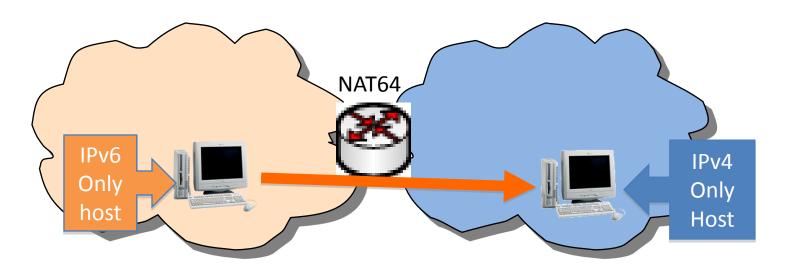# NAT64
draft-bagnulo-behave-nat64-02
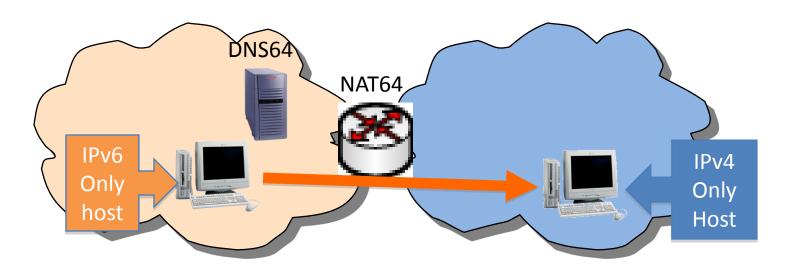
marcelo bagnulo, Philip Matthews,
Iljitsch van Beijnum

IETF 73 - Mineapolis

Application scenario

NAT64

IPv6 Only host

IPv4 Only Host

-Communications initiated by the v6-only host
-Compatible with ICE
-No support for communications initiated by the v4 only side without previous action from the v6 side (i.e. No support for v6 only servers, beyond the creation of static mappings)
-No changes required in any host for basic functionality
-Supports communications initiated using the FQDN (of the v4 node) using DNS64

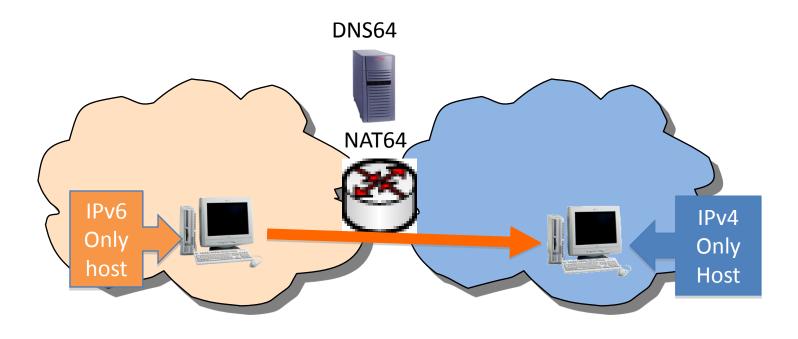# Application scenario – refined An-IPv6-network-to-IPv4-Internet

DNS64

NAT64

IPv6 Only host

IPv4 Only Host

IPv6 end site or IPv6 end site and IPv6 ISP

IPv4 Internet

Application scenario – refined
IPv6-Internet-to-an-IPv4-network

DNS64
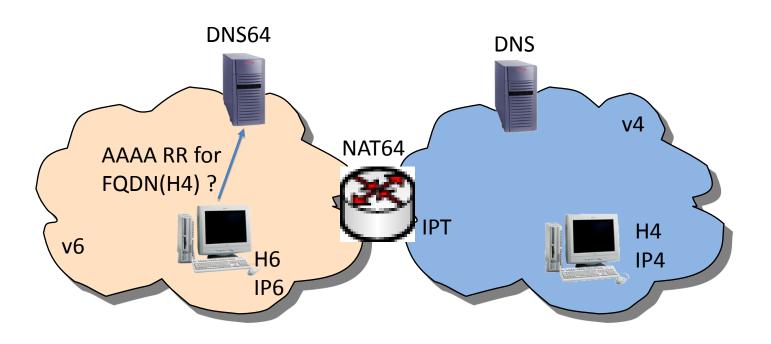
NAT64

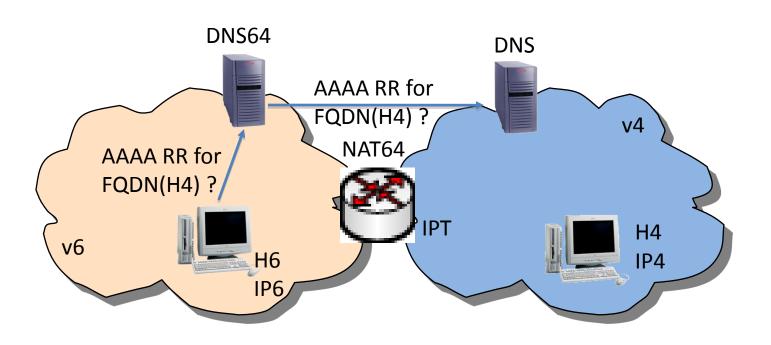IPv6 Only host

IPv4 Only Host

IPv6 Internet

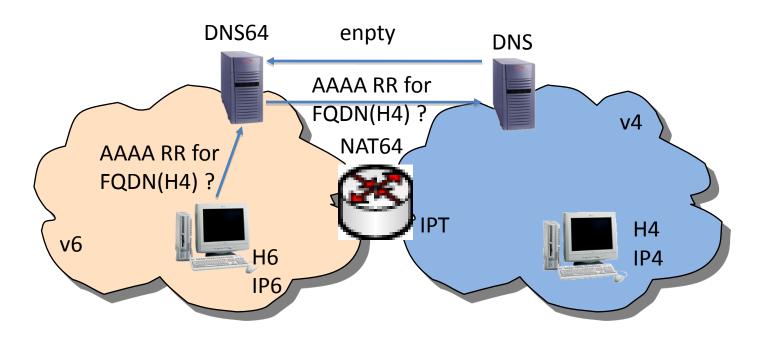IPv4 end site

Comparison with NATPT (RFC2766)

- NAT64 only supports v6 initiated communications
  - NATPT supports both v4 and v6 initiated, requiring a set of cumbersome techniques
- NAT64 and DNS64 are completelly decoupled
  - No relation between the NAT64 state and the synthetic RR
  - DNS64 preserves DNS semantics, DNS responses are valid irrespectivly of the path used by data packets
- NAT64 allows to preffer native connectivity over translated connectivity
- NAT64 is compatible with DNSSec
- NAT64 supports some modes of IPSec
- NAT64 is fully specified, compatible with behave requirements
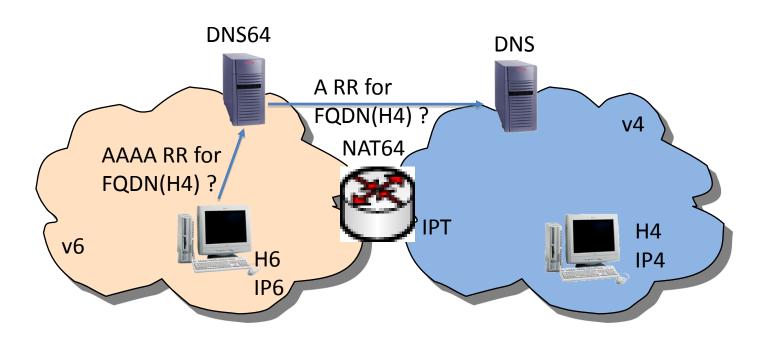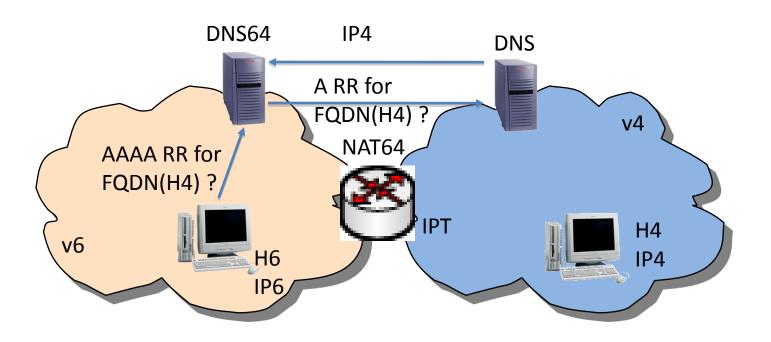
Relation with other documents

- NAT64 only defines how to create the address mappings
- Header translation defined in stateless translation draft
- DNS64 defined in DNS64 draft
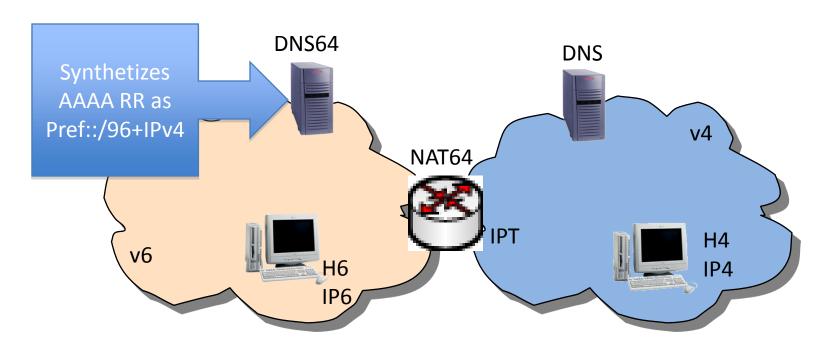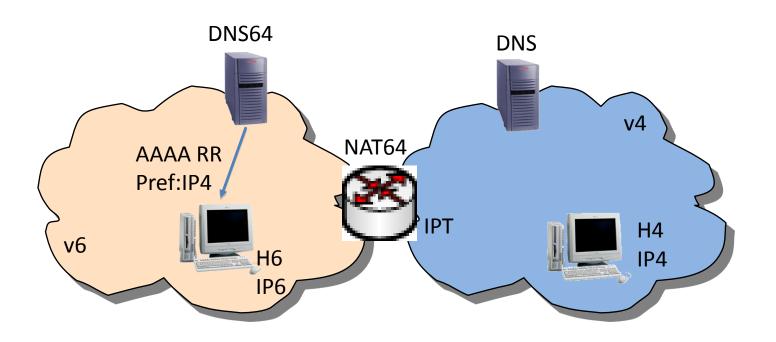- How this all fits toghether defined in framework draft

Overview

Overview

Overview

DNS64   enpty   DNS

AAAA RR for
FQDN(H4) ?

AAAA RR for
FQDN(H4) ?

NAT64

v4

IPT

v6

H6
IP6

H4
IP4

Overview

Overview

Overview

Overview

DNS64

DNS

AAAA RR
Pref:IP4

NAT64

v4

v6

H6
IP6

IPT

H4
IP4

Overview

Overview

DNS64

DNS

v4

NAT64

IPT

v6

H6
IP6

H4
IP4

IP6,s<->T,t

Overview

DNS64

DNS
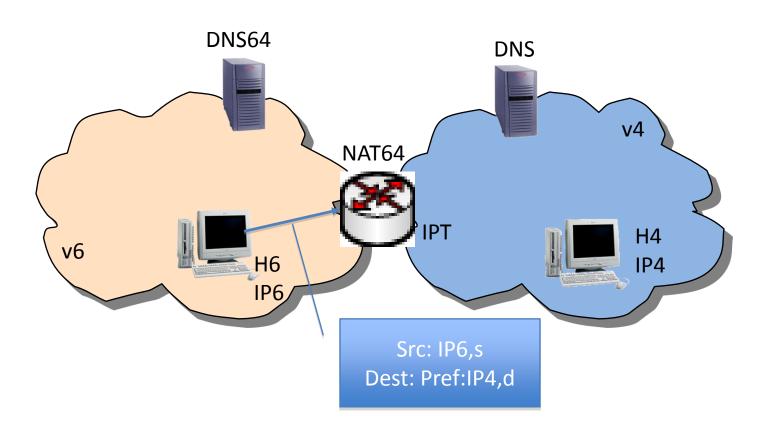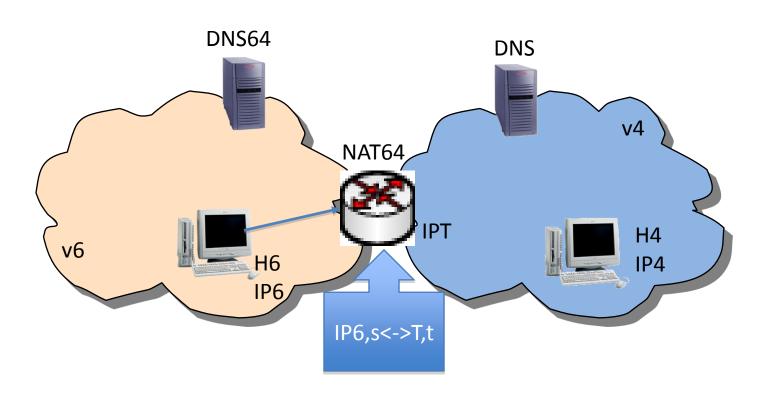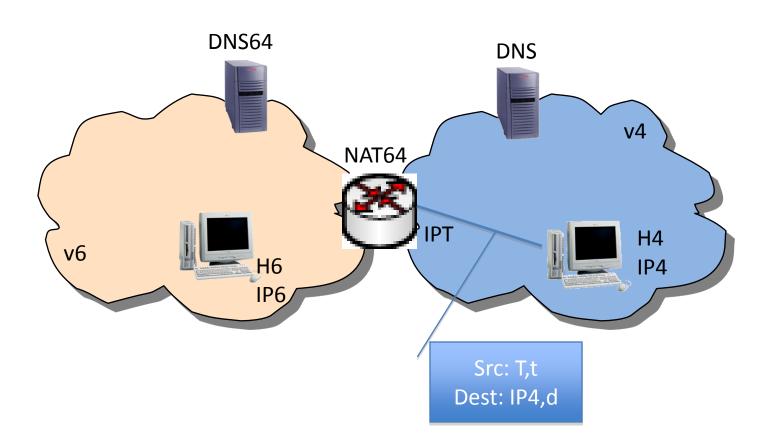
v4

NAT64

v6

H6
IP6

IPT

H4
IP4

Src: T,t
Dest: IP4,d

Some questions

Protocols supported in base spec

- UDP
- TCP
- SCTP
- DCCP
- IPSec
- Should we define support for all these in the base spec or can we define UDP TCP support in base spec and then define SCTP, DCCP and IPSEc support in other documents

Endpoint independence vs. Higher utilization of v4 addresses

- Endpoint independence requires mappings are: (srcIP6,srcp)<->(T,t)

- Address and port dependent mapping are: (srcIP6,srcp,dstIP6,dstp)<->(T,t,dstIP4,dstp')

- Can we afford endpoint independence in v6?

Questions?