Cloud Services: IaaS, PaaS, SaaS

Abraham Bergerson, Angelica Velez, & Mishael Harrison

What is IaaS (Infrastructure as a Service)

- Computing resources are hosted in the cloud
- Cloud provider owns and operates the hardware and software.
- Also owns and leases the data center.
- Rent the resources like compute or storage, provision them when needed, and pay for the resources your organization consumes.

Oracle IaaS - resource link

Why is IaaS Important

- Reduces the time and cost of provisioning and scaling environments for development, testing, and production
- Enables business to scale their infrastructure up or dan as needed, paying only for what they use on an hourly, daily, or monthly basis.
- Gives business access to new and improved equipment and services.
- Available in most geographies with a regional presence near large population centers.

Oracle IaaS - resource link

How is IaaS different

The Cloud infrastructure includes core compute, storage, and network services. New implementations include higher-level services (sometimes known as PaaS) such as relational and NoSQL databases, real-time and batch data processing, developer pipelines and services, containers, and functions.

IaaS is not a for the typical end user. IaaS is for:

- Applications IT
- IT operations
- DevOps
- System and Database Admins
- Full-stack developers

Oracle IaaS - resource

Amazon Web Services aka AWS

One of the most popular when it comes to cloud computing.

Key Features:

- Comprehensive Security capabilities
- Rich Controls, auditing
- Hybrid IT architectures
- Scalable
- Works on Web Applications, Big Data & HPC
- Backup and Storage
- Disaster Recovery

AWS offers:

- Compute:
  - Amazon EC2
  - AWS Lambda
  - Amazon Lightsail
- Security, Identity, & Compliance
  - Amazon GaurdDuty
  - Amazon Cloud Directory
  - Amazon Inspector
- Application
  - Amazon MQ
  - Amazon SQS
  - Amazon SWF
  - AWS Step Functions

What is PaaS (Platform as a Service)

- Environment for developing, testing, delivering, and managing software applications
- Useful because it provides greater flexibility and less overhead, which allows programmers to focus more on code rather than underlying infrastructure such as servers, storage, network, and databases
- PaaS providers typically only charge for the storage and network resources that are consumed, making them more economically friendly
- Examples of some PaaS cloud services are: AWS Elastic Beanstalk, Azure, Heroku, Google App Engine, OpenShift

How have we used PaaS?

- Microsoft Azure
- In Project 0, PaaS was a great fit
- We used Microsoft Azure SQL Database
- helped us focus on the actual code of our console/web applications rather than worrying about the underlying infrastructure of the database
- Only had to pay for the storage we need which was very small, making our wallets happy
- Public Cloud - Microsoft Azure managed all hardware and software for us, and we could access and manage our accounts via the microsoft azure portal website

SaaS

SaaS provides a fully featured cloud computing software which manages an application for the users.

This type of cloud service is best used when an application needs to be quickly published onto the web with little server maintenance from the developer. It also enables a constantly changing product.

Slack is an example of a software using this service. The slack application can be hosted in a web application using the servers slack uses. Developers for the slack application enjoy the ability to swiftly act on user feedback without requiring users to acquire a different product.

Azure web services

Microsoft Azure provides an SAAS service to be used by developers.

This service is hosted by azure servers which are maintained by Azure itself.

Azure Web Services provides an application to the user which can easily be developed upon by the developer.

Sources

- Mark’s powerpoint
- https://www.infoworld.com/article/3223434/what-is-paas-software-development-in-the-cloud.html
- https://www.bmc.com/blogs/saas-vs-paas-vs-iaas-whats-the-difference-and-how-to-choose/
- https://www.termsfeed.com/blog/legal-requirements-saas/