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 $6 \times 8$ from the InterNIC (estimated 38,252,032 numbers)*
- IANA allocated $36 \times 8$ to ARIN (603,979,776 numbers)
- The distribution of “various registries” space adds another $388 \times 16$ (25,427,968 numbers)
- Lastly, distribution of “recovered space” from the IANA of another $62 \frac{1}{4} \times 16$ (4,079,616 numbers)
- Total allocated numbers from IANA to ARIN is 671,739,392 numbers or $2,623,982 \times 24$ blocks

*source ARIN’s Registration Desk
Early registrations given out between 1983 to 1997 (legacy)

- Class A: \(42 \times 8\) (704,643,072)*
- Class B: \(11,045 \times 16\) (723,845,120)
- Class C: \(39,607 \times 24\) (10,139,392)
- Total legacy registrations were \(1,438,627,584\) numbers or \(5,619,639 \times 24\) blocks

* Caveat: Yes, 13 \(\times 8\) 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*
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 multiplies of /16 in space, it may take several transfers to fulfill the need.