Unit 12 Homework

**Part 1**

Cloud computing has many terms and definitions that are unique to the cloud. As such, it is important to understand and remember this jargon when speaking to potential employers or peers.

In part 1 of the homework, our goal is to solidify many of the terms and concepts you have learned throughout the last 4 weeks of class.

**Instructions**

Answer the following questions in your own words:

1. What are 3 common job roles that combine security and cloud skills?
   1. **Security Engineer, Cloud Architect, and Cloud Security Professional**
2. What are the 3 biggest cloud provider platforms?
   1. **Amazon Web Services, Microsoft Azure, and Google Cloud Platform**
3. What are the 6 most common cloud services (and their acronyms)?
   1. **SaaS (Software as a Service)**
   2. **PaaS (Platform as a Service)**
   3. **IaaS (Infrastructure as a Service)**
   4. **MaaS (Monitoring as a Service)**
   5. **DRaaS (Disaster Recovery as a Service)**
   6. **BaaS (Backup as a Service)**
4. What is the difference between a virtual network and a physical network?
   1. **A virtual network connects virtual machines and devices, no matter their location using software. While physical networks connect computers through cabling and other physical hardware.**
5. What is the point of setting your first firewall rule to block *all* traffic?
   1. **Blocking all traffic with your first firewall allows only some specific traffic to certain known services. This helps add control over who can access the network and prevents security breaches.**
6. What is the difference between physical computing components (CPU, RAM, HDD/SSD) and virtual computing components?
   1. **The main difference between physical and virtual is that physical computing components refer to the actual components attached to the computer. While virtual computing components is a process whereby data can be rapidly exchanged between**
7. What is the purpose of using an encrypted ssh key to connect to a machine?
   1. **SSH provides password or public-key based authentication and encrypts connections between two network endpoints.**
8. What is the difference between a container and a virtual machine?
   1. **A virtual machine is a piece of software that allows you to install other software inside of it so you can basically control it virtually as opposed to installing software directly on the computer. While a container is a software that allows different functionalities of an application independently.**
9. What is a provisioner? Provide 3 examples of common provisioning software.
   1. **Provisioning is the process of setting up IT infrastructure. It can also refer to the steps required to manage access to data and resources and make them available to users and systems.**
   2. **Three examples of common provisioning software are: JumpCloud, Okta, and Rippling.**
10. What is meant by Infrastructure as Code?
    1. **Infrastructure as Code is the managing and provisioning of infrastructure through code instead of through manual processes. Configuration files are created that contain infrastructure specifications, which makes it easier to edit and distribute configurations.**
11. What is Continuous Integration/Continuous Deployment?
    1. **Continuous Integration is the practice of testing each change done to your codebase automatically and as early as possible.**
    2. **Continuous Deployment follows the testing that happens during Continuous Integration and pushes changes to a staging or production system.**
12. What is a VPN and when should us use one?
    1. **A VPN allows you to create a secure connection to another network over the Internet. It should be used to access region-restricted websites and shield browsing activity on public Wi-Fi.**
13. What is the purpose of a load balancer?
    1. **A load balancer is a device that acts as a reverse proxy and distributes network or application traffic across several servers. Load balancers are used to increase capacity and reliability of applications.**
14. What is a resource group in Azure?
    1. **A resource group is a logical container into which Azure resources like databases, web apps, and storage accounts are deployed and managed.**
15. What is Region in Azure?
    1. **A region is a set of data centers deployed within a latency-defined perimeter and connected through a dedicated regional low-latency network.**

**Part 2**

- Your diagram should show the following:

- **Azure resource group**

- **Virtual network with IP address range**

- **Subnet range**

- **Flow of specific traffic (e.g., HTTP, SSH)**

- **Security group blocking traffic**

- **Load balancer**

- **All 4 VMs that you have launched**

- **Where Docker and Ansible are deployed**

Diagram, schematic

Description automatically generated