

# Operational Update

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# Post IPv4

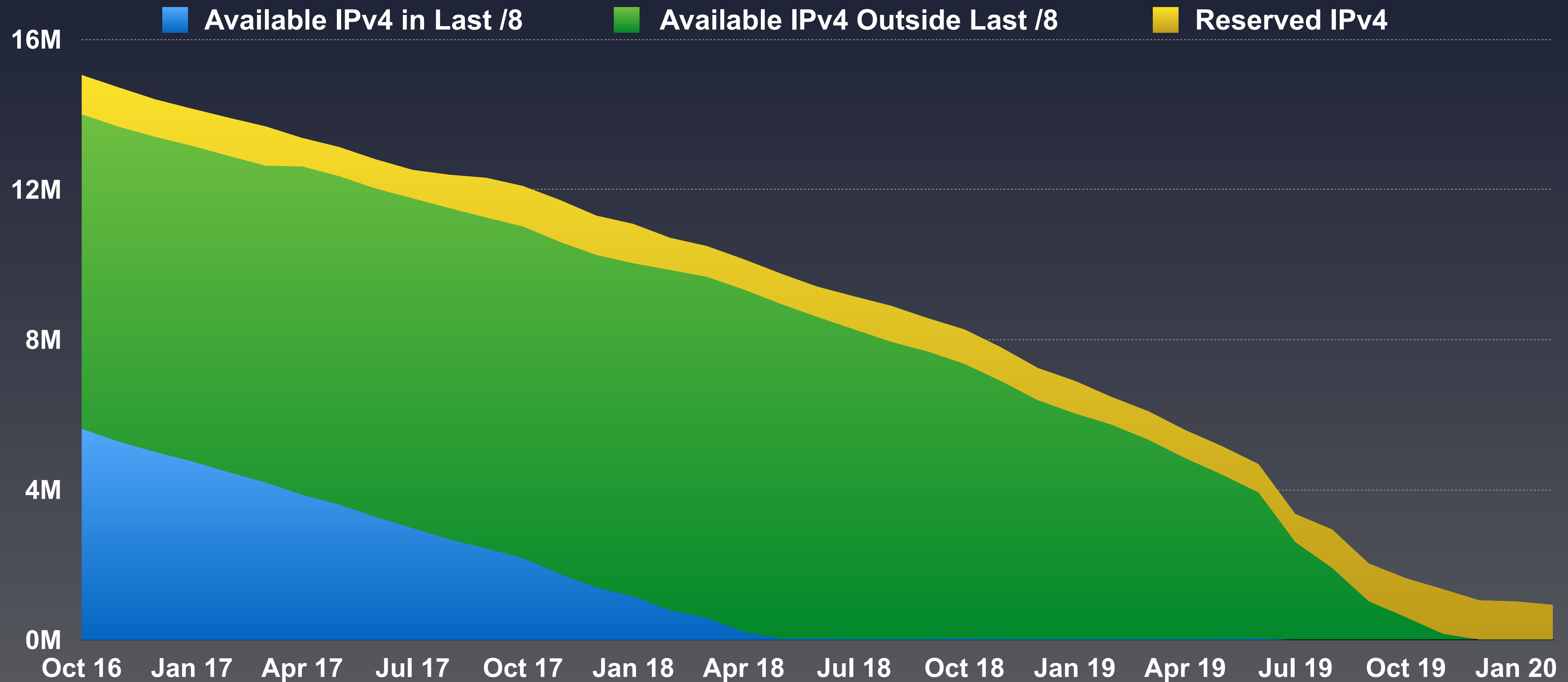
How is life after  
run-out?

# IPv4 Run-out



- Announced on 25 November 2019
- Long-anticipated and planned for
- Increase in LIR applications as we approached the end
- Waiting list now in place for recovered /24s
- We will continue to allocate these small amounts for the foreseeable future

# RIPE NCC IPv4 “Pool”...





...Becomes IPv4 “Puddle”

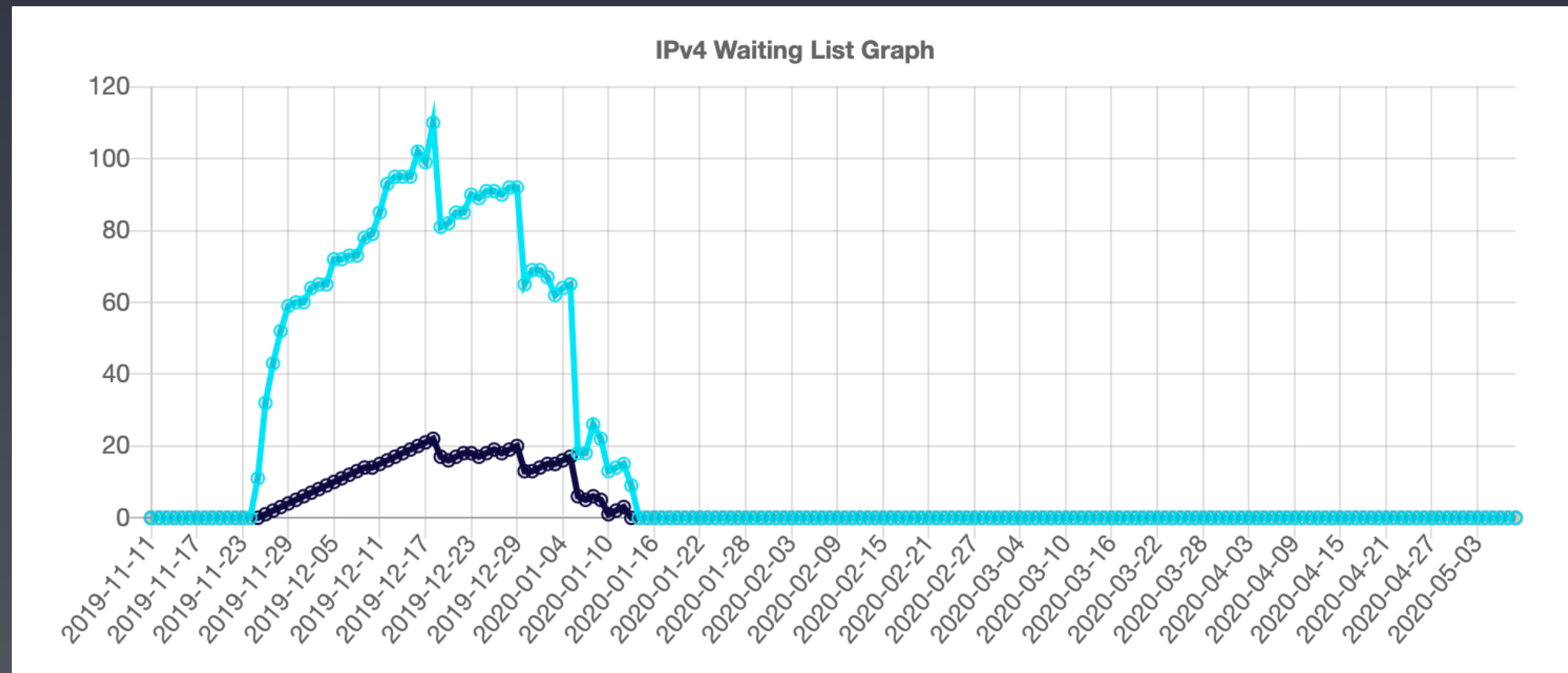




# Waiting List for Returned Address Space

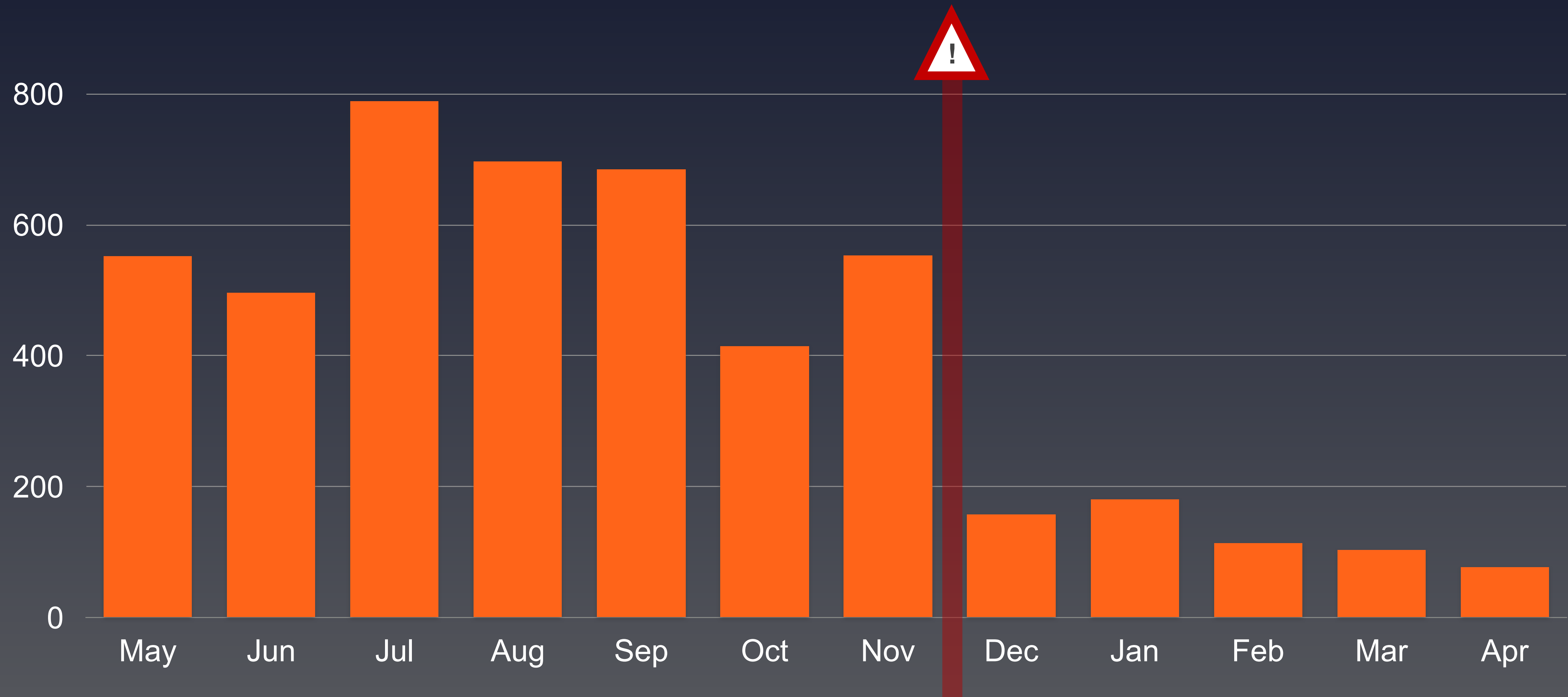


- No wait for new LIRs currently
  - 1,340 /24s in our pool
  - Expect to release a further 456 /24s from quarantine over the next six months

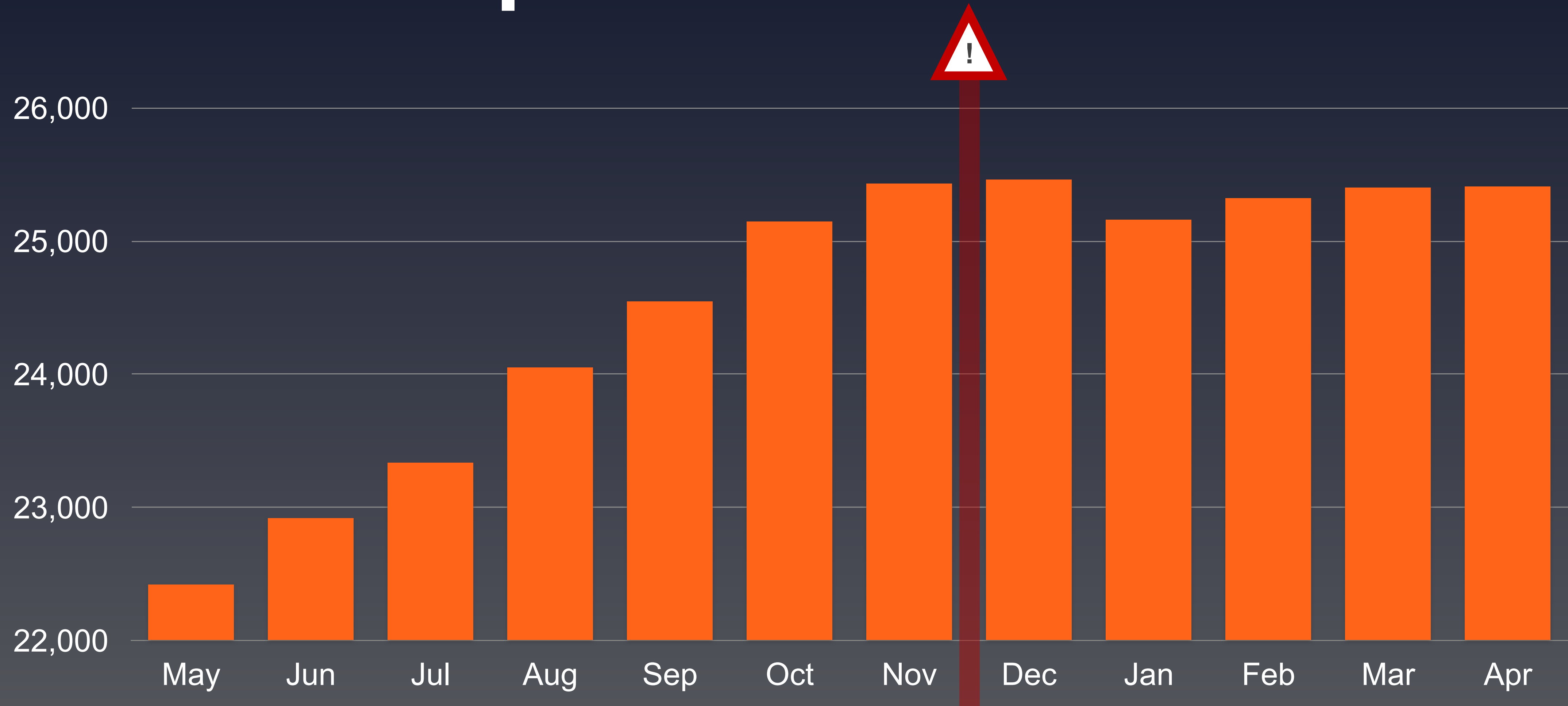


<https://www.ripe.net/ipv4-waiting-list>

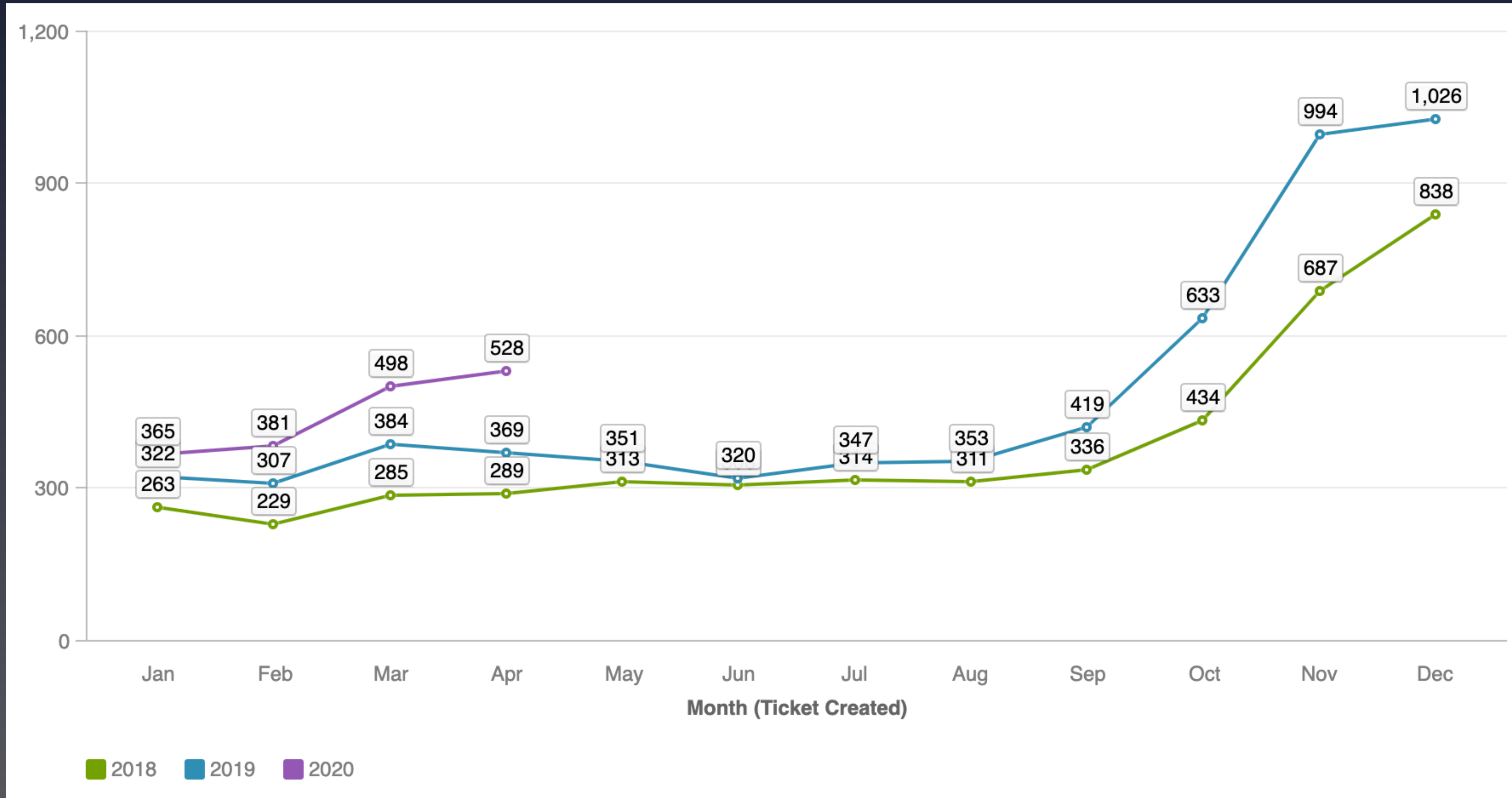
# Number of New LIRs



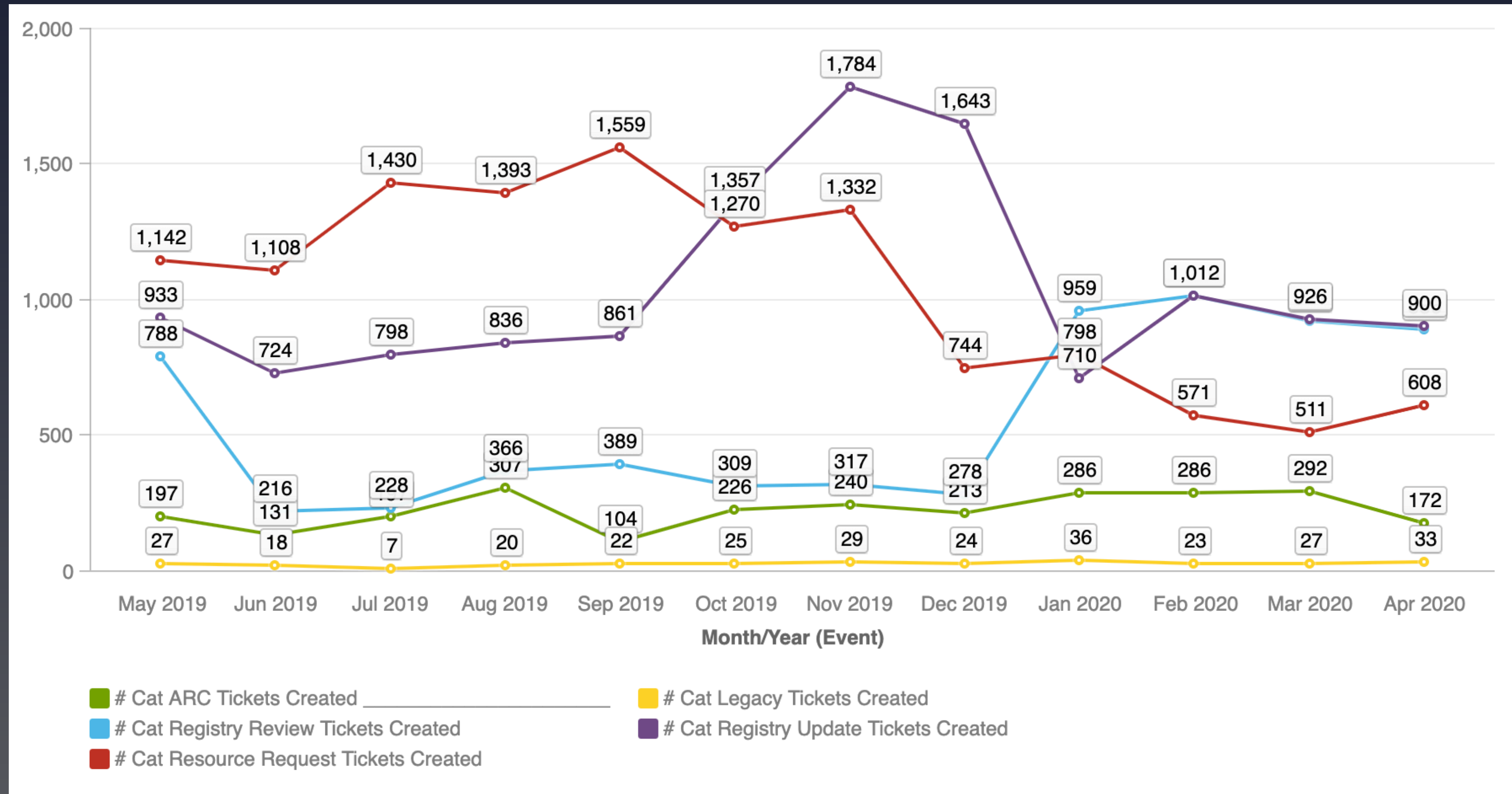
# Membership Growth



# Transfer Tickets



# Registration Services Tickets





# Sanctions

Compliance and our role in the  
Internet community



# Background



- Two members in Iran and one in Syria were recently found to be on the EU sanctions list
- RIPE NCC is an organisation under Dutch law and is therefore legally obliged to comply with European Union sanctions regulation
- We have frozen the provision of services to these members according to our existing audit procedure

# Our Role in the Internet Community



- This has geopolitical implications for the RIPE NCC's wide and diverse service region
- Provision of correctly registered Internet number resources is an important part of Internet infrastructure
- RIPE NCC Executive Board: “The board wishes to caution against measures applied in pursuit of short-term public policy objectives that may undermine the wider Internet governance system, which is essential to the stability of the global Internet.”
  - <https://www.ripe.net/ripe/mail/archives/ncc-announce/2020-April/001413.html>

# How Are We Tackling This



- Have submitted an urgent temporary request that would allow us to continue providing services to these members, referencing the COVID-19 pandemic and potential humanitarian consequences if we are forced to terminate the SSAs
- Also seeking a permanent exemption for our services from any current and future EU sanctions
- Our approach (freezing provision of services) ensures compliance with sanctions while we await clarity from the authorities



# **Recognised IPv4 Transfer Brokers**

Ensuring policy compliance

# Background



- List of recognised brokers on [ripe.net](https://www.ripe.net/manage-ips-and-asns/resource-transfers-and-mergers/brokers):
  - <https://www.ripe.net/manage-ips-and-asns/resource-transfers-and-mergers/brokers>
- Original intent was to encourage basic good behaviour on the part of brokers:
  - In return for “recognised” status, brokers would agree to adhere to relevant policies/procedural documents and a few other basic requirements
- Complaints about some brokers violating RIPE policies
- Enforcing these rules difficult for the RIPE NCC
- Members questioning the value of the service



# Board Asked Membership for Input



- In January 2020, the Executive Board asked the membership whether you wanted us to continue maintaining the list
- Board decided to keep the service, as it was seen as a valuable resource for our members
- However, we will apply stronger due diligence checks and will ask brokers to agree to stronger terms to prevent abuse
- Currently working on a proposal for a new legal framework and internal procedures

# IPv4 Transfer Listing Service



- A service in the LIR Portal that allows members to advertise address space offered/requested
- Reaching end of life and a full reimplementatation from the ground up is needed
- Not a lot of usage: further investment doesn't seem like a wise use of membership funds
- Propose to decommission this service unless there are strong objections





# RPKI

Towards a resilient and secure  
Trust Anchor

# Background



- RPKI's foundation was built several years ago, when the technology was not yet established as a standard
- Resiliency, scalability and redundancy were not primary concerns back then
- Situation has changed significantly in the past two years
- Strong RPKI uptake worldwide puts pressure on existing infrastructure and operational procedures





# RPKI Resiliency Project



# Areas Being Assessed



- **Technical infrastructure** (high-availability, scalability, redundancy, 24/7 support, SLA)
- **Security** (penetration and vulnerability testing)
- **Cryptography** (IETF RFC compliance)
- **Operational procedures** (key signing, key roll)
- **Legal framework** (CPS and T&C)

# Recent Incidents



- A series of incidents happened our RPKI infrastructure earlier this year
- We have published post-mortems with a full account of each incident and a RIPE Labs article with more details
  - [https://labs.ripe.net/Members/nathalie\\_nathalie/lessons-learned-on-improving-rpki](https://labs.ripe.net/Members/nathalie_nathalie/lessons-learned-on-improving-rpki)
- Internal task force reassessing our RPKI technical infrastructure and software development procedures
  - Looking into monitoring, QA and DevOps, among other things
- Results will be included into RPKI resiliency project
- More details on our current and future plans on RIPE Labs:
  - [https://labs.ripe.net/Members/felipe\\_victolla\\_silveira/rpki-past-present-and-future](https://labs.ripe.net/Members/felipe_victolla_silveira/rpki-past-present-and-future)

# A Solid Future Ahead



- RIPE NCC will play our part in supporting the successful adoption of RPKI worldwide
- As one of the RPKI Trust Anchors, we will do our utmost to provide a secure and reliable service to the technical community
- Over the next couple of years, the RIPE NCC will continue to invest the necessary resources into providing a world-class service
- We will achieve this through strong collaboration with RIPE and the wider Internet community



# Questions



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