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SECURITY AND CACHE MECHANISM IN HADOOP APPLICATION

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ABSTRACT: In earlier time traditional tools like SQL Databases, Files etc. were used to handle data and its issues. With increase in the volume of data, traditional tools struggled a lot to store, retrieve manipulate data and hence Hadoop and Big Data evolved. Security and Performance in any application is an issue which needs to be addressed with increasing expectation of immediate availability of data and information. Security poses a major challenge which can be addressed with the help with encryption and decryption mechanisms. The main objective of encryption is to safeguard the confidentiality of data stored on computer or transmitted via Internet or other media. In Modern era encryption algorithms play a crucial role in security assurance of Computer systems andcommunications across network as these algorithms can provide confidentiality, authenticity, data integrity and Non repudiation.Another aspect of today's modern application development is that developers have a wide variety of techniques and technologies available to improve application performance and end-user experience. One of the most widely used technologies is the cache mechanism. By using cache at the client side the applications cane greatly benefited by improving response times and reducing server I/O load. One of such examples is HTTP caching techniques which are always associated with the client side cache mechanisms.

[1]Introduction

Security and Performance in Hadoop Application

In today's world security of any application is as much important as the robustness of the application and many techniques are used for securing an application system. Many algorithms are designed and developed for the achieving the security of the system. Encryption & Decryption are the oldest type of cryptographic techniques which refers to the process of scrambling data so that the recipient cannot infer the information. All these encryption mechanisms are implemented in tradition applications and achieved excellent results with 128 bit RSA algorithms. As today's era is the era of Big Data, Hadoop and Hive; securing application on these platforms is as much important as it is on any traditional system. The objective here is to achieve the security on any application which is designed and developed on Hadoop system, the security feature is provided by encrypting the data and then processing the same to the warehouse. Once the enhanced security is provided as a feature in the applications built on Hadoop platform, it is utmost important to take care of the performance of the application. Improving the performance of the overall system is another objective of the research.

Performance of the application can be increased by processing the data or information locally at the client level rather than having a process to read the server data. Performance of the overall system is increased by processing a cache file at the client side and synchronizing the same file with the Warehouse. Once data is available in the client side file it will be processed and presented to the users for processing in terms of OLTP or OLAP data set, if it is not available in client system locally it will be synchronized with server data and then presented to the users. All in all the overall objective of today's applications is addressed in the research and tried to improve the performance of the system along with the security enhancements by applying encryption decryption mechanism.