

Verify On Every Commit

- Verify NF in minutes
- Verify Full-stack in hours
- Embarrassingly parallel
- Found bugs in:
DPDK pkt proc framework
Intel NIC driver
Our NFs

NF	NF-only	
NAT	7 sec +	54 × 88 sec
Load Balancer	23 sec +	146 × 219 sec
Traffic Policer	14 sec +	37 × 82 sec
Bridge	7 sec +	69 × 80 sec
Firewall	6 sec +	43 × 88 sec

Full-stack

8 min +

26 min +

6 min +

10 min +

7 min +

3

7







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Bridge	7 sec +	69 × 80 sec	10 min +
Firewall	6 sec +	43 × 88 sec	7 min +

488 × 88 sec

1,336 × 219 sec

309 × 82 sec

601 × 80 sec

369 × 88 sec

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Concise and incremental specs

- **1 day** to formulate a full spec
- **30-60 LOC** size of a full spec
- **1-13 LOC** size of a minimal property
- **4-9 LOC** size of a property increment