ip_input / ip_output / ip_forward

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General comments about ip code

- Little state to keep track of, easy to follow.
- This code applies both endpoints and routers
  - Some code will not make sense from an endpoint point of view
- Packets may traverse this code multiple times if tunneling or IPSEC is in use
- Firewall / NAT code may change IP addresses as packets pass through

Tricky bits

- IP fragmentation and reassembly
- Multicast handling

Input: general structure

- Validate the packet
- Hand to ALTQ
- Hand to IPSEC
- Hand to pfil
- Validate the packet's addresses
- Multicast handling
- Reassemble fragments
- Hand off to protocol specific handler

Output: general structure

- Create the IP header
- Figure out how to route the packet
- Multicast handling
- Hand packet to IPSEC
- Hand packet to pfil
- Fragment the packet if needed

Nits

- Interface checking code has a lot of XXX comments!

- The "tooshort" label seems to be a poor use of goto.

- Why is ECN inside the IP reassembly code?