

Building Firewall over the Software-Defined Network Controller

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Abstract— Many have recognized the need to restructure the current internetwork into a much more dynamic networking environment. It is difficult for today's inflexible infrastructure to cope with the fast changing demands of the users. As a result, Software-Defined Network (SDN) was introduced around 2005 to transform today's network to have centralized management, rapid innovation, and programmability by decoupling the control and data planes. This study focuses on developing a firewall application that runs over an OpenFlow-based SDN controller to show that most of the firewall functionalities are able to be built on software, without the aid of a dedicated hardware. Among many OpenFlow controllers that already exist for the public, we have chosen POX written in Python for the experiment; and to create the SDN network topology, we have used VirtualBox and Mininet. In this study, we cover the implementation detail of our firewall application, as well as the experimentation result.

Keyword— SDN, Openflow, Firewall, Controller, IRIS



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