Using PCP to trigger updating dynamic DNS records

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Context & Issue

• DDNS is a widely used service
  – Useful for Internet users who host services in the home network
  – Used by numerous providers over the world
  – Extensive list of DNS providers review on the internet
    • http://dnslookup.me/dynamic-dns/
    • http://www.dmoz.org/Computers/Internet/Protocols/DNS/Service_Providers/
    • http://noeld.com/services.htm
  – ddns service/ddns service provider/ddns service provider review/ddns setting up, search on Google:
    • About 3,770,000 results

• Add-on feature on the majority of residential routers
  – Configurable on major OS (OpenWrt, DD-WRT): support hundreds of hardware
  – 3Com, TP-Link, Linksys, D-Link, Gateworks, Huawei, and so on.

• **DDNS is broken in the IPv4 sharing context (e.g., DS-Lite, MAP, NAT64)**
Status of Current Practices

• DynDNS, GnuDIPDynamic DNS, opendyn, miniDNS, ...

• Updates between Client and Server:
  – Privately defined protocol -not standardized-, varying from one provider to another
  – Updates mostly via HTTP
  – A few web-based ones have emerged over time
Our solution: Rationale

• Sketch operational guidelines of how to provide DDNS when IP address sharing is in use
  – The DDNS service MUST be able to maintain an alternative port number instead of the default port number.
  – Appropriate means to instantiate port mapping (PCP is recommended) in the address sharing device MUST be supported.
  – DDNS client MUST be triggered by the change of the external IP address and the port number

• Provide one implementation example
  – To prove feasibility and to quantify the amount of required engineering effort
  – Example implementation is based on web-based implementation
  – Since current practices themselves are_not_standardized, it’s up to DDNS providers to decide their own implementation
Summary

• The I-D requires no changes to current protocols
• The I-D is rather an operational document
• It focuses on addressing problems for the third party DDNS service providers who use web-based form to do dynamic DNS updates
• DNS based updates may refer to [I-D.cheshire-dnsext-dns-sd] and [RFC6281]
For DDNS Operators

• Does your implementation support client service port (e.g. http server listening port when it is dynamic, not 80)

• What do you think of the http redirect function in DDNS system, from the perspectives of complexity, cost, etc.
Next steps

• Presented in PCP, the feedback is that “This is important work, but not PCP-specific”. The PCP WG suggested we socialize this work in dnsop
• Is it in the scope of DNSOP?
• More review and comments are appreciated