

Private and Hybrid Cloud Computing

¹ Amandeep Kaur; ² Jaspreet Kaur; ³ Umesh Sehgal

^{1,2,3} Chandigarh Engineering College, Landran

Abstract - Nowadays, Cloud computing is the biggest innovative trend in information technology. It also offers platforms and infrastructure as a service over the cloud. These services are accessible on a pay-per-use basis and offer huge alternatives to businesses and sport events that need the flexibility to lease infrastructure on a temporary basis or to reduce capital cost. This Paper focuses on the possibility of bridging cloud computing with sports and outlines its architecture and advantages.

Keywords - *Components, data center, multi-tenancy, reliability, scalability, communications.*

1. Introduction

The term cloud computing build in research of virtualization, distributed computing and software services. Imagine a world where the organizing committee of the event doesn't have to run, install or store the application or data on its own computers. Besides, it is the world where all the data of individual computer system would reside online. Both platform and application terms are described by cloud computing.

A. What is Cloud

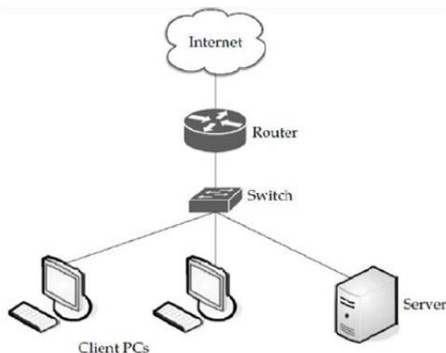


Fig.1- Internet as a Cloud

Cloud computing is a phenomenon which removes the time consumption and enhances the efficiency of a process. Cloud is a complete package of required network, hardware, storage devices and interfaces that enable the delivery of computing as a service.

B. Types of Cloud

1. **Public Cloud:** In Public cloud all infrastructure will be hosted by the cloud vendor at its own premises. The user of the computer has no visibility and control over where

the computing infrastructure is hosted. More than one organization may share computing infrastructure.

2. **Private Cloud:** In private cloud all the infrastructure is dedicated to a particular organization and not shared with other organizations. According to some experts that private clouds are not real examples of cloud computing. Data is more secure is a major advantage of private clouds over the public clouds.

3. **Hybrid Cloud:** An organization may host critical applications on private clouds and applications with relatively less security concerns on the public cloud. Combination both private and public clouds together is called as hybrid cloud. Cloud bursting is a related term to hybrid cloud. In Cloud bursting organization use their own private computing infrastructure for normal usage, but access the cloud for complex requirements. Cloud bursting ensures a sudden increase in complex computing requirement will be handled gracefully.

4. **Community Cloud:** Similar community of organizations may share computing infrastructure is called as community cloud. For example: To manage data related to citizens residing in India all Government organizations may share computing infrastructure on the cloud.

C. Classification

Cloud computing can be classified into various categories. However, the required demand is satisfied by "PLATFORM AS A SERVICE" type. An online platform is formed to develop serve the vendors. An application or software is used to cater the needs of clients. Every piece of information necessary is made available in this platform.

2. Architecture

While talking about a cloud computing architecture, it's helpful to divide it into two sections: the front end and back end. Both the front end and back end connect to each other through a network, usually the Internet. Computer user or Client side is pronounced as front end. On the other side the cloud is pronounced as back end. Service like Web-based e-mail programs influence existing Web browsers like Internet Explorer or Firefox. Some Other systems have unique applications that provide network access to clients.

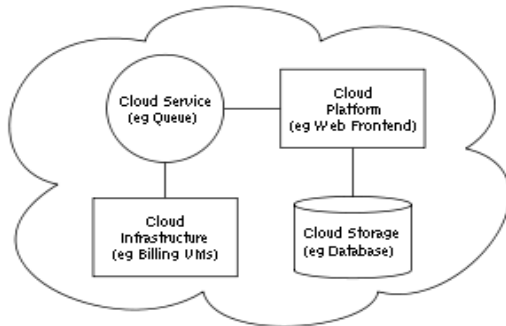


Fig.2 Cloud Computing Architecture

Generally, Cloud Architecture involves multiple cloud components that are communicating with each other

3. Advantages

Change may bring various benefits in numerous forms such as cost, reliability, accuracy.

Cost: As the cost of software for clients located at various regions participating in the event is neglected, the savings and the balance of their account will remain stable. Participants may not have to worry about the bills and registry. The expenditure of purchasing software and license copy will also be slashed.

Reliability: Cloud computing is much more reliable than manual registration because it provides a managed service platform. Most providers offer a service which guarantees 7 days a week and 24 hours a day and 99.99% availability. The data in the form of soft copy is protected and can be accessed anytime which results in less time consumption and easy processing.

Security: Security improves due to centralization of data. If the laptop is lost then the sensitive data also lost that is in it. Cloud computing provides greater security in this situation. You can wipe data even remotely from lost

laptops so it doesn't get into the wrong hands. Security is often good or better than traditional systems, in part because providers are able to devote resources to resolve security issues that many customers cannot afford.

Device and location independence: Through mobile phone, computer, laptop and tablet cloud computing enables players to access remote systems using a web browser regardless of their location. As infrastructure is off-site (typically provided by third party) and accessed via the Internet the people can connect from anywhere.

4. Cloud Components in Sports

1. **Clients:** Any person can access the information regarding the event which is conducted. It includes players, other participants, team organisers, fans and other isolated bodies. To access the main server a client must have a proper connection device which may be a mobile phone, tablet or laptop.

2. **Datacentre:** This is the sector where the servers are stationed to function. The main server and the encrypted data is stored here. Information about the competition is in detail stored in the computers available in datacentre.

3. **Application:** Team supervisors need not install the application on their device. Instead, they can use the server to seek any assistance for the enrolment in the event or competition.

4. **Service:** The up-to-date record such as team ranking, player statistics and substitutions are provided in the form of service.

5. Applications of Cloud Computing in Sports

A small team within IBM developed a system that uses advanced analytics to address the dynamic and unpredictable web traffic patterns produced by a digital-enterprise workload, while driving greater operational efficiencies in computing and labor resources. Cloud computing system is mostly used in tennis and golf sporting tournaments to reduce labor through automation.

1. **Event Management:** Cloud computing is used in sports to manage events. With the help of cloud computing organisers can plan, manage and grow their events and activities. It simplifies every step ranging from registration to payment by giving the organizer a distribution of workload.

2. Competition Management: Competitions can be conducted with better results and accurate judgement. Administrator can generate various forms of leagues, tournaments or championships for teams or players to meet their needs. Administrators can introduce their own match matrix, identify match clashes, co-ordinate referees/match official, manage venues and easily renew league formats from previous years. The competition management system can be updated remotely via the mobile with results.

3. Reporting: With the help of a reporting engine, the players can be updated with the latest information that is stored in it. This becomes helpful tool in creating ad-hoc reports for sports organizations.

4. Payments: Cloud computing allows the users to perform online transactions and carry out financial payments for participation of players. This system cuts off the time used in processing banking transaction, thus the entire work becomes quick and easy and giving the players more time for practice.

5. Communications: Cloud computing serve as a strong communication channel between administrators, coaches and players using text messaging, emails and short notifications. Messages are both broadcast and two ways, to notify players of matches, check players, promote events, return match results and contact members and parents.

6. Conclusion

Cloud computing is a good solution for the wastage of time and high cost involved in conducting sports meets. Moreover, it is mandatory to sort unwanted bills in order to save the budget of the department.

This technique at least at a smaller level will bring unique changes that can overcome the shortcomings of conventional method of sports competitions.

Reference

- [1] Anthony T. Velte, Tooby J. Velte, Ph. D., Robert Elesnpeter, "Cloud Computing A Practical Approach", McGraw-Hill-2010
- [2] Judith Hurwitz, Robin Bloor, Marcia Kaufman, and Dr. Fern Halper "Cloud Computing for dummies", Wiely Publishing Inc. 2010.
- [3] IBM White Paper- Greg Boss, Padma Malladi, Dennis Quan, Linda Legregni, Harold Hall, "Cloud Computing" – High Performance On Demand solutions (HiPODS), October 2007, Version 1.0
- [5] An Oracle White Paper in Enterprise Architecture "Architectural Strategies for Cloud Computing" August 2009.
- [6] Web Resources- <http://www.thecloudtutorial.com>
- [7] <http://www.levelcloud.net/why-levelcloud/cloud-education-center/advantages-and-disadvantages-of-cloud-computing/>
- [8] <https://www.business.qld.gov.au/business/running/technology-for-business/cloud-computing-business/cloud-computing-benefits>
- [9] http://www.tutorialspoint.com/cloud_computing/cloud_computing_infrastructure.htm
- [10] <http://www.simplilearn.com/cloud-computing-architecture-article>
- [11] www.servasport.com/events-management.html