



The Cloud



Cloud 101



Cloud Info



Myths



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Understanding the Cloud

Expanding the Cloud

Typically, cloud computing environments are able to add or remove resources like CPU cycles, memory, and network storage as needed.

Why Cloud Hosting is Relevant to Businesses

The bottom line is that cloud computing architectures have the ability to scale to suit user demand and traffic spikes quickly. Developers don't have to constantly re-engineer their environment and cost structures to handle peak loads. Businesses don't have to wrestle with the underlying infrastructure and core technologies or the day-to-day operational, performance and scalability issues of their platform. Instead, with cloud computing, they can truly focus their resources on developing their applications and sites.

The Long History of the Cloud

The terms "cloud" and "cloud computing" have only been around for a couple of years, but the underlying concepts of these architectures aren't new at all. Parallel processing and clustering of multiple computers to form a larger, more powerful single or virtual instance are proven solutions to performance and scalability challenges.

Charging for computing on a pay-per-use or subscription basis (common with grid and time-sharing environments), have been employed for decades. Hosted SaaS and cloud applications, such as email and collaboration tools for example, have also existed for years.

What's new with the evolution of the Cloud is fully abstracting these technologies behind a common user interface, which frees developers and other professionals from the operational aspects of their applications and sites.

Why Not Build Your Own Cloud

Cloud computing environments are designed to operate reliably, scale in a controlled manner, and be cost effective to operate. While all of this can be developed—given enough time, money and specific expertise—by competent in-house engineering teams, the full value of cloud computing comes into play with cloud providers. They provide and guarantee all the advantages of the Cloud along with full developer service and support, for a fraction of the cost of creating, maintaining, supporting and operating this complex environment in-house.

The Technologies Behind a Cloud

Numerous underlying technologies can be incorporated into the basic architecture of the Cloud. The Internet, of course, is a common thread. And in most cases, clouds are built upon virtualization technologies, like VMware and Xen, or scalable architectures based on semi-dedicated managed hosting models or grids.

Usually, public clouds (not in-house environments) utilize control panels and configuration management applications, much like Software-as-a-Service (SaaS). These facilitate application development activities and make raw technology readily consumable. Cloud computing environments typically provide access to LAMP and Windows stacks, web hosting and database technologies.

Migrating to a Cloud Environment

In most cases, dedicated applications can be migrated or adapted to operate in cloud computing environments with minimal effort. And the benefits in stability, reliability, and scalability can be realized immediately.

Limitless Scaling on the Cloud

In theory, cloud computing architectures are limitless. In practice, however, the size of a particular cloud footprint, the size of a cloud's data center, and the reliability and scalability of the underlying technology (network access, bandwidth, peering, etc.) all affect scalability. And they must be taken into account to properly assess the capacity of any specific cloud. For practical purposes, most cloud providers offer enough scalability to successfully accommodate even the most massive spikes in usage or traffic.

Running Applications and Technologies on the Cloud

Since the Cloud is an architecture, theoretically almost anything can run on it. In reality, some cloud technologies, by design, are more suited to parallel or shared processing applications. Others are more suited to intensive single-threaded applications. Properly constructed clouds resolve this issue by leveraging the performance characteristics of each technology and implementing a mix of industry standard interfaces and custom integrations or applications to make the dissimilar technologies operate and scale smoothly.