Whats happening in Linux network development

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HW Offloading

- Switching (switchdev framework)
- fib (router)
- IPsec
- TLS (tx-only rfc patch set only atm)
- tc offloading
EBPF based
JITed code running in kernel space at lowest level, i.e. in driver before any (skb) memory allocation
use cases:
  - early drop
  - load balancers (packet rewrite and tx on same interface)
generic xdp exists but it doesn’t avoid skb alloc overhead
recent TCP changes

- BBR congestion control
- RACK (time-based loss detection)
- 1ms tcp timestamp clock resolution
- uptime concealment (per host random offsets)
- generic busypoll
- ipv6 segment routing
- optimization work:
  - UDP
  - MacSec
  - IPsec (lockless SA lookups)
  - conntrack timer removal
- nftables extensions: fib, hash
- wip
  - full (tcp, udp, ..) zerocopy via sendmsg MSG_ZEROCOPY
  - lockless qdisc
  - new AF_PACKET mode to expose rx/tx rings to userspace
  - ipv6 fib rwlock work