Performance Evaluation of SpatialHadoop for Big Web Mapping Data

Web mapping services are utilizing and overlaying different layers of maps gained by an information system for spatial data. This technique allows simple sharing of spatial data. However, with the enormous amounts of big spatial data that support emerging web mapping applications, processing and analyzing such data as well as preserving high levels of performance have received a lot of attention especially in NoSQL community. However, the performance and deployment aspects of the proposed architectures need to be evaluated and compared with well-known relational architectures. In this paper, we investigate the performance of SpatialHadoop and compare it against a variety of datasets and with the use of different operations including index creation, K-Nearest Neighbor (KNN), spatial join, and so on. The results of this study demonstrate that as the volume of data increases, SpatialHadoop scales well and performs better than the relational engine. Also, the performance of this tool on the same datasets in two kinds of operations is examined with SQL Server database. The experiments have shown that for a large amount of data, SpatialHadoop is more scalable and has a relatively better performance than SQL Server.
نماید.