## **Task 1: The core principles and concepts and cloud computing infrastructure technologies (15%)**

These are considerations of structure and ideas – learners should be encouraged to consider these and their own ideas when completing these tasks. All bullet points are areas for consideration.

Define and explain the fundamental principles and concepts of cloud computing…

* Define and explain the following – learners can use their own researched example of the concepts of cloud computing but could include a combination of the following:
* Compute
* Storage
* Database
* Networking
* Security
* Further fundamental principles and concepts will be covered when completing the rest of these tasks...

Describe the various models and deployment types of cloud computing.

**Service Models**

* IaaS
* PaaS
* SaaS
* Any others that may be used in your organisation. See Canvas

**Deployment Models**

* On-premises
* Private
* Public
* Hybrid

Discuss the key characteristics and benefits of cloud computing infrastructure technologies.

**NIST's Five Characteristics**

* on-demand self-service
* broad network access
* resource pooling
* rapid elasticity
* measured service

**Benefits**

* Faster time to market
* Scalability and flexibility
* Cost savings
* Better collaboration
* Advanced security
* Data loss prevention
* And so on…

Provide examples and use cases to illustrate the application of cloud computing in your organisation (unless discussed otherwise with your tutor).

* Consider with the use of examples on how your organisation uses cloud – this could be focused on your job role or a department if required.

## **Task 2: The role and function of cloud computing in supporting operational goals and business processes (30%)**

In this task you should:

Analyse the impact of cloud computing on operational goals and business processes within your organisation (unless discussed otherwise with your tutor).

* Consider your organisations goals. What are the business processes to meet these goals. How does cloud impact on these goals and processes.

Evaluate the benefits and challenges of migrating business processes to the cloud.

* Consider benefits and challenges mitigating business processes to the cloud. The focus here should be on the business processes. For example:
* Human resource processes
* Customer service
* Remote working
* Marketing and monitoring
* Product development
* Delivery management systems.
* Sales and transactions process
* Or others that related to your organisation – with relationships to business processes 4 benefits and 3 challenges mitigating business processes

Explore the role of cloud computing in enhancing scalability, flexibility, and cost-efficiency.

* Consider how the use of cloud computing bring enhancement of with the use of example:
* Scalability
* Flexibility
* Cost-efficiency.

Provide case studies or examples to illustrate the successful implementation of cloud computing in real-world scenarios. Focus on your organisation unless discussed otherwise with your tutor.

## **Task 3: The strategies employed to orchestrate designs for the implementation of Cloud and Hybrid Infrastructures (15%)**

In this task you should:

explain the concept of cloud orchestration and its importance in designing cloud and hybrid Infrastructures.

* Learners should research and explain cloud orchestration – with researched examples - referenced.
* Learners should consider cloud orchestration and its importance in designing cloud and hybrid Infrastructures – consider an orchestration automated processes/tasks as an example.

Discuss the strategies and best practices for implementing Cloud and Hybrid Infrastructures. Reflect upon own organisation unless discussed otherwise with your tutor.

* Cloud-first strategy
* Cloud-native strategy
* Multi-cloud strategy
* Five Rs of rationalisation

illustrate the steps involved in the migration process from traditional infrastructure to cloud or hybrid infrastructures.

* Learners should select a Cloud Adoption Framework (CAF) developed by a (CSP) or CMM. Produce a diagram and give a brief description of each step/phase in the migration process.
* AWS Cloud Adoption Framework
* Google Cloud Adoption Framework
* Azure Cloud Adoption Framework
* Or another CMM Model or Framework related to your organisation

analyse the considerations for selecting the appropriate cloud service provider (CSP) and designing the infrastructure architecture, reflect upon your own organisation (or organisation of choice if agreed with tutor).

* Some areas to consider when selecting CSP and designing the infrastructure architecture.
* Cost Structure
* Service Offerings
* Compatibility and Constraints
* Performance and Reliability
* Scalability and Flexibility
* Integration and Ecosystem
* Security
* Learners may have others related to your organisation – using a comparison table would be good idea but also offer a summary.
* Learners Reflect upon own organisation or give recommendations.

## **Task 4: The range of risks associated with employing Cloud Computing (30%)**

In this task you should:

identify and explain the potential risks and security concerns associated with cloud computing. Reflect upon your own organisation unless discussed otherwise with your tutor.

* Identify and explain the at least four/five potential risks and security concerns associated with cloud computing.
* evaluate the measures and strategies for mitigating the identified risks.
* Learner could produce a risk matrix or risk assessment to support but the correct command verbs should be used. So, risk matrix will not do on its own.

discuss the legal and regulatory considerations related to data privacy and compliance in cloud computing.

* Discuss at least three legal and regulatory considerations related to data privacy and compliance in cloud computing. Learners are not limited to this list and may use legal and regulatory related to their organisation:
* [DPA (Data Protection Act 2018)](https://www.legislation.gov.uk/ukpga/2018/12/contents/enacted)
* [UK-GDPR (UK General Data Protection Regulation)](https://uk-gdpr.org/)
* [NIS Regulations (Network and Information Security Regulations 2018)](http://www.legislation.gov.uk/uksi/2018/506/made)
* [Computer Misuse Act 1990](https://www.legislation.gov.uk/ukpga/1990/18/contents)
* [Telecommunications (Security) Act](https://www.legislation.gov.uk/ukpga/2021/31/enacted),

Analyse real-world cases of security breaches or data leaks in the cloud and the lessons learned from them. Use your own organisation unless discussed otherwise with your tutor.

* Learners are encouraged to give examples related to their organisation, but this is not always possible. Two related researched examples would be adequate here – referencing should be used.