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(57) Abstract :

A brand-new anomaly management framework built on a rule-based segmentation method for firewalls that enables more precise anomaly identification and efficient anomaly resolution. This method allows for the division of a network packet space specified by a firewall policy into a number of distinct packet space segments. A precise indication of an overlap relation between firewall rules is provided by each segment linked to a distinct set of rules. In addition, we present a flexible approach to conflict resolution that allows for fine-grained conflict resolution in relation to the goal of policy development and the risk assessment of protected networks with the aid of many efficient resolution mechanisms. Firewalls are essential elements of network security and are frequently used to safeguard private networks. A firewall uses its policy to decide whether to accept or reject a packet that comes through it. However, policy errors that either let harmful traffic or block lawful traffic have plagued the majority of real-world firewalls. Firewall policy complexity makes it challenging to identify and fix flaws in a firewall policy manually.

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