Incremental Deployment and Throughput Maximization Routing for a Hybrid SDN

ABSTRACT

The Software Defined Network (SDN) is a new networking paradigm that separates the control and data planes on the independent devices. In general, an SDN usually comprises of two main hardware components: SDN Controller (SDN-C) and SDN Forwarding Unit (SDN-FU). Two categories of devices are in charge of control and forwarding functions respectively. The SDN-C is a logically centralized device. One or a few controllers can manage an SDN, and determine the forwarding path of each flow in a network. The SDN-FUs constitute the data plane of an SDN, and perform data forwarding. The logic for forwarding the packets is determined by the SDN-C, and is implemented through the flow table at an SDN-FU.

EXISTING SYSTEM

In Existing System, when users expect to deploy a hybrid SDN, they should consider the following factors and constraints. Since the current non-SDN network is able to provide a variety of services, many users also expect to keep these legacy systems. Otherwise, it would be wasteful to give up these legacy devices. Since SDN is a developing technology, the corresponding hardware and software may not be fully tested, and thus may be unreliable. For example, Open Daylight is an opensource controller software, which can support many Open Flow interfaces. Though there have been some works to improve the reliability of SDN, current SDN-FUs may not be fully compatible with the OpenFlow standard and the Open- Daylight software. Moreover, there is still lack of testing on large-scale SDNs. Thus, users may still worry about the system reliability and stability of an SDN. They expect that, even though there is something wrong on SDN devices, the remaining network can still function properly. With a limited budget, users may ask to deploy a small number of OpenFlow-hybrid switches (or SDN-FUs) into the legacy network, so that the SDN-C has a chance to adjust more flows' routes in a hybrid network. To reduce the complexity of network upgrading, it is expected not to change the software on legacy devices for the deployment of a hybrid SDN. Otherwise, the additional

software maintenance will increase the difficulty and cost of network management, excepting deployment of SDN devices.

DIS ADVANTAGES

- It cannot provide smarter flow scheduling to improve link utilization.
- It provides less flexible and inconvenient network management.

PROPOSED SYSTEM

In Proposed System, we focus on incremental deployment of hybrid SDN over a legacy network. To efficiently deploy a hybrid SDN, we first study the MAX-*k*-IDP problem, which maximizes the traffic amount of adjustable flows with a given number of SDN-FUs. We then design an approximate algorithm for maximizing the throughput of such a hybrid SDN. The described simulations show that it is practically possible and interesting from a traffic-engineering view point to deploy hybrid SDNs by adding few SDN devices to existing networks. One future work is to consider more practical constraints such as port number and routing table size.

ADVANTAGES

- To deploy a hybrid SDN incrementally to improve the network performance.
- Routing algorithm can improve the throughput.

SYSTEM REQUIREMENTS

H/W System Configuration:-

Processor	-	Pentium –III
RAM	-	256 MB (min)
Hard Disk	-	20 GB
Key Board	-	Standard Windows Keyboard
Mouse	-	Two or Three Button Mouse

Monitor - SVGA

S/W System Configuration:-

Operating System : Windows95/98/2000/XP

Application Server : Tomcat5.0/6.X

Front End : HTML, Jsp

Scripts : JavaScript.

Server side Script : Java Server Pages.

Database : MySQL 5.0

Database Connectivity : JDBC