

# L2 Virtualization of ixgbe

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# Description

- Hardware-assisted transparent virtual interfaces
- Uses hardware's VMDq features to multiplex packets across queues
  - On transmit and receive path, (almost) no resource contention between virtual interfaces
- Use case is providing vnet/ail with a dedicated interface directly connected to the outside world
- Does not use SR-IOV
- Not a VF implementation

# Implementation Challenges

- ixgbe's data structures implicitly assume one ifnet per physical interface
  - Breaking this up touches almost everything
- Oplin does not support replicating packets across multiple queues
  - How to implement broadcast/multicast/etc?

# What's missing

- RSS is disabled
  - Solely a software issue – hardware supports it
  - Autoconfiguration of queues gets a bit tricky but it's solvable
- Dynamic creation and destruction of virtual interfaces via an `if_cloner`
  - `ifconfig vif0 create parent ix0`
- Various offload modes need testing

Questions?