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EFFECTIVE ROUTING THROUGH BOOSTING ALGORITHM

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Abstract

High-performance routers need to temporarily store a large number of packets in response to congestion. A novel reservation-based packet buffer architectures with interleaved memories that take advantage of the known packet departure times to achieve simplicity and determinism. In the existing, DRAM is typically needed to implement large packet buffers and it improves the performance for routing. It doesn't concentrate on the mining process which is mandatory for a router to collect information about the connected hosts. In the proposed, a new technique called boosting algorithm which improves routing by efficient data mining process. This will greatly increase the performance of data mining through which it can improve the routing performance. AdaBoost is adaptive in the sense that subsequent weak learners are tweaked in favour of those instances misclassified by previous classifiers. AdaBoost is sensitive to noisy data and outliers.

Keywords: data storage process, virtual memory, cache memory management, adaboost algorithm, data mining.

1. INTRODUCTION

Data mining is the analysis step of the "Knowledge Discovery in Databases" process or an inter disciplinary subfield of computer science is the computational process of discovering patterns in large data sets involving methods at the intersection of artificial intelligence, machine learning, statistics, and database systems. The overall goal of the data mining process is to extract information from a data set and transform it into an understandable structure for further use.[16]

The raw analysis step, it involves database model and inference considerations, interestingness metrics, complexity considerations, post-processing of discovered structures, visualization, and online updating. The term is a misnomer, because the goal is the extraction of patterns and knowledge from large amount of data, not the extraction of data itself. It also is a buzzword, and is frequently also applied to any form of large-scale data as well as any application of computer decision support system. This usually involves using database techniques such as spatial indices. The

term "data mining" was only added for marketing reasons. The more general terms " data analysis", or "analytics "or when referring to actual methods, artificial intelligence and machine learning – are more appropriate.

These patterns can then be seen as a kind of summary of the input data, and may be used in further analysis or, for example, in machine learning and predictive analytics. For example, the data mining step might identify multiple groups in the data, which can then be used to obtain more accurate prediction results by a decision support system. The related terms data dredging, data fishing, and data snooping refer to the use of data mining methods to sample parts of a larger population data set that are too small for reliable statistical inferences to be made about the validity of any patterns discovered. These methods can, however, be used in creating new hypotheses to test against the larger data populations.

In this paper, we create a new technique which improves routing by efficient data mining through boosting algorithm. We use adaboost algorithm which is very well known for boosting algorithm. This will greatly increase the performance of data mining through which routing performance will be improved. [18]

AdaBoost, short for "Adaptive Boosting ",is a machine learning meta-algorithm formulated by Yoav Freund and Robert Schapire who won the prestigious "Gödel Prize" in 2003 for their work. It can be used in conjunction with many other types of learning algorithms to improve their performance.[19] The output of the other learning algorithms is combined into a weighted sum that represents the final output of the boosted-classifier. The hypothesis boosting problem simply referred to the process of turning a weak learner into a strong learners.[17]

Orange, a free data mining software suite, module Orange ensemble.Weka is a machine learning set of tools that offers variate implementations of boosting algorithms like AdaBoost and LogitBoost.R pack-age GBM (Generalized Boosted Regression Models) implements extensions to Freund and Schapire's AdaBoost algorithm and Friedman's gradient boosting machine.8. Introduction

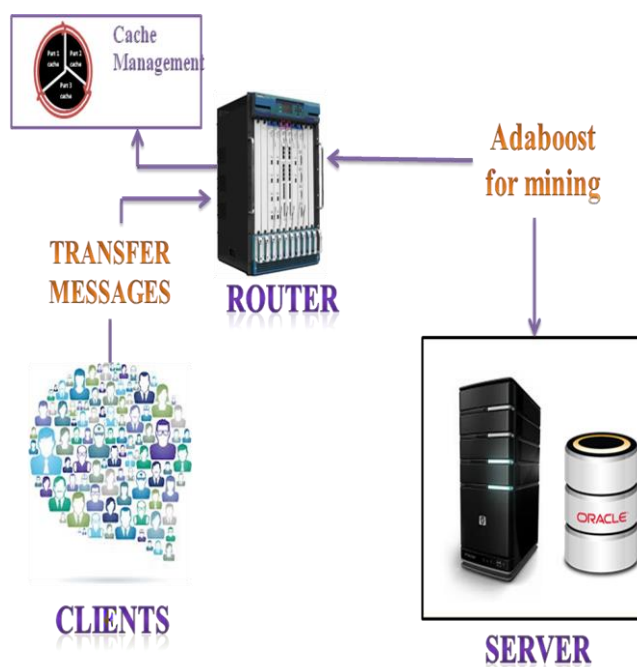


Fig 1.System Architecture

The architecture of the buffer memory such as virtual splitting of cache memory is identified by three different colors such as yellow, green, red. If red triggers an alarm, then we want to add supportive RAM or if nearby resources or routers is free then we can share the load.

While coming to routing performance, everyone is concentrating on buffer memory and routing tables. Now, we are going to concentrate on data mining which performs an important role for fetching routing data.

In order to improve this routing data performance, we are going to use boosting algorithm for the purpose of implementing the routing performance without any congestion from source to destination path.

3. RELATED WORKS

3.1 Network Construction Module

Network construction will be done by registering all clients in the server. Clients will be connected with one another for communication. Client's ip address, port number and client host name will be provided for registration. All the client details will be stored in one particular database. Platform for unstructured topology creation will be provided. So that any type of topologies can be built.

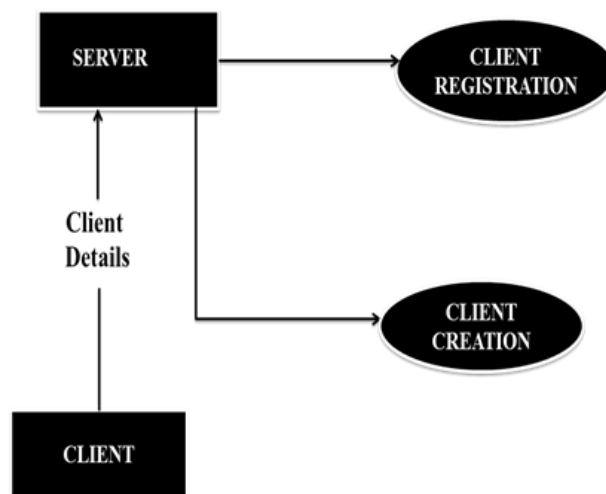


Fig 2. Network Construction Module

3.2 Router Creation Module

Routers will be created by registering router details in the server. Router will fetch hosts information from the server database.

With this connection details, router will create routing table. This routing table will be used for transformation of messages from source node to destination node.

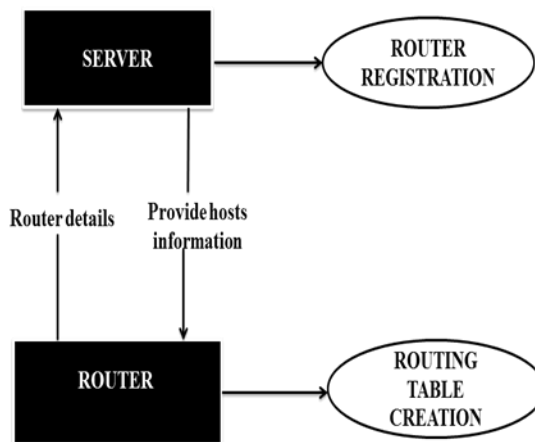


Fig 3. Router Creation Module

3.3 Cache Memory Management Module

When there is continuous flow of messages in router, the router will split the cache memory into 3 parts .The first part of memory will be indicating the low risk when it is filling up.

The second part of the memory will indicate the medium level risk. But when the third part starts to fill up, then it will give warning to the server for cache memory dump. In third part, when the threshold level for the cache memory reaches then the router by itself block all the incoming data for stabilization.

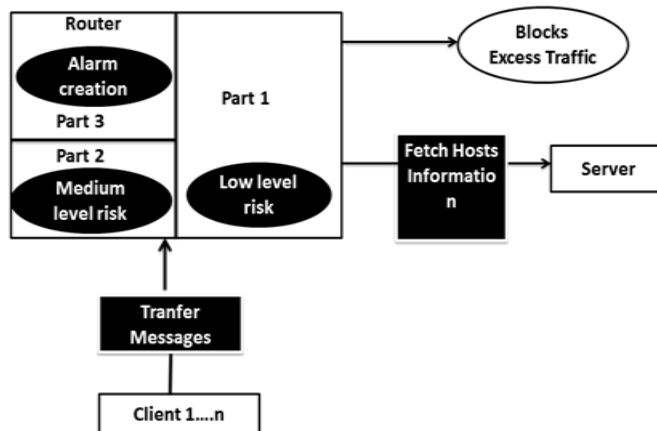


Fig 4.Cache Memory Management Module

3.4 Adaboost Implementation Module

The adaboost algorithm will be implemented for datamining.Router will mine hosts connection details, name, bandwidth, ip and port number for routing table creation. The routing table creation will be increased by providing details for routing from database which in turns increases the overall performance.

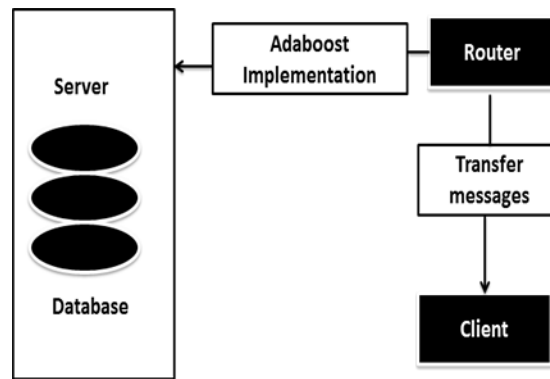


Fig 5. Adaboost Implementation Module

4. Conclusion

The network construction and the router creation is constructed without any congestion while the data packets travels from the source to destination by using adaboost algorithm which improves the data mining process which is mandatory to improve the routing performance and also the cache memory management is mainly used to identify the levels of different strategies in which the data travels.

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