Cloud Computing

# 1. Introduction

Cloud computing is the delivery of computing services—including servers, storage, databases, networking, software, and more—over the Internet (“the cloud”) to offer faster innovation, flexible resources, and economies of scale.

# 2. Key Characteristics

- On-demand self-service  
- Broad network access  
- Resource pooling  
- Rapid elasticity  
- Measured service

# 3. Service Models

- Infrastructure as a Service (IaaS): Provides virtualized computing resources over the internet.  
- Platform as a Service (PaaS): Offers hardware and software tools over the internet.  
- Software as a Service (SaaS): Delivers software applications over the web.

# 4. Deployment Models

- Public Cloud  
- Private Cloud  
- Hybrid Cloud  
- Community Cloud

# 5. Benefits of Cloud Computing

- Cost efficiency  
- Scalability  
- Flexibility  
- Disaster recovery  
- Automatic updates

# 6. Challenges

- Security and privacy concerns  
- Downtime risks  
- Limited control and flexibility

# 7. Conclusion

Cloud computing is transforming the IT landscape, offering innovative solutions to businesses and individuals. With continued advancement, it is poised to become even more integral to digital infrastructure.