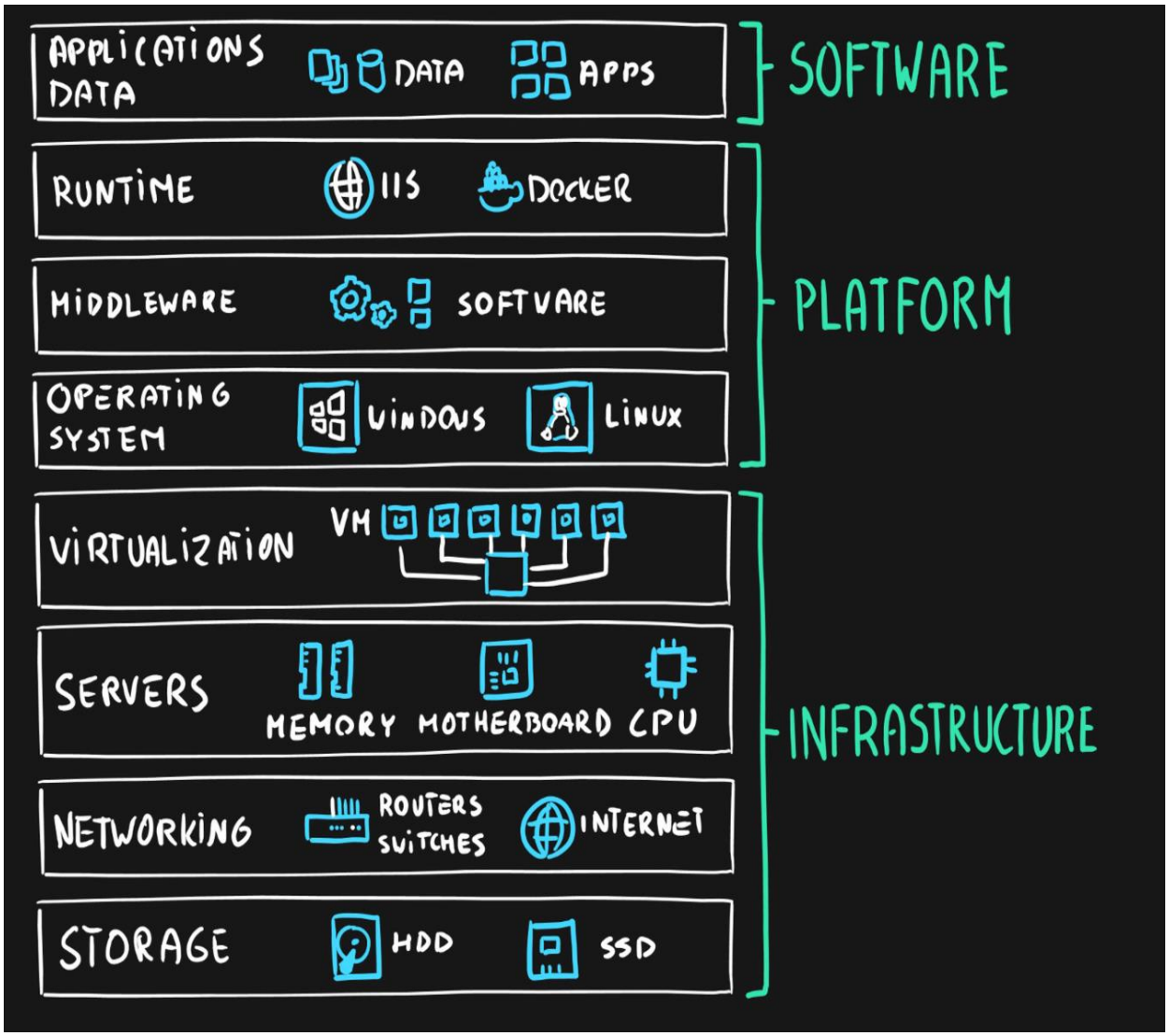
What is IaaS , PaaS and SaaS cloud service models?

Consider a scenario where you have to build an application on your own server. So in this case you need to build everything from scratch that is infrastructure, platform and software.

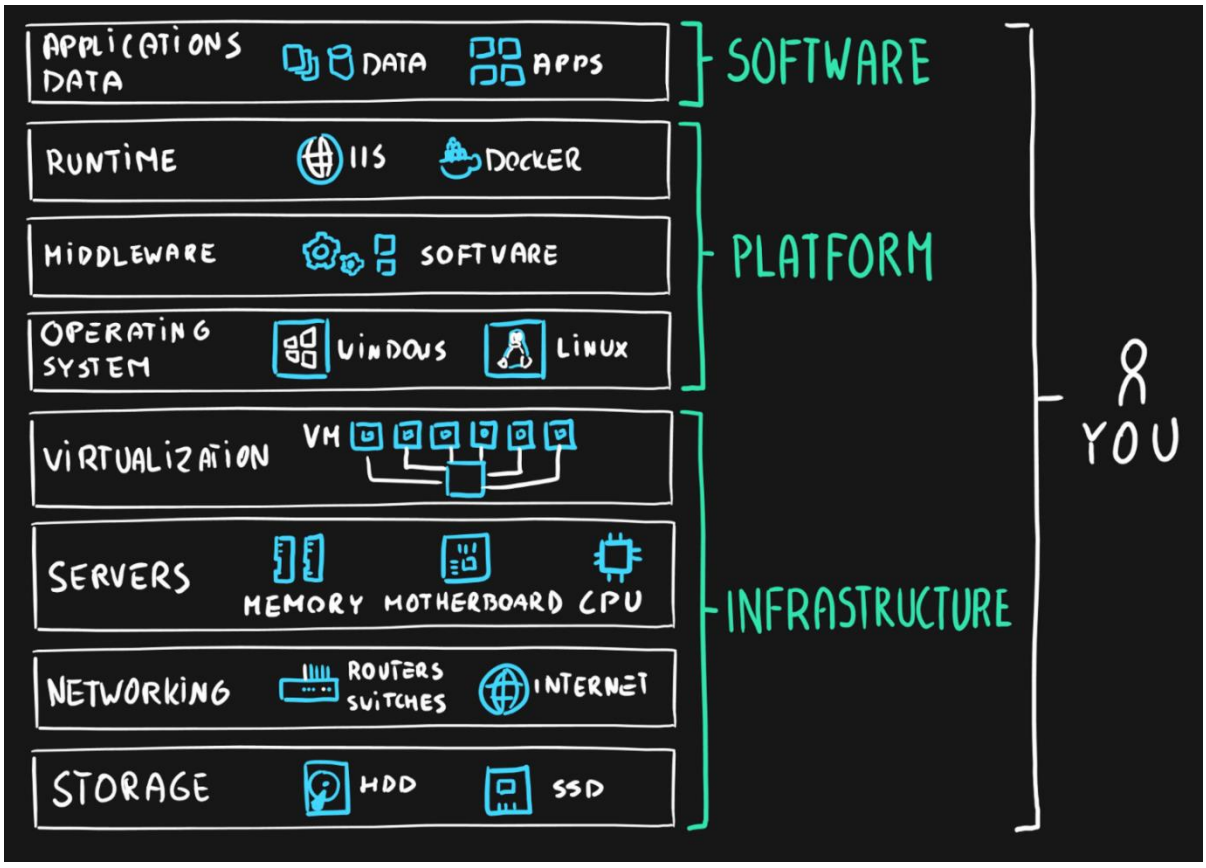


1.) On-Premises

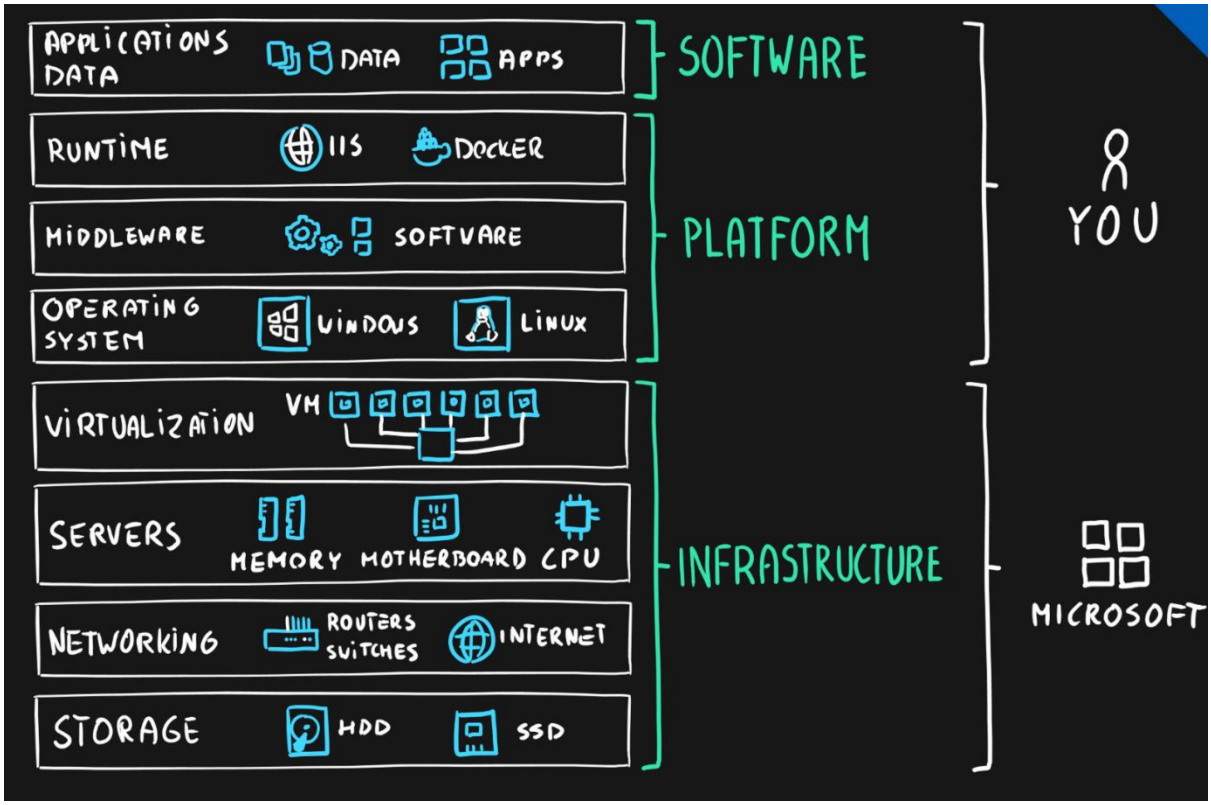
Key Characteristics:

Ownership

- Cloud provider manages nothing
- You manage everything
  - Infrastructure – networking, hardware and virtualization
  - Platform – operating system, middleware, runtime
  - Software – data and applications



2.) Infrastructure as a Service (IaaS)



Key Characteristics:

Ownership

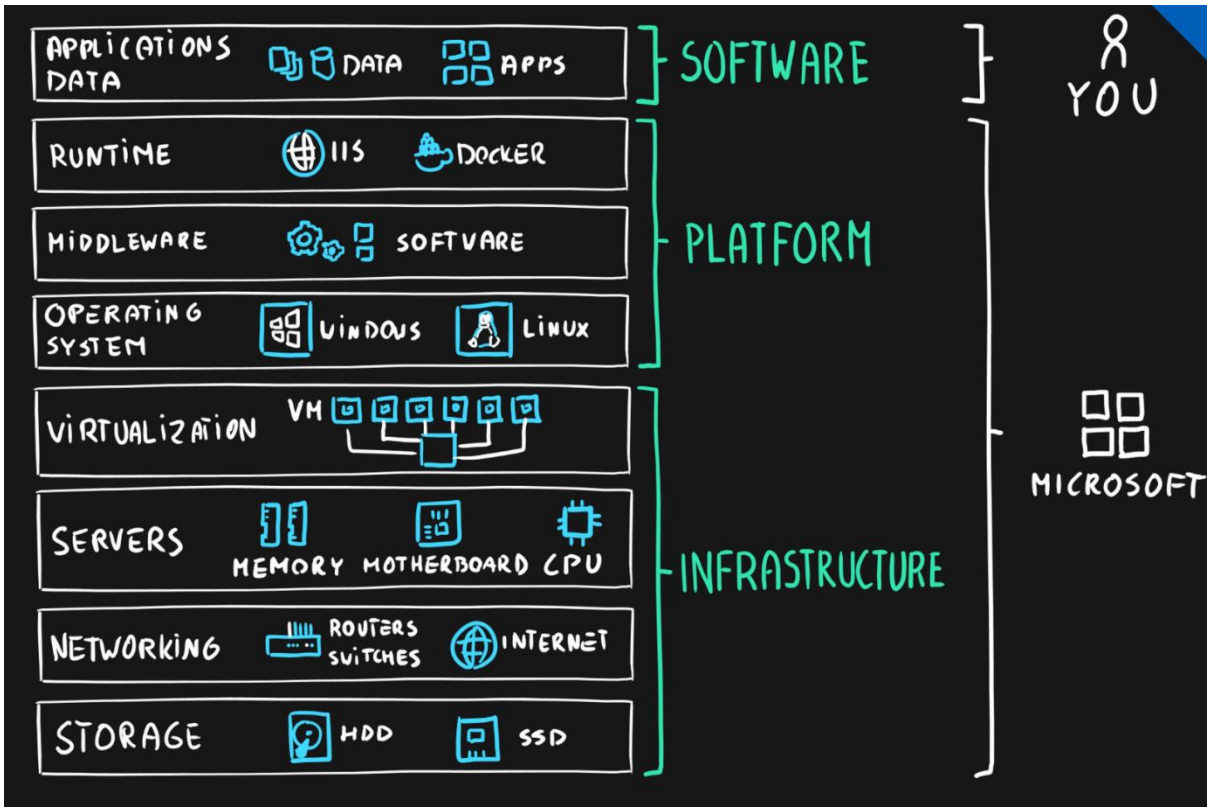
- Cloud Provider manages infrastructure
    - Infrastructure – networking, hardware and virtualization
- You manage platform and software
    - Platform – operating system, middleware, runtime
    - Software – data and applications

Use Cases:

- Migration of workloads
- Test and development
- Storage, backups and recovery

Examples:

3.) Platform as a Service(PaaS)



Key Characteristics:

Ownership

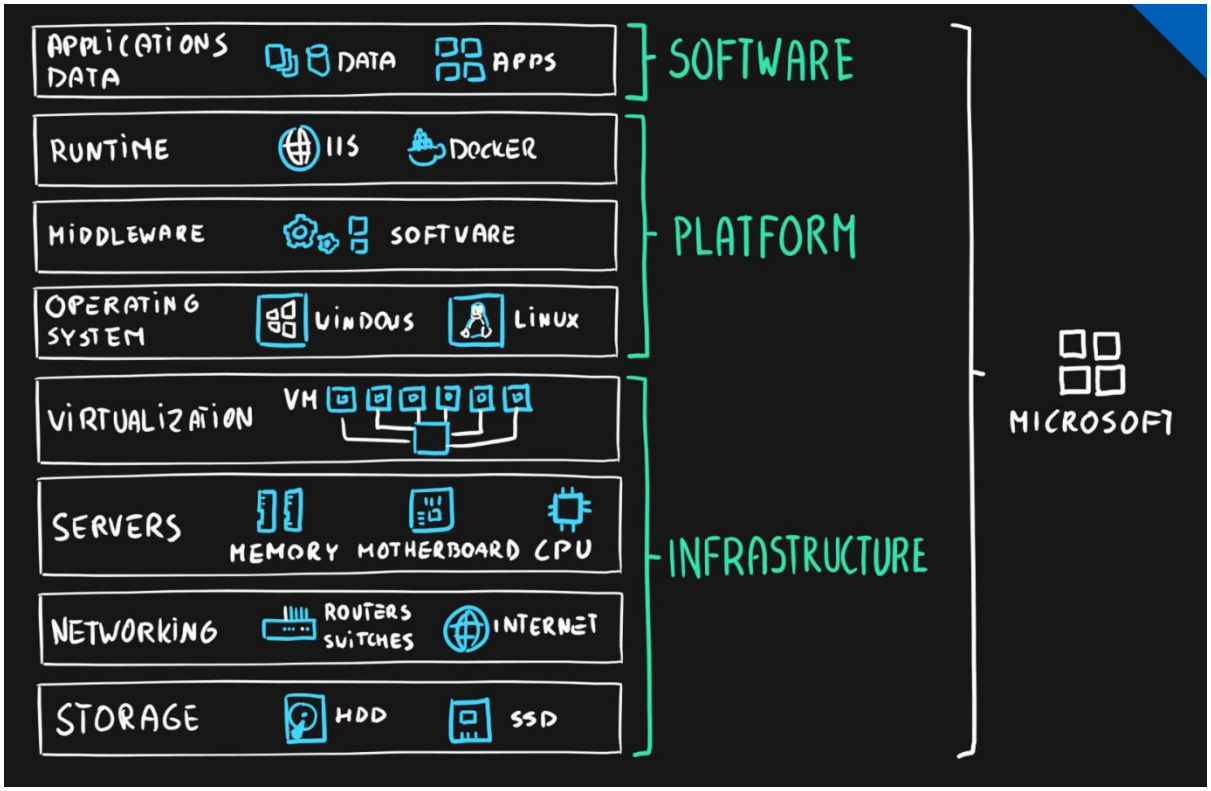
- Cloud provider manages infrastructure and platform
  - Infrastructure – networking, hardware and virtualization
  - Platform – operating system, middleware, runtime
- You manage software
  - Software – data and applications

Use Cases:

- Development framework
- Analytics and business intelligence

Examples:

4.) Software as a service (SaaS)



Key Characteristics:

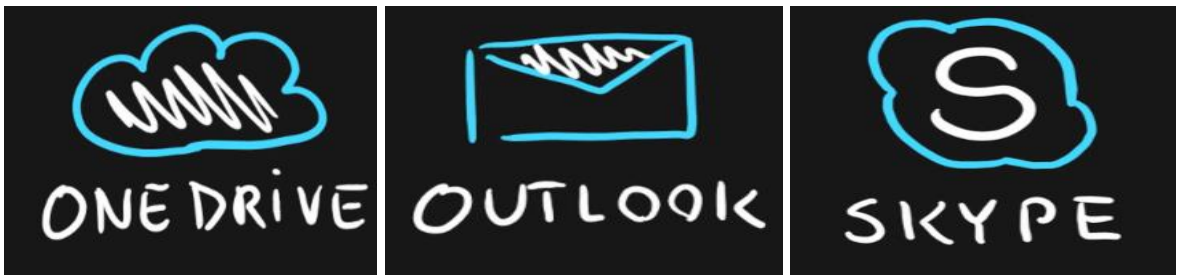
Ownership

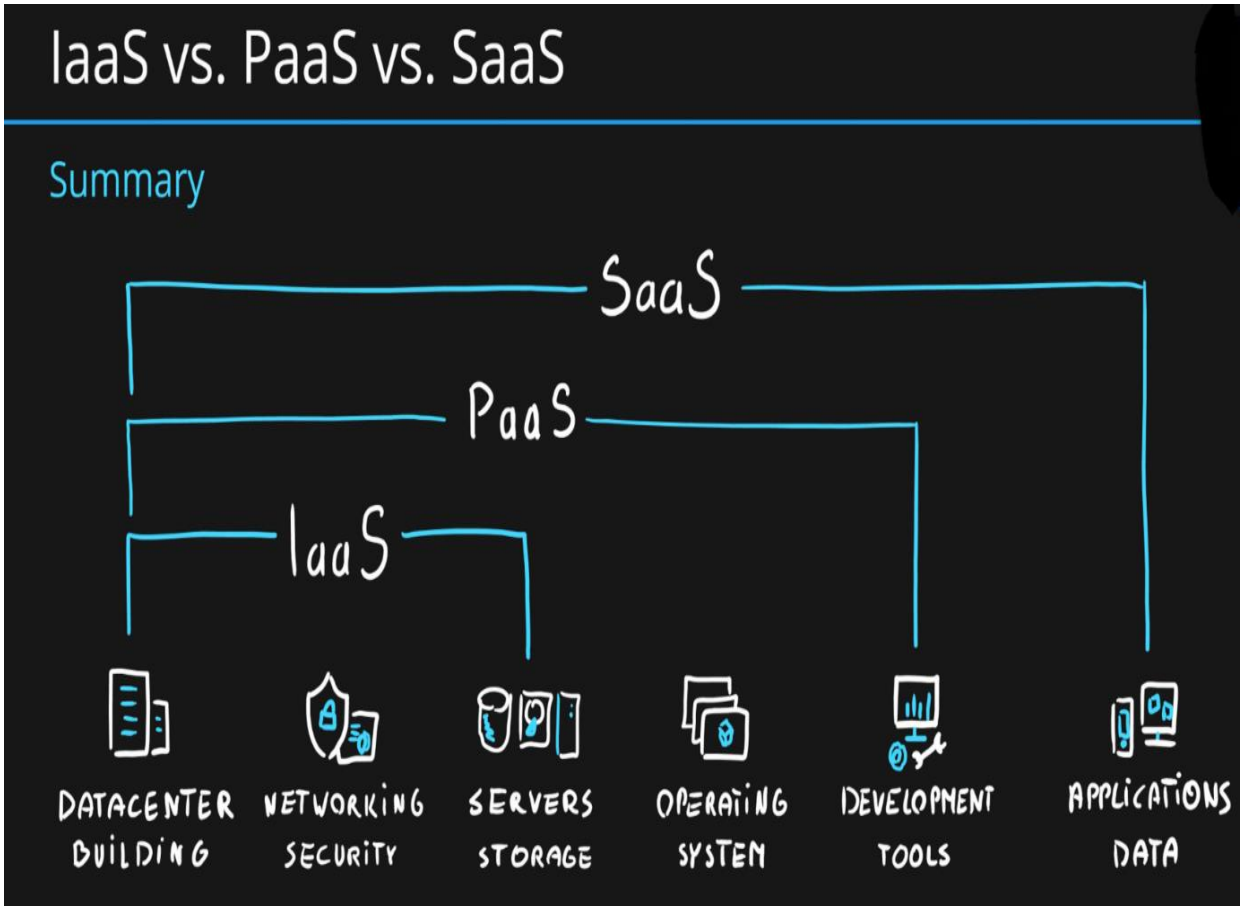
- Cloud provider manages infrastructure, platform and software
    - Infrastructure – networking, hardware and virtualization
    - Platform – operating system, middleware, runtime
    - Software – data and applications
- You manage nothing

Use case:

- Buying of-the-shell applications

Examples:




IaaS vs. PaaS vs. SaaS
Summary
SaaS
PaaS
IaaS
DATACENTER BUILDING
NETWORKING SECURITY
SERVERS STORAGE
OPERATING SYSTEM
DEVELOPMENT TOOLS
APPLICATIONS DATA

Azure Paas Services

Azure offers five main services of Platform as a Service in which multiple service types host a custom application or a business logic for specific use cases:

1.) Web Apps:

These are an abstraction of a Web Server such as IIS and Tomcat that run applications written in mostly in Java, Python,.NET, PHP, Node.js, etc. These are simple to set up and provide a variety of benefits, available 99.9% of the time which is a key benefit.

2.) Mobile Apps:

The back ends of mobile apps can be hosted on the Azure PaaS easily using the SDKs available for all major mobile operating systems of iOS, Android, Windows, etc. It enables the unique ability of offline sync so the user can use the app even if they are offline and sync the data back when they are back online. Another major benefit is the ability to push notifications allowing sending of custom notifications for all targeted application users.

3.) Logic Apps:

No apps are hosted, but there is an orchestrated business logic app to automate a business process. These are initiated by a trigger when a predefined business condition is met.

4.) Functions:

Functional apps can perform multiple tasks within the same application. These functional apps host smaller applications such as microservices and background jobs that only run for short periods.

5.) Azure WebJobs:

These are a part of a service that runs within an app service on web apps or mobile apps. They are similar to Functions but do not require any coding to set it up.

Note: Among all of the cloud providers, Azure arguably comes closest to a single, turnkey PaaS solution via App Service. Thus, Azure is a good choice for businesses that seek an easy on-ramp to set up the tools to run a PaaS.

AWS Paas Services

1.) AWS Elastic Beanstalk:

AWS Elastic Beanstalk is an easy-to-use service for deploying and scaling web applications and services developed with Java, .NET, PHP, Node.js, Python, Ruby, Go, and Docker on familiar servers such as Apache, Nginx, Passenger, and IIS.

2.) AWS Cloud9:

AWS Cloud9 is a cloud-based integrated development environment (IDE) that lets you write, run, and debug your code with just a browser. It includes a code editor, debugger, and terminal.

3.) AWS CodePipeline:

AWS CodePipeline is a fully managed continuous delivery service that helps you automate your release pipelines for fast and reliable application and infrastructure updates. Developers can use this tool to build and deploy applications. It supports deployment to a variety of AWS hosting options, such as EC2 virtual machines, or containers on Amazon Elastic Container Service.

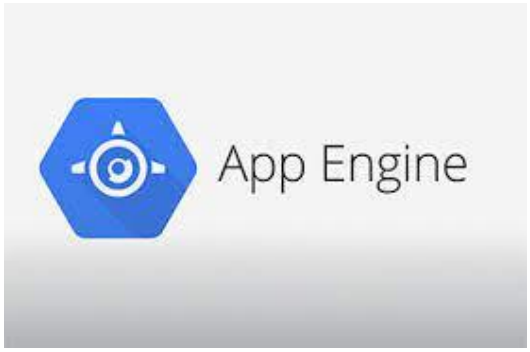
4.) AWS CodeDeploy:

AWS CodeDeploy is a fully managed deployment service that automates software deployments to a variety of compute services such as Amazon EC2, AWS Fargate, AWS Lambda, and your on-premises servers.

Note: Compared to the other major cloud vendors, AWS offers the least integration between its various PaaS-related services. To provide PaaS features, users must connect several services together to build a complete application development and deployment pipeline. This approach appeals to organizations that prefer to pick and choose their tooling, but they must familiarize themselves with multiple AWS offerings and take steps to integrate them.

GCP Paas Services

1.) Google App Engine:



Serverless app-hosting in the cloud (web apps, mobile backends, etc.); Google's first cloud product, supports Python, Java, Go, PHP, Node.js, Ruby.

2.) Google Cloud Functions:

Serverless function-hosting in the cloud (for when you don't have an entire app and want to run functions or provide microservices); supports Node.js, Python, Go.

- Cloud Functions for Firebase - this is a derivative product customized for Firebase, Google's mobile development platform. Whereas you have more access to GCP products from GCF, you have access to more Firebase products from CF4F. Incidentally, DialogFlow fulfillment "handlers" for "Actions on Google" voice-driven apps for the Google Assistant or Home/Nest products are CF4F functions.

3.) Google Cloud Run:

Container-hosting in the cloud for your apps that can't run on higher-level systems like App Engine or Cloud Functions (due to language or library restrictions) where you've containerized your app and want to run it serverlessly and fully-managed. If you have other requirements (HW config, GPUs, VPC, etc.), consider Cloud Run (for Anthos) on Google Kubernetes Engine (GKE) — fully-managed Kubernetes clusters in the cloud.

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