D. Cloud Computing Basics

1.

Deploying an application in the cloud presents several key differences compared to on-premises deployment across security, deployment speed, and resource management. Regarding security, cloud environments operate on a shared responsibility model where the cloud provider secures the underlying infrastructure, while the customer is responsible for securing their data and applications within the cloud (Amazon Web Services, n.d.). For instance, AWS offers services like AWS Shield and IAM to aid in securing cloud resources. Conversely, on-premises security is the sole responsibility of the organization, requiring internal investment in hardware and expertise, such as maintaining firewalls and intrusion detection systems. In terms of deployment speed, cloud deployment is significantly faster due to on-demand resource provisioning via self-service portals or APIs (Microsoft Azure, n.d.). A marketing team, for example, can quickly scale resources on Microsoft Azure to handle increased campaign traffic. In contrast, on-premises deployment involves lengthy hardware procurement and configuration processes. Resource management also differs considerably, with the cloud offering elastic scalability and a utility-based pricing model, allowing for automatic scaling based on demand (Google Cloud, n.d.). An e-commerce website on Google Cloud Platform can automatically adjust its compute resources during peak shopping times. On the other hand, on-premises environments require substantial upfront capital expenditure on fixed hardware that may lead to underutilization or insufficient capacity during peak times.

2.

The cloud offers different service models: Infrastructure as a Service (IaaS), which provides fundamental IT building blocks like virtual machines (e.g., Amazon EC2); Platform as a Service (PaaS), which offers a platform for application development without managing the underlying infrastructure (e.g., Google App Engine); and Software as a Service (SaaS), which provides complete applications on demand (e.g., Salesforce). For EventEase, when building a new event management application, PaaS could be particularly beneficial. PaaS would allow their development team to concentrate on application development and deployment, without the burden of managing infrastructure (e.g., AWS Elastic Beanstalk), leading to potentially faster development cycles. Furthermore, PaaS often includes integrated development and deployment tools (e.g., Microsoft Azure DevOps), streamlining the application lifecycle. The scalability and reliability inherent in PaaS platforms would enable EventEase to handle fluctuating user traffic effectively (e.g., Heroku's automatic scaling). Finally, PaaS can be more cost-effective than IaaS by reducing the need for extensive infrastructure management expertise and avoiding capital expenditure on hardware, while SaaS might not offer the necessary customization for a new, specific application like EventEase is developing.

Reference List:

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