



6to4 Provider Managed Tunnels

draft-kuarsingh-v6ops-6to4-provider-managed-tunnel-02

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Level Set

- ▶ Native IPv6 is still the best option for IPv6 services
- ▶ Native IPv6 is “NOT” available or deployable everywhere right now (working on that)
 - ▶ Vendor Equipment/Software (Network Side)
 - ▶ CPE (install base, buggy IPv6 code)
 - ▶ Transition Technologies often requires CPE
- ▶ 6to4 is out there
 - ▶ Hosts, gateways/CPEs (in use)
- ▶ 6to4 is challenging for providers who have CGNs in place or soon will have (IPv4 depletion)
 - ▶ IPv6 connectivity does not solve the entire IPv4 challenges



Document Scope (Adjustments)

- ▶ Original scope of document included:
 - ▶ Unmanaged CPE with 6to4 Turned (Challenged connectivity)
 - ▶ CPEs with 6to4 Turned on Behind CGN
- ▶ Draft now concentrates on main use case of 6to4 behind CGN
 - ▶ Where Global IPv4 addresses are Used (Legitimate and less legitimate use cases)
 - ▶ Transparency not an issue here (broken anyways)
- ▶ Can still technically be used for non-CGN use case (Not Recommended)
- ▶ No direct participation required from external networks



Technical Points (Brief)

- ▶ 6to4-PMT operates northbound of 6to4 (RFC3068) clients
- ▶ Combines normal 6to4 with NAT66 operation
 - ▶ No Checksum Neutral mappings / dev code utilized RFC3022 Checksum Adjustment
- ▶ Translates 2002:ADDR to 2001:db8 (Provider Assigned) ADDR
- ▶ Low Cost
 - ▶ updates current 6to4 relays if Linux based as example – in place upgrade
- ▶ If used in non-CGN model, may help alleviate challenges related to neighboring networks
 - ▶ draft-carpenter-v6ops-6to4-teredo-advisory (typo in draft reference)



Testing Results (PreProd Environment)

- ▶ The concept works as expected (**RUNNING CODE, free to use - open**)
 - ▶ Client to Server options operate well
- ▶ Able to “undo” challenges related to 6to4 behind CGN
 - ▶ Does not fix peer-peer 6to4 endpoint communication (broken anyway) – unless both sides do NAT
- ▶ Runs on same system as normal 6to4,
 - ▶ where only policy triggered endpoints are subject to translation (provider dependent)
- ▶ Some Considerations
 - ▶ Some peer to peer considerations (PMT to 6to4)
 - ▶ Referrals to local 2002:: from PMT subject host
 - ▶ Transparency if used in general (non-CGN) environment



Next Steps

- ▶ **WG Document?**

- ▶ If yes then....

- ▶ **WGLC**

- ▶ If no then...

- ▶ **Chairs**

