Cloud Computing-A Tool For Future

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Abstract: In this paper "Introduction and future scope of cloud computing" is presented. Cloud computing is a general term for anything that involves delivering hosted services over the Internet. Cloud computing customers consume resources as a service and pay only for what they use.

Keywords: Infrastructure-As-A-Service (Iaas), Platform-As-A-Service (Paas) And Software-As-A-Service (Saas), Data As A Service (Daas), Test Environment As A Service (Teaas), Desktop As A Service (Daas), API As A Service (Apiaas)

IINTRODUCTION

Everyone is talking about "the cloud." But what does it mean?

Business applications are moving to the cloud. It's not just a fad—the shift from traditional software models to the Internet has steadily gained momentum over the last 10 years. Looking ahead, the next decade of cloud computing promises new ways to collaborate everywhere, through mobile devices.

II DESCRIPTION

Life before cloud computing: Traditional business applications have always been very complicated and expensive. The amount and variety of hardware and software required to run them are daunting. You need a whole team of experts to install, configure, test, run, secure, and update them.When you multiply this effort across dozens or hundreds of apps, it's easy to see why the biggest companies with the best IT departments aren't getting the apps they need. Small and mid-sized businesses don't stand a chance.

Cloud-Computing, A better way**:** With cloud computing, you eliminate those headaches because you're not managing hardware and software—that's the responsibility of an experienced vendor like salesforce.com. The shared infrastructure means it works like a utility: You only pay for what you need, upgrades are automatic, and scaling up or down is easy.

A cloud can be private or public. A public cloud sells services to anyone on the Internet. (Currently, Amazon Web Services is the largest public cloud provider.) A private cloud is a proprietary network or a data center that supplies hosted services to a limited number of people. When a service provider uses public cloud resources to create their private cloud, the result is called a virtual private cloud. Private or public, the goal of cloud computing is to provide easy, scalable access to computing resources and IT services.

Cloud computing is the use of computing resources (hardware and software) that are delivered as a service over a network (typically the Internet). The name comes from the use of a cloud-shaped symbol as an abstraction for the complex infrastructure it contains in system diagrams. Cloud computing entrusts remote services with a user's data, software and computation.

There are many types of public cloud computing:

- Infrastructure as a service (IaaS)
- Platform as a service (PaaS)
- Software as a service (SaaS)
- Storage as a service (STaaS)
- Security as a service (SECaaS)
- Data as a service (DaaS)
- Test environment as a service (TEaaS)
- Desktop as a service (DaaS)
- API as a service (APIaaS)

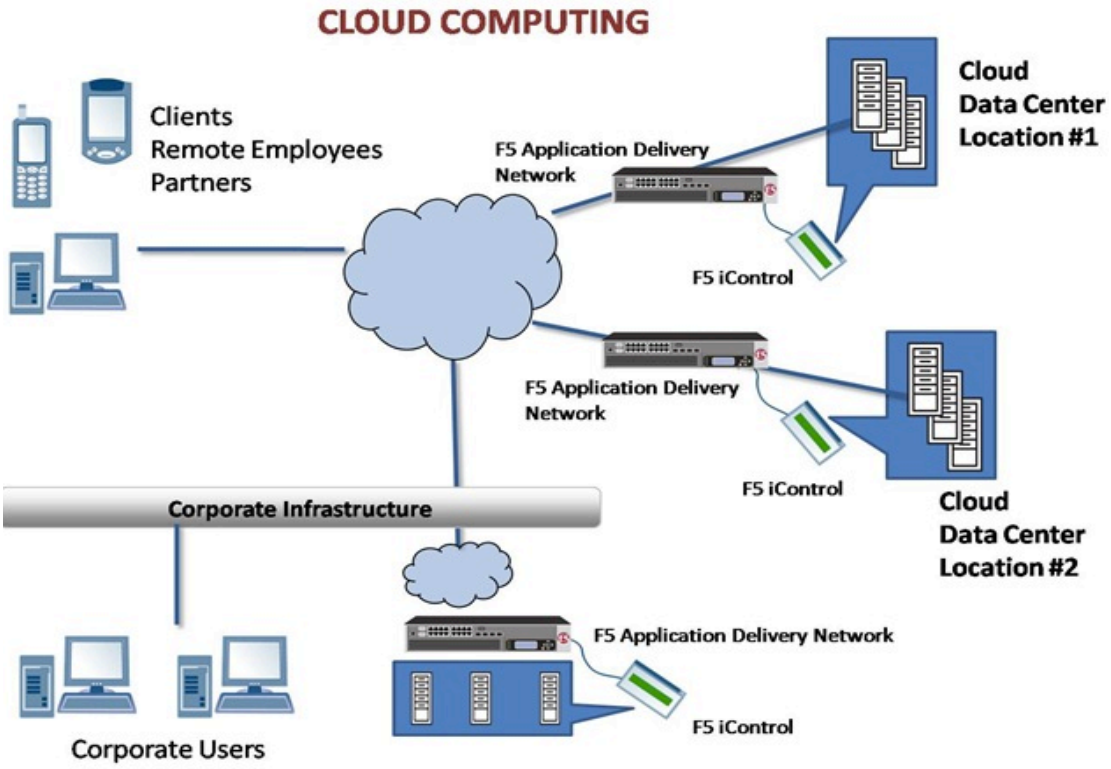
Cloud computing exhibits the following key characteristics:

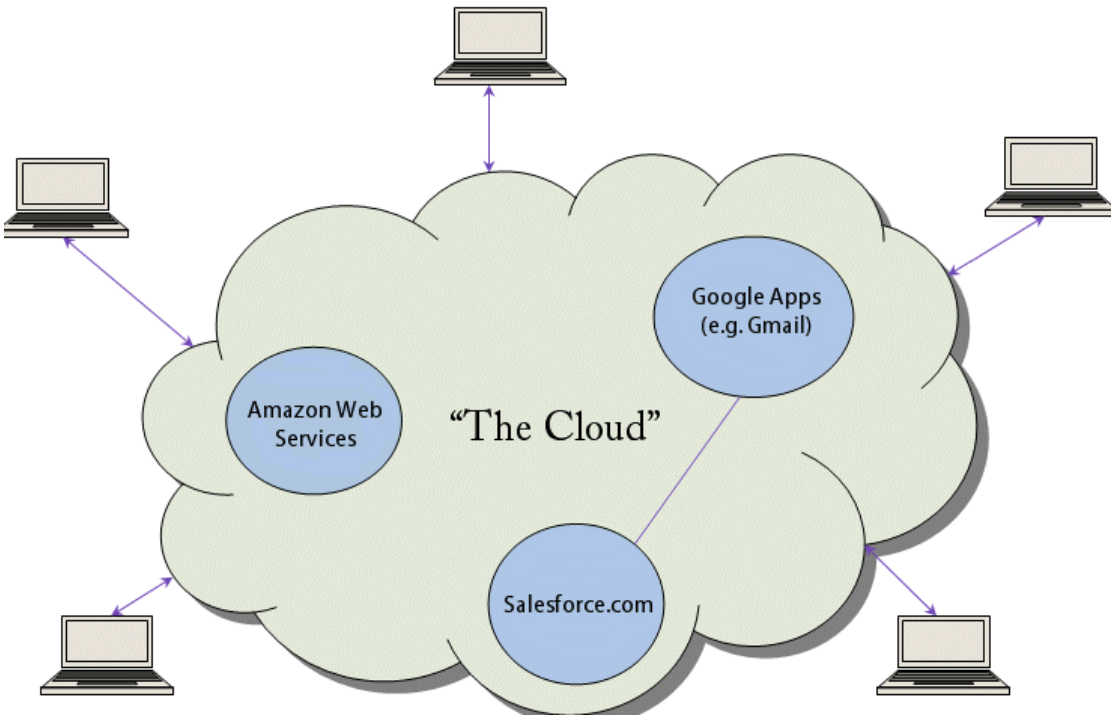
- **Agility** improves with users' ability to re-provision technological infrastructure resources.
- **Application programming interface** (API) accessibility to software that enables machines to interact with cloud software in the same way the user interface facilitates interaction between humans and computers. Cloud computing systems typically use REST-based APIs.
- **Cost** is claimed to be reduced and in a public cloud delivery model capital expenditure is converted to operational expenditure. This is purported to lower barriers to entry as infrastructure is typically provided by a third-party and does not need to be purchased for one-time or infrequent intensive computing tasks. Pricing on a utility computing basis is fine-grained with usage-based options and fewer IT skills are required for implementation (in-house).The e-FISCAL project's state of the art repositorycontains several articles looking into cost aspects in more detail, most of them concluding that costs savings depend on the type of activities supported and the type of infrastructure available in-house.
- **Device and location independence** enable users to access systems using a web browser regardless of their location or what device they are using (e.g., PC, mobile phone). As infrastructure is off-site (typically provided by a third-party) and accessed via the Internet, users can connect from anywhere.
- **Virtualization** technology allows servers and storage devices to be shared and utilization be increased. Applications can be easily migrated from one physical server to another.
- **Multitenancy** enables sharing of resources and costs across a large pool of users thus allowing for:
  - **Centralization** of infrastructure in locations with lower costs (such as real estate, electricity, etc.)
  - **Peak-load capacity** increases (users need not engineer for highest possible load-levels)
  - **Utilizationand efficiency** improvements for systems that are often only 10–20% utilized.
- **Reliability** is improved if multiple redundant sites are used, which makes well-designed cloud computing

suitable for business continuity and disaster recovery

- **Scalability and elasticity** via dynamic ("on-demand") provisioning of resources on a fine-grained, self-service basis nearreal-time, without users having to engineer for peak loads.
- **Performance** is monitored and consistent and loosely coupled architectures are constructed using web services as the system interface.
- **Security** could improve due to centralization of data, increased security-focused resources, etc., but concerns can persist about loss of control over certain sensitive data, and the lack of security for stored kernels.Security is often as good as or better than other traditional systems, in part because providers are able to devote resources to solving security issues that many customers cannot afford. However, the complexity of security is greatly increased when data is distributed over a wider area or greater number of devices and in multi-tenant systems that are being shared by unrelated users. In addition, user access to security audit logs may be difficult or impossible. Private cloud installations are in part motivated by users' desire to retain control over the infrastructure and avoid losing control of information security.

Maintenance of cloud computing applications is easier, because they do not need to be installed on each user's computer and can be accessed from different places.


CLOUD COMPUTING
Clients
Remote Employees
Partners
F5 Application Delivery Network
F5 iControl
Cloud Data Center Location #1
F5 Application Delivery Network
F5 iControl
Cloud Data Center Location #2
Corporate Infrastructure
F5 Application Delivery Network
F5 iControl
Corporate Users


Google Apps (e.g. Gmail)
Amazon Web Services
"The Cloud"
Salesforce.com

III FUTURE SCOPE

In today's world, new business opportunities heavily depend on their IT infrastructure availability. Cloud computing technology in India will dramatically change the way we compute. Some of the obvious segments that can directly reap the benefits are listed below:

1. Schools, Colleges & Universities - Embrace R&D and provide access to the latest technologies at an affordable price.
2. New Innovative Business Firms - Start-ups need not invest for their IT infrastructure cost and consume as their business grows. In fact, you can run your business on the Cloud J with an office at home.
3. Long Tail Business Units - A small petty shop can use a CRM available on the Cloud to send SMS greetings to their customers.
4. Multimedia Content Providers - Multimedia digital content can be distributed to various consumers for a lower price.

Telco (Network Operators) - Becomes the Cloud Computing technology provider

IV CONCLUSION

To summarize, the cloud provides many options for the everyday computer user as well as large and small businesses. It opens up the world of computing to a broader range of uses and increases the ease of use by giving access through any internet connection. However, with this increased ease also come drawbacks. You have less control over who has access to your information and little to no knowledge of where it is stored. You also must be aware of the security risks of having data stored on the cloud. The cloud is a big target for malicious individuals and may have disadvantages because it can be accessed through an unsecured internet connection.

If you are considering using the cloud, be certain that you identify what information you will be putting out in the cloud, who will have access to that information, and what you will need to make sure it is protected. Additionally, know your options in terms of what type of cloud will be best for your needs, what type of provider will be most useful to you, and what the reputation and responsibilities of the providers you are considering are before you sign up.

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