ABSTRACT

Named Data Networking(NDN) is a new breakthrough which is the successor to TCP/IP which was formerly centered on host to host in the distribution of information, NDN has a unique name for each packet stored on the NDN node. The package is stored in the content store (CS) where large-capacity files will be chopped and then transferred and stored in the cache.

This final project research carried out an ndnSIM2.5, testing using LRU as a caching replacement by taking data in the first experiment using delay, packet drop, and cachemisses parameters which will later become data samples. preprocessed so that it can be processed by machine learning using the KNN method, namely the method using 'feature similarity'. KNN will be used to predict nodes with the largest delay, packet drop and cache misses which will later be optimized with scenarios of increasing the number of content stores and increasing the amount of bandwidth.

In this final project, predictions using the KNN method show the MAE value for the delay parameter of 0.00415, cache misses 14.69968 and packet drop of 0.0. MAE is a method to measure the accuracy of a predictive model and can be used in regression models, each predicted parameter will produce the node with the largest value which will then be optimized. Optimizations performed on the addition of the number of CS showed a decrease in delay by a percentage of up to 0.99% and a decrease in the cachemisses ratio which reached a percentage of 0.10%, while increasing the amount of bandwidth showed the lowest decrease in delay with a percentage of 0.03% but experienced an increase in cache misses up to 30.44% while packet drop did not show a significant difference in the two experiments.

Keywords : Machine Learning,KNN, NDN, LRU, Cache, Optimization