

IPv6-only capable resolver utilising NAT64

draft-momoka-v6ops-ipv6-only-resolver

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The Problem and the Informational Solution

Problem Statement:

- An IPv6-only iterative resolver encounters difficulties when trying to send packets to an IPv4-only authoritative DNS server.
- Although 464XLAT is a viable solution, it is not widely implemented.

Proposed Solution:

- Our draft documents the behavior of IPv4-to-IPv6 address translation in an IPv6-only iterative resolver when sending packets to an IPv4-only authoritative DNS server via NAT64.
- This technique is not new, but it is worth documenting for DNS operators.

Responding to Feedback and Next Steps

Addressing Concerns:

- Scope of v6ops: Our focus is on packet transport issues, not on protocol-level changes.
- DNS64 and DNSSEC: Our proposed solution does not interact with DNS64; thus, DNSSEC issues associated with DNS64 are out of its scope. References to DNS64 will be removed.

Changes that will be made to draft:

- Delete mentions of DNS64.
- Include both the 464XLAT and Pref64 solutions. For those unable to transition to 464XLAT promptly, the proposed solution essentially acts as a bridge.

Future Work:

- Aim to provide comprehensive guidance for better decision-making in the context of IPv6-only networks, potentially updating BCP 91 (RFC3901).

Reference RFC3901 BCP91

4. DNS IPv6 Transport recommended Guidelines

In order to preserve namespace continuity, the following administrative policies are recommended:

- every recursive name server **SHOULD** be either IPv4-only or dual stack,

This rules out IPv6-only recursive servers. However, one might design configurations where a chain of IPv6-only name server forward queries to a set of dual stack recursive name server actually performing those recursive queries.

- every DNS zone **SHOULD** be served by at least one IPv4-reachable authoritative name server.

This rules out DNS zones served only by IPv6-only authoritative name servers.