CE350 UNIX Scripts and Utilities

IUE

Lecture2

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Lecture 2: Introduction to UNIX/Linux

- Objective of this lecture:
  - to introduce the UNIX/Linux world

Contents of Lectures

- All lecture materials are based on the main textbook, “UNIX Shells by Example”.
- There may be some extra references to other materials.
- LAB/HW sheets may be based on the subjects to be covered in the previous lectures.

Specific Contents of Lecture 2

- A Little History on UNIX/Linux
- Linux
  - Why Linux?
  - Linux Distro
- A little about the Linux file system
- Command Line Interface
  - cd, pwd, ls, ln, find, ps, kill, etc.
- Process management
- File attributes, permissions
- Users

History

- UNIX
  - multiuser, multitasking OS
  - initiated by Ken Thomson
  - in 1969 @ AT&T Labs.
- U.S. DARPA initiated a project to link computers using UNIX (the birth of Internet).
- In the early 1980s, the two most popular versions:
  - System V from AT&T
  - BSD UNIX developed @ UC,Berkeley
- Many different versions are available:
  - http://www.ugu.com/sui/ugu/show?ugu.flavors

Trade history

- In 1993, AT&T sold its UNIX System Laboratories to Novell.
- In 1995, Novell transferred the rights to the UNIX trademark and the specification to The Open Group, and sold SCO the UNIX system source code.
- Today UNIX-based systems are sold by a number of companies (Solaris, HP-UX, AIX, …)
- In addition there are many freely available UNIX and UNIX-compatible implementations (Linux, FreeBSD, NetBSD, ...)

UNIX/Linux

- At the heart of UNIX/Linux is its kernel.
- A large number of tools and utilities are available in UNIX/Linux systems, which make these systems gain popularity.
- An important utility is “shell”, a program that allows the user to communicate with the OS.
- This course, CE350, mainly covers the Linux as the OS and the Bash as the shell.

Linux History

- In 1991,Linux Torvalds, a Finnish college student, developed a UNIX-compatible OS kernel.
- It was designed to be UNIX on a PC.
- Linux mimics UNIX System V and BSD UNIX, however it is not derived from licensed source code.
- Linux is distributed by a number of commercial and noncommercial organizations.
- GNU/Linux:
  - In 1992, the Free Software Foundation added its GNU software to the Linux kernel to make a complete OS, and licensed the Linux source code under its GPL, making it freely available to everyone.

Why Linux for this course?

- GNU/Linux is freely available to everyone.
- GNU utilities improve and extend the features of the standard UNIX utilities.

Why Bash for this course?

- The Bourne and Korn shells are associated with AT&T UNIX, the C shell with Berkeley UNIX, and the Bash shell with Linux.
- Bash is the most prominent shell used in GNU/Linux OS.

Linux Distributions

- You may use any Linux distro(s) in this course.
- A distro contains the kernel, and may include tools, utilities, additional software, desktop environment, etc.
- So many distributions are available:
  - In this course, we shall give some guides for the installation and the configuration of Ubuntu Linux OS.

→ The rest of this lecture will be covered interactively with the students

- The rest of this lecture shall be followed through
  - the introductory UNIX tutorials available @ http://www.ee.surrey.ac.uk/Teaching/Unix/
  - some wikipedia pages, such as http://en.wikipedia.org/wiki/Ln_%28Unix%29
  - the examples of Chapter 1 of the textbook, UNIX Shells by Example, 4th edition.