(Some) Implementation Experiences with Homenet

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The World's First Homenet Network?

(But otherwise this is a very incomplete system... actual OSPF routing not running yet)
Goals

- See if OSPF-based homenet specifications can be implemented
- Build an implementation that will keep my home network autoconfigured
  - Much needed – I am lost as to what is where
- Make me understand routing better
- Write software that others could use
  - But the entire set of protocols proved to be difficult – extending existing software might be a better idea
- Building something that can be used in interoperability testing
Experiences

I have a very partial implementation so far, but here are some experiences:

- Draft-acee was very easy to implement
- Draft-arkko was easy to implement
- No major complaints wrt specifications
- But OSPF RFCs are... hard to read
- It is important to think about interfaces to other systems (NAT64, sensor gateways, ISP PD interface, or anything else that needs or gives address space)
Detailed Comments 1

- Variable length prefix formats are difficult to implement (so I didn't)
- Implementing an allocator from a matrix of usable and assigned prefixes is difficult in the general case
Detailed Comments 2

- We do not have enough specification about how the processes are started:
  - At what point do you decide that the rest of the network is not going to inform you about usable prefixes and, e.g., generate ULAs?
  - Immediate action might be harmful and, e.g., lead to flooding and withdrawing an extra prefix to the entire network
  - Remembering the action that we did on the last boot might be useful
Detailed Comments 3

• … more to follow
Protocol Values for Testing

#define hord_ospf_instance_id_default 0xAC
#define hord_ospf_lsa_type_router_autoconfiguration_lsa 0xAC0F