Mathematical Assessment of CDN Servers in a Cloud Computing Environment: A Case of Big Data for e-Governance

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Abstract

Cloud computing environment delivers a countless tractability and accessibility of computing resources at a lesser price. This evolving technology unlocks an innovative eon of e-services provided by Government. However, as the number of users retrieving these e-services are cumulative, it is problematic for the current e-Government Infrastructure to accomplish these requirements. The exceptional way to succeed the problem is the employment and usage of CDN Servers. A CDN is a network of geographically distributed content delivery nodes that are settled for effectual delivery of digital content on behalf of content providers. The paper organizes the mathematical calculation to inspect the average response time for exploring the content from the e-Government Infrastructure implementing CDN Servers. There are three possible situations which are calculated in the research, as cited below:
- When the request is available at the first CDN Server

- When the request is not available at the first CDN Server but at the other CDN Servers

- When the request is not available at any CDN Servers, but to be transferred to e-Government Cloud Computing Infrastructure

- This mechanism may best serve as a guideline to identify the best content server to respond to a request directed to the CDN Servers.

References


Index Terms

Computer Science Information Sciences

Keywords
CDN Servers, Hit Ratio, Miss Ratio, Average Response Time, Cloud Computing, e-Government Infrastructure.