COLLEGE OF ELECTRICAL AND MECHANICAL ENGINEERING

DEPARTMENT OF SOFTWARE ENGINEERING

Course name: Selected Topic

Title: Infrastructure as a service (IAAS)

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Introduction to IAAS

Infrastructure as a Service (IAAS) revolutionizes the way businesses manage and utilize their IT resources. In today's digital landscape, where agility, scalability, and cost-effectiveness are paramount, IAAS emerges as a cornerstone of cloud computing solutions. [1]

At its core, IAAS empowers organizations to access and leverage a wide array of virtualized computing resources over the internet. From servers and storage to networking infrastructure, IAAS provides a comprehensive suite of IT components available on-demand.

Definition of IAAS

IAAS or infrastructure as a service is a cloud computing model that provides on-demand access to computing resources such as servers, storage, networking, and virtualization.

It is the on-demand availability of highly scalable computing resources as services over the internet. It eliminates the need for enterprises to procure, configure, or manage infrastructure themselves, and they only pay for what they use.

Purpose and how it is works.

One of the most popular purposes of IaaS is to manage data. Businesses that use high volumes of data can store it, perform backups, and launch recovery procedures all through IaaS services. Companies can automate most of these tasks, which can make the process of organizing data simple and timely.

It works IaaS in cloud computing is when we rent access to cloud infrastructure resources as individual services from a cloud service provider (CSP), including servers, virtual machines, networking resources, and storage. IaaS helps eliminate much of the complexity and costs associated with building and maintaining physical infrastructure in an on-premises data center.

The CSP is responsible for managing and maintaining the infrastructure, so we can concentrate on installing, configuring, and managing software and keeping our data secure. IaaS providers also offer additional services, such as detailed billing management, logging, monitoring, storage resiliency, and security.

Example for IAAS

Hardware -, including processing units, GPUs, servers, memory, and power supply.

Network - The channel that allows the back-and-forth communication of information,

Virtualization - Decouples the cloud from its hardware resources (like storage and computing power).

Storage - Including file storage, block storage, and object storage allow for scale up storage.

Software development, Software testing, hosting websites, Supporting web apps. [1]

Advantage of IAAS

- Cost-saving
- Will run if the server goes down.
- Flexible offering
- Ideal for scaling businesses

Challenges of IAAS

- Potential security issues
- Increased risk of technical problems
- High dependency on the third-party provider
- Restricts user customization and privacy.

Impact of IAAS on software engineering

- ✓ Increased Agility and Speed IaaS allows for on-demand access to resources, enabling developers to quickly provision servers, storage, and networking component:
- ✓ Improved Collaboration and Development Processes: Developers can work on projects from anywhere with an internet connection, fostering collaboration in geographically distributed teams.
- ✓ Enhanced Cost Efficiency: With IaaS, you only pay for the resources we use.
- ✓ Focus on Core Development: IaaS removes the burden of managing complex infrastructure, allowing developers to focus on building and maintaining applications rather than worrying about underlying hardware. [2]

Future of IAAS

- ✓ IaaS will likely be increasingly integrated into hybrid and multi-cloud deployments.
- ✓ Focus on Automation and Self-Service:
- ✓ Increased on Security and Compliance: Security will remain a top priority for IaaS providers.
- ✓ 5G Networks for faster speed of internet
- ✓ Integration with AI and Machine Learning: Automation of tasks, resource optimization, and predictive scaling are some potential applications of AI in IaaS management.

References

[1] https://cloud.google.com/learn

[2] IAAS: THE FUTURE OF IT INFRASTRCUTURE