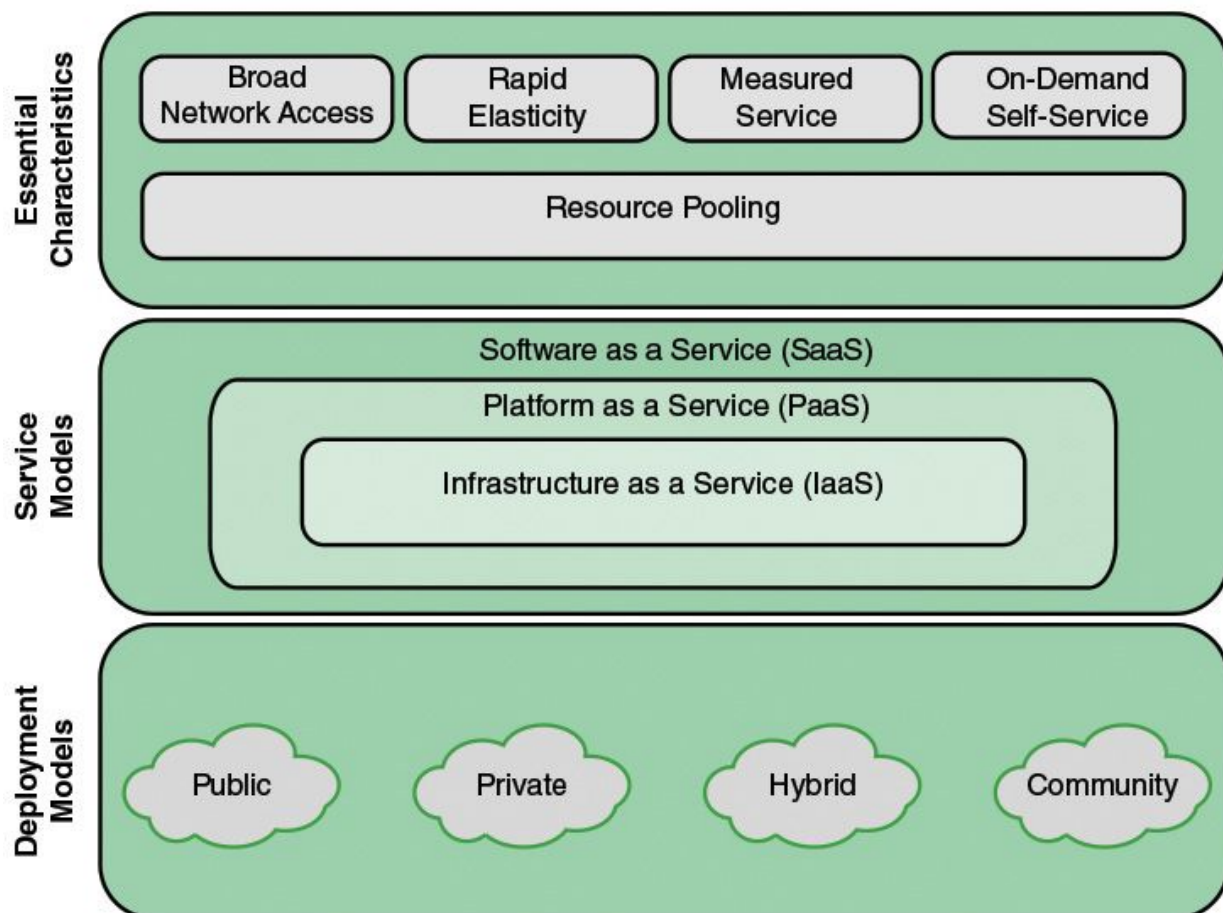


Chapter 13

I chose to do summary on chapter 13 because it teaches the fundamentals of cloud computing and since I know how important it is to keep the database secured and safe, I chose chapter 13 to summarize it.

Cloud computing: A model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (for example, networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. This cloud model promotes availability and is composed of five essential characteristics, three service models, and four deployment models.



Basically, cloud computing provides economies of scale, professional network management, and professional security management. These features can be attractive to companies large and small, government agencies, and individual PC and mobile users. The individual or company only needs to pay for the storage capacity and services they use. The user, be it company or individual,

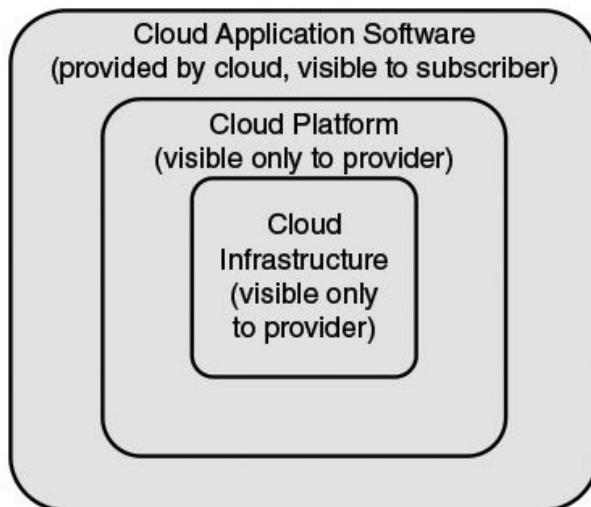
does not have the hassle of setting up a database system, acquiring the hardware they need, doing maintenance, and backing up the data—all these are part of the cloud service.

I didn't know there would be three basic cloud computing:

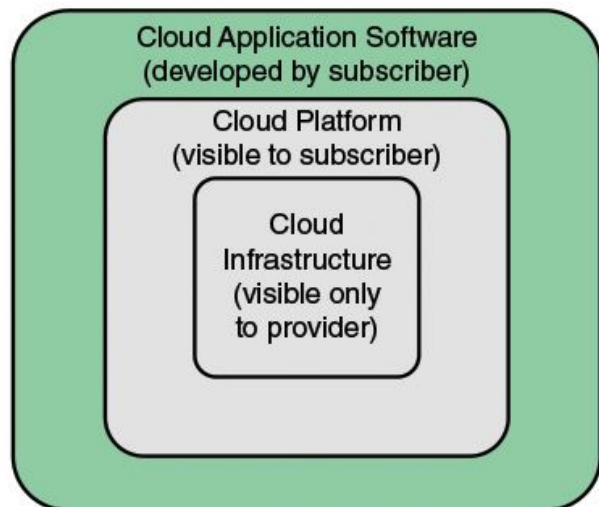
Software as a Service (SaaS)

Platform as a Service (PaaS)

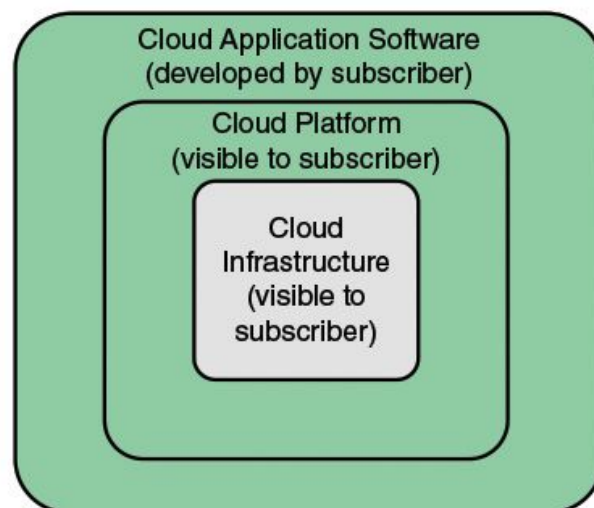
Infrastructure as a Service (IaaS)



(a) SaaS



(b) PaaS



(c) IaaS

Three types of Cloud Services

Software as a Service

As the name implies, an [SaaS](#) cloud provides service to customers in the form of software, specifically application software running on and accessible in the cloud. SaaS follows the familiar model of web services, in this case applied to cloud resources. SaaS enables the customer to use the cloud provider's applications running on the provider's cloud infrastructure. The applications are accessible from various client devices through a simple interface such as a web browser. Instead of obtaining desktop and server licenses for software products it uses, an enterprise obtains the same functions from the cloud service. The use of SaaS avoids the complexity of software installation, maintenance, upgrades, and patches. Examples of services at this level are Google Gmail, Microsoft 365, Salesforce, Citrix GoToMeeting, and Cisco WebEx.

Platform as a Service

A [PaaS](#) cloud provides service to customers in the form of a platform on which the customer's applications can run. PaaS enables the customer to deploy onto the cloud infrastructure customer-created or -acquired applications. A PaaS cloud provides useful software building blocks, plus a number of development tools, such as programming language tools, runtime environments, and other tools that assist in deploying new applications. In effect, PaaS is an operating system in the cloud. PaaS is useful for an organization that wants to develop new or tailored applications while paying for the needed computing resources only as needed and only for as long as needed. AppEngine, Engine Yard, Heroku, Microsoft Azure, [Force.com](#), and Apache Stratos are examples of PaaS.

Infrastructure as a Service

With [IaaS](#), the customer has access to the resources of the underlying cloud infrastructure. IaaS provides virtual machines and other abstracted hardware and operating systems. IaaS offers the customer processing, storage, networks, and other fundamental computing resources so that the customer can deploy and run arbitrary software, which can include operating systems and applications. IaaS enables customers to combine basic computing services, such as number crunching and data storage, to build highly adaptable computer systems.

Typically, customers are able to self-provision this infrastructure, using a web-based graphical user interface that serves as an IT operations management console for the overall environment. API access to the infrastructure may also be offered as an option. Examples of IaaS are Amazon Elastic Compute Cloud (Amazon EC2), Microsoft Windows Azure, Google Compute Engine (GCE), and Rackspace.