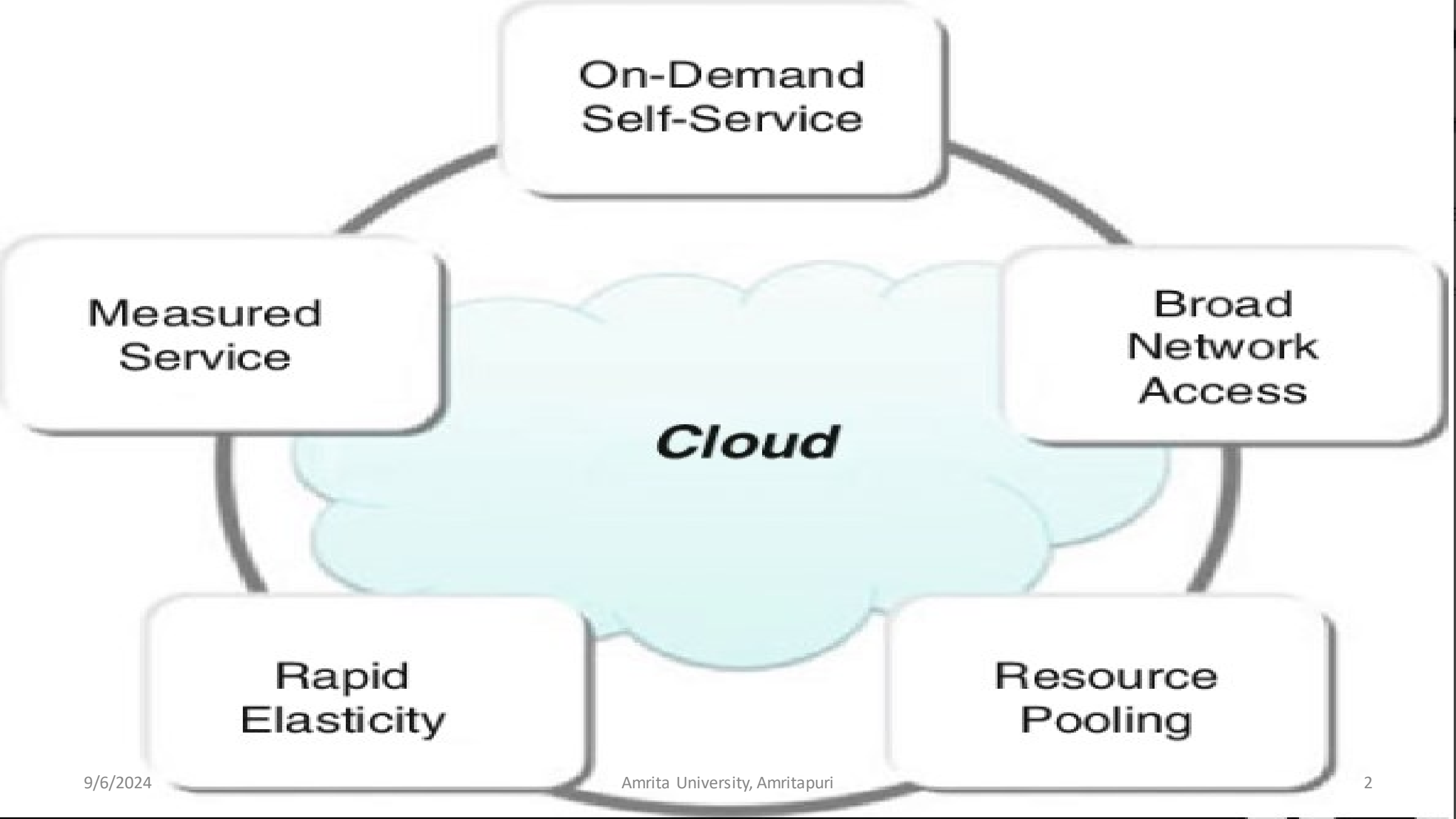
22AIE305: CLOUD COMPUTING


On-Demand
Self-Service
Measured
Service
Broad
Network
Access
Cloud
Rapid
Elasticity
Resource
Pooling

Characteristics of Cloud Computing:

a) Agility

- **The cloud works in a distributed computing environment. It shares resources among users and works very fast.**
- ***b) High availability and reliability***
- **The availability of servers is high and more reliable because the chances of infrastructure failure are minimum.**
- ***c) High Scalability***
- **Cloud offers "on-demand" provisioning of resources on a large scale, without having engineers for peak loads.**

d) Multi-Sharing

With the help of cloud computing, multiple users and applications can work more efficiently with cost reductions by sharing common infrastructure.

e) Device and Location Independence

Cloud computing enables the users to access systems using a web browser regardless of their location or what device they use e.g. PC, mobile phone, etc. As infrastructure is off-site (typically provided by a third-party) and accessed via the Internet, users can connect from anywhere.

f). **Shared / Pooled Resources:**

- Resources are drawn from a common pool
- Common resources build economies of scale
- Common infrastructure runs at high efficiency

g). **Broad Network Access:**

- Open standards and APIs
- Almost always IP, HTTP, and REST
- Available from anywhere with an internet connection

h). **On-Demand Self-Service:**

. Completely automated

- Users abstracted from the implementation
- Services accessed through a self-serve web interface

i). **Elasticity:**

Resources dynamically-allocated between users

- Additional resources dynamically-released when needed
- Fully automated

j). **Metered by Use:**

Services are metered, like a utility

- Users pay only for services used
- Services can be cancelled at any time

k) Maintenance

Maintenance of cloud computing applications is easier, since they do not need to be installed on each user's computer and can be accessed from different places. So, it reduces the cost also.

l) Low Cost

By using cloud computing, the Capex is reduced because a company need not have to set up its own infrastructure and pay-as-per usage of resources.

m) Services in the pay-per-use mode

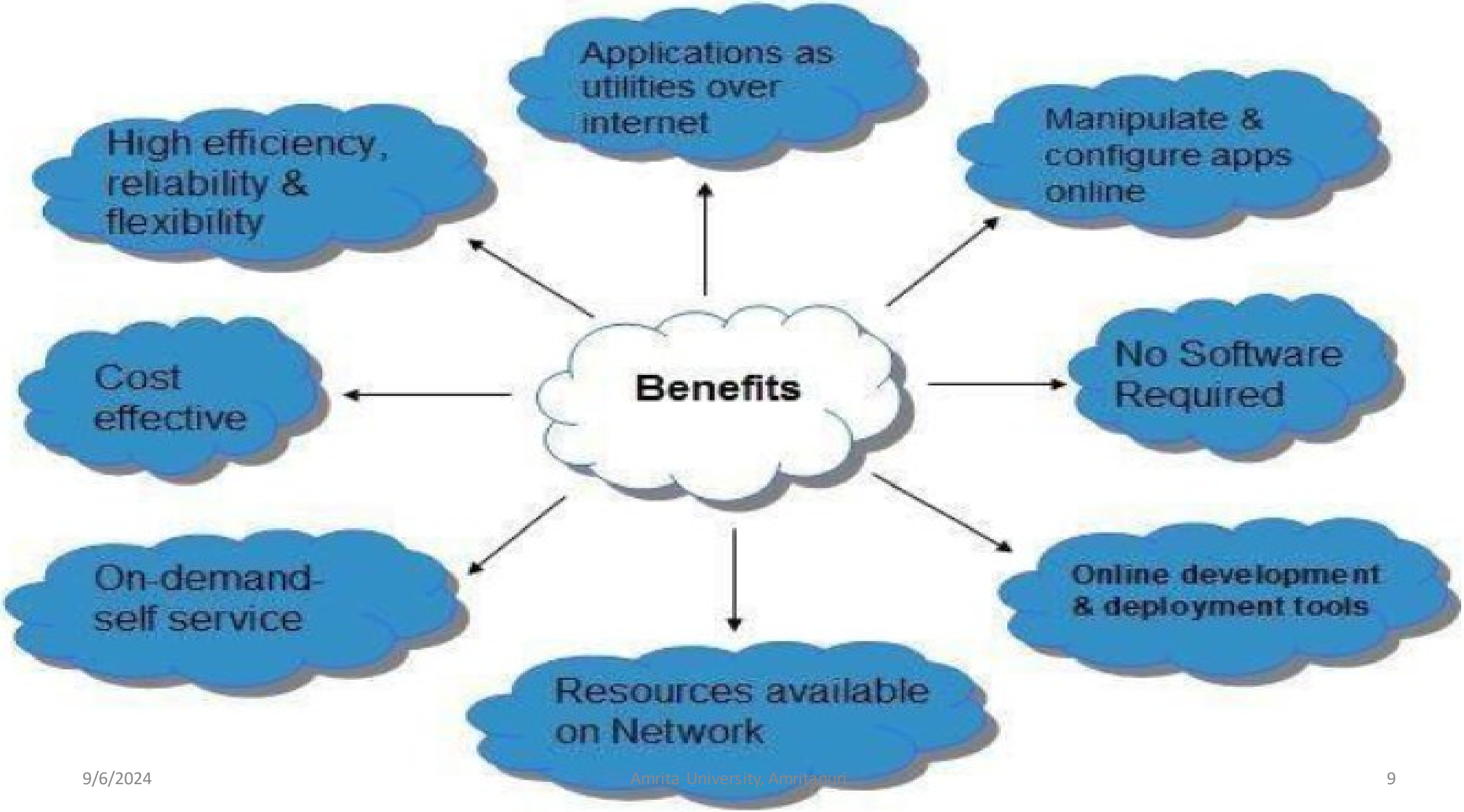
Application Programming Interfaces (APIs) are provided to the users so that they can access services on the cloud by using these APIs and pay the charges as per the usage of services

Common Characteristics:

- Massive Scale
- Resilient Computing
- Homogeneity
- Geographic Distribution
- Virtualization
- Service Orientation
- Low Cost Software
- Advanced Security

Essential Characteristics:

- On Demand Self-Service
- Broad Network Access
- Rapid Elasticity
- Resource Pooling
- Measured Service


Applications as utilities over internet
High efficiency, reliability & flexibility
Manipulate & configure apps online
Cost effective
Benefits
No Software Required
On-demand-self service
Online development & deployment tools
Resources available on Network

Use cases: **File hosting services**

- Most storage services that are designed to store data and create backup copies are based on the cloud model. This makes it possible to upload and download files, which enable users to access and control file systems remotely, as well as **synchronize** files in real-time across multiple devices. The possibility of synchronizing data is one of the most appreciated features by users who travel and need to have their documents and business data up-to-date at all times.

Backup solutions

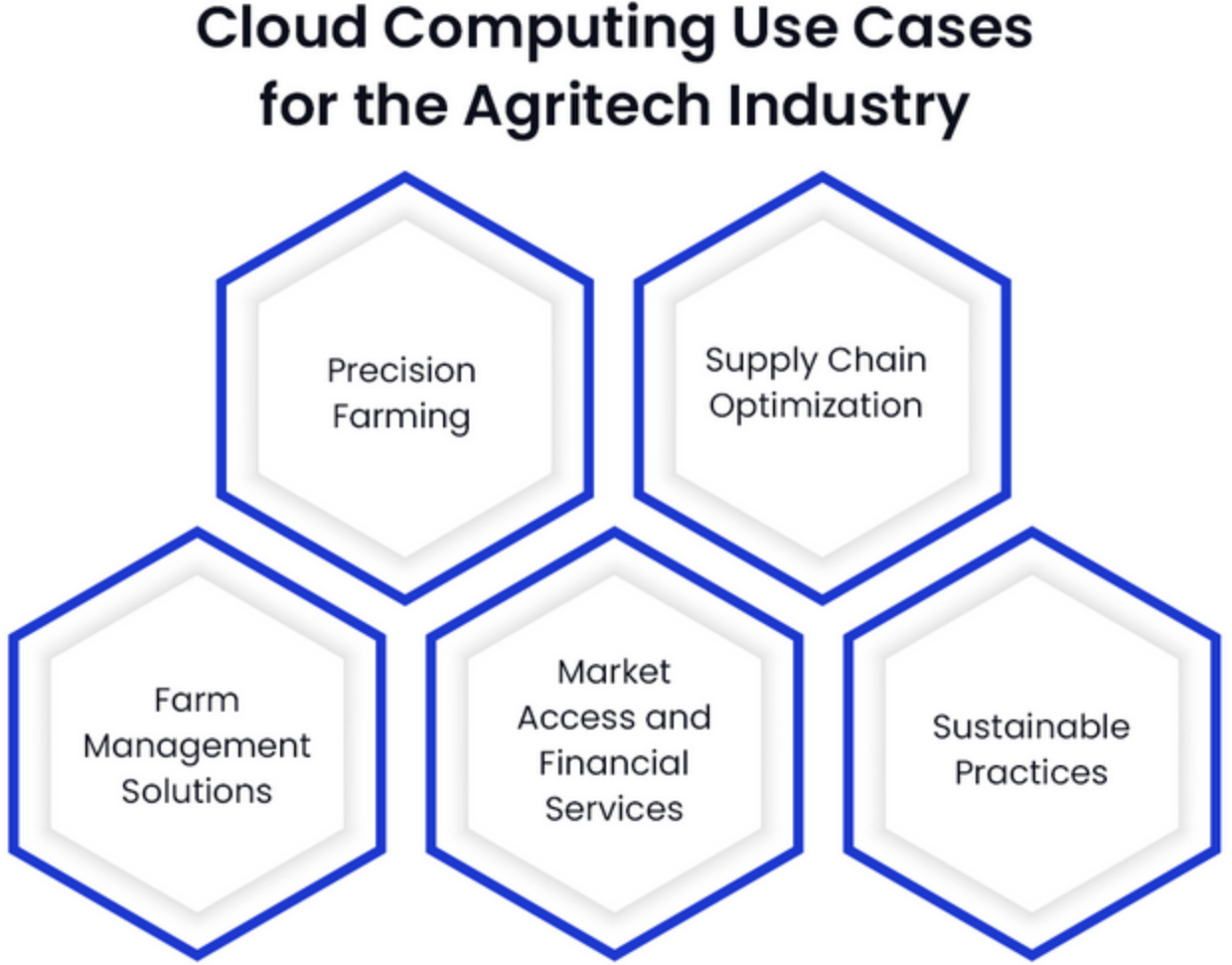
- Most of the systems used for backup (like making backup copies necessary for recovering data) are now based on cloud computing. The cloud almost entirely eliminates the need for repetitive manual backup operations (which is absolutely essential for all systems). Most platforms currently provide various features that help users plan and automatically create secure backup copies regularly and with no effort. In this case, cloud computing allows end-users to save significant working hours in a year.

chatbots

- Cloud computing, along with advanced algorithms, can create interactive chatbots. It’s a cost-effective tool that enables companies to enhance sales funnels and upgrade online assistance services to become automated and easier to manage.
- A chatbot has the ability, through direct communication with a virtual operator, to anticipate the questions of a potential customer. Moreover, it can direct users toward the right answer, which can be an FAQ page, a specific business proposal, or the classic Contact us page, where they can get in touch with the sales department.

Test and Development

- In the cloud, you can switch environments on and off. Unlike traditional servers, the cloud lets you create, deploy, and terminate environments anytime you want. You don’t have to wait for a long time for a new environment to be provisioned. With just a few clicks, you could quickly set up a staging environment where you can experiment your project’s proof of concept. The time to market for your products will be significantly reduced, increasing your business revenue growth.


Cloud Computing Use Cases for the Agritech Industry
Precision Farming
Supply Chain Optimization
Farm Management Solutions
Market Access and Financial Services
Sustainable Practices

AI-enabled Cloud

- Many Cloud applications are AI-enabled.
- AI as a service (AIaaS) is an emerging field where cloud applications use AI algorithms
- AI can work at multiple layers and for different purposes (information retrieval, data validation, authentication, security, process improvement, decision making, user identification)
- The cloud can host intelligence about consumers' buying patterns as in e-commerce or m-commerce

Firewalls on the Cloud

- Virtual firewalls or virtual security appliance are instances of private use cases of cloud computing
- Dropbox, Google Drive, and iCloud, Skype, WhatsApp, CloudTalk, Bitrix, GoToConnect, Zoom, and Fuze are all cloud-based services that use firewalls
- IBM's Collaborative Care Solution and Microsoft's Azure can be used for Healthcare industry
- HubSpot, Salesforce, AgileOne, and Microsoft Dynamics are cloud based marketing services