

# Design and Implementation of a Distributed Firewall Management System for Improved Security

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Network security is the practice of protecting computer networks and devices from unauthorized access, attacks, and threats. These threats can come from a variety of sources, including hackers, malware, and external attacks, and they can compromise the confidentiality, integrity, and availability of sensitive data and systems. A network security management system is a system that is designed to help protect and secure a network from these threats. In this context, this article presents an approach to create a management system for a distributed firewall, which provides multiple benefits that will be presented in the following sections. The script obtains the CPU utilization and network bandwidth data for each virtual machine and optimization algorithm, and then outputs the retrieved information. The application programming interface (API) is used to access the data from the virtualization platform and to modify the optimization process on the firewall. In this way, the solution is capable to monitor the entire network and make decisions based on parameters to ensure a high-performance security. The proposed script manages virtual machines inside the virtualization platform using an API to retrieve data and change the optimization algorithm of the firewall.

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