

Wara Wangchai 2014: Two-Dimensional Packet Classification Based on Prefix Grouping. Master of Engineering (Computer Engineering), Major Field: Computer Engineering, Department of Computer Engineering. Thesis Advisor: Associate Professor Punpiti Piamsa-nga, D.Sc. 50 pages.

In this research, we propose a novel packet classification algorithm which is based on prefix grouping for 2 fields (2D packet classification). The algorithm takes advantage of grouping prefix so that it reduces the number of filters in filter set and it is scalable to build up data structure even the number of filter in filter set is much more higher. Besides, the research claims that the algorithm is suitable for parallel technique so that speed of classifying prefix is significantly increased.

The prefix grouping algorithm is compared to well-known existing algorithms by using benchmark tool named ClassBench. The experimental results show that our data structure takes the lowest memory requirement which is about 5 MBytes for the worst case. In addition, the number of memory access of our algorithm uses 23 times per packet which is 2 times as fast as other algorithms. In conclusion, the proposed algorithm improves the performance of packet classification especially scalable for large filter sets (50K), which it is the need today's solution of packet classification problem.

---

Student's signature

---

Thesis Advisor's signature