

## **ABSTRACT**

### **SHARDING CLUSTER INFRASTRUCTURE PROFILE ANALYSIS BASED ON INPUT OUTPUT AND BANDWIDTH SYSTEM**

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The increasing need for information demands quick access to information. The one that most affects the access speed is the service provider's server. Scalability in the database system refers to the system's ability to handle data growth and processes that exceed its previous capacity. The implementation of MongoDB in the form of scalability can be done by sharding the cluster. This study seeks to understand the character of sharding clusters from the aspects of input output (I / O) and bandwidth. The sharding cluster implementation is used as a service for MongoDB implementation. To obtain these characters, experiments were carried out with two systems, namely the first system consisting of six nodes and the second system consisting of nine nodes to obtain the sharding cluster character in the input output (I / O) and bandwidth aspects. Experiments were carried out by arranging sharding clusters using the CentOS platform by running calculations automatically with changeable scales. From the experimental results, it was found that the testing time, the second system required 45 minutes more time than the first system with a time difference of 33%. Disk usage decreased on the second system by 60%. Network usage on the second system decreased by 46%. In conducting further testing, it is recommended to use a different method in understanding the sharding cluster character.

Keywords: cluster, sharding, input output (I/O), bandwidth