I. INTRODUCTION

From the birth of computer networks, congestion control and flow control has always been a very popular research aspect, which’s purpose is to make full use of the network device performance and to schedule traffic. In view of the hierarchical design of the computer network, the related implement is almost on TCP(Transmission Control Protocol) layer. Implementations of TCP contain four intertwined algorithms: slow-start, congestion avoidance, fast retransmit, and fast recovery[1]. But with the development of the network technology , the performance of the these basic algorithm is unsatisfactory[2] , so people introduce some complement algorithm to polish these legacy, such as SACK(Selective Acknowledgement)、ECN(Explicit Congestion Notification)、DCTCP(Data center TCP)、etc. [3][4] But it is not difficult to find that the end nodes still dominate the intermediate nodes. For instance, even though the intermediate node can use ECN to notify the congestion , whether decrease send rate and how much to induct still depend on the end nodes. The reason is nothing less than being compatible with existing algorithm and the limitation of the intermediate node hardware. Compared with the intermediate nodes, the terminal nodes tend to have more customizability, So the relatively complex works often complete by end nodes.

All these limitation and sewing have brought about the complexity of the network device and hampered the network further development of the current application trend of the cloud computing、big data and server virtualization [5] . SDN[6](Software Defined Network) as the wind indicator of the next generation network is expected to solve above problems. Using hierarchy module SDN is designed with control layer and data layer. The control layer, including a logical center and programmable controller, master the global network information to facilitate administrator and researchers to configure network and deploy new protocol, etc. The data layer, including programmable switch (unlike the traditional Layer 2 switch, specifically refers to the device used to forward data. )which could consume P4 program[7], do what control layer indicate which present by OpenFlow protocol[8]. The advantage bring by SDN goes without saying, besides it provides a wholly new perspective to perfect what traditional network architecture want to do, which is compatible with the legacy and is more concise, flexible, extensible, programmable.

Using all these excellent features provide by SDN, this article illustrates the ability

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