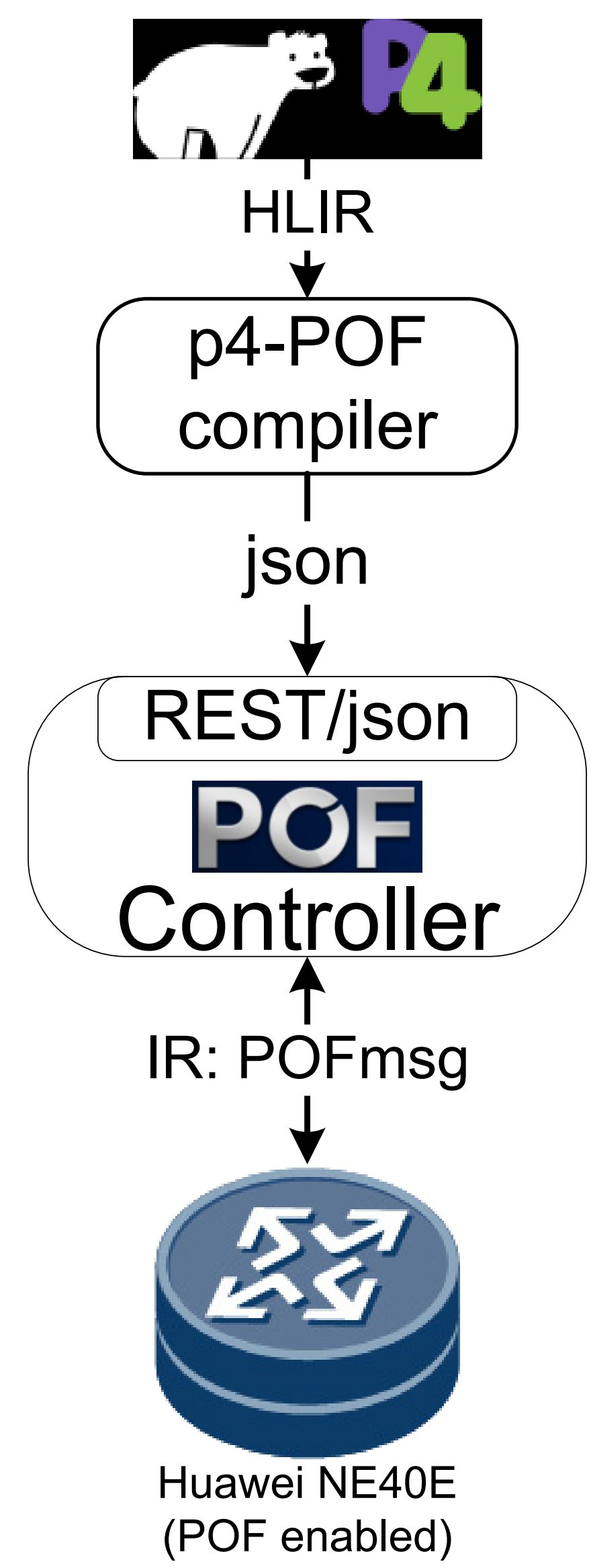
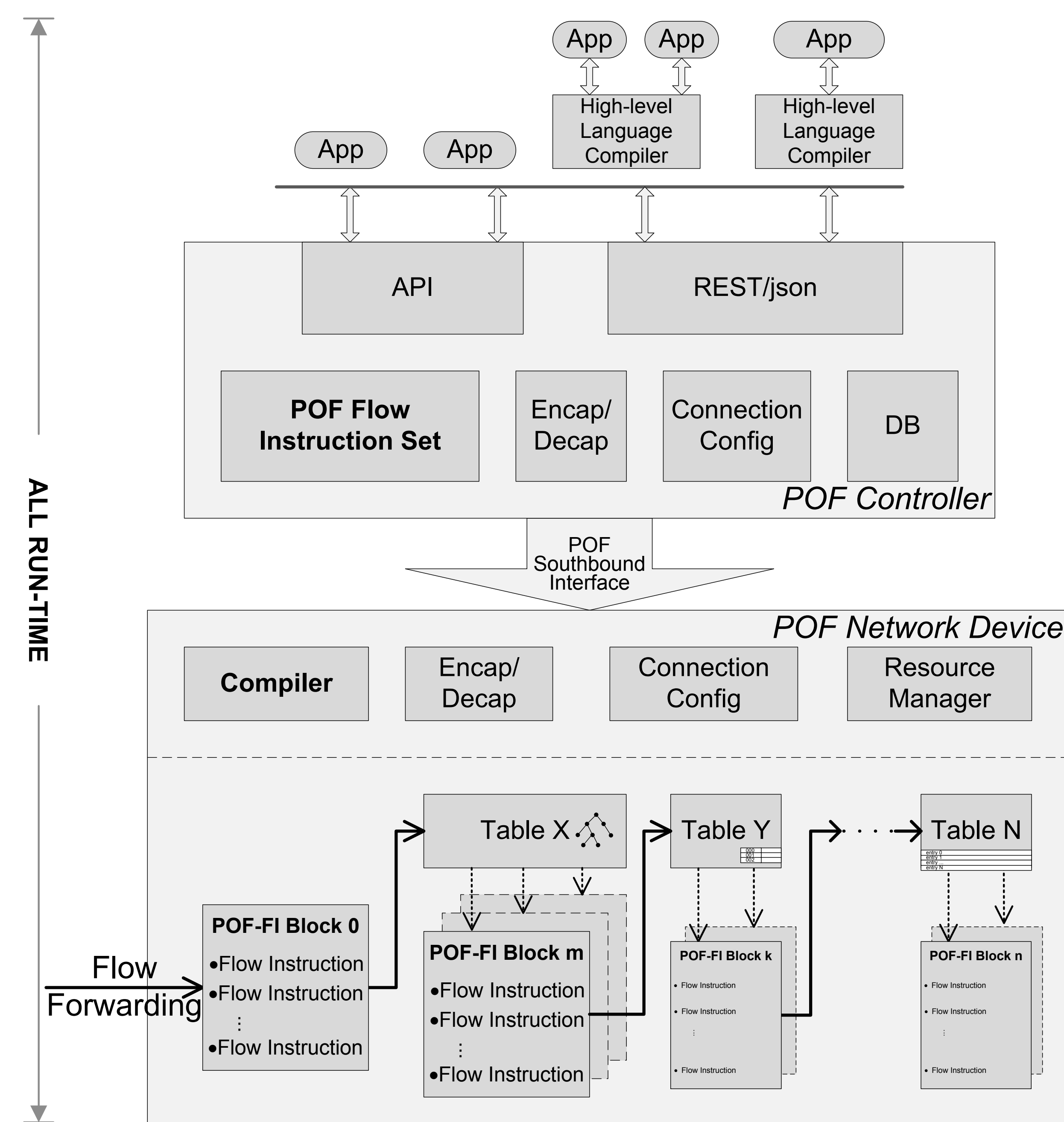


# P4→POF→POF\_ROUTER ARCHITECTURE



1. Using P4-HLIR to generate hlir data from \*.p4
2. P4-POF compiler generates POF data and commands
  - Sent to POF Controller 's REST/json API interface
3. POF Controller generates POF-IR: POF messages
  - Sent to connected POF-enabled devices
  - Southbound: to devices through extended OF interface
  - Northbound: REST/json API interface to Apps
4. Router creates data path and forwards packets
  - Huawei NE40E: POF-enabled, NPU-based rack router
  - Protocol oblivious data path: MAT-based abstract pipeline and forwarding behavior configured by POF messages

## PROTOCOL OBLIVIOUS FORWARDING FRAMEWORK



- Hardware-based POC live demo in ONS2013
- Several northbound interfaces are possible
- Generic Flow Instruction Set (FIS) for packet field parsing and processing
  - Table search keys are defined as {offset, length} tuples
  - Instructions access and process packet data or metadata using {offset, length} tuples
  - POF FIS supports operations such as editing, parsing, forwarding, arithmetic, logic operation, branch, jump and coprocessor-related operations.
- Southbound POF-FIS is the key of POF IR
  - Concise, comprehensive, and Flexibility
  - Platform independent and protocol agnostic
- Pof-controller & pof-switch are open sourced
  - <http://www.poforwarding.org>

## DEMO: BASIC\_ROUTING.P4

