nickgrayccp1  
AdminUser  
N0w!$th3+1me4M3

**AWS Certified Cloud Practitioner**

**Course Overview**

* **Course Name: AWS Certified Cloud Practitioner - UPDATED for 2025**
* **Instructor/Platform: Evan Phipps/Udemy**
* **Course Link: https://bah.udemy.com/course/cogluma-aws-certified-cloud-practitioner**
* **Estimated Completion Time: 20 Hours**
* **Start Date: 4/22/2025**
* **End Date (Goal): 5/20/2024**
* **Main Learning Objectives:**
  + Meet requirements of PiP
  + Be able to speak intelligently about AWS
  + Attain certification

**Sections**

**Section 1: Intro to the Course**

1. Welcome to the AWS Certified Cloud Practitioner Course
   * Key Takeaways: Basic Introduction
2. AWS Certified Cloud Practitioner
   * Key Takeaways:
     + What is going to be covered in the exam?
     + Talks about the abilities validated by the exam
       - Explain the value of the AWS Cloud
       - Understand and explain the AWS shared responsibility model
       - Understand security best practices.
       - Understand AWS Cloud costs, economics, and billing practices
       - Describe and position the core AWS services, including *compute, network, database, and storage*
       - Identify AWS services for common use cases
       - Who is this certification for?
         * No prerequisites
         * Designed for individuals who are new or may not have an IT background
         * Target Audiences for the certification
       - AWS Certification Journey
         * Talked about different levels
       - AWS CLF-C02 Exam Logistics
         * Multiple Choice
         * Multiple Response
         * 50 scored and 15 not scored
         * 100 – 1000. 700 is passing
         * 90 Minutes
         * $100
   * Notes:
   * Resources:
3. Cogluma Learning Approach
   * Key Takeaways:
     + Uses three methods
       - Informational
         * Clearly explaining one topic at a time
       - Demonstration
         * Learning by doing
       - Contextual
         * Framing the topics in terms of business practices
     + Review of the section layout we will use throughout the course
       - Business Problem
       - Section Introduction
       - Detailed Topic Discussion
       - Section Review
       - Problem Review
       - Section Quiz
4. About Your Instructor
   * Key Takeaways:
     + Mostly about how as a technologist you need to keep the business need/solution in the front of your mind.
5. Downloading Course Resources
   * Key Takeaways:
     + Downloaded the CoglumaCCP+Classfiles.zip file and opened in C:\Users\635315\Documents\Training\AWS Cloud Practicioner Course
     + Looked at all the files. Nothing looks complicated
6. How to get the most out of this course
   * Key Takeaways:
     + Talked about Udemy problems and support
     + Problems with the coursework there are few different things you can do
       - Reach out to him directly
       - If you have a question that you think someone else may have asked. There is a Q &A section
     + At the end of each section there is going to be a section quiz
       - The quiz will explain right and wrong answers
       - You can see where the correct lecture is that answers this question
     + At then of the business cases are the “Section Recap” he is going to pose a question as to why this would be important/applicable to you?

**Section 2: Intro to the Cloud**

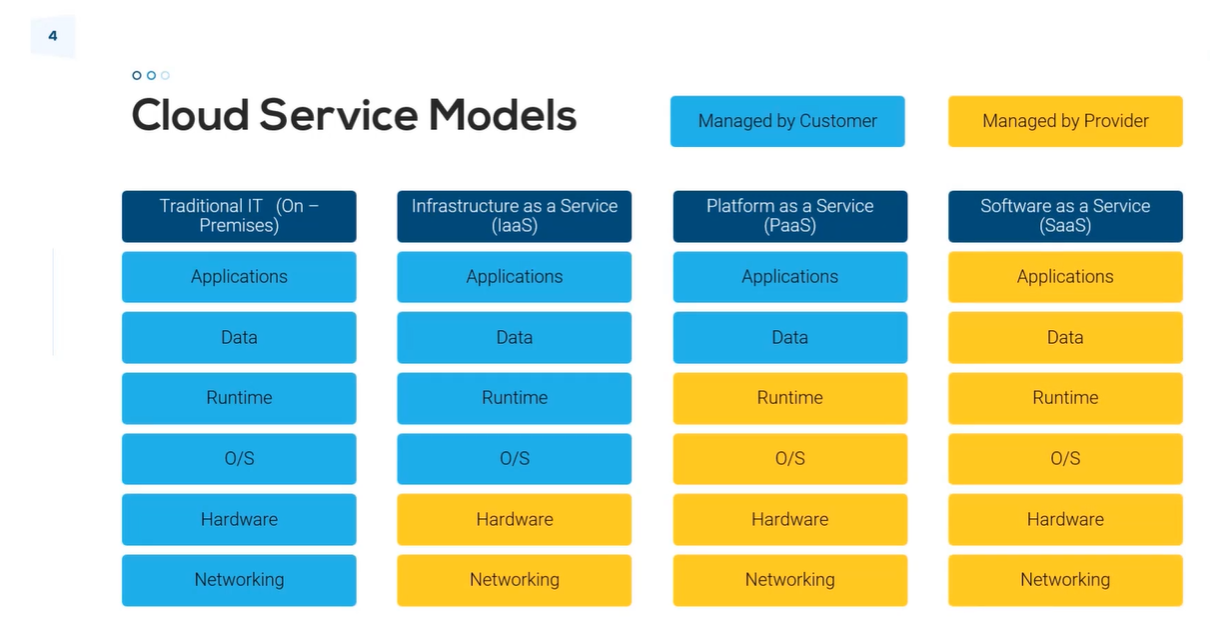
1. Why the Cloud
   * Key Takeaways:
     + The first think we are going to talk about in each section is the section intro. It will introduce a business problem that will be addressed by solutions later in the section.
     + Business Case
       - Juan manages the IT infrastructure for a large auto parts manufacturing company. IT is critical for procurement and sales
       - It is hard to get the company to spend money, business is down and the current hardware is at capacity, outages are becoming frequent.
       - He needs a way to get an environment up for a low up front cost that he can start migrating to
2. Traditional It Model
   * Key Takeaways:
     + Start with data center
       - Database Servers
       - Application Server
       - Switches
       - Web Servers
       - Data Storage
       - All connected to switch, switch connect to a router, access to outside world
       - Groups of people
         * Admins
         * End Users
       - A lot of companies can’t afford there own data center and therefor share space with others (i.e. Rackspace)
       - Most common model for years
         * Very expensive. It requires constant amount of investment and/or expensive leases in order to sustain that infrastructure and remain current
         * Somewhat non-flexible. It requires a procurement cycle to add capacity and difficult to recover cost when reducing capacity
         * Its still in place because it is what is known and is in place.
         * Some companies are nervous to move IT outside of their control
3. Intro to the Cloud
   * Key Takeaways:
     + The 5 key characteristics of cloud computing as defined by NIST
       - On Demand Self Service
       - Broad Network Access - Accessible over the network and accessed through standard mechanisms
       - Resource Pooling (Multitenancy) – Multiple customers using same physical infrastructure.
       - Rapid Elasticity
       - Measured Service – Customers only paying for what they are using
     + Cloud Service Models
       - Infrastructure as a Service
         * Customer provisions resources such as storage, vms and everything in PaaS and SaaS models
         * Customer doesn’t control underlying hardware
       - Platform as a Service.

Customer can deploy an application and fully manage it

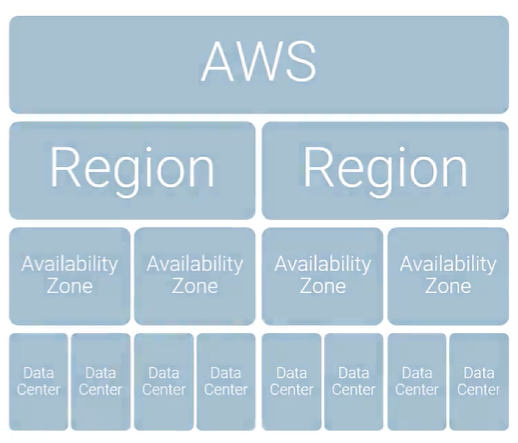
* + - * Software as a service

Customer can access the application and possibly make configuration changes

They cannot deploy applications or provision new resources. (i.e Gmail)

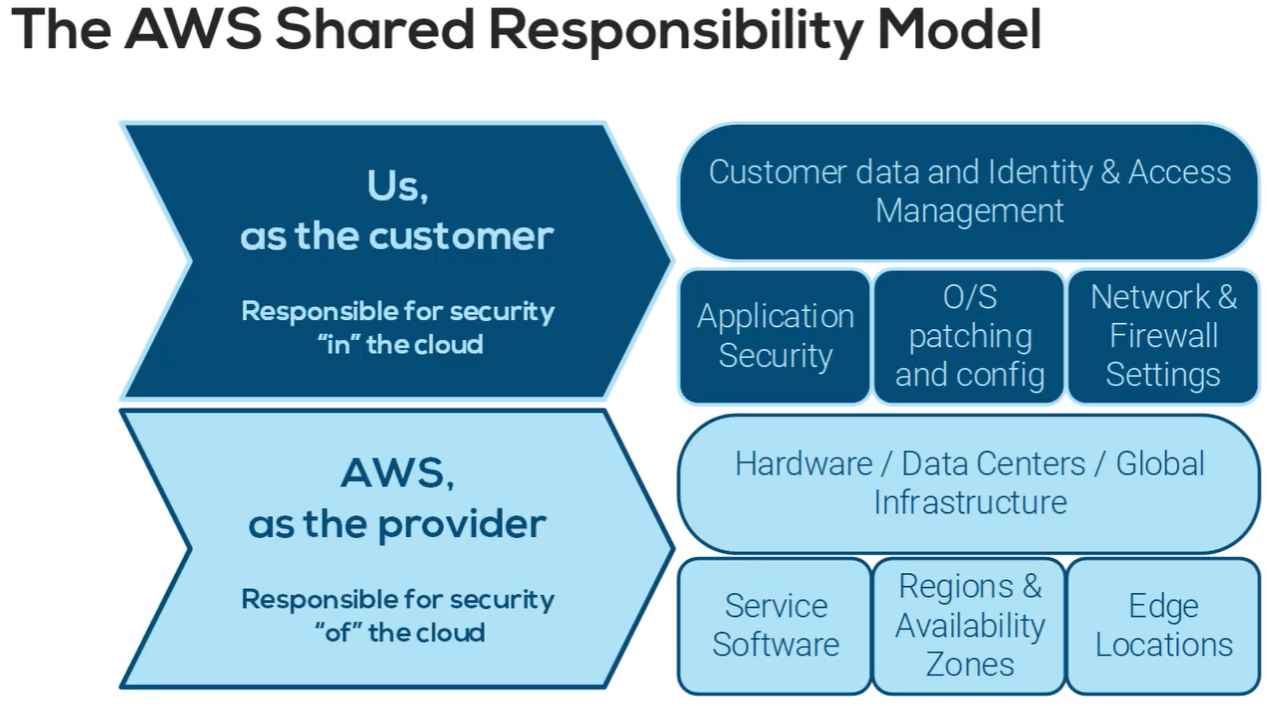


* Deployment Models
  + Public Cloud – Underlying hardware is shared
  + Private Cloud – Underlying hardware is dedicate to a specific customer
  + Hybrid Cloud
    - May also contain on prem resources
* Technology Resources
  + Compute (EC2)
  + Storage (S3)
  + Database (RDS)
  + Applications (Sagemaker)
  + Network Resources (VPC)
* Most important takeaway is the underlying hardware of the cloud is managed by the Cloud provider not the customer, This is important because it shifts capital expenses to operational expenses.

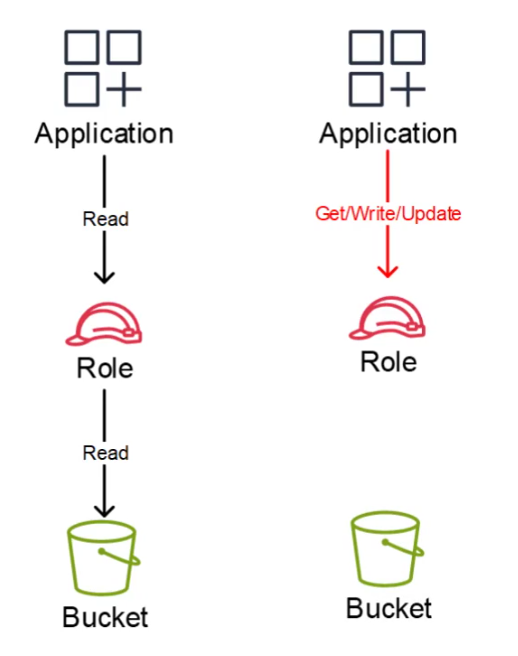
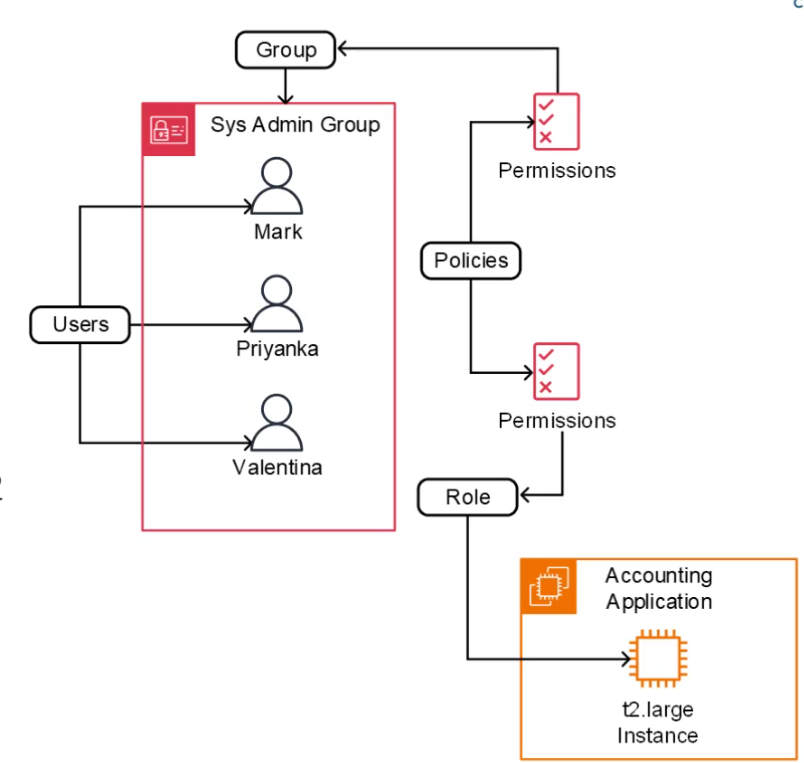
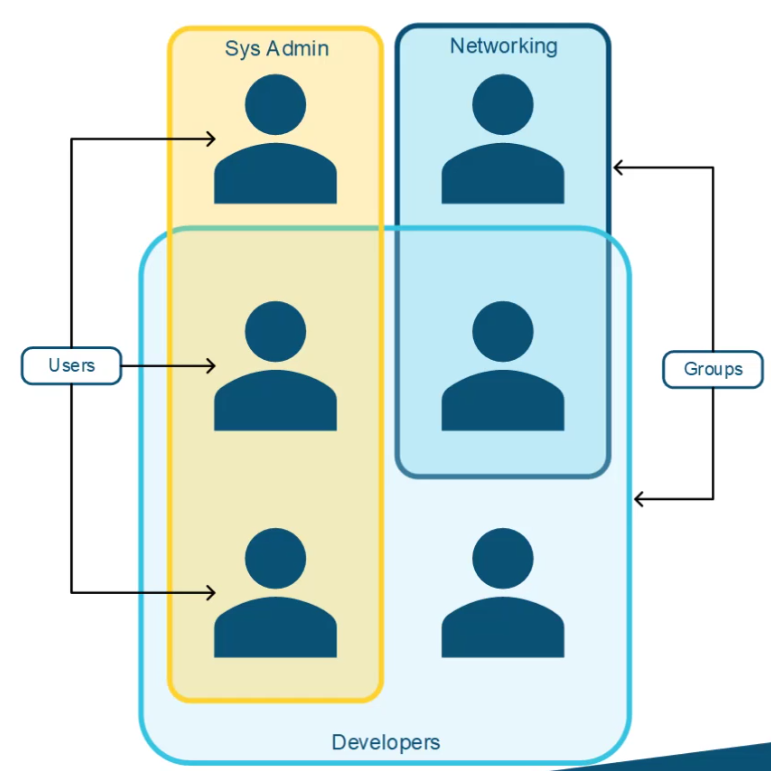
1. Intro to AWS
   * Key Takeaways:
     + Brief history
       - Global Infrastructure means Performance/Latency reduction and High Availability
     + Types of AWS Global Infrastructure
       - AWS Regions
         * Regions are physical locations where data centers are clustered
         * Each Region contains multiple availability zones
         * 26 Regions with 8 more announced
         * Many AWS resources are region based
       - AWS Availability Zones
         * One or more discrete data centers within an AWS region
         * Data centers have redundant power networking and connectivity
         * Low latency fiber that connects AZs within a region
         * Network performance that is capable of synchronous replication between AZs
         * Naming schema of AZs are region name followed by a letter
         * 
       - AWS Edge Locations
         * AWS Cloud Front
         * Route 53
         * AWS Sheild
         * AWS WAF
         * AWS Firewall Manager
2. Create an AWS (Root) account
   * Key Takeaways:
     + Email : [ngsa233472@gmail.com](mailto:ngsa233472@gmail.com)
     + Account name: NickGraysAWSCertAccount  
       Password: IDKwvgb(@99gImUTwOoTs
3. **Intro to the Cloud Section Review**
   * Key Takeaways:
     + 5 Key Characteristics
     + Cloud Service Models
     + Deployment Models
     + AWS Global Infrastructure
4. Uses of the Cloud
   * Key Takeaways:
     + We are back to Juan.

Quiz 1:

**Section 3: AWS Shared Responsibility Model**

1. Why AWS Shared Responsibility Model
   * **Michael manages the resources and has concerns about responsibilities**
2. **The AWS Shared Responsibility Model**
   * 
   * AWS has responsibility **OF** the cloud, the customer has responsibility **IN** the cloud
3. Uses of the AWS Shared Responsibility Model

**Section 4: AWS Identity and Access Management**

1. **Why Identity and Access Management**
2. **Intro to IAM**
   * Cloud Concept - Root Account – Why not use the one user
     + In most environments there are many users and the root account is fully privileged. Best practice suggest “Least Privilege”
     + Use this account as little as possible. First create an admin account
     + Multiple accounts enable better auditing
       - Users – need unique access to AWS services
       - Groups – Organize users into groups (group permissions)
       - Roles – Grant access for services (Service accounts)
       - Policies – Documents or rules themselves that can be applied to users and groups
   * Cloud Concept – Least Privilege
     + Grant only the minimum rights to accomplish a task
     + Applied to Users, Groups, Polices, & Roles
     + Tied directly to a function
     + These rights need to be audited
     + Example  
       
     + In the above we want a role to be able to read from a bucket but not write or update
3. **IAM Components**
   * Review the IAM components
     + Users – Actual Person
     + Groups – Groups of persons
     + Roles – access to services (EC2, Lamda, etc)
     + Policies – Permissions that can be applied to Users, Groups, Roles
     + 
     + More on Users
       - Individual Users for each member
       - Users have no permissions by default
     + Groups
       - Users can be placed in groups and inherit the permission of the group. Users can be placed in multiple groups. Here we have users in both Networking and Developer Group
       - 
       - Groups cannot be placed in other groups
     + IAM Roles
       - Like a user, but not associated to one person
       - Assuming a role provides temporary credentials
     + IAM Policies
       - JSON documents
       - Can be applied to Users, Groups, or Roles
       - Best practice is to apply policies at group level
     + JSON Document overview
       - SID (Statement ID)
       - Effect (Allow/Denied. Denied by default)
       - Action
       - Resource
4. **IAM Users & Groups Demonstration**
   * Started by logging in as root user (in document) and password (in document)
   * We want to create an IAM user that we will use throughout the rest of the course
     + Search for IAM in the search bar
     + Select IAM from the screen (Blue title)
     + Next select Users in the left column
       - Create user: AdminUser  
         Password: N0w!$th3+1me4M3
     + Created an alias for the account
       - nickgrayccp1
5. **IAM Roles Demonstration**
   * Starting this lesson, from the AWS console logged in as the AdminUser
     + We created a new role called RolesSystemManager and attached the AmazonSSMManagedInstanceCore policy to it
6. **IAM Policies Demonstration**
   * We are going to create a nonpriv users with
     + Username: nonpriv
     + Passsword:Roc234u0uwww(##
     + We assigned him IAMReadOnly access policy and showed that he can’t create users
7. **Multi-Factor Authentication**
   * Why it is important in a production environment
   * What type of MFA is supported on AWS
     + Software
       - Authy
       - Duo Mobile
       - LastPass Authenticator
       - Microsoft Authenticator
       - Google Authenticator
     + Hardware
       - Key Fob
       - Gemalto Card
       - Ubi Key
       - GovCloud
8. **Multi-Factor Authentication Demonstration**
   * We set up multifactor with the google authenticator
   * We logged in with Google Authenticator
   * We removed the MFA
9. **AWS Access Methods**
   * Primarily We are going to use the console
     + Root or IAM account
     + Friendly
   * There is also a CLI
     + Useful for automating tasks
     + Uses access key and secret access key (key pair)
   * There is also an SDK
     + Used for granting external accesses to AWS resources
     + Many languages
     + Uses access key and secret access key (key pair)
   * A key pair is just like a username/password
   * A newer option called “AWS CloudShell”
10. **AWS Access Methods Demonstration**
    * Access key demo
      + Access Key: AKIAYKLCNNBTSAX6LI6X
      + Secret Access Key: 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
      + Demo of AWS CloudShell as well
11. **IAM Best Practices**
    * To keep environment secure
      + Individual IAM users
      + Use root as little as possible
      + Use groups instead of users to assign permissions
      + Enable MFA
      + Do not share keys
      + Remove unneeded credentials
      + Employ least privilege
      + Strong password policy
      + Create no permission initially
12. **IAM Best Practices Demonstration**
13. **IAM Section Review**
14. **Uses of IAM**

**Quiz2:**

**Section 5: AWS Computer Services**

1. **Why AWS Compute**
   * Sometimes the audio starts late, and I don’t get the first few words that are said
   * Marcus and Carmen introduced. Marcus is the developer. Carmen is responsible for the uptime of ever increasing remotely hosted VMs.
2. **Intro to AWS Compute**
   * Cloud Concept: Virtualization
     + Introduced Pre Virtualization – One Computer
     + Introduced Virtualization – Multiple Virtual Computers
       - Can be cloned or migrated
     + AWS is doing (Similar to others)
       - EC2 Hosts (Physical Server)
       - EC2 Instance (Virtual Machines)
       - Application (Hosted on the EC2 Instances)
     + So Admin only cares about EC2 instances and the Applications
     + EC2 Hosts are managed by AWS
     + This makes it easy to start a new EC2 Instance and application in minutes.
3. **Elastic Compute Cloud** 
   * Elastic Compute Cloud (EC2) is AWS Compute platform that allows us to provision virtual machines.
   * These are known as instances. It is the foundational technology of AWS
   * There are different types of EC2 instances.
     + Large monolithic instances with a lot of compute power
     + Very small instances
   * What goes into an EC2 instance
     + AMI (Amazon Machine Image) – Foundation of the instance (OS and base config).
     + EC2 Instance type (CPU, Memory, and Storage configuration)
     + Storage (Elastic Block Store) and security group (type of firewall)
     + Instance Details Virtual Private Cloud, Spot Instance, Role
     + Once all of these are set, we have an EC2 instance
     + Why use EC2 though
       - Provision in minutes
       - No host configuration
       - Scale to meet needs
     + Against other providers
       - Better regional coverage
       - High Performance
       - Integration with a lot of features
4. **EC2 Demonstration**
   * EC2 is a region based service. You can tell by looking at the top next to UserID. IAM is global service.
   * You can specify how many instances, what AMI, what type (size), firewall, and storage.
   * We created an instance with a lot of defaults within the free plan and then shut it down
   * The EC2 dashboard shows what is going on and Volumes was looked at
5. **EC2 Instance Types**
   * **Types**
     + The t2.micro is the smallest instance. The t is a family of general purpose instances. The 2 is the second generation of the t family
     + The m5 is a general purpose instance family a good place to start in many instances
     + C5 is a compute optimize family
     + R5 is memory optimized
     + I3 is a storage optimized
   * We need to understand at a high level what the instances are going to be used for
     + General Purposes
       - Web Server
       - Code Repositories
     + Compute Optimized
       - Batch Processing
       - Media Transcoding
       - Dedicated Game Servers
     + Memory Optimized
       - High Performance Databases RDB NoSQL
       - In Memory databases (SAP Hana)
     + Storage Optimized
       - DFS (Hadoop workloads)
       - High Frequency Transactions (OLTP)
6. **EC2 Instance Purchasing Options**
   * On demand
     + Start and stop on demand
     + No long term commitment
     + Relatively expensive when compared to other EC2 Options
       - Flexible Workloads
       - Capacity Scaling
       - Non-Production Workloads
   * Reserve Instances
     + Commit to a one or three year term
       - Saves 72% compared to on-demand
       - 1-3 year term
       - Different upfront payment (All, Partial, None) options
     + Different types of Reserve
       - Standard
         * We can change the attributes during the term
       - Convertible
         * Change the terms to be greater or equal value
       - Scheduled
         * We match capacity with predictable running schedules
   * Spot instances
     + Utilize unused EC2 Capacity and a significant discount
     + We can bit and get up to a 90% discount
     + But can be reclaimed if our bid falls belong a set spot instance price
   * Dedicated Hosts
     + Physical servers with EC2 instance capacity dedicated to a specific organization.
7. **LightSail**
   * + Something quick transparent and easy to use
     + Giving up functionality to gain simplicity
     + Useful for proof of concept or testing cloud functionality
     + Very transparent pricing model
8. **Outposts**
   * Offers an on premise aws offering
   * Still owned by AWS but housed at customer site
   * Pay monthly to use hardware
   * 3 year commitment
   * Why?
     + Factory automation
     + Medical Imaging
     + Data Residency Requirements
   * Outpost servers
     + EC2 or ECS
     + 500 – 2500 month
     + 1U or 2U
     + 10 GBS Uplink
   * Outpost Racks
     + EC2,ECS, EBS (Elastic Block Store), S3
     + 5000 – 30000 month
     + 100 GBS link
9. **AWS Compute Section Review**
   * **t2.micro**
     + **Instance Family**
     + **Generation**
     + **Instance Size**
   * This is a good review of what is covered in this section
10. **Uses of AWS Compute**
    * **Came back to Marcus and Carmen**

**Quiz 3**

* + **100%**

**Section 6: EC2 Instance Management**

1. **Why EC2 Management**
   * Carmen again. She has problems with SSH and wants to build bulk images
2. **Intro to EC2 Management**
   * IP Addresses
     + Internal
     + External
     + IPV4 vs IPV6
   * Ports
     + Range from 1 to 65535
     + Some have common applications (80)
   * Remote connectivity
   * Imaging and Cloning
3. **Security Groups**
   * How do security groups work
     + Define what type of connectivity is allowed
     + EC2 instances are either added to an existing security group or a new one is created
     + You can have empty security groups with no rules which allow no connectivity
     + By default, all incoming are denied, all outgoing are allowed
     + EC2 instances can be placed in multiple security groups
       - Security groups for specific applications (HTTP, SSH)
     + Sources/Destinations
       - Anywhere 0.0.0.0
       - A single IP or a range
       - A defined network
       - An AWS security Group
     + What does this look like
       - Security Group Rule ID
       - Type
         * SSH
         * HTTP
         * Custom
       - Protocol
         * TCP, UDP, or Both
       - Port Range
         * 22, 80
       - Source
         * Outside IP (0.0.0.0 Anyone)
       - Description
     + Common Ports
       - 443, HTTPS
       - 20&21, FTP
       - 22, SFTP
       - 22, SSH
       - 80, HTTP
       - 3389, RDP
     + Connection Methods
       - RDP Windows
       - SSH Linux
       - AWS Connect instance – Linux
       - AWS Session Manager – Both
4. **Security Groups Demonstration**
   * We went into EC2 and security groups and played with them
   * Then went back to create EC2 and messed around there.
   * Showed how to connect EC2 security groups and instances a lot of flexibility
5. Connecting Windows to your EC2 Instance
   * Created EC2 windows instance
   * We attempted to connect to it, but Booz Allen wouldn’t let me run the RDP client app
   * Disconnect and terminated the instance. Verified volume was gone
6. **SSH from a windows computer demonstration**
   * We used the command in a powershell
     + “ssh -i ‘.\MyKey.pem’ [ec2-user@52.15.32.204](mailto:ec2-user@52.15.32.204)
       - Ssh is built in to Powershell now
       - -i is option to pass it the key
       - MyKey.pem is the key pair we generated
       - ec-2 is the default user
       - 52.15.32.204 is the public Ip of the server
     + Looks like a standard Linux system
7. **SSH from a Linux or Mac Computer demonstration**
   * Skipped this lesson because I didn’t need it
8. **SSH troubleshooting**
   * Security group configured incorrectly
   * Corporate/University/Personal firewall blocking 22/3389
   * Username not entered in the connection command
     + Pointed out that the EC2 external address was dynamic
     + Key Pair file is not in the correct directory
     + Key Pair file access is not configured correctly
     + Wrong Key Pair File
   * Make sure you always terminate your instance so you are not putting your free tier at risk.
9. **Instance Connect and Session Manager Demonstration**
   * We created an instance of EC2 with Linux using the defaults except we went to Advanced Details and chose RoleSystemsManager.  
     We clicked on the instance and in the top right it said connect. This opens a window of “AWS Instance Connect” on port 22
   * Then we went to AWS session manager vi connect button and connected that way.
   * I just found out that we only have 750 free hours
   * We left the instance running since we are going to move on to less 50
10. **. Access Keys vs Roles on EC2 demonstration**
11. **.**
12. **.**
13. **.**
14. **.**
15. **.**
16. **.**
17. **.**

**Quiz 4.**

**Section 7: Elastic Load Balancers & Auto Scaling Groups**

1. **X:**
2. **X:**
3. **X:**
4. **X:**
5. **X:**
6. **X:**
7. **X:**
8. **X:**

**Quiz 5**

**Section 8: AWS Application Integration**

1. **X:**
2. **X:**
3. **X:**
4. **X:**
5. **X:**
6. **X:**
7. **X:**
8. **X:**
9. **X:**
10. **X:**
11. **X:**
12. **X:**
13. **X:**
14. **X:**
15. **X:**
16. **X:**

**Quiz 6**

**Section 9: AWS Application Build & Deployment**

1. **X**
2. **X:**
3. **X:**
4. **X:**
5. **X:**
6. **X:**
7. **X:**
8. **X:**
9. **X:**

**Quiz 7**

**Section 10: AWS Application Development Tools**

1. **X:**
2. **X:**
3. **X:**
4. **X:**
5. **X:**
6. **X:**
7. **X:**
8. **X:**
9. **X:**
10. **X:**
11. **X:**
12. **X:**
13. **X:**

**Quiz 8**

**Section 11: AWS Storage**

1. **X:**
2. **X:**
3. **X:**
4. **X**
5. **X:**
6. **X:**
7. **X:**
8. **X:**
9. **X:**
10. **X:**
11. **X:**
12. **X:**
13. **X:**
14. **X:**
15. **X:**
16. **X:**
17. **X:**

**Quiz 9**

**Section 12: AWS Backup and Recovery**

1. **X:**
2. **X:**
3. **X:**
4. **X:**
5. **X:**
6. **X:**

**Quiz 10**

**Section 13: AWS Databases**

1. **X:**

**Section 14: AWS Analytics**

1. **X:**

**Section 15: AWS Artificial Intelligence & Machine Learning Services**

1. **X:**

**Section 16: AWS Networking**

1. **X:**

**Section 17: AWS Global Presence**

1. **X:**

**Section 18: AWS Administration**

1. **X:**

**Section 19: AWS Monitoring and Logging Services**

1. **X:**

**Section 20: AWS Security**

1. **Lesson X:**

**Section 21: AWS Account Management**

1. **X:**

**Section 22: AWS Migration**

1. **X:**

**Section 23: AWS End User Computing:**

1. **X:**

**Section 24: AWS Business Applications:**

1. **X:**

**Section 25: AWS Billing:**

1. S
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4. S
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6. S
7. S
8. S
9. S
10. s

**Section 26: AWS Frameworks:**

1. **264.**
2. **265.**
3. **266.**
4. **267.**
5. **268.**
6. **269**
7. **270**
8. **271**
9. **272**
10. **273**
11. **Quiz 24**

**Section 27: Getting Help with AWS:**

1. **274**
2. **275**
3. **276**
4. **277**
5. **278**
6. **279**
7. **280**
8. **281**
9. **Getting Help**

**Section 28: Prepping for the Exam:**

1. 282
2. 283
3. **284. Good Luck, Feedback, & Thank You**

**Section 29: Full Length Practice Test:**

1. **Practice Test1:**
2. **Practice Test2:**