CSE 390
Lecture 10

Do anything from anywhere – tools to free your choice of OS

slides created by Marty Stepp, modified by Jessica Miller and Ruth Anderson
http://www.cs.washington.edu/390a/

Important Announcement

- There will **not** be a traditional final
  - Instead, the last Assignment will take the place of the Final
    - Everyone needs to complete it
    - It is a bit more involved / comprehensive than other assignments
    - Have to choose a number of "achievements" and turn in evidence that you completed them
    - If you need to make up an assignment from earlier in the quarter, you can do extra "achievements"
    - **Must earn a passing mark on last assignment to "pass" the course**

Lecture summary

- Remote connections – get to your application or resource from anywhere
- Local options – get your application or resource to work on your setup
- Figure out how to do what you want to do in a new environment
- Course Evals – Don’t forget to fill these out!

Remote Connections: to a linux machine

- You've seen remote connections **to a Linux machine** in action
  - *Departmental attu.cs.washington.edu Linux server*
  - Can use **ssh** (or **PuTTy**) from anywhere – independent of location ***and OS***

Remote Connection: to a Windows machine

What about remote connections **to a Windows machine**?

- RDP – Remote Desktop Protocol, Enables remote connections to a Windows box from anywhere, independent of OS:
  - **From Linux** – **xfreerdp** or **rdesktop** commands, for example:
    - **xfreerdp** -u rea -d CSEPCLAB vdilab4.cs.washington.edu
    - Note: Currently there are some issues on Fedora 22 (see http://vdi.cs.washington.edu/vdi/ for a workaround). On the CSE VM you will need to install xfreerdp and then issue the command: sudo update-crypto-policies and use the command format shown above for xfreerdp.
  - **From Windows** – **Remote Desktop Connection**
  - **From Mac** – **CoRD,** Microsoft Remote Desktop App
- The CSE department offers 15 hosted virtual machine nodes, imaged similar to Windows machines in basement labs, remotely accessible via RDP.
  - Overview: http://www.cs.washington.edu/lab/services/vdi/
  - Pick an available node from the list of currently available nodes: http://vdi.cs.washington.edu/vdi/
  - **Need to use the right domain!!** CSEPCLAB\<username>

Non-remote options: linux on Windows?

- **Cygwin**: unix style environment within Windows
  - https://www.**cygwin**.com/
  - "package manager" is part of the install file
  - Provides the unix-like directory structure
    - Home directory is /home/<WindowsUsername>
  - Your actual windows directory structure is located at /cygdrive/<driveletter>
- Enables: quick use of linux style tools in a terminal environment in Windows
- Compare to: Windows cmd interface

Non-remote options: Windows on linux?

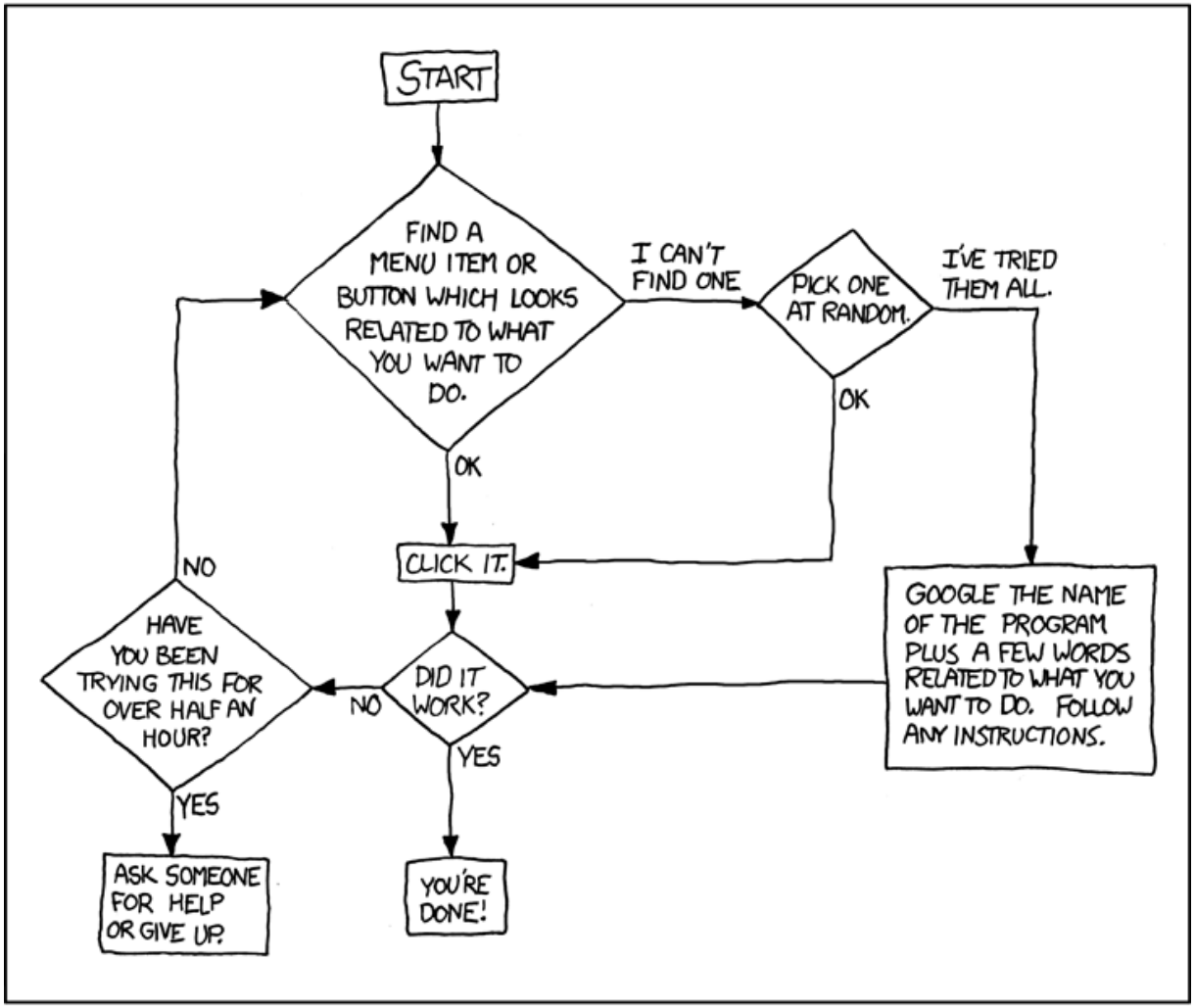
- One barrier to switching to Linux: lots of apps are built for Windows
  - <Insert app here> that I use all the time isn't ported to Linux! ☹
- **Wine** is an attempt at solving this
  - Provides an environment to run Windows applications in Linux
    - http://www.winehq.org/
  - Open source
  - Not perfect, but many people have good success with major programs
    - Many successfully run WoW, MS Office, TextPad…
- Lots of online tutorials / message boards / instructions to get your favorite app working in Linux

The More You Know™

- Another barrier to using Linux as your main Desktop OS: "I don't know how to do <X> in Linux"
  - Imagine you had never seen or used Windows before. Would you somehow intuitively know how to:
    - Change your desktop background/resolution?
    - Install new graphics card drivers?
    - Change system settings? (Control Panel? What's that?)
    - Etc etc…
  - So how do you figure it out?
    - Ever read the Windows manual? (hint: there is no "the" manual)
      - "Windows 7 Product Guide" -- 140 pages, considered very high level
      - "Windows 7 for Dummies" -- 432 pages
      - "Windows 7 Bible" -- 1248 pages
  - What do ***you*** do when you don't know how to do something?

DEAR VARIOUS PARENTS, GRANDPARENTS, CO-WORKERS, AND OTHER "NOT COMPUTER PEOPLE."

WE DON'T MAGICALLY KNOW HOW TO DO EVERYTHING IN EVERY PROGRAM. WHEN WE HELP YOU, WE'RE USUALLY JUST DOING THIS:



PLEASE PRINT THIS FLOWCHART OUT AND TAPE IT NEAR YOUR SCREEN. CONGRATULATIONS; YOU'RE NOW THE LOCAL COMPUTER EXPERT!

Courtesy XKCD

The More You Know™

- Step 1: Try and explore intuitively
  - Hey, you're CSE majors. Where would *you* put that setting if you were designing the system?
- Step 1.5: Look in short, directly relating references
  - Man pages, quick start guides, the TOC in the manual (if exists…)
- Step 2: If that fails, search online!
  - Likely someone else has wanted to do what you want, and *also* couldn't figure it out
    - And, likely they've posted to a discussion board and had some guru give a detailed response
    - Or, a FAQ has been written somewhere that tells you how

Mix and match

- Don’t think of Linux/Windows as a binary choice
- These tools provide a continuum of options
  - Windows
  - Windows + Cygwin
  - Windows + Cygwin + Linux VM
  - Linux + Windows VM + Wine
  - Linux + Wine
  - Linux
- Can choose the setup that best suits your situation and application requirements

The choice is yours

- To clarify: the purpose here was not to say "you should switch to Linux as your main OS"
  - But, you should know what tools and options exist, and be able to use Linux as your main OS if desired
  - You should be able to survive if someone locked you in a closet with a laptop that had Fedora or Ubuntu

- Wrap up discussion:
  - What tools seem the most useful that you learned this quarter?
    - What tools seem like they address important areas, but need to be better?
  - From your experience, are there other tools you think you'd mention in this course, tools CSE majors should be aware of?
    - Linux commands/tools, programming development tools…