






Cloud Computing

"Cloud computing" is an Internet based computing service which uses a network of remote servers hosted on the Internet to **store, manage, and process data**, rather than a local server or a personal computer.

Specifically, "Cloud Computing" usually refers to a cloud alternative to something that organizations would traditionally manage in-house.

The cloud computing field is commonly broken down into three main layers. The names and definitions of these layers vary slightly from one source to the next, but they can generally be summarized as

-  Infrastructure as a service (IaaS)
-  Platform as a service (PaaS)
-  Software as a service. (SaaS)

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Software as a service(SaaS)

Software as a service (SaaS) is a software distribution model in which a third party provider hosts applications and makes them available to customers over the Internet. Added advantage to SaaS is that any organization need not install and run applications on their own computers or in their own data centers. **This eliminates the expense of hardware acquisition, provisioning and maintenance, as well as software licensing, installation and support.** Cloud services like SaaS offer high scalability, which gives customers the option to access more, or fewer, services or features on-demand.



But SaaS also poses some potential disadvantages. Businesses must rely on outside vendors to provide the software, keep that software up and running, track and report accurate billing and facilitate a secure environment for the business' data.

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SaaS Examples: Google Apps, Salesforce, Workday, Concur, Citrix Go-To-Meeting, Cisco-WebEx.

Platform as a service (PaaS)

Platform as a service (PaaS) is a cloud computing model that delivers applications over the Internet. In a PaaS model, a cloud provider delivers hardware and software tools -those needed for application development - to its users as a service. A PaaS provider hosts the hardware and software on its own infrastructure. As a result, PaaS frees users from having to install in-house hardware and software to develop or run a new application.



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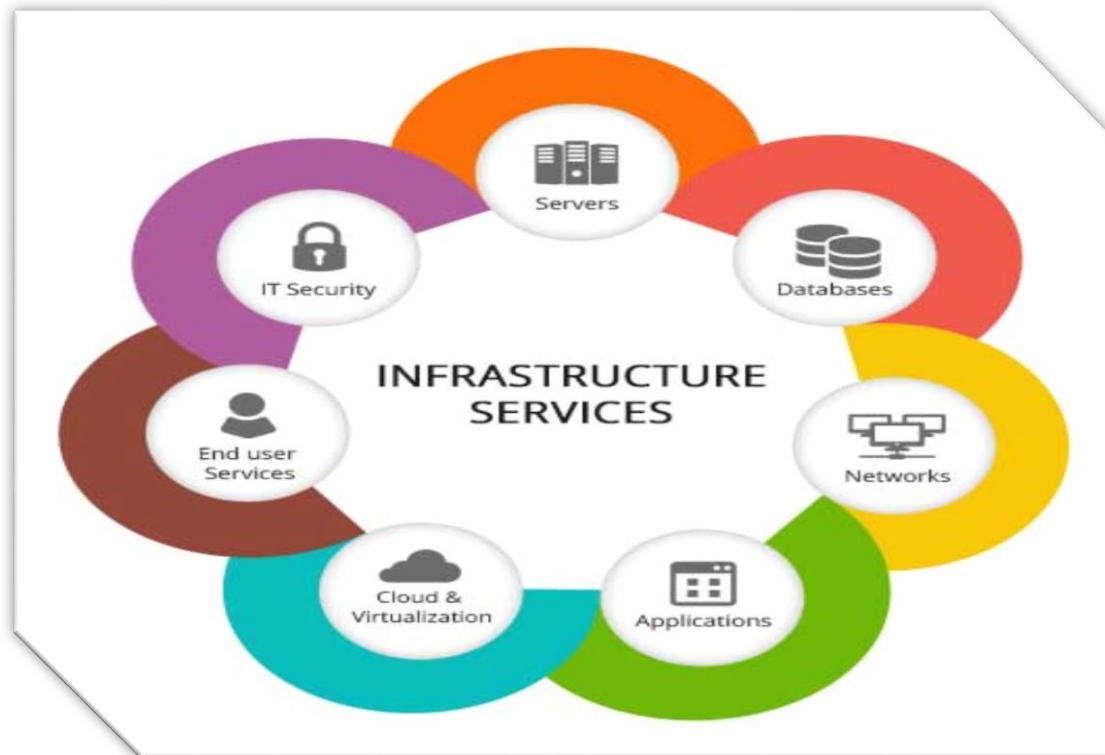
Paas does not typically replace an entire business infrastructure. Instead, a business relies on Paas providers for key services, such as Java development or application hosting. For example, deploying a typical business tool locally might require an IT team to buy and install hardware, operating systems, middleware (such as databases, Web servers and so on) the actual application, define user access or security, and then add the application to existing systems management or application performance monitoring (APM) tools. IT teams must then maintain all of these resources over time. **A PaaS provider, however, supports all the underlying computing and software; users only need to log in and start using the platform – usually through a Web browser interface.**

Enterprise Paas Examples: Apprenda

Infrastructure as a service

Infrastructure as a Service (IaaS) is a form of cloud computing that provides virtualized computing resources over the Internet. **In an IaaS model, a third-party provider hosts hardware, software, servers, storage and other infrastructure components on behalf of its users.**

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IaaS providers also host users' applications and handle tasks including system maintenance, backup and resiliency planning. IaaS platforms offer highly scalable resources that can be adjusted on-demand. This makes IaaS well-suited for workloads that are temporary, experimental or change unexpectedly. Leading **IaaS providers include Amazon Web Services (AWS), Windows Azure, Google Compute Engine, Rackspace Open Cloud, and IBM Smart Cloud Enterprise.**

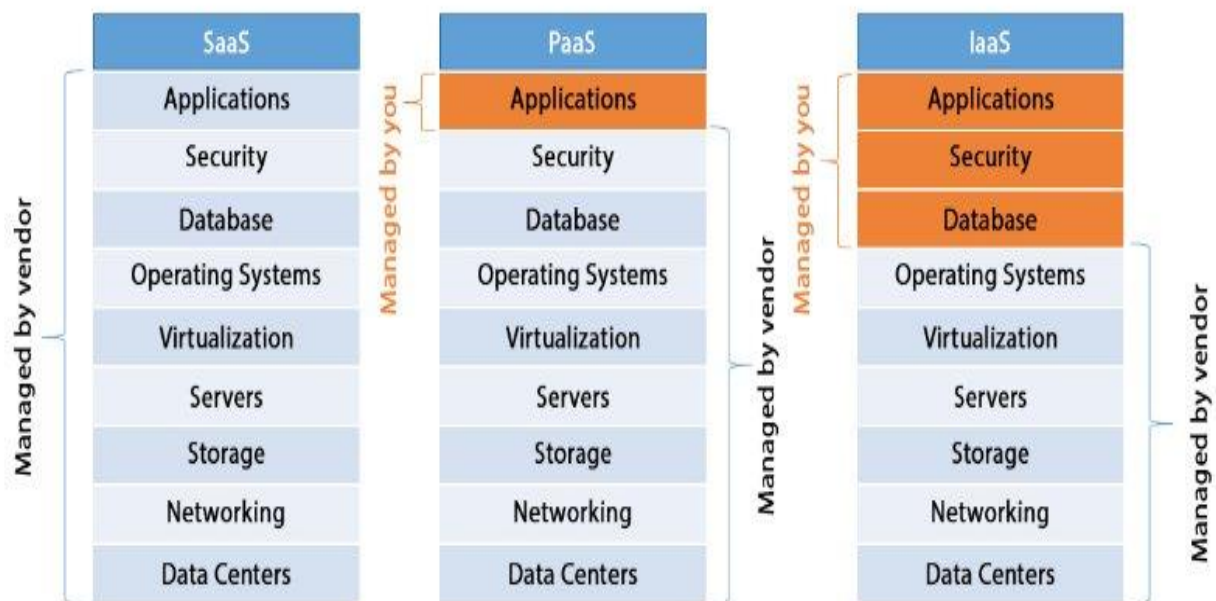
Based on the Services providing by each company we are choosing a secure cloud services platform which compute power and data storage. According to the Application/project use case in IoT the cloud platform will be decided. **Amazon Web Services (AWS) is the most promising one that was**

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providing cloud services in two variants as Infrastructure as a Service(IaaS) and Platform as a Service(PaaS).

IaaS Examples: Amazon Web Services (AWS), Cisco Met pod, Microsoft Azure, Google Compute Engine (GCE).



Amazon Web Service (AWS)

Amazon Web Services (AWS) is a secure cloud services platform, offering compute power, database storage, content delivery and other functionality to help businesses scale and grow. “Amazon Elastic Compute Cloud (Amazon EC2) is an Amazon Web Service (AWS) you can use to access servers, software, and storage resources across the Internet in a self-service manner “Amazon Web Services provides a highly reliable, scalable, low-cost infrastructure platform in the cloud

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that powers hundreds of thousands of businesses in 190 countries around the world.

AWS is a suite of hosting products that aims to take the headache out of traditional hosting solutions. **AWS is better than other Competitors** because

- They aren't trying to recreate legacy data centre environments
- Build simple, primitive services that are robust and scalable (S3, EC2, SQS), then compose those into higher order services (RDS, EMR)
- Their business model is designed to run at cost+pricing, with a fixed margin such that as they reduce their costs, their pricing also reduces
- Focus on simplicity, security, robustness, and scalability over arbitrary feature creep.

Security

Amazon, like most cloud providers, takes care of security for its physical data centers and the server hardware the virtual machines run on, but leaves it up to the individual customer to protect its own infrastructure. Amazon provides a plethora of security services and tools to secure practically any workloads, but the administrator has to actually implement the necessary defenses.

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Amazon offers several security services which includes certificate management, encryption tools, Hardware Security Modules for storing private keys, and Web application firewall. Native AWS tools such as Elastic Load Balancers (ELBs) can be used ~ somewhat ~ to mitigate DoS or DDoS attacks, Arsine said. ELBs make applications resilient when faced with a high traffic load by directing traffic to multiple EC2 instances running the same application. In the case of a DoS or DDoS attack, the application remains up and available because the ELB scales up to multiple instances.

Amazon lets customers back up data across regions or even move data out of S3 into Amazon Glacier for data archiving. A rule can move Amazon S3 object versions to the lower-cost Glacier class and automatically delete them from Glacier storage after the data expiration date. This may feel like going backward, but instead of backing up to another cloud instance, creating an offline backup is better option.

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For developing a mobile Applications Apache Cordova is providing the sophisticated platform.

Apache Cordova



Cordova is owned and maintained by Apache, and will be always maintained as open source project and important specs are

- Potential cost savings across multiple platforms.
- Good plug-in ecosystem, if you're targeting just iOS and Android. The majority of native functionality is available as a plug-in
- It's very quick to prototype
- Though we didn't end up using it, jQuery mobile is pretty neat and makes it even faster prototype
- Lots of library options for pretty much everything you could possibly want

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- It's really cool and fun.
- You can bypass the app store by hosting the files on a server, and utilize app cache to make things speedy. Changing your app is just changing a web page and its cache manifest file.
- Easier to create vector graphics to design spec.
- It's just easier to get things to be exactly like the design.

Conclusion...



As Cloud Server has its most prior in the **IOT** space so selecting the appropriate platform based on the service they dispense is always plays a key role. As we discussed in this article **Amazon web service (AWS)** possess predominant services like the **Infrastructure as a service (IaaS)** and **Platform as a service (Paas)** which are convenient in possessing the service and satisfy our prerequisite and **Apache Cordova** is wholesome to build the mobile application for all environments.