Data-driven detection
Data plane
Control plane
Detection plane
Start the engine
A programmable switch receives a packet.
Table miss?
False
True
Is action drop?
Generate and send a Packet-in msg.
True
False
Do the action. (forward)
Drop the traffic (Intrusion prevention)
Receive a Packet-out msg.
Receive a query
Update a flow table
Send flow entries
Does the event contain a packet?
True
Do the action (e.g., forward)
Start the controller
A switch controller receive a Packet-in msg.
Set action =Forward
Query flow table
Forward traffic statistics
Receive the detection result
Generate and send a Packet-out msg.
Start the IDS(es)
Wait for t
Request traffic statistics
Receive traffic statistics
Intrusion detection
Predicted as intrusion?
True
False
Set action =Drop
Done
Report the detection result