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Cybersecurity HW#12

Submission File: Cloud Security

Part 1

1. What are 3 common job roles that combine security and cloud skills?

   - **Cloud Architect**
   - **DevSecOps**
   - **Cloud Security Analyst/Pentester**

2. What are the 3 biggest cloud provider platforms?

   - **Amazon Web Services** (Amazon)
   - **Microsoft Azure** (Microsoft)
   - **Google Cloud** (Google)

3. What are the 6 most common cloud services (and their acronyms)?

   - **IaaS**

     - ***Infrastructure as a service.***
     - Pay as you go service for storage, networking, computing.
     - All machines are up to date and ready.
     - Provider-enforced security controls.
     - AWS, Azure, Google Cloud.

   - **PaaS**

     - ***Platform as a service.***
     - Enviroments to build applications.
     - Classroom Labs (Azure).

   - **Saas**

     - ***Software as a service.***
     - Delivers software and applications through the internet.
     - Uses web interfaces and APIs.
     - Office 365, iWork.

   - **DaaS/DBaaS**

     - ***Data/Database as a service.***
     - Provides a company a data product.
     - Database available regardless of location.
     - High availiability and fault tolerance.

   - **CaaS**

- **Communications as a service.**
  - Zoom, VOIP.
- **XaaS**
  - **Anything as a service.**

4. What is the difference between a virtual network and a physical network?

   - **A virtual network typically will have and enforced secure configuration, secure architecture, higher fault tolerance (meaning it can continue to run if a component is compromised), redundancy, and can be containerized through its settings/configuration.**

5. What is the point of setting your first firewall rule to block *all* traffic?

   - **To securely monitor and configure only the most necessary communications through adding routes one at a time.**

6. What is the difference between physical computing components (CPU, RAM, HDD/SSD) and virtual computing components?

   - **Since virtual components are not physical, they can easily be reconfigured, redeployed and more redundant/available through duplication of foundational architecture.**

7. What is the purpose of using an encrypted ssh key to connect to a machine?

   - **To establish a secure, remote connection.**

8. What is the difference between a container and a virtual machine?

   - **Containers are smaller than VMs, take less rsources than a VM, and are easier to destroy and redeploy.**

9. What is a provisioner? Provide 3 examples of common provisioning software.

   - **Provisioners provide automatic configuration of machines, networks, and services. Examples of provisioning software include Docker, Vagrant, and Virtualbox, and AWS EC2.**

10. What is meant by Infrastructure as Code?

    - **Infrastructure as code is the management and provisioning computer data (as hosts, networks, or general services) through machine-readable definition files instead of traditional physical hardware configuration.**

11. What is Continuous Integration/Continuous Deployment?

    - **With regards to application or software development, CI/CD is the idealogy behind a set of practices that motivate development and implementation of small changes from version to version in such a way that development remains consistent and automated through Continuous Integration. From here, Continuous Deployment automates the delivery of applications or software to selected system infrastructures or environments.**

12. What is a VPN and when should we use one?

    - **A VPN is a virtual private network that extends another private network across the public internet and allows clients to send and receive data across the public internet**

simulating a connected, local client. For this reason, VPNs are useful for remote work as you can have clients log in through some means of authentication to share a protected set of resources and data.

13. What is the purpose of a load balancer?

    o **To manage the flow of network packets so that one particular server or service is not overloaded.**
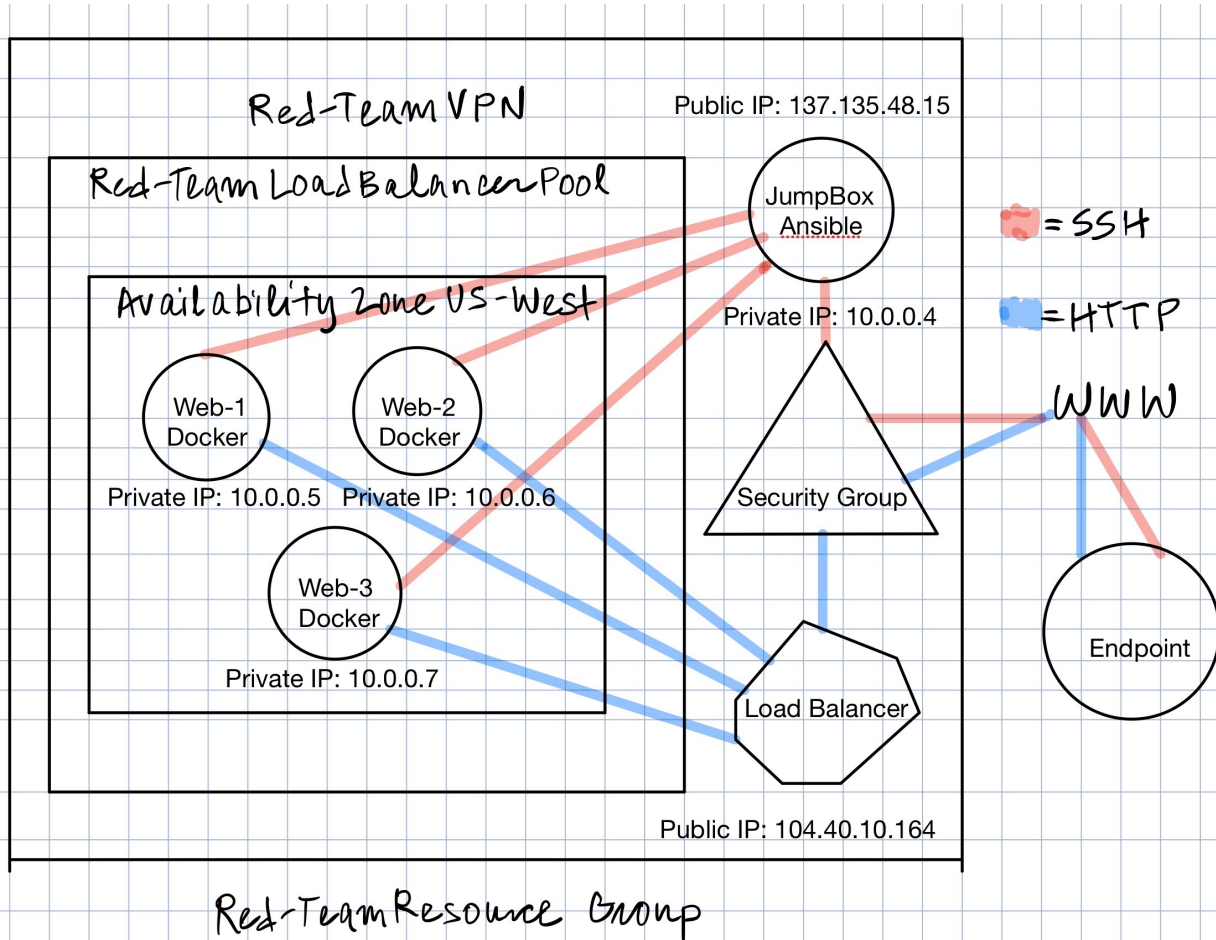
14. What is a resource group in Azure?

    o **A form of categorization for grouping together services under Azure to share network settings, data, or security configurations.**

15. What is Region in Azure?

    o **The geographic location of where the servers hosting a service are.**

Part 2

Part 3

Please see the PDF, ***Threat Modeling Mock Report***, located in the same directory as this file.