



RIPE NCC
RIPE NETWORK COORDINATION CENTRE

Registry and Technology Update

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Service Levels

Delivering world-class services

Objective



- Deliver world-class services to our members
 - NPS (Net Promoter Score) > 80
 - CES (Customer Effort Score) > 6.5
 - % tickets responded within 1 day = 100%

Net Promoter Score (NPS)



How likely are you to speak highly of the RIPE NCC to your friends and colleagues?



Customer Effort Score (CES)



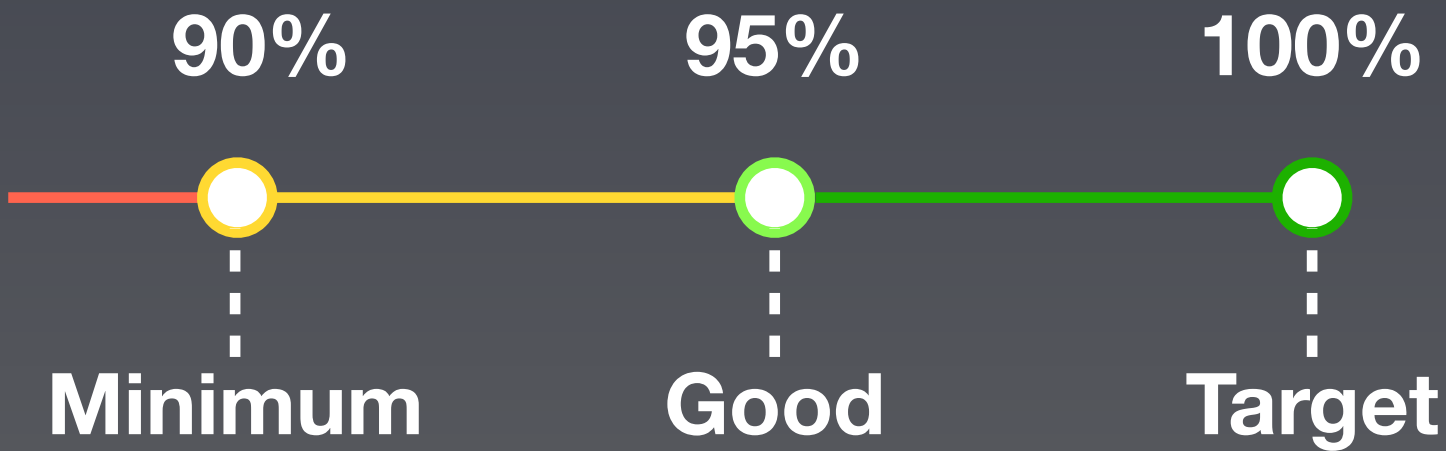
To what extent do you agree or disagree with this statement?
"The RIPE NCC made it easy to handle my issue."



% Tickets Responded Within One Day



	2022												2023			
	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
%	96.4%	98.3%	79.6%	92.5%	95.6%	97.3%	94.1%	99.1%	96.7%	96.7%	96.5%	94.4%	98%	99.8%	99.8%	99.2%
#	141	67	1082	393	241	89	181	33	121	119	134	263	79	11	14	31
Total	3890	3572	5241	4949	5918	3590	3053	3498	3718	3625	3791	4665	4003	4926	5800	3962





Registry Accuracy

Quality registry data

Objective



- Ensure a highly accurate and compliant registry
 - All members verified every five years
 - All end-users verified every five years
 - # completed ARCs > 200
 - % members with inaccurate data (found during ARCs) = 0%

How do we measure registry accuracy?

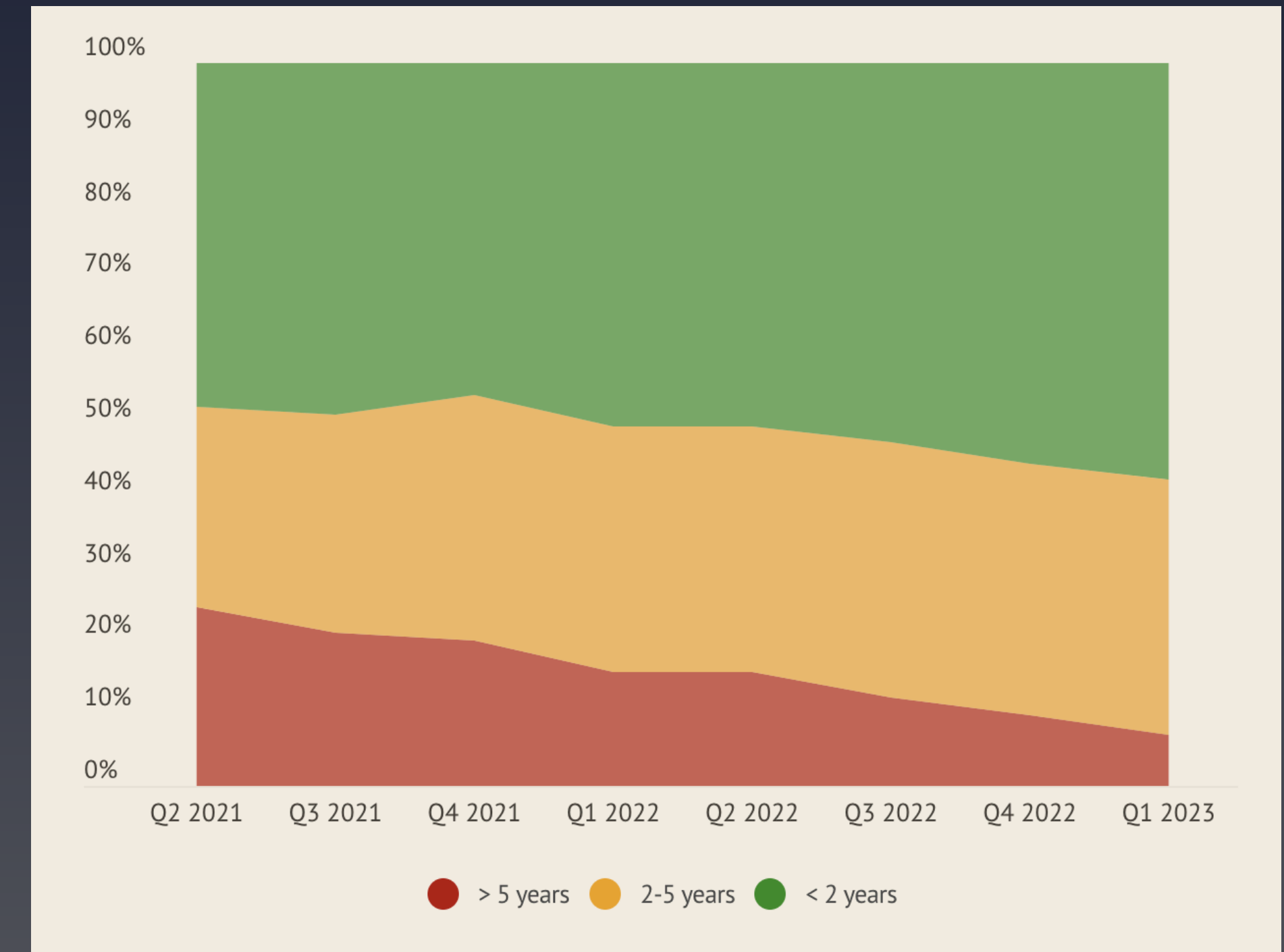


- Every time we process a transfer, an M&A, do an ARC, we verify the member's information against an official source (e.g. online registries)
- At that specific point in time, we know for sure the information in the registry is accurate
- One metric is last verified date
 - Timestamp of when we verified each member against an official source
 - Results are presented aggregated (e.g. percentage of members verified over the last two years)

% Members Verified



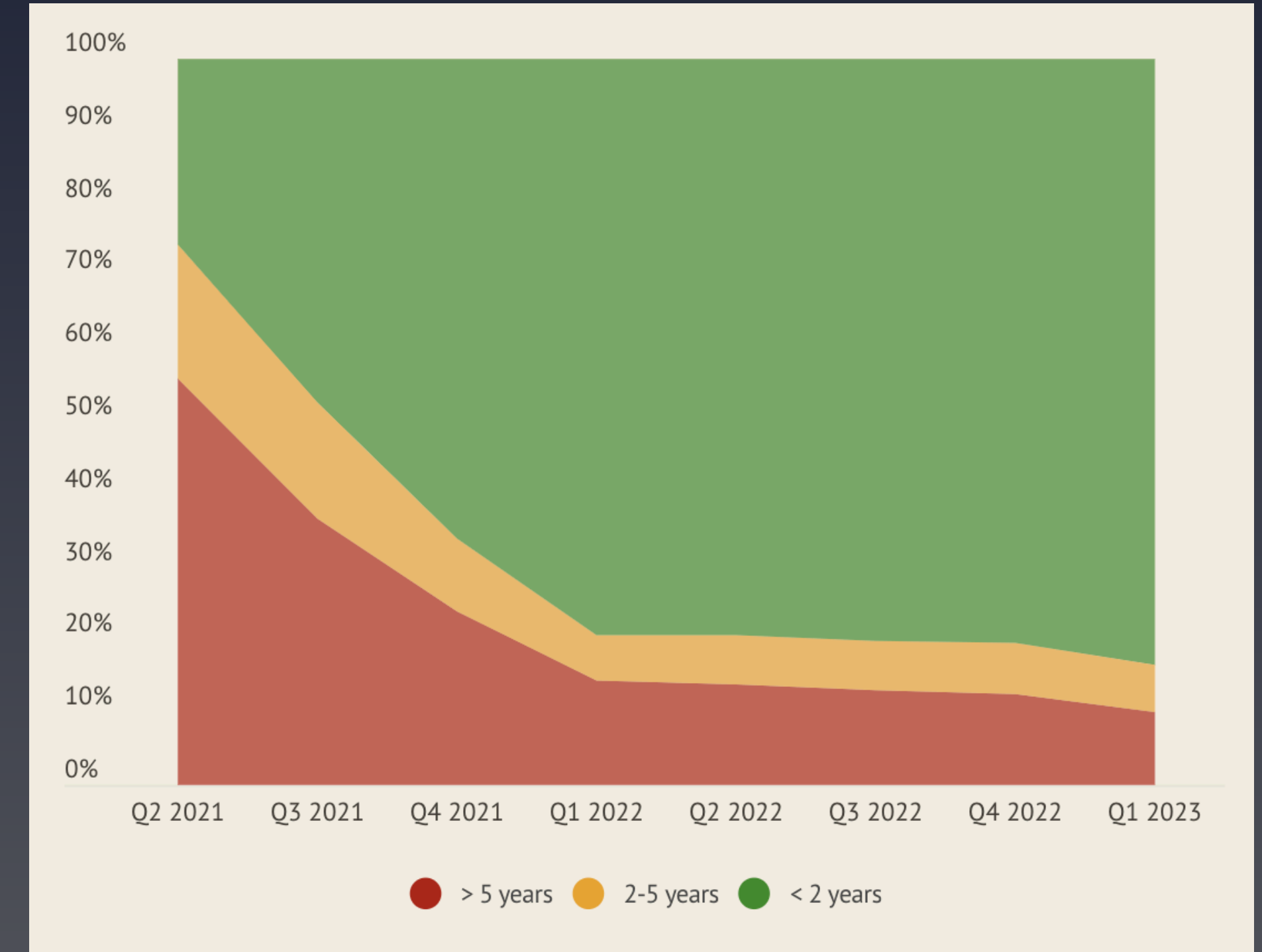
	Q2 2021	Q3 2021	Q4 2021	Q1 2022	Q2 2022	Q3 2022	Q4 2022	Q1 2023
< 2 years	9,592 (47.5%)	9,872 (48.6%)	9,364 (46.8%)	9,283 (45.8%)	10,273 (50.4%)	10,694 (52.5%)	11,244 (55.54%)	11,678 (57.58%)
2-5 years	5,630 (27.9%)	6,141 (30.3%)	6,466 (32.3%)	6,906 (34%)	6,918 (33.9%)	7,182 (35.3%)	7,046 (34.80%)	7,146 (35.23%)
> 5 years	4,995 (24.7%)	4,285 (21.1%)	4,186 (20.9%)	4,100 (20.2%)	3,192 (15.7%)	2,493 (12.2%)	1,995 (9.66%)	1,458 (7.19%)
#	20,153	20,298	20,016	20,289	20,383	20,369	20,245	20,282



% End Users Verified



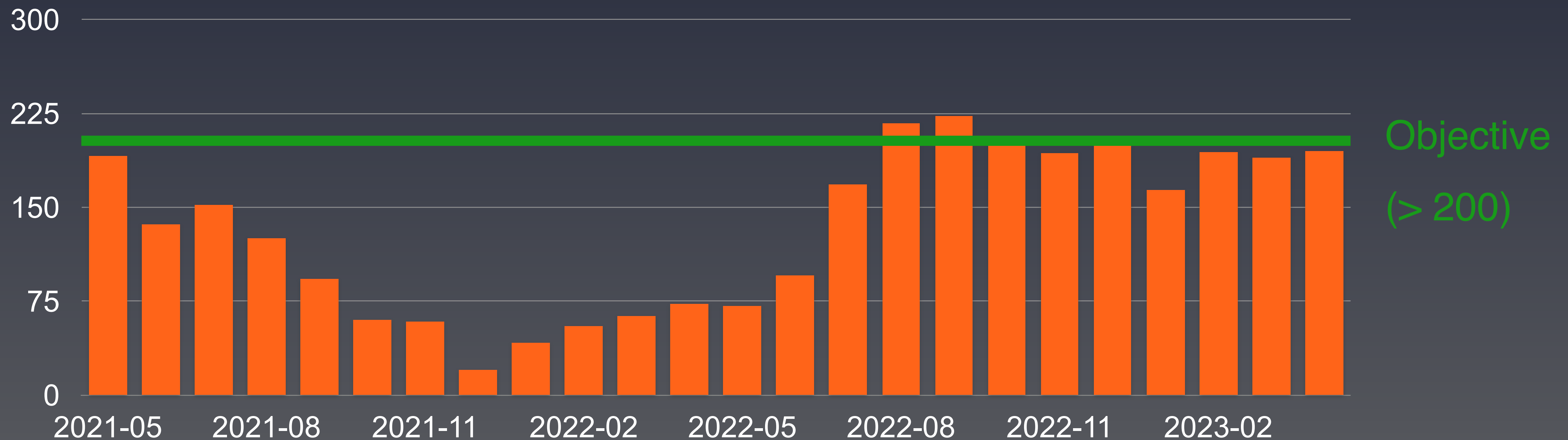
	Q2 2021	Q3 2021	Q4 2021	Q1 2022	Q2 2022	Q3 2022	Q4 2022	Q1 2023
< 2 years	5,109 (25.6%)	9,347 (47.4%)	12,971 (65.9%)	15,525 (79.3%)	15,589 (79.5%)	15,650 (80.2%)	15,612 (80.52%)	16,309 (83.38%)
2-5 years	3,686 (18.5%)	3,127 (15.8%)	1,992 (10.1%)	1,229 (6.2%)	1,318 (6.7%)	1,342 (6.9%)	1,352 (6.97%)	1,291 (6.6%)
> 5 years	11,173 (55.9%)	7,252 (36.8%)	4,717 (24%)	2,826 (14.5%)	2,714 (13.8%)	2,523 (12.9%)	2,425 (12.51%)	1,959 (10.02%)
#	19,968	19,726	19,680	19,580	19,599	19,515	19,389	19,559



Number of ARCs Completed



- ARCs are our audit activity that aim to ensure quality registry data and good understanding of our services





% Inaccuracies

- When auditing a member, we verify their information against official sources (e.g. online registries)
- Sometimes, member's company information in the registry turns out to be incorrect
 - For instance, the member's legal entity went into an M&A

	From August 2022 to April 2023
M&As	5 (0.28%)
Legal name	37 (2.08%)
Legal address	143 (8.04%)
Closed companies	8 (0.45%)
# ARCs	1779

Summary Registry Update



- Service Levels are excellent, according to our measures and targets in Q1
 - NPS score averaged 74
 - CES score averaged 6.55
 - Ticket response time averaged 99.28% responded within one business day
- Accuracy of the registry getting closer to our targets
 - 92.81% members and 89.98% end-users verified over the last five years
 - 0.73% closed companies or companies that went through an M&A were found during ARCs
 - While were are not there yet, numbers are improving every month
- Thank you for my colleagues in the Registry for the great work!



Technology Update

Cloud, Service Criticality and
improvements to our SSO

Usage of Cloud infrastructure



- We have been exploring ways to improve the resiliency, availability, security of our services, and reduce latency
 - Essentially, we aim to provide better services to our members and community through enhanced infrastructure
- One of the approaches we are considering is to deploying some services to cloud infrastructure
- However, it is important to recognise our unique position:
 - Some of our services are key Internet infrastructure
 - Therefore deploying services like RPKI and K-root to the cloud might not be the best approach

Cloud Strategy Framework



- Over the past two years, we have worked extensively with the community on our approach to cloud services and to define the criticality levels of our services:
 - Cloud Strategy Framework:
https://labs.ripe.net/author/felipe_victolla_silveira/ripe-ncc-cloud-strategy-framework-v2/
 - Service Criticality Framework:
<https://labs.ripe.net/author/razvano/service-criticality-framework/>
- These provide guidelines that help us determine when it is appropriate to use cloud infrastructure
- Makes it possible for our engineers to leverage modern tools and practices — while avoiding over-reliance on third-party providers for key Internet infrastructure

Cloud requirements



- The Cloud Strategy framework outlines a set of requirements for our use of cloud providers
 - These requirements are based on how critical a certain service is to the operations of the Internet

Criticality Level (Availability)	Very High	High	Medium	Low
Requirement	Strict	Heightened	Standard	Lowered
Minimise Vendor lock-in	Only use bare-metal, VM or containers	Managed services allowed, open standards only	No restriction	No restriction
Avoid dependence	Fully distributed architecture	Fallback to on-premises within one hour	Spin-up new instance within 48 hours	No restriction

Service Criticality ratings



- <https://www.ripe.net/support/documentation/service-criticality-rating-of-ripe-ncc-services>

Service	Data Confidentiality	Data Integrity	Data Availability
ripe.net website	Low	Medium	Medium
RPKI	Medium	Very high	Very high
RIPE Database	High	Very high	High
K-root	Low	High	High
Auth DNS	Low	Very high	High
RIPE NCC Access	Very high	Very high	High
LIR Portal	Very high	Very high	Medium
Sending / receiving emails	Very high	Very high	Medium

SSO modernisation (1)



- We have been working on alternatives to address issues in our RIPE NCC Access (SSO), as reported in RIPE 84 and RIPE 85
 - Replacement of Atlassian Crowd as the third-party engine and ground-up re-write of home-grown layer built on top of it
- KeyCloak (open-source solution) has been favoured over Auth0 (SaaS) due to the latter not fulfilling our requirements
 - Auth0 not available in all countries in our service region due to sanctions
- This choice will give us more flexibility in terms of deployment

SSO modernisation (2)



- Project is in very advanced stages and deployment is planned for the beginning of July
 - We have followed our Cloud Strategy Framework and the Service Criticality definitions
 - Will be deployed in the Kubernetes cluster in AWS (EKS)
 - A fallback infrastructure is in place on-premises, allowing us to spin up a new instance in less than one hour
 - In parallel, we are looking to establish our own Kubernetes cluster on-premises, which can be used as a more resilient backup infrastructure to our services

Summary Technology



- We are constantly exploring new ways of improving our services to members and the RIPE community
- Use of cloud infrastructure is one of the areas we are exploring as part of this
- Recently updated Cloud Strategy Framework, together with the Service Criticality definitions agreed with the community, provides us with the necessary guidance on how to best use this technology
- Improvements in our SSO are planned to be deployed soon — we look forward to hearing your feedback on this!



Questions



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