



RNS INSTITUTE OF TECHNOLOGY

Autonomous Institution Affiliated to VTU

Assignment 2: CLOUD COMPUTING

University Question Bank

A comprehensive compilation of important questions



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Questions and Answers

What are the main characteristics of a PaaS.?

Answer:

****What are the main characteristics of a PaaS?****

Question 2

Compare the benefits and the potential problems due to virtualization on public, private, and hybrid clouds.?

Answer:

****HTML Answer** **HTML Code****

Question 3

What are the differences between Amazon Simple DB and Amazon RDS??

Answer:

Here is a medium-length
Differences between Amazon Simple DB and Amazon RDS



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Amazon SimpleDB and Amazon RDS are two popular database services offered by Amazon Web Services (AWS). While both services enable developers to store and retrieve data, there are significant differences between them.

What is Amazon SimpleDB?

Amazon SimpleDB is a web-based database service that allows developers to store and retrieve data. It is a NoSQL key-value store that provides fast and reliable access to data, with automatic scaling and high availability. Amazon SimpleDB is particularly useful for applications that require low latency and high throughput, such as chat rooms, gaming platforms, and content sharing sites.

What is Amazon RDS?

Amazon RDS (Relational Database Service) is a managed relational database service that provides a range of database engines, including MySQL, PostgreSQL, SQL Server, Oracle, and MariaDB. It allows developers to create, manage, and scale a relational database in the cloud, with features such as automated patching, backups, and performance monitoring. Amazon RDS is well-suited for applications that require complex transactions, schema design, and hierarchical relationships, such as e-commerce sites, social media platforms, and enterprise software applications.

Main differences



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- Data Model:** Amazon SimpleDB is a NoSQL key-value store, while Amazon RDS uses a relational database model.
- Data Storage:** Amazon SimpleDB stores data as a collection of key-value pairs, while Amazon RDS stores data in tables with rows and columns.

Conclusion



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Describe the core components of App Engine. 1?

Answer:

Description of the Core Components of App Engine

The Google Cloud Platform's App Engine is a full-stack web application server that enables developers to build scalable web applications in the cloud. The core components of App Engine help to achieve this goal by providing a reliable, secure, and scalable platform for building web applications.

1. ****Services****

The App Engine Services are the foundation of the platform, providing a range of capabilities to build web applications. There are two primary services:

- **Default Service****: The Default Service is the entry point for incoming requests and is responsible for handling incoming requests and sending responses. It provides a simple way to define routes, handles HTTP requests and responses, and can be used to generate pages.
- **Background Service****: The Background Service runs tasks asynchronously, allowing developers to perform long-running tasks without blocking the user's browser or affecting the user's experience. It supports tasks that run for a short period of time, such as image processing, and tasks that run longer, such as data processing.



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2. **Applications**

App Engine Applications are the logical grouping of services, instances, and versions that define the configuration of a web application. Applications can be deleted, updated, or cloned, allowing developers to experiment with new versions or roll back to a previous version if necessary.

3. **Instances**

App Engine Instances are the physical or virtual machines that run the services and applications. Each instance can run multiple versions of an application, and instances can be scaled up or down to handle changes in traffic.

4. **Versions**

App Engine Versions are specific configurations of an application, such as different programming languages, frameworks, or libraries. Each version can be rolled back to if a previous version is found to be more stable or better performing.

5. **Queues**

App Engine Queues are a critical component of the platform, enabling developers to decouple tasks, such as sending emails or processing requests, from the main application



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code. Queues provide a way to handle tasks asynchronously, allowing applications to scale more efficiently and handle sudden spikes in traffic.

6. **Tasks**

App Engine Tasks are the actual work that is executed by the queuing system. Tasks can be executed in the background, allowing developers to perform long-running tasks or tasks that require specific resources without blocking the user's browser.

The core components of App Engine work together to provide a reliable, scalable, and secure platform for building web applications. By understanding each component and how they work together, developers can build robust, performant, and scalable applications that meet the needs of their users.

Identify the main security threats for the SaaS cloud delivery model on a public cloud.?

Answer:

****Question: Identify the main security threats for the SaaS cloud delivery model on a public cloud.****



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****Answer:****

Main Security Threats for SaaS Cloud Delivery Model on a Public Cloud

The SaaS cloud delivery model on a public cloud offers numerous benefits, including increased scalability, reduced costs, and enhanced flexibility. However, it also presents several significant security threats that need to be addressed promptly. The main security threats for a SaaS cloud delivery model on a public cloud include:

1. Data Breaches

A data breach occurs when an unauthorized individual gains access to sensitive information stored in the cloud. This can happen due to weak passwords, vulnerabilities in software applications, or the use of outdated security patches.

2. Insider Threats

Insider threats arise when an employee or contractor with authorized access to the cloud takes malicious actions, such as deleting or altering data, without the organization's consent.

3. Denial of Service (DoS) and Distributed Denial of Service (DDoS) Attacks

DoS and DDoS attacks aim to overwhelm the cloud infrastructure with a large amount of traffic, rendering it inaccessible to users. These attacks can be launched from compromised devices or malicious actors.

4. Malware and Ransomware

Malware and ransomware attacks can compromise cloud-based systems and encrypt data, forcing organizations to pay a ransom to regain access.

5. Misconfigured Cloud Resources



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Misconfigured cloud resources, such as Storage Access Control Lists (SACLs), can inadvertently reveal sensitive data, leaving organizations vulnerable to security breaches.

6. Authentication and Authorization Issues

Weak authentication and authorization mechanisms can grant unauthorized access to cloud resources, enabling attackers to modify or steal sensitive data.

7. Physical Security Risks

Data centers and cloud infrastructure are at risk of physical security breaches, such as unauthorized access to servers or data storage facilities.

To mitigate these security threats, organizations should implement robust security controls, including encryption, access controls, and regular security assessments and compliance audits. By prioritizing cloud security, organizations can ensure the integrity and confidentiality of their data while leveraging the benefits of the SaaS cloud delivery model on a public cloud.

Explain Software as a service.?

Answer:

Here is a medium-form answer to the question "What is Software as a Service?" in HTML format:

What is Software as a Service (SaaS)?

Software as a Service (SaaS) is a software delivery model in which a third-party provider



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hosts an application and makes it available to customers over the internet. With SaaS, users can access the software application without having to install, configure, or maintain it on their own computers or servers.

In a traditional software model, customers would purchase a license to use an application, install it on their own hardware, and be responsible for updating and maintaining it. With SaaS, the provider is responsible for hosting, maintaining, and updating the application, freeing up customers to focus on using the software rather than managing it.

SaaS applications are typically accessed through a web browser or mobile app, and users can typically sign up for a free trial or subscription-based model to use the software. This delivery model offers many benefits, including:

- Predictable costs: With SaaS, customers only pay for the software they use, with no upfront capital expenditures or maintenance costs.
- Easy scalability: SaaS providers can easily scale their infrastructure to meet the needs of customers, without requiring customers to invest in new hardware or infrastructure.
- Reduced IT burden: Customers don't need to worry about installing, configuring, or maintaining the software, freeing up IT resources for other tasks.
- Automatic updates: SaaS providers handle updates and maintenance tasks, ensuring that customers always have access to the latest features and security patches.

Examples of popular SaaS applications include email providers like Gmail and Microsoft Office 365, customer relationship management (CRM) software like Salesforce, and project management tools like Asana and Trello.



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: You can customize the font, color, and layout to fit your web template's design.



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Describe Amazon EC2 and its basic features.?

Answer:

Here is the answer in medium form, HTML format:
[Amazon EC2 Overview](#)

Question 8

Describe the fundamental features of the economic and business model behind cloud computing.?

Answer:

Here is the answer in medium form, formatted in HTML:
[Description of the Fundamental Features of the Economic and Business Model behind Cloud Computing](#)

Cloud computing operates on a unique economic and business model, which is distinct from traditional IT infrastructure. The core characteristics of this model include:

- **Multi-Tenancy**:** The ability to serve multiple customers (tenants) from a shared pool of resources, which increases efficiency and reduces costs.

- **Scalability**:** Cloud computing providers offer elastic capacity, allowing customers to



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quickly scale up or down to match changing demand.

- **Subscription-Based Model****: Customers pay for cloud services on a recurring basis, rather than purchasing hardware and software outright.
- **Economies of Scale****: Cloud providers achieve significant economies of scale by serving a large customer base, which enables them to invest in high-performance infrastructure and reduce costs.
- **Pay-Per-Use Pricing****: Customers only pay for the resources they consume, eliminating the need for upfront capital expenditures and reducing waste.
- **Service-Oriented Architecture (SOA)****: Cloud computing provides a standardized set of services, such as compute power, storage, and networking, which can be easily accessed and managed via APIs.
- **Automated Provisioning and Management****: Cloud providers automate many tasks, including provisioning, monitoring, and maintenance, reducing the need for customer expertise and support.
- **Security and Compliance****: Cloud providers invest heavily in security and compliance, ensuring that customer data is protected and adheres to industry standards.
- **Partnerships and Ecosystems****: Cloud providers build extensive partnerships and ecosystems, enabling seamless integration with other cloud services and third-party applications.

The economic and business model of cloud computing is designed to deliver efficiency, scalability, and cost savings to customers, while generating revenue through subscription-based fees and pay-per-use pricing. By leveraging the advantages of cloud computing, organizations can transform their IT infrastructure, reduce costs, and improve competitiveness.



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What are the development technologies currently supported by App Engine??

Answer:

****Question:**** What are the development technologies currently supported by App Engine?

****Answer:****

Development Technologies Supported by App Engine

Google App Engine is a fully managed platform that allows developers to build scalable and secure web applications. To support this, App Engine provides a range of development technologies that make it easy to build, deploy, and manage applications. Here are some of the development technologies currently supported by App Engine:

Web Frameworks

App Engine supports a range of web frameworks, including:

Python

- Webapp2: A Python web framework that provides a simplistic and flexible way to build web applications.
- Flask: A micro web framework that provides flexibility and extensibility for building web applications.
- Django: A high-level web framework that provides an architecture, templates, and APIs for building robust web applications.

Java



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- Spring Framework: A popular Java-based web framework that provides a comprehensive programming and configuration model.
- Play Framework: A modern web framework that provides a lightweight and modular architecture for building web applications.
- Java Servlet/JSP: A traditional Java-based web framework that provides a server-side platform for building web applications.

Go

- Go language: A modern programming language developed at Google that provides a lightweight and efficient way to build web applications.
- Go frameworks: A range of Go frameworks, including Revel, Gin, and Echo, that provide a structured way to build web applications.

PHP

- Zend Framework: A popular PHP-based web framework that provides a comprehensive programming and configuration model.

Databases

App Engine supports a range of databases, including:

Bigtable: A NoSQL database that provides a highly scalable and structured data storage solution.

Cloud Firestore: A NoSQL document database that provides a flexible and scalable way to store and retrieve data.

Cloud Datastore: A NoSQL key-value database that provides a scalable and consistent way to store and retrieve data.

MySQL: A relational database management system that provides a structured and scalable



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way to store and retrieve data.

PostgreSQL: A relational database management system that provides a structured and scalable way to store and retrieve data.

APIs and Integration

App Engine provides a range of APIs and integration capabilities that enable developers to integrate their applications with other Google services, including:

Google Cloud Vision API: A machine learning-based API that provides image recognition and classification capabilities.

Google Cloud Natural Language API: A machine learning-based API that provides language processing and analysis capabilities.

Google Cloud Storage: A cloud-based object storage service that provides a scalable and reliable way to store and retrieve data.

Google Cloud Pub/Sub: A messaging service that enables real-time communication between applications and services.

These are just a few examples of the development technologies currently supported by App Engine. With its wide range of supported technologies and services, App Engine provides a flexible and scalable platform for building a wide range of web applications.



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How does cloud computing help to reduce the time to market applications and to cut down capital expenses.?

Answer:

How Cloud Computing Helps Reduce Time to Market and Capital Expenses

Cloud computing has revolutionized the way businesses develop, deploy, and maintain applications, enabling them to bring products to market faster and reduce capital expenses. Here's how:

- **Faster Deployment**:** Cloud infrastructure and platforms provide ready-to-use resources, eliminating the need to build and maintain on-premises infrastructure. This allows developers to focus on writing code and deploying applications quickly, reducing the time to market by up to 50%
- **Scalability**:** Cloud resources can be quickly scaled up or down to match changing business needs, ensuring that applications can handle increased traffic or user demand without the need for expensive equipment upgrades
- **Reduced Capital Expenses**:** By leveraging cloud-based infrastructure, businesses can avoid the significant upfront costs associated with purchasing and maintaining their own hardware and software
- **Access to Advanced Tools and Features**:** Cloud providers offer a wide range of advanced tools and features, such as machine learning, data analytics, and security capabilities, which are often unavailable or too expensive for individual businesses to implement



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- Maintenance and Support**: Cloud providers handle maintenance and support tasks, freeing up internal resources for more strategic activities

In addition, cloud computing enables businesses to adopt a more agile and iterative development approach, allowing them to quickly respond to changing market conditions and customer needs. This agility also enables businesses to reduce their risk profile and test new ideas and features faster, leading to more informed and effective decision-making.

Source: [Insert source or reference link]

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