Cloud Computing

1 What's cloud computing?

For normal users:

[video: cloud computing - how it works]

Tradition: store our data on desktop computers, laptops, tablets and smartphones.
Now: store our data online using Dropbox, GoogleDrive, Microsoft OneDrive.

For business:

[video: what is Windows Azure and Why is it in the Cloud?]

Tradition: buy your own host server, employee people to set and maintain them.
Now: build you service online using AWS, GoogleCloudPlatform, Windows Azure.

2 Cloud clients

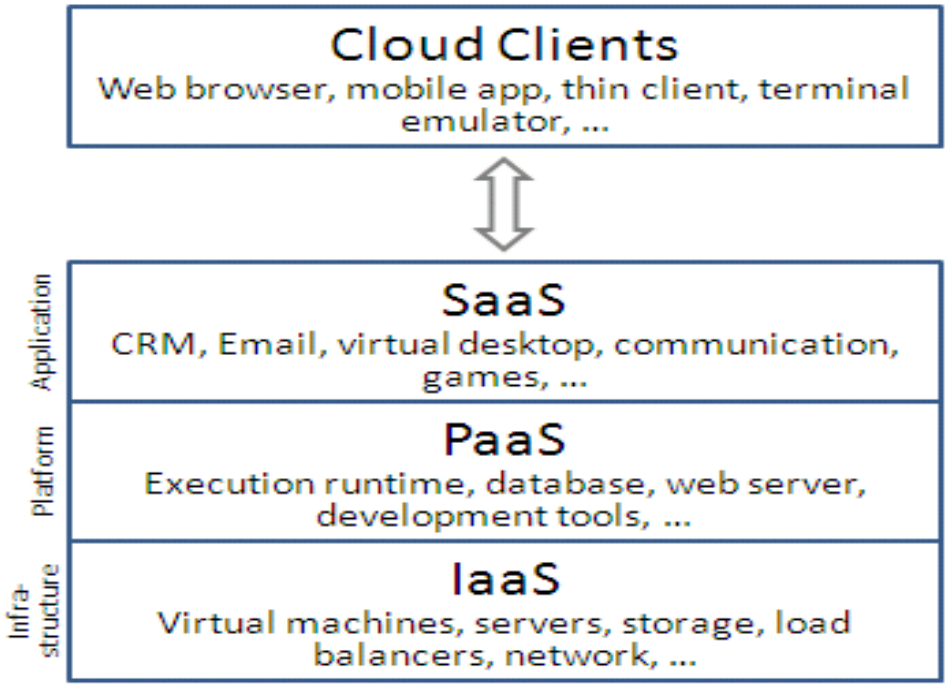
Devices rely on cloud computing for all or a majority of their applications so as

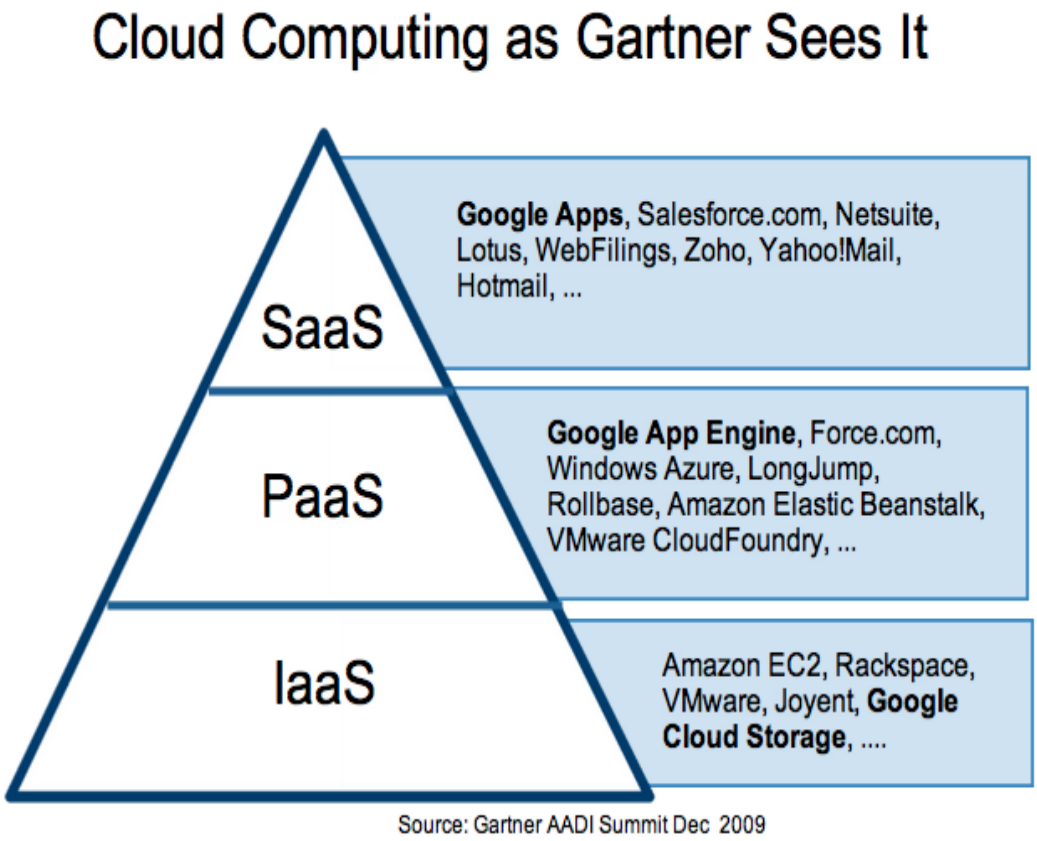
to be essentially useless without it. Such as desktop computers, laptops, tablets and smartphones and any Ethernet enabled device such as Home Automation Gadgets.
The browser-based Chromebook:

[video: Introducing the Chromebook]

3 Service models

- Infrastructure as a service (IaaS): to deploy their applications, cloud users install operating-system images and their application software on the cloud infrastructure. In this model, the cloud user patches and maintains the operating systems and the application software.
- Platform as a service (PaaS): the consumer does not manage or control the underlying cloud infrastructure including network, servers, operating systems, or storage, but has control over the deployed applications and possibly configuration settings for the application-hosting environment.
- Software as a service (SaaS): users gain access to application software and databases.





4 Cloud Computing Types

Public Clouds

A public cloud is one in which the services and infrastructure are provided off-site over the Internet. These clouds offer the greatest level of efficiency in shared resources; however, they are also more vulnerable than private clouds. A public cloud is an obvious choice when

- Your standardized workload for applications is used by lots of people, such as e-mail.
- You need to test and develop application code.
- You have SaaS (Software as a Service) applications from a vendor who has a well-implemented security strategy.

- You need incremental capacity (the ability to add computer capacity for peak times).
- You're doing collaboration projects.
- You're doing an ad-hoc software development project using a Platform as a Service (PaaS) offering cloud.

Private Clouds

A private cloud is one in which the services and infrastructure are maintained on a private network. These clouds offer the greatest level of security and control, but they require the company to still purchase and maintain all the software and infrastructure, which reduces the cost savings. A private cloud is an obvious choice when

- Your business is your data and your applications. Therefore, control and security are paramount.
- Your business is part of an industry that must conform to strict security and data privacy issues.
- Your company is large enough to run a next generation cloud data center efficiently and effectively on its own.

To complicate things, the lines between private and public clouds are blurring. For example, some public cloud companies are now offering private versions of their public clouds. Some companies that only offered private cloud technologies are now offering public versions of those same capabilities.

Hybrid Clouds

A hybrid cloud includes a variety of public and private options with multiple providers. By spreading things out over a hybrid cloud, you keep each aspect at your business in the most efficient environment possible. The downside is that you have to keep track of multiple different security platforms and ensure

that all aspects of your business can communicate with each other. Here are a couple of situations where a hybrid environment is best.

- Your company wants to use a SaaS application but is concerned about security. Your SaaS vendor can create a private cloud just for your company inside their firewall. They provide you with a virtual private network (VPN) for additional security.
- Your company offers services that are tailored for different vertical markets. You can use a public cloud to interact with the clients but keep their data secured within a private cloud.

video: Public Cloud vs Private Cloud vs Hybrid Cloud

5 The Future of Cloud Computing

- big data, Internet of Things and mobility
- hybrid clouds

Trends in Cloud Computing

6 Relationship of IOT, Big Data and Cloud Computing

The Internet of Things, giving all these devices and people sensors, creates a lot of data on usage. This is called Big Data. Big Data, in turn, is stored in the cloud.