CHALLENGES AND FUTURE RESEARCH DIRECTIONS FOR CLOUD COMPUTING

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ABSTRACT

In the last few years, Cloud computing has emerged as a viable alternative to traditional computing services for managing and delivering IT services over the World Wide Web. The impact of cloud computing is truly remarkable as there is a rapid transformation of information technology all the way from deployment to service delivery.

However, there are significant challenges that need to be resolved before cloud computing can attain its full potential. There are quite a few research issues including scalability and high availability, virtualization, energy efficiency and power management, automatic resource provisioning, security, etc that must be addressed by the research community. This paper delves into the current challenges of cloud computing along with future research directions.

1. INTRODUCTION

Cloud computing thus poses significant challenges to traditional business process outsourcing and has a profound impact on how IT services are deployed [4,5]. Some typical benefits of Cloud Computing are as follows [6]

a. Low infrastructure investment
b. Scalable infrastructure [10]
c. Efficient utilization of resources: [8, 11]
d. Pay as you go model: [13]

2. CHALLENGES

There are major challenges that needs to be addressed before Cloud computing one can get the full benefits of Cloud computing.

a. Security and Privacy
b. Cost of Bandwidth
c. Lack of Standards
d. Performance and Reliability
e. Compliance and Data Sovereignty

3. FUTURE RESEARCH DIRECTIONS

A lot of research issues must be addressed before Cloud computing can attain its full potential. Here we list the important ones [3,14,15,16].

a. Scalability and high availability
b. Virtualization
c. Energy efficiency and power management
d. Automated service provisioning
e. Security

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