

Constructing a Committed Operating System Employing Linux

Floyd Martis
Student

Computer Department
Xavier Institute of Engineering
Mahim, Mumbai

Smita Lopes
Student

Computer Department
Xavier Institute of Engineering
Mahim, Mumbai

Akshay Kapoor
Student

Computer Department
Xavier Institute of Engineering
Mahim, Mumbai

ABSTRACT

Many times it happens that unwanted applications and services that slow down the working efficiency. There are problems regarding memory and computation space. Using capable hardware could solve the issue but again the money factor arises. The paper finds possible solution by giving a devoted environment to a particular user keeping in mind the prerequisite of space and memory issues. System backbone by Linux kernel with the UI on the web and the basic requirements need.

General Terms

System, Linux, application, operate, computer, memory, display, feature, developer, engineer, web, source.

Keywords

Linux, Web Developer, Applications, Server, Dedicated, GUI, WEBOS, Kernel, Memory space.

1. INTRODUCTION

Today's market is evolving in size and technology. In the previous year's use of computer has increased by lay as well as professionals. Os plays an important role as the root of a computer system. Therefore OS is designed with high graphics, functionality, and memory. But this installed OS consumes unnecessary memory where in reality only some is used by the application currently being used [1] [5].

In this case simply construct an OS as required by the user with basic requirements this would basically avoid problems else figured regarding various components of the system which had to offer the reliable service instead with basic necessity. One can also be at ease of not wasting currency on high end systems also. Keeping in mind the usage of web formatter, one will only need requirements which are of importance which immediately leads to less space and size factor. More of the requirements can lead to serious problems and affect the system being used. The online application can be built easily on this platform using any known programming language additionally reusability of components is possible [2].

So faster processing speed can be achieved by-

- Centralized server approach.
- UI which is web based.
- Client server model.
- Compatibility, Speed, less space, Customized.

As mentioned earlier project is about committed OS so this further can be extended from web designer to students, professors, Doctors, Engineers etc.

For a web developer following things is of importance and he gains-

- A fully web dedicated system.
- Import apps as per requirement.
- Speed
- Can save on any system and resume from any system as his work is saved on server instantly.
- Instant login feature in workplace and continue the work process [5].

It extends its use for engineers where Engineers of various stream like Mechanical, Civil, Automobile who require typical applications can benefited. Adding to it in the field of medical where typical computers used in hospital are more related with certain types of software so they can be provided with that s/w only [3].

2. EXISTING SYSTEM

The systems using similar concept are majorly cloud centered such as Google's Chrome book although it is faster than desktop computers but it lack in features of desktop computing for. So the making such OS for regular users is not beneficial as some or the other day user may find it obsolete. Another similar OS is Joli OS built upon Ubuntu OS (a Linux distribution), this OS claims to be cloud centered along with much higher offline functionality supporting almost 10 years old computers [1]. But still as it was implemented for regular users so same problems are faced as that of Chrome book [4].

Linux source code is free and users do not need to pay for a copy. In addition, Linux source code can be freely downloaded and legally installed on as many computers as you want and freely (and legally) given to other people. The security aspect of Linux is much stronger than that of Windows. At the heart of every modern Mac and Linux computer is the —terminal. The terminal evolved from the text-based computer terminals of the 1960s and '70s, which themselves replaced punch cards as the main way to interact with a computer. It's also known as the command shell, or simply —"shell" [2].

Why should you have to spend extra money for virus protection software? My rebottle is that the Linux operating system is open source and if there were a widespread Linux virus released today, there would be hundreds of patches released tomorrow, either by ordinary people that use the operating system maintainers. Customers wouldn't need to wait for a patch from a single company like they do with Windows [4].

3. PROPOSED SYSTEM

The system aimed to develop will be committed and include only the required packages. The 'Fedora OS' will be used for kernel (i.e. The Linux kernel from fedora operating system will be used) [6]. With already developed OS, it will include some basic inclusions which are necessary to support this os. Since the production of this OS for the developer, so anything of his requirement will be included too and no extra packages shall be included. Due to failure and crash problems, support of the already running and working packages to stabilize the system. The basic packages like the Apache server, text editor etc. will be included in the proposed system [9].

3.1 Applications

The necessary requirements of the web designer such as the text editor, web server, color code pallet etc. will be provided. These applications are required by every web developer they will be on the server. This will save user space and implemented as web apps and opened in a SSB and the user feels it like a uniprocessor application.

4. MODULES

The Linux kernel is the operating system kernel used by the Linux family of Unix-like operating systems [1]. It is free and open source software. In this system use of Linux kernel will be as it is without any changes to it. It will be using Linux Kernel-2.6.32 as it is stable and tested by many users. The kernel designing will not be done by us, but as kernel is a very important part of operating system missing out on it is not possible [6].

Conventional way is to use already existing desktop systems like Plasma Desktop, GNOME, Cinnamon, Unity and Xfce, Most popular user interfaces are based on the X Window System, and often simply called "X" 3. It is upcoming and allows interactions as well. Another way is to implement a web based OS.

For a web developer, it seems ok to use a browser to show user the GUI and execution will be through command prompts [2]. This will work similar to a WEBOS. Similarly this web GUI will work on a server this will save a large amount of space. A standard desktop environment like GNOME takes over 300MB of space per system. But implementing a web OS, lesser amount of space will be required as only one copy will be required to be saved on a server. Thus consider a office has around 50 web developers and their independent system so in total it will save 50X300 which is approximately equal to 15000MB of space, which makes up to 15TerraByte of data.

5. IMPLEMENTATION

It is possible to build a custom interface and thus create an operating system. But when error and system crash is concerned, a third party application called Suse Operating System is owed to. It has a simple and well defined interface and has used the same. The LFS system will be built by using an already installed Linux distribution (such as Debian, Mandriva, Red Hat, or SUSE). This existing Linux system (the host) will be used as a starting point to provide necessary programs, including a compiler, linker, and shell, to build the new system. Selecting the development option during the installation installs all required applications [1].

Kernels and drivers thus required are openly and easily provided by the same. The required applications like the X-Window System can also be downloaded from their repository. When

customizing was considered Suse studio is what made it easier. At start it is necessary to configure the system to default variables and configuration. Including the X-Window system itself will just give only the driver or connector to display graphics on display. Version eleven which is also called as X11 is used. X is based on the client/server model, in which the application program (client) does not directly access the display, but communicates with intermediary display program (server) [5].

Kernel and other basic compilers are initially provided. Because of addition of X Windows it allows displaying the site specific browser which allows displaying the GUI and other applications on the display device as a normal application though they are running on the server. HTML and PHP are used as the scripting language for apps and other GUI related features [7][8]. Hence increasing the overall efficiency of the system. The assistant tool will make a different module in the project. It also consists of basic apps available to the user. Implementation of the same requires database access and retrieval.

6. RESULT

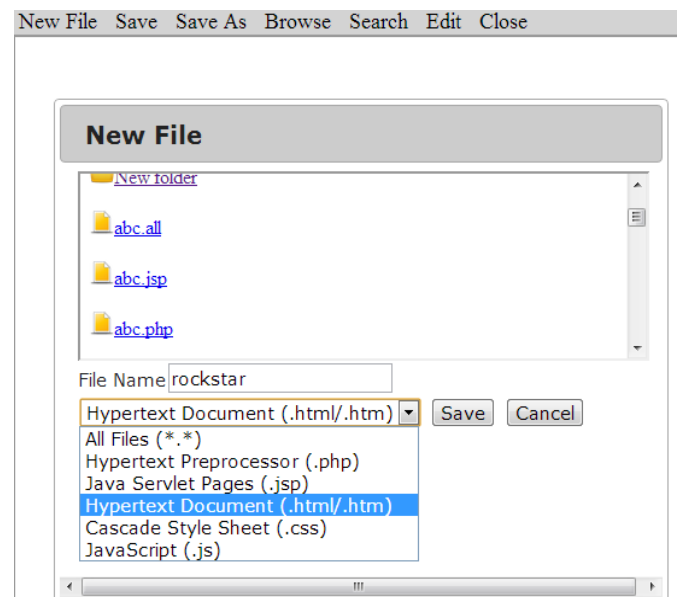


Fig 1: New File Dialogue Box



Fig 2: Calculator

7. TESTING

The goal is to produce software of the highest quality [6]. Users are frustrated of old lagging systems. Since there is inclusion of various libraries, IDE, web servers that support unit testing, there is a no system without problems. Having a problem in the code means carrying a risk. The idea behind unit testing is to create a set of tests for each software component. Unit tests facilitate continuous software testing, unlike manual tests. As the system expands, so does the work of testing does increase. Each test is insurance that the system works. Utilizing a set of unit tests, engineers can dramatically reduce number of bugs and the risk with untested code [6].

GUI: The basic GUI should have all the proposed features and controls. All controls should work and applications must be triggered to open when proper calls are made. The GUI should be able to adopt according to different screen resolutions. The changes made in settings must be reflected as soon as they are saved. Following is the brief layout of the tests performed:

Table 1: Unit testing for GUI

Function Being Tested	Input	Expected Output	Proposed errors
Sign - in/Login	Correct Username & Password.	Success in Login.	Unable to Login.
GUI	Request for Application	List of applications Produced.	Incomplete List, No list.
Application on Search	Search string.	Related application list.	Improper List, No list.
Applicati-on on Request	Application name.	Opening of required applications.	No application Opens Operation is different.
Settings	Change In settings.	Proper Changes in settings.	No change occur, Improper change occurs.
Logout/ quit	Logout request	User logout.	No logout.
Shut Down	Shut Down request.	User logout and system shutdown.	User doesn't Logouts, System doesn't shuts down, System logouts.

8. COMPARITIVE STUDY

Table 2: Comparative evaluation

Properties	Existing System (General)	Proposed System
Storage	Local Storage	Domain Storage
Resource utilized	Resources Are underutilized	All resources are Utilized properly
User interaction	Poor interaction	High level of personal interaction
User types	General/all public users	Design for specific users
Customize	Cannot completely.	Can customize to a greater extent according to user's need.

9. CONCLUSION

Linux Operating System with Web Browser based assistance provides an ideal platform for implementing high performance and low memory space required system [1]. It occupies only 200 MB of memory space which is far too less than the existing Linux kernel space. Even after adding the tools required by the user the maximum size of the OS is just about 300 to 350 MB.

This is the major advantage of this dedicated system. It not only saves memory space but also makes the system more efficient. Linux Operating System with Web Browser based assistance will be the Operating System of user's choice having its own set of packages and tools. Organization which adopts this OS will have faster results in less time and less memory space thus it's very cost efficient and beneficial.

10. FUTURE SCOPE

Because of the added advantage of security and other features, linux is used as a worldwide famous server application. Future scope of this project is the feature of one click access. This feature will enable the user to have all the similar files on a single page. Application use is wide spread. As this OS is based for a web developer similar OS.It can be build for a programmer also who can write the program in and language or a dedicated database server.

Another add on feature will be automatic perfection of one's next action to be done. This will be even more improved and faster performance along with user satisfaction. It will have a backend which will work on a probability theory approach. More than one partition can be used by multiple people and hence used as multitasking.

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