NETWORK SCRIPTING

CIS1001-N

Bash scripting Report



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CONTENT

Introduction ...........................................................................................................................3

Policies / security of server.....................................................................................................4

Code testing ............................................................................................................................5

Evaluation of work …...............................................................................................................5

Conclusion ...............................................................................................................................6

Reference ................................................................................................................................6

INTRODUCTION

Ever wondered how computers perform awesome event or tasks?  Events like signup or login authentication, drag copy and paste features, deleting unwanted files or directory from your list, interestingly you can shut down your system using script, create web pages and even process your bank account using script.

A script is a written down computer jargons also widely known as code in order for a system to perform a specific task. The computer on its own does not have the ability to perform any task, it must be given a set of instruction and these instructions are written as scripts which a computer will read then perform a task based on the script that was made available to it. If you want to have control over your operating system and want to perform different operating system related task, then bash is your best bet. Bash is not a general-purpose language. This means that it is not capable of creating all kinds of programs but is a command line interpreter. The awesome feature of bash to consider is that bash can combine tools together to perform complex task (Matchtelt, 2010).

In this report, we will be talking about how bash script works, some of the features that bash offers. Also, we will be talking about how to setup and secure a server. An interesting part of the report is that we will talk about what virtual machine, how to install and use it to perform task. We will talk about how to setup new users, groups and how to secure these users to avoid vulnerability and the securing each user as well as securing the entire system by adding some layers of security and authentication to the system using password composition policies using serenity. We will discuss what password composition policies is, the benefit of applying it to the system and the procedure or how it can be applied to our system.

 POLICIES AND TECHNIQUES FOR THE SECURITY OF A SERVER

A great part of having a system the security measures put in place to guarantee safe functioning of the entire server. It is important to secure you server especially when you have some confidential information from unwanted users or attackers. When applying a security to a system or server, policies should be put into consideration to be able to meet up with a quality security measure. Policy in this context is the principle or framework that designed to help a user archive a better system security. The security of a system is crucial as it is the process of ensuring the confidentiality and integrity of a system or server. A system or server is said to be secured if its resources are used as intended by the appropriate users.

SECURING A SERVER

Server is a program or physical device that feed information to another device or computer. It stores and transmits information by listening for any available action coming in or going out. There is deferent way of securing a server to ensures smooth functionality and safety of information within a server (In-san, Su-kit, Lon-kun, & Rita, 2020).

**Constant upgrade of software:** Staying up to data with server security systems and software fixes is very vital. Server systems and software are overly complicated that at any point in time, an issue or security vulnerability might occur without displaying any prior notice. To keep thing line thin, it is important to be vigilant and be aware of newly developed security software and be mindful of the vulnerability that is been shipped with it.

**Backup your files:** Having a copy of your files stored in an external location is a safe measure to take when working with a server. Making use of external hard drive to store data has become a norm in the world of digital information as it is not linked to the internet and therefore guarantees file safety from potential hackers but making use of hard drive might not be helpful when working with very large file, as much space will be needed so therefore, there would be a need for storing data on secured cloud storage system like IBM cloud storage or AWS cloud storage as it can hold very large files depending on the amount of space a user has purchased.

**Firewall Protection:** To ensure that the server is safe, Firewall is especially important as they filter incoming request or traffic to allow only authorised services and lockout the unsafe ones. There are diverse types of firewalls, the first deals with public services that anyone can access, the second deals with the services that a selected few can access and the last deals with the services that require no exposure to the outside world.

**Password Security:** The Important idea to note to ensure good password security is to develop a particularly good password policies and rules that all users using the server should follow, avoid reusing passwords or using personal information like date of birth, name, and favourite items. In the ICA we developed a password policy that ensures some certain amount of password characters, the different type of required characters in a password value, setting up password time out function. Also, although it is important to update password at least every three to six months and then also implementing two factors authentication as this will help verify the correct user by sending a unique code to the user's cell phone or email.

CODE TESTING

EVALUATION OF WORK

It was really a pleasant experience working on bash project. I was able to learn how to navigate between files and folders and how to delete or modify them. I learn how to create users, groups, hon to assign users to a group and with this knowledge I can assign a user to sudo group. Learning and working with virtual machine (VM) have help me understand that I can choose to install and work with applications which I am not permitted to work with on the physical machine.  Though I found it extremely hard to configure Vagrant to make root as the default user, but I was able to accomplish most of the task while using vagrant as the default user. I am glad I worked on this project because it has given me the opportunity to learn how to code and solve problems on my own. I also learnt that solving problems especially through using google, youtube, stackoverflow, other websites or reading other people's code online is a skill that should be mastered, and I am glad I am getting there.

CONCLUSION

In this report we discussed about bash scripting Is and it uses. We said that bash script enables interaction between input and output of a system. We also discussed about the ways by which we can test our bash script to ensure that the programs written has higher chance of performing as intended. We also talked about what a server is, we stated that server is a central program or device that listens and supplies information to other devices and then we move forward to explain the different ways by which we can secure a server, we stated that a server can be secured by making a policy for every user under that network should follow. Implementing two factor authentications, encouraging the need for strong password, and updating of password regularly. Rounding up the report we talked about the experience we had working on the ICA, what we were able to achieve, our strength and weaknesses and I stated that the ICA helped me learn the act of learning to code on my own wit little to no supervision.

REFERENCE

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