



AMRITA
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Introduction to Cloud Computing

[illegible]

Problems Faced



Database & Security



Managing Servers



Increasing Cost



Scalability Issue



Fast & Fault Tolerant

Problems in Traditional Scenario

❖ Limited Scalability:

- **Fixed Infrastructure:** Traditional e-commerce platforms rely on on-premises infrastructure.
- **Longer Downtime:** Scaling traditional infrastructure often involves downtime.

❖ Higher Costs:

- **Capital Expenditure:** Traditional methods require large upfront investments in servers, storage, and networking equipment.
- **Operational Overheads:** Managing and maintaining physical infrastructure requires a dedicated IT team, leading to higher operational costs.

❖ Security Risks:

- **Longer Development Cycles:** Traditional environments often involve longer development and deployment cycles due to manual processes
- **Inflexibility:** Making changes to the infrastructure or deploying new applications can be slow and complex

Problems in Traditional Scenario cont..

❖ Slower Time to Market:

- **Manual Security Management:** In traditional setups, security is manually managed, which can lead to inconsistencies and vulnerabilities.
- **Disaster Recovery Challenges:** Traditional methods may lack robust disaster recovery solutions

❖ Limited Global Reach:

- **Geographical Limitations:** Traditional infrastructure is often centralized in specific regions, leading to slower load times for users in other parts of the world.

❖ Inadequate Customer Experience:

- **Personalization Challenges:** Traditional e-commerce platforms may struggle to leverage big data and real-time analytics
- **Inconsistent Availability:** Limited infrastructure can lead to performance issues, such as slow page loads or outages

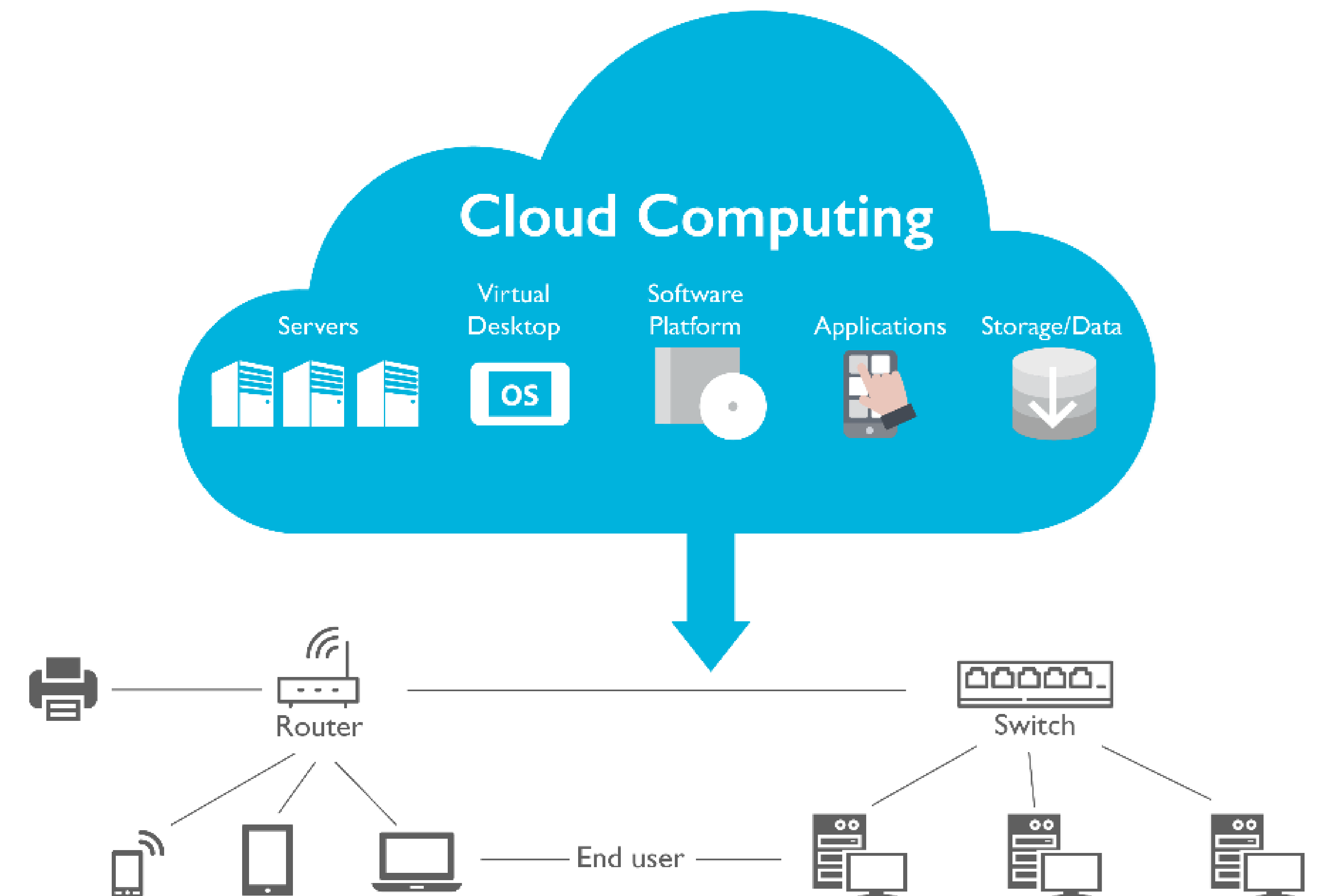
Solution

CLOUD COMPUTING



Cloud Computing

- Cloud computing is the on-demand delivery of *compute power, database storage, applications, and other IT resources* through a *cloud services platform* via the internet with pay-as-you-go pricing
- It is the *use of remote servers on the internet* to store, manage and process data rather than a local server or your personal computer



Benefits of Using Cloud Computing

❖ Scalability and Flexibility:

- **On-Demand Resource Scaling:** Cloud computing allows e-commerce platforms to scale resources up or down based on demand.
- **Global Reach:** Retailers can easily expand their operations globally by leveraging cloud infrastructure

❖ Cost Efficiency:

- **Pay-as-You-Go Model:** Only pay for the resources they use
- **Reduced Operational Costs:** By outsourcing infrastructure management to cloud providers

❖ Improved Customer Experience:

- **Personalization and Analytics:** Cloud computing enables the use of big data and AI-driven analytics to personalize the shopping experience.
- **Enhanced Availability:** Cloud-based e-commerce platforms benefit from high availability and reliability

Benefits of Using Cloud Computing cont..

❖ Security and Compliance:

- **Data Security:** Offer robust security measures, including encryption, identity management, and regular security audits.
- **Disaster Recovery:** Cloud solutions often include built-in disaster recovery and backup services

❖ Faster Time to Market:

- **Agile Development and Deployment:** Cloud platforms provide development tools, automation, and continuous integration/continuous deployment (CI/CD) pipelines
- **Rapid Prototyping:** Retailers can experiment with new business models, products, and services quickly by deploying prototypes in the cloud

❖ Inventory and Supply Chain Management:

- **Real-Time Monitoring:** Cloud computing enables real-time tracking of inventory levels across multiple locations
- **Integration with Partners:** Cloud platforms facilitate seamless integration with third-party suppliers, logistics providers, and payment gateways

Four Primary Concepts

❖ Cloud infrastructure:

- The underlying compute, storage, and network systems.

❖ Cloud delivery model:

- The front-end (client-side) and back-end (provider-side) of the cloud platform.

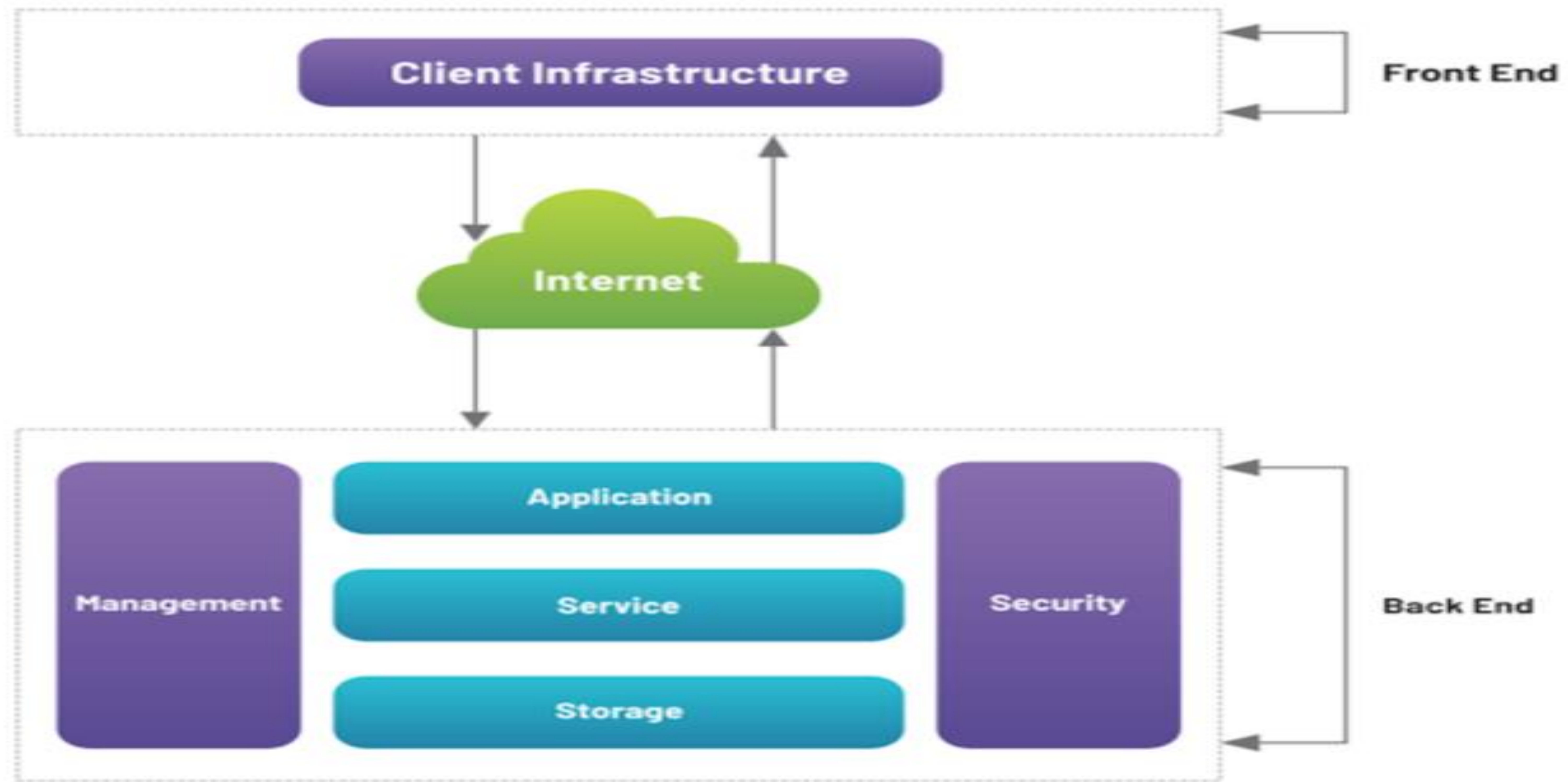
❖ Cloud service model:

- The type of service offered such as IaaS, PaaS, or SaaS.

❖ Cloud deployment model:

- This relates to the access and governance of the cloud platform.

Basic Cloud Architecture

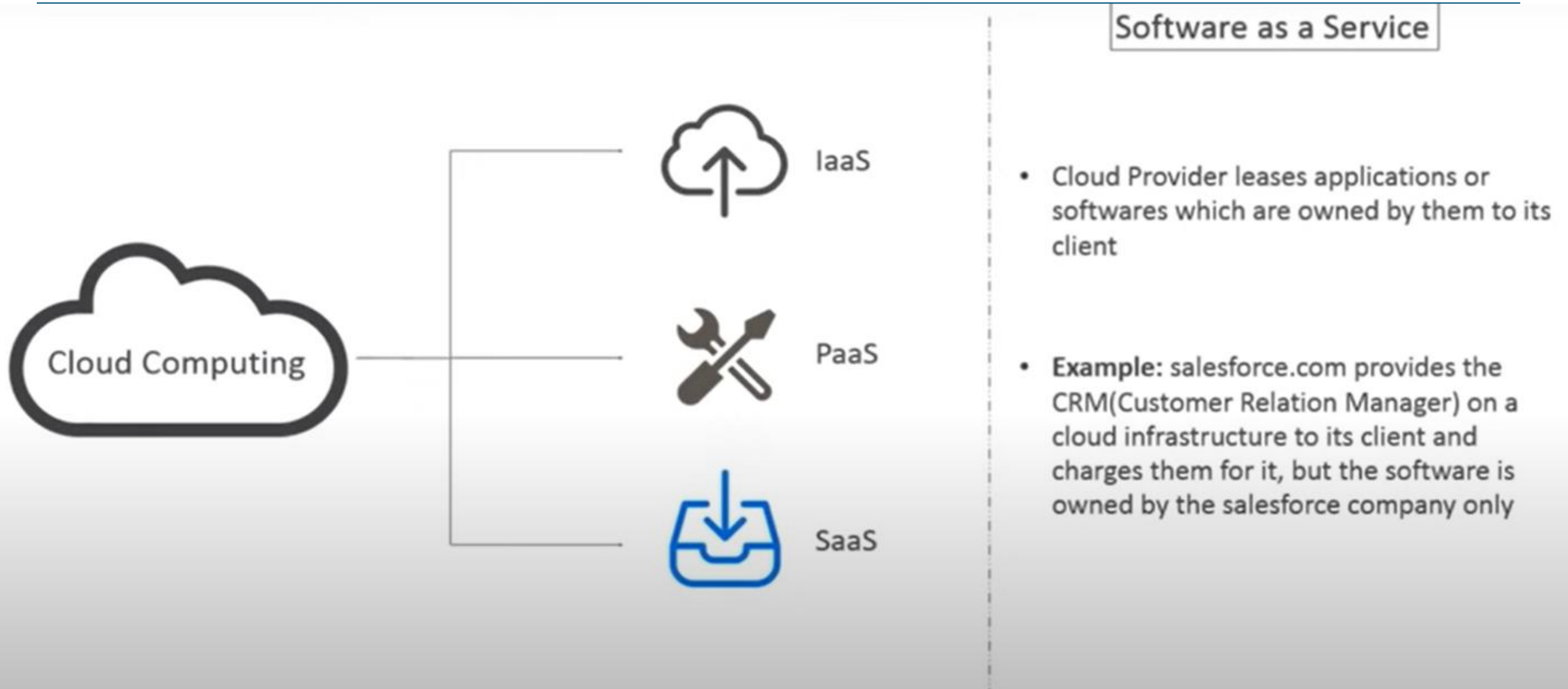


Cloud Services – Anything as a Service(Xaas)

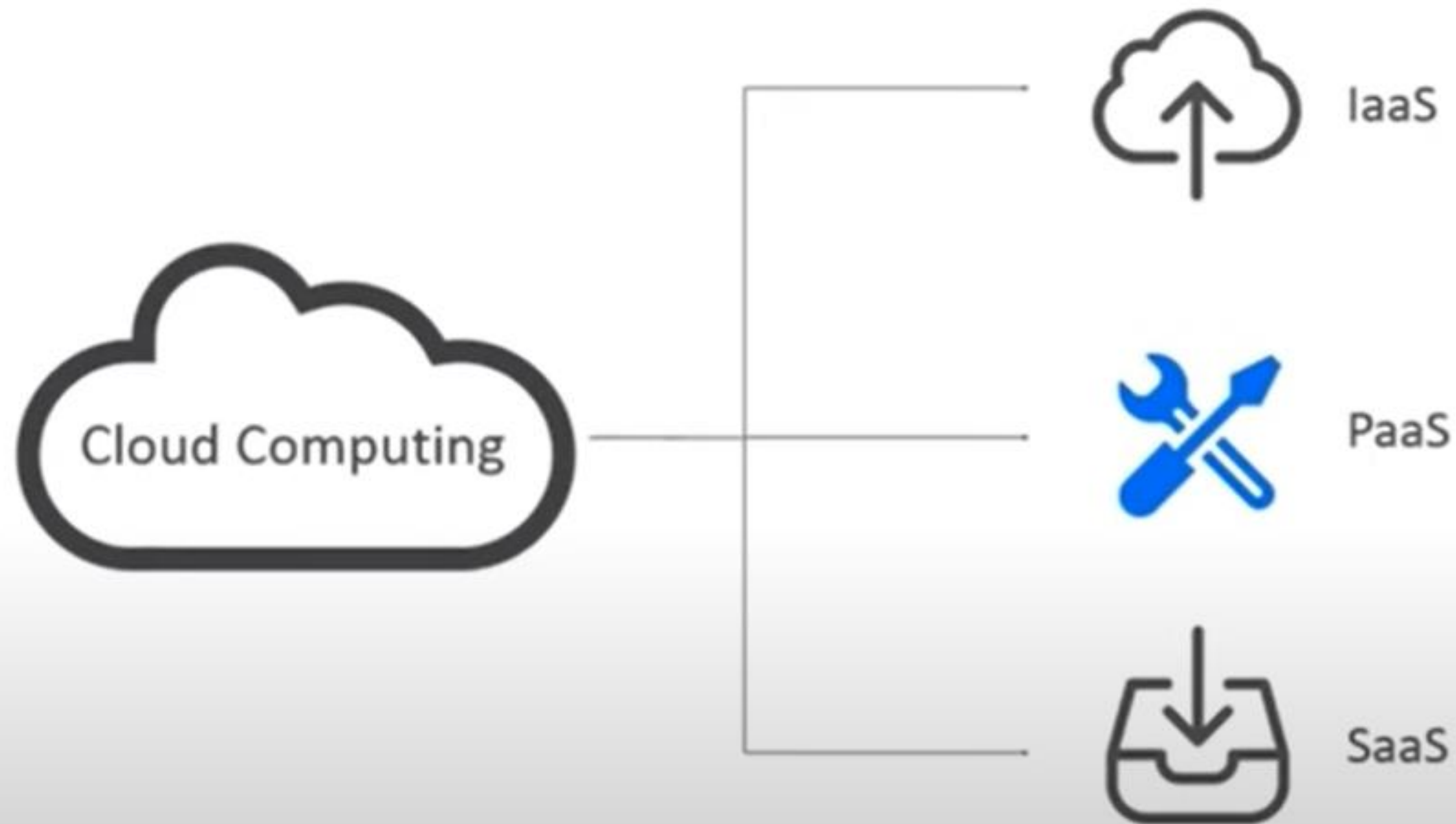
XaaS refers to the extensive variety of services and applications that can be delivered over the internet.



Software as a Service



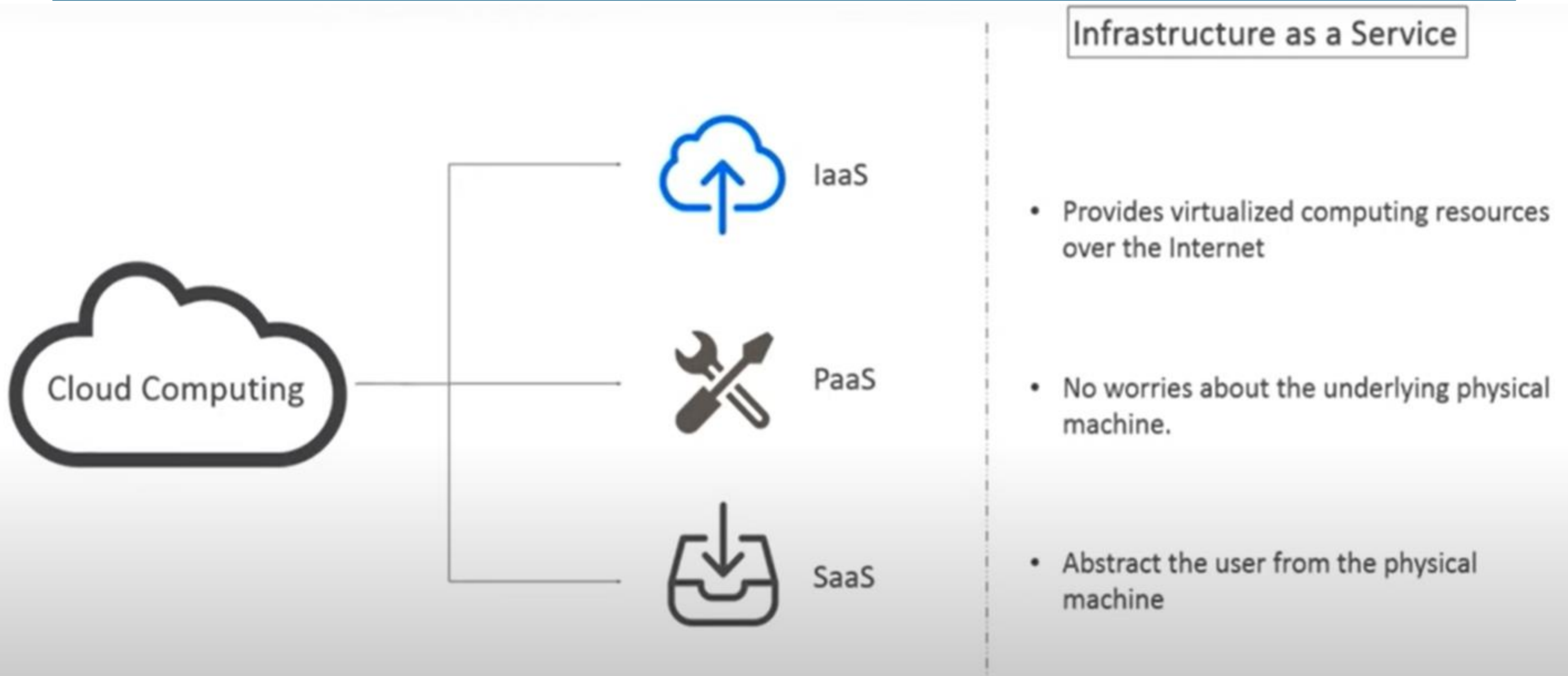
Platform as a Service



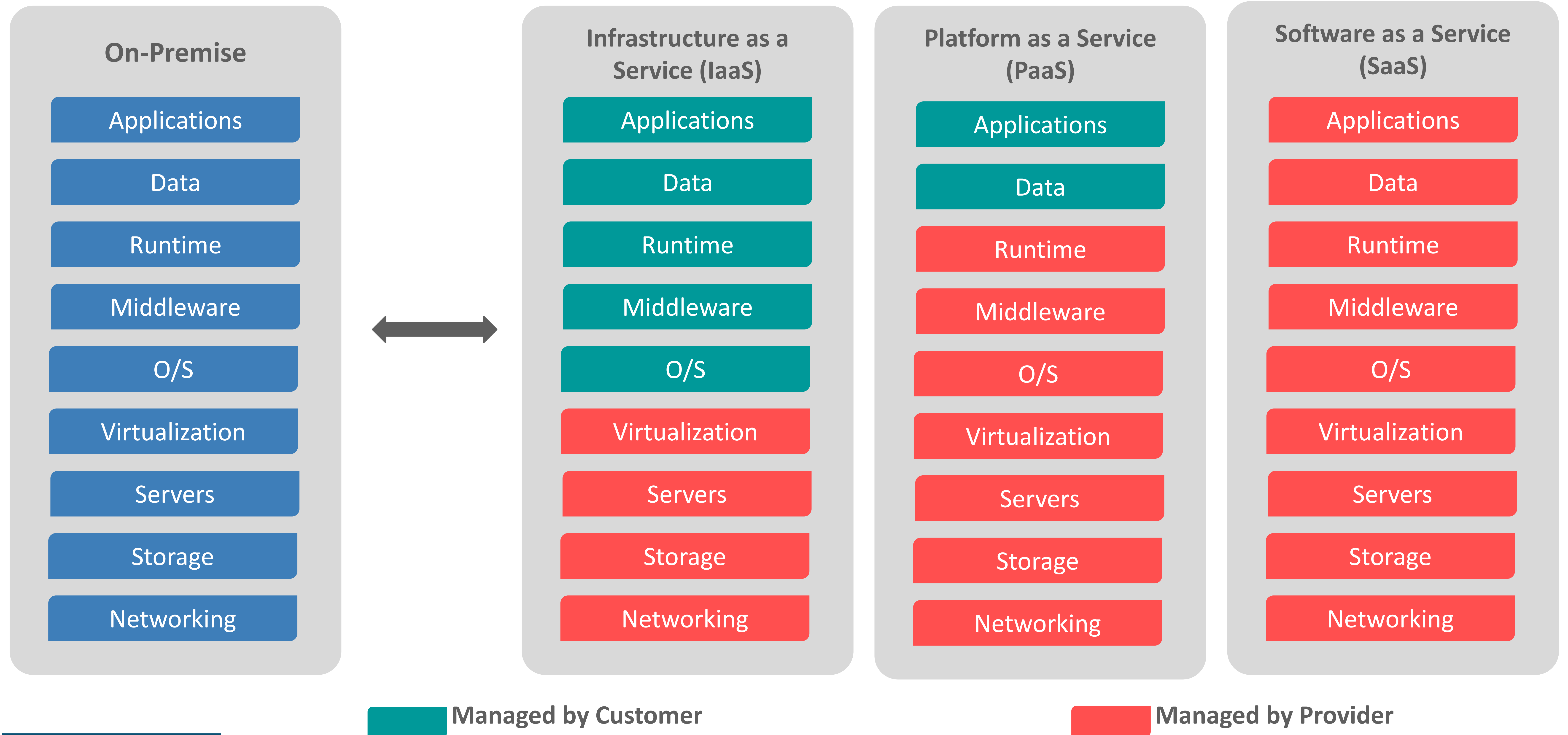
Platform as a Service

- No control over the underlying architecture including OS, storage, servers etc.
- The Cloud Provider gives the ability to the customer to deploy customer created apps using programming languages, tools etc that are provided by the Cloud Provider.

Infrastructure as a Service



Cloud Services



Cloud Deployment Models

❖ Public Cloud:

- A cloud infrastructure that is made available to the general public over the internet and is owned by a cloud service provider (CSP)
- Ownership: Owned and managed by third-party providers
- Access: Accessible to anyone who wants to purchase or lease cloud services.
- Usecases: Hosting web applications, Development and testing environments, Big data processing, SaaS (Software as a Service) applications
- Advantages: Cost-Efficiency, Scalability, Reliability
- Disadvantage : Limited Control

Cloud Deployment Models

❖ Private Cloud:

- A cloud infrastructure that is used exclusively by a single organization. It can be managed internally or by a third party, and can be hosted on-premises or in a data center.
- Ownership: Owned and operated by the organization or a third-party vendor but used exclusively by the organization
- Access: Restricted to the organization
- Usecases: Businesses with strict regulatory or compliance requirements, Organizations needing high levels of security and control over their data,

Cloud Deployment Models

❖ Private Cloud:

- Advantages: Enhanced Security (exclusive use by a single organization).

Customization

Compliance(industry-specific regulatory requirements)

- Disadvantages: Cost (higher upfront and maintenance costs)

Scalability (limited by the organization's resources and investment)

Cloud Deployment Models

❖ Hybrid Cloud:

- A combination of public and private cloud environments that allows data and applications to be shared between them. It provides greater flexibility and optimization of existing infrastructure, security, and compliance.
- Ownership: Managed by the organization, often with some resources maintained on-premises and others provided by a third-party CSP.
- Access: A mix of both private and public environments
- Usecases: Businesses that require both public and private cloud benefits, Disaster recovery and backup strategies.

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Cloud Deployment Models

❖ Hybrid Cloud:

- Advantages: Flexibility

Cost-Effective (optimizes costs by leveraging the public cloud for less-sensitive workloads while keeping critical workloads in the private cloud)

Scalability and Control

- Disadvantages: Complexity

Security (if not managed properly)

Various Cloud Providers

Cloud Providers





Thank You



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