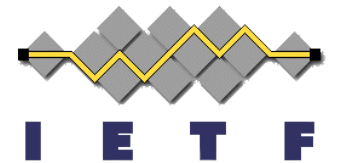
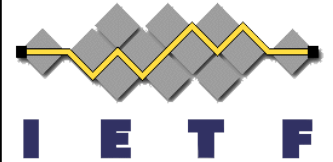


# draft-ietf-6man-multi- homed-host

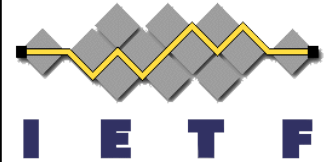
Fred Baker and Brian Carpenter



# Draft introduction and scope



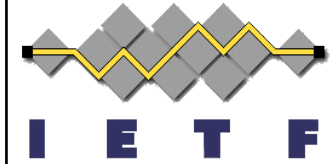
- Dealing with a source/destination routed network (egress routing being a special case)
- Egress Routing is important to facilitate
  - Having a host avoid BCP 38 ingress filtering
  - Network not needing egress filtering
- Current topic in homenet, rtgwg, isis, and ospf
- **Brian's comment at IETF 93:** *it's not complete unless the host knows how to use it*



# 1.1. Host Model

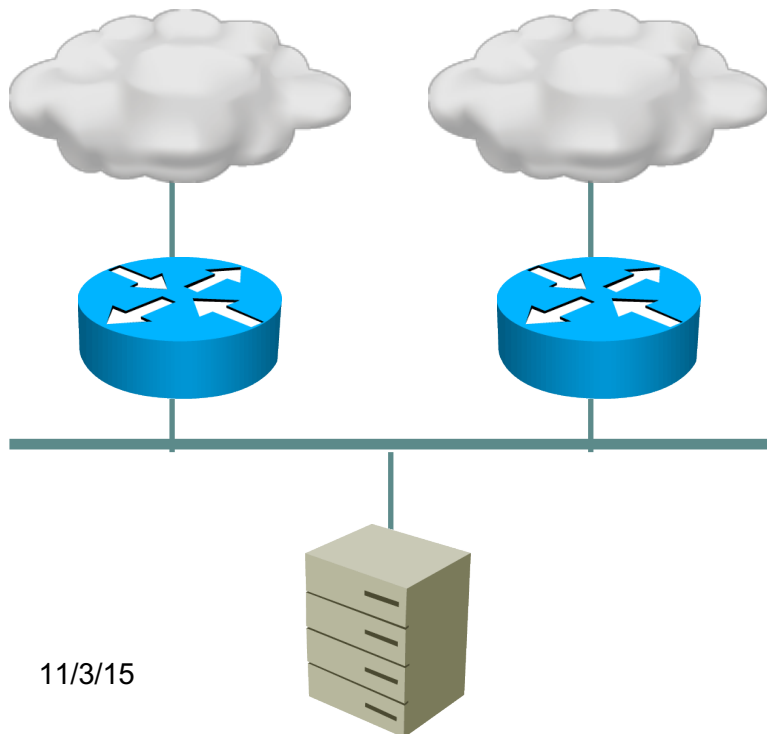
- List discussion of similarities to the strong host model
- RFC 1122 Strong Host Model:
  - 1:1 relationship between an *address* and an *interface*
  - Likens it to a single host embodying several virtual hosts, each with one address and one interface
- This model:
  - 1:1 relationship between a *prefix* (which might contain an *address*) and a *first hop router*
  - In MIF model, the router might be on more than one interface, but the interfaces will hear the same RA
  - BTW, same model used by SAVI framework

# 2.1. Expectations the host has of the network



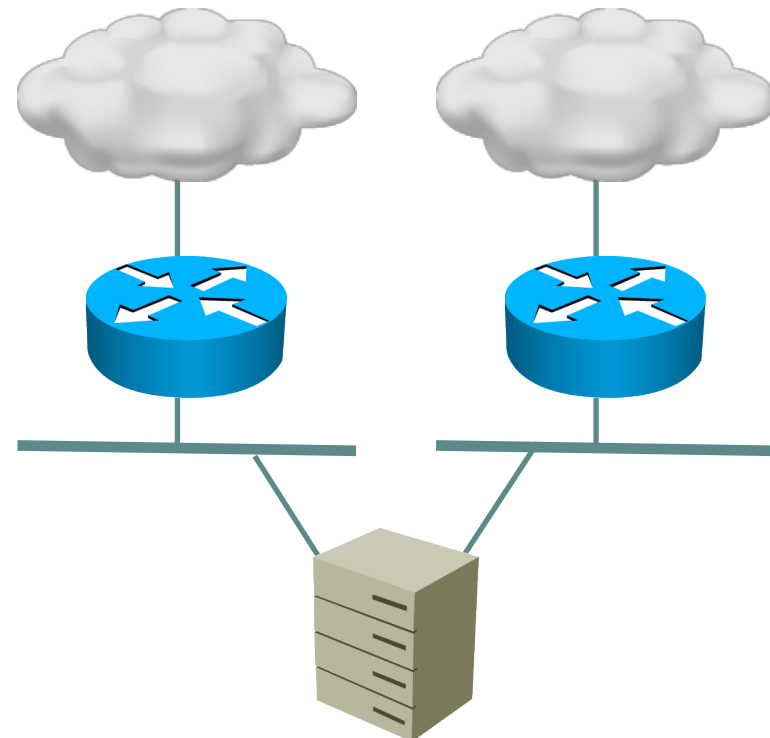
## Connected network

- If a packet is sent to the wrong router, it can redirect the packet

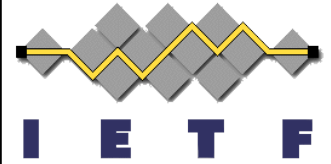


## Disconnected network

- Wifi and LTE anyone?
- If a packet is sent to the wrong router, it can't

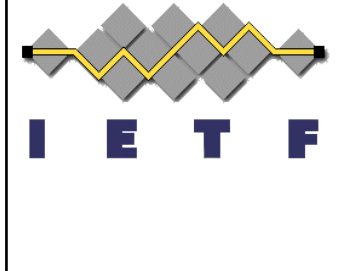


## 2.2. Expectations of multihomed networks



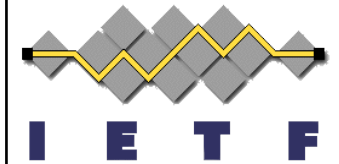
- The host expects that if it sends a packet using an address allocated to it by the network (SLAAC or DHCP), *the network will get it to the indicated destination*
- If there are multiple egresses with different characteristics, such as different prefixes and BCP 38 rules, *it will use the right egress*

# 3.1. Interpreting Router Advertisements

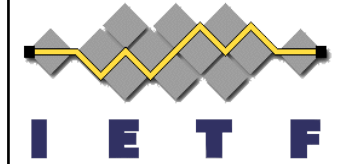


- The host will learn
  - Prefix information (PIO)
  - Routing information (RIO) if present
  - Default routers if present
- In a source/destination routed network, these are **interpreted in the context of the source address**
  - Default router or route information used for packets addressed using prefix in the same RA
  - If different RA (and therefore different prefix), ignored
- Interesting option:
  - When originating a session, an RIO or Default Router could guide source address choice

## 3.2. Default Router Selection



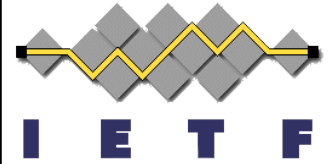
- The host, by default, directs packets using a source address in or derived from a prefix advertised by a router in an RA to that router
- If there is ambiguity, the routers will have to figure it out.
  - They already have that problem.



## 3.3. Source Address Selection

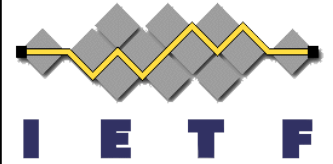
- Could be unchanged (RFC 6724)
  - See Rule 5.5
- Interesting option with RIO
  - One could interpret Rule 5.5 to use the source address that would get the packet to the preferred router





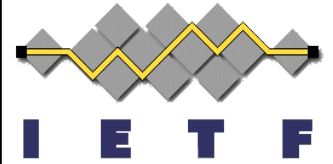
## 3.4. Redirects

- Hosts advised to limit redirect actions to the source/destination pair redirected, to avoid possible adverse interactions



## 3.5. History

- Some hosts maintain history. That could also feed into source address choice if that is maintained in the history.



## 4. Residual issues

- Routers that learn prefixes in routing and advertise ALL of the prefixes on a LAN in their RA increase ambiguity and therefore entropy
- Entropy can be minimized over time by remembering source/destination address or prefix pairs that work, and preferring them.

# My desire for this draft:

- I think it should have one final review, perhaps in WGLC
  - I know of no remaining issues
- And then sent to IESG