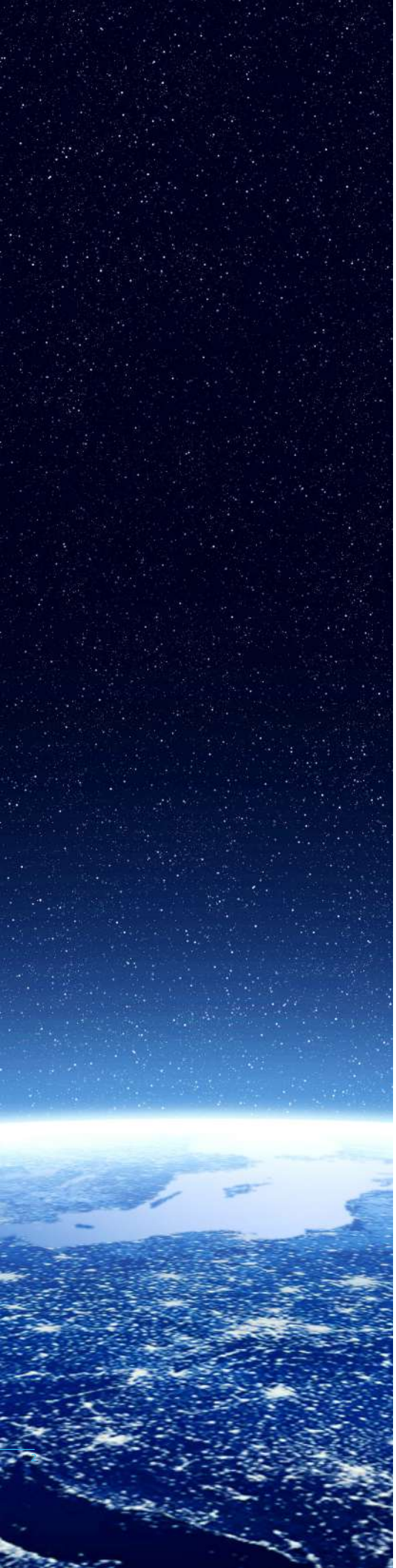
IPv4.GLOBAL

Powered by Hilco Streambank

# ANNUAL REPORT

2018

IPv4 Market Report



IPv4.**GLOBAL**

# TABLE OF CONTENTS

IPv4.Global

# NOTE TO
## READERS & JOURNALISTS

*premier broker & online marketplace*

There are limitations on the measurement of the IPv4 address marketplace which create some risk for those trying to interpret the data that is available. For starters, we rely on data published by the 5 Regional Internet Registries which only includes transactions which correspond to a record update in each Registry. This includes transfers done via mergers and acquisitions as well as market transfers. An increase in merger activity recorded at RIRs demonstrates an increased awareness about the value of IPv4 addresses. In our experience working with clients, historically very few IPv4 records were updated at the time of merger and much of our work involves updating those records prior to a transfer. Transactions that are unrecorded at the Registries include lease agreements and option agreements, each of which reflects market activity but for which there is no central repository of information. Additionally, policy and procedural changes make year over year comparisons susceptible to misinterpretation. However, and despite those limitations, there are enough recorded transactions from which it is relatively safe to draw some conclusions.

*Between Registry transfer data and our price data we believe we can develop a fairly complete understanding of the overall market.*

We rely on published transaction data from the five Regional Internet Registries as well as our own price data which we believe is a reasonable set of guideposts for the market overall. In fact, we believe that our buyers and sellers often have more access to price information than we do, and therefore make fully informed decisions regarding their acquisition or disposition of IPv4 space. Additionally, many visitors to our published transaction data use that to inform their transactions that don't involve IPv4.Global. Between Registry transfer data and our price data we believe we can develop a fairly complete understanding of the overall market.

It continues to be a “seller’s market” especially for larger ranges. Many of the organizations selling IP addresses are publicly traded companies and are motivated by, and rewarded for, demonstrating smooth and predictable earnings. As such, it is common for sellers to insist on timing the sales of

*Many of the organizations selling IP addresses are publicly traded companies and are motivated by, and rewarded for, demonstrating smooth and predictable earnings. As such, it is common for sellers to insist on timing the sales of address ranges so that the revenue is recorded in different quarters or years.*

address ranges so that the revenue is recorded in different quarters or years. While this may seem esoteric for the purpose of an IPv4 annual report, there have been transactions involving an entire Class A that have been divided between calendar years and show up on Registry records as such. Given the size of these transactions relative to the market overall, it is worth acknowledging that these take place over time and therefore the Registry records may not reflect real-time demand for addresses. On the buyer side, we have also seen buyers who request dividing a purchase across fiscal years to manage expenses.

**GABE FRIED**
*Cheif Executive Officer*

IPv4.Global

# IPv4 MARKET
## DEFINED

*premier broker & online marketplace*

In the aggregate, the marketplace for IPv4 addresses is visible in the transfer logs for IPv4 registration that are published by the 5 RIRs. This should be a complete global picture of transfer, and therefore market, activity.
There are differences, both by region and by block size, that are worth

*At the end of 2018, the ARIN, APNIC and RIPE regions were effectively a single market because addresses could transfer among and between the regions.*

understanding. A seller of an address range in any given region can only transfer to a recipient in a specific region(s) and thus the market is not 'global' for all participants. At the end of 2018, the ARIN, APNIC and RIPE regions were effectively a single market because addresses could transfer among and between the regions. LACNIC and AFRINIC were still closed to inter-regional transfers and functioned as isolated markets.

# MARKET
## OVERVIEW

The global market for IPv4 addresses continued to show strength in demand during 2018, with a 34% increase in the number of transfers for the ARIN-RIPE-APNIC regions. Total addresses transferred increased significantly, from 68 million to 74 million for a total increase of 8%.

## IPV4 TRANSFER MARKET: 2018
### ARIN RIPE APNIC

**ADDRESSES** ***TRANSFERRED*** **74,060,288**

**BLOCKS** ***TRANSFERRED*** **5,925**

**INCREASE** ***IN VOLUME*** **+8%**

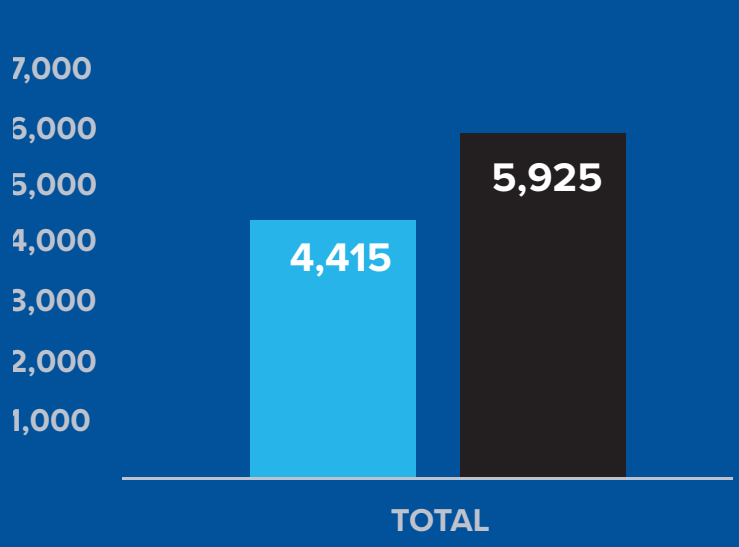
**ADDRESSES** ***PER TRANSFER*** **12,500**

## GLOBAL TRANSFER MARKET

2017 V. 2018

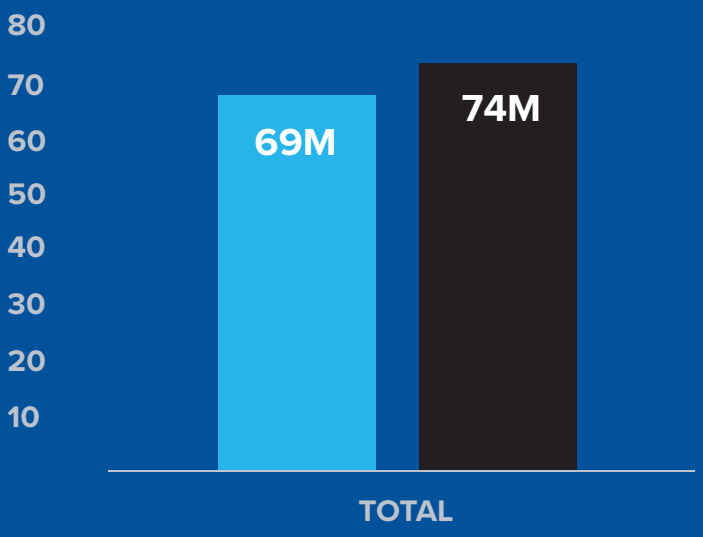
### Number of Transfers

ARIN - RIPE - APNIC



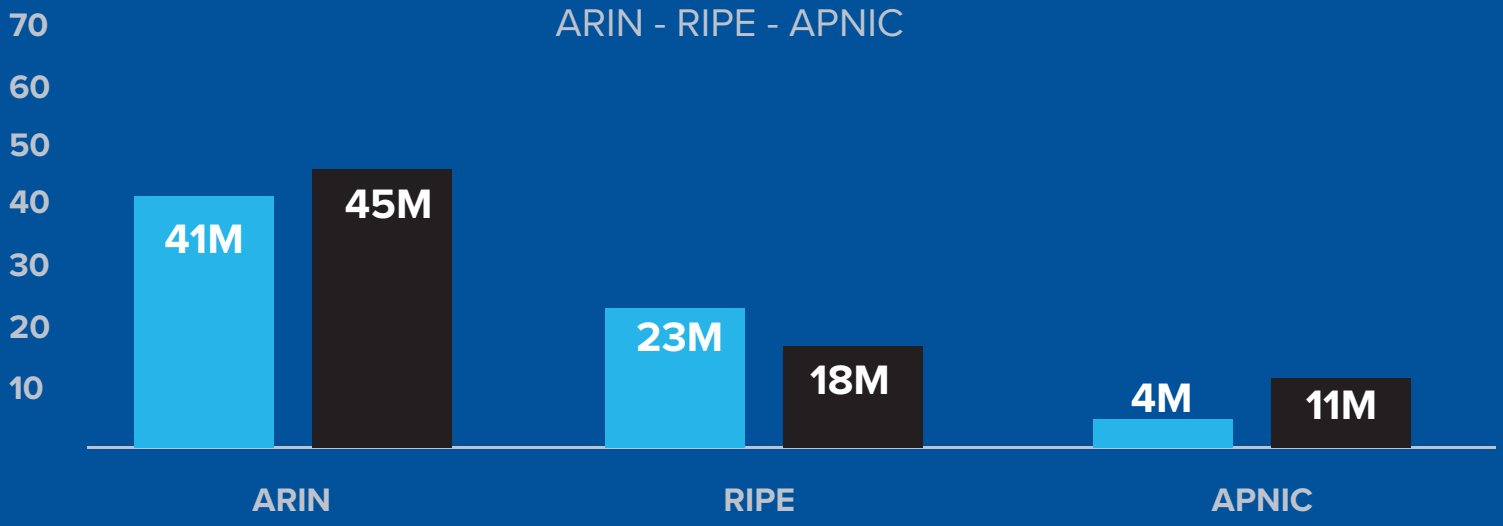

### Addresses Transferred (millions)

ARIN - RIPE - APNIC




### Addresses Transferred by Region (millions)

ARIN - RIPE - APNIC



IPv4.Global

# IPv4 MARKET
## TRENDS & PATTERNS

*premier broker & online marketplace*

More generally, we have seen the following patterns emerge since the first few transactions that were recorded in 2011 and they have remained remarkably stable ever since.

## CLASS A
### Buyers

The largest transaction recipients are those organizations with cloud computing operations, especially those addressing the very large global market for corporate customers. These buyers have aggressively pursued holders of the remaining Class A address space either directly or through their broker representatives. When possible, these transferees are looking for allocations of /12 or more.

## CLASS B
### Buyers

In the middle of the range of transfers are those organizations which often have a global or super-regional presence and serve either a large number of corporate customers or end users or both. These firms include large hosting companies and ISPs, both fixed line and wireless and are often looking for a /16 or more.

## CLASS C
### Buyers

At the much smaller range we see customers for allocations of /18 and smaller come from the widest assortment of firm types and sizes. Many are smaller ISPs and hosting companies but an increasing number of transferees are enterprises looking to own their own address ranges rather than lease them from an upstream provider and a large number of very small firms who have finally outgrown their prior allocations and need additional space. It is this last category that has emerged more clearly over the last several years as they often found ways through NAT or leasing to keep from acquiring additional addresses.

# MARKET
## ACTIVITY

Market behavior, as we can see through the transfer data and our published price information, appears to be consistent with a market that cannot allocate enough IPv4 space into the networks that want it fast enough. A number of observations based on our experience as brokers as well as reading transfer logs at the RIRs support this view.

**01** **There are a fewer and fewer Class A allocations to be transferred.** With each passing year, more Legacy Class A assets are changing hands. The transfer of space from large legacy space holders continues and the number of remaining Class A holders who don't operate large networks continues to shrink. These commercial decisions are significant in terms of size (a Class A at $20/IP is worth $335 million) and demonstrate a business case for continued deployment of IPv4 sufficient to amortize those purchases. Because these addresses are often bundled with other services (hosting, cloud computing and other web services) the amortization of a $20 purchase (or $5,120 for a /24) can happen quite quickly, especially as computing and power costs fall in the provision of those services.

**02** **Organizations are now acquiring /16s either on an individual basis or multiple /16s from the same transferor, even when they are non-contiguous.** This demonstrates both a continued appetite for IP addresses and a real shortage of available larger allocations. At the very large size range, the scarcity is acute and it's become a seller's market.

**03** **We are seeing convergence in the demand for space around Class B and slightly smaller allocations.** While it's clear that the buyers of Class A and Class C space do not directly compete with one another, some new and fast growing network operators which started with smaller ranges of IP addresses are now acquiring Class B ranges to accommodate their growth. This puts them in direct competition with the acquirers of Class A space (when available) who continue to satisfy their demand for space by accumulating Class B ranges as they need them or as they can find them at attractive prices.

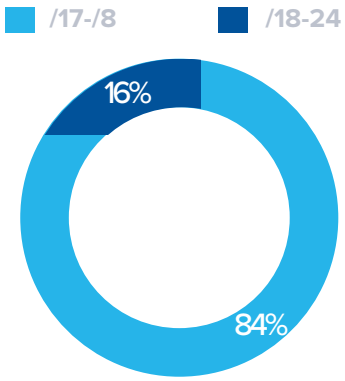
# VOLUME
## BY BLOCK SIZE

### NUMBER OF ADDRESSES TRANSFERRED

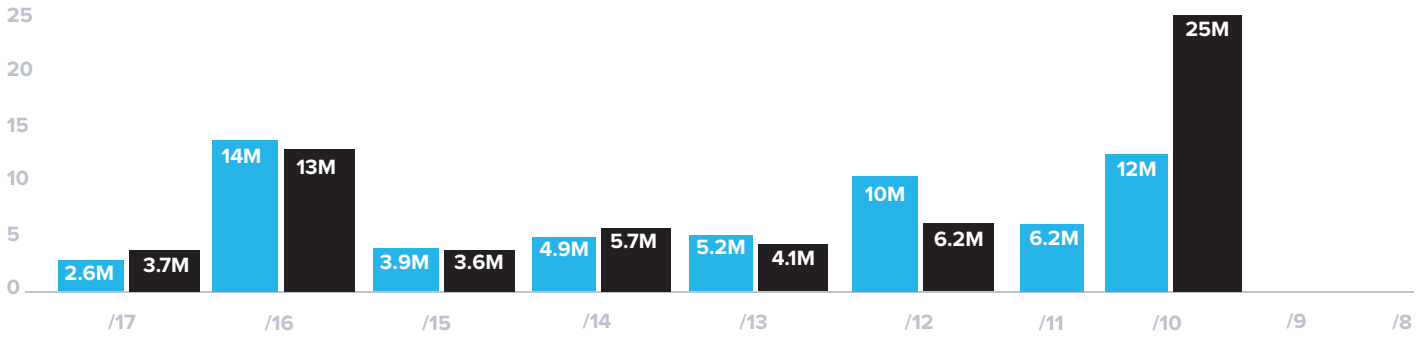
ARIN RIPE APNIC

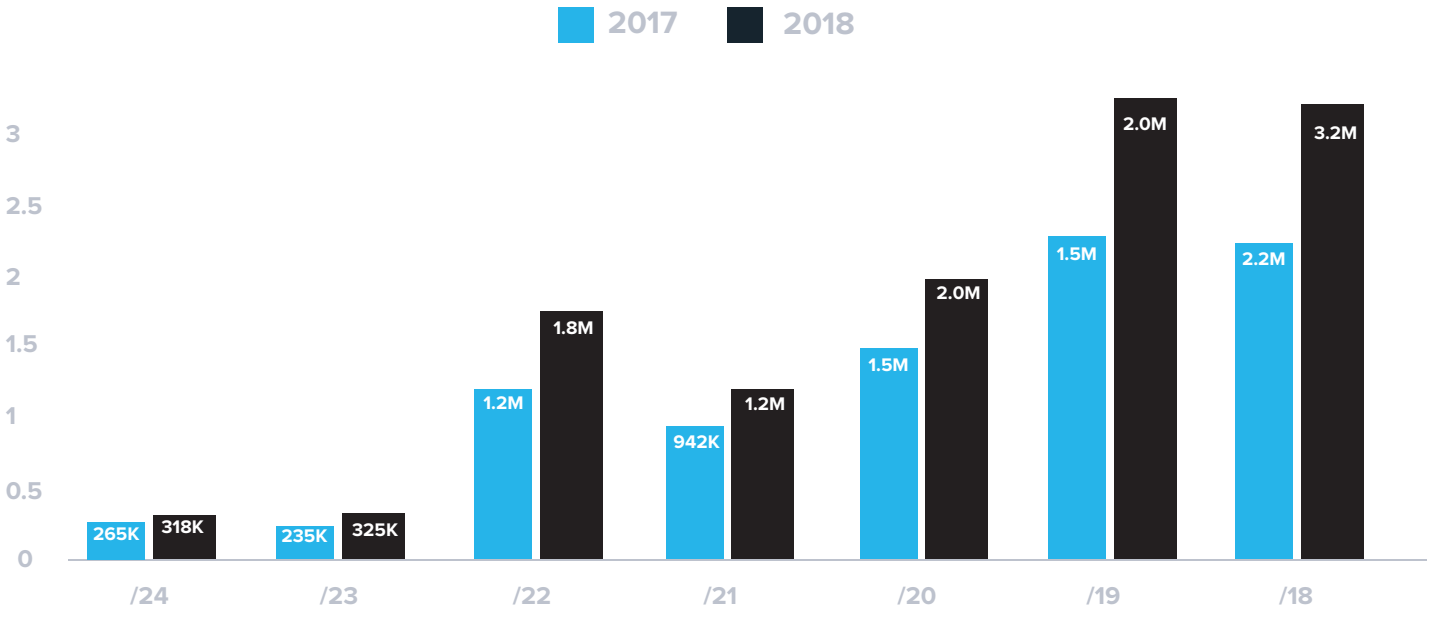
**PERCENT TOTAL** ***ADDRESSES TRANSFERRED*** **84%**

**ADDRESSES** ***TRANSFERRED*** **61,669,376**




/17 - /8



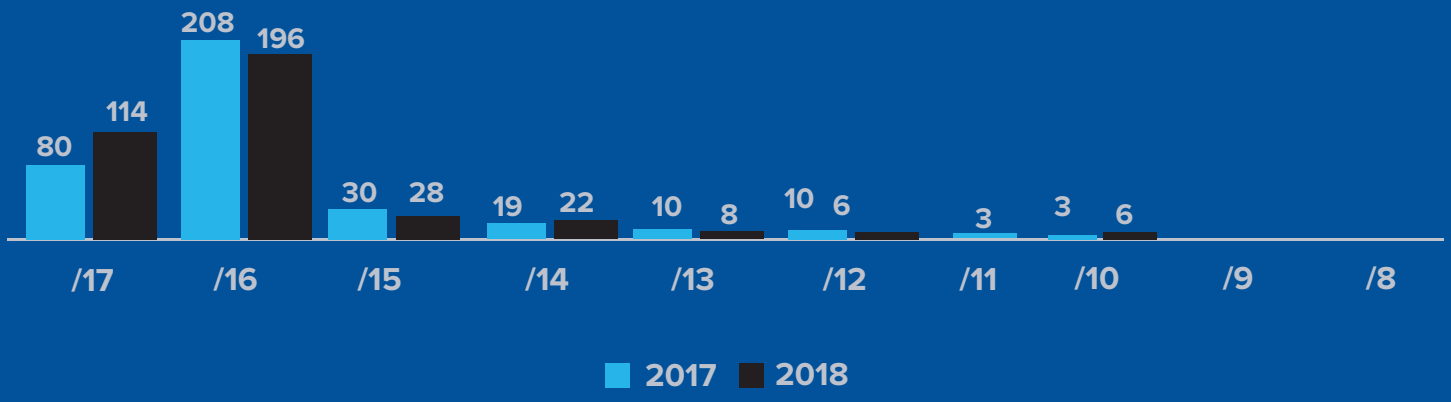




/18 - /24

## NUMBER OF TRANSFERS

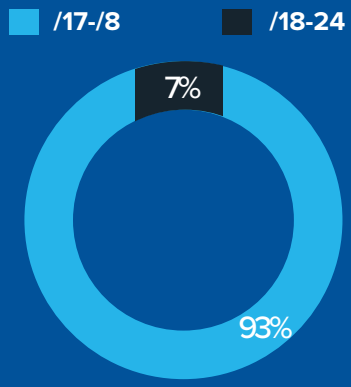
ARIN RIPE APNIC

/17 - /8

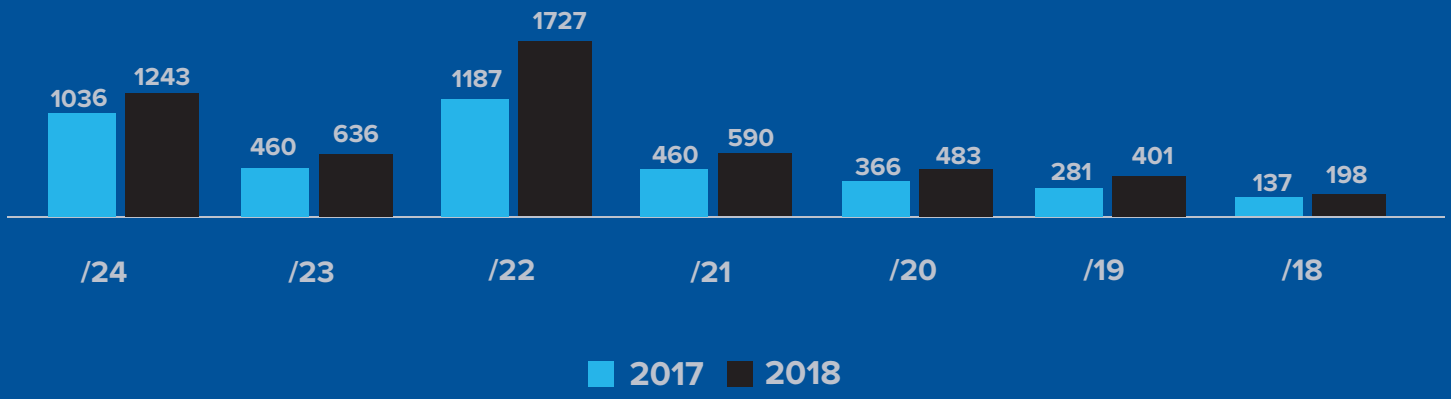



**PERCENT TOTAL** *TRANSFERS* **93%**

**TOTAL** *TRANSFERS* **5,278**

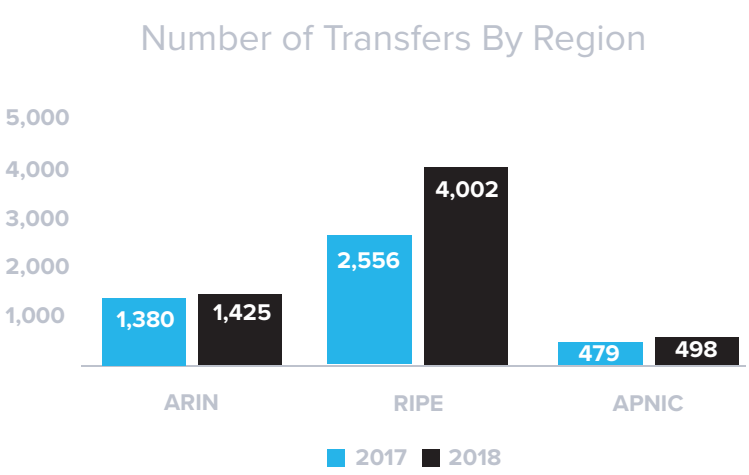


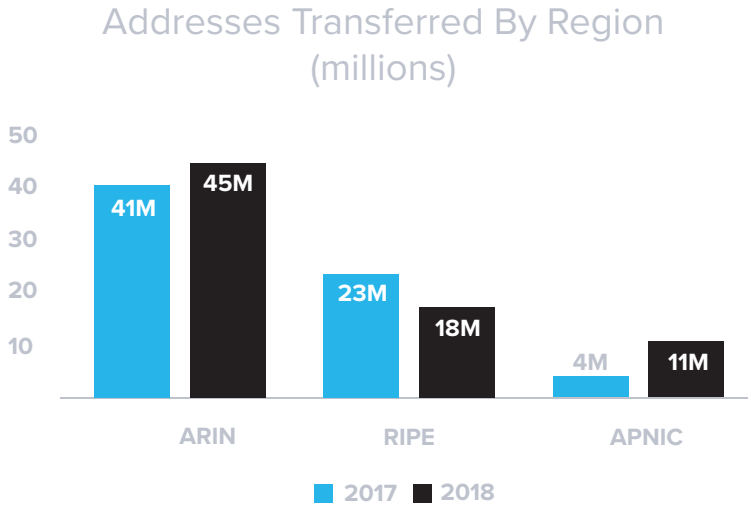

/18 - /24

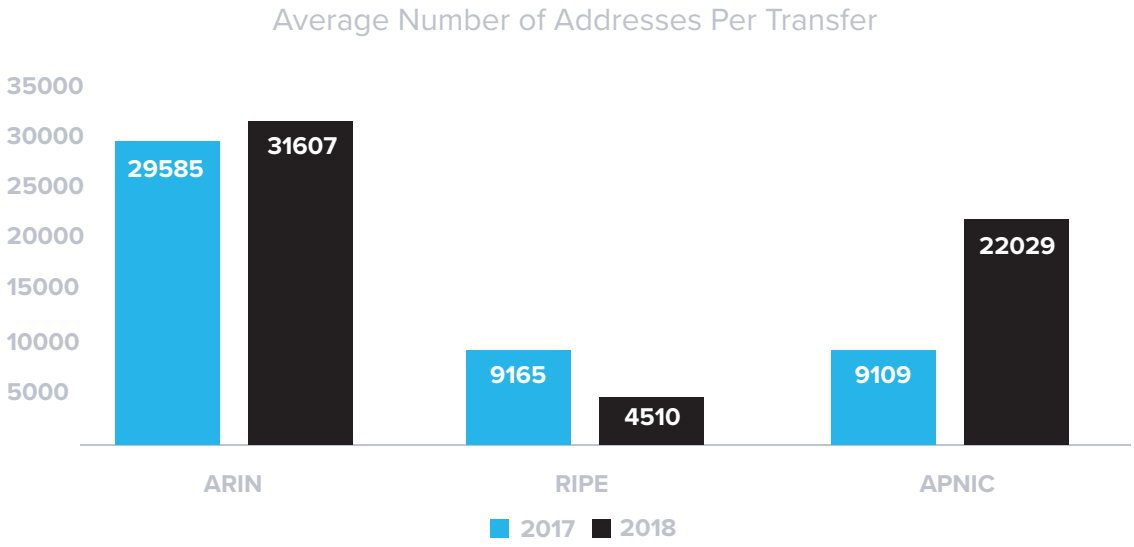


# VOLUME
## BY REGION

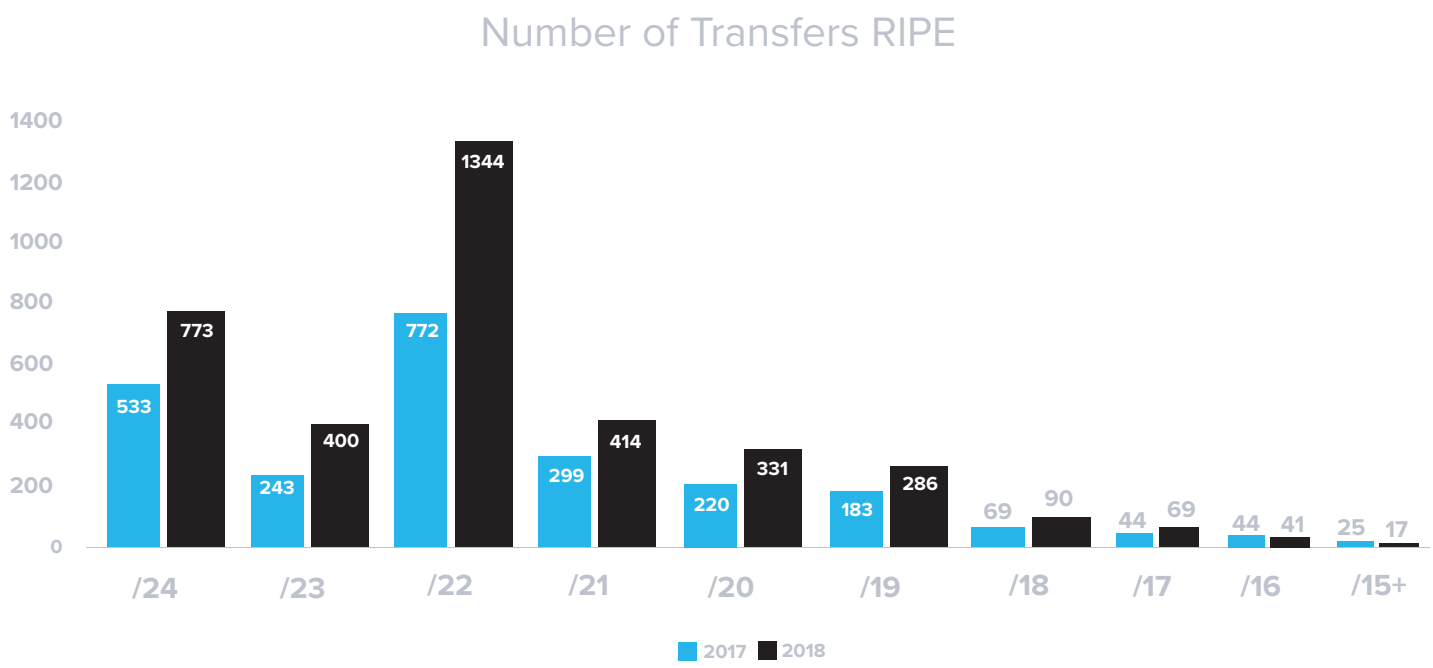
Looking more closely at transfers by region we can see that ARIN saw a steady rise in demand, reporting a 3% increase in the number of transfers and a 10% increase in the number of addresses transferred from 2017. APNIC experienced a large increase in the number of addresses transferred but the amount of transfers remained steady. The difference is due to the fact that APNIC recorded 4 transfers larger than a /13 in 2018. Conversely, RIPE had a large increase in the number of transfers but saw a decrease in the total number of addresses due to the decrease in larger blocks transferred.



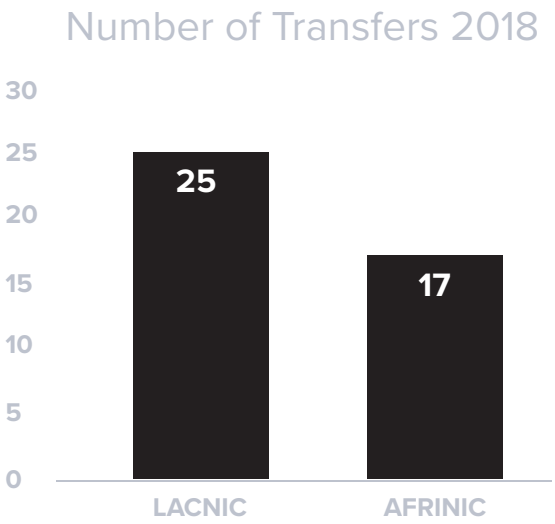



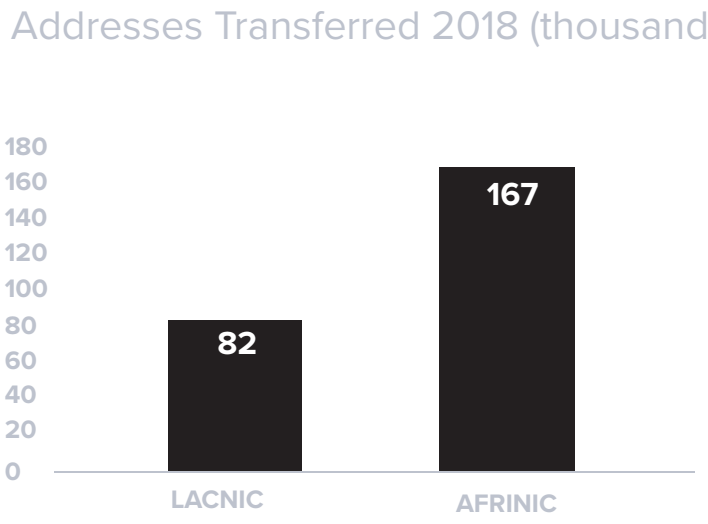



RIPE also saw a surge in the transfer of /22 blocks as they become available to transfer after RIPE's two-year holding period expires.




Both LACNIC and AFRINIC adopted intra-regional transfer policies and have demonstrated some transfer activity already. However, both regions operate austerity pools of IPv4 resources and both regions have very little legacy IPv4 space, unlike ARIN and RIPE at the time those regions either ran out (ARIN) or landed on their last /8 policy (RIPE). Should either of those regions open to the global transfer market we anticipate more transfer activity both within and between those regions. One limitation on intra regional activity might be that sellers have a hard time obtaining reliable price information when volumes are so low. Better price information should increase liquidity in the marketplace



# IPv4
## PRICING

**AVERAGE PRICE PER IP** *(/17 AND LARGER)* **$20.17**

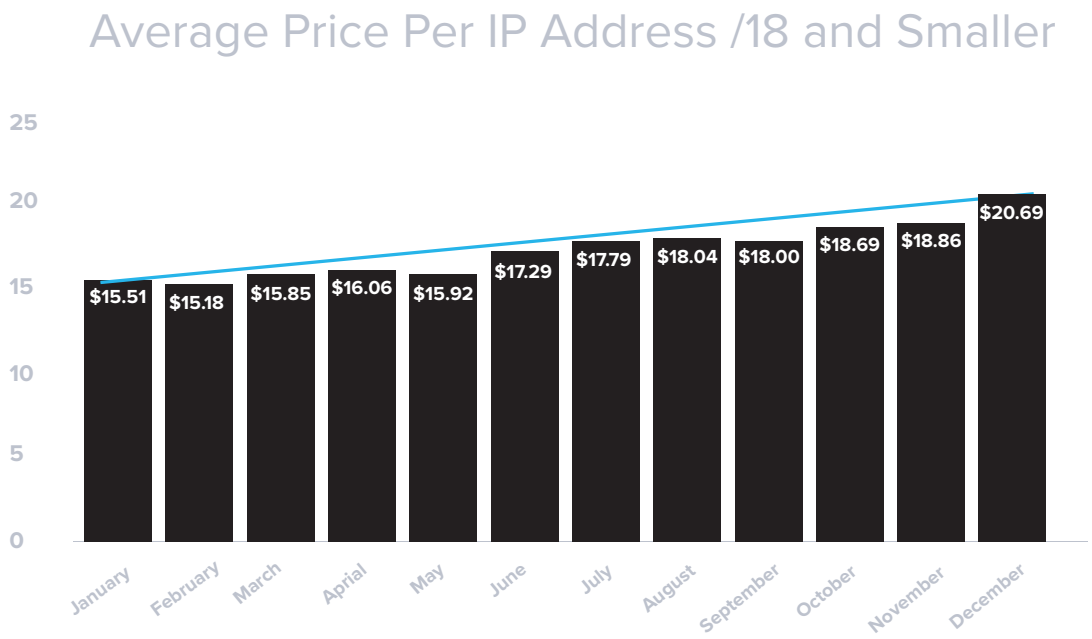
**CHANGE IN PRICE YOY** *(/17 AND LARGER)* **18%** ⬆

**AVERAGE PRICE PER IP** *(/18 AND SMALLER)* **$17.24**

**CHANGE IN PRICE YOY** *(/18 AND SMALLER)* **33%** ⬆

*FOR LARGER BLOCKS* **17%**

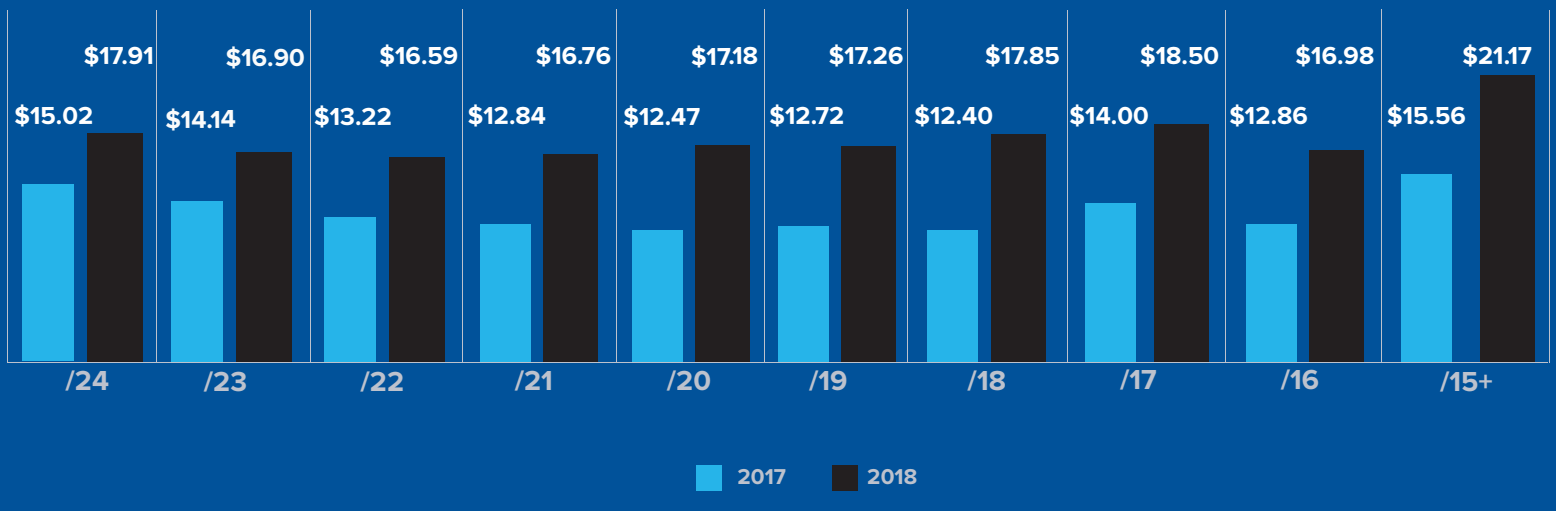
We provide pricing data in real time for our online auction sales, which typically involve address allocations between /24 and /18, and the occasional ASN. Over 2018 we saw prices increase by approximately 33%, with average prices in January 2018 of $15.51 and December 2018 of $20.65 for an overall average price per IP address of $17.24.



View the charts below for a more in depth look at pricing per month by block size throughout 2018.

| Block | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| /24 | $16.06 | $15.78 | $17.22 | $17.79 | $17.44 | $18.01 | $17.09 | $17.73 | $18.58 | $18.89 | $20.62 | $20.80 |
| /23 | $15.52 | $15.09 | $15.49 | $16.25 | $16.25 | $16.82 | $16.86 | $18.17 | $18.46 | $18.80 | $19.28 | $20.12 |
| /22 | $15.75 | $15.41 | $15.70 | $16.45 | $15.93 | $16.20 | $16.88 | $17.50 | $17.42 | $18.13 | $18.67 | $19.44 |
| /21 | $15.67 | $13.00 | $15.44 | $15.50 | $15.38 | $16.50 | $17.38 | $17.60 | $17.75 | $18.44 | $18.44 | $20.00 |
| /20 | $15.38 | $15.75 | $15.75 | $16.00 | $15.90 | $17.00 | $17.83 | $17.50 | $18.19 | $18.41 | $19.00 | $20.43 |
| /19 | $15.32 | $15.25 | $15.97 | $16.00 | $16.00 | $17.50 | $17.29 | $18.81 | $18.00 | $18.88 | $18.88 | $19.00 |
| /18 | $15.00 | $15.00 | $18.50 | $16.00 | $16.00 | $18.00 | $19.00 | $18.50 | $18.00 | $18.50 | $18.50 | $22.31 |

## Average Price Per IP Address By Block Size



IPv4.Global

# MARKET
## PREDICTIONS

*premier broker & online markeplace*

2018 was not a year of surprises in the IPv4 transfer market. The lion's share of the data indicated that both volume and unit price increased consistently throughout the year and also versus 2017. We have often referred to the generation of address supply as analogous to mining. The easiest resources to mine are those sitting at or near the surface. We believe that most of that address space allocated, unutilized and available in large contiguous ranges, has been transferred to networks that have deployed that space. In the current phase, identifying veins of unutilized or underutilized resources and working to liberate them in order to sell them seems to be ongoing and the market remains liquid enough and demand remains strong enough that inventory sells quite quickly.

Our predictions for 2019 are very similar to what happened in 2018. We believe that large transactions (/15 or bigger) will see the largest increases in unit price and also a decline in volume. This prediction is very susceptible to one or two /8s changing hands as that will make an enormous difference in volume. For smaller ranges, at or below /16, we see continued very strong

*Our predictions for 2019 are very similar to what happened in 2018. We believe that large transactions (/15 or bigger) will see the largest increases in unit price and also a decline in volume*

demand and upward pressure on price. It would not surprise us to see average pricing for small blocks on our auction platform to exceed increase 10-20% by December 2019 and it would not surprise us to see /16s trading in that price as well. We already see a price premium in the larger ranges and expect that to continue.

As it relates to IPv6 adoption, we still don't see strong evidence of the substitutability of these protocols. It seems as though IPv6 remains part of a dual-stack architecture and that trend will continue for some time. We believe a tipping point will be predictable by an increase in price and significant decrease in volume which we have not yet seen.

# IPv4.GLOBAL

Powered by Hilco™ Streambank

private broker & online marketplace

1500 Broadway Suite 810
New York, NY 10036

+1 212.610.5601

support@ipv4.global