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#document # 7
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Please use this at your own risk
Also take backup of your important files, although you might not need that but be prepared for the worst

Characters in bold are system commands/outputs

COMPILING KERNEL ON LINUX - I

"TO ENJOY COMPUTING USE LINUX"

Well all of you must be wondering how Linux can make you to enjoy computing.

If you haven't compiled a kernel on Linux then you haven't recognized the full power of Linux.

After compiling a kernel on Linux you can use that kernel according to your needs.

Why do you need to compile a kernel???

You all must be wondering why you need to compile a kernel and use that one while you have one kernel installed

So, let's start from the basics

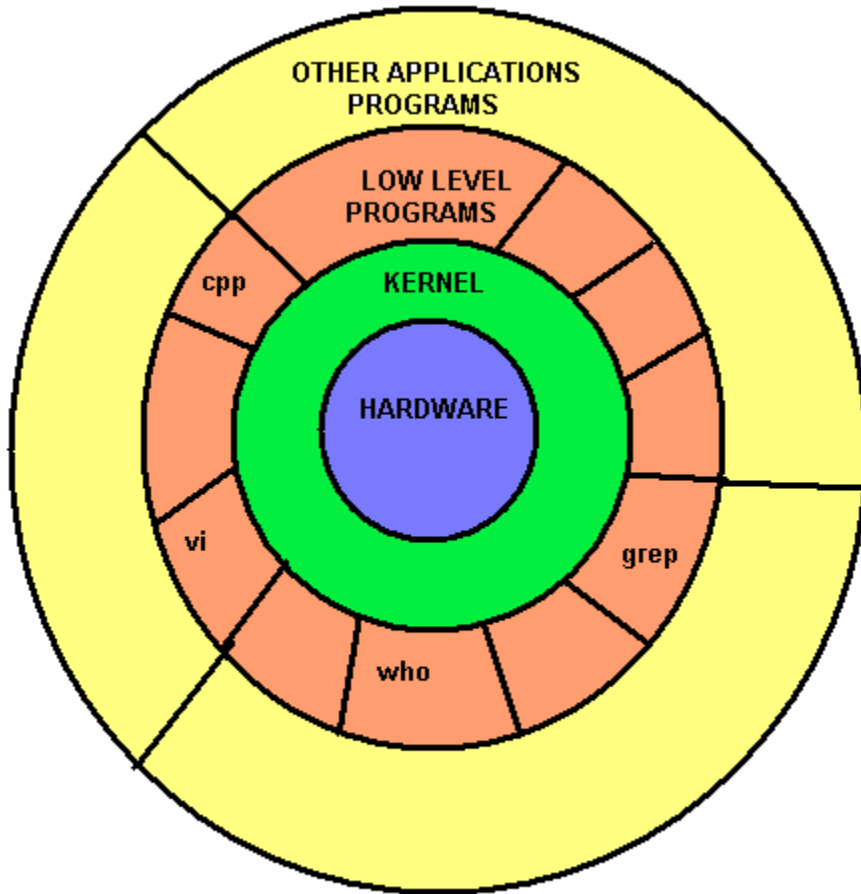You all must have studied that hierarchy of Linux/Unix

Now what we have here in the diagram below is the hierarchy of the Linux/Unix.

We have hardware at the lowest level

Then we have the kernel above it

Then we have the lower level programs

Above it we have the higher level programs

Architecture of UNIX Systems

The lower level program use the system calls through the kernel to perform their task while the higher level programs do not use system calls directly but use it through the lower level programs and then the kernel and hardware. So it is quite clear that since all our work is being done by the kernel at the lower level so the performance of the system depends on the kernel we use.

At first when we install a new operating system say REDHAT 9.0

Along with this we get a kernel installed, which is a generic kernel

It contains support for all types of hardware (keyboard, mouse, video sound cards) etc. i.e. it support the hardware of manufactured by various companies.

Also it contains support for various file systems(fat32,fat16,ntfs ext2,ext3), libraries, cryptographic routines, etc.

Now if you know the hardware of your system that is which sound,video card you have and also what else support you require then you can make a kernel according to your needs i.e. you can decide which hardware, routines, filesystems support you would like to keep.

The important thing is to keep your kernel small, the smaller the faster.

Also it can happen that you do not have support for certain file systems in your present kernel, you can compile your own kernel for that.

For example the kernel which comes along with red hat 9.0 does not support NTFS volumes .i.e. you cannot access NTFS drives while running that kernel. So in this case you can compile your kernel to support his feature.

Also while you install your custom kernel you can bring down the memory usage of your computer down considerably, which in turn will improve the performance your system. Once you compile a kernel you will realize the true power of Linux and will enjoy designing your new kernel and using that.

Once you use your new kernel the packages installed will be the same that is during boot up you will have to chose to boot which kernel…. the newer one or the older one. Once you boot up the kernel, other things will be the same independent of the kernel you are using.

For ex. You will have same settings, desktop etc, etc.

Linux kernel is still a property of Linux Trovalds. He releases the new kernels and keeps an eye on the development going around.

So to get yourself a copy of the new kernel .you can download it at

http://www.kernel.org

Here you will find out many packages

The latest stable kernel in the line is linux-2.6.3.tar.bz2

More keep on coming every fortnight.

If you do not want to download the new kernel you can use the one you got with your installation.

Red hat provides a package kernel-source 2.4 along with it

You can compile it also, that also will increase your performance.

Since this document has gone some big so I will put the steps to compile the kernel in the next document in a few days. With name compiling kernel –II

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Microsoft gives you Windows… Linux gives you the whole house.