

Netronome allows developers to combine P4 code with actions in C to develop stateful applications for server-based networking. Netronome will demonstrate multiple network security functions developed in P4 and compiled onto and embedded in a SmartNIC using Netronome's SDK. The security functions include:

- A stateless ACL
- A NAT
- A Firewall

We will demonstrate a stateless ACL with 5-tuple and 8-tuple matching. This will be extended to stateful functions with C actions.

The NAT will be a Port Restricted Cone NAT. Our implementation maps a public IP address and Port to a LAN IP and Port. An Internal client must first have sent packets to IP address (X) before it can receive packets from X. The restricted cone NAT restricts this further by only accepting connections from the IP address and port it sent the outbound request to.

We will also demonstrate a Firewall function with multiple match types per rule including exact, ternary, valid on a 5-tuple match where the fields include Source/Destination IP, Source/Destination Port and protocol fields.

The demo will also show performance results for these functions.

