IPv4 address is estimated to run out shortly. So as
[I-D.durand-v6ops-natv4v6v4] stated, we have to consider IPv6 only
node for smooth transition. On the other hand, IETF have deprecated
the NAT-PT with some reasons. And now we need to seek alternative
solutions. Before talking specific technology, we need to consider
overall strategy for translation technology.
1. Introduction

This memo will present an overlooking view on IPv6 deployment and some of the necessary technologies to achieve it.

1.1. Requirements Language

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].

2. The Devices we have to take care

As [I-D.durand-v6ops-natv4v6v4] stated, it is estimated that IPv4 address exhaustion coming sooner, as early as 2010. So, preparation is required by then. In that time, there would be IPv4 devices and IPv6 devices. And the IPv6 devices can consist of current type and new type. The new type means some devices which can co-exist translator very well (e.g., as proposed by [I-D.carpenter-shanti] and [I-D.beijnum-modified-nat-pt]). The current type means some devices that does not care about translator (e.g., can not distinguish translated address from native address). Also we could not expect to modify current IPv4 devices to adopt the environment using translator.

3. Translators in the market

As described in [RFC4966], NAT-PT has some problems. On the other hand, there are some translator product in the market. They have already known the problem of NAT-PT and have devised to be useful although there are not well working standard translator specification. It may not be the perfect solution but the products can satisfy some requirements.

4. Translators in the future

There are some proposals for translation technology like [I-D.carpenter-shanti] and [I-D.beijnum-modified-nat-pt]. Some of them could require some modification on IPv6 devices to work with translator nicely. It is desired approach to resolve most issues listed on [RFC4966]. The important point here is design based on the requirements.
5. Proposal strategy

Considering above mentioned situation, the new translators might not be the solution for 2010. Of course we know that current of-the-shelf translator would not be the final solution in long term view. But both are important to support smooth and rapid IPv6 deployment.

5.1. Current translator model description

The current translation technology would help smooth IPv6 introduction around 2010. But it may not be the perfect solution. So we should know the current technology. And we should consider what kind of technology fits what kind of situation. And we should give recommendation how to use it.

The big advantage of this kind of document is not-keeping users and developers waiting for the definition of new translation technology. This kind of document should be BCPs.

5.2. New translator model specification

As we realized that translator is required. But current technology may not be the perfect solution. So we need to define the specification to resolve issues listed on [RFC4966].

The big advantage of this kind of document is providing safety and optimization.

This kind of document would be RFCs.

5.3. Common translation rule

In chapter 3 and 4 of [RFC2765](SIIT), there are translation rule. It is referred by NAT-PT, obsoleted by [RFC4966], and other implementations may be compliant with the rule, since it is reasonable and common rule.

It is useful to have such kind of documents. But now the ICMPv6 specification is revised by [RFC4443]. The translation rule should be updated. This kind of documents should be independent from specific translation technology. Especially, the common translation rule for ICMP message is very important.

5.4. Translator unfriendly environment

In IPv4 network, it is observed that some devices transmits IPv4 packet with value "1" in DF Field. And some filtering systems in IPv4
network drop the ICMP error message. This combination makes communication failure as follows.
When a translator translates the packet from IPv4 packet to IPv6 packet, the packet size is increased by the differences of IP headers. So, when the Path MTU from translator to IPv6 destination is 1500 octets, the IPv4 packet with the size of 1500 octets cannot arrive at the IPv6 destination node. In this case, the intermediate routers, include the translator, send ICMP Error Message, Destination Unreachable(packet too big), but the message cannot arrive at the original IPv4 sender due to intermediate filtering system. Then the IPv4 node cannot learn the Path MTU. This problem is not only translator problem and happens in general. But, documenting this kind of issues should be helpful to provide the interoperability between IPv4 node and IPv6 node.

6. Acknowledgements
   Send the author comments if you want your name listed here.

7. IANA Considerations
   This memo includes no request to IANA.

8. Security Considerations
   Security issues associated with NAT have long been documented. This memo itself has no security issue.

9. References
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