**OFBench: OpenFlow 交換器效能測試方法**

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**摘要**

**關鍵字:** 軟體定義網路、OpenFlow、效能、交換器、測試

OFBench: Performance test suit on OpenFlow switches

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**Abstract**

Currently, there are many OpenFlow switch products available in the market. The performance issues of OpenFlow protocol are gaining a lot of attentions. In this work, we propose five test cases to evaluate six performance metrics: action time, pipeline time, rate of packet-in and packet-out, pipeline busy ratio, and timeout accuracy. The switch can be evaluated based on these metrics. And we also propose the automatic test framework: OFBench, which is a controller- agent architecture allowing the test case development in nature language. The evaluation results show a ±20% skewness in timeout accuracy of idle-timeout in the production switches. Furthermore, we observed three problems for switch during the testing. Firstly, the switches may not be well implemented on the design of Apply-Action instructions. Secondly, the switches suffer from random crashes with high volume of bursty Packet-in traffic. Moreover, the timer of idle-timeout is not reset properly when the flow entry matched.

**Keyword:** SDN, OpenFlow, Performance, switch, testing

**誌謝**