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| **Unit Code:** | ENSN201 |
| **Type of Assessment:** | Formative Assessment |
| Length/Duration: | One page of answer |

**Week 8**

**Case Study: National Kidney Registry Turns to Rackspace for Managed Hosting**

**Summary:**For many organizations like the National Kidney Registry, outsourcing their site hosting and data storage tasks to a cloud provider is a better option than handling it themselves.

**Case:**For small and medium-sized businesses, outsourcing computing-intensive tasks like website hosting has always been an appealing option. Taking this approach allows those businesses to focus on their core competencies while other companies with site hosting and data storage expertise handle those tasks for them. In the past, outsourcing was too expensive for all but the largest companies, but options for site hosting and data management have never been more plentiful, thanks to the growth in, and reduced costs of, cloud computing.

Prices range from a few dollars a month for very basic needs to hundreds of thousands of dollars per month for businesses with greater site traffic or data storage requirements.

The largest cloud computing providers are Amazon, Microsoft, IBM, and Google, all of which have the size and deep pockets to achieve economies of scale with their cloud platforms. These companies offer full arrays of cloud services for businesses, including website hosting. However, there are many smaller companies that specialize in specific areas of cloud computing, such as Rackspace. Founded in 1998 as an Internet service provider, Rackspace has become one of the largest website hosting companies in the U.S., and is competitive even with Amazon in its area of expertise, hosted private clouds or infrastructure as a service (IaaS). Rackspace routinely ranks among the top on lists of best companies to work for and is renowned for its commitment to high-quality customer support, which it calls Fanatical Support.

Private clouds serve individual organizations, as opposed to public clouds, which rent space to large numbers of organizations simultaneously and offer less customizability. Rackspace offers dedicated servers, databases, storage capacity, and networking tools in a singletenant, private environment. The security options for private clouds are also more appealing

to organizations that prefer to have more direct control over their data and to use firewalls and other measures to limit the number of people who can access the organization’s data. The National Kidney Registry (NKR) is an example of a company with unique security concerns who turned to Rackspace for its site hosting and data storage needs. The NKR is the largest paired exchange program for organ donors in the United States, connecting pairs of donors who would otherwise be incompatible because of differences in blood type or antibody. The NKR uses complex algorithms to determine potential matches, which may involve as many as 30 donors and recipients to find a swap that will lead to a successful match for all of the recipients. To date, the NKR has facilitated over 3,000 transplants.

**Answer the following Questions:**

1. Why did the NKR originally decide to pursue outsourcing its data infrastructure and site hosting?

Anns:

The National Kidney Registry (NKR) decided to pursue outsourcing its data infrastructure and site hosting for several strategic reasons. Initially, their on-premise hosting solution was no longer viable for the organization's long-term growth ambitions. As the registry expanded, they needed a more robust and scalable infrastructure that could grow with them. Having their own server in the office was becoming increasingly impractical as they scaled their operations.

By outsourcing to a specialized provider like Rackspace, NKR could benefit from expertise in managing and securing data infrastructure without having to develop these capabilities in-house. This approach allowed the organization to focus on its core mission of facilitating kidney transplants and matching donors with recipients, rather than investing significant resources in building and maintaining technical infrastructure.

Another critical factor was the increasing importance of data security and privacy compliance. As the repository of sensitive medical information, NKR needed enterprise-level security that would be difficult and costly to implement independently.

1. What was the first service that the NKR migrated to Rackspace? What services did it migrate to Rackspace after that?

Ans: The first service that the National Kidney Registry migrated to Rackspace was their email system. This initial migration proved fortuitous when Hurricane Sandy hit the East Coast in 2012, causing NKR's facility to lose power for over a week. Because they had already moved their email system to Rackspace, they were able to maintain critical communications during this disaster, which built tremendous trust between NKR and Rackspace.

Following the successful email migration, NKR expanded their relationship with Rackspace by migrating their entire database and website infrastructure. This included the front-end website that provides connectivity to all participating transplant centers and the backend database that stores donor and recipient information. NKR also implemented HIPAA-compliant servers to manage the security of patient data and protect it from external threats.

Later migrations included additional services such as backup and disaster recovery solutions to ensure business continuity, and integrated security monitoring services to detect and respond to potential threats.

1. Why are the NKR’s security requirements unique?

Ans: The NKR's security requirements are unique due to the highly sensitive and critical nature of the data they manage. As the largest paired exchange program for kidney donors in the United States, they handle protected health information (PHI) that falls under strict HIPAA (Health Insurance Portability and Accountability Act) compliance requirements.

Their database contains confidential medical records, personal contact details, and matching information for both donors and recipients across more than 80 transplant centers nationwide. Any breach of this data could have severe consequences for patient privacy and potentially impact life-saving transplant procedures.

The time-sensitive nature of organ transplantation adds another unique dimension to their security needs. Their logistical functions must remain operational 24/7, especially during active transplants when surgeons and medical teams are awaiting kidneys. System downtime could literally be a matter of life and death for waiting recipients.

Furthermore, NKR must maintain the trust of multiple stakeholders - donors, recipients, and participating hospitals - all of whom require assurance that their sensitive information is being handled with the utmost security.

1. How does Rackspace ease security concerns for donors, recipients, and participating hospitals?

Ans: Rackspace eases security concerns for all stakeholders in the transplant process through multiple layers of protection and expertise. First, they provide NKR with a highly secure data facility that meets HIPAA compliance standards, essential for handling protected health information. This gives participating hospitals confidence that patient data is being managed according to strict regulatory requirements.

Through Rackspace Managed Security, NKR benefits from active defense measures against cyber threats, including 24/7/365 monitoring from the Rackspace Customer Security Operations Center. This proactive approach minimizes detection time and enables rapid response to potential security incidents, providing peace of mind to donors and recipients that their personal information is protected.

The stability and reliability of Rackspace's infrastructure ensures critical uptime for NKR's systems. As noted by NKR's Director of Education & Development, "Because the systems are so reliable and the people behind the scenes at Rackspace are so responsive, we don't have many issues." This reliability builds trust with participating hospitals that depend on the system's availability for coordinating transplants.

Rackspace also assists with compliance guidance and governance, risk, and compliance (GRC) requirements. This comprehensive approach to security has enabled NKR to gain the trust of additional medical centers joining their network, as Rackspace provides the necessary security certifications and expertise to satisfy these institutions' stringent requirements for patient data protection.

**Total Marks: 20**

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| **Marking Criteria** | **Lecturer Expectation** | **Marks** | **Comments** |
| Analysis | Questions answered and covered in Depth |  |  |
| Concept | Demonstrates good understanding of key concepts |  |  |
| Idea | Original and creative thoughts |  |  |
| Critical Analysis | Critical and evaluative analysis of relative importance of issues |  |  |