COMPUTER ENGINEERING DEPARTMENT

ASSIGNMENT NO. 2

Subject: Cloud Computing

COURSE: B.E Year: 2021-2022 Semester: VIII
DEPT: Computer Engineering
SUBJECT CODE: CSL803 DUE DATE: 30/03/2022

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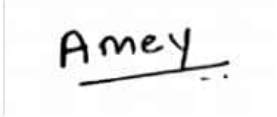
Class: BE-Comps B Date of Submission: 15/02/2022

CCL Assignment - 2

Sr. No.	Questions	
1	Why is security on the cloud important? Explain various cloud security issues.	[LO4]
2	What is Cloud Identity Access Management? Why is it important? Explain features of AWS IAM.	[LO4]
3	Explain Iaas Cloud Service Model. Give examples of Iaas models.	[LO5 & LO6]
4	Explain Paas Cloud Service Model. Give examples of PasS models.	[LO5 & LO6]
5	Explain SaaS Cloud Service Model. Give examples of SasS models.	[LO5 & LO6]

Student Signature:



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Q1: Why is security on the cloud important? Explain various cloud security issues.

Ans:

Cloud Security Importance

- Cloud security is critical since most organizations are already using cloud computing in one form or another.
- IT professionals remain concerned about moving more data and applications to the cloud due to security, governance and compliance issues when their content is stored in the cloud.
- They worry that highly sensitive business information and intellectual property maybe exposed through accidental leaks or due to increasingly sophisticated cyber threats.
- A critical component of cloud security is focused on protecting data and business content such as customer order, secret design documents and financial records.
- Preventing leaks and data theft is critical for maintaining your customer's trust and protecting the asset that contribute to your competitive advantage.

Security issues in Cloud Computing:

① Data Loss

- Data Loss is one of the issues faced in Cloud Computing.
- This is also known as Data Leakage.
- As we know that our sensitive data is in the hands of somebody else, and we don't have full control over our database.
- So if the security of cloud service is to break by hackers then it may be possible that hackers will get access to our sensitive data or personal files.

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② Interference of Hackers and Insecure APIs.

- As we know if we are talking about the cloud and its services, it means we are talking about the internet.
- The easiest way to communicate with cloud is using API.
- An is the vulnerable part of cloud computing because it may be possible that these services are accessed by some third parties.
- So it may be possible that with the help of these services hackers can easily hack or harm our data

③ User Account Hijacking

- Account Hijacking is the most serious security issue in Cloud Computing.
- If somehow the Account of User or an organization is hijacked by Hacker. Then the hacker has full authority to perform Unauthorized Activities.

④ Lack of Skill.

- While working, shifting on another service provider, need an extra feature, how to use a feature, etc. are the main problems caused in IT company who doesn't have skilled Employee. So it requires a skilled person to work with cloud computing.

⑤ Denial of Service (DOS) attack:

- This type of attack occurs when the system receives too much traffic. Mostly DoS attacks occur in large organizations such as banking sector, government sector, etc.
- When a DoS attack occurs data is lost. So, in order to recover data, it requires great amount of money as well as time to handle it.

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Q2. What is cloud Identity Access Management? Why is it important? Explain features of AWS IAM.

Ans:

AWS IAM

- AWS Identity and Access Management (IAM) is a web service that helps you securely control access to AWS resources
- You use IAM to control who is authenticated and authorized to use resources.
- It enables you to manage access to AWS services and resources in a very secure manner.

Importance of IAM:

- It can be used to initiate, capture, record and manage user identities and their access permissions
- All users are authenticated, authorized and evaluated according to policies and roles.
- Poorly controlled IAM processes may lead to regulatory non-compliance, if the organization is audited, management may not be able to prove that company data is not at risk of being misused.

Features of IAM:

① Shared access to your AWS account

- You can grant other people permission to administer and use resources in your AWS account without having to share your password or access key.

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② Granular Permissions:
- You can grant different permissions to different people for different resources

③ Multi-Factor Authentication (MFA)
- You can add two-factor authentication to your account and to individual users for extra security

④ Identity Federation
- You can allow users who already have passwords elsewhere

⑤ Free to use
- There is no additional charge for IAM security
- There is no additional charge for creating additional users, groups or policies.

⑥ PSI Dss Compliance
- IAM supports the processing, storage and transmission of credit card data by a merchant or service provider, and has been validated as being compliant with Payment Card Industry (PCI) Data security standard (DSS).

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Q3. Explain Iaas Cloud Service Model. Give examples of Iaas models.

Ans:

Infrastructure as a Service (Iaas)

- Iaas is also known as Hardware as a Service (Haas).
- It is a computing infrastructure managed over the internet.
- The main advantage of using Iaas is that it helps users to avoid the cost and complexity of purchasing and managing the physical servers.

Characteristics of Iaas

1. Resources are available as a service
2. Services are highly scalable
3. Dynamic and Flexible
4. GUI and API based access
5. Automated administrative tasks.

Example:

1. Amazon Web services (AWS)
2. Microsoft Azure
3. Google Compute Engine (GCE)
4. Cisco Metacloud
5. Digital Ocean.

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Q4. Explain Paas Cloud service model. Give examples of Paas model.

Ans:

Platform as a Service (Paas)

- Paas cloud computing platform is created for the programmer to develop, test, run and manage the applications.

Characteristics of Paas

① Accessible to various users via the same development application.
② Integrates with web services and databases
③ Builds on virtualization technology so resources can easily be scaled up or down as per the organization's need.
④ Support multiple languages and frameworks
⑤ Provides an ability to Auto-scale

Examples:

① AWS Elastic Beanstalk
② Windows Azure
③ Heroku
④ Google App Engine
⑤ Openshift

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Q5 Explain SaaS Cloud service model. Give examples of SaaS model.

Ans:

Software as a Service (SaaS)

- SaaS is also known as on-demand software.
- It is a software in which the applications are hosted by a cloud service provider.
- Users can access these applications with the help of internet connection and web browser.

Characteristics of SaaS

1. Managed from a central location.
2. Hosted on a remote server.
3. Accessible over the internet.
4. Users are not responsible for hardware and software updates. Updates are applied automatically.
5. The services are purchased on the pay as per use basis.

Examples:

1. Google Apps
2. GoToMeeting
3. Dropbox
4. Salesforce
5. Slack.