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Connection of IPv6 Domains via IPv4 Clouds (6to4) as Last Resort
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Abstract

Experience with the mechanism described in "An Anycast Prefix for 6to4 Relay Routers" [[RFC3068](#)] has shown that the mechanism is not a reliable means for communicating with resources in the public IPv6 Internet. This limits the applicability of the "6to4" mechanism described in [[RFC3056](#)].

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1. Introduction

Experience with the mechanism described in [\[RFC3068\]](#) has shown that the mechanism is not a reliable means for permitting hosts using 6to4 addresses (2002::/16) to communicate with resources in the public IPv6 Internet.

The particular problems are described in section 3 of [\[I-D.ietf-v6ops-6to4-advisory\]](#).

This limits the applicability of the "6to4" mechanism described in [\[RFC3056\]](#). Without a reliable mechanism of communication between the 6to4 realm and the native IPv6 realm, 6to4 should be considered primarily as a mechanism to communicate between hosts that are both using 6to4 addresses. Use of 6to4 addresses in general and [\[RFC3068\]](#) in particular should be considered a "last resort" means of communicating with resources in the public IPv6 Internet.

2. Conventions

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC 2119](#) [\[RFC2119\]](#).

3. 6to4 as a mechanism of last resort

While usage of 6to4 will decrease as native IPv6 is deployed, this will take time. In order to ensure that hosts supporting both 6to4 and IPv4 prefer more reliable connectivity mechanisms where available, this document recommends making 6to4 a service of last resort.

Implementations capable of acting as 6to4 routers MUST NOT enable 6to4 without explicit user configuration. In particular, enabling IPv6 forwarding on a device, MUST NOT automatically enable 6to4.

When performing address selection, connections between an IPv4 source and destination address SHOULD be preferred to connections either between a 6to4 source address and a native v6 destination address, or between a native v6 source address and a 6to4 destination address.

4. IANA Considerations

This document makes no recommendation to IANA.

5. Security Considerations

There are no new security considerations pertaining to this document. General security issues with tunnels are listed in [[I-D.ietf-v6ops-tunnel-security-concerns](#)] and more specifically to 6to4 in [[RFC3964](#)] and [[I-D.ietf-v6ops-tunnel-loops](#)].

6. Acknowledgements

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7. References

7.1. Normative References

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7.2. Informative References

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