

# Exploring Virtual Machines

## Introduction

On Day 3, I focused on **Virtual Machines (VMs)** and their significance in modern IT infrastructure. VMs enable multiple operating systems to run on a single physical server, maximizing resource utilization and efficiency.

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## Key Learnings

### 1. What Are Virtual Machines?

- Simulated environments running on physical servers via hypervisors.
- Each VM operates independently with its own resources (CPU, memory, storage).

### 2. Physical vs. Virtual Servers

- **Physical Servers:** Dedicated hardware, prone to underutilization.
- **Virtual Servers:** Efficient resource sharing on fewer physical servers.

### 3. Role of Hypervisors

- Software layer managing VM creation and resource allocation.
- Examples: **VMware**, **Xen**, and **KVM**.

### 4. Applications

- **Corporate Use Case:** Teams sharing server resources efficiently.
- **Cloud Use Case:** AWS enabling scalable, on-demand VMs.

## 5. Benefits of Virtualization

- Reduces costs and hardware usage.
- Boosts agility for provisioning and scaling resources.
- Supports modern DevOps practices.

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## Conclusion

Virtual Machines are a vital part of today's IT infrastructure. By understanding their role and leveraging hypervisors effectively, organizations can drive agility, scalability, and cost efficiency.