Industry Challenge

- Increasing number of applications and networks: Each application needs different networking policy (e.g., video and VoIP)
- Complications in implementing application-awareness over the Internet
- To dynamically control networks, a balanced approach is needed:
  - Network operators: 1) Want full control of their network 2) Allow safe changes to the network
  - Service providers: 1) Want to increase customer satisfaction 2) Allow access to the network

Our approach: Control WAN Traffic using SDN

- End-to-End QoS enforcement by monitoring end-users' service quality via SDN client applications and dynamically changing routing paths over wide area networks (WANs)
- Apply different network policies depending on service types (e.g., video, File transfer, Web surfing and VoIP)
- Find the best available WAN paths using Constrained Shortest Path First (CSPF) based Multiprotocol Label Switching (MPLS) traffic engineering

Overview of Routing Change Algorithm

Step 1. Monitor LSP Traffic information

Step 2. Calculate link traffic information

Step 3. Find candidate paths for application

Step 4. (Only when necessary) Change network routing policy

Who benefits?

- End-users: Great user experience for various network applications
- Service providers: Flexibility to change route for the best experience
- Network operators: Better utilization of capacity and customer satisfaction
- Network equipment vendors: Value-added equipment for competitive edge

Create Application-aware Routing Platform using SDN for High Quality and Fast Content Delivery