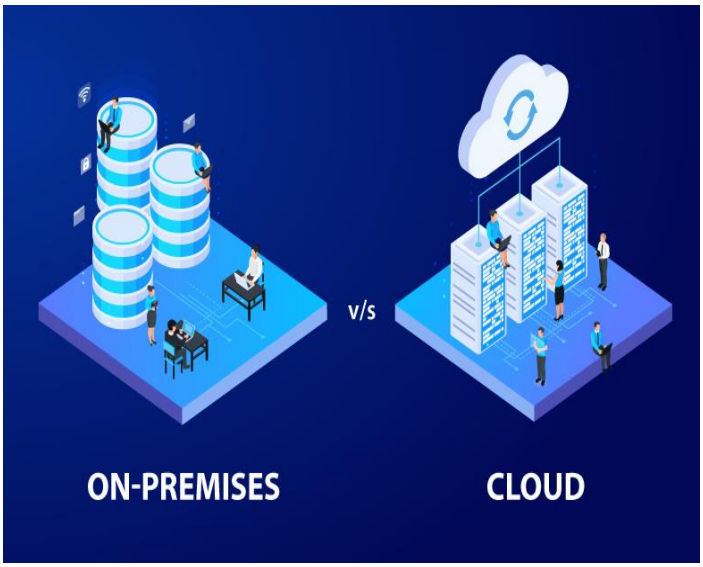
HEXAWARE TRAINING

INTRODUCTION: THE INFRASTRUCTURE EVOLUTION

The selection of an appropriate IT infrastructure model is a critical decision for organizations aiming to meet operational, financial, and security objectives. Traditional **on-premises** environments have increasingly been supplemented—or replaced—by **cloud computing** models such as **Infrastructure as a Service (IaaS)**, **Platform as a Service (PaaS)**, and **Software as a Service (SaaS)**.



Each model offers varying levels of control, cost, scalability, and management responsibilities. This document provides a structured comparison of these four deployment models to aid in strategic decision-making.

On-Premises

Definition:

An on-premises model involves hosting all hardware, software, networking, and storage resources within the physical premises of the organization. The organization is fully responsible for provisioning, maintaining, and securing the entire infrastructure stack.

Key Characteristics:

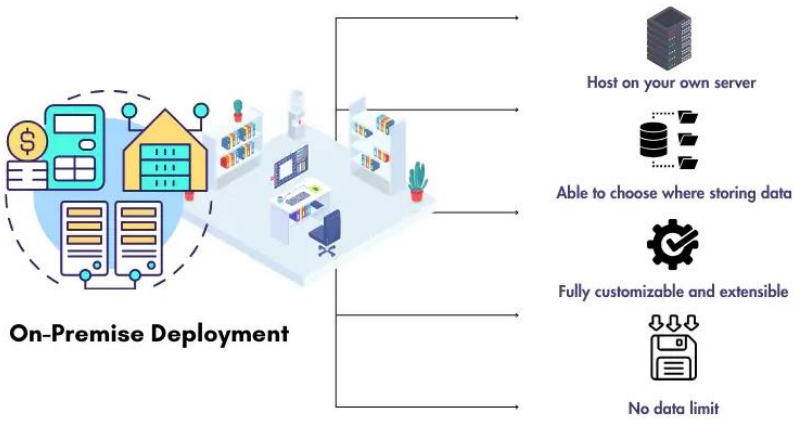
- **Ownership:** Complete ownership and control of hardware and software.
- **Customization:** Full customization of systems to meet specific business needs.
- **Security:** Localized control over data security and access policies.

Advantages:

- Full control over infrastructure.
- Better suited for sensitive workloads requiring high compliance.
- No dependency on internet connectivity for access.

Limitations:

- High capital and operational expenditure.
- Requires in-house IT expertise for setup, maintenance, and upgrades.
- Limited scalability and longer provisioning times.



Infrastructure as a Service (Iaas)

Definition:

IaaS delivers computing resources such as virtual servers, storage, and networking over the internet. The service provider manages the physical infrastructure, while the user manages the operating systems, applications, and configurations.

Key Characteristics:

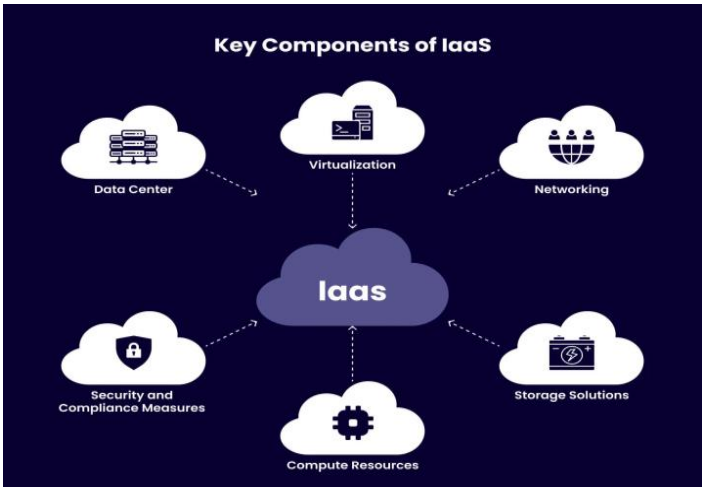
- **Scalability:** Infrastructure can be provisioned and scaled on-demand.
- **Cost Model:** Pay-per-use pricing reduces capital investment.
- **Control:** Greater control over OS and applications compared to PaaS or SaaS.

Advantages:

- Reduces infrastructure procurement time and cost.
- Suitable for test environments, disaster recovery, and scalable workloads.
- Allows deployment of legacy applications in the cloud.

Limitations:

- Users are responsible for system maintenance and security patches at the OS level.
- Requires skilled resources for setup and configuration.
- Shared responsibility model can complicate compliance requirements.



Platform as a Service (PaaS)

Definition:

PaaS provides a cloud-based platform for developing, testing, and deploying applications. It includes pre-configured environments, databases, development tools, and middleware, with the infrastructure managed by the provider.

Key Characteristics:

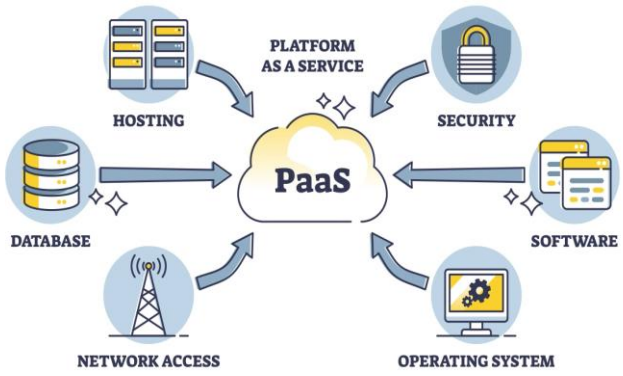
- **Development Focus:** Allows developers to focus on application logic without managing underlying infrastructure.
- **Integration:** Supports built-in development tools, CI/CD pipelines, and runtime environments.
- **Flexibility:** Typically supports multiple programming languages and frameworks.

Advantages:

- Accelerates application development and deployment.
- Enables easy integration with various services (e.g., databases, APIs).
- Auto-scaling and resource management handled by the provider.

Limitations:

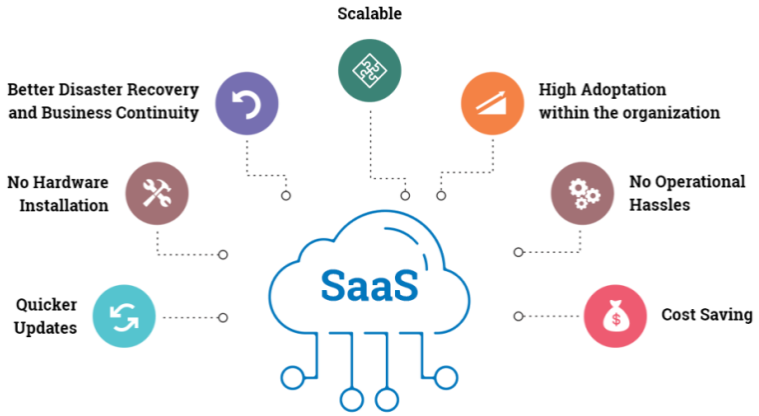
- Less control over underlying infrastructure and OS-level configurations.
- Potential vendor lock-in due to proprietary environments.
- Limited customization for complex legacy applications.



Software as a Service (SaaS)

Definition:

SaaS delivers fully developed and managed software applications over the internet. Users access the application through a web browser, with no need to install, manage, or update any software locally.



Key Characteristics:

- **User-Focused:** Designed for end-users requiring minimal technical expertise.
- **Accessibility:** Available across devices with internet access.
- **Maintenance-Free:** All updates, security patches, and maintenance are handled by the provider.

Advantages:

- Rapid deployment with minimal setup.
- Reduces IT overhead and infrastructure cost.
- Regular updates and improvements without user intervention.

Limitations:

- Limited customization options.
- Data privacy concerns due to third-party hosting.
- Integration with existing enterprise systems may require additional tools.

Feature	On-Premises	IaaS	PaaS	SaaS
Infrastructure	Self-managed	Provider-managed	Provider-managed	Provider-managed
OS Management	Self-managed	Self-managed	Provider-managed	Provider-managed
Application Mgmt	Self-managed	Self-managed	Self-managed	Provider-managed
Cost Model	Capital Expenditure (CapEx)	Operational Expenditure (OpEx)	OpEx	Subscription-based
Scalability	Low	High	High	Very High
Control	High	Medium-High	Medium	Low
Use Case Examples	Banking, ERP	Disaster Recovery, VMs	App Development, APIs	Email, CRM, Office Apps
Setup Time	Long	Moderate	Short	Instant

Comparison table