CLOUD COMPUTING

Challenges & Opportunities Ahead

Eastern Enterprise
empowering your software

Overview

Cloud computing has advanced rapidly in recent years to include a wide array of technologies, products, and services. It has significantly changed how we conduct business and use technology, leading to a **multi-billion dollar global cloud applications market.** Cloud computing refers to the delivery of computing services over the internet on a pay-as-you-go basis. It has provided organizations with flexible resources for faster innovation. Moreover, it lowers operating costs and enables efficient scaling since organizations need to pay only for the services they use.

Models of Cloud Deployment

There is no one-size-fits-all approach to cloud computing. An organization must determine the cloud computing architecture or the type of cloud deployment best suited for its cloud services. Broadly, there are three different models for deploying cloud services: on a private cloud, public cloud, or hybrid cloud.

Private Cloud

A private cloud refers to cloud computing services available exclusively to a single organization or individual. Private cloud services and infrastructure are typically maintained on a private internal network, although some organizations partner with third-party providers to host their private cloud.

Public Cloud

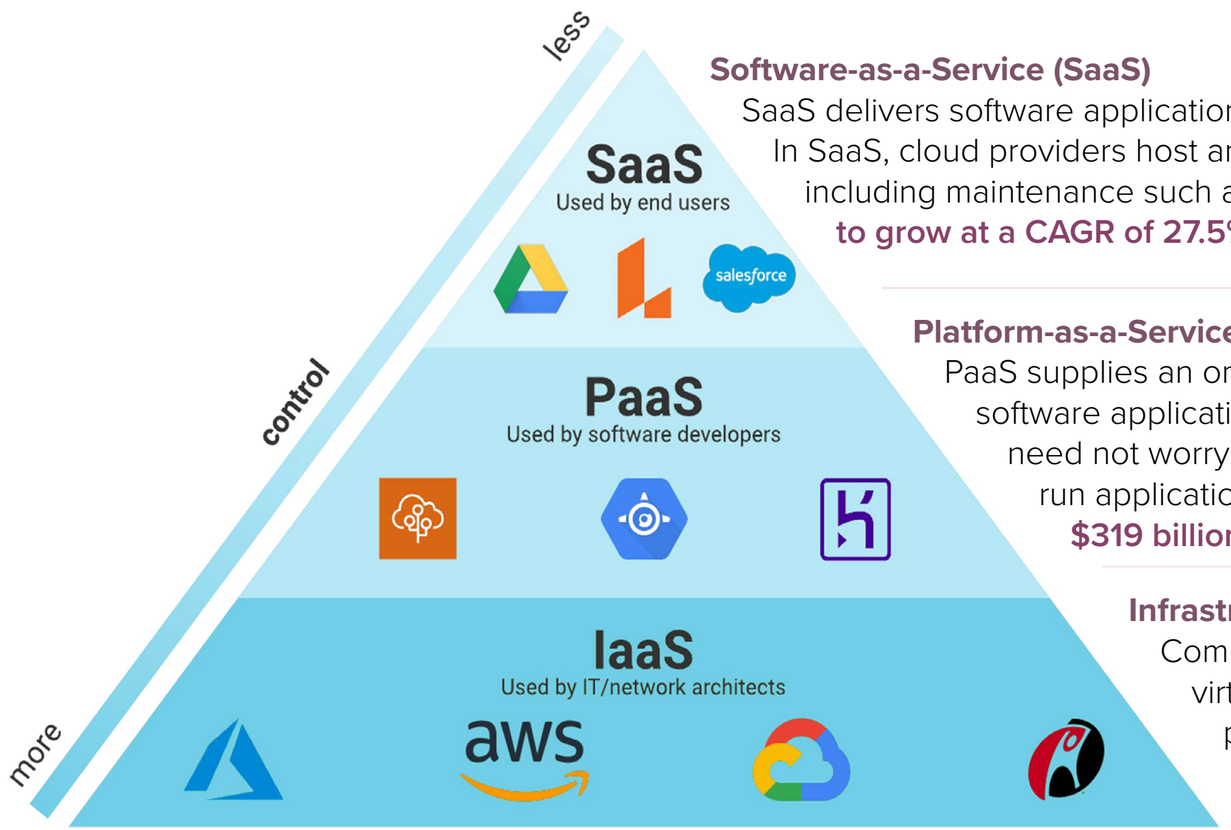
Third-party providers own and operate public clouds, providing cloud services that everyone can access over the internet. Public cloud is either free or available on-demand, where users pay for public cloud services according to the bandwidth or storage they consume. Projections indicate that **global spending on public cloud services** will reach $397.5 billion in 2022.

Hybrid Cloud

A hybrid cloud is a computing environment that combines private and public clouds by sharing data and applications between the two. Hybrid clouds allow greater flexibility, enhanced optimization of the existing infrastructure, improved security and compliance, and more deployment options.

Types of Cloud Computing Services

Cloud computing services are widely classified into three types, each providing different flexibility, control, and management levels.



Software-as-a-Service (SaaS)

SaaS delivers software applications over the internet, typically on an on-demand and subscription basis. In SaaS, cloud providers host and manage the underlying infrastructure and software applications, including maintenance such as security patching and upgrades. The **global SaaS market is expected to grow at a CAGR of 27.5%** , reaching a valuation of $716.53 by 2028.

Platform-as-a-Service (PaaS)

PaaS supplies an on-demand environment for users to develop, test, deliver, and manage software applications. It simplifies creating web and mobile applications since developers need not worry about setting up and managing the underlying infrastructure needed to run applications. Projections suggest that the **global PaaS market size will reach $319 billion by 2030**.

Infrastructure-as-a-Service (IaaS)

Comprising the basic building blocks of cloud IT, IaaS gives users access to virtual machines, servers, networks, storage, and operating systems on a pay-as-you-go basis. IaaS offers the highest levels of control and management over IT resources. From $38.94 billion in 2019, the **worldwide IaaS market size** will reach $201.83 billion by 2027.

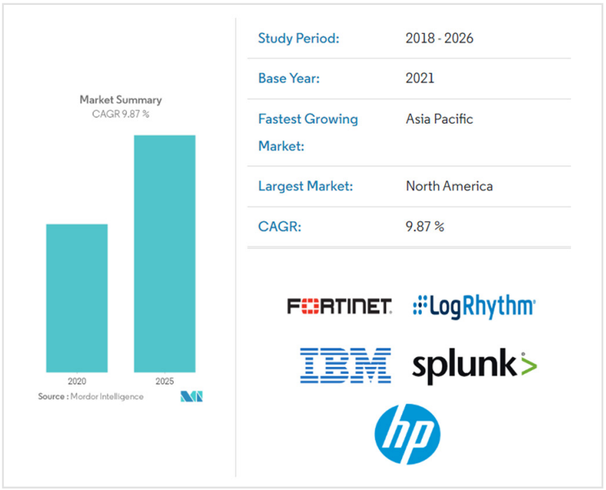
Cloud Computing Security Features

Incorporating cloud-based tools and services are not enough. Migrating to the cloud entails ensuring the security of data, workloads, and applications running on the cloud.

Since security threats have evolved along with the advancement in the digital landscape, it is pertinent to have the right set of cloud security features. These cloud computing security features broadly fall into the following categories:

Security Information and Event Management (SIEM)

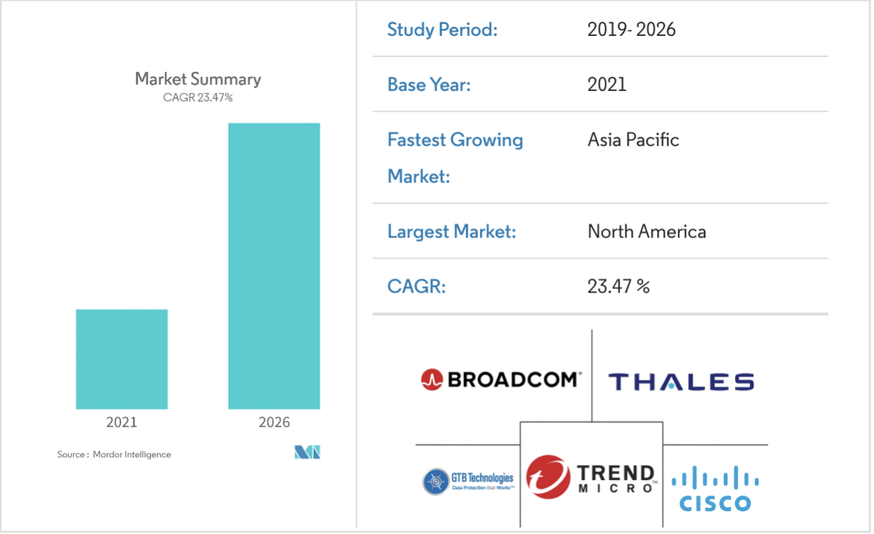
Backed by AI-driven technologies, SIEM offers a complete security orchestration solution to enable IT teams to automate threat monitoring, detection, and response.



SIEM Market Snapshot

Data Loss Prevention (DLP)

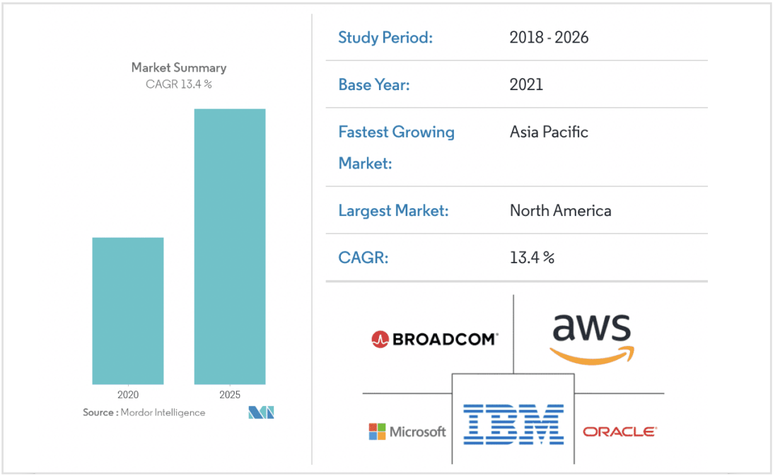
DLP services offer tools and solutions to ensure regulated cloud data security. The growth of the global DLP market has been fueled by the growing need for organizations to meet data regulatory and compliance requirements.



DLP Market Snapshot

Identity and Access Management (IAM)

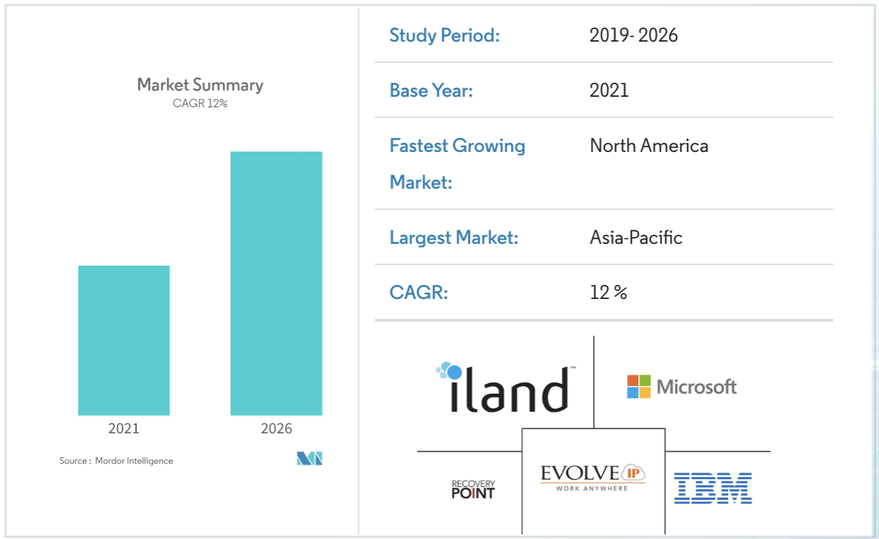
IAM services and tools allow the deployment of policy-driven enforcement protocols for both cloud-based and on-premise service users. IAM solutions can actively monitor and restrict users during data interactions by creating digital identities for all users.



IAM Market Snapshot

Disaster Recovery as a Service (DRaaS)

Disaster recovery solutions are a cloud security fundamental that provides the protocols, tools, and services necessary to accelerate the recovery of lost data and ensure business continuity.



DRaaS Market Snapshot

Benefits of Cloud Computing

Cloud computing has significant advantages when compared to traditional on-premise data centres.

Lower Operating Costs: Shifting to cloud computing solutions can relieve organizations from bearing additional expenses of operating and managing on-premise data centres.

Flexibility and Scalability: Cloud computing enables automation of elaborate processes, such as hardware setup and regular software patching, allowing IT teams to invest resources into more essential business aspects.

Speed: With cloud computing, enterprises can quickly and easily access a host of IT resources within the cloud, including storage, servers, databases, software, networking, intelligence, and analytics.

Security and Reliability: Cloud security solutions offer a range of tools and technologies to help strengthen the security ecosystem of organizations from potential threats, ensuring cost-effective data backup and disaster recovery.

Challenges and Risks of Cloud Computing

Cloud computing involves its share of challenges and risks despite the obvious advantages over on-premise data centres. The following infographic outlines some of the challenges of cloud adoption.

- **Cost Management**
- **Security Issues**
- **Goverance & Control Issues**
- **Lack of Resources and Expertise**
- **Managing Multiple Clouds**
- **Compliance**
- **Building a Private Cloud**
- **Performance**

Use Cases of Cloud Computing

Let’s look at some practical use cases of cloud computing to understand better its implications in the world of business and technology:

Secure file storage

In addition to security, cloud storage solutions allow quick and easy access to data from anywhere or any device. Examples of cloud computing storage services include Amazon S3, Google Drive, OneDrive, and DropBox.

Online streaming platforms

The world’s largest subscription-based streaming service Netflix uses AWS for almost all its storage and computing needs. More than 100,00 server instances on AWS work together to enable hundreds of Netflix functions, including storage, analytics, video transcoding, recommendation engines, and more. The cloud-based video streaming market is projected to reach $223.98 billion by 2028.

Software testing and development

The flexibility of cloud computing environments enables continuous integration and delivery, thereby facilitating faster and cheaper development and testing.

Summing Up

Although the pandemic was a blow to most industries, cloud-reliant technologies have shown recovery paths. Predictions show that the total data stored on the cloud will reach 100 zettabytes by 2025 , with cloud data centres dominating workload processing. AWS continues to lead the global cloud market with a share of 33%, followed by Microsoft Azure and Google Cloud. Moreover, with the pandemic transforming the way we work, about 34% of professionals say they prefer cloud-enabled remote work . In addition, 92% of companies already have a multi-cloud strategy , with 36% of organisations spending over $12 million per year on public clouds . While these stats and figures are only a snapshot of the bigger picture, they are enough to say that cloud computing is here to stay and will become a greater deal in the future!

Reference

1. https://aws.amazon.com/what-is-cloud-computing/
2. https://azure.microsoft.com/en-in/overview/what-is-cloud-computing/#benefits
3. https://www.zoho.com/au/tech-talk/why-is-the-cloud-so-popular.html
4. https://www.ibm.com/in-en/topics/cloud-security
5. https://findstack.com/cloud-computing-statistics/
6. https://digitalcloud.training/9-common-uses-of-cloud-computing/
7. https://www.criticalcase.com/blog/5-practical-use-cases-of-cloud-computing-in-everyday-life.html
8. https://aws.amazon.com/solutions/case-studies/netflix/
9. https://www.cloudwards.net/cloud-computing-statistics/#Sources