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Cloud Computing: Revolutionizing IT Infrastructure with On-Demand Services and Addressing Security Challenges

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Abstract: *Cloud computing has emerged as a revolutionary computing paradigm that integrates virtualization, parallel and distributed computing, utility computing, and service-oriented architecture. This model allows enterprises to leverage scalable and flexible IT infrastructure, reducing capital expenditures and operational costs. Cloud computing offers various services such as Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS), providing computing resources on-demand with a pay-as-you-go pricing model. Popular commercial implementations include Amazon's EC2, Google App Engine, and Salesforce's CRM system. While cloud computing offers immense benefits in terms of cost efficiency, scalability, and immediate time-to-market advantages, it also raises significant security concerns, particularly in data security and privacy. Ensuring data confidentiality and implementing robust access control mechanisms are crucial to addressing these security challenges. Without resolving these issues, the future widespread adoption of cloud computing could be hindered. In this paper we have result show response time for RR, ESCE, TTL and TLB for overall response time and data center processing time.*

Keywords: Cloud Computing, Virtualization, Distributed Computing, Utility Computing, Service-Oriented Architecture, Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Software as a Service (SaaS), Scalability, Cost Efficiency

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