

2.4 Lesson: Introduction to Virtualization and Cloud Computing

In today's digital landscape, the concepts of virtualization and cloud computing have emerged as pivotal technologies that transform how businesses operate, manage resources, and deliver services. Virtualization refers to the process of creating a virtual version of physical hardware, such as servers or storage devices, allowing multiple operating systems or applications to run concurrently on a single machine. This technology enables more efficient utilisation of resources, reduces operational costs, and simplifies management by isolating environments.

On the other hand, cloud computing represents a paradigm shift in how organisations access and utilise IT resources. It provides on-demand availability of computing power, storage solutions, and applications over the internet without direct active management from users. Cloud services can be classified into public, private, or hybrid models depending on their deployment method and user accessibility.

The interplay between virtualization and cloud computing is significant; virtualization lays the groundwork for cloud infrastructures by enabling resource pooling and allocation flexibility. As organisations increasingly seek agility in their operations while managing complex IT requirements amid rapid technological advancements, understanding these concepts becomes essential.

Embracing virtualization leads to streamlined operations—companies gain scalability by quickly provisioning new instances without the need for additional physical hardware. Similarly, leveraging cloud solutions allows businesses to focus on core competencies rather than maintaining infrastructure facilities in-house.

This introduction aims to lay a foundational understanding of both virtualization and cloud computing—key elements that are not only reshaping IT frameworks but also pushing forward innovative solutions that meet evolving business needs in an ever-connected world.