



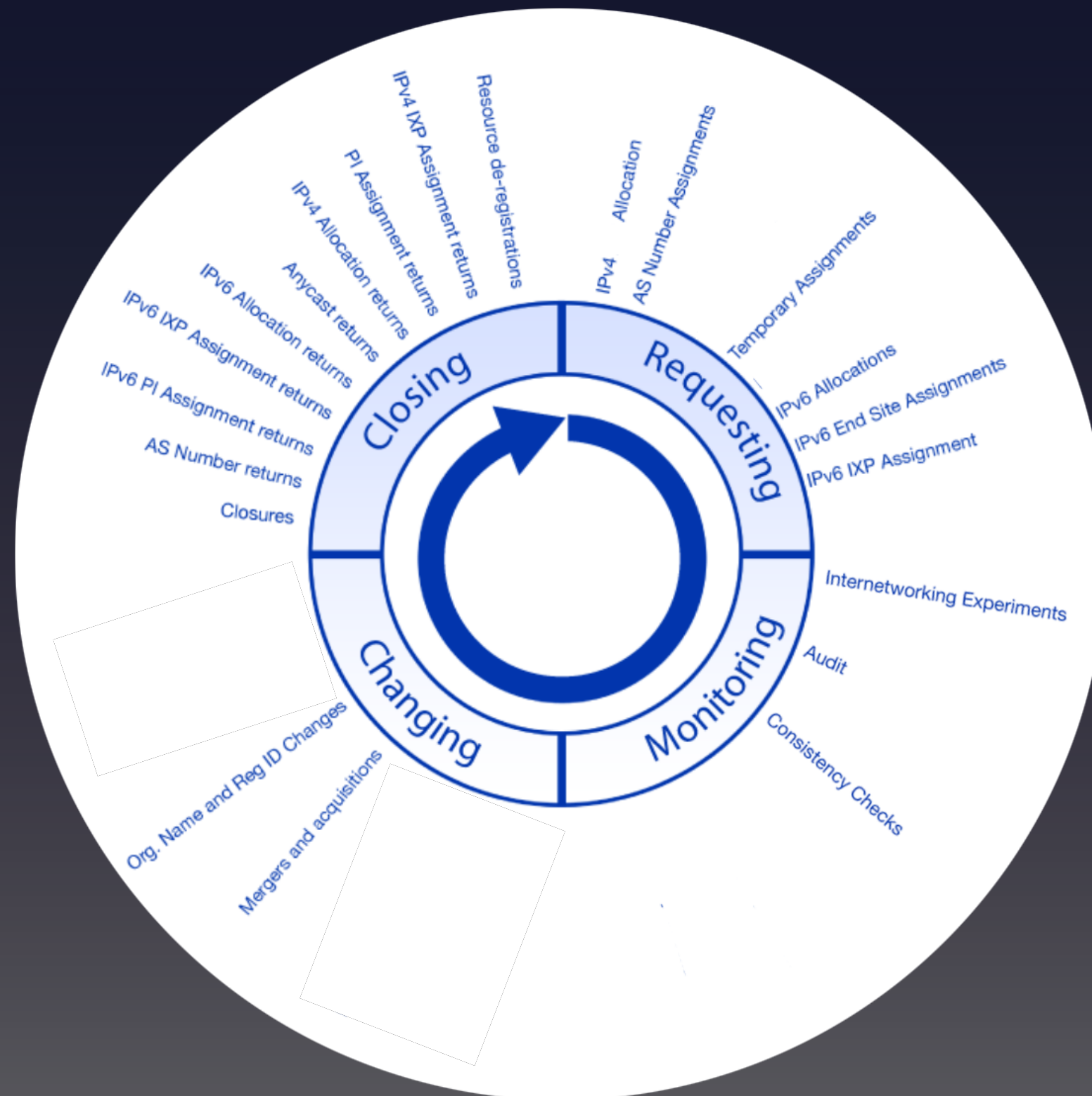
**RIPE NCC**  
RIPE NETWORK COORDINATION CENTRE

# Meeting Your Needs

## Rethinking RIPE NCC Service Delivery

Andrew de la Haije - COO | October 2017 | RIPE 75

# Resource Lifecycle Management



2006





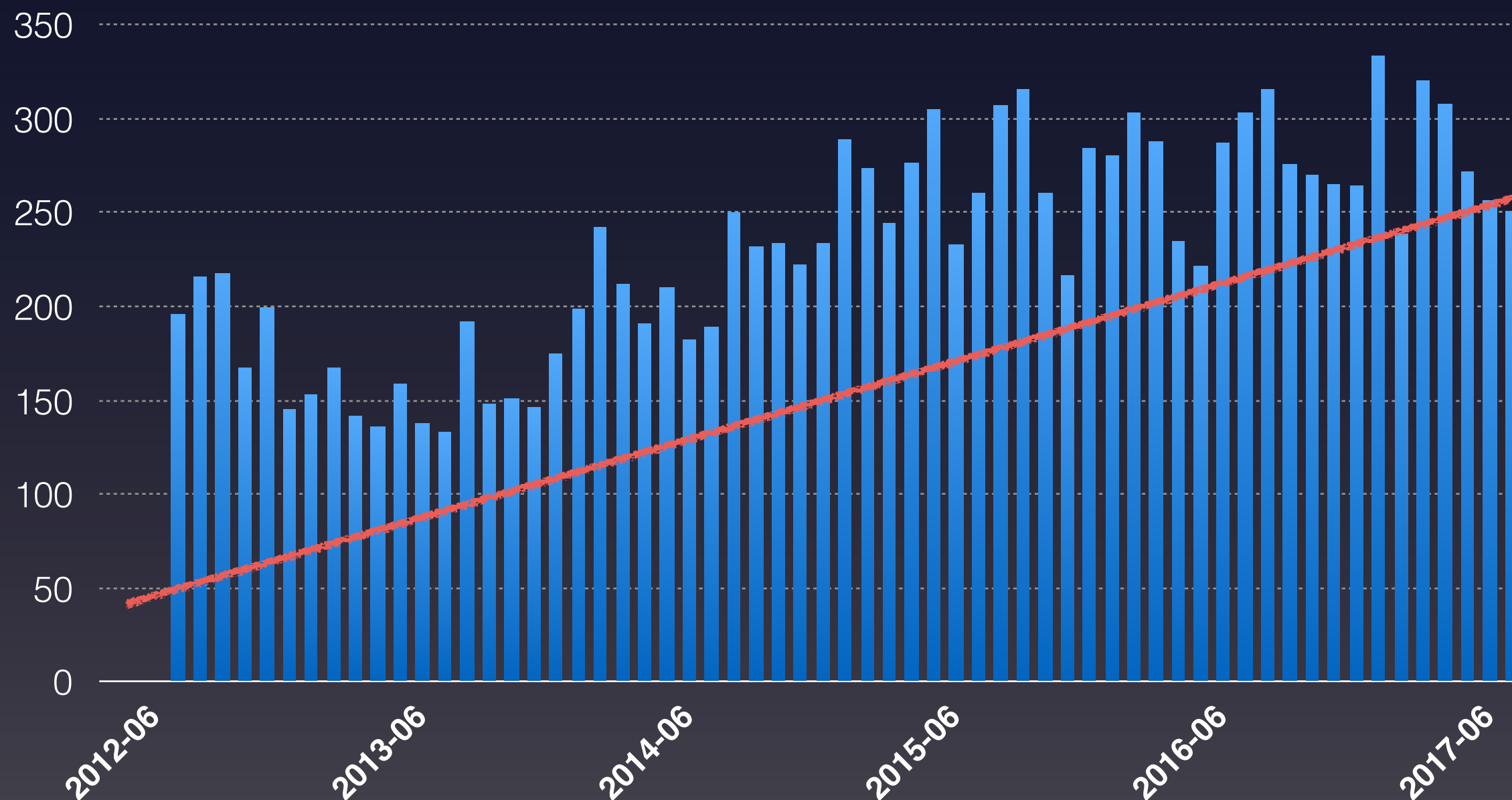




# Solid Operations

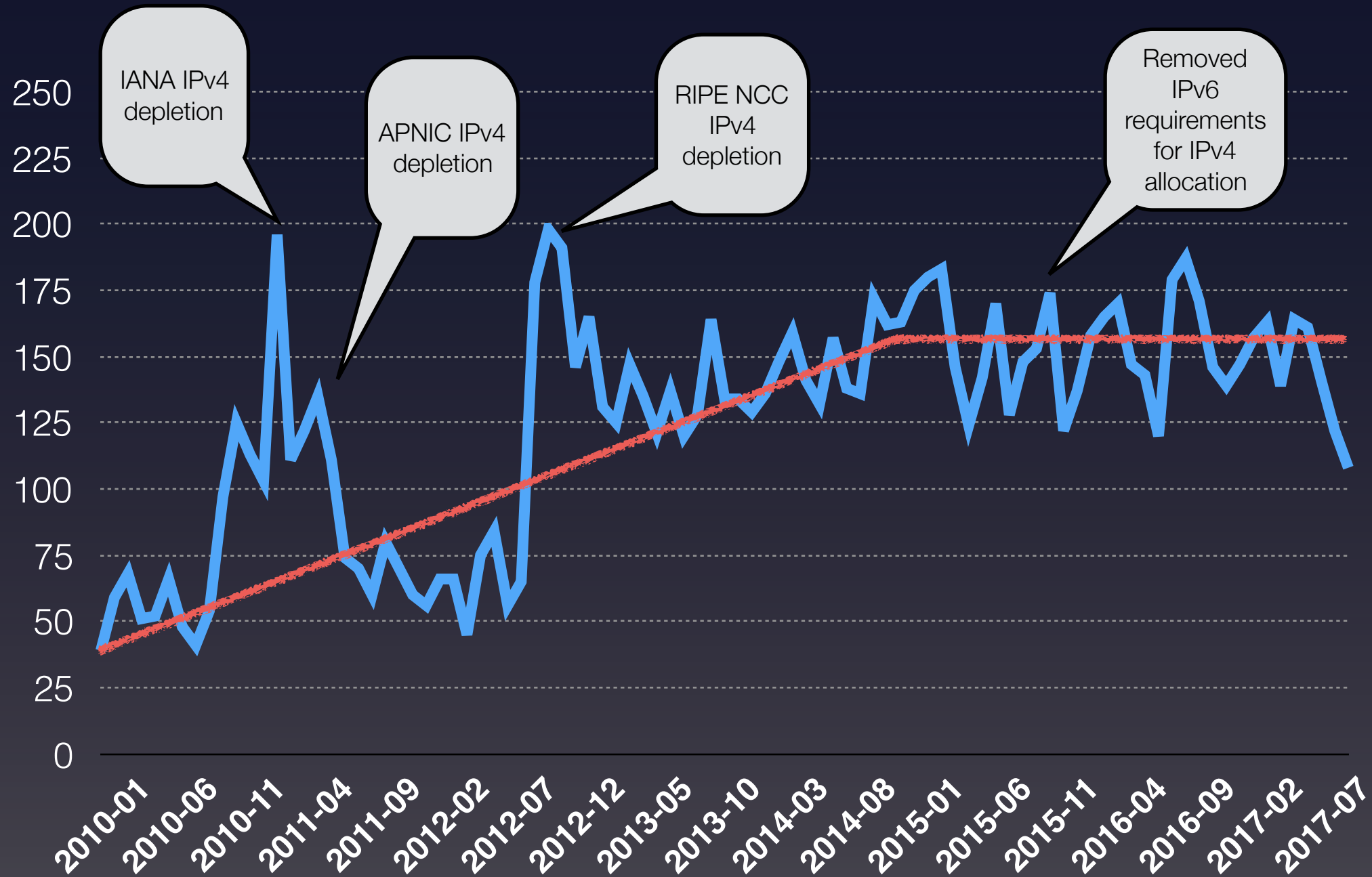


# IPv4 Statistics (last /8)



- Allocation rate doubled in five years
- Growth is stabilising
- ~ 0.65 /8 remaining

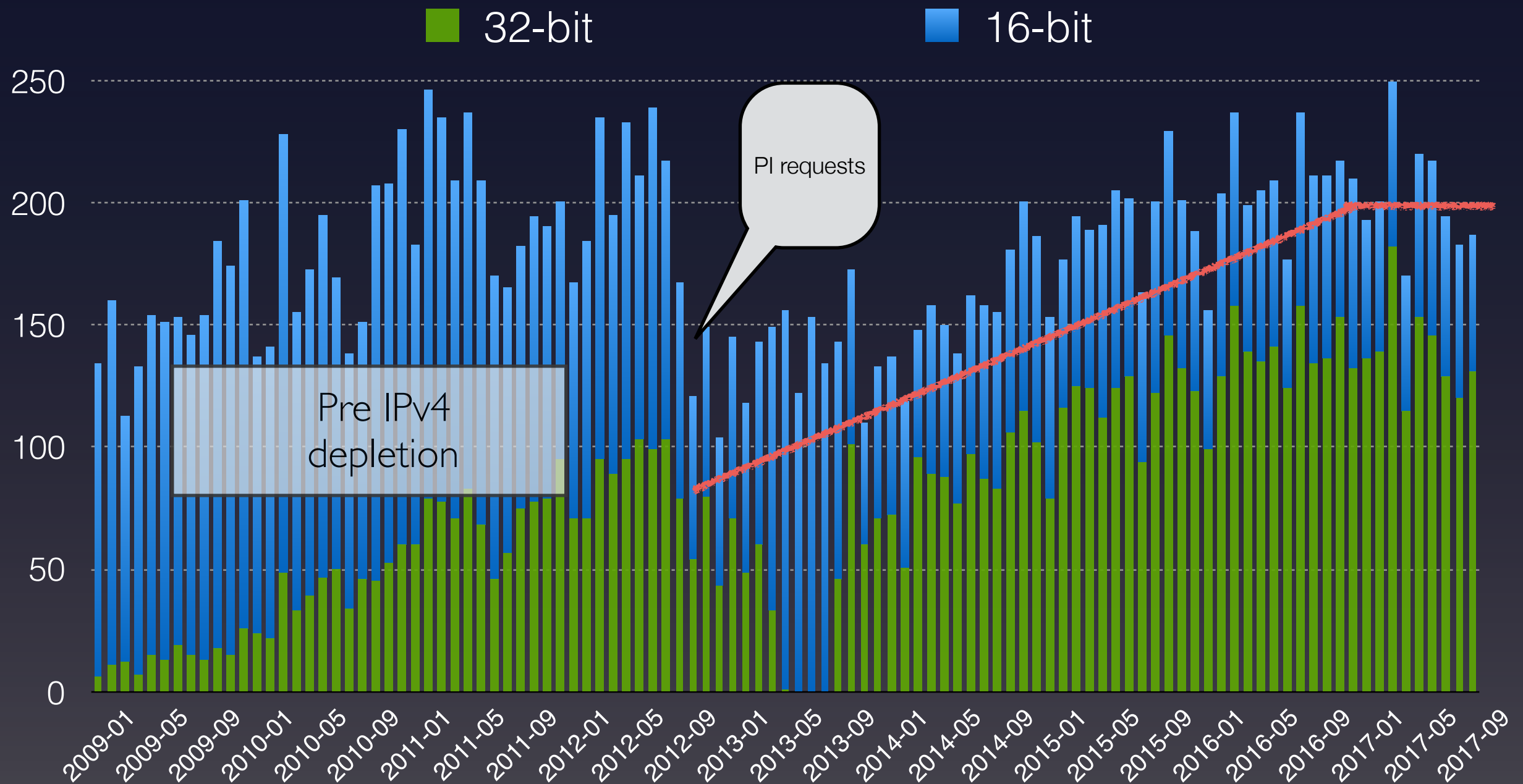
# IPv6 Statistics



- Allocation rate doubled in five years
- Stabilising at 150
- ~ 72 % of members have an IPv6 allocation

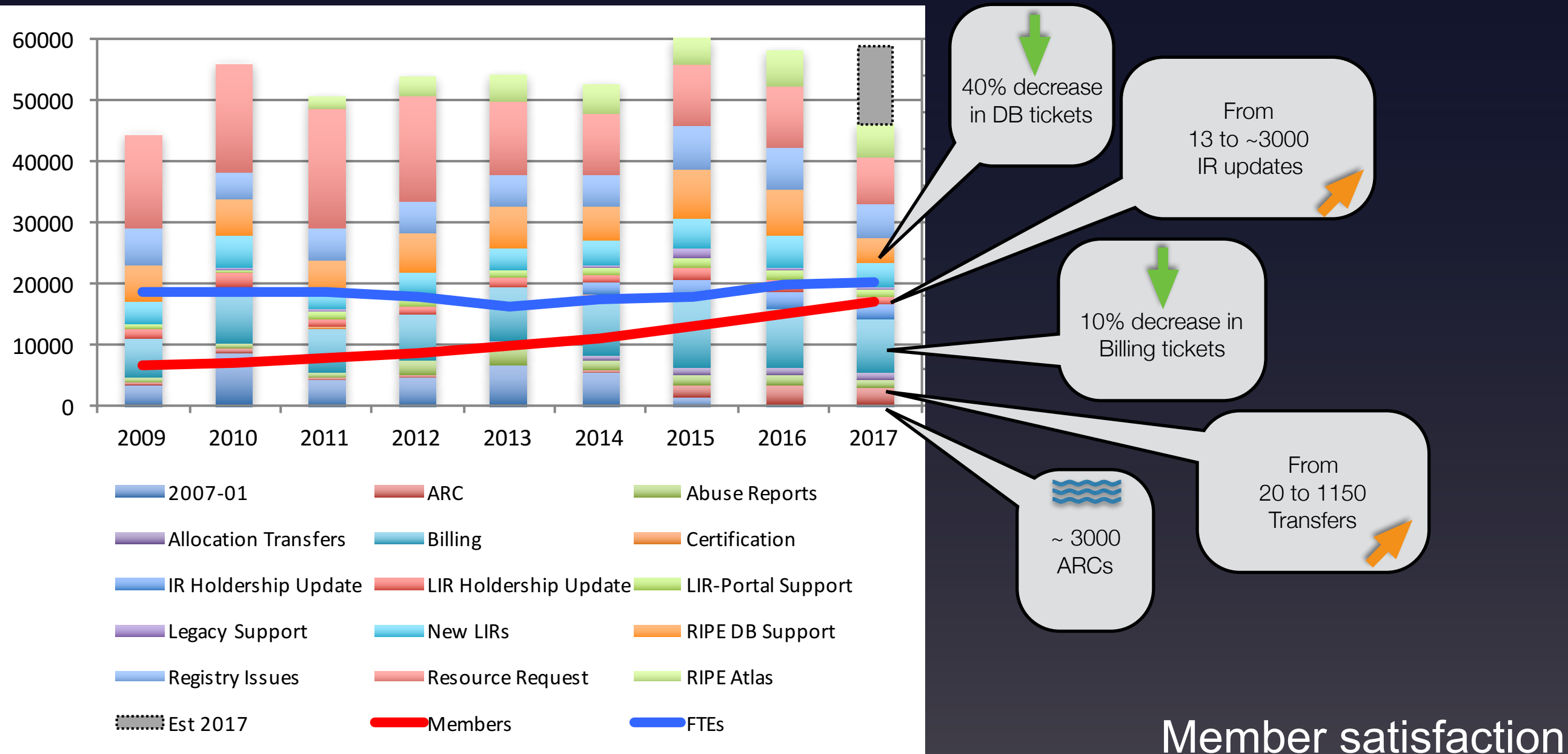


# ASN Statistics



- 80% increase in assignment rate over five years
- 70% 32-bit
- Three years' supply of 16-bit ASNs at current rate

# Overall Ticket Statistics (\*to date)



- Stable overall ticket volume, changing ticket types
- New ticket types are very time consuming
- Growing member base, focus on efficiency gains





- **Training courses**
  - **98 regular training courses in 42 countries**
  - **14 tailor made courses and workshops**
  - **2500+ participants**



# Mitigating Consequences

185/8

14 September 2012

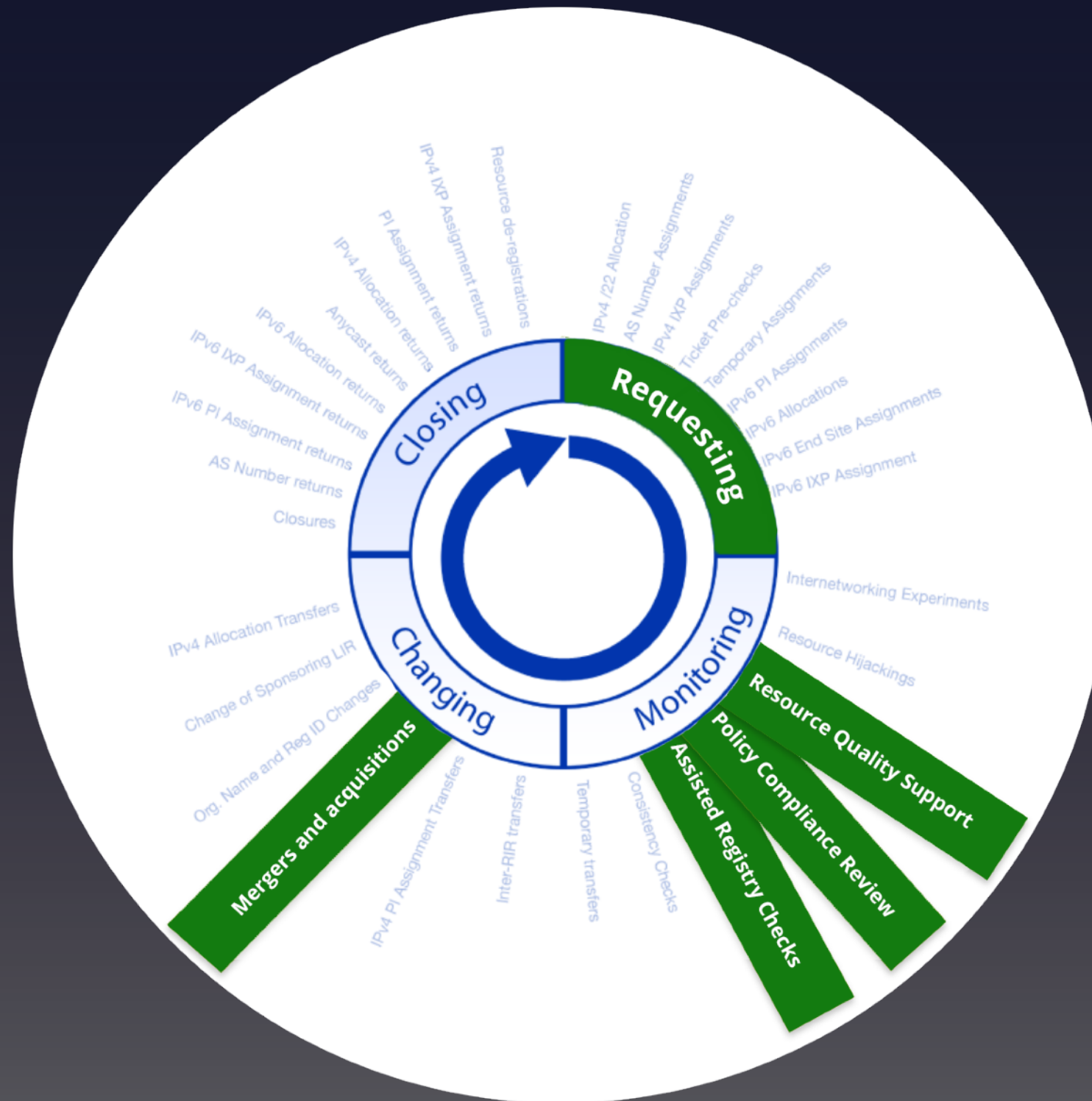




# Five TRENDS

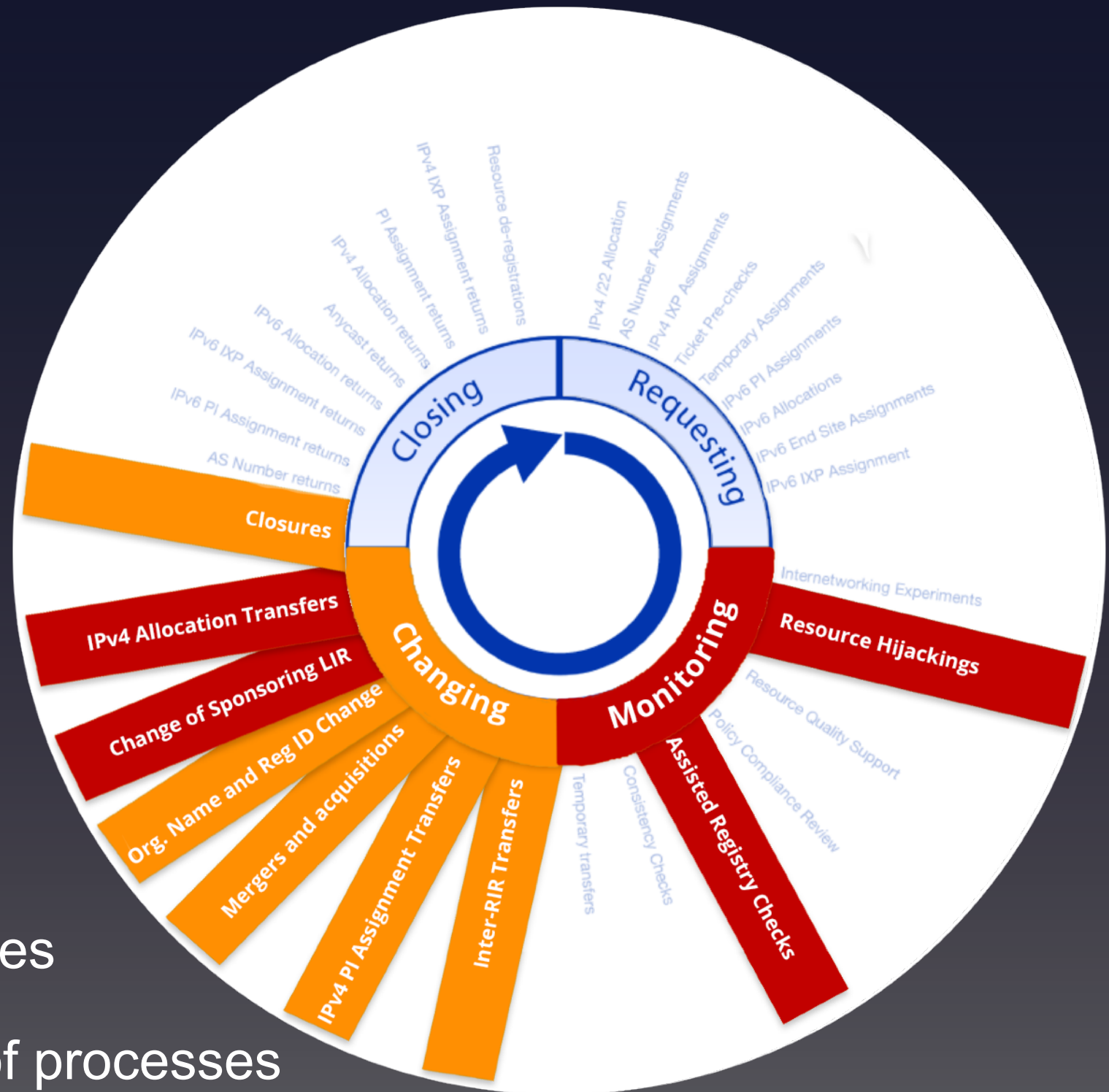
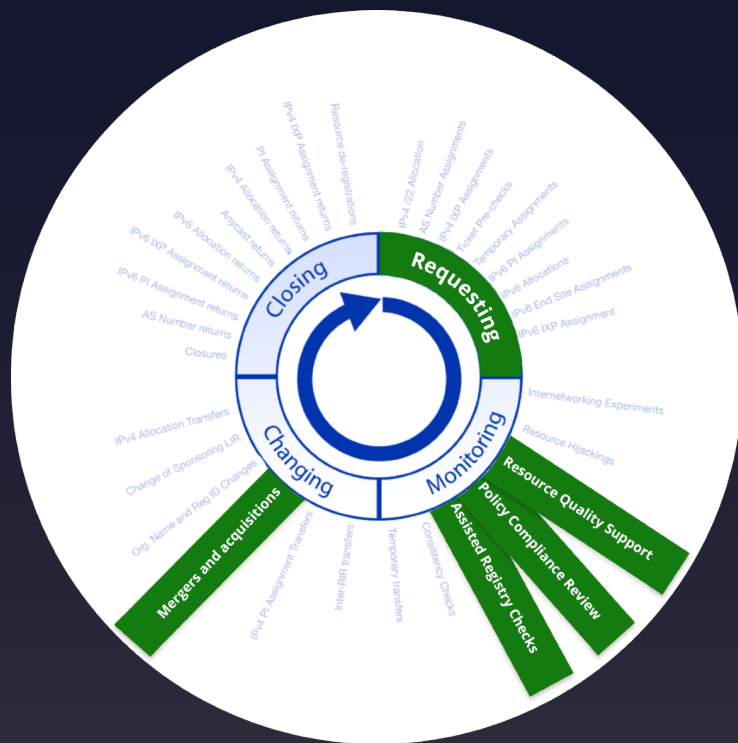
Striking the balance between ease  
of doing business and  
*securing & ensuring*  
highly accurate registration

# T1. Changing Business Requirements



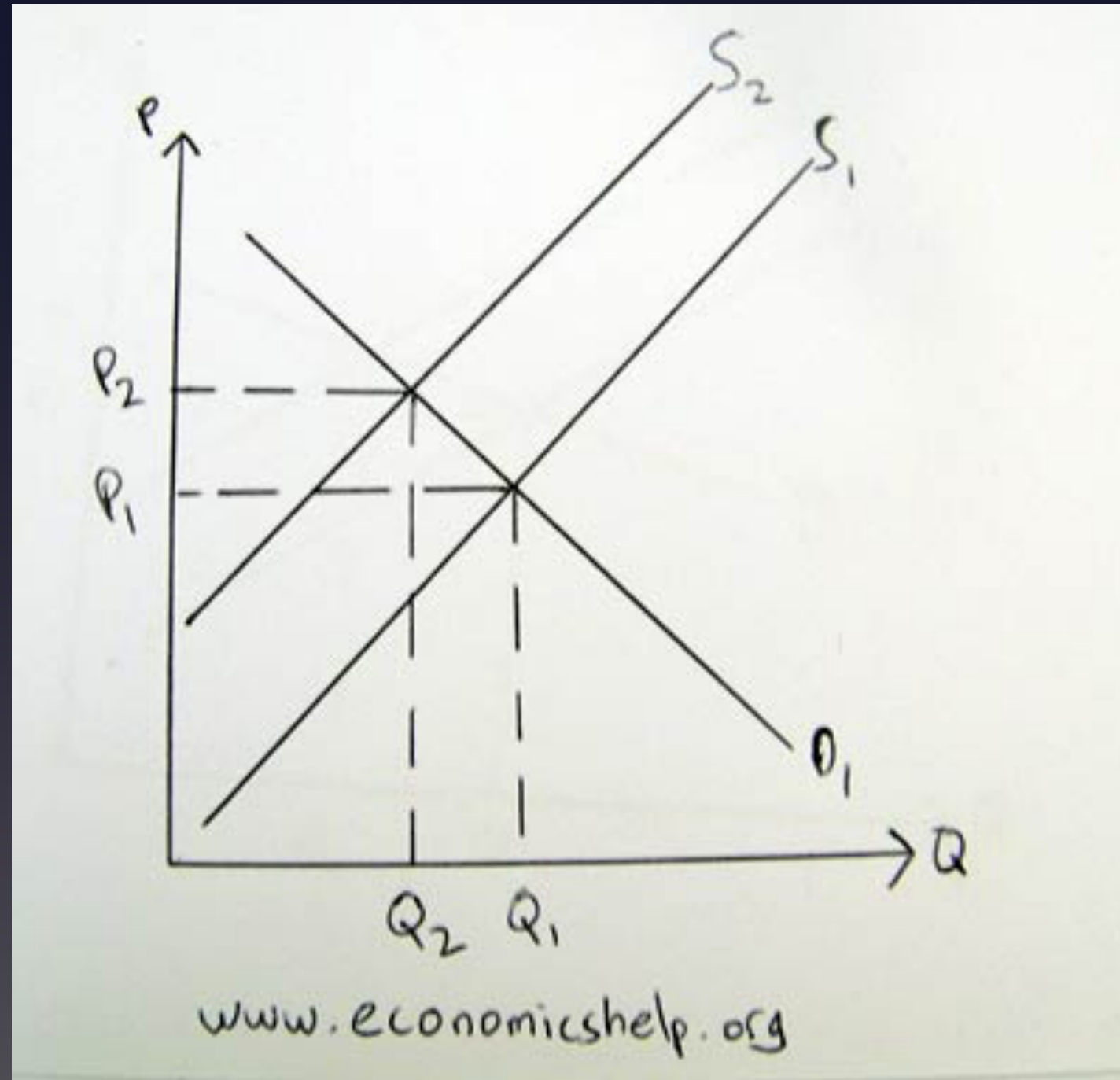


# T1. Changing Business Requirements



- New and changing processes
- Different through-put time of processes
- New members and customers

# T2. Scarcity of IPv4 Addresses



# T2. Effect: Hijackings and Fraud



- Falsified death certificate

CERTIFIED COPY OF AN ENTRY OF DEATH

GIVEN AT THE GENERAL REGISTER OFFICE

Application Number \_\_\_\_\_ Col Number \_\_\_\_\_

REGISTRATION DISTRICT		Name of District		Name of Sub-district		Name of Borough	
Year	DEATH in the Sub-district of						

No.	When and where died	Name and surname	Sex	Age	Occupation	Cause of death	Signature, description and residence of informant	When registered	Signature of registrar
Col. No.	Name of Date and Place of Death	Name of Name and Surname	Sex	Age	Occupation	Cause of Death	Signature, Description and Residence of Informant	Dated Registered	Signature of Registrar

**SAMPLE CERTIFICATE**

CERTIFIED to be a true copy of an entry in the certified copy of a Register of Deaths in the District above mentioned.

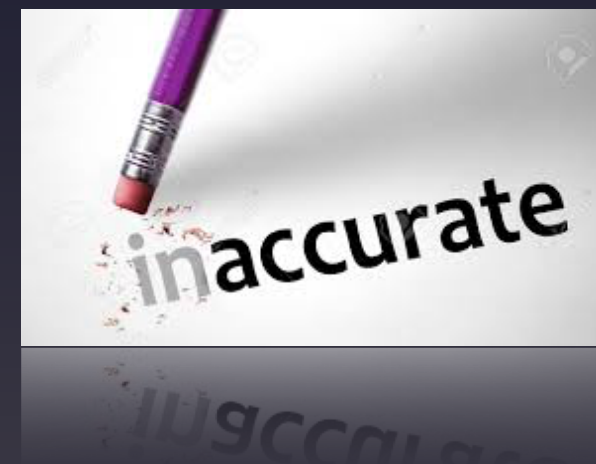
Given at the GENERAL REGISTER OFFICE, under the Seal of the said Office, the \_\_\_\_\_ Day \_\_\_\_\_ day of \_\_\_\_\_ Month \_\_\_\_\_ Year \_\_\_\_\_

DYB 000000

CAUTION: THERE ARE OFFENCES RELATING TO FALSIFYING OR ALTERING A CERTIFICATE AND USING OR POSSESSING A FALSE CERTIFICATE. ©CROWN COPYRIGHT

WARNING: A CERTIFICATE IS NOT EVIDENCE OF IDENTITY.

- Discussions on accuracy



- Outdated contact details





# T2. Investigation Results



## Outcome during 2016-17

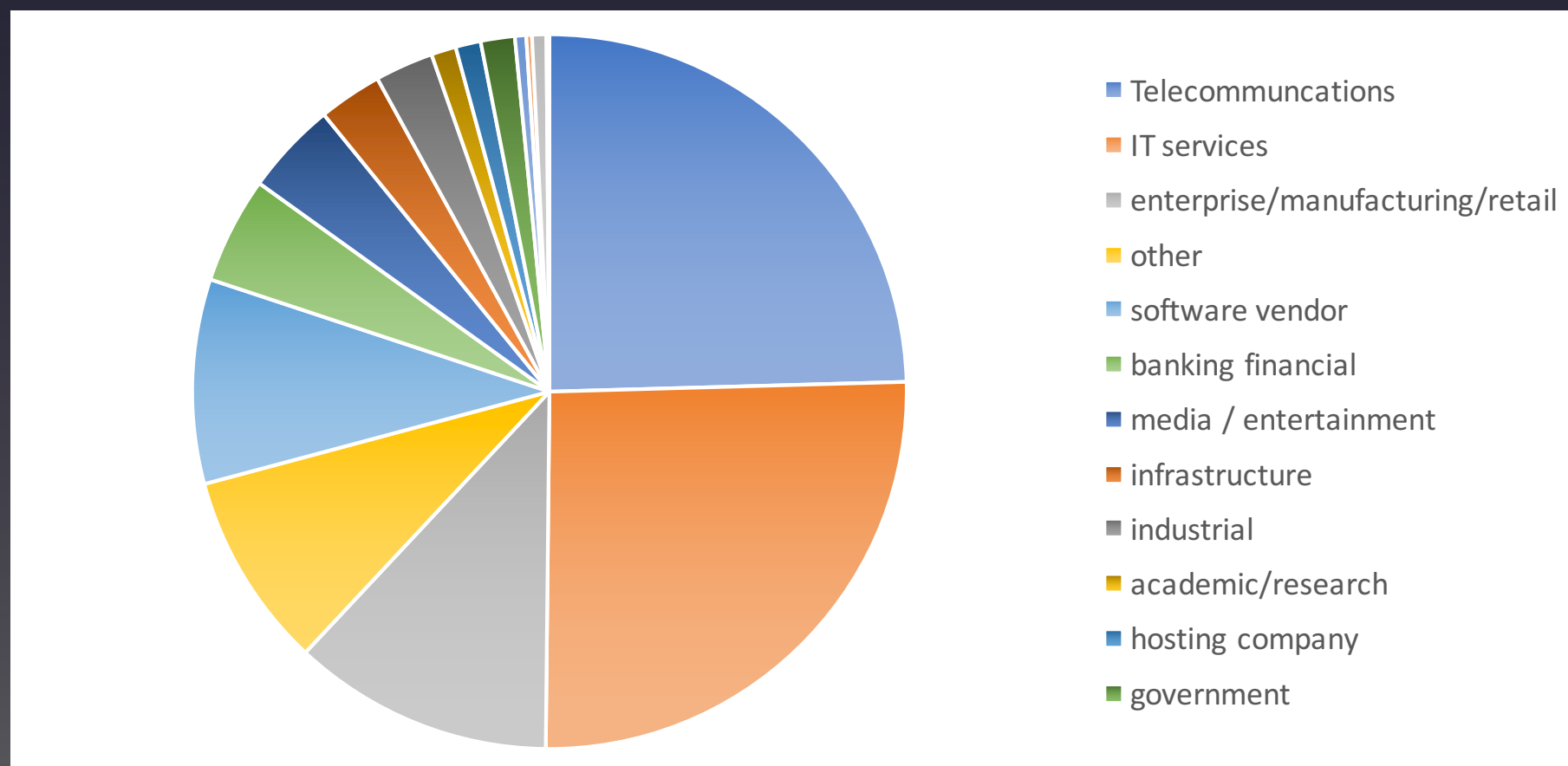
- ~ 70 transfer and M&A documents with inaccuracies or invalid information
- 65 resources de-registered totalling /14 (IPv4 addresses)
- 600 independent resources under new sponsorship
- 25 resources abandoned as consequence of an investigation totalling /17 (IPv4 addresses)
- Increase in invalid change requests on Legacy resources

Year	2015	2016	2017
New	26	82	110
Due Diligence Reminders	9	14	19
Final Warnings	2	4	5

# T3. New Members / Customers



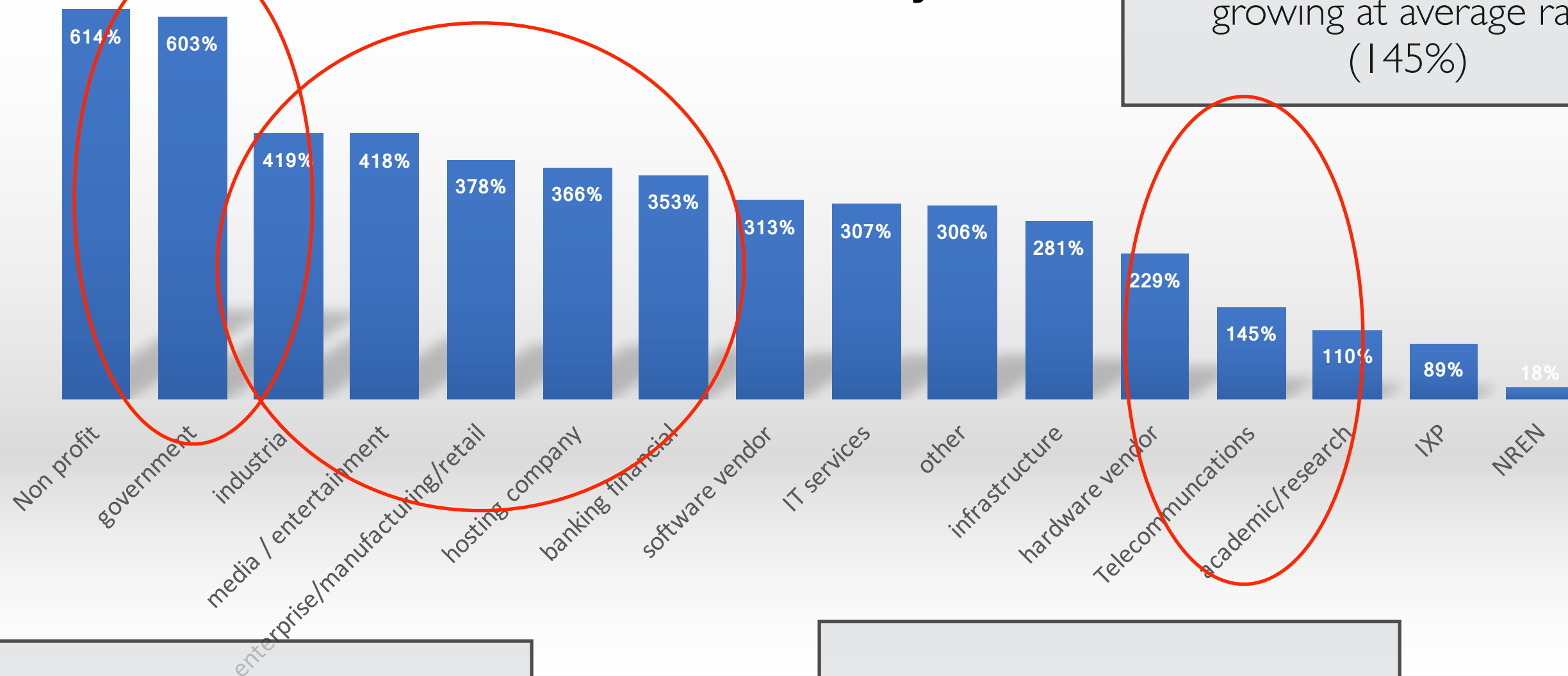
- 5,500 (2007) → 17,000 +
- Shift in industry composition



# T3. Industry Demographics



## Growth over 10 years



Telecommunications is growing at average rate (145%)

Government 600%

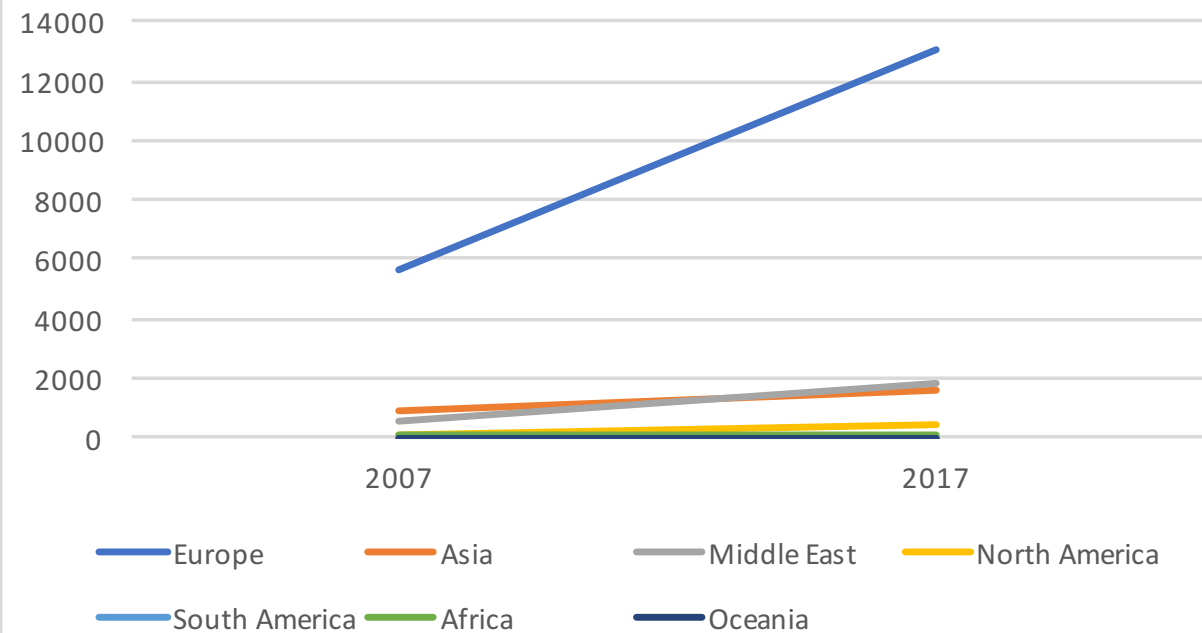
Retailers, banking and industrial around 400%



# T3. Country Demographics



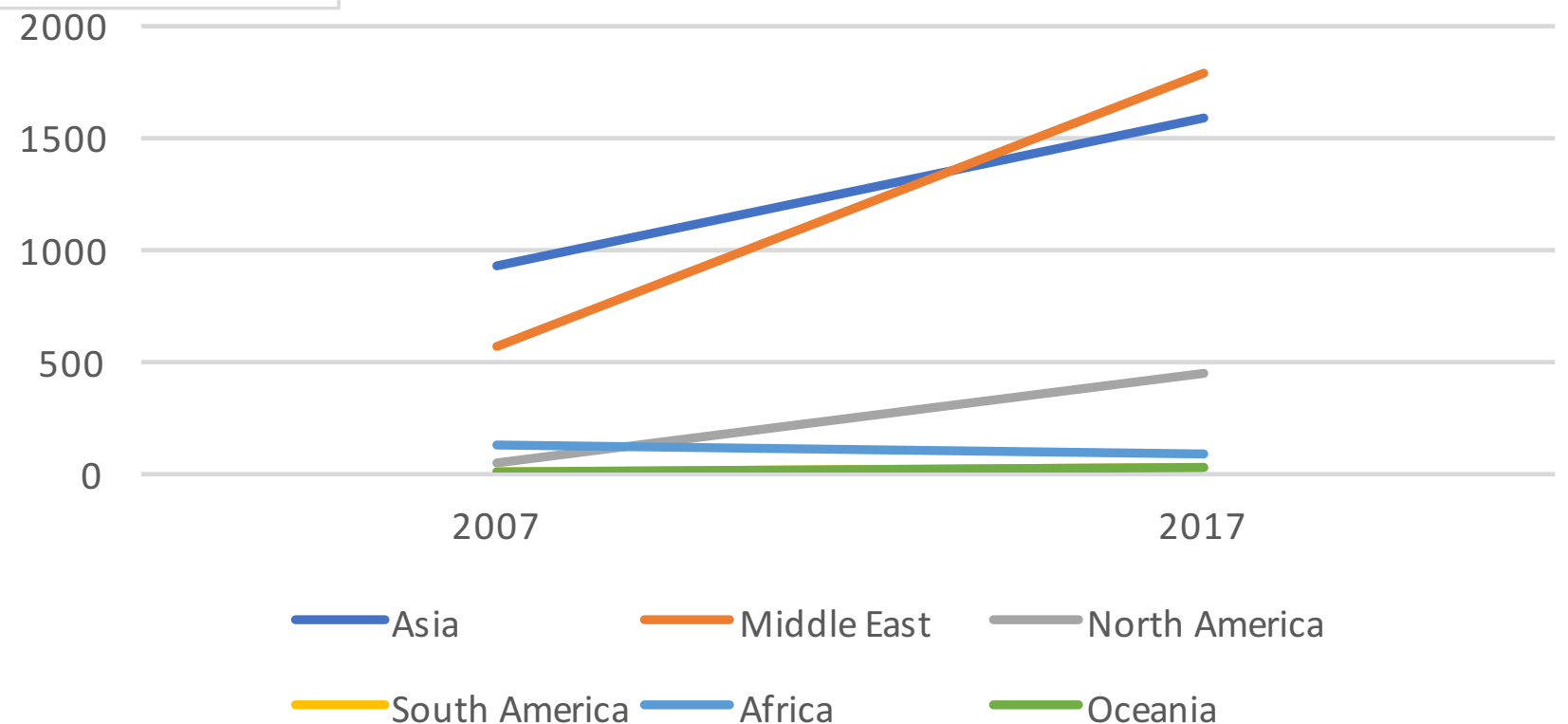
Evolution



Middle East increased  
210%  
(from 574 to 1779)

Europe is growing  
at average rate  
132%

Evolution without Europe



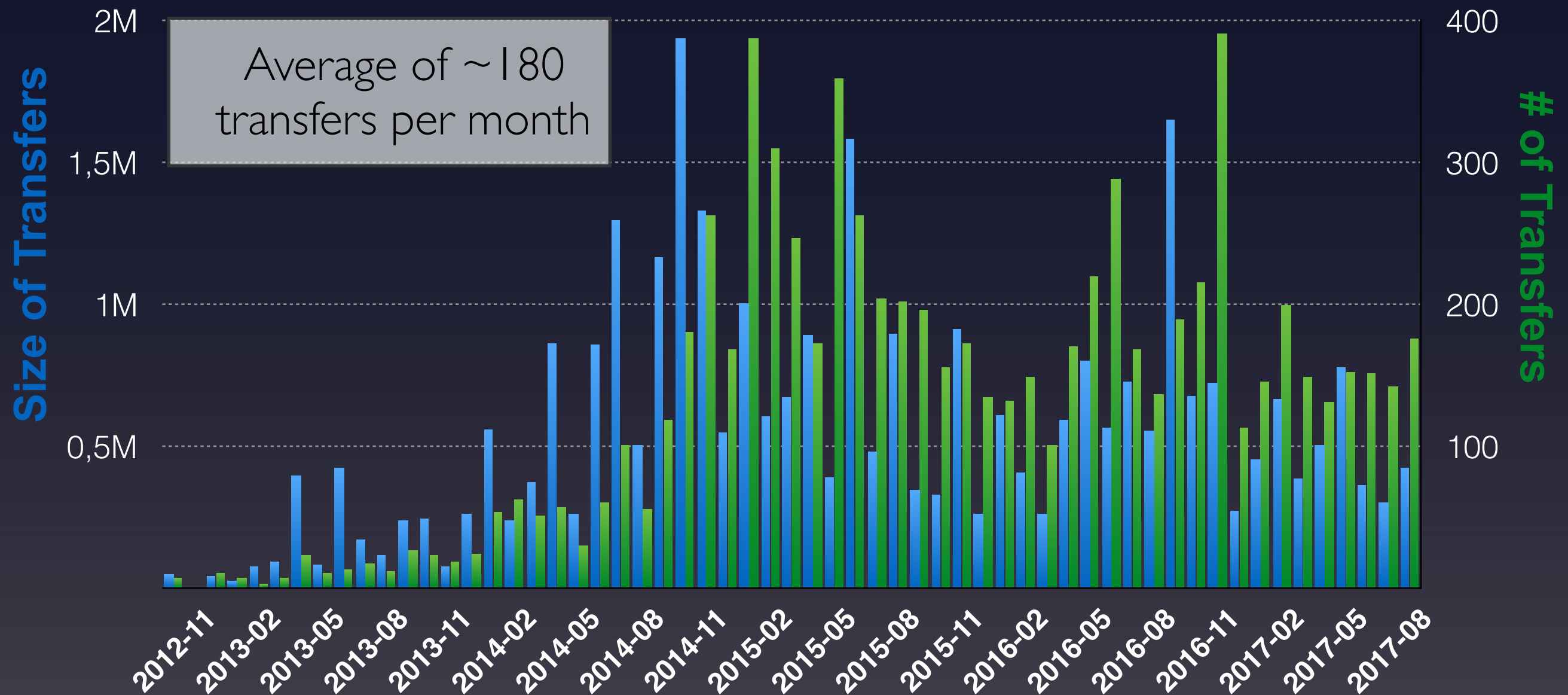
# T3. Conclusion



- Increasing industry diversity of membership base
- Non-traditional members are less familiar with the RIPE community and RIPE NCC
- But, still network engineers!

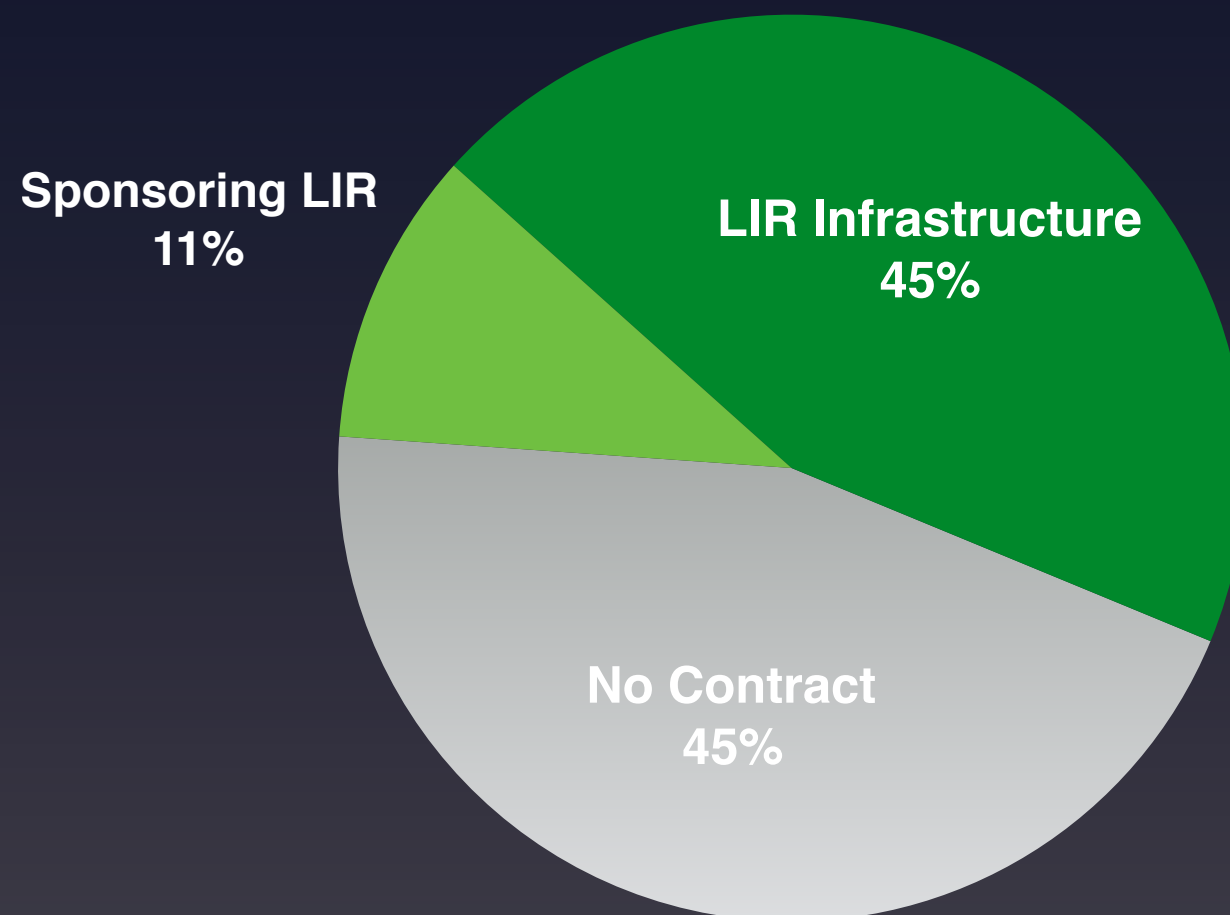


# T4. Transfers



- Number of transfers is stable
- Increase in complexity

# T5. Re-use and Registration of Legacy Address Space



- 56% of all legacy IPv4 addresses registered in the region are under a contractual relationship  
Increase in complexity
- Since November 2014 ~ 7 /8s registered  
(+ 275 updates without contract)



# T5. Consequences



- 30-year-old registrations
  - Changes in business structures
  - Changes in names
- Complex investigations to prevent fraud and hijackings



# Consequence of Trends



**Relationship with members used to be fully trust-based**



**IPv4 high economical value has created a market for transfers and hijacks**



**Securing your resources resulted in tightening processes over the past 2 years**



**Number of hijack and fraud investigations continues to increase exponentially**



**Exponential increase in due diligence and legal requirements (liabilities) in processes**



**Increasing fear, doubt and pressure on trust-base**







# Additional Administrative Burden



# Addressing Your Needs

# Strategic Focus



- Maybe we have gone over the top
- Strategic focus point
  - Review and re-think service delivery (understand the member base)
  - Ensure accuracy of the Registry

## Overview of the Strategic Focus Points in 2018

The strategic vision of the RIPE NCC is to deliver world-class services while engaging to connect people to maintain the resiliency and stability of the Internet. To achieve this vision, the RIPE NCC Executive Board has decided on four strategic focus points:

- › Service Delivery and the Registry/RIPE Database – Rethink service delivery, incorporating a professional trust model, and ensure the accuracy of the Registry/RIPE Database.
- › Engagement – Carry out effective outreach to all stakeholders to stay connected so we can meet the goals of the RIPE NCC.
- › RIR System – Strengthen the global RIR system and ensure its accountability, transparency and resilience, and allow it to adapt to the changing environment.
- › Member Base – Understand the member base to meet its needs and add value for members.

**Source: draft Activity Plan and Budget 2018**





# Feedback

# Feedback



**Member lunches**



**RIPE NCC Survey**



**Staff reaching out**



**Mystery shopper**



**Real-time user tracking**



**UI workshops**



**RS Process audit**

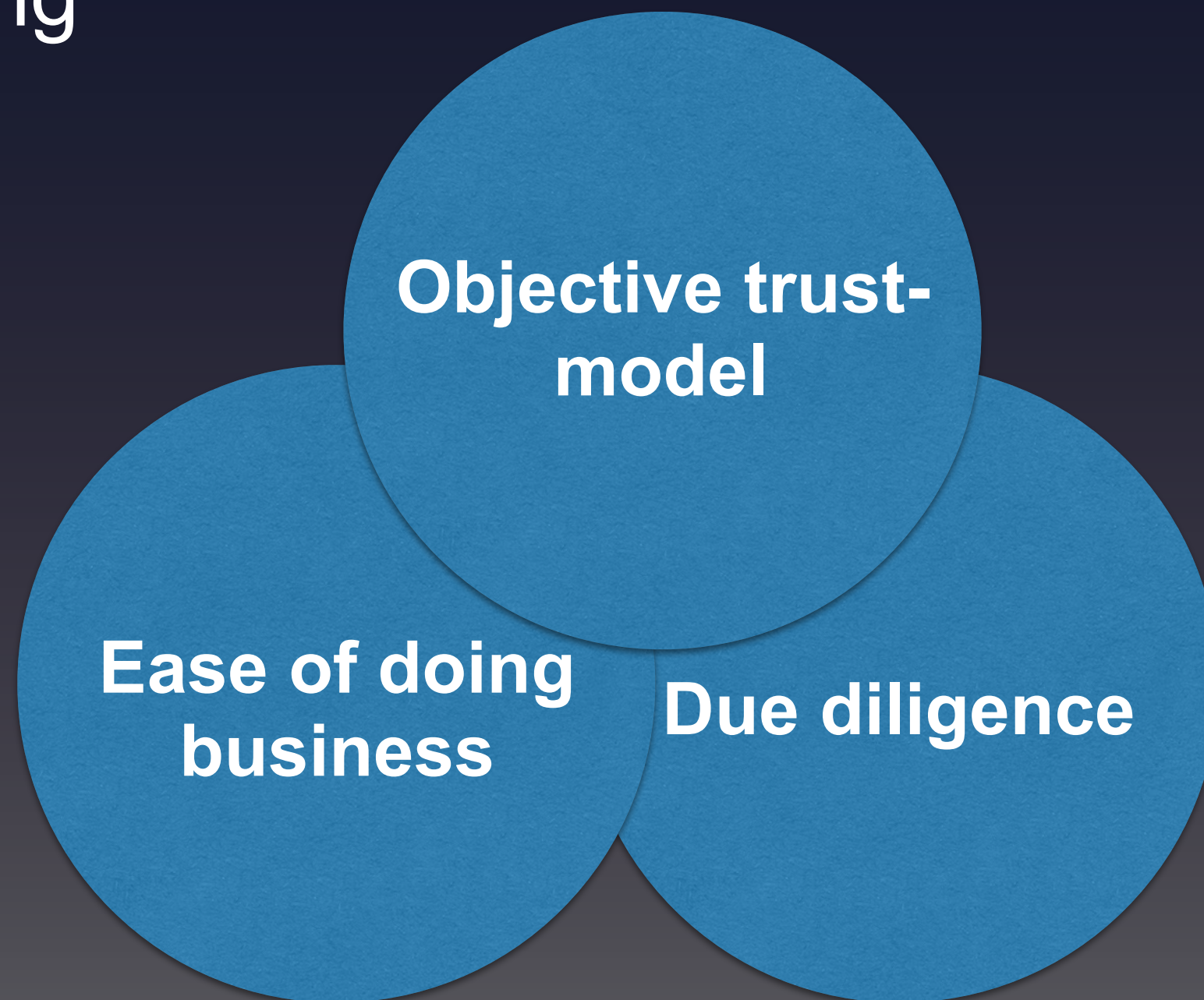


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# Aim: Rethinking Service Delivery



- Eliminate bottle necks for members in good standing







# Integrated Tools

# Remember This?



LIR Portal

## Object Editors phased out

1. Select Object(s)

ORG-EIP1-RIPE

2. Select attribute to edit

abuse-c

The "abuse-c:" attribute must reference a ROLE object containing an "abuse-mailbox:" attribute.  
  
- There are no limits on queries for ROLE objects referenced by an "abuse-c:" attribute. These ROLE objects are considered to include only commercial data and will be publicly available in different formats on multiple locations without any limits.  
  
- Adding an "abuse-c:" attribute to this ORGANISATION object will relate to ALL addresses in ALL allocations held by you, overriding previous "abuse-mailbox:" attributes. To delegate responsibility additional "abuse-c:" references need to be made.

3. Select attribute value(s)

Write the new value here  
AR13455-RIPE

4. Add/remove attributes to/from selected object(s)

Add Remove

5. Preview

organisation

ORG-EIP1-RIPE

org-name

Internet Provider BV1

org-type

LIR

address

Singel 258  
1016 AB  
Amsterdam  
ÅLAND ISLANDS

phone

+12 (345) 678-910-11

fax-no

+12 (345) 678-910-11 ext. 12

admin-c

MATT2  
CREW-RIPE  
MSCH2-RIPE  
ACM2-RIPE  
XAV  
PINK1-RIPE  
KL1200-RIPE

Date	IP / Prefix	Size	Status	Ticket No.	Edit
19930901	193.0.0.0/20	4096	ALLOCATED_PA	NCC#2012030284	Edit
19930901	193.0.16.0/21	2048	ALLOCATED_PA	NCC#2012030284	Edit

Date	IP / Prefix	Type	Organisation	Ticket No.	Ind. res. info	Edit
20041105	84.205.64.0/19	ASSIGNED_PI	Reseaux IP Europeens Network Coordination Centre (RIPE NCC)	NCC#2002092793	LIR Infrastructure	Edit
20080716	93.175.159.0/24	ASSIGNED_PI	Reseaux IP Europeens Network Coordination Centre (RIPE NCC)	NCC#2008072225	LIR Infrastructure	Edit
20080716	93.175.144.0-93.175.158.255	ASSIGNED_PI	Reseaux IP Europeens Network Coordination Centre (RIPE NCC)	NCC#2008072225	LIR Infrastructure	Edit
20120508	193.30.30.0/23	ASSIGNED_PI	Reseaux IP Europeens Network Coordination Centre (RIPE NCC)	NCC#2012031217	LIR Infrastructure	Edit

Edit object

No way back

Modify "inetnum" object

Please enter the maintainers you would like to use as mnt-by  
RIPE-NCC-HM-MNT RIPE-NCC-MNT

inetnum  
193.0.0.0 - 193.0.23.255

netname  
NL-RIPECC-OPS-990305

country  
NL

org  
ORG-EIP1-RIPE

admin-c  
BRD-RIPE

tech-c

RIPE Database

# User Interaction Testing, Driving Change



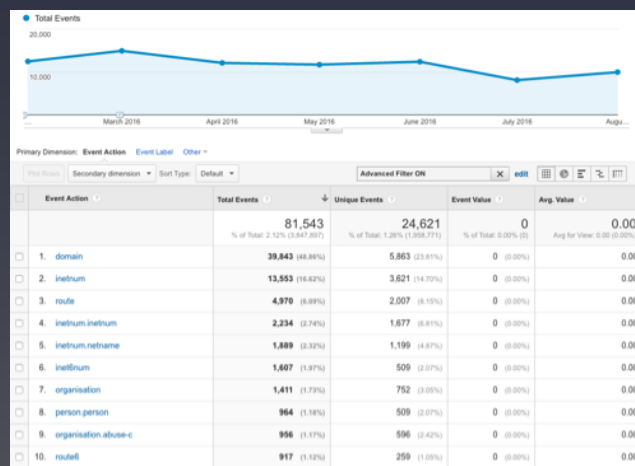
- Face-to-face user interaction testing
- Online user interaction tracking

How many assignments have you made under your allocations

Avg. Difficulty rated by participants out of 5: **3.3**

Avg. Time it took to perform this task: **00:05:07**

Passed: **8** / Failed: **0**





# My Resources - the New Platform



- Integrating LIR Portal, Database UI and other tools

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RIPE NETWORK COORDINATION CENTRE

Tim Bruijnzeels

RIPE Database (Whois) Website

Search the content of this website

Manage IPs and ASNs > Analyse > Participate > Get Support > Publications > About Us >

You are here: Home > Manage IPs and ASNs > RIPE Database > Webupdates

You are editing: Reseaux IP Europeens Network C...

My LIR >

Resources >

My Resources

IPv4 IPv6 ASN

84.205.64.0/19 >

ASSIGNED PI RIPE-NCC-RIS-BEACON OTHER SPONSOR

93.175.144.0 - 93.175.158.255 >

ASSIGNED PI RIPE-NCC-RIS-BEACON OTHER SPONSOR

93.175.159.0/24 >

ASSIGNED PI NL-RIPENCC-OPS OTHER SPONSOR

193.0.0.0 - 193.0.23.255 >

ALLOCATED PA NL-RIPENCC-OPS-990305

193.30.30.0/23 >

ASSIGNED PI IPV6-ROADSHOW-NETWORK-V4 OTHER SPONSOR

RIPE Database Software Version 1.89.2

f t in YouTube

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## Upcoming features

- Alerting
- Lame rDNS
- IRR/RPKI
- Delegate/consolidate maintenance
- Bulk manage (contact) info



# Predictability

# Member and Customer Experience



- Many preventive process changes created perception of inconsistency



- Different legislation cross 74 economies including tax-havens





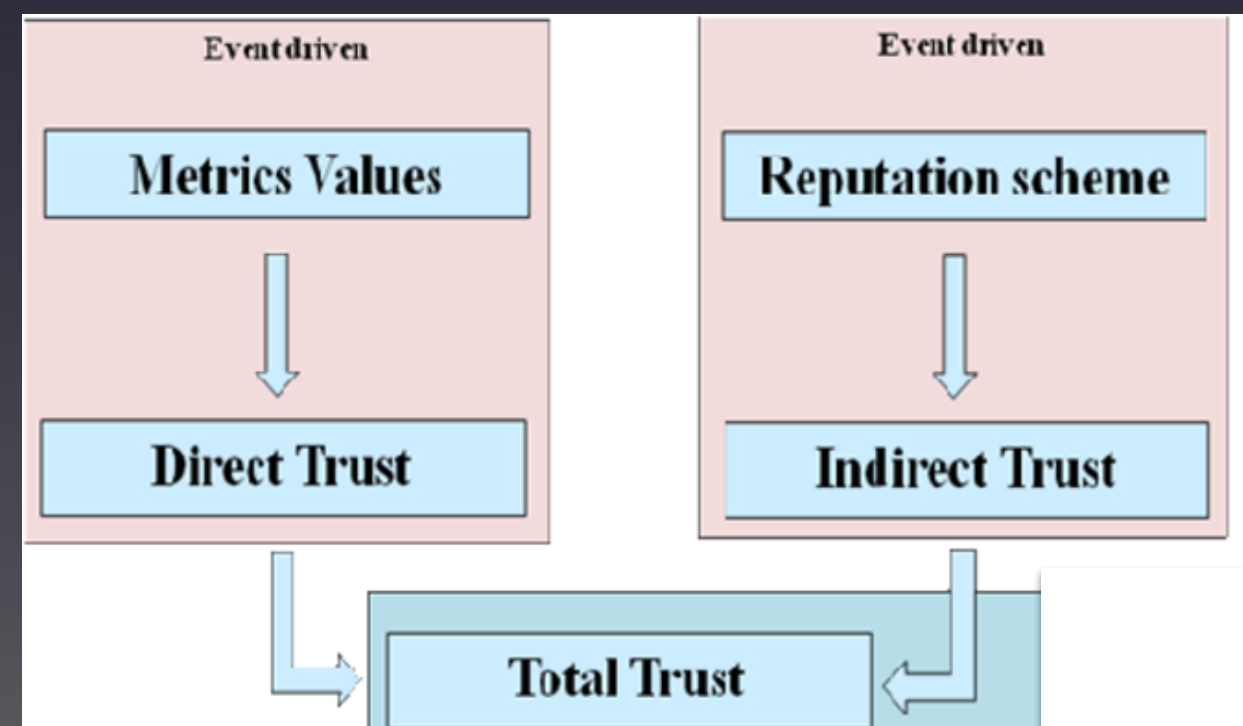
# Improve Processes



## Main focus

- Mergers and acquisitions
- Transfers
- Predictability
  - Country specific
  - Throughput time
  - Clear communication
- Trust model based on risk management framework

EXAMPLE	Requirements
Country	- National authority - Notary
Country	
Country	





# **Knowledge and Awareness**

# Training Courses



- LIR Training Course
- RIPE DB Training Course
- IPv6 Basics Training Course
- Advanced IPv6 Training Course
- BGP and Operations Training Course
- Measurements and Tools Training Course
- IPv6 Security Training Course (NEW!)





# Online Engagement



- Webinars
- RIPE NCC:: Educa



- Introduction to the RIPE DB
- RIPE DB - Advanced Topics
- IPv6 in the RIPE DB
- IPv6 Addressing Plan
- RIPE Atlas Usage
- LEA webinars



# Due Diligence

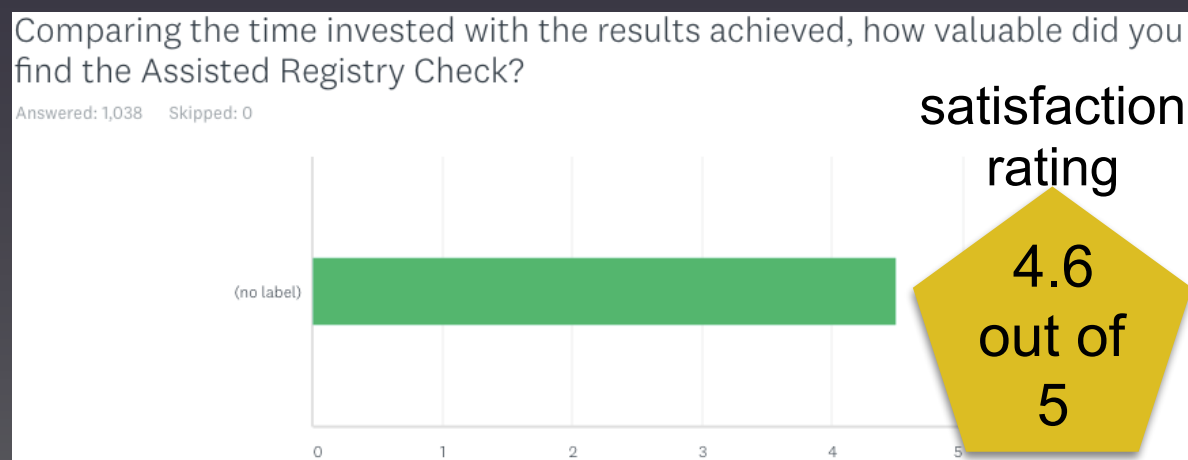
# Assisted Registry Check (ARC)



“One of the RIPE NCC’s key responsibilities is to maintain the accuracy and quality of the RIPE Registry”

- 6,750 ARCs opened
  - 6,353 ARCs completed
- Average call duration 15.5 minutes

Action Taken	LIRs Helped
LIR Portal Admin Privileges	2450
LIR Contact Details	3558
LIR Resource Registration	3518
Billing Issues	710
PI Resource Registration	536
Maintainer Password Recovery	940
Routing Consistency	1519
rDNS Consistency	1550





# Due Diligence



- Report form
  - ~ 600 reports
- Periodic verification of contact data (tbd)
- Identifier Technical Health Indicators (ITHI)
  - Comprehensive (all INRs are accounted for in the Registry)
  - Correct (validation with official sources)
  - Current (confirmation of correctness)
  - <https://www.nro.net/ithi-project/> (community consultation)

The screenshot shows the 'RIPE NCC Report Form' interface. It includes a 'Report Type' section with a note: 'Note that Report Forms are NOT intended for spam, phishing and other types of network abuse complaints.' Below this is a prompt: 'Please tell us what you would like to report. [More...](#)'. A dropdown menu is open, showing the following categories: 'Choose a category...', 'Violation of RIPE Policies or RIPE NCC Procedures', 'Provision of untruthful information to the RIPE NCC', 'Bankruptcy, liquidation or insolvency', 'Incorrect contact information in the RIPE Database', and 'Damage to the name, trademarks or intellectual property of the RIPE NCC'.



# Rethinking Service Delivery



**Ease of doing  
business**

**Keeping your  
records  
up-to-date**

