Activity 6: Cloud Hosting

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CST-407

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January 28, 2024

Part 1:

**Describe the type of service provided by Platform as a Service (PaaS), Software as a service (SaaS) and Infrastructure as a service (IaaS). Explain the similarities and differences between the services.**

Platform as a Service (PaaS):

PaaS provides a platform allowing customers to develop, run, and manage applications without the complexity of building and maintaining the infrastructure typically associated with developing and launching app. PaaS offerings often include development tools, database management systems, middleware, and other components necessary for application development and deployment. Customers have control over the applications they develop and deploy, while the cloud provider manages the underlying infrastructure, including network, servers, storage, and operating systems.

Software as a Service (SaaS):

SaaS delivers software applications over the internet on a subscription basis, eliminating the need for users to install, maintain, and update the software on their own devices. Users access the software through a web browser or an application interface, and the provider manages all aspects of the application, including infrastructure, security, and performance. Examples of SaaS applications include email services, customer relationship management (CRM) software, and productivity tools like office suites and collaboration platforms.

Infrastructure as a Service (IaaS):

IaaS offers virtualized computing resources over the internet, providing scalable and on-demand access to networking, storage, and computing resources. Customers have control over the operating systems, applications, and middleware running on the infrastructure, while the cloud provider is responsible for managing the physical infrastructure, such as servers, storage, and networking components. IaaS enables customers to deploy and manage virtual machines, storage, and networking resources, giving them flexibility and control over their IT environments.

Similarities:

All three service models are delivered over the internet, providing on-demand access to computing resources without the need for on-premises infrastructure. They offer scalability, allowing customers to adjust resources based on demand, and they follow a pay-as-you-go pricing model. Customers can access the services remotely, typically through a web browser or application interface.

Differences:

PaaS focuses on application development and deployment, abstracting the underlying infrastructure, while SaaS delivers complete applications to end users, and IaaS provides virtualized infrastructure resources for customers to build and manage their own environments.

PaaS abstracts more of the infrastructure components compared to IaaS, emphasizing application development and deployment tools. SaaS provides fully functional software applications, while PaaS and IaaS are more focused on providing a platform or infrastructure for customers to build and deploy their own applications and services.

**In the case of the Jokes Database application, which of the three (PaaS, SaaS, and IaaS) most closely matches the hosting needs for the app?**

When looking at what we are doing with this application, I would have to say it is considered a PaaS. Since all we are doing is creating the application and deploying it. The server host is responsible for running, maintaining the infrastructure, and the storage of the application.

**Compare the services provided by Godaddy with those of Microsoft Azure.**

Both Microsoft Azure and Godaddy offer a wide array of cloud services, however they both cater to different audiences and needs. The target audience for Godaddy are small businesses and individual consumers for basic hosting needs. On the other hand, Microsoft Azure caters to a broader audience, including large enterprises, developer, and businesses of all sized who seek advanced cloud solutions.

Godaddy primarily focuses on domain registration, web hosting, and basic email services. They also offer limited cloud solutions like managed WordPress hosting and virtual private servers (VPS).

Azure provides a comprehensive suite of cloud services, including:

Computing: Virtual machines, containers, serverless functions

Storage: Block, file, object, backup, and archival

Networking: Virtual networks, content delivery networks (CDNs), firewalls

Databases: Managed SQL, NoSQL, PostgreSQL, MySQL

Artificial Intelligence & Machine Learning: Cognitive services, AI tools, development platforms

Analytics: Big data analytics, data warehousing, business intelligence

Management & Governance: Identity & access management, security, cost management

Overall Godaddy is easy to use but offers limited features and scalability options, while with Microsoft Azure, it is more complex, but they offer extensive capabilities and customization.

**What are at least three best practices for safely hosting a company network on a cloud? Explain why each practice is considered safe.**

Encryption of data - Encryption helps protect sensitive information from unauthorized access, ensuring that even if data is intercepted or compromised, it remains unreadable and unusable to unauthorized parties. This practice helps maintain data confidentiality and integrity, mitigating the risk of data breaches and unauthorized access.

Multi-Factor Authentication (MFA) - MFA adds an extra layer of security beyond just passwords, reducing the risk of unauthorized access in case of compromised credentials. It helps prevent unauthorized users from gaining access to sensitive company resources, enhancing overall network security, and reducing the likelihood of unauthorized account access.

Regular security audits and monitoring -  Regular security audits and monitoring help identify and address potential security vulnerabilities, misconfigurations, and malicious activities in a timely manner. It allows for proactive threat detection and response, reducing the impact of security incidents and ensuring the overall security and compliance of the company network in the cloud.

Part 2:

Heroku Jokes app deployment URL and video:

<https://www.loom.com/share/5717aa1e6cda45908159e9e1a5e38c02?sid=af8f93af-320e-4c55-bf9f-15635809e36e>

<https://jokesapp-5e6f51d6c310.herokuapp.com/index.php>

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