Abstract

Software-Defined Networking (SDN) is a network architecture that separates the control plane and the data plane. Some methods use more than one control plane to overcome increasingly networks. But the method is not accompanied by a mechanism that can prevent load oscillation and controller failure. In this paper a distributed decision and switches group load balancing mechanism is proposed for multiple controllers that allows each controller to become a super controller and move more than one switch at a time. This mechanism not only prevents load oscillation, but also increases availability and prevents the switch migration process when the process has just been performed. The simulation based on Pox show that this mechanism can improve network balancing by reduce the load deviation up to 63%, prevent load oscillation after switch migration process, and increase the availability by provide system recovery when a controller fail which keeps the system running normally.

Keywords: Distributed decision, Multiple controller, Software-Defined Networking, Switches group