**PUSL2010 Technology Justification**

**Traditional server deployment**

The Advantages

* High Performance- Since all the recourse are dedicated and it can handle high stress scenarios.
* Easy to identify problems – It is easy to identify the problem and only one server will fail at a time.
* Easy to use- Since this technology has lasted for a long time there is a small learning curve for the IT department.

The Disadvantages

* Price- The equipment cost will increase over time because more application is equal to more servers and gradually there will be a huge amount of cost for hardware.
* Lack of growth and consistency- Since in order to grow we need add more servers and to do this physical space is needed and management of servers can be difficult, so it lacks growth and is inconsistent.

**Virtualized deployment**

“Server virtualization is the process of using software on a physical server to create multiple partitions or "virtual instances" each capable of running independently”. And we must clearly understand the benefits and disadvantages of using this deployment rather than the other options we could choose from. we could use this deployment if we are planning to reduce the application downtime and simplify backup process or Use more applications and OS without breaking budgets for hardware, electricity, and space and there are more scenarios where this deployment would be preferred so when choosing we must ensure it satisfies our business requirement. In addition, in server virtualization there are three types of server virtualization and they are **Virtual machine model, Paravirtual machine and OS-level. So, choosing the type of virtualization of server is also important because it can affect the business.**

The Advantages

* **Reduced Hardware Costs- Since there are fewer physical servers this will reduce the initial hardware cost that is required for the equipment.**
* **Growth and Scalability - Since it is running a physical server if we upgrade it then all the virtual instances will also get, and upgrade and another good thing is that less hardware complications and the main thing is it is easy to grow.**
* **Energy Cost Savings- Since there is fewer physical servers this will reduce the energy cost at a huge rate.**
* **Simplified backup and recovery – Virtualized servers are easy to recover data because the virtualization software’s has a feature for back up and recovery. This may be from cyber attack to natural disaster still the data can be recovered.**
* **Security – A virtualized environment makes it easier to manage the security of the server.**

The disadvantages

* **High cost for initial setup – Even though overall cost is reduced there is a high cost for initial setup since there is licensing and more.**
* It’s not Easy – There is a big learning curve since there are many different types of architectures and different types of software.
* Slow performance – There is a slow performance because of all the stress is on a single machine which my result I longer processing times and finally there are network bottleneck.

**In housed deployment**

In house server are the server that are installed within the premises of the organization

Advantages

* Keeps critical data in-house - Since all the data is within the premises no third party will have the information that is stored, and we have total control of the data
* No need to rely on an Internet connection – The business do not need to rely on the internet to access the data this may be rally helpful if the business is located in a low connection area.
* Can be more cost-effective for small to mid-sized companies- We do not have to pay a monthly fee like for the cloud and since we have control, we can upgrade the server to meet our business requirements along the line

Disadvantages

* Requires a capital investment – A large amount of capital investment is required for the hardware equipment and the infrastructure and this is one of the main disadvantages.
* Needs space – This type of deployment needs space for the servers and more space may be required if we plan to add more racks in the future in addition needs a dedicated IT staff to handle this equipment and make sure everything is working fine
* May be more susceptible to data loss during disaster – The reason is if the business is in an area where natural disasters are common then have an inhouse servers in not a good idea because there is a higher chance of data loss due to these disasters.
* No uptime or recovery time guarantees – Since we take full responsibility, we cannot guarantee a recovery time like data centers.

**Offsite Server deployment**

It is when the company’s data is stored of the premises of the organization in a data center.

Advantages

* Reduce Cost – Storing data in a data center lower the expenses because all the hardware cost, maintenance and energy cost is reduced.
* More Space- We have more space for other things because all the server space is no longer needed for the servers.

Disadvantages

* The main draw back of offsite is that we do not know enough of the data center and it is important that we decide carefully and do some research on them and ensure they have a good record because we will be trusting them with our data.

**Reference List**

* <https://sysgen.ca/cloud-vs-in-house-servers/>
* <http://techgenix.com/pros-cons-server-virtualization/>