Reasons to Deprecate Nat-PT

draft-aoun-v6ops-natpt-deprecate-00

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What is the target?

- NAT-PT [RFC2766] ::= SIIT + DNS-ALG
  - Issue: Ambiguity in RFC2766:
    Not clear if DNS-ALG is considered mandatory
  - Author's view: RFC2766 does not work out a viable solution without DNS-ALG
- Lots of fire targeted at NAT-PT
  - 6+ specific drafts
  - Issues spread across many documents

Bringing together all the evidence

- Issues inherited from NAT reiterated
  - These are applicable to *any* (v4 ⇔ v6) translator
  - Need to emphasise this in future version
- Issues from NAT-PT specific drafts summarised
  - These are basis for deprecation (or other fate)
- Believe we have the complete evidence for the prosecution
  - Mailing list seems to confirm this

Collateral Damage

- Not intended to rule out all forms of v4 ⇔ v6 translator
  - Some issues apply to all translators… but…
  - Some applications can live with the issues
  - Need to determine
    - when translators can be useful
    - what is needed in the translator
  - Suggest application specific proxies in some cases

Applicability – do we need NAT-PT?

- Scenarios mentioned so far…
  - Fronting legacy server
    - Translation … but DNS-ALG is NOT needed
  - Double NAT-PT –
    connecting v4 islands across v6 only ocean
    - Probably better solved by 4 in 6 tunneling
    - Need to do some specification and applicability work
  - ‘Military’ scenario – low resource applications
    - Any v6 only device/net to v4 only device/net
  - 3GPP IMS scenario

‘Military’ Scenario

- Devices *and* network are resource poor
  - New devices will be v6 only
  - Old devices will be v4 only
- Likely not the only scenario with v6 only devices/net connecting to v4 only devices/net
- The military case may have special reasons why NAT-PT is not the answer
  - But these cases need some form of translation

Considerations for Military Case

- High mobility/High availability needed
  - DNS may not be a useful tool here
- Military specifically trying to avoid NAT
  - Major reason why they want IPv6
  - NAT(-PT) is a failure/security attack nexus
- Expect only need limited specialised apps??
  - Specialised proxies may be a better solution
- Need to consider exact requirements
  …& identify similar cases that *really* need NAT-PT

3G (UMTS) IMS Scenario

- Needed due to specific limitations of air interface
- Tunneling might be a solution

Next Steps

- Analyse scenarios that appear to need translation
- Provide alternatives where possible
  - V4 in v6 tunneling specifications
- Specify limited translation mechanisms where needed
  - E.g. close-up server front end
- Decide the fate of NAT-PT….

What next for NAT-PT?

Alternatives…

- Deprecate NAT-PT altogether
  - Revise draft to emphasise failings of NAT-PT
  - Request RFC2766 moved to Historic status
- Identify very limited scenarios where NAT-PT is applicable
  - Rework draft as new applicability document
- Request RFC2766 reclassified as Experimental
  - Rework draft as ‘Issues with v6/v4 Translation’