Surveying recent approaches for traffic engineering in software defined networks

hossein akbari*,Gholamhossein Ekbatanifard,

Software Defined Networking (SDN) is an emerging networking paradigm that separates the network control plane the data forwarding plane with the promise to dramatically improve network resource utilization, simplify network management, reduce operating cost, and promote innovation and evolution. Although traffic engineering techniques have been widely exploited in the past and current data networks, to optimize the performance of communications networks by dynamically analyzing, predicting, and regulating the behavior of the transmitted data, the unique features of SDN require new traffic engineering techniques that exploit the global network view, status, and flow patterns/characteristics available for better traffic control and management. Traffic engineering (TE) is an important mechanism to optimize the performance of a data network by dynamically analyzing, predicting, and regulating the behavior of the transmitted data. It has been widely exploited in the past and current data networks. However, these past and current networking paradigms and their corresponding TE solutions are unfavorable for the next generation networking paradigms and their network management due to two main reasons. First, today's Internet applications require the underlying network architecture to react in real time and to be scalable for a large amount of traffic. The architecture should be able to classify a variety of traffic types different applications, and to provide a suitable and specific service for each traffic type in a very short time period (i.e., order of ms). Secondly, facing the rapid growth in cloud computing and thus the demand of massive-scale data centers, a fitting network management should be able to improve resource utilization for better system performance. Traffic engineering mechanisms in SDN can be much more efficiently and intelligently implemented as a centralized TE system compared to the conventional approaches such as IP -based TEs because of the major advantages of the SDN architecture. In

this thesis two approaches are surveyed for traffic engineering in SDN. Both of them focus on optimizing the routing of SDN (i.e., SDN controller). Finally packet loss rate is measured via default routing and optimized routing in

Keywords : Keywords: Software Defined Networks, Ttaffic engineering, Routing, data plane, control plane