# Operational Update

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# Challenges

And how we are tackling them

# Key Challenges

- **IPv4 transfer market**

  - Frauds, hijacks, disputes increase the need for controls

- **Complex geopolitical situation**: conflicting regulations, difficulty in performing due diligence in certain areas

  - Compliance is not optional but can be very challenging to achieve

- **Registry is fundamental for the operations of the Internet**

  - Need to guarantee the uniqueness of Internet Number Resources

  - Some of the tools are becoming part of critical Internet infrastructure (RPKI, RIPE Database)

  - Security, resilience and integrity are fundamental requirements

# Why is Compliance Important?

- Complying with laws and regulations isn't optional

- We want to ensure the integrity of the registry

  - Protect members' resources from misappropriation

- Make sure we have sufficient controls in place

  - Complying with international standards will not only verify that our checks and balances are sufficient but also demonstrate that to the outside world

- It also allows us to be independently verified by a third party

# Registry Governance

- Revisited our main controls early this year

  - Checks and balances, security, access levels, HR recruitment policies

- Result was positive and shared with our Executive Board

- The project will continue over the next year

  - External audits of the registry

  - Looking into international standards

  - Close any potential gaps in the internal controls

# EU Sanctions

- Updating our procedures and internal tooling to ensure compliance in an efficient way

- Main goal is to have clearly documented procedures that ensure compliance while aiming to keep the Internet accessible for everyone

- Improvements consist of full review of our current procedures, usage of third-party tooling to facilitate checking and regular external audits

Balancing act between
**due diligence** and
**membership experience**

# Digitisation and Automation

- Usage of digital signatures and identification to simplify contract signatures and due diligence

- Reduce paperwork and bureaucracy

- We have been automating many of our core business processes but want to continue improving in this area

- Streamlining our internal procedures through the usage of a professional trust model

- Improvements in our internal tooling is a continuous process
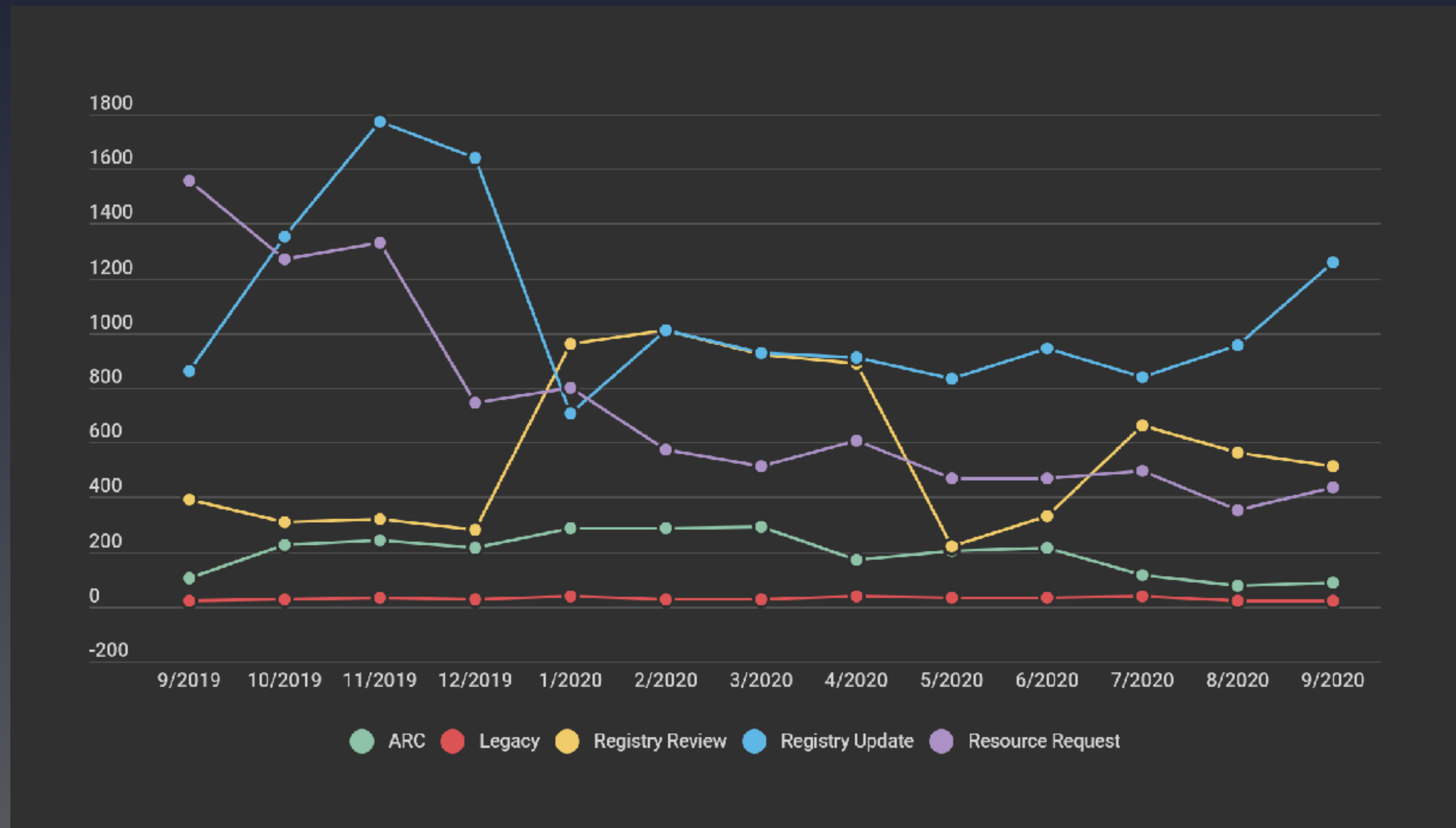
# Active Registry Monitoring

- Goal is to increase the accuracy of the registry by proactively monitoring changes

- Notification of changes in the legal structure of organisations by reliable third party

- By catching changes early in the process makes getting the right documents and signatures much easier and quicker
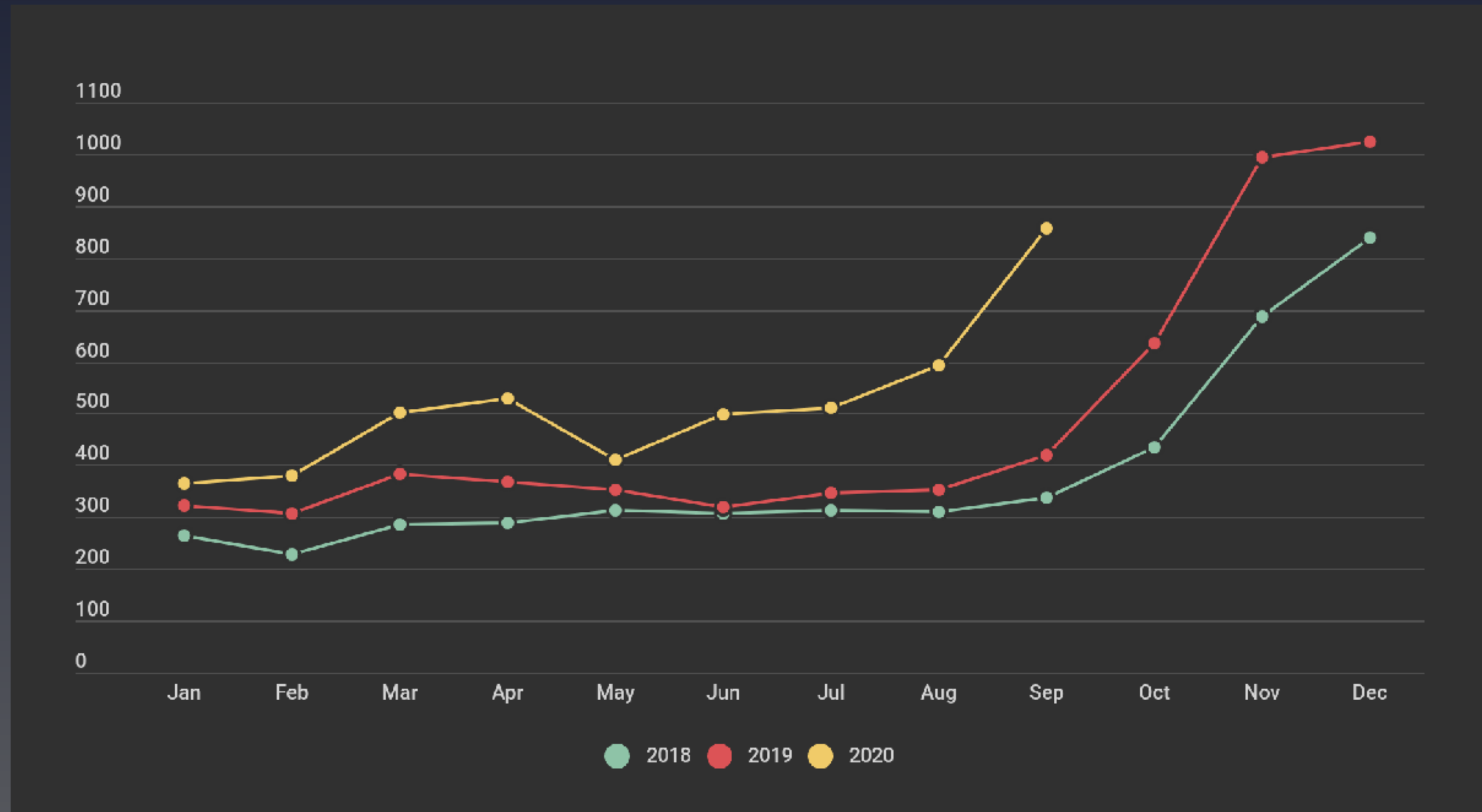
- Start implementation early 2021

# Statistics
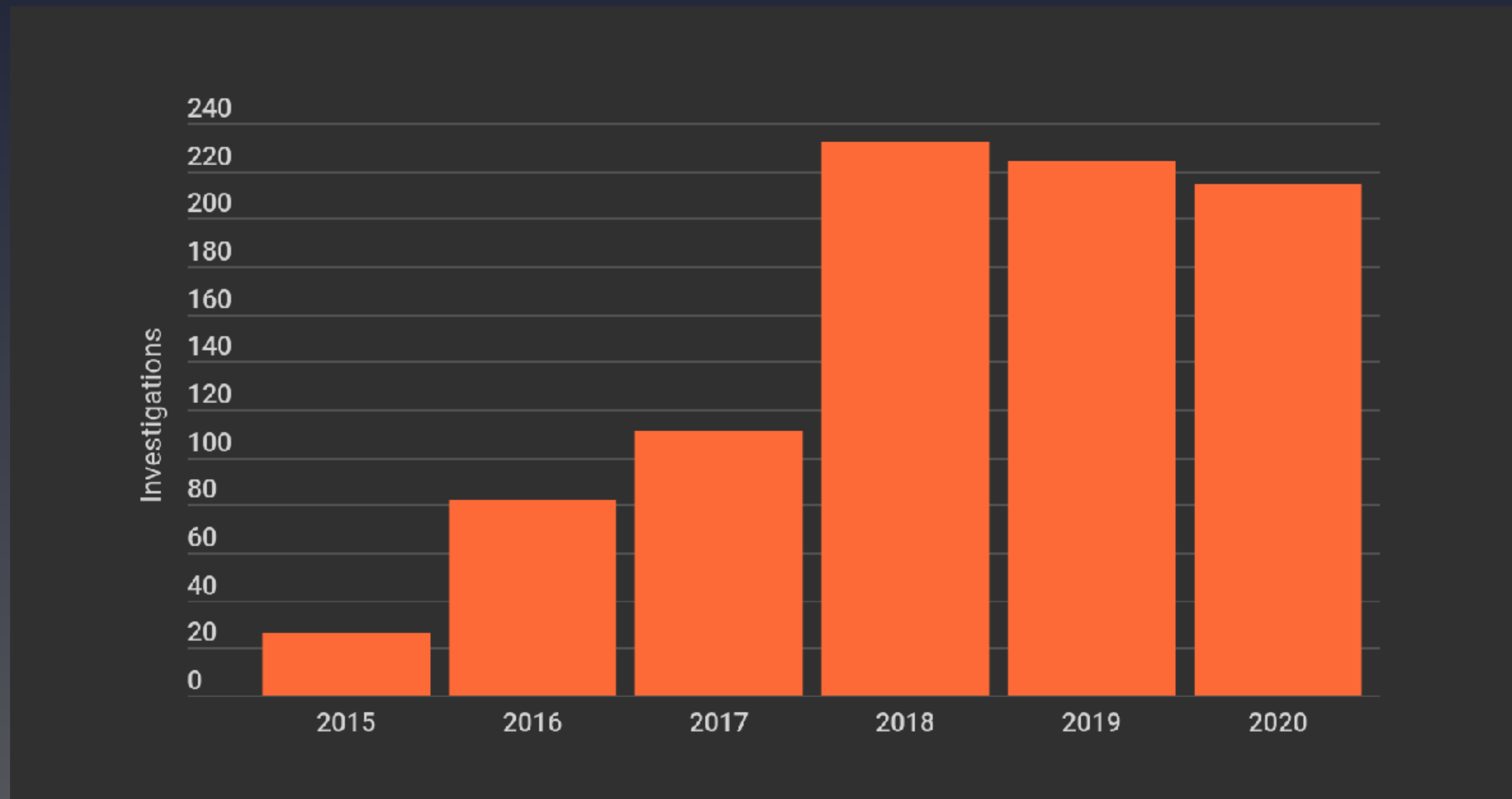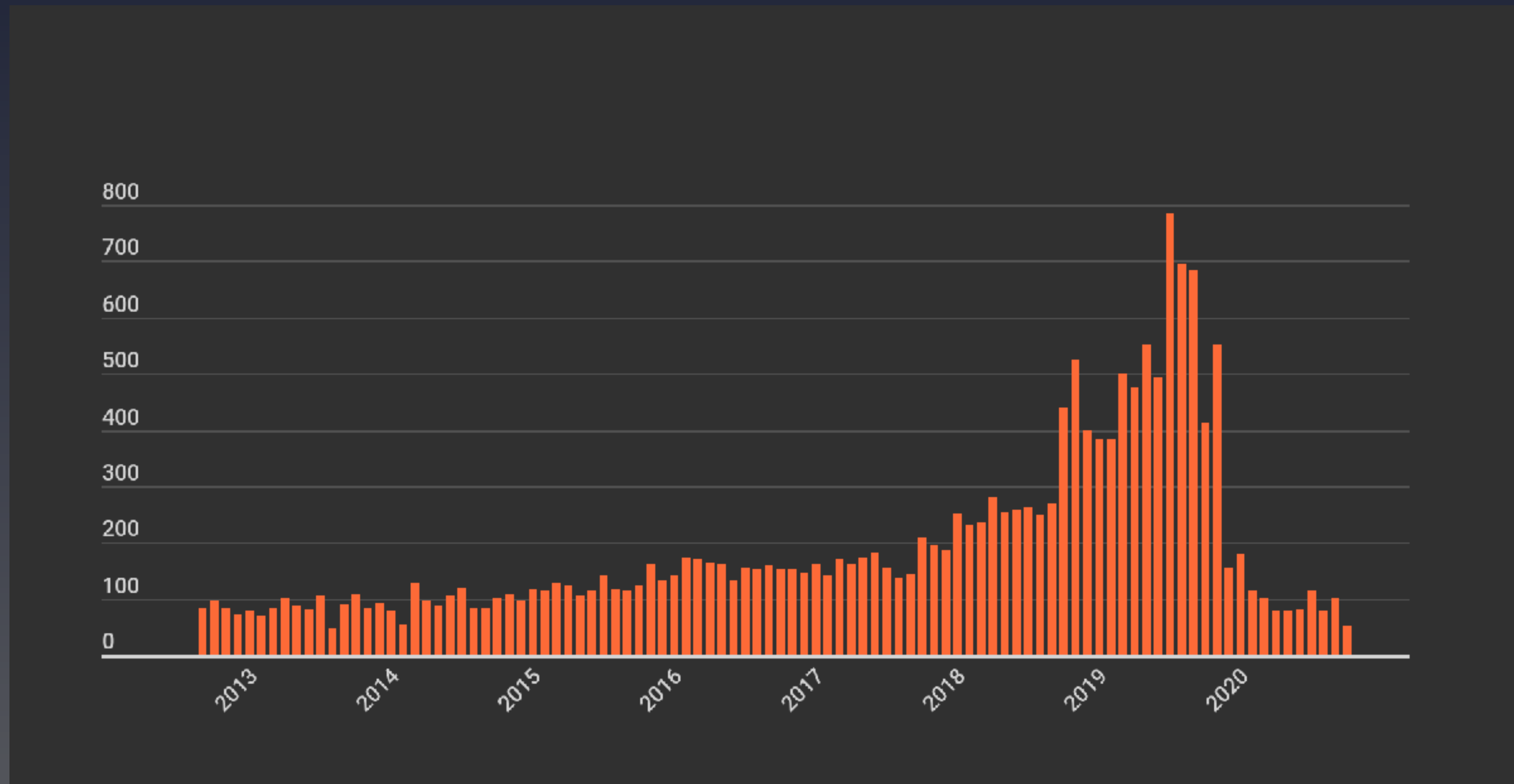
Insights from our ticket
workload

# Tickets per Category

# Transfers Tickets per Year

# Number of Investigations

# LIR Accounts Activated per Month

# Membership Growth

- We currently have 25,117 LIR accounts belonging to 20,323 members

- Additional 4,794 LIR accounts

- Large majority of the additional LIR accounts have been opened since 2015 probably to get IPv4 address space

- We expect that most of these additional LIR accounts will consolidate over the next three years

# Restructuring RS/CS

- Registration Services and Customer Services departments have been merged this year

- New department is called Registry Services

- Goal is to optimise our service delivery by rearranging the teams in order to match the new workload

    - Less new LIRs/resource requests, more transfers/complex disputes

- Training staff to ensure sufficient capacity in the growing areas

- Some staff have been moved to engineering roles in order to increase capacity there (e.g. product owner roles)

# Cloud Migration

# RIPE Database RC Cloud Migration

- We have migrated our Release Candidate (RC) environment to the cloud as a proof-of-concept

- Presentations at RIPE 80 and RIPE 81 to keep the community informed

- Concerns with security, privacy, GDPR (among others) are being taken into account

- RC is now available in the cloud and we welcome feedback

# RPKI Repositories Cloud Migration

- Migration of rsync repository to the cloud

- We are aiming for very high availability by leveraging on multiple regions and availability zones

- RRDP is in the cloud since its inception, however we will upgrade its architecture once the rsync migration is completed

- Backup plan so we can fail over to our own infrastructure in case of catastrophic failure in cloud provider

# RPKI Validator Decommissioning

- We've decided to decommission the RIPE NCC RPKI validator

- Many options are now available (e.g. Routinator, FORT)

- Feedback from members and wider community has been taken into account

- Goal is to strengthen our focus on maintaining a secure, stable and resilient RPKI Certificate Authority

- We have agreed on the following timeline:

  - 1 January 2021: stop implementing new features

  - 1 March 2021: stop implementing new RFCs and RIR policies

  - 1 July 2021: archive the RIPE NCC RPKI Validator

# RPKI Audit on RFC Compliance

- Code audit by third party with the goal of assessing compliance with various RFCs comprising RPKI technology, as well as the security of the RPKI core, publication server and HSM interface module

- Report has been finalised early October 2020

- Result of the audit was mostly positive, yet some issues have been found

  - "The implementation of RPKI-core complies with the RPKI RFCs to a high degree."

- Improvements based on the report scheduled to be fixed over the next months

# RPKI audit framework

Access control

Two-factor authentication

Encryption

Access controls

Privacy

Security

Confidentiality

SOC 2

Availability

Integrity

Network/application firewalls

Intrusion detection

Performance monitoring

Disaster recovery

Quality assurance

Processing monitoring

We are focusing on keeping the registry compliant to ensure its integrity and the resiliency of our core services.

# Questions ?

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