Reducing the use of flow table in software-defined network

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Abstract Software-defined networks are a new transformation in network architecture which is referred to as the largest evolution of four decades of computer networks. Software-defined networks control and monitor vast resources and are still completely new and growing at a fast pace. The components of this network are controllers, virtual switches and overlapping networks. In recent years, network applications have been experiencing rapid growth and have attracted particular attention universities and industry. One of the most effective ways of controlling data for SDN is OpenFlow, which uses a descriptive input of multiple network functions such as the send layer, routing layer and acceptance control layer. Based on energy consumption and production costs, OpenFlow switches are usually produced and used with limited table space that when a large input is demanded by a software-defined network, an overflow buffer occurs. This is a big challenge for proper management of control tables which should design a model on controlling tables in critical issues when developing and implementing the technology of this large scale network. This thesis based on the current header in the packets control the flow and part of the flow path is stored in the packet header. On the other hand, by ing some switches as contact switches and placing flow tables, it try to reduce the referring to flow of tables. Also, by incorporating a prediction phase, it somehow balances the table's growth rate in the flow tables network configuration stage which has the least current flow in the switches due to overflow. Also, line tolerance is achieved by combining the proposed method with Oblivious sending protocols and independent POF / PIF sending protocols. Also, another evaluation based on the proposed method, with other methods in the voltage level section has been improved. In the amount of energy spent on basic configuration, the proposed method has not shown a shorter time period than the rest of the methods due to a preliminary prediction, but it has had a reasonable time. Keywords: Software-based networks (SDN), Flow table, OpenFlow, POF / PIF

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