**Network Directory Services**

**Final Exam Review**

**Instructions:** Below you will find a general outline of the technical areas we have explored in the class this semester. The format of the review is intended to be self-paced and self-study. It is suggested that you move past areas you feel you are strong in and in areas where you feel you are a little weak, then concentrate on those.

**System Platforms**

Virtualization – You should be able to identify level 1 and 2 hypervisors, the differences between them, and even how to set each one up. Setting up virtual machines and allocating resources for them should be second nature to you now.

Containers – We explored the world of containers by taking a look at Docker. You should be able to explain what is the purpose of an image, what is a container, and how to interact with it (ex. create, update, remove, run) via the command line tool.

Both – By now you should be able to justify a reasoning or decision for using one over the other or using them together. Think about why people use the technologies that they do in order to solve some of the many greatest challenges businesses face, either technologically or business-related. Scalability and the ability to effectively use resources should be two main thoughts you think about whenever you are making platform decisions.

**Scripting and System Programming Exploration**

BASH/Powershell – We explored the use of Bash on our Linux-based system and we also looked at Powershell within Windows or within its own container. On the final exam, you may be asked to either identify components of a script or be asked to write one to accomplish a task.

Go/Python - We took a look at both Go and Python. Go is the language that Docker used to build its container platform and a number of system administration software continues to be written in it. You may not be a programmer, sure, but there will come a time in place where you will have to make the software work on your systems or you will reach a point where your script just doesn’t do what it needs to do (ex. pull information from a database, generate a pretty report for your users, etc.). This area will be skipped on the final exam.

**Directory Service - LDAP**

LDAP – We spent a considerable amount of time learning about LDAP. You should be able to describe what a LDAP directory is, how it relates to other systems, and some of the terms used to describe things in it (ex. objects, containers, leaf objects). You should also be able to identify and summarize what some of the acronyms are (ex. CN, DN, RDN, DIT, DC, OU) or have the ability to research them.

**Database Technologies**

MySQL – While there are many database systems out there, we chose this particular one because it is widely popular within industry. You should be able to identify the terms (ex. database, table, row, column, primary key, foreign key) and are able to complete tasks working with them, such as creating a database, creating a table, and populating it with test data.

**Web Technologies**

HTML – You were briefly shown HTML. This is another format used for writing system documentation. We live in the age where everything is becoming accessible through the web browser. It becomes easier to read for us IT Professionals, as well as our customers.

Apache / Nginx Web Servers – We briefly took a look at two of the most popular web servers that exist. You should be comfortable setting up one of these, interacting with these using system or built-in commands, or digging into the configuration if needed. On the final, you may be asked to demonstrate something in this area.

**Support Systems**

Github / Bitbucket – We took a look at using both of these services. While the information that was shared was very specific (ex. Github Gists, Bitbucket Snippets, Downloading files from Github), you should know that these exist and serve as a great resource or tool for you when deciding where to host your documentation or managing resources or files within your network.

Hipchat.com / Slack.com – Both of these are communication tools used by many organizations. The main purpose was to show you that these exist and they might prove to be another resource you can use to tap into much larger communities, which will help increase your technical knowledge/expertise.

Markdown – We took a look at what Markdown is and why it is a step up from simply writing documentation in a plaintext format. You can expect to see some documentation requirement on the final exam.

IT Processes – You should have a pretty good understanding of what a support system is, how to assess it, and perhaps have developed the mindset of “how do I improve or simplify it?” We took a look at one industry standard, CoBit, which helped us gain a better understanding of different perspectives, such as chief information officers, auditors, IT managers, and many other people who are impacted by IT processes within business and industry. You can expect a few questions that will assess your knowledge in this subject.

**Cloud Systems**

Google Cloud Platform (ex. Google App Engine)- We first started out by installing the google software development kit (SDK) onto our systems, which gave us the *gcloud* command. Using this command, we discovered that we can interact with Google’s cloud-based services simply by typing in a few commands. From here, we were able to take a website project that was written for Google App Engine and we went through the steps of configuring a new project via the web admin console and doing some configuration using our command line tool to make sure we set the project to be used for deployment and authentication between our computer and Google’s cloud services. Finally, when we had everything configured, we were able to deploy the website project to Google and we were able to view it inside the web browser using the project’s website address.

Dropbox.com – We briefly took a look at this cloud-based service, which its intended purpose is to help users manage their files. As IT Professionals, we are constantly looking for places to keep track of documentation, configuration files, or whatever else we want to keep accessible. Thankfully, there are services like Dropbox that exist, which not only makes our lives easier, but it also is a nice entry point for even non-technical users. When we downloaded their application, it was setting up a file synchronization system underneath the hood, which we were able to see by creating files inside of their web application and they would show up on our systems. In reverse, we created files on our local file system and they showed up inside of the web browser. We learned that this file sync process isn’t perfect, so sometimes we had to re-run a command to get it to resync.

Both – The goal was to develop your awareness of how these apply to our field or how they might be used. You will not be assessed in this area on the final exam.

**Other Mentions**

In addition to the knowledge-based portion, you will be asked to solve a scenario-based problem. You will use skills developed in this class or in others. To simulate the workplace, you will have the Internet and any other resources that are close by (no phone calls, your peers, or the instructor) to complete it. Attention to detail and time management will be stressed. Best of luck to you as we wrap up the semester and as you continue in the program!