The utility and and disadvantages of UNIX in a cloud based environment

Samuel Hoggett

I. Introduction

TO understand the advantages and disadvantages of UNIX and Linux in a cloud based service we must contrast and compare the UNIX and Linux based services with the on UNIX and Linux based services. To do this properly I will define some of the most popular non UNIX based cloud based OS services, and their key differences to the vast selection of UNIX based options. Some examples of the non UNIX based operating systems include of course windows but there are many UNIX-like operating systems used in the cloud like computing including proprietary UNIX(and Linux)-like operating systems like chrome OS and even the MAC OS are all based off the UNIX kernel but are proprietary software that is not open source.

II. Defining the two systems

To establish the main difference between UNIX based OS and non UNIX based OS is a little bit arbitrary, as described in the introduction the only real operating system that is in any way common is windows proprietary software. But for the purposes of comparison and having discussion of the differences in features and other major differences I will be understanding UNIX and Linux based operating software that is open source, as compared to proprietary software owned by corporations, otherwise the only difference would be one is owned by Microsoft and the other branch is not.

A. Uniquely Unix capabilities

The main thing that defines many UNIX and Linux operating systems is their open source and usually free to the public. This in comparison to Windows, Chrome and mac OS allows several unique advantages to UNIX like operating systems. One is increased security compared to proprietary software, as is well accepted in the cybersecurity community “security by obscurity" is not a valid route for security, UNIX fully embraces this by making many open source projects available for the public to view the ins and outs of the operating system allowing for any security flaws to be caught uniquely fast.

Another useful fact about UNIX is that as it is the bedrock of many other operating systems the capability for programs to be integrated into the operating system.

A key philosophical difference with UNIX is the wide variety of operating systems, and from this huge variety any utilitarian computing that needs to be done, by this i mean if you require only the computing power of a server, instead of installing an OS that requires a GUI and a more “user friendly” environment could eat up both CPU and memory of the server that could be used for network and raw calculation of the server.

B. Non-UNIX use cases

The main cases for non UNIX environments are classically very user friendly, easy to install and easy to use. This can be from personal use to small businesses, and relativity low computational environments where there is not a high demand on any of the computational resources, and there needs to be flexibility in the uses of any personal computer. Although these are the preferred use cases many Linux and UNIX based software also fills this roll with Ubuntu being an extremely popular and relativity user friendly way to interact with the Linux environment. This exception aside any use cases for less computational flexibility (e.g. a cash register or a deli meat weighing machine) are best served with specialized UNIX environments, and rigid high computational workload environments like running a server is also best used in Linux.

Also while not being a technical consideration the fact that windows and other proprietary software has a robust support network when things are not working, it makes it significantly easier for a small or medium business to access support for windows then it is, for example, to get support for an Ubuntu environment.

III. What it means for the cloud

Cloud computing is a very popular method to distribute one networks demands for both data storage and computing power. With that in mind to define the needs of a cloud based computing environment, some of which are as follows

- Easy to connect to different network operating systems
- Maximize the use of the hardware in the “cloud"
- no need for graphic user interface as basically all information in the cloud is being imputed and manipulated remotely

With these three factors it is fairly obvious that for the high demands of a cloud based computing server, any overhead to make it more “user friendly" to the technician in charge of the server, could be vastly better used by the server to do the extreme and hardware intensive computing that any cloud based service needs to provide.

IV. Conclusions

While non UNIX based operating systems have their wide variety of uses in both personal life and small to medium businesses. For a server farm that manages cloud computing

the clear choice to Semiramis the usefulness of the hardware for their clientele is to use a much more lightweight and shard operating system designed for computational intensive and a little less user friendly operating system, and that most certainly is the UNIX/Linux environment

V. References

E. Raymond, "The Art of Unix Programming," www.catb.org. http://www.catb.org/~esr/writings/taoup/html/

"Difference between UNIX and Windows Operating System - javatpoint," www.javatpoint.com. https://www.javatpoint.com/unix-vs-windows-operating-system#.

S. Ranger, "What is cloud computing? Everything you need to know about the cloud explained," ZDNet, Feb. 25, 2022. https://www.zdnet.com/article/what-is-cloud-computing-everything-you-need-to-know-about-the-cloud/

S. Nikita, "10 Reasons why you need to choose Cloud Computing," www.cloudpanel.io. https://www.cloudpanel.io/blog/10-reasons-to-choose-cloud-computing/