

Scarcity in IPv4 Addresses: Transfer Markets

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Running out

- Hain (2005), Huston (2007) studies
- IANA unallocated address number pool consists of 39 unallocated blocks
- Enough to last 3 years, more or less
- IPv6 migration uncertain:
 - Might go fast, might take decades, might never happen
- We will probably be running dual stacks for a long time

The old IPv4 address regime

- RIRs conservation policies presume the existence of an unallocated free pool
- You get addresses by justifying your need for them using engineering studies
- You are supposed to return addresses that you don't need (this rarely happens)
- You can't sell or transfer addresses (except when you game the system to do it anyway)
- About half of the IPv4 address space is held by "legacy" holders
- Some legacy allocations are unused or hijacked

With IPv4 scarcity, everything has to change

- It's about reclaiming unused blocks, not giving out blocks from a free pool
- It's about transfers, not initial allocations
- It's about maintaining complete and accurate records, which function as titles
- It's about avoiding gray markets
- It's about controlling unwanted forms of hoarding and speculation
- It's about facilitating transfers while avoiding de-aggregation

Address transfer proposals

- Asia-Pacific region (APNIC): prop-050-v002: IPv4 address transfers (Huston)
- European region: RIPE 2007-08, Enabling Methods for Reallocation of IPv4 Resources. (Titley and van Mook)
- North America region (ARIN): Policy Proposal 2008-2 IPv4 Transfer Policy Proposal

Issues in transfer proposals

- Trigger date
- Geographic restrictions
- Role of “needs assessment”
- Speculation controls
- Fees
- Route aggregation

Myths and FUD about transfers

- **It will slow down IPv6 migration**
 - If migration is inevitable, transfer markets can only prolong it, not prevent it.
 - If IPv6 is not inevitable, then attempts to force people to migrate by preventing more efficient use of remaining IPv4 addresses could backfire badly.
- **Hurts developing countries**
 - Falsely assumes scarcity doesn't exist
 - A brick wall hurts developing countries more

More Myths...

- Favors incumbents
 - Opposite of the truth
- Unfair windfall to legacy holders
 - So what, if it gets the resources back into public use?
 - No other feasible reclamation method exists

Conclusion

- Major change taking place in RIRs
- Address management in 2008 similar to DNS in 1998
- You can get the complete paper here:
 - <http://internetgovernance.org/publications.html>

