

Lecture 1

Cloud computing is the on-demand delivery of compute power, database, storage, applications, and other IT resources via the internet with pay-as-you-go pricing.

IaaS, PaaS and SaaS are the 3 cloud service models

Cloud, Hybrid and On premises are the 3 cloud deployment methods

A web service is any piece of software that makes itself available over the internet and uses a standardized format—such as Extensible Markup Language (XML) or JavaScript Object Notation (JSON)—for the request and the response of an application programming interface (API) interaction.

AWS is a secure cloud platform that offers a broad set of global cloud-based products.

Lecture 2

Total Cost of Ownership (TCO) is the financial estimate to help identify direct and indirect costs of a system.

Use the AWS Pricing Calculator to: • Estimate monthly costs • Identify opportunities to reduce monthly costs • Model your solutions before building them

AWS Organizations is an account management service that enables you to consolidate multiple AWS accounts into an organization that you create and centrally manage

Lecture 3

Amazon CloudFront • A global Content Delivery Network (CDN), that delivers content to end users with reduced latency

Lecture 4

Use IAM (Identity and Access management) to manage access to AWS resources

A resource is an entity in an AWS account that you can work with • Example resources; An Amazon EC2 instance or an Amazon S3 bucket

Define fine-grained access rights – • Who can access the resource • Which resources can be accessed and what can the user do to the resource • How resources can be accessed

Programmatic access • Authenticate using: • Access key ID • Secret access key

AWS Management Console access • Authenticate using: • 12-digit Account ID or alias • IAM username • IAM password

An IAM policy is a document that defines permissions

• Identity-based policies – • Attach a policy to any IAM entity

Resource-based policies • Attached to a resource (such as an S3 bucket)

An IAM group is a collection of IAM users

An IAM role is an IAM identity with specific permissions

CloudTrail tracks user activity on your account

Service control policies (SCPs) offer centralized control over accounts.

AWS Key Management Service (AWS KMS) features: • Enables you to create and manage encryption keys • Enables you to control the use of encryption across AWS services and in your applications. • Integrates with AWS CloudTrail to log all key usage.

Amazon Cognito features: • Adds user sign-up, sign-in, and access control to your web and mobile applications.

AWS Shield features: • Is a managed distributed denial of service (DDoS) protection service. Use it to minimize application downtime and latency.

Encryption encodes data with a secret key, which makes it unreadable

AWS services support data in transit encryption.

AWS Config - Assess, audit, and evaluate the configurations of AWS resources.

AWS Artifact - Is a resource for compliance-related information

Lecture 5

CIDR (Classless Inter-Domain Routing) - is a method for allocating IP addresses and IP routing

Amazon Virtual Private Cloud (Amazon VPC) enables you to launch AWS resources into a virtual network that you've defined

VPC - Logically isolated from other VPCs • Dedicated to your AWS account • Belong to a single AWS Region and can span multiple Availability Zones

Subnet - Range of IP addresses that divide a VPC • Belong to a single Availability Zone • Classified as public or private

An elastic network interface is a virtual network interface that you can: • Attach to an instance.

A route table contains a set of rules (or routes) that you can configure to direct network traffic from your subnet.

Security groups have rules that control inbound and outbound instance traffic

Amazon Route 53 - Is a highly available and scalable Domain Name System (DNS) web service • Is used to route end users to internet applications by translating names (like `www.example.com`) into numeric IP addresses (like `192.0.2.1`) that computers use to connect to each other

Content delivery network (CDN) - Is a globally distributed system of caching servers. Caches copies of commonly requested files (static content) • Delivers a local copy of the requested content from a nearby cache edge or Point of Presence

Lecture 6

Amazon Elastic Compute Cloud (Amazon EC2) • Provides virtual machines—referred to as EC2 instances—in the cloud.

Gives you full control over the guest operating system (Windows or Linux) on each instance.

Amazon Machine Image (AMI) • Is a template that is used to create an EC2 instance (which is a virtual machine, or VM, that runs in the AWS Cloud) • Contains a Windows or Linux operating system

User data enables you to specify a script to run the first time that an instance launches

Containers are a method of operating system virtualization

Amazon Elastic Container Service (Amazon ECS) – • A highly scalable, fast, container management service

Elastic Load Balancing • Amazon EC2 security groups • Amazon EBS volumes • IAM roles

Lambda is a compute service that lets you run code without provisioning or managing servers (serverless)

Run your code on a schedule or in response to events

Your code runs only when it is triggered

Pay only for the compute time that you use

AWS Elastic Beanstalk • An easy way to get web applications up and running

A managed service that automatically handles – • Infrastructure provisioning and configuration • Deployment • Load balancing • Automatic scaling • Health monitoring • Analysis and debugging • Logging

Lecture 7

Amazon EBS enables you to create individual storage volumes and attach them to an Amazon EC2 instance: • Amazon EBS offers block-level storage.

- It can be backed up automatically to Amazon S3 through snapshots.

Lecture 8

Amazon RDS - Managed service that sets up and operates a relational database in the cloud.

You Manage - • Application optimization

Amazon DynamoDB - Fast and flexible NoSQL database service for any scale

Amazon Redshift features: • Fast, fully managed data warehouse service • Easily scale with no downtime

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