**Tutorial 4**

1. **Why business** nowadays tend to **adopt cloud computing** technology in running their

business?

**Economic Reasons**

* Low infrastructure investment
* Low cost as the customers are only charged for resources used

**Convenience and performance**

* The application developers can enjoy the benefits of a just-in-time infrastructure. Besides, they are free to design an application without being concerned with the system where the application will run
* The execution time of computer-intensive and data-intensive applications can, potentially, be reduced through parallelization. If an application can partition the workload in segments and spawn in instances of itself, then the execution time could be reduced by a factor close to n.

1. Briefly explain THREE (3) **challenges** of **adopting cloud computing** technology in a business.

**Performance Isolation**

It is nearly impossible to reach in a real system especially when the system is heavily loaded.

**Reliability**

Reliability is a major concern. For instance, server failures expected when large amount

of servers cooperate for the computations

Cloud infrastructure exhibits latency and bandwidth fluctuations which affect the application performance

1. List THREE (3) **broad categories** of existing applications of cloud computing.

* Processing pipelines
* Batch processing systems
* Web applications

1. Describe any THREE (3) **generic problems** in virtually all areas of **science and engineering**. How could cloud computing assist in overcoming the problems?

**Generic problems in virtually all areas of science**

* Collection of experimental data.
* Management of very large volumes of data.
* Building and execution of models.
* Integration of data and literature.
* Documentation of the experiments.
* Sharing data with others; data preservation for a long periods of time

**Solution**

* Computing clouds are able to provide large data storage and systems that can deliver abundant computing cycles to support collaborative environments. Hence a large volume of data can be managed easily and efficiently.

1. Briefly explain FOUR (**4**) **types of cloud**.

**Public Cloud**

This infrastructure is made available and easily accessible to the general public or a large industry group as its computing infrastructure is located on the premises of a cloud computing organization.

**Private Cloud**

This infrastructure is solely used for one organization.

**Community Cloud**

This infrastructure is shared by one or more organizations in a community that has shared concerns such as mission, vision and policy.

**Hybrid Cloud**

This cloud infrastructure composites two or more clouds infrastructures such as public, private, or community as a unique entity but is bound by standardized