A Hands-on Workshop on P4 Programmable Switches

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Hands on Session 4: Populating and Managing Match-action Tables at Runtime
Control Plane

- The match-action tables are empty by default
- The control plane populates the tables with entries
- The control plane can insert, remove, and update table entries

```
table_add ipv4_forwarding ip_forward 192.168.0.1 => 4
```

### Match-action Table (ipv4_forwarding)

<table>
<thead>
<tr>
<th>Match</th>
<th>Action ID</th>
<th>Action Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>192.168.0.1</td>
<td>ip_forward</td>
<td>eg_port = 4</td>
</tr>
</tbody>
</table>
Runtime Environment

- The simple_switch_CLI tool is used to populate the tables in this lab series
- This tool includes a program-independent CLI and a Thrift client
- It connects to a control server residing on the switch
Lab Topology and Objectives

- The topology consists of three hosts: h1, h2, and h3; one P4 switch: s1
- The P4 program is already provided; no P4 programming is needed in this lab
- Navigate the simple_switch_CLI tool
- Displaying ports, tables, and actions
- Inserting, updating, and deleting table entries