CS 1550

Week 4 – Setting up environment
for Project 2
Setting up environment for Project 2

• Last time we set the environment for **xv6** and compiled the code from source
• Now we will compile a **Linux** distro from source
1. First log to your `thoth.cs.pitt.edu` account
   • Command line
   • Terminal
   • PowerShell
Setting up environment for Project 2

1. First log to your thoth.cs.pitt.edu account
   • Command line
   • Terminal
   • PowerShell

2. Navigate to /u/OSLab/username
   • Copy linux source from /u/OSLab/original/linux-2.6.23.1.tar.bz2

   • Run cp /u/OSLab/original/linux-2.6.23.1.tar.bz2 .
Setting up environment for Project 2

3. Extract files locally
   • Run tar xjf linux-2.6.23.1.tar.bz2
Setting up environment for Project 2

3. Extract files locally
   • Run `tar xjf linux-2.6.23.1.tar.bz2`

4. Move into `linux-2.6.23.1/
   • Run `cd linux-2.6.23.1`
Setting up environment for Project 2

3. Extract files locally
   • Run `tar xfj linux-2.6.23.1.tar.bz2`

4. Move into `linux-2.6.23.1/`
   • Run `cd linux-2.6.23.1`

5. Copy the `.config` file
   • Run `cp /u/OSLab/original/.config .`
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3. Extract files locally
   • Run `tar xfj linux-2.6.23.1.tar.bz2`

4. Move into `linux-2.6.23.1/`
   • Run `cd linux-2.6.23.1`

5. Copy the `.config` file
   • Run `cp /u/OSLab/original/.config .`

6. Build linux source code
   • Run `make ARCH=i386 bzImage`
Setting up environment for Project 2

• Repeating from step 2 will give you a new environment
  • This will not be necessary unless you really need to
Setting up environment for Project 2

• To add the changes you will need to rebuild the Kernel
  • Run again `make ARCH=i386 bzImage`
Configuring Qemu

• We need a x86 version of Qemu (username and pass is root)
  • Windows Users
    • Download Qemu and a Image
  • Linux/Mac Users
    • Qemu-test
Configuring Qemu

- Unzip Qemu.zip and double-click/execute
  - qemu-win.bat
Configuring Qemu

• Choose Linux(original)
Copying files from Linux to Qemu

• Now we need two files from the Linux we just built
  • Kernel File **bzImage** from:
    • linux- 2.6.23.1/arch/i386/boot/
  • System call map **System.map** from:
    • linux-2.6.23.1/
Copying files from Linux to Qemu

• FROM WITHIN THE NEW QEMU

• Download the files from your compiled Linux:
  • `scp USERNAME@thoth.cs.pitt.edu:/u/OSLab/USERNAME/linux-2.6.23.1/arch/i386/boot/bzImage`
  • `scp USERNAME@thoth.cs.pitt.edu:/u/OSLab/USERNAME/linux-2.6.23.1/System.map`
Copying files from Linux to Qemu

• FROM WITHIN THE NEW QEMU

• Copy the files into the right folder
  • cp bzImage /boot/bzImage-devel
  • cp System.map /boot/System.map-devel
Copying files from Linux to Qemu

• After this run `lilo`ade command:
  • Run `lilo`

• This will relink the new modified kernel you just copied

• Then reboot the system with the command:
  • Run `reboot`
Copying files from Linux to Qemu

• You will change to `linux(devel)` kernel
  • So to see changes always remind to choose it when opening Qemu