Linux Basics

INTRODUCTION:

❑ Linux is an operating system.

What is an operating system?

Operating system is used for performing multiple tasks.

❑ Linux is free and open source system ,we can download it .

❑ It is an interface between user and the computer

❑ Linux was developed by Linus Torvalds in the year 1991.

rview of Linux System

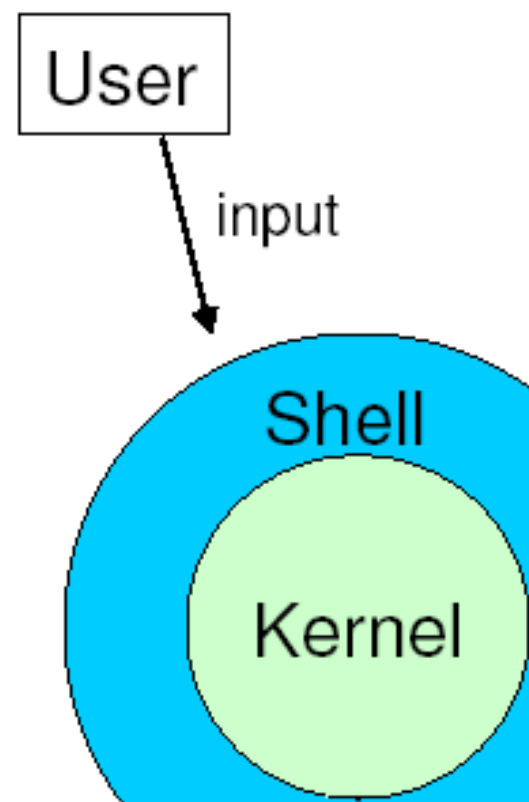## nel & Shell

nux is operating system (OS).

nux system is described as kernel & ell.

ernel is a main program of Linux stem.It controls hard wares, CPU, emory, hard disk, network card etc.

nell is an interface between user and ernel. Shell interprets your input as mmands and pass them to kernel

User

input

Shell

Kernel

Types of kernels

- Micro kernel (Modular kernel)
- Monolithic kernel

Micro kernel

- It includes code only necessary to allow the system to provide major functionality.
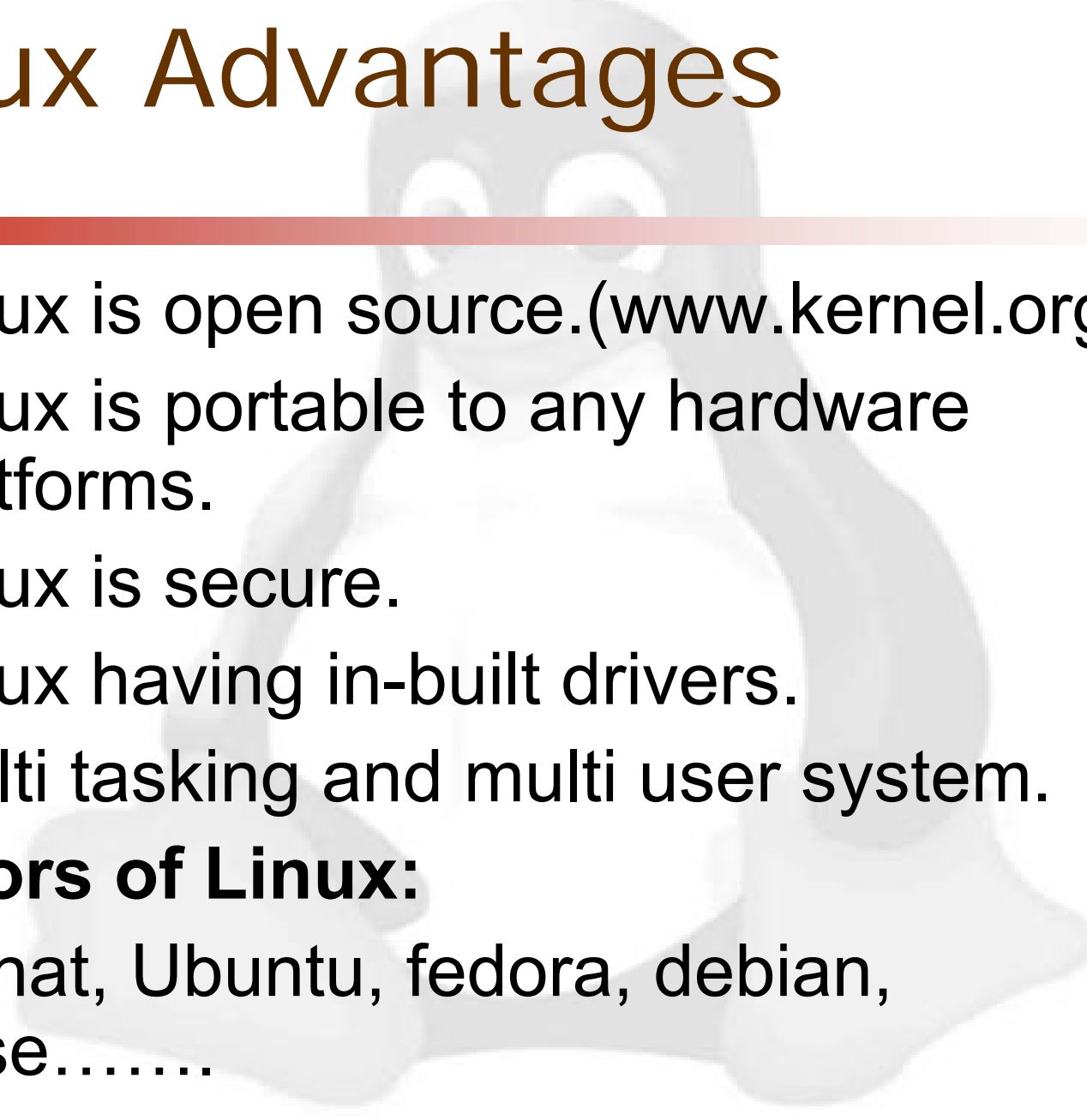
  Ex: Such as Amoeba, Mach and …

Monolithic kernel

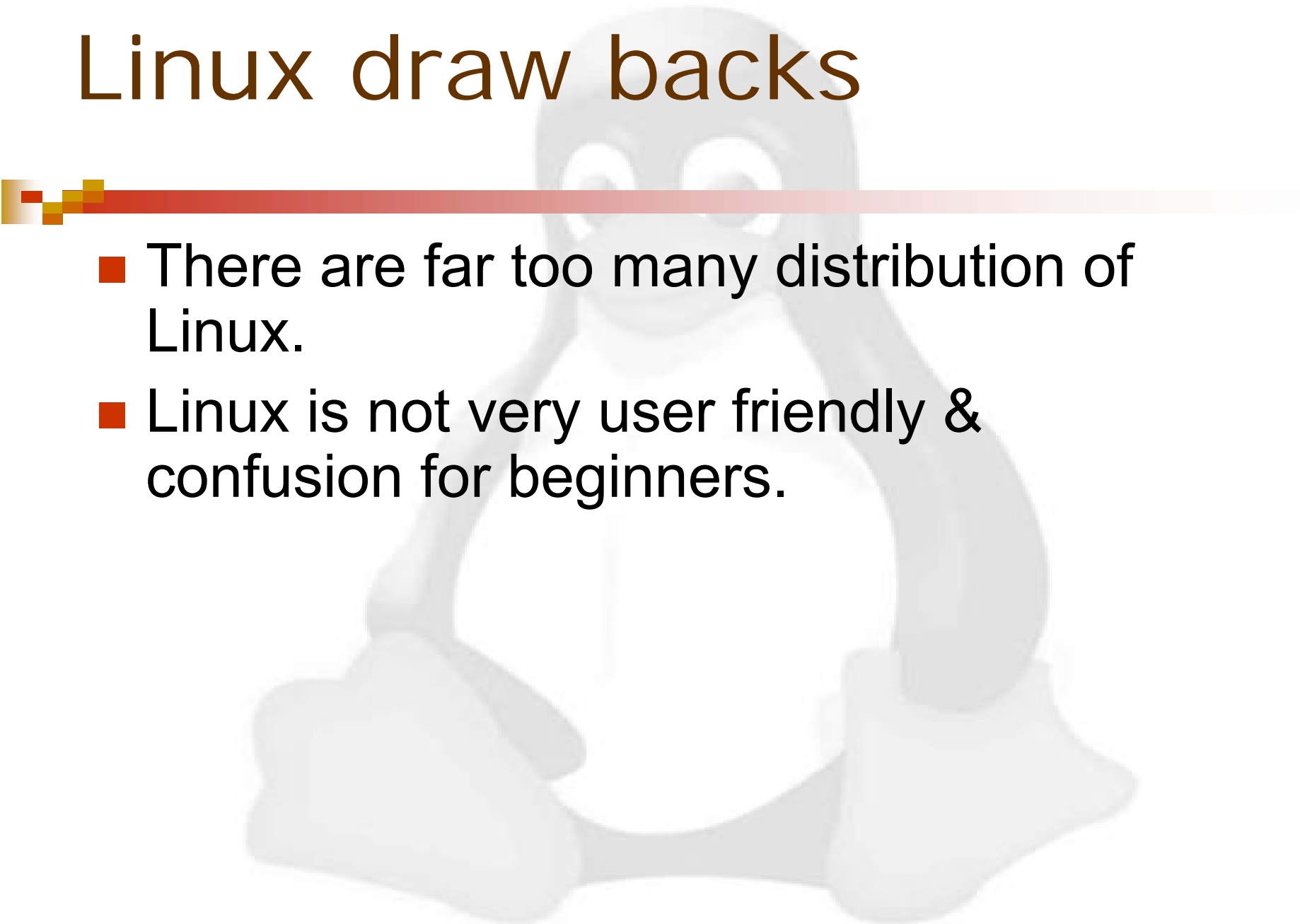- It includes all the necessary functions.

Ex: Linux and …

Linux Advantages

- Linux is open source.(www.kernel.org)
- Linux is portable to any hardware platforms.
- Linux is secure.
- Linux having in-built drivers.
- Multi tasking and multi user system.

Flavors of Linux:

Red hat, Ubuntu, fedora, debian, suse…….

Linux draw backs

- There are far too many distribution of Linux.
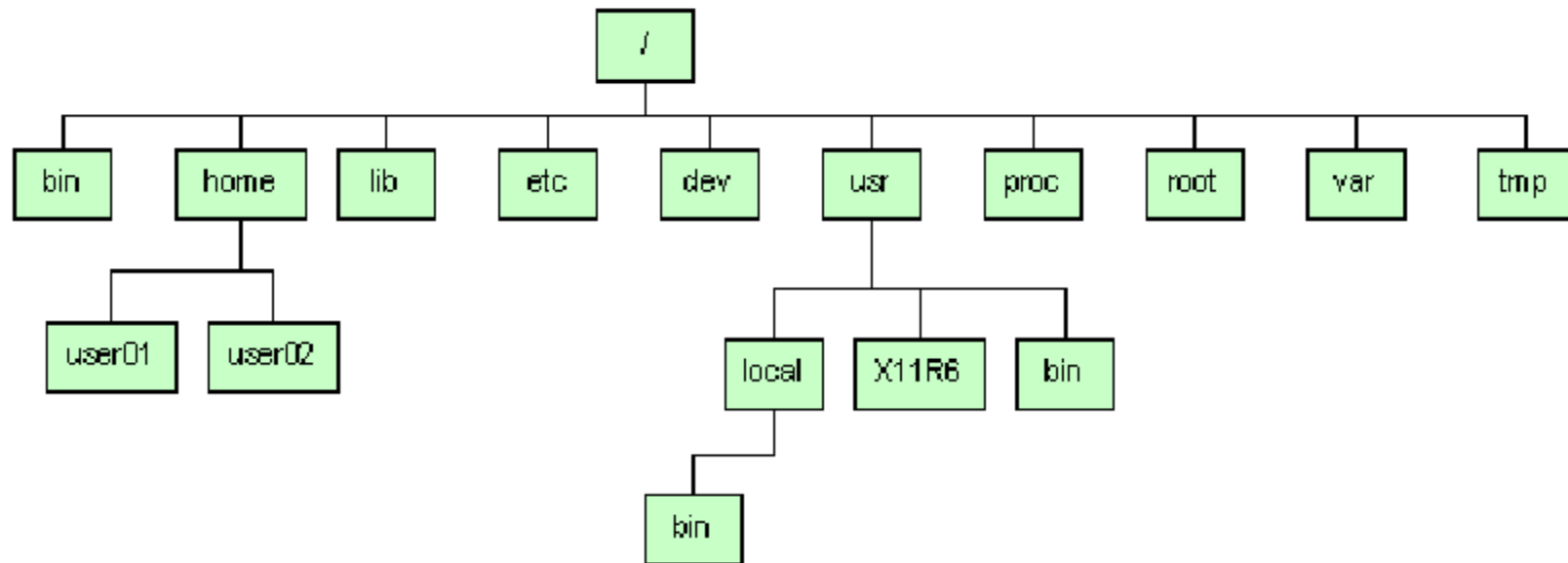- Linux is not very user friendly & confusion for beginners.

Linux Overview (cont.)

Directory Structure

- Files are put in a <u>directory</u>.
- All directories are in a hierarchical structure (tree structure).
- User can put and remove any directories on the tree.
- Top directory is "/", which is called <u>slash</u> or <u>root</u>.
- Users have the own directory. (home directory)

Directory Structure

Normal user and Super user

- In Linux system, there is one special user for administrator, which can do anything.
- This special user is called <u>root</u> or <u>superuser</u>.

Case Sensitivity

- Linux like UNIX is case-sensitive.
- MYFILE.doc, Myfile.doc, mYfiLe.Doc are different.

Online Manual

- Linux has well-written online manuals.

Basic Commands

How to run commands

- When you log on Linux machine, you will see,

  [cswug@hyperion001 cswug]$

- One command consists of three parts, i.e. command name, options, arguments.

  Example)

  [cswug~]$ command-name optionA optionB argument1 argument2

Basic Commands

How to run commands

- Between command name, options and arguments, <u>space</u> is necessary.

- Opitions always start with "-"

- Example)
  cd ..
  ls –l .bashrc
  mv fileA fileB

Commands

- ls   show files in current position
- cd   change directory
- cp   copy file or directory
- mv   move file or directory
- rm   remove file or directory
- pwd   show current position
- mkdir   create directory
- rmdir   remove directory
- cat   display file contents
- less   display file contents pagewise
- man   display online manual

useradd: Adding a new user.
Ex: useradd userName

userdel: Deleting a User.
Ex: userdel userName

passwd: changing current user password
Ex: passwd <enter>
Enter a new password

Permission

- All of files and directories have owner and permission.
- There are three types of permission, <u>readable</u>, <u>writeable</u> and <u>executable</u>.
- Permissions are given to three kinds of group. <u>owner</u>, <u>group member</u> and <u>others</u>.

Example)

```
[cswug@hyperion001 cswug]$ ls -l .bash_profile
-rw-r--r--   1 cswug   cswug        191 Jan  4 13:11 .bash_profile
```

- r: readable, w:writable, x: executable

chmod :

Change file mode, add or remove permissions

read = 4

write = 2

execute = 1

Ex: chmod 777 fileName

First 7 is for we are giving(read(4)+write(2)+execute(1)) to owner (our-self).

Next 7 is for we are giving(read(4)+write(2)+execute(1)) to group members.

Next 7 is for we are giving(read(4)+write(2)+execute(1)) to Others.

Text Editor

- Write "hello world" program in C(assuming GCC is installed on your Linux system).
- Type vi hello.c [*where vi is editor name and hello.c is filename*]
- Press I for inserting and typete hello.c as follows.

  #include <stdio.h>

  int main(void){

    printf("Hello World\n");

  }

  After finishing typing save the file by pressing ESC button and then typing colon followed by wq as follows:

  :wq   [*w to save and q to quit*]

- Compile

  gcc hello.c

- Run

  ./a.out

vi → visual interface

gcc → **G**NU **C** **C**ompiler.

gnu is a project name.

Text Editor

- We open the vi editor for editing/writing a file using vi command
  as :   vi filename *[where filename is the name of the file used]*

- Press I for inserting(ie-for typing in the editor),if any.

- After typing,press ESC followed by(either of the following)

  :q   *[to quit simply]*

  :wq *[to save and quit]*

  :q! *[to force quit without saving]*