

# Automatically Connecting Stub Networks to Infrastructure

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# Goals

This is the basic Stub Networks document:

- Does not depend on infrastructure support
- No host changes on infrastructure
- Host changes optional on stub network, depending on target use case

As discussed in the charter, goals are:

- Hosts on infrastructure and stub can discover each other
- Hosts on infrastructure and stub can initiate communication with each other
- Hosts on stub network can initiate communication with hosts on internet

# draft-lemon-stub-networks

Original document covered:

- Maintain usable IPv6 prefix on adjacent infrastructure
- SRP registration server for stub network
- Advertising Proxy advertises SRP on infrastructure
- NAT64 for cloud connectivity
- DHCPv6 for cloud/non-adjacent infrastructure connectivity
- Not much detail about discoverability across non-adjacent infrastructure links

# Changes from previous

Remove text that relies on infrastructure support

- No support for DHCPv6
- No support for reachability from non-adjacent links

Some text from the problem statement document has been incorporated into the introduction

State machine described for managing infrastructure on-link autoconfiguration prefix

# What is actually covered now

Maintenance of usable prefix on adjacent infrastructure link

Maintenance of Off-Stub-Network-Routable (OSNR) prefix

Advertising routes to stub network

- missing: doesn't actually say to forward

Advertising routes to adjacent infrastructure prefix on stub

- This is somewhat architecture-dependent

Service Advertising and Discovery

- SRP on stub network for advertising stub network hosts
- DNSSD-over-DNS through stub network resolver for discovery on stub network
  - Discovery Proxy for discovering adjacent infrastructure hosts
  - DNS authoritative zone for discovering stub network hosts
- mDNS for service discovery on adjacent infrastructure
  - advertising proxy provides answers for services on stub network
  - infrastructure service discovery using regular mDNS

Maintenance of NAT64 prefix

# Discussion so far

The question was raised whether we should do NAT64 in this document

Reasons not to:

- Preference not to support IPv4
- It's not pretty

Reasons to:

- Stub network hosts need internet connectivity to:
  - Download firmware updates
  - Talk to cloud services
- We can't count on availability of IPv6 connectivity
- Even with IPv6 connectivity, we can't count on being able to get a delegated prefix
- This document doesn't currently talk about prefix delegation
- So without NAT64, we can't actually communicate with the cloud

# Do we want Prefix Delegation in basic document?

I took this out—it's a bit complicated, and does require infrastructure support

On the other hand, in principle infrastructure could support it, and some existing home routers do

Required for IPv6 end-to-end

Wouldn't be that hard to add

What does the WG think?

# Remaining work to finish

We don't have a state machine for NAT64

Discoverability relies on draft-ietf-dnssd-advertising-proxy

- Do we need to say more than that document will say?

We talk about partitioning, but don't really say much

- Do we need to say more?

The text about reachability doesn't contain any explicit instructions.

- Do we need to be more explicit, or is the text as written sufficient?



# Working Group Adoption

Does the working group think this is the document we should adopt?

- Let's ask

Can some folks read the document and see if it says enough that they think they could do an implementation?

- We have two implementations for Thread, but they predate the document, so that might not mean much
- Would really help to have someone read the document who hasn't done an implementation but could; even if they don't do an actual implementation, thinking about what they'd do might surface omissions or errors
- Would be even better if someone (Pascal?) was interested in doing an implementation for their specific application