Desktop Linux Technologies

Systems Administration DeCal
Week 10
Joshua Kwan

Final Projects!

- Start doing 'em! Presentations in 2 weeks!

- Ask me questions!

- Don't get screwed at the last minute!

- You don't present something = NP!

Last time

- Talked about init system, how to start up a Linux machine

- Used on many Linux versions

- What else is needed?

"Desktop experience"

- How to define a desktop experience in e.g. Mac and Windows?

"Desktop experience"

- *Windowing system (X11)*

- *Window manager (the literal desktop)*

- Drag-and-drop

- Event notification (D-Bus)

- *Plug and play devices (udev)*

- Easy network management GUI

X11-Windows

- Drives your video card, supports your mouse, supports each window

- The backbone of a Linux desktop

- Client-server networked model lets you use it over a network, like VNC

- Pros: Very, very flexible
  Cons: Network use requires a lot of bandwidth!

X11 tricks

- X can be forwarded over SSH (e.g. running Emacs from home)

- Lying on bed, computer on desk: set DISPLAY variable during ssh session to start new programs on your desk machine

- It's great for being lazy with Unix!

Window manager

- OK, you have your windowing system. Now what?

- You can't drag windows around, resize them, hide them, bring them forward or shift them backward.

- A *window manager* is needed to handle all this.

- examples: Metacity (GNOME), KWin (KDE), xfwm4 (Xfce)

The Earliest Window Manager: twm

Device Enumeration

- Remember what we learned about /dev

- Each file represents the input/output of a particular device on the system

- So to represent all the possible devices you could have, you need an enormous /dev folder - even if they aren't plugged in

- That's only the tip of the iceberg...

Device Enumeration

- *Problem:* A new Linux device driver comes out, complete with new minor/major device numbers. You then need to create entries in /dev yourself. Major pain.

- *Problem:* You have two USB keys. Insert key #1 first and then #2. They are "sda" and "sdb". One day, you insert them in the wrong order and #1 = "sdb", #2 = "sda". You format the wrong key and lose data.

udev

- Works with the Linux kernel directly

- Creates *only* those device nodes that are needed at any given point

- Can assign unique identifiers to certain devices based on ID (avoid the sda/sdb problem)

- Can do certain things like tell the desktop system when you insert a USB key