Assignment NO: 01

Assignment Name : Zodiac FX OpenFlow switch .

Name : MD. Amirul Hasan Shanto.

ID: IT17027

Theory:

In recent times the Software Defined Networking paradigm has risen as a solution for static configuration and to enforce the fulfillment of network policies. For this reason we analyze the Zodiac FX and Raspberry PI, low cost SDN devices. The main objective will be to find out how well they can perform in small or medium scale networks. In order to accomplish our goal a simple network was used, in which either of the devices was connected to the controller and two hosts. The controller used was Ryu, running under an Ubuntu machine. For the measurement of statistics command line tools from both Ubuntu and OpenFlow were used. One special motivation for the development of this paper is the fact that these devices have not been analyzed in terms of performance. Through the development of this paper we show that the Raspberry PI can be used adequately as a SDN switch. Neither the Zodiac FX nor the Raspberry PI can reach the capacity that the vendors published. And interestingly in terms of bandwidth the Raspberry PI can under certain circumstances have better results than a non SDN conventional CISCO Catalyst switch.

Methodology:
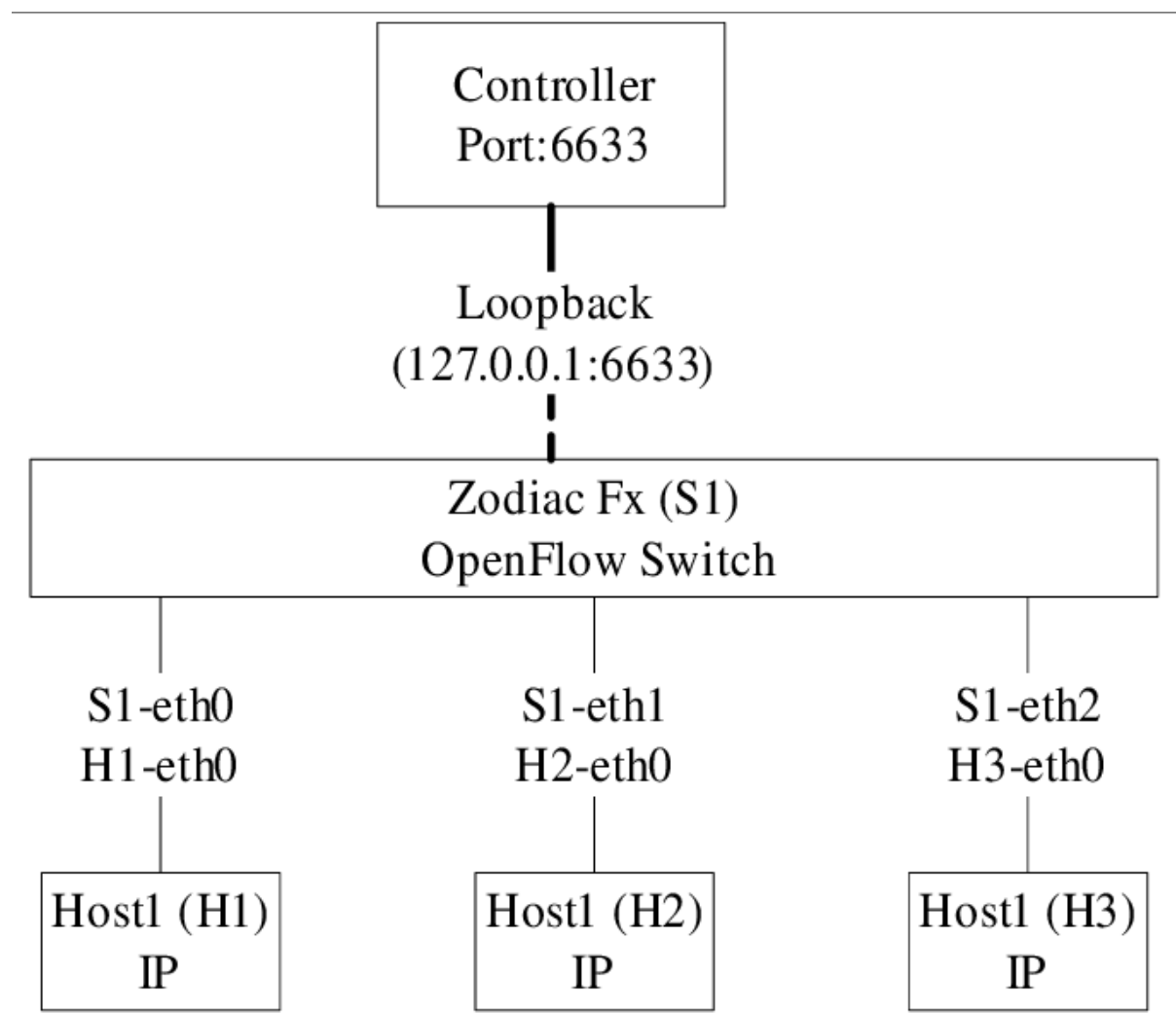
Open Flow experiments are conducted by researchers often used hardware/Open Flow Switch issued by vendors. Actually, the performance of Open Flow switch software-based (starting while switching software-based) was only tested on a laboratory scale.

Software-defined network (SDN) is a new programmable networking designed to perform tasks easier by enabling network administrators to add network control via a centralized control platform and open interfaces. Common network use procedures such as traffic shifts, troubleshooting and various types of device configuration.

Queries:

How is Open Flow software-based Open WRT software performance when implemented into the Software-Defined Network (SDN) infrastructure on campus and is there a significant difference between mininet switch and prototype. In this study showed that the performance of which was owned by the OpenFlow switch-base software and can be implemented on campus. Testing OpenWRT OpenFlow software-based switching performance on campus implementation provides the resulting prototype latency value fluctuated quite diverse compared mininet with gap is 2.3361 msec, the average value of TCP and the absolute data gap and prototypes is 10.2114 KByte/second, and the average UDP value and the value of the data gap absolute mininet and prototypes is 151.419 KByte/second. Mininet switches compared to prototype switches do not give significant difference, so it can be said prototype successfully produced and can be implemented on campus network.

Installation:

```
debian:~ $ dmesg
usb 1-1.1.1: new full-speed USB device number 1 using dwc_otg
usb 1-1.1.1: New USB device found, idVendor=03eb, idProduct=2404
usb 1-1.1.1: New USB device strings: Mfr=1, Product=2, SerialNumber=0
usb 1-1.1.1: Product: Zodiac
usb 1-1.1.1: Manufacturer: Northbound Networks
cdc_acm 1-1.1.1:1.0: ttyACM0: USB ACM device
```

Conclusion:

The Zodiac FX is an Open Flow switch designed for teaching purposes as well as the idea of allowing people to create their own applications using accessible hardware, without the need to access a large corporate data centre or buying expensive hardware.