

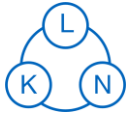
LKN Software Defined Networking Demo

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Treffen der VDE/ITG-Fachgruppe 5.2.4

Prof. Wolfgang Kellerer
wolfgang.kellerer@tum.de

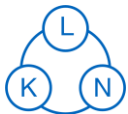
Arsany Basta, Andreas Blenk
arsany.basta@tum.de
andreas.blenk@tum.de



What is this demo about?



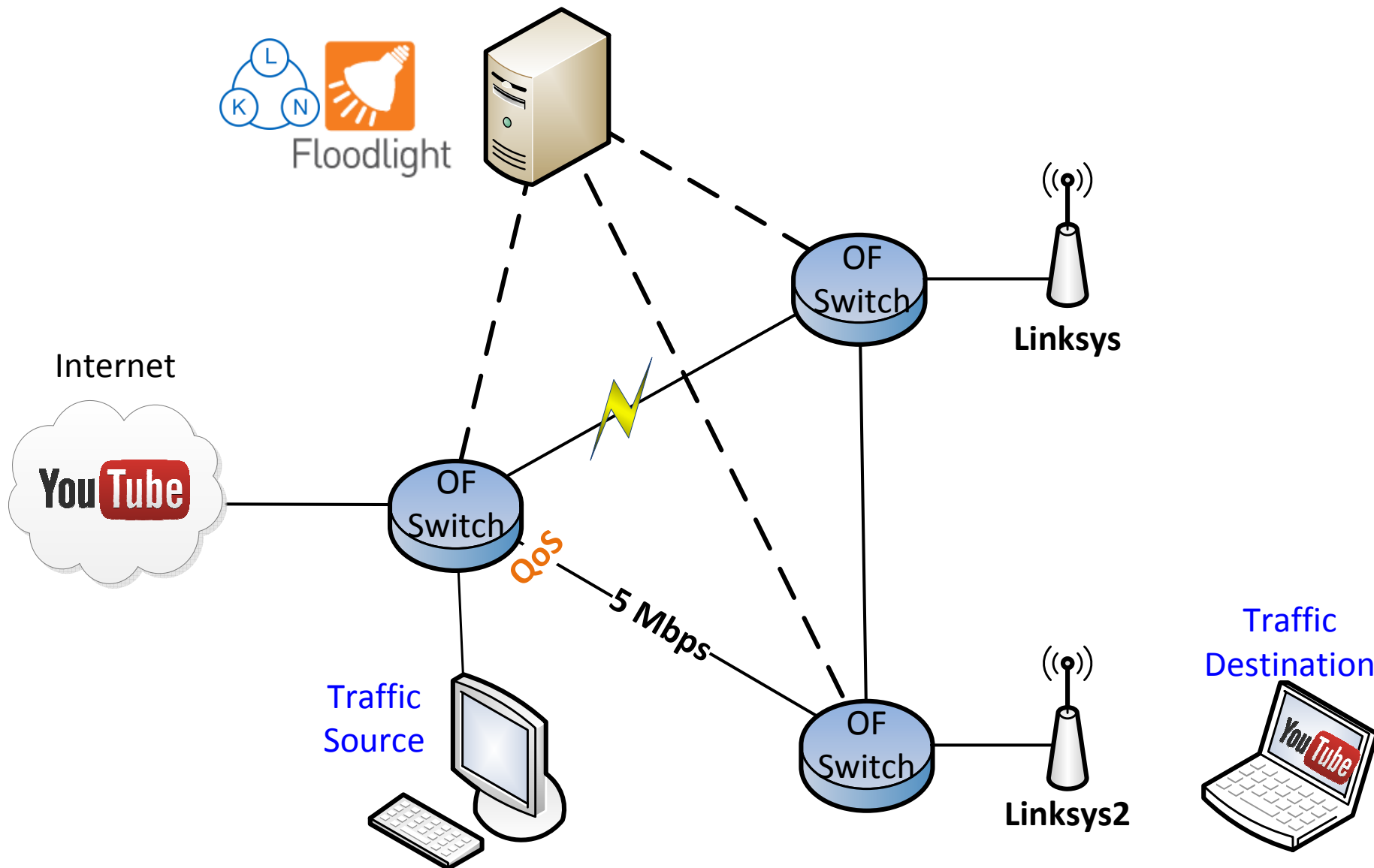
- Mobility** ➔ Can SDN provide more flexible **mobility management**?
- Reliability** ➔ Can SDN provide more dynamic **resilience**?
- Users QoS** ➔ Can SDN provide more **quality** towards end-users?



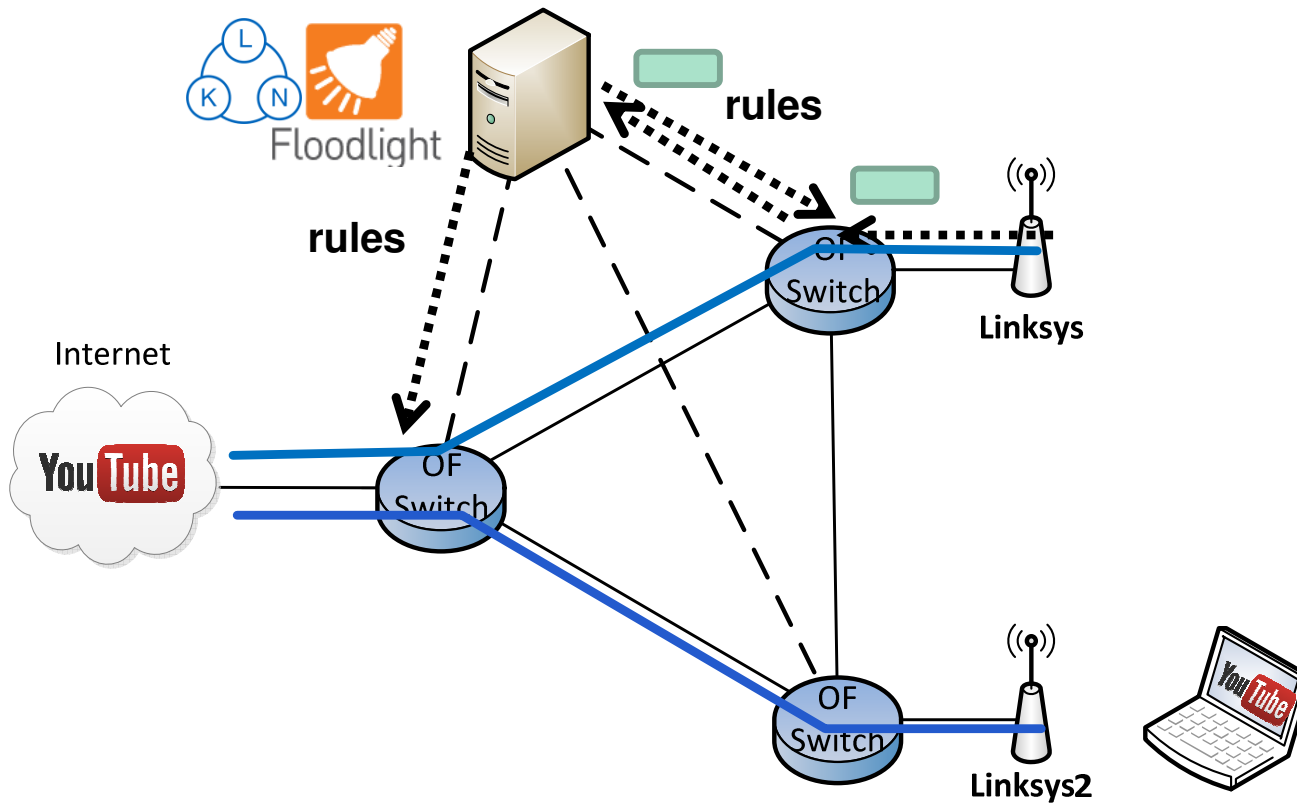
LKN Demo Setup



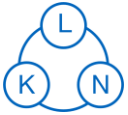
Goal: Modify floodlight controller to answer all previous questions



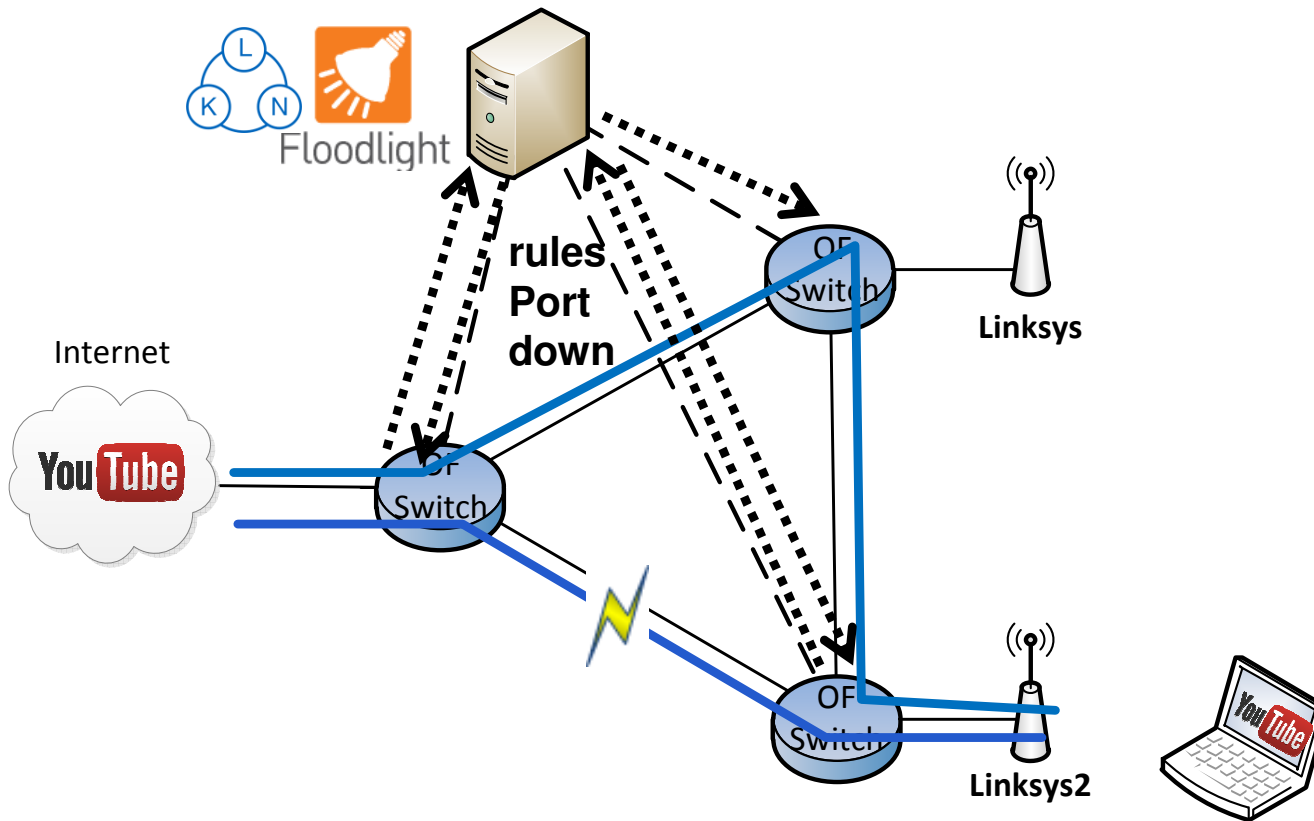
Can SDN provide more flexible **mobility management**?



- 1) New packet IN
- 2) Host hash value (switch + port) has changed
- 3) Update rules

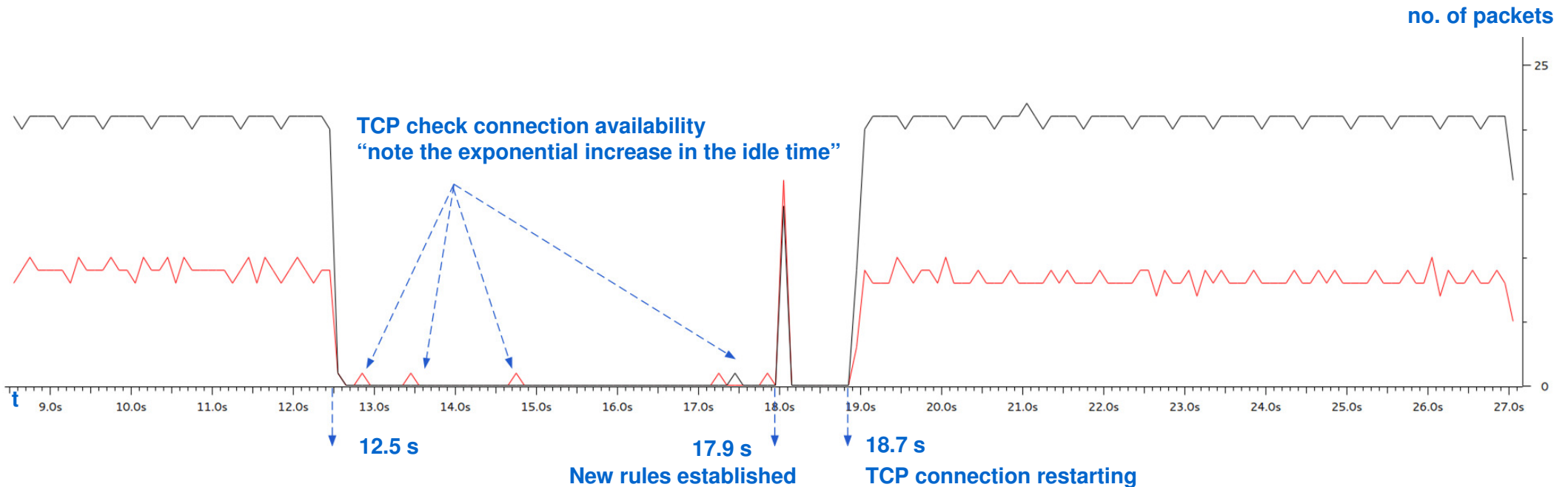


Can SDN provide more dynamic **resilience**?

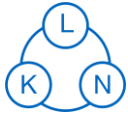


- 1) Port status: down
- 2) Controller determines a new path
- 3) Update rules

- 1 TCP iperf connection, showing bidirectional traffic (MSG & ACK)



- Observation
 - This delay includes the switch reporting port status down
 - It depends on the transport protocol used and on the application
 - In the above case, it takes **5.4 secs** to detect the new rules

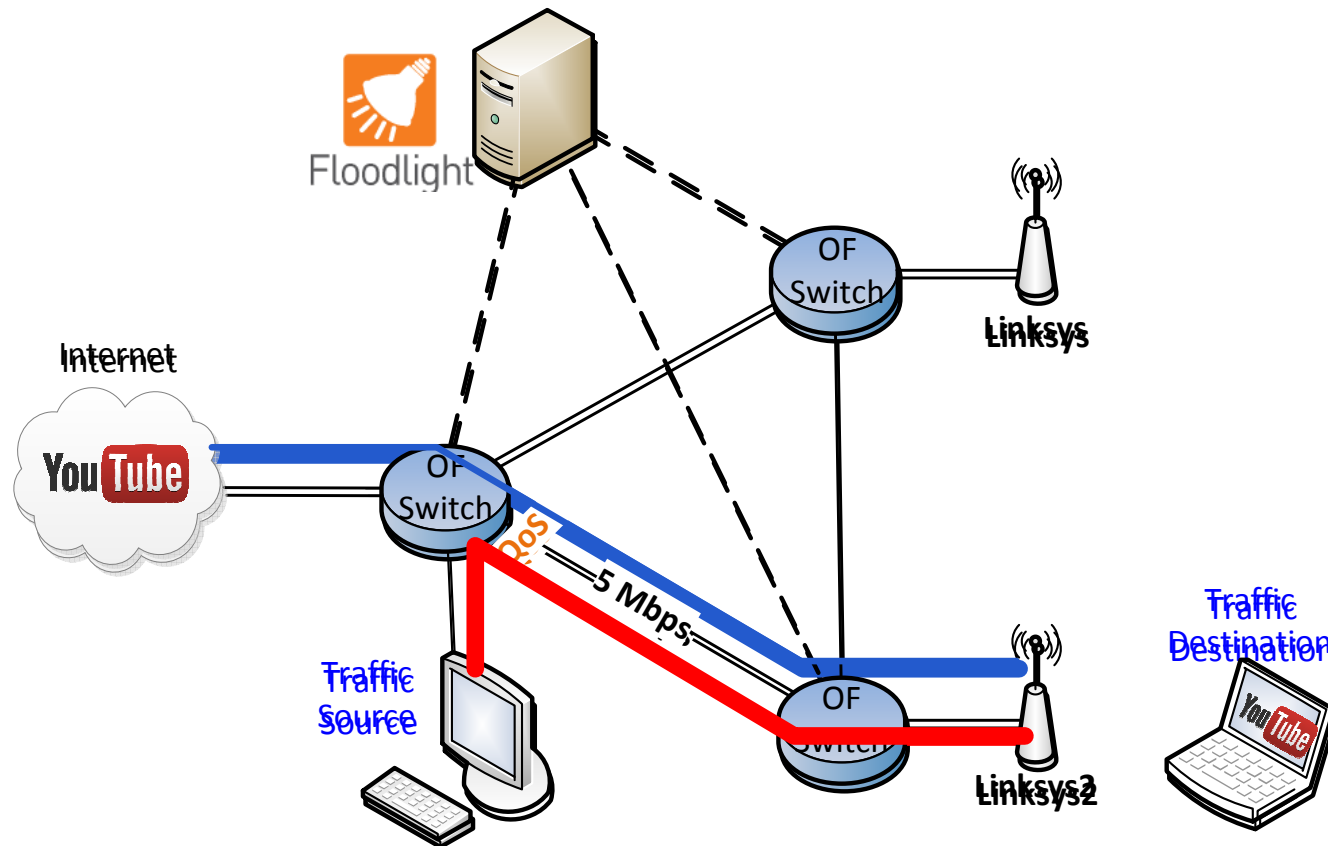


- 1 UDP iperf connection, showing the measurement at the receiver

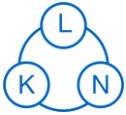


- Observation
 - This delay still includes the switch reporting port status down
 - UDP is much faster than TCP to recover
 - In the above case, it takes **2.1 secs** to detect the new rules

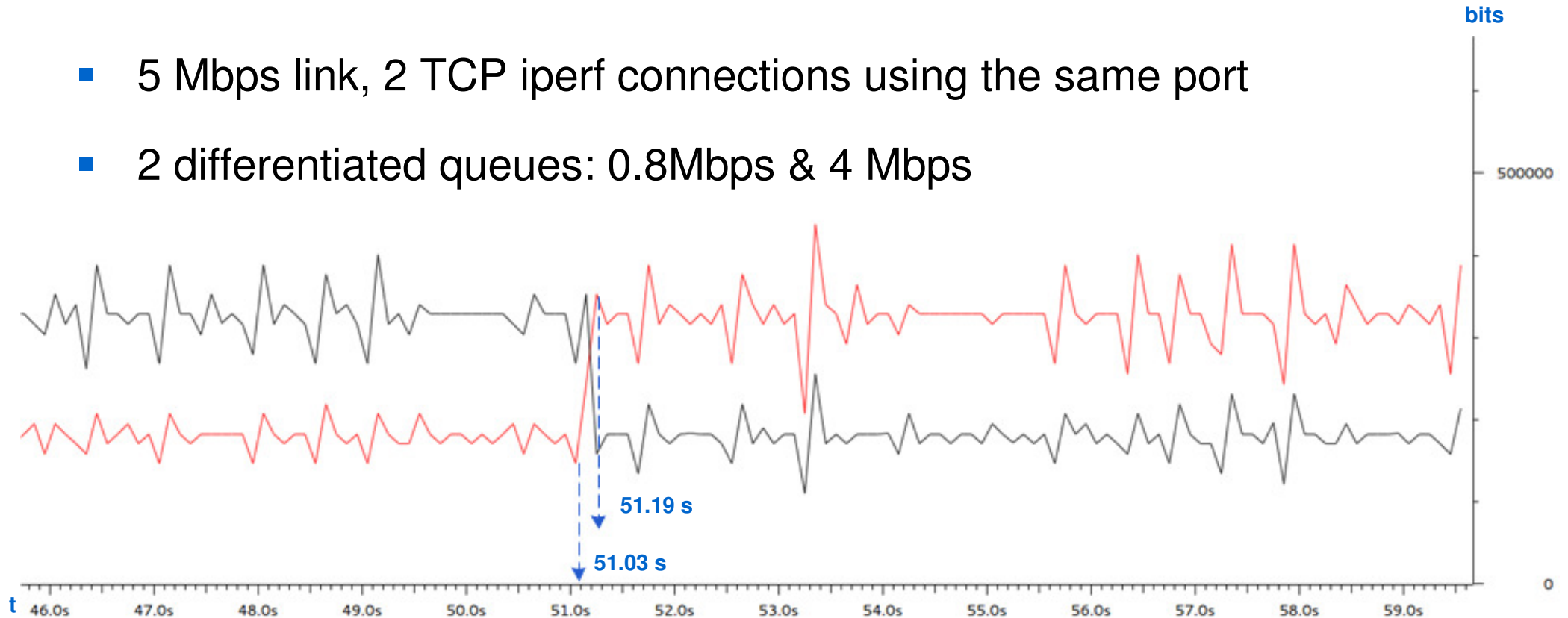
Can SDN provide more quality towards end-users?



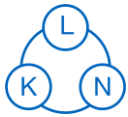
- Weighted Fair Queuing : Guarantee minimum rate per queue



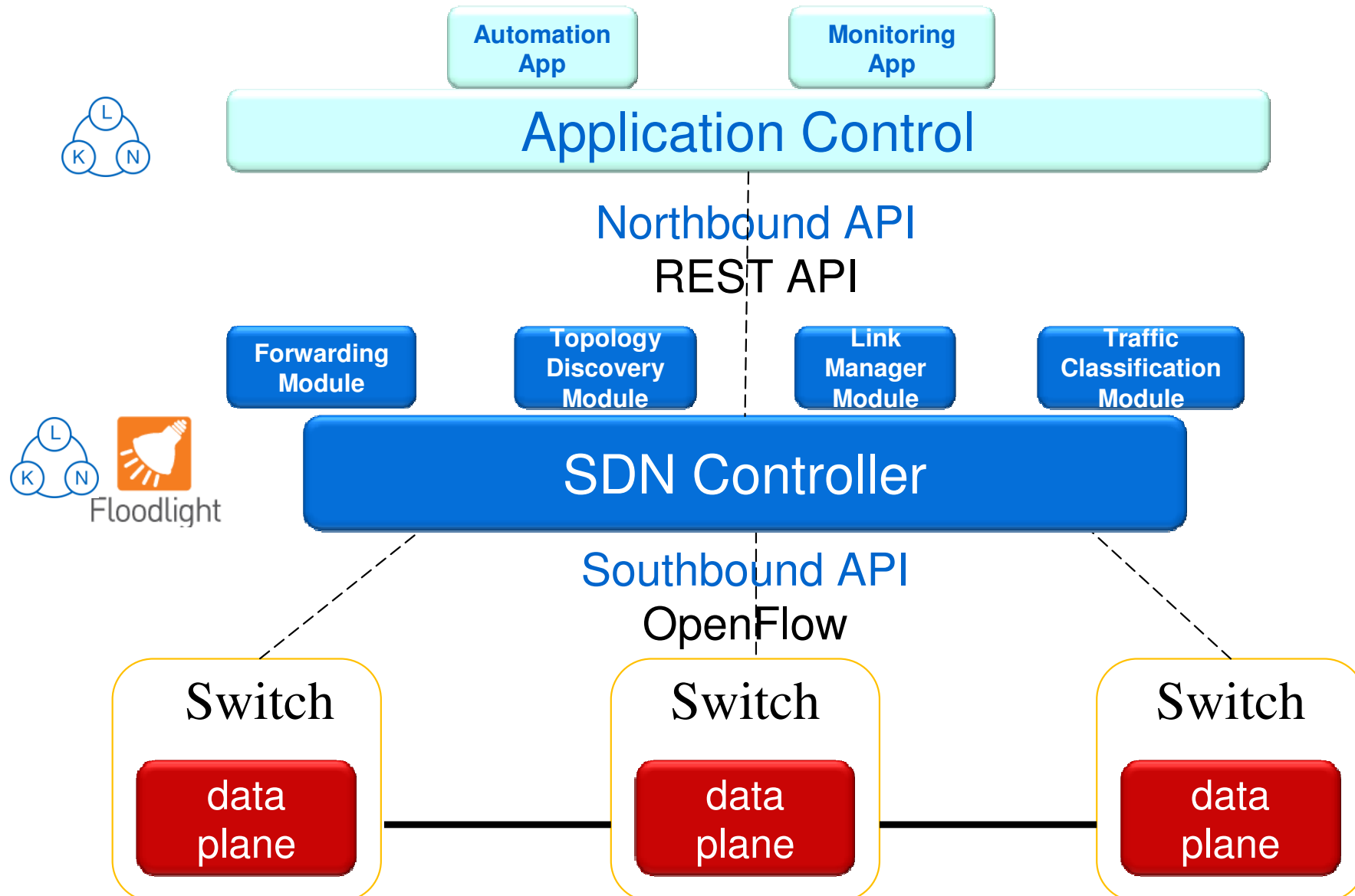
- 5 Mbps link, 2 TCP iperf connections using the same port
- 2 differentiated queues: 0.8Mbps & 4 Mbps

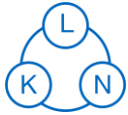


- Observation:
 - **160 ms** to toggle between the queues



Demo Control and Monitoring Application





And now?



Watch a nice demo in **Room 1963**

and

Guten Appetit!