



**RIPE NCC**  
RIPE NETWORK COORDINATION CENTRE

# Feedback From RIPE NCC Registration Services

Post Run-out Life



# The Road to IPv4 Run-out

# Milestones

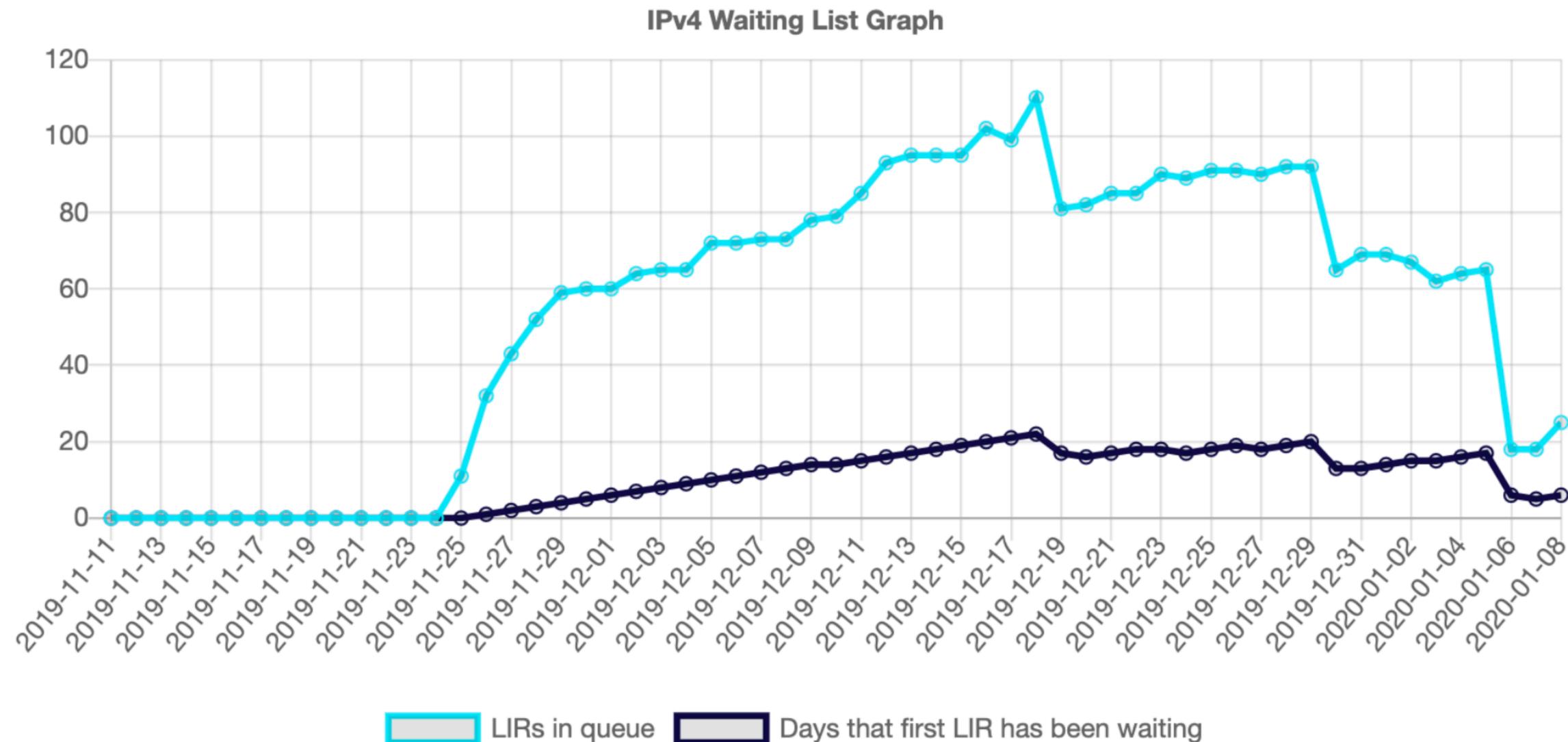


- Until October 2019 we were allocating  $\pm 40$  /22s per day
- On 2 October 2019 we ran out of contiguous /22s
- Then, we were allocating on average  $\pm 25$  /22 equivalents per day
- On 25 November 2019, (15:35 UTC+1) we reached IPv4 run-out
- At that moment
  - The new policy kicked in
  - The allocation size was reduced from /22 to /24
  - The IPv4 waiting list became active

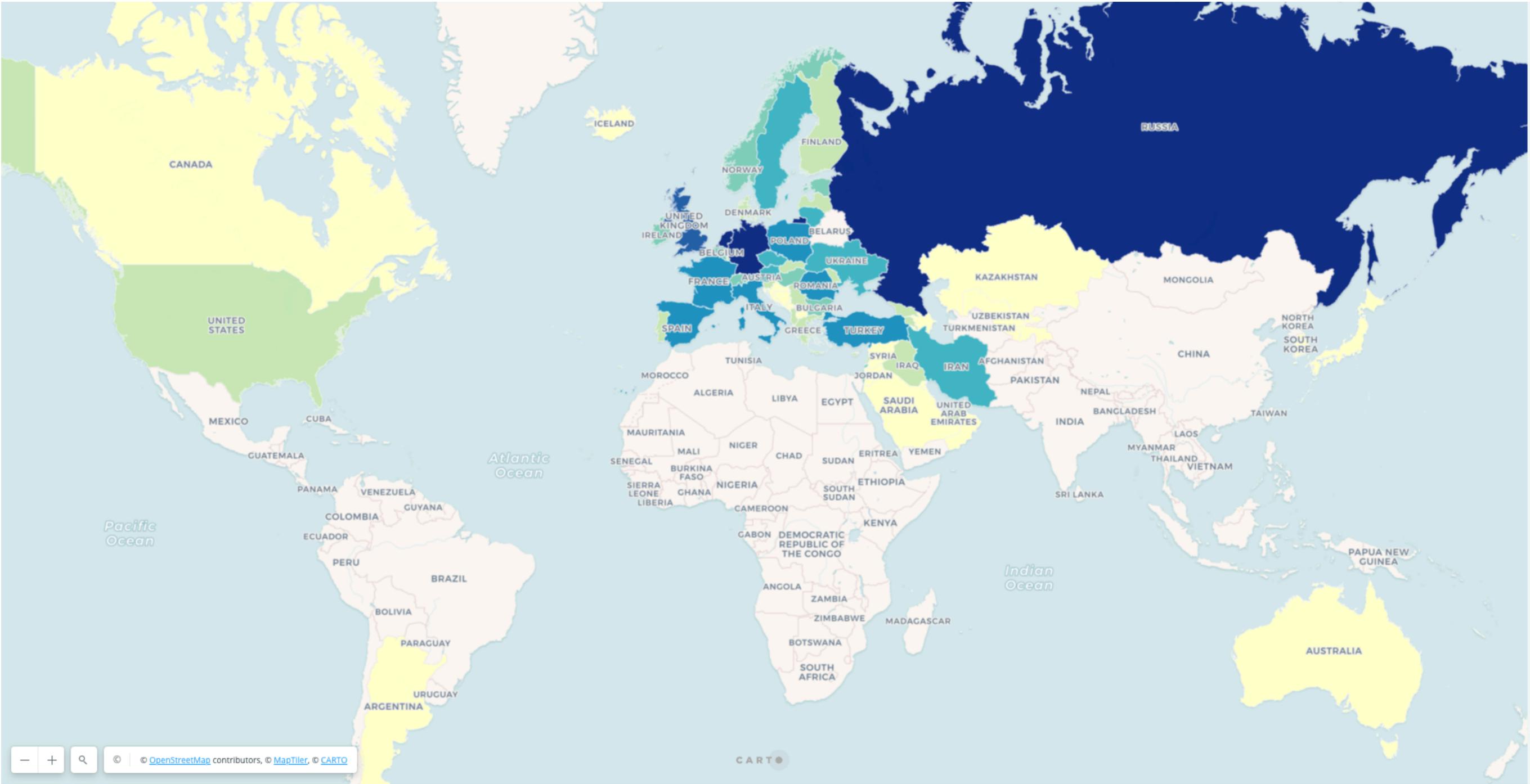
# The First Month



- The first /24 allocation was made via the waiting list on 3 December 2019



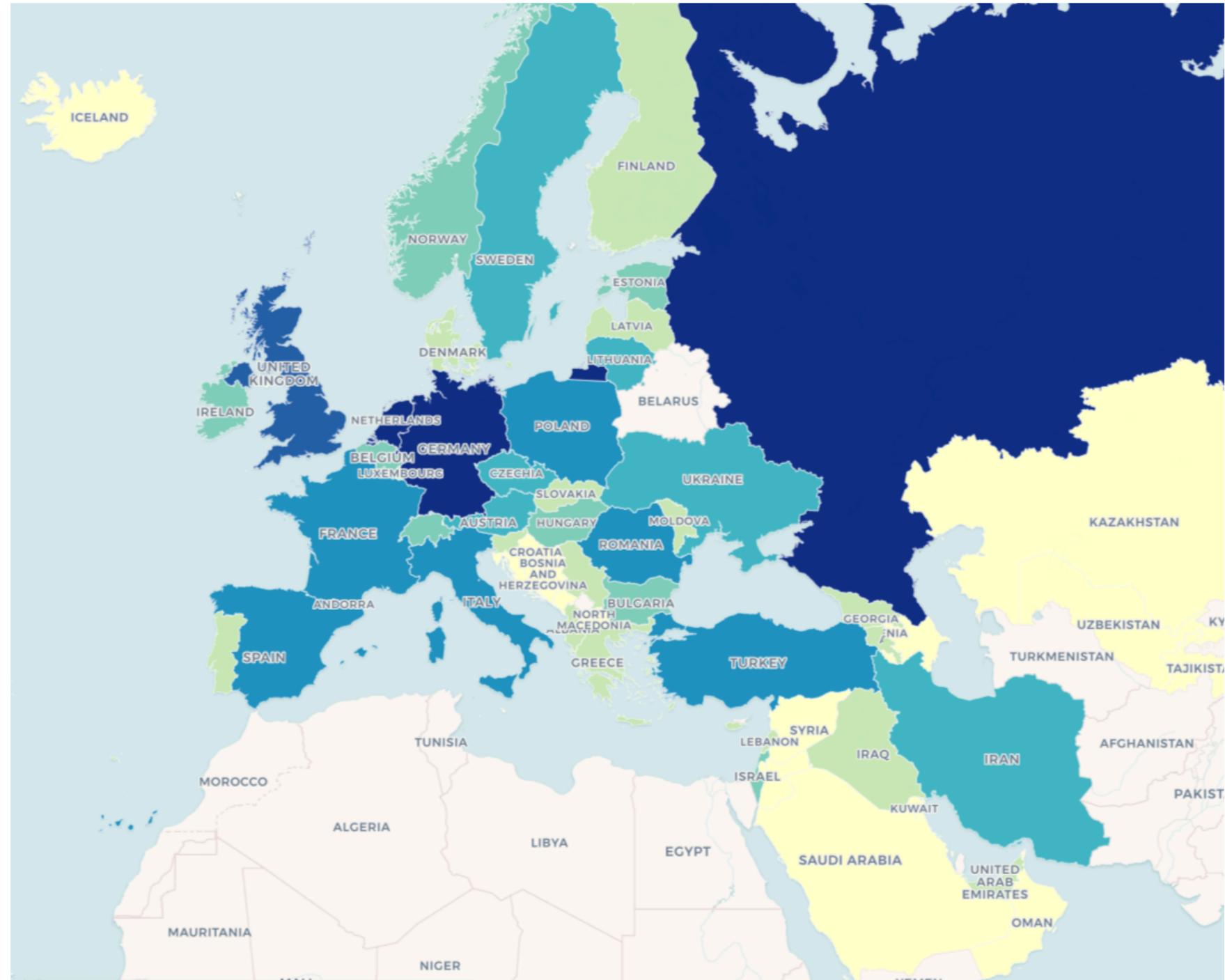
# Where Did The Last /22s Go? (Final Six Months)



# Top 10 Receiving Countries



Country	/22s
NL	573
DE	499
RU	488
GB	367
FR	215
ES	192
IT	125
PL	119
RO	107
TR	82



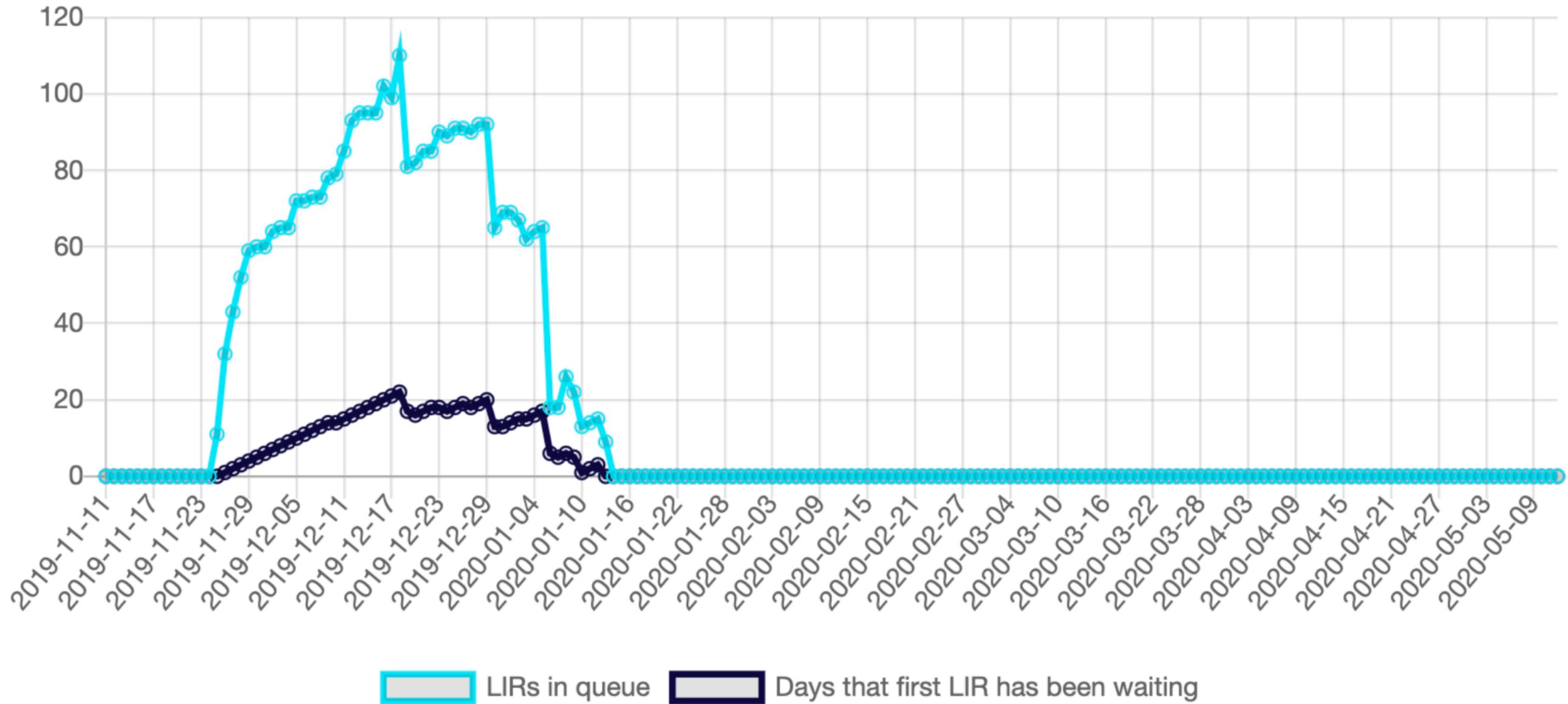


# **IPv4 Waiting List: Current Status**

# Current Status



IPv4 Waiting List Graph

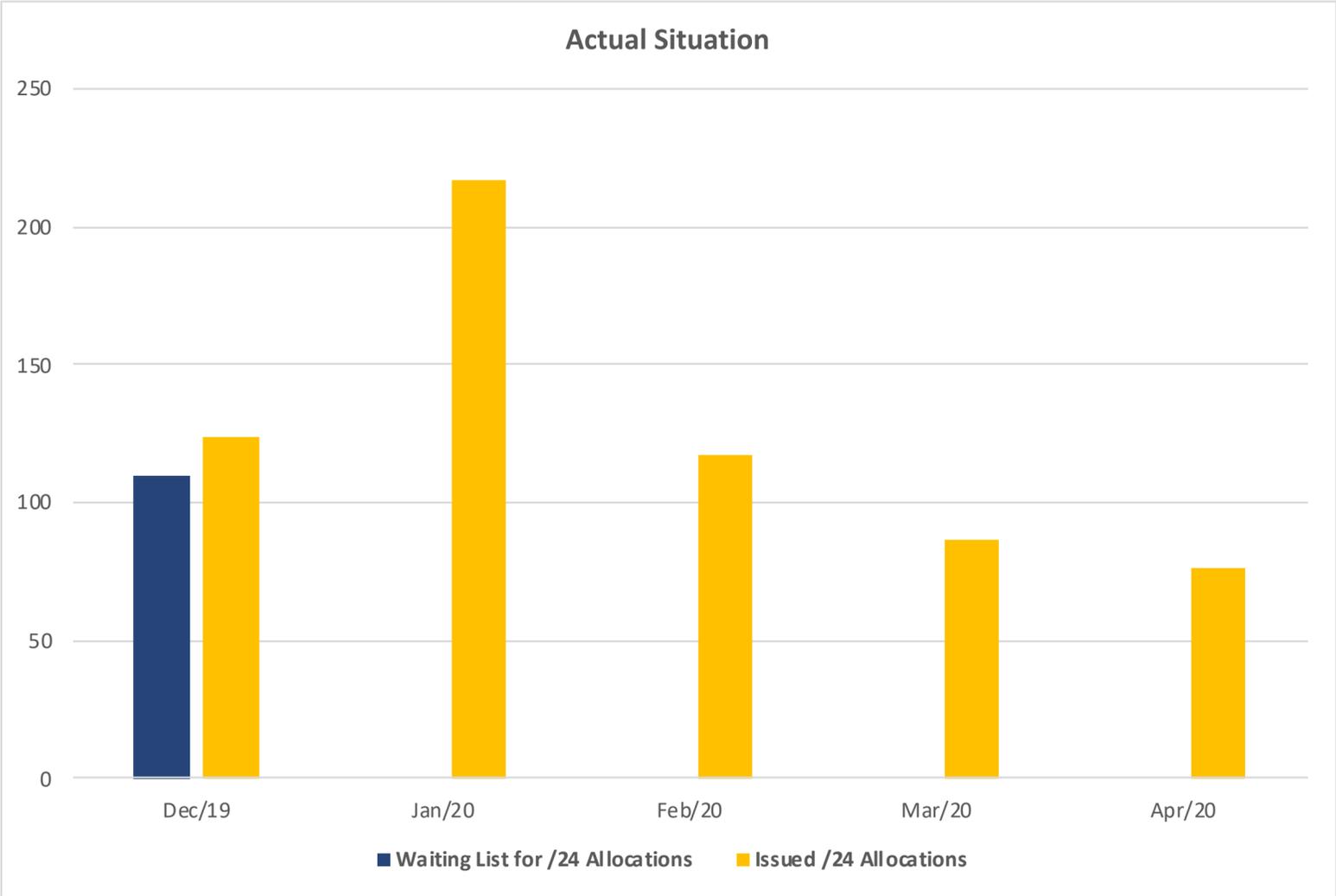
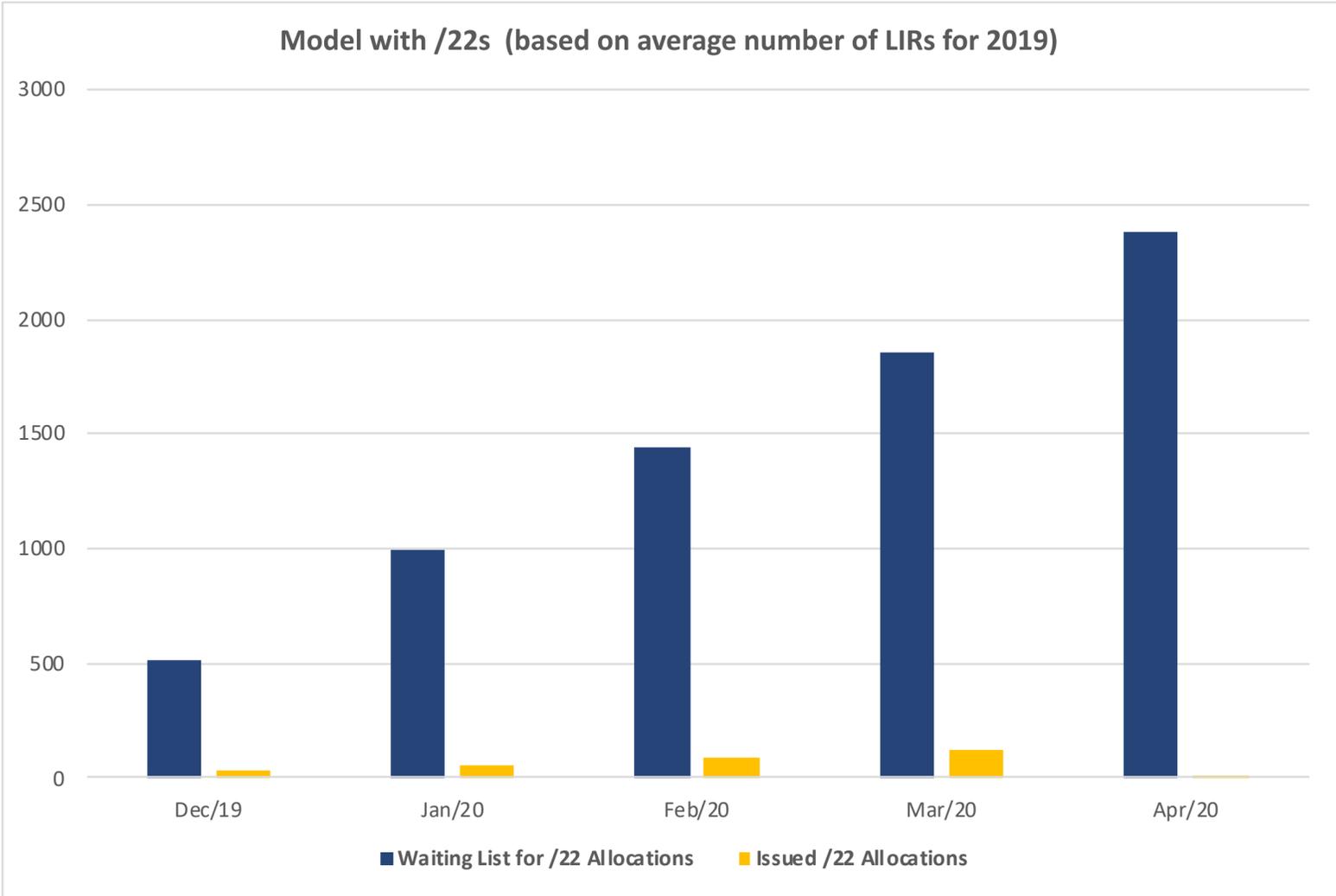


# Current Status



- We allocate five /24s per day on average
- Have allocated 645 /24s in total
- We released  $\pm 0.5$ M IPv4 addresses from quarantine in the previous six months
- 1,340 /24s in our free pool
- Expect to release 456 /24s from quarantine in the coming six months

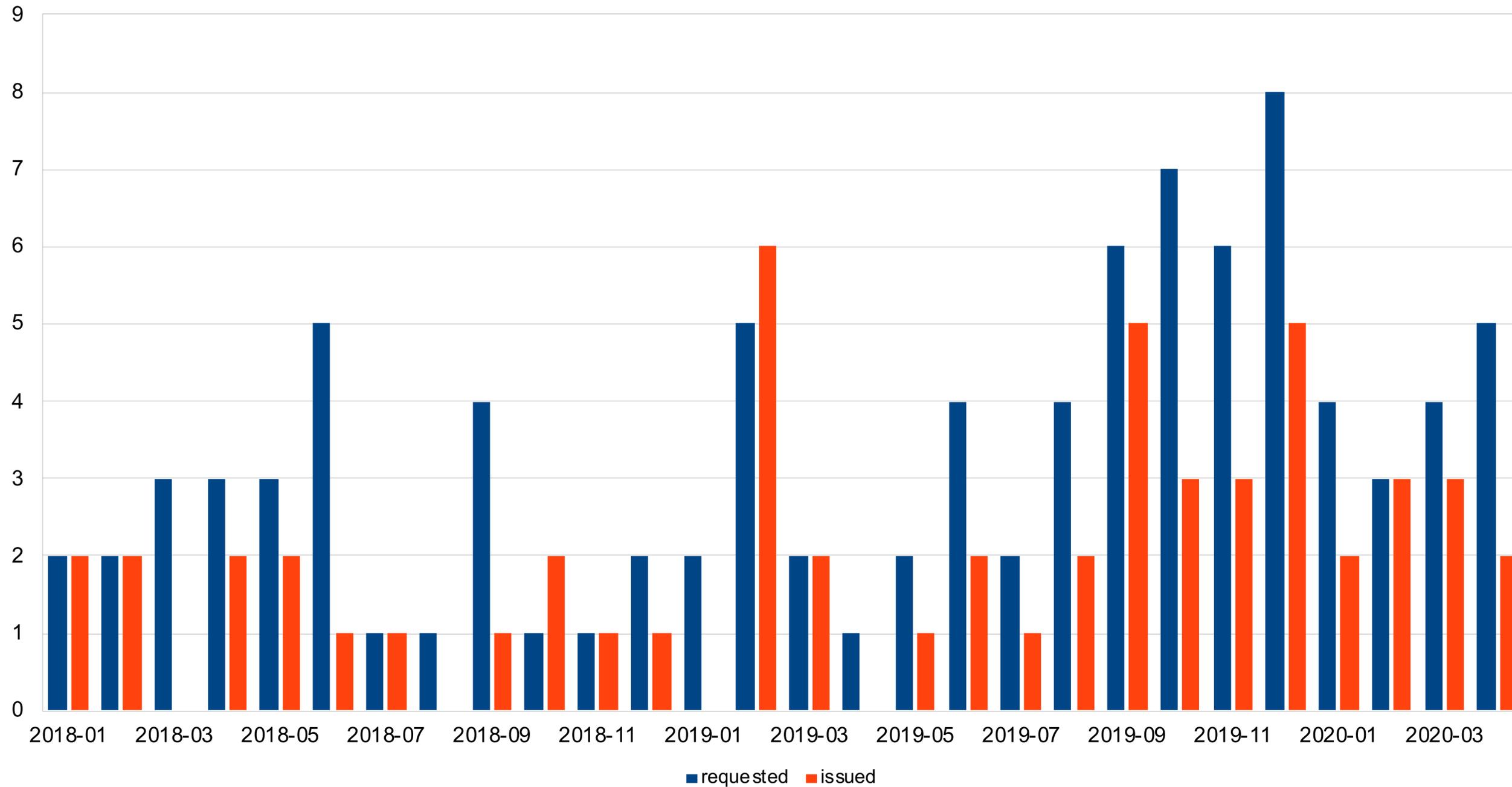
# The Policy Worked As Intended





# **IXP Assignments**

# IXP Assignments Distribution Rate



# IXP Assignments (After The Policy Change)



- Before 2019-05, we had on average 2-3 requests per month
- After 2019-05, we have on average 4-5 requests per month
- Previous forecast for the depletion of the IXP Pool:  $\pm 2033$
- Current forecast for the depletion of the IXP Pool:  $\pm 2030$
- $\pm 25\%$  reduction in the life expectancy of the IXP Pool (if current trend continues)

# IXP Assignments



- According to ripe-733:

*“New IXPs will be assigned a /24 by default... On request or once there are no more assignments of /24 (or larger) available, assignments can be made down to /27.”*

- No requests so far for assignments smaller than a /24
- Policy proposal 2019-07 was withdrawn
  - Aimed to change assignment size from a /24 to a needs-based model, with a /27 as a minimum



# Registry Housekeeping

# RIPE NCC Resources Returned



- **We returned the following resources to the free pool:**
  - 193.30.30.0/23
  - AS198767
  - AS198768
  - AS198769
  - 2001:67c:2888::/47
  - 2001:67c:2900::/43
- **The original criteria on which the assignments were based were no longer valid**

# AS Number Clean-up



- In June 2017, we began emailing LIRs that hold or sponsor AS Numbers that are not visible in the routing system, to see if these resources are in use.
- LIRs can either tell us they still need the ASNs or return them to our free pool.
- Done on a “best effort” basis
- Approximately half of the unused ASNs are being returned to the free pool

# AS Number Clean-up



- **In the past year, we contacted LIRs for 602 unused ASNs**
  - 266 ASNs were returned to the free pool
- **In total, we have contacted LIRs responsible for 1,250 ASNs**
  - 613 ASNs have been returned in total
- **There are 5,859 ASNs not being advertised in the routing system**

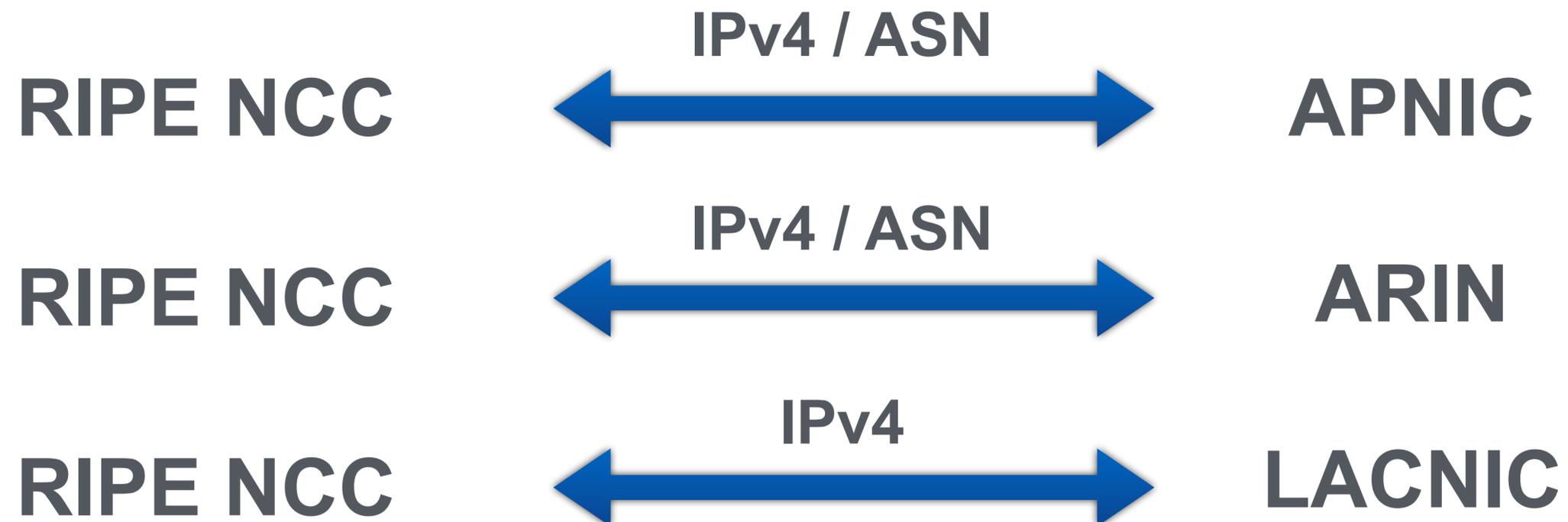


# Inter-RIR Transfers

# New Entrant For Inter-RIR Transfers



- LACNIC to join Inter-RIR Transfers in the near future (IPv4 only)





# Questions



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