I_516 Homework_1

Part_1. Using appropriate diagramming software, create DFD context and level-0 diagrams for the Red Cross blood donor app, providing the 4 listed functions. (8 points):

- http://www.redcross.org/mobile-apps/blood-app

  o Find local blood drives and donation centers quickly and easily.
  o Convenient, easy appointment scheduling and rescheduling.
  o Receive appointment reminders.
  o Keep track of total blood donations.

Part_2. Referring to Hardware_Basics powerpoint (and/or related websites), develop a Flow_Chart describing the Turing Machine processing cycle. Note that a Flow_Chart describing the machine instruction cycle for a VonNeumann machine is included in the powerpoint.

Part_3. Referring to Enterprise_Architecture reading assignment, Closing Case_1, page B4.15, answer Questions 1,3,4,5. (1 point each)

Questions
1. Review the five characteristics of infrastructure architecture and rank them in order of their potential impact on the Tribune Co.'s business.
2. What is the disaster recovery cost curve? Where should the Tribune Co. operate on the curve?
3. Define backup and recovery. What are the risks to the Tribune Co.'s business if it fails to implement an adequate backup plan?
4. Why is a scalable and highly available enterprise architecture critical to current operations and future growth?
5. Identify the need for information security at the Tribune Co.
6. How could the Tribune Co. use a classified ad web service across its different businesses?

1. Scalability
2. Flexibility
3. Availability
4. Reliability
5. Performance
3.
A backup is a copy of a system’s information, and recovery is the ability to restore information saved in a backup in the event of a problem or failure of the system.

Having a backup plan in place is crucial to Tribune Co., particularly given their recent consolidation onto a single server. Without a backup, if anything were to happen to their server or system, the company could potentially lose all its information. As identified, the Tribune Co. has a lot at stake in getting their product out in a timely manner, with significant sums of advertising revenue depending on timely and accurate submission. Having a backup would allow the company to continue operating with limited interruption, as opposed to having to rebuild the entire system in the event of a crash. This could potentially cost the company millions of dollars in just a brief period of time. It could also serve as a helpful tool to have in the event of complications with the server migration, so no information might be permanently lost in the event of an incomplete transfer.

4.
Scalability is how well a system can adopt to increased demands and accommodate things such as growth, industry, and economy factors. With growth or expansion of a company or industry, it may be required to take on additional areas, markets, clients, or require increased capacity to handle more complex levels of information. Without proper scalability, a firm or industry can be left behind by competitors who may be able to offer a higher quality product or service in a more efficient manner. Capacity planning is important to plan for future network needs.

Availability addresses when systems can be accessed by employees, customers, and partners. It is in the interest of growth and developing and maintaining business to have systems available as much as possible. Poor availability, such as frequent down times or inadequate support networks, can result in a loss of a customer or user base. Organizations have addressed the issue of server maintenance periods by having a backup or alternate server that is used when one server is taken down for maintenance.

5.
Information security is growing in importance with the advent of increased cloud computing and digital communications. Increased safeguards are required to ensure information does not get intercepted or fall into the wrong hands. With many devices communicating with each other, the avenues for information to be intercepted also increase. Tribune Co. has a large amount of sensitive information stored on its servers that is uses internally including employee personal information, key financial information from advertisers, and also potentially confidential or sensitive information about developing stories. If this type of information is not secured, it could lead to problems for the company down the road if it were to fall into the wrong hands or be publicly released. Especially using a single server, this could create a particular vulnerability if the server is not secured.

Part_4:
1. Write a brief pro/con assessment of public sector adoption of cloud computing services. (5 points)

Cloud computing provides new benefits of lower computer costs, which is crucial for public sector agencies that may be struggling with economic or budget issues. It is possible to have higher computer performance at lower cost than purchasing traditional high-performance hardware and software, being able to run them virtually at a lower startup cost. Cloud computing also comes with increased storage capacity, data reliability, and other benefits that would be largely useful in public organizations. Also important is the increased capability for collaboration and collaborative work. As many public agencies require sharing of information and quick communication both within and between other organizations, cloud computing enables this to be done much more smoothly and efficiently.

The primary disadvantage of cloud computing in the public sector is the issue of uncertain data security. Cloud-based services are more susceptible to interception or compromise from external actors. As the public sector frequently works with sensitive data, this can present an obvious problem if proper security procedures are not followed. Cloud computing further requires faster and constant internet connections, so use could be interrupted if an agency either does not pay for an expensive high-speed connection or if work needs to be conducted in a more remote area with limited internet access.

2. Provide a technical description of IUanyWare as an implementation of virtualization. (3 points)

Virtualization is a protected memory space created by the CPU allowing the computer to create virtual machines. These virtual machines can run their own programs isolated from other machines. Software and programs run through IUanyWare operate independently from a remote, cloud-based server that is accessed through the internet.

IUanyWare is a virtual machine that runs on a receiver that operates as a form of cloud-based computing. It is a machine separate from the operating system included in the hardware. IUanyWare allows a user to run and operate another machine through a receiver while still maintaining the use of other functions. The user runs the native operating system and then launches a separate operating system and machine that operates virtually from the IU cloud server through the network.

3. What circumstances would be required for machine intelligence to be employed as part of public administration? For example, an information system that issues administrative orders in the field of environmental law, or a system that is responsible for sanctions in relation to speeding or financial fraud. (2 points)

Machine intelligence would likely need to pass the Turing test in order to be employed in public administration. The Turing test states that the machine’s performance or quality of work must be indiscernible from that of a human to an average user or listener. Machines are capable of processing large amounts of data and are already employed in certain areas of public administration, although rarely without any human oversight of the end result. To be fully employed and independently responsible, a machine would have to perform at the same level and be capable of issuing judgments after processing large amounts of data. There are many situations and tasks for which a machine might
be better suited than a human, such as processing transactions and calculating speed, given their ability to process large amounts of data with a lower possibility for error. However, the possibility of machines taking over some responsibilities can threaten the ideas of democratic intelligence. Machines must further be able to master areas of linguistic and cognitive skills that are indistinguishable from those of humans.