Understanding where the transfer market is headed and what will drive it

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Primary source-of-supply is ARIN

- The primary source of supply for North America Network Operators will continue to be the allocations from ARIN
- ARIN began with parts of 6 x /8 from the InterNIC (estimated 38,252,032 numbers)*
- IANA allocated 36 x /8 to ARIN (603,979,776 numbers)
- The distribution of “various registries” space adds another 388 x /16 (25,427,968 numbers)
- Lastly, distribution of “recovered space” from the IANA of another 62 ¼ x /16 (4,079,616 numbers)
- Total allocated numbers from IANA to ARIN is 671,739,392 numbers or 2,623,982 x /24 blocks

**source ARIN’s Registration Desk*

Secondary source-of-supply is legacy

- Early registrations given out between 1983 to 1997 (legacy)
  - Class A: **42 x /8** (704,643,072)*
  - Class B: **11,045 x /16** (723,845,120)
  - Class C: **39,607 x /24** (10,139,392)
  - Total legacy registrations were **1,438,627,584** numbers or **5,619,639 x /24** blocks

** Caveat: Yes, 13 x /8 were given to the US Department of Defense (218,103,808)*

How much unused space in this pool?

- There is no way to definitely prove, without accessing each holder's network, if they are being used internally but let's look at what is being used in the public BGP table
  - Class A: The unused /8 holders have been picked over clean the last 5 years and sold off.
  - Class B: The research of this pool yields surprising results
    - By our research, we believe that there are 8,022 unused /16 blocks (525,729,792 numbers)*****
    - The issue is we also believe these are held by 6,140 different entities*****

**as of 1 March 2017*

Understanding where we were in the 1990s (over twenty years ago)

- The Protocol Wars: Effort was to get TCP/IP simply “out” in the world over X.25 and others
- No CIDR (RFC1519): Leap from a Class C to a B was excessively wasteful and not solved until late 1993
- No NAT (RFC1918): Was released in February 1996
- No Business ISP Offerings: PSINet, UUNET, ANS CO+RE don’t really get going until 1995
- LAN/WAN Managers: Internal telecom network persons that would order Frame Relay, ISDN or T-1s and build their own access
- DDN-NIC and InterNIC: Just ask and you got a Class B

What does this mean to the market?

- **Diffusion**: We have a room here full of potential buyers, there is no such thing, anywhere in the world, as a room full of sellers
- **Why?** Actually, most do not know they have a single Class B (/16) registration
  - They renumbered years ago into private address space
  - They now get their Internet services from business ISP providers who use their own network numbers not the customers
  - The LAN/WAN manager of the late 1980s to the early 1990s have nearly all retired and with them leaving so did the knowledge
  - These were free and not thought of as assets with value so senior management are unaware of these registrations

An informed conclusion

- **Significant Supply**: There appears to be compelling evidence of reserves of unused IP space.
- **Concerns**: Access to the rich trove of registrations requires an immense amount of effort and coordination with the registries to include legal documentation to recover control over the registrations.
- **Realignment for expectations**: If a network needs multiples of /16 in space, it may take several transfers to fulfill the need.