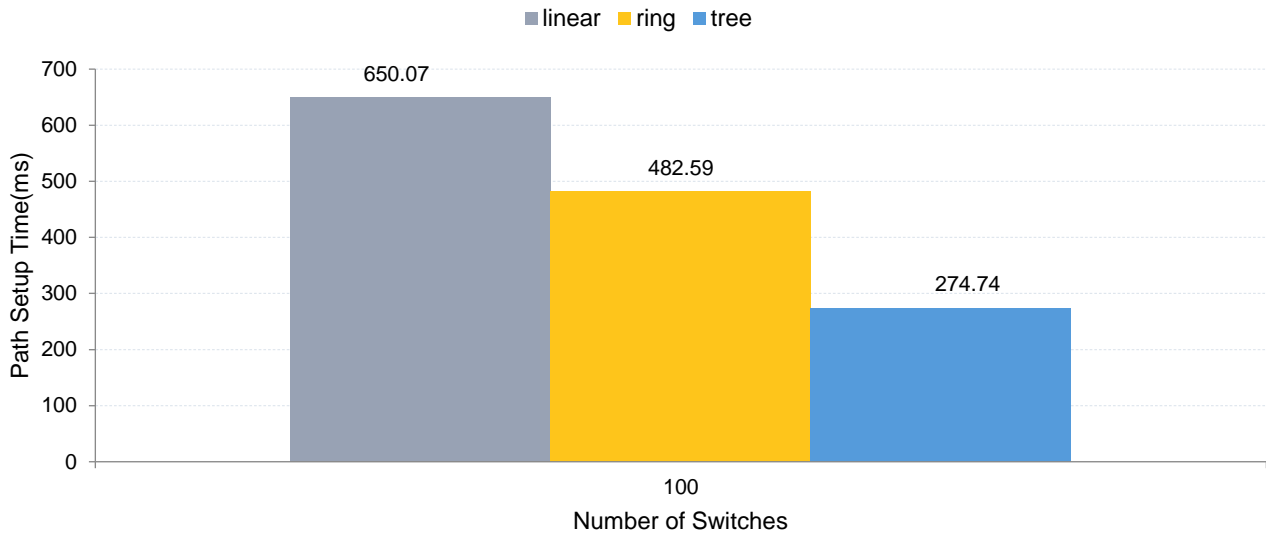


ONOS Controller Performance Test Report

Global SDN Certified Testing Center , SDNCTC

2016 . 7 . 4

Reactive Path Setup Time



The test results of End-end link establishment time under Cluster Mode is shown in figure. In this test, when the number of switches is equal to or greater than 300, ONOS controller cannot complete acquisition of Leaf-spine topological structure, the corresponding test from end to end link establishment cannot be completed, so N/A is used to show

3.6 ROLE ELECTION TIME TEST

- **Test Purpose**

Test time of certainty of master slave relation of each controller of cluster of controllers

- **Test Methodology**

When the controller operates in a cluster mode, the master and slave roles allocation of each controller shall be decided by internal mechanism. This process belongs to contents of east-west direction interface of SDN controller, does not belongs to OpenFlow. But its effects must be considered, if the time consuming of this process is too long. In this test, the test tool connects each simulative switch to each controller of controller cluster respectively, calculates the time difference between each TCP message and the last Role_request information, in order to obtain schedule of master slave relation of each controller of controller cluster. Specific test steps are as follows:

1. Start the controller cluster;
2. Start test tools, set the number of switch well;
3. Do packet capture at an end of the test tool;
4. Wait long enough period of time to determine the controller does not send Role_request message anymore;
5. Test tool stops the packet capture;
6. Calculate the schedule of master slave relation of each controller of controller cluster;
7. Change the number of the switch and do test again;
8. Do five iteration tests to get average test results.

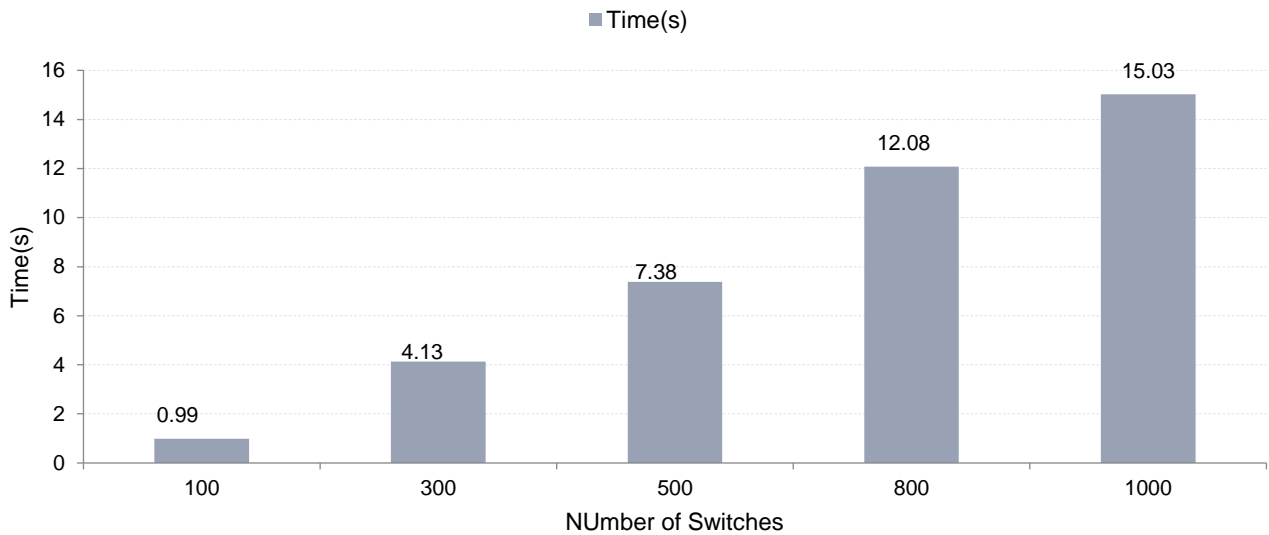
- **Test Tool Requirement**

1. Test tools can simulate OpenFlow 1.3 switch, and establish a connection with the controller cluster;

2. Test tool can respond to Role_request message in OpenFlow 1.3 protocol;
3. Test tool can simulate OpenFlow 1.3 switch with different quantity.

- **Test Result**

Role Intimation Time



It can be seen from the test results in the above figure that the more the number of switches is, the longer the time needed by the controller cluster to complete assignment of master-slave roles is.

4. GLOBAL SDN CERTIFIED TESTING CENTER



As a third-party, neutral SDN testing and certification lab, Global SDN Certified Testing Center is committed to the research and the popularization of SDN (Software Defined Network) technologies. Beyond the United States, it is the first SDN certified testing center authorized by the ONF across the world. The center enthusiastically assists the work group of ONF Interoperability Testing in making the rules for the test and establishing a testing and certification system, whereupon enhancing SDN technical standards and commercial deployment. As the third-party independent neutral evaluating organization, Global SDN Certified Testing Center supplies services to various network / terminal devices, cloud computing data centers, operators, and enterprises. Based on actual customer needs, formulate a detailed test program and certification program, and do rigorous independent testing, and ultimately deliver detailed and authoritative test report.