Stub Network Auto-Configuration

An introduction to the work of the ‘SNAC’ IETF Working Group

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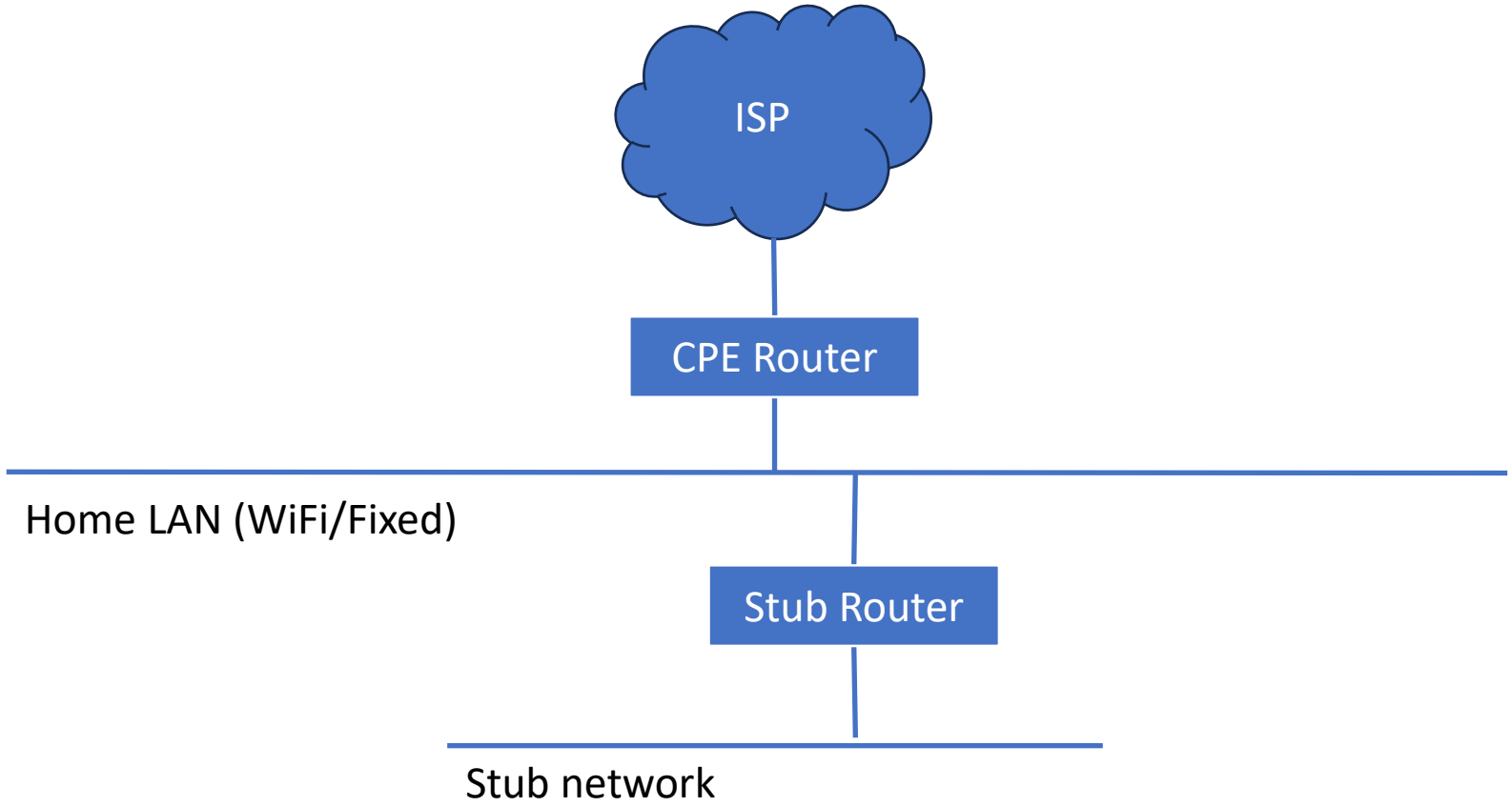
Basic stub network



* Shamelessly plagiarised from Ted Lemon's presentation at SNAC 114

Personal

Stub networks and their challenges

- Connecting a **device** to a segment, like your home WiFi, works
- Connecting another **network** to your home WiFi is difficult
  - Bridging? NAT66? NPT66?
- Even in IPv4-land, double-NAT is often used as a solution, but…
  - Poses overheads in management, e.g. cascading port forwarding
  - Discovery of devices/services isn't likely to work
- We aren't necessarily talking about Ethernet networks either
  - Consider routers that provide connectivity to with Thread or Zigbee devices

SNAC and the IETF

- The IETF creates working groups where there is a need to create documents of a high quality for the RFC or BCP series
- In the case of SNAC, it is understood that while the underlying concept was new work, other WGs will need to produce documents to meet their requirements (e.g. V6OPS, DNSSD)
- Beginning in July 2022 there have now been five WG meetings
  - All presentation slides, recordings, and meeting minutes can be found at: https://datatracker.ietf.org/group/snac/meetings/
- Work is underway to define ‘stub networks’ and the practices to be used for their reachability, discoverability and autoconfiguration

draft-ietf-snac-simple

https://datatracker.ietf.org/doc/draft-ietf-snac-simple/

- Defines a set of practices for connecting stub networks to adjacent infrastructure prefixes
- Notes that stub networks must not be ‘transit’ networks
- Requires that stub networks be interoperable
  - Two-way reachability between stub and infrastructure hosts, using IP
  - Reachability of hosts on the Internet, using IP
  - Discovery of all hosts via DNS Service Discovery
- Requires IPv6!
  - DHCPv6 Prefix Delegation
  - Options for both the stub and infrastructure networks to provide NAT64 services

Associated standards work

- Rather unusually (today?) the SNAC WG has only one document submitted:
  - The ‘data tracker’ is here: https://datatracker.ietf.org/group/snac/
- Associated work happens in other IETF WGs:
  - V6OPS (IPv6 Operations, https://datatracker.ietf.org/group/v6ops/)
  - DNSSD (DNS Service Discovery, https://datatracker.ietf.org/group/dnssd/)
- The Connectivity Standards Alliance is also developing several standards that relate to stub networks:
  - Matter, Thread, Aliro, Zigbee
  - Consider joining as a member

Summary

- Home networks will be changing, and there will be greater reliance upon having IPv6 in the home
- <blink>**New things really will not work without IPv6**</blink>
- You are hereby encouraged to:
  - Get involved at the IETF, please. There are never enough operators present.
  - Consider supporting these stub network types in your CPE
  - Speak to your vendors about supporting these, and any other new standards required to support your customer's use of stub networks

Thanks for listening, any questions?