

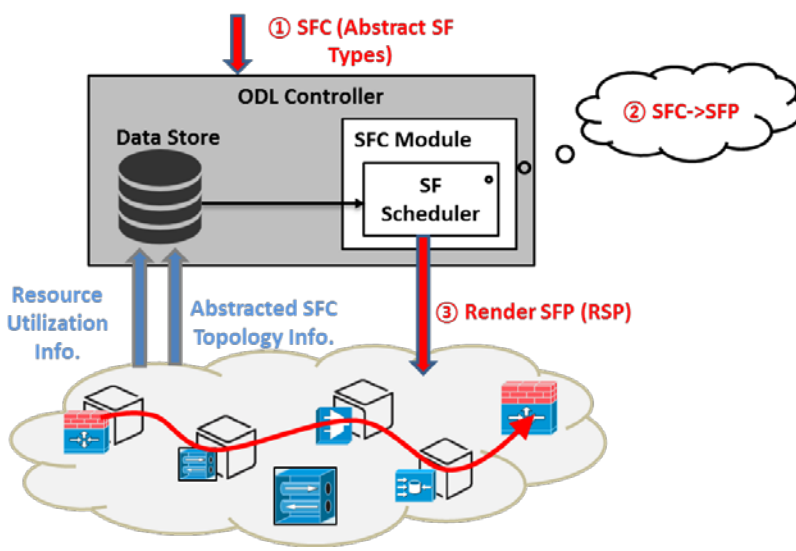
# Open Networking Korea 2016 Fall

K-ONE 고려대 백상헌 교수팀

## Load/Path Aware SF Scheduler in ODL SFC

### Service Function Scheduler in ODL

- For each SF type in a chain, select SF instance
- Repeat until the last SF type in a chain
- Responsible for distributing loads of SF instances while minimizing the length of SFP

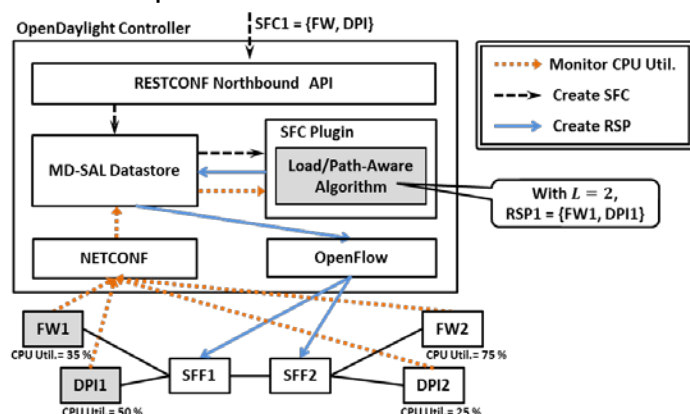


### Existing SF Schedulers in ODL

- Random Scheduler**
  - Select SF instance randomly among candidate SF instances
- Round Robin Scheduler**
  - Select SF instance in a round robin manner
- Load Balancing Scheduler**
  - Select SF instance who has the lowest CPU utilization
- Shortest Path Scheduler**
  - For a first SF type in a given chain, select SF instance randomly
  - After that, it selects SF instance who has the shortest path from the previously selected SF instance

### Load/Path-Aware SF Scheduler

- CPU utilizations of SF instances and path lengths of SFPs are jointly considered
- Path length of SFP can be bounded adaptively by configuring the pre-defined parameter  $L_{TH}$ 
  - Path length between two consecutive SFs in a given chain is bounded by the parameter  $L_{TH}$

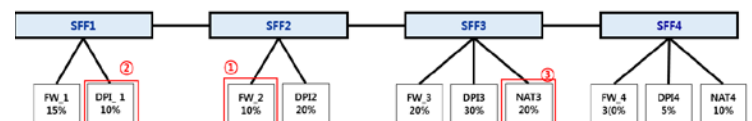


### Test Results & Future Work

#### JUnit test Results

- INPUT: SFC = [FW -> DPI -> NAT]
- RESULT: SFP = [FW2 -> DPI 1 -> NAT 3]

Type	FW	DPI	NAT
SF Instance / CPU Utilization	FW 1 / 15 %	DPI 1 / 10 %	
	FW 2 / 10 %	DPI 2 / 20 %	
	FW 3 / 20 %	DPI 3 / 30 %	NAT 3 / 20 %
	FW 4 / 30 %	DPI 4 / 5 %	NAT 4 / 10 %



- The test and scheduler code are in ODL-SFC repository (<https://github.com/opendaylight/sfc>)

#### Future Work

- Integrated SF scheduling for virtual/physical SFs
- Auto-rescheduling capability