needed.
- stop paying for resources that you no longer need.

Compare cloud pricing models
- cloud computing is pay as you go.
- It helps: plan and manage operating costs, run your infrastructure more effectively and scale as your business needs change.

Describe the benefits of using cloud services
- when building or deploying a cloud app the two considerations are uptime (availability) and ability to handle demand (scale).

High Availability
- Maintaining something always available.
- AZURE SLAs
  - The agreement that makes Azure guaranticly high available.
  - Formal agreement between the client and the provider and the clients and the IT department.
  - 100% uptime is hard but usually it is 99% uptime in azure services.
  - 99% means usually 432 min/month
  - 99.9% means 43.2 min/month.
  - the more availability you have the more you will pay there is different SLAs per azure service.

Scalability
- Adjusting resources to meet demand.
- cloud is custom based so this is a huge advantage.

Vertical scaling
- Scaling in terms of hardware (up or down)
Horizontal scaling
- Scaling in terms of applications (pods / containers or VM's) also up or down.

Reliability
- Ability of recovering a system from a failure.
- This one of the pillars of the Microsoft Azure well Architected Framework
- Due to the cloud decentralized architecture if a datacenter region suffers from a natural disaster for example our app will be deployed in other regions ensuring always the service.

Predictability
- Predicting the cost and also the performance.
- With the Microsoft Azure well-architecture Framework we can have this being precised.

Performance
- Predicting the resources needed to deliver a positive experience for your customers.
- Autoscaling Load balancing and high availability are the concepts that support performance predictability.
- Autoscale deploys or removes resources depending of the demand and load balancing redirects the traffic on the less stressed service in terms of traffic.

cost

- cost predictability is focused on predicting or forecasting the cost of the cloud spend.
- with cloud we can:
  - track resources in real time.
  - monitor resources
  - ensure they are being used in the most efficient way.
  - use data to find patterns to know before hand how to plan the usage of those resources.
  - predict future costs
  - use tools like total cost of ownership (TCO) or pricing calculator.

describe the benefits of security and governance in the cloud

- cloud based auditing helps knowing which resource is out of compliance if any.
- cloud updates automatically the standards
- cloud provides mitigations strategies.

- on the security side we can find the best solutions for our security needs.
- IAAS offers maximum control over your physical resources operating systems and installed softwares including patching and maintenance.
- If you want patches and maintenance taken care automatically, platform as a service or software as a service deployments may be the best cloud strategies

Describe the benefits of manageability in the cloud

- Two types of manageability.

Management of the cloud

- Leveraging cloud resources like:
  - Automatically scale resource deployment based on need.
  - Deploy resources based on a pre-configured template, there is no need for manual / config.
  - Monitor the health of resources and automatically replace failing resources.
  - Receive automatic alerts based on cost metrics so you're aware of performance in real-time.

Management in the cloud

- How you are able to manage your cloud environment and resources like:
  - Through a web portal.
  - Using CLI.
  - Using API's
  - Using powershell.