

Packet Router with Improved Packet Classification Abilities

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a computer-implemented system that utilizes rule cache computation algorithms to improve packet classification speed.

OVERVIEW

Information is transmitted through networks as data packets, which include information to help routers determine which action to perform on each packet. To implement services with the capability to distinguish and isolate the traffic of data packets in different flows, a packet classifier uses a set of predefined rules. Header fields for each packet include values such as source and destination addresses, protocol fields and port numbers, which if matched to a rule result in the corresponding action associated with the rule.

Packet classification with multiple header fields is a processor intensive operation, and needs to be performed at high speeds to keep up with the demand for Internet throughput. “Smart rule caches” are used to balance the tradeoff between the memory usage and classification speed. A system and method is needed that provides efficient packet classification while requiring as little additional hardware as possible.

THE INVENTION

UW–Madison researchers have developed a computer-implemented system similar to a smart rule cache to classify received packets. The system uses a comparison of a hardware cache of evolving rules and a software cache of the original rule set. This allows for faster cache updating, searching algorithms and conflict resolution, thereby achieving significantly better packet classification performance than current rule cache computation algorithms.



THE WARF ADVANTAGE

Since its founding in 1925 as the patenting and licensing organization for the University of Wisconsin–Madison, WARF has been working with business and industry to transform university research into products that benefit society. WARF intellectual property managers and licensing staff members are leaders in the field of university-based technology transfer. They are familiar with the intricacies of patenting, have worked with researchers in relevant disciplines, understand industries and markets, and have negotiated innovative licensing strategies to meet the individual needs of business clients.



APPLICATIONS

- Implementation in software, hardware or a software/hardware combination for improved packet classification speed and capacity
- Possible use in any packet-based network including Internet Protocol (IP) networks, cellular networks and Asynchronous Transfer Mode (ATM) networks

KEY BENEFITS

- Improves network throughput by increasing packet classification speed
- Increases router performance by decreasing time required to re-compute cached rules

ADDITIONAL INFORMATION

Tech Fields

Information Technology - Telecommunications

CONTACT INFORMATION

For current licensing status, please contact Emily Bauer at emily@warf.org or 608-960-9842.

