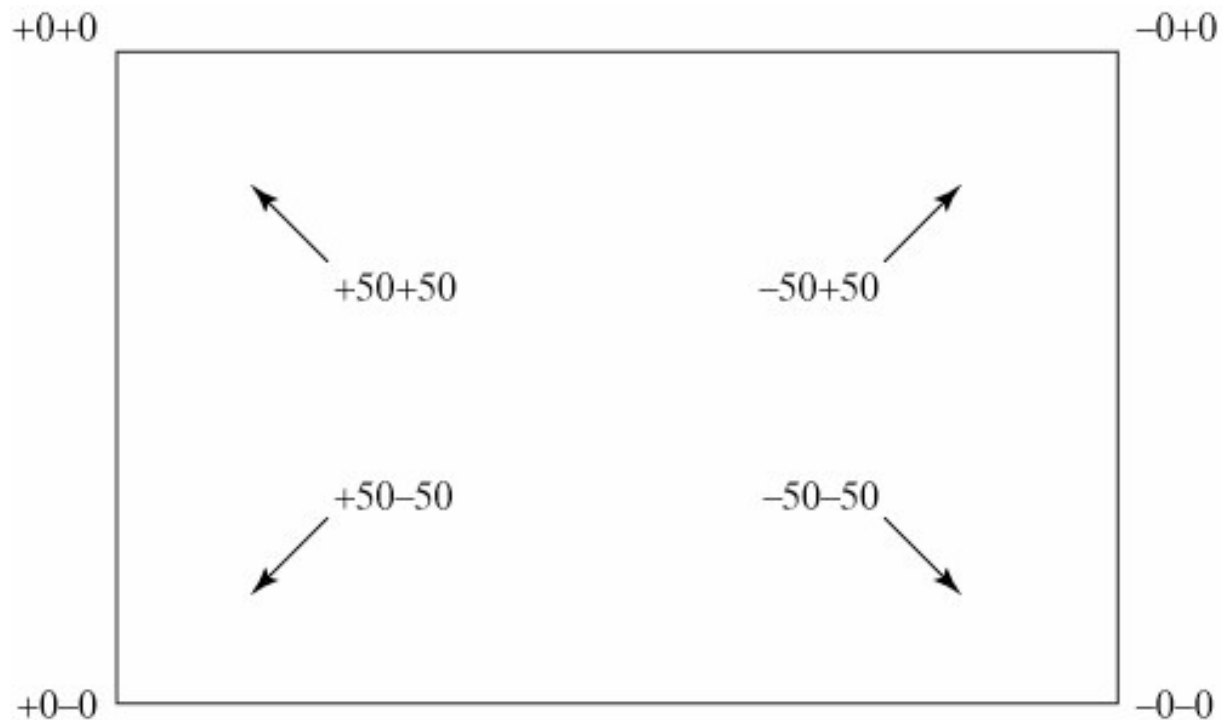# Desktop +

- Read Chapter 10

- Screen layout
  - called geometry
  - it is a bitmap with certain size of pixels
  - typical size is 1920 x 1200
  - addressing pixels
    - specific position on screen, e.g., 500 x 200
    - position relative to corner of screen

Desktop +

- Screen layout

  - e.g., +50+50 is 50 pixels away from the upper left corner of the screen in both X and Y direction

X Window System security

- Who can have access to your screen?

  - X server running a system only allows X client on that system to talk to it.

  - X server does not allow connections from other X clients unless you explicitly allow it.

X Window System security

- *Utility* : **xhost** [+|-][*hostname*]

  - The **xhost** command allows or denies access to the X server on a system.

  - With no arguments, **xhost** prints its current settings and which hosts (if any) have access.

  - By specifying only **+**, you can give access to all hosts, or by specifying only **-**, deny access to all hosts.

  - When a hostname is specified after a **+** or **-**, access is granted or denied, respectively, to that host.

X Window System security

- *Utility*: **xhost** [+|-][*hostname*]

  - For example: $ xhost +bluenote

allows X clients running on system "bluenote" to write to the display on the system where the **xhost** utility was run. Later, when whatever you needed to run is finished, you can disallow access with the command:

```
$ xhost -bluenote
```

X Window System security

■ *Utility*: **xhost** [+|-][*hostname*]

You can allow any X client on the network to write to your display with the command:

```
$ xhost +
```

You can also take away access to all remote X clients with:

```
$ xhost -
```

■ Where does it make sense to do this?

Desktop Environment

- All programs that manage and render the desktop, e.g., the icons, windows etc.

  - menus providing access to objects, tasks, or applications

  - icons representing devices or other objects in the system

  - status bars or areas where real-time status data is displayed

  - a cursor controlled by a mouse providing navigation among and interaction with desktop objects

Desktop Environment

- Most common Linux desktops

  - The Common Desktop Environment (CDE) was one of the first true DEs for UNIX system

  - CDE is based in large part on Hewlett-Packard's Visual User Environment (VUE) and Sun Microsystem's OpenWindows.

Desktop Environment

- Most common Linux desktops

  - The GNU Network Object Model Environment (GNOME) is the GNU Project's contribution to desktop environment.

  - Like other GNU software, it is freely available, is included in most Linux distributions.

Desktop Environment

- Most common Linux desktops

  - The K Desktop Environment (KDE) has been developed by a loose group of programmers around the world.

  - KDE is included in most Linux distributions

Window Managers

- A window manager is a program (an X client) that communicates with the X server and with the keyboard and mouse on the system.

  - It provides the interface for the user to give instructions to the X server about what to do with the windows.

  - Window manager provides "look and feel" of desktop

Window Managers

Focus

- Focus is the term used to describe which window is currently selected or active.

- e.g. if you type on keyboard, the window with focus is where the data will be sent.

- Typically the window with focus has different border, e.g., highlighted, darker shade etc.

Window Managers

- Many choices, e.g.,

  - dtwm

    - The Desktop Window Manager (dtwm) is part of the CDE, and is similar to vuewm, discussed below, but supports a virtual desktop.

  - fvwm

    - fvwm is popular in the Linux community because of its free availability and because it is very customizable. fvwm is included in some Linux distributions.

Window Managers

- Many choices, e.g.,

  - gnome-wm

    - The GNOME Window Manager (gnome-wm) is the window manager used with the GNU Network Object Model Environment (GNOME).

Window Managers

- Many choices, e.g.,

  - icewm

    - The ICE Window Manager (icewm) is another grass-roots, popular window manager.

    - It is small, fast, and easily customizable to resemble Windows so that PC users can feel comfortable using a Linux system.

    - icewm is included in some Linux distributions.

Window Managers

- Many choices, e.g.,

  - kwm

    - The K Window Manager (kwm) is used with the K Desktop Environment (KDE).

    - While not required, it is recommended over other window managers for use with KDE because of its tight integration with KDE functionality.

    - kwm is included in just about all Linux distributions.

Window Managers

- Many choices, e.g.,

  - mwm

    - The Motif Window Manager (mwm) is one of the first major window managers.

  - olwm

    - Sun Microsystems' OpenLook Window Manager (olwm) and OpenLook Virtual Window Manager (olvwm) run on Sun systems and can be used with CDE.

Window Managers

- Many choices, e.g.,

  - twm

    - Tom's Window Manager (twm) and Tom's Virtual twm (tvtwm) were written by Tom LaStrange to correct some of the things he didn't like about mwm.

    - tvm is included in many Linux distributions.

    - tvm is also sometimes called the Tab Window Manager.

Window Managers

- Many choices, e.g.,

  - vuewm

    - The VUE Window Manager (vuewm) is from Hewlett-Packard and runs under HP's Visual User Environment (VUE) desktop.

Client Applications

- Many choices, e.g.,

  - Utility: xclock [-digital]

    - The xclock command provides a simple clock on your desktop. The default is an analog clock. If the -digital argument is specified, a digital clock is displayed instead.

  - Utility: xterm

    - The xterm command starts a terminal window on the desktop.

Client Applications

- X Client Arguments, e.g.

  - geometry

    - $ xclock -geometry 100x100-10+10

      - XxY defines size, +X+Y offset

  - color

    - $ xterm -foreground cyan -background black

Networking Capability

- One can display information from an X client on one computer on an X server running on another.

  - This is useful when you are working on a remote server and need to display all your X applications on your local desktop.

  - on X client specify **-display**

    - this tells client which X server to contact to display its widgets

Networking Capability

- Start xterm on host "eternium"

  - $ xterm -display eternium:0.0

    - :0.0 identifies a display

    - if the user on eternium has used the **xhost** command to allow access, then the X terminal window will be displayed on eternium

Networking Capability

- Alternative

  $ export DISPLAY="eternium:0.0"

  $ xterm

  - This is useful when you are working on a remote server and need to display all your X applications on your local desktop.