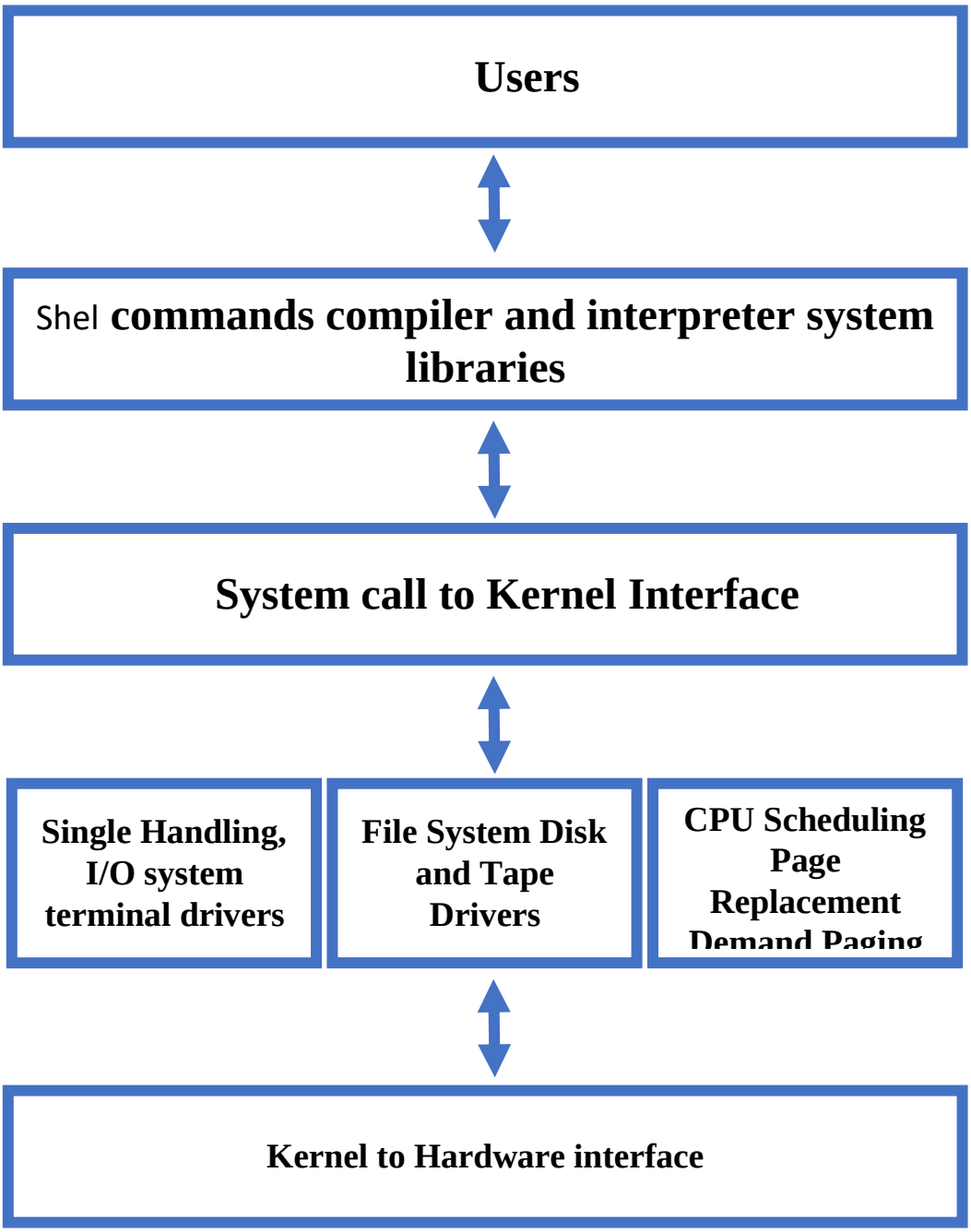
## ❖ AIM

To understand architecture and installation of Unix Operating System

## ❖ STRUCTURE OF UNIX



As seen in the image, the main components of the Unix operating system structure are the kernel layer, the shell layer and the application layer.

Details about these are given as follows −

**Kernel**

The kernel provides a bridge between the hardware and the user. It is a software application that is central to the operating system. The kernel handles the files, memory, devices, processes and the network for the operating system. It is the responsibility of the kernel to make sure all the system and user tasks are performed correctly.

**Shell**

The program between the user and the kernel is known as the shell. It translates the many commands that are typed into the terminal session. These commands are known as the shell script. There are two major types of shells in Unix. These are Bourne shell and C Shell. The Bourne shell is the default shell for version 7 Unix.

The character $ is the default prompt for the Bourne shell. The C shell is a command processor that is run in a text window. The character % is the default prompt for the C shell.

**Applications**

The applications and utility layer in Unix includes the word processors, graphics programs, database management programs, commands etc. The application programs provide an application to the end users.

For example, a web browser is used to find information while gaming software is used to play games. The requests for service and application communication systems used in an application by a programmer is known as an application program interface (API).

## ❖ ADV/DISADV

UNIX is the computer operating system that you often find in large government institutions, research laboratories, universities, and colleges. Even though technology continues to evolve and new O/S opportunities exist for these institutions, they continue to rely on this product that was written in 1969 by Kenneth Thompson when he was working at Bell Labs. When it was initially offered, it was machine-independent and free, which was revolutionary at that time.

If you are unfamiliar with UNIX, then this operating system can be challenging to learn. You do not use a mouse with it, and there are no icons available for the user. It provides a command

line prompt which the closest comparison to be a DOS interaction. You would then type a specific command that can help you to pull information from the computer.

UNIX would become the first operating system that came with a full-screen editor, worked with the Internet, and offered a variety of commands that could increase the functionality of the hardware.

The UNIX pros and cons prove that even though this operating system turns 50 in 2019, it still has the capability of getting the job done.

## List of the Pros of Unix

### *1. It offers full multitasking with protected memory*.

The structure of UNIX makes it possible for multiple users to run various programs at the same time without interfering with one another. You will not crash the system just because there are several people running queries simultaneously, which is why large institutions often prefer this operating system when a single resource is necessary for transparent communication.

### *2. It uses virtual memory very efficiently.*

You can run multiple programs on UNIX without worrying about having your physical memory tap out because of the actions. This operating system is very efficient at how it uses virtual memory to get work done. It is an emphasis on transparency that extends throughout the user experience. The full human-readable source code of most programs is available for users to read if they wish. You can alter the programs when necessary as well. All of this comes with an emphasis on stability to create a thorough understanding of why something works, or it did not work for some reason.

### *3. It offers access controls and security.*

Even though UNIX is free, it still offers institutions a level of security that can protect their data without reducing access controls. A valid account and password must authenticate every user on the system. If these are not provided, then there is no way to log onto the system. Every file is owned by the specific account responsible for it. The owners then decide who gets to have read or write access to the information.

### *4. It provides a significant set of commands to follow*.

You will find that the rich set of small commands and minimal utilities perform specific tasks exceptionally well. There is not the same amount of clutter with special options that you can find on other operating systems when compared to UNIX. Think of it as being a toolbox that you can access when there is a specific task to complete instead of a one-size-fits-all solution that tries to please everyone all of the time.

### *5. It allows you to string utilities and commands together.*

When you are using UNIX, then you have the ability to string the utilities and commands together in unlimited ways. This structure makes it possible for users to work through complex tasks without the same levels of difficulty that other operating systems would create. You are not limited to preconfigured menus or combinations as you are with modern PC systems.

### *6. It offers a unified file system.*

When you begin to use UNIX, then you will discover that everything on this operating system is a file. Your physical devices, programs, and data become part of this unique unified file system. It appears as a trio of nested directories no matter how many different physical devices are included as part of the system. This structure makes it much easier to navigate once you learn how the system operates because the single large tree removes the complications that you can find with the UX in other systems.

### *7. It is arguably the most portable operating system in the world.*

UNIX is available on a wide variety of different machines, making it one of the most portable operating systems still functioning in the world today. That is why it continues to be in use over 50 years after it was first created. It is a lean kernel which makes sure that you can get the basics done efficiently while making sure it stays out of your way when there is something more complicated that needs to be accomplished.

### *8. It is optimized for program development.*

Universities and research laboratories prefer to use UNIX because of the way it is optimized for program development. There are fewer roadblocks in place when using this operating system because it can adapt to the unusual circumstances which are found during research projects. You can scale it to whatever needs you may have at any time without compromising the integrity of your data.

### *9. It is customizable to your needs.*

UNIX gives you the freedom to create a system which meets your specific needs. The flexibility it offers allows for you to change the commands if there are particular files you must access regularly. Although you can mess things up pretty easily if you make too many changes, it is possible to create an operating system that is more compatible with what you need to have it accomplish compared to the closed systems that are sold today for PCs and mobile devices.

### *10. It offers consistency.*

Even though five decades of life for this operating system might seem like it creates a disadvantage, the opposite is actually true. You can do any of the things of the operating system can do instead of being forced to activate only what the programmers permit when using Windows or the Mac O/S. Because it has been around for so long, the only problem with bugs

in the system that you will find at this point are the ones that you might put there unintentionally as you start customizing the system.

### *11. It does offer a limited graphical interface if you use a modern version.*

If you do not like the idea of embracing a text-based culture, then you might want to give a modern version of UNIX a try before looking at other operating systems. You can install a system which offers graphical interfaces with this option today. Although they aren't as polished as what you might expect with other systems, it can still be a useful option if local users are struggling to remember all of the necessary commands.

### *12. It offers access to a lot of industry expertise.*

Because there are over 50 years of development included in some dialects of UNIX, there are several experts available that can help you work through issues that you might encounter when using this operating system. Although documentation can be a severe problem, especially with a custom dialect, there is usually one resource expert available who can help you to troubleshoot the issue so that you can become productive once again.

## List of the Cons of Unix

### *1. It offers a hostile user interface.*

Unless you are familiar with the text-based approach to using an operating system, UNIX feels like a hostile interface when you attempt to access the traditional command line shell. It is designed for the programmer more than it is for the casual user. If you use this system, then it will take some time for people to get used to the mechanisms and command structures that will take them to the files they require. Older users tend to adapt faster than younger ones because they had some DOS experience when growing up.

### *2. It requires users to understand all of the primary features.*

UNIX works well when users know how to make the programs and commands interact with each other in positive ways. If you try to treat this system as a fixed black box, then it will feel like an underwhelming experience. You must understand some of the primary design features of the operating system to maximize its full potential.

### *3. It offers a richness in utilities that can be overwhelming.*

There are over 400 standard utilities that come with UNIX. If you are just getting to know this operating system, then your learning process tends to be one that includes trial and error more than any other option. There are only a handful of tutorials and guides that can help you to start figuring out the various tools that are provided in the system structures. Identifying the commands is only the first step to maximizing productivity. You also need to figure out how to use them to accomplish specific tasks.

### *4. It offers cryptic commands that can be challenging to figure out.*

The commands that you must learn when using the UNIX operating system are often cryptic and don't make a lot of sense to be getting users. They give very little response to users when trying to figure out what will happen when initiating a command. Take GREP as an example of this disadvantage. If you enter that command, then you'll have a function which can look for phrases in selected documents. LPQ is the command you'll use to look at the printer queue. Unless you learn all of them, then a user may spend more time fiddling with the system than they would be getting work done.

### *5. It allows you to customize the commands for local dialects.*

The customization which is available through UNIX is one of the most significant advantages. It can also be a disadvantage when a user moves from one system to another. If the commands are different at each location, then even experts in this operating system face a steep learning curve to become productive with it. With the various dialects that have sprung up over the past 50 years, the knowledge that users gain with this system tends to be site-specific.

### *6. It requires precision input to be useful.*

When you are using UNIX, then you are involved in a text-based culture that revolves around the command line only. You must have precision when entering the commands for this operating system because one small variation can be enough to produce unanticipated results. You must proofread every command that you register to ensure that there are no typos in your text string. That means the time investment necessary to produce results can be more than if the system operated on a point-and-click operative basis.

The pros and cons of UNIX offer an opportunity to users, research laboratories, educational institutions, and even large organizations to use it and store data more effectively. Although this operating system does not offer a friendly user interface, it does provide an access point that is easy to learn if there is enough time available to do so. You can customize it to meet the needs that you have.

## ❖ THEORY

## ❖ HARDWARE REQUIREMENTS

Hardware on UNIX

Your computer must have the following minimum configuration to successfully install WebLogic Integration - Business Connect on a UNIX platform.

- Random Access Memory (RAM)
  - 256MB recommended
  - 128MB minimum
- 250MB available hard drive space (see note)
- CD-ROM drive
- TCP/IP network interface
- A persistent Internet connection.

**Note:** We recommend at least a 1 GB hard drive for both the application and the documents you exchange.

## ❖ SOFTWARE REQUIREMENTS

- RedHat 5 and greater
- SuSE 10 and greater on x86,x86_64
- Ubuntu 10.04 (LTS) and greater on x86 and x86_64
- 64 MB of RAM (128 MB recommended)
- 20 MB available disk space

## ❖ SCREENSHOTS OF INSTALLATION