**Training Day9 Report**

05 July 2025

This session was conducted as part of the Cloud Foundation module . It provided detailed theoretical knowledge and business insights into the practical use of cloud computing in modern IT environments.  
Cloud computing is a transformative model that enables ubiquitous, convenient, and on-demand access to a shared pool of configurable computing resources.

**Topics covered**

* Next-Gen Virtualization Technologies
* Containers vs Virtual Machines
* Container VM vs Bare Metal VM

In today’s session, we explored virtualization technologies and their modern advancements. Virtualization is a core concept in cloud computing that allows the creation of multiple virtual environments on a single physical machine. It helps improve resource utilization, flexibility, and system isolation.

**Virtualization:**

We started with understanding traditional virtualization and how hypervisors (like VMware, KVM, and Hyper-V) manage virtual machines. These machines behave like individual computers, even though they share physical resources.

**Next generation virtualization:**

Next, we learned about next-generation virtualization, which includes containers and hardware-assisted virtualization. Containers are a lightweight form of virtualization that run on the host OS without needing a full OS Image. They are faster, more efficient, and ideal for micro services and DevOps environments.

**Containers versus virtual machines:**

We then compared containers vs virtual machines. Containers share the host system’s OS and start up much faster, using fewer resources. VMs, however, offer stronger isolation and are useful in scenarios where different operating systems or complete environments are required.

**Difference between container VMs and Bare metal VMs**

Lastly, we covered the difference between Container VMs and Bare Metal VMs. Container VMs are containers running inside virtual machines, often used in cloud-native setups for flexibility and scalability. Bare Metal VMs, on the other hand, run directly on hardware, offering better performance and isolation, commonly used in high-performance environments.

**Keys Takeaways:**

Virtualization enables efficient use of hardware in cloud environments.

Containers are faster and more lightweight than traditional VMs.

Next-gen technologies are transforming how applications are deployed.

Choosing between containers, VMs, and bare metal setups depends on performance, security, and scalability needs

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