c`
- Browse the filesystem:
  - `cd /etc`
  - `ls`
  - `ls -l`
- Delete and rename files
  - `mv file file.bak`
  - `rm file.bak`

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# Viewing files

Sometimes files are viewed through a pager program ("more", "less", "cat"). Example:

- `man sudo`
- Space bar for next page
- "b" to go backwards
- "/" and a pattern (/text) to search
- "n" to find next match
- "N" to find previous match
- "q" to quit

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# Using ssh

*Configuring and using ssh incorrectly will guarantee a security compromise…*

## The wrong way:

– Using simple passwords for users

– Allowing root to login with a password

– In reality – allowing *any* login with a password

## The right way:

– Disable all password access

– Disable root access with password

– Some disable root access completely

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# Using ssh: our way

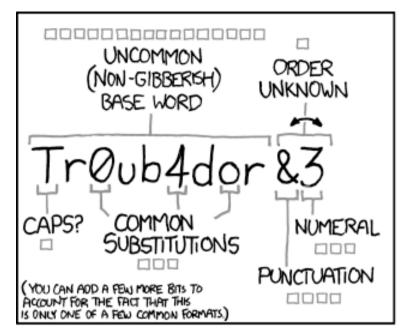*For class we will compromise.*

**<u>Our way:</u>**

- Allow user login with <u>improved passwords</u>
- Allow root login with ssh keys only


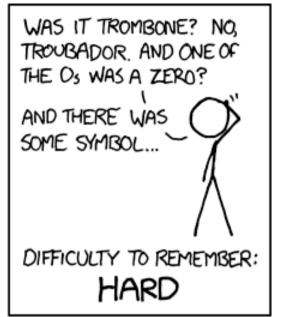Understanding password strength, see next slide…*
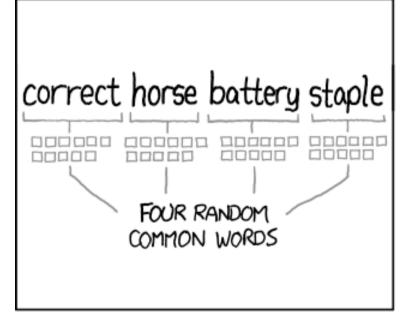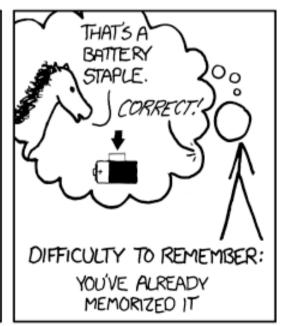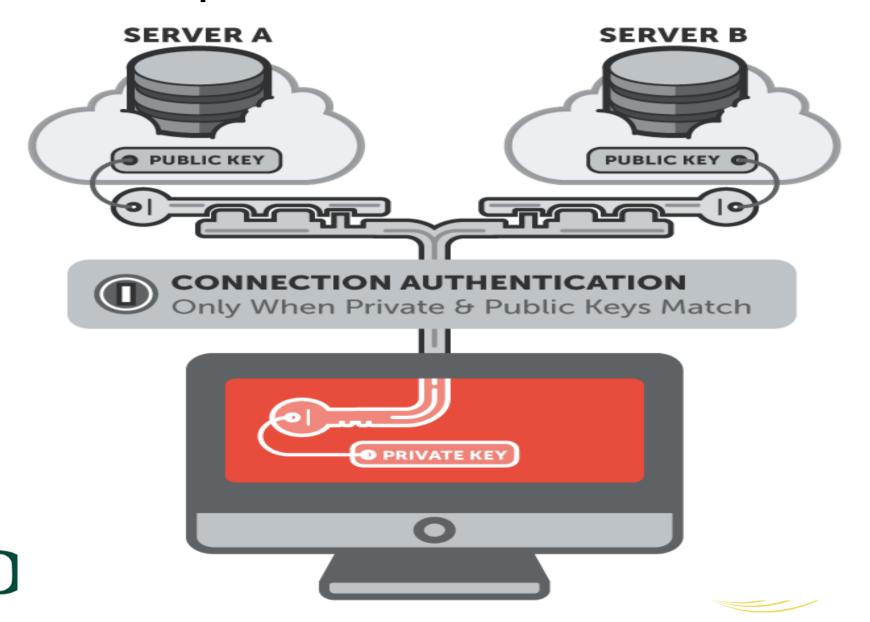

*https://xkcd.com/936/

Through 20 years of effort, we've successfully trained everyone to use passwords that are hard for humans to remember, but easy for computers to guess.

# No passwords are better

# Improve password for *sysadm*

**Method 1** (moderately strong)

- 8 characters or more

- Not a word in any language

- A mix of numbers, upper and lower case

- Include some punctuation characters

**Method 2** (stronger)

- Use four words of 6 characters, or more

- Use unrelated words

**Examples** (*do not use these!*)

1. Tr0ub4dor&3

2. CorrectHorseBatteryStaple

# Using ssh to connect to your VM

Login to your virtual machine using ssh

- On Windows use putty.exe
- Connect to pcN as user *sysadm*
- *We'll do that now...*

- Accept Public Key when prompted
- Windows users can download *putty* from http://noc.ws.nsrc.org and connect
- Instructors will now assist everyone to connect

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# Change sysadm password

Logged in as user *sysadm* do:

```
$ passwd
changing password for sysadm.
(Current) UNIX password:       <enter current password>
Enter new UNIX password:       <enter new password>
Retype new UNIX password:      <confirm new password>
```

If everything goes well you will see the message:

```
passwd: password updated successfully
```

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# Disable *root* user password access

Logged in as user *sysadm* do:

```
$ sudo editor /etc/ssh/sshd_config
```

Find the lines that say:

```
#PermitRootLogin no
PermitRootLogin without-password
```

**No changes are needed, please leave these lines as they are and be sure you**

```
PermitRootLogin yes
```

Now exit the file.

Never do this!

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# Finish initial VM configuration

- Now we'll do our initial VM configuration, including:
  - Software package database update
  - joe editor software installation
  - Install network time protocol service and update time
  - Install mail server and utilities
  - Practice using logs
  - Practice using man

# Questions?